Ventura County Office of Education

PRE-BID MEETING AGENDA

Wednesday, October 21 at 1:00 pm
550 Airport Way, Camarillo, CA 93010

INTRODUCTION:
Mandatory Job Walk
Sign In: Required

Project:	**Gateway Annex School A# 03-122398**
RFB Number(s):	2026-06
Notice to Contractors Issued	Published 10/14/26 & 10/18/26

Project Team Members:

Director, Planning & Construction:	David Fateh
Facilities Project Manager/District Rep:	Mandy Porter (805) 990-2463 maporter@vcoe.org
Operations Technician (Contracts):	Laura Luft (805) 383-1941
Maintenance Manager:	Jacob Carr (805)451-3539

Consultants:
Perkins Eastman Architects

Lead Project Manager:	Adrienne Tabo	A.Tabo@perkinseastman.com
Associate Project Manager:	Tuan Khuu	
Inspector of Record:	To be announced at Pre-construction meeting	

Estimated Construction Value Range: $14,500,000 – 16,500,000

Anticipated Start: Onsite on or around January 4, 2027

SUMMARY OF WORK:

BASE BID : Construction of Buildings A, B and C which includes a total of 8 classrooms, support spaces, associated restrooms, drinking fountains, warming kitchen, upgrades along the path of travel, covered walkways, landscaped courtyard, shade structures, New outdoor recreation area, student drop off, New perimeter fencing, New Monument sign, Parking lot asphalt rehabilitation, striping and related signage, and extension of utility lines to service the new buildings. (Disregard deductive alternate notes removing Building C from the scope. Include Building C construction in base bid).

Note: A project addendum has been submitted to DSA and is pending approval. The contractor must account for the proposed changes and include all associated costs in the base bid. The submitted addendum is attached to the original DSA-approved plans.

ALTERNATES: None

INSTRUCTIONS TO BIDDERS:

Date & Time to submit Bids: **2:00 pm, Wednesday, November 18, 2026**
All documents identified in the Instruction to Bidders (in the project manual 00 21 13) must be included with your sealed bid submittal.

Office Hours: 8:00 A.M. to 5:00 P.M. (Bids delivered via courier must be submitted during office hours and prior to the bid opening). Bids will be opened promptly after the bid due time, in a designated conference room.

Place to Submit Bids: VCOE Administrative Services Center
5189 Verdugo Way, Camarillo, CA 93012
Reference Gateway Annex School Project # 2026-06

Prequalification: **Prequalification is required only for Class B contractors and mechanical, electrical, and plumbing (M/E/P) subcontractors.**
The Quality Bidders qualification submission portal will be open from **October 14 through November 4, 2026**.
https://www.qualitybidders.com/users/sign_up

Prequalification Requirements Sources Cited:
California Assembly Bill (AB) 1565 went into effect on January 1, 2014. AB 1565 requires ALL General Contractors and M/E/P Subcontractors be prequalified, if the project is valued at $1 million or more and funded whole or in part with State Facility Bond funds, per…

Public Contract Code 20111.5 enables districts to require prime contractors to be prequalified prior to accepting bids.

Public Contract Code 20111.6 requires the district to do so for certain projects. This applies to prime contractors and MEP sub-contractors with the following licenses: General Contractors (A and B), Mechanical, Electrical, and Plumbing subcontractors (C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and C-46)

Bid Form and Attachments:	Bids must be submitted on Bid Form 00 41 13 (included in the Project Manual). All required forms must be completed, signed and submitted with bids. The qualified low bid is the lowest Total Base Bid Amount, (may include VCOE's allowances). VCOE may choose alternates at their discretion if applicable.
License Requirement:	**B**
DIR Registration:	All contractors and their subcontractors are required to possess current DIR Registration and maintain such registration for the duration of the contract.
Bond Requirement:	A bid bond is required on a combined total of all the sites being bid. For bids over $25,000, Contract Requires: Labor and Material Payment Bond and Performance Bond
Prevailing Wages:	Prevailing wages are applicable to this project. Visit **http://www.dir.ca.gov/Public-Works/PublicWorks.html** for detailed information relating to SB 854. Beginning July 1, 2014, contractors must register and meet requirements using the online application before bidding on public works contracts in California. The application also provides agencies that administer public works programs with a searchable database of qualified contractors. Effective March 1, 2015, **ALL** Contractors are subject to a non-refundable registration and annual renewal fee. Read the SB 854 Fact Sheet for a complete list of requirements
Contractor Certification Concerning Department of Justice:	The successful bidder(s) must complete the DOJ form for criminal back-ground check requirements as per Education Code section 45125.2 for their company prior to start of work. This information can be obtained from VCOE.
Liquidated Damages	See Project Manual— in Agreement 00 52 13
Project Inspector:	This project will have a DSA approved Project Inspector who will conduct quality control inspections.
Drawing & Specification:	Documents are available at VCOE's website https://www.vcoe.org/Facilities/Bid-Opportunities and clicking the link for **Gateway Annex School**

Project# 2026-06. Plan holders are responsible for all fees associated with the reproduction of documents pertaining to this project, including original plan set. Bid addenda, when issued, will also be available online.

All questions and requests for clarification/**RFIs** must be submitted in writing no later **11/9/26 by noon,** e-mailed to gwnc@vcoe.org

Clarifications will be made by Addendum prior to Bid due date, as required.

Working Hours: 7:00 a.m. to 7:00 p.m. Work hours can be extended for work other than loud and noisy work. Deliveries 7:00 am-4:00 p.m.
School instructional programs cannot be interrupted by any construction activities.

Environmental Safety and Health: Contractor is responsible to comply with all Safety and Health requirements. Contractor to pick up construction debris and keep toilet areas clean daily.

Parking, Staging & Restrooms: Site parking and Staging area to be determined.

The contractor must install and 6-foot-high temporary fencing with privacy screens, secured by sandbags, around all active work areas to prevent hazard to occupants, vehicles, or pedestrians.

Contractor shall supply adequate portable restrooms and hand wash sinks for the crew at each facility that is bid.

If material is staged outdoors it is the contractor's responsibility to protect.

AS-BUILT INFORMATION:

Available As-Built information shall be provided. However, Contractor must verify site conditions prior to submitting bid.

JOB WALK/ SITE INSPECTION: Immediately after the Mandatory Pre-Bid Meeting.
Additional site inspections can be requested through VCOE's Rep. Mandy Porter (maporter@vcoe.org). Bidders must sign-in prior to site inspection. Building Operations cannot be interrupted.

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☐ No ☑)

Deferred Submittal ☐	Addendum Number: 1	Revision Number:	CCD Number: Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Ventura County Office of Education	DSA File Number: 56 44
Project Name/School: Gateway Annex School	DSA Application Number 03 122398

3. APPLICANT INFORMATION:

Date Submitted: 09/01/26	Attached Pages? No ☐ Yes ☑ Number of pages? 237		
Firm Name: Perkins Eastman	Contact Name: David Peralta		
Work Email: d.peralta@perkinseastman.com	Work Phone: (646) 225-6293		
Firm Address: 3333 Michelson Dr, Suite 400	City: Irvine	State: CA	Zip Code: 92612

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction. ☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Diego Matzkin

Professional License Number: C-27962 Discipline: Architecture

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☑ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

The buildings have been moved 21' South to avoid existing easements conditions, resulting on landscape and playground changes, the buildings design has not been impacted by this change. Site Plans have been revised. Exit Path and Safe Dispersal Area revised. Door hardware specifications updated per district request. Revised Mechanical Units to address current equipment availability.See attached narrative describing additional changes to documents.

List of DSA-approved drawings affected by this post-approval document:

See attached list of drawings and specifications affected.

DSA USE ONLY

SSS_____Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

FLS_____Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

ACS_____Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

Returned	DSA STAMP
Date:	
By:	

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STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LINCENSED DESIGN PROFESSIONAL AND/OR CONSULTANTS

(APPLICATION NO. 03-122398 FILE NO. 19-C6)

THIS DRAWINGS, PAGE OF SPECIFICATIONS / CALCULATIONS, OR THE ATTACHED LISTED OF ITEMS HAS BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1) DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMETNS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND
2) COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INFORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DETIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 8138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344 OF TITLE 24, PART 1 (TITLE 24, PART 1, SECTION 4-317 (b))

I CERTIFY THAT:

- [ ] ALL DRAWINGS OR SHEETS
- [ ] THIS DRAWINGS OR PAGE
- [x] ALL DRAWINGS LISTED UNDER "SHADE SHELTER" DSA P.C. A# 04-119455

[x] IS/ARE IN GENERAL CONFORMANCE	[ ] IS/ARE IN GENERAL CONFORMANCE
[x] HAVE BEEN COORDINATED	[ ] HAVE BEEN COORDINATED
SIGNATURE	SIGNATURE
6/28/2022 DATE	DATE
ARCHITECT OR ENGINEER DESIGNATED TO BE IN RESPONSIBLE CHARGE	ARCHITECT OR ENGINEER DESIGNATED TO BE IN RESPONSIBLE CHARGE
BRIAN PAUL DOUGHERTY, FAIA PRINT NAME	PRINT NAME
C-9824 LICENSE NUMBER	LICENSE NUMBER
7/31/2023 EXPIRATION DATE	EXPIRATION DATE

VENTURA COUNTY OFFICE OF EDUCATION

GATEWAY ANNEX SCHOOL

550 Airport Way, Camarillo, CA 93010

CONSTRUCTION DOCUMENTS

12/07/2022



DIRECTORY

OWNER
VENTURA COUNTY OFFICE OF EDUCATION
5100 ADOLFO RD,
CAMARILLO, CA 93012
TEL: (805) 383-1900
CONTACT: DAVID FATEH, DIRECTOR, FACILITIES

ARCHITECT
PERKINS EASTMAN ARCHITECTS, DPC.
3194-D AIRPORT LOOP DRIVE
COSTA MESA, CA 92626
TEL: (714) 427-0277
CONTACT: BRIAN DOUGHERTY

CIVIL ENGINEER
DELANE ENGINEERING, INC.
400 W VENTURA BLVD., SUITE 265
CAMARILLO, CA 93010
TEL: (805) 330-9730

LANDSCAPE ARCHITECT
JORDAN, GILBERT & BRIAN LANDSCAPE ARCHITECTS INC.
459 N. VENTURA AVE.
VENTURA, CA 93001
TEL: (805) 642-3641

STRUCTURAL ENGINEER
PETER SARKIS S.E.
17981 SKYPARK CIRCLE, SUITE O
IRVINE, CA 92614
TEL: (949) 748-7170

MECHANICAL, ELECTRICAL, PLUMBING, & FIRE PREVENTION ENGINEER
SALAS O'BRIEN
8825 RESEARCH DRIVE
IRVINE, CA 92618
TEL: (949) 753-1553

FOOD SERVICES
RICCA DESIGN STUDIOS
5613 DTC PKWY SUITE 100
GREENWOOD VILLAGE, CO 80111
TEL: (303) 518-5381

GEOTECHNICAL ENGINEER
EARTH SYSTEMS PACIFIC
1731-A WALTER STREET
VENTURA, CA 93003
TEL: (805) 642-6727

PROJECT DATA

SCOPE OF WORK
CONSTRUCTION OF BUILDINGS A, B AND C WHICH INCLUDES A TOTAL OF 8 CLASSROOMS, SUPPORT SPACES, ASSOCIATED RESTROOMS, DRINKING FOUNTAINS, UPGRADES ALONG THE PATH OF TRAVEL, COVERED WALKWAYS, LANDSCAPED COURTYARD, SHADE STRUCTURES, NEW OUTDOOR RECREATION AREA, STUDENT DROP-OFF, NEW PERIMETER FENCING, NEW MONUMENT SIGN, AND EXTENSION OF UTILITY LINES TO SERVICE THE NEW BUILDINGS.

BID ALTERNATES
DEDUCTIVE ALTERNATIVE ITEM 1: DEDUCTION OF BUILDING C, WHICH INCLUDES ONE CLASSROOM AND ASSOCIATED COVERED WALKWAY.

DEFERRED APPROVAL

DESCRIPTION OF DEFERRED ITEMS
WOOD TRUSSES WITH METAL STRAPPING

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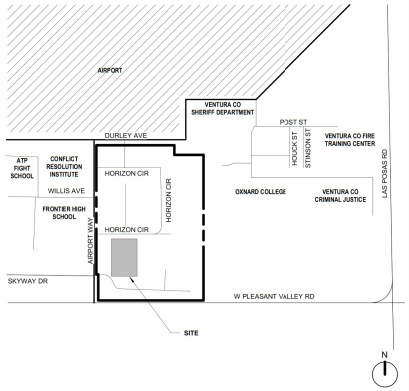
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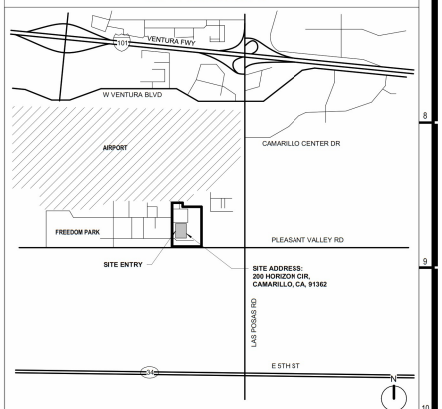
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SHADE SHELTER_FOUR POINT SAILS_PC 04-119455
P.C. T-1.0	P.C. TITLE SHEET
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VICINITY MAP



LOCATION MAP



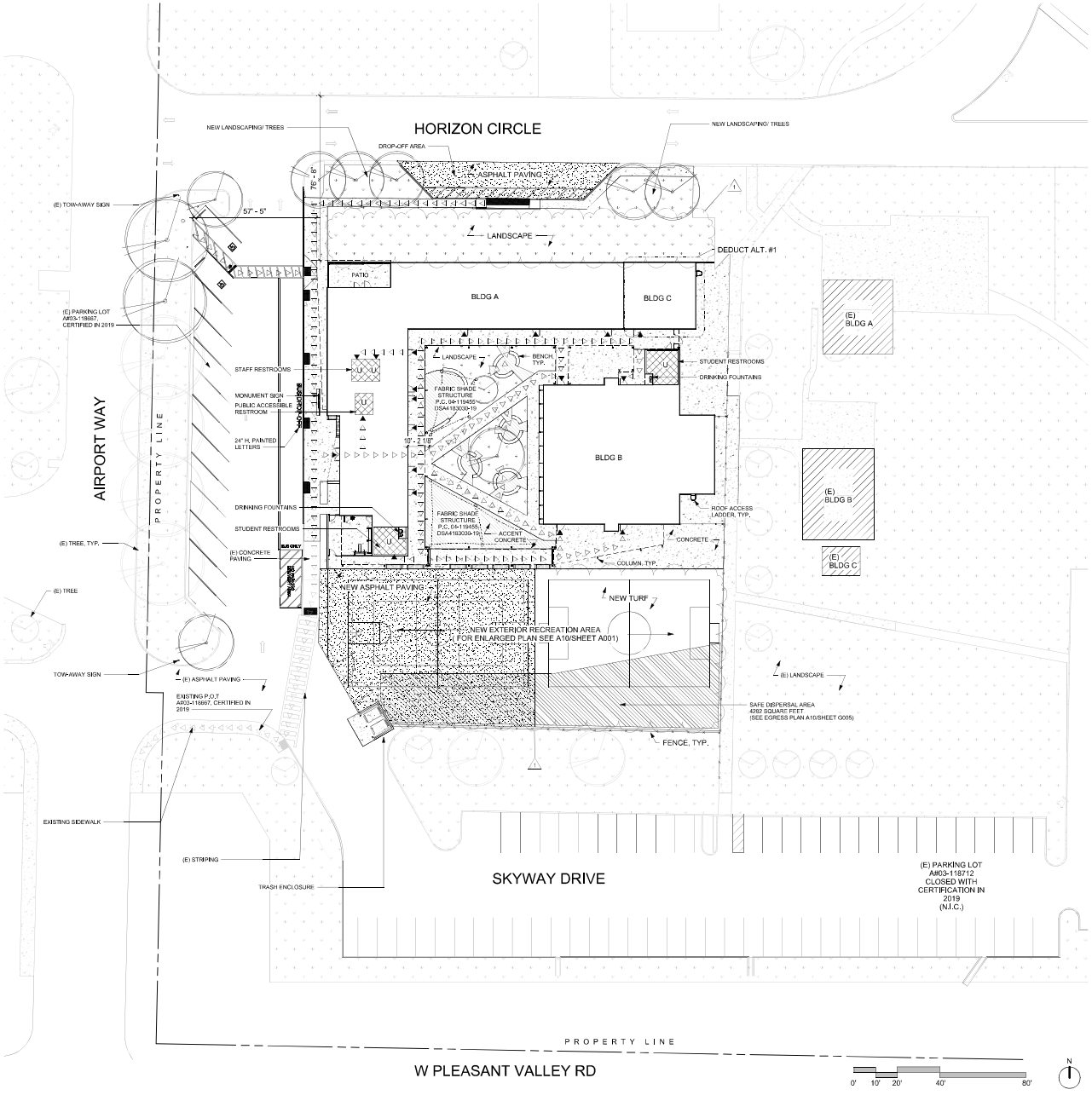
GATEWAY ANNEX SCHOOL
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
1 ADD 1	08/28/2026

COVER SHEET

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

G001



CODE ANALYSIS:

ANNEX SCHOOL: BUILDING A, B, AND C

CONSTRUCTION TYPE:	VB
ALLOWABLE NUMBER OF STORIES:	1
PROVIDED:	1
ALLOWABLE BUILDING HEIGHT	
SPRINKLER:	40 FT
ACTUAL BUILDING HEIGHT:	23 FT
AUTOMATIC SPRINKLER SYSTEM:	
BUILDINGS A, B AND C:	YES
MIN. ROOF CLASS ASSEMBLY: (PER CBC TABLE 1505.1)	TYPE B
ROOF CLASS PROVIDED:	TYPE A
OCCUPANCY:	A
AREA BLDG A:	7,196 SF
AREA BLDB B:	4,994 SF
AREA BLDG C:	1,070 SF
SHADE SHELTERS:	1,050 SF
TOTAL AREA:	14,310 SF
ALLOWABLE AREA PER FLOOR: (CBC TABLE 506.2.4)	24,000 SF

FIRE RATING REQUIREMENTS: (PER CBC TABLE 601)

PRIMARY STRUCTURAL FRAME:	0
NON BEARING WALLS:	0
FLOOR CONSTRUCTION:	0
ROOF CONSTRUCTION:	0

PLUMBING COUNTS:	MEN	WOMEN	ALL-GENDER
TOTAL OCCUPANTS:	90	90	-
WATER CLOSET REQ.:	3	4	
PROVIDED:	-	-	9*
URINALS REQ.:	2*	0	
PROVIDED:	-	-	0
SINKS REQ.:	4	4	
PROVIDED:	-	-	8
D.F. REQ.:			3
PROVIDED:			4

*URINALS ARE PROVIDED BY WATER CLOSETS IN ALL-GENDER RESTROOMS

PARKING COUNT: (CBC TABLE 11B-208.2)

TOTAL RE-STRIPED PARKING STALLS:	13
REQ. ACCESSIBLE STALLS:	1/25
PROVIDED:	1
REQ. VAN ACCESSIBLE STALLS:	1
PROVIDED:	1
TOTAL ACCESSIBLE STALLS PROVIDED:	2

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SITE LEGEND

- NEW BUILDING
- EXISTING BUILDING
- SITE CONCRETE
- SITE CONCRETE, ACCENT COLOR
- EXISTING ASPHALT
- EXISTING GRASS
- AREA OF WORK
- ACCESSIBLE RESTROOM
  - M: MEN
  - W: WOMEN
  - B: BOYS
  - G: GIRLS
  - U: UNISEX
- (E) ACCESSIBLE PATH OF TRAVEL, A#03-118667
- ACCESSIBLE PATH OF TRAVEL
- ACCESSIBLE ENTRANCE

- ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL CHANGES. EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX. AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM, AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT

- THE PATH OF TRAVEL (POT) IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.
- DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

SITE NOTES

1. FOR TYPICAL SYMBOLS AND ABBREVIATIONS, SEE SHEET G002

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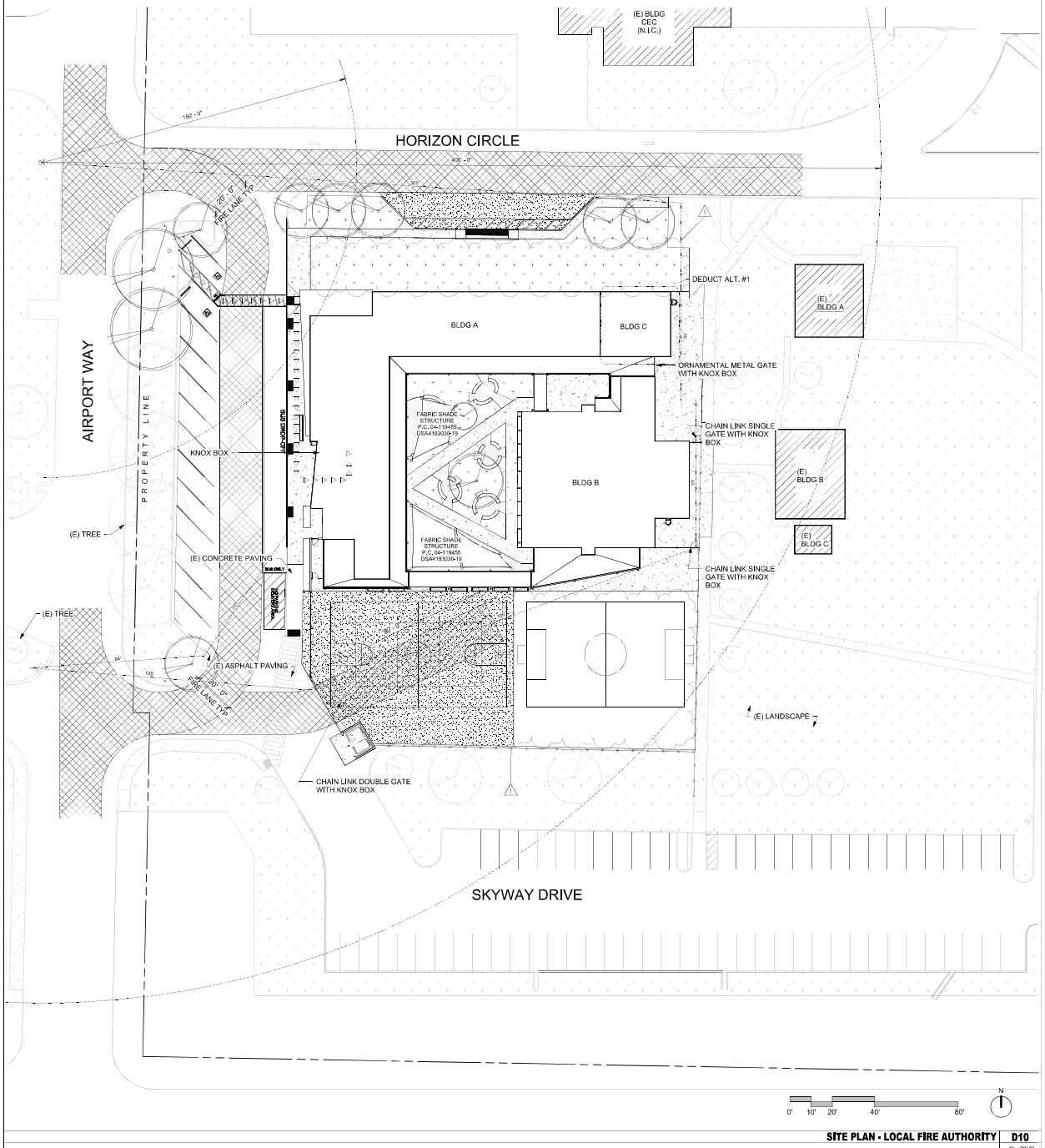
SITE PLAN - CODE ANALYSIS

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G003

SITE PLAN - CODE ANALYSIS | C10 | 1" = 20'-0"

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SITE PLAN - LOCAL FIRE AUTHORITY D10
1" = 20'-0"

DSA **810**

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings.*

PROJECT INFORMATION	
School District/Owner:	Ventura County Office of Education
Project Name/School:	Gateway Annex School
Project Address:	550 Airport Way, Camarillo, CA 93010

FIRE & LIFE SAFETY INFORMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☑		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☑		No ☐
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☐		No ☑
	Refer to the following website for FHSZ locations: http://egis.fire.ca.gov/FHSZ/	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

DSA 810
FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED			
		Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.			✔	
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.			✔	
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.			✔	
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.			✔	
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

School District Acceptance of Acceptable Design Alternates

By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: _____ Title: _____

Signature: _____ Date: _____

LOCAL FIRE AUTHORITY (LFA) INFORMATION		
LFA Agency Name:	Ventura County Fire Department	
LFA Review Official:	Brandon Sube	
Title:	Fire Inspector II	Work Phone: (805) 914-7436
Work Email:	Brandon.Sube@ventura.org	

LFA Reviewer's Signature: Brandon Sube Digitally signed by Brandon Sube Date: 2023.01.04 08:59:33 -08'00' Date: 01/04/23

SITE LEGEND

- NEW BUILDING
- EXISTING BUILDING
- FIRE ACCESS LANE
- HYD FIRE HYDRANT

SITE NOTES

1. FOR TYPICAL SYMBOLS AND ABBREVIATIONS, SEE SHEET G002

FIRE AUTHORITY NOTES

1. VEGETATION AND OTHER OBSTRUCTIONS OVERHANGING A FIRE ACCESS ROADWAY SHALL BE MAINTAINED TO A CLEAR HEIGHT OF 13'-6".
2. KNOX KEY SWITCHES, KNOX LOCKS, OR PINNABLE PADLOCKS/CHAINS SHALL BE PROVIDED FOR ALL GATES AND BARRIERS IN THE PATH OF VEHICLE OR FIREFIGHTER ACCESS.
3. THE CAMPUS IS IDENTIFIED WITH 6" HIGH ADDRESS NUMBERS EASILY VISIBLE FROM THE PUBLIC ROAD FRONTING THE PROPERTY. INDIVIDUAL STRUCTURES ARE IDENTIFIED WITH 6" HIGH ADDRESS NUMBERS OR LETTERS EASILY VISIBLE FROM THE PUBLIC WAY OR FIRE ACCESS ROADWAY.
4. ALL-WEATHER ACCESS ROADWAYS AND FIRE HYDRANTS SHALL BE IN PLACE AND OPERATIONAL BEFORE BRINGING COMBUSTIBLE BUILDING MATERIALS OR PORTABLE UNITS ON-SITE.
5. PIV'S, DDCS, FDCS SHALL BE UNOBSTRUCTED AND VISIBLE FROM THE FIRE LANE OR PUBLIC ROAD. THEY SHALL BE PAINTED OSHA SAFETY RED.

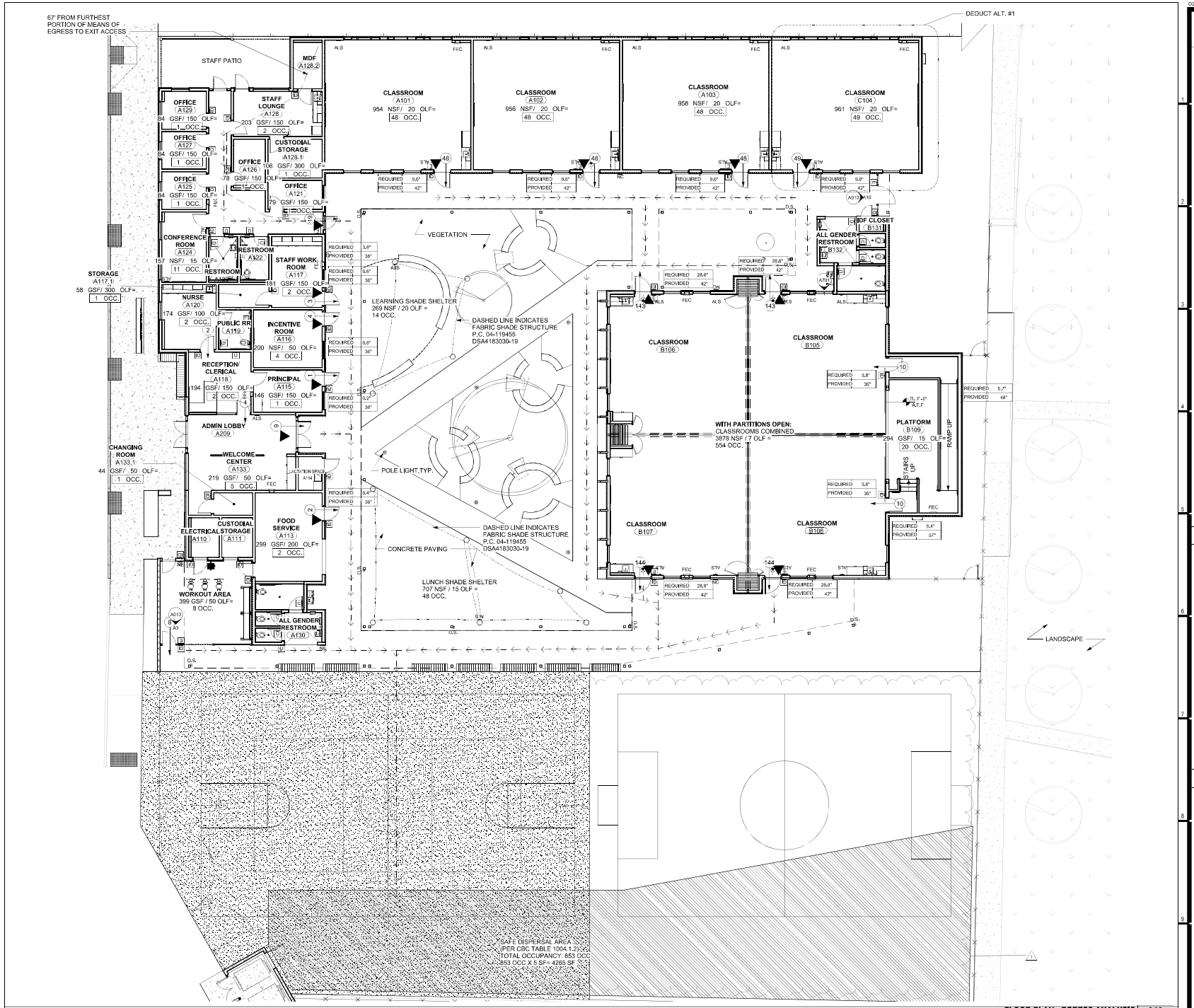
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SITE PLAN - LOCAL FIRE AUTHORITY

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G004



FLOOR PLAN - EGRESS ANALYSIS A10

1/8" = 1'-0"

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CODE ANALYSIS LEGEND

EXIT PATH

EXIT ACCESS

EXIT PATH X = NUMBER OF OCCUPANTS

OCCUPANT LOAD:

ROOM NAME (ROOM #) GSF / __ OLF = __ OCC.

EXISTING OCCUPANT LOAD: (A# 04-118580)

ROOM NAME (ROOM #) GSF / __ OLF = __ OCC.

MEANS OF EGRESS:

1. EGRESS WIDTH: CBC SECTION 1005.1
2. MIN. WIDTH 32" (PER SECTION 1010.1.1)

NUMBER OF EXITS REQUIRED: CBC TABLE 1006.3.1.**EXIT DOOR WIDTH:** (CBC SECTION 1005.1)

EXIT ACCESS TYPICAL CLASSROOM

1 EXITS
TOTAL OCCUPANTS: 49 OCC.
49 OCC x 0.2" = 9.8"
MIN WIDTH REQUIRED = 32"
PROVIDED WIDTH = 42"
THEREFORE OK

SAFE DISPERSAL AREA
(PER CBC TABLE 1004.1.2)

TOTAL OCCUPANCY: 494 OCC or 846 OCC

853 OCC x 5 SF = 4265 SF

SIGNAGE LEGEND

ID	IDENTIFICATION SIGNAGE
E	EXIT SIGNAGE SIM
ER	EXIT ROUTE SIGNAGE
OCC	OCCUPANCY LOAD SIGNAGE
U	ALL GENDER RESTROOM SIGNAGE
FR	FIRE RISER SIGNAGE
ALS	ASSISTIVE LISTENING SIGNAGE

SIGNAGE NOTES

1. FINISH: CHARACTERS, SYMBOLS, PICTOGRAMS AND THEIR BACKGROUNDS SHALL HAVE A NON-GLARE FINISH.
2. FOR MOUNTING HEIGHTS REFER TO DETAIL A2/A502
3. FOR BRAILLE SEE DETAIL E2/A502
4. SIGNAGE CORNERS TO BE 1/2" RADIUS
5. RAISED LETTERS MAY NOT BE SURFACE APPLIED AND MUST BE INTEGRAL.

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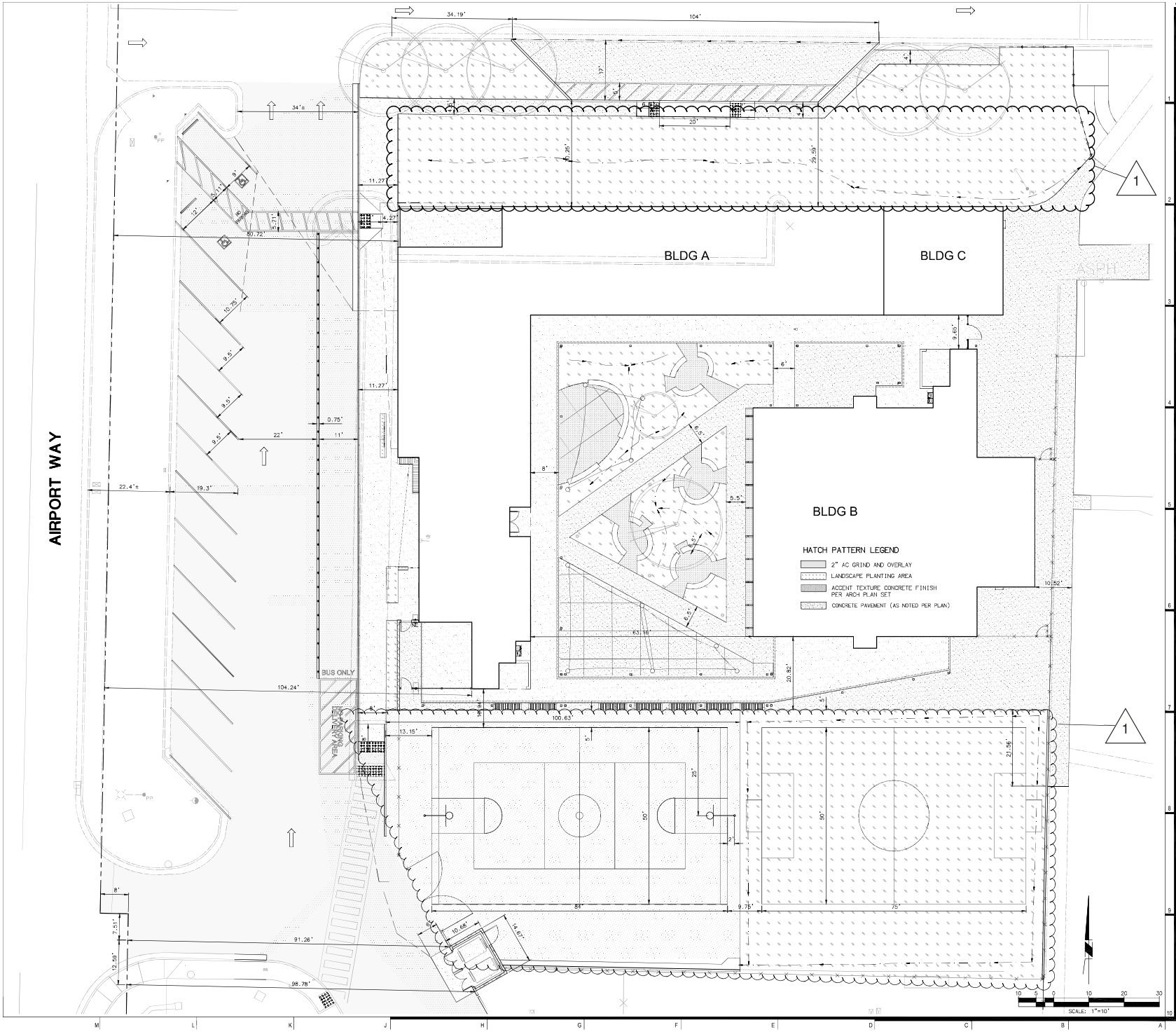
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FLOOR PLAN - EGRESS ANALYSIS

G005

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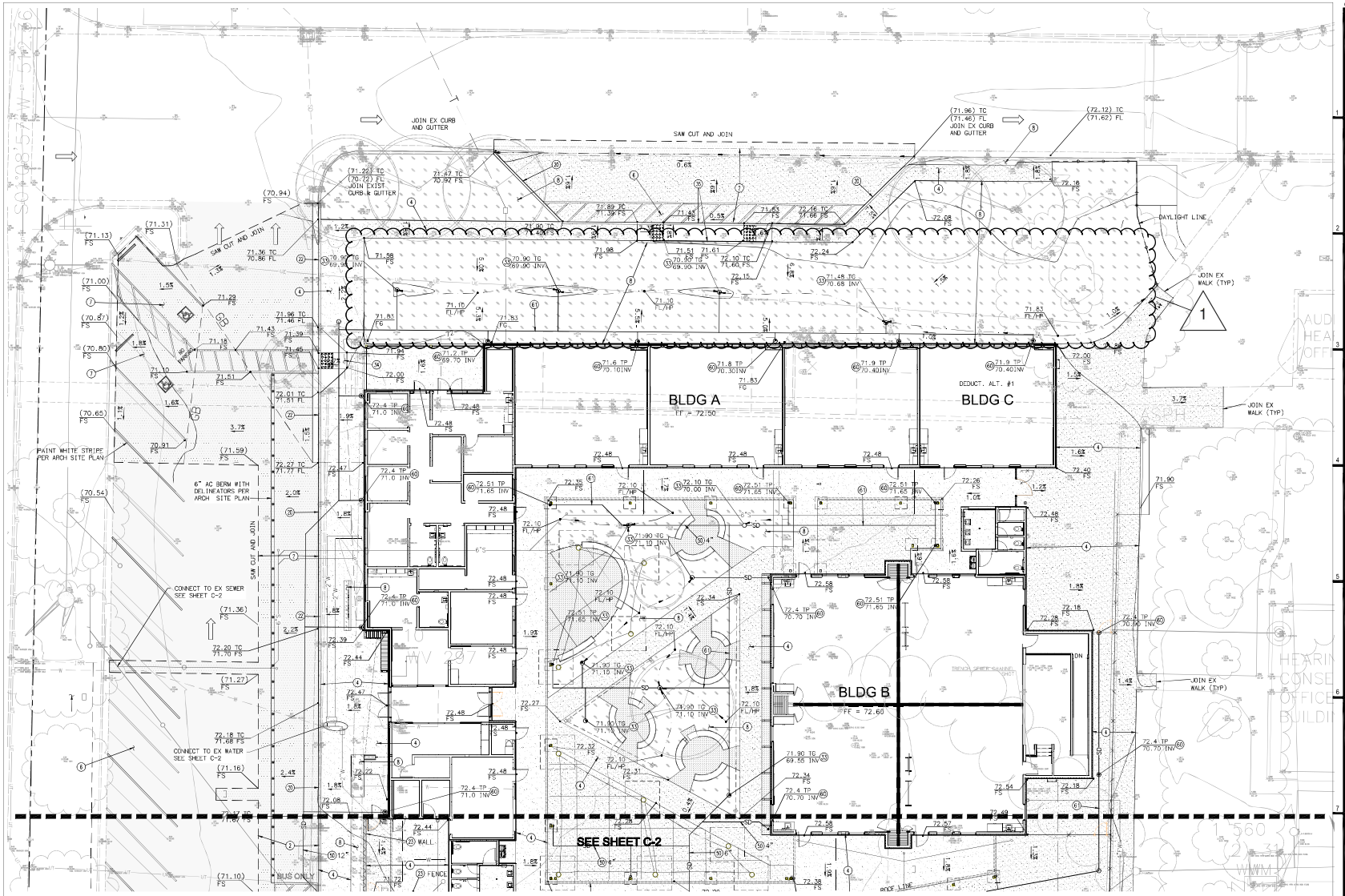
HORIZONTAL CONTROL PLAN

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C-1

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CONSTRUCTION NOTES

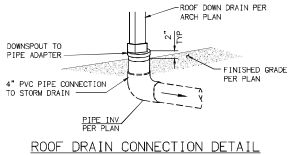
(2) CONSTRUCT 3" AC OVER 6" AGGREGATE BASE. ACTUAL SECTION TO BE DETERMINED BY SOILS ENGINEER BASED ON R-VALUE ANALYSIS
(4) CONSTRUCT 4" CONCRETE OVER NATIVE SOIL COMPACTED TO 95%, MINIMUM RELATIVE COMPACTION PER ASTM D1557, PER SPPWC 112-2. SEE ARCH PLAN FOR FINISH, COLOR AND PATTERN ON WALKS AND PATIO AREAS
(6) INSTALL PARKING LOT STRIPIN G PER ARCH SITE PLAN AND DETAILS
(7) INSTALL ACCESSIBLE PARKING STALL PER CALTRANS RSP A90A.
(8) LANDSCAPE, SEE LANDSCAPE ARCHITECTUAL PLANS
(20) CONSTRUCT 6" CONCRETE CURB PER CITY OF CAMARILLO STD PLATE E-4.1 (REV D), TYPE A-1.
(22) CONSTRUCT 6" CONCRETE CURB AND 18" GUTTER PER CITY OF CAMARILLO STD PLATE E-4.1 (REV D), TYPE A-2.
(23) HARDSCAPE FEATURE, SEE ARCHITECTURAL PLANS
(33) INSTALL 4" ATRIUM GRATE, NDS 75 OR APPROVED EQUAL
(34) CONSTRUCT CURB RAMP, CASE A, TYPE 1, PER SPPWC STD PLAN 111-5 AND AS MODIFIED PER PLAN.
(35) CONSTRUCT CURB RAMP, CASE B, TYPE 1, PER SPPWC STD PLAN 111-5 AND AS MODIFIED PER PLAN.
(50) CONSTRUCT PVC STORM DRAIN (SDR 35), SIZE PER PLAN
(60) CONNECT ROOF DRAIN DOWN SPOUT TO 4" PVC STORM DRAIN PER ROOF DRAIN DETAIL SHEET C-2
(61) INSTALL 6" SDR 35 PVC PIPE

HATCH PATTERN LEGEND

- 2" AC GRIND AND OVERLAY
- LANDSCAPE PLANTING AREA
- ACCENT TEXTURE CONCRETE FINISH PER ARCH PLAN SET
- CONCRETE PAVEMENT (AS NOTED PER PLAN)

NOTES:
1. SEE SHEET C-2 FOR UTILITY INFORMATION
2. OVER-EXCAVATION SHALL BE COMPLETED BASED ON THE GEOTECHNICAL REPORT DATED 9/3/2021 AND REVISED 5/18/2022, GRADING/DEVELOPMENT OF STRUCTURES. 5' BEYOND BUILDING FOOTPRINT AND 4' BELOW EXISTING GRADE. GEOGRID PLACED PRIOR TO PLACING FILL.

SCALE: 1"=10'



ROOF DRAIN CONNECTION DETAIL
NTS

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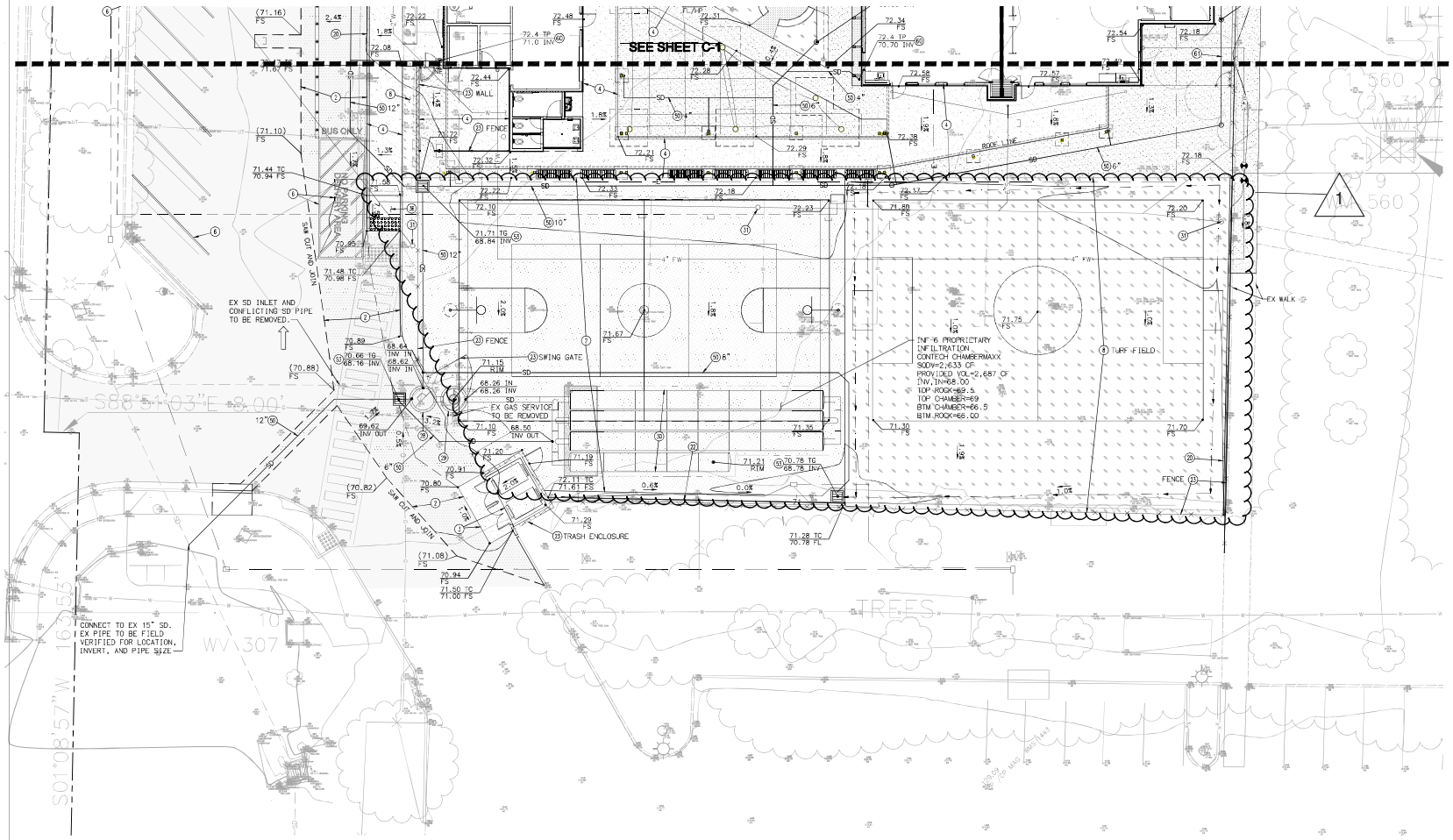
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ENGINEERED SITE PLAN
GRADING, DRAINAGE, AND STORM DRAIN

C-2

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CONSTRUCTION NOTES

(2) CONSTRUCT 3" AC OVER 6" AGGREGATE BASE, ACTUAL SECTION TO BE DETERMINED BY SOILS ENGINEER BASED ON R-VALUE ANALYSIS
(3) CONSTRUCT 7" CONCRETE OVER 6" AGGREGATE BASE, ACTUAL SECTION TO BE DETERMINED BY SOILS ENGINEER BASED ON R-VALUE ANALYSIS
(4) CONSTRUCT 4" CONCRETE OVER NATIVE SOIL COMPACTED TO 95%, MINIMUM RELATIVE COMPACTION PER ASTM D1557, PER SPPWC 112-2. SEE ARCH PLAN FOR FINISH, COLOR AND PATTERN ON WALKS AND PATIO AREAS
(6) INSTALL PARKING LOT STRIPIN G PER ARCH SITE PLAN AND DETAILS
(8) LANDSCAPE, SEE LANDSCAPE ARCHITECTUAL PLANS
(20) CONSTRUCT 6" CONCRETE CURB PER CITY OF CAMARILLO STD PLATE E-4.1 (REV D), TYPE A-1.
(22) CONSTRUCT 6" CONCRETE CURB AND 18" GUTTER PER CITY OF CAMARILLO STD PLATE E-4.1 (REV D), TYPE A-2.
(23) HARDSCAPE FEATURE, SEE ARCHITECTURAL PLANS
(28) CONNECT TO EXISTING STORM DRAIN PIPE AT SPRINGLINE
(29) CONSTRUCT BOLLARDS PER PLAN AND DETAIL 29 ON SHEET 4.
(30) INSTALL ADA PATH STRIPING, 4" STRIPING, BLUE PAINT, 4' SPACING DIAGNAL STRIPE
(31) ADJUST MANHOLE TO FINISHED SURFACE PER SPPWC STD 205-2
(38) CONSTRUCT CURB RAMP, CASE D, TYPE 1, PER SPPWC STD PLAN 111-5 AND AS MODIFIED PER PLAN.
(50) CONSTRUCT PVC STORM DRAIN (SDR 35), SIZE PER PLAN
(53) INSTALL 24"X24" DROP INLET W/HEEL PROOF GRATE (D12424 JENSEN PRECAST) OR APPROVED EQUAL.
(60) CONNECT ROOF DRAIN DOWN SPOUT TO 4" PVC STORM DRAIN PER ROOF DRAIN DETAIL SHEET C-2
(61) INSTALL 6" SDR 35 PVC PIPE

HATCH PATTERN LEGEND

- 2" AC GRIND AND OVERLAY
- LANDSCAPE PLANTING AREA
- ACCENT TEXTURE CONCRETE FINISH PER ARCH PLAN SET
- CONCRETE PAVEMENT (AS NOTED PER PLAN)

NOTES:

1. SEE SHEET C-2 FOR UTILITY INFORMATION
2. OVER-EXCAVATION SHALL BE COMPLETED BASED ON THE GEOTECHNICAL REPORT DATED 9/3/2021 AND REVISED 5/18/2022, GRADING/DEVELOPMENT OF STRUCTURES, 5' BEYOND BUILDING FOOTPRINT AND 4' BELOW EXISTING GRADE. GEOGRID PLACED PRIOR TO PLACING FILL.

SCALE: 1"=10'

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ENGINEERED SITE PLAN
GRADING, DRAINAGE, AND
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C-3

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HATCH PATTERN LEGEND

- 2" AC GRIND AND OVERLAY
- LANDSCAPE PLANTING AREA
- ACCENT TEXTURE CONCRETE FINISH PER ARCH PLAN SET
- CONCRETE PAVEMENT (AS NOTED PER PLAN)

HOT TAPPING NOTES:

1. PRIOR TO TAPPING THE WATER MAIN, THE TAPPING SLEEVE AND VALVE SHALL BE ATTACHED TO THE WATER MAIN AND PRESSURE TESTED FOR FIVE MINUTES AT 150 PSI
2. NEW LINE AND TAPPING SLEEVE MUST BE AT LEAST ONE SIZE SMALLER THAN EXISTING MAIN
3. TAPPING SLEEVE SHALL BE SEPARATED FROM NEAREST BELL, FLANGE, SERVICE CLAMP, COMP STOP OR OTHER FITTING BY A DISTANCE NO LESS THAN 1-1/2 PIPE DIAMETERS, WITH A MINIMUM OF 18"

GATE VALVE, RESILIENT SEALED WITH FULLY ENCAPSULATED GATE, EPOXY COATED INSIDE AND OUTSIDE, FULL SIZE WATERWAY, 200 PSI MIN WORKING PRERSSURE AWWA C-509

THRUST BLOCK, SEE DETAILS HEREON

SECTION

1-1/2 DIA 18" MIN

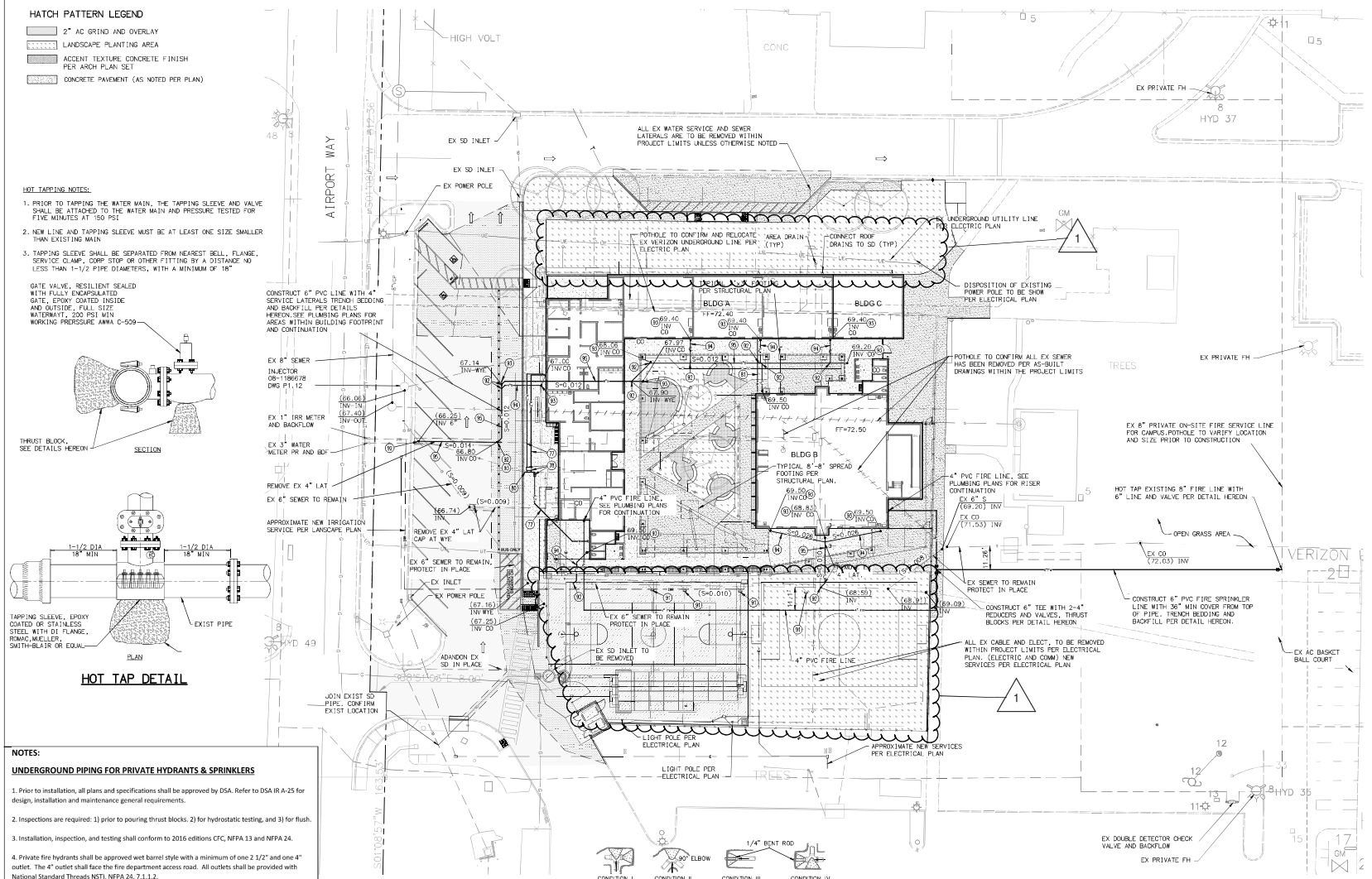
1-1/2 DIA 18" MIN

TAPPING SLEEVE, EPOXY COATED OR STAINLESS STEEL WITH DI FLANGE, ROMAC,MUELLER, SMITH-BLAIR OR EQUAL

EXIST PIPE

PLAN

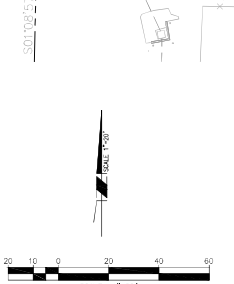
HOT TAP DETAIL



NOTES:

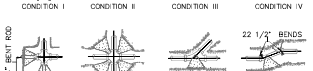
UNDERGROUND PIPING FOR PRIVATE HYDRANTS & SPRINKLERS

1. Prior to installation, all plans and specifications shall be approved by DSA. Refer to DSA IR A-25 for design, installation and maintenance general requirements.
2. Inspections are required: 1) prior to pouring thrust blocks. 2) for hydrostatic testing, and 3) for flush.
3. Installation, inspection, and testing shall conform to 2016 editions CFC, NFPA 13 and NFPA 24.
4. Private fire hydrants shall be approved wet barrel style with a minimum of one 2 1/2" and one 4" outlet. The 4" outlet shall face the fire department access road. All outlets shall be provided with National Standard Threads NST). NFPA 24, 7.1.1.2.
5. Fire hydrant supply piping shall be a minimum of six inches in diameter. The center of the hose outlet shall be not less than 18" above final grade or, where located in a hose house, 12" above the floor. NFPA 24, 7.1.1 & 7.3.3.
6. Fire hydrants shall be a minimum of 40 feet from all structures. NFPA 24, 7.2.3.
7. A keyed gate valve shall be provided for each hydrant in an accessible location. Valves shall not be located in parking stalls. NFPA 24, 7.1.1.1
8. All piping shall be listed for use in fire protection service and comply with AWWA Standards (Class 150 minimum) Class 200 pipe shall be used where the pressure may exceed 150 psi. NFPA 24, 10.1.1
9. All bolted joints shall be cleaned and thoroughly coated with asphalt or other corrosion retarding material after installation. NFPA 24, 10.4.1.1
10. Backfill shall be well tamped layers to consist of 6" minimum bed of clean fill sand or pea gravel below and 12" above the pipe (total 18" minimum). NFPA 24, 10.9.1.
11. Fittings shall be of an approved type. NFPA 24, 10.2.1.
12. A minimum of 30" of cover, from finish grade to the top of the pipe, shall be provided. When surface loads are expected, a minimum of 36" cover shall be provided. NFPA 24, 10.4.2.2.2 & 3
13. Thrust blocks, or other approved method of thrust restraint, shall be provided wherever pipe changes direction. Back-fill between the joints to prevent movement of the pipe. Provide details and calculations for sizing thrust blocks based on actual soil conditions. NFPA 24, 10.6.
14. A hydrostatic test (200 psi for two hours or 50 psi over maximum static pressure, whichever is greater) shall be performed. NFPA 24, 10.10.2.2.1.



CAUTION:

THE CONTRACTOR SHALL POTHOLE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO STARTING ANY WET UTILITY CONSTRUCTION. PRIOR TO POTHOLING THE CONTRACTOR SHALL PROVIDE THE ENGINEER TWO WORKING DAYS NOTICE TO SURVEY AND VERIFY THE HORIZONTAL/VERTICAL LOCATION OF ALL EXISTING UTILITY CROSSINGS. CHANGES TO THE PROPOSED WET UTILITY ALIGNMENT COULD BE REQUIRED BASED ON THE ACTUAL UTILITY LOCATIONS.



NO SCALE

PIPE IN.	CONDITION I	II	III	IV	V	VI	VII	VIII
4	12.0	12.9	12.0	4@10.0	4@12.0	4@10.6	12.0	4@8.4
6	8.3	9.0	8.3	4@8.3	4@8.3	4@8.3	8.3	4@8.3
8	7.4	10.5	7.4	4@7.4	4@7.4	4@8.3	7.4	4@8.2
10	12.1	17.1	12.1	4@12.1	4@12.1	4@8.3	12.1	4@8.3
12	17.2	24.1	17.2	4@17.2	4@17.2	4@8.3	17.2	4@8.2
14	20.7	29.3	20.7	4@20.7	4@20.8	4@8.3	20.7	4@5.6
16	26.1	37.8	26.1	4@26.1	4@26.1	4@20.5	26.7	4@20.5

NOTES

1. PIPE FITTINGS SHALL BE WRAPPED WITH A LAYER OF 8-MIL POLYETHYLENE PLASTIC TUBE AND SEALED WITH 8-MIL UG TAPE
2. ALL BURIED BOLTS/JOINT ACCESSORIES SHALL BE COATED WITH ASPHALT OR OTHER CORROSION-RETARDING MATERIAL AFTER INSTALLATION
3. THRUST BLOCK AREAS BASED ON 225 PSI PRESSURE AND 2,000 PSF ALLOWABLE SOIL PRESSURE WITH 2 1/2 FEET OF COVER MINIMUM. ADDITIONAL BEARING AREA REQUIRED FOR SPECIAL CONDITIONS SHALL BE APPROVED BY THE DISTRICT ENGINEER.
4. THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED SOIL, APPROVED COMPACTED BACKFILL OR CLASS 100-C-100 SLURRY.
5. THRUST BLOCKS SHALL BE NO LEANER THAN 1 PART CEMENT 2 1/2 PARTS SAND AND 5 PARTS STONE U.N.O.
6. TO FACILITATE FUTURE REMOVAL OF THRUST BLOCKS AND LINE EXTENSIONS:
   A. INSTALL 1/4" BENT ROD HANDLES.
   B. USE CARDBOARD SEPARATORS BETWEEN BLOCKS, IF NEEDED.

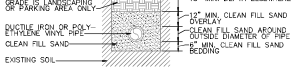
ON-SITE PRIVATE FIRE LINE THRUST BLOCK DETAILS

NOTE:

1. SEE SHEET C-1 FOR STORM DRAIN INFORMATION
2. FOR EXISTING ON-SITE SEWER AND WATER SERVICES, SEE TRITON TEMP SCHOOL AS-BUILT 2018
3. ALL EXISTING INVERT ELEVATIONS ARE BASED ON AS-BUILT RECORD DOCUMENTS. POTHOLE TO CONFIRM DEPTHS

CONSTRUCTION NOTES

- (7) CONSTRUCT 2" WATER SERVICE, THRUST BLOCKS PER DETAILS HEREON
- (78) INSTALL 2" WATER VAVLE IN BOX
- (80) CONNECT TO EX 3" WATER SERVICE WITH 2" SERVICE. REMOVE EX 3" WATER BEYOND NEW CONNECTION
- (81) WATER SERVICE CONNECTION FROM BLDG A TO BLDG B, SEE PLUMBING PLANS
- (91) EX 4" SEWER LAT TO BE REMOVED AND CAPPED AT EX WYE
- (92) INSTALL WYE FITTING
- (93) INSTALL CLEAN OUT
- (94) CONSTRUCT 4" SDR-35 SEWER LAT
- (95) CONSTRUCT 6" SDR-35 SEWER LINE



ON-SITE PRIVATE FIRE LINE BEDDING AND BACKFILL DETAIL

DELANE ENGINEERING
400 E. VENTURA BLVD. SUITE 365
CAMARILLO, CA 93010
PHONE: 310.764.7111 WWW.DELANEENGINEERING.COM

C 72391

GATEWAY ANNEX SCHOOL
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	7/01/2022
1	8/28/2026

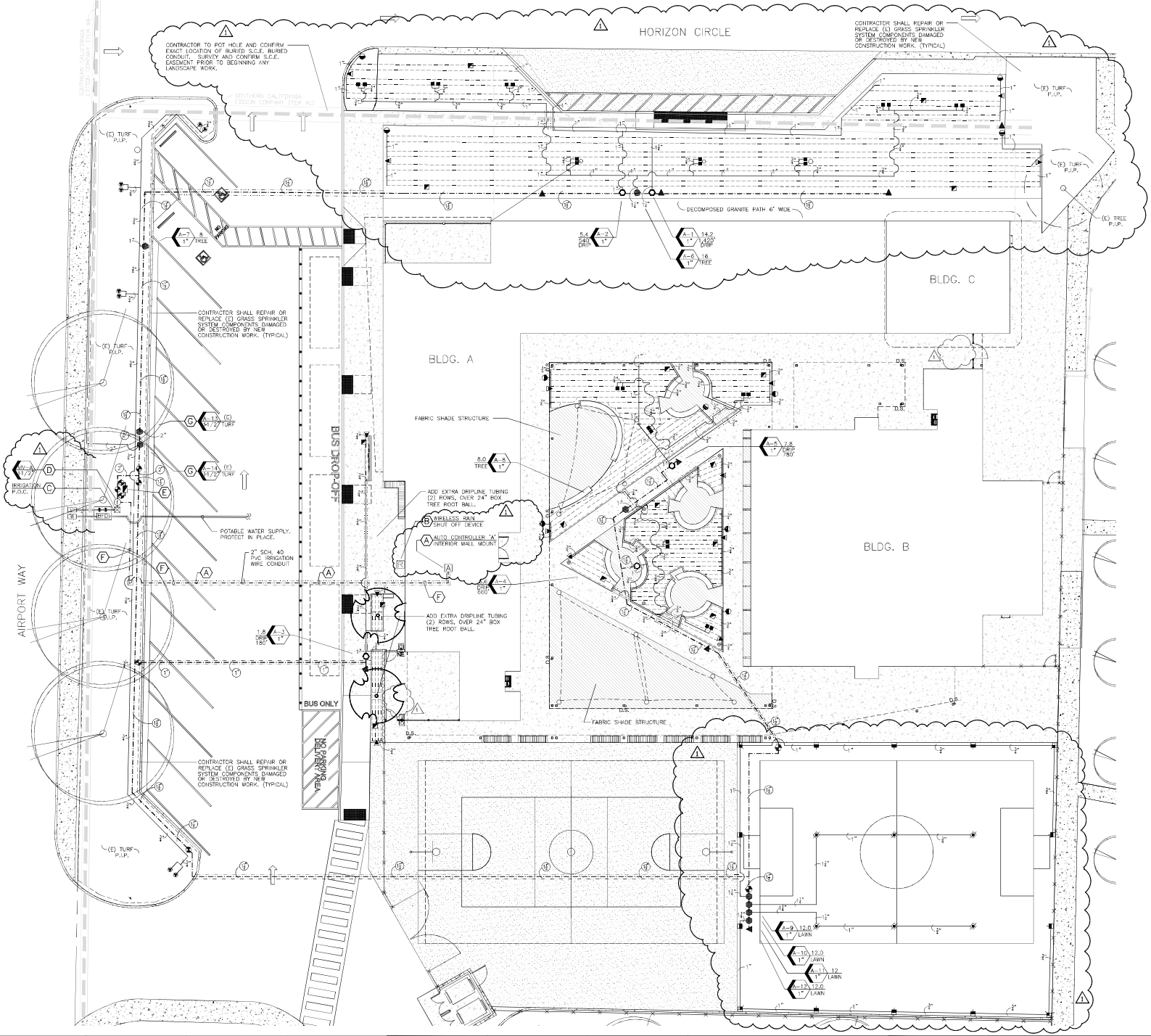
OVERALL UTILITY SITE PLAN
WATER AND SEWER

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

C-4

1

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NOTE:
SEE SHEET L2 FOR IRRIGATION LEGENDS, NOTES AND MWELO COMPLIANCE INFORMATION.

GRAPHIC SCALE
0 5 10 20 40
SCALE: 1"=10'

JORDAN & BAIN
LANDSCAPE ARCHITECTS, INC.
459 NORTH VENTURA AVE., VENTURA CA 93001
(805) 642-3641 FAX (805) 653-7874

Jordan, Gilbert & Bain Landscape Architects, Inc. © 2016

GATEWAY ANNEX SCHOOL
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
ADD 1	08/28/2026

IRRIGATION PLAN

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

L1

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PROJECT NOTES

1. FIELD VERIFY EXISTING STATIC WATER PRESSURE AND NOTIFY THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING ANY WORK.
2. CONTACT UNDERGROUND SERVICE ALERT AT 1-800-227-2600 TO IDENTIFY AND LOCATE ALL ON-SITE UTILITIES PRIOR TO BEGINNING WORK. THE LANDSCAPE SUB CONTRACTOR SHALL COORDINATE WITH THE PROJECT SUPERINTENDENT AND REVIEW THE EXISTING SITE PRIOR TO BEGINNING WORK TO AVOID CONFLICTS WITH EXISTING UTILITIES AND PROPOSED NEW CONSTRUCTION.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY TRENCH SETTLING OR IRRIGATION HEAD SETTLING. ALL TRENCHES WILL BE BACK FILLED WITH CLEAN SOIL, COMPACTED AND REPLANTED WITH APPROVED SHRUB OR GROUND COVER TO MATCH EXISTING PLANTING. ALL HEADS THAT SETTLE WILL BE RAISED TO 1/2" ABOVE FINISH GRADE. PROVIDE ADDITIONAL SOIL AS NECESSARY AND HAND TAMP AROUND HEAD TO PREVENT FUTURE SETTLING. PROVIDE NEW SEED OR PLANT MATERIAL AS NEEDED TO COMPLETE REPAIR.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SLEEVING INSTALLED UNDER ALL PAVED SURFACES. PROVIDE SEPARATE INDIVIDUAL SLEEVES FOR MAINLINE, LATERALS, AND REMOTE CONTROL VALVE WIRES. LATERAL SLEEVING SHALL BE SIZED (3) PIPE SIZES LARGER THAN THE LATERAL PIPE TO BE SLEEVED.
5. THE IRRIGATION SYSTEM IS SHOWN DIAGRAMMATICALLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN LANDSCAPE PLANTERS WHENEVER POSSIBLE.
6. THE CONTRACTOR WILL BRAND INTO THE REMOTE CONTROL VALVE BOX LIDS THE NEW VALVE STATION NUMBER AND RELATED NEW AUTO CONTROLLER LETTER. PROVIDE CHRISTY STANDARD SIZE I.D. TAGS CONNECTED TO EACH VALVE SOLENOID WITH NEW STATION NUMBER AND RELATED NEW AUTO CONTROLLER LETTER.
7. THE CONTRACTOR SHALL INSTALL ALL IRRIGATION REMOTE CONTROL VALVES, GATE VALVES, AND QUICK COUPLING VALVES A MINIMUM DISTANCE OF 10'-0" FROM ALL TREE TRUNK LOCATIONS ILLUSTRATED ON PLANTING PLAN. CONFIRM LAYOUT OF PROPOSED TREE LOCATIONS PRIOR TO INSTALLING ANY VALVE.
8. UTILITIES MAY HAVE BEEN OMITTED ON THE IRRIGATION SHEETS. REVIEW CIVIL ENGINEER'S DRAWINGS AND EXERCISE CARE IN EXCAVATION WHILE PROTECTING EXISTING UTILITIES IN PLACE.
9. ALL REMOTE CONTROL VALVE AND MASTER VALVE WIRES USED FOR THIS PROJECT SHALL BE DIRECT BURY 14-GAUGE IRRIGATION WIRE INSTALLED 24" BELOW GRADE OR IN SLEEVES AS PER IRRIGATION PLAN. ACTIVE COMMON SHALL BE WHITE IN COLOR. SPARE COMMON WIRE SHALL BE WHITE IN COLOR WITH A RED STRIPE. MASTER VALVE COMMON WIRE SHALL BE YELLOW AND MASTER VALVE CONTROL WIRE SHALL BE BLUE. ALL REMOTE CONTROL VALVE CONTROL WIRES SHALL BE ORANGE IN COLOR.
10. PULL A CONTINUOUS 14-GAUGE SPARE COMMON WIRE, WHITE IN COLOR WITH A RED STRIPE, FROM AUTO CONTROLLER TO ALL REMOTE CONTROL VALVES AND WIRE SPLICE BOXES INSTALLED ON THIS PROJECT. LOOP THE WIRE INTO EACH VALVE BOX FOR EASY ACCESS. PULL A CONTINUOUS SOLID RED COLORED 14-GAUGE IRRIGATION WIRE FROM AUTO CONTROLLER TO ALL REMOTE CONTROL VALVE BOXES AND WIRE PULL BOXES ON THIS PROJECT. LOOP RED WIRE INTO EACH VALVE BOX FOR EASY ACCESS. BOTH WIRES SHALL BE TUCKED TO THE SIDE OF THE VALVE BOX SO AS NOT TO INTERFERE WITH THE MAINTENANCE OF THE REMOTE CONTROL VALVE WITHIN THE BOX.

MAXIMUM APPLIED WATER ALLOWANCE

MAWA = (ETo x 0.60 x Land. Area x 0.62) + (special use)
ETo = reference evapotranspiration of Camarillo of 48.2 (inches per year)
0.60 = evapotranspiration adjustment factor (standard number public schools)
Land. Area. = total square feet of landscape area for the site
0.62 = conversion factor (to gallons per square foot)
Special Use Area. = total sq. feet of landscape area identified as 'special use'

MAWA = (48.2 x 0.60 x 14,315 x 0.62) + (48.2 x 1.0 x 6,480 x .62)
MAWA = 256,674 G.P.Y. + 193,648 G.P.Y. = 450,322 G.P.Y

ESTIMATED APPLIED WATER USE FORMULA

EAWU = (ETo) x (.62) (PF x Land. Area) / IE

ETo = reference evapotranspiration of Camarillo of 46.1 (inches per year)
0.62 = conversion factor (to gallons per square foot)
PF = plant factor from WUCOLS
LA = landscaped area covered by sprinkler valve (sq. ft.)
IE = irrigation efficiency (0.75 rotary nozzles, 0.81 bubblers)
IE = irrigation efficiency - Special Use (1.0)

LOW WATER USE - SHRUB PLANTERS - DRIP IRRIGATION

EAWU = (48.2) x (.62) (.3 x 6,788) / .81 = 75,131 GPY

MEDIUM WATER USE - TREES - BUBBLERS

EAWU = (48.2) x (.62) (.5 x 425) / .81 = 7,840 GPY

SPECIAL USE - TURF RECREATION AREA - OVER HEAD ROTORS

EAWU = (48.2) x (.62) (.7 x 6,480) / .75 = 180,738 GPY

DECOMPOSED GRANITE PATHWAY

EAWU = (48.2) x (.62) (.0 x 1,047) / 0 = 0 GPY

TOTAL EAWU = 263,709 GPY (% OF MAWA)

IRRIGATION WATER USE SUMMARY

TOTAL EAWU = 263,709 GALLONS PER YEAR
TOTAL MAWA = 450,322 GALLONS PER YEAR

TOTAL VOLUME OF WATER UNDER MAWA = 186,613 GALLONS PER YEAR
TOTAL % OF WATER UNDER MAWA = 58.6%

MWELO COMPLIANCE STATEMENT

THE LANDSCAPE DESIGN ILLUSTRATED ON THESES PLANS COMPLIES WITH THE MANDATORY ELEMENTS OF THE STATE OF CALIFORNIA "STATE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE" STANDARDS.

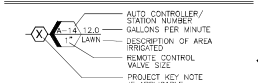
LANDSCAPE ARCHITECT	LICENSE NUMBER	DATE
	3193	8-28-26

IRRIGATION CALCULATIONS

DESCRIPTION	RCV A-12 12.0 GPM
AVAILABLE STATIC WATER PRESSURE @ P.O.C.	75.0 PSI
LOSS AT 1" WATER METER	1.0 PSI
LOSS THROUGH 1.5" COPPER SERVICE LINE	0.2 PSI
LOSS AT BACKFLOW DEVICE (1.5")	12.5 PSI
PRESSURE REGULATOR SET @ 55 PSI	55.0 PSI
LOSS THROUGH 1" MASTER VALVE/1" FLOW SENSOR	2.0 PSI
LOSS THROUGH 350 LINEAR FEET OF 1.5" MAINLINE	2.7 PSI
LOSS AT RCV	2.4 PSI
LOSS RCV TO LAST HEAD (LATERALS)	3.2 PSI
LOSS THROUGH PVC FITTINGS	1.2 PSI
LOSS DUE TO ELEVATION CHANGE	0.0 PSI
TOTAL PRESSURE LOSS FROM PRESSURE REGULATOR	11.5 PSI
AVAILABLE OPERATING PRESSURE	43.5 PSI

NOTE:
IRRIGATION CALCULATIONS ARE BASED ON A MINIMUM STATIC WATER PRESSURE AVAILABLE ON SITE OF 75.0 PSI. CONTRACTOR TO VERIFY AVAILABLE STATIC WATER PRESSURE ON SITE AND NOTIFY LANDSCAPE ARCHITECT OF RESULTS PRIOR TO BEGINNING ANY WORK.

REMOTE CONTROL VALVE KEY



SEASONAL IRRIGATION APPLICATION SCHEDULE

HYDROZONE DESCRIPTION	WINTER		SPRING		SUMMER		FALL	
	MINUTES	DAYS ON	MINUTES	DAYS ON	MINUTES	DAYS ON	MINUTES	DAYS ON
LOW WATER SHRUBS - DRIP	10	2	20	3	30	3	20	3
MEDIUM WATER TREES - BUBBLERS	5	2	5	3	10	3	5	3
HIGH WATER TURF - ROTORS	20	2	20	3	30	3	20	3

ESTIMATED APPLIED WATER USE

VALVE NUMBER/ HYDROZONE	EXPOSURE TO SUN/ DESCRIPTION OF SPRINKLER	AVERAGE IRRIGATION EFFICIENCY	CAMARILLO ETo	PLANT WATER USE TYPE	PLANT FACTOR	LANDSCAPE AREA IN SQUARE FEET	ESTIMATED APPLIED WATER USE IN GALLONS PER YEAR
1, 2, 3, 4, 5	DRIPLINE - SHRUBS	.81	46.1	LOW	.3	6,788	71,857
6, 7, 8	BUBBLERS - TREES	.81	46.1	MED	.5	144	2,541
9, 10, 11, 12	ROTORS - SPECIAL USE TURF	.75	46.1	HIGH	.7	6,480	180,738
					TOTALS	13,412	255,136

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL / REMARKS	DETAIL / SHEET NO.
	SLEEVING	PACIFIC PLASTICS	SCH. 40 PVC - 3 PIPE SIZES LARGER THAN THE PIPE TO BE SLEEVED - 24" BELOW GRADE	1,2,3 / L5
	(E) COPPER PIPE	UNKNOWN	TYPE 'K' COPPER - 11/2" SIZE - SOLDER WELD - FROM WATER METER TO BACKFLOW ASSEMBLY - P.I.P.	N.A.
	FLOW SENSING CABLE	RAIN MASTER	EV-CAB-SEN - INSTALLED IN A 1" SCH. 40 PVC ELECTRICAL CONDUIT - 24" BELOW FINISH GRADE	1 / L5 11 / L6
	MAINLINE	PACIFIC PLASTICS	SIZE PER PLAN - SCH. 40 PVC - SOLVENT WELD - 24" BELOW GRADE	1,2,3,4 / L5
	SUB-SURFACE DRIPLINE	NETAFIM	TLCV6-12-XX - "TECHLINE CV SERIES" DRIPLINE TUBING - 0.6 GPH EMITTERS @ 12" O.C. - INSTALL TUBING 4" BELOW FINISH GRADE - TECHLINE TUBING ROWS SPACED 18" APART FROM EACH OTHER IN GRID PATTERN OR WHEN A SHRUB HEDGE ROW IS PLANTED - INSTALL (2) ROWS OF TUBING WITH SHRUB ROOT BALLS CENTERED IN BETWEEN TUBING.	1,2,3,4, / L6
	LATERAL	PACIFIC PLASTICS	SCH. 40 PVC - 3/4" SIZE UNLESS OTHERWISE NOTED ON PLAN - SOLVENT WELD - 12" BELOW GRADE	1,2,3 / L5
NO SYMBOL	FLEXIBLE PVC HOSE	GPH IRRIGATION	MODEL GPVCSSAROSOIRR - 3/8" PVC FLEXIBLE IRRIGATION HOSE - INSTALL AS PER DETAILS	10 / L5
	DOMESTIC WATER METER	UNKNOWN	PROTECT IN PLACE	N.A.
V	IRRIGATION ONLY WATER METER	UNKNOWN	1" SIZE - PROTECT IN PLACE	N.A.
	NORMALLY CLOSED MASTER VALVE	SUPERIOR	3200 SERIES - 11/2" SIZE - INSTALL IN A RECTANGULAR VALVE BOX	10 / L6
	FLOW SENSOR	C.S.T.	MODEL FSI-115-001 - SCH. 40 PVC BODY - SOLVENT WELD - INSTALL IN RECTANGULAR VALVE BOX	11 / L6
	AUTOMATIC FERTILIZER DISPENSER	EZ-FLO	MODEL EZ-005-FX INSTALLED IN A CARSON JUMBO VALVE BOX MODEL 1730-18 (32"L X 18"H X 19"W). INSTALL ALL REQUIRED EZ-FLO FITTINGS. MODEL CBV-200, ON TO THE MAINLINE AS PER MANUF. SPECS.	15 / L5
A	AUTO CONTROLLER	TORO	TQPV16-PLAST-RM-IEVC-SV - 16 STATION AUTO CONTROLLER IN A FACTORY PLASTIC WALL MOUNT ENCLOSURE. INSTALL WIRELESS RAIN SHUT OFF DEVICE PER MANUFACTURER'S SPECIFICATIONS. INSTALL DEVICE AT ELEVATION ABOVE AUTO CONTROLLER ON BUILDING WALL HIGH ENOUGH TO AVOID VANDALISM.	5 / L6
R	RAIN SHUT OFF DEVICE	TORO	WIRELESS MODEL 851000 - MOUNT ON BUILDING EXTERIOR WALL AT ELEVATION TO AVOID VANDALISM	N.A.
	REMOTE CONTROL VALVE	RAIN BIRD	PESB SERIES - SIZES NOTED - IN A RECTANGULAR VALVE BOX	7 / L5
	DRIP RCV ASSEMBLY	RAIN BIRD	XCZ-100-PRB-COM - 1" SIZE - IN A JUMBO VALVE BOX	8 / L5
	QUICK COUPLER	RAIN BIRD	44-RC - 1" SIZE - IN 10" ROUND VALVE BOX	6 / L5
	SCH. 80 PVC BALL VALVE	COLONIAL / LASCO	VXX101N-SC SERIES - LINE SIZE - INSTALLED IN A RECTANGULAR VALVE BOX	5 / L5
	(E) REDUCED PRES. BACKFLOW ASSEMBLY	WILKINS	975XLSE W/ PRESSURE REGULATOR - 11/2" SIZE - INSTALLED IN SECURITY ENCLOSURE - PROTECT IN PLACE	N.A.
	DRIP SYSTEM FLUSH VALVE	SPEARS/KBI/EQUAL	3/4" SCH. 80 PVC ECONOMY BALL VALVE, SOCKET INLET & OUTLET, IN VALVE BOX WITH 3'-0" OF FLEXIBLE PVC HOSE	12 / L5
	DRIP AIR RELIEF VALVE	NETAFIM	MODEL TLAVRV - INSTALLED ON BURIED TUBING GRID @ HIGH POINT - IN A ROUND VALVE BOX WITH GRAVEL SUMP	16 / L5
	DRIP SYSTEM INDICATOR	TORO	570Z-12P-PRXCOM-O-1-5Q - ACTIVATE X-FLOW WATER SHUT OFF DEVICE IN RISER TO PREVENT WATER FLOW TO NOZ.	11 / L5
P	WIRE PULL / SPLICE BOX	CARSON	1419-12 - FORM A 3'-0" LONG WIRE LOOP WITH VALVE BOX CAVITY	9 / L5

Q	T	H	F			PSI	Q RAD	T GPM	H GPM	F GPM		
					ROOT WATERING SYSTEM	RAIN BIRD	RWS-B-C-1404 / RWS-SOCK / RWSGRATE	30	1			1.00	14 / L5
					POP UP TURF ROTOR	RAIN BIRD	5004+PCSAW-5000MPR-.25Q,257,25H	40	25	1.00	1.38	1.98	13 / L5
					POP UP TURF ROTOR	RAIN BIRD	5004+PCSAM-5000MPR-.25F	40	25			3.82	13 / L5
					TREE FLOOD BUBBLER	GPH IRRIGATION (1.0 GPM BUBBLER)	MODEL GPSBG10 BUBBLER EQUIPPED WITH BUILT IN CHECK VALVE, BLACK IN COLOR. INSTALL (2) BUBBLERS PER EACH TREE AND EXISTING TREES USING IRRIGATION SIZE (3/8" IPS) FLEXIBLE PVC HOSE, G.P.H. MODEL GPVCSSAROSOIRR (BLACK IN COLOR) WITH (2) SOLVENT WELD G.P.H. MODEL 043607SB BLACK PVC MALE ADAPTERS. CUT LENGTH OF FLEXIBLE PVC TUBING STARTING FROM RIGID PVC LATERAL SUPPLY TO LENGTH NEEDED TO INSTALL EMITTER WITHIN PLANT BASIN IN THE FIELD. USE I.P.S. PIPE PRIMER MODEL 'P-70' AND I.P.S. SOLVENT CEMENT MODEL '795' FOR ALL FLEXIBLE PVC TUBING WELDS TO BLACK COLORED G.P.H. MALE ADAPTERS. SECURE TUBING TO SLOPE / FINISH GRADE SURFACE WITH 6" LONG GALV. STEEL STAPLES INSTALLED 3'-0" O.C.	30	1			1.00	10 / L5
NO SYMBOL					POP UP SPRAY HEAD	RAIN BIRD	1804SAM-PRS W/ HE-VAN SERIES ADJUSTABLE SERIES NOZZLE - USE TO REPLACE ANY (E) POP UP HEAD DAMAGED DUE TO NEW CONSTRUCTION WORK.						11 / L5

PROJECT KEY NOTES

SYMBOL — DESCRIPTION

A — WALL MOUNTED 16-STATION AUTO CONTROLLER:
CONTRACTOR SHALL INSTALL A 16-STATION WALL MOUNTED AUTO CONTROLLER ON THE INSIDE WALL OF A CUSTODIAL CLOSET WITHIN THE BUILDING. EXACT LOCATION ON THE WALL SHALL BE DETERMINED IN THE FIELD BY THE DISTRICT REPRESENTATIVE. INSTALL 120 VOLT, 60 HERTZ, 2 AMP, ELECTRICAL POWER SUPPLY TO AUTO CONTROLLER LOCATION. AUTO CONTROLLER POWER SUPPLY SHALL BE GROUNDED BY ELECTRICIAN TO SATISFY MANUFACTURER'S SPECIFICATIONS. ALL ELECTRICAL WORK MUST BE PERFORMED BY A LICENSED ELECTRICIAN AND AS PER CALIFORNIA BUILDING CODE. INSTALL A CONTINUOUS 2" ELECTRICAL CONDUIT WITH SWEEP ELBOWS AS NEEDED STARTING FROM THE BASE OF THE WALL MOUNTED AUTO CONTROLLER TO THE (E) LANDSCAPE PLANTER LOCATED ON THE WEST SIDE OF THE ASPHALT PARKING LOT. INSTALL A WIRE PULL BOX OVER THE 2" PVC WIRE CONDUIT AND SWEEP ELBOW FOR MAINTENANCE PURPOSES. THE 2" CONDUIT, WHEN INSTALLED BELOW GRADE, SHALL BE SCH. 40 PVC ELECTRICAL CONDUIT INSTALLED 24" BELOW FINISH GRADE. ALL WALL MOUNTED CONDUIT WITHIN THE CUSTODIAL CLOSET INCLUDING JUNCTION BOXES SHALL BE FMT OR APPROVED METAL. THE CONTINUOUS 2" ELECTRICAL CONDUIT WILL PROVIDE ACCESS FOR ALL 14-GAUGE IRRIGATION WIRES AS WELL AS THE FLOW SENSING CABLE FROM THE AUTO CONTROLLER TO THE LANDSCAPE PLANTER. THE IRRIGATION WIRES WILL BE DIRECT BURIED TO ALL REMOTE CONTROL VALVES ONCE OUT OF THE 2" SCH. 40 PVC ELECTRICAL SWEEP ELBOW AND CONDUIT SEGMENT. INSTALL A 1" SCH. 40 PVC ELECTRICAL SWEEP ELBOWS INTO AND OUT OF ALL VALVE BOXES AND A CONTINUOUS 1" SCH. 40 PVC ELECTRICAL CONDUIT FROM THE WIRE PULL BOX TO THE FLOW SENSOR VALVE BOX LOCATION. CONNECT THE FLOW SENSOR TO THE FLOW SENSING CABLE USING 3M MODEL DBR-Y6 WATER PROOF WIRE SPLICES. CALIBRATE FLOW SENSOR TO AUTO CONTROLLER AS PER MANUFACTURER'S SPECIFICATIONS.

B — WIRELESS RAIN SENSOR FOR AUTO CONTROLLER 'A':
MOUNT WIRELESS RAIN SHUT OFF DEVICE ON EXTERIOR BUILDING WALL WITHIN OPERATING RANGE OF WIRELESS RAIN SENSOR RECEIVER. POSITION RAIN SENSOR AT AN ELEVATION ON THE BUILDING WALL THAT IS SAFE FROM VANDALISM AS WELL AS FREE OF ANY BUILDING OVERHANG SO AS TO ALLOW THE DEVICE TO BE IN DIRECT CONTACT TO RAINFALL. PROVIDE ALL REQUIRED BATTERIES AND ANCHORS TO SECURE RAIN SHUT OFF DEVICE INTO BUILDING WALL AND POSITION WITHIN RAIN SENSOR RECEIVER OPERATING RANGE AS PER TORO SPECIFICATIONS.

C — IRRIGATION POINT OF CONNECTION:
FIELD VERIFY THE EXACT LOCATION OF THE (E) 1" IRRIGATION ONLY WATER METER AND THE 1-1/2" WILKINS 975XL REDUCED PRESSURE BACKFLOW ASSEMBLY COMPLETE WITH A 1-1/2" WILKINS 500 SERIES BRASS PRESSURE REGULATING VALVE SET AT 60.0 PSI. THE IRRIGATION BACKFLOW ASSEMBLY IS WITHIN AN (E) SECURITY ENCLOSURE AND IS POSITIONED NEXT TO THE (E) DOMESTIC WATER SUPPLY REDUCED PRESSURE BACKFLOW ASSEMBLY. PROTECT BOTH REDUCED PRESSURE BACKFLOW ASSEMBLIES AND SECURITY ENCLOSURE IN PLACE. CUT AND REMOVE THE REMNANT (E) PVC IRRIGATION MAINLINE PIPING FROM THE OUTLET OF THE (E) 1-1/2" REDUCED PRESSURE BACKFLOW ASSEMBLY TO ALLOW FOR THE INSTALLATION OF THE NEW IRRIGATION MAINLINE PIPING AND COMPONENTS. INSTALL A 3'-0" LONG SEGMENT OF 1-1/2" SCH. 40 PVC IRRIGATION MAINLINE FROM THE DOWNSTREAM SIDE OF THE 1-1/2" BACKFLOW ASSEMBLY. INSTALL A 1-1/2" BRASS NORMALLY CLOSED MASTER VALVE IN A SEPARATE RECTANGULAR VALVE BOX. INSTALL A NEW 1-1/2" PVC CREATIVE SENSOR TECHNOLOGY FLOW SENSOR DOWNSTREAM OF MASTER VALVES IN A SEPARATE VALVE BOX. CUT 1-1/2" PVC MAINLINE PIPE SEGMENT LENGTHS INTO AND OUT OF THE FLOW SENSOR AS PER MANUFACTURERS' SPECIFICATIONS. ON DOWNSTREAM SIDE OF COMPLETE FLOW SENSOR ASSEMBLY, ENLARGE IRRIGATION MAINLINE TO 2" CLASS 315 PVC AS PER IRRIGATION PLAN. TRENCH AND INSTALL 2" CLASS 315 PVC AS PER IRRIGATION PLAN. INSTALL A LIQUID FERTILIZER DISPENSER IN A MANIFOLD, COMPLETE WITH (3) SCH. 80 PVC BALL VALVES, TO ISOLATE LIQUID FERTILIZER DISPENSER FROM IRRIGATION MAINLINE SOURCE WHEN NOT IN USE. TRENCH AND INSTALL REMAINDER OF NEW 2" AND 1-1/2" PVC IRRIGATION MAINLINE AS PER IRRIGATION PLAN.

D — 1-1/2" NORMALLY CLOSED MASTER VALVE & 1-1/2" PVC SOLVENT WELD FLOW SENSOR:
INSTALL 1-1/2" NORMALLY CLOSED MASTER VALVE IN A SEPARATE RECTANGULAR VALVE BOX ON NEW 1-1/2" SCH. 40 PVC IRRIGATION MAINLINE DOWNSTREAM OF (E) 1-1/2" REDUCED PRESSURE BACKFLOW ASSEMBLY. MASTER VALVE SHALL BE WIRED TO NEW AUTO CONTROLLER USING (1) YELLOW AND (1) BLUE COLORED 14-GAUGE DIRECT BURY IRRIGATION WIRES. INSTALL A 1-1/2" CREATIVE SENSOR TECHNOLOGY PVC FLOW SENSOR DOWN STREAM OF 1-1/2" MASTER VALVE WITH MEASURED PIPE SEGMENTS INTO AND OUT OF FLOW SENSOR AS PER MANUFACTURERS' SPECIFICATIONS. TRENCH AND INSTALL A 1" SCH. 40 PVC ELECTRICAL CONDUIT FROM WIRE PULL BOX TO FLOW SENSOR VALVE BOX. INSTALL 1" SCH. 40 PVC ELECTRICAL SWEEP ELBOWS INTO AND OUT OF ALL VALVE BOXES. INSTALL RAINMASTER MODEL EV-CAB-SEN FROM AUTO CONTROLLER THROUGH 2" CONDUIT TO WIRE PULL BOX THEN THROUGH 1" PVC WIRE CONDUIT TO FLOW SENSOR IN ONE CONTINUOUS WIRE PULL WITHOUT SPLICES. CONNECT 14-GAUGE SHIELDED WIRES, (1) BLACK AND (1) RED, TO APPROPRIATE TERMINALS ON AUTO CONTROLLER. CONNECT RED AND BLACK WIRES WITHIN SHIELDED CABLE TO FLOW SENSOR USING 3M MODEL DBR-Y6 WATER PROOF WIRE SPLICES OR APPROVED EQUAL AS PER TORO SPECIFICATIONS. CALIBRATE FLOW SENSOR TO AUTO CONTROLLER AS PER TORO SPECIFICATIONS PRIOR TO FINAL IRRIGATION COVERAGE TEST WITH LANDSCAPE ARCHITECT.

E — EZ-FLO AUTOMATIC FERTILIZER DISPENSER:
INSTALL EZ-H10 FERTILIZER DISPENSER ON TO PVC MAINLINE AS PER MANUFACTURER'S SPECIFICATIONS AND DETAILS. THE PVC TANK SHALL BE INSTALLED BELOW GRADE AND COVERED WITH A JUMBO VALVE BOX, CARSON MODEL 1730-18 (MINIMUM DIMENSIONS OF 30"L X 18"H X 19"W). INSTALL (3) SCH 80 PVC BALL VALVES ON MAINLINE IN SEPARATE VALVE BOXES WITH MAINLINE SEGMENTS ARRAINGED TO CREATE A SUB-MAINLINE OR BY-PASS TO ISOLATE LIQUID FERTILIZER DISPENSER FROM PRIMARY MAINLINE DISCHARGE WHEN TANK IS NOT IN USE. THE EXACT LOCATION OF THE LIQUID FERTILIZER TANK SHALL BE SPOTTED IN THE FIELD BY THE OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT. TANK MUST BE POSITIONED UPSTREAM OF THE CLOSEST REMOTE CONTROL VALVE LOCATION ON IRRIGATION MAINLINE.

F — FLOW SENSING CABLE IN A 1" SCH. 40 PVC ELECTRICAL CONDUIT:
INSTALL TORO FLOW SENSING CABLE, MODEL 'EV-CAB-SEN', IN A 1" SCH. 40 PVC ELECTRICAL CONDUIT INSTALLED 24" BELOW FINISH GRADE. INSTALL CABLE PULL BOXES, CARSON MODEL 1419-12 AT ALL CHANGES OF CABLE DIRECTION. PROVIDE 1" SWEEP ELBOWS INTO AND OUT OF ALL CABLE PULL BOXES AND INTO FLOW SENSOR VALVE BOX. CONNECT CABLE TO AUTO CONTROLLER AS PER MANUFACTURER'S SPECIFICATIONS. SPLICE CABLE TO FLOW SENSOR LEAD WIRES WITH 3M WATER RESISTANT WIRE CONNECTORS, MODEL DBR-6Y OR APPROVED EQUAL.

G — FIELD VERIFY THE EXACT LOCATION OF THE (E) REMOTE CONTROL VALVES OPERATING THE (E) LAWN SPRINKLER SYSTEM - REMOVE (E) RCV'S AND REPLACE WITH NEW RCV'S:
FIELD VERIFY THE EXACT LOCATION OF THE (E) REMOTE CONTROL VALVES OPERATING THE (E) POP UP LAWN SPRINKLER SYSTEM THAT IS TO BE PROTECTED IN PLACE. THESE VALVES WILL BE ABANDONED ONCE THE NEW IRRIGATION MAINLINE IS INSTALLED. INSTALL (2) NEW 1-1/2" REMOTE CONTROL VALVES ON NEW IRRIGATION MAINLINE AT THE SAME OR CLOSE TO THE SAME LOCATION AS THE TWO (E) REMOTE CONTROL VALVES. EXCAVATE AND REMOVE THE OLD REMOTE CONTROL VALVES AND VALVE BOXES AND DISPOSE OF THE OLD EQUIPMENT OFF SITE. INSTALL (2) NEW 1-1/2" REMOTE CONTROL VALVES ONTO NEW IRRIGATION MAINLINE. TRENCH AND INSTALL 2" SCH. 40 PVC LATERAL PIPING FROM OUTLET OF NEW 1-1/2" REMOTE CONTROL VALVES AND RECONNECT TO SEVERED LATERAL SUPPLY LINE TO RESUPPLY THE (E) TURF IRRIGATION SYSTEM WITH WATER. REPAIR ANY DAMAGE TO THE (E) POP UP SPRAY HEADS OR PVC LATERALS DAMAGED IN THE TURF PLANTER AS A RESULT TO NEW CONSTRUCTION.

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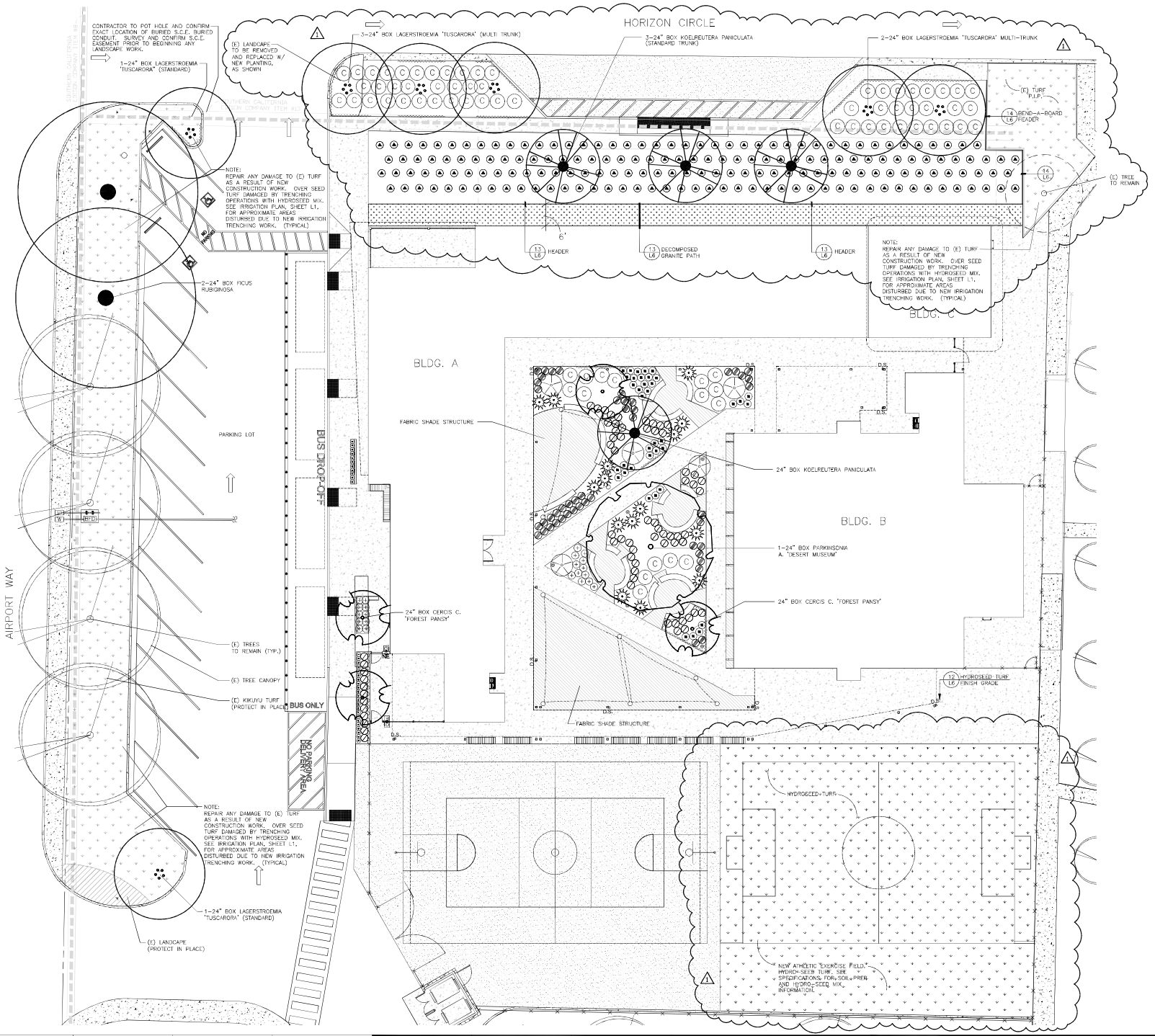
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IRRIGATION LEGEND AND NOTES

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L2

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NOTE: SEE SHEET L4 FOR LEGEND

GRAPHIC SCALE

0 5 10 20 40

SCALE: 1"=10'

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PLANTING PLAN

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L3

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TREE LEGEND

	BOTANICAL NAME COMMON NAME	WUCOLS	SIZE	QUANTITY
	CERCIS CANADENSIS 'FOREST PANSY' STANDARD TRUNK FOREST PANSY REDBUD	LOW	24" BOX	4
	FICUS RUBIGINOSA STANDARD TRUNK RUSTYLEAF FIG	MED	24" BOX	2
	KOELREUTERIA PANICULATA STANDARD TRUNK GOLDENRAIN TREE	MED	24" BOX	41
	LAGERSTROEMIA 'TUSCARORA' (DARK PINK FLOWER) CRAPE MYRTLE (5) MULTI-TRUNK SPECIMENS (2) STANDARD TRUCK SPECIMENS	LOW	24" BOX	7
	PARKINSONIA ACULEATA 'DESERT MUSEUM' STANDARD TRUNK DESERT MUSEUM PALO VERDE	VERY LOW	24" BOX	1

SHRUB LEGEND

	BOTANICAL NAME COMMON NAME	WUCOLS	SIZE	QUANTITY
	ACACIA COGNATA 'COUSIN ITT' COUSIN ITT ACACIA	LOW	5 GAL	15
	COTONEASTER DAMMERI 'CORAL BEAUTY' CORAL BEAUTY COTONEASTER	LOW	5 GAL	72
	HEMEROCALLIS 'BITSY' BITSY DAYLILY	MED	5 GAL	33
	LANTANA CAMERA 'CHERRY BANDANA' CHERRY BANDANA LANTANA	LOW	5 GAL	38
	LANTANA MONTEVIDENSIS PURPLE TRAILING LANTANA	LOW	5 GAL	174
	LOROPETALUM CHINENSE 'RASPBERRY' PLUM DELIGHT LOROPETALUM	LOW	5 GAL	5
	NANDINA DOMESTICA 'GULF STREAM' GULF STREAM BAMBOO	LOW	5 GAL	67
	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY' MINIATURE FOUNTAIN GRASS	LOW	5 GAL	47
	TRADESCANTIA PALLIDE 'PURPLE HEART' PURPLE SPIDERWORT	LOW	1 GAL	22

	DECOMPOSED GRANITE (TAN COLOR) – 3" LAYER OVER WEED BARRIER	N/A	S.F.	
	HYDROSEED TURF	HIGH	S.F.	
	EXISTING KIKUYU TURF – TO REMAIN	HIGH	S.F.	
	EXISTING PLANTER – TO REMAIN	MEDIUM	S.F.	
	TREE ROOT BARRIER – 24" DEEP SEE DETAIL #7 – SHEET L6	N/A	L.F.	

NOTE:
ALL SHRUB PLANTING AREAS WITHIN LIMIT OF WORK SHALL RECEIVE RONSTAR PRE-EMERGENT HERBICIDE APPLIED OVER EXPOSED SOIL, THEN COVERED WITH MIRAFI WEED FABRIC MODEL "M-SCAPE-4" SECURED TO SOIL WITH 6" METAL SOIL STAPLES SPACED 5'-0" O.C. OVERLAP SEEMS OF WEED FABRIC BY 4" AND STAPLE ALONG SEEM WITH SOIL STAPLES @ 3'-0" O.C. COVER WEED FABRIC WITH A 3" THICK LAYER OF AGROMIN MODEL "ES-2" WOOD MULCH. KEEP MULCH AWAY FROM TREE AND SHRUB CROWNS.

GRAPHIC SCALE
0 10 40
5 20
SCALE: 1"=10'

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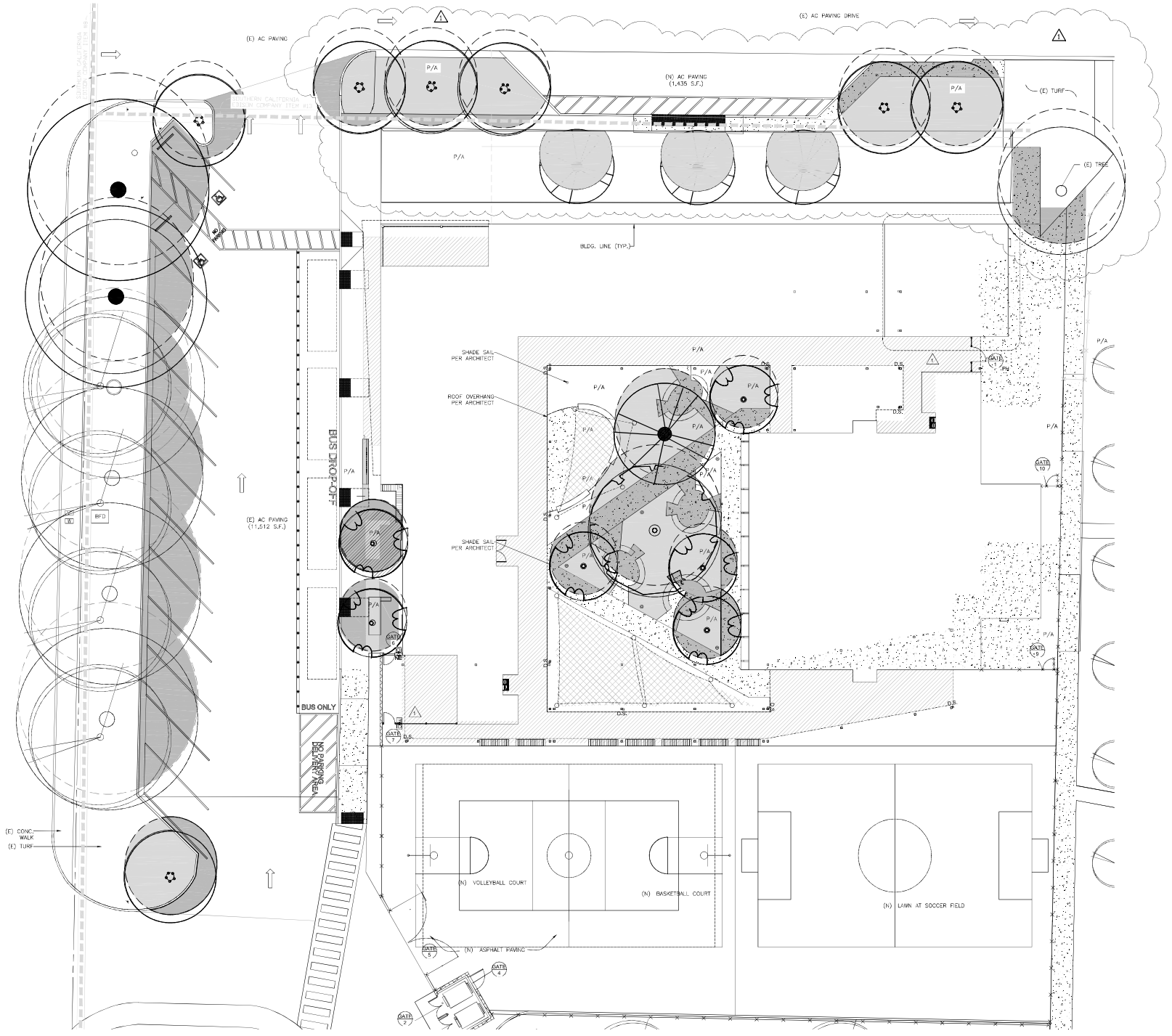
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PLANTING LEGEND AND NOTES

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L4

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NOTE:
SEE SHEET L8 FOR LEGEND

GRAPHIC SCALE

0 5 10 20 40

SCALE: 1"=10'

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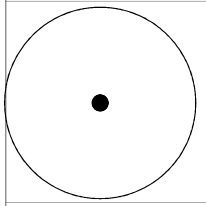
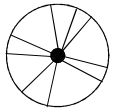
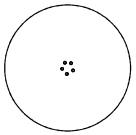
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LANDSCAPE SHADING PLAN

L7

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TREE LEGEND

	BOTANICAL NAME COMMON NAME	WUCOLS	SIZE	QUANTITY
	CERCIS CANADENSIS 'FOREST PANSY' FOREST PANSY REDBUD	LOW	24" BOX	4
	FICUS RUBIGINOSA RUSTYLEAF FIG	MED	24" BOX	2
	KOELREUTERIA PANICULATA GOLDENRAIN TREE	MED	24" BOX	1
	LAGERSTROEMIA 'TUSCARORA' (DARK PINK FLOWER) CRAPE MYRTLE (5) MULTI-TRUNK SPECIMENS (2) STANDARD TRUCK SPECIMENS	LOW	24" BOX	7


CONCRETE PAVING THAT IS NOT UNDER ARCHITECTURE OVERHANG OR SHADE SAIL **(9,089 S.F.)**


NEW AC PAVING **(1,435 S.F.)**


(EX) AC PAVING AT PARKING **(11,667 S.F.)**


SHADE PROVIDED BY ARCHITECTURE ROOF OVERHANG **(3,860 S.F.)**


TREE SHADE – AT (EX) PARKING LOT


TREE SHADE – AT NEW CONCRETE PAVING


TREE SHADE – AT NEW PLANTING AREA


SHADE SAIL – AT NEW CONCRETE PAVING

SHADE TREES [DSA-AA] – CALGREEN CODE 5.106.12

PARKING LOT SHADE CALCULATIONS

TOTAL (E) PARKING AREA (ASPHALT) = 11,512sf
(E) SHADE = 1,621 sf = 14%
(N) SHADE ADDED = 988 SQ FT
TOTAL SHADE = 2,609 = 22%

PAVING AREA SHADE CALCULATIONS

TOTAL NEW PAVING (CONCRETE) = 9,089 sf

SHADE COVERAGE (TREE CANOPY) = 2,053 sf
SHADE COVERAGE (SHADE SAIL) = 973 sf
SHADE COVERAGE (ROOF OVERHANG) = 4,300 sf
(See Architecture Plans
TOTAL SHADE= 6,510 sf

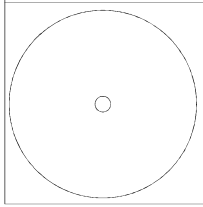
22% SHADE COVERAGE (TREE CANOPY ONLY)
20% REQUIRED **(SHADE MET)**

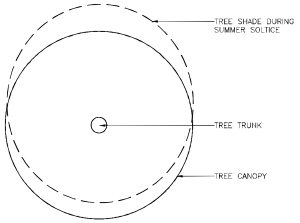
LANDSCAPE AREA SHADE CALCULATIONS

TOTAL NEW LANDSCAPING AREA = 7,578 sf
SHADE = 3,947 sf

52% SHADE COVERAGE
20% REQUIRED **(SHADE MET)**

EXISTING TREE LEGEND

	BOTANICAL NAME COMMON NAME	WUCOLS	QUANTITY
	FICUS RUBIGINOSA RUSTYLEAF FIG	MED	4



GRAPHIC SCALE
0 5 10 20 40
SCALE: 1"=10'

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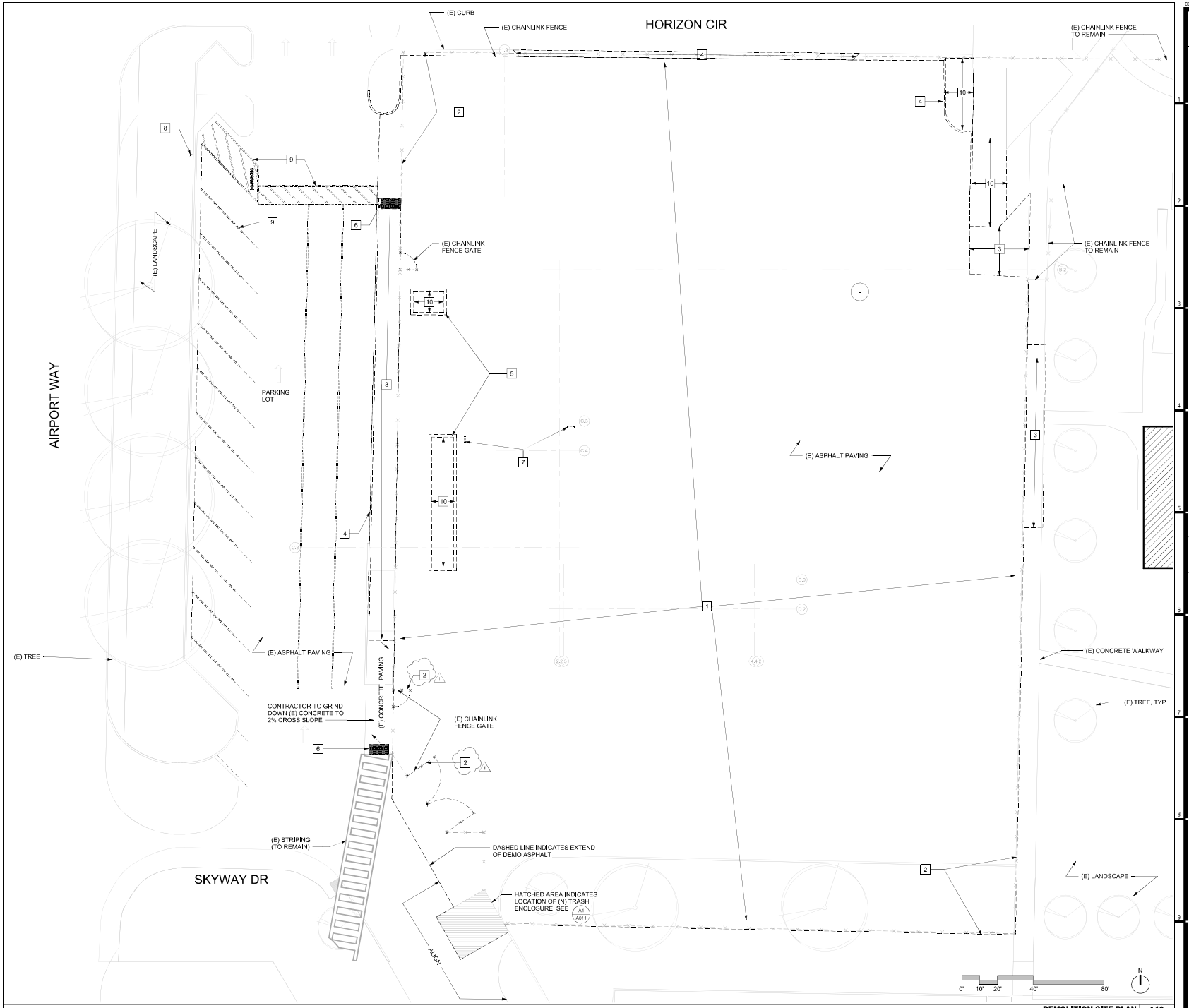
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LANDSCAPE SHADING PLAN
LEGEND AND NOTES

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DEMOLITION NOTES

1. ITEMS ARE EXISTING UNLESS NOTED OTHERWISE
2. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAS BEEN APPROVED BY DSA.

DEMOLITION KEYNOTES

x	
1	REMOVE AND DISPOSE ASPHALT
2	REMOVE AND DISPOSE CHAINLINK FENCE AND GATES
3	REMOVE AND DISPOSE CONCRETE PAVING
4	REMOVE AND DISPOSE CONCRETE CURB
5	REMOVE AND DISPOSE PLANTER
6	REMOVE AND DISPOSE TRUNCATED DOMES
7	REMOVE AND DISPOSE PANEL
8	REMOVE AND DISPOSE ACC PARKING SIGN
9	REMOVE STRIPING
10	REMOVE AND DISPOSE LANDSCAPE

DEMOLITION SITE PLAN A10
3/32" = 1'-0"

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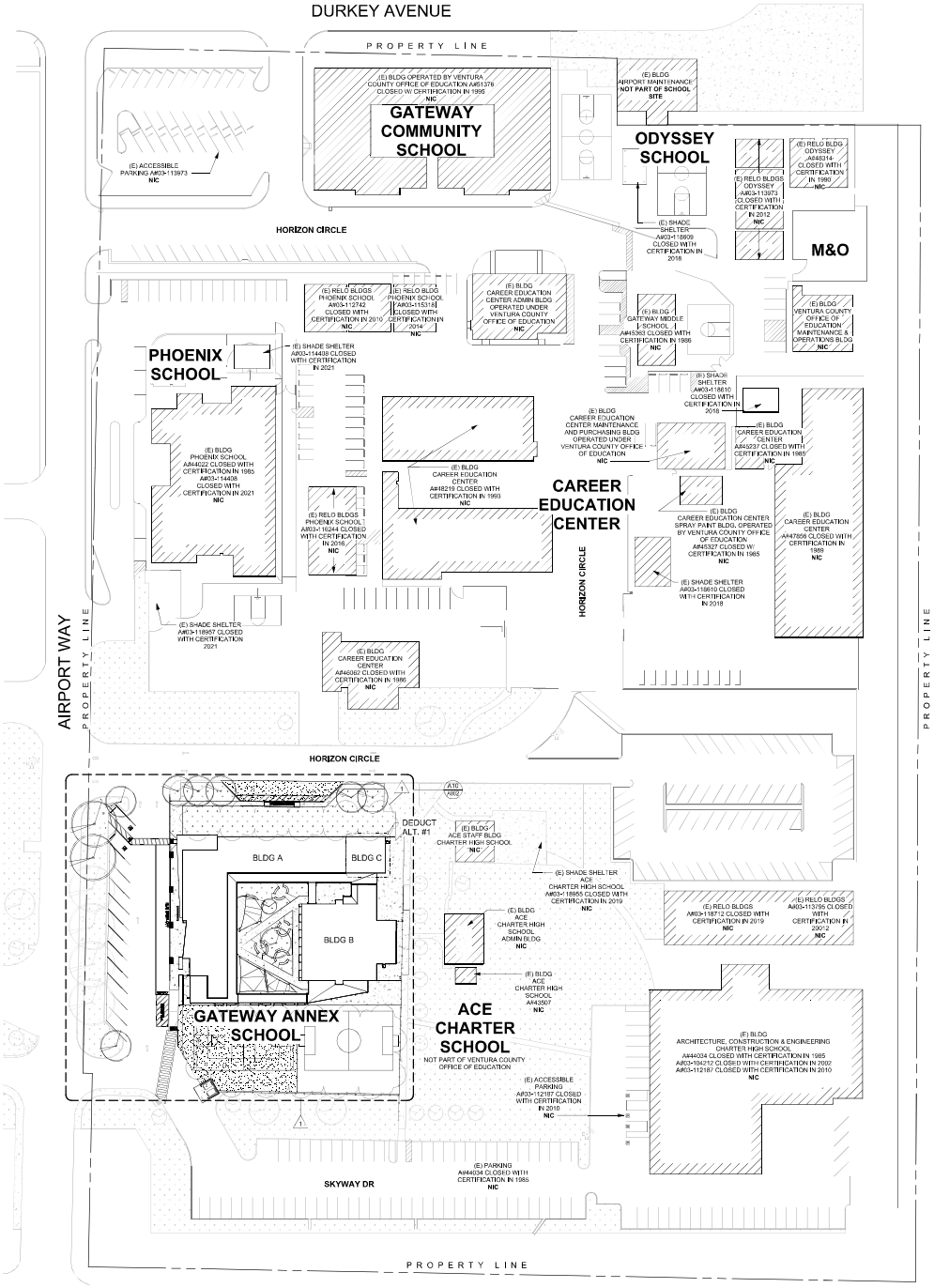
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DEMOLITION SITE PLAN

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SITE PLAN A10
1" = 40'-0"

SITE LEGEND

- NEW BUILDING
- EXISTING BUILDING
- SITE CONCRETE
- SITE CONCRETE, ACCENT COLOR
- GRASS
- EXISTING ASPHALT
- EXISTING GRASS
- EXISTING CONCRETE
- EXISTING CHAIN LINK FENCE
- NEW CHAIN LINK FENCE
- EXTERIOR LIGHT FIXTURE
- AREA OF WORK

SITE NOTES

1. FOR TYPICAL SYMBOLS AND ABBREVIATIONS, SEE SHEET G002
2. VENTURA COUNTY OFFICE OF EDUCATION OWNS AND OPERATES SEVERAL SCHOOLS ON THEIR PARCEL. EACH SCHOOL HAS A SEPARATE CAMPUS & PRINCIPAL AND IS NOT PART OF THIS PROJECT.
3. THE SOUTHEAST PORTION OF THE SITE IS LEASED AND OPERATED BY ACE CHARTER SCHOOL AND IS NOT PART OF THIS PROJECT.

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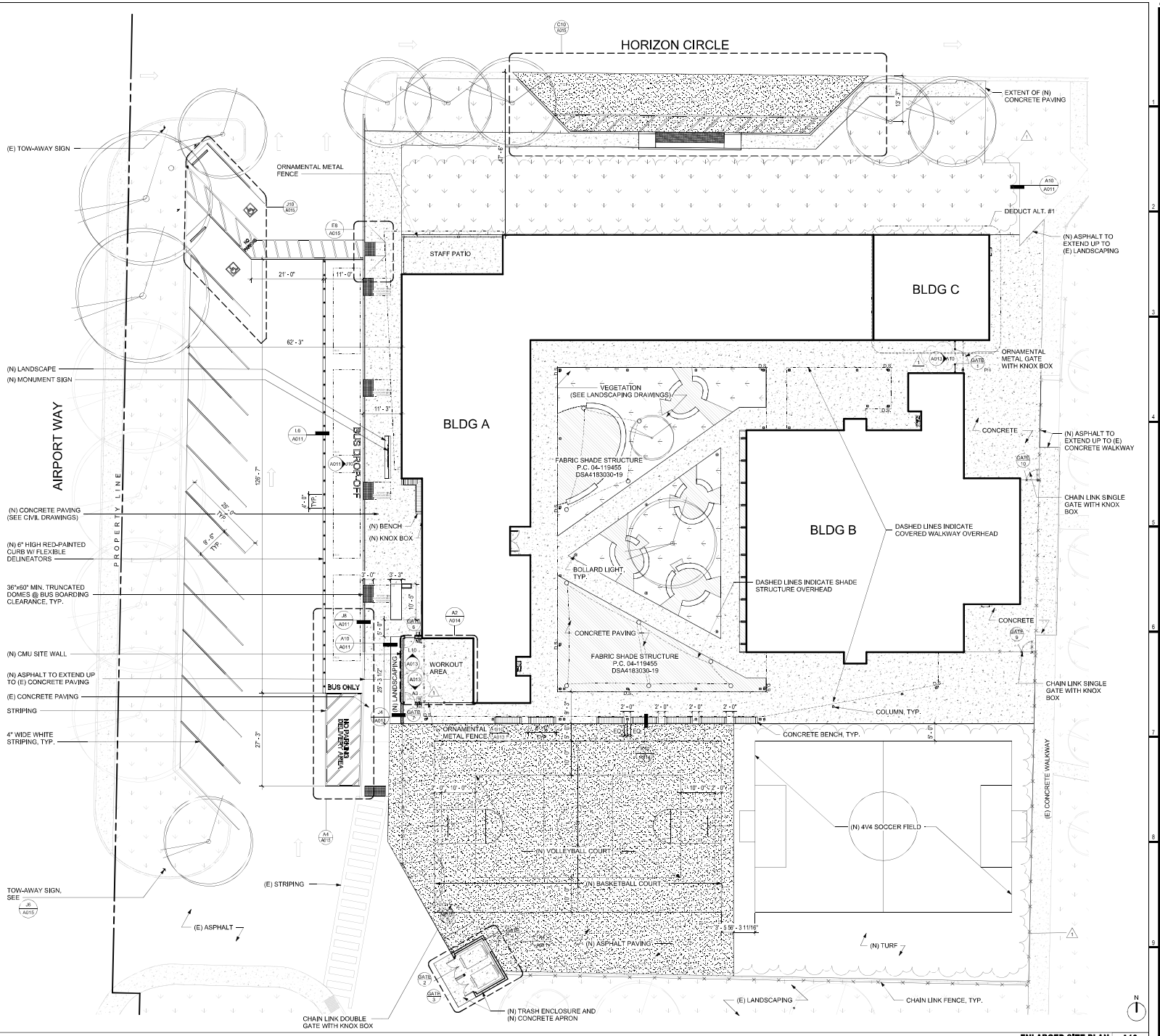
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SITE PLAN

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A001

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SITE LEGEND

- NEW BUILDING
- EXISTING BUILDING
- SITE CONCRETE
- SITE CONCRETE, ACCENT COLOR
- GRASS
- EXISTING ASPHALT
- EXISTING GRASS
- EXISTING CONCRETE
- EXISTING CHAIN LINK FENCE
- NEW CHAIN LINK FENCE
- EXTERIOR LIGHT FIXTURE
- AREA OF WORK

SITE NOTES

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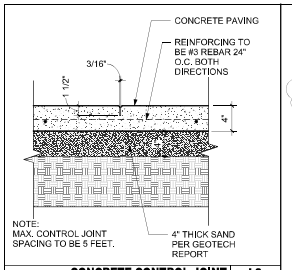
ENLARGED SITE PLAN

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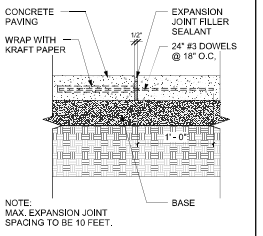
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ENLARGED SITE PLAN A10
3/32" = 1'-0"

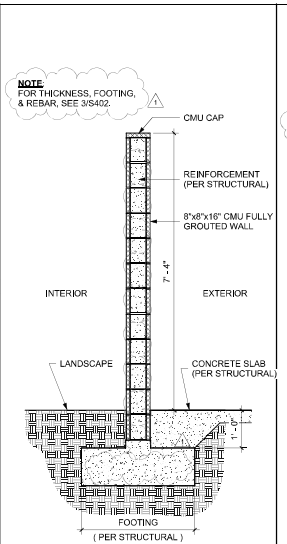
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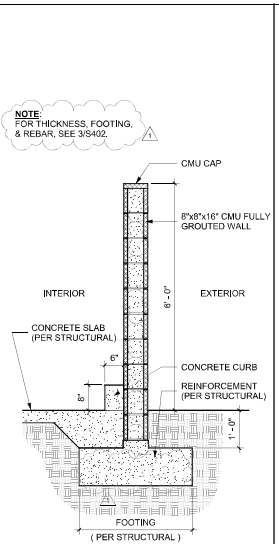
CONCRETE CONTROL JOINT L2
1 1/2" = 1'-0"



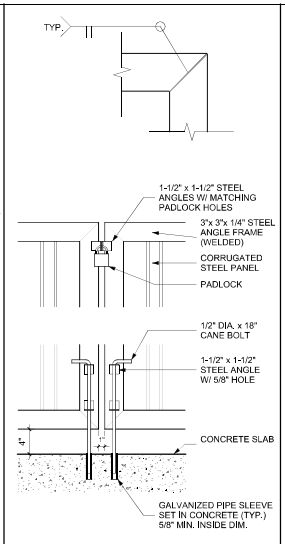
CONCRETE EXPANSION JOINT L4
1 1/2" = 1'-0"



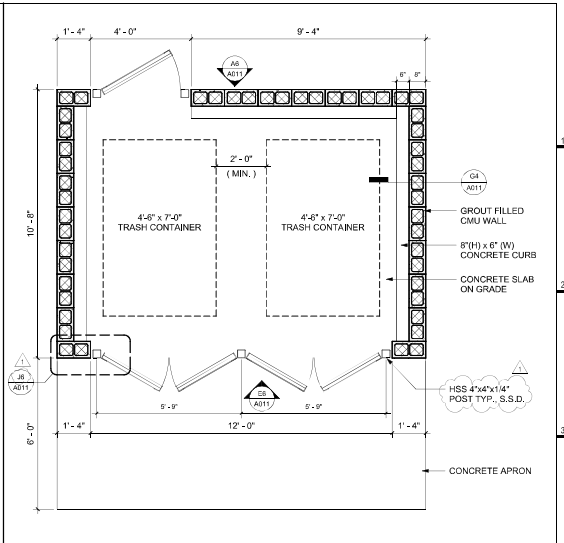
CMU SITE WALL J4
3/4" = 1'-0"



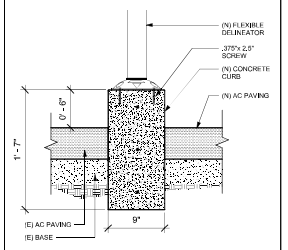
TRASH ENCLOSURE - WALL SECTION G4
3/4" = 1'-0"



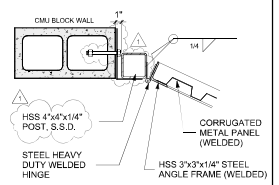
TRASH ENCLOSURE - LATCH & BOLT E4
1 1/2" = 1'-0"



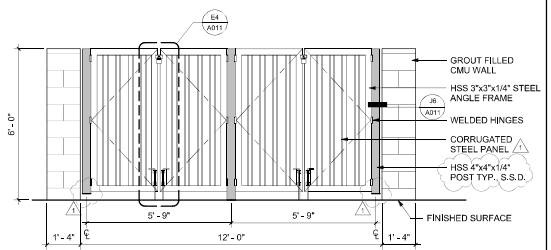
TRASH ENCLOSURE - FLOOR PLAN A4
1/2" = 1'-0"



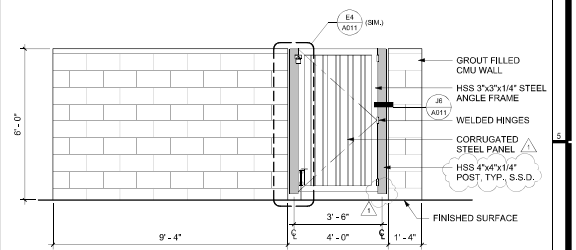
CONC. CURB AT AC PAVING L6
1 1/2" = 1'-0"



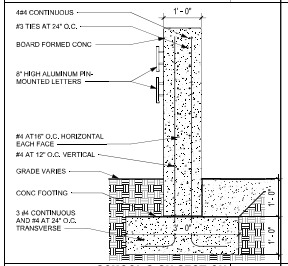
TRASH ENCLOSURE - GATE HINGE J6
1 1/2" = 1'-0"



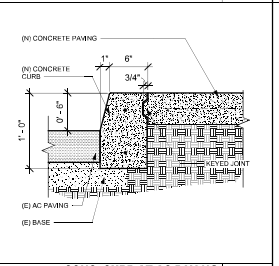
TRASH ENCLOSURE - ELEVATION E6
1/2" = 1'-0"



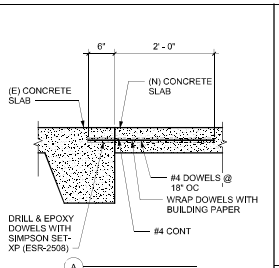
TRASH ENCLOSURE - ELEVATION A6
1/2" = 1'-0"

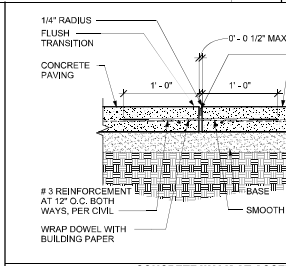


SCHOOL SIGN SECTION L8
3/4" = 1'-0"

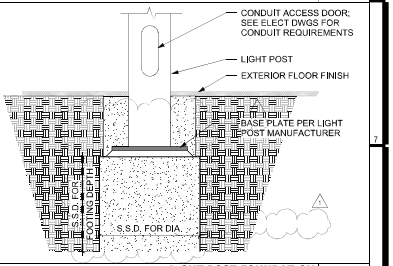


CONC. CURB AT AC PAVING J8
1 1/2" = 1'-0"

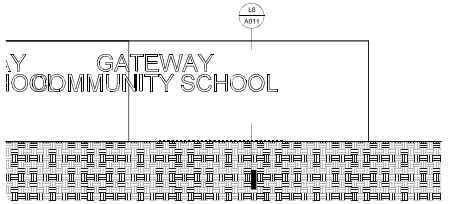




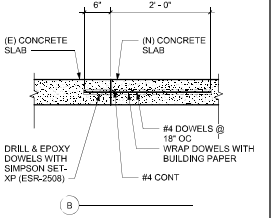
CONCRETE WALK AT ACCENT CONCRETE D8
1 1/2" = 1'-0"



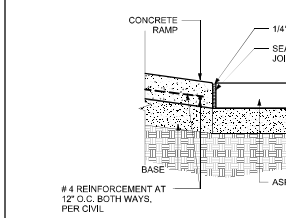
LIGHT POST FOUNDATION A8
1" = 1'-0"



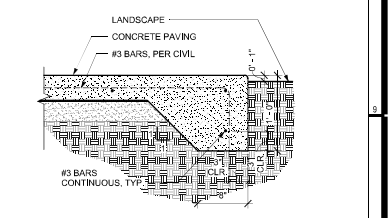
MONUMENT SIGN J10
1/2" = 1'-0"



CONCRETE TO (E) CONCRETE G10
1" = 1'-0"



RAMP TERMINATION AT ASPHALT D10
1 1/2" = 1'-0"



TYP. CONCRETE PAVING AT LANDSCAPE A10
1 1/2" = 1'-0"

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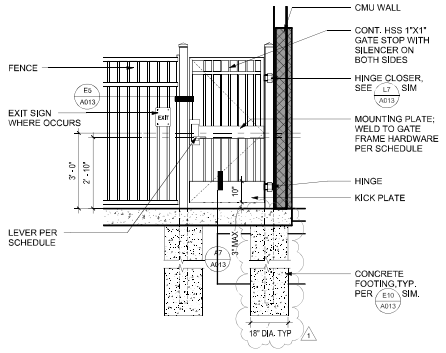
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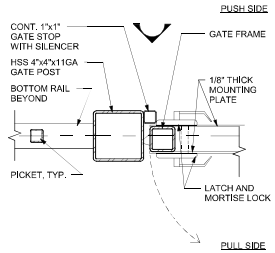
SITE DETAILS

A011

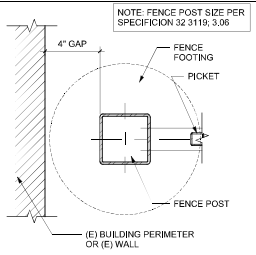
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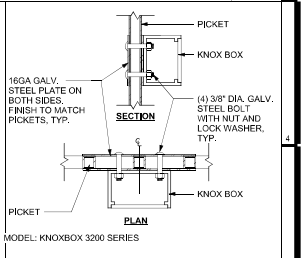
GATE ELEVATION A3 — 1/2" = 1'-0"



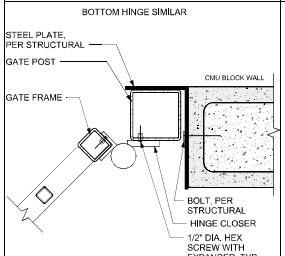
ORNAMENTAL GATE WITH LEVER AND LOCK E5 — 3" = 1'-0"



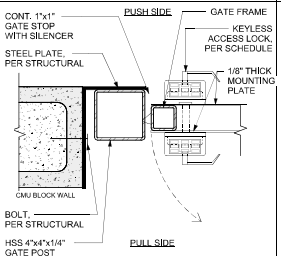
ORNAMENTAL FENCE POST AT BUILDING C5 — 3" = 1'-0"



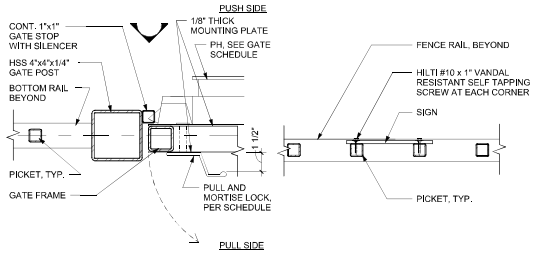
ORNAMENTAL METAL FENCE KNOX BOX A5 — 3" = 1'-0"



ORNAMENTAL GATE HINGE CLOSER L7 — 3" = 1'-0"

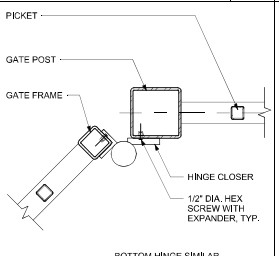


ORNAMENTAL METAL GATE J7 — 3" = 1'-0"

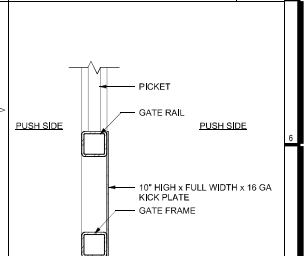


ORNAMENTAL GATE W/ PANIC HARDWARE G7 — 3" = 1'-0"

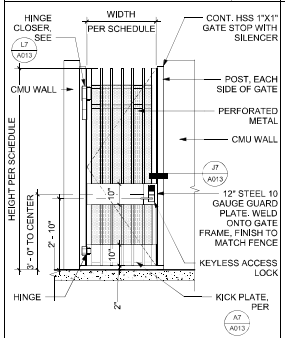
ORNAMENTAL METAL FENCE SIGN MOUNTING E7 — 3" = 1'-0"



ORNAMENTAL GATE HINGE CLOSER C7 — 3" = 1'-0"

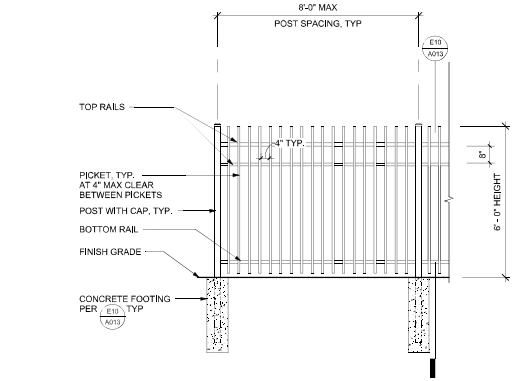


ORNAMENTAL METAL GATE KICK PLATE A7 — 3" = 1'-0"



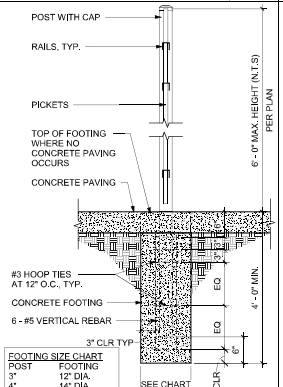
NOTE: GATE OPENING FORCE IS 5 POUNDS MAXIMUM

ORNAMENTAL METAL SINGLE GATE L10 — 1/2" = 1'-0"

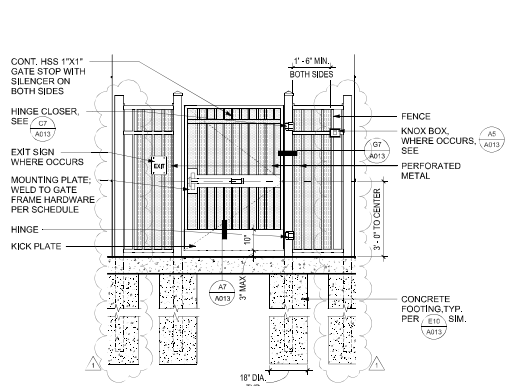


NOTE: PICKETS AND POSTS SHALL BE SPACED EQUALLY

TYP. ORNAMENTAL METAL FENCE ELEVATION G10 — 1/2" = 1'-0"



TYP. METAL FENCE FOOTING E10 — 1" = 1'-0"



GATE ELEVATION PH A10 — 1/2" = 1'-0"

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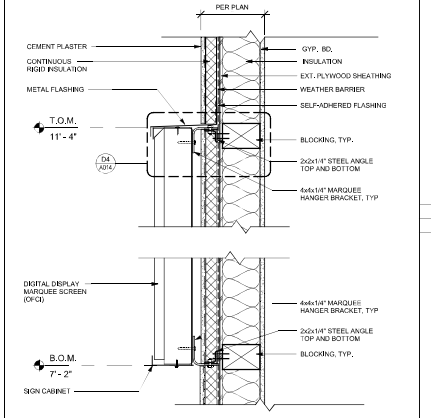
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ORNAMENTAL METAL FENCING & GATE DETAILS

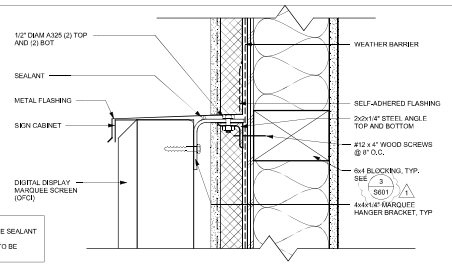
A013

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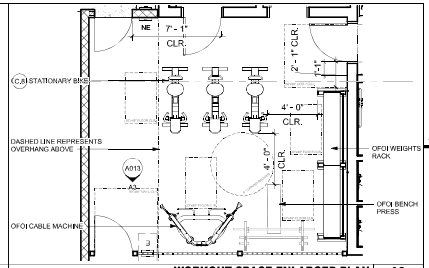
NOTE :-
- FASTENERS AND EXPOSED STEEL TO BE GALVANIZED.
- CONTRACTOR TO PROVIDE POWER AND DATA CONNECTIONS AT EXTERIOR DISPLAY LOCATION
- DIGITAL MARQUEE TO BE 200LBS MAX.

MARQUEE SECTION K4 — 1 1/2" = 1'-0"

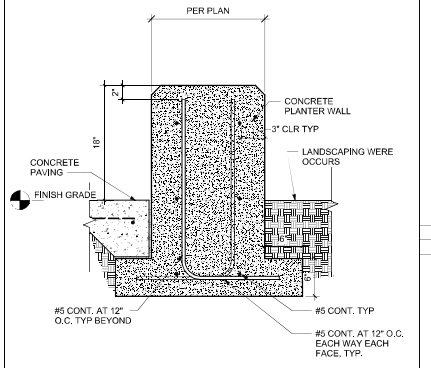


NOTE:
1. USE CLEAR SILICONE SEALANT AS NEEDED.
2. DIGITAL MARQUEE TO BE 200LBS MAX.

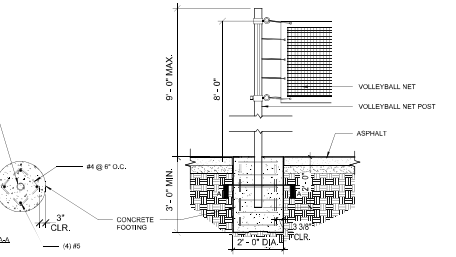
MARQUEE MOUNTING DETAIL D4 — 3" = 1'-0"



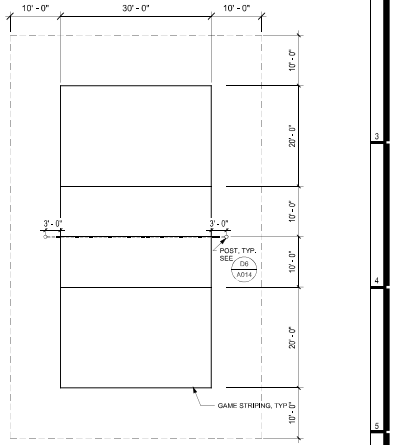
WORKOUT SPACE ENLARGED PLAN A2 — 1/4" = 1'-0"



CONCRETE BENCH K7 — 1 1/2" = 1'-0"

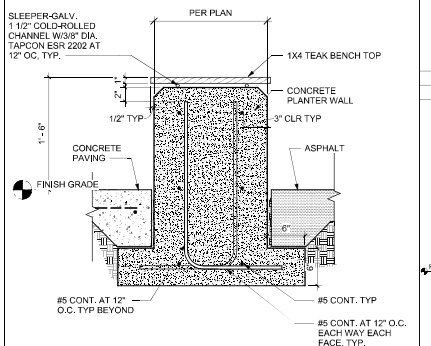


VOLLEYBALL NET POST D6 — 1/2" = 1'-0"

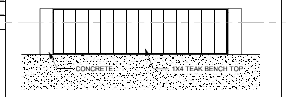


NOTES:
1. DIMENSIONS SHOWN ARE TYPICAL - COURT IS SYMETRICAL.
2. FOR VOLLEYBALL NET AND POST, SEE D6 A014

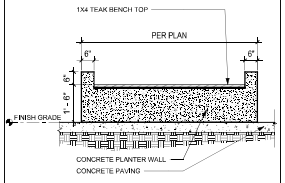
VOLLEYBALL COURT A6 — 1" = 10'-0"



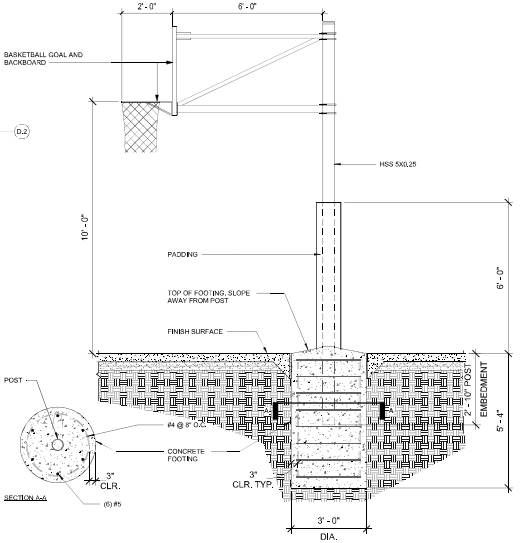
CONCRETE BENCH WITH WOOD TOP K10 — 1 1/2" = 1'-0"



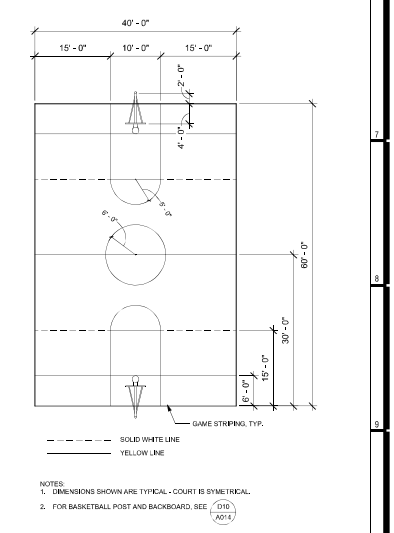
CONCRETE BENCH PLAN H8 — 1/2" = 1'-0"



CONCRETE BENCH WITH WOOD TOP H10 — 1/2" = 1'-0"



BASKETBALL POST AND GOAL D10 — 1/2" = 1'-0"



NOTES:
1. DIMENSIONS SHOWN ARE TYPICAL - COURT IS SYMETRICAL.
2. FOR BASKETBALL POST AND BACKBOARD, SEE D10 A014

BASKETBALL COURT A10 — 1" = 10'-0"

MARKINGS NOTES

1. GAME STRIPING TO BE 2" WIDE PAINTED STRIPES
2. STRIPING TO BE WHITE UNLESS NOTED OTHERWISE

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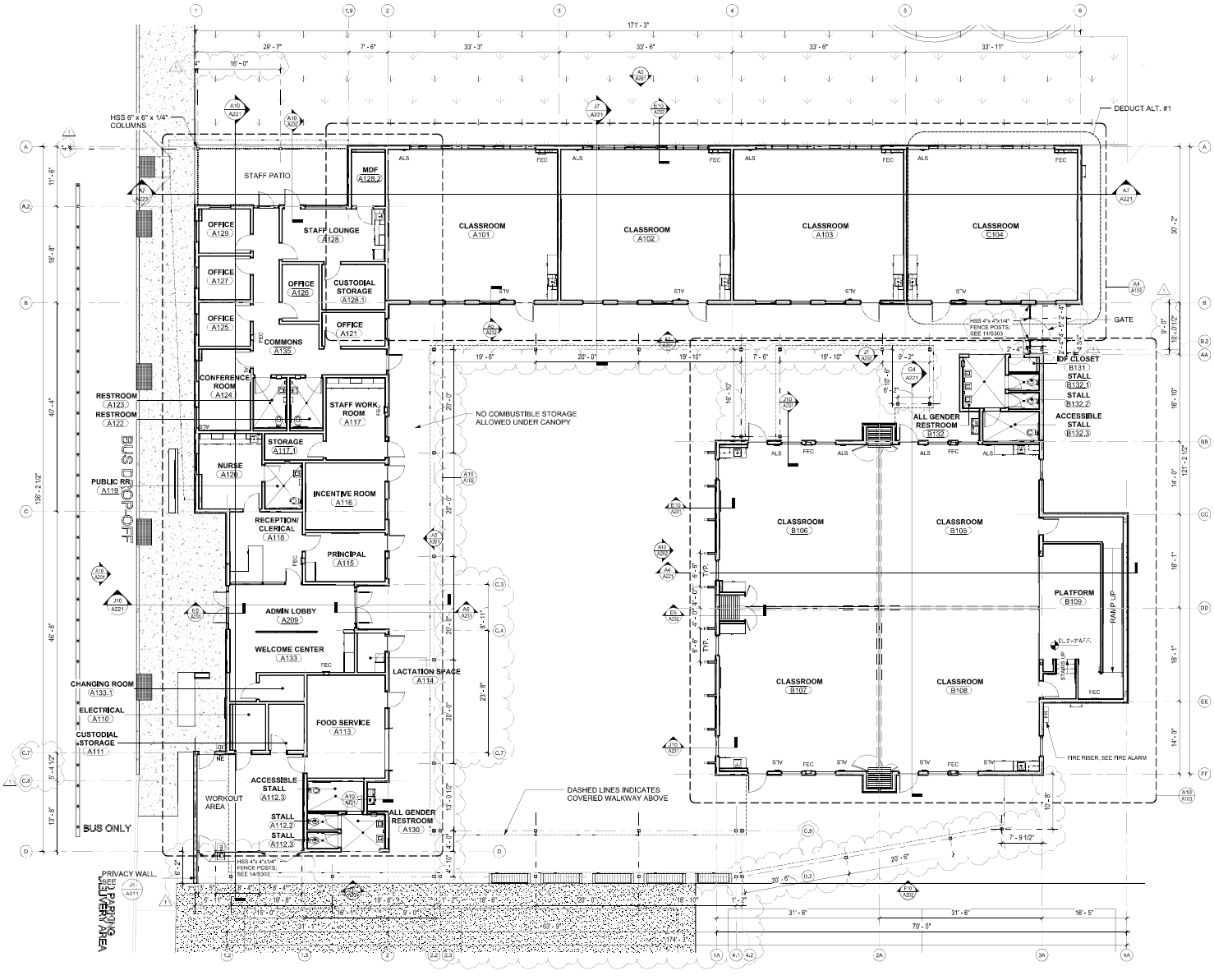
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MISCELLANEOUS SITE DETAILS

A014

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FLOOR PLAN LEGEND

- XXX — INTERIOR PARTITION TYPE
- EWX.X — EXTERIOR WALL ASSEMBLY
- 100 / 1 — Room # / Door # — DOOR NUMBER
- SF X — STOREFRONT TYPE
- X — WINDOW TYPE
- NEW NON-RATED WALL
- 1 HR RATED FIRE BARRIER WALL
- NEW DOOR
- FEC — FIRE EXTINGUISHER CABINET
- ALS — ASSISTIVE LISTENING SIGNAGE

FLOOR PLAN NOTES

1. ITEMS ARE NEW UNLESS NOTED OTHERWISE.
2. GRID LINE IS TO FACE OF STUD U.N.O.
3. DIMENSIONS ARE MEASURED TO FACE OF STUD AND GRID LINES, UNLESS NOTED OTHERWISE.
4. FOR CLASSROOM TYPE A, SEE A10/A303 ENLARGED PLAN.
5. FOR CLASSROOM TYPE B, SEE A10/A304 ENLARGED PLAN.
6. SEE STOREFRONT WINDOW SCHEDULE AND ENLARGED FLOOR PLANS FOR STOREFRONT WINDOW SIZES.
7. ALL CLASSROOM DOORS SHALL BE LOCKABLE FROM THE INSIDE, SEE SECTION 08 7100 IN SPECS.
8. ALL FURNITURE OF/OI.
9. ALL DOOR OPENINGS ARE TO BE 6 INCHES MINIMUM FROM ADJACENT WALL U.N.O.

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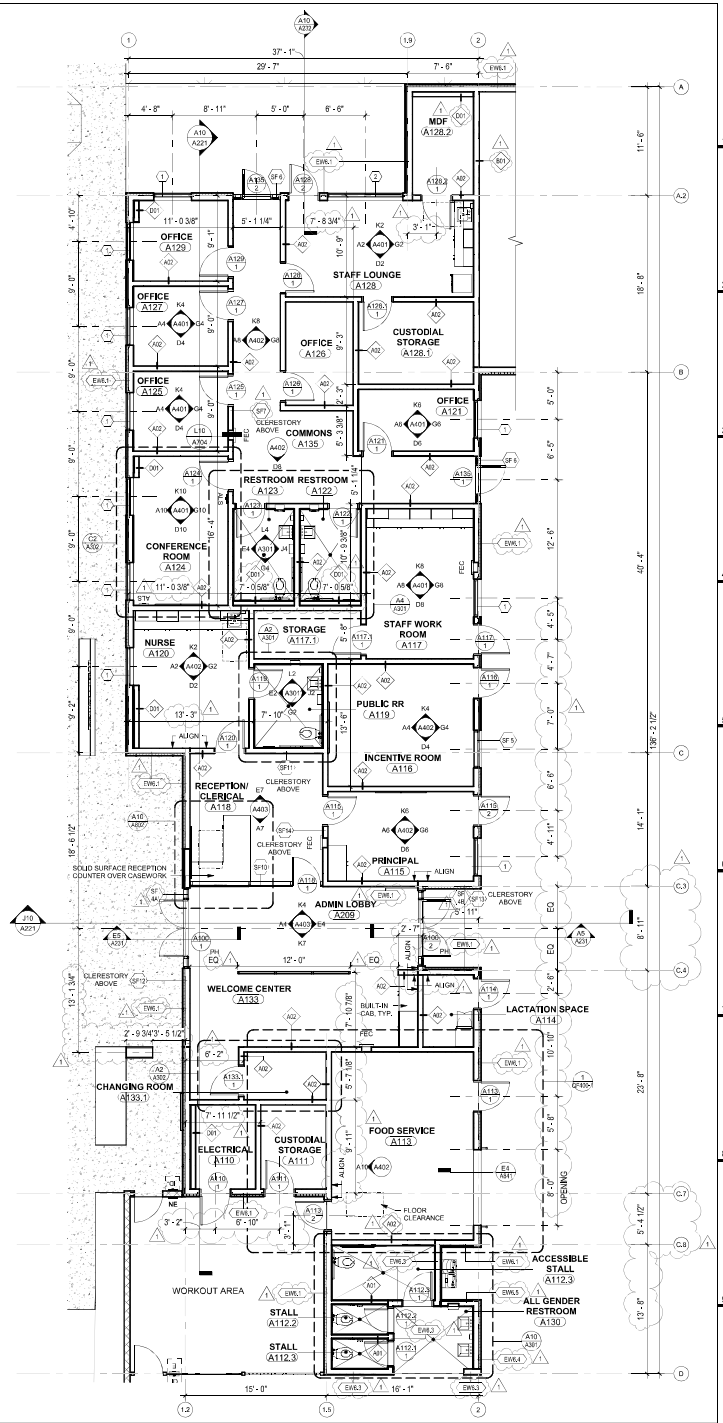
OVERALL FLOOR PLAN

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OVERALL FLOOR PLAN A10
1/8" = 1'-0"

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FLOOR PLAN LEGEND

- XXX — INTERIOR PARTITION TYPE
- EWX.X — EXTERIOR WALL ASSEMBLY
- 100 / 1 — Room # / Door # — DOOR NUMBER
- SF X — STOREFRONT TYPE
- X — WINDOW TYPE
- NEW NON-RATED WALL
- 1 HR RATED FIRE BARRIER WALL
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FLOOR PLAN NOTES

1. ITEMS ARE NEW UNLESS NOTED OTHERWISE.
2. GRID LINE IS TO FACE OF STUD U.N.O.
3. DIMENSIONS ARE MEASURED TO FACE OF STUD AND GRID LINES, UNLESS NOTED OTHERWISE.
4. FOR CLASSROOM TYPE A, SEE ENLARGED PLAN. (A10 / A303)
5. FOR CLASSROOM TYPE B, SEE ENLARGED PLAN. (A10 / A304)
6. SEE STOREFRONT WINDOW SCHEDULE AND ENLARGED FLOOR PLANS FOR STOREFRONT WINDOW SIZES.
7. ALL CLASSROOM DOORS SHALL BE LOCKABLE FROM THE INSIDE, SEE SECTION 08 7100 IN SPECS.
8. ALL FURNITURE OF/OI.
9. ALL DOOR OPENINGS ARE TO BE 6 INCHES MINIMUM FROM ADJACENT WALL U.N.O.

ENLARGED FLOOR PLAN - BLDG A WEST A10 — 3/16" = 1'-0"

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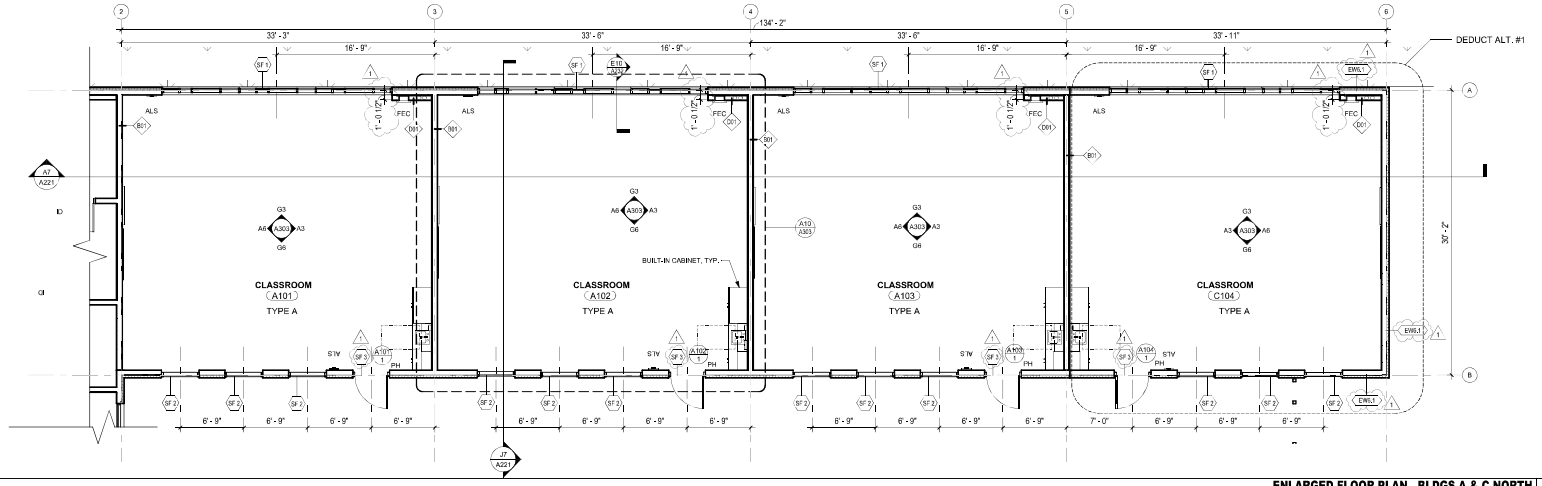
JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
1 ADD 1	08/28/2020

ENLARGED FLOOR PLAN - BLDG A

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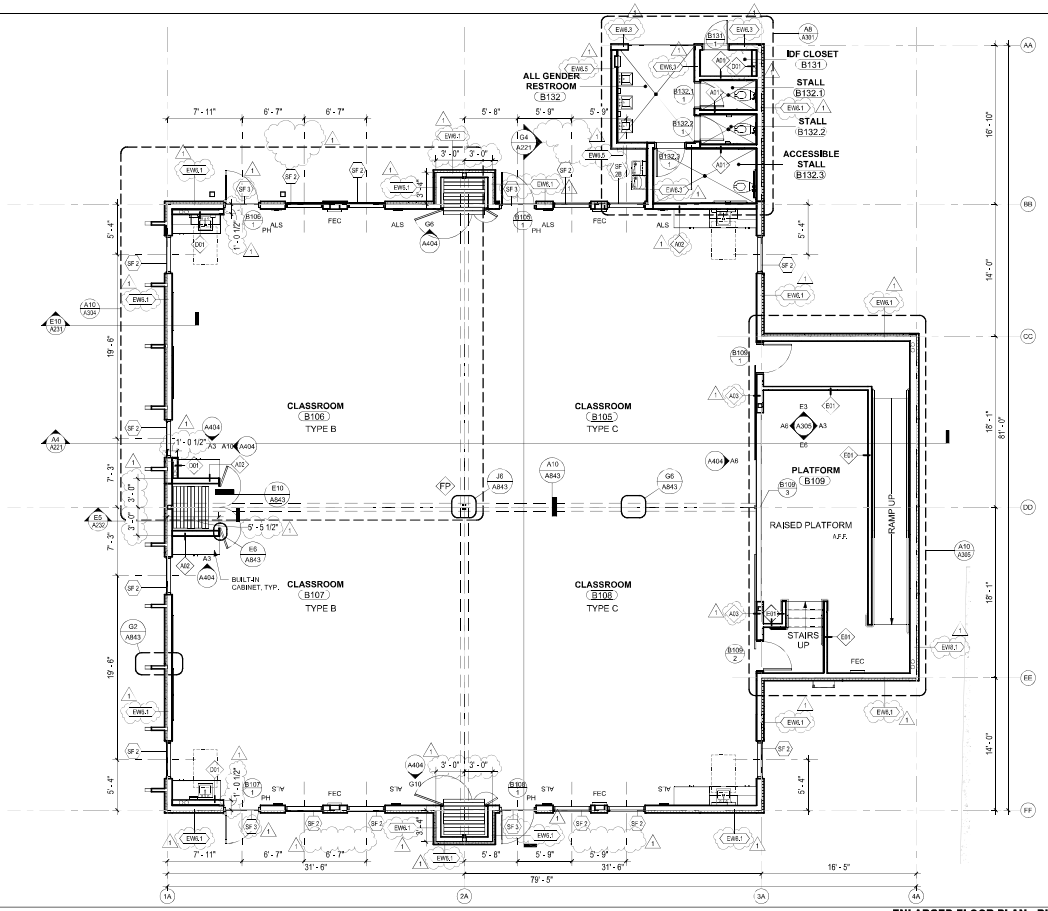
A102

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ENLARGED FLOOR PLAN - BLDGS A & C NORTH A4

3/16" = 1'-0"



ENLARGED FLOOR PLAN - BLDG B A10

3/16" = 1'-0"

FLOOR PLAN LEGEND

- XXX — INTERIOR PARTITION TYPE
- EWX.X — EXTERIOR WALL ASSEMBLY
- 100 / 1 — Room # / Door # — DOOR NUMBER
- SF X — STOREFRONT TYPE
- X — WINDOW TYPE
- NEW NON-RATED WALL
- 1 HR RATED FIRE BARRIER WALL
- NEW DOOR
- FEC — FIRE EXTINGUISHER CABINET
- ALS — ASSISTIVE LISTENING SIGNAGE

FLOOR PLAN NOTES

1. ITEMS ARE NEW UNLESS NOTED OTHERWISE.
2. GRID LINE IS TO FACE OF STUD U.N.O.
3. DIMENSIONS ARE MEASURED TO FACE OF STUD AND GRID LINES, UNLESS NOTED OTHERWISE.
4. FOR CLASSROOM TYPE A, SEE A10/A303 ENLARGED PLAN.
5. FOR CLASSROOM TYPE B, SEE A10/A304 ENLARGED PLAN.
6. SEE STOREFRONT WINDOW SCHEDULE AND ENLARGED FLOOR PLANS FOR STOREFRONT WINDOW SIZES.
7. ALL CLASSROOM DOORS SHALL BE LOCKABLE FROM THE INSIDE, SEE SECTION 08 7100 IN SPECS.
8. ALL FURNITURE OF/OI.
9. ALL DOOR OPENINGS ARE TO BE 6 INCHES MINIMUM FROM ADJACENT WALL U.N.O.

GATEWAY ANNEX SCHOOL

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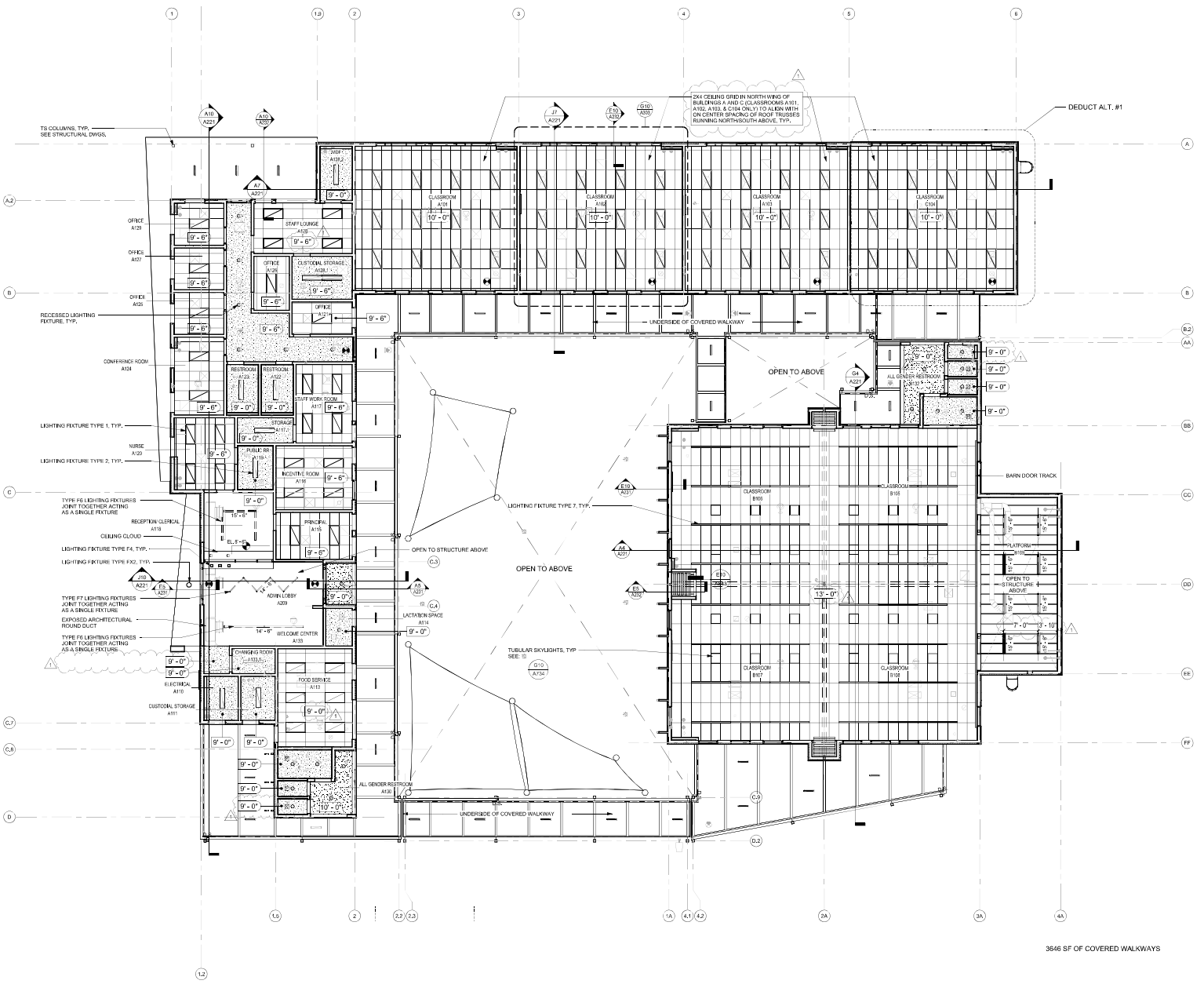
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ENLARGED FLOOR PLANS - BLDGS A, B, & C

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CEILING PLAN LEGEND

- ACOUSTICAL TILE CEILING (A10 / A821)
- PLASTER FINISH CEILING (E10 / A824)
- GYPSUM BOARD CEILING (J10 / A825)
- CEILING DIFFUSER/REGISTER - SEE MECH
- LIGHT FIXTURES, SEE ELECT
- 9' - 0" HEIGHT OF THE BASE OF THE PENDANT FIXTURE A.F.F.
- TYPICAL LIGHTING FIXTURE SPACING, U.N.O.
- ACCESS PANEL
- PENDANT LIGHT

CEILING NOTES

1. FOR TYPICAL CEILING DETAILS, SEE SHEETS A821~A826.
2. HEIGHTS INDICATED ARE TO THE UNDERSIDE OF THE FINISH CEILING OR SOFFIT FROM THE FINISH FLOOR OF BUILDINGS.
3. PROVIDE ACCESS PANELS AT GYPSUM BOARD CEILINGS WHERE REQUIRED FOR PLUMBING, MECHANICAL, AND SPRINKLER ACCESS OR AS REQUIRED BY CODE.
4. PROVIDE ACCESS PANELS AT EACH SPRINKLER HEAD IN ATTIC/ CONCEALED SPACES.
5. LIGHT FIXTURES AND AIR DIFFUSERS/ REGISTERS ARE SHOWN FOR LOCATIONS ONLY. SEE ELECTRICAL AND MECHANICAL PLANS FOR ACTUAL TYPES AND SIZES.
6. SEE ELECTRICAL PLANS FOR EXIT SIGN LOCATIONS.
7. PROVIDE MOLD AND WATER RESISTANT GYPSUM BOARD AT RESTROOMS.
8. PROVIDE SWAY BRACING WHERE FIXTURES ARE SUSPENDED OVER 1'-0" AND WHERE ITEMS CANNOT SWING FREELY IN A 45 DEGREES ARC.
9. LIGHT FIXTURES ARE TO BE CENTERED IN THE ROOM UNLESS NOTED OTHERWISE.
10. PAINT ALL EXPOSED CONDUITS AND PIPES.

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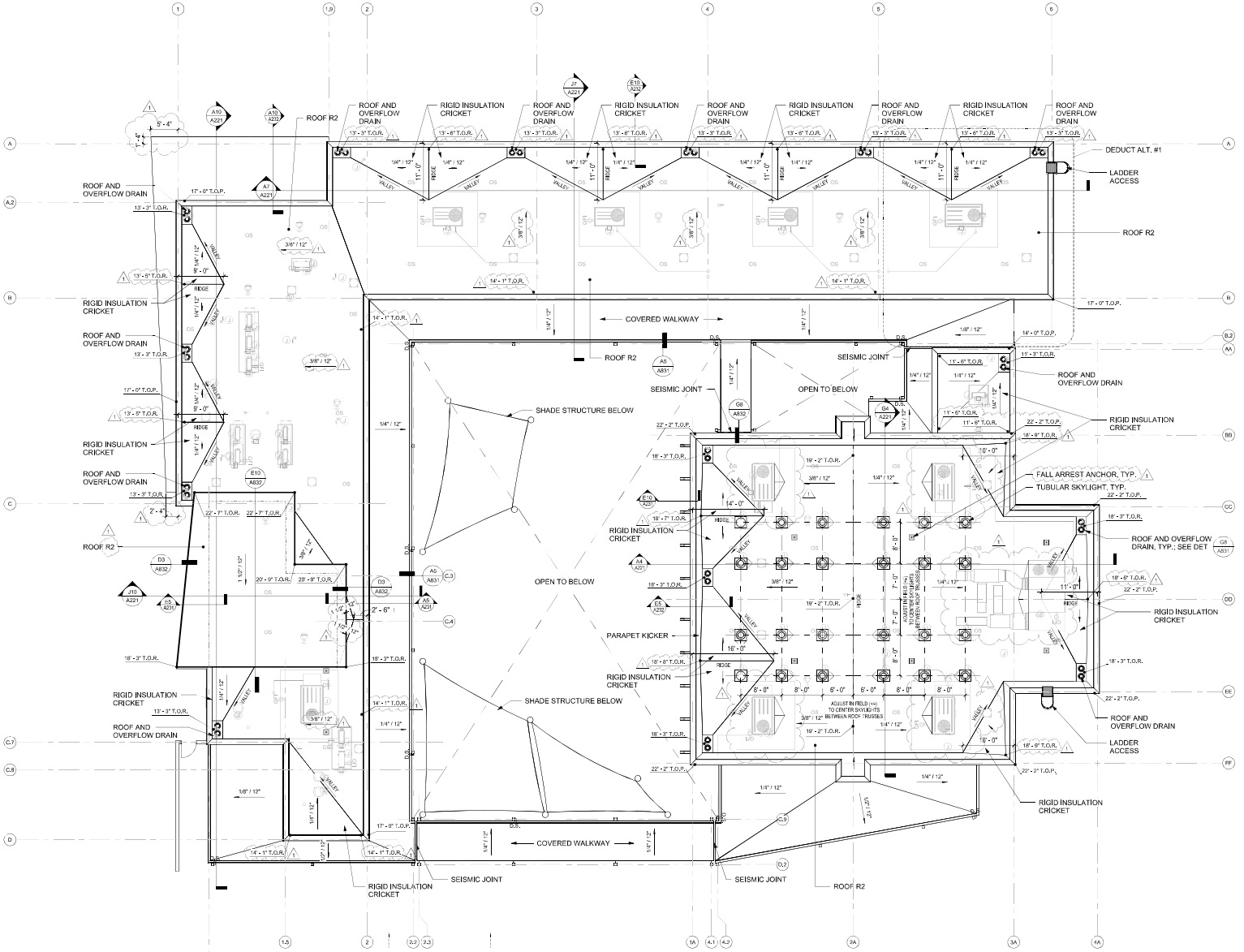
REFLECTED CEILING PLAN

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A121

DS-RP-LEVEL 1 | A10 | 1/8" = 1'-0"

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ROOF LEGEND

SINGLE-PLY PVC ROOF

ROOF ASSEMBLY TYPES

ROOF XX

R2 - -SINGLE-PLY PVC ROOFING
-MIN 1/2" PRE-PRIMED COVER BOARD
-2" RIGID INSULATION
-WEATHER BARRIER
-19/32" PLYWOOD SHEATHING

GENERAL ROOF NOTES

TUBULAR SKYLIGHT ANSI CCRR-0131

FALL ARREST ANCHORAGE CONNECTOR; SEE A3 A832

ROOF PLAN A10
1/8" = 1'-0"

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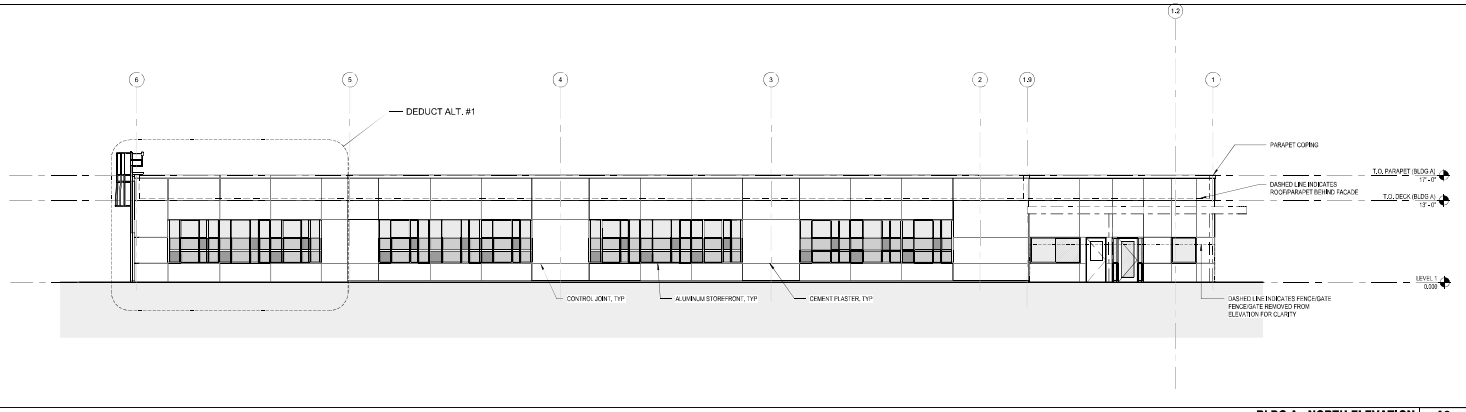
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ROOF PLAN

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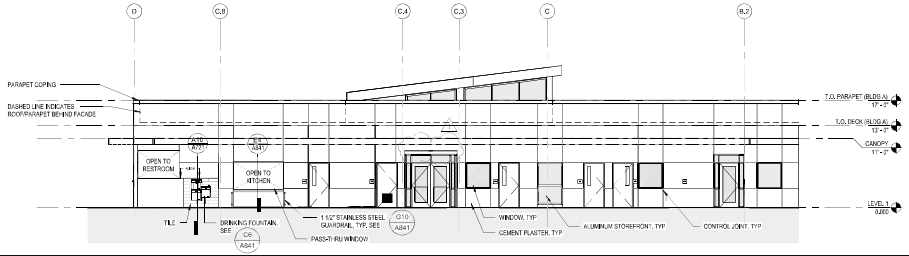
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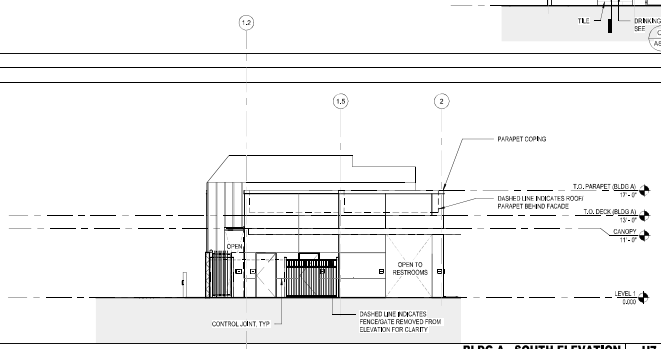
BLDG A - NORTH ELEVATION A3

1/8" = 1'-0"



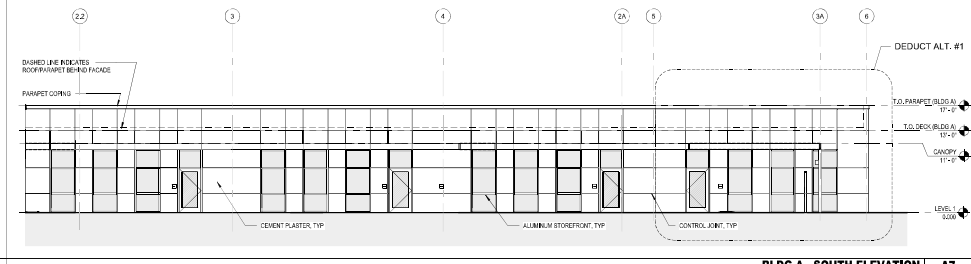
BLDG A - EAST ELEVATION A5

1/8" = 1'-0"



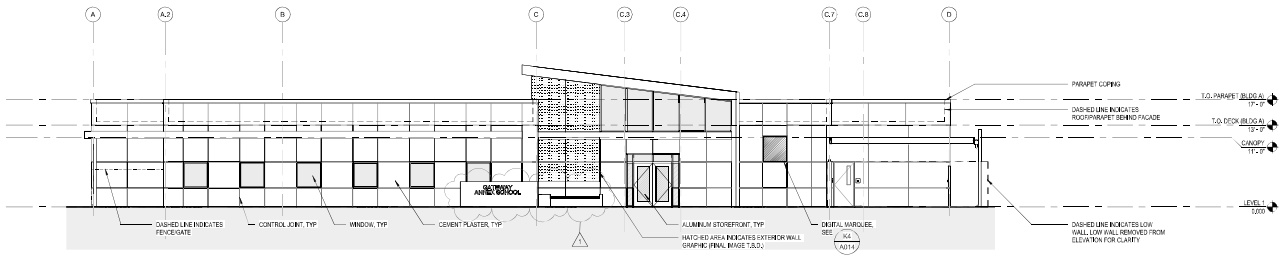
BLDG A - SOUTH ELEVATION H7

1/8" = 1'-0"



BLDG A - SOUTH ELEVATION A7

1/8" = 1'-0"



BLDG A - WEST ELEVATION A10

1/8" = 1'-0"

GLAZING LEGEND

- GLAZING TYPE I
- GLAZING TYPE II
- GLAZING WITH FILM: FASARA - MILKY MILKY LIGHT GREY 2H2MAMML
- GLAZING WITH FILM: FASARA - CROSS HAIRLINE MILKY SH2CHML

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EXTERIOR ELEVATIONS

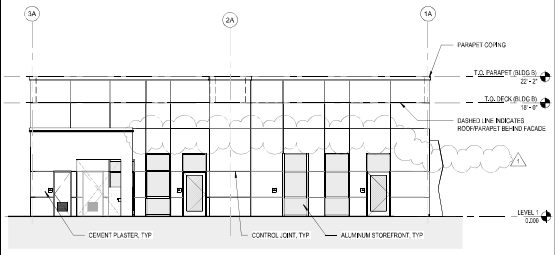
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A201

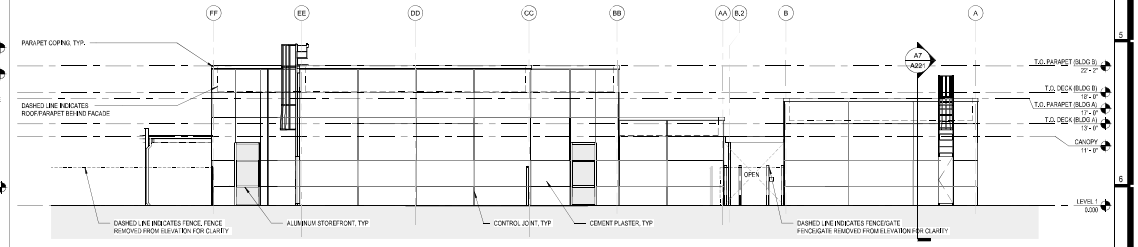
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GLAZING LEGEND

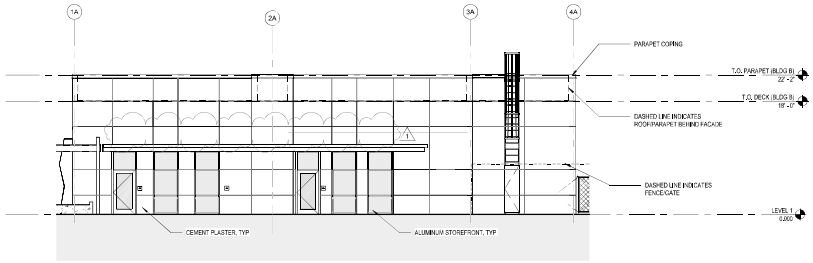
- GLAZING TYPE I
- GLAZING TYPE II
- GLAZING WITH FILM: FASARA - MILKY MILKY LIGHT GREY 2H2MAMML
- GLAZING WITH FILM: FASARA - CROSS HAIRLINE MILKY SHOCHML



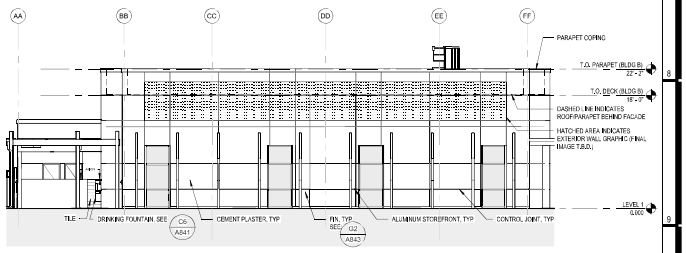
BLDG B - NORTH ELEVATION J7 — 1/8" = 1'-0"



BLDGS A & B - EAST ELEVATION A7 — 1/8" = 1'-0"



BLDG B - SOUTH ELEVATION1 F10 — 1/8" = 1'-0"



BLDG B - WEST ELEVATION A10 — 1/8" = 1'-0"

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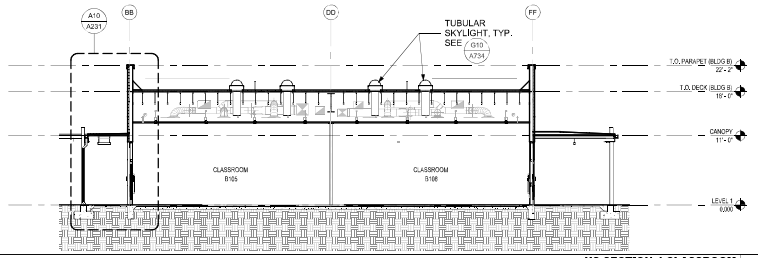
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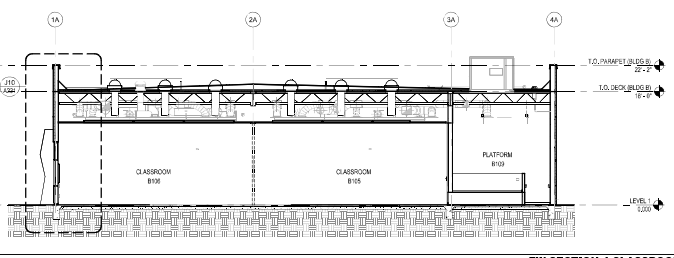
EXTERIOR ELEVATIONS

A202

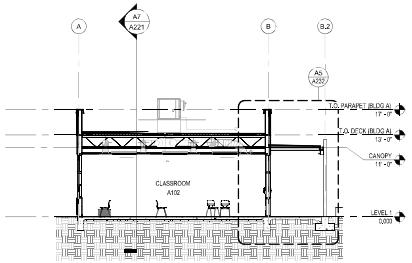
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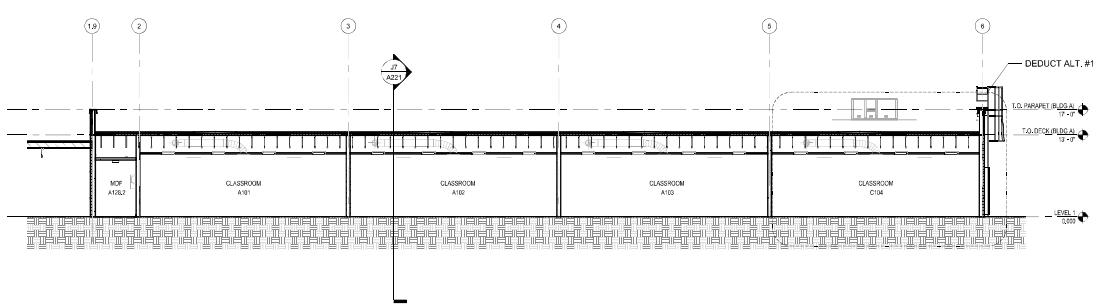
NS SECTION 4-CLASSROOM G4 — 1/8" = 1'-0"



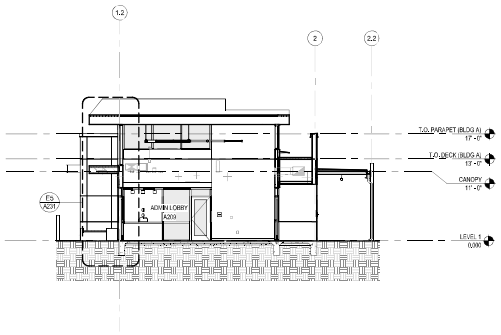
EW SECTION 4-CLASSROOM A4 — 1/8" = 1'-0"



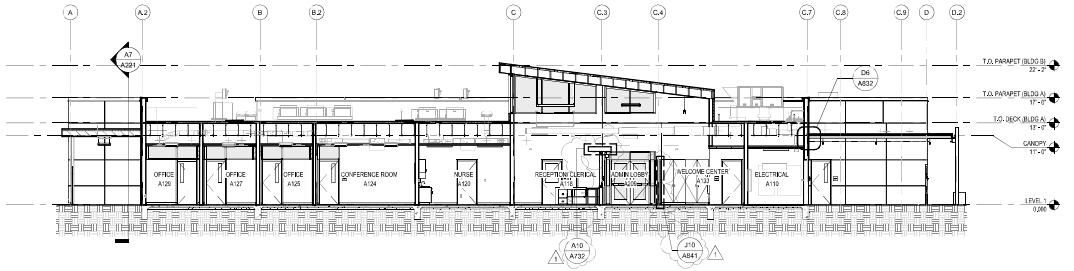
NS SECTION NORTH CLASSROOM J7 — 1/8" = 1'-0"



EW SECTION NORTH CLASSROOM A7 — 1/8" = 1'-0"



EW SECTION COURTYARD J10 — 1/8" = 1'-0"



NS SECTION ADMIN BUILDING A10 — 1/8" = 1'-0"

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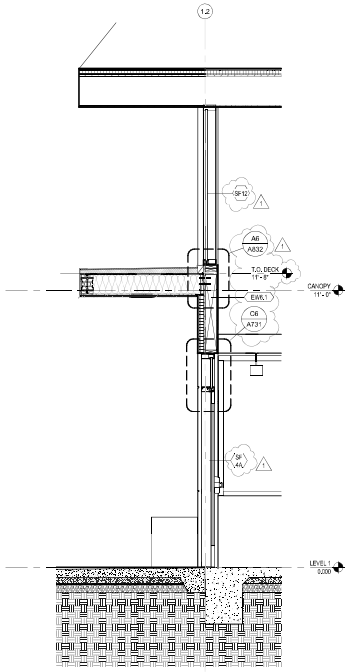
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BUILDING SECTIONS

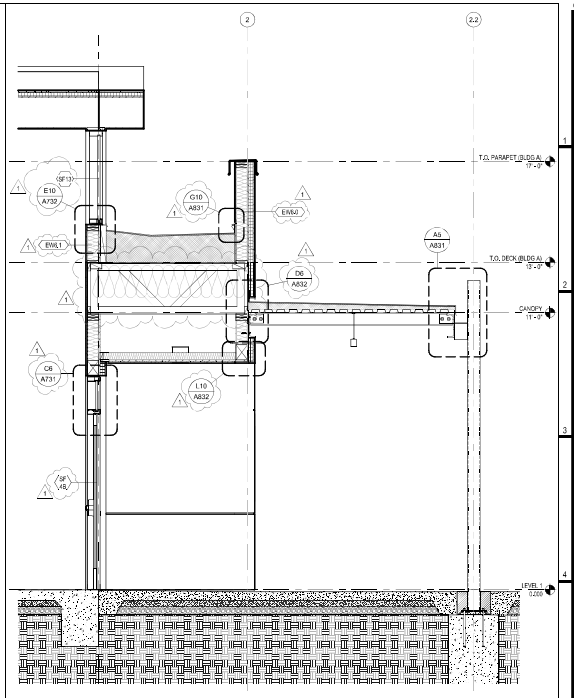
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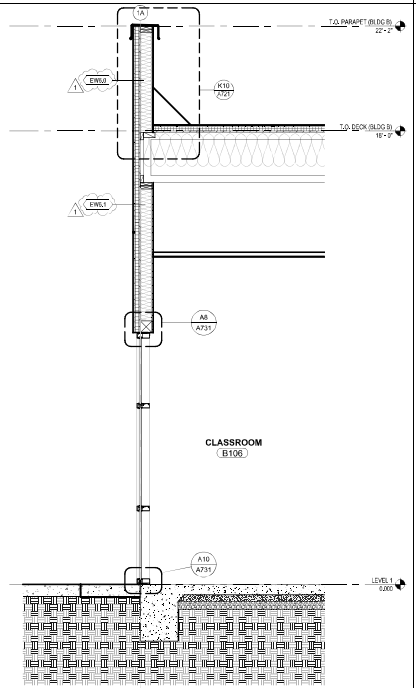
WALL SECTION - FRONT ENTRANCE E5

1/2" = 1'-0"



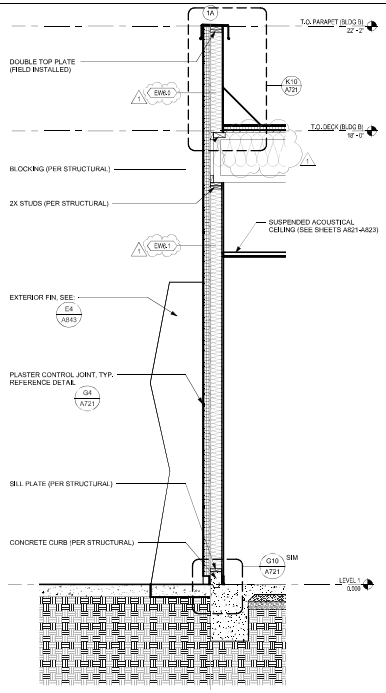
WALL SECTION - COURTYARD A5

1/2" = 1'-0"



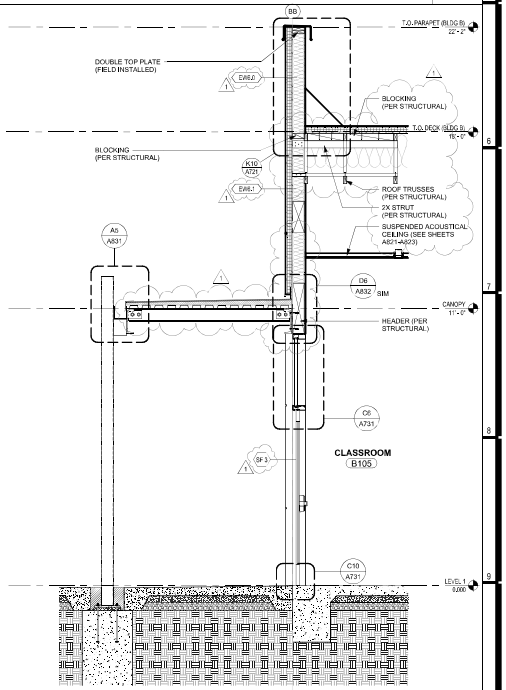
WALL SECTION - STOREFRONT J10

1/2" = 1'-0"



WALL SECTION - FINS E10

1/2" = 1'-0"



WALL SECTION - BUILDING B A10

1/2" = 1'-0"

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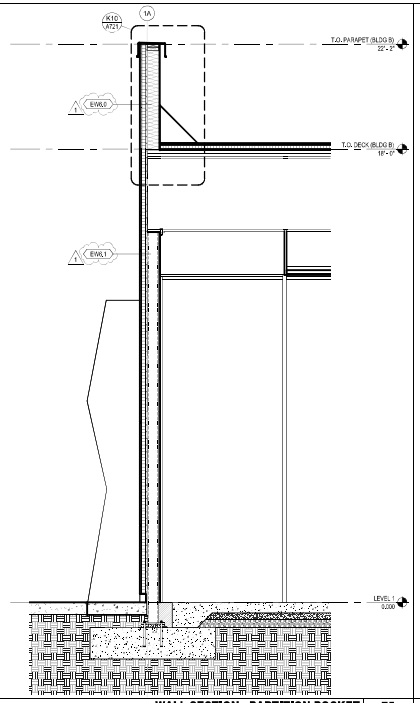
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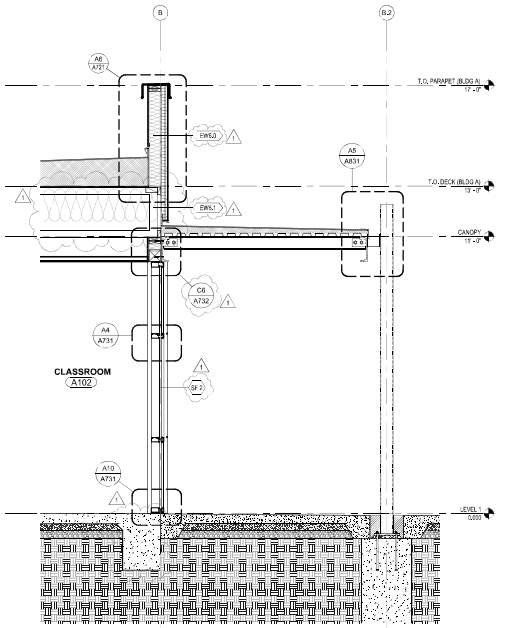
EXTERIOR WALL SECTIONS

A231

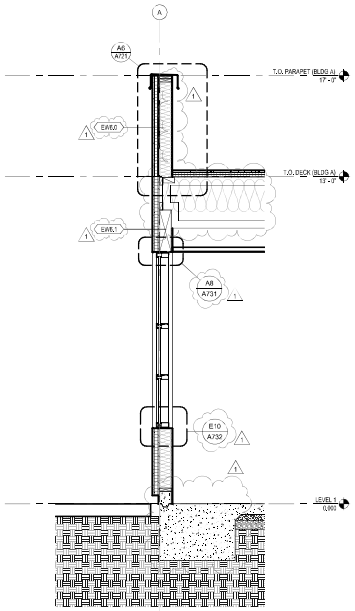
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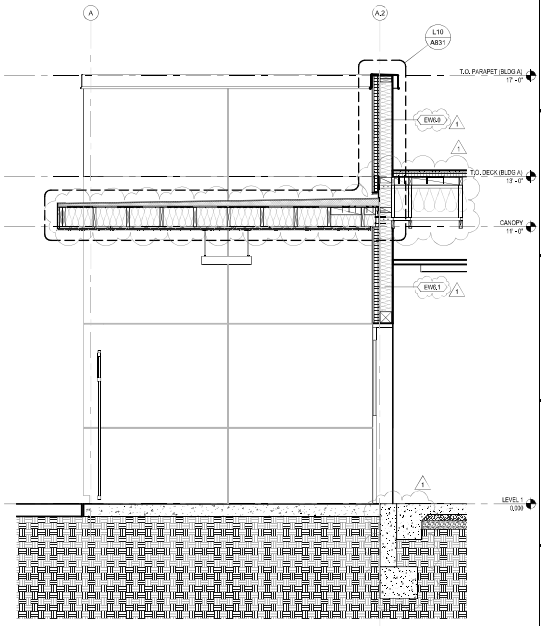
WALL SECTION - PARTITION POCKET E5
1/2" = 1'-0"



WALL SECTION - CANOPY A5
1/2" = 1'-0"



WALL SECTION - NORTH CLASSROOMS E10
1/2" = 1'-0"



WALL SECTION - STAFF PATIO A10
1/2" = 1'-0"

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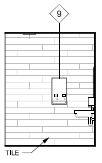
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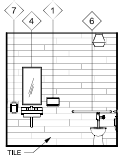
EXTERIOR WALL SECTIONS

A232

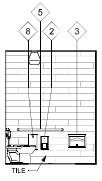
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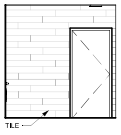
PUBLIC RESTROOM - NORTH L2
1/4" = 1'-0"



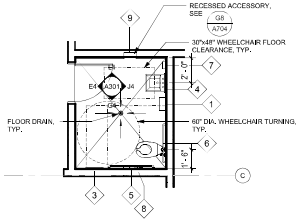
PUBLIC RESTROOM - EAST J2
1/4" = 1'-0"



PUBLIC RESTROOM - SOUTH G2
1/4" = 1'-0"



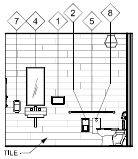
PUBLIC RESTROOM - WEST E2
1/4" = 1'-0"



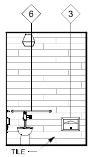
ENLARGED FLOOR PLAN - A119 PUBLIC RESTROOM A2
1/4" = 1'-0"



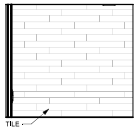
STAFF RESTROOM - NORTH L4
1/4" = 1'-0"



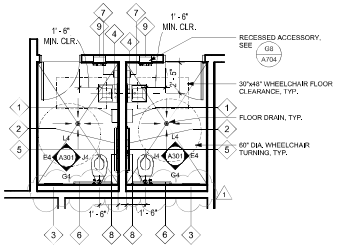
STAFF RESTROOM - EAST J4
1/4" = 1'-0"



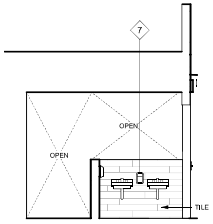
STAFF RESTROOM - SOUTH G4
1/4" = 1'-0"



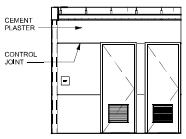
STAFF RESTROOM - WEST E4
1/4" = 1'-0"



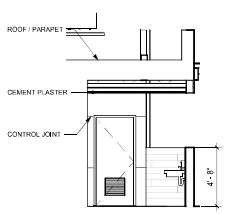
ENLARGED FLOOR PLAN - A122/A123 STAFF RESTROOMS A4
1/4" = 1'-0"



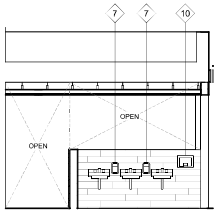
STUDENT RESTROOM - EAST L6
1/4" = 1'-0"



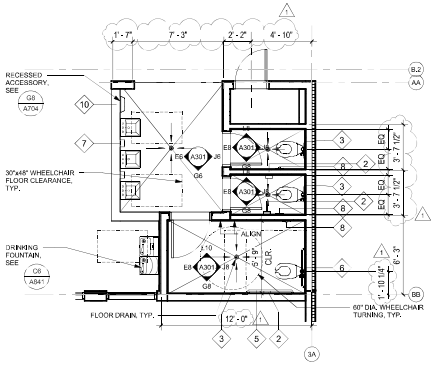
STUDENT RESTROOM - EAST J6
1/4" = 1'-0"



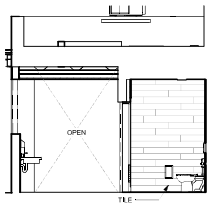
STUDENT RESTROOM - SOUTH G6
1/4" = 1'-0"



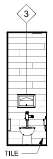
STUDENT RESTROOM - WEST E6
1/4" = 1'-0"



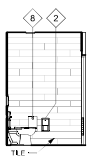
ENLARGED FLOOR PLAN - A132 EAST RESTROOMS A8
1/4" = 1'-0"



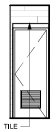
STUDENT TOILET - NORTH L8
1/4" = 1'-0"



STUDENT TOILET - EAST J8
1/4" = 1'-0"



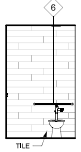
STUDENT TOILET - SOUTH G8
1/4" = 1'-0"



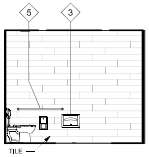
STUDENT TOILET - WEST E8
1/4" = 1'-0"



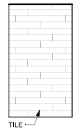
STUDENT ACCESSIBLE TOILET - NORTH L10
1/4" = 1'-0"



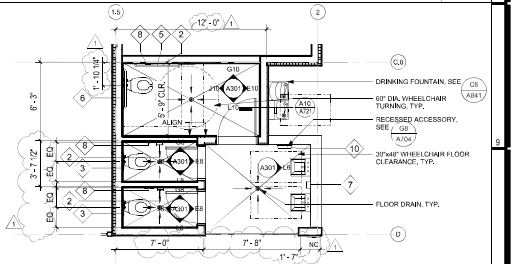
STUDENT ACCESSIBLE TOILET - EAST J10
1/4" = 1'-0"



STUDENT ACCESSIBLE TOILET - SOUTH G10
1/4" = 1'-0"



STUDENT ACCESSIBLE TOILET - WEST E10
1/4" = 1'-0"



ENLARGED FLOOR PLAN - A130 WEST RESTROOMS A10
1/4" = 1'-0"

ACCESSORIES...

#	DESCRIPTION	MODEL	BASIS OF DESIGN
1	PAPER TOWEL DISPENSER - SURFACE MOUNTED	B-262	BOBRICK
2	TOILET TISSUE DISPENSER - RECESSED	B-4388	BOBRICK
3	TOILET SEAT COVER DISPENSER	B-5221	BOBRICK
4	GLASS MIRROR WITH FRAME - 18" x 36"	B-2908	BOBRICK
5	GRAB BAR 42"	B-6806	BOBRICK
6	GRAB BAR 36"	B-6806	BOBRICK
7	SOAP DISPENSER - SURFACE MOUNTED	B-2111	BOBRICK
8	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED	B-270	BOBRICK
9	SANITARY NAPKIN VENDOR SEMI-RECESSED	B-2706	BOBRICK
10	HAND-DRYER	B750	BOBRICK

RESTROOM FLOOR PLAN NOTES

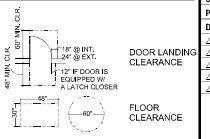
1. GRAB BAR MOUNTING DETAIL SEE A10 A302
2. FOR RECESSED ACCESSORIES SEE A302
3. FOR TYPICAL ACCESSORY MOUNTING HEIGHT SEE F10 A302
4. FOR TYPICAL TILE PATTERN SEE A7 A302

ELEVATION LEGEND

SOAP DISPENSER

PAPER TOWEL DISPENSER

TYP. CLEARANCES



TILES

DALTILE PORTFOLIO
TL-1 DOVE GREY PF04 MATTE
TL-2 ASH GREY PF05 MATTE
TL-3 SKYLINE BLEND PF12

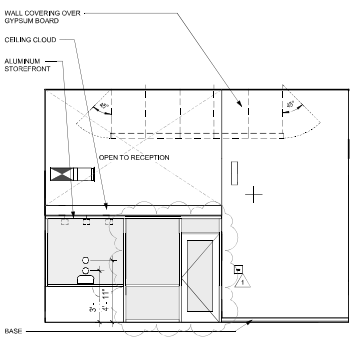
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550 Airport Way, Camarillo, CA 93010

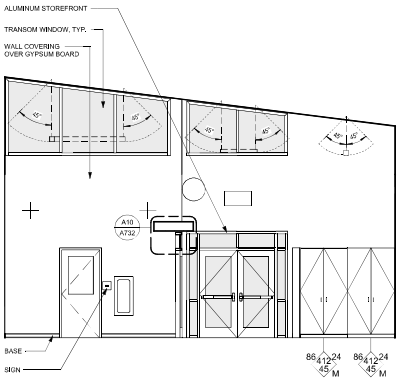
JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
1 ADD 1	08/28/2020

ENLARGED RESTROOM FLOOR PLANS & ELEVATIONS

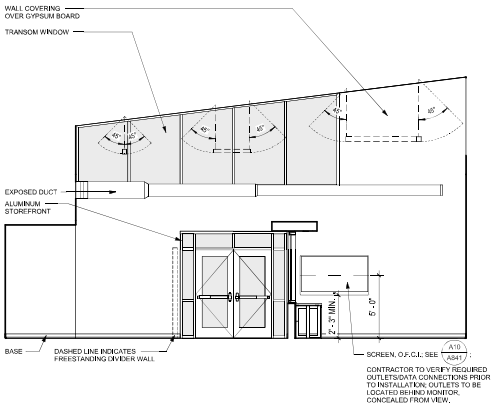
A301



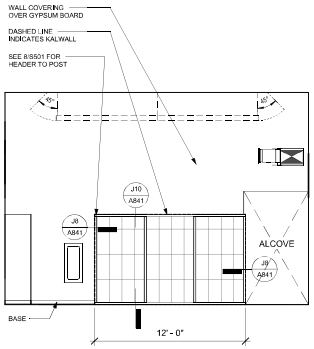
NORTH - ENTRANCE K4
1/4" = 1'-0"



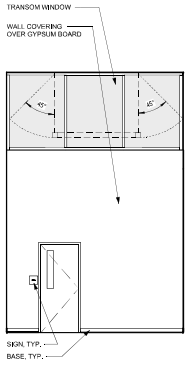
EAST - ENTRANCE E4
1/4" = 1'-0"



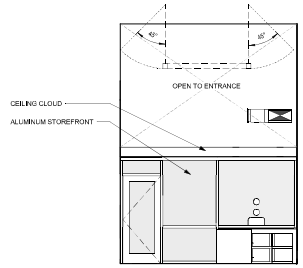
WEST - ENTRANCE A4
1/4" = 1'-0"



SOUTH - ENTRANCE K7
1/4" = 1'-0"



NORTH - RECEPTION E7
1/4" = 1'-0"



SOUTH - RECEPTION A7
1/4" = 1'-0"

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INT. ELEVATION LEGEND

CASEWORK TAG:

UNIT HEIGHT — UNIT DEPTH
UNIT WIDTH — WIC DESIGNATION
LOCK — MODIFICATION TO STYLE

CASEWORK NOTES:

1. PROVIDE LOCKS FOR CABINET DRAWNERS AND DOORS, TYP.
2. REFER TO MANUAL OF MILLWORK BY WOODWORK INSTITUTE OF CALIFORNIA FOR WIC DESIGNATION.
3. FOR CASEWORK SEE A801

ELEVATION LEGEND

SOAP DISPENSER

PAPER TOWEL DISPENSER

ACCESSORIES...

#	DESCRIPTION	MODEL	BASIS OF DESIGN
1	PAPER TOWEL DISPENSER - SURFACE MOUNTED	B-262	BOBRICK
2	TOILET TISSUE DISPENSER - RECESSED	B-4388	BOBRICK
3	TOILET SEAT COVER DISPENSER	B-5221	BOBRICK
4	GLASS MIRROR WITH FRAME - 18" x 36"	B-2908	BOBRICK
5	GRAB BAR 42"	B-6806	BOBRICK
6	GRAB BAR 36"	B-6806	BOBRICK
7	SOAP DISPENSER - SURFACE MOUNTED	B-2111	BOBRICK
8	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED	B-270	BOBRICK
9	SANITARY NAPKIN VENDOR SEMI-RECESSED	B-2706	BOBRICK
10	HAND-DRYER	B750	BOBRICK

INT. ELEV. NOTES

1. FOR LIGHT FIXTURE BRACE WIRE ATTACHMENT, SEE DETAIL G6, SHEET A841.

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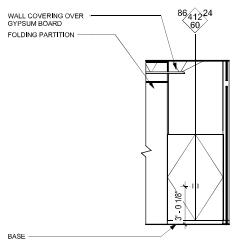
JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
1 ADD 1	08/28/2026

INTERIOR ELEVATIONS - BLDG A

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CLASSROOM TYPE B - SOUTH A3
1/4" = 1'-0"

INT. ELEVATION LEGEND

CASEWORK TAG:

UNIT HEIGHT
UNIT DEPTH
UNIT WIDTH
WIC DESIGNATION
LOCK
MODIFICATION TO STYLE

CASEWORK NOTES:

1. PROVIDE LOCKS FOR CABINET DRAWNERS AND DOORS, TYP.
2. REFER TO MANUAL OF MILLWORK BY WOODWORK INSTITUTE OF CALIFORNIA FOR WIC DESIGNATION.
3. FOR CASEWORK SEE A801

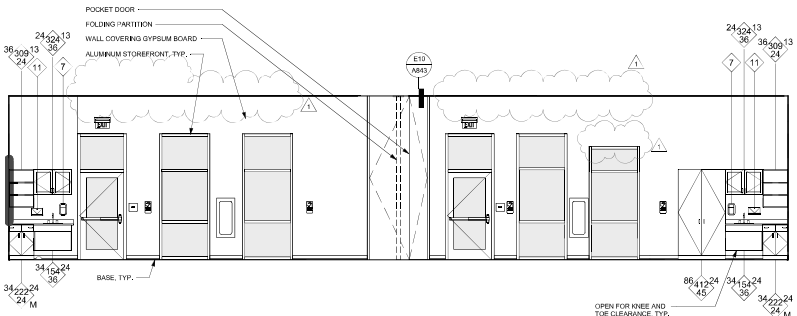
ELEVATION LEGEND

SOAP DISPENSER

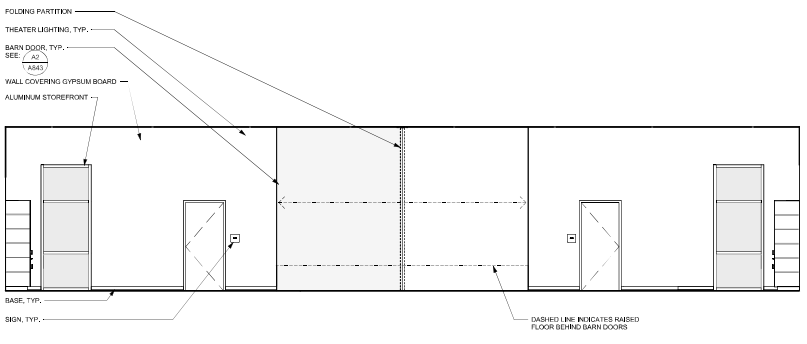
PAPER TOWEL DISPENSER

ACCESSORIES...

#	DESCRIPTION	MODEL	BASIS OF DESIGN
1	PAPER TOWEL DISPENSER - SURFACE MOUNTED	B-262	BOBRICK
2	TOILET TISSUE DISPENSER - RECESSED	B-4388	BOBRICK
3	TOILET SEAT COVER DISPENSER	B-5221	BOBRICK
4	GLASS MIRROR WITH FRAME - 18" x 36"	B-2908	BOBRICK
5	GRAB BAR 42"	B-6806	BOBRICK
6	GRAB BAR 36"	B-6806	BOBRICK
7	SOAP DISPENSER - SURFACE MOUNTED	B-2111	BOBRICK
8	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED	B-270	BOBRICK
9	SANITARY NAPKIN VENDOR SEMI-RECESSED	B-2706	BOBRICK
10	HAND-DRYER	B750	BOBRICK



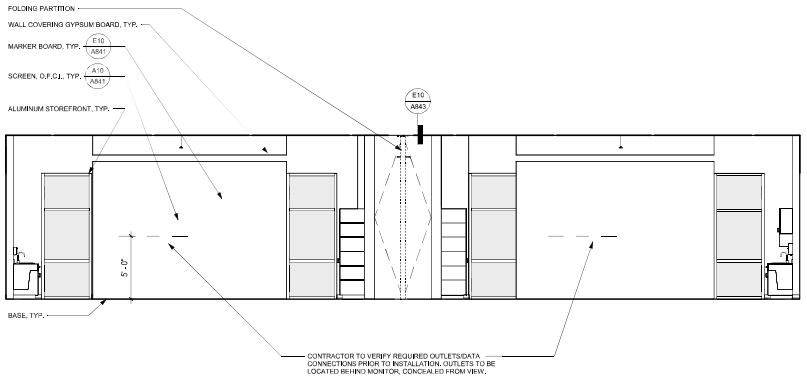
BUILDING B - NORTH G6
1/4" = 1'-0"



BUILDING B - EAST A6
1/4" = 1'-0"



BUILDING B - SOUTH G10
1/4" = 1'-0"



BUILDING B - WEST A10
1/4" = 1'-0"

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INTERIOR ELEVATIONS - BLDG B

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FINISH SCHEDULE

ROOM #	ROOM NAME	FLOORING FIELD	FLOORING BASE	WALL FINISH NORTH	WALL FINISH SOUTH	WALL FINISH EAST	WALL FINISH WEST	CEILING	REMARKS
A101	CLASSROOM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A102	CLASSROOM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A103	CLASSROOM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A110	ELECTRICAL	SC	RB	PT-1	PT-1	PT-1	PT-1	GWB	
A111	CUSTODIAL STORAGE	SC	RB	PT-1	PT-1	PT-1	PT-1	GWB	
A112.2	STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
A112.3	ACCESSIBLE STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
A112.3	STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
A113	FOOD SERVICE	QT	RB	FRP	FRP	FRP	FRP	ACT-2	
A114	LACTATION SPACE	VCT	RB	PT-1	PT-1	PT-1	PT-1	PLASTER	
A115	PRINCIPAL	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A116	INCENTIVE ROOM	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A117	STAFF WORK ROOM	VCT	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A117.1	STORAGE	VCT	RB	PT-1	PT-1	PT-1	PT-1	PLASTER	
A118	RECEPTION/ CLERICAL	CP	RB	PT-1	PT-1	PT-1	PT-1	PG	
A119	PUBLIC RR	FT	CB	TILE	TILE	TILE	TILE	PLASTER	
A120	NURSE	VCT	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A121	OFFICE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A122	RESTROOM	FT	CB	TILE	TILE	TILE	TILE	PLASTER	
A123	RESTROOM	FT	CB	TILE	TILE	TILE	TILE	PLASTER	
A124	CONFERENCE ROOM	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A125	OFFICE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A126	OFFICE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A127	OFFICE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A128	STAFF LOUNGE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A128.1	CUSTODIAL STORAGE	VCT	RB	PT-1	PT-1	PT-1	PT-1	GWB	
A128.2	MDF	SC	RB	PT-1	PT-1	PT-1	PT-1	GWB	
A129	OFFICE	CP	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
A130	ALL GENDER RESTROOM	SC	RB	PT-1	TILE	PT-1	PT-1	PLASTER	
A131	WELCOME CENTER	VCT-1	RB	KALWALL	PT-1	PT-1	PT-1	PG	
A133.1	CHANGING ROOM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	PLASTER	
A135	COMMONS	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	PLASTER	
A209	ADMIN LOBBY	VCT-1	RB	PT-1	KALWALL	PT-1	PT-1	PG	
B105	CLASSROOM	VCT-1	RB	PT-1	FOLDING PARTITION	PT-1	FOLDING PARTITION	ACT-1	
B106	CLASSROOM	VCT-1	RB	PT-1	FOLDING PARTITION	FOLDING PARTITION	PT-1	ACT-1	
B107	CLASSROOM	VCT-1	RB	FOLDING PARTITION	PT-1	FOLDING PARTITION	PT-1	ACT-1	
B108	CLASSROOM	VCT-1	RB	FOLDING PARTITION	PT-1	PT-1	FOLDING PARTITION	ACT-1	
B109	PLATFORM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
B131	IDF CLOSET	SC	RB	PT-1	PT-1	PT-1	PT-1	GWB	
B132	ALL GENDER RESTROOM	SC	RB	PT-1	PT-1	PT-1	TILE	PLASTER	
B133.1	STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
B132.2	STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
B132.3	ACCESSIBLE STALL	SC	CB	TILE	TILE	TILE	TILE	GWB	
C104	CLASSROOM	VCT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	

Grand total: 44

FINISH LEGEND

CB	COVED BASE TILE
CP	CARPET
FT	FLOOR TILE
WT	WALL TILE
SC	SEALED CONCRETE
PG	PAINT GLOSS
PSG	PAINT SEMI-GLOSS
RB	RESILIENT BASE
VCT	VINYL COMPISITION TILE
FRP	FIBERGLASS REINFORCED PLASTIC
QT	QUARRY TILE
ACT-1	ACOUSTIC CEILING TILE
ACT-2	ACOUSTIC CEILING TILE

GENERAL NOTES

1. PROVIDE CORNERGUARDS AS SHOWN ON INTERIOR ELEVATIONS.
2. 8'-0" AFF. IMPACT RESISTANT GYPSUM BOARD SHALL BE PROVIDED FULL HEIGHT AT ROOF ACCESS LADDER AREAS AND LUMBER/PROJECT STORAGE.
3. PAINT EXPOSED STEEL, ALL VISIBLE SIDES, IN ROOMS WHERE OCCURS.
4. WHERE EXPOSED CEILINGS ARE SCHEDULED TO BE PAINTED, INCLUDE FRAMING, DECK, STRUCTURAL STEEL, CONDUIT, DUCTWORK, AND PIPING. ARCHITECT TO CHOOSE UP TO THREE (3) COLORS FOR EXPOSED CEILINGS.
5. WHERE ROOM FINISH SCHEDULE INDICATES TILE, USE CEMENTITIOUS BACKER BOARD SUBSTRATE IN LIEU OF GYPSUM BOARD.
6. EXTEND FINISHES BEHIND CASEWORK AND OTHER HIDDEN SURFACES.
7. ROOM FINISHES SHALL MEET CALIFORNIA BUILDING CODE CHAPTER 8 INTERIOR FINISHES TESTED IN ACCORDANCE WITH NFPA 286 AND CLASSIFIED IN ACCORDANCE WITH ASTM E84 OR UL 723.

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INTERIOR FINISH SCHEDULE

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WINDOW SCHEDULE

TYPE	SIZE WIDTH	SIZE HEIGHT	FRAME MATERIAL	LABEL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	REMARKS
①	4' - 0"	4' - 2"	AL		L6/A731	L4/A731	L8/A731	
②	8' - 0"	4' - 2"	AL		L6/A731	L4/A731	L8/A731	

EXTERIOR WALL SCHEDULE

TYPE	WIDTH	FRAMING WIDTH	FIRE RATING	COMMENTS
EWL0	9 1/2"	5 1/2"	NONE	
EWL1	9 5/8"	5 1/2"	NONE	
EWL2	7 1/2"	5 1/2"	NONE	
EWL3	7 5/8"	5 1/2"	NONE	
EWL4	19 1/2"	5 1/2"	NONE	
EWL5	9 1/2"	5 1/2"	NONE	

EXTERIOR WALL SCHEDULE

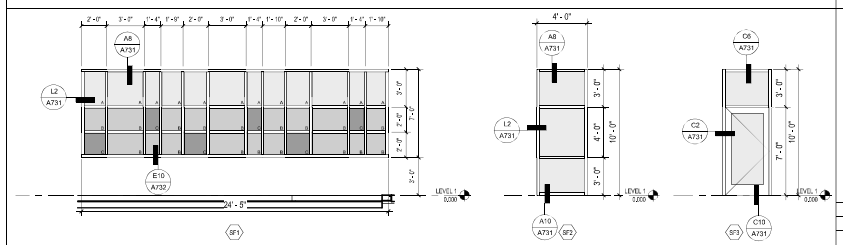
TYPE	WIDTH	FRAMING WIDTH	FIRE RATING	COMMENTS
EWL0	11 1/2"	5 1/2"	NONE	
EWL1	11 5/8"	7 1/2"	NONE	

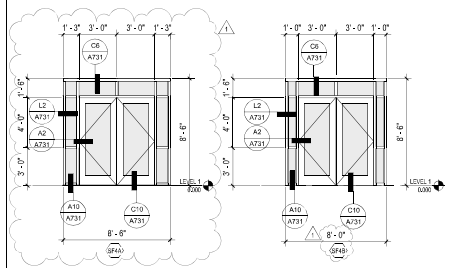
GATE SCHEDULE

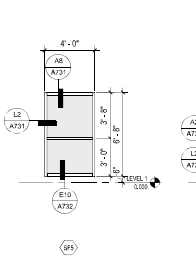
GATE	DOOR #	Hardware Set	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR MATERIAL	DOOR FINISH	DOOR PH	FRAME DETAILS (A011, A012) GATE	HINGE	LATCH	COMMENTS
GATE	1	SET 1A	4' - 0"	6' - 0"			PH	A10/A013	C7/A013	G7/A013	KNOX BOX
GATE	2	see E4/A011	5' - 5"	6' - 6"				E6/A011	J6/A011	E4/A011	
GATE	3	see E4/A011	5' - 5"	6' - 6"				E6/A011	J6/A011	E4/A011	
GATE	4	see E4/A011	4' - 0"	6' - 0"				A6/A011	J6/A011	E4/A011	
GATE	5	see A4/A012, G4/A012	20' - 0"	6' - 0"				A10/A012	G2/A012	G4/A012	KNOX BOX, PADLOCK OFCI
GATE	6	SET 1B	3' - 0"	7' - 0"				L10/A013	L7/A013	J7/A013	
GATE	7	SET 1C	3' - 0"	6' - 0"				A3/A013	L7/A013	E5/A013	
GATE	9	see A4/A012	3' - 0"	6' - 0"				A7/A012	G2/A012	G4/A012	KNOX BOX, PADLOCK OFCI
GATE	10	see A4/A012	3' - 0"	6' - 0"				A7/A012	G2/A012	G4/A012	KNOX BOX, PADLOCK OFCI

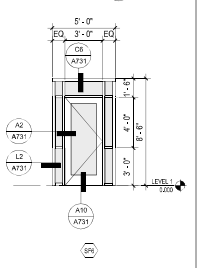
DOOR SCHEDULE

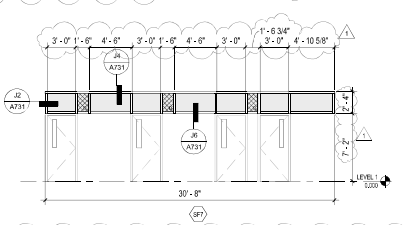
ROOM #	DOOR #	Hardware Set	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	RATING LABEL	DOOR PH	FRAME MATERIAL	FRAME FINISH	DETAILS (A731) HEAD	DETAILS (A731) JAMB	THRESH OLD	COMMENTS
A100	1	A582R.1	6' - 0"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	A2/A731	C10/A731	STOREFRONT
A100	2	A585R.1	6' - 0"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	A2/A731	C10/A731	STOREFRONT
A101	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
A102	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
A103	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
A104	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
A110	1	453.1	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A111	1	455.1	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A112.1	1	405	2' - 6"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
A112.2	1	405	2' - 6"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
A112.3	1	405	3' - 0"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
A113	1	442.2	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A113	2	442.2	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A114	1	443.1	3' - 0"	7' - 0"	C	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A115	1	030	3' - 0"	7' - 0"	G	HM	P-1			HM	P-1	L10/A731	J10/A731	G6/A731	
A115	2	442.1	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A116	1	443.1	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A117	1	443.1	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A117.1	1	040	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G2/A731	
A118	1	A032.7	3' - 0"	7' - 0"	F	AL	A-1			AL	A-1	C6/A731	A2/A731	C10/A731	STOREFRONT
A119	1	020	3' - 0"	7' - 0"	A	HM				HM	P-1	L10/A731	J10/A731	G10/A731	
A120	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A121	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A122	1	020	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G10/A731	
A123	1	020	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G10/A731	
A124	1	012	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A125	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A126	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A127	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A128	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A128	2	443.1	3' - 0"	7' - 0"	G	HM	P-1			HM	P-1	E8/A731	C2/A731	E10/A731	
A128.1	1	040	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A128.2	1	040	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A129	1	030	3' - 0"	7' - 0"	B	HM	P-1			HM	P-1	L10/A731	J10/A731	G4/A731	
A133.1	1	020	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G2/A731	
A135	1	A482.1	3' - 0"	7' - 0"	F	AL	A-1			AL	A-1	C6/A731	A2/A731	C10/A731	STOREFRONT
A135	2	A482.1	3' - 0"	7' - 0"	F	AL	A-1			AL	A-1	C6/A731	A2/A731	C10/A731	STOREFRONT
B105	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
B106	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
B107	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
B108	1	A482.5	3' - 6"	7' - 0"	F	AL	A-1		PH	AL	A-1	C6/A731	C2/A731	C10/A731	STOREFRONT
B109	1	044	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G2/A731	
B109	2	044	3' - 0"	7' - 0"	A	HM	P-1			HM	P-1	L10/A731	J10/A731	G2/A731	
B109	3	-	20' - 0"	13' - 0"			P-1				P-1	A4/A843	-	A4/A843	BARN DOOR
B131	1	405	2' - 6"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
B132.1	1	405	2' - 6"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
B132.2	1	405	2' - 6"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	
B132.3	1	405	3' - 0"	7' - 0"	C	HM	P-1			HM	P-1	L10/A731	J10/A731	G8/A731	

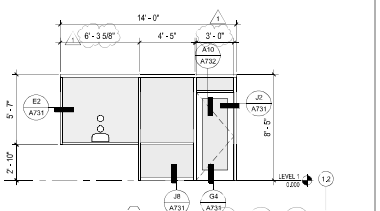


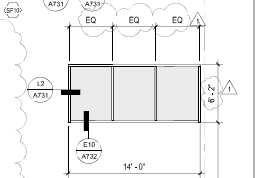


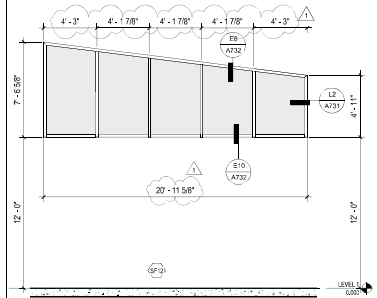


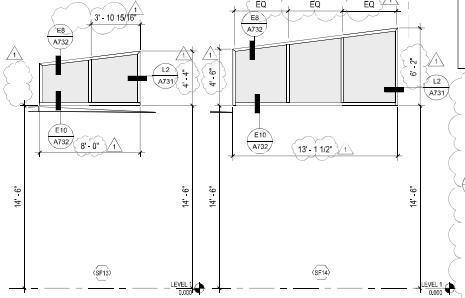


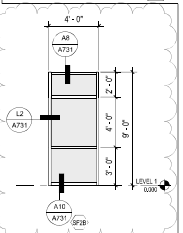


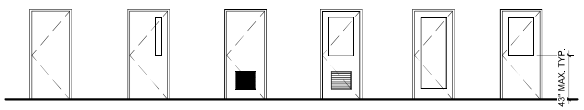


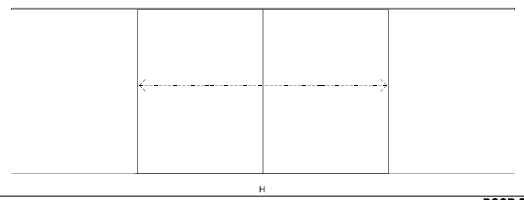












DOOR SCHEDULE NOTES

GENERAL NOTES:

1. PROVIDE FIRE RESISTIVE GLAZING WHERE FIRE RATING IS REQUIRED. ALL FIRE RATED GLASS WILL HAVE MAX. AREA OF 100 SQUARE INCHES.
2. MAXIMUM EFFORT TO OPERATE EXTERIOR DOORS IS 5 LBS.
3. ADJUST OPENING FORCE OF THE DOOR TO 5 LB.
4. DOOR LOCATIONS & CLEARANCES - SEE: A8/A521 SYMBOL G002
5. DOOR FINISH TO BE SEMI-GLOSS
6. OPERATBLE FLOOR HARDWARE PARTS SHALL BE POSITIONED AT MINIMUM OF 34" AND MAXIMUM OF 44" ABOVE THE FINISH FLOOR OR GROUND

DOOR SCHEDULE LEGEND

MATERIAL

HM	HOLLOW METAL
AL	ALUMINUM
SS	STAINLESS STEEL
MTL	METAL
CL	CHAINLINK
SCW	SOLID CORE WOOD
FR	FIRE RESIST. GLAZING
T	TEMPERED GLAZING

FINISH

P-1	PAINT (SEMI-GLOSS)
PC-1	POWER-COATED
A-1	CLEAR AC-2

STOREFRONT LEGEND

A	NO FILM
B	FASARA - MILKY MILKY LIGHT GREY 2H2MAMML
C	FASARA - CROSS HAIRLINE MILKY SH2CHML

STOREFRONT WINDOW NOTES

1. DIMENSION FOR STOREFRONT WINDOWS ARE MEASURED FROM EDGE OF ROUGH OPENING TO CENTER OF MUSSION, TYP.

GATEWAY ANNEX SCHOOL
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
1 ADD 1	08/28/2020

SCHEDULES

PERKINS — EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
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www.perkinseastman.com

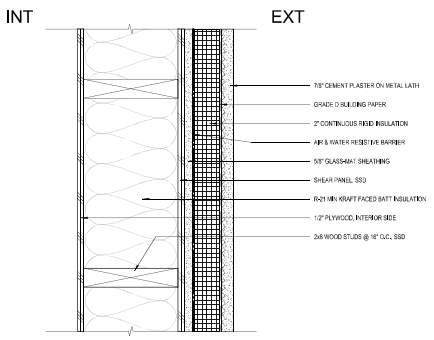
A701

STOREFRONT TYPES G10 1/4" = 1'-0"

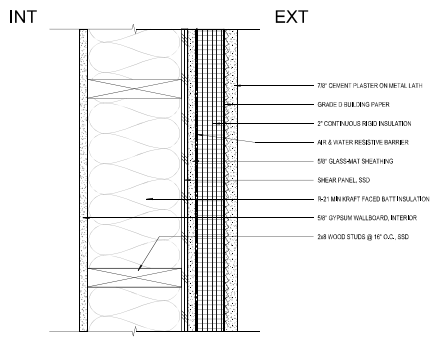
DOOR SCHEDULE 1/4" = 1'-0"

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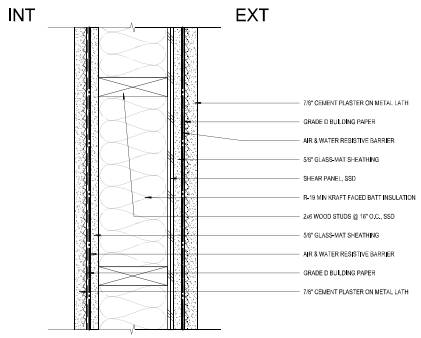
EW8.0: CEMENT PLASTER ASSEMBLY AT PARAPET



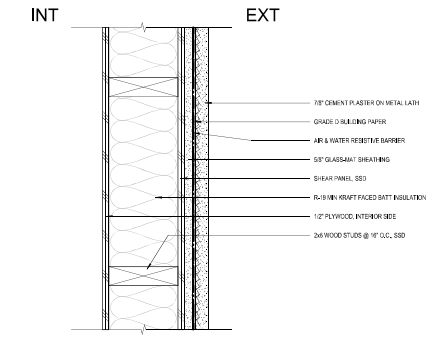
EW8.1: CEMENT PLASTER ASSEMBLY



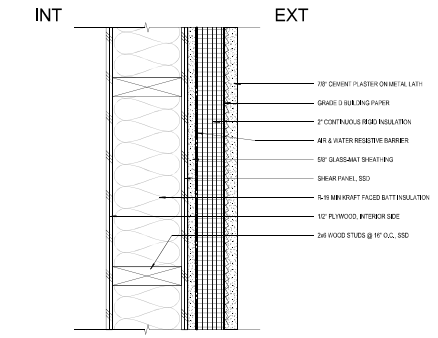
EW6.5: CEMENT PLASTER ASSEMBLY (BOTH SIDES)
(NO RIGID INS.)



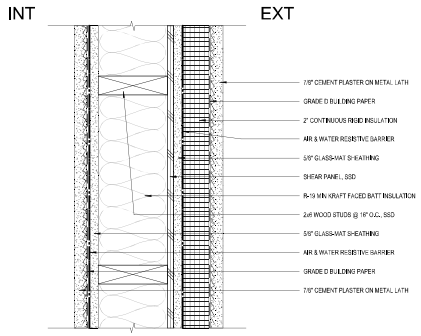
EW6.2: CEMENT PLASTER ASSEMBLY AT PARAPET
(NO RIGID INS.)



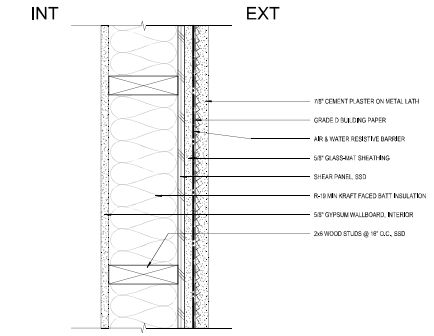
EW6.0: CEMENT PLASTER ASSEMBLY AT PARAPET



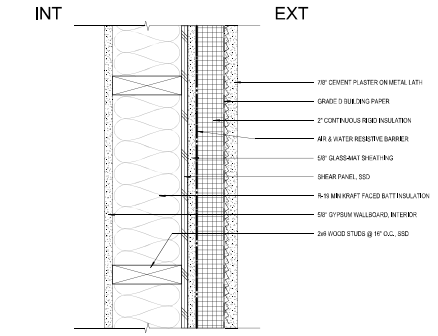
EW6.4: CEMENT PLASTER ASSEMBLY (BOTH SIDES)



EW6.3: CEMENT PLASTER ASSEMBLY
(NO RIGID INS.)



EW6.1: CEMENT PLASTER ASSEMBLY



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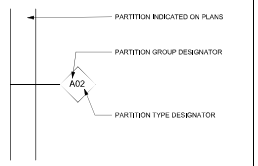
TYPICAL ASSEMBLIES - EXTERIOR WALLS

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A702

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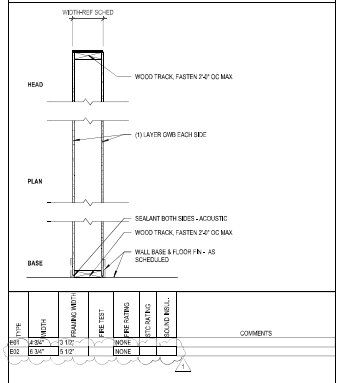
PARTITION TYPE SYMBOL



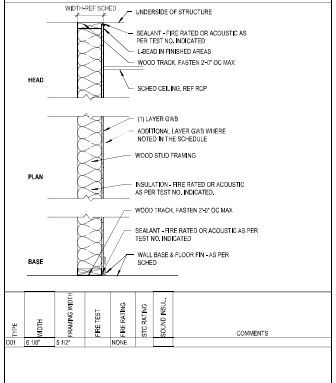
PARTITION TYPE NOTES

1. REFER TO FLOOR PLANS FOR INTERIOR PARTITION TYPE LOCATIONS.
2. ALL PARTITIONS ARE DIMENSIONED TO THE OF FACE OF STUD EXCEPT FOR EXISTING WALLS WHICH ARE DIMENSIONED TO FINISH FACE.
3. IN ALL TOILET ROOMS PROVIDE, MOISTURE AND MOLD RESISTANT GYP. BD. ON ALL WALLS AND CEILINGS.
4. IN ALL ROOMS OTHER THAN TOILET ROOMS WHICH CONTAIN SINKS OR OTHER PLUMBING FIXTURES PROVIDE MOISTURE RESISTANT GYP. BD. ON THE WET WALL AND RETURN 4'-0" ON THE SIDE WALLS.
5. AT VERTICAL SURFACES THAT ARE SCHEDULED TO RECEIVE TILE FINISHES, PROVIDE ONE LAYER OF CEMENTITIOUS BACKER BOARD IN PLACE OF THE OUTSIDE LAYER OF GYPSUM BOARD ON THE SCHEDULED PARTITION ON RATED WALLS AND OTHER VERTICAL SURFACES THAT ARE SCHEDULED TO RECEIVE TILE FINISHES. PROVIDE ONE LAYER OF CEMENTITIOUS BACKER BOARD IN ADDITION TO THE OUTSIDE LAYER OF GYPSUM BOARD ON THE SCHEDULED PARTITION TO MAINTAIN RATED WALL CONSTRUCTION.
6. ALL GYPSUM BOARD SHALL BE 5/8" THICK, UNO. ABUSE RESISTANT GYPSUM BOARD ON EXPOSED FACE OF WALLS, TYPICAL, AT FIRE RATED ASSEMBLIES, PROVIDE TYPE 'X' GYP. BD. MINIMUM, OR AS REQUIRED BY FIRE RATED ASSEMBLY, GYPSUM CEILINGS ANS SOFFITS PROVIDE 5/8" THICK, UNO.
7. FOR FIRE RATED ASSEMBLIES, OBTAIN AND FULLY CONFORM TO DESIGN REQUIREMENTS OF UNDERWRITERS LABORATORIES, INC(UL) FOR EACH PARTITION ASSEMBLY, UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED OR DESIGNATED BY A DETAIL OR NOTE, AS ALLOWED BY UL DESIGN.
8. FIRE-RESISTANCE-RATED & STC-RATED PARTITIONS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF THE TESTED ASSEMBLY UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED OR DESIGNATED BY DETAIL OR NOTE.
9. STC-RATED PARTITION CONSTRUCTION SHALL HAVE ALL PENETRATIONS AND INTERSECTIONS SEALED AIR TIGHT WITH ACOUSTICAL SEALANT.
10. SEPARATE METALLIC OUTLETS OR SWITCH BOXES LOCATED ON OPPOSITE SIDES OF WALLS OR PARTITIONS BY A MINIMUM HORIZONTAL DISTANCE OF 24 INCHES (U.L. INC.).
11. REFER TO SPECIFICATIONS FOR SPACING CRITERIA AND METAL STUD GAUGES, UNO.
12. REFER TO FINISH SCHEDULE AND REFLECTED CEILING PLANS FOR THE CEILING TYPE AND HEIGHT. COORDINATE HEIGHTS OF GYP. BD. WITH CEILING HEIGHTS AND WITH PARTITION DETAILS INDICATED.
13. REFER TO FINISH SCHEDULE, FURNITURE PLANS, INTERIOR ELEVATIONS, INTERIOR DETAILS AND ARCHITECTURAL CASEWORK DETAILS FOR WALL FINISHES AND WALL MOUNTED ACCESSORIES TO COORDINATE BLOCKING REQUIREMENTS. PROVIDE ADEQUATE BACKUP AND BLOCKING FOR ALL WALL OR CEILING MOUNTED EQUIPMENT, ARCHITECTURAL WOODWORK, CASEWORK, LIGHTING, OR OTHER MISCELLANEOUS ITEMS & EQUIPMENT MEP & FP TO ASSURE A PROPER INSTALLATION. ALL BLOCKING TO BE NON COMBUSTIBLE IF THE CONSTRUCTION TYPE IS NONE COMBUSTIBLE.
14. ALL DOOR OPENINGS ARE TO BE 6 INCHES MINIMUM FROM ADJACENT WALL U.N.O.
15. REFER TO LIFE SAFETY PLANS AND THE PROJECT CODE ANALYSIS SUMMARY FOR FURTHER WALL, FLOOR/CEILING ASSEMBLY RATING REQUIREMENTS.
16. MAINTAIN CONTINUOUS SMOKE/ FIRE RATED PARTITION AT INTERSECTIONS OF RATED WALLS AND NON-RATED WALLS. WRAP GYPSUM BOARD AT JAMBS AND HEAD OF NON-RATED DOORWAYS AND OPENINGS IN RATED WALLS AS REQUIRED TO MAINTAIN WALL RATING.
17. ALL PARTITION THICKNESSES SHOWN ARE ACTUAL DIMENSIONS, FINISHED FACES OF PARTITIONS TO RUN FLUSH, CONTINUOUS AND SMOOTH, U.N.O.
18. ALL GYP. BD. WALL AND CEILING CONTROL JOINTS SHALL BE PROVIDED PER THE PROJECT SPECIFICATIONS. COORDINATE ALL LOCATIONS WITH THE ARCHITECT PRIOR TO INSTALLATION.
19. ALL GYP. BD. WALL AND CEILING CONTROL JOINTS AT RATED CONDITIONS SHALL BE INSTALLED PER GYPSUM ASSOCIATION GUIDELINES (GA-234-08), UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED OR DESIGNATED BY DETAIL OR NOTE. COORDINATE ALL LOCATIONS WITH THE ARCHITECT PRIOR TO INSTALLATION.
20. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS & REINFORCEMENT REQUIREMENTS OF MASONRY PARTITIONS.
21. REFER TO WALL SECTIONS FOR EXTERIOR WALL CONSTRUCTION.
22. **IN ALL ELECTRICAL ROOMS, INSTALL FRT PLYWOOD FLOOR TO CEILING ON ALL WALLS IN ADDITION TO WALL TYPE REQUIREMENTS. COORDINATE WITH ELECTRICAL CONTRACTOR.**
23. **IN ALL LOW VOLTAGE & TELE/DATA ROOMS, INSTALL FRT PLYWOOD FLOOR TO CEILING ON ALL WALLS IN ADDITION TO WALL TYPE REQUIREMENTS. COORDINATE WITH LOW VOLTAGE CONTRACTOR.**
24. **ALL OUTSIDE GYPSUM BOARD VERTICAL CORNERS IN CORRIDORS ARE TO RECEIVE 1 1/2" X 1 1/2" STAINLESS STEEL CORNER GUARDS 18 GA 48" TALL.**

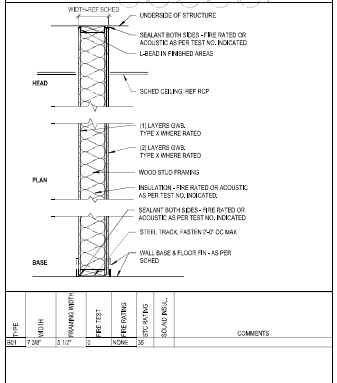
TYPE E - PARTIAL HT. - 1 LAYER GWB EACH SIDE



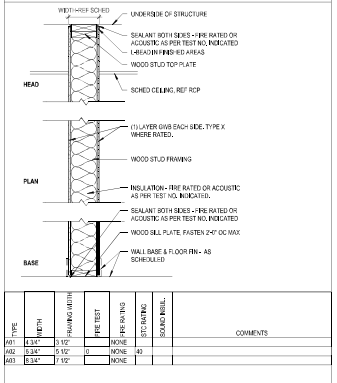
TYPE D - FULL HT. - GWB 1 SIDE



TYPE B - FULL HT. - 2 LAYERS GWB ONE SIDE; 1 LAYER GWB OTHER SIDE 1



TYPE A - FULL HT. - 1 LAYER GWB EACH SIDE

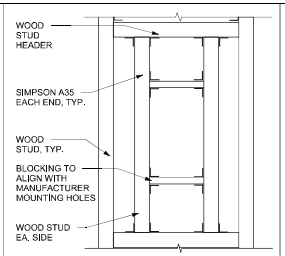


PARTITION TYPES A4

N.T.S.

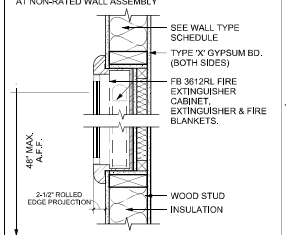
RECESSED ACCESSORY FRAMING G6

1" = 1'-0"



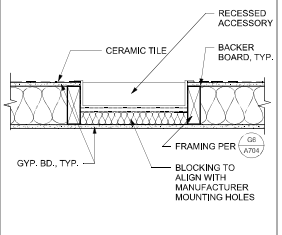
SEMI-RECESSED F.E.C. L10

1 1/2" = 1'-0"



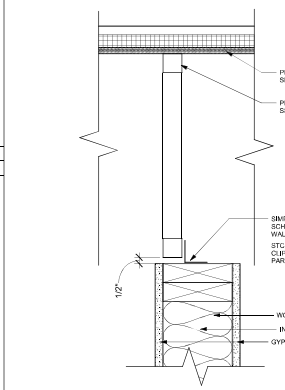
RECESSED ACCESSORY G8

1 1/2" = 1'-0"



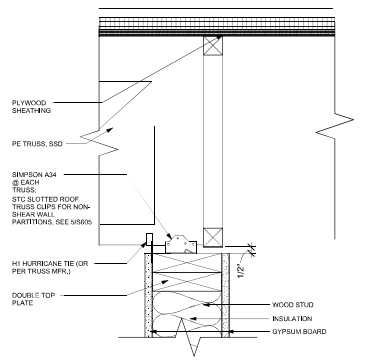
WALL HEAD PARALLEL TO TRUSS D8

3" = 1'-0"



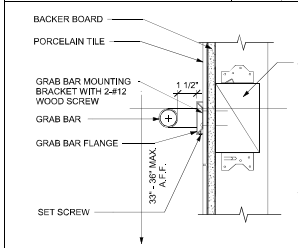
WALL HEAD PERPENDICULAR TO TRUSS A8

3" = 1'-0"



GRAB BAR MOUNTING WS WALL H10

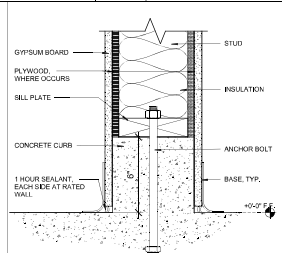
3" = 1'-0"



NOTE: AS DETAILED CONNECTION OF GRAB BAR IS ADEQUATE FOR 250 LB LOAD IN ANY DIRECTION AS REQUIRED PER CBC 1607A.8.2

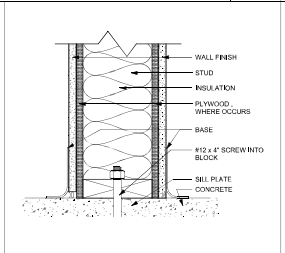
WALL BASE AT CONCRETE CURB F10

3" = 1'-0"



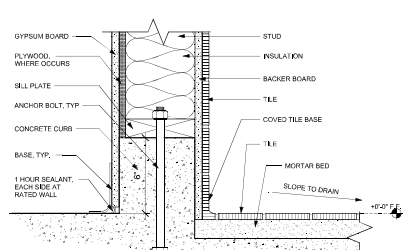
TYP. NON BEARING WALL BASE D10

3" = 1'-0"



TYPICAL WALL BASE AT CONCRETE CURB A10

3" = 1'-0"



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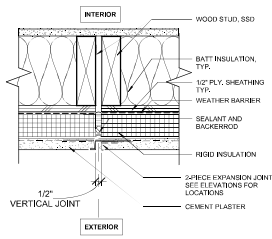
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1 ADD 1	08/28/2020

INTERIOR WALL SCHEDULE AND DETAILS

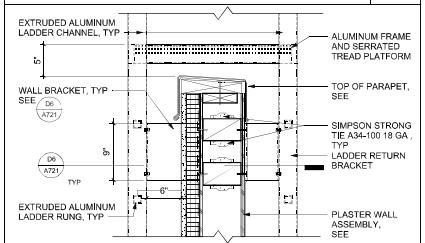
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A704

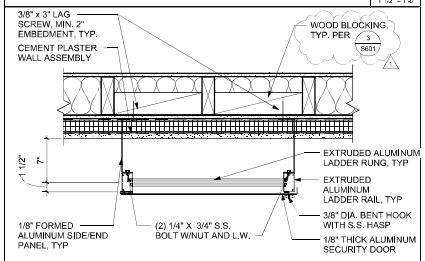
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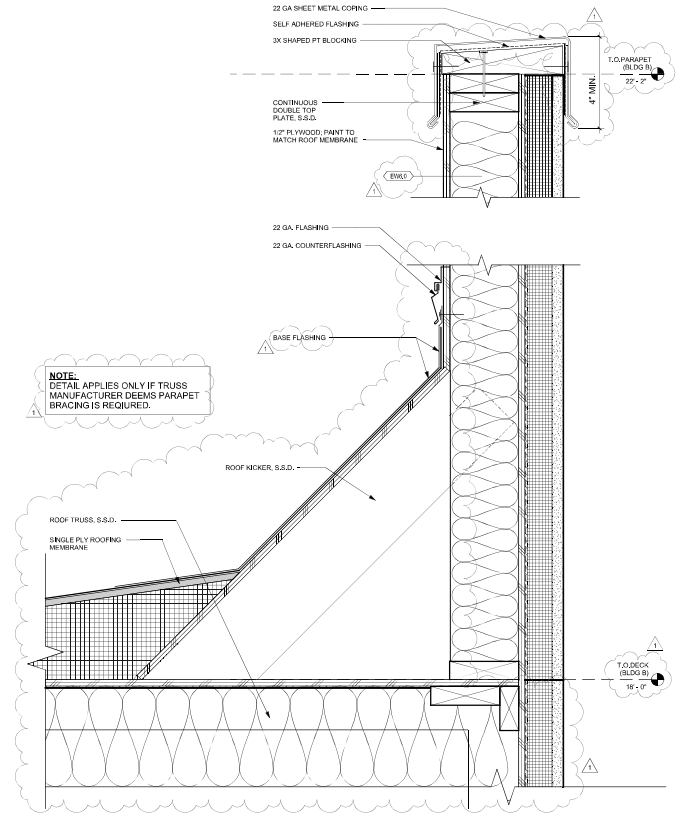
TYPICAL PLASTER EXPANSION JOINT G6
3" = 1'-0"



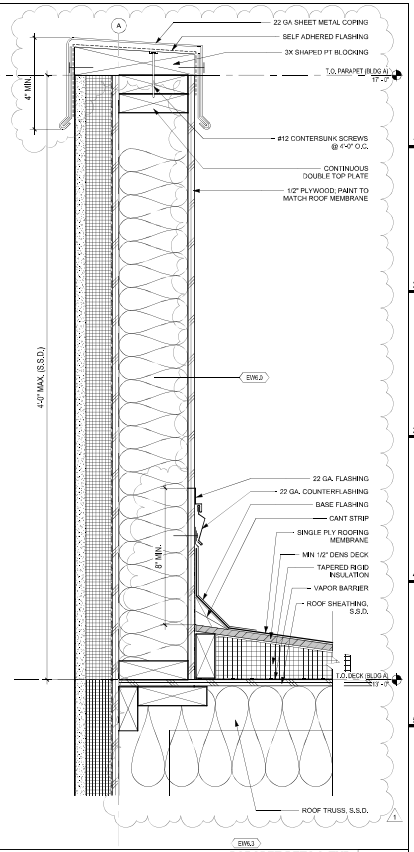
ROOF ACCESS LADDER - PLATFORM OVER PARAPET D2
1 1/2" = 1'-0"



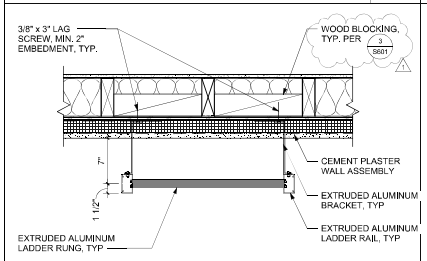
ROOF ACCESS LADDER - SECURITY DOOR D4
1 1/2" = 1'-0"



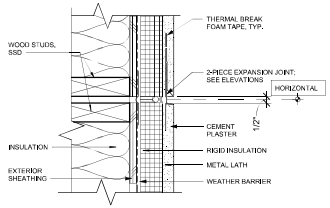
PARAPET DETAIL WITH KICKER, TYP. K10
3" = 1'-0"



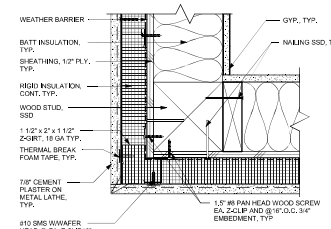
PARAPET DETAIL TYP. A6
3" = 1'-0"



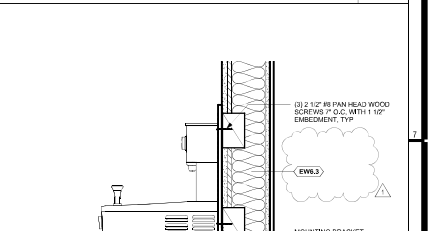
ROOF ACCESS LADDER - WALL BRACKET D6
1 1/2" = 1'-0"



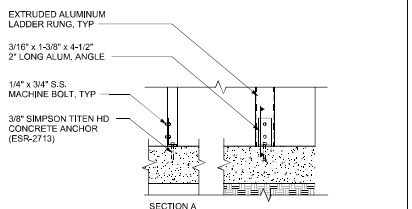
TYPICAL PLASTER EXPANSION JOINT G8
3" = 1'-0"



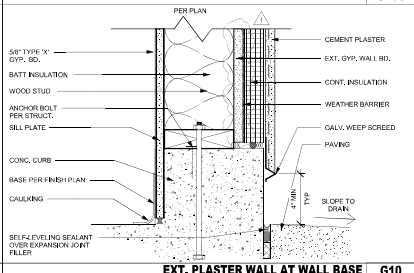
EXT. CEMENT PLASTER CORNER DETAIL G2
INSULATED CEMENT PLASTER WALL ASSEMBLY - PWA 106
3" = 1'-0"



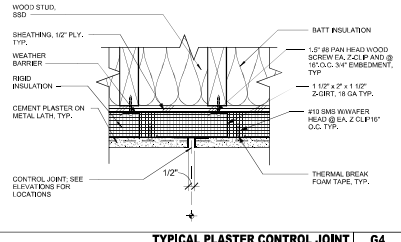
DRINKING FOUNTAIN A10
1 1/2" = 1'-0"



ROOF ACCESS LADDER - FLOOR BRACKET D8
1 1/2" = 1'-0"



EXT. PLASTER WALL AT WALL BASE G10
3" = 1'-0"



TYPICAL PLASTER CONTROL JOINT G4
3" = 1'-0"

GENERAL NOTES EXTERIOR FINISHES

1. FOR MOUNTING BRACKET, FASTENER AND SPACING WITH ICC ESR#, & WEATHER BARRIER DETAIL, REFER TO K8 A501 K10 A501
2. CONTINUOUS INSULATION SHALL BE 2" THICK, TYP. ON WALLS.
3. PROVIDE CONC. CURB AT ALL EXTERIOR PERIMETER WALLS, RESTROOM, AND JANITOR ROOM, TYP.
4. EXTERIOR WALL METAL STUD SIZE PER STRUCT - S101A S101B S701 S721
5. [BOD HARDIEPLANK SMOOTH LAP SIDING] THICKNESS OF THE WALL CEMENT SIDING IS 5/16", TYP - ICC ESR-1844
6. FOR PLASTER: 18GA Z-FURRING, FASTENER AND SPACING & WEATHER BARRIER DETAIL, REFER TO G2 A501

INSTALL PLASTER WALL ASSEMBLY PWA 106 W/ ASTM-106 & ASTM C-926.

BUILDING SECTION NOTES

GENERAL NOTES:

1. THICKNESS OF CONTINUOUS RIGID INSULATION: 2" = R13 (XPS 1"=R6.5)
2. THICKNESS OF BATT INSULATION AT WALL: R19
3. ROOF ASSEMBLY SEE - A531
4. PENDANT LIGHT FIXTURE SWAY BRACING, SEE - A543
5. LOCATION OF IMPACT RESISTANT GYP. BOARD, REFER TO INTERIOR ELEVATIONS.

BUILDING SECTION LEGEND

1 HR RATED WALL - REFER TO FLOOR PLAN

EXTERIOR WALL ASSEMBLY SCHEDULE

1. TYPE A: FIBER CEMENT SIDING O/ WEATHER BARRIER #2, O/ 2" RIGID INSULATION, O/ WEATHER BARRIER #1 O/ EXTERIOR SHEATHING, A2 A4 A6 A8
2. TYPE C: CEMENT PLASTER O/ WEATHER BARRIER #3 O/ EXTERIOR SHEATHING O/ RIGID INSULATION O/ WEATHER BARRIER #1 O/ EXTERIOR SHEATHING G2 G4 G8 G10

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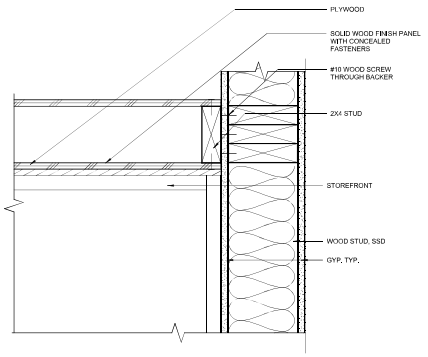
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EXTERIOR WALL DETAILS

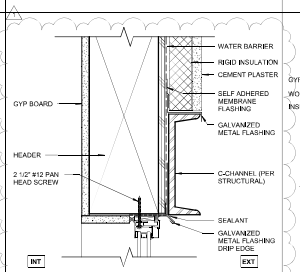
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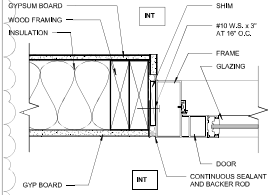
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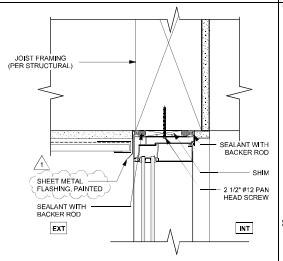
RECEPTION DESK CLOUD A4
3" = 1'-0"



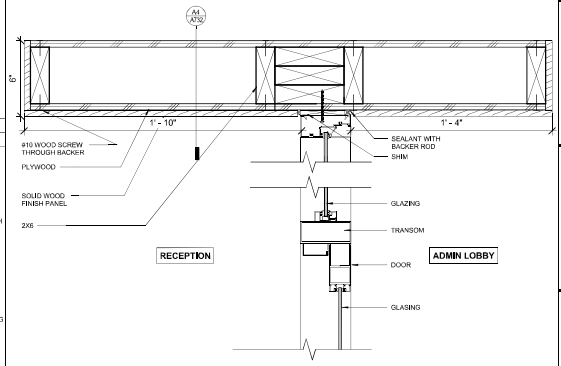
EXTERIOR FIXED WINDOW HEAD, TYP. C6
3" = 1'-0"



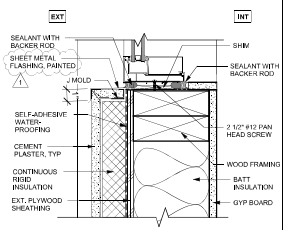
INT. STOREFRONT DOOR AT JAMB A6
3" = 1'-0"



EXT. STOREFRONT HEAD - ENTRANCE E8
3" = 1'-0"



RECEPTOPN DESK STOREFRONT HEAD - TRANSOM A10
3" = 1'-0"



EXTERIOR STOREFRONT SILL E10
3" = 1'-0"

INTERIOR

M L K J H G F E D C B A

1 2 3 4 5 6 7 8 9 10

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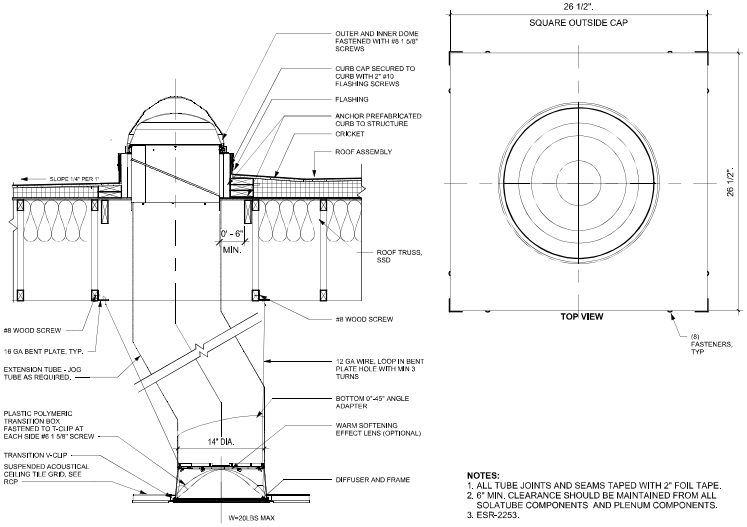
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DOOR AND WINDOW DETAILS

A732

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NOTES:
1. ALL TUBE JOINTS AND SEAMS TAPED WITH 2" FOIL TAPE.
2. 6" MIN. CLEARANCE SHOULD BE MAINTAINED FROM ALL SOLATUBE COMPONENTS AND PLENUM COMPONENTS.
3. ESR-2253.

TUBULAR SKYLIGHT JOGGED AT CURB CAP HARD CEILING | **G10**
AT PVC ROOF | 1" = 1'-0"

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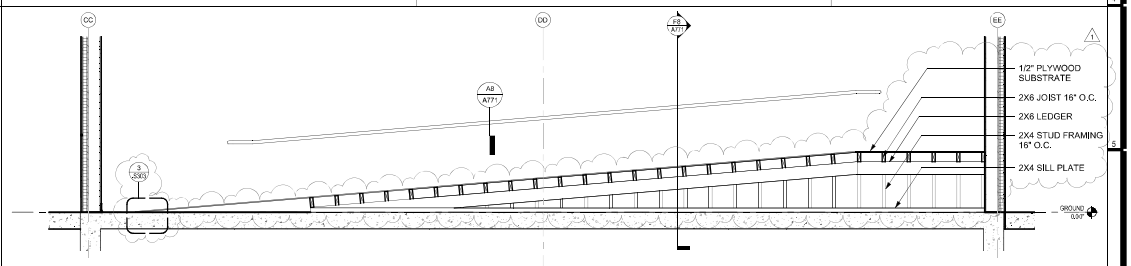
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TUBULAR SKYLIGHT DETAILS

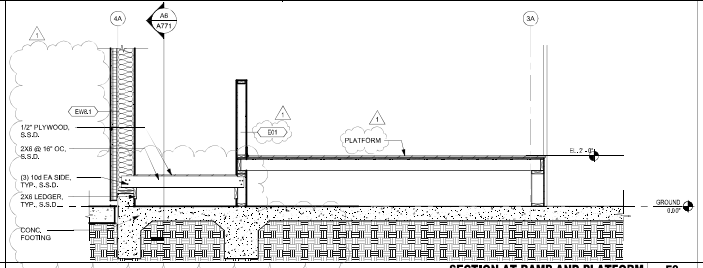
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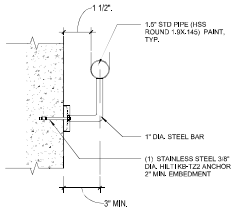
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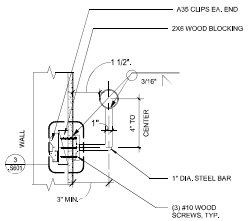
PLATFORM ACCESS RAMP A6
1/2" = 1'-0"



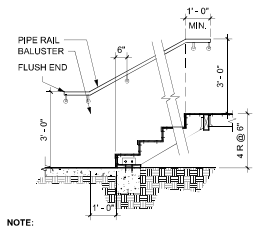
SECTION AT RAMP AND PLATFORM F8
1/2" = 1'-0"



TYP. HANDRAIL EXTENSION AT RAMP C8
1 1/2" = 1'-0"

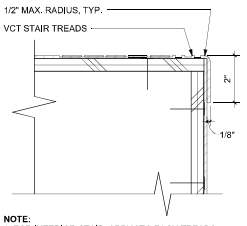


TYP. HANDRAIL EXTENSION AT RAMP A8
1 1/2" = 1'-0"



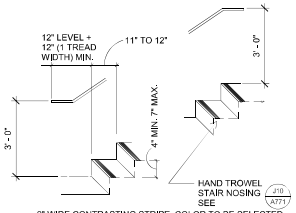
NOTE:
1. SEE 13/S622 AND 14/S622

STAIR AT PLATFORM L10
1/2" = 1'-0"



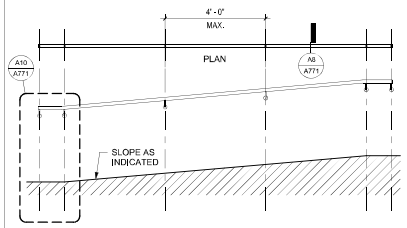
NOTE:
1. FOR INTERIOR STAIR: APPLY TO EACH TREADS EXCEPT FOR TOP AND BOTTOM.
2. SEE 13/S622 AND 14/S622

STAIR NOSING J10
6" = 1'-0"

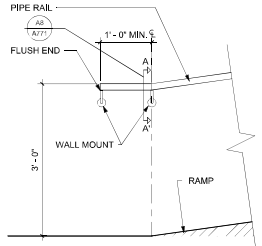


2" WIDE CONTRASTING STRIPE, COLOR TO BE SELECTED BY ARCHITECT AND PAINTED ON CONCRETE BALUSTER TO BE SPACED EVENLY AND TO BE PLACED CENTER OF STAIR THREAD

STAIR STRIPING & HANDRAILS F10
1/2" = 1'-0"



TYP. HANDRAIL AT RAMP C10
1/2" = 1'-0"



TYP. HANDRAIL EXTENSION AT RAMP A10
1" = 1'-0"

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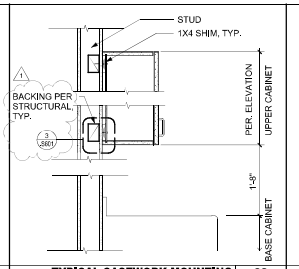
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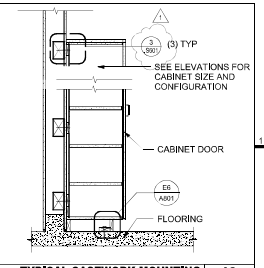
STAIR AND RAMP DETAILS

A771

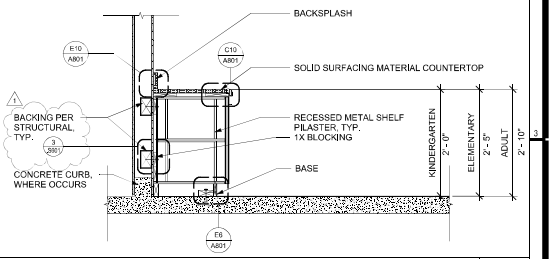
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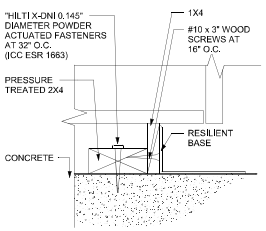
TYPICAL CASEWORK MOUNTING C2
UPPER CABINET 3/4" = 1'-0"



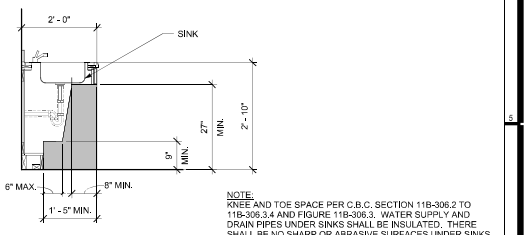
TYPICAL CASEWORK MOUNTING A2
TALL CABINET 3/4" = 1'-0"



TYPICAL CASEWORK MOUNTING A4
3/4" = 1'-0"

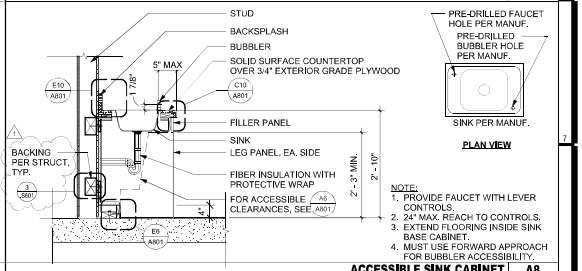


CABINET FLOOR ANCHOR - FRONT E6
3" = 1'-0"



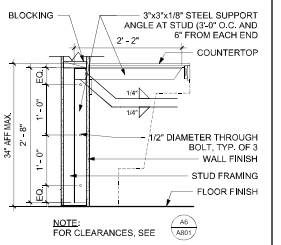
NOTE:
KNEE AND TOE SPACE PER C.B.C. SECTION 11B-306.2 TO 11B-306.3.4 AND FIGURE 11B-306.3. WATER SUPPLY AND DRAIN PIPES UNDER SINKS SHALL BE INSULATED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS.

ACCESSIBLE KNEE AND TOE SPACE A6
3/4" = 1'-0"



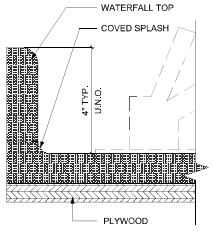
NOTE:
1. PROVIDE FAUCET WITH LEVER CONTROLS.
2. 24" MAX. REACH TO CONTROLS.
3. EXTEND FLOORING INSIDE SINK BASE CABINET.
4. MUST USE FORWARD APPROACH FOR BUBBLER ACCESSIBILITY.

ACCESSIBLE SINK CABINET A8
3/4" = 1'-0"

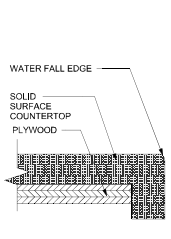


NOTE:
FOR CLEARANCES, SEE A6/A801

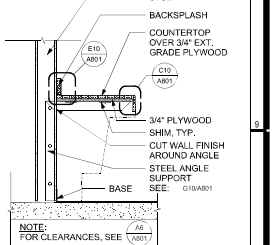
COUNTERTOP SUPPORT G10
1" = 1'-0"



BACKSPLASH E10
6" = 1'-0"



SOLID SURFACE COUNTERTOP EDGE C10
6" = 1'-0"



NOTE:
FOR CLEARANCES, SEE A6/A801

TYPICAL COUNTERTOP MOUNTING A10
3/4" = 1'-0"

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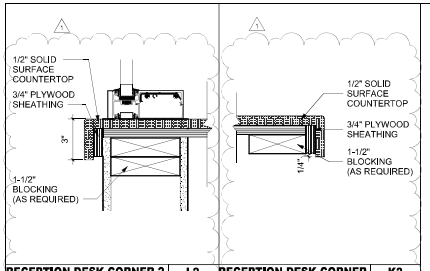
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CASEWORK DETAILS

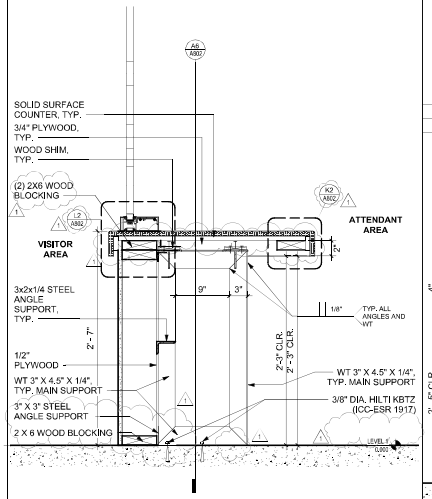
A801

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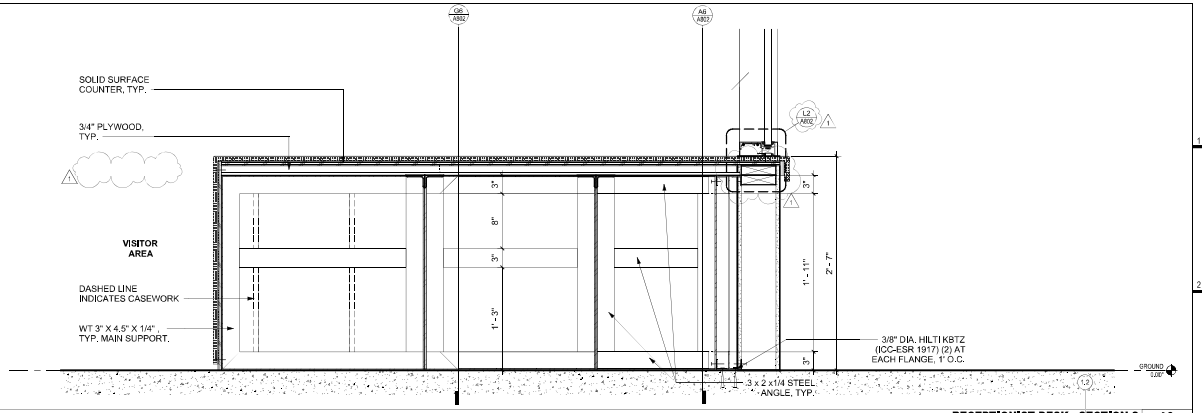


RECEPTION DESK CORNER-2 L2 — 3" = 1'-0"

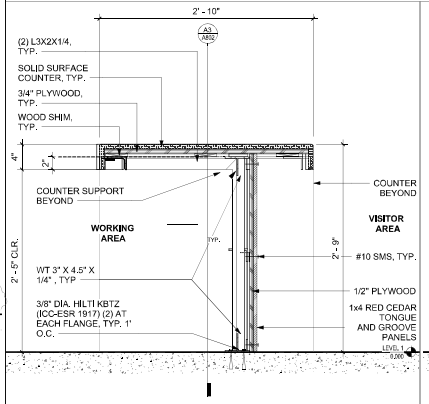
RECEPTION DESK CORNER K2 — 3" = 1'-0"



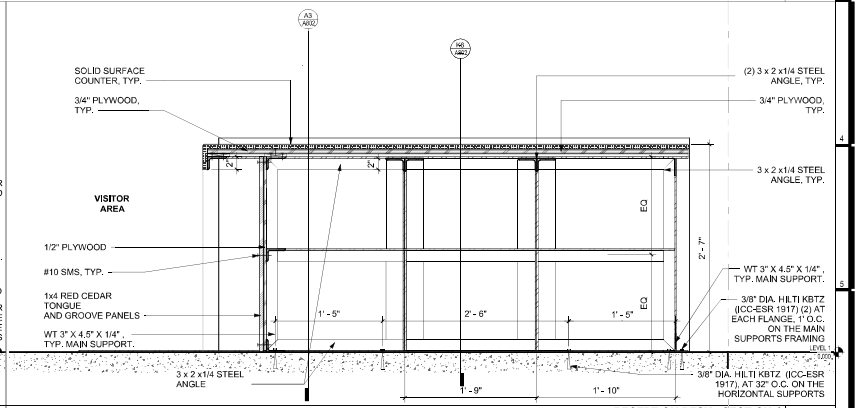
RECEPTION DESK - COUNTER K6 — 1 1/2" = 1'-0"



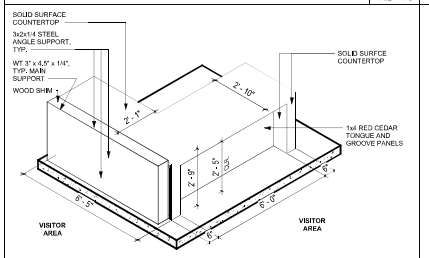
RECEPTIONIST DESK - SECTION 2 A3 — 1 1/2" = 1'-0"



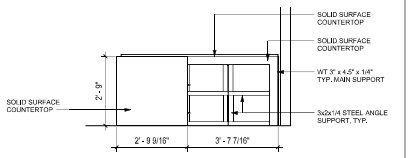
RECEPTION DESK - HIGH COUNTER SECTION G6 — 1 1/2" = 1'-0"



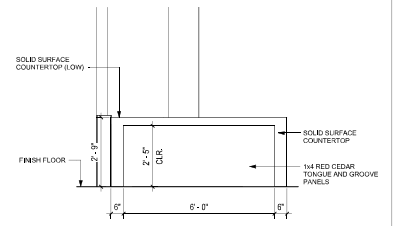
RECEPTION DESK - SECTION 1 A6 — 1 1/2" = 1'-0"



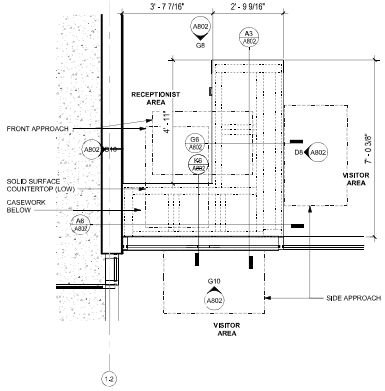
3D - 1. RECEPTION DESK K8



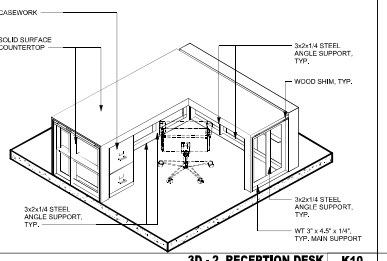
RECEPTIONIST DESK - NORTH G8 — 1/2" = 1'-0"



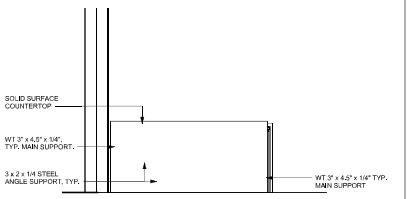
RECEPTIONIST DESK - EAST D8 — 1/2" = 1'-0"



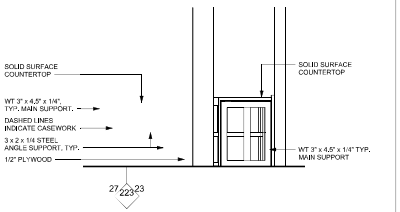
ENLARGED FLOOR PLAN - RECEPTIONIST DESK A10 — 1/2" = 1'-0"



3D - 2. RECEPTION DESK K10



RECEPTIONIST DESK - SOUTH G10 — 1/2" = 1'-0"



RECEPTIONIST DESK - WEST D10 — 1/2" = 1'-0"

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RECEPTION DESK DETAILS

A802

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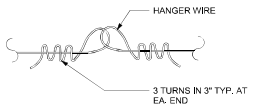
IR 25-2
SUSPENDED LAY-IN PANEL CEILING: 2019 CBC

COMPRESSION STRUT CHANNEL SECTION	MAXIMUM LENGTH
2505125-33	5' - 10"
2505137-33	6' - 10"
3625137-33	8' - 0"
2505137-43	8' - 10"
4005137-43	10' - 10"

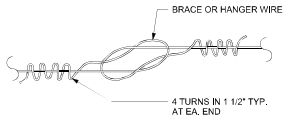
Detail Title :	REV: 09/21/2015	Detail No.
COMPRESSION STRUT TABLE	REV: 03/10/2017	3.21
	REV: 03/2022	

IR 25-2 (Revised 03/18/22) Page 35 of 71
DIVISION OF THE STATE ARCHITECT DEPARTMENT OF GENERAL SERVICES STATE OF CALIFORNIA

COMPRESSION STRUT TABLE K4
N.T.S.



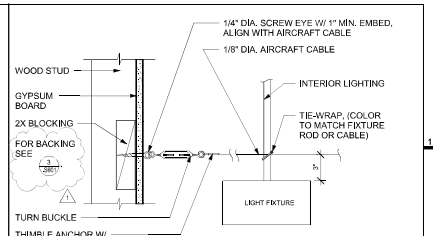
HANGER WIRE ONLY



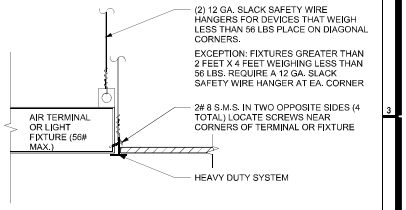
HANGER OR BRACE WIRE

NOTES
1. WIRE SPLICES ARE SHOWN LOOSELY TIED FOR ILLUSTRATIVE PURPOSES ONLY AND SHALL BE DRAWN TIGHT TO COMPLETE INSTALLATION WHEN CONSTRUCTED.

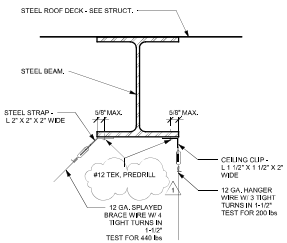
CEILING WIRE SPLICES D4
3" = 1'-0"



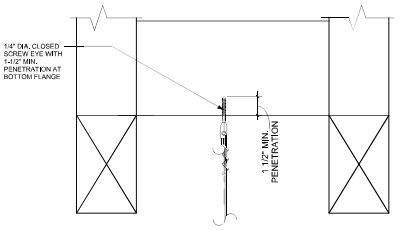
BRACING CABLE ATTACHMENT AT WOOD STUD A2
3" = 1'-0"



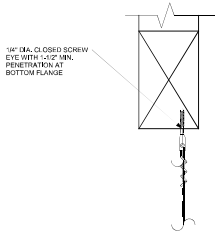
SUSPENDED ACOUSTICAL CEILING - LIGHT FIXTURES A4
1 1/2" = 1'-0"



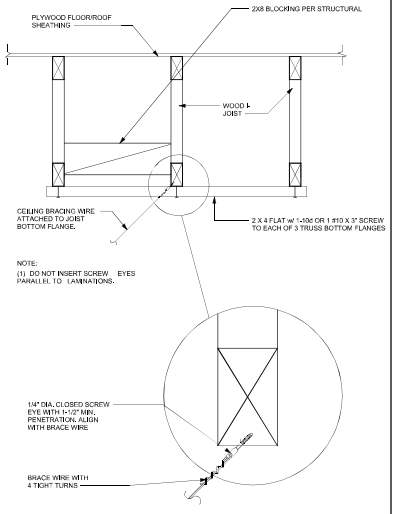
HANGER & SPLAY WIRE @ STL. BEAM D6
3" = 1'-0"



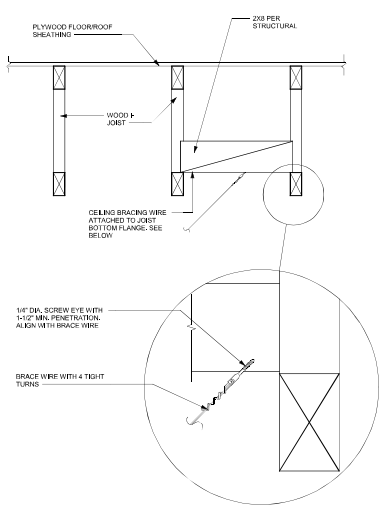
HANGER WIRE CONNECTION BETWEEN WOOD CHORD TRUSS K8
3" = 1'-0"



HANGER WIRE CONNECTION TO WOOD CHORD TRUSS K10
3" = 1'-0"

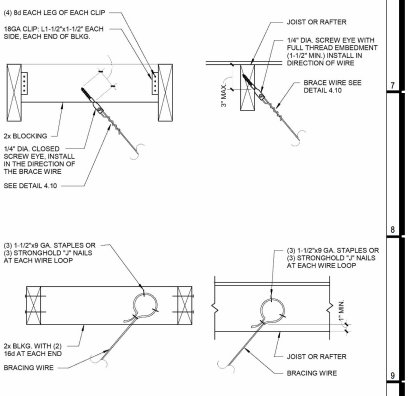


BRACE WIRE CONNECTION TO WOOD CHORD TRUSS G10
1" = 1'-0"



BRACE WIRE CONNECTION BETWEEN WOOD CHORD TRUSS D10
1" = 1'-0"

IR 25-2
SUSPENDED LAY-IN PANEL CEILING: 2019 CBC



Detail Title :	REV: 09/21/2015	Detail No.
BRACE WIRE CONNECTION TO SAWN TIMBER	REV: 03/2022	4.35

IR 25-2 (Revised 03/18/22) Page 53 of 71
DIVISION OF THE STATE ARCHITECT DEPARTMENT OF GENERAL SERVICES STATE OF CALIFORNIA

BRACE WIRE CONNECTION TO SAWN TIMBER A10
3" = 1'-0"

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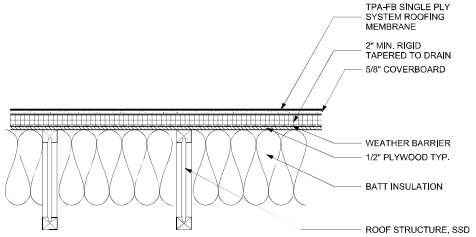
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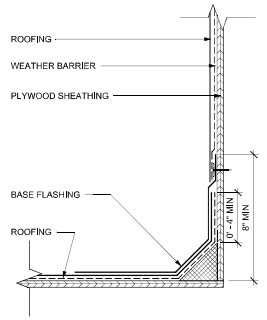
TYP. LAY-IN CEILING DETAILS

A823

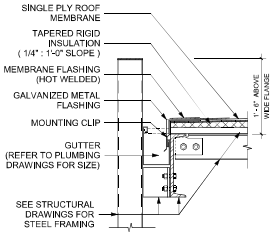
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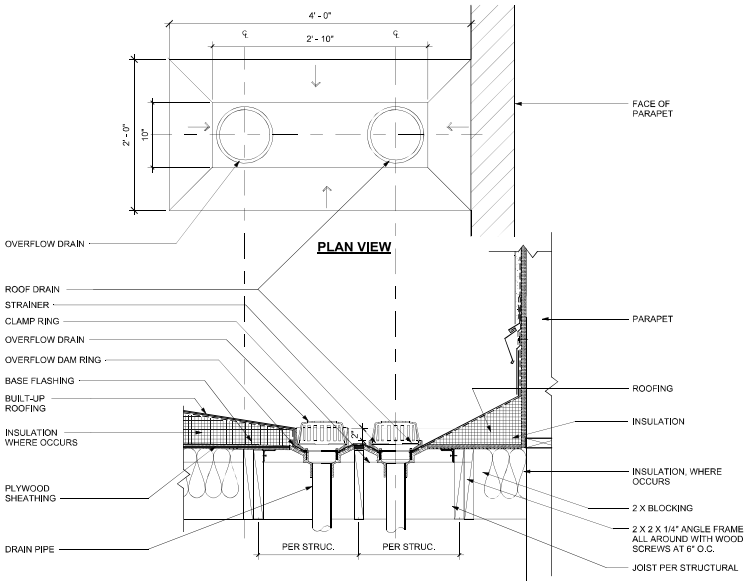
TYPICAL ROOF G3 — 1 1/2" = 1'-0"



ROOF TO PARAPET A3 — 3" = 1'-0"

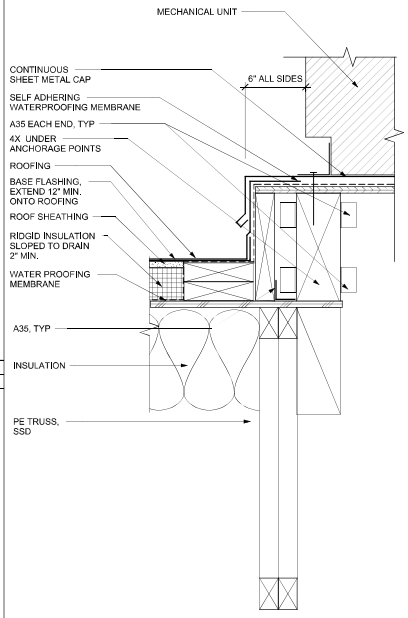


COVERED WALKWAY EDGE AND GUTTER A5 — 1" = 1'-0"

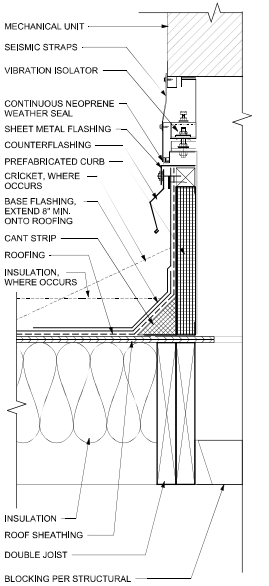


NOTES:
1. FOR ROOF DRAIN & OVERFLOW DRAIN SIZES, REFER TO PLUMBING DRAWINGS.
2. OVERFLOW DRAINS SHALL BE EQUAL SIZE AND DIAMETER AS ROOF DRAINS AND SHALL BE INSTALLED WITH INLET FLOWLINE 2" ABOVE THE LOW POINT OF ROOF.

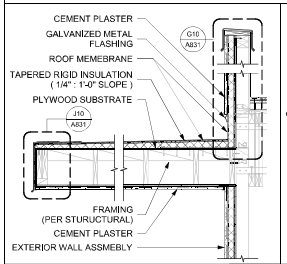
DOUBLE UNIT ROOF DRAIN G8 — 1 1/2" = 1'-0"



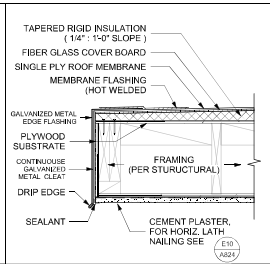
MECHANICAL EQUIPMENT PLATFORM C10 — 3" = 1'-0"



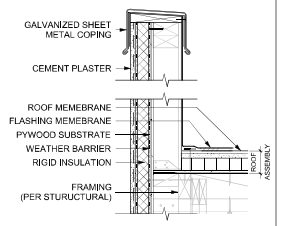
MECHANICAL EQUIPMENT CURB A10 — WITH VIBRATION ISOLATOR — 3" = 1'-0"



STAFF PATIO ROOF L10 — 3/4" = 1'-0"



STAFF PATIO ROOF EDGE J10 — 1 1/2" = 1'-0"



TYPICAL PARAPET G10 — 1 1/2" = 1'-0"

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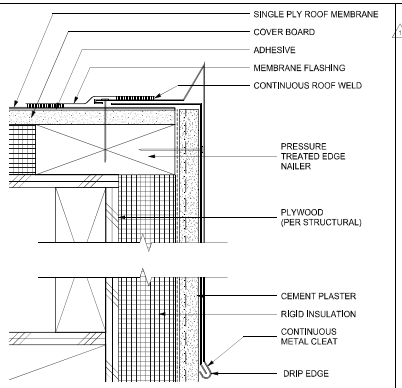
GATEWAY ANNEX SCHOOL
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	12/07/2022
ADD 1	08/28/2020

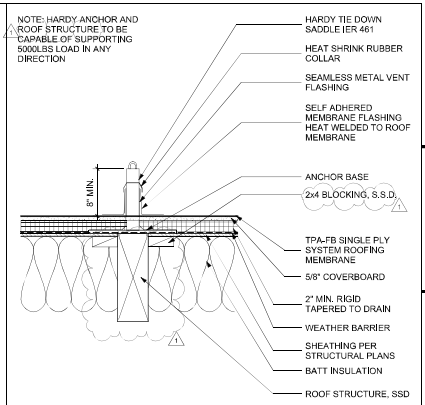
ROOF DETAILS

A831

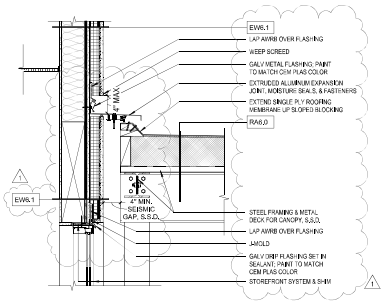
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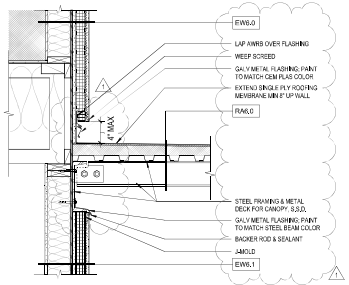
RAKE EDGE D3 — 6" = 1'-0"



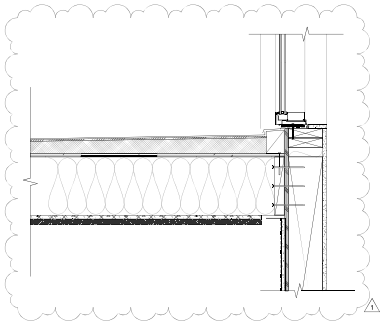
ROOF ANCHORAGE A3 — 1 1/2" = 1'-0"



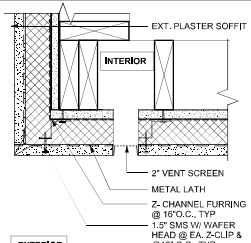
COVERED WALKWAY SEISMIC GAP @ EXT WALL G8 — 1" = 1'-0"



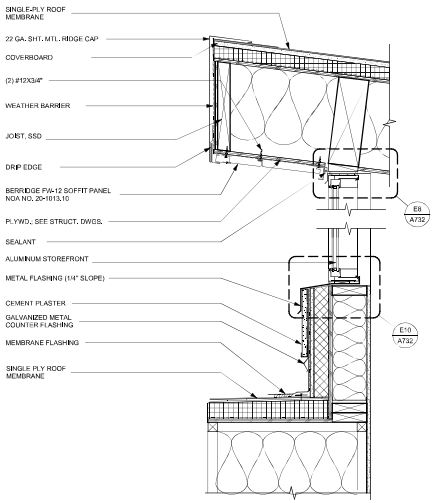
COVERED WALKWAY @ EXT WALL D6 — 1" = 1'-0"

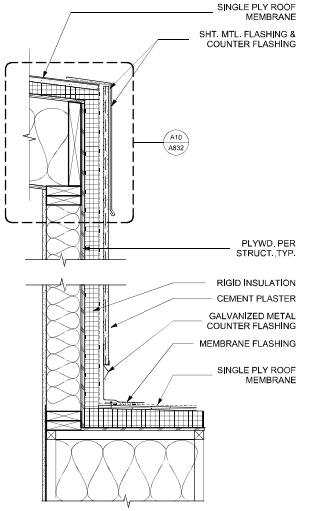


WINDOW SILL AT ENTRY ROOF A6 — 1 1/2" = 1'-0"

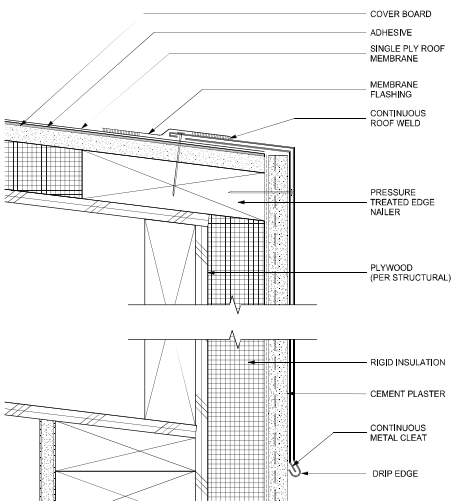


TYP. EXT. PLASTER SOFFIT & VENT L10 — 3" = 1'-0"





SLOPED ROOF E10 — 1 1/2" = 1'-0"



DRIP EDGE A10 — 6" = 1'-0"

M L K J H G F E D C B A

1 2 3 4 5 6 7 8 9 10

GATEWAY ANNEX SCHOOL

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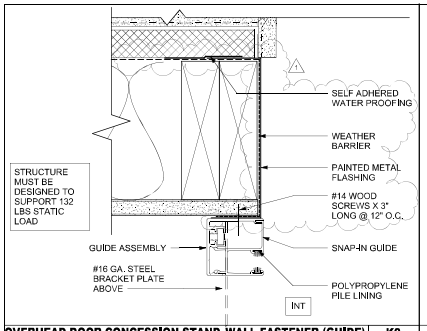
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ROOF DETAILS

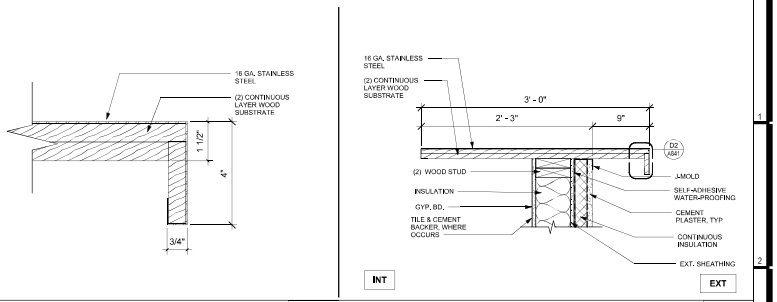
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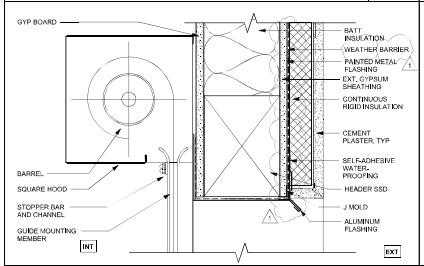


OVERHEAD DOOR CONCESSION STAND_WALL FASTENER (GUIDE) K2
8" = 1'-0"

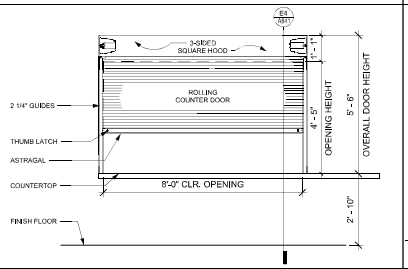


COUNTERTOP EDGE D2
6" = 1'-0"

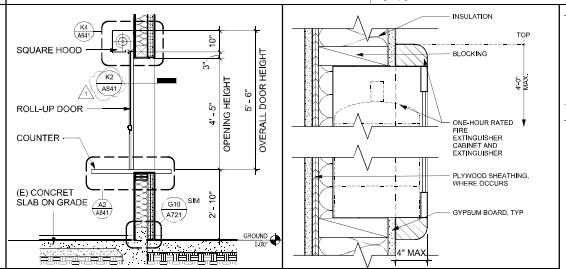
CONCESSION STAND COUNTERTOP A2
1 1/2" = 1'-0"



OVERHEAD DOOR CONCESSION STAND_HEAD K4
3" = 1'-0"

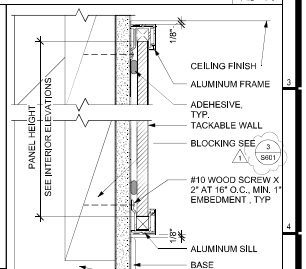


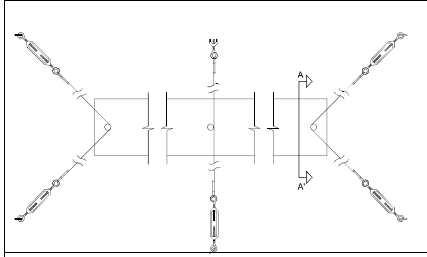
OVERHEAD DOOR CONCESSION STAND ELEVATION G4
1/2" = 1'-0"

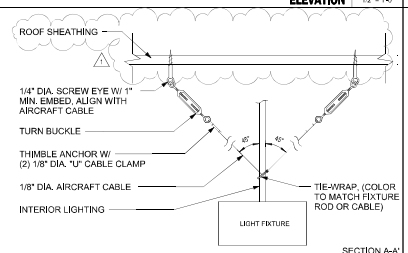


OVERHEAD DOOR CONCESSION STAND SECTION E4
1/2" = 1'-0"

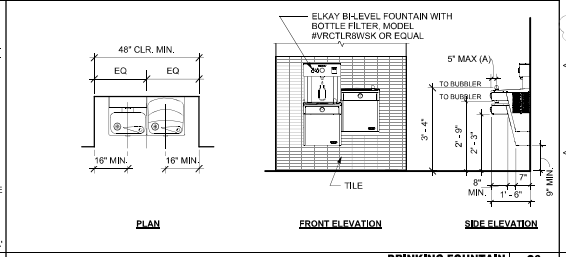
SEMI-RECESSED FIRE EXTINGUISHER C4
3" = 1'-0"



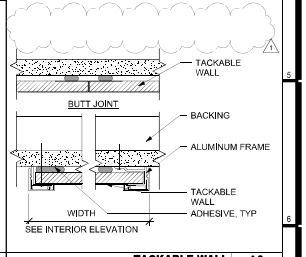




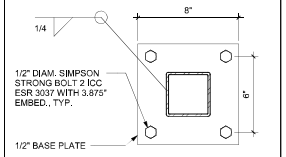
BRACING CABLE ATTACHMENT G6
3" = 1'-0"

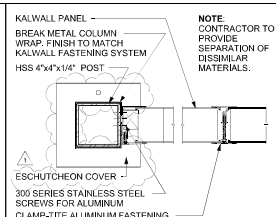


DRINKING FOUNTAIN C6
1/2" = 1'-0"

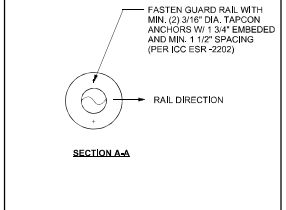


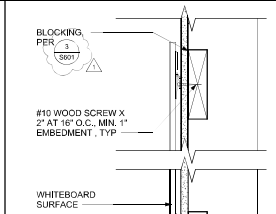
TACKABLE WALL A6
MARKER WALL SIMILAR 6" = 1'-0"



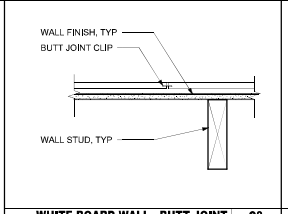


KALWALL PLAN J8
3" = 1'-0"

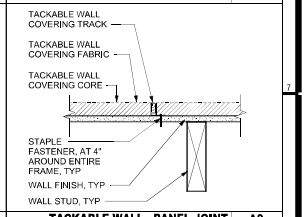




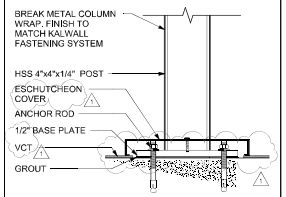
WHITEBOARD WALL - MOUNTING E10
3" = 1'-0"



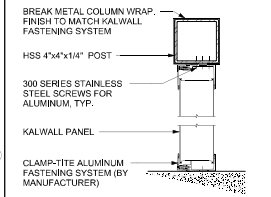
WHITE BOARD WALL - BUTT JOINT C8
3" = 1'-0"



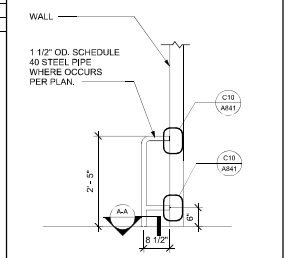
TACKABLE WALL - PANEL JOINT A8
3" = 1'-0"



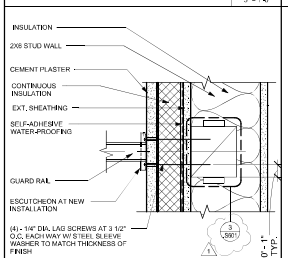
STEEL POST ATTACHMENT TO SLAB L10
3" = 1'-0"



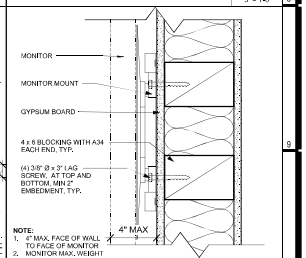
KALWALL SECTION J10
3" = 1'-0"



GUARD RAILS G10
3/4" = 1'-0"



PIPE GUARDRAIL MOUNTING C10
3" = 1'-0"



TYP. MONITOR BRACKET A10
3" = 1'-0"

M L K J H G F E D C B A

1 2 3 4 5 6 7 8 9 10

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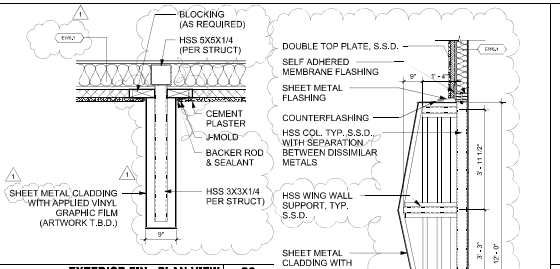
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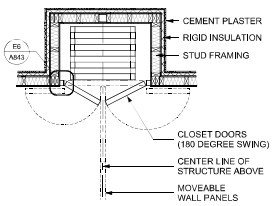
MISCELLANEOUS DETAILS

A841

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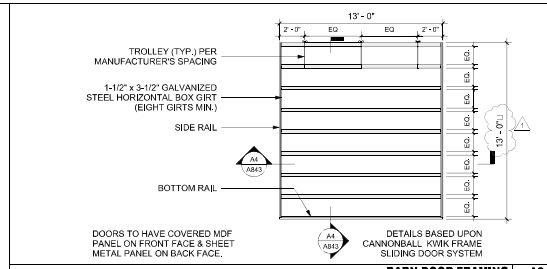


EXTERIOR FIN - PLAN VIEW G2
1" = 1'-0"

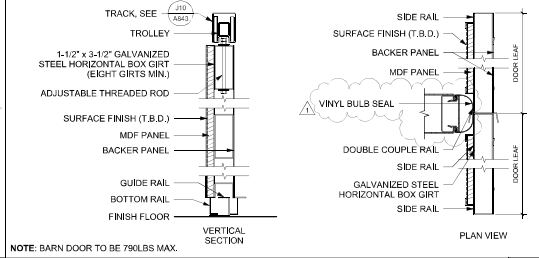


MODERFOLD CLOSET G4
3/8" = 1'-0"

EXTERIOR FIN - SECTION E4
1/2" = 1'-0"

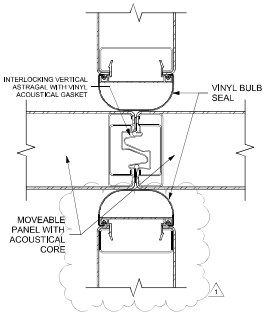


BARN DOOR FRAMING A2
1/4" = 1'-0"

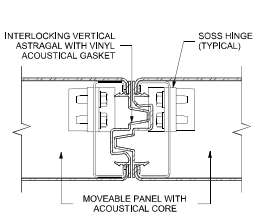


NOTE: BARN DOOR TO BE 790LBS MAX.

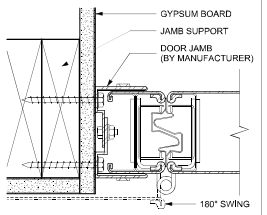
BARN DOORS - SECTION / PLAN VIEW A4
3" = 1'-0"



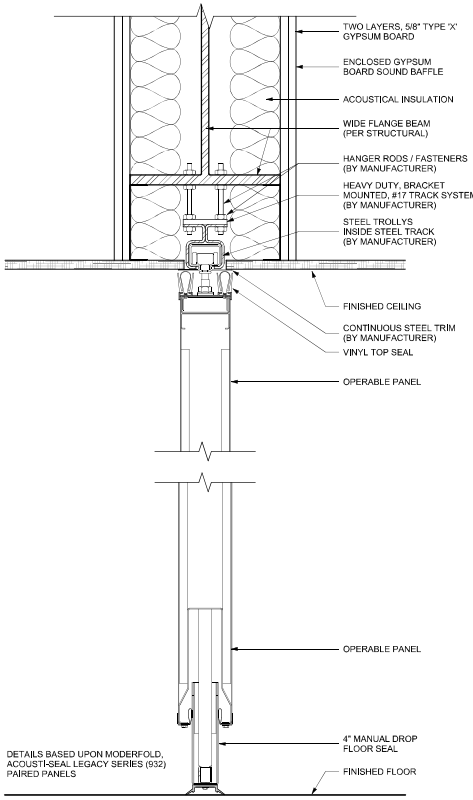
MODERNFOLD INTERSECTION J6
6" = 1'-0"



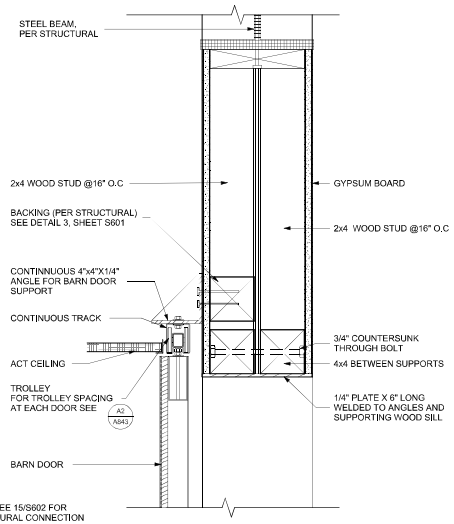
MODERFOLD SOSS HINGE G6
6" = 1'-0"



MODERFOLD DOOR JAMB E6
6" = 1'-0"

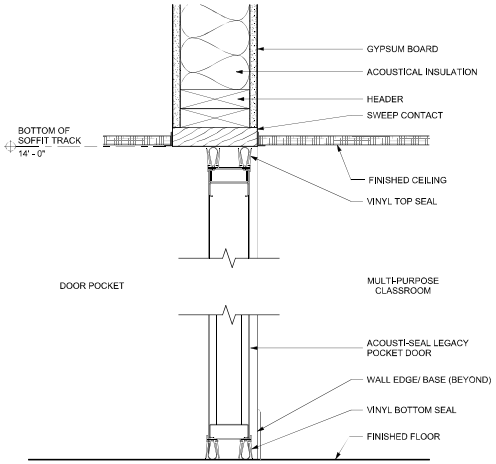


MODERNFOLD TRACK HEAD A10
3" = 1'-0"



NOTE: SEE 15/S602 FOR STRUCTURAL CONNECTION

BARN DOOR TRACK SECTION J10
3" = 1'-0"



NOTE:
1. FOR LOCATION, SEE A404
2. POCKET DOOR JAMBS SHALL BE CONTINOUS CHANNELS ANCHORED TO A FIXED WALL. WELDED HINGE ANCHOR PLATS SHALL SUPPORT POCKET DOOR HINGES AND PERMIT A FULL 180-DEGREE SWING.

MODERNFOLD POCKET DOOR HEADER SECTION E10
3" = 1'-0"

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FOLDING PARTITION DETAILS

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Plot Date: 5/13/2026 10:19:06 AM

Project #: 2026-056 R24

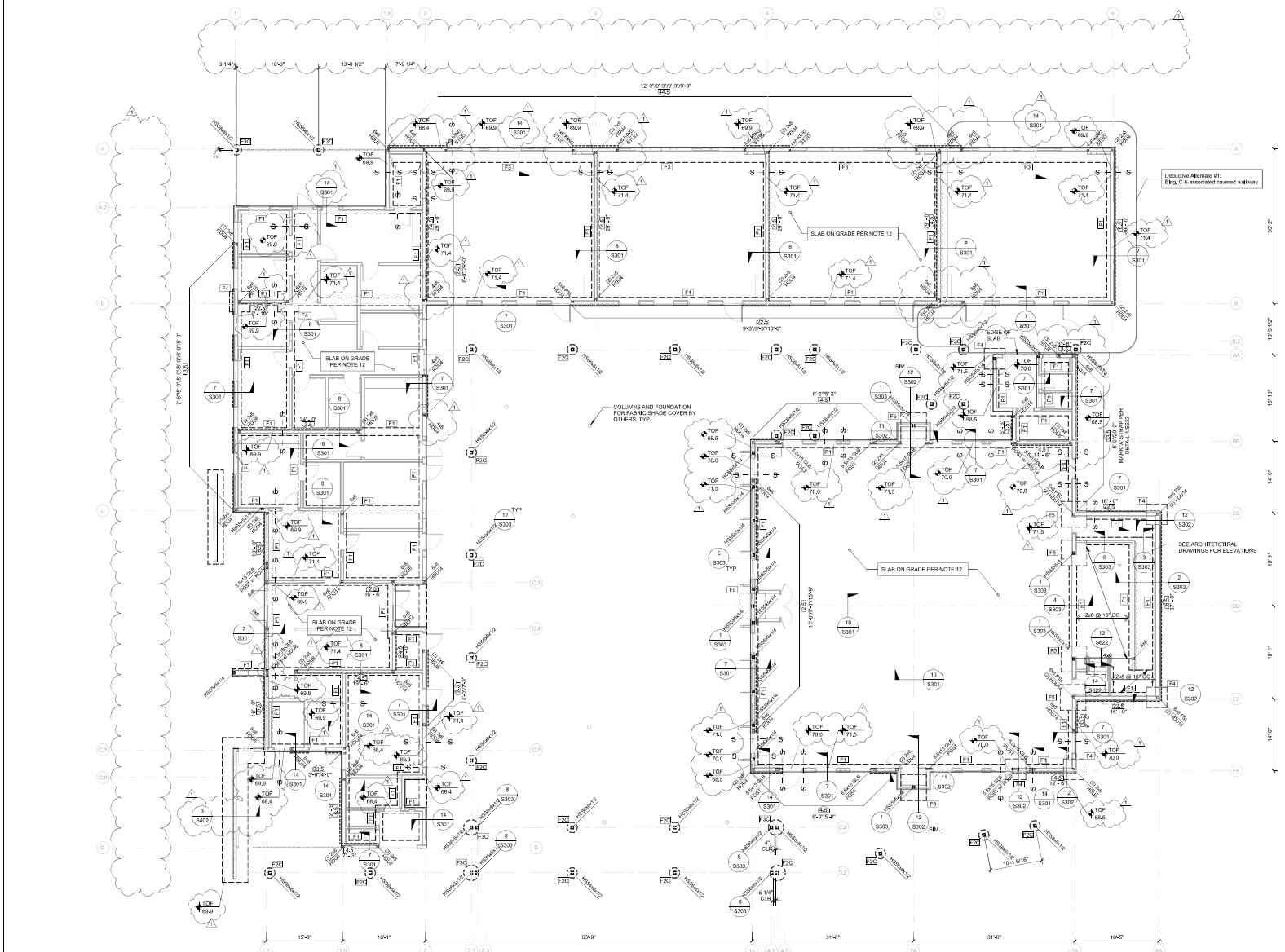
FOUNDATION LEGEND:

- INDICATES SHEAR PANEL EXTENT. SHEAR WALL MARK PER **3/S621**
- INDICATES MINIMUM SHEAR PANEL LENGTH
- INDICATES WOOD POST
- INDICATES SLAB DEPRESSION PER **9/S301** U.N.O. ON PLAN
- S — — S DENOTES FOOTING STEP PER **3/S302**
- INDICATES MINIMUM INDIVIDUAL SHEAR PANEL LENGTHS AROUND OPENINGS.
- INDICATES SHEAR PANEL AROUND OPENING PER DET **1/S622**
- TOS = 0'-0" INDICATES TOP OF SLAB ELEVATION FROM 0'-0"
- TOF = -X'-X" INDICATES TOP OF FOOTING ELEVATION, TOF = -1' - 0", UNO.

PAD FOOTING SCHEDULE - SEE DETAIL 12/S302 AND 1/S303				
SYMBOL	WIDTH	LENGTH	DEPTH	REINFORCEMENT
F1	1'-6"	CONT	1'-3"	(2) #5 T&B
F2C	2'-0" ø		4'-6"	(8) #7 VERT
F3C	3'-0" ø		4'-6"	(14) #8 VERT
F3	3'-0"	CONT	1'-3"	(3) #5 T&B
F4	4'-0"	4'-0"	1'-3"	#5 BOTT EW @ 8" OC T&B
F5	5'-0"	5'-0"	1'-3"	#5 BOTT EW @ 8" OC T&B

FOUNDATION NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS SEE SHEETS **S001 & S002.**
2. FOR TYPICAL CONCRETE DETAILS SEE **S300** SERIES SHEETS.
3. FOR TYPICAL STEEL DETAILS SEE **S500** SERIES SHEETS.
4. FOR TYPICAL WOOD DETAILS SEE **S600** SERIES SHEETS.
5. REFER TO ARCHITECTURAL DRAWINGS FOR CURBS, RAMPS, DRAINS, EXTERIOR SLABS, PITS, SWALES, TRENCHES, OPENINGS, DIMENSIONS, TOP OF SHEATHING & TOP OF PARAPET ELEVATIONS NOT SHOWN ON PLANS, ETC.
6. VERIFY ALL DIMENSIONS, ELEVATIONS, FINISH SURFACES, SLOPES, DRAINS DEPRESSIONS, CURBS ETC. WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION.
7. SEE CIVIL & LANDSCAPE DRAWINGS FOR ELEVATIONS AND SLOPES.
8. CONTRACTOR TO VERIFY & COORDINATE LOCATIONS OF MECHANICAL AND ELECTRICAL UNITS WITH MECHANICAL AND ELECTRICAL ENGINEER.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ANY DISCREPANCY PRIOR TO POUR, NOTIFY THE ENGINEER FOR CORRECTIVE MEASURES.
10. ALL HOLDOWNS, ANCHOR BOLTS, STRAPS, POST BASES & REINFORCEMENT MUST BE TIED IN PLACE PRIOR TO THE FOUNDATION INSPECTION & PLACEMENT OF CONCRETE.
11. DEPRESSED AREAS FOR TILE FLOORING SHALL HAVE ROUGHENED SURFACE TO ALLOW FOR BONDING OF MORTAR. REFER TO ARCHITECTURAL FOR LOCATIONS.
12. 5" THICK SLAB-ON-GRADE WITH #4 @ 18" OC EW AT MID-DEPTH OF SLAB. PROVIDE 15 MIL HDPE VAPOR BARRIER OVER MIN. 4" OF SAND PER GEOTECHNICAL REPORT. SEE DETAIL 9/S301.
13. WALLS TO BE FRAMED WITH 2x8 STUDS, NO 2x6 OR BETTER.
14. All gates, gate posts, and non structural items are shown on their respective disciplines



FOUNDATION PLAN

1/8" = 1'-0" 1

N

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GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION

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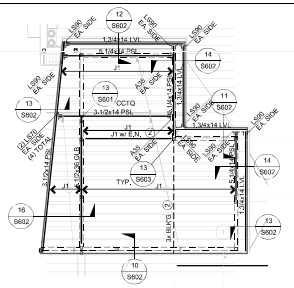
FOUNDATION PLAN

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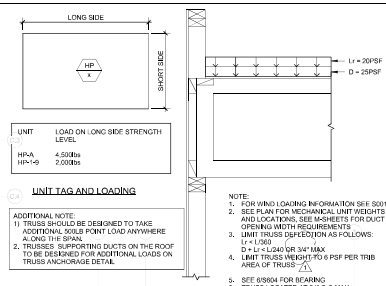
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UPPER ROOF FRAMING PLAN

1/8" = 1'-0" 2



UNIT TAG AND LOADING

ADDITIONAL NOTE:
1) TRUSS SHOULD BE DESIGNED TO TAKE ADDITIONAL 500LB POINT LOAD ANYWHERE ALONG THE SPAN.
2. TRUSSES SUPPORTING DUCTS ON THE ROOF TO BE DESIGNED FOR ADDITIONAL LOADS ON TRUSS ANCHORAGE DETAIL.

NOTE:
1. FOR WIND LOADING INFORMATION SEE S001
2. SEE PLAN FOR MECHANICAL UNIT WEIGHTS AND LOCATIONS, SEE M-SHEETS FOR DUCT OPENING WIDTH REQUIREMENTS
3. UNIT TRUSS DEFLECTION AS FOLLOWS:
Lr = L/360
D + Lr = L/240 OR 3/4" MAX
4. LIMIT TRUSS WEIGHT TO 6 PSF PER TRIB AREA OF TRUSS
5. SEE 6/S604 FOR BEARING
6. TRUSS LOCATED AT 24" O.C MAX

TRUSS LOADING

SCALE: NTS 3

FRAMING NOTES:

1. FOR GENERAL NOTES AND ABBREVIATIONS SEE SHEETS **S001** & **S002**
2. FOR TYPICAL STEEL, DETAILS SEE **S500** SERIES SHEETS
3. FOR TYPICAL WOOD DETAILS SEE **S600** SERIES SHEETS
4. REFER TO ARCHITECTURAL DRAWINGS FOR CURBS, RAMPS, DRAINS, EXTERIOR SLABS, PITS, SWALES, TRENCHES, OPENINGS, DIMENSIONS, TOP OF SHEATHING & TOP OF PARAPET ELEVATIONS NOT SHOWN ON PLANS, ETC.
5. VERIFY ALL DIMENSIONS, ELEVATIONS, FINISH SURFACES, SLOPES, DRAINS DEPRESSIONS, CURBS ETC. WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION.
6. CONTRACTOR TO VERIFY & COORDINATE LOCATIONS OF MECHANICAL UNITS WITH MECHANICAL ENGINEER.
7. TYPICAL ROOF SHEATHING:
19/32 PLYWOOD SEE NOTES ON **S001**, UNBLOCKED 32/16 w/ 8d @6" OC BN, EN, & 12" OC FN PER DET **11/S622** (TYP, UNO)
8. PSL = PARALAM BEAM BY WEYERHAEUSER WITH E=2.0, 10 6 PSI OR E=2.2, 10 5 PSI AS SHOWN
9. LVL = LAMINATED VENEER LUMBER, PARALLEL STRAND LUMBER or 2.0E MAY BE USED IN LIEU OF LVL.
10. PROVIDE 1.5" GA 20 METAL DECK (6'-0" MAX SPAN) IN THE SPAN DIRECTION SHOWN, 2-SPAN OR 3-SPAN CONDITION REQUIRED
11. P.E. (PRE-ENGINEERED) GIRDER TRUSS DESIGNED FOR THE FOLLOWING POINT LOAD AT THE END OF THE CANTILEVERED BOTTOM CHORD, SEE DETAILS 9/S604 AND 10/S604 FOR MORE INFO.
D = 0.32 KIPS
Lr = 0.37 KIPS
12. ATTACH STRAP TO WALL TOP PLATE PER 3/S622. FIELD WELD STRAP TO TOP C-CHANNEL RIM BEAM WITH 4" MIN. FULL STRENGTH WELD
13. PROVIDE CMST12 STRAP (2-STRAPS WHERE INDICATED) CONNECTING P.E. ROOF TRUSS TOP CHORDS BETWEEN STEEL BEAMS w/ (43) 10d NAILS EA TRUSS. STRAP MAY BE APPLIED TO TOP OF TRUSS OVER SHEATHING, OR TO SIDE OF TRUSS TOP CHORD (THRU STEEL BEAM WALES).
14. PROVIDE 2-CMST12 STRAPS, ONE EA SIDE OF WALL, CONNECTED TO SIDE OF WALL DOUBLE TOP PLATE w/ (43) 10d NAILS EA. STRAP AND WELD END OF STRAP TO SIDE OF STEEL COLUMN WITH FULL STRENGTH WELD.
15. DEFERRED SUBMITTAL FOR ROOF TRUSSES INCLUDING UPLIFT CONNECTION TO THE STRUCTURE. ALL TRUSS-TO-TRUSS CONNECTIONS, AND ALL OTHER REQUIRED HARDWARE. SEE **3/S102** FOR TRUSS DESIGN INFORMATION.
16. WHERE TRUSS MANUFACTURER SEEMS PARAPET BRACING IS NEEDED, SEE **16/S603** FOR BRACING AND LOADING.

FRAMING LEGEND

- HDR — HEADER PER DETAILS 1 & 2/S601 ALIGN BOTTOM OF HEADER AT TOP OPENING
- 6x — FLUSH BEAM DEPTH OF BEAM MATCHES JOIST DEPTH, AT PERPENDICULAR WALL, PROVIDE POST TO MATCH BEAM WIDTH & WALL DEPTH, SEE DETAIL 3/S602
- 6x DROP — DROP BEAM, ALIGN TOP BEAM W/ BOTTOM OF JOISTS, AT PERPENDICULAR WALL, PROVIDE TRIMMER TO MATCH BEAM WIDTH & WALL DEPTH.
- J# - ROOF JOISTS SEE JOIST SCHEDULE
- P.E. (PRE-ENGINEER) TRUSSES SEE DETAIL 3/S102 FOR LOADING
- 4x HDU — INDICATES WOOD POST PER PLAN & HOLD DOWN PER SCHEDULE AND **4/S621**
- INDICATES BLOCKED DIAPHRAGM AT ALL PANELS EDGES w/ 3x BLOCKING & 10d @ 3" OC
- TPS-X — INDICATES TOP PLATE SPLICE, IF NOT SHOWN TPS-1 SHALL BE APPLIED AT ALL TOP PLATE SPLICES, SEE **4/S612**
- INDICATES BEAM BRACE @ 4 FT OC FIRST AND LAST AT 2FT FROM SUPPORT, LOCATION ON PLANS IS ONLY SHOWN FOR REFERENCE, NOT ALL BRACES SHOWN, SEE **11/S603** AND **12/S603**
- BLOCKINGS PER **4/S613**
- FALL ARREST PER 1 AND **4/S613** SEE **A/S1** FOR LOCATION

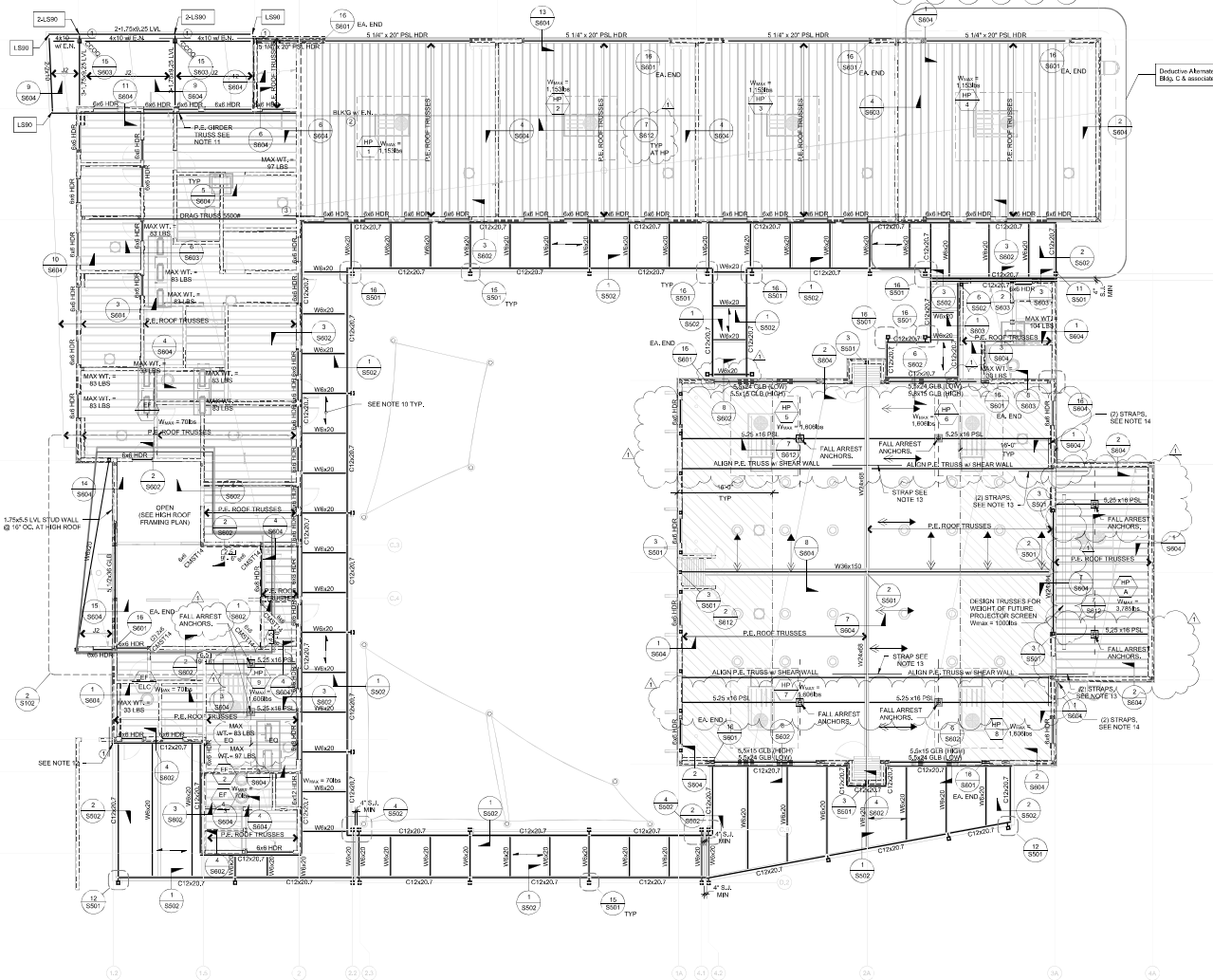
CONSTRUCTION NOTE KEY

1. INDICATES SIMPSON MST60 STRAP, SEE DET 3/S622
2. INDICATES SIMPSON (2) CMST12 STRAP (LENGTH AS SHOWN), SEE DET 3/S622
3. INDICATES SIMPSON MSTC66 STRAP, SEE DET 3/S622

JOIST SCHEDULE

MARK	SIZE	SPACING	MAX LENGTH
J2	2x10	16" OC	16'-0"
J1	1.3/4" x 14" LVL	24" OC	24'-0"

NOTES:
1. EFFECTIVE JOIST SPACING SHALL BE MAINTAINED OVER THREE BAYS WHERE 24" MAX SPREAD BAY IS REQ'D.



ROOF FRAMING PLAN

1/8" = 1'-0" 1

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ROOF FRAMING PLAN

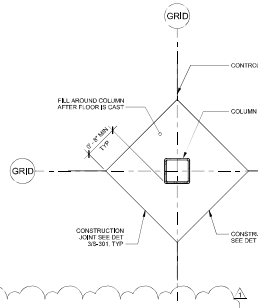
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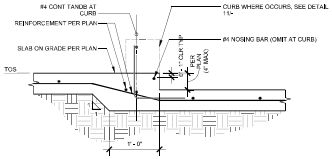
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LATE POUR AT COLUMN PAD

SCALE: NTS 13



DEPRESSION IN SLAB ON GRADE (4" MAX)

SCALE: NTS 9

CLASS "B" TENSION LAP SPLICE LENGTH

CONCRETE CLASS "B" TENSION SPLICE	f'c PSI	BAR SIZE GR 60	#3	#4	#5	#6	#7	#8	#9	#10	#11
		BAR DIAMETER db (IN)	0.375	0.500	0.625	0.750	0.875	1.000	1.128	1.270	1.410
	4000	TOP BAR	2'-0"	2'-6"	3'-1"	4'-1"	5'-1"	6'-9"	7'-7"	8'-5"	9'-5"
		BOTTOM BAR	1'-7"	2'-1"	2'-7"	3'-1"	4'-8"	5'-2"	5'-10"	6'-7"	7'-3"

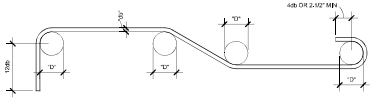
NOTES:

1. ALL REINFORCING MUST MEET ONE OF THE FOLLOWING CONDITIONS:
   A. CASE I: THE CLEAR SPACING OF THE BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN ONE BAR DIAMETER (db) CLEAR COVER NOT LESS THAN ONE BAR DIAMETER (db) AND STIRRUPS OR TIES THROUGHOUT THE SPLICE LENGTH.
   B. OR CASE II: THE CLEAR SPACING OF THE BARS BEING SPLICED IS NOT LESS THAN TWO BAR DIAMETERS (2db) AND THE CLEAR COVER IS NOT LESS THAN ONE BAR DIAMETER (db).
   C. FOR ALL OTHER CASES MULTIPLY THE SPLICES SHOWN BY 1.5.
2. THE ABOVE VALUES ARE FOR NORMAL WEIGHT CONCRETE. THE ABOVE VALUES SHALL BE MULTIPLIED BY 1.3 FOR LIGHTWEIGHT CONCRETE.
3. THE ABOVE VALUES ARE FOR UNCOATED REINFORCEMENT.
4. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 12" OF NEW CONCRETE PLACED BELOW THE BAR.
5. BOTTOM BARS ARE ALL VERTICAL BARS AND HORIZONTAL REINFORCEMENT WITH LESS THAN 12" OF NEW CONCRETE PLACED BELOW THE BAR.



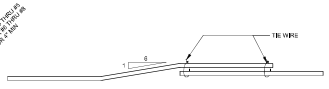
MINIMUM BEND DIAMETER (STIRRUPS AND TIES)				
BAR SIZE	#3	#4	#5	#6
"D"	1.1/2"	2"	2.1/2"	4.1/2"

STANDARD HOOK DETAIL FOR STIRRUPS AND TIES

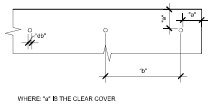


MINIMUM BEND DIAMETER (PRINCIPAL REINFORCEMENT)			
BAR SIZE	#3 THRU #8	#9 THRU #11	#14 AND #18
"D"	6db	8db	10db

STANDARD HOOK DETAIL FOR PRINCIPAL REINFORCEMENT



OFFSET AND SPLICES

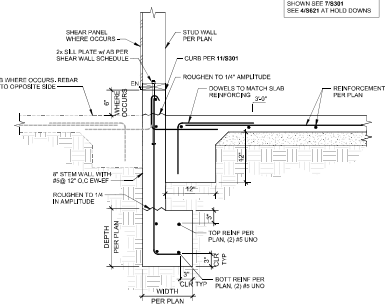


WHERE "s" IS THE CLEAR COVER
"s" IS THE CENTER TO CENTER SPACING
"db" IS THE BAR DIAMETER

SPLICE LENGTHS FOR BARS PLACED SHALL MEET THE FOLLOWING (SEE NOTE 1):	
CASE I	CASE II
s>db, ANY b	s>db, b>3db
s=db, b<3db	-

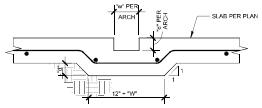
TYPICAL NWC (CLASS B) LAP SPLICE SCHEDULE

SCALE: NTS 2



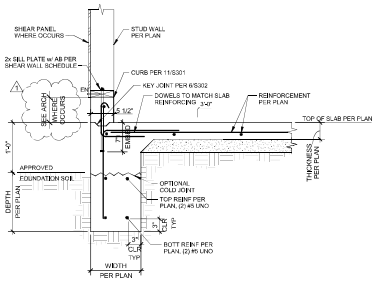
SLAB AT STEPPED FOOTING

SCALE: NTS 14



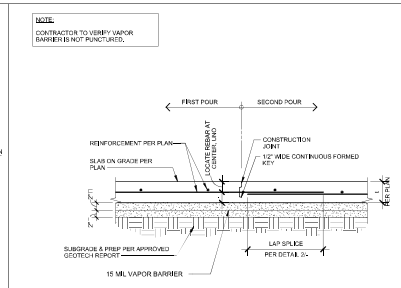
TRACK RECESS

SCALE: NTS 10



EDGE OF SLAB DETAIL

SCALE: NTS 7

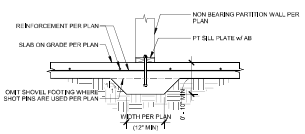


NOTE:
CONTRACTOR TO VERIFY VAPOR BARRIER IS NOT PUNCTURED.

TYPICAL INTERIOR SLAB ON GRADE

SCALE: NTS 3

NOTE:
ALL SILLS SHALL BE 2x PT HEM FIR, SILL BOLTS SHALL BE NOT LESS THAN 5/8" DIA x 7" @ 4'-0" OC, LOCATE BOLTS 9" FROM THE END OF ANY PLATE, USE (2) BOLTS MINIMUM IN EVERY PLATE.
ALTERNATE:
IN LIEU OF BOLTS SHOWN, USE 0.147" DIA x 3" LONG POWDER DRIVEN PINS WITH 1-3/8" DIA WASHERS @ 32" OC, POWDER DRIVEN PINS MUST PENETRATE CONCRETE 1-1/2" MIN, USE LOW VELOCITY "HILTI" OR EQUAL. POWDER DRIVEN PINS NOT PERMITTED WHEN PARTITIONS REST ON CURBS.



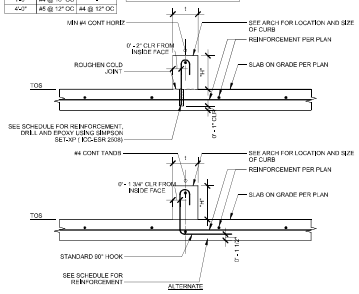
TYPICAL

NON-BEARING FOOTING AT PARTITION WALL

SCALE: NTS 15

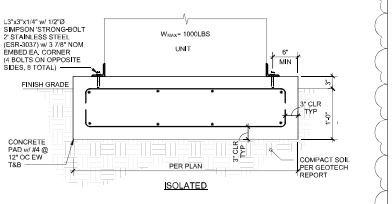
CURB REINFORCING SCHEDULE		
MAX "H"	VERTICAL	HORIZONTAL
8"	#3 @ 18" OC	-
1'-6"	#4 @ 18" OC	-
4'-0"	#5 @ 12" OC	#4 @ 12" OC

NOTE:
USE TWO CURTAINS OF HORIZONTAL & VERTICAL REINFORCING FOR 12 1/2"



TYPICAL CURB DETAIL

SCALE: NTS 11

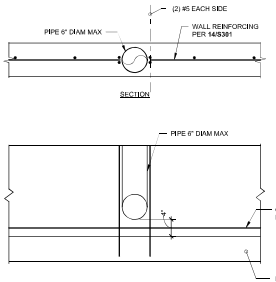


ISOLATED

MECH CONC PAD TO SLAB ON GRADE

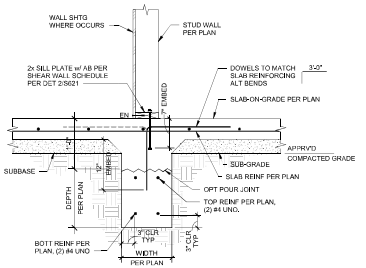
SCALE: NTS 16

NOTE: PROVIDE CURB PER 11/S301 AS NEEDED



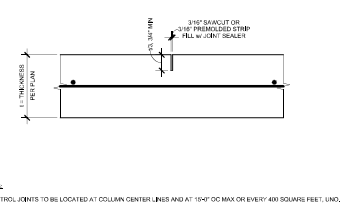
PIPE IN WALL DETAIL

SCALE: NTS 12



INTERIOR STUD WALL FOOTING

SCALE: NTS 8



NOTES:
1. CONTROL JOINTS TO BE LOCATED AT COLUMN CENTER LINES AND AT 15'-0" OC MAX OR EVERY 400 SQUARE FEET, UNO.
2. IF SAW-CUT CONTROL JOINT TO BE USED, SAW-CUT NO LATER THAN 12 HOURS AFTER CONCRETE FINISHING.

INTERIOR CONTROL JOINTS

SCALE: NTS 4

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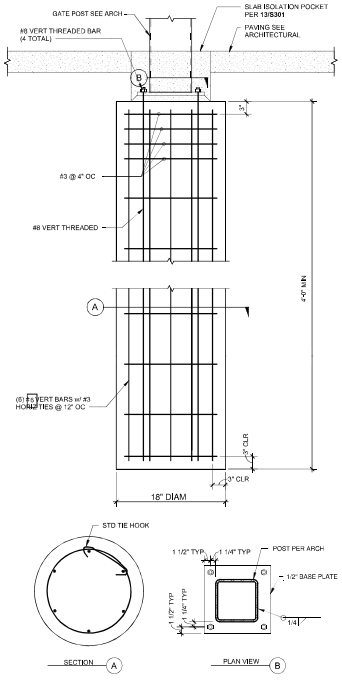
TYPICAL CONCRETE SLAB ON GRADE DETAILS

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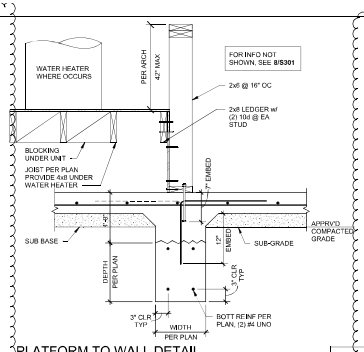
S301

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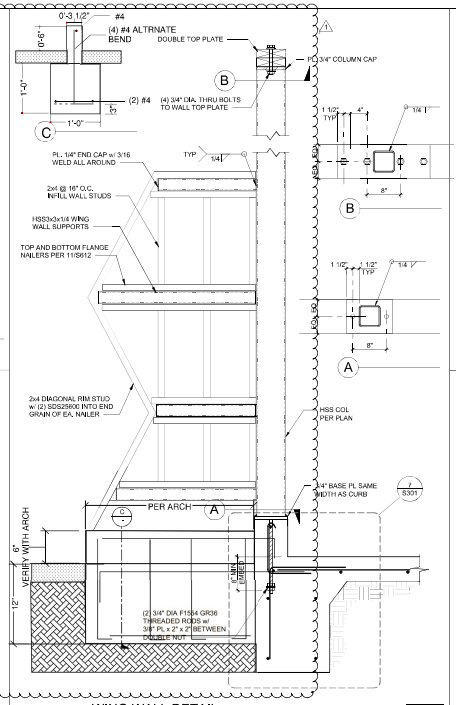
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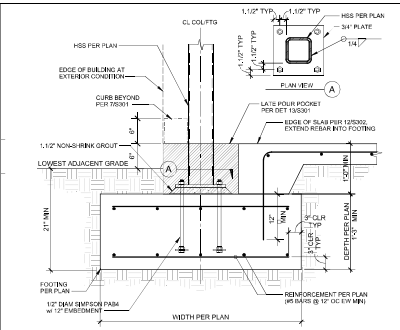
GATE POST FOOTING — SCALE: NTS — 14



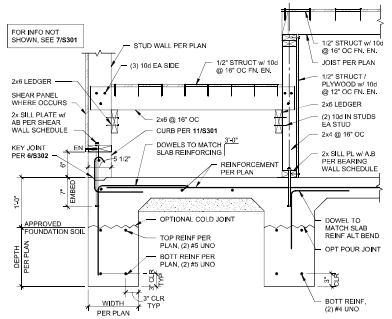
PLATFORM TO WALL DETAIL — SCALE: NTS — 9



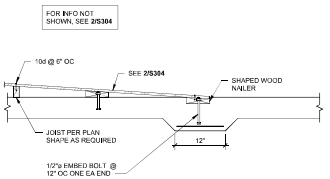
WING WALL DETAIL — SCALE: NTS — 6



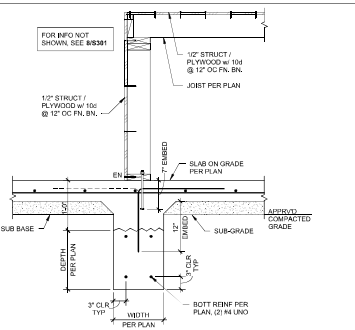
HSS COL TO SPREAD FOOTING/GRADE BEAM — SCALE: NTS — 1



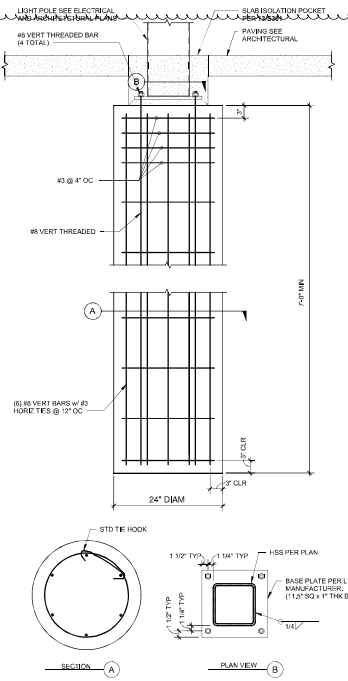
PLATFORM FRAMING — SCALE: NTS — 2



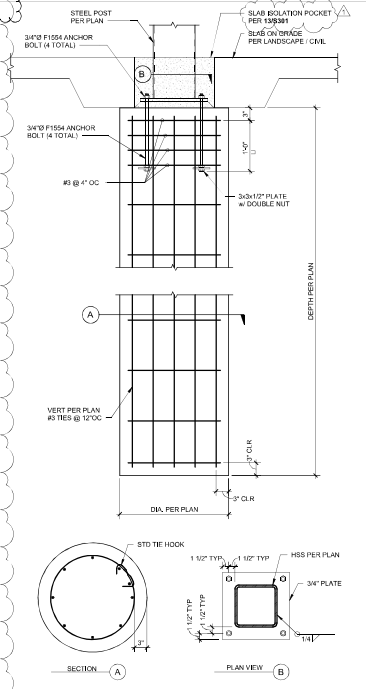
DETAIL — SCALE: NTS — 3



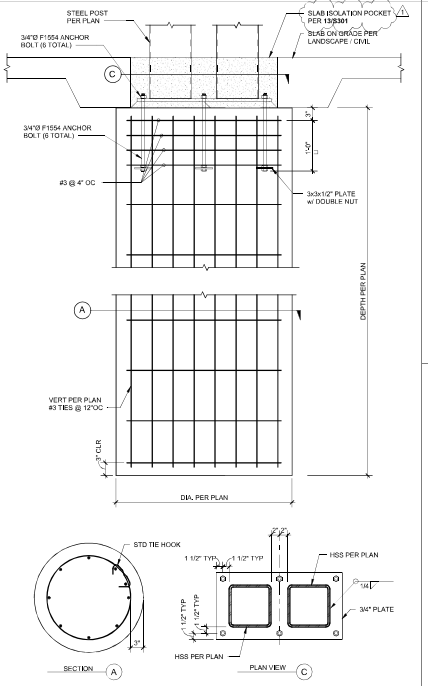
PLATFORM DETAIL — SCALE: NTS — 4



LIGHT POLE FOOTING — SCALE: NTS — 16



POLE FOOTING — SCALE: NTS — 12



POLE FOOTING — SCALE: NTS — 8

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550 Airport Way, Camarillo, CA 93010

JOB	2026-056 R24
SCALE	AS NOTED
PM	
DATE	Issue Date
1	ADDENDUM 1 2026-08-28

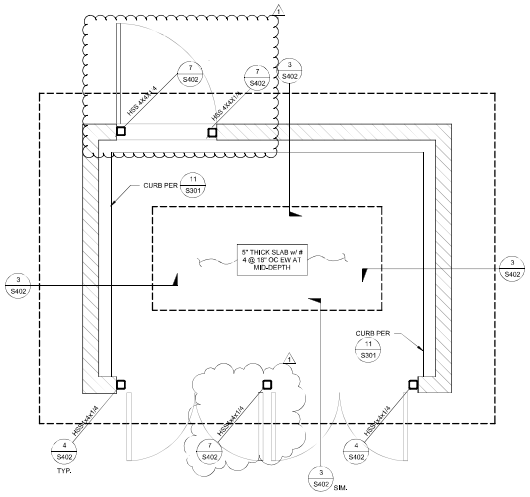
CONCRETE FOOTING DETAILS

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S303

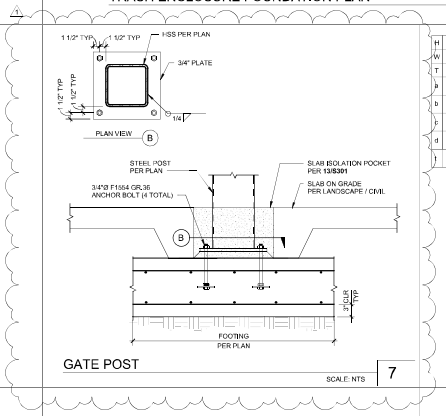
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Project #: 2026-056 R24



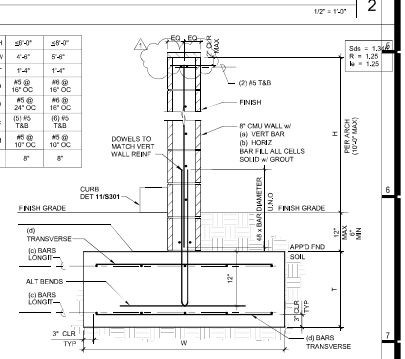
TRASH ENCLOSURE FOUNDATION PLAN

1/2" = 1'-0" 2



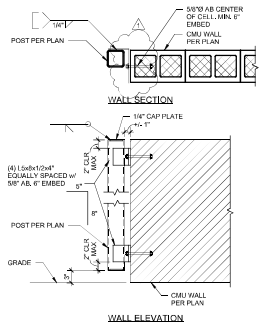
GATE POST

SCALE: NTS 7



TYP CATILEVERED CMU WALL

SCALE: NTS 3



COLUMN TO CMU WALL

SCALE: NTS 4

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5	

TRASH ENCLOSURE

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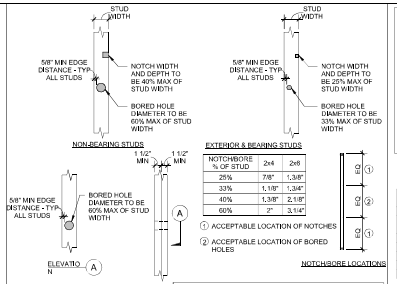
TYPICAL NAILING SCHEDULE

CONNECTION	MINIMUM NAILING
JOIST/TRUSS TO SILL OR GIRDER, TOE NAIL	(3) 8d OR (3) 3"x0.131"
BRIDGING TO JOIST, TOE NAIL EACH END	(2) 8d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL (OR PER SHEAR WALL SCHEDULE)	16d @ 16" OC OR 3"x0.131" @ 8" OC
TOP PLATE TO STUD, END NAIL	(2) 16d OC OR (3) 3"x0.131"
STUD TO SOLE PLATE, TOE NAIL OR STUD TO SOLE PLATE, END NAIL	(4) 8d OR (2) 16d
DOUBLE STUDS, FACE NAIL	16d @ 24" OC
DOUBLE TOP PLATES, FACE NAIL DOUBLE TOP PLATES, LAP SPLICE	16d @ 16" OC OR 3"x0.131" @ 12" OC SEE DETAILS
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOE NAIL	(3) 8d OR (3) 3"x0.131"
RIM JOIST TO TOP PLATE, TOE NAIL	8d @ 6" OC OR 3"x0.131" @ 6" OC
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(3) 16d OR (3) 3"x0.131"
CONTINUOUS HEADER, TWO PIECES, ALONG EDGE	16d @ 16" OC
CEILING JOISTS TO PLATE, TOE NAIL	(3) 8d OR (5) 3"x0.131"
CONTINUOUS HEADER TO STUD, TOE NAIL	(4) 8d
CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	(3) 16d OR (4) 3"x0.131"
CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	(3) 16d OR (4) 3"x0.131"
RAFTER/TRUSS TO PLATE, TOE NAIL	(3) 8d OR (3) 3"x0.131"
1" DIAGONAL BRACE TO EACH STUD AND PLATE, FACE NAIL	(2) 8d OR (2) 3"x0.131"
BUILT-UP CORNER STUDS	(3) 8d @ 24" OC OR 3"x0.131" @ 16" OC

NOTE: SEE CBC TABLE 2304.10.1 FOR INFORMATION NOT SHOWN.

1" = 1'-0" | 13

TYPICAL STUD NOTCH/BORE



NOTCH/BORE % OF STUD	2x4	2x6
25%	7/8"	1 3/8"
33%	1 1/8"	1 3/4"
40%	1 3/8"	2 1/8"
60%	2"	3 1/4"

① ACCEPTABLE LOCATION OF NOTCHES

② ACCEPTABLE LOCATION OF BORED HOLES

NOTCH/BORE LOCATIONS

NOTES:
1. NOTCHING AND BORING NOT TO OCCUR IN SAME STUD.
2. DO NOT OVERCUT NOTCHES OR BORED HOLES.
3. NO MORE THAN 2 SUCCESSIVE DOUBLE STUDS MAY HAVE 60% 80 MAX BORED HOLES.

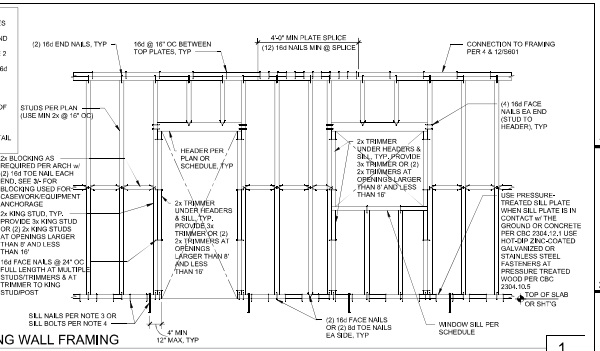
1" = 1'-0" | 9

TYPICAL NON-BEARING WALL FRAMING

NOTE:
1. HEADERS, KING STUDS, AND OTHER REFERENCES ON PLAN GOVERN OVER THIS TYPICAL DETAIL.
2. INSTALL 1x6 DIAGONAL LET-IN BRACE AT 25'-0" AND AT EACH END IN ALL WALLS NOT SHEATHED, MAXIMUM SLOPE OF DIAGONAL BRACE SHALL BE 2 VERTICAL TO 1 HORIZONTAL.
3. NAIL SILL PLATE TO WOOD FRAMED FLOORS w/ 16d @ 8" OC TO JOIST OR BLOCKING BELOW SHEATHING, SEE DETAIL **3/S621**.
4. BOLT SILL PLATE TO CONCRETE SLAB w/ 5/8" Ø HEADED ANCHOR RODS @ 48" OC MAX, w/ 7" MIN EMBED INTO SLAB (NOT INCLUDING THICKNESS OF CURB WHERE OCCURS).
5. REFER TO DETAIL **2/S601** FOR BEARING AND EXTERIOR WALLS, FOR MINIMUM NAILING REQUIREMENTS. SEE CBC TABLE 2304.10.1 & DETAIL **13/S601**.

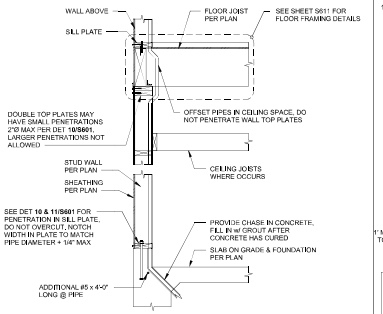
HEADER & SILL SCHEDULE
(SEE NOTE 1)

OPENING WIDTH	HEADER ABOVE	HEADER @ FRAMING	WINDOWS SILL WHERE OCCURS
UP TO 4'-0"	4x4	6x4 FLAT	2x
4'-1" TO 6'-0"	4x6	6x6	(2) 2x
6'-1" TO 9'-0"	4x8	6x8	(2) 2x
9'-1" TO 10'-0"	6x10	6x10	(3) 2x
10'-1" & UP	SEE PLANS		



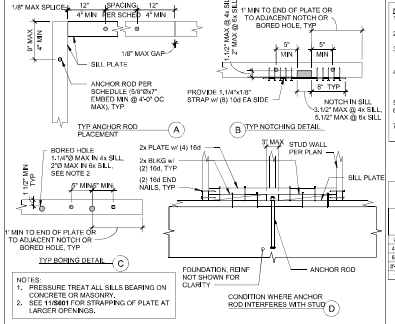
SCALE: NTS | 1

TYPICAL PIPE IN WOOD WALL



3/4" = 1'-0" | 14

TYPICAL SILL PLATE DETAILS



NOTES:
1. PRESSURE TREAT ALL SILLS BEARING ON CONCRETE OR MASONRY.
2. SEE **11/S601** FOR STRAPPING OF PLATE AT LARGER OPENINGS.

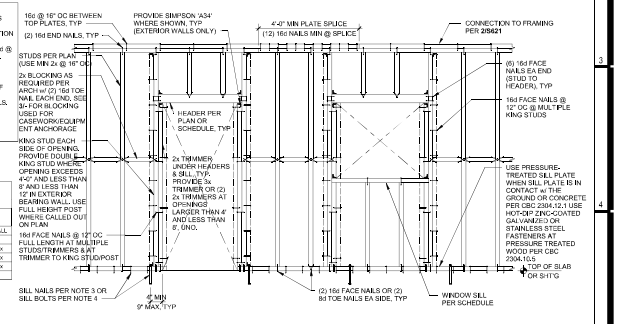
1" = 1'-0" | 10

TYPICAL BEARING & EXTERIOR WALL FRAMING

NOTE:
1. HEADERS, KING STUDS, AND OTHER REFERENCES ON PLAN GOVERN OVER THIS TYPICAL DETAIL.
2. REFER TO **7/S601** FOR TYPICAL HEADER CONNECTION FOR OPENINGS GREATER THAN 8' WIDE.
3. NAIL SILL PLATE TO WOOD FRAMED FLOORS w/ 16d @ 8" OC TO JOIST OR BLOCKING BELOW SHEATHING, SEE DETAIL **3/S621**.
4. BOLT SILL PLATE TO CONCRETE SLAB w/ 5/8" Ø HEADED ANCHOR RODS @ 48" OC MAX, w/ 7" MIN EMBED INTO SLAB (NOT INCLUDING THICKNESS OF CURB WHERE OCCURS).
5. REFER TO DETAIL **1/S601** FOR NON-BEARING WALLS.
6. FOR MINIMUM NAILING REQUIREMENTS, SEE CBC TABLE 2304.10.1 & DETAIL **13/S601**.
7. REFER TO DETAIL **2/S621** FOR SHEAR WALLS.

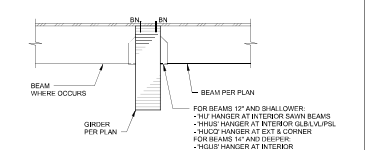
HEADER & SILL SCHEDULE
(SEE NOTE 1)

OPENING WIDTH	HDR @ EXT BEARING WALL (MAX GRAVITY LOAD = 0.25 KIP)		SILL	
	4x WALL	6x WALL	4x WALL	6x WALL
UP TO 4'-0"	4x6	6x6	(2) 2x	2x
4'-1" TO 6'-0"	4x8	6x8	(3) 2x	(2) 2x
6'-1" TO 9'-0"	4x10	6x10	4x6	(2) 2x
9'-1" TO 10'-0"	4x14	6x12	4x8	(3) 2x
10'-1" & UP	SEE PLANS			



SCALE: NTS | 2

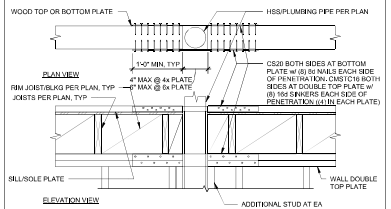
TYPICAL BEAM TO BEAM



1" = 1'-0" | 15

TYPICAL LARGE PENETRATION IN WALL TOP OR BOTTOM PLATE

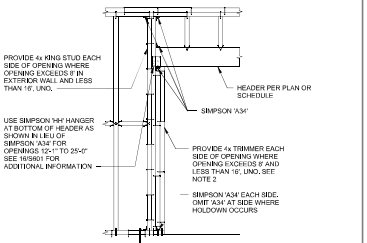
NOTES:
1. SEE DET **10/S601** FOR SMALL BORINGS IN SILL PLATE.
2. THIS DETAIL CAN BE USED FOR ALL OPENINGS IN TOP AND BOTTOM PLATES OF WALLS THAT ARE NOT PART OF THE LATERAL RESISTING SYSTEM AS DEFINED IN NOTE 3, SEE NOTE 4 FOR EXCEPTION.
3. FOR THE PURPOSE OF THIS DETAIL, THE LATERAL SYSTEM SHALL BE DEFINED AS ANY SHEAR WALL OR DRAG LINE (ANY WALL LOCATED IN THE SAME GRIDLINE AS A SHEAR WALL OR DRAG LINE).
4. EXCEPTION: THIS DETAIL CAN BE USED AT SHEAR WALL SILL & SOLE PLATES, AND WHERE SPECIFICALLY CALLED OUT ON PLANS.



1" = 1'-0" | 11

TYPICAL HEADER 8'-1" TO 12'-0" WIDE

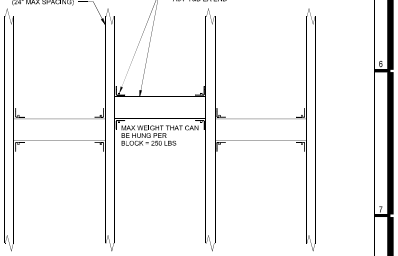
NOTE:
1. THIS DETAIL SHOWS THE HARDWARE TO BE USED FOR EXTERIOR WALLS WITH OPENINGS WIDER THAN 8'-0", SEE **2/S601** FOR SMALLER OPENINGS.
2. TRIMMERS CAN BE OMITTED AT EXTERIOR NON-BEARING WALLS WHERE SIMPSON HH HANGER IS USED.
3. SEE **2/S601** FOR STRUCTURAL INFORMATION NOT SHOWN HERE.



1/2" = 1'-0" | 7

TYPICAL BACKING

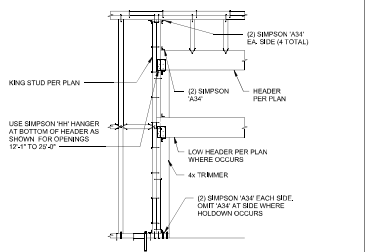
MAX LOAD PER VERTICAL STUD IS 250 LBS., SPREAD LOADS ADQUATELY



1 1/2" = 1'-0" | 3

TYPICAL HEADER 12'-0" TO 25'-0" WIDE

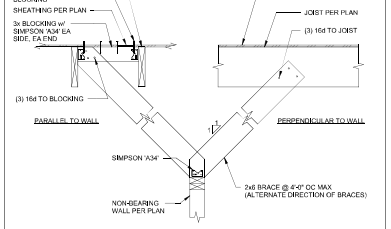
NOTE:
1. THIS DETAIL SHOWS THE HARDWARE TO BE USED FOR EXTERIOR WALLS WITH OPENINGS WIDER THAN 12'-0"
2. SEE **2/S601** FOR STRUCTURAL INFORMATION NOT SHOWN HERE.



SCALE: NTS | 16

TYPICAL NON-BEARING WALL BRACING

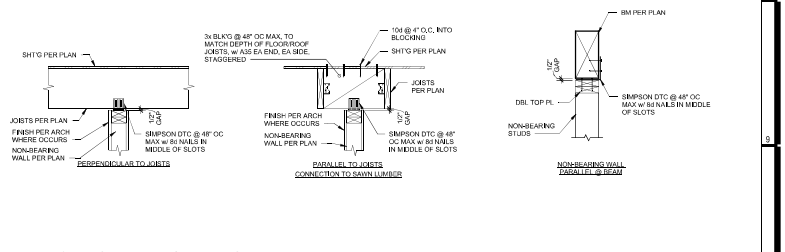
NOTE:
DO NOT INSTALL BRACES UNTIL DEAD LOAD IS IN PLACE.



1" = 1'-0" | 12

TYPICAL NON BEARING WALL TOP PLATE CONNECTION TO FRAMING

SEE S/S604 AT TRUSSES



SCALE: NTS | 4

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TYPICAL WOOD CONNECTION DETAILS

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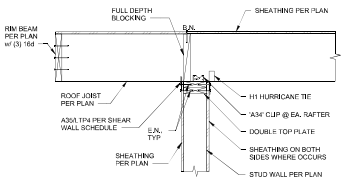
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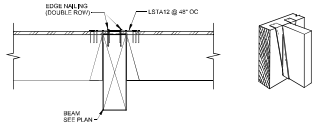
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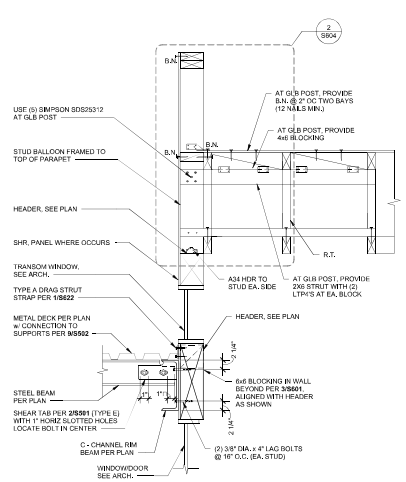
EDGE OF ROOF DETAIL — SCALE: NTS — 13

NOTE:
COUNTERSINK NUT FOR STUD BOLTS JUST ENOUGH SO TOP OF NUT IS FLUSH WITH BOTTOM OF SHEATHING +-1/16".

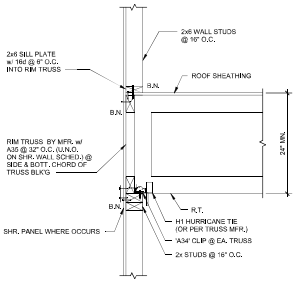


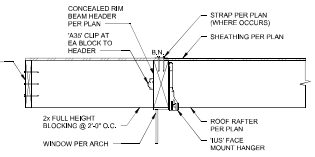
HANGER SCHEDULE		
MEMBER	HANGER TYPE	REMARKS
2x	SIMPSON "LS" HANGER	U.N.O. ON PLAN
3x, 4x, 6x, PSL	SIMPSON "HUTF" HANGER	U.N.O. ON PLAN
3x, 4x, 6x, PSL	SIMPSON "B" HANGER	FOR NAILER/STEEL MEMBER CONN. (U.N.O.) AND CONNECTION TO CMU

TYPICAL WOOD JOIST/HANGER SCHEDULE — SCALE: NTS — 9

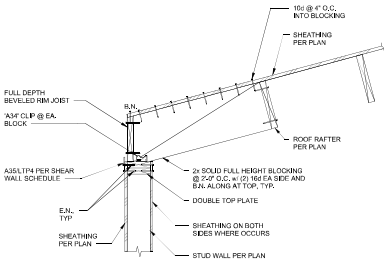


ROOF TRUSS PERP TO UPPER WALL — SCALE: NTS — 1

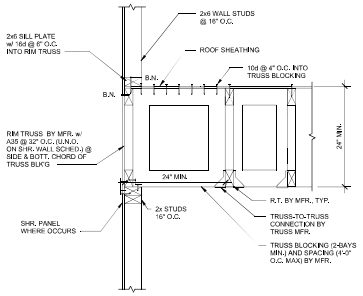




EDGE OF ROOF DETAIL — SCALE: NTS — 14

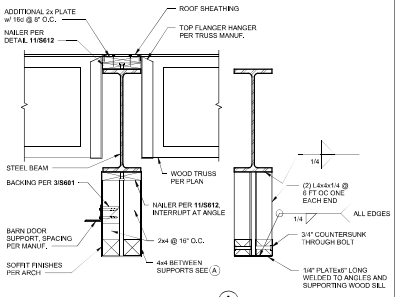


EDGE OF ROOF DETAIL — SCALE: NTS — 10

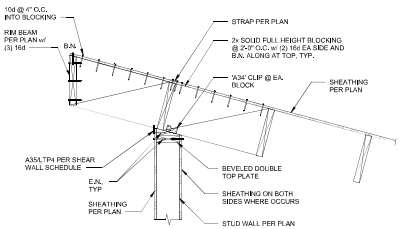


ROOF TRUSS PARALLEL W/ COVERED WALKWAY — SCALE: NTS — 6

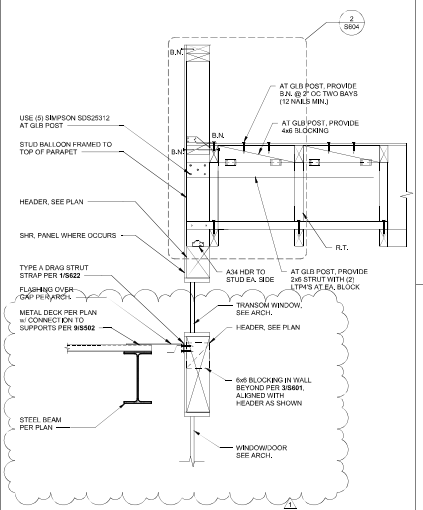
ROOF TRUSS PARALLEL TO UPPER WALL — SCALE: NTS — 2



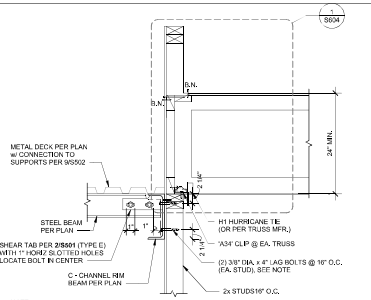
BARN DOOR SUPPORT — SCALE: NTS — 15



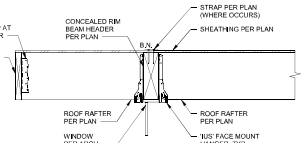
EDGE OF ROOF DETAIL — SCALE: NTS — 11



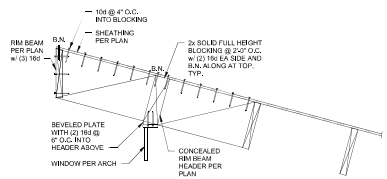
ROOF TRUSS PARALLEL w/ COVERED WALKWAY — SCALE: NTS — 8



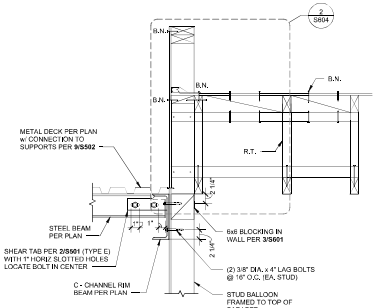
ROOF TRUSS PERP w/ COVERED WALKWAY — SCALE: NTS — 3



EDGE OF ROOF DETAIL — SCALE: NTS — 16



EDGE OF ROOF DETAIL — SCALE: NTS — 12



ROOF TRUSS PARALLEL W/ COVERED WALKWAY — SCALE: NTS — 4

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GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	2026-056 R24
SCALE	AS NOTED
PM	
DATE	Issue Date
1	ADDENDUM 1 2026-08-28

TYPICAL WOOD DETAILS

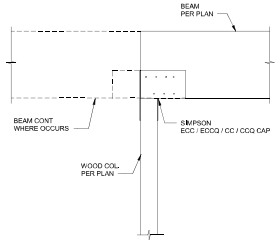
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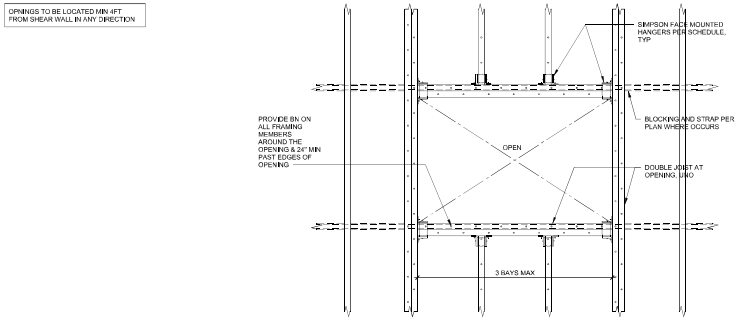
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Project #: 2026-056 R24



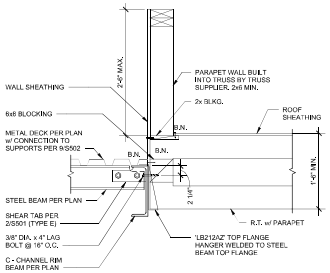
TYPICAL COLUMN CAP

SCALE: NTS 13



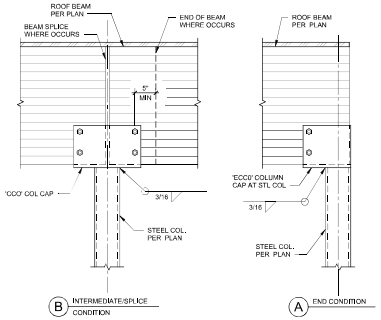
TYPICAL FLOOR/ROOF OPENING DETAIL

SCALE: NTS 5



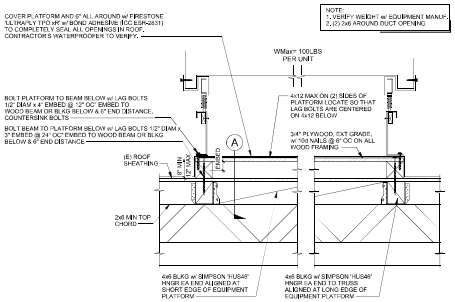
LOWER ROOF TRUSS DETAIL

SCALE: NTS 1



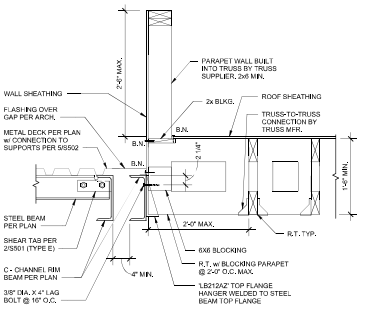
WOOD BEAM TO STEEL COLUMN CONNECTION

SCALE: NTS 15



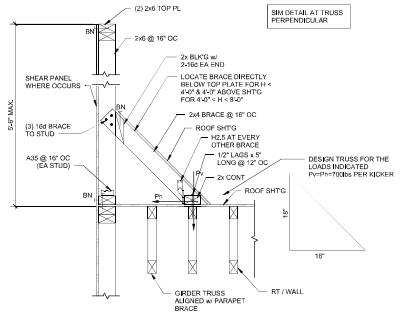
MECHANICAL UNIT PLATFORM

SCALE: NTS 6



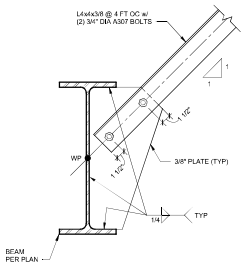
LOWER ROOF TRUSS DETAIL

SCALE: NTS 2



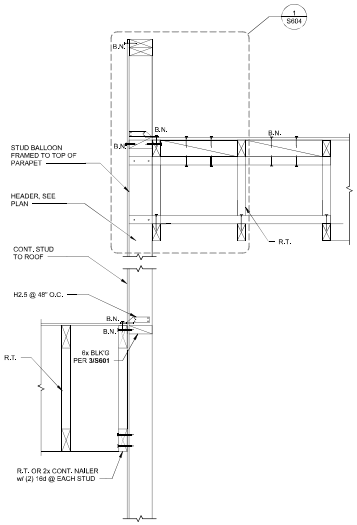
PARAPET KICKER

SCALE: NTS 16



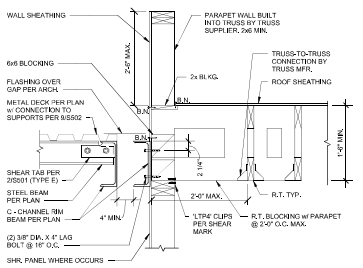
BEAM BRACE

SCALE: NTS 11



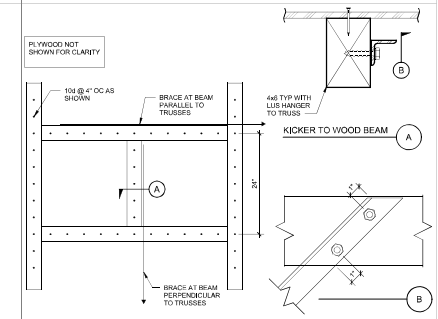
LOWER ROOF TRUSS DETAIL

SCALE: NTS 8



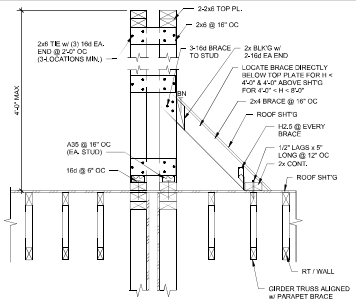
LOWER ROOF TRUSS DETAIL

SCALE: NTS 3



KICKER TO JOIST DETAIL

SCALE: NTS 12



INTERIOR PARAPET WALL

SCALE: NTS 4

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TYPICAL WOOD DETAILS

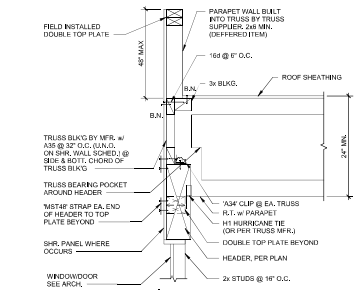
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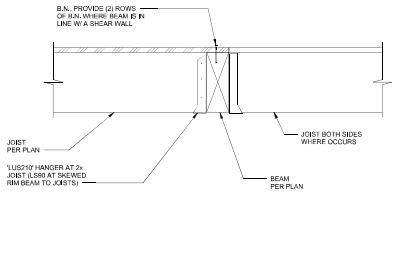
Project #: 2026-056 R24



ROOF TRUSS PERP TO EXT HEADER

SCALE: NTS

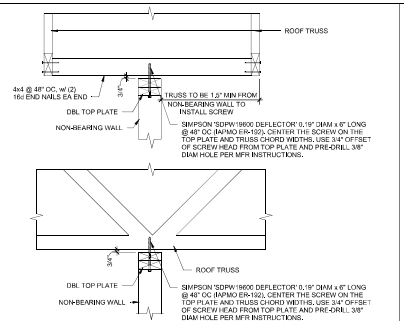
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TYPICAL WOOD JOIST AT FLUSH WOOD BEAM

SCALE: NTS

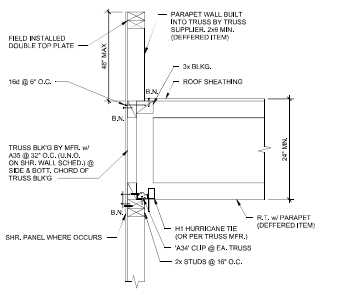
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TRUSS TO NON-STRUCTURAL WALL

SCALE: NTS

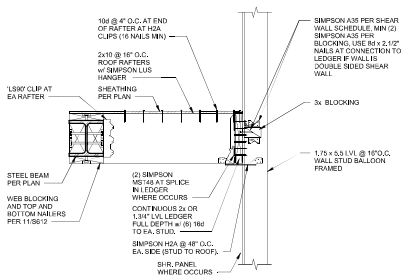
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ROOF TRUSS PERP TO EXT WALL

SCALE: NTS

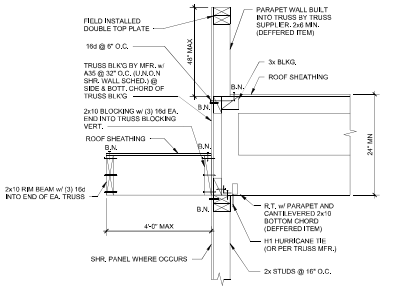
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LOW EYEBROWN TO WALL

SCALE: NTS

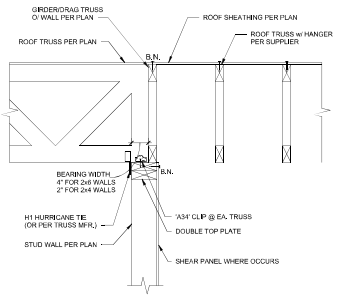
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ROOF TRUSS PERP TO EXT WALL w/ EYEBROW

SCALE: NTS

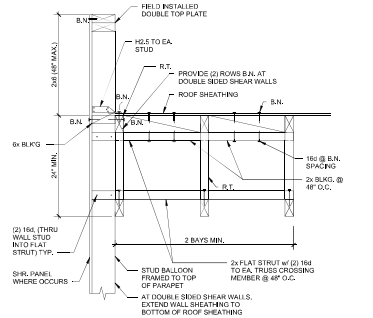
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ROOF TRUSS PERP TO INT WALL

SCALE: NTS

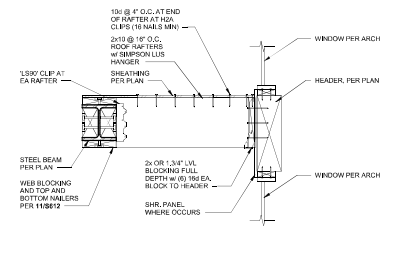
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ROOF TRUSS PARALLEL TO EXT WALL

SCALE: NTS

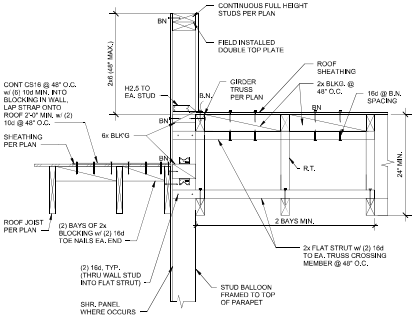
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LOWER EYEBROWN TO HEADER

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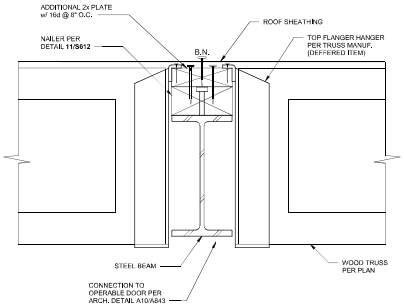
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ROOF TRUSS PARALLEL TO EXT WALL

SCALE: NTS

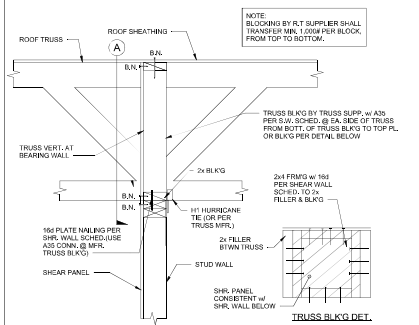
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TYPICAL WOOD TRUSS TO STEEL BEAM

SCALE: NTS

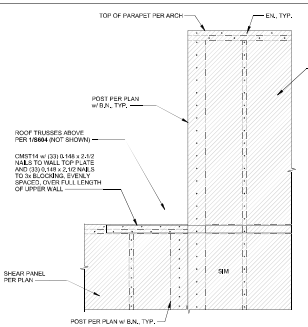
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TRUSS BLOCKING

SCALE: NTS

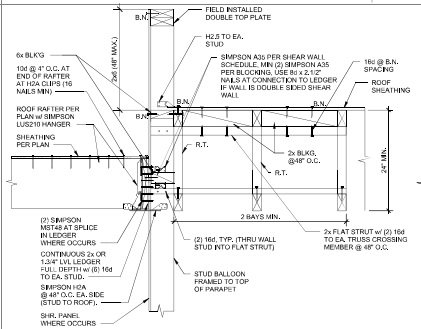
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NAILING AT HIGH/LOW SHEAR WALL

SCALE: NTS

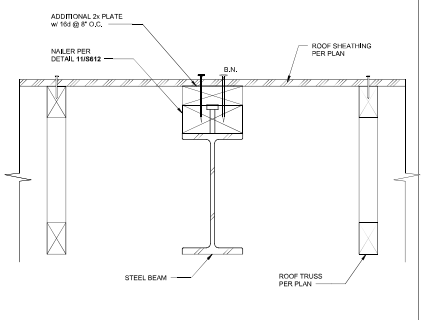
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ROOF TRUSS PARALLEL TO EXT WALL

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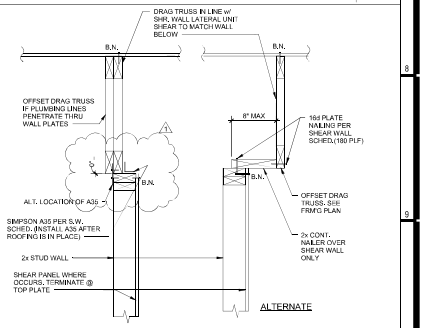
12



WOOD TRUSS PARALLEL TO STEEL BEAM

SCALE: NTS

8



ROOF TRUSS PARALLEL TO INT WALL

SCALE: NTS

4

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WOOD DETAILS

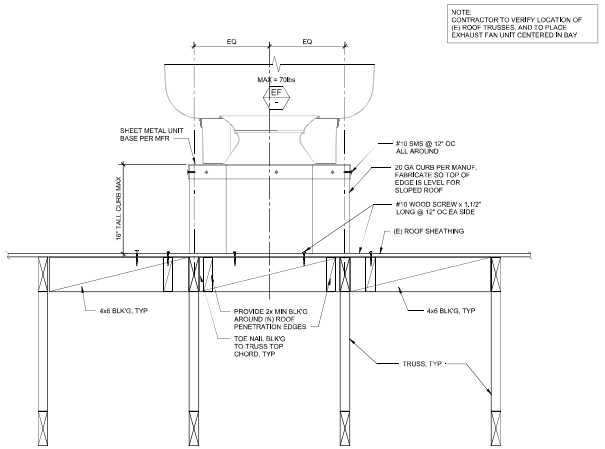
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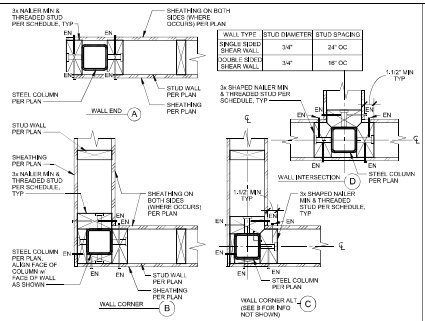
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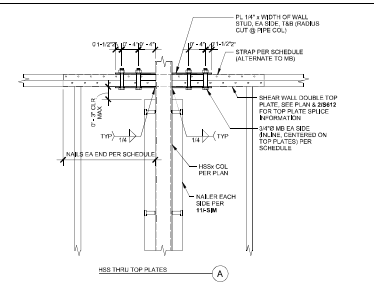
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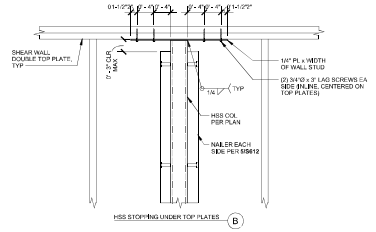
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TYPICAL WOOD NAILER TO STEEL COLUMN AT SHEAR WALLS

SCALE: NTS 5



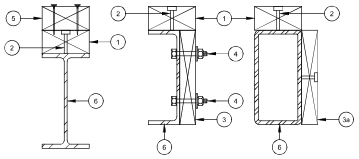


TOP PLATE SPLICE	# OF MB EACH SIDE	STRAP (ALT TO MB) SEE NOTE 1
TPS-1	2	CMSTC16x4" (ONE SIDE OF WALL)
TPS-2	2	CMST14x9" (ONE SIDE OF WALL) w/ (33) 10dx3-1/2" NAILS EACH END
TPS-3	3	CMST12x7-6" (ONE SIDE OF WALL) w/ (43) 10dx3-1/2" NAILS EACH END
TPS-4	4	CMST12x9" (BOTH SIDES OF WALL) w/ (32) 10dx3-1/2" NAILS EACH END @ 6" WALLS ONLY)

NOTES:
1. 3" STRAP IS USED AND INSTALLED OVER SHEATHING, USE 10d COMMON x 3" LONG NAILS.
2. SEE 11/S4-01 FOR REINFORCING OF BOTTOM PLATE AT PENETRATION.

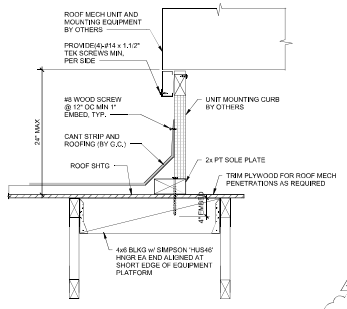
TYPICAL HSS COLUMN IN SHEAR WALL

SCALE: NTS 2



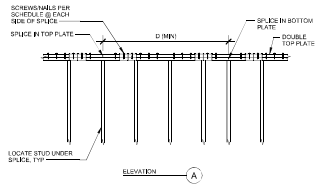
TYPICAL WOOD NAILER AT STEEL BEAM

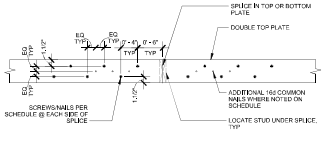
SCALE: NTS 11



MECHANICAL CURB SECTION DETAIL

SCALE: NTS 7





TOP PLATE SPLICE	FASTENERS	CAPACITY OF TOP PLATE	D (MIN)	NOTES
TPS-1	(5) 16d COMMON	20584	4'-0"	TYPICAL UNO
TPS-2	(6) SIMPSON SDWH19300DB & (3) 16d COMMON	94728	6'-0"	-
TPS-3	(8) SIMPSON SDWH19300DB & (3) 16d COMMON	72404	6'-0"	-
TPS-4	(12) SIMPSON SDWH19300DB & (3) 16d COMMON	109446	9'-0"	REQUIRES USE OF MIN (2) 2Sp-F1 2x6 PLATES OR (2) 1Y-MP 3x6 PLATES

NOTES:
1. SEE IAPMO - 0152 FOR SIMPSON SDWH19300DB.
2. TOP PLATE SPLICE SHOULD BE MINIMUM "D" AWAY FROM THE ENDS OF TOP PLATES.
3. NO PENETRATION PER 11/S4-01 ALLOWED IN SHEAR WALLS OR SHEAR WALL LINES.

TYPICAL TOP PLATE

SCALE: NTS 4

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1 WOOD DETAILS

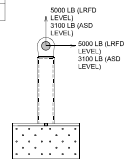
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MFG Part #	Product Description	Fastening Requirements		Weight
		Type & Size	Total Per Tie Back	
HTB-S18	18" Hardy Saddle Tie Back	SDS Screw - 1/4" x 2 1/2"	40	70#

NOTES:
- USE 1/4"x3" SDS SCREWS ON FILLER SIDE WHEN USING A 5-1/4" EWP BEAM.
- CAP MOUNT (SCM) CAP GOES BELOW PEDESTAL DECKS-SHORT FITS OUTSIDE THE SLEEVE AREA.
- SPM NEEDS TO BE SEALED OVER FINISH SURFACE, TEST BEFORE SEALING.
- 3" ADJUSTS FROM 3 1/2" O 6 1/2" FROM TOP OF BEAM.
- 6" ADJUSTS FROM 6 1/2" TO 9 1/2" FROM TOP OF BEAM.



HTB-S INSTALLATION INSTRUCTIONS

1. BEST TO INSTALL HTB-S TIE BACKS WHILE BEAMS ARE ON THE GROUND PRIOR RAISING INTO POSITION.
2. SUPPORT BEAMS AND TRUSSES FOR THE HTB-S ARE TO BE DESIGNED BY THE EOR.
3. 5/16" HOLES PROVIDED ON SADDLE TO ALLOW ATTACHMENT OF STRUCTURAL MEMBERS. USE 1/4"x2 1/2" SDS SCREWS. USE ALL PROVIDED HOLES. USE 1/4"x3" SDS SCREWS ON FILLER SIDE WHEN USING A 5-1/4" EWP BEAM.
4. PER CALIFORNIA CODE OF REGULATIONS TITLE 8 SECTION 3291, "DEVICES SHOULD BE SPACED AT APPROXIMATELY 12-FOOT INTERVALS; HOWEVER, THE SPACING SHALL DEPEND PRIMARILY ON THE AVAILABILITY OF ROOF STRUCTURAL MEMBERS OF SUFFICIENT STRENGTH TO SAFELY CARRY APPLIED LOADS." PLACE SUPPORT BEAMS ON STANDARD TRUSS OR JOIST LAYOUT

RECOMMENDATIONS

1. DESIGN OF STRUCTURAL MEMBERS PER EOR (5-1/4" MINIMUM) TO THE TRUSS TO ALLOW FOR FULL TRANSFER OF FORCES TO THE TRUSSES IS RECOMMENDED TO BE OF ENGINEERED WOOD TO MINIMIZE SPLITTING.

IAPMO UES ER 461, SECTION 3.2.2
3.2.2 ALLOWABLE STRESS DESIGN (ASD): IN COMPLIANCE WITH SECTION 4.8.3 OF ASCE 7-16, THE ASD LEVEL STRENGTH FOR THE HARDY ROOF TIE-BACK DEVICES IS 3,100 POUNDS (13.8 KN) MAXIMUM IN THE HORIZONTAL AND VERTICAL DIRECTIONS, WHEN PLACED ON AND FASTENED TO THE STRUCTURAL SUPPORTS. THE DEVICE SHALL BE DESIGNED TO DEVELOP THE 3,100 POUNDS (13.8 KN) ASD STRENGTH. FASTENING TO WOOD BASED ON CD = 1.5 IN ACCORDANCE WITH THE ANSI/AWC NDS. DESIGN SHALL COMPLY WITH IBC CHAPTER 23 AND ANSI/AWC NDS.

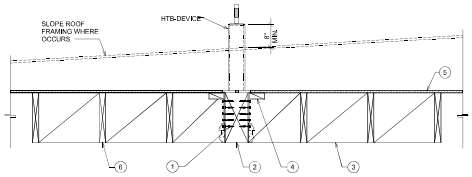
ANY QUESTIONS REGARDING INSTALLATION

CALL: GARY HARDY 1 (805) 404-5196 ANCHOR TESTING SHALL BE CONDUCTED BY QUALIFIED PERSONNEL UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER IN ACCORDANCE WITH THE CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTION 3296.

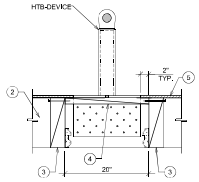
FALL PROTECTION

SCALE: NTS 1

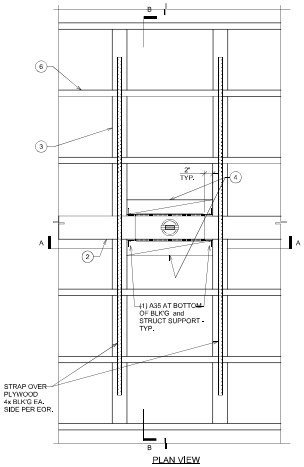
KEYNOTES LEGEND
1. SDS 1/4"x3-1/2" PER SCHEDULE.
2. BEAM PER PLAN
3. 4x10 BLOK WITH CS14 STRAP
   - MIN. 3 BAYS BOTH SIDES OF HTB DEVICE MIN. 48"
4. 2x4 FLAT BLK'G TIGHT AGAINST SADDLE
5. ROOF SHEATHING
6. JOIST PER PLAN



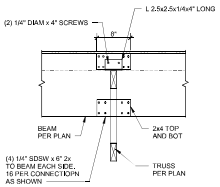
SECTION B-B



SECTION A-A
HTB ASSEMBLY

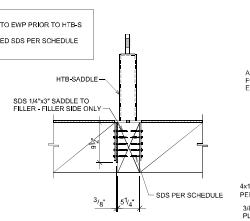


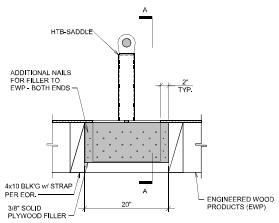
PLAN VIEW



BLOCKING TO TRUSS

NOTE:
1. SOLID PLYWOOD FILLER TO BE NAILED TO EWP PRIOR TO HTB-S SADDLE INSTALLATION.
2. USE SDS 3x1/4 IN LIEU OF RECOMMENDED SDS PER SCHEDULE ON FILLER SIDE ONLY





SECTION A-A

HTB-SADDLE WITH EWP 5 1/4" WITH FILLER

SCALE: NTS 4

PETRA STRUCTURAL ENGINEERS
17981 Sky Park Circle
Suite O
Irvine, CA 92614
Tel: (949) 748-7170



GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

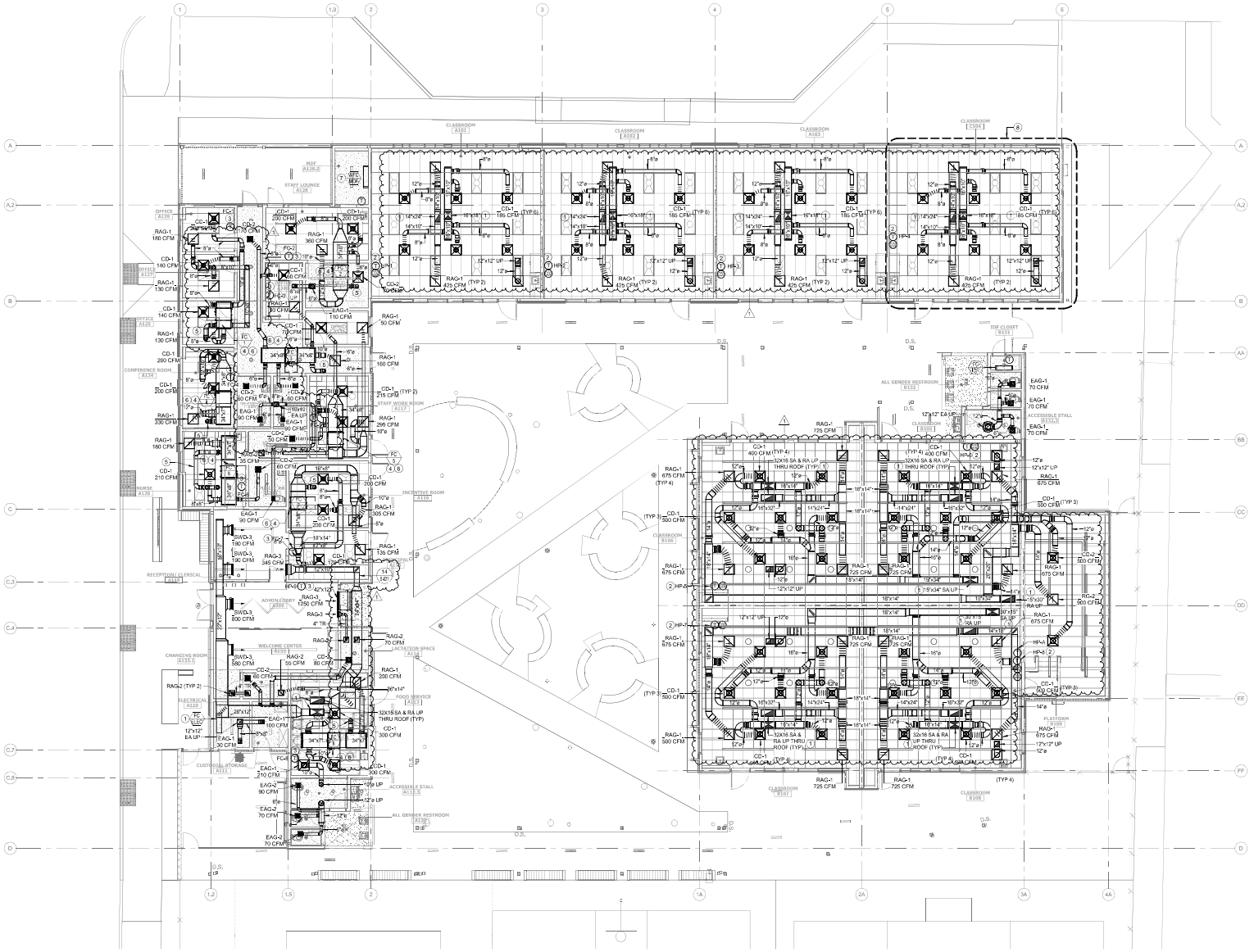
JOB	2026-056 R24
SCALE	AS NOTED
PM	
DATE	Issue Date
1	ADDENDUM 1 2026-08-28

WOOD DETAILS

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

S613
1

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1 M101 **MECHANICAL - FIRST FLOOR PLAN - DUCT**
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. RECTANGULAR DUCT IS ALLOWED TO CHANGE TO ROUND DUCT AS LONG AS THE ASPECT RATIO OF THE DUCTWORK IS KEPT.

B. CONTRACTOR SHALL ADHERE TO THE DUCT CONSTRUCTION GUIDELINES AS IDENTIFIED UNDER 2019 CMC 602.2 DUCTS, PLENUMS, OR FITTINGS OF METAL SHALL COMPLY WITH SMACNA HVAC CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

C. ADJUST IN FIELD LOCATION OF DUCT PENETRATIONS BETWEEN ROOF TRUSSES.

REFERENCE SHEET NOTES

1. SA & RA UP TO ROOF WITH LAYOUT PER PLAN. INSTALL WITH 1" ACOUSTIC LINED DUCT ON RECTANGULAR DUCT.
2. FM PROGRAMMABLE THERMOSTAT WITH CO2 SENSOR FOR DEMAND CONTROL VENTILATION (CLASSROOMS ONLY) ON WALL AND CONNECT TO CORRESPONDING A/C PER PLAN AND DETAIL 5/M-501.
3. FM PROGRAMMABLE THERMOSTAT ON WALL AND CONNECT TO CORESPONDING A/C PER PLAN AND DETAIL 5/M-501.
4. FM SUSPENDED FAN COIL INSTALLED WITH FILTER BOX PER DETAIL 2/M-501. INSTALL W/ 1" ACOUSTICALLY LINED SA & RA PLENUM BO. INSTALL REFRIGERANT LINES ABOVE CEILING ROUTED TO OUTDOOR HEAT PUMP PER DETAIL 9/M-501 AND MANUFACTURER'S REQUIREMENTS. TYP. INSTALL W/ SECONDARY DRAIN PAN WITH PIPE TERMINATION TO CORRIDOR WITH ESCUTCHEON PLATE.
5. 8" BRANCH W/ MANUAL BALANCING DAMPER DIA UP TO ROOF FOR OA.
6. FM DUCT DETECTOR ON SA DUCT AND INTERLOCK WITH EQUIPMENT AND FA SYSTEM FOR SHUTDOWN UPON DETECTION OF SMOKE. SEE FIRE ALARM (FA) DRAWINGS.
7. FM WALL MOUNTED FAN COILS FOR TELECOM ROOMS PER DETAIL 5/M502.
8. CONTRACTOR SHALL BID THIS PORTION OF THE BUILDING AS DEDUCT ALT #1.

SALAS O'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
877.725.2755 | 877.925.1477 (f)
WWW.SALASOBRIEN.COM
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550 Airport Way, Camarillo, CA 93010

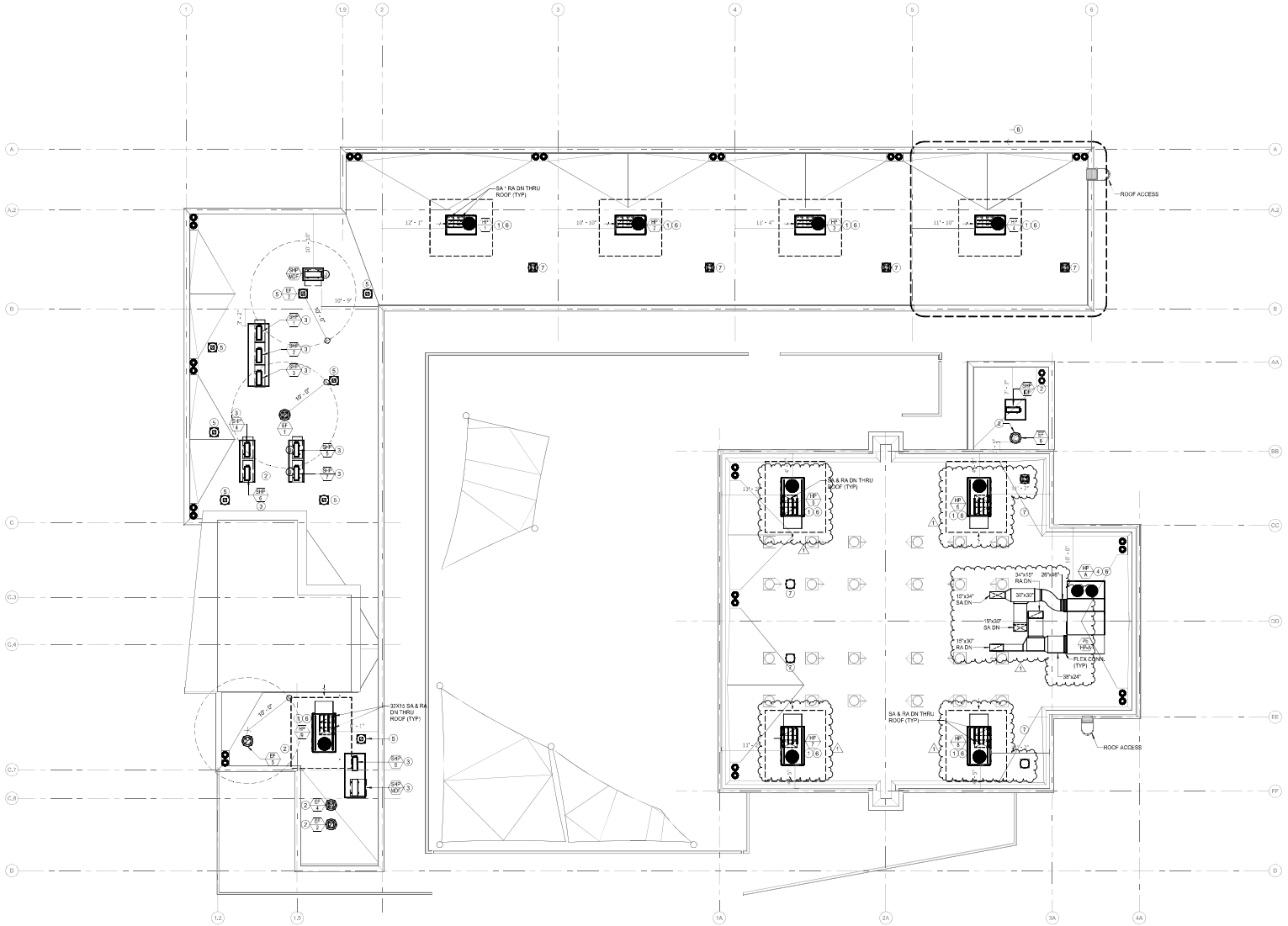
JOB	88910.00
SCALE	AS NOTED
PM	
DATE	08/28/2026
1 ADD 01	08/28/2026

MECHANICAL FIRST FLOOR PLAN - DUCT

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

M101

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GENERAL SHEET NOTES

A. RECTANGULAR DUCT IS ALLOWED TO CHANGE TO ROUND DUCT AS LONG AS THE ASPECT RATIO OF THE DUCTWORK IS KEPT.

B. CONTRACTOR SHALL ADHERE TO THE DUCT CONSTRUCTION GUIDELINES AS IDENTIFIED UNDER 2019 CMC 602.3 DUCTS, PLENUMS, OR FITTINGS OF METAL SHALL COMPLY WITH SMACNA HVAC CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.

REFERENCE SHEET NOTES

1. F&I HEAT PUMPS WITH SPRING ISOLATOR CURB PER DETAIL 3/M502 & 4/M502. SA AND RA DUCT WITH CONFIGURATION WITH H.FLX CONNECTIONS, INSTALL WITH ECONOMIZER WITH BAROMETRIC RELIEF.
2. F&I DOWNBLAST EXHAUST FAN WITH CURB, BACKDRAFT DAMPER, AND BIRD SCREEN.
3. F&I SPLIT DX OUTDOOR HEAT PUMP ON HOUSEKEEPING PAD WITH SHEET METAL CAP PER DETAIL 6/M-501. CONNECT REFRIGERANT LINES FROM INDOOR FAN COIL. REFRIGERANT LINES ROUTED THROUGH FLOORS OR WALLS SHALL BE FIRE CAULKED PER DETAIL 9/M-501 AND 10/M-501.
4. F&I HEAT PUMP WITH SPRING ISOLATOR CURB PER 2/M502 AND STRUCTURAL DRAWINGS. SA AND RA WITH HORIZONTAL DOUBLE WALLED DUCT CONFIGURATION WITH FLEX CONNECTIONS & SHEET METAL COVER. INSTALL WITH ECONOMIZER W/ POWER EXHAUST. INSTALL DUCT SUPPORT FOR ROOFTOP DUCT PER 11/M501.
5. F&I INTAKE VENT W/ BACKDRAFT & BIRD SCREEN FOR OA INTAKE FOR FAN COILS. GREENHECK GRSI (SIZE 8"). FRAME OPENING PER DETAIL 10/S512
6. F&I DUCT DETECTOR ON SA DUCT AND INTERLOCK WITH EQUIPMENT AND FA SYSTEM FOR SHUTDOWN UPON DETECTION OF SMOKE. SEE FIRE ALARM (FA) DRAWINGS.
7. F&I RELIEF VENT W/ BACKDRAFT DAMPER & BIRD SCREEN. GREENHECK GRSI (SIZE 12"). FRAME ROOF OPENING PER DETAIL 10/S512.
8. CONTRACTOR SHALL BID THIS PORTION OF THE BUILDING AS DEDUCT ALT #1.

SALAS O'BRIEN
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305 South 11th Street
San Jose, California 95112-2218
877.725.2755 | 877.925.1477 (f)
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GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	08/28/2026
1 ADD 01	08/28/2026

MECHANICAL ROOF PLAN

M141

1 / M141 MECHANICAL - ROOF PLAN
SCALE: 1/8" = 1'-0"

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SPLIT HEAT PUMP (SHP) UNIT SCHEDULE

MARK	DESCRIPTION	MAKE	MODEL #	NOM. TONS	COMP. QTY	CONDENSER FAN (QTY)	D/X COOLING		HEATING		ELECTRICAL			REFRIG. TYPE	ENERGY EFFICIENCY RATIO (SEER/EER)	REFRIG. LINE SIZES (SUCT./LIQ.)	MAX. OPER. WT. (LBS)	STRUCT. ANCHOR DETAIL	NOTES
							TOTAL (MBH)	OUTSIDE AIR (DEG F)	TOTAL (MBH)	OUTSIDE AIR (DEG F)	VOLTAGE/ PHASE/HZ	MCA	MOP						
SHP-1	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA18NL	1.5	1	1	18,000	95	23,500	47	208-230V/ 1/60	25	42	R-454B	17.2/ 12.7	1/2" / 1/4"	115	6/S-603	1, 2, 3, 4, 5, 6
SHP-2	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZAA12NL	1.0	1	1	12,000	95	15,000	47	208-230V/ 1/60	14	23	R-454B	19.7/ 12.5	3/8" / 1/4"	81	6/S-603	1, 2, 3, 4, 5, 6
SHP-3	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA09NL	0.75	1	1	9,000	95	13,000	47	208-230V/ 1/60	13	22	R-454B	18.8/ 13.2	3/8" / 1/4"	81	6/S-603	1, 2, 3, 4, 5, 6
SHP-4	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZAA12NL	1.0	1	1	12,000	95	15,000	47	208-230V/ 1/60	14	23	R-454B	19.7/ 12.5	3/8" / 1/4"	81	6/S-603	1, 2, 3, 4, 5, 6
SHP-5	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA15NL	1.25	1	1	15,000	95	18,000	47	208-230V/ 1/60	17	29	R-454B	18.8/ 12.2	1/2" / 1/4"	115	6/S-603	1, 2, 3, 4, 5, 6
SHP-6	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA09NL	0.75	1	1	9,000	95	13,000	47	208-230V/ 1/60	13	22	R-454B	18.8/ 13.2	3/8" / 1/4"	81	6/S-603	1, 2, 3, 4, 5, 6
SHP-7	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA15NL	1.25	1	1	15,000	95	18,000	47	208-230V/ 1/60	17	29	R-454B	18.8/ 12.2	1/2" / 1/4"	115	6/S-603	1, 2, 3, 4, 5, 6
SHP-8	OUTDOOR HEAT PUMP UNIT	TRANE-MITSUBISHI	SUZ-AA18NL	1.5	1	1	18,000	95	23,500	47	208-230V/ 1/60	25	42	R-454B	17.2/ 12.7	1/2" / 1/4"	115	6/S-603	1, 2, 3, 4, 5, 6
SHP-MDF	WALL MOUNTED UNIT	TRANE-MITSUBISHI	PUZ-AK18NL	1.5	1	1	18,000	95	19,000	47	208-230V/ 1/60	16	27	R-454B	19.5/ 11.0	1/2" / 1/4"	112	6/S-603	1, 2, 3, 4, 5, 6
SHP-IDF	WALL MOUNTED UNIT	TRANE-MITSUBISHI	PUZ-AK12NL	1.0	1	1	12,000	95	14,000	47	208-230V/ 1/60	16	27	R-454B	21.1/ 14.8	1/2" / 1/4"	112	6/S-603	1, 2, 3, 4, 5, 6

NOTES:
1) FACTORY START-UP
2) OUTDOOR CONDENSER UNIT RATED AT 95 DEGREE F
3) PRE-ENGINEERED ISOLATOR CURB.
4) FIELD INSTALLED SEISMIC RATED SPRING ISOLATORS OR SPRING ISOLATOR CURB.
5) BACNET CONTROL CARD
6) SINGLE OUTDOOR HEAT PUMP CONNECTED TO SINGLE FAN COIL.

FAN COIL (FC) UNIT SCHEDULE

MARK	DESCRIPTION	SERVICE AREA	MAKE	MODEL #	NOM. TONS	SUPPLY CFM	OUTSIDE AIR (CFM)	D/X COOLING			HEATING	ELECTRICAL		REFRIG. TYPE	REFRIG. LINE SIZES (SUCT./LIQ.)	MAX. OPER WT. (LBS)	STRUCT. ANCHOR DETAIL	NOTES
								TOTAL (BTU/HR)	SENS. (BTU/HR)	ENT AIR TEMP (DEG F)	TOTAL (BTU/HR)	VOLTAGE/ PH/ HZ	MCA					
FC-1	INDOOR FAN COIL	OFFICES A125, A127, A129	MITSUBISHI	PEAD-AA18	1.50	480	40	18,000	13,500	80.0/67.0	23,500	208/1/60	2.25	R-454B	1/2" / 1/4"	60	2/M-501	1, 2, 3, 5, 7, 8, 10
FC-2	INDOOR FAN COIL	STAFF LOUNGE A128, CUSTODIAL STOR A128.1	MITSUBISHI	PEADAA12	1.00	470	110	12,000	10,800	80.0/67.0	15,000	208/1/60	2.50	R-454B	3/8" / 1/4"	58	2/M-501	1, 2, 3, 5, 6, 8, 10
FC-3	INDOOR FAN COIL	NORTH CORRIDOR	MITSUBISHI	PEAD-AA09	0.75	350	60	9,000	8,100	80.0/67.0	1,300	208/1/60	1.45	R-454B	3/8" / 1/4"	58	2/M-501	1, 2, 3, 5, 7, 8, 10
FC-4	INDOOR FAN COIL	CONFERENCE RM A124	MITSUBISHI	PEADAA12	1.00	400	70	12,000	10,800	80.0/67.0	15,000	208/1/60	2.50	R-454B	3/8" / 1/4"	58	2/M-501	1, 2, 3, 5, 6, 8, 10
FC-5	INDOOR FAN COIL	STAFF'S WORK RM A117, STORAGE A117.1	MITSUBISHI	PEAD-AA15	1.25	550	170	15,000	13,500	80.0/67.0	20,900	208/1/60	2.25	R-454B	1/2" / 1/4"	60	2/M-501	1, 2, 3, 5, 6, 8, 10
FC-6	INDOOR FAN COIL	NURSE A120, PUBLIC RR A119	MITSUBISHI	PEAD-AA09	0.75	290	30	9,000	8,100	80.0/67.0	1,300	208/1/60	1.45	R-454B	3/8" / 1/4"	58	2/M-501	1, 2, 3, 5, 7, 8, 10
FC-7	INDOOR FAN COIL	PRINCIPAL'S OFFICE A115. INCENTIVE RM A116	MITSUBISHI	PEAD-AA15	1.25	570	130	15,000	13,500	80.0/67.0	20,900	208/1/60	2.25	R-454B	1/2" / 1/4"	60	2/M-501	1, 2, 3, 5, 7, 8, 10
FC-8	INDOOR FAN COIL	FOOD SERVICE A113	MITSUBISHI	PEAD-AA18	1.50	600	210	18,000	13,500	80.0/67.0	23,500	208/1/60	2.25	R-454B	1/2" / 1/4"	60	2/M-501	1, 2, 3, 5, 7, 8, 10
FC-MDF	WALL MOUNTED FAN COIL	MDF ROOM	MITSUBISHI	PKA-AL18NL	1.5	400	0	18,000	12,240	80.0/67.0	23,600	208/1/60	1.00	R-454B	1/2" / 1/4"	28	S/M-502 & 3/S-601	3, 4, 5, 7, 8, 9, 11
FC-IDF	WALL MOUNTED FAN COIL	IDF ROOM	MITSUBISHI	PKA-AL12NL	1.0	400	0	12,000	9,720	80.0/67.0	18,000	208/1/60	1.00	R-454B	1/2" / 1/4"	28	S/M-502 & 3/S-601	3, 4, 5, 7, 8, 9, 11

NOTES:
1) FIELD INSTALLED FILTER BOX W/ MERV 13 FILTERS (2" THICK) FILTERS.
2) SUSPENDED FROM STRUCTURAL SUPPORTS WITH SEISMIC RATED SPRING ISOLATORS.
3) BUILT-IN UNIT CONDENSATE PUMP
4) WALL MOUNTED WITH BRACKET
5) CONNECTED TO INDIVIDUAL SINGLE OUTDOOR UNIT (HP/CU)
6) PROGRAMMABLE THERMOSTAT WITH OCCUPANCY SENSOR
7) PROGRAMMABLE THERMOSTAT
8) POWERED THRU OUTDOOR UNIT
9) NO VENTILATION SINCE UNOCCUPIED TELECOM/ELECTRICAL ROOM
10) VENTILATION PROVIDED BY SEPARATE AIR INTAKE CONNECTED TO RETURN WITH MANUAL BALANCING DAMPER.
11) F&I WALL MOUNTED FAN COILS FOR MDF/IDF ROOMS.

EXHAUST FAN (EF) SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	CFM	STATIC PRESS (IN.)	OPERATING POWER (HP)	MOTOR POWER (HP)	FAN RPM	MOTOR (V/PH/HZ)	EQUIP. WT. (LBS)	WT. W/ CURB & ACCESS. (LBS)	STRUCT. ANCHOR DETAIL	REMARKS
EF-1	ADMIN INTERIOR RESTROOMS A122 & 123, PUBLIC RR A119, STORAGE A117.1	GREENHECK	G-095-VG	300	0.60	0.08	0.17	1475	115-1-60	33	57	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN STORAGE
EF-2	ADMIN EXTERIOR RESTROOMS A112 & ALL GENDER RR A130	GREENHECK	G-095-VG	300	0.60	0.08	0.17	1475	115-1-60	33	57	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN STORAGE
EF-3	CUSTODIAL STORAGE A128.1	GREENHECK	G-097-VG	110	0.50	0.08	0.25	1137	115-1-60	42	69	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN CUSTODIAL STOR.
EF-4	FOOD SERVICE A113	GREENHECK	G-095-VG	210	0.60	0.04	0.17	1050	115-1-60	33	57	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN JAN CLOSET.
EF-5	JAN. CLOSET/ ELECTRICAL ROOM	GREENHECK	G-097-VG	130	0.50	0.08	0.25	1137	115-1-60	42	69	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN ELECTRICAL RM.
EF-6	ACCESSIBLE RR B132 & ALL GENDER RR B132	GREENHECK	G-095-VG	300	0.60	0.08	0.17	1475	115-1-60	33	57	10/S612	DIRECT DRIVE DOWNBLAST FAN POSITION. VARI-GREEN EC MOTOR WITH DIAL OR 0-10VDC INPUT. DIAL FOR BALANCING. GRAVITY OPERATED BACK DRAFT DAMPER AND CURB. FAN TO BE TIED TO TIMER CLOCK LOCATED IN STORAGE

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JOB	88910.00
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PM	
DATE	08/28/2026
1 ADD 01	08/28/2026

MECHANICAL SCHEDULES

M601

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PACKAGED ROOFTOP HEAT PUMP (HP) UNIT SCHEDULE

MARK	DESCRIPTION	SERVICE AREA	MAKE	1 MODEL #	NOM. TONS	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	SUPPLY FAN ESP (IN)	SUPPLY FAN (BHP)	SUPPLY FAN MOTOR SIZE (HP)	COMP. QTY	CONDENSER FAN (QTY)	D/X COOLING				HEATING		ELECTRICAL			REFRIG. TYPE	FILTERS (MERV)	ENERGY EFFICIENCY RATIO (SEER/EER)	MAX. OPER. EQUIP. WT (LBS)	CURB WT (LBS)	ECONO-MIZER & POWER EXH (LBS)	TOTAL WT (LBS)	STRUCT. ANCHOR DETAIL	NOTES
													TOTAL (MBH)	SENSIBLE CAPACITY (MBH)	ENT AIR TEMP (DB/WB)	OUTSIDE AIR (DEG F)	SENSIBLE (MBH)	OUTSIDE AIR (DEG F)	VOLTAGE/ PHASE/HZ	MCA	MOP								
HP-1	PACKAGED HEAT PUMP UNIT	CLASSROOM A101	TRANE	WHK036A3	3	1,100	350 DCV: 150	1.0	0.48	3.0	1	1	36.1	27.5	80 / 67	95	34	47	208-230V/ 3/60	23	30	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	901	505	0	1,406	3/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-2	PACKAGED HEAT PUMP UNIT	CLASSROOM A102	TRANE	WHK036A3	3	1,100	350 DCV: 150	1.0	0.48	3.0	1	1	36.1	27.5	80 / 67	95	34	47	208-230V/ 3/60	23	30	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	901	505	0	1,406	3/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-3	PACKAGED HEAT PUMP UNIT	CLASSROOM A103	TRANE	WHK036A3	3	1,100	350 DCV: 150	1.0	0.48	3.0	1	1	36.1	27.5	80 / 67	95	34	47	208-230V/ 3/60	23	30	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	901	505	0	1,406	3/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-4	PACKAGED HEAT PUMP UNIT	CLASSROOM C104	TRANE	WHK036A3	3	1,100	350 DCV: 150	1.0	0.48	3.0	1	1	36.1	27.5	80 / 67	95	34	47	208-230V/ 3/60	23	30	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	901	505	0	1,406	3/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9, 10
HP-5	PACKAGED HEAT PUMP UNIT	CLASSROOM B106	TRANE	WHK048A3	4	1,600	375 DCV: 150	1.0	0.62	3.0	1	1	49.9	38.6	80 / 67	95	45	47	208-230V/ 3/60	28	40	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	929	505	0	1,434	4/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-6	PACKAGED HEAT PUMP UNIT	CLASSROOM B105	TRANE	WHK048A3	4	1,600	375 DCV: 150	1.0	0.62	3.0	1	1	49.9	38.6	80 / 67	95	45	47	208-230V/ 3/60	28	40	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	929	505	0	1,434	4/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-7	PACKAGED HEAT PUMP UNIT	CLASSROOM B107	TRANE	WHK048A3	4	1,600	375 DCV: 150	1.0	0.62	3.0	1	1	49.9	38.6	80 / 67	95	45	47	208-230V/ 3/60	28	40	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	929	505	0	1,434	4/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-8	PACKAGED HEAT PUMP UNIT	CLASSROOM B108	TRANE	WHK048A3	4	1,600	375 DCV: 150	1.0	0.62	3.0	1	1	49.9	38.6	80 / 67	95	45	47	208-230V/ 3/60	28	40	R-454B	13 (2" DEEP)	16.8 (SEER)/13.5	929	505	0	1,434	4/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-9	PACKAGED HEAT PUMP UNIT	ADMIN. LOBBY 209 / WELCOME CTR. A133	TRANE	WHK060A3	5	1,900	180	1.0	0.74	3.0	1	1	60.6	46.9	80 / 67	95	56	47	208-230V/ 3/60	31	45	R-454B	13 (2" DEEP)	16.4 (SEER)/13.5	949	505	0	1,454	4/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 7, 9
HP-A	PACKAGED HEAT PUMP UNIT	ASSEMBLY SPACE / PLATFORM B109	TRANE	WSK240A3	20	7,000	1830 DCV : 660	1.5	4.22	5	2	2	240.2	179.3	80 / 67	95	228	47	208-230V /3/60	108	150	R-454B	13 (2" DEEP)	12.50 (IEER)/9.5	2,183	727	736	3,646	2/MS02 & 7/S612	1, 2, 3, 4, 5, 6, 8, 9

NOTES:
1) FACTORY START-UP
2) FAULT DIAGNOSTIC SOFTWARE AND PROGRAMMING
3) PRE-ENGINEERED SEISMIC ISOLATOR CURB (14" HEIGHT) FIELD INSTALLED.
4) SINGLE ZONE VAV UNIT WITH SUPPLY FAN MODULATION.
5) BACNET CONTROL CARD
6) PROGRAMMABLE THERMOSTAT WITH OCCUPANCY SENSOR
7) FIELD INSTALLED ECONOMIZER WITH 100% BAROMETRIC RELIEFF. DEMAND CONTROL VENTILATION CAPABILITY WITH CO2 SENSOR
8) FIELD INSTALLED ECONOMIZER WITH MODULATING POWER EXHAUST. DEMAND CONTROL VENTILATION CAPABILITY WITH CO2 SENSOR
9) INSTALL WITH DUCT DETECTOR ON SA DUCT AND INTERLOCK WITH HVAC UNIT FOR SHUTDOWN OF EQUIPMENT. SEE FIRE ALARM DRAWINGS.
10) EQUIPMENT AND ALL ASSOCIATED DUCTWORK SHALL BE DEDUCT ALTERNATE DURING BIDDING.

ECONOMIZER AND POWER EXHAUST (PE) SCHEDULE

MARK	EQUIPMENT SERVED	MAKE	MODEL	HORSE - POWER (HP)	DISCHARGE CFM	ESP (IN. WG)	VOLT/PH/ HERTZ	FLA (AMPS)	MCA	MOCP (AMPS)	OPER. WEIGHT (LBS)	NOTES
PE-HP-A	HP-A	CANFAB	6114-MPE	3	6,500	0.5	208/3/60	9.2	11.5	20.7	736	1, 2, 3, 4

NOTES:
1) INTEGRATE WITH HVAC EQUIPMENT AND TEST TO ENSURE POWER EXHAUST OPERATES DURING ECONOMIZER MODE.
2) MODULATING POWER EXHAUST WITH VARIABLE SPEED DRIVE WITH PRESSURE TEST TUBE IN RETURN AIR DUCT.
3) DRY BULB SENSORS.
4) EQUIPMENT IS ATTACHED TO ROOFTOP EQUIPMENT AND DOES NOT REQUIRE STRUCTURAL SUPPORTS.

DIFFUSER/GRILLE SCHEDULE

TERMINAL MARK	NECK SIZE	SIZE (IN)	AIR FLOW PATTERN	CFM RANGE	MANUF.	MODEL	CONSTRUCTION TYPE	NOTES:
CD-1	8" DUCT DIA	8X8	4-WAY	75-140	KRUEGER	6500	STEEL	1, 2, 6
	10" DUCT DIA	8X8	4-WAY	140-250	KRUEGER	6500	STEEL	1, 2, 6
	12" DUCT DIA	10X10	4-WAY	251-425	KRUEGER	6500	STEEL	1, 2, 6
	14" DUCT DIA	12X12	4-WAY	426-625	KRUEGER	6500	STEEL	1, 2, 6
	16" DUCT DIA	14X14	4-WAY	626-900	KRUEGER	6500	STEEL	1, 2, 6
CD-2	6" DUCT DIA	6" DIA	4-WAY	50-110	KRUEGER	1240	STEEL	1, 5
	8" DUCT DIA	8" DIA	4-WAY	111-280	KRUEGER	1240	STEEL	1, 5
	10" DUCT DIA	10" DIA	4-WAY	281-500	KRUEGER	1240	STEEL	1, 5
	12" DUCT DIA	12" DIA	4-WAY	501-725	KRUEGER	1240	STEEL	1, 5
	14" DUCT DIA	14" DIA	4-WAY	726-1050	KRUEGER	1240	STEEL	1, 5
SWD-1	VARIOUS	12X6	2-WAY	170-250	KRUEGER	880	STEEL	4
	VARIOUS	24X10	2-WAY	400-725	KRUEGER	880	STEEL	4
RAG-1/EAG-1	6" DUCT DIA	6" DIA	1-WAY	75-140	KRUEGER	6690	STEEL	1, 2, 6, 8
	8" DUCT DIA	8" DIA	1-WAY	140-250	KRUEGER	6690	STEEL	1, 2, 6, 8
	10" DUCT DIA	10" DIA	1-WAY	251-425	KRUEGER	6690	STEEL	1, 2, 6, 8
	12" DUCT DIA	12" DIA	1-WAY	426-625	KRUEGER	6690	STEEL	1, 2, 6, 8
	14" DUCT DIA	14" DIA	1-WAY	626-900	KRUEGER	6690	STEEL	1, 2, 6, 8
	16" DUCT DIA	16" DIA	1-WAY	901-1300	KRUEGER	6690	STEEL	1, 2, 6, 8
RAG-2/EAG-2	DUCT SIZE	8X8	1-WAY	0-150	KRUEGER	580-30	STEEL	1, 3, 4, 5
	DUCT SIZE	16X16	1-WAY	151-750	KRUEGER	580-30	STEEL	1, 3, 4, 5
	DUCT SIZE	18X18	1-WAY	751-950	KRUEGER	580-30	STEEL	1, 3, 4, 5
	DUCT SIZE	20X20	1-WAY	951-1250	KRUEGER	580-30	STEEL	1, 3, 4, 5
	DUCT SIZE	30X30	1-WAY	1251-2500	KRUEGER	580-30	STEEL	1, 3, 4, 5
RAG-3/EAG-3	VARIOUS	18X10	1-WAY	300-500	KRUEGER	580-0	STEEL	1, 3, 5
	VARIOUS	24X12	1-WAY	501-900	KRUEGER	580-0	STEEL	1, 3, 5
	VARIOUS	42X12	1-WAY	901-1300	KRUEGER	580-0	STEEL	1, 3, 5

NOTES:
1) PROVIDE ALL NECESSARY TRANSITIONS FOR DIFFUSERS AND GRILLES. COORDINATE WITH SITE AND ARCHITECTURAL PLANS
2) PERFORATED FACE
3) BLADES PARALLEL TO LONG DIMENSION
4) DUCT SUPPORTED/MOUNTED
5) WALL/CEILING SURFACE MOUNTED
6) LAY-IN CEILING WITH BORDER
7) INSTALL WITH SOUND BOOT (ELBOW WITH MIN 6 FEET OF ROUND/RECTANGULAR DUCTWORK)
8) ALL OPEN OFFICE/AREAS SHALL HAVE 14" DIAMETER NECK FOR RETURN GRILLES. ALL OTHER ENCLOSED OFFICES SHALL MATCH THE SUPPLY SIZE.

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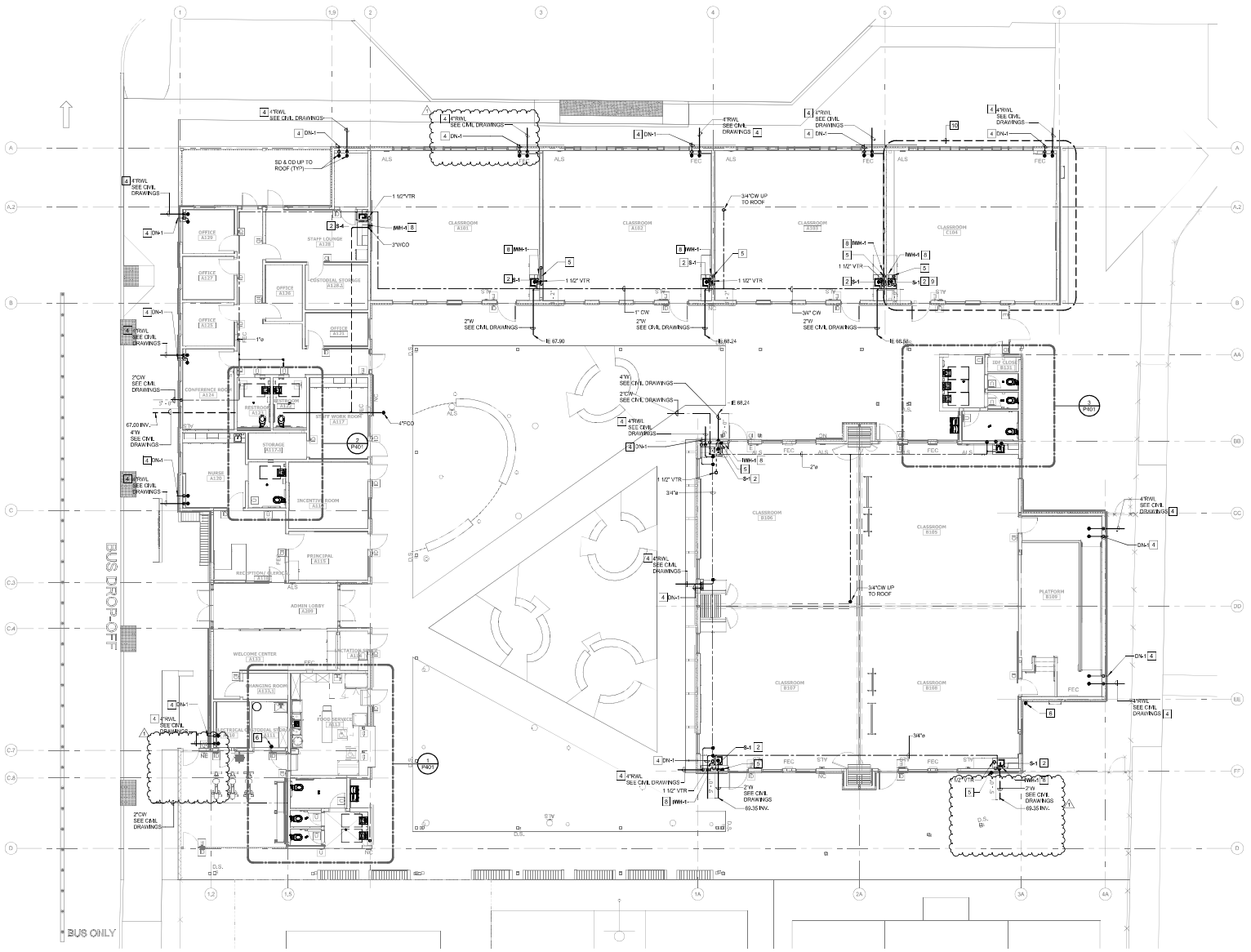
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MECHANICAL SCHEDULES

M602

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1 P101 **PLUMBING - FIRST FLOOR PLAN**
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. XXX

REFERENCE SHEET NOTES

1. F&I WALL MOUNTED LAVATORY (LAV-1).
2. F&I DROP IN SINK.
3. NOT USED
4. 4"SD/OD UP TO ROOF. 4" SD DOWN W/ CONNECTION TO SD PER CIVIL & 4" OD TERMINATE AT DAYLIGHT TO 12" ABOVE FINISH GRADE.
5. CONDENSATE DRAIN DOWN FROM ROOF TO LAVATORY TAILPIECE.
6. FIRE WATER PIPE (6" DIAMETER) AND BUILDING ENTRY PER DETAIL 13/PS-1. CONTRACTOR TO COORDINATE WITH CIVIL DRAWINGS AND FIRE PROTECTION DRAWINGS FOR EXACT SIZING AND INSTALLATION REQUIREMENTS.
7. MAIN CW SOV IN LOCKABLE ACCESS PANEL (AP-2).
8. F&I ELECTRIC INSTANT WATER HEATER BELOW LAVATORY/SINK WITH MIXING VALVE. SEE DETAIL 3/P-501.
9. DEDUCT ALTERNATE FOR ALL PLUMBING REQUIRED IN CLASSROOM C104.
10. CONTRACTOR SHALL BID THIS PORTION OF THE BUILDING AS DEDUCT ALT #1.

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PLUMBING 1ST FLOOR PLAN

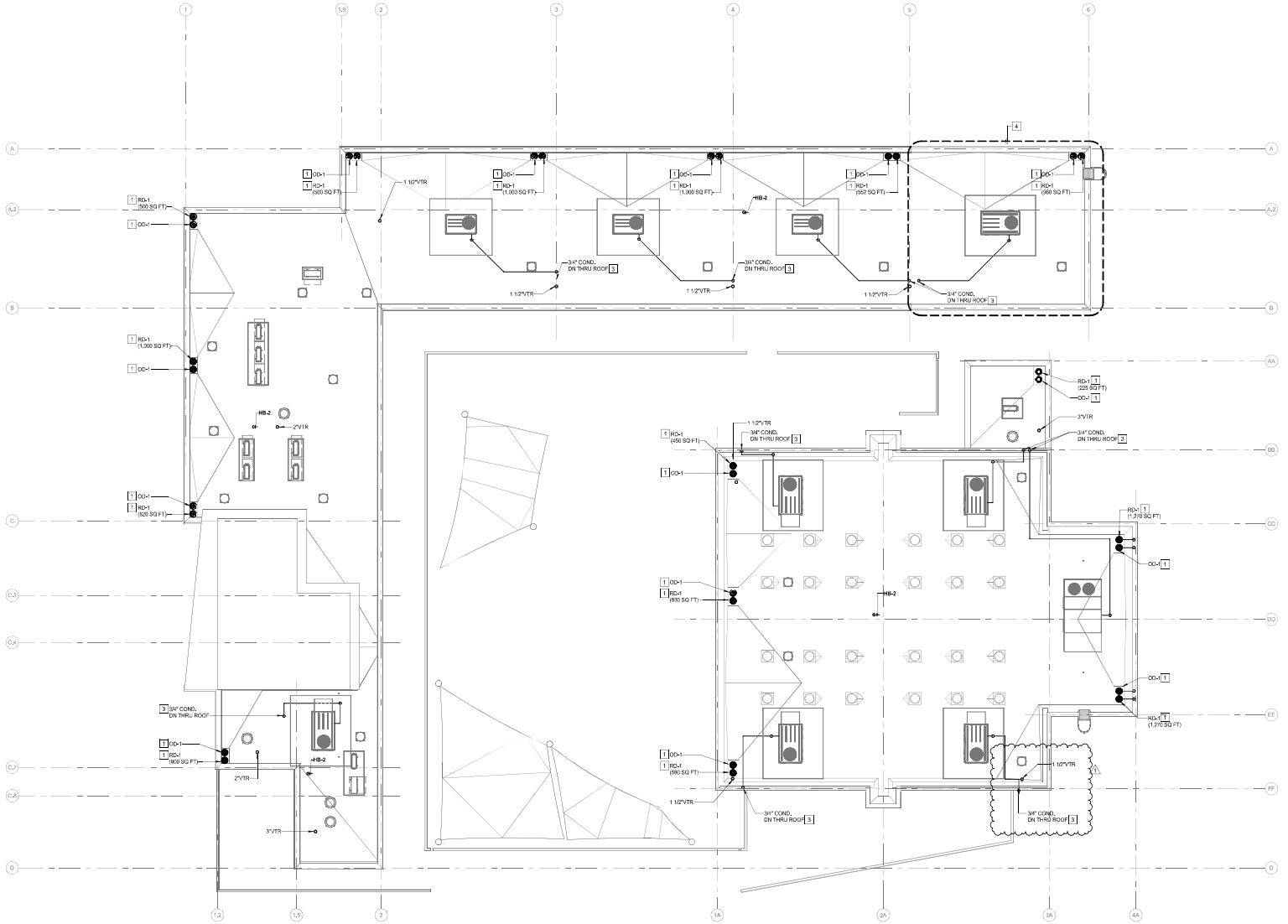
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VERTICAL RWL SIZING CALCULTION		
RECOMMENDED SIZE (IN. DIA.)	MAXIMUM FLOW (GPM)	MAX ROOF AREA (SF) PER 2019 CPC TABLE 1103.1
3"	42	4,400
4"	79	8,200

NOTES:
1. CALCULATIONS ARE BASED THE 60 MINUTE STORM DURATION AND 100 YEAR RETURN PERIOD FOR CAMARILLO, CA. RAINFALL = 1.5 IN/HR FLOW = 0.016 GPM/SF
2. MAX ROOF AREA, FOR GUTTER SIZING, BASED ON AN 8" GUTTER WITH 1/8" PER LINEAR FOOT SLOPE. VALUES TAKEN FROM TABLE 1103.1.
3. FOR MAX ROOF AREA AND RWL SIZE, USING 2 IN/HR OF RAINFALL AS INPUT TO TABLE.
4. PER CPC TABLE 1103.1, FOR VERTICAL RAINWATER SIZING, MAXIMUM FLOW FOR 3" DIA. RWL IS 92 GPM AND 4" DIA. RWL IS 192 GPM



1 P141 **PLUMBING ROOF PLAN**
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. XXX

REFERENCE SHEET NOTES

1. RD ROOF DRAIN. OVERFLOW DRAIN PER DETAIL 4/P501.
2. HOSE BIBB W/ DW PIPE DOWN THRU ROOF WITH WATERPROOFING.
3. CONDENSATE DRAIN W/ P-TRAP FOR HVAC UNITS PER DETAIL 6/P501, SLOPE PIPE ON ROOF AND ROUTE THROUGH ROOF DOWN TO 1ST FLOOR LAVATORY TAILPIECE PER DETAIL 12/P501 OR JANITOR'S SINK FOR INDIRECT WASTE W/ 1" AIR GAP (TYP).
4. CONTRACTOR SHALL BID THIS PORTION OF THE BUILDING AS DEDUCT ALT #1.

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PLUMBING ROOF PLAN

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GENERAL SHEET NOTES

A. ALL SANITARY SEWER PIPING SHALL BE SLOPED 1/4" PER LINEAR FOOT.

B. REFER TO PLUMBING SCHEDULE FOR PIPE CONNECTION SIZES OF INDIVIDUAL FIXTURES.

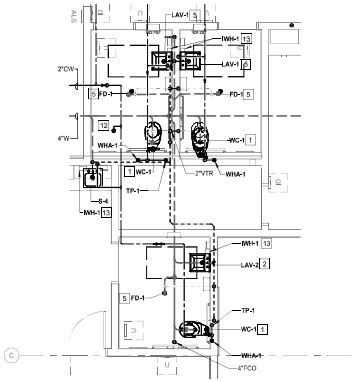
C. REFERE TO ARCHITECURAL FIXTRES FOR ADA FIXTURES ADN MOUNTING HEIGHTS.

D. CONTRACTOR SHALL PROVIDE TRAP PRIMER FOR ALL FLOOR DRAINS. SEE DETAIL 6/P501.

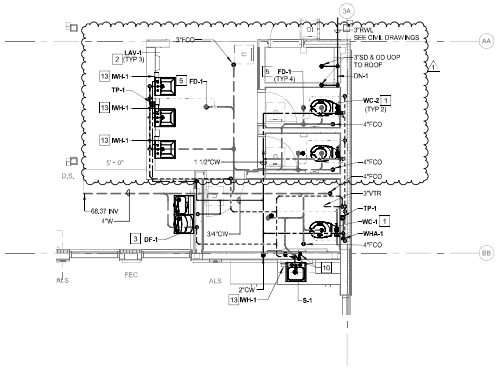
E. WATER HAMMER ARRESTORS SHALL BE INSTALLED WHERE QUICK-CLOSING VALVES ARE UTILIZED. WATER HAMMER ARRESTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

REFERENCE SHEET NOTES

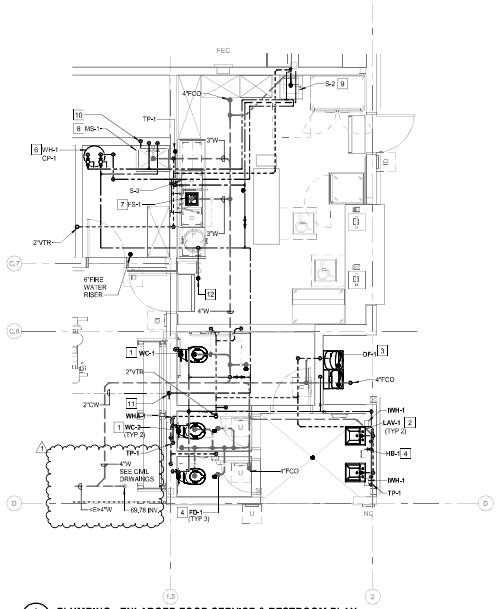
1. F&I FLOOR MOUNTED WATER CLOSET (WC) PER PLANS AND SCHEDULES.
2. F&I WALL MOUNTED LAVATORY PER PLANS AND SCHEDULES.
3. F&I "HI-LO" ADA DRINKING FOUNTAIN.
4. F&I EXPOSED HOSE BIBB WITH INTEGRAL VACUUM BREAKER.
5. F&I FLOOR DRAIN WITH TRAP PRIMER, SEE DETAIL 5/P501
6. F&I ELECTRIC TANK TYPE WATER HEATER WITH STAND, INSTALL WITH SECONDARY PAN AND T&P VALVE WITH DISCHARGE TO INDIRECT WASTE. INSTALL WITH CIRCULATION PUMP. INSTALL PER DETAIL 9/P501 & 10/P501.
7. FLOOR SINK FOR UNDER THREE COMPARTMENT SINK (SEE FOOD SERVICE -QF DRAWINGS) WITH TRAP PRIMER CONNECTION.
8. MOP SINK (SEE FOOD SERVICE -QF DRAWINGS).
9. KITCHEN SINK (SEE FOOD SERVICE -QF DRAWINGS).
10. CONDENSATE DRAIN DOWN FROM ROOF TO LAVATORY TAILPIECE OR JANITOR'S SINK FOR INDIRECT WASTE W/ 1" AIR GAP. (TYP).
11. MAIN CW SOV IN LOCKABLE ACCESS PANEL (AP-2).
12. 3/4"CW UP TO HOSE BIBS AT ROOF.
13. F&I ELECTRIC INSTANT WATER HEATER BELOW LAVATORY/SINK WITH MIXING VALVE. SEE DETAIL 3/P-501.



2 P401 **PLUMBING - ENLARGED RESTROOM A122 & A123 PLAN**
SCALE: 1/4" = 1'-0"



3 P401 **PLUMBING - ENLARGED RESTROOM PLAN**
SCALE: 1/4" = 1'-0"



1 P401 **PLUMBING - ENLARGED FOOD SERVICE & RESTROOM PLAN**
SCALE: 1/4" = 1'-0"

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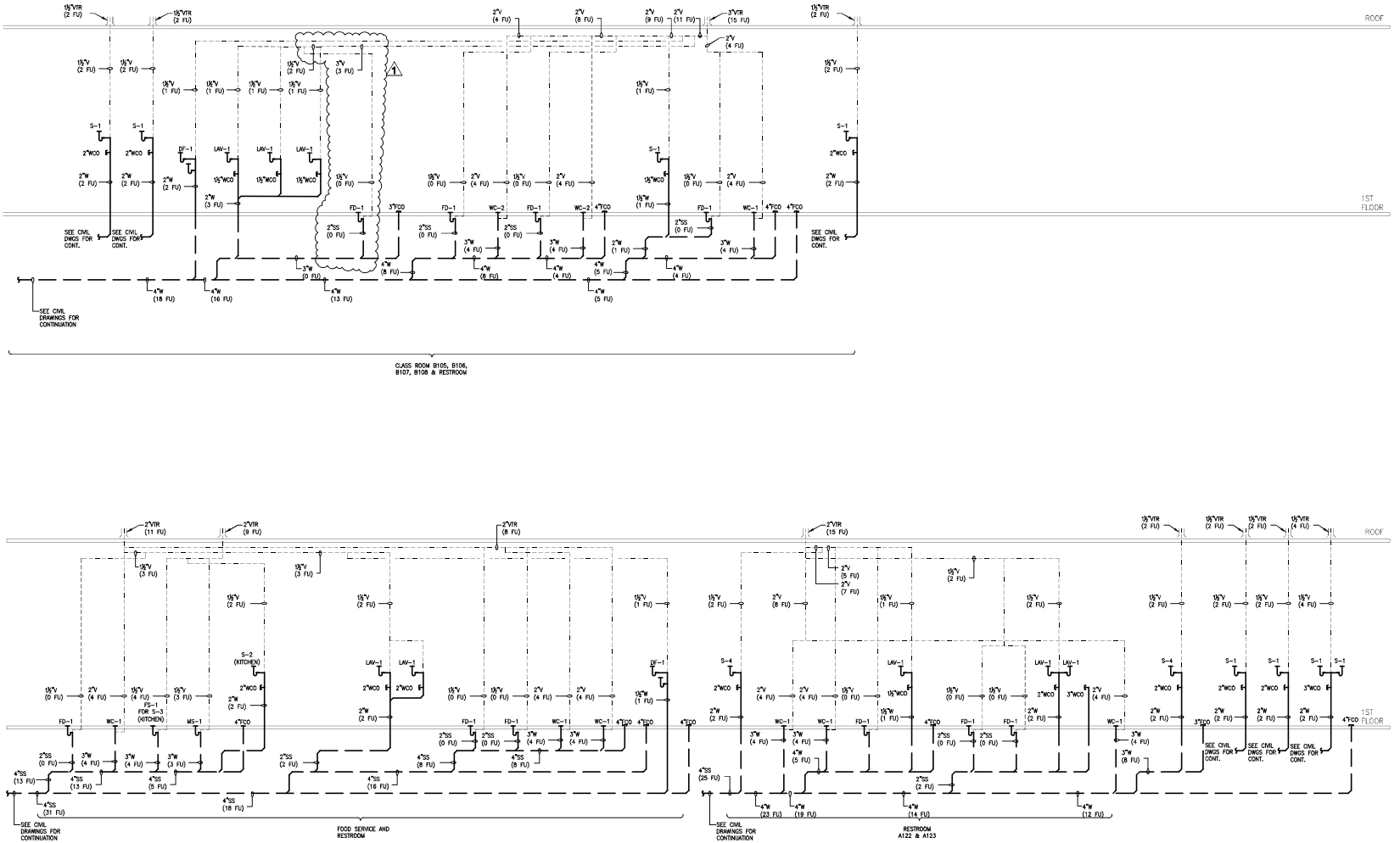
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PLUMBING ENLARGED PLANS

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1 SEWER AND VENT SYSTEM
SCALE: N.T.S.

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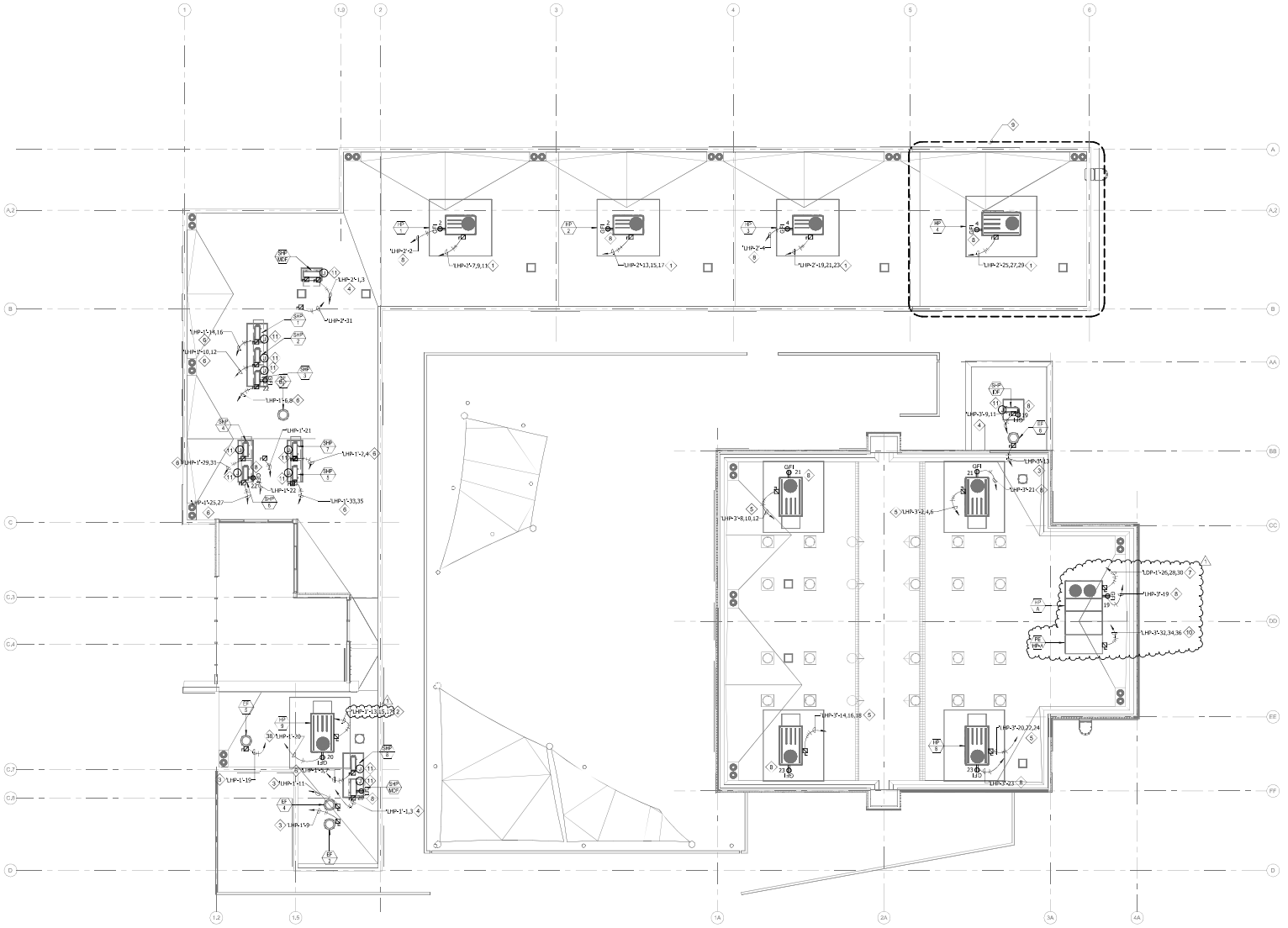
PLUMBING
RISER DIAGRAM

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1 E141 ELECTRICAL - ROOF PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.

B. CONDUITS ON ROOF SHALL BE MOUNTED ON DURABLOCKS.

REFERENCE SHEET NOTES

1. PROVIDE 208V, 3PH, 30A FUSED DISCONNECT WITH 30A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 3#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
2. PROVIDE 208V, 3PH, 60A FUSED DISCONNECT WITH 45A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 3#6 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
3. PROVIDE MOTOR RATED TOGGLE SWITCH MOUNTED ADJACENT TO MECHANICAL EQUIPMENT. PROVIDE 3/4"C - 2#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
4. PROVIDE 208V, 3PH, 30A FUSED DISCONNECT WITH 25A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 2#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
5. PROVIDE 208V, 3PH, 60A FUSED DISCONNECT WITH 40A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 3#6 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
6. PROVIDE 208V, 3PH, 30A FUSED DISCONNECT WITH 15A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 2#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
7. PROVIDE 208V, 3PH, 200A FUSED DISCONNECT WITH 150A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 2"C - 3#1/0 & 1#6 GND FROM PANEL AND CIRCUIT SHOWN.
8. PROVIDE PEDESTAL MOUNTED RECEPTACLE WITH WHILE IN USE, WEATHER PROOF COVER. PROVIDE 1"C - 2#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
9. CONTRACTOR SHALL BID THIS PORTION OF THE BUILDING AS DEDUCT ALT #1.
10. PROVIDE 208V, 3PH, 30A FUSED DISCONNECT WITH 20A FUSE MOUNTED ON FREE-STANDING UNI-STRUT. PROVIDE 1"C - 3#10 & 1#10 GND FROM PANEL AND CIRCUIT SHOWN.
11. PROVIDE JUNCTION BOX FOR INDOOR UNIT. PROVIDE 3/4"C FROM OUTDOOR UNIT TO ASSOCIATED INDOOR UNIT. REFER TO MANUFACTURER FOR COMPLETE INSTALLATION. REFER TO MECHANICAL PLANS FOR ADDITIONAL INFORMATION.

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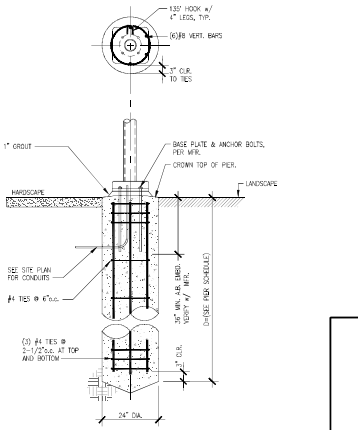
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SCALE	AS NOTED
PM	
DATE	08/28/2026
1 ADD 01	08/28/2026

ELECTRICAL ROOF PLAN - AUXILIARY

E141

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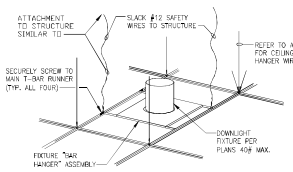
AREA LIGHT PIER DEPTH SCHEDULE				
		FOOTING/PIER DEPTH		
POLE HEIGHT	FOOTING DIAMETER	UNDISTURBED	CONC. WALK	FIXTURE WEIGHT
15'	24"	4'-0"	6'-0"	LESS THAN 40 LBS



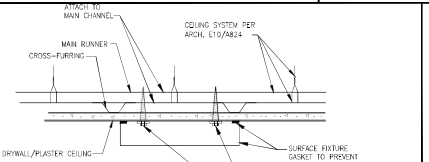
NOTES:

1. NEW MATERIALS SHALL BE AS FOLLOWS:
   - CONCRETE: NORMAL WEIGHT CONCRETE, 28-DAY COMPR. STRENGTH CONCRETE OF 3,000 PSI MIN., MAX SLUMP OF 4".
   - CONCRETE REINFORING: DEFORMED BAR, ASTM A615, GRADE 40 FOR #4 & SMALLER, GRADE 60 FOR #5 & LARGER
2. SPECIAL INSPECTIONS:
   PROVIDE CONTINUOUS INSPECTION FOR THE FOLLOWING: CONCRETE: EXCAVATION, FINAL PLACEMENT OF REBAR, MIXING OF TEST SPECIMENS.
3. TESTING:
   * CONCRETE: CAST (4) CYLINDERS, TEST AT 7, 14 & 28 DAYS (HOLD EXTRA FOR 60 DAYS). TEST SLUMP.

11 AREA LIGHT BASE
SCALE: N.T.S.



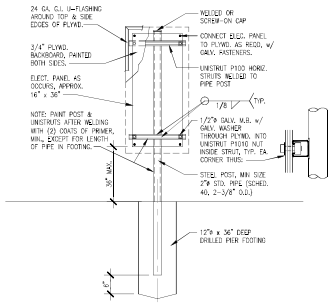
9 RECESSED DOWNLIGHT - GRID
SCALE: N.T.S.



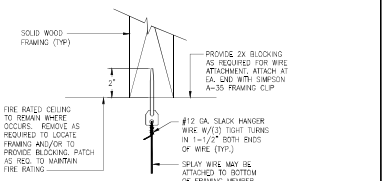
NOTES:

1. COORDINATE ALL CEILING LOCATIONS WITH CEILING CONTRACTOR & REFLECTED CEILING PLAN.
2. ADD CHANNELS WHERE MAINS ARE ARE NOT AVAILABLE.

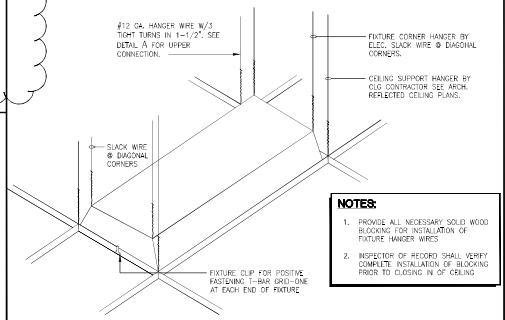
8 SURFACE MOUNTED FIXTURE
SCALE: N.T.S.



10 EXTERIOR PANEL MOUNTING
SCALE: N.T.S.



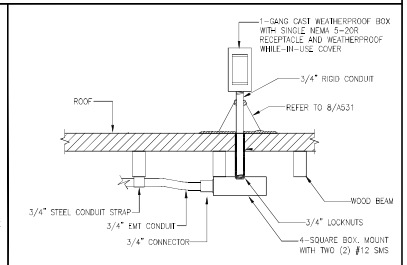
WOOD CEILING



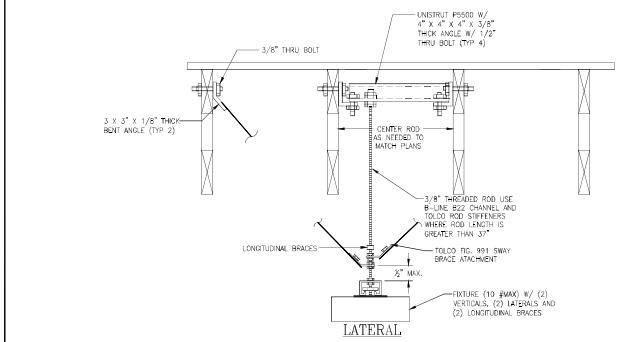
NOTES:

1. PROVIDE ALL NECESSARY SOLID WOOD BLOCKING FOR INSTALLATION OF FIXTURE HANGER WIRES
2. INSPECTOR OF RECORD SHALL VERIFY COMPLETE INSTALLATION OF BLOCKING PRIOR TO CLOSING IN OF CEILING

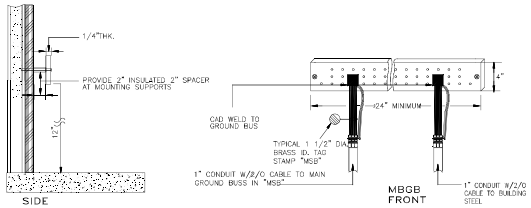
7 RECESSED TROFFER - GRID
SCALE: N.T.S.



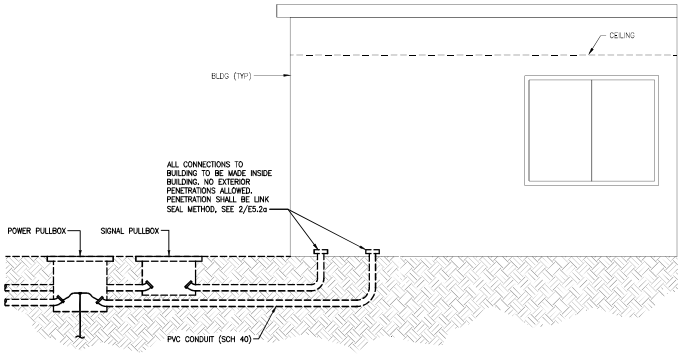
6 PEDESTAL ROOF REDCEPTACLE
SCALE: N.T.S.



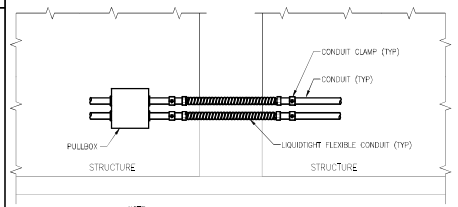
5 PENDANT MOUNT - OPEN CEILING
SCALE: N.T.S.



4 BUILDING GROUND BUS
SCALE: N.T.S.

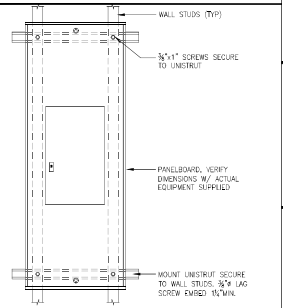


3 BUILDING INTERIOR CONDUIT DIAGRAM
SCALE: N.T.S.



NOTE:
1. TRANSITION FOR CEILING OR WALL MOUNTED INSTANCES.
2. ALL EXPOSED EQUIPMENT TO BE PAINTED TO MATCH SURROUNDING SURFACES.
3. PROVIDE TRANSITION AT ALL SEISMIC JOINTS.

2 SEISMIC JOINT TRANSITION
SCALE: N.T.S.



1 PANELBOARD MOUNTING ON STUDS
SCALE: N.T.S.

GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION

VENTURA COUNTY OFFICE OF EDUCATION
550 AIRPORT WAY, CAMARILLO, CA 93010

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ELECTRICAL DETAILS

SALASO'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
877.725.2755 | 877.925.1477 (f)
WWW.SALASOBRIEN.COM
National Strength. Local Action.

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E502

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LIGHT FIXTURE SCHEDULE

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	LAMP TYPE	VOLTS	WATTS	REMARKS
EX	LITHONIA LIGHTING	EDGX-X-C	EXIT SIGN	CEILING (RECESSED/ SURFACE)	LED	MVOLT	3	
F1	LITHONIA LIGHTING	2BLT4-40L-ADP-EZ1-LP835-N100	2'X4' TROFFER FIXTURE	GRID	LED	MVOLT	38	
F1E	LITHONIA LIGHTING	2BLT4-40L-ADP-EZ1-E10WLCP-LP835-N100	SAME AS F1 EXCEPT EMERGENCY	GRID	LED	MVOLT	38	
F2	RAYON LIGHTING	RFL6-11L-35-011-6RLXX-6TLXX	6" CYLINDER FIXTURE	HARD-LID	LED	MVOLT	12.5	
F2E	RAYON LIGHTING	RFL6-11L-35-011-6RLXX-6TLXX	SAME AS F2 EXCEPT EMERGENCY	HARD-LID	LED	MVOLT	12.5	
F3	COOPER LIGHTING	LD6C159035D010MXX	6" DECORATIVE CYLINDER FIXTURE	HARD-LID	LED	MVOLT	15.5	
F4	COOPER LIGHTING	LDSQ6D159035D010SQNXX	6" DECORATIVE SQUARE FIXTURE	HARD-LID	LED	MVOLT	15.5	
F5	LITHONIA LIGHTING	STL4-40L-EZ1-LP835-N100	1'X4' STRIP FIXTURE	SURFACE	LED	MVOLT	34.9	
F6	FOCAL POINT	FSM4LS-FL-375LF-35K-1C-UNV-L11-C48X0-XX-8'	4" LINEAR PENDANT FIXTURE	PENDANT	LED	MVOLT	26	
F7	FOCAL POINT	FSM2LS-FL-375LF-35K-1C-UNV-L11-C48X0-XX-6'	2" LINEAR PENDANT FIXTURE	PENDANT	LED	MVOLT	21	
F8	COOPER LIGHTING	S122DR-S375DB35-XXX-8FO-UDD-W-W	8' LINEAR RECESSED FIXTURE	GRID SLOT	LED	MVOLT	3.8 W/FT	1
F8E	COOPER LIGHTING	S122DR-S375DB35-XXX-8FO-1B2-UDD-W-W	SAME AS F8 EXCEPT EMERGENCY	GRID SLOT	LED	MVOLT	3.8 W/FT	
F9	FOCAL POINT	FSM4BS-XXXX-375DN-625UP-35K-1C-L11-C48XX-XX-XX-4'	4' LINEAR PENDANT FIXTURE	PENDANT	LED	MVOLT	31	
FX1	LITHONIA LIGHTING	CLX-L24-2500LM-SEF-FDL-WD-MVOLT-GZ1-35K-80CRI	2' SURFACE MOUNT EXTERIOR FIXTURE	CANOPY	LED	MVOLT	19.9	
FX2	COOPER LIGHTING	LDBB15D010-ERBB10208035-BLBMXXX	10" RECESSED EXTERIOR FIXTURE	HARD-LID	LED	MVOLT	15.5	1
FX3	LITHONIA LIGHTING	DSXB-LED-16C-350-30K-SYM-MVOLT-PE-H36-XX	BOLLARD	GROUND	LED	MVOLT	20	
FX4	COOPER LIGHTING	GAN-SAAA-830-U-T4FT-ADJA-WM-XX-MS/DIM-L20	FLOOD LIGHT	WALL MOUNT	LED	MVOLT	129	
FX5	COOPER LIGHTING	FIXTURE: GAN-SAAA-830-U-T4FT-ADJA-XX-MS/DIM-L20 POLE: SSS-6-X-15-S-XX-XX-1-X	FLOOD LIGHT WITH POLE	POLE	LED	MVOLT	129	

INTERIOR LIGHTING FIXTURE NOTES

1. ALL FIXTURE DRIVERS SHALL BE U.L. APPROVED AND CERTIFIED PER C.E.C 2-111.
2. VERIFY CATALOG NUMBER PRIOR TO BIDDING OR PURCHASING.
3. ALL LED FIXTURE SHALL BE 3500 K UNLESS OTHERWISE NOTED.
4. SOME FIXTURES REQUIRE TO BE DIMMABLE. FIXTURE'S DIMMING BALLAST SHALL BE COMPATIBLE WITH DIMMER. SEE PLANS FOR LOCATIONS AND FIXTURES.
5. LUMINAIRE CATALOG NUMBERS USED TO ILLUSTRATE LUMINAIRE TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING. COORDINATE LUMINAIRE INSTALLATION WITH REFLECTED CEILING DRAWINGS. PROVIDE APPROPRIATE MOUNTING FRAME/KIT PER CEILING PLAN AND/OR FINISH.

FEEDER SCHEDULE

3-PHASE FEEDER SCHEDULE

FEEDER DESIGNATION (XX)	No. OF SETS	PHASE CONDUCTOR (PER SET)	'N' NEUTRAL CONDUCTOR (PER SET)	'G' GROUND CONDUCTOR (PER SET)	'BG' SYSTEM BONDING JUMPER (PER SET)	CONDUIT SIZE FOR 3-PHASE & GROUND (G OR GEC) (PER SET)	CONDUIT SIZE FOR 3-PHASE & NEUTRAL & GROUND (G OR GEC) (PER SET)
20	1	(3) #10	#10	#10	#8	3/4"C	3/4"C
30	1	(3) #10	#10	#10	#8	3/4"C	3/4"C
40	1	(3) #8	#8	#10	#8	3/4"C	3/4"C
50	1	(3) #6	#6	#10	#8	1"C	1"C
60	1	(3) #4	#4	#10	#8	1-1/4"C	1-1/4"C
70	1	(3) #4	#4	#8	#8	1-1/4"C	1-1/4"C
80	1	(3) #2	#2	#8	#8	1-1/2"C	1-1/2"C
90	1	(3) #2	#2	#8	#8	1-1/2"C	1-1/2"C
100	1	(3) #1	#1	#8	#6	1-1/2"C	2"C
125	1	(3) #1	#1	#6	#6	1-1/2"C	2"C
150	1	(3) #1/0	#1/0	#6	#6	1-1/2"C	2"C
175	1	(3) #2/0	#2/0	#6	#4	2"C	2"C
200	1	(3) #3/0	#3/0	#6	#4	2"C	2-1/2"C
225	1	(3) #4/0	#4/0	#4	#2	2-1/2"C	2-1/2"C
250	1	(3) #250 Kcmil	#250 Kcmil	#4	#2	2-1/2"C	3"C
300	1	(3) #350 Kcmil	#350 Kcmil	#4	#2	3"C	3"C
350	1	(3) #500 Kcmil	#500 Kcmil	#3	#1/0	3"C	4"C
400	1	(3) #600 Kcmil	#600 Kcmil	#3	#1/0	4"C	4"C
450	2	(3) #4/0	#4/0	#2	#1/0	2-1/2"C	2-1/2"C
500	2	(3) #250 Kcmil	#250 Kcmil	#2	#1/0	2-1/2"C	3"C
600	2	(3) #350 Kcmil	#350 Kcmil	#1	#2/0	3"C	3"C
700	2	(3) #500 Kcmil	#500 Kcmil	#1/0	#2/0	4"C	4"C
800	3	(3) #300 Kcmil	#300 Kcmil	#1/0	#2/0	3"C	3"C
1000	3	(3) #400 Kcmil	#400 Kcmil	#2/0	#3/0	3"C	3-1/2"C
1200	4	(3) #350 Kcmil	#350 Kcmil	#3/0	#3/0	3"C	3"C
1600	5	(3) #400 Kcmil	#400 Kcmil	#4/0	#3/0	3"C	3-1/2"C
2000	5	(3) #600 Kcmil	#600 Kcmil	#250 Kcmil	#3/0	4"C	4"C
2500	6	(3) #600 Kcmil	#600 Kcmil	#350 Kcmil	#3/0	4"C	4"C
3000	8	(3) #600 Kcmil	#600 Kcmil	#400 Kcmil	#3/0	4"C	4"C
4000	10	(3) #600 Kcmil	#600 Kcmil	#500 Kcmil	#3/0	4"C	4"C

EXAMPLES:

A. 300G = INDICATES (1) SET OF [3"C. – (3)#350 Kcmil + #4 GROUND CONDUCTOR].
B. 300SG = INDICATES (1) SET OF [3"C. – (3)#350 Kcmil + #2 GROUND CONDUCTOR].
C. 300NG = INDICATES (1) SET OF [3"C. – (3)#350 Kcmil + (1)#350 Kcmil NEUTRAL + #4 GROUND CONDUCTOR].
D. 300NSG = INDICATES (1) SET OF [3"C. – (3)#350 Kcmil + (1)#250 Kcmil NEUTRAL + #2 GROUND CONDUCTOR].
E. 600NG = INDICATES (2) SET OF [3"C. – (3)#350 Kcmil + (1)#350 Kcmil NEUTRAL + #1 GROUND CONDUCTOR].

NOTES:

1. ALL CONDUCTORS SHALL BE COPPER, THHN-2 or THWN-2.
2. NOT ALL FEEDERS ON THIS SCHEDULE ARE NECESSARILY USED ON THIS PROJECT.

GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
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PANEL ID: LHP-1

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 225 A | MAIN: 225 A | TYPE:
LOCATION: ELECTRICAL 207 | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
SHP-MOF		2	20	1	550	650		2				
				3			650	4	20	2		SHP-2
SHP-3		2	30	5			550	6				
				7	550	650		8	20	2		SHP-3
EF-2		1	20	9			700	10				
EF-4		1	20	11		700		12	20	2		SHP-2
HP-1		3	40	13	2670	650		14				
				15			2670	16	20	2		SHP-1
				17		2670	650	18				
EF-ELEC		1	20	19	700	360		20	20	1		DRINKING FAOUNTAIN
EF-1		1	20	21			700	22				ROOF RECEPTACLE
SPARE		1	20	23		360		24	20	1		ROOF RECEPTACLE
SHP-5		2	20	25	650	250		26				
				27			850	28	20	2		INSTANT WATER HEATER
SHP-4		2	20	29		3120		30				
				31	3120		650	32	20	2		INSTANT WATER HEATER
SHP-5		2	20	33		3120		34				
				35			650	36	20	2		INSTANT WATER HEATER
SPARE		1	20	37	0	3120		38				
SPARE		1	20	39		0	0	40	20	1		SPARE
SPARE		1	20	41			0	42	20	1		SPARE
					16476 VA	16076 VA	14776 VA					
					138 A	136 A	123 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	47320 VA	100.00%	47320 VA	
Lighting	7240 VA	125.00%	9050 VA	CONNECTED LOAD 47320 VA
Receptacle	1080 VA	100.00%	1080 VA	DEMAND LOAD 46590 VA
				AVG. CONNECTED CURRENT 131 A
				AVG. DEMAND CURRENT 130 A

NOTES:

Branch Panel: LDP-1

Location: ELECTRICAL 207 | Volts: 208Y/120 | A.I.C. Rating: 42KAIC
Supply From: | Phases: 3 | Mains Type: LSIG
Mounting: FREE STANDING | Wires: 4 | Mains Rating: 1200 A
Enclosure: TYPE 1 | MCB Rating: 1200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				2027... 2440...						2
3	LTP-1	100 A	3		2027... 1792...		3	100 A	LLP-3	4
5						2027... 1898...				6
7				6574... 2741...						8
9	LPP-1	100 A	3		7034... 2752...		3	225 A	LHP-3	10
11						4380... 2763...				12
13				4166... 8116...						14
15	LPP-2	100 A	3		7040... 5040...		3	100 A	LPP-3	16
17						4240... 4320...				18
19				2647... 1045...						20
21	LLP-1	100 A	3		1408... 773 VA		3	100 A	LLP-2	22
23						1062... 200 VA				24
25				1647... 1036...						26
27	LHP-1	225 A	3		1607... 1036...		3	150 A	HP-4	28
29						1477... 1036...				30
31				2620... --						32
33	LHP-2	225 A	3		2570... --		3	--	SPACE	34
35						2131... --				36
37										38
39	LPP-4	20 A	3	3776... --	2970... --		3	--	SPACE	40
41						2160... --				42
				Total Load: 111117 VA	107753 VA	94337 VA				
				Total Amps: 943 A	915 A	786 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	3544 VA	100.00%	3544 VA	
Power	154064 VA	100.00%	154064 VA	Total Conn. Load: 313166 VA
Lighting	923 VA	125.00%	1237 VA	Total Est. Demand: 319271 VA
Miscellaneous	120548 VA	100.00%	120548 VA	Total Conn. Current: 869 A
Receptacle	46540 VA	65.74%	28216 VA	Total Est. Demand Current: 886 A
Lighting - Dwelling Unit	5442 VA	70.69%	3595 VA	

Notes:

PANEL ID: LLP-1

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 100 A | MAIN: 100 A | TYPE:
LOCATION: ELECTRICAL 207 | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
LIGHTING - DWELLING UNIT		1	20	1	624	236		2				
LIGHTING - DWELLING UNIT FOOD SERVICE...		1	20	3			143	4	20	1		EXTERIOR ENTRY/COURTYARD
LIGHTING - DWELLING UNIT		1	20	5				6	20	1		SOUTH - EXTERIOR LIGHTING
LIGHTING - DWELLING UNIT PRINCIPAL 211		1	20	7	456	123		8	20	1		WEST EXTERIOR LIGHTING
LIGHTING STORAGE 205		1	20	9			66	10	20	1		NORTH EXTERIOR LIGHTING
SPARE		1	20	11				12	20	1		EXTERIOR BOLLARD LIGHTING
SPARE		1	20	13			0	14	20	1		RECEPTACLE ELECTRICAL 207
SPARE		1	20	15	0	0		16	20	1		SPARE
SPARE		1	20	17			0	18	20	1		SPARE
SPARE		1	20	19	0	0		20	20	1		SPARE
SPARE		1	20	21			0	22	20	1		SPARE
SPARE		1	20	23		0	0	24	20	1		SPARE
SPARE		1	20	25	0	0		26	20	1		SPARE
SPARE		1	20	27			0	28	20	1		SPARE
SPARE		1	20	29		0	0	30	20	1		SPARE
SPARE		1	20	31	0	0		32	20	1		SPARE
SPARE		1	20	33			0	34	20	1		SPARE
SPARE		1	20	35	0	0		36	20	1		SPARE
				37	1049	0		38	20	1		SPARE
INVERTER		3	30	39		1065	0	40	20	1		SPARE
				41			467	42	20	1		SPARE
					2647 VA	1488 VA	1062 VA					
					23 A	12 A	9 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	1252 VA	100.00%	1252 VA	
Lighting	288 VA	125.00%	1003 VA	CONNECTED LOAD 5195 VA
Receptacle	180 VA	100.00%	180 VA	DEMAND LOAD 5317 VA
Lighting - Dwelling Unit	2540 VA	100.00%	2540 VA	AVG. CONNECTED CURRENT 14 A
				AVG. DEMAND CURRENT 15 A

NOTES:
WH

PANEL ID: LHP-3

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 400 A | MAIN: 400 A | TYPE:
LOCATION | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
				1	1500	2688		2				
WH-1		3	20	3			1500	4	40	3		HP-6
				5				6				
CH-1		1	20	7	100	2688		8				
				9			915	10	60	3		HP-5
SHP-DF		2	20	11				12				
				13	915	2688		14				
EF-3		1	20	15	100	2688		16	60	3		HP-7
SPARE		1	20	17			0	18				
SPARE		1	20	19			0	20				
ROOF RECEPTACLE		1	20	21	900	2688		22				
ROOF RECEPTACLE		1	20	23			900	24	60	3		HP-8
ROOF RECEPTACLE		1	20	25		2688		26				
SPARE		1	20	27	0	0		28				
SPARE		1	20	29			0	30	40	3		SPARE
SPARE		1	20	31	0	1271		32				
SPARE		1	20	33			0	34				
SPARE		1	20	35	0	1271		36	20	3		HP-A POWER EXHAUST
SPARE		1	20	37	0	12720		38				
SPARE		1	20	39			0	40				
SPARE		1	20	41			12720	42	150	3		LHP-1
					21413 VA	27528 VA	27634 VA					
					239 A	239 A	239 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	48010 VA	100.00%	48010 VA	
Lighting	3672 VA	125.00%	4590 VA	CONNECTED LOAD 82589 VA
Receptacle	1440 VA	100.00%	1440 VA	DEMAND LOAD 91598 VA
				AVG. CONNECTED CURRENT 239 A
				AVG. DEMAND CURRENT 254 A

NOTES:

PANEL ID: LHP-2

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 225 A | MAIN: 225 A | TYPE:
LOCATION: CUSTODIAL STORAG... | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
SHP-MOF		2	20	1	915	365		2	20	1		ROOF RECEPTACLE
				3			915	4	20	1		ROOF RECEPTACLE
SPARE		1	20	5			360	6	20	1		SPARE
				7	2205	3120		8				
HP-1		3	30	9			2205	10	20	2		INSTANT WATER HEATER
				11		2205	3120	12				
HP-2		3	30	13	2205	3120		14	20	2		INSTANT WATER HEATER
				15			2205	16				
				17		2205	3120	18				
HP-3		3	30	19	2205	3120		20	20	2		INSTANT WATER HEATER
				21			2205	22				
				23		2205	3120	24				
HP-4		3	30	25	2205	3120		26	20	2		INSTANT WATER HEATER
				27			2205	28				
				29		2205	3120	30				
EF-6		1	20	31	500	3120		32	20	2		INSTANT WATER HEATER
SPARE		1	20	33		0	3120	34				
SPARE		1	20	35	0	0		36	20	1		SPARE
SPARE		1	20	37	0		0	38	20	1		SPARE
SPARE		1	20	39		0	0	40	20	1		SPARE
SPARE		1	20	41			0	42	20	1		SPARE
					26207 VA	29707 VA	27312 VA					
					224 A	226 A	178 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	45101 VA	100.00%	45101 VA	
Lighting	28106 VA	125.00%	28106 VA	CONNECTED LOAD 73226 VA
Receptacle	720 VA	100.00%	720 VA	DEMAND LOAD 76050 VA
				AVG. CONNECTED CURRENT 593 A
				AVG. DEMAND CURRENT 322 A

NOTES:

PANEL ID: LPP-1

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 100 A | MAIN: 100 A | TYPE:
LOCATION: ELECTRICAL 207 | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
POWERED EXTERIOR SIGN		2	20	1	1664	250		2	20	2		POWER
				3		1064	250	4				
RECEPTACLE MDF ROOM 206		1	20	5			360	6	20	1		ELEC RV REC
CONV REC CHNG RM 133/WIL CEN 133		1	20	7	720	1500		8				
TV WEL CEN 133/PRINCPL 135		2	20	9			1500	10	20	3		WH-2
RECEP DESK REC 138		1	20	11			720	12				
CNTL REC 139/135		1	20	13	540	100		14	20	1		CH-1
CNTL CONV REC 115/135		1	20	15		540	500	16	20	1		FA PANEL
PHONE DESK 115		1	20	17			360	18	20	1		SPARE
RECEPTACLE RESTROOM 223		1	20	19	720	0		20	20	1		SPARE
RECEPTACLE NURSE 220		1	20	21		720	0	22	20	1		SPARE
RECEPTACLE NURSE 220		1	20	23			360	24	20	1		SPARE
RECEPTACLE INCENTIVE ROOM 212		1	20	25	360	0		26	20	1		SPARE
RECEPTACLE INCENTIVE ROOM 212		1	20	27			360	28	20	1		SPARE
RECEPTACLE STAFFS LOUNGE 221		1	20	29		720	0	30	20	1		SPARE
RECEPTACLE STAFFS LOUNGE 221		1	20	31	720	0		32	20	1		SPARE
SPARE		1	20	33			0	34	20	1		SPARE
SPARE		1	20	35		0	0	36	20	1		SPARE
SPARE		1	20	37	0	0		38	20	1		SPARE
SPARE		1	20	39			0	40	20	1		SPARE
SPARE		1	20	41		0	0	42	20	1		SPARE
					5574 VA	7034 VA	4380 VA					
					56 A	61 A	37 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Power	5628 VA	100.00%	5628 VA	
Receptacle	6060 VA	100.00%	6060 VA	CONNECTED LOAD 17868 VA
				DEMAND LOAD 17868 VA
				AVG. CONNECTED CURRENT 50 A
				AVG. DEMAND CURRENT 50 A

NOTES:

PANEL ID: LLP-3

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 100 A | MAIN: 100 A | TYPE:
LOCATION | PANEL AIC:

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
CLASSROOM LTG		1	20	1	620	600		2	20	1		SKYLIGHT
CLASSROOM LTG		1	20	3			620	4	20	1		SKYLIGHT
CLASSROOM LTG		1	20	5	620	600		6	20	1		SKYLIGHT
CLASSROOM LTG		1	20	7			620	8	20	1		SKYLIGHT
CLASSROOM LTG		1	20	9		72	500	10	20	1		SKYLIGHT
CLASSROOM LTG		1	20	11			703	12	20	1		SPARE
SPARE		1	20	13	0	0		14	20	1		SPARE
SPARE		1	20	15		0	0	16	20	1		SPARE
SPARE		1	20	17			0	18	20	1		SPARE
SPARE		1	20	19	0	0		20	20	1		SPARE
SPARE		1	20	21		0	0	22	20	1		SPARE
SPARE		1	20	23	0	0		24	20	1		SPARE
SPARE		1	20	25	0	0		26	20	1		SPARE
SPARE		1	20	27			0	28	20	1		SPARE
SPARE		1	20	29		0	0	30	20	1		SPARE
					2440 VA	1792 VA	1896 VA					
					20 A	15 A	16 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	2580 VA	100.00%	2580 VA	
Power	2900 VA	100.00%	2900 VA	CONNECTED LOAD 6121 VA
Lighting - Dwelling Unit	700 VA	100.00%	700 VA	DEMAND LOAD 6121 VA
				AVG. CONNECTED CURRENT 17 A
				AVG. DEMAND CURRENT 17 A

NOTES:

PANEL ID: LLP-2

VOLTAGE: 208Y/120 | SERVICE EQUIP: | MOUNTING: Surface
SOURCE: LDP-1 | AMPS: 100 A | MAIN: 100 A | TYPE:
LOCATION: CUSTODIAL STORAG... | PANEL AIC: 10KAIC

LOAD	NOTE	POLE	BKR	CKT	A	B	C	CKT	BKR	POLE	NOTE	LOAD
LIGHTING - DWELLING UNIT STAFF WORK...		1	20	1	360	605		2	20	1		LIGHTING - DWELLING UNIT CLASSROOM 1 87
LIGHTING		1	20	3			172	4	20	1		LIGHTING - DWELLING UNIT CLASSROOM 3 83
LIGHTING - DWELLING UNIT		1	20	5				6	20	1		SPARE
OTHER		1	20	7	60	0		8	20	1		SPARE
SPARE		1	20	9			0	10	20	1		SPARE
SPARE		1	20	11		0		12	20	1		SPARE
SPARE		1	20	13	0		0	14	20	1		SPARE
SPARE		1	20	15		0	0	16	20	1		SPARE
SPARE		1	20	17			0	18	20	1		SPARE
SPARE		1	20	19	0			20	20	1		SPARE
SPARE		1	20	21		0	0	22	20	1		SPARE
SPARE		1	20	23			0	24	20	1		SPARE
SPARE		1	20	25	0			26	20	1		SPARE
SPARE		1	20	27		0		28	20	1		SPARE
SPARE		1	20	29			0	30	20	1		SPARE
					1048 VA	777 VA	200 VA					
					9 A	7 A	2 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	60 VA	100.00%	60 VA	
Lighting	172 VA	125.00%	215 VA	CONNECTED LOAD 2017 VA
Lighting - Dwelling Unit	1796 VA	100.00%	1796 VA	DEMAND LOAD 2069 VA
				AVG. CONNECTED CURRENT 6 A
				AVG. DEMAND CURRENT 6 A

NOTES:

GENERAL SHEET NOTES

A. CONTRACTOR SHALL PROVIDE EITHER HANDLE TIES OR MULTIHOLE CIRCUIT BREAKERS FOR MULTI-WIRE BRANCH CIRCUITS WHERE THE BRANCH CIRCUITS ORIGINATES AS A SIMULTANEOUS DISCONNECTING MEANS AS REQUIRED PER CALIFORNIA ELECTRICAL CODE. CONTRACTOR SHALL REFLECT THESE CHANGES IN SUBMITALL TO BE APPROVED BY ENGINEER OF RECORD.

REFERENCE SHEET NOTES

1. PROVIDE RED CIRCUIT BREAKER AND RED LOCKABLE DEVICE FOR FIRE ALARM CIRCUITS, MARK CIRCUIT BREAKER WITH 'FIRE ALARM' AS REQUIRED BY CODE.

GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB 88910.00
SCALE AS NOTED
PM
DATE 08/28/2026
1 ADD 01 08/28/2026

ELECTRICAL SCHEDULES

SALASO'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
877.725.2755 | 877.925.1477 (f)
WWW.SALASOBRIEN.COM
National Strength. Local Action.

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

E602

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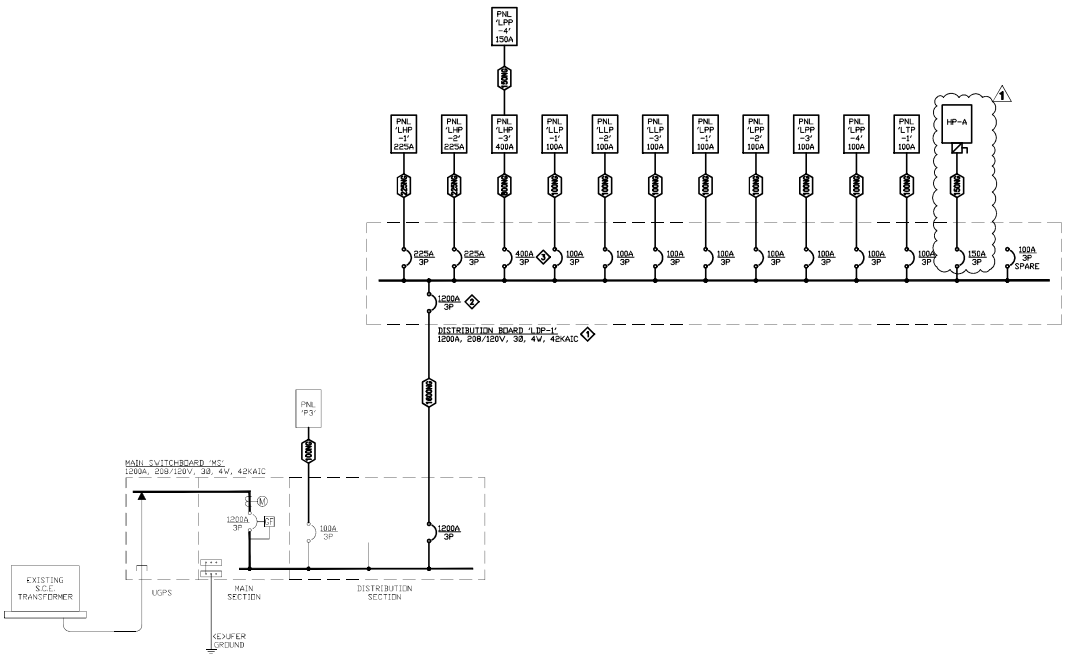
GENERAL SHEET NOTES

A. CONTRACTOR TO COORDINATE ALL SHUTDOWNS OF UTILITIES AND SYSTEMS WITH OWNER FOR TIMING AND DURATION.

B. REFER TO SHEET E001 FOR DEMOLITION NOTES AND MORE GENERAL NOTES.

REFERENCE SHEET NOTES

1. PROVIDE SWITCHBOARD WITH VOLTAGE AND RATING AS SHOWN. REFER TO ENLARGED FLOOR PLAN FOR LOCATION.
2. PROVIDE LSIG CIRCUIT BREAKER. CIRCUIT BREAKER SHALL COORDINATE WITH UPSTREAM DEVICES.
3. PROVIDE 100% RATED CIRCUIT BREAKER WITH RATING SHOWN.



1 SINGLE LINE DIAGRAM
SCALE: N.T.S.

SALAS O'BRIEN
expect a difference
305 South 11th Street
San Jose, California 95112-2218
877.725.2755 | 877.925.1477 (f)
WWW.SALASOBRIEN.COM
National Strength.
Local Action.

REGISTERED PROFESSIONAL ENGINEER — GARY GOOD — No. E18084 — ELECTRICAL — STATE OF CALIFORNIA

GATEWAY COMMUNITY SCHOOL - NEW CLASSROOM BUILDING ADDITION
VENTURA COUNTY OFFICE OF EDUCATION
550 AIRPORT WAY, CAMARILLO, CA 93010

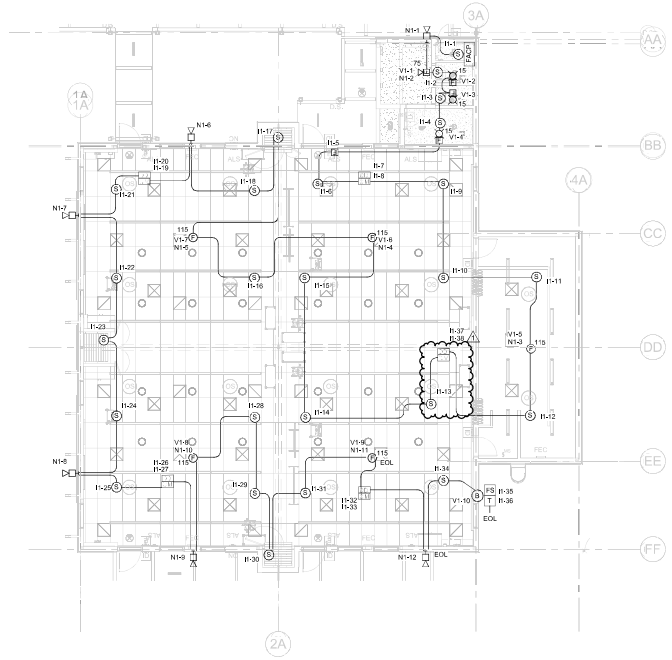
JOB	88910.00
SCALE	AS NOTED
PM	
DATE	08/28/2026
1 ADD 01	08/28/2026

ELECTRICAL
SINGLE LINE DIAGRAM

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

E701

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1 FA202 FOUR SQUARE FIRE ALARM PLAN
1/8" = 1'-0"

WALL LEGEND

NEW NON-RATED WALL

1 HR RATED FIRE BARRIER WALL

LICENSED ARCHITECT — SCOTT PAUL DOUGHTY — NO. C-36624 — RENEWAL 08.31.2027 — STATE OF CALIFORNIA

LICENSED PROFESSIONAL ENGINEER — FIRE PROTECTION — FP 2004 — STATE OF CALIFORNIA

GATEWAY COMMUNITY SCHOOL - SOUTH ANNEX

VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	08/28/2026
ADD001	08/28/2026

FOUR SQUARE BUILDING FIRE ALARM PLAN

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

FA202

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MS-9600LS Battery Calculation

FIRE-LITE ALARMS by Honeywell

Secondary Power Source Requirements

Device Type	Standby Current (amps) Qty		Current Draw		Total	Secondary Alarm Current (amps) Qty		Current Draw		Total
Main Circuit Board	1	x	0.103000	=	0.10300	1	x	0.253000	=	0.25300
DACT-UD2	0	x	0.017000	=		0	x	0.029000	=	
SLC-2LS Expander Module	0	x	0.019000	=		0	x	0.029000	=	
4XTMF	0	x	0.005000	=		0	x	0.011000	=	
IPDACT-2	0	x	0.093000	=		0	x	0.136000	=	
IPDACT-2UD	0	x	0.098000	=		0	x	0.155000	=	
ANN-BUS Devices										
ANN-BX-W1	1	x	0.015000	=	0.015000	1	x	0.040000	=	0.040000
ANN-LED	0	x	0.028000	=		0	x	0.068000	=	
ANN-RLED	0	x	0.028000	=		0	x	0.068000	=	
ANN-RLY	0	x	0.015000	=		0	x	0.075000	=	
ANN-I/O	0	x	0.035000	=		0	x	0.200000	=	
ANN-S/PG	0	x	0.045000	=		0	x	0.045000	=	
ACS Annunciators										
ACM-8RF	0	x	0.030000	=		0	x	0.158000	=	
ACM-16ATF	0	x	0.040000	=		0	x	0.056000	=	
ACM-32AF	0	x	0.040000	=		0	x	0.056000	=	
AEM 16ATF	0	x	0.002000	=		0	x	0.018000	=	
AFM-32AF	0	x	0.021000	=		0	x	0.018000	=	
AFM-16ATF	0	x	0.040000	=		0	x	0.056000	=	
AFM-32AF	0	x	0.040000	=		0	x	0.056000	=	
AFM-16AF	0	x	0.025000	=		0	x	0.085000	=	
LDM-32F	0	x	0.040000	=		0	x	0.056000	=	
LDM-E32F	0	x	0.002000	=		0	x	0.018000	=	
LCD-80F	0	x	0.025000	=		0	x	0.064000	=	
Resettable Power										
4-wire Detector Heads	0	x	0.000000	=		0	x	0.000000	=	
Addressable Devices										
BEAM355	0	x	0.002000	=						
BEAM355S	0	x	0.002000	=						
BEAM1224	0	x	0.017000	=						
CPS355	0	x	0.000300	=						
SD355	0	x	0.000300	=						
SD355T	24	x	0.000300	=	0.007200					
AD355	0	x	0.000300	=						
H355	0	x	0.000300	=						
H355R	0	x	0.000300	=						
H355HT	0	x	0.000300	=						
D350P	0	x	0.000300	=						
D350RP	0	x	0.000300	=						
D350PL	0	x	0.000300	=						
D350RPL	0	x	0.000300	=						
D355PL	5	x	0.000300	=	0.001500					
MMF-300	2	x	0.000400	=	0.000800					
MMF-300-10	0	x	0.003500	=						
MDF-300	0	x	0.000750	=						
MMF-301	0	x	0.000375	=						
MMF-302	0	x	0.000270	=						
MMF-302-6	0	x	0.002000	=						
BG-12LX	1	x	0.000300	=	0.000300					
CMF-300	0	x	0.000390	=						
CMF-300-6	0	x	0.002250	=						
CRF-300	5	x	0.000270	=	0.001350					
CRF-300-6	0	x	0.001450	=						
CDRM-300	0	x	0.001300	=						
I300	0	x	0.000400	=						
ISO-6	0	x	0.002700	=						
B501BH-2	0	x	0.001000	=						
B501BHT-2	0	x	0.001000	=						
B224RB	0	x	0.000500	=						
B224BI	0	x	0.000450	=						
W-GATE	0	x	0.024000	=						
			Maximum alarm draw for Addressable devices (SLC 1)							0.40000
			Maximum alarm draw for Addressable devices (SLC 2)							0.00000
EOLR-1	0	x	0.020000	=		0	x	0.020000	=	
Auxiliary Power										
CMF-300 (Aux. Power)	0	x	0.001700	=		0	x	0.007000	=	
CMF-300-6 (Aux. Power)	0	x	0.008000	=		0	x	0.020000	=	
MMF-302 (Aux. Power)	0	x	0.012000	=		0	x	0.090000	=	
MMF-302-6 (Aux. Power)	0	x	0.050000	=		0	x	0.270000	=	
B200SR (Aux. Power)	0	x	0.000500	=		0	x	0.035000	=	
B200SR-LF (Aux. Power)	0	x	0.001000	=		0	x	0.125000	=	
SWIFT Wireless										
W-GATE	0	x	0.040000	=		0	x	0.040000	=	
W-DIS-D	0	x	0.030000	=		0	x	0.030000	=	
Miscellaneous Devices										
AM50	1	x	0.086000	=	0.086000	1	x	2.206000	=	2.206000
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
Output Circuits										
NAC/Output #1			0.000000	-				1.026000	=	1.026000
NAC/Output #2			0.000000	=				0.000000	=	
NAC/Output #3			0.000000	=				0.000000	=	
NAC/Output #4			0.000000	=				0.000000	=	
Current Draw from TB3 (non-alarm)			0.000000	-				0.000000	-	
Sum each column for totals	**Total Standby Current**		**0.21515**			**Total Alarm Current**				**3.92500**

MS-9600LS Battery Calculation

FIRE-LITE ALARMS by Honeywell

Calculation in Total Sheet

			Required Standby Time in Hours	24 Hours	
Standby Load Current (Amps)	**0.21515 Amps**	x	24	=	5.164 AH
			Required Alarm Time in Hours	5 Minutes	
Alarm Load Current (Amps)	**3.92500 Amps**	x	0.084	=	0.330 AH
			Standby and Alarm Load Subtotal	=	5.493 AH
			Derating Factor	=	x 1.2
			Total Ampere Hours Required	=	**6.59 AH**

Recommended Batteries: BAT-12120 - 12AH Batteries

Battery Check

The batteries can be charged by the MS-9600LS Charger.
The batteries can be housed in the MS-9600LS Cabinet.

Current Draw Check

NAC#1 current is within the limitations of the circuit.
NAC#2 current is within the limitations of the circuit.
NAC#3 current is within the limitations of the circuit.
NAC#4 current is within the limitations of the circuit.
The standby current is within the limitations of the panel.
The alarm current is within output limitations of the panel.

MS-9600LS Circuit Detail

FIRE-LITE ALARMS by Honeywell

NAC 1

Device	Qty	Non-Alarm Draw		Total	Qty	Alarm Draw		Total
Ceiling Speaker/Strobe	5	x 0.000000	=	0.000000	5	x 0.150000	=	0.750000
Speaker/Strobe	1	x 0.000000	=	0.000000	1	x 0.107000	=	0.107000
Strobe	3	x 0.000000	=	0.000000	3	x 0.043000	=	0.129000
		x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
	0	x 0.000000	=		0	x 0.000000	=	
		Total Standby Load		**0.000000**		**Total Alarm Load**		**1.026000**

VOLTAGE LINE LOSS CALCULATIONS

JOB: GATEWAY FOURSQUARE
DATE: 6-23-2022
VOLTAGE LINE LOSS FORMULA:
(A) X (F) X (1) / (D)/ (E) = % LINE LOSS

(A)AMPS

15cd SPEAKER/STROBE (SPSCR) 0.043
75cd SPEAKER/STROBE (SPSCR) 0.107
115cd SPEAKER/STROBE (SPSCR) 0.129
15cd STROBE (SCR) 0.043

OTHER DATA

(B) WIRE GAUGE 12
(C) WIRE RESISTANCE 21.6
(D) CIRCULAR MILLS 6530.000
(E) VOLTS (DC) 24.000
(F) LINE WIRE FOOTAGE (PER CIRCUIT)

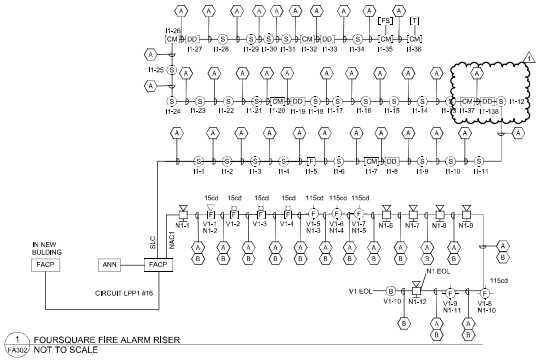
POWER SUPPLY FCPS1	15cd SPEAKER/ STROBE	75cd SPEAKER/ STROBE	115cd SPEAKER/ STROBE	15cd STROBE	TOTAL AMPS	LINE WIRE FOOTAGE	VOLTAGE LOSS	% LINE LOSS
CIRCUIT 1, N1	0	1	5	3	0.88	500	1.46	6.07%
TOTAL	0	1	5	3	0.88			

Project Name:	GATEWAY COMMUNITY FOURSQUARE
Panel	FCPS1
Circuit Number	1
Circuit Name	FOURSQUARE
Nominal Speaker Voltage (25 or 70.7)	25
Minimum Device Voltage (Calculated see notes)	20
Total Circuit Current in amps	0.650
Total Circuit Power	7.000
Wire Gauge for trunk to 1st device	12
Wire Gauge for loops out of circuit	12
Error Power in Watts	
25V x 2 .25W =1	

	TOTAL WATTS	TOTAL WIRE FEET	Calculated TOTAL OHMS	At	Voltage Drop from	Percent Drop
Device 1	7.000	500	0.600	22.67	2.000	11.76%
Totals	7.000	500		End of Line Voltage		22.67

End of Line Method CIRCUIT IS WITHIN LIMITS	
Watts	Voltage
Line Resistance	Drop
0.600	0.600
End of Line Voltage	22.67
Percent Drop	11.76%

Standard Wire Resistance in Ohms per 1000 feet
18=7.77 14=2.85 12=1.587 10=1.24
16-14 Awg = Solid Conductors 12-10 Awg = Stranded Conductors



1 FA302 FOURSQUARE FIRE ALARM RISER
NOT TO SCALE

LICENSED ARCHITECT — KEVIN PAUL DOUGHERTY — NO. C-36624 — RENEWAL 08.31.2027 — STATE OF CALIFORNIA

LICENSED PROFESSIONAL ENGINEER — TIMOTHY SCOTT CHRISTIE — EXP. 12/2004 — FIRE PROTECTION — STATE OF CALIFORNIA

GATEWAY COMMUNITY SCHOOL - SOUTH ANNEX

VENTURA COUNTY OFFICE OF EDUCATION
550 Airport Way, Camarillo, CA 93010

JOB	88910.00
SCALE	AS NOTED
PM	
DATE	08/28/2026
1 ADD01	08/28/2026

FIRE ALARM RISER DIAGRAMS AND CALCS

PERKINS EASTMAN
3194 D Airport Loop Drive
Costa Mesa, CA 92626
T. +1 714 427 0277
www.perkinseastman.com

FA302

SECTION 08 7100
DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Door hardware.
2. Storefront and entrance door hardware.

B. Related Divisions:

1. Division 06 – door hardware installation
2. Division 07 – sealant at exterior thresholds
3. Division 08 – metal doors and frames, interior aluminum frames, wood doors, integrated security systems, specialty doors, storefront and glazed curtainwall systems.
4. Division 10 – operable partitions
5. Division 21 – fire and life safety systems
6. Division 28 – security access systems

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Windows.
2. Cabinets, including open wall shelving and locks.
3. Signs, except where scheduled.
4. Toilet accessories, including grab bars.
5. Installation.
6. Rough hardware.
7. Conduit, junction boxes & wiring.
8. Folding partitions, except cylinders where detailed.
9. Sliding aluminum doors, except cylinders where detailed.
10. Access doors and panels, except cylinders where detailed.
11. Corner Guards.
12. Welded steel gates and supports.

1.02 REFERENCES:

A. Use date of standard in effect as of Bid date.

1. American National Standards Institute

a. ANSI 156.18 – Materials and Finishes.

2. BHMA – Builders Hardware Manufacturers Association

3. 2014 California Building Code

a. Chapter 11B – Accessibility To Public Buildings, Public Accommodations, Commercial Buildings and Public Housing

4. DHI – Door and Hardware Institute

5. NFPA – National Fire Protection Association

a. NFPA 80 2019 Edition – Standard for Fire Doors and Other Opening Protectives.

b. NFPA 105 – Smoke and Draft Control Door Assemblies

c. NFPA 252 – Fire Tests of Door Assemblies

6. UL – Underwriters Laboratories

a. UL10C – Positive Pressure Fire Tests of Door Assemblies.

b. UL 305 – Panic Hardware

7. WHI – Warnock Hersey Incorporated State of California Building Code

8. Local applicable codes

9. SDI – Steel Door Institute

10. WI – Woodwork Institute

11. AWI – Architectural Woodwork Institute

12. NAAMM – National Association of Architectural Metal Manufacturers

B. Abbreviations

1. Manufacturers: see table at 2.1.A of this section

2. Finishes: see 2.7 of this section.

1.03 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS: Submit six copies of schedule per D. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Minimum 10pt font size. Include following information:

1. Type, style, function, size, quantity and finish of hardware items.

2. Use BHMA Finish codes per ANSI A156.18.

3. Name, part number and manufacturer of each item.

4. Fastenings and other pertinent information.

5. Location of hardware set coordinated with floor plans and door schedule.

6. Explanation of abbreviations, symbols, and codes contained in schedule.

7. Mounting locations for hardware.

8. Door and frame sizes, materials and degrees of swing.

9. List of manufacturers used and their nearest representative with address and phone number.

10. Catalog cuts.

11. Point-to-point wiring diagrams.

12. Manufacturer's technical data and installation instructions for electronic hardware.

B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.

E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

F. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.

G. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, riser and point-to-point wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.04 QUALITY ASSURANCE:

A. Qualifications:

1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.

a. Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.

B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions and code requirements.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.06 PROJECT CONDITIONS AND COORDINATION:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.

B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:

1. Location of embedded and attached items to concrete.

2. Location of wall-mounted hardware, including wall stops.

3. Location of finish floor materials and floor-mounted hardware.

4. At masonry construction, coordinate with the anchoring and hollow metal supplier prior to frame installation by placing a strip of insulation, wood, or foam, on the back of the hollow metal frame behind the rabbet section for continuous hinges, as well as at rim panic hardware strike locations, silencers, coordinators, and door closer arm locations. When the frame is grouted in place, the backing will allow drilling and tapping without dulling or breaking the installer's bits.

5. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

6. Coordinate: flush top rails of doors at outswinging exteriors, and throughout where adhesive-mounted seals occur.

7. Manufacturers' templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

D. Environmental considerations: segregate unused recyclable paper and paper product packaging, uninstalled metals, and plastics, and have these sent to a recycling center.

1.07 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties.

B. Include factory order numbers with close-out documents warranty information:

C. Minimum warranties:

1. Access Locks: Two years

2. Extra Heavy Duty Cylindrical Lock: Limited Lifetime

3. Exit Devices: Three years mechanical

4. Closers: Thirty years mechanical

5. Hinges: One year

6. Other Hardware Two years

1.08 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.

2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.

3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

1.09 REGULATORY REQUIREMENTS:

A. Locate latching hardware between 34 inches to 44 inches above the finished floor, per 2019 California Building Code, Section 11B-404.2.7.

1. Panic hardware: locate between 36 inches to 44 inches above the finished floor.

B. Handles, pull, latches, locks, other operable parts:

1. Readily openable from egress side with one hand and without tight grasping, tight pinching, or twisting of the wrist to operate. 2019 California Building Code Section 11B-309.4.

2. Force required to activate the operable parts: 5.0 pounds maximum, per 2019 California Building Code Section 11B-309.4.

3. Provide locks that allow doors to classrooms and any room with an occupancy of five or more persons to be locked from the inside per CBC 1010.1.11. The locks shall conform to the specification and requirements found in CBC Section 1010.1.9

4. 1. Exception: exterior doors' pressure-to-open may be increased to 8.5-pounds if: at a single location, and one of a bank of eight leafs or fraction of eight, and one leaf of this bank is fitted with a low- or high-energy operator.

C. Door closing speed shall be as follows: CBC 11B-404.2.8

1. Closer shall be adjusted so that the required time to move a door from an open position of 90 degrees to a position of 12 degrees from the latch is 5 seconds minimum

D. Smooth surfaces at bottom 10 inches of push sides of doors, facilitating push-open with wheelchair footrests, per 2019 California Building Code Section 11B-404.2.10.

1. Applied kickplates and armor plates: bevel the left and right edges; free of sharp or abrasive edges.

2. Tempered glass doors without stiles: bottom rail may be less than 10 inches if top leading edge is tapered 60 degrees minimum.

E. Door opening clear width no less than 32 inches, measured from face of frame stop, or edge of inactive leaf of pair of doors, to door face with door opened to 90 degrees. Hardware projection not a factor in clear width if located above 30 inches and below 80 inches, and the hardware projects no more than 4 inches. 2019 California Building Code Section 11B-404.2.3.

1. Exception: doors not requiring full passage through the opening, that is, to spaces less than 24 inches in depth, may have the clear opening width reduced to 20 inches. Example: shallow closets.

2. Door closers and overhead stops: not less than 78 inches above the finished floor or ground, per 2019 California Building Code 11B-307.4.

F. Thresholds: floor or landing no more than 0.50 inches below the top of the threshold of the doorway, per 2019 California Building Code Section 11B-404.2.5. Vertical rise no more than 0.25 inches, change in level between 0.25

1. inches and 0.50 inches: beveled to slope no greater than 1:2 (50 percent slope). 2019 California Building Code Section 11B-303.2 & ~.3.

G. Floor stops: Do not locate in path of travel. Locate no more than 4 inches from walls, per DSA Policy #99-08 (Access).

H. Pairs of doors with independently-activated hardware both leafs: limit swing of right-hand or right-hand-reverse leaf to 90 degrees to protect persons reading wall-mounted tactile signage, per 2019 California Building Code Section 11B-703.4.2.1

I. Door and door hardware encroachment: when door is swung fully-open into means-of-egress path, the door may not encroach/project more than 7 inches into the required exit width, with the exception of door release hardware such as lockset levers or panic hardware. These hardware items must be located no less than 34-inches and no more than 48-inches above the floor/ground. 2019 California Building Code, Section 1005.7.1.

1. In I-2 occupancies, latch release hardware is not permitted to project in the required exit width, regardless of its mounting height, per 2019 California Building Code, Section 1005.7.1 at Exception 1.

J. Hardware (including panic hardware) shall not be provided with "night latch" (NL) function for any accessible doors or gates unless the following conditions are met per DSA interpretation 10-08 DSA/AC (external), revised 4/28/09. Such conditions must be clearly demonstrated and indicated in the specifications:

K. Such hardware has dogging feature

L. It is dogged during the time the facility is open

M. Such dogging operation is performed only by employees as their job function (non-public use)

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. Listed acceptable alternate manufacturers: these will be considered; submit for review products with equivalent function and features of scheduled products.

ITEM:	MANUFACTURER:	ACCEPTABLE ALTERNATE:
Hinges	(IVE) Ives	Hager
Pivots	(IVE) Ives	Rixson
Access Locks Key System	(ALM) Alarm Lock (FAL) Falcon A2 SFIC	Owner standard Owner standard
Mechanical Locks	(MAR) Marks USA	Owner standard
Exit Devices	(VON) Von Duprin	Owner standard
Closers	(LCN) LCN	Owner standard
Silencers	(IVE) Ives	Rockwood, Trimco
Security Pulls	(TRI) Trimco	Owner standard
Kickplates	(IVE) Ives	Rockwood, Trimco
Stops & Holders	(TRI) Trimco	Owner standard
Thresholds	(ZER)Zero	Pemko
Seals & Bottoms	(ZER)Zero	Pemko

2.02 HINGING METHODS:

A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

B. Doors 7’10” use 4 hinges and add 1 hinge for every foot thereafter

C. Conform to manufacturer’s published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer’s standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

D. Conventional Hinges: Steel or stainless steel pins and approved bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

1. Outswinging exterior doors: stainless steel hinges with non-removable (NRP) pins and security studs.

2. Stainless steel material exteriors and at doors subject to corrosive atmospheric conditions.

E. Pivots: high-strength forged bronze or stainless steel, tilt-on precision bearing and bearing pin.

1. Bottom and intermediate pivots: adjustability of minus 0.063 inch, plus 0.125 inch.

2.03 LOCKSETS, LATCHSETS, DEADBOLTS:

A. Mortise Locksets and Latchsets: as scheduled.

1. Chassis: cold-rolled steel, handing field-changeable without disassembly.

2. Universal lock case – 10 functions in one case.

3. Floating mounting tabs automatically adjusts to fit a beveled door edge.

4. Latchbolts: 0.75 inch throw stainless steel anti-friction type.

5. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

a. Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.

b. Inside lever applied by screwless shank mounting – no exposed trim mount screws.

c. Levers rotate up or down for ease of use.

6. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.

7. Turnpieces: accessible offset turn-lever design not requiring pinching or twisting motions to operate.

8. Deadbolts: stainless steel 1-inch throw.

9. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.

10. Scheduled Lock Series and Design: Schlage L series, Design to be 06L

11. Certifications:

a. ANSI A156.13, 1994, Grade 1 Operational,

b. ANSI/ASTM F476-84 Grade 31 UL Listed.

12. Accessibility: Require not more than 5 lb to retract the latchbolt, or both, per CBC 2019 11B-404.2.7 and 11B-309.4.

B. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled.

1. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.

2. Locking Spindle: stainless steel, integrated spring and spindle design.

3. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.

4. Latchbolt: solid steel.

5. Backset: 2.75 inches typically, more or less as needed to accommodate frame, door or other hardware.

6. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2.00 inches clearance from lever mid-point to door face.

7. Strikes: 16 gage curved steel, bronze or brass with 1.00 inch deep box construction, lips of sufficient length to clear trim and protect clothing.

8. Lock Series and Design: Schlage ND series, Design to be Rhodes (RHO)

9. Certifications:

   a. ANSI A156.2, 1994, Series 4000, Grade 1.

   b. UL listed for A label and lesser class single doors up to 4 feet x 8 feet.

10. Accessibility: Require not more than 5 lb to retract the latchbolt or deadbolt, or both, per CBC 2019 11B-404.2.7 and 11B-309.4

2.04 EXIT DEVICES / PANIC HARDWARE

A. General features:

1. Independent lab-tested 1,000,000 cycles.

2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.

3. Deadlocking latchbolts, 0.75 inch projection.

4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.

5. No exposed screws to show through glass doors.

6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.

7. Releasable in normal operation with 15-pound maximum operating force per UBC Standard 10-4, and with 32-pound maximum pressure under 250-pound load to the door.

8. Lever design to match locksets

9. Accessibility: Require not more than 5 lb to retract the latchbolt, per CBC 2019 11B-404.2.7 and 11B-309.4.

   a. Mechanical method: where touchpad directly retracts the latchbolt with 5 lb or less of force.

B. Specific features:

1. Non-Fire Rated Devices: cylinder dogging.

2. Lever Trim: breakaway type, forged brass or bronze escutcheon min. 0.130 inch thickness, compression spring drive, match lockset lever design.

2.05 CLOSERS

A. Surface Closers: 4040-XP

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.

2. ISO 2000 certified. Units stamped with date-of-manufacture code.

3. Independent lab-tested 10,000,000 cycles.

4. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.

5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.

6. Adjust doors to open with not more than 5.0-pounds pressure to open at exterior doors and 5.0-pounds at interior doors. As allowed per 2019 California Building Code Section 11B-404.2.9, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15-pounds.

    a. Exception: exterior doors' pressure-to-open may be increased to 8.5-pounds if: at a single location, and one of a bank of eight leafs or fraction of eight, and one leaf of this bank is fitted with a low- or

        1) high-energy operator.

7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.

8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.

9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.

10. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees Fahrenheit to -30 degrees Fahrenheit, furnish checking fluid data on request.

11. Non-flaming fluid, will not fuel door or floor covering fires.

12. Pressure Relief Valves (PRV) not permitted.

2.06 OTHER HARDWARE

A. Automatic Flush Bolts: Low operating force design.

B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.

C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

D. Door Stops: Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.

2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.

E. Thresholds: As scheduled and per details. Comply with CBC 2019 11B-404.2.5. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.

1. Saddle thresholds: 0.125 inches minimum thickness.

2. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Minimum 0.25 inch diameter fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors. National Guard Products' "COMBO" or Pemko Manufacturing's "FHSL".

3. Fire-rated openings, 90-minutes or less duration: use thresholds to interrupt floor covering material under the door where that material has a critical radiant flux value less than 0.22 watts per square centimeter, per NFPA

a. 253. Use threshold unit as scheduled. If none scheduled, include a 0.25in high 5in wide saddle in the bid, and request direction from Architect.

4. Fire-rated openings, 3-hour duration: Thresholds, where scheduled, to extend full jamb depth.

5. Acoustic openings: Set units in full bed of Division-7-compliant, leave no air space between threshold and substrate.

6. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.

7. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

F. Through-bolts: Do not use. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

1. Exception: surface-mounted overhead stops, holders, and friction stays.

G. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Leave no unfilled/uncovered pre-punched silencer holes. Intent: door bears against silencers, seals make minimal contact with minimal compression – only enough to effect a seal. Provide where seals are not used

2.07 FINISH:

A. Generally: BHMA 626 Satin Chromium Areas using BHMA 626: furnish push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise scheduled.

B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

2.08 KEYING REQUIREMENTS:

A. Key System: All keying will be done by the Owner

B. Keys and cores: Construction cores and keys will be provided by the Owner and installed by the Contractor (OFCI)

C. Permanent Cores: All will be supplied and installed by Owner

PART 3 - EXECUTION

3.01 ACCEPTABLE INSTALLERS:

A. Can read and understand manufacturers' templates, suppliers' hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers' furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.02 PREPARATION:

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation. Installation denotes acceptance of wall/frame condition.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of code conflicts before ordering material.

2. Locate latching hardware between 34 inches to 44 inches above the finished floor, per California Building Code, Section 1008.1.9.2 and 1133B.2.5.2.

3. Locate panic hardware between 36 inches to 44 inches above the finished floor.

4. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.03 INSTALLATION

A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.

1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.

2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.

3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.

4. Replace fasteners damaged by power-driven tools.

B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.

D. Locate overhead stops for minimum 90 degrees at rest and for maximum allowable degree of swing.

E. Drill pilot holes for fasteners in wood doors and/or frames.

F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.04 ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.

2. Adjust doors to fully latch with no more than 1 pound of pressure.

a. Door closer valves: turn valves clockwise until at bottom – do not force. Turn valves back out one and one-half turns and begin adjustment process from that point. Do not force valves beyond three full turns counterclockwise.

3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.

4. Adjust door closers per 1.9 this section.

B. Inspection of fire door assemblies and means-of-egress panic-hardware doors: Per 2019 NFPA-80 5.2.1: hire an independent third-party inspection service to prepare a report listing these doors, and include a statement that there are zero deficiencies with the fire-rated assemblies and the openings with panic hardware. Certification, Testing and Quality Control shall be in accordance with Division 01 45 23 Testing and Inspection services. All doors hardware and installation will be inspected by a third party selected by the architect/owner

1. Div 01 45 23:

2. Per 2019 NFPA-80 5.2.1: Use a third party inspector not associated with the construction, supply or installation of this project to develop a field survey of the doors and hardware. Survey is to be done by a member certified as a FDAI (Fire Door Assembly Inspector), Certified AHC (Architectural Hardware Consultant) or a certified testing laboratory: UL or Intertek. Certified Inspectors may be found at DHI.org, Intertek, or CAFDI.org.

C. Fire-rated doors:

1. Wood doors: adjust to 0.125 inches clearance at heads, jambs, and meeting stiles.

2. Steel doors: adjust to 0.063 inches minimum to 0.188 inches maximum clearance at heads, jambs, and meeting stiles.

3. Adjust wood and steel doors to 0.75 inches maximum clearance (undercut) above threshold or finish floor material under door.

D. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:

1. Has re-adjusted hardware.

2. Has evaluated maintenance procedures and recommend changes or additions, and instructed Owner's personnel.

3. Has identified items that have deteriorated or failed.

4. Has submitted written report identifying problems.

3.05 DEMONSTRATION:

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.06 PROTECTION/CLEANING:

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. Clean adjacent wall, frame and door surfaces soiled from installation / reinstallation process.

3.07 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

HW SET: 012

3	EA	HINGE	3CB1HW 5 X 4.5	652	IVE
1	EA	OFFICE	195RB/26D	626	MAR
1	EA	CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	W1211	626	TRI

HW SET:020

3	EA	HINGE	3CB1HW 5 X 4.5	652	IVE
1	EA	PRIVACY	195L/26D	626	MAR
1	EA	PRIVACY	PDLN4100IC/26D (A133.1-1)	626	ALM
1	EA	DOME STOP	W1211	626	TRI
3	EA	SILENCER	SR64	GRY	IVE

HW SET:030

3	EA	HINGE	3CB1HW 5 X 4.5	626	IVE
1	EA	OFFICE LOCK	195RB/26D	626	MAR
1	EA	ACCESS LOCK	PDL6200IC/26D (A115-1, A120-1, A128-1)	626	ALM
1	EA	DOME STOP	W1211 626	626	TRI
3	EA	SILENCER	SR64	GRY	IVE

HW SET:040

3	EA	HINGE	3CB1HW 5 X 4.5	626	IVE
1	EA	STOREROOM LOCK	195RF/26D	626	MAR
1	EA	ACCESS LOCK	PDL6200IC/26D (A128.1-1, A128.2-1)	626	ALM
1	EA	DOME STOP	W1211	626	TRI
3	EA	SILENCER	SR64	GRY	IVE

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HW SET:044

3	EA	HINGE	3CB1HW 5 X 4.5	652	IVE
1	EA	ACCESS LOCK	PDL6200IC/26D	626	ALM
1	EA	CLOSER	4040XP H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	W1211	626	TRI
3	EA	SILENCER	SR64	GRY	IVE

HW SET:405

3	EA	HINGE	3CB1HW 5 X 4.5	630	IVE
1	EA	ACCESS LOCK	PDLN4500DB/26D	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-2 FOR ACCESS LOCK	626	MAR
1	EA	DOME STOP	W1211	626	TRI
1	EA	PERIMETER SEALS	328AA HEAD AND JAMBS	AL	ZER
1	EA	DOOR SWEEP	339AA	CM	ZER
1	EA	THRESHOLD	AS DETAILED	AL	ZER

HW SET: 442.1

3	EA	HINGE	3CB1HW 5 X 4.5 NRP SEC STUD		IVE
1	EA	ACCESS LOCK	PDL6600CR/26D		ALM
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR ACCESS LOCK		MAR
1	EA	CLOSER	4040XP-EDA		LCN
1	EA	KICKPLATE	8400 10” X 2” LDW		IVE

HW SET: 442.2

3	EA	HINGE	3CB1HW 5 X 4.5 NRP SEC STUD	630	IVE
1	EA	ACCESS LOCK	PDL6600CR/26D	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR ACCESS LOCK	626	MAR
1	EA	CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	FLOOR STOP	1265 (2 1/4" HIGH STRIKE)	626	TRI
1	SET	PERIMETER SEALS	328AA HEAD AND JAMBS	AL	ZER
1	EA	DOOR SWEEP	339AA	CL	ZER
1	EA	THRESHOLD	AS DETAILED	AL	ZER

HW SET: 443.1

3	EA	HINGE	3CB1HW 5 X 4.5 NRP SEC STUD	630	IVE
1	EA	ACCESS LOCK	PDL6600CR/26D (A116-1, A128-2)	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-1 (A116-1, A128-2)	626	MAR
1	EA	PRIVACY LOCK	PDLN4500DB/26D (A114-1)	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-2 (A114-1)	626	MAR
1	EA	CLOSER	4040XP S-CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	PERIMETER SEALS	328AA HEAD AND JAMBS	AL	ZER
1	EA	DOOR SWEEP	339AA	CL	ZER

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1	EA	THRESHOLD	AS DETAILED	AL	ZER

HW SET: 453.1

3	EA	HINGE	3CB1HW 5 X 4.5 NRP SEC STUD	630	IVE
1	EA	ACCESS LOCK	PDL6600CR/26D	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR ACCESS LOCK	626	MAR
1	EA	CLOSER	4040XP S-CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	PERIMETER SEALS	328AA HEAD AND JAMBS	AL	ZER
1	EA	DOOR SWEEP	339AA	CL	ZER
1	EA	THRESHOLD	AS DETAILED	AL	ZER

HW SET: 455.1

3	EA	HINGE	3CB1HW 5 X 4.5	630	IVE
1	EA	ACCESS LOCK	PDL6600CR/26D	626	ALM
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR ACCESS LOCK	626	MAR
1	EA	CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	W1211	626	TRI
1	SET	PERIMETER SEALS	328AA HEAD AND JAMBS	AL	ZER
1	EA	DOOR SWEEP	339AA	CL	ZER
1	EA	THRESHOLD	AS DETAILED	AL	ZER

HW SET: A032.7

1	EA	PIVOT SET	7215	626	IVE
2	EA	INTERMEDIATE PIVOT	7215 INT	626	IVE
1	EA	ACCESS LOCK	PDL6200IC/26D	626	ALM
1	EA	CLOSER	4040XP	689	LCN
1	EA	MOUNTING PLATE	4040-18	689	LCN
1	EA	DOME STOP	W1211	626	TRI

DOORS MUST BE WIDE STILE TO MOUNT LOCK SEALS AND SWEEPS BY DOOR MANUFACTURER

HW SET: A482.1

1	EA	PIVOT SET	7215	626	IVE
1	EA	INTERMEDIATE PIVOT	7215 INT	626	IVE
1	EA	EXIT DEVICE	CDSI-AX-98-NL/OP-PA	626	VON
1	EA	RIM CYL HSG	R662/26D FOR ACCESS LOCK	626	MAR
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR DOGGING	626	MAR
1	EA	ACCESS LOCK	ETPDNS1G26DV99	626	ALM
1	EA	CYL ADAPTER	ET-BIC/26D FOR ACCESS LOCK 4040XP EDA	626	ALM
1	EA	KIT CLOSER		689	LCN
1	EA	MOUNTING PLATE	4040-18	689	LCN
1	EA	FLOOR STOP	1265 (2 1/4" HIGH STRIKE)	626	TRI
1	EA	THRESHOLD	AS DETAILED	AL	ZER

SEALS AND SWEEPS BY DOOR MANUFACTURER

DOORS MUST BE WIDE STILE TO MOUNT PANIC HARDWARE

1

HW SET: A482.5

1	EA	PIVOT SET	7215	626	IVE
1	EA	INTERMEDIATE PIVOT	7215 INT	626	IVE
1	EA	EXIT DEVICE	CDSI-AX-98-NL/OP-PA	626	VON
1	EA	RIM CYL HSG	R662/26D FOR ACCESS LOCK	626	MAR
1	EA	MORTISE CYL HSG	R2183/26D-1 FOR DOGGING	626	MAR
1	EA	ACCESS LOCK CYL	ETPDNS1G26DV99	626	ALM
1	EA	ADAPTER KIT	ET-BIC/26D FOR ACCESS LOCK	626	ALM
1	EA	CLOSER	4040XP EDA	689	LCN
1	EA	MOUNTING PLATE	4040-18	689	LCN
1	EA	FLOOR STOP	1265 (2 1/4" HIGH STRIKE)	626	TRI
1	EA	THRESHOLD	AS DETAILED	AL	ZER

SEALS AND SWEEPS BY DOOR MANUFACTURER

DOORS MUST BE WIDE STILE TO MOUNT PANIC HARDWARE

HW SET: A582R.1

2	EA	PIVOT SET	7215	626	IVE
2	EA	INTERMEDIATE PIVOT	7215 INT	626	IVE
1	EA	MULLION	KR4954	689	VON
2	EA	EXIT DEVICE	CDSI-AX-98-EO-PA	626	VON
1	EA	ACCESS LOCK	ETPDNS1G26DV99	626	ALM
1	EA	CYL APAPTER KIT	ET-BIC/26D FOR ACCESS LOCK	626	ALM
1	EA	RIM CYL HSG	R662/26D FOR ACCESS LOCK	626	MAR
2	EA	MORTISE CYL HSG	R2183/26D-1 FOR DOGGING	626	MAR
1	EA	OFFSET DOOR PULL	8190-0 10" CTC	630	IVE
2	EA	CLOSER	4040XP EDA	689	LCN
2	EA	MOUNTING PLATE	4040-18	689	LCN
2	EA	FLOOR STOP	1265 (2 1/4" HIGH STRIKE)	626	TRI
1	EA	THRESHOLD	AS DETAILED	AL	ZER

SEALS AND SWEEPS BY DOOR MANUFACTURER

DOORS MUST BE WIDE STILE TO MOUNT PANIC HARDWARE

HW SET: A585R.1

2	EA	PIVOT SET	7215	626	IVE
2	EA	INTERMEDIATE PIVOT	7215 INT	626	IVE
1	EA	MULLION	KR4954	689	VON
2	EA	EXIT DEVICE	CDSI-AX-98-EO-PA	626	VON
1	EA	ACCESS LOCK	ETPDNSG26DV99	626	ALM
1	EA	CYL ADAPTER KIT	ET-BIC/26D FOR ACCESS LOCK	626	ALM
1	EA	RIM CYL HSG	R662/26D FOR ACCESS LOCK	626	MAR
3	EA	IC MORT CYL	R2183/26D-1 FOR DOG & MULLION	626	MAR
1	EA	OFFSET DOOR PULL	8190-0 10" CTOC	630	IVE

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2	EA	CLOSER	4040XP EDA	689	LCN
2	EA	MOUNTING PLATE	4040-18	689	LCN
2	EA	DOME STOP	W1211	626	TRI
1	EA	THRESHOLD	AS DETAILED	AL	ZER

SEALS AND SWEEPS BY DOOR MANUFACTURER

DOORS MUST BE WIDE STILE TO MOUNT PANIC HARDWARE

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END OF SECTION3

SECTION 09 9900
COLORS

PART 1 GENERAL

1.01 SUMMARY

A. The General Conditions and Division 1 are a part of this Section and the Contract for this Work and apply to this Section as if repeated fully herein. This section is intended to supplement the provisions of the General Conditions, and to supplement criteria established elsewhere in these documents for the basis of acceptance or rejection of requests for substitution.

1.02 COLOR SELECTION PROCESS

A. All colors will be selected by the Architect. Materials and products have been specified partly based upon the availability of colors desired by the architect as being compatible with the overall color palate for the project. A preliminary color palate has been developed based upon the materials and products specified. Although requests for substitution are encouraged in order to generate competition and equal opportunity among suppliers, the basis for acceptance or rejection of a request for substitution may rest with the availability of colors compatible with the palate. Based upon the availability of colors within the items specified or allowed as substitution a final color palate will be developed after completion of the substitution period.

1.03 REMAINING COLORS

A. Material colors not indicated below will be selected upon submittal of manufactures standard colors complying with each applicable specification.

PART 2 PRODUCTS

2.01 NOT APPLICABLE

PART 3 EXECUTION

3.01 NOT APPLICABLE

APPENDIX: FINISH LIST

END OF SECTION

FINISH LIST

GATEWAY ANNEX SCHOOL

VENTURA COUNTY OFFICE OF EDUCATION

Specification Section	Specification Name	Material ID	Manufacturer	Product Name/Series/Model	Color/Finish	Location	Remarks
08 4313	Aluminum Framed Entrances and Storefronts		Arcadia	1	Clear AC1		
08 8000	Glazing	B	3M	Fasara	Milky Milky Light Grey SH2MAMML	Storefront SF1	See A701
				1			
08 8000	Glazing	C	3M	Fasara	Cross Hairline Milky SH2CHML	Storefront SF1	See A701
09 3000	Ceramic Tile	T-1	Daltile	Portfolio Colorbody Porcelain	Dove Grey PF04 Matte	Restroom Walls	Field
09 3000	Ceramic Tile	T-2	Daltile	Portfolio Colorbody Porcelain	Skyline Blend PF12	Restroom Walls	Accent
09 3000	Ceramic Tile	T-3	Daltile	Portfolio Colorbody Porcelain	Ash Grey PF05 Matte	Restroom Floor	See A601
09 3000	Ceramic Tile	T-4				Kitchen Floor	See A601
09 6519	Resilient Tile Flooring	VCT-1	Armstrong	Standard Excelon Imperial Texture	Mid Grayed Blue 51875	Classroom Floor	See A601
09 6519	Resilient Tile Flooring	VCT-2	Armstrong	Premium Excelon Raffia Stream	Earth 55926	Platform Floor	See A601
09 6519	Resilient Tile Flooring	VCT-ST	Armstrong	Integrated Stair Treads	Pebble R4CPB449	Platform Stairs	
				1			
09 6519	Resilient Tile Flooring	B-1	Mannington Burkebase	Rubber 4” Cove Base (TP)	323 Blue Bonnet		Base
09 6519	Resilient Tile Flooring	B-2	Mannington Burkebase	Rubber 4” Cove Base (TP)	660 Rocky	Platform	Base

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09 6813	Tile Carpeting	CPT-1	Shaw Industries Group, Inc	Worklife Connect Tile, 59342	Harbouring Desi 40485		See A601
09 9113/ 09 9123	Interior & Exterior Painting	PT-1	Dunn Edwards		Whisper DEW340	Walls	Field
09 9113/ 09 9123	Interior & Exterior Painting	PT-2	Dunn Edwards		Slumber DE5860	Doors, exposed columns & beams	Accent
09 9113	Exterior Painting	PT-3	Dunn Edwards		Lemon Punch DE5398		Accent

SECTION 11 4000
FOODSERVICE EQUIPMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Foodservice equipment.

1.02 SCOPE OF WORK:

A. Furnish all labor, materials, and services necessary for the procurement and installation of the equipment included in this section.

B. Supervise and provide required instructions for work to be performed by other contractors in connection with requirements for all equipment included this section.

C. Specifications and drawings have been prepared to form the basis for coordination with the other trades on this Project, procurement, erection, start-up, and adjustment of all equipment in this section. Plans and specifications are to be considered as mutually explanatory and work required by one, but not by the other, is to be performed as though required by both. Items required by one, but not by the other are to be provided as though required by both. Work to be accomplished as called for in specifications and shown on drawings, so that all items of equipment are completely functional for purpose for which they were designed. When/if there is any discrepancy between drawings and specifications, bidders should seek clarification of any discrepancies from the Consultant prior to bidding.

D. Should the drawings disagree between themselves or the specifications with the drawings, the better quality more stringent, and/or greater quantity of the work or materials to be completed without additional costs to the Owner.

E. Secure and pay fees for all permits and licenses as required by all authorities having jurisdiction. Give all notices and comply with all laws, ordinances, rules, regulations, and contract requirements bearing on the work.

1.03 RELATED DIVISIONS / SECTIONS:

A. Refer to General Conditions, Supplementary Conditions, and applicable provisions of Division 1 for additional instructions.

B. Refer to Interior Design Divisions for applicable provisions and sections regarding décor finishes, applications, details, and special instructions relating to items specified in this Section. Applicable to Projects with items specified in this Section, with décor finishes and/or construction.

C. Refer to Mechanical/Plumbing Divisions for applicable provisions and sections regarding mechanical services, including, but not limited to exhaust ductwork and fans, floor sinks and floor drains, water gas and steam rough-ins, grease traps, steam traps, drain traps, potable water backflow prevention atmospheric vents, and RPZ valves, valves, pipes and pipe fittings, ductwork, and other materials necessary to complete final connections to individual items as specified in this Section. Not work of this Section. Also includes:

1. Piping and insulation for fryer oil systems.

2. Piping for remote pulping systems.

3. All exhaust hood or ventilator duct work and fans upstream from the connection position.

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D. Refer to Electrical Divisions for applicable provisions and sections regarding electrical services, including, but not limited to, rough-ins, standard voltage and low-voltage wiring, conduit, drop-cords, ceiling-mounted cord reel assemblies, disconnects and other materials necessary to complete final connections to individual items as specified in this Section. Not work of this Section. Also includes:

1. Installation of light fixtures furnished loose at cold storage rooms.

2. Connection of cold storage room temperature alarm system to the building security system.

3. Connection of hood fire suppression system to the building security system.

E. Work included in other Divisions - Provision of all walls, floor, and/or ceiling/roof openings, and sealing thereof, as necessary for installation of items included in this section. Not work of this Section. Also includes:

1. Slab depressions reinforced concrete wearing bed and interior finished floor with coved base at prefabricated cold storage assemblies.

2. Concrete or masonry platforms with finished top and coved base at perimeter, for raised setting of foodservice equipment: Divisions 03/09.

3. Slab depressions to receive stainless-steel drain trench liner/grate assemblies provided under this Section.

4. Wall backing to support all wall-mounted equipment.

5. Conduit and piping sleeves for soda, beer/liquor, refrigeration, CO2 and drain lines through building ceilings and floors.

F. Work included in other Divisions - Disconnection of existing equipment to be relocated and/or reused; and removal of existing equipment which will not be reused, as determined, and designated by the Architect in other Divisions. Not work of this Section. (Applicable to Projects with existing equipment.)

1.04 DEFINITIONS:

A. Furnish - Supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

B. Install (set in place) - Operations at Project Site including actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, finishing, curing, protecting, cleaning and similar operations, ready for final utility connections by other Divisions as appropriate.

C. Provide - Furnish and install complete, ready for intended use, including any necessary initial training.

D. Contractor - Refers to the Kitchen Equipment (Sub) Contractor in this Section. References to any other Contractor or Division will be specific, such as General Contractor, Plumbing (Sub) Contractor / Division, Electrical (Sub) Contractor / Division, Architect designated, etc.

1.05 LAWS, ORDINANCES, REGULATIONS AND STANDARDS:

A. Comply with the following in their current published form:

1. Air Conditioning and Refrigeration Institute (A.R.I): applicable regulations and references of the latest edition of standards for remote refrigeration system(s), components, and installation.

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2. American Gas Association (A.G.A.): standards for gas heated equipment and provide equipment with the

   a. A.G.A. seal. Automatic safety pilots to be provided on all equipment, where available. (Canadian Gas Association or alternate testing lab's seals accepted if acceptable to local code jurisdictions.)

3. American National Standards Institute (A.N.S.I.): Z21-Series for gas-burning equipment. Provide labels indicating name of testing agency.

4. American National Standards Institute (A.N.S.I.): B57.1 for compressed gas cylinder connections, and with applicable standards of the Compressed Gas Association for compressed gas piping.

5. American National Standards Institute (A.N.S.I.): A40.4 and A40.6 for water connection air gaps and vacuum breakers.

6. American Society of Heating, Refrigeration and Air Conditioning Engineers (A.S.H.R.A.E.): applicable regulations and references of the latest edition of standards for exhaust system planning including A.S.H.R.A.E. 90.1 Section 5,6,7, and remote refrigeration system(s), components, and installation.

7. American Society of Mechanical Engineers (A.S.M.E.): Boiler Code requirements for steam generating and steam heated equipment and provide A.S.M.E. inspection stamp and registration with National Board.

8. American Society for Testing and Materials (A.S.T.M.): C1036 for flat glass.

9. American Society for Testing and Materials (A.S.T.M.): C1048 for heat-treated flat glass - Kind HS, Kind FT coated and uncoated glass.

10. American Society for Testing and Materials (A.S.T.M.): F232-03 for pre-rinse spray units, and in compliance with Energy Policy Act of 2005 (EPAct).

11. American Welding Society (A.W.S.): D1.1 structural welding code.

12. Energy Policy Act of 2005 (EPAct 2005): water savings pre-rinse spray valves.

13. National Electric Code (N.E.C.): N.F.P.A. Volume 5 for electrical wiring and devices included with foodservice equipment, A.N.S.I. C2 and C73, and applicable N.E.M.A. and N.E.C.A. standards.

14. National Electrical Manufacturers Association (N.E.M.A.): LD3 for high-pressure decorative laminates.

15. National Fire Protection Association (N.F.P.A.): applicable sections for exhaust hoods, ventilators, duct and fan materials, hoods fire suppression systems, wheel placement systems, construction, and installation; in addition to local codes and standards.

16. National Sanitation Foundation (NSF): latest Standards and Revisions, and as accredited by ANSI, IAS, NELAC, ISO, OSHA, and SCC. Provide NSF Seal of Approval on all standard manufactured items included in this Project and listed in any NSF Certified Food Equipment Products Category, and on all items of custom fabricated work included in this Project. (UL Sanitation approval and seal accepted if acceptable to local code jurisdictions.)

17. Sheet Metal and Air Conditioning Contractor's National Association (S.M.A.C.N.A.): latest edition of guidelines for seismic restraint of kitchen equipment, as applicable to project location. All seismic requirements shall be shown on all submittals. Submit requested information to the agencies and authorities having jurisdiction.

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18. Underwriters Laboratories (U.L.): as applicable for electrical components and assemblies. Provide either U.L. labeled products or, where no labeling service is available, “recognized markings” to indicate listing in the U.L. “Recognized Component Index”. (Canadian Standards Association or alternate testing lab's seals accepted if acceptable to local code jurisdictions.)

19. UL 300 Standard: for wet chemical fire suppression systems for exhaust hoods/ventilators.

20. American with Disabilities Act (ADA): as applicable to this Project.

21. Refrigeration Service Engineers Society (R.S.E.S.): applicable regulations and references of the latest edition of standards for remote refrigeration system(s), components, and installation.

22. All refrigerants used for any purpose is to comply with the 1995 and 2010 requirements of the Montreal Protocol Agreement, and subsequent revisions and amendments. No CFC or HCFC refrigerants will be permitted on this Project.

23. All refrigeration components installation, repairs, and/or associated work on any refrigeration system, is to be performed by a Certified Refrigeration Mechanic thoroughly familiar with this type of commercial foodservice installation. ETL and other national and international recognized Testing and Listing Agency labels and certifications are acceptable in lieu of Listing Agencies indicated in these documents, if acceptable to the local code jurisdictions.

24. All applicable local codes, standards, and regulations.

25. All special local codes, standard, and regulations such as (examples only) California Energy Commissions Regulations, Dade County requirements for walk-in cooler(s) and/or freezer(s).

26. For detention facilities projects (as applicable): applicable Correctional Standards. Verify the level of security and construction required with the Architect and provide all items in compliance.

B. The Contract Documents shall prevail whenever they require larger sizes or higher standards than are required by regulations.

C. The above regulations shall govern whenever the Contract Documents require something that is deemed to violate the above regulations.

D. No extra charge will be paid by Owner for furnishing items required by the regulations, but not specified and/or shown on the drawings.

E. Rulings and interpretations of the enforcing agencies shall be considered part of the regulations.

1.06 CONTRACTOR’S QUALIFICATIONS:

A. In addition to requirements of Related Sections 1.3.A:

1. Five (5) years minimum continuous operation under the same company name and ownership.

2. Financial stability and ability to complete this Project.

3. Comparable size and scope projects completed in the last five (5) years.

4. Contractor to provide letter that states they are able-to purchase, distribute, and install all items specified.

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B. Any sub-contractor or fabricator employed by Contractor:

1. Is to comply with the same qualifications.

2. Their name, address, and a brief-summary of their experience and qualifications is to be submitted with the bid proposal.

3. Fabrication sub-contractor shall be NSF, NEC, and UL-approved at a minimum for fabrication of all items detailed within this specification and attending drawing set. Moreover, fabrication shop shall have the means and expertise to fully engineer and fabricate any-and-all counters, tables, natural and man-made stone counter tops, food shields, etc. all in one manufacturing facility where specified as part of this document set.

1.07 BIDDING AND SUBSTITUTIONS:

A. The Bidder shall provide pricing on primary manufacturer and model specified. These Contract Documents were designed and engineered using the primary manufacturer and model and are intended to be the Basis of Bid. Provide itemized prices for each item, along with cited accessories with separate total prices for delivery and installation. Any-and-all city, state, occupational and government taxes which are applicable to this project, shall be included and added as a separate charge. All figures shall be included in a grand total package bid proposal. Bids shall be valid for thirty (30) days after bid deadline date and shall indicate same. Failure to comply with the above may be cause for rejection of the bid.

B. Unless otherwise noted, substitutions may be submitted for consideration, but must be itemized at the end of the bid proposal.

C. Substitutions must be approved in writing by the Architect and/or Owner, prior to utilization in this Contract. A copy of the approval must be included with any submittals by Contractor.

D. Contractor shall provide all design/engineering services required to make-adjustments in space, systems, utilities, etc. and pay all additional costs of utilities, construction or professional services that may be incurred due to the acceptance of any substitution.

E. Application for Substitution of Specified Foodservice Equipment. This form shall be submitted in support of each suggestion of request to substitute an alternate manufacturer and/or model of equipment that is not included in the Division 11 40 00 (Foodservice Equipment) specifications.

1.08 APPROVED SUBSTITUTIONS AND/OR LISTED ALTERNATES:

A. Substitutions approved as noted in Article 1.7, and/or any Listed Alternate manufacturers included in the Itemized Specifications Article 3.12, or added by Addendum, may be utilized, in lieu of the primary specified manufacturer with the following conditions:

1. These Contract Documents are designed and engineered using the primary specified manufacturer and model and are intended to be the Basis of Design and Bid. Contractor assumes complete responsibility for any deviations required due to utilization of a substitution/alternate manufacturer or model; including, but not limited to, fitting alternates into available space, providing directions for required changes, and assuming any associated cost for utility, building, architectural, or engineering changes.

2. Contractor is responsible for supplying the model, which is as close as possible to the primary specified model in regard-to general function, features, options, sizes, accessories, utility requirements, finish, operation, internal system engineering and listing approvals. if it is determined by the owner or their appointed representative at any time during the construction and installation process, and prior to the final acceptance of

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the Project, that the substitution/alternate model submitted is not equivalent to the primary specified model, the Contractor will assume all associated cost and implications required to replace the model submitted, with the correct model.

3. The bid proposal is to clearly state any proposed substitutions/alternates, that are being offered for review by including the manufacturer and model number. Along with a current data sheet for each substitution/alternate, with any-and-all deviations between the primary specified manufacturer and the substitution/alternate manufacturer clearly defined. Technical brochures from manufacturers may not be acceptable as adequate information required for comparison. Complex alternates such as utility distribution systems, exhaust hoods, ventilators, refrigeration systems, etc., shall include a shop drawing specific to this Project.

4. Inclusion of an alternate manufacturer in Itemized Specifications Article 3.12 is not intended to indicate that there is an equal alternate unit to match every primary specified unit. It is the responsibility of the Contractor to ensure that the alternate unit submitted matches or exceeds the primary specified unit; and meets the conditions as stated above.

5. Manufacturers not approved as substitutions or included as a Listed Alternates will not be permitted.

1.09 DISCREPANCIES:

A. Where discrepancies are discovered between the drawings and the specifications, regarding quality or quantity, the higher quality or the greater quantity is to be included in the Bid Proposal.

B. Contractor to notify the Architect, in writing, of any discrepancies discovered; and await written clarification prior to proceeding with the items or areas in question.

C. Contractor is responsible for verifying and coordinating all items provided in this Section, with the drawings, specifications, manufacturer's requirements, submittals, actual site conditions, adjacent items, and associated (Sub-) Contractors; to assure that there are no discrepancies or conflicts. This is to include, but not be limited to, quantities, dimensions, clearances required, direction of operation, door swings, utilities, fabrication details and methods, installation requirements, etc.

1.10 SUBMITTALS:

A. Provide one (1) digital set (PDF) of all Submittals for review by the Design Team. After review process this set will be returned for any updating necessary and subsequent distribution.

B. Substitutions must be approved in writing by the Architect and/or Owner prior to utilization in this contract. A copy of the approval must be included with any submittals.

C. Contractor to review all submittals for compliance with the Contract Documents, prior to submitting to the Design Team for review and is responsible for the accuracy of the information within their submittals.

D. Contractor's use of any Design Team's digital contract drawings for basis of producing their submittal drawings, is limited to the following conditions, and understanding:

1. Contractor shall perform a thorough project review of all foodservice and allied discipline (MEPS) documents within the Contract Document set and provide independent engineering for all equipment to be provided. Contractor shall assume complete liability and responsibility for accuracy, and for conformance and verification with the latest Architectural and Engineering drawings, actual field conditions and equipment to be provided as part of contract.

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2. The copy and simple re-use of the foodservice consultant's equipment plans, connection plans, building conditions plans, manufacturer's drawings, elevations/sections are prohibited.

3. Contractor further assumes responsibility for coordination of their submittals with those of other allied Contractors and Sub-Contractors, such as electrical, plumbing, and mechanical contractors as required.

4. Submittals shall contain Contractor's notes, symbols, details, title block and information.

E. Equipment Plan and Rough-In Drawings:

1. Submit 1/4" (1:50) scale drawings in pdf format. These drawings are to include complete information on the work included in this Contract, with references to equipment as provided by others; and are to provide sufficient information for associated trades, contractors, and/or sub-contractors to complete their division of work associated with foodservice equipment included in this Contract. Include any additional information pertinent to the installation of this equipment.

2. Special Conditions Drawings, dimensioned, sizing and locating the following conditions:

   a. Slab depressions, cores, sleeves, or block-outs (cold storage assemblies drain trenches, piping, etc.).

   b. Concrete or masonry platforms.

   c. Pipe sleeves or roof jacks.

   d. Wall-openings or block-outs for pass-through equipment, recessed control panels, in-wall fire-protection system components, etc.

   e. Blocking grounds or anchor plates required in walls for equipment support/attachment.

   f. Above-ceiling hanger assemblies for support of exhaust hoods, utensil-racks, etc.

   g. Access panels in walls or ceiling for service of equipment.

   h. Ceiling pockets or recesses for unusually high equipment.

   i. In-wall carriers for wall-hung or cantilevered equipment.

   j. Ventilation for exhaust hoods, condensate hoods, ice machines, compressors, compressor racks and all other equipment requiring heat removal.

   k. Support systems such as beverage conduit and refrigeration line-run sleeves.

   l. Any other additional information pertinent to the installation of this equipment.

3. Electrical Rough-in Drawings field-coordinated and dimensioned providing the following information, but not limited to:

   a. Electrical utility schedule.

   b. Locations of rough-ins.

   c. Locations of control panels.

   d. Inter-wiring of walk-in freezer compressors to compressor rack control panel for defrost cycle.

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e. Inter-wiring of controls panels to equipment.

4. Plumbing Rough-In Drawings field-coordinated and dimensioned providing the following information, but not limited to:

   a. Plumbing utility schedule.

   b. Locations of rough-ins.

   c. Interconnection water filters assemblies to ice machine, beverage equipment, combi-ovens, steamers, etc.

5. Field-coordinated, dimensioned refrigeration line-run drawings providing the following information, but not limited to:

   a. Sleeve locations & sizes for walls, floors, ceilings.

   b. Detailed and field-coordinated route of refrigeration line-runs from remote refrigeration system to unit served.

   c. Location and inter-wiring detail required for any temperature monitoring and/or control system specified.

6. Drawings to also include equipment plan(s) with detailed equipment list, similar-to Foodservice Equipment Plans included in the Contract Drawings. Item numbers are to be the same as shown in the Contract Documents and are to include Spare Numbers and associated items provided by others.

7. In the event rough-ins have been accomplished before award of this contract, Contractor is to examine the existing facility and identify adjustment needs related to their equipment to suit building conditions and utilities, where possible. Contractor to seek approval for the same prior to further construction. If not possible, state so in a letter, with reasons and an alternate method and pricing for their equipment, to the Architect and Foodservice Consultant.

F. Shop Drawings:

1. Submit shop drawings for items of custom fabrication included in this contract in pdf format. Shop drawings are to be submitted at 3/4" (1:20) and/or 1-1/2" (1:10) scale and are to show dimensions, materials, finishes, details of construction, installation and relation of adjoining work requiring cutting or close fitting as well as any specified fabrication shop fit-out work such as electrical load circuit breaker panels, inter-wiring or interpiping. Shop drawings are to also indicate reinforcements, anchorage and related work required for the complete installation of fixtures. Fabricator's shop drawings shall be prepared as a coordinated single submittal, separate-from, and not part of a single collated foodservice submittal.

2. Submit shop drawings for any equipment requiring field assembly, including but not limited to, Suite-style cooking assemblies, pulper/extractor assemblies, remote refrigeration systems, walk-in coolers and/or freezers, exhaust hoods/ventilators, fire suppression system, utility distribution systems, pot/utility/cart/tray/ware washing assemblies/machines, conveyors, floor troughs, seismic anchoring details (as required) and fresh oil supply/waste oil recovery systems in pdf format. Manufacturer's shop drawings shall be separated per system submitted in single form, and not part of a collated foodservice submittal.

3. When applicable, prepare and submit section, elevation, axonometric drawings in PDF format for all food shields within counters in a coordinated single submittal. Food shields to be compliant with current NSF code

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requirements and ergonomic reach requirements. Contractor to provide physical mock-up of same for Owner/Operator review and sign-off prior to fabrication.

4. Before proceeding with the fabrication or manufacture of any item, Contractor is responsible for verifying and coordinating all dimensions and details with site dimensions, conditions, and adjacent equipment.

5. The Contractor to clearly identify on drawings any-and-all differences between the Bid and/or Contract Documents and what is being provided. If any structural, electrical, plumbing, gas or steam requirements are different than what the Bid and/or Contract Documents show the Contractor will notify and record on the drawings identifying what is different and discuss same with General Contractor, Owner and Foodservice Consultant prior to commencing work.

G. Product Data Submittal Manuals:

1. Submit product data brochure(s) with a cover sheet complete with detailed information on every item included in this section in pdf format. Detailed information is to include, but not be limited to, item number, description, quantity, model numbers, options and accessories provided, N.E.M.A. plug and receptacle configuration for applicable items, exact utility requirements, manufacturer's cut-sheets, reference to specific shop drawings, etc. Distribute one additional copy of installation and start-up instructions to the Installer. Every cover sheet and associated detailed submittal is to provide sufficient and complete information for the Design Team to verify that the Contractor understands the Contract requirements and is providing each item in compliance with the Contract Documents. Cover sheets to also include associated items as listed on the Equipment Plan but provided by others; and are to be noted as "Not in Section 11 40 00 Contract Division".

2. Reproduction of any part of the Contract Specifications will not be acceptable as part or total of Contractor's Product Date Submittal Manuals. These Manuals are to be produced and assembled entirely by the Contractor, in numerical order according to Item numbers.

3. The cover sheet shall clearly identify all differences between the bid documents and what is being provided. If any electrical, plumbing, gas or steam requirements are different than what the bid documents show the Contractor will make a note on the coversheet identifying what is different and why. If a model has been discontinued, the Contractor will make a note on the cover sheet and offer a replacement model.

4. The cover sheet shall clearly identify all differences between the Bid/Contract Documents and what is being provided. If any electrical, plumbing, gas or steam requirements are different than what the bid documents show the Contractor will make a note on the coversheet identifying what is different and why. If a model has been discontinued, the Contractor will make a note on the cover sheet and offer a replacement model.

H. The Design Team's review of submittal drawings, shop details, product data brochures, and operation and maintenance manuals are for general conformance with the design concept and Contract Documents. Review markings or comments are not to be construed as relieving Contractor from compliance with the Contract Documents, or departures there from. Contractor remains responsible for details and accuracy, confirming and correlating all quantities and dimensions, selecting fabrication processes, techniques of assembly, and performing their work in a safe, satisfactory, code-compliant and professional manner.

I. Commencement of purchasing or fabrication by the Contractor, of any item(s) included in this Contract, prior to receipt of reviewed Submittals from the Design Team, shall be at the Contractor's own risk; unless specifically instructed to do so in writing by the Owner, including the specific item numbers requested.

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J. Contractor shall verify requirements and equipment sizes, critical clearances, or other characteristics necessary to represent Owner/ Purveyor items completely on the shop drawing submittals even though they may be listed as "NIC/Not in Contract" in the Equipment Schedule/Item Specification sections of this document.

1.11 OPERATION AND MAINTENANCE DATA MANUALS:

A. Two (2) bound sets of manuals are to be furnished for items of standard manufacturer on/or before the date of the first event to occur of the following: demo/start-up, start-up for intended use by the Owner/Operator, completion of installation of kitchen equipment contract package, or final acceptance of installation by Owner. Manuals are to be in alphabetical order according to manufacturer. Manufacturer's info is to include Tech Services telephone number, email, and web site address, where available.

B. Provide a complete list of all equipment, with make, model and serial numbers. Provide list of local service agencies for included manufacturers, complete with addresses, email addresses and telephone numbers. Also provide email and web site addresses, where available.

C. Provide electronic/digital media for maintenance, training, operation, etc. where available from the manufacturer.

D. Manual shall also include a leak testing report for each-and-every remote refrigerated system included under this Foodservice Equipment Section, as required in article 2.7.A.6 Refrigeration Equipment of this Section.

1.12 AS - BUILT/ RECORD DOCUMENTS:

A. Maintain one record set of Foodservice Equipment Plans with any related corrections, revisions, additions, deletions, changes, etc. noted during construction and installation. Provide an "as-built" set on a computer disk or electronically in PDF format.

B. Provide one (1) final set of Product Data Submittal Manual with any related corrections, revisions, additions, deletions, changes, etc. noted during construction and installation as a specifications' record set electronically in PDF format.

C. These documents are to be provided at the same time as the O & M Data Manuals. Submit the O & M Data Manuals electronically in PDF format.

1.13 SCHEDULE:

A. Time is of the essence and acceptance constitutes assurance that the Contractor can and will obtain materials, equipment, and manpower, to permit installation of the items included in this Section, on schedule. Contractor is to coordinate their work with the progress schedule, as prepared and updated periodically by the General Contractor or Construction Manager.

B. Anticipated delays, not within the control of the Contractor, are to be noted in a written notification to the Architect, immediately upon the Contractor's realization that delays are imminent.

C. Failure of manufacturers to meet promised delivery dates will not grant relief to the Contractor for failure to meet schedules; unless the Contractor can establish, in writing, that orders were received by the manufacturer, with reasonable lead times.

D. Extra charges resulting from special handling or air shipment in-order-to meet the schedule will be paid by the Contractor if insufficient time was allowed in placing factory orders.

1.14 WARRANTY:

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A. Unless otherwise noted in Related Divisions / Sections 1.3.A, items furnished are to be fully guaranteed against defects in workmanship, materials, and functionality for one full year from the date of the first event to occur of the following: date of issue of Certificate of Occupancy (or the equivalent), start-up for intended use by the Owner/Operator, completion of installation of kitchen equipment contract package, or final acceptance of installation by Owner. Should a Temporary Certificate of Occupancy be issued for partial completion of work, the items furnished within that designated area are to be under warranty from the date of issue of that Certificate. Contractor or their service agent will make necessary repairs and replacements without charge to the Owner, and within a reasonable time.

B. Additional Refrigeration Warranty: in addition to the one-year warranty requirements as stated above, provide start-up and parts and labor for the first year, plus additional four-year extended warranty on compressors. Extended warranty is for provision of replacement compressor, determined to be defective by a certified refrigeration mechanic. However, verification of defective compressor, installation of replacement compressor, recharging and repairs of system will be the responsibility of the Owner. This includes all items with built-in or remote refrigeration system.

C. Periodic routine maintenance, servicing, adjustments, cleaning, etc., as required by the manufacturers included in this Project, are the responsibility of the Owner.

D. Any-and-all parts or requirements for manufacturer's warranties to be in effect, whether, or not noted in the itemized specifications, are to be provided or complied with by the Contractor. This is to include, but not be limited to, particular-parts, accessories, or installation; installation supervision, start-up, and/or follow-up inspections required by factory trained, Certified, and/or authorized personnel. Factory training, Certification, and/or authorization is to be in effect at the time of bidding, installation, start-up, and warranty period of this Project.

E. Unless otherwise noted in Related Divisions manufacturer's warranties which comply with the requirements of this Warranty Article 1.14, are to be provided in lieu of Contractor's own warranties, where available. Copies of the written warranties are to be included in the O & M Manuals.

PART 2 – PRODUCTS

2.01 EQUIPMENT:

A. Refer to schedule on Foodservice Drawings and Section 3.12 Itemized Specifications for equipment included in this Section.

2.02 MATERIALS:

A. Metals:

1. Stainless-Steel: AISI Type 201 or 302/304, hardest workable temper, and No.4 directional polish. Unless otherwise noted or specified, or required by the manufacturer, 201 may be used wherever 302/304 is listed.

2. Galvanized Steel Sheet: ASTM A526, except ASTM A527 for extensive forming; ASTM A525, G90 zinc coating, chemical treatment.

a. Where painted finish is indicated, provide mill phosphatized treatment in lieu of chemical treatment.

3. Steel Sheet: ASTM A569 hot-rolled carbon steel.

4. Galvanized Steel Pipe: ASTM A53 or ASTM A120, welded or seamless, schedule 40, galvanized.

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5. Steel-Structural Members: Hot rolled or cold formed, carbon steel unless stainless-steel is indicated.

    a. Galvanized Finish (G.I.): ASTM A123 hot-dipped zinc coating, applied after fabrication.

6. Aluminum: ASTM B209/B221 sheet, plate, and extrusions (as indicated); alloy, temper, and finish as determined by manufacturer/fabricator, except 0.40-mil natural anodized finish on exposed work unless another finish is indicated.

B. Plastic Laminate: NEMA LD 3, Type 2, 0.050" 0.05 inch thick, except Type 3, 0.042" (0.04 inch) for post- forming smooth (non-textured). Color and texture as selected by Architect/ Interior Designer.

1. Comply with NSF Standard No. 35.

2. Veneered with approved waterproof and heat proof cement. Rubber base adhesives are not acceptable.

3. Applied directly over close grained plywood, such as solid Mahogany or solid Birch, of selected, smooth, sanded stock to ensure a smooth ripple-free laminated surface; or commercial grade furniture particle board, Cortron or equal.

4. Exposed faces and edges are to be faced with 1/16” 0.06 inch thick material. Corresponding backs are to be covered with approved backing and balancing sheet material.

C. Millwork: No unfinished millwork, plywood/particle board or wood framing (including backs, undersides, and all surfaces concealed from view) will be permitted. All unfinished surfaces or openings cut through finished surfaces are to be sealed to be water resistant; with excess plastic laminate material, Cortron (Melamine) material, backing materials, sealers, primers, finish paint, etc., to blend with specified finish materials.

D. Hardwood Work Surfaces: Laminated edge grained hard maple (Acer saccharum), NHLA First Grade with knots, holes and other blemishes culled out, kiln dried at 8 percent or less moisture, waterproof glue, machined, sanded, and finished with NSF approved oil-sealer.

E. Solid Surface Material and Simulated/Engineered Stone:

1. Single-Source Responsibility for Solid Surface Material and Simulated/Engineered Stone: Obtain each color, grade, finish, type, and variety of material or stone from a supplier with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of the work.

2. Single-Source Responsibility for Other Materials: Obtain each type of solid surface material and simulated/engineered stone accessory, sealant, and other materials from one manufacturer for each product.

3. Installer Qualifications: Trained and approved by countertop manufacturer who has completed countertops similar in material, design, and extent to that indicated for project that has resulted in construction with a record of successful in-service performance.

4. The Contractor is responsible for verification of delivered stone materials for quantities, defects, or damage within ten (10) days after delivery. No compensation will be allowed to the contractor for materials and labor that may be required to replace materials after this time-period.

5. Allowable Tolerances:

    a. Variation in component size: +/- 1/8 inch in 8 feet.

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b. Maximum height of abrupt irregularities: 1/32 inch.

c. Location of openings: +/- 1/8 inch from indicated location.

6. Do not deliver countertop materials until painting and similar operations that could damage engineered stone materials have been completed in installation areas. If engineered stone materials must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

7. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

8. Environmental Limitations: Do not deliver or install simulated stone materials until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

   a. Maintain ambient temperature between 50 and 95 degrees Fahrenheit. for 48 hours before, during and for minimum 7 days after installation.

9. Field Measurements: Where simulated stone materials are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

   a. Locate concealed framing, blocking, and reinforcements that support simulated stonework by field measurements before being enclosed and indicate measurements on Shop Drawings.

10. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

11. Adhesive and Sealant as recommended by engineered stone manufacturer.

12. Sink/bowl mounting hardware:

    a. Manufacturer’s approved bowl clips, brass inserts and fasteners for attachment of under-mount sinks/bowls.

13. Fabrication:

    a. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer’s printed instructions. Clean surfaces to remove loose and foreign matter that could impair adhesion.

    b. Remove ridges and projections. Fill voids and depressions with patching compound compatible with setting materials.

    c. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings.

    d. Rout and finish component edges with clean, sharp returns. Rout cutouts, radii, and contours to template. Smooth edges. Repair or reject defective and inaccurate work.

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e. Provide materials with ample allowance for cutting, when required to cut and fit on site. Provide trip for scribing and site cutting.

f. Thickness: Provide thickness indicated, but not less than the following:

1) i. Countertop: 3/4 (0.75 inch) 1-1/4 inches (1.26 inch)

(a) Back and End Splashes: 3/4 inch, unless shown otherwise.

(b) Substrate: 3/4 (0.75 inch)

F. Stone:

1. Single-Source Responsibility for Stone: Obtain each color, grade, finish, type, and variety of stone from a supplier with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of the work.

2. Single-Source Responsibility for Other Materials: Obtain each type of stone accessory, sealant, and other materials from one manufacturer for each product.

3. Installer Qualifications: Engage an experienced installer who have completed stone countertops similar in material, design, and extent to that indicated for project that has resulted in construction with a record of successful in-service performance.

4. The Contractor is responsible for verification of delivered stone materials for quantities, defects, or damage within ten (10) days after delivery. No compensation will be allowed to the contractor for materials and labor that may be required to replace materials after this time-period.

5. Allowable Tolerances:

a. Variation in component size: +/- 1/8 inch in 8 feet.

b. Maximum height of abrupt irregularities: 1/32 inch.

c. Location of openings: +/- 1/8 inch from indicated location.

6. Granite materials shall not contain unsafe levels of radioactive materials.

7. Do not deliver countertop materials until painting and similar operations that could damage stone materials have been completed in installation areas. If stone materials must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

8. Deliver materials to project site in undamaged condition.

9. Store and handle stone and related materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes.

a. Do not use pinch or wrecking bars.

b. Lift with wide-belt-type slings where possible. Do not use wire rope or ropes containing tar or other substances that might cause staining. If required to move stone, use wood rollers with cushions at end of wood slides.

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c. Store stone on wood skids or pallets covered with non-staining, waterproof membrane.

d. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones.

e. Protect stored stone from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around stones.

f. Store cementitious materials off the ground, under cover, and in dry location.

10. Environmental Limitations: Do not deliver or install stone materials until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

a. Maintain ambient temperature between 50 and 95 degrees Fahrenheit. for 48 hours before, during and for minimum 7 days after installation.

11. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

a. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating countertops without field measurements. Provide allowance for trimming at site and coordinate construction to ensure actual dimensions correspond to established dimensions.

12. Comply with referenced standards and other requirements indicated applicable to each type of material required.

13. Provide matched slabs, coordinated for each type, variety, color, and quality of stone required.

14. The use of colored tints, dyes, or waxes applied to stone shall NOT be permitted.

15. Granite:

a. Granite Building Stone Standard: ASTM C615, free from cracks, chips, stains, or other defects, uniform in tone and coloring.

16. Marble:

a. Marble Building Stone Standard: ASTM C503, free from cracks, chips, stains, or other defects, uniform in tone and coloring.

17. Adhesives:

a. Stone Seam Adhesive: 2-part, epoxy or polyester stone adhesive formulated specifically for bonding

1) stone to stone, with an initial set time of not more than 2 hours at 70 degrees Fahrenheit.

b. Water-cleanable Epoxy Adhesive: ANSI A118.3, water-cleanable, tile-setting epoxy adhesive.

c. Color: Clear

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d. Use installation adhesives that have a VOC content 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), or as listed in VOC limit tables in Section 01 81 19 “Indoor Air Quality Requirements”. Products furnished shall comply with whichever VOC content requirement is more stringent.

18. Stone Sealants:

a. Sealant for Countertops: Clear silicone sealant complying with requirements of Section 07 92 00 "Joint Sealants".

b. For sealants used inside of the vapor barrier, provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), or as listed in VOC limit tables in Section 01 81 19 “Indoor Air Quality Requirements”. Products furnished shall comply with whichever VOC content requirement is more stringent.

19. Stone Sealers:

a. Penetrating Sealer: Penetrating sealer that protects the exposed faces of stone and grout from staining. Sealer shall be UV transparent; non-yellowing; VOC compliant; mold and mildew resistant; and USDA approved as safe on food handling surfaces. Material shall exceed ADA standards for slip resistance at traffic areas.

b. For sealers used inside of the vapor barrier, provide sealers that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), or as listed in VOC limit tables in Section 01 81 19 “Indoor Air Quality Requirements”. Products furnished shall comply with whichever VOC content requirement is more stringent.

20. Cutouts and Holes for Lavatories, Sinks, and Fittings:

a. Undercounter Lavatories: Make cutouts for undercounter lavatories in shop using template or pattern furnished by lavatory manufacturer. Form cutouts to smooth, even curves with edges at right angles to top. Ease juncture of cutout edges with tops, and finish edges to match tops.

21. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

G. Insulation:

1. For low temperature applications, such as ice bins, cold pans, or fabricated under counter freezers, use urethane, rigid board foam or foamed-in-place; not less than 2” 1.97 inch thick, except that vertical surfaces of cold pans and ice bins may be 1” (0.98 inch) thick. Insulation to be bonded at joints, to prevent condensation on exterior.

2. For refrigerated applications such as fabricated under counter refrigerators, use urethane rigid board foam or foamed-in-place, or Styrofoam rigid board foam 2” 1.97 inch thick, bonded at joints. No fiberglass insulation will be permitted.

3. For heated type applications, such as plate warmers, use block type rock wool, minimum 1” 0.98 inch thick; or

a. Marinite I as noted in #4 below.

4. At counters with tops subject to direct or indirect heat from heating or cooking-equipment, provide heat-resistant, food-safe caulking, three (3) layers of Nomex insulation held-in-place with aluminum tape. Provide a

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1/8" 0.12 inch minimum space between the heat source and the insulation. Coordinate drop-in equipment flange support and provide a 16-gauge stainless-steel 90-degree angle collar.

5. All insulation is to be fully encased or enclosed in 16-gauge 0.06 inch stainless-steel.

H. Joint Materials:

1. Sealants: waterproof and mildew resistant silicone sealant, with Shore A hardness of 30, except 45 if subject to traffic, and minimum service temperature range of -60º to +400º F. Sealant to be NSF Standard #51 Listed,

a. and FDA and USDA Approved for use in food zones. Surfaces, cleaning, and sealants installation to comply with applicable requirements of FDA, USDA, and NSF Standards, and accepted foodservice installation practices.

2. Backer Rod: For 3/8" 0.37 inch or larger joints, to be polyurethane rod stock, larger than joint width.

3. Gaskets: Solid or hollow (but not cellular) neoprene or polyvinyl chloride; light grey, minimum of 40 Shore A hardness, self-adhesive or prepared for either adhesive application or mechanical anchorage.

I. Paint and Coatings:

1. Provide the types of painting and coating materials which, after drying or curing, are suitable for use in conjunction with foodservice, and which are durable, non-toxic, non-dusting, non-flaking, mildew resistant, and comply with NSF Standards and governing regulations for foodservice.

2. Galvanize Repair Paint: MIL-P-21035.

3. Sound Deadener: NSF-listed sound deadening material such as latex sound deadener, for internal surfaces of metal work, and underside of metal counters and tables between work top and underbracing. Verify sound deadening requirements or restrictions with local health authorities.

4. Pretreatment: SSPC-PT2 or PT3, of FS TT-C490.

5. Primer Coating for Metal: FS TT-P-86, type suitable for baking, where indicated.

6. Enamel for Metal: Synthetic type, FA TT-P-491, type suitable for baking, where indicated.

2.03 FABRICATED PRODUCTS:

A. Hardware (also refer to article 2.4 Fabrication of Metal Work in general, and paragraphs O. Doors 1-3 and P. Drawer Assemblies 1-6 specifically, for additional requirements):

1. General: Manufacturer's standard, but not less than ANSI 156.9 Type 2 (Institutional), satin finish stainless-steel or dull chrome finish on brass, bronze, or steel.

2. Hinged Door Hardware: Stainless-steel hinged doors to be mounted with heavy duty NSF-approved hinges with Component Hardware Group, Model No. P62-1010 pulls, or equal; or full length pulls as per individual itemized specifications and shown on Standard Detail FSD1-24. Catches to be heavy-duty magnetic type, except as otherwise indicated. Millwork cabinet hinged doors to be mounted with Blum 95º CLIP top thick door all metal hinges, nickel plated, with 3-dimensional adjustment, or equal, or as per individual itemized specifications.

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3. Drawer Hardware: Slides to be 200 pounds (90 kilograms) minimum capacity per pair, 201 or 300 series stainless-steel, full extension, side-mounting, self-closing type, with stainless-steel ball-bearings, and positive stops; Component Hardware Group Series S52, or equal. Pulls to be Component Hardware Group, Model No. P62-1012, or equal; or full length pulls as per individual itemized specifications and shown on Standard Detail FSD1-24.

4. Sliding Door Hardware: Sliding doors to be mounted on large, quiet ball bearing rollers in 14-gauge 0.08 inch stainless-steel overhead tracks and be removable without the use of tools. Bottom of cabinet to have stainless-steel guide-pins and not channel tracks for doors.

5. All hardware to be identified with manufacturer's name and number, so that broken or worn parts may be replaced.

B. Casters:

1. Type and size as recommended by caster manufacturer, NSF- approved for the type and weight of equipment supported; normally 5” 5 inch diameter heavy-duty, ball-bearing, solid or disc wheel with non-marking grease proof rubber, neoprene or polyurethane tire, unless otherwise specified. Minimum width of tread to be 1-3/16” (1.18 inch). Minimum capacity per caster to be 250-pound (113.4kg), unless otherwise noted in itemized specifications.

2. Solid material wheels to be provided with stainless-steel rotating wheel guard.

3. Wheel and swivel bearings shall be sealed and show a polished plated finish per NSF.

4. Unless otherwise indicated, equip each item with two (2) swivel type casters and two (2) fixed casters, with foot brakes on two (2) casters.

5. Unless item is equipped with another form of all-around protective bumper, provide circular rotating bumper above each caster, 5” 5 inch diameter tire of light grey synthetic rubber (hollow or closed-cell) on cadmium-plated disc.

C. Plumbing Fittings, Trim and Accessories:

1. General: Where exposed or semi-exposed, provide bright chrome plated brass or polished stainless-steel units. Provide copper or brass where not exposed.

2. Vacuum Breakers: Provide with foodservice equipment as listed in the itemized specifications.

3. Water Outlets: At sinks and at other locations where water is supplied (by manual, automatic or remote control), furnish commercial quality faucets, valves, dispensers, or fill devices, of the type and size indicated, and as required to operate as indicated.

4. Waste Fittings: Except as otherwise indicated, furnish 2” 1.97 inch remote-lever ball valve type waste valve, and 3-1/2” (3.5 inch) flat strainer.

5. Also refer to article 2.4.K for additional information.

D. Electrical Materials:

1. General: Provide standard materials, devices and components as recommended by the manufacturer or fabricator, selected, and installed in accordance with N.E.M.A. standards and recommendations; and as required for safe and efficient use and operation of the foodservice equipment, without sanitation concerns.

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2. Components to bear the U.L. label or be approved by the prevailing authority.

3. Custom fabricated refrigerated/freezer units to be provided with vapor tight light receptacles, shatterproof lamps, and automatic switches. Wiring to be concealed.

4. Where light fixtures are specified or detailed as part of counters, cases, or fixtures; light fixtures with lamps to be furnished and installed. Warm white lamps to be provided, unless otherwise specified. If fluorescent light fixtures are specified, ballasts and tubes to be provided. Shields to be provided for all light fixtures.

5. Convenience and Power Receptacles: Make cutouts and install appropriate boxes or receptacles in fabricated fixtures, complete with wiring, conduit, receptacle, and stainless-steel cover plate. Receptacles and plugs to conform to N.E.M.A. standards. Electrical receptacles and devices to be first quality "Specification Grade". GFCI receptacles to be furnished as per the National Electrical Code.

6. Plugs and Cords: Where cords and plugs are provided, they are to comply with National Electrical Manufacturer's Association (N.E.M.A.) requirements. Indicate N.E.M.A. configuration for each applicable item.

7. Power Characteristics: Refer to Electrical Divisions specifications for project power characteristics. Also, refer to individual equipment requirements, for loads and ratings.

8. All electrical components (J-boxes, conduit, receptacles, switches, cover plates, light fixtures, panels, etc.) built into or on any equipment provided by Contractor, other than standard buy-out factory manufactured equipment, are to be vapor or water-tight type. Provide buy-out equipment with vapor or water-tight electrical components wherever available.

2.04 FABRICATION OF METALWORK:

A. General Fabrication Requirements:

1. Remove burrs from sheared edges of metalwork, ease the corners and smooth to eliminate cutting hazard. Bend sheets of metal, at not less than the minimum radius required to avoid grain separation in the metal. Maintain flat, smooth surfaces, without damage to finish.

2. Reinforce metal at locations of hardware, anchorages, and accessory attachments wherever metal is less than 14-gauge 0.08 inch or requires mortised application. Conceal reinforcements to the greatest extent possible. Weld in place, on concealed faces.

3. Exposed screws or bolt heads, rivets and butt joints made by riveting straps under seams and then filled with

a. solder, will not be accepted. Where fasteners are permitted, provide Phillips-head, flat or oval head machine screws. Cap threads with acorn nuts and lock washers, unless fully concealed in inaccessible construction; and provide nuts and lockwashers unless metal for tapping is at least 12-gauge 0.1 inch. Match fastener head finish with finish of metal fastened.

4. Where components of fabricated metal work are indicated to be galvanized and involve welding or machining of metal heavier than 16-gauge 0.06 inch, complete the fabrication and provide hot-dip galvanizing of each component, after fabrication, to the greatest extent possible (depending upon available dip-tank sizes). Comply with ASTM A123.

5. Welding and Soldering:

a. Materials 18-gauge 0.05 inch, or heavier, to be welded.

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b. Seams and joints to be shop welded or soldered as the nature of the material may require.

c. Welds to be ground smooth and polished to match original finish.

d. Where galvanizing has been burned off, the weld is to be cleaned and touched up with high grade aluminum paint.

6. Provide removable panels for access to mechanical and electrical service connections, which are concealed behind or within foodservice equipment, but only where access is not possible and not indicated through other work.

7. Where ends of fixtures, splashbacks, shelves, etc., are open, fill by forming the metal or welding sections, if necessary, to close entire opening flush to walls or adjoining fixtures.

8. Rolled edges are to be as detailed, with corners bullnosed, ground and polished.

9. Equipment to have 1/2" 0.5 inch or larger radius coves in horizontal and vertical corners, and intersections,

a. per NSF standards.

B. Metal and Gauges:

1. Except as otherwise indicated, fabricate exposed metalwork of stainless-steel; and fabricate the following components from the gauge of metal indicated, and other components from not less than 20-gauge 0.04 inch metal:

a. Table and counter tops: 14-gauge 0.08 inch

b. Sinks and drainboards: 14-gauge 0.08 inch

c. Shelves:16-gauge 0.06 inch

d. Front drawer and door panels:18-gauge 0.05 inch (double pan type)

e. Single pan doors and drawer fronts:16-gauge 0.06 inch

f. Enclosed base cabinets:18-gauge 0.05 inch

g. Enclosed wall cabinets:16-gauge 0.05 inch

h. Exhaust hoods and ventilators:18-gauge 0.05 inch

i. Pan-type insets and trays:16-gauge 0.06 inch

j. Removable covers and panels:18-gauge 0.05 inch

k. Skirts and enclosure panels:18-gauge 0.05 inch

l. Closure/trim strips over 4" 4.02 inch wide: 18-gauge (0.05 inch)

m. Hardware reinforcement:12-gauge 0.1 inch

n. Gusset plates:10-gauge 0.13 inch

o. Removable toe kicks:14-gauge 0.13 inch

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p. Wall flashing: 20-gauge 0.04 inch

C. Work-Surface Fabrication:

1. Fabricate metal work surfaces by forming and welding, to provide seamless construction using welding rods matching sheet metal, grinding, and polishing. Where necessary for disassembly, provide waterproof gasketed draw-type joints with concealed bolting.

2. Reinforce work surfaces 30” 30 inch on center both ways, with galvanized or stainless-steel concealed structural members. Reinforce edges, which are not self-reinforced, by formed edges.

D. Metal Top Construction:

1. Metal tops to be one-piece welded construction, including field joints. Secure to a full perimeter galvanized steel channel frame cross-braced not farther than 30" 30 inch on center. Fasten top with stud bolts or tack welds. If hat sections are used in lieu of channels, close ends.

2. Properly designed draw fastening, trim strip, or commercial joint material to suit requirement is to be used, only if specified.

E. Structural Framing:

1. Except as otherwise indicated, provide framing of minimum 1” 0.98 inch pipe-size round pipe or tube members, with mitered and welded joints and gusset plates, ground smooth. Provide 14-gauge (0.08 inch) stainless-steel tube for exposed framing, and galvanized steel pipe for concealed framing.

2. Where indicated, flange rear and end edges up to form splashes integrally with top, with vertical and horizontal corners coved of not less than 1/4” 0.24 inch radius, die formed. Turn back splashes 1” (0.98 inch) to wall across top and ends with rounded edge on break, unless otherwise specified.

3. For die-crimped edges, use inverted "V" 1/2” 0.51 inch deep inside and 2” (1.97 inch) deep on outside, unless otherwise shown. For straight down flanges, make 1-3/4” (1.77 inch) deep on outside. For bullnose edges, roll down 1-3/4” (45 mm).

4. Edges: die-formed, integral with top. For rounded corners, form to 1” 0.98 inch radius, weld, and polish to

a. original finish.

F. Field Joints: For any field joint required because of size of fixture; butt-joint, reinforce on underside with angles of same material, bolt together with non-corrosive bolts and nuts, field-weld, grind, and polish to a seam not visible to the naked eye.

G. Pipe Bases: Construct pipe bases of 1-5/8” 1.61 inch diameter 18-gauge (0.05 inch) stainless-steel tubing. Fit legs with polished stainless-steel sanitary adjustable bullet feet to provide for not less than 2” (1.97 inch) of vertical adjustment without exposing threads. Space legs to provide ample support for tops, precluding any possibility of buckling or sagging and in no case more than 6’ -0" (72.01 inch) centers.

H. Legs and Cross rails

1. Equipment legs and cross rails to be 1-5/8” 1.61 inch, 16-gauge (0.06 inch) stainless-steel tubing.

2. Welds at cross rails to be continuous and ground smooth. Tack welds will not be acceptable.

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3. Bottom of legs to be hugged inward and fitted with a stainless-steel bullet-type foot with not less than 2" (50

a. mm) vertical adjustment without exposing threads.

4. Free standing legs or legs on island tables/counters with electrical/plumbing connections to be anchored to floor with bolt-down type flanged feet with stainless-steel fasteners.

5. Components:

a. Steel Gusset: Stainless-steel exterior to fit 1-5/8" 1.61 inch tubing, with Allen screw for fastening and adjustment. Not less than 3" (2.99 inch) diameter at top and 3-3/4" (95mm) long. Outer shell 16-gauge (0.06 inch) stainless-steel, reinforced with 12-gauge (0.1 inch) mild steel insert welded interior shell, or approved equal.

b. Stainless-Steel Low Counter Legs: Stainless-steel exterior 5-3/4" 5.75 inch minimum, 7" (7.01 inch)

1) maximum length with stainless-steel 3-1/2" 3.5 inch square plate with four countersunk holes, welded to

2) top for fastening.

c. Stainless-Steel Adjustable Foot: Stainless-steel 1-1/2" 1.46 inch diameter tapered at bottom to 1" (0.98 inch) diameter, fitted with threaded cold rolled rod for minimum 1-1/2" (37 mm) diameter x 3/4" (0.75 inch) threaded bushing plug welded to legs, or approved equal. Push-in foot not acceptable.

6. Legs to be fastened to equipment with gussets, as follows:

a. Sinks: Reinforced with bushings and set screw.

b. Metal Top Tables and Dish Tables: Welded to galvanized steel channels, 14-gauge 0.08 inch or heavier, anchored to top with screws through slotted holes.

c. Wood Top Tables: Welded to stainless-steel channels, 14-gauge 0.08 inch or heavier, anchored to top with screws through slotted holes.

I. Shelves:

1. Construct solid shelves under pipe base tables of 16-gauge 0.06 inch stainless-steel, with 1-1/2" (1.46 inch) turned down and under edges on exposed sides, and 2" (1.97 inch) turn up against walls or equipment. Fully weld to pipe legs.

2. In fixtures with enclosed bases, turn up shelves on back and sides with 1/4" 0.24 inch (minimum) radius and feather slightly to ensure a tight fit to enclosure panels.

J. Sinks:

1. Construct sinks of 14-gauge 0.08 inch stainless-steel with No.4 finish inside and outside.

2. Form back, bottom and front of one piece, with ends and partitions welded into place. Partitions: double thickness, 2" 2.01 inch minimum space between walls. Multiple compartments to be continuous on the exterior, without applied facing strips or panels.

3. Cove interior vertical and horizontal corners of each tub not less than 1/4" 0.24 inch radius, die formed. Outer

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a. ends of drainboards to have roll rim risers not less than 3" 2.99 inch high.

4. Drill faucet holes in splashes 2-1/2" 2.5 inch below top edge. Verify center spacing with faucet specified.

a. Grind and polish.

5. Sink insets to be deep drawn of 16-gauge 0.06 inch, or heavier, polished stainless-steel. Weld into sink drainboards with 1-1/2" (1.46 inch) x 1-1/2" (37 mm) x 14-gauge (0.08 inch) stainless-steel angle brackets; securely welded to sinks and galvanized cross angles spot welded to underside of drainboards to form an integral part of the installation.

6. The bottom of each compartment is to be creased such as to ensure complete drainage to waste opening. Slope bottom of sink bowls toward drain outlet.

K. Drains and Wastes and Faucets:

1. Furnish and install Fisher model 28940, or equal, ball valve type rotary drain assembly with flat strainer and connected overflow assembly, with chrome finish, in die-drawn inset type sinks and Bain Marie sinks.

2. Other custom fabricated sinks to be furnished with Fisher model 28932, or equal, ball valve-type rotary drain assembly, with flat strainer and chrome finish. Waste connection to have 2" 1.97 inch external thread size, with 1-1/2" (1.46 inch) internal thread size.

3. Rotary Handle: Of sufficient length to extend to front edge of sink. No riveting, screws or soldering permitted to fit drains to sinks, with all parts of drains easily removable for servicing and replacement.

4. All faucets furnished with equipment included in this Section to be lead-free and comply with NSF Standard #61, Section #9; such as manufactured by Fisher, Chicago, or T&S.

5. Faucets and pre-rinse spray assemblies furnished with equipment included in this Section, are to have a maximum GPM flow rate in compliance with the Energy Policy Act of 2005 (EPAct) and later updates; or local requirements, whichever is lower. EPAct / local requirements are to be applicable to all faucets and pre-rinses; except for pre-rinse type assemblies used at glass icing / fill stations, fill hose / faucet assemblies at high water usage cooking equipment such as kettles, tilt fry pans, etc., and fill faucets at high volume / usage sinks, such

a. as pot wash, mop sink and preparation sinks, etc. are to have flow rates of approximately 5 gpm flow minimum.

6. All flex hose type faucet assemblies, such as pre-rinses, kettle fill hoses, etc., to have an inline pressure type back-flow preventer in the hose assembly, as required by local codes.

7. All equipment provided by this Contractor, which discharges liquid waste exceeding 140º F (60º C), is to be provided with a cold-water drain tempering assembly per local codes.

L. Workmanship:

1. Best quality in the trade. Field-verify dimensions before fabricating; conform all items to dimensions of building; neatly fit around pipes, offsets, and other obstructions.

2. Fabricate only in accordance with approved shop drawings, showing pipes, obstructions to be built around, and location of utilities and services.

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M. Casework:

1. Enclosure: except as otherwise indicated, provide each unit of casework (base, wall, overhead and

   a. free-standing) with a complete-enclosure metal cabinet, including fronts, backs, tops, bottoms, and sides.

2. Bases to be made of 18-gauge 0.05 inch stainless-steel sheets reinforced by forming the metal and the inclusion of hat-channels.

3. Ends, partitions and shelves to be stainless-steel.

4. Unexposed backs and structural members may be galvanized, unless otherwise noted.

5. Vertical ends and partitions to be single wall, with a 2" 1.97 inch face.

6. Sides and through partitions are flush with bottom rail, welded at intersections.

7. Shelves: Provide adjustable standards for positioning and support of shelves in casework; except bottom shelf of cabinet mounted on legs or as specified. Turn back of shelf units up 2" 1.97 inch and hem. Turn other edges down to form open channel. Reinforce shelf units and pilasters to support 40 pounds per square foot (195 kgs/sq meter) loading, plus 100 percent impact loading.

8. Bottom front rail of bases set on masonry platform to be continuously closed and sealed to platform.

9. Provide removable access hatchways to all concealed floor sinks under casework directly over floor sinks. Sink locations to conform to local Health Department code requirements.

N. Doors:

1. Metal doors to be double-cased stainless-steel. Outer pans to be 18-gauge 0.05 inch stainless-steel with corners welded, ground smooth and polished. Inner pan to be 20-gauge (0.04 inch) stainless-steel fitted tightly into outer pan with a sound deadening material such as Celotex or Styrofoam used as a core. The two pans to be tack welded together and joints solder filled. Doors to finish approximately 3/4" (0.75 inch) thick and be fitted with flush recessed type stainless-steel door pulls; or full-length continuous pulls as per individual itemized specifications and shown on applicable Standard Detail sheet.

2. Wood doors to be fabricated as detailed.

3. Hinged doors to be mounted on heavy-duty NSF-approved hinges, or as noted on plans or specifications.

4. Drawer Assemblies:

5. Assemblies to consist of removable drawer body mounted in a ball bearing slide assembly with fully enclosed housing.

6. Slide assembly consists of one pair of 200-pound (90 kilograms) capacity stainless-steel roller bearing full extension slides, with side and back enclosure panels, front spacer angle, two drawer carrier angles, secured to slides and stainless-steel front.

7. Drawers intended for tools and general non-food products storage are to have 20" x 20" x 6" deep 20 inch x

   a. 20 inch x 5.98 inch), 18-gauge (0.05 inch) minimum stainless-steel drawer pans.

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8. Drawers intended to hold food products are to have 12” x 20” x 6” deep 12.01 inch x 20 inch x 5.98 inch)

   a. stainless-steel food pans.

9. All drawer pans to be easily removable without tools or disassembly of any drawer assembly components.

10. Drawer fronts are double-cased, 3/4” 0.75 inch thick, with 18-gauge (0.05 inch) stainless-steel welded and polished front pan. Steel back pan shall be tightly fitted, and tack welded. Sound-deaden with rigid insulation material.

11. Provide drawers with replaceable soft neoprene bumpers or for refrigerated drawers - a full perimeter replaceable refrigerator gasket.

O. Closed Base: Where casework is indicated to be located on a raised-floor base, prepare casework for support without legs, and for anchorage and sealant application, as required for a completely enclosed and concealed base.

P. Support from Floor: Equip floor supported mobile units with casters, and equip items indicated as roll-out units, with manufacturer's standard one-directional rollers. Otherwise, and except for closed-base units, provide pipe or tube legs, with adjustable bullet-design feet for floor supported items of fabricated metalwork. Provide 2” 1.97 inch vertical adjustment of feet (concealed threading).

Q. Shop Painting:

1. Clean and prepare metal surfaces to be painted; remove rust and dirt. Apply treatment to zinc coated surfaces, which have not been mill phosphatized. Coat welded and abraded areas of zinc coated surfaces, with galvanize repair paint.

2. Apply 1.5 mil metal primer coating, followed by 2, 1.0 mil metal enamel finish coatings.

3. Bake primer and finish coatings in accordance with paint manufacturer's instructions for a baked enamel finish.

R. Sound Deadening:

1. Sound-deaden underside of metal tops, drainboards, undershelves, cabinet interior shelves, etc., above the underbracing/reinforcing/framing only.

2.05 ACHITECTURAL MILLWORK EQUIPMENT:

A. The following general requirements shall govern the construction of millwork-built fixtures, except where otherwise noted. Work shall be performed by skilled mechanics of the trade and shall be of the highest quality throughout, in such a manner as to fulfill the intent of the Contract Documents. Perform architectural woodwork in accordance with “Architectural Woodwork Quality Standards” published by the Architectural Woodwork Institute (AWI). Fabricator shall have a demonstrated ability in fabricating woodwork items similar in type and quality to those required for this project.

1. All fixtures shall be made by one manufacturer and assembled in single and complete units as the dimensions will permit shipment to and installation of at the building. Large pieces requiring sectional construction shall have their parts accurately fitted and aligned with all others, and provided with ample screws, glue and bolt blocks, tongues, grooves and splines, dowels, mortises and tenons, screws bolts or suitable means of concealed fastening, as required to render the work substantial, rigid, and permanently secured in proper position to each related section.

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2. Sufficient additional material shall be allowed to permit accurate scribing to walls, floor and related work, and due allowance made whenever possible for such shrinkage as may develop after installation. Single and sectional units shall be provided with adequate cleating, blocking, crating and other forms of protection as required precluding damage during shipping and handling.

3. Framing and blocking members shall be assembled with bolted and screwed connections and should be secured to the structural backing with cinch, expansion screws or toggle bolts, as required; spaced and installed to insure ample strength and rigidity. Rails and stiles shall be mortised and tenoned, work neatly mitered and membered, all butt joints made flush and smooth, and all permanent joints made up with water resistant glue. All fixtures shall be assembled without face screws or nails, except where it may be necessary to attach items. All face screws or nails which are necessary shall be counter sunk and plastic wood or wood

    a. plugs used to cover head, and the plug neatly touched up. The heads of all screws used in any assembly shall be counter sunk below the surface.

4. The core material shall be marine-grade, 7 ply-substrate or MEDEX exterior resin medium density fiberboard substrate; conform to ANSI A208.2.3.3.4. All substrate materials shall be LEED certified and meet the LEED requirements for the project.

5. Back sheet shall be NEMA LD .020" 0.02 inch thick, Type V, Grade 91 plastic laminate; apply on all surfaces

    a. not covered with plastic laminate; coordinate color with exposed surface color; comply with NSF Standard 35.

B. Construction / Joints:

1. Follow AWI Premium Grade Standards; factory assembled parts and prefinished; flush type fronts and overlapping ends; ¾" 0.75 inch core material base cabinet, end and dividers with corner joints between framed members fully lock-jointed, glued and screwed; dado and glue cabinet backs into sides and bottom; scribe countertop and backsplashes; secure countertops to base cabinet from underside; fully cure surfaces prior to installation. Mortise and tenon, spline, dowel and/or pin lock and glue work to avoid use of nails wherever practical. Make butt joints with an approved device for prevention of separation of members. Blind nail and conceal.

C. Plastic Laminate:

1. Plastic laminate shall be bonded to all exposed surfaces with Urac 185 adhesive or equal, to minimum ¾" 0.75 inch fir-faced, close grain marine-grade plywood applied under high pressure. In accordance with AWI 1600A- G-1, use horizontal grade on all exposed surfaces, vertical grad on semi- exposed surfaces and sealed paint on all concealed surfaces. Reject plastic laminate or plastic backing shall be used to prevent warping, unless otherwise specified. All edges shall be carefully sanded to smooth finish, removing burns, nicks, and cur marks. Plastic laminate joints shall be finished without wavy and unsightly joints. Joints need not be mitered except as specified. Hand sand edges to a slight chamfer.

2. Top sheet shall be placed on and over finished edge. Ease exposed edge to overlap sheet. Use largest sheet possible in order- to minimize seams.

3. Coved backsplashes shall be a minimum of ¼" 0.24 inch. End splashes may have a square intersection with

    a. tabletops unless specified otherwise.

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4. Plastic laminated shelves shall be laminated with horizontal grade laminate on the side and vertical grade at all edges.

D. Doors, Hinged:

1. Hinged doors shall be fabricated of ¾" 0.75 inch thick marine-grade plywood with hardwood full perimeter edge with plastic laminate on face and self-edging on exposed sides unless indicated otherwise in drawings and details. Door hinges, pulls and catches shall be supplied and detailed. Provide Grass 1200, 176 degree opening concealed casework hinges or equal by Blum or Amerock. Door catches shall be Component Hardware Model M22-2420 for non-magnetic and Model M30-2400, heavy duty, self- aligning for magnetic.

2. Utilize EPCO Model MC 4023.5 or as specified in the Item Specifications.

3. Door locks shall be Component Hardware Model P30 Series; stainless-steel faced; master keyed as specified.

E. Doors, Sliding:

1. Sliding doors shall be fabricated of solid core marine-grade plywood with hardwood edges and constructed similar- to hinged doors. Doors shall be mounted on E-Z Glides track. Doors shall be removable without the use of tools. Rubber stops shall be provided concealed in end stile or mullion.

F. Access Panels: Access panels shall be fabricated of ¾" 0.75 inch nominal thick hardwood and shall be fabricated as a door. Each access panel shall be provided with 2 (two) magnetic catches at top and 2 (two) 3/16" (0.2 inch) positioning pins at bottom.

G. Drawers:

1. Drawers shall have dovetail construction, well glued and blocked. Fronts shall be not less than ¾" 0.75 inch thick hardwood. Sides and back shall be ½" (0.51 inch) thick fabricated of Birch, Maple, or Sycamore except where extension slides are used, in which the side shall be ⅝" (0.39 inch) thick. Bottom shall be milled into fronts and sides.

2. Drawers shall be provided with suitable stops. Provide pulls as detailed or specified. The inside surfaces of all drawers shall receive one coat of penetrating primer and one coat of glass lacquer.

H. Painted Finishes:

1. Painted finishes shall have exposed surfaces free from defects and blemishes that would show after being finished, regardless of grade specified. All surfaces specified to receive paint or enamel finish shall receive one cross coat of lacquer type undercoat. The undercoat shall be of appreciably different color from that of the finish coat, and of proper ground color with relation to the finish coat. After the undercoat has been thoroughly dried, surfaces shall be sanded smooth, and two coats of enamel shall be applied. Back painting shall be provided for all cabinet and woodwork prior to installation.

I. Interior & Wall Shelves:

1. Interior shelves shall be adjustable with flush routed-in shelf standards. Wall shelves to be fabricated as

a. specified and as per “Standard Detail”.

J. Fire Retarding:

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1. Where required by code, all required materials are to be treated with fire retardant chemicals to achieve the required flame spreading performance rating. Retardant chemicals must be a type approved by local authorities.

2.06 FILTER EXHAUST HOODS AND/OR WATER WASH VENTILATOR FABRICATION:

A. 18-gauge 0.05 inch type 201 or 304 stainless-steel external welded construction, in accordance with the latest edition of N.F.P.A. No.96 and International Mechanical Code, including all applicable appendices. Exposed welds to be ground and polished. Exhaust hoods to be U.L. Listed as available for length specified.

B. Furnish type of fixture specified. Fixtures to be U.L. listed for cooking equipment exhaust hoods, NSF-approved, and with sealed safety lenses.

C. Furnish welded stainless-steel formed duct collars at ceiling or wall duct connections. Verify size and location of duct connections required in this contract before fabrication.

D. Pre-piped liquid chemical or water fire suppressant system, as specified, complying with applicable local and N.F.P.A. regulations. Wet chemical fire suppression systems to comply with UL 300 Standards. Water fire suppression systems to comply with U.L. Category Subject 199E. Each pull station is to be clearly identified with a permanent type of label, as to which exhaust hood(s) it is for. Each exhaust hood is to have a matching permanent-type label, identifying which pull station activates its fire system.

E. All cooking equipment below exhaust hoods/ventilators, on casters, are to be provided with positive wheel placement systems for the rear casters, similar-to Posi-Set units, in compliance with NFPA 17A 5.6.4 and NFPA 96 12.1.2.3.

F. Water wash or ultra-violet control panel to be by the same manufacturer as the ventilator, with time clock control for automatic operation. Provide stainless-steel trim strips for recessed control cabinet applications. Provide stainless-steel chase for surface mounted control panel, from top of panel to ceiling, full width, and depth of panel.

2.07 REFRIGERATION EQUIPMENT:

A. General:

1. Furnish either single or multiple compressor units, as specified or recommended by the manufacturer for the sizes and variations between connected evaporator loads as indicated.

2. Furnish units of the capacities indicated, arranged to respond to multiple- evaporator thermostats and defrosting timers. Include coils, receivers, compressors, motors, and motor starters, mounting bases, vibration isolation units, fans, dryers, valves, piping, insulation, gauges, winter control equipment and complete automatic control system.

3. Refrigerant: Pre-charge units with type or types recommended by manufacturer for services indicated, with quick-disconnect type connections only where specified, ready to receive refrigerant piping runs to evaporators and (where remote) to condensers. All refrigerant and associated components to comply with the requirements of the Montreal Protocol Agreement. No CFC or HCFC refrigerants or associated components will be permitted on this Project. HFC refrigerants and components are to be used. Contractor is responsible for coordinating these requirements with manufacturers.

4. Foodservice equipment items included in this Section, with remote refrigerated systems, are to include interconnecting refrigeration lines, sizing, and insulation between components, as per manufacturer's installation instructions, and as determined by this Contractor's Certified Refrigeration Sub-Contractor; and,

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only after a thorough examination of actual site conditions and obstacles which might affect the routing. Routing should be as direct and short as possible and practical. Refer to additional requirements listed in this Section 11 40 00, 1.5 Laws, Ordinances and Standards.

5. The minimum outdoor operating ambient temperature for design of units is -10 degrees Fahrenheit (-23 Centigrade), or lower as applicable for extreme low local conditions. The maximum indoor design temperature for operation of compressor units is 95 degrees Fahrenheit (35 Centigrade). The maximum outdoor ambient design temperature is to be determined by Contractor with prevailing conditions at mounting location of compressor, such as sun exposure, limited ventilation, high fences/walls, roof color and materials, local climatic extremes, etc.; but in no case is it to be less than 100 degrees Fahrenheit (37.8 Centigrade).

6. All refrigeration systems with remote condensing units and jobsite installed interconnecting refrigeration lines shall be tested to verify that there are no leaks. Leak testing shall be equal to or better than a professionally recognized 48-hour minimum, pressure holding test. If any leaks are detected, they shall be repaired, and another leak test preformed; until there are zero leaks detected. A written report of the type test preformed, and a step-by-step record of the procedure and readings shall be submitted to Contractor for inclusion in the Operations and Maintenance Data Manuals.

B. Components:

1. Coils for fabricated refrigerators to have vinyl plastic coatings, stainless-steel housings; and be installed in such a manner as to be replaceable.

2. Provide guards for all refrigeration/freezer fans, with maximum 1/2" 0.51 inch mesh.

3. Remote refrigeration system to be complete with thermostatic expansion valves at the evaporator.

4. Fabricated refrigerated compartments to be fitted with flush dial thermometers, with chrome plated bezels. Thermometers to be adjustable and shall be calibrated after installation. Thermometers to have an accuracy of

   a. + 2 degrees Fahrenheit (1 degree Centigrade).

5. Hardware:

   a. Refrigerator hardware for fabricated refrigerator compartments to be heavy-duty components.

   b. Self-closing hinges.

   c. Latches to be magnetic edge mount type, unless specified or detailed otherwise.

6. Doors and drawers for walk-in coolers/freezers, and reach-in refrigerated compartments, both fabricated and standard, to be fitted with cylinder locking type latches, and provided with master keys.

7. Provide and install shut-off valves and service port for each compressor, manifold, or header, and refrigerated fixture for multiplex and parallel installations to enable service personnel to service one (1) fixture while other fixture(s) connected to the same compressor can continue to operate. Isolation valves for individual fixtures based upon the sizes of the individual pieces.

8. Drawers for refrigerated fabricated compartments shall be complete with heated surround at closing perimeter.

C. Cold Pans: Ice pans, refrigerated pans and cabinets to be provided with breaker strips, where adjoining top or

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1. cabinet face materials, to prevent transfer of cold.

D. All mechanically cooled custom fabricated or standard buy-out refrigerators with openings in the top for cooling pans, and/or all built-in or drop-in mechanically cooled cold pans are to comply with and be listed by NSF Standard #7. Contractor is to verify that the specified unit complies with this requirement.

E. Ventilation of Refrigerated Equipment:

1. Adequate ventilation to be provided for custom fabricated equipment with integral refrigeration condensing units, both built-in and drop-in. If flow-through ventilation cannot be provided, provide flow direction partitions and an additional squirrel fan(s) capable of cooling the condensing unit.

2. If, in the opinion of the Contractor, additional room ventilation is required to ensure correct operating temperatures of standard buy-out, custom fabricated, or remote refrigeration condensing units, or compressor rack assemblies, they are to so state in a letter to the Architect, for evaluation and decision.

2.08 REMOTE REFRIGERATION SYSTEMS

A. All remote refrigeration systems shall be furnished and installed by one contractor, unless otherwise specified. Provide all components necessary for a complete and operable system. System to be fully capable of satisfying the refrigeration requirements for each fixture as defined by the manufacturer of each fixture.

B. Compressor and Condensing Units:

1. Units shall be factory assembles complete with hermetic units below 1 HP, semi-hermetic units 1 HP and larger, air or water-cooled condenser, depending upon building conditions and specifications, high-low pressure controls, suction accumulator on low temperature system, sight glass, liquid line dryer, suction and discharge service valves, liquid receiver, and electric control panel. The electrical control panel shall be furnished with magnetic motor starter, defrost timer clock, and contractors in accordance with "Refrigeration Schedule". Compressor capacities shall be based on Air Conditioning and Refrigeration Institute (A.R.I) Standards. The refrigerant for medium and low temperature fixtures to be CFC free and conform to the Montreal Protocol Agreement.

2. Capacities shall be based on the following:

a. Compartment temperature and evaporating temperature greater than 32oF (0oC) 18 to 20 hours operations.

b. Compartment temperature greater than 32oF (0oC) and evaporating temperature less than 32oF (0oC) 16 hours operation.

c. Compartment temperature and evaporating temperature less than 32oF (0oC) 18 hours operation.

d. Condensing units shall be mounted on a steel base to affect a quite operation. All rotating parts to be carefully balanced for minimum vibration and lubricated with forced or splash oil system. Receiver shall be sized for a complete pump down of the system and shall be shell type with fusible plug.

3. Compressor units to be provided with suction and discharge back setting type service valves and standard machinery finish.

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4. Motors shall be single speed, maximum 1750 R.P.M. compound wound ball bearings or sleeve bearing. Double squirrel cage motors with high starting torque set and low starting current to be used in a 3-phase application.

5. All machines to be equipped with quick acting type high-low pressure control switches having adjustable range and differential and high-pressure cut-out. Cut-out to be automatic reset type.

6. For air-cooled units the condenser shall be a standard manufactured part of the equipment. Condensing temperatures shall be based upon (100oF 38oC) ambient air.

7. Other components and accessories, such as suction filter and crank case heater shall be furnished when specified in the itemized specifications.

C. Motor Starters-Contactors:

1. All single-phase motors shall be provided with mounted and internally wired contactors, except where pre-wired units are furnished without contactors. Single phase compressors shall be provided with built-in thermal and electrical overload protection.

2. All three-phase motors shall be provided with magnetic type starters with quick trip overload elements matched for motor amperage except where overload protection is built into the compressor motor and the manufacturer supplies a contactor instead of a starter. Overload heater element shall be sized according to manufacturer's recommendations. Compressor motor starters shall be definite purpose starters with manual reset.

3. Starters shall be installed upon surfaces free from excessive vibrations.

4. Where starters are required for installation in a motor control center, make and model of control center shall be verified, and starters provided to match.

D. Oil Separator

1. Provide oil separators, except when Compressor Manufacturer requires otherwise, 34oF, (1oC) and below and install as near as possible to the compressor. The return line shall be connected to the top of the crankcase above the oil level. Where compressor does not have connection for oil return line from separator, connect to a tee in the suction line adjacent to the compressor. Exposed oil return line to be provided with shut-off valve of the packless stem type.

E. Compressor Rack Systems:

1. Racks shall be of the number of tiers and quantity to accommodate the number of condensing units specified for each rack assembly and allow for service clearance and ventilation. Review and confirm access into building or housing requirements to roof top locations.

2. Racks shall be fabricated with structural steel of size and quantity to properly support the equipment to be installed on the rack. In special applications where building access is limited, construct rack framing with Dexion of Unistrut material.

3. Racks shall be all welded construction with welds ground smooth.

4. After completion of fabrication the complete rack shall be cleaned, primed, and painted with top quality oil-base enamel.

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5. Each rack shall be equipped with a pre-wired receptacle.

6. Racks shall be pre-wired to a circuit breaker panel and pre-plumbed to a header (when specified water cooled) requiring a single point electrical and plumbing connection.

7. Racks shall have UL or equivalent approval.

8. Special Conditions: For custom built racks for individual condensing units provide Dixon Angle Iron.

F. Coils and Cooling Units:

1. Units shall be direct expansion type of size and design to effect required temperature, humidity and to suit application intent.

2. Units shall be hung from the ceiling with 1/2" 0.51 inch nylon rods with plated steel nuts and lock washers. Rods shall extend through ceiling to bracing adequate for the suspended weight. Bracing shall be furnished as required; penetrations shall be sealed and trimmed with escutcheon plates.

3. Units shall be installed tight to ceiling. All installations adjacent to walls shall be set out a minimum distance conforming to manufacturer's directions, to ensure proper air circulation and performance.

4. Units with fan or blower and motor shall have thermal overload protection and be wired as indicated in "Refrigeration Schedule".

5. Defrost cycle shall be based on the following:

a. Coils for 32oF (0oC) and lower shall have an electric defrost controlled by a time clock mounted on the compressor rack or at evaporators locations inter-wired by Division 26 - Electrical.

b. Coils for 33o (0.6oC) and 34oF (1oC) shall have an air defrost controlled by a time clock mounted on the compressor rack or at evaporators locations inter-wired by Division 26 - Electrical.

c. Coils for temperature above 34oF (1oC) shall have an air defrost in the off cycle controlled by proper sizing of the coil and the compressor.

6. Location of coils shall be coordinated with shelving and floor sink locations.

7. All coils for fabricated refrigerators and/or freezers shall be installed for accessibility and replacement.

G. Penetration Sleeves and Plates:

1. Service line penetrations of insulation to accommodate electrical conduit, refrigerant and drain lines shall be limited to a minimum with service stubbed through insulation or locations predetermined by respective divisions.

2. Where service lines penetrate insulated walls, the opening shall be packed with caulking, before trimming with escutcheon plate.

3. Where service lines penetrate building walls outside of foodservice areas, the opening shall be packed with “Perma-Gum” and foam caulking.

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4. All exposed ends of sleeves, both inside and outside of compartments, are to be trimmed with 24-gauge stainless-steel escutcheon plates, furnished as blanks in which respective work divisions shall cut required line holes and install.

H. Refrigerant Piping:

1. Copper tubing for refrigerant piping shall conform to ASTM standard specifications, serial designation B-88. All piping shall be type "L" ACR hard copper or cleaned and sealed soft type "L" tubing, dry seal or equal as indicated. Forged or wrought copper fitting with sweat or soldered joints shall be used.

2. Tubing shall be cut only with a tube cutter and sized with a sizing tool.

3. Piping shall be exposed to view as required by the standard safety code for mechanical refrigeration.

4. The liquid suction lines form condensing units to coil shall be sized and run as shown on the “Refrigeration Schedule” and Refrigeration Drawings.

5. Piping run within cold storage rooms shall be finished with aluminum paint.

6. For exposed areas, accessible furred ceiling spaces and in walls or excavated trench type installations, hard copper tubing shall be used. Exposed tubing shall be run in a manner to preclude damage by activities in the area; or shall be protected by conduit, furnished, and installed as part of this contract. Conduit shall have water evacuated and both ends completely sealed.

7. For piping run in conduit through inaccessible areas, such as under slab on grade, continuous one-piece soft copper tubing shall be used with no joints. In lieu of large piping in conduit, especially vertical runs, random lines may be used; carefully fabricated and assembled to ensure equal pressure drop.

8. Ends of lines shall be capped to prevent contamination and opened only at time of final connection.

9. Suction lines shall be sized for a maximum pressure drop from evaporator to compressor 2 lbs. (0.9 kg.) for high and medium temperature systems, and of 1 lb. (0.45 kg.) for low temperature systems and shall allow gas velocities of not less than 750 FPM (3.8 M/sec.) in horizontal runs and 1500 FPM (97.6 M/sec.) in vertical risers. Liquid lines shall be sized for a maximum pressure drop of 3 lbs. (1.36 kg.) from receiver to evaporator.

10. Tubing runs shall be graded or pitched to prevent trapping of oil. Suction lines shall pitch 1/2"/10"-0" (13 mm/[2.78] yard minimum.

I. Joints and Connections:

1. Fittings shall be long radius wrought copper only as manufactured by Mueller Brass Company or equal.

2. Vertically run suction lines shall have one piece of manufactured oil "P" traps. Line to be sized for proper velocity for oil return to compressor(s).

3. 1/8" NPT by 1/4 fl. half union for all suction and discharge service valves with 1/4 fl. cap.

4. Reduction in piping size shall be made with a manufactured reducer coupling.

5. Flare nuts shall be short forged or frost-proof.

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6. All surfaces to be joined must be prepared and cleaned. When soldering stop or solenoid valves, wrap valves with moist fabric to absorb excessive heat. Stop valves shall be partly open. When soldering expansion valves or pressure regulating valves, remove power assembly, if necessary, to prevent damage by excessive heat.

7. Copper joints shall be made with Handy & Harmon "Sil-Fos" brazing alloy, "Phoson 15", "Silvaloy 15" or equal; melting point of 1185-1350oF; (640oC. - 732oC.) Silver content not less than 15%.

8. Copper to brass joints shall be made with Handy & Harmon "Easy Flo 45" brazing alloy "Silvaloy 45", "Mueller 122" or equal; melting point of 1125-1145oF, (607o-618oC.) silver content not less than 45%.

J. Hangers and Supports:

1. For all piping not run within conduit, provide adjustable hangers, anchors or straps as required. Hanger spacing shall not exceed 8'-0".

2. Insulated copper piping shall be provided with approved type sleeves at hanger points.

3. All insulated copper piping shall be isolated from supports by means of felt wrapping or with "Trisolater" by Semco or approved equal.

4. Vertical piping shall be supported at intervals with spring type hangers or a substantial pipe at case of the pipe. All horizontal pipe runs connected to vertical risers must be adequately supported.

5. For suspended conduit, support shall be by means of hanger permitting screw adjustments. Sufficient hangers shall be used to provide support, allow expansion, and limit vibration.

K. Piping Sleeves:

1. Coordinate sleeves provided by the General Contractor through walls which allow for fully insulated lines. Extend sleeves entirely through wall and dress each end with a chromium plated wall plate neatly fitted against the wall, securely fastened and sealed in place. All sleeves through wall shall be of standard weight steel pipe.

2. Piping lines and sleeves at wall or floor penetrations shall be caulked and made vermin-proof at all locations.

L. Piping Insulation:

1. Suction lines run in conduit shall be insulated according to ambient and humidity conditions to prevent condensation and freezing.

2. Refrigeration suction lines outside of refrigerated compartments, not run in conduit, shall be insulated back to compressors with Armstrong Armaflex AP foamed plastic insulation or as determined by code. Thickness of material shall suit service, ambient and humidity conditions, to prevent condensation, minimum thickness 1/2" 0.59 inch.).

3. Freezer Storage Room drain lines should not be extended through adjacent cooler compartments if at-all possible. All such lines shall be insulated with 1/2" [0.59] inch minimum thickness of Armstrong Armaflex AP foamed plastic insulation to prevent condensation. Carefully seal end of insulation tight against freezer wall surface.

4. Piping for cooling water services or refrigerant piping exposed to freezing ambient temperatures shall be insulated with 1/2" 0.59 inch minimum thickness of Armstrong Armaflex AP foamed plastic insulation. Paint exterior installation with Armaflex paint.

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5. Thickness of material shall suit service, ambient and humidity conditions to prevent condensation.

6. Joints shall be sealed with Armstrong 520 adhesive. Insulation shall be continuous through clamps. Provide additional insulation where suction lines must be run within 12" 11.97 inch or less of water or underground waste lines.

7. Exterior-run piping shall be insulated as per above and covered with stainless-steel channels secured to structure, sealed to be weather-proof.

M. Heat Interchangers:

1. All blower controls, unit coolers, plate type evaporators and other evaporators where specified, are to be provided with heat interchangers, with a capacity to match the condensing unit.

N. Temperature Control:

1. Temperature control of cold storage rooms shall be by line voltage thermostats operating liquid line solenoids.

2. Temperature control for remote normal temperature refrigerator shall be by low pressure switch setting.

3. Temperature in each cold storage room compartment shall be controlled by electric thermostat, Ranco No. 010-1408, located within compartment and sensing element positioned to avoid fan discharge air stream.

4. Contractor to coordinate any additional specified temperature control/monitoring/alarm system within this document set including assisting with coordination of home-run control wiring, wireless assembly coordination and HACCP requirements in terms of reporting.

O. Valves and Accessories:

1. All valves and controls shall be standard weight and suitable for service purpose intended, and subject to approval by the Designer.

2. Provide shut-off valves and service port for each refrigerated fixture for multiplex installations to enable service personnel to service one (1) fixture while other fixture(s) connected to the same compressor can continue to operate.

3. Each system shall include condensing unit with standard valving, refrigerant piping, refrigerant, evaporator(s), liquid and suction line isolation valves within 5'-0" 59.06 inch of evaporators, thermostatic expansion valve for evaporator, heat exchanger, filter-dryer, liquid line solenoids for Cold Storage Rooms and liquid indicator.

4. Vibration eliminators on compressor suction and discharge lines, size same as piping, as manufactured by Anaconda.

5. Refrigerant shut-off valves shall be as manufactured by Henry or Superior Valve Company. Valves shall be placed and in liquid line for each condensing unit and in each liquid line to each evaporator.

6. Expansion valves shall be Sporlan, or approved equal, furnished, and installed in the liquid line at the evaporator, unless provided with manufactured equipment. External equalizer expansion valves shall be provided for coils fitted with refrigerant distributor.

7. A Sporlan, or approved equal, drier shall be provided at the compressor. Up to 3HP shall be a Catch-All series; larger than 3HP shall be angle replaceable cartridge series or approved equal.

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8. Each liquid line sight glass shall be Sporlan "See All" moisture and liquid indicator and shall be full line size or approved equal.

9. Solenoid valves shall be Sporlan, or approved equal, line voltage, manual lift stem type, to operate at maximum of 2 lbs. (0.9kg.) pressure drop across the valve. Valves shall be full line size, using silver solder connection as applicable. A liquid line solenoid, normally closed, shall be used with temperature controller for each Cold Storage Room compartment coil on a system.

10. Include a suction line filter with access valve adjacent to compressor. Filter shall be a Superior "F" Series or equal.

11. EPR, CTR, and/or CDA valves shall be Alco, or Sporlan, or approved equal.

12. Suction accumulators shall be Refrigeration Research 3700 series or Virginia VA series or approved equal.

13. Discharge line mufflers shall be Refrigeration Research M-10 and M-15 or AC and RSS- 6300 series or approved equal.

14. Time clocks shall be Paragon or approved equal.

P. Drain Lines:

1. Type "L" copper coil drain lines extended to exterior of refrigerated compartments over floor sinks (drain) with "S" traps at termination ends.

2. Provide clean out "T" and cap at each change of direction in the lines. Provide individual drain lines for each coil unless otherwise specified. Drain lines shall be run tight to refrigeration compartment walls with minimum pitch of 2" per foot.

3. Drain lines inside low temperature compartments shall be equipped with drain- line heaters provided by and wired by electrical division. Freezer Storage Room drain lines should not be extended through adjacent cooler compartments if at all-possible. (Drain line in low temp compartment to be insulated with Armaflex ½" [0.51] inch – insulation and wall fastening by the foodservice equipment contractor).

4. Drain lines on the exterior of refrigerated compartment shall be painted with chrome tone paint and shall be trapped to disallow ambient air infiltration into refrigerated cavity.

Q. Refrigerant/Compressor Oil Reclaim:

1. For existing refrigeration systems which may be reused, abandoned or where site conditions warrant, the system(s) refrigerant, oil and/or other components shall be reclaimed and contained by certified personnel in conformance to Refrigerants and Hazardous Waste criterion as specified by the Environmental Protection Agency and/or Montreal Protocol Guidelines & Requirements.

2.09 MISCELLANEOUS MATERIALS AND FABRICATION:

A. Nameplates: Whenever possible, locate nameplates and labels on manufactured items, in accessible position, but not within customer's normal view. Do not apply name plates or labels on custom fabricated work, except as required for compliance with governing regulations, insurance requirements, or operator performance.

B. Manufactured Equipment Items: Furnish items as scheduled or herein specified. Verify dimensions, spaces, rough-in and service requirements, and electrical characteristics, before ordering. Provide trim, accessories and miscellaneous items for complete installation.

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C. Insert Pans:

1. General: Cut-outs, openings, drawers, or equipment specified or detailed to hold stainless-steel insert pans to be provided with a full complement of pans as follows:

a. One (1) stainless-steel, 20-gauge 0.04 inch minimum, solid insert pan – in us pan size or gastronorm configuration as specified for each space, sized per plans, details, or specifications.

b. Where pan sizes are not indicated in plans, details, or specifications, provide one full-size pan for each opening.

c. Provide maximum depth pan to suit application and space.

2. Provide 18-gauge 0.05 inch NSF- approved removable stainless-steel adapter bars where applicable.

3. All cut-outs and openings, or equipment specified or detailed to hold stainless-steel insert pans, shall be provided with a hinged stainless-steel removable night cover.

D. Tray Slides: Before fabrication of counters with tray slides, verify:

1. Size and shape of tray with Owner/Operator prior to fabrication. Edge of tray should not overhang outer support/slider by more than 2" 1.97 inch. If edge of tray exceeds this dimension, notify Architect, in writing, for evaluation and adjustment, if necessary.

2. Configuration of corners, turns, and shape of tray slides for proper support and safe guidance of trays.

3. Tray slide to be capable of supporting 200 pounds per linear foot (298 kgs/meter), live load.

E. Self-leveling dispensers: Verify type, make dimensions and weight of ware with Owner/Operator; and submit to the dispenser manufacturer, for proper sizing and calibration of dispensers.

F. Carbon dioxide (CO2) equipment: Where equipment requires connection with compressed CO2 cylinder for operation, provide 2-cylinder manifold and control system (integral with equipment) with proper connectors for Department of Transportation (DOT) approved type cylinders, complete with cylinder safety devices, and supports. Applicable to projects with CO2 equipment included in Contractor's specified equipment.

G. Reasonable quietness of operation of equipment is a requirement, and Contractor will be required to replace or repair any equipment producing out-of-the-ordinary intolerable noise. This also includes providing and installing bumpers and gaskets for doors and drawers on fabricated and standard manufactured items and sound insulation where feasible.

H. Gas pressure regulator: All gas fired equipment included with this Section is to be provided with a gas pressure regulating valve with a built-in vent limiting device sized per WC pressure rating of this project. Contractor is responsible for coordinating this requirement with their manufacturers and suppliers.

PART 3 – EXECUTION

3.01 SUPERVISION:

A. A competent supervisor, representing the Contractor, is to be present at-all times during progress of the Contractor's work.

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B. Contractor is responsible for coordinating with all applicable Design Team members, Key Ownership Stakeholders Assigned, General Contractor, other Contractors and/or Sub-Contractors and Trades involved in this Project and associated with any items or work provided under this Section; as required for the successful provision, installation, completion, and functioning of these items and/or work, and the Project in general. This is to include, but not be limited to, exchange of shop drawings, details, and manufacturer's information, supplying templates or actual components to be installed in or on items provided by other Sections, for coordination; and coordinating with and between their own internal staff, sub-contractors, trades, manufacturers, fabricators, and installers, for compliance with the Contract Documents.

C. Contractor responsible for obtaining any documents referenced in this Section and on any associated drawings, which contain information relative to the performance of this Contract; and disseminating and coordinating the pertinent information contained in them, with the appropriate sub-contractors, manufacturers, fabricators, and/or installers.

D. Contractor is to take every precaution against injuries to persons or damage to property.

E. Contractor is to store his apparatus, materials, supplies and equipment in an orderly fashion at the site of the work so it will not unduly interfere with the progress of his work or the work of any other contractors.

3.02 SITE EXAMINATION:

A. Verify site conditions under the provisions of the General Conditions, Supplementary Conditions, and applicable provisions of Division 1 Sections. Notify the Architect, in writing, of unsatisfactory conditions for proper installation of foodservice equipment.

B. Verify wall, column, door, window, and ceiling locations and dimensions. Fabrication and installation should not proceed until dimensions and conditions have been verified and coordinated with fabrication details.

C. Verify that wall reinforcement or backing has been provided and is correct for wall supported equipment. Coordinate placement dimensions with wall construction Section.

D. Verify that ventilation ducts are of the correct characteristics, and in the required locations.

E. Verify that utilities are available, of the correct characteristics, and in the required locations.

3.03 DELIVERY AND INSTALLATION:

A. Delivery:

1. The equipment shall be delivered and installed on schedule. Coordinate all work with the General Contractor and other divisions as required.

2. Deliver materials (except bulk materials) in manufacturer's containers, fully identified with manufacturer's name, trade name, type, class, grade, size, color, item number, area, etc.

3. Contractor is responsible for receiving and warehousing equipment and fixtures, until ready for installation. Store materials, equipment, and fixtures in sealed containers, where possible. Store off the ground and under cover, protected from damage.

4. Contractor to verify and coordinate conditions at the building site, particularly door and/or wall openings, and passages, to assure access for all equipment. Pieces too bulky for existing facilities are to be hoisted or otherwise handled with apparatus as required.

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5. Extra charges resulting from special handling or shipment to be paid by the Kitchen Equipment Contractor if insufficient time was allowed in placing factory orders to ensure normal shipment.

B. The work to be accomplished so as not to delay the project construction schedule, interfere, or conflict with the work being performed by other contractors. Work to be coordinated and integrated to prevent conflict of work necessitating changes to work already completed. Sequence installation and erection to ensure correct mechanical and electrical utility connections are achieved.

C. Verify all field dimensions before fabrication.

D. Install items in accordance with manufacturer's instructions.

E. Set each item of non-mobile and non-portable equipment securely in place, leveled and adjusted to correct height. Anchor to supporting substrate where indicated, and where required for sustained operation and use without shifting or dislocation. Conceal anchorages wherever possible. Adjust counter tops and other work surfaces to a level tolerance of 1/16” 0.06 inch (maximum offset, and plus or minus on dimension, and maximum variation in 24" (24.02 inch) run from level or indicated slope). Provide anchors, supports, bracing, clips, attachments, etc., as required to comply with the local seismic restraint requirements. The Guidelines for Seismic Restraint of Kitchen Equipment, as prepared for the Sheet Metal Industry Fund of Los Angeles and endorsed by S.M.A.C.N.A., is to be followed.

F. Complete field assembly joints in the work (joints which cannot be completed in the shop) by welding, bolting-and-gasketing, or similar methods as indicated and specified. Grind welds smooth and restore finish. Set or trim flush, except for "T" gaskets as indicated. Field joints shall not be visible to the untrained eye.

G. Provide closure plates and strips where required, with joints coordinated with units of equipment.

H. Provide sealants and gaskets all around equipment to wall, ceiling, floors, masonry pads, and adjoining units not portable and with enclosed bodies to make joints airtight, waterproof, vermin-proof, and sanitary for cleaning purposes. Space between all equipment to wall, ceiling, floors, masonry pads, and adjoining units not portable and with enclosed bodies to be completely sealed against entrance of food particles or vermin by means of trim strips, welding, soldering or mastic. Mastic to be General Electric Silicone Construction Sealant Series SE1200 or equal in appropriate color.

I. Joints up to 3/8” 0.37 inch wide, to be stuffed with backer rod, to shape sealant bead properly, at 1/4” (0.24 inch) depth.

J. At internal corner joints, apply sealant or gaskets to form a sanitary cove, of not less than 3/8” 0.37 inch radius.

K. Shape exposed surfaces of sealant slightly concave, with edges flush with faces of materials at joint.

L. Provide sealant filled or gasketed joints up to 3/8” 0.37 inch joint width. Wider than 3/8” (9.5 mm), provide matching metal closure strips, with sealant application each side of strips. Anchor gaskets mechanically, or with adhesives to prevent displacement.

M. Treat enclosed spaces, inaccessible after equipment installation, by covering horizontal surfaces with powdered borax at a rate of 4 ounces per square foot (1.2 kg/m2).

N. Insulate to prevent electrolysis between dissimilar metals.

O. Cut and drill components for service receptacles, fixtures, piping, conduit, fittings, etc. as required. Grind and polish penetrations to safe tolerance. Work to include welded sleeves, collars, ferrules, or escutcheons.

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P. Verify and coordinate the mounting heights of all wall shelves and equipment, with equipment located below them, for proper clearances.

Q. Walk-In Refrigerator/Freezers:

1. The cold storage rooms shall be delivered and installed on schedule by factory supervised and approved installers. Coordinate the work with the General Contractor and other trades as necessary.

2. Provide the necessary job site coordination with the various trades to ensure job site conditions will meet the requirements of the cold storage rooms.

3. During curing and cleaning of the wearing floors inside the cold storage rooms, the cold storage room doors shall be left open, and the rooms well ventilated to prevent damage to the interior. “Keep Out” signs to be posted at each open door.

4. After the installation of the cold storage rooms and prior to the installation of the wearing floor has cured, the cold storage room doors are to be closed and locked.

R. Coordinate with the Plumbing and Electrical Divisions and provide penetrations in foodservice equipment for plumbing and electrical service to and through the fixtures, as required. This includes welded sleeves, collars, ferrules, or escutcheons. These services are to be located so that they do not interfere with intended use and/or servicing of the fixture.

S. All equipment provided by this Section, that requires light bulb(s), are to be provided with heavy-duty, energy efficient, extra long-life bulbs with a minimum life expectancy of 5000 hours, and as required by the local Jurisdictions. All light bulbs in and/or above foodservice equipment and/or areas are to be coated or provided with shields in compliance with local health codes.

T. All equipment provided by this Section, shall include any-and-all parts, components, options, accessories, etc. necessary to provide a completely functional item for its intended use under normal conditions; and if appropriate, after the final utility connections are completed by other Divisions. This shall generally apply to equipment such as soda systems, beer systems, and remote refrigeration systems, any type of remote system or equipment, or ice machines; but shall also apply to any equipment provided by this Section.

3.04 COUNTERTOP INSTALLATION:

A. General: Install countertops, except for vanities, over plywood sub-tops with a full spread of water-cleanable epoxy adhesive.

B. Install components plumb, level, and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.

1. Tops:

a. Flat and true to within 1/8" 0.12 inch of a flat surface over a 10' length.

b. Allow a minimum of 1/16" (1.6mm) to a maximum of 1/8" (3mm) clearance between surface and each wall.

C. Fit countertops around projections and to adjacent construction. Smooth and clean field cut edges. Ensure that trim will completely cover cut edges.

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D. Bond seams with stone seam adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to seams to prevent adhesive smears. Use clamps to ensure countertop units are properly aligned and seams are minimum width.

E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts while cutting to prevent damage.

F. Install backsplash and end splash by adhering to wall with water-cleanable epoxy adhesive.

G. Leave 1/16-inch (1.6mm) gap between countertop and splash for filling with sealant. Use temporary shims to ensure uniform spacing.

H. Heat isolation for hot food wells, heated deck, and other drop-in heated equipment.

1. Three (3) layers of Nomex insulation held in place with aluminum tape.

2. 16-gauge stainless-steel collar.

3. Heat resistant, food safe silicone caulking.

4. Provide a 1/8” 0.12 inch minimum space between the heat source and the insulation.

I. Apply sealant to seams and to gap between countertops and splashes; comply with Section 07 92 00 (07920) "Joint Sealants."

J. Countertop Adjusting and Cleaning:

1. Remove and replace or repair stonework of the following description:

a. Broken, chipped, stained, or otherwise damaged stones. Broken, chipped, stained, or otherwise damaged stone may be repaired, providing the methods and results are acceptable to Owner’s Representative.

b. Defective joints.

c. Stones and joints not matching approved samples.

d. Stonework not complying with other requirements indicated.

2. Replace in manner that results in stonework matching approved samples and field- constructed mock-ups, complying with other requirements, and showing no evidence of replacement.

3. Clean stone countertops not less than six days after completion of work, using clean water and stiff and soft rags. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage the stone.

K. Countertop Sealer Application:

1. All surfaces must be clean and free from all loose grit and debris, satins, dirt, and wax coatings. Surfaces shall remain dry for a minimum of 24 hours before the application of sealer and remain dry for 24 hours after the application of sealer.

2. Floor surface temperature must be above 50° F. and below 90° F.

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3. Test on a small area before using to determine if the product is acceptable with type of stone.

4. Two (2) uniform coatings of sealer shall be applied before or after installation of stone materials. If prior to installation, adequate documentation shall be included with the material confirming it has been sealed. If after installation, install in strict accordance with Sealer manufacturer's recommendations.

3.05 PROTECTION OF WORK:

A. Use all means reasonable to protect the materials of this Section against theft and damage before, during, and after installation; and to protect the associated work and materials of the other trades.

B. Fabricated fixtures: cardboard, fiberboard or plywood taped to tops and exposed body panels/components.

C. Manufactured Equipment: cardboard, fiberboard or plywood taped as required by equipment shape and installation-access requirements.

D. Prohibited use of equipment includes tool and materials storage, workbench, scaffolding and stacking of construction

E. Damaged Equipment: immediately document and submit to Owner with Contractor's recommendation of action for repair or replacement and its impact on the Project Schedule and Contract Amount.

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F. Pre-fabricated walk-in coolers/freezers are not to be used as general storage; and should be locked before leaving the site daily. Damage and theft resulting from failure to secure units will be repaired or replaced at Contractor's expense.

3.06 ADJUSTING:

A. Equipment to be tested for leaks, poor connections, inadequate or faulty performance.

1. Thermostatically controlled equipment and equipment with automatic features shall be operated for 14 days to prove controls are functioning as intended. Walk-in refrigerators and freezers shall be turned on and ran for a minimum of fourteen days.

B. Refrigeration equipment to run a minimum of three days duration before acceptance.

C. Lubricate and adjust drawer slides, hinges, casters.

D. Adjust pressure regulating valves, timed-delay relays, thermostatic controls, temperature sensors, exhaust hood grilles, etc.

E. Clean or replace faucet aerators, line strainers.

F. Repair, adjust or replace equipment, which is found to be defective in its operation, including units which are below capacity or operating with excessive noise or vibration.

3.07 CLEANING, RESTORING AND REPAIRING:

A. After completion of installation, and completion of other major work in foodservice areas, remove protective coverings and clean foodservice equipment, internally and externally. Repair all damage as a result-of this installation.

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B. Restore exposed and semi-exposed finishes removing abrasions and other damages; polish exposed metal surfaces and touch-up painted surfaces. Replace work, which cannot be successfully restored.

C. Polish glass, plastic, hardware and accessories, fixtures, and fittings.

D. Wash and clean equipment and leave in a condition ready for the Owner to sanitize and use.

3.08 TESTING:

A. Delay the start-up of equipment until service lines have been tested, balanced, and adjusted for pressure, voltage, and similar considerations; and until water and steam lines have been cleaned and treated for sanitation.

B. Contractor, with assistance from a factory-certified representative from the exhaust hood manufacturer, shall conduct an exhaust hood performance test for each exhaust hood in the Contractor's scope of work at the conclusion-of the project when all hoods and related cooking equipment are in operation. Contractor shall have manufacturer's factory authorized representative test and measure exhaust airflow rates, dampers, switches, demand control ventilation, and sequence of operation, with all appliances at operating temperatures. Contractor shall furnish a written report within ten (10) working days of substantial completion and acceptance of the project by the Owner, indicating the design requirements for each hood and the actual operating parameters as tested and measured.

C. Refrigeration Piping Testing:

1. Each system shall be pressure tested for leaks. Tests for to be on the high side and on the low side. All valves shall be fully open during last test.

2. Tests are to be accomplished as follows:

a. Charge the systems with refrigerant through the port of liquid shut-off valves of the receivers to a pressure of 10 to 20 psi

b. Add dry nitrogen, the supply of which shall be equipped with a pressure regulating valve to provide the specified pressure.

c. Carefully test all joints for leaks using either a Halide torch or an electronic Halogen leak detector.

3. Precautions to be taken to disconnect the low-pressure controls for protection of the bellows during testing.

4. Refrigeration System Evacuation:

a. Evacuation shall be with a vacuum pump with an indicating gauge registering pressure in microns. Pump shall be connected to the system with a 5/8" 0.59 inch O.D. line or larger.

b. Evacuate both high and low sides to 500 microns. Break the vacuum with refrigerant to 0 psi evacuate high and low sides to 100 microns; and then break vacuum to 0 psi. with the refrigerant to be used in the system.

3.09 START-UP AND INSTRUCTIONS:

A. Make-arrangements for demonstration of foodservice equipment operation and maintenance, in advance with the Owner/Operator.

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B. Demonstrate foodservice equipment, to familiarize the Owner and the Operator on operation and maintenance procedures, including periodic preventative maintenance measures required. Include an explanation of service requirements and simple on-site service procedures, as well as information concerning the name, address, and telephone number of qualified local source of service. The individual(s) performing the demonstration are to be knowledgeable of operating and service aspects of the equipment.

C. Provide a written report of the demonstration, to the Owner, outlining the equipment demonstrated and malfunctions or deficiencies noted. Identify individuals present at demonstration.

D. Final Cleaning: After testing and start-up, clean the foodservice equipment, and leave in a condition ready for the Owner to sanitize and use.

E. All keys for all locks provided with equipment provided under this Section, are to be gathered up, individually tagged with the equipment they belong to, put into a single box, and handed over to the Owner's authorized representative. A list of the keys and their associated equipment Item numbers is to be provided with the O&M Manuals, along with a copy of the list, signed by the Owner's representative, acknowledging receipt of the keys.

3.10 CLEAR AWAY

A. Throughout the progress of their work, Contractor is to keep the working area free from debris and remove rubbish from premises resulting from work being done by them. At the completion of their work, Contractor is to leave the premises in a clean and finished condition.

3.11 EXISTING EQUIPMENT TO BE USED AFTER COMPLETION OF CONSTRUCTION: (Applicable only to projects with existing equipment to be used after completion of construction.)

A. Within ten working days of award of contract Contractor is responsible for identifying and recording by means of a spreadsheet with accompanying digital photography and heat-resistant tagging of all existing to remain or to be replaced in previous location or relocated equipment that will be used after completion of construction utilizing item numbers from received contract documents. If such equipment has been removed and relocated, contractor is still responsible for this identification and logging process. Contractor shall verify and coordinate specific equipment with these plans and specifications and verify same with the Owner, Architect and Foodservice Design Consultant. This includes items existing to remain or to be relocated, or to be removed, stored or refurbished and set back in place and used after completion of construction - and the associated work necessary - at the time of the signing of the Contract for the Foodservice Equipment section - and does not include any items added, changed, or damaged (by other than the Contractor) after the signing; except to the extent of work that would have been included with the original existing items. Contractor shall then remove such equipment to the agreed-upon storage location previously assigned and verified by the GC and Owner. Existing equipment to be re-placed in previous location or re-located and used after completion of construction shall be identified in both storage during construction location and intended final placement location on heat-resistant tag secured to unit by Contractor. Contractor shall also define critical clearances and utilities within this time frame including the testing of actual electrical, plumbing, mechanical values of any equipment without service or factory-applied serial numbered plates. When equipment is removed and re-located or placed back in original location, contractor is responsible for ensuring manufacturer-recommended clearances to walls and adjacent equipment, structural support needs, pour paths, correct MEP rough-in connection values and any applicable fire suppression and exhaust system protection.

B. Remove from existing locations, clean, and renovate/refurbish as noted below, store and re-install existing equipment to be used after completion of construction, in the new locations as shown on plans ready for utility connections, as appropriate. Existing equipment to be used after completion of construction, with utility connections, to be removed after disconnection as noted in paragraph J, below.

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C. Perform work in cooperation with Owner, so that normal functioning of services is minimally interrupted. Coordinate all removal and replacement scheduling with the Construction Scheduling Manager (or similar responsible party), to ensure adequate time to complete the necessary work. If adequate time to properly relocate and reset the existing items and complete all cleaning and repair will not be available, due to continuing use of the existing items, or the allotted construction time; contact the Owner and obtain a written agreement as to what work is to be deleted or delayed, such as cleaning, repainting, or repairs.

D. All surface dirt, grease, oil, food residues, ingredients, extraneous matter, and other soiling materials is to be removed in order-to obtain minimum acceptable sanitation and foodservice standards. Thorough final rinsing of all cleaning agents to be at a minimum temperature of 180 degrees Fahrenheit (82.2 Centigrade) where possible without damage to equipment or controls. Otherwise, use USDA approved cleaning agents and/or cleaning agents, which are acceptable for use with commercial foodservice equipment. This includes all exterior surfaces of the existing equipment to be reused, and interior work surfaces such as inside oven compartments, fryer vats, ware washers, etc.

E. All painted items with major paint blemishes to be sanded, primed, and repainted to match the original color and type paint. Primer and paint to be of a type approved for use with commercial foodservice equipment. All controls, lights, view windows, non-painted parts, etc. to be protected as recommended by the Manufacturer. Minor paint blemishes can be touched-up in a professional manner. This work is to be included in the Bid Submittal, as a separate line cost, at the end of the Bid Submittal.

F. Replace and/or repair minor broken parts to produce a cleanable and functional item. Repairs and/or parts are for minor required items such as control knobs, handles, pilot lamps, belts, oil changes, minor adjustments, and recalibrations, etc. This does not include addition or replacement of any wearing components such as cutters, blades, etc.; or any accessory components such as mixer beaters, hooks, whips, etc., except for presently existing accessory components which are broken and non-functional, or as noted in the itemized specifications.

G. Where required by local code authorities, provide additional parts and/or modifications to comply with code requirements in place at the time of this project.

H. Where required, remove existing equipment to be used after completion of construction from the premises for repairs, alterations, and cleaning.

I. Refer to schedule on the Foodservice Drawings and to the Itemized Specifications at the end of this section for existing equipment to be used after completion of construction.

J. Disconnection of existing equipment to be relocated and/or existing equipment to be used in its found place after completion of construction and disconnection and removal/disposal of existing equipment that will not be used after completion of construction, is work as designated by the Architect, and not included in this Section. (See page 11 40 00-2, 1.3.F.)

K. Cost estimates for any repairs and/or parts more than the minor items stated above, or repairs requiring significant disassembling of the item, should be submitted to the Owner for consideration and approval as an addition to the Contract. In general, this would be considered as any repairs and/or parts amounting to an estimate up to 10% of the cost of a comparable new item. Any item, which would require repairs and/or parts amounting to an estimate up to 25% or more, should include an alternate cost for supplying a comparable new item as a consideration by the Owner, and an addition to the Contract. Estimates are for each existing equipment to be used after completion of construction only that require repairs and/or parts, and only to the extent that work is required; and should not be considered as a lump-sum estimate on all existing equipment to be used after completion of construction combined, or as an allowance for adding accessories or options.

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3.12 ITEMIZED SPECIFICATIONS:

A. Refer to the following pages for specific information on each item included in this Section.

1. ITEM #A1 DRY STORAGE SHELVING
2. Quantity: Three (3) Assemblies
3. Manufacturer: Metro
4. Model: MaxQ
5. Fabricate/Furnish and set in place per plans, details and the following:
    a. Metro length, width and configuration per plan and verified room dimensions.
    b. MetroMax (Q) open grid mat shelving.
    c. 74" High with four tiers.
    d. Each section shall be free-standing with four legs.
    e. Provide seismic flanged feet, quantity four (4).
6. ITEM #A2 HAND SINK
7. Quantity: One (1) Manufacturer: Eagle Group Model: HSAP-14-ADA-FW
8. Fabricate/Furnish and set in place per plans, details and the following:
    a. Hand Sink, wall mount, 14" wide x 16" front-to-back x 5" deep bowl, 16/304 stainless steel construction, splash mount gooseneck faucet with wrist handles & mixer valve, marine edge on front & sides, 1/2" NPS water inlet, chrome-plated P- trap, wrist handles, soap dispenser, basket drain, skirt assembly & paper towel dispenser, physically challenged, NSF.
    b. Left & right side splashes.
9. ITEM #A3 REACH-IN REFRIGERATOR
10. Quantity: One (1)
11. Manufacturer: Traulsen
12. Model: G20000
13. Fabricate/Furnish and set in place per plans, details and the following:
    a. Dealer's Choice Refrigerator, Reach-in, two-section, 45.89 cu. ft., self-contained refrigeration, (4) half-height solid doors (hinged left/right), (3) epoxy coated shelves per section (factory installed), stainless steel front, anodized aluminum sides & interior, microprocessor control with LED display, LED interior lights, 6" high casters, non-flammable R-450A refrigerant, cETLus, NSF.
    b. NEMA 5-15P, standard.
    c. Casters, 4-5/8" high, set of 4, in lieu of standard casters.

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14. ITEM #A4 AIR CURTAIN

15. Quantity: Two (2) Manufacturer: Mars Air Systems Model: NH236-1UA-TS

16. Fabricate/Furnish and set in place per plans, details and the following:

    a. High Velocity Series 2 Air Curtain, for 36" wide door, unheated, galvanized steel cabinet, titanium silver powder coat finish, ETL.

    b. Mechanical switches.

    c. Door Limit Switch, indoor, plunger/roller type, remote mounted, NEMA 2.

    d. Disconnect switches, remote mounted by others.

    e. Disconnect Switch, fused, NEMA 3R (remote mounted by others).

17. ITEM #A5 STAINLESS STEEL WALL GUARD

18. Quantity: Three (3) Manufacturer: Fabricated Model: Stainless Steel

19. Furnish and set in place per manufacturer's standard specifications.

    a. Stainless Steel Wall Guard per FSD1-59. These standard details are to be utilized as basic minimum guidelines only. Refer to these written specifications and any fabrication details included in the contract drawings for precise and complete fabrication instructions.

    b. Refer to QF500 and QF501 sheet series for further information.

20. ITEM #A6 MOBILE HEATED CABINET

21. Quantity: One (1)

22. Manufacturer: Cres Cor

23. Model: H137SUA12D

24. Fabricate/Furnish and set in place per plans, details and the following:

    a. Cabinet, Mobile Heated, insulated, top-mount heater assembly, recessed push/pull handles, magnetic latch, (12) sets chrome plated wire universal angle slides for 12" x 20" thru 18" x 26" pans on 4-1/2" centers, adjustable 1-1/2" centers, reversible dutch doors, (4) heavy duty 5" swivel casters (2) braked, anti-microbial latches, stainless steel construction, NSF, cCSAus, ENERGY STAR®.

    b. 10 ft power cord, NEMA 5-15P, standard.

    c. Right-hand door swing (top & bottom doors), standard.

    d. Cord Wrap for insulated cabinet, standard, quantity one (1).

    e. Corner Bumpers, add 2" to OA dimensions, non-marking, gray.

    f. Menu Card Holder, quantity one (1).

25. ITEM #A7 WORK TABLE

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26. Quantity: One (1) Manufacturer: Eagle Group Model: T2484STE

27. Fabricate/Furnish and set in place per plans, details and the following:

    a. Spec-Master® Series Work Table, 84"W x 24"D, 14/300 series stainless steel top, rolled edges on front & back, Uni- Lok® gusset system, stainless steel crossrails on side & rear, (4) stainless steel legs & adjustable bullet feet, NSF.

    b. Undershelf, sized per floor plan.

    c. Special height legs for 34” high top.

    d. Flanged Feet, stainless steel, each.

28. ITEM #A8 DROP CORD, QTY TWO (2), BY EC ITEM #A9 SPARE NO.

29. ITEM #A10 CHEMICAL DISPENSING SYSTEM, QTY ONE (1), BY PURVEYOR

30. ITEM #A11 SHELVING, WALL MOUNTED

31. Quantity: One (1) Manufacturer: Eagle Group Model: WS1224-14/3

32. Furnish and set in place per manufacturer's standard specifications.

    a. 1. Shelf, wall-mounted, 24"W x 12"D, rolled frontedge, 1-1/2"H up-turn on sides & rear, includes stainless steel mounting brackets stud welded to shelf, 14/304 stainless steel construction, NSF.

33. ITEM #A12 THREE (3) COMPARTMENT SINK

34. Quantity: One (1) Manufacturer: Eagle Group Model: FFN2754-3-24-14/3

35. Fabricate/Furnish and set in place per plans, details and the following:

    a. Spec-Master® Flush Front Sink, three compartment, 105-1/4"W x 30-1/2"D x 44-5/8"H overall size, 18"W x 27" front-to- back x 14" deep bowls, 24" drainboards on left & right, 10"H backsplash, (2) sets of splash mount faucet holes with 8" centers, includes (3) 3-1/2" basket drains, 14/304 stainless steel construction, stainless steel legs, front crossrails, & adjustable bullet feet, NSF.

    b. Turn down back of splash per table with Z clip.

    c. Enclosed backsplash per linear foot.

    d. Stainless steel undershelf under drainboards, up to 24" with short legs.

    e. Stainless steel apron, to cover sink bowls, 2 or 3 compartment.

    f. Twist Handle Drain, 1-1/2 or 2" NPS connection.

    g. Twist bracket, per drain.

    h. Provide seismic flanged feet, stainless steel, each.

36. #A12.1 PRE-RINSE ASSEMBLY W/ ADD ON FAUCET

37. Quantity: One (1) Manufacturer: T&S Brass Model: B-0133-12-CR-B

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38. Fabricate/Furnish and set in place per plans, details and the following:

    a. EasyInstall Pre-Rinse Unit, spring action gooseneck, 8" wall mount, spray valve (B-0107), 12" add-on faucet, wall bracket, quarter-turn Cerama cartridges, low lead.

    b. Installation Kit, (2) 1/2" NPT nipples, lock nuts & washers, (2) short "Ell" 1/2" NPT female x male.

39. ITEM #A12.2 POT FILLER

40. Quantity: One (1) Manufacturer: T&S Brass Model: B-0292

41. Furnish and set in place per manufacturer's standard specifications.

    a. 1. Big-Flo Pot & Kettle Sink Faucet, wall mount, 8" centers, 3/4" IPS model LL street EL inlets with locknuts, 24" double- jointed swing nozzle, 175°F four arm handles, 1-1/4" dia. holes required in backsplash.

42. ITEM #A13 TRASH RECEPTACLE, 20 GALLON, QTY ONE (1), BY OWNER ITEM #A14 SHELVING, WALL MOUNTED

43. Quantity: One (1) Manufacturer: Eagle Group Model: WS1224-14/3

44. Furnish and set in place per manufacturer's standard specifications.

    a. 1. Shelf, wall-mounted, 24"W x 12"D, rolled frontedge, 1-1/2"H up-turn on sides & rear, includes stainless steel mounting brackets stud welded to shelf, 14/304 stainless steel construction, NSF.

45. ITEM #A15 LOCKER, QUADRUPLE, QTY ONE (1), BY ARCH/ ID ITEM #A16 POS SYSTEM, QTY TWO (2), BY OWNER

46. ITEM #A17 STAINLESS STEEL SERVING COUNTER

47. Quantity: One (1) Manufacturer: Fabricated Model: Stainless Steel

48. Fabricate/Furnish and set in place per plans, details and the following:

    a. Work counter, see plans for width, length, height, and configuration.

    b. Similar to standard details; FSD5-1, FSD1-7, FSD1-10, and FSD1-23. These standard details are to be utilized as basic minimum guidelines only. Refer to these written specifications and any fabrication details included in the contract drawings for precise and complete fabrication instructions.

    c. Straight turn-down edge profile similar to detail FSD1-1A.

    d. Backsplash at wall and adjacent equipment, similar to FSD1-5A.

    e. Leg base in lieu of cabinet base. Provide undershelf as shown on plans, similar to FSD1-8.

    f. Extend countertop out thru window, as shown on plans.

    g. Refer to QF500 and QF501 sheet series for further information.

49. ITEM #A18 MILK COOLER

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50. Quantity: One (1) Manufacturer: Beverage Air Model: SMF49HC-1-W

51. Fabricate/Furnish and set in place per plans, details and the following:

    a. School Milk Cooler, forced air, 49"W x 33-5/8"D x 47"H, 19.66 cu. ft., single access, exterior digital thermometer, (12) 13" x 13" x 11" or (8) 19" x 13" x 11" case capacity, self-latching doors/lids with safety bumpers, cylinder lock, wire floor racks, floor drain, electronic control, auto defrost, galvanized steel interior with stainless steel floor, white exterior, R290 Hydrocarbon refrigerant, cULus, UL EPH Classified, UL-Sanitation, Made in USA.

    b. Self-Contained refrigeration.

    c. Cord with NEMA 5-15P.

    d. Corner bumpers, each (field installation required).

    e. 6" Heavy duty casters, (2) with brakes, standard.

52. ITEM #A19 SPARE NO.

53. ITEM #A20 SPARE NO.

54. ITEM #A21 MOP SINK

55. Quantity: One (1) Manufacturer: Advance Tabco Model: 9-OP-28

56. Furnish and set in place per manufacturer's standard specifications.

    a. 1. Mop Sink, floor mounted, 33"W x 25"D x 10"H (overall), 28"W x 20" front-to-back x 6" deep (bowl size), free flow drain with 2" IPS outlet, stainless steel construction, NSF.

57. ITEM #A22 SERVICE FAUCET

58. Quantity: One (1) Manufacturer: T&S Brass Model: B-0655-BSTP

59. Furnish and set in place per manufacturer's standard specifications.

    a. 1. Service Sink Faucet, 8" centers-adjustable from 7-3/4" to 8-1/4", 5-1/8" clearance wall to center line of faucet, 11-5/8" from wall to center of outlet, polished chrome-plated finish, with built in screwdriver stops.

60. ITEM #A23 MOP HOLDER

61. Quantity: One (1) Manufacturer: Advance Tabco Model: K-242

62. Furnish and set in place per manufacturer's standard specifications.

63. 1. Mop Hanger, 23", accommodates (3).

64. ITEM #A24 WALL FLASHING

65. Quantity: One (1) Manufacturer: Fabricated Model: Stainless Steel

66. Fabricate/Furnish and set in place per plans, details and the following:

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a. Similar to standard detail FSD1-39. This standard detail is to be utilized as a basic minimum guideline only. Refer to these written specifications and any fabrication details included in the contract drawings for precise and complete fabrication instructions.

b. Cover wall behind the mop sink from the finished floor to the bottom of the ceiling grid, the length of the equipment.

c. Cover adjacent wall at end(s) of floor sink from the finished floor to the bottom of the ceiling grid, the depth of the sink.

d. Refer to QF500 and QF501 sheet series for further information.

67. ITEM #A25 DETERGENT SHELVING

68. Quantity: One (1)

69. Manufacturer: Metro

70. Model: MaxQ

71. Fabricate/Furnish and set in place per plans, details and the following:

a. Metro length, width and configuration per plan and verified room dimensions.

b. MetroMax (Q) open grid mat shelving.

c. 74" High with four tiers.

d. Each section to have two (2) #5MPpolyurethane swivel casters and two (2) #5MPB polyurethane casters with brakes.

72. ITEM #A26 TRASH RECEPTACLE, 7 GALLON, QTY ONE (1), BY OWNER

END OF SECTION

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SECTION 21 1300
FIRE SUPRESSION SPRINKLER SYSTEM

PART 1 GENERAL

1.01 REFERENCES

A. AMERICAN IRON AND STEEL INSTITUTE (AISI)

1. AISC/AISI 121 (2007) Standard Definitions for Use in the Design of Steel Structures

B. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

1. ASME A112.18.1 (2018) Plumbing Supply Fittings

2. ASME B1.20.1 (2013) Pipe Threads, General Purpose (Inch)

3. ASME/ANSI B16.1 (2020) Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125, and 250

4. ASME/ANSI B16.3 (2016) Malleable Iron Threaded Fittings, Classes 150 and 300

5. ASME/ANSI B16.4 (2016) Standard for Gray Iron Threaded Fittings; Classes 125 and 250

C. AMERICAN WATER WORKS ASSOCIATION (AWWA)

1. AWWA C111/A21.11 (2017) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

2. AWWA C151/A21.51 (2017) Ductile-Iron Pipe, Centrifugally Cast

3. AWWA C900 (2016) Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4-inch Through 60-inch

D. ASTM INTERNATIONAL (ASTM)

1. ASTM A47/A47M (1999) Standard Specification for Ferritic Malleable Iron Castings

2. ASTM A53/A53M (2020) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc- Coated, Welded and Seamless

3. ASTM A135/A135M (2009; R2014) Standard Specification for Electric-Resistance-Welded Steel Pipe

4. ASTM A234/A234M (2019) Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service

5. ASTM A536 (1984) Standard Specification for Ductile Iron Castings

6. ASTM D1784 (2020) Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

E. FM GLOBAL (FM)

1. FM APP GUIDE (updated on-line) Approval Guide http://www.approvalguide.com/

F. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

1. NFPA 13 (2016) Standard for the Installation of Sprinkler Systems

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2. NFPA 14 (2016) Standard for the Installation of Standpipes and Hose Systems

3. NFPA 24 (2016) Standard for the Installation of Private Fire Service Mains and Their Appurtenances

4. NFPA 1963 (2019) Standard for Fire Hose Connections

G. UNDERWRITERS LABORATORIES (UL)

1.02 ADMINISTRATIVE REQUIREMENTS

A. Conduct a survey of the work area. Commencement of work constitutes acceptance of existing conditions.

B. Convene one week before starting work of this section for preinstallation meeting.

1.03 SUBMITTALS

A. Submit the following in accordance with DIVISION 01 – GENERAL REQUIREMENTS.

1. Shop Drawings

a. Shop drawings prepared in accordance with NFPA 13, including hydraulic calculations that are approved by the Authority Having Jurisdiction. Drawings shall have the approval of a Professional Engineer registered in the state in which the project is located. Drawings to consist of the following, refer to NFPA 13 “Plans and Calculations” for a comprehensive list of items to be included:

1) Piping plan view and/or Reflected Ceiling Plan (RCP) drawing(s) indicating relationship of all other trades and approved sprinkler head locations.

2) Details and sections to clearly identify design intent.

3) Plans shall include: Seismic zones of influence, hydraulic remote areas, elevations of pipe, attachment locations and type, zones and associated coverage areas, volume of dry system(s) (if applicable), locations of seismic separation and expansion joints, hose cabinet locations, drain locations.

2. Product Data

a. Provide data on piping, valves, sprinklers, hangers/supports, hose cabinets, notification devices, specialties and accessories. Product data shall include manufacturers catalog information with performance ratings, rough-in details, finish, weights, and installation requirements.

1) Each product shall be referred to on submittals, drawings, and other documentation, by the identification or model number as specifically published in the appropriate agency listing or approval.

3. Design Data

a. Provide detailed hydraulic calculations that clearly demonstrate that the water supply will meet the demand of the sprinkler system and hose streams. Calculations shall accompany design drawings and shall be based on a water flow test conducted at the site within six (6) months of the submittal of plans for approval. Flow test information and associated nodes shall be documented on shop drawings and include a site plan.

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b. Provide complete seismic calculations that clearly reflect seismic restraint with supporting site specific force factor and attachment details used, relative to an associated zone of influence.

4. Test Reports

a. Contractor's Material & Test Certificate Reports in accordance with NFPA for above ground piping, underground piping, pressure, system operation, air, valve and drain tests.

1.04 QUALITY ASSURANCE

A. Fire protection system materials and components shall be Underwriter's Laboratories listed and labeled, or Factory Mutual approved.

B. Company specializing in performing the work of this section shall have a minimum of five years experience and approved by manufacturer.

C. Manufacturing Company shall be one specializing in manufacturing the products specified with a minimum three years documented experience.

1.05 COORDINATION

A. The Contractor shall coordinate and reflect routing and location of equipment, devices, and materials with other disciplines, where not already indicated, on the design documents. Indicate required space for routine maintenance and inspection, including location and sizes of access doors.

PART 2 PRODUCTS

2.01 SYSTEM DESCRIPTION

A. All fire protection system materials and equipment shall be Underwriters Laboratories (UL) listed or the Factory Mutual (FM) approved for its intended use.

2.02 EQUIPMENT

A. Aboveground Piping Materials

1. BCS - Black Carbon Steel

a. All piping 2-inch and smaller: Schedule 40, black-carbon steel conforming to ASTM A53, or ASTM A135, threaded or roll grooved ends. All 1-inch pipe shall have threaded ends.

b. All Piping 2-1/2-inch through 8 inch: Schedule 10, black carbon steel conforming to ASTM A53 or ASTM A135, roll grooved ends.

2. GCS - Galvanized Carbon Steel

a. All piping 1/2- inch through 8-inch: Schedule 40 seamless or electric resistant welded galvanized steel conforming to ASTM A53/A53M, Type E (electric-resistance welded) or Type S (seamless). Type F (furnace butt welded continuous welded) is acceptable for sizes less than 2 inches.

B. Fittings and Couplings

1. Cast-Iron Threaded Fittings:

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a. ASME/ANSI B16.4, Class 125, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.

2. Malleable-Iron Threaded Fittings:

a. ASME/ANSI B16.3, Class 150, standard pattern, for threaded joints. Threads shall conform to ANSI B1.2.1.

3. Steel Fittings:

a. ASTM A234/A234M, seamless or welded, for welded joints.

4. Grooved Mechanical Fittings:

a. Grade 65-45-12 ductile iron; ASTM A47 Grade 32510 malleable iron; or ASTM A53, Type F or Types E or S, Grade B fabricated steel fittings with grooves or shoulders designed to accept grooved end couplings.

5. Grooved Mechanical Couplings:

a. consist of ductile or malleable iron housing, a synthetic rubber gasket of a central cavity pressure-responsive deign; with nuts, bolts, locking in, locking toggle, or lugs to secure roll-grooved pipe and fittings. Grooved mechanical couplings including gaskets used on dry-pipe systems shall be listed for dry-pipe service.

6. Cast-Iron Flanges:

a. ASME/ANSI B16.1, Class 125, raised ground face, bolt holes spot faced.

7. Unions:

a. Malleable iron, Class 150 hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces, female threaded ends. Threads shall conform to ASME B1.20.1.

8. Dielectric Unions:

a. Threaded, solder, or grooved-end connections as required to suit application' constructed to isolate dissimilar metals, prevent galvanic action, and prevent corrosion.

C. Pipe Hangers and Supports

1. Shall be UL listed and shall meet requirements of NFPA 13 for type, dimension and location.

2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

3. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.

4. Wall Support for Pipe Sizes to 3 inches: Cast iron hook.

5. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.

6. Vertical Support: Steel riser clamp.

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7. Hanger Rods: Use only circular solid cross section rod hangers to connect building structure attachments to pipe-support devices. Use pipe, straps, or bars of equivalent strength for hangers.

D. Fire Department Connections

1. Ensure hose connections have National Firehose standard-thread form and rocker lugs in accordance with NFPA 1963. Ensure hose-connection sizes and threads are compatible with the equipment used by the fire department serving the facility.

2. Wall Siamese

3. Provide cast brass or bronze flush-mounted escutcheon-plate units, with two 2-1/2-inch, fire- department, swivel, female inlets; double-clapper valves; rocker-lug caps and chains; and cast-in function-identifying lettering. Provide a unit and plate with an architect approved polished surface finish and in accordance with ASME A112.18.1.

4. Sidewalk Siamese

a. Provide cast brass or bronze flush-mounted escutcheon-plate units, with two 2-1/2-inch, fire-department, swivel, female inlets; double-clapper valves; rocker-lug caps and chains; and cast-in function-identifying lettering. Provide a unit and plate with an architect approved polished surface finish and in accordance with ASME A112.18.1. Mount unit on a Schedule 40 ASTM A53/A53M galvanized carbon-steel pipe

5. Roof Manifold

a. Provide a cast brass or bronze, horizontal unit, with two 2-1/2-inch, 175-pound rated hose valves fitted with rocker-lug caps and chains. Finish is rough body with polished trim.

E. Alarm Devices

1. General: Types and sizes shall mate and match piping and equipment connections.

a. Water Flow Indicators (Wet-pipe Systems): vane type waterflow detector, rated to 250 psi; designed for horizontal or vertical installation; have 2-SPDT circuit switches to provide isolated alarm and auxiliary contacts, 7 ampere 125 volts AC and 0.25 ampere 24 Volts DC; completed with factory-set, field-adjustable retard element to prevent false signals, and tamperproof cover.

2. Water Flow Indicators (Dry-pipe): pressure type waterflow detector, rated to 250 psi; designed for vertical installation; have 2-SPDT circuit switches to provide isolated alarm and auxiliary contacts, 7 ampere 125 volts AC and 0.25 ampere 24 Volts DC; complete with factory-set, field-adjustable retard element to prevent false signals, and tamperproof cover.

3. Electric Alarm Bell: UL listed 10” electric operated factory painted alarm bell with weatherproof bell kit and bell guard. Bell shall have minimum 90 decibel rating. Provided engraved plate under Bell lettered “Building Standpipe and Sprinkler System.”

4. Supervisory Switches: SPST, normally closed contacts, designed to signal valve in other than full open position and tamperproof cover.

2.03 Automatic Sprinklers

A. Sprinklers: type and style as indicated or required by application. Sprinkler operating temperatures to comply with NFPA 13. Sprinklers in light hazard areas shall be quick response type.

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B. Sprinkler Finishes: Provide sprinklers with the following finishes:

1. All sprinklers are to be glass bulb type unless otherwise approved by Owner or Architect.

2. Finished areas: Upright, pendent and sidewall type, with finish with matching escutcheons as indicated on drawings or approved by Owner or Architect.

3. Unfinished areas and areas not exposed to view: Upright, pendent and sidewall type, rough bronze finish. Sprinklers shall be was-coated where installed exposed to acids, chemicals, or other corrosive fumes.

4. Corrosive environments: Lead -coated, corrosion-resistant heads in all areas exposed to acids, chemicals, fumes, or environments.

C. Sprinkler Cabinet and Wrench: Provide a finished steel cabinet, suitable for wall mounting, with hinged cover and space for the appropriate quantity of spare sprinklers plus sprinkler wrench. Provide a separate cabinet for each style sprinkler on the project.

D. Head Protection

1. Protect heads with paper or plastic bags during painting operations. Remove protection immediately upon finishing painting operations.

2. Provide head guards wherever mechanical damage could occur. Guard finish is red enamel.

E. Aboveground Valves

1. Ensure gate, globe, and check valves (all sizes) are FM approved or UL listed.

2. Ensure ball valves, 2 inches and under, are FM approved, rated 300 psi, with provisions to wire or lock handle in place where critical alarm function may be isolated.

3. Ensure butterfly valves, 6-inches and larger are FM approved, rated 175 psi, cast-iron bodied wafer type, with elastomer liners and seals.

F. Paints and Coatings

1. Paints and coatings must comply with:

a. The California Department of Public Health (CDPH) Standard Method v1.1-2010 general testing and emissions evaluation requirements.

b. All paints/coatings wet-applied on site must meet the applicable VOC limits of the California Air Resources Board (2007), Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3, 2011.

G. Adhesives, Sealants, and Sealant Primers

1. Adhesives, sealants, and sealant primers must comply with:

a. The California Department of Public Health (CDPH) Standard Method v1.1-2010 general testing and emissions evaluation requirements.

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b. All adhesives, sealants, and sealant primers wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005, Adhesive and Sealant Applications, as analyzed by methods specified in Rule 1168.

PART 3 EXECUTION

3.01 Preparation

A. Painting

1. If manufacturer's standard-finish equipment surfaces are damaged during construction, bring to as- new condition by touchup or repainting to the satisfaction of the Contracting Officer, or replaced with new undamaged equipment at no additional cost to the Owner.

3.02 Installation

A. Ensure installation of system materials and equipment is in accordance with the recommendations and provisions of NFPA 13. Perform work in the presence of the Contracting Officer.

B. Perform all installation work by licensed fire protection sprinkler contractors, licensed for such work in the state where the work is to be performed.

3.03 Underground Piping Installation

A. The fire protection water main shall be laid, and joints anchored, in accordance with NFPA 24. Minimum depth of cover shall be 3-feet. The supply line shall terminate inside the building with a flanged piece, the bottom of which shall be set not less than 6-inches above the finished floor. A blind flange shall be installed temporarily on top of the flanged piece to prevent the entrance of foreign matter into the supply line.

B. Thrust Blocks

1. Construct 3,000-psi cured-strength thrust blocks to absorb hydraulic thrust at caps, plugs, and at system change-of-direction fittings. Place concrete against undisturbed soil, with an area sufficient to provide load transmittal.

3.04 Aboveground Piping Installation

A. Locations and Arrangements: Coordinate installation of horizontal piping with other components. Allow sufficient space above removable ceiling panels to allow for panel removal.

B. Install system such that all piping is rigidly secured and supported. Cutting of structural members for passage of sprinkler pipes or hangers will not be permitted. Route all sprinkler piping and provide all offsets, bends and elbows around all mechanical, electrical, and structural members as required. In areas with ceilings, piping shall be routed concealed, above ceiling. In areas without ceilings, piping shall extend as high as possible.

C. Deviations from approved “Working Plans” for sprinkler piping require written approval of the Authority Having Jurisdiction. Written approval shall be on file with the Engineer prior to deviating from the approved “Working Plans.”

D. Install sprinkler piping to provide for system drainage in accordance with NFPA 13.

E. Use approved fittings to make all changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

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F. Hangers and Supports: Comply with the requirements of NFPA 13. Hanger support spacing and locations for piping joined with grooved mechanical couples shall be in accordance with the grooved mechanical coupling manufacturer's written instructions, for rigid systems. Provide protection from damage where subject to earthquake if required by the applicable building code, designed in accordance with NFPA 13.

G. Make connections between underground and aboveground piping using an approved transition piece strapped or fastened to prevent separation.

H. Install mechanical sleeve seal at pipe penetrations in basement and foundation walls.

I. Install test connections sized and located in accordance with NFPA 13 complete with shutoff valve. Test connections may also serve as drain pipes.

J. Install pressure gauge on the riser or feed main at or near each test connection. Provide gauge with a connection not less than ¼ inch and having a soft metal seated globe valve arranged for draining pipe between gauge and valve. Install gauges to permit removal, and where they will not be subject to freezing.

K. Install automatic air vent at high point of system(s) in accordance with NFPA 13.

L. Sleeves

1. Provide sleeves where piping passes through roofs, masonry or concrete walls, or floors.

M. Continuously weld or braze sleeves to the deck when passing through steel decks.

1. Install sleeves that are continuous when extending through floors, roofs, or load-bearing walls, and sleeves through fire barriers. Fabricate sleeves from Schedule 40 steel pipe with welded anchor lugs. Form other sleeves by molded linear polyethylene liners or similar materials that are removable. Ensure diameter of sleeves is large enough to accommodate pipe, insulation, and jacketing without touching the sleeve, and additionally provides a minimum 3/8-inch clearance. Install sleeve to accommodate mechanical and thermal motion of pipe and to preclude transmission of vibration to walls and generation of noise.

2. Pack solid the space between a pipe and the inside of a pipe sleeve or a construction surface penetration or wherever the piping passes through firewalls, equipment-room walls, floors, and ceilings connected to occupied spaces, and other locations where sleeves or construction-surface penetrations occur between occupied spaces. Use a mineral fiber. Where sleeves or construction- surface penetrations occur between conditioned and unconditioned spaces, fill the space between a pipe, bare or insulated, and the inside of a pipe sleeve or construction-surface penetration with an elastomer caulk to a depth of 1/2 inch. Ensure surfaces are oil- and grease-free before caulking.

3. Caulk exterior wall sleeves watertight with lead and oakum or mechanically expandable chloroprene inserts with mastic-sealed components.

N. Escutcheons

1. Install escutcheons at penetrations of piping into finished areas. Where finished areas are separated by partitions through which piping passes, provide escutcheons on both sides of the partition. Where suspended ceilings are installed, attach plates at the underside only of such ceilings. Use chrome plated escutcheons in occupied spaces and conceal openings in building construction. Ensure escutcheons are firmly attached.

3.05 Field Quality Control

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A. System Testing

1. Prior to acceptance of the work, test completed systems in the presence of the Contracting Officer. Upon approval, provide certificates of testing.

2. Conduct a hydrostatic test, unless otherwise specified. Use only potable water for testing.

3. Perform air tests, valve-operating tests, and drainage tests for dry-pipe systems.

4. Prepare and maintain test records of piping-system tests. Ensure records show personnel responsibilities, dates, test-gage identification numbers, ambient and test-water temperatures, pressure ranges, rates of pressure drops, and leakage rates. Each test acceptance requires the signature of the Contracting Officer.

B. Test Gauges

1. Acceptable test gages have 4-1/2-inch dials or larger with accuracy of plus or minus 1/2 of 1 percent of full-scale range and dial graduations and pointer width compatible with readability to within one-half of the accuracy extremes.

C. Pneumatic Testing

1. Perform pneumatic Pressure Tests when freezing conditions may occur and upon prior approval by the Contracting Officer. Use oil-free compressed air used for testing.

D. Test and Acceptable Criteria

1. Perform above ground systems pressure tests at 200 psi and maintain the applied pressure without further addition of test media for not less than 2 hours. No pressure drop is allowed.

3.06 Adjusting and Cleaning

A. At the completion of the work, clean all parts of the installation. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system. Adjust automatic control devices for proper operation.

3.07 Protection

A. Flushing

1. Before overhead sprinkler piping can be connected to the underground piping, verification of an approved hydrostatic test and flush must be furnished.

END OF SECTION

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SECTION 21 1313
WET-PIPE SPRINKLER SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK:

A. Extent of the work is indicated on the Drawings and Schedules and by the requirements of this Section.

B. The construction requirements herein shall include appurtenant structures and buildings to which the system is to be installed.

1.02 DESIGN CRITERIA:

A. Provide a hydraulically designed, complete automatic sprinkler system with the following hazard types: Restrooms, hallways, classrooms - Light Hazard. Lab classrooms, Mechanical – Ordinary Hazard Group I.

B. Wet systems serving Light Hazard area systems shall be hydraulically calculated to a design density of 0.1 gpm/sf over the most remote 1,500 sf. Wet systems serving Ordinary Hazard Group I areas shall be hydraulically calculated to a design density of 0.15 gpm/sf over the most remote 1,500sf.

C. Gridded sprinkler systems may be used on wet pipe systems where they are practical.

D. All areas of the building, except as noted, shall be completely sprinklered including the following areas:

1. Electrical Rooms that are not enclosed within two-hour walls

2. Elevator Shafts

3. Telephone Rooms

4. Stairwells (at top level and below lowest level)

1.03 QUALITY ASSURANCE:

A. All materials and equipment shall comply with requirements as specified in this section of these specifications.

B. All materials and equipment furnished and installed under this section of these specifications shall be new and in first class condition.

C. All materials and equipment furnished and/or installed by Contractor found to be in non-compliance with these specifications shall be removed and replaced with materials complying with this section of these specifications at Contractor's expense.

D. Codes and regulations referred to are minimum standards. Where the requirements of these specifications or drawings exceed those of the codes and regulations, the drawings and specifications shall govern.

E. Manufacturing firms shall be regularly engaged in the manufacture of fire protection products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than five (5) years.

F. Installation Firms shall have at least five (5) years of successful installation experience on projects with fire protection work similar to that required for the project.

1.04 SUPPLEMENTAL STANDARDS:

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A. Provide fire protection products which are Factory Mutual Approved or UL Listed.

B. Comply with local Fire Department regulations for sizes, hose threads and arrangement of connections for fire department equipment to fire department valves, and fire department connections.

1.05 DESCRIPTION AND REQUIREMENTS:

A. The work under this section of the specifications includes labor, materials, supervision and testing of the automatic sprinkler and associated systems.

B. The automatic sprinkler and associated systems shall be complete with all component equipment and material items, and installed and tested in full conformity with the requirements of all applicable codes, National Fire Protection Associations Standards, authorities having jurisdiction and the Owner's insurance company.

C. Provide chrome metal wall plates and/or escutcheons on all exposed piping which penetrates walls, floors, etc. Plastic wall plates are not acceptable.

D. The installed layout of the sprinkler system shall be coordinated to avoid interference with the structural, electrical, mechanical, and plumbing work in the building.

E. Sprinklers shall be located as required to provide coverage as required by applicable standards and the Contract Documents.

F. Sprinklers shall be located to avoid interference with lights, diffusers, grilles, or other ceiling mounted equipment. Sprinklers located in ceiling tile shall not be closer than 12 inches to "T" bars and centered. The sprinkler layout shall conform to the typical pattern.

G. Provide vane-type electric flow switch on each riser. Also provide tamper switches on all control valves to be interfaced with fire control panel. Wiring shall be by characteristics of each switch necessary for compatibility with the fire alarm control panel.

H. Locate all inspector tests and drain lines in mechanical room and “back-of-house” type spaces. Main drains and auxiliary drains are to be extended through the nearest exterior wall.

I. Provide backflow prevention. Backflow preventer OS&Y valves shall be equipped with tamper switches.

J. All piping in exposed structure areas shall be installed above the bottom chord of the bar joists.

1.06 APPROVALS:

A. Contractor shall submit for approval to the Architect, the Owner's insurance company and local authorities having jurisdiction, shop drawings, including site plans and details of installation, product submittal data and copies of all material and test certificates.

B. Installing Contractor shall anticipate a minimum of 30 days turn-around for reviewing sprinkler shop drawings by Architect-Engineer and Owner's insurance company. Installing Contractor shall submit shop drawings for review on a timely schedule so as not to impact construction schedule.

C. Floor plans on all shop drawings shall be prepared at a scale of 1/8"=1' unless local jurisdictional authority requires drawings be prepared at larger scales, in which case local requirements shall be met. Details and part plans may be at larger scales as appropriate. Prepare shop drawings on sheets 30" by 42". Except as indicated herein, drawings shall be in accordance with the requirements for working drawings as outlined in NFPA 13.

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D. Plans submitted for approval to Architect shall be in the form of one reproducible set in rolled form, not folded. All other plan submittals to Owner's insurance company and local authorities shall be standard blueline prints in quantities as required by those persons.

E. All submittals (except for insurance submittal) for shop drawing review must be submitted directly to Architect. No submittals shall be made direct to Engineers. Submittals shall be made in one submission only; no partial submittals will be accepted. Partial submittals will be held until all components are received and may delay shop drawing review.

1.07 SUBMITTALS:

A. The following information is required for sprinkler plan submission:

1. Physical Characteristics (Cross Section Through Building)

a. Storage height.

b. Roof height.

2. Sprinkler Design

a. Densities.

b. Areas of operation. (Include key plan on each drawing.)

3. Water Supply

a. Static pressure, residual pressure, and flow.

b. Date of flow test.

c. Location of flow test hydrants shown on site plan.

d. Elevation referenced to finished floor level.

e. Source of water.

f. On-site verification water flow test as referenced under "Flow Tests".

4. Manufacturer's Data

a. Pipe, fittings, and mechanical couplings.

b. Alarm valves.

c. All control, globe, and check valves.

d. Water motor alarm and gongs.

e. Sprinklers.

f. Pipe hangers and supports.

g. Water flow and tamper switches.

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h. Fire department connection

i. Chrome metal wall plates and escutcheons.

j. Underground pipe, valves, fittings and hydrants.

k. Hose stations.

l. Backflow preventer with pressure loss curves.

5. A machine copy of the hydraulic calculation nameplate properly filled out for each system shall be submitted to the Architect-Engineer along with the manufacturer's submittal data and shop drawings referenced above.

B. Site Plan Drawing

1. Installing Contractor is to submit with interior sprinkler shop drawings a complete site plan drawing prepared by the sprinkler contractor showing location of all underground fire mains, size and type of pipe and hydraulic calculation reference points. This requirement is necessary even though the actual installation of the final underground piping layout may not be in the Contractor's scope of work.

2. Indicate location and type of all fire hydrants.

3. Detail construction of all meter pits, etc., required by code or local authorities.

4. Show results of water flow test.

5. Indicate elevation at all hydrant reference points.

6. Show location of flow test hydrants and source of water.

7. Scale of site plan shall be as required to fit site on sheet; preferably the same scale of civil engineering drawings provided for this project where they are provided.

C. Hydraulic calculations shall be submitted with drawings and manufacturer's data sheets. Calculations shall include all documentation as required by NFPA 13 current edition, including cover sheet.

1.08 RECORD “AS BUILT” DRAWINGS:

A. Provide as-built drawings to the Contractor to be turned over to the Owner at the completion of the project.

1.09 FLOW TESTS:

A. Flow test data may be provided as part of the contract documents and may be used as a preliminary indicator of available water supply only. Flow test data may also be available from the local water supplier and should also be considered only as preliminary.

B. Each contractor submitting a bid on this project shall verify flow test information in the vicinity of the project by his own water flow test at the indicated hydrants. No requests for change orders will be accepted because successful contractor did not verify water supply information obtained from local authorities or did not run his own test prior to submitting his bid.

C. All flow test data shall be subject to the "10% rule" as defined in this paragraph. Before any calculations or supply curve plotting, reduce the reported static and residual pressures by 10%. Make no reduction to the flow rate reported.

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D. Provide a reserve supply of sprinklers as required by NFPA 13 current edition. The sprinklers and tools shall be contained in a metal carrying case.

1.10 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to job site in new and in first class condition.

B. Store materials and equipment utilizing suitable means so as to protect from weather, construction work traffic and contamination. Where materials and equipment are stored outdoors, Contractor shall cover in a suitable manner to prevent contamination from water, dirt, mud and/or debris. Materials and equipment shall not be laid on grade for storage.

C. Materials and equipment found to be contaminated with water, dirt, mud and/or other debris shall be cleaned and restored to new condition to the satisfaction of the Architect. Contaminated materials and equipment shall not be used until inspected. Materials and equipment determined to be unsuitable for use by the Architect shall not be used and shall be removed from the job site at the Contractor's expense.

PART 2 - PRODUCTS

2.01 MATERIALS AND PRODUCTS:

A. Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Provide sizes and types of materials to match piping and equipment connections; provide fittings of materials which match piping materials used in fire protection systems.

2.02 PIPE:

A. Above Ground Piping

1. All piping shall be new, designed for 175 PSI working pressure conforming to ASTM specifications and approved for fire sprinkler specifications.

2. All pipe shall be black steel unless galvanized is indicated for particular pipe sections on the drawings.

3. Schedule 40 piping may be used for piping 2" and smaller and may be joined by threading, roll grooving, or welding.

4. Schedule 10 piping may be used in all sizes and may be joined by roll grooving or welding only.

B. Fittings

1. Screwed fittings shall be standard approved, Class 250, cast iron or Class 150 malleable iron.

2. Flanged fittings shall be approved, short body, Class 250, black cast iron. Gaskets shall be full face, 1/8" minimum thickness red rubber.

3. All welded fittings shall be of the approved type and all welding according to NFPA requirements. No field welding will be permitted.

4. Mechanical couplings shall be approved for grooved end connections equivalent to Victaulic Style 75. All grooved couplings and fittings used throughout this project shall be from the same manufacturer. Grooved couplings and fittings shall be Grinnell Gruvlok, Gustin Bacon, or Victaulic.

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5. Slip on fittings shall not be used. "Victaulic Fit" and "Victaulic Pressfit" and similar products are forbidden on this basis.

6. All inspector tests, drains and drum drips shall be Schedule 40 threaded.

7. Strap on tees or outlets may not be used. "Victaulic Snap-Let" or similar products and "Victaulic Style 921" or similar products are forbidden on this basis.

8. "Victaulic Style 920" mechanical tee or cross or similar products may be used.

C. Underground Piping

1. Underground pipe shall be PVC, C 900, Class 150 or Class 200. Fittings shall be Class 250 and installed in strict accordance with NFPA 24. All bends shall be rodded and thrust blocked.

2. Pipe passing under building grade beams shall have a 6" minimum clearance to prevent possible damage from building settlement.

3. All underground piping shall be flushed in accordance with NFPA #24.

2.03 JOINTS:

A. Threaded joints shall be made up with piping compound or teflon tape applied to the male threads only.

B. Welded joints shall be done by qualified welders per the requirements of Division 23.

C. Flanged joints shall be made up with rubber gaskets and assembled with machine bolts with hexagon heads made of open hearth steel.

D. Soldered joints shall be made using suitable flux and solder as specified.

2.04 BASIC HANGERS AND SUPPORTS:

A. Refer to Division 23, Pipe Hangers, Supports, and Anchor, Section 23 05 29.

B. Supports shall comply with provisions of NFPA 13 except where superseded by these herein and Section 23 05 29.

2.05 VALVES:

A. Valves as indicated shall be provided by Milwaukee, Nibco, Victaulic, Grinnell or Mueller.

B. All valves shall be designed and manufactured with back seating features to allow them to be repacked under pressure when in the fully opened position.

C. Provide valves of one manufacturer wherever practical to achieve maximum possible uniformity and facilitate maintenance.

D. All valves must be listed for use in sprinklers systems in the latest edition of Factory Mutual Approval Guide and U.L. listed.

1. Gate valves 2" and smaller shall be of Class 250, with body and bonnet, cast bronze composition, threaded ends, OS&Y, solid disc.

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2. Gate valves 2-1/2" and larger shall be rated 250 psi WWP, iron body, bronze mounted, with body and bonnet, Class B cast iron, OS&Y, flanged or threaded end.

3. Ball valves 2" and smaller shall be constructed of commercial brass rod, with Teflon seats, blowout proof stem.

4. Butterfly valves 4" through 12" may be substituted for gate valves, where appropriate. Valves shall be rated for 250 PSIG working pressures. Valve bodies may be ductile iron or aluminum bronze and wafer or lug style.

5. Check valves 2-1/2" - 12" shall be rated 250 PSI WWP, iron body, bronze mounted, OS&Y flanged end.

6. Pressure ratings of valves shall be as required to meet the pressure conditions to which they are likely to be exposed or the ratings listed above, whichever is greater.

2.06 WATERFLOW INDICATOR:

A. Waterflow indicator shall be vane type with adjustable retard and two sets of single pole, double throw contacts for A.C. or D.C. operation.

2.07 O.S. & Y. VALVE SUPERVISORY SWITCH:

A. Valve supervisory switch for O.S. & Y. gate valves shall be provided with tamperproof cover and two sets of single pole, double throw contacts for A.C. or D.C. operation, bracket and J-bolts. Unit shall be U.L. Listed and F.M. Approved.

2.08 SPRINKLERS:

A. 1/2" brass pendent sprinkler, ordinary temperature, with concealing bracket and cover assembly. Cover shall be factory painted in a color selected by the Architect to match finish of ceiling in which it is installed, for use in all gypsum board ceilings.

B. 1/2" chrome pendent sprinkler, ordinary temperature, with chrome plated, semi-recessed escutcheon, for use in all lay-in tile ceilings.

C. 1/2" brass upright sprinkler, ordinary temperature, for use in areas without ceilings.

D. 1/2" sidewall sprinklers in Guestrooms

E. 1/2" brass upright sprinkler, intermediate temperature, for use in areas above high ceiling space and electrical rooms.

F. Acceptable sprinkler manufacturers are: Viking, Tyco, and Victaulic.

2.09 FIRE DEPARTMENT CONNECTIONS:

A. Fire department connection shall be two-way 4" x 2½" wall mounted type with drop clappers. Unit shall be complete with inlets with caps, chains and cast brass body. All exposed surfaces shall be polished chrome plate. Fire department connection shall be labeled with the name of the fire protection system served. The connection to the fire department shall be provided with an automatic ball drip with discharge drain line. The exact location shall be coordinated with the Fire Marshal prior to submission of the sprinkler shop drawings. Any adjustments in pipe routing shall to the Fire Dept. connection shall be included in the contractor's scope of work at no additional cost to the Owner.

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PART 3 - EXECUTION

3.01 GENERAL:

A. Contractor shall not fabricate and/or install fire sprinkler systems until Architect/Engineer has reviewed shop drawings / submittals for compliance with engineer design concept.

B. Any fire sprinkler systems fabricated and/or installed prior to the Architect/Engineer's review found to be in non-compliance shall be removed or corrected as per instructions from Architect/Engineer at Contractor's expense.

3.02 PROCEDURE:

A. Valves in horizontal piping shall be installed with stems at or above the pipe centerline.

B. Automatic air vents shall be installed with gate valves.

C. Provide gate, globe and check valves throughout systems where shown and where necessary to properly regulate and control the systems. Valves shall be the full size of the lines and shall be designed for low pressure drop. Gate and globe valves shall have provision for repacking when open and under pressure.

3.03 SPRINKLERS:

A. Provide basket type guards over all upright sprinklers.

B. Sprinklers shall be provided above and below all ductwork or other obstructions greater than 4'-0" in width.

C. Sprinklers shall be centered in 2 x 2 ceiling tiles and at least 12" from each of 2 x 4 ceiling tiles.

D. Provide shields on all sprinklers located near electric panels to limit the sprinkler discharge on the panels.

E. Install sprinklers so that heads are located no closer than 1'-0" to lights, diffusers, or other obstructions.

F. Where sprinklers are exposed to exterior sprinklers must be wax coated to protect exposed surfaces from corrosion.

3.04 INSTALLATION:

A. The fire protection system shall include all signs, test connections, and drains required by NFPA 13.

B. Comply with requirements of NFPA 13 for installation of fire protection piping materials. Install piping products where indicated, in accordance with manufacturer's written instructions.

C. Coordinate with other work, including plumbing piping, as necessary to interface components of fire protection piping properly with other work.

D. Fire mains, crossmains, and branch piping shall not be installed inside or above the ceiling of Electrical Equipment Rooms, Telephone Rooms, Elevator Equipment Rooms, or other rooms of similar usage. Only sprinkler branch piping which serves sprinklers located inside such rooms shall be permitted to be installed within room.

E. Automatic sprinklers protecting elevator shafts shall have a supervised control valve located in an accessible location outside of the room, so that sprinkler heads in these areas may be shut down separately.

F. All valves in direct flow of water to sprinklers, standpipes or exterior connections shall be provided with valve position supervisory switches.

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G. Waterflow indicators shall be mounted horizontally or vertically on top of pipe. Adjust retard to provide maximum of 30 second delay. Schedule 40 pipe must be provided for waterflow indicator.

H. O.S. & Y. valve stem shall be carefully filed to accommodate stem of valve switch.

3.05 DRAINS:

A. All trapped sprinkler piping shall be provided with drain valves and shall be routed to and discharged over the nearest suitable floor drain, hub drain or service sink. Drain valve shall be located at the point of discharge.

B. All drains and inspector's test connections located on exterior walls shall be painted to match exterior and penetration shall be sealed and provided with chrome plated escutcheon secured to wall.

3.06 ANCHORAGES:

A. General: Provide concrete thrust block anchorages for underground tees, plugs, caps, and bends in accordance with NFPA 24. Provide rods and clamps on fittings located underground inside building as shown on drawings.

B. After installation, apply a full coat of asphalt or other acceptable corrosion retarding material to surfaces of rods and clamps.

3.07 IDENTIFICATION:

A. Install signs on all inspector's test connections, auxiliary drains, drain valves, etc., in accordance with NFPA 13.

B. Access panels provided for valves concealed above ceilings or inside partitions must be provided with permanently attached signs identifying control valve or drain.

3.08 ADJUST AND CLEAN:

A. Sprinkler Piping Flushing: Prior to connecting sprinkler risers for flushing, flush water feed mains, lead in connections and control portions of sprinkler piping. After fire sprinkler piping installation has been completed and before piping is placed in service, flush entire sprinkler system as required to remove foreign substances, under pressure as specified by NFPA 13, current edition. Continue flushing until water is clear, and check to ensure that debris has not clogged sprinklers.

3.09 TESTING:

A. Hydrostatic Testing: After flushing system, test fire sprinkler piping hydrostatically, for a period of 2 hours, as follows:

1. 150 psi or less, test pressure 200 psi

2. 151 psi or more, test pressure 50 psi above normal operating pressure

B. Check system for leakage at joints. Measure hydrostatic pressure at low point of each system or zone being tested. No drop in pressure is permitted.

3.10 PAINTING:

A. Painting of properly prepared sprinkler piping and equipment shall be by the Contractor.

B. The Contractor is to remove all labels, stickers, fabrication identification tags, excess pipe dope and teflon tape from sprinkler piping before system is painted.

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C. The Contractor is to install protective plastic bags on all sprinkler heads in areas where roof deck and/or structural system is to be painted.

D. The Contractor will remove all plastic bags after the final painting is complete.

E. The Contractor shall furnish a signed statement on his letterhead and place it in the operating instruction and maintenance manuals that he has verified that all plastic bags have been removed.

F. Any sprinkler head not protected from painting and subsequently receiving paint coating shall be replaced. Cleaning of sprinkler heads to remove paint is not acceptable.

3.11 WARRANTY:

A. Provide a written warranty in accordance with the general conditions.

B. This warranty shall further provide that in the event of the failure of any system or its component equipment items or the improper functioning thereof, during the period of the warranty, the contractor shall have available and "on call" competent service personnel for the restoration of all systems and equipment for complete operation. Should the nature of the failure be such as to present an emergency in the opinion of the Owner, such personnel shall be promptly available regardless of the hour of the day or the day of the week. Should the failure be such as to fall under the warranty, the cost of the service shall be borne by the contractor -otherwise, the Owner will pay therefore at the prevailing rate for such services.

C. If service personnel of the installing contractor are not promptly available "on call," the Owner may employ such personnel as are available to him, at the expense of the installing contractor.

D. Inspection and Tests

1. All inspections, examinations and tests required by NFPA, local authority having jurisdiction, and Owner's insurance company shall be arranged as necessary to obtain complete and final acceptance of the sprinkler system. The Contractor shall deliver certificates of all inspections and tests to Architect.

2. At job conclusion the entire system shall be flushed out and left clean in every respect.

3. After systems have been installed, tested and accepted, contractor is to provide three (3) copies of operating instructions and maintenance manuals complete with a copy of approved shop drawings, copy of NFPA-25, spare parts lists and phone numbers of emergency repair personnel to Architect. A copy of hydraulic calculation nameplate as installed on each riser shall be included in O & M manuals.

4. Provide three (3) copies of underground material and test certificate.

3.12 QUARTERLY INSPECTIONS:

A. Installing Sprinkler Contractor is to provide a minimum of four (4) on-site sprinkler system inspections during the one (1) year warranty period.

1. Inspections to consist of all items outlined in NFPA-25 such as lubricating valve stem of valves, replacement of F.D.C. (fire department connection) break-off caps if missing, etc.

2. After each quarterly inspection, copies of inspection reports outlining results and listing any problems observed shall be forwarded to the Owner, Owner's insurance company, and Architect and Engineer of Record.

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END OF SECTION

SECTION 22 0010
BASIC PLUMBING REQUIRMENTS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Basic Plumbing Requirements specifically applicable to Division 22 Sections, in addition to Division 01 - General Requirements.

B. DESCRIPTION

C. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as required to complete the work of this section, except as otherwise herein specifically excluded.

D. REFERENCES

E. Section 23 08 01 - Commissioning of Building Systems

F. WORK INCLUDED

G. The complete Plumbing systems (including Fire Protection systems), including but not limited to these major items.

1. Coordinate work of this Section with related trades.
2. Verify applicable dimensions at the jobsite.
3. Furnishing and installation of miscellaneous hangers, supports, sleeves, inserts, anchors and other auxiliary equipment for systems under this Division.
4. Soil waste and vent system inside and outside the building including connections to fixtures, equipment, sewer connections, clean-outs.
5. Water piping systems inside and outside the building, including connections to fixtures, equipment, water meters and vaults; pressure regulating stations, backflow preventers.
6. Interruptible and non-interruptible fuel gas systems inside and outside the building, including connections and earthquake valves.
7. Plumbing fixtures, carriers, fittings, trim, hose bibs, wall hydrants, and accessories.
8. Installation and connection of Owner furnished equipment.
9. Natural gas piping system including connections to equipment and site.
10. Water heating systems, including water heating equipment, circulating pumps, connections.
11. Shop drawings.
12. Equipment identification.
13. Equipment and systems adjustments and balancing.
14. Air, water and gas systems testing, adjusting and balancing.

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15. Written operating and maintenance instructions.

16. Record drawings.

17. Guarantee

1.02 WORK SPECIFIED ELSEWHERE

A. Concrete, Architectural Sheet Metal, Door and Exterior Wall Louvers, Painting and Electrical.

1.03 SITE INSPECTION

A. Contractor shall familiarize himself with the conditions at the site. No allowance will be made subsequently for any error through negligence in observing the site conditions. Contractor shall observe and make cost allowance for any mechanical and/or electrical items that must be relocated to accommodate the installation or servicing of any item covered under this contract.

B. ORDINANCES, REGULATIONS AND CODES

C. References to Technical Societies, Trade Organizations, Governmental Agencies is made in Division 15 inch accordance with the following abbreviations.

1. AFI - Air Filter Institute

2. AMCA - Air Moving & Conditioning Association

3. ARI - Air Conditioning & Refrigeration Institute

4. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers

5. ASME - American Society of Mechanical Engineers

6. ASTM - American Society of Testing Materials

7. AWSC - American Welding Society Code

8. ANSI - American National Standards Institute

9. CBC - California Building Code

10. CCR - California Code of Regulations

11. CEC - California Electrical Code

12. CFC - California Fire Codes

13. CMC - California Mechanical Code

14. CPC - California Plumbing Code

15. FIA - Factory Insurance Association

16. NAFM - National Association of Fan Manufacturers

17. NEMA - National Electrical Manufacturer's Association

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18. NFPA - National Fire Protection Association

19. ORS - Office of Regulatory Services

20. SCAQMD - South Coast Air Quality Management District

21. SMACNA - Sheet Metal and Air Conditioning Contractors National Association

22. UFC - Uniform Fire Code

23. UL - Underwriter's Laboratories

24. UPC - Uniform Plumbing Code

D. Requirements of Regulatory Agencies: Materials and installation shall comply with applicable local, state, and national codes and ordinances. Rulings and interpretations of the enforcing agencies shall be considered as part of the local codes. No extras will be permitted for furnishing items required by the local codes but not specified or shown on the drawings.

E. Codes and Standards:

1. IBC and California Amendments (California Building Code - Part 2, Title 24, CCR).

2. UMC and California Amendments (California Mechanical Code - Part 4, Title 24 CCR).

3. UPC and California Amendments (California Plumbing Code - Part 5, Title 24 CCR).

4. Uniform Fire Code with State Amendments (California Fire Code - Part 9, Title 24 CCR).

5. National Fire Protection Associations - National Fire Code.

F. Nothing in these drawings and specifications is to be construed to permit work in violation thereof. Ordinances, regulations and codes are to be construed as minimum requirements.

G. The responsibility of the Architect to conduct construction reviews of the Contractor's performance is not intended to include the adequacy of the Contractor's safety measures in, on, or near the construction site.

H. Ventilating, refrigeration and electrical equipment and appliances are required to be approved by the Underwriters' Laboratories, Inc., or other nationally recognized testing agency and installed per the testing agency's specifications.

1.04 PERMITS, FEES AND INSPECTIONS

A. Obtain and pay for all necessary permits, fees, assessments, complimentary drawings, required by any legally constituted public authorities having jurisdiction.

1.05 DRAWINGS AND SPECIFICATIONS

A. The Architect's decision will be final on interpretation of the Drawings and Specifications.

B. The Drawings and Specifications are complimentary. Any work called for on the Drawings and not mentioned in the Specifications, or vice versa, shall be performed as though fully set forth in both.

C. Piping, ductwork and other equipment shown as existing has been taken from the Owner's drawings. Contractor shall verify exact location in field before proceeding with the work.

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D. Where codes, standards, drawings or specifications conflict, the most stringent shall prevail, unless prior approval for variance is obtained. Specific details on the drawings shall supersede the specification in the event of a conflict.

E. Alternate support or seismic detail shall have prior approval by the Architect; and the Contractor shall obtain agency approval without any additional cost or time to the contract and without any time penalty on the work schedule.

1.06 SUBMITTALS

A. Before starting work, the Contractor shall furnish for the approval of the Architect, Shop Drawings and Submittals with Itemized Equipment Lists, complete in all details that they proposes to install. All items shall be submitted at the same time.

B. Submittals must be specific to this project with respect to model number, capacities, performance, etc., generic submittals will not be accepted.

C. Variations or deviations on submitted items from that specified must be clearly tagged and / or identified

D. Submittals shall include, but not necessarily be limited to the following which are mandatory:

1. Draw Equipment Layouts to ¼" scale, including equipment, piping accessories, and showing clearances for operating and servicing.

2. Schedule of pipe, fittings, valves, with manufacturer and catalog number.

3. Specialties, valves, gauges and thermometers of all types.

4. Foundations, supports, hangers, inserts.

5. Insulation.

6. Shop fabrication drawings and installation drawings of ductwork and piping layouts. Submit for approval prior to fabrication. Drawings shall indicate dimensions from bottom of piping and ductwork to finish floor level.

7. Access panels.

8. Clean-outs

9. Fixture carriers.

10. Hangers, inserts, supports, anchors.

11. Hose bibs.

12. Hot water circulators.

13. Pipe, fittings and specialties.

14. Pipe isolators.

15. Plumbing fixtures, fittings, trim, drains and receptors.

16. Pressure regulators.

17. Roof flashing.

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18. Sleeves, escutcheons, caulking, waterproofing, fireproofing.

19. Strainers

20. Water hammer arrestors.

21. Water heating equipment.

22. Shop fabrications drawings and calculations.

23. Special and miscellaneous products furnished under this section and not listed herein.

1.07 RECORD DRAWINGS AND MANUALS

A. Record Set During the Work: At site, maintain at least one set of Drawings as a Field Record Set. Also maintain at least one copy of all Addenda, Modifications, approved submittals, correspondence, and transmittals at site. Keep Drawings and data in good order and readily available to Architect and Owner.

B. Changes: Clearly and correctly mark Record Drawings to show changes made during the construction process at the time the changed work is installed. No such changes shall be made in the work unless authorized by the Architect.

C. Final Record Drawings: Conform to Division 1 requirements.

D. Preparation of Final Record Drawings: Contractor shall transfer recorded changes in the work indicated on the Field Record Set to the record set. Changes shall be neatly and clearly drawn and noted by skilled draftsmen, and shown technically correct.

E. Approval: Prior to Architect's inspection for Substantial Completion, submit the Final Record Drawings to the Architect for review, and make such revisions as may be necessary for Final Record Drawings to be a true, complete, and accurate record of the work.

F. Manuals: Obtain data from the various manufacturers and submit instruction, operation, and maintenance manuals as required and to the extent required under other Sections.

G. Contents: Each manual shall have an index listing the contents. Information in the manuals shall include not less than:

1. General introductions and overall equipment description, purpose, functions and simplified theory of operation.

2. Specifications

3. Installation instructions, procedures, sequences, and precautions, including tolerances for level, horizontal and vertical alignment.

4. Grouting requirements.

5. List showing lubricants for each item of mechanical equipment and recommended lubrication intervals.

6. Start-up and beginning operation procedures.

7. Operational procedures.

8. Shutdown procedures.

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9. Maintenance and calibration procedures

10. Parts lists

11. Name, address and telephone number of each manufacturer's local representative.

H. Manual Submittals: Unless otherwise specified, each submittal shall include two copies of each manual, one of which will be returned to the Contractor, marked to show the required review. When approved, deliver four copies to Architect unless otherwise specified.

I. "As-Built" drawings of ductwork and piping, including all elbows, transitions, damper and valve locations shall be provided prior to commencement of air and water balance.

1.08 QUALITY OF EQUIPMENT, MATERIALS AND WORKMANSHIP

A. Unless otherwise specified, equipment and materials used in the installation shall be new and in perfect condition when installed. Articles provided for the same general purpose or use shall be of the same make. Workmanship shall be of the best quality and none but competent mechanics skilled in their trades shall be employed. Furnish the services of an experienced superintendent, who shall be constantly in charge of the work, together with all necessary journeymen, helpers and laborers required.

1.09 SEISMIC DESIGN

A. Contractor shall be responsible for anchors and connections of mechanical work to the building structure including calculations for approval by structural engineer or for approval by inspector of record, as applies, for items or work, where approval is deferred or where alternate support or anchorage detail is proposed to prevent damage as a result of an earthquake, including manufactured equipment, the connection and integrity of shop fabricated and field fabricated materials and equipment. The anchorage of all pipes, ducts, conduits, fixtures, equipment, etc. shall withstand the lateral forces and shall accommodate calculated building displacement as required by the California Building Code, and local city/county codes. (Building equipment and connections therefore shall be designed to resist lateral seismic forces equal to 1.0 of equipment weight to working allowable stress. Cantilever posts supporting equipment shall be designed to resist lateral seismic forces equal to 0.5 of equipment weight to allowable working stress. Conform to the following:

1. In accordance with Title 24, 2019 CBC Chapter 16A, details shall be provided for the seismic anchorage of all mechanical and electrical equipment, anchorage details shall be based upon appropriate design calculations.

2. For equipment weighing 400 pounds or more anchorage details and appropriate design calculations shall be submitted as part of the mechanical and electrical drawings. "Deferred Approval" items will not be permitted unless specifically approved by the plan check supervisor.

   a. Exception: Attachments of equipment weighting less than 400 pounds and supported directly on the floor or roof structure, furniture, or temporary or movable equipment and equipment weighing less than 20 pounds that is supported by vibration isolation devices suspended from the roof, wall or floor, need not be detailed on the plans provided the following notes are included on the mechanical and electrical plans.

3. The seismic anchorage of mechanical and electrical equipment shall conform to C.C.R. Title 24, 2019 CBC Chapter 16A. Anchorage details for roof/floor-mounted equipment shall be shown on plans.

1.10 SUBSTITUTIONS AND CHANGES

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A. The design has been based on data from certain manufacturers, suitable for each application. Recommendations for alternative manufacturers are made for each product, except when "no substitutions permitted" is indicated.

B. It is the intent of the Owner to have this project constructed with materials, products and system originally designed and specified into the project.

C. Alternatives that may require the modification, realignment and/or adjustment of other associated components, including impact on other trades, shall be accomplished at no additional cost or time to the contract and shall have the approval of the Architect.

D. Substitutions shall be submitted addressing all features listed in the specifications. Features that deviate from the plans and specifications shall be clearly identified including justification for deviations. Design West Engineers will review initial submittal on substitutes only. Subsequent submittals made to correct deficiencies in original submittals will be reviewed at Contractor's expense based on Design West Engineer's hourly rate for engineering services.

E. Should the Contractor elect to propose substitutions for the Owner's interest, the substitutions shall be in compliance with Division 01.

1.11 APPROVALS

A. The Architect will have the right to accept or reject equipment, materials, workmanship, tests and determine when the Contractor has complied with the requirements herein specified.

1.12 SELECTION AND ORDERING OF EQUIPMENT AND MATERIALS

A. Immediately after award of the Contract and after the approval of submittals by the Architect, the Contractor shall arrange for the purchase and delivery of equipment and materials required, in ample quantities and at the proper time. He shall deliver to the Architect a complete list of equipment and materials ordered, giving descriptions, plate numbers, brochures, name of the wholesalers, date of the orders and approximate delivery dates.

1.13 LOCATIONS AND ACCESSIBILITY

A. Drawings show pipe and ductwork diagrammatically. Conform to Drawings as closely as possible in layout work. Vary run of piping, run and shape of ductwork and make offsets during progress of work as required to meet structural and other interferences as approved by Architect. Install piping and ductwork to best suit field conditions after coordinating with other trades. Run exposed piping and ductwork parallel to, or at right angle to, building walls. Keep horizontal lines as close to bottom of structures as possible. Conform to ceiling heights established on Drawings.

B. Install equipment in such a manner as to be readily accessible for maintenance and repairs. Install piping, ducts and conduit in such a manner as to preserve headroom, avoid obstructions and keep openings and passageways clear.

C. Installation at valves, thermometers, gauges, cleanouts, dampers, controls, steam and water specialties, duct access doors or any other indicating equipment or specialties requiring reading, adjustment, inspection, maintenance shall be conveniently and accessible located with reference to the finished building.

D. Where wall and ceiling access doors are required but not shown, such doors shall be furnished under other sections and as directed by the Architect. Coordinate this requirement with appropriate trade.

E. If changes in the indicated locations or arrangements are required, they shall be made without additional charges.

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F. In an existing area, where required, remove, reinstall, reconnect or replace, etc., any existing work to accommodate new work without any additional cost to the Owner. Material shall match existing, unless otherwise specified or approved in writing by the Architect.

G. Provide sheaves and belts if required, to Test, Adjust and Balance Agency, to allow air moving equipment to meet flow requirements specified at no additional cost to the Owner.

1.14 COORDINATION OF TRADES

A. Contractor shall coordinate all trades in the interest of obtaining the most practical overall arrangement of equipment, piping, conduit, and ducts and to maintain maximum headroom and accessibility.

B. No extras will be allowed for changes made necessary by interference between trades.

C. Submit Composite Drawings in accordance with Special Conditions. Include dimensioned plans, elevations, sections and details and give complete information particularly as to the kinds and types of materials and equipment, size and location of sleeves, inserts, attachments, chases, openings, conduits, ducts, boxes, lighting, structural interferences. Coordinate these Composite Drawings and field layouts in the field for proper relationship to work of applicable trades based on field conditions. Contractor shall have competent personnel readily available for coordinating, checking, and supervision of field layouts. The procedures for submittals and resubmittals, and final distribution shall be as specified in Division 01. Do not start installation of work involved under Composite Drawings until the Architect reviews applicable submittal. Discrepancies between the Drawings and Composite Drawings shall be specifically noted and identified on the Composite Drawings. Drawings for the various trades involved shall be submitted as required and reviewed prior to preparation of Composite Drawings.

1. Equipment Foundations and Bases: Furnish certified details and drawings for approval before fabrication. Furnish parts necessary for each foundation sub base and support.

2. Pipe Sleeves and Inserts: Furnish and install pipe sleeves and pipe support inserts before concrete is poured.

3. Roof, Wall and Floor Openings: Furnish Shop Drawings showing exact locations and sizes of openings through roofs, walls and floors.

4. Concrete: Conform to Concrete Section of the Specifications.

1.15 GUARANTEES

A. Contractor shall guarantee workmanship, equipment and materials installed under his contract for a period of not less than one (1) year from the date of Substantial Completion. Should any defects occur during this period, the Contractor shall promptly repair or replace the defective item and any other damage caused to the building free of charge to the Owner, including cost of labor and materials.

B. Guarantee included in this section to cover:

1. Faulty or inadequate design of equipment or material installed

2. Improper assembly or erection

3. Defective workmanship or material

4. Incorrect or inadequate operation or other failure

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C. He shall guarantee the complete and perfect operation of the entire system and that equipment will be supported in such a way as to be free of objectionable vibration and noise

D. Furnish the parts and labor to replace any items found to be defective in the refrigeration equipment with the guarantee period

E. In addition to other guarantees, furnish free maintenance for the refrigeration equipment, including replacement of refrigerant and oil, for a period of one (1) year. This shall include regular monthly maintenance and "On Call" service if required.

F. For equipment bearing a manufacturer's warranty in excess of one year, furnish a copy of the warranty to the Owner, who shall be named as beneficiary.

1.16 PROTECTION OF EQUIPMENT AND MATERIALS

A. Provide adequate storage facilities for equipment and materials on the site and shall make provisions to protect such materials and equipment from damage.

1.17 CLOSING-IN OF UNINSPECTED WORK

A. Contractor shall not allow or cause any of the work, specifically ductwork and piping, to be covered up or enclosed until it has been inspected, tested, and approved by the Architect. Should any of work be covered up or enclosed before such inspection and test, shall at their own expense, uncover the work and after it has been inspected, tested, and approved, make repairs with such materials as may be necessary to restore work to its original and proper condition.

1.18 BUILDING FOOTING CLEARANCES

A. Under no circumstances shall pipes, ducts, or conduits penetrate footings. They shall cross below footings or through sleeves above footings. Those running parallel to footings shall have the minimum clearance from the cone of influence indicated on the Drawings or as required by Code.

1.19 DAMAGE BY LEAKS

A. Contractor shall be responsible for all damage to any part of the premises caused by rain leaks through or around ducts or pipes, leaks or breaks in piping, equipment or fixtures furnished or installed by him for a period of one (1) year from the date of Substantial Completion.

B. EQUIPMENT LABELS

C. Equipment provided under this Section shall be provided with the manufacturer's metal identification labels attached to each individual piece of equipment showing complete performance characteristics, size, model and serial number.

1.20 PRELIMINARY OPERATION

A. Should the Owner request that any portion of the plant, apparatus, or equipment be operated for the Owner's beneficial use prior to the final completion and acceptance of the work, the Contractor shall conform to Beneficial Occupancy Provisions of the General Conditions. Such operation shall be under the supervision and direction of the Contractor. Such preliminary operation shall not be construed as an acceptance of any of the work.

1.21 MAINTAINING EXISTING SERVICES

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A. The premises and existing building at the site will be in use at the time the work of this Section is in progress. Contractor shall conduct his work so as to cause no inconvenience or danger to the personnel on the premises.

B. He shall maintain continuity of service to the existing mechanical systems, except for designated intervals during which connections can be made. The scheduling of the shut down period shall be at a time directed by the Architect.

C. In some instances, it may be necessary to defer work in certain areas and locations until such time as existing facilities can be relocated or rearranged by the Owner. Therefore, whenever it becomes necessary for the Contractor to perform work under this contract in areas in which the Owner's work is being performed. This contractor shall advise the Architect relative to this requirement and shall follow closely the directive issued by the Architect insofar as time and procedure are concerned. Allow Owner 72 hours prior notice.

D. This contractor shall include in his bid all premium time to which he may be subjected for performing work in such procedure and at such time as may be necessary to cause the least interference with the function of the Owner.

1.22 ELECTRICAL WORK

A. Coordinate with Division 26 inch making the line and low voltage electrical connections and be responsible for the operation of the equipment furnished under this section.

B. Voltage for electrical work will be included in Division 26. However, any control wiring which is required that is not shown on the control diagram shall be as described under this Section. In the event that the Contractor chooses to provide equipment that requires extra expense in the power or control wiring, he shall pay additional electrical costs.

C. Safety switches, starters, circuit breakers, unless provided as a portion of package equipment, and the electrical connections of mechanical equipment to the electrical power service shall be provided under Division 26.

D. Interconnecting wiring, safety switches, relays, controllers and motor starters which are integral components of packaged equipment shall be provided as an integral part of that equipment.

E. All interconnecting power wiring and conduits shall be provided by Division 26.

F. Control wiring shall be provided by Division 22, unless otherwise indicated on the drawings.

G. Conduit for control wiring shall be provided by Division 26.

END OF SECTION

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SECTION 22 0517
SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Sleeves.
2. Sleeve-seal systems.
3. Grout.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 PRODUCTS

2.01 SLEEVES

A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

D. PVC-Pipe Sleeves: ASTM D 1785, Schedule 40.

E. Galvanized-Steel-Sheet Sleeves: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.

2.02 SLEEVE-SEAL SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Advance Products & Systems, Inc
2. CALPICO, Inc
3. Metraflex Company
4. Pipeline Seal and Insulator, Inc
5. Proco Products, Inc

C. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.

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1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

2. Pressure Plates: Carbon steel.

3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.03 GROUT

A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 EXECUTION

3.01 SLEEVE INSTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch (25-mm) annular clear space between piping and concrete slabs and walls.

1. Sleeves are not required for core-drilled holes.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.

2. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.

D. Install sleeves for pipes passing through interior partitions.

1. Cut sleeves to length for mounting flush with both surfaces.

2. Install sleeves that are large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation.

3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants specified in Section 079200 "Joint Sealants."

E. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 078413 "Penetration Firestopping."

3.02 SLEEVE-SEAL-SYSTEM INSTALLATION

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A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at service piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.03 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. Use sleeves and sleeve seals for the following piping-penetration applications:

1. Exterior Concrete Walls above Grade:

a. Piping Smaller than NPS 6 (DN 150): Cast-iron wall sleeves.

b. Piping NPS 6 (DN 150) and Larger: Cast-iron wall sleeves.

2. Exterior Concrete Walls below Grade:

a. Piping Smaller than NPS 6 (DN 150): Cast-iron wall sleeves with sleeve-seal system.

1) Select sleeve size to allow for 1-inch (25-mm) annular clear space between piping and sleeve for installing sleeve-seal system.

b. Piping NPS 6 (DN 150) and Larger: Cast-iron wall sleeves with sleeve-seal system.

1) Select sleeve size to allow for 1-inch (25-mm) annular clear space between piping and sleeve for installing sleeve-seal system.

3. Concrete Slabs-on-Grade:

a. Piping Smaller than NPS 6 (DN 150): Cast-iron wall sleeves with sleeve-seal system.

1) Select sleeve size to allow for 1-inch (25-mm) annular clear space between piping and sleeve for installing sleeve-seal system.

b. Piping NPS 6 (DN 150) and Larger: Cast-iron wall sleeves with sleeve-seal system.

1) Select sleeve size to allow for 1-inch (25-mm) annular clear space between piping and sleeve for installing sleeve-seal system.

4. Concrete Slabs above Grade:

a. Piping Smaller than NPS 6 (DN 150): Galvanized-steel-pipe sleeves.

b. Piping NPS 6 (DN 150) and Larger: Galvanized-steel-pipe sleeves.

5. Interior Partitions:

a. Piping Smaller than NPS 6 (DN 150): Galvanized-steel-pipe sleeves.

b. Piping NPS 6 (DN 150) and Larger: Galvanized-steel-sheet sleeves.

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END OF SECTION

SECTION 22 1005
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe, pipe fittings, specialties, and connections for piping systems.

1. Sanitary sewer.
2. Domestic water.
3. Valves.
4. Check.
5. Strainers.

1.02 REFERENCE STANDARDS

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.

B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2013.

C. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

D. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2015a.

E. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2014.

F. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2010.

G. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2002 (Reapproved 2010).

H. AWWA C651 - Disinfecting Water Mains; 2005.

I. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 2009.

J. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2011.

K. California Code of Regulations, Title 24, Part 5: California Plumbing Code (CPC), latestedition.

L. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).

M. NSF 372 - Drinking Water System Components - Lead Content; 2011.

1.03 SUBMITTALS

A. See Division 1 for submittalprocedures.

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B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Pipe Test Reports: Submit pipe pressure test reports for all piping installed under this contract indicating that piping systems have been tested in accordance with the California Plumbing Code.

1.04 REGULATORY REQUIREMENTS

A. Perform Work in accordance with State of California plumbing code.

B. All wetted parts of pipe, valves, equipment and appurtenances for use in potable water systems shall be in compliance with the Reduction of Lead in Drinking Water Act, amendments to Section 1417 of the Safe Drinking Water Act which are effective January 4, 2014. Lead content shall not exceed 0.25% byweight.

1.05 DELIVERY, STORAGE,AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completedsystem.

PART 2 PRODUCTS

2.01 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OFBUILDING

A. Cast Iron Pipe: CISPI 301,hubless.

1. Fittings: Cast iron.

2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.

2.02 DOMESTIC WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Copper Pipe: ASTM B42, harddrawn.

1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper andbronze.

2. Joints: ASTM B32, alloy Sn95 solder.

2.03 DOMESTIC WATER PIPING, ABOVEGRADE

A. Copper Tube: ASTM B88 (ASTM B88M), Type L (B), Drawn (H).

1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper andbronze.

2. Joints: ASTM B32, alloy Sn95 solder.

2.04 'LEAD FREE' BALL VALVES

A. Manufacturers:

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1. Nibco, Inc. Model:S-685-66-LF

B. Construction: 2" and smaller, bronze body, 2 piece, MSS SP-110; NSF 61-G; 600 psig, full port, stainless steel ball, teflon seats and packing, blow out proof stem, lever handle, solder ends.

2.05 SPRING LOADED CHECKVALVES

A. Manufacturers:

1. Hammond Valve; www.hammondvalve.com.

2. Crane Company; www.cranecpe.com.

3. Milwaukee Valve Company; www.milwaukeevalve.com.

B. Class 125, iron body, bronze trim, stainless steel springs, bronze disc, Buna N seals, wafer style ends.

2.06 STRAINERS

A. Manufacturers:

1. Armstrong International, Inc; www.armstronginternational.com/#sle.

2. Green Country FilterManufacturing; www.greencountryfilter.com/#sle.

B. Size 2 inch and Under:

1. Threaded brass body for 175 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.

2. Class 150, threaded bronze body 300 psi CWP, Y pattern with 1/32 inch stainless steel perforated screen.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 INSTALLATION

A. Install and test all plumbing piping systems in strict accordance with the California Plumbing Code.

B. Install in accordance with manufacturer'sinstructions.

C. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

D. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

E. Install piping to maintain headroom, conserve space, and not interfere with use of space.

F. Group piping whenever practical at common elevations.

G. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

3.03 TOLERANCES

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A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per footslope.

B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.04 DISINFECTION OF DOMESTIC WATER PIPINGSYSTEM

A. Prior to starting work, verify system is complete, flushed and clean.

B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).

C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.

D. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

E. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWAC651.

3.05 SERVICE CONNECTIONS

A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

3.06 SCHEDULES

A. Pipe Hanger Spacing:

1. Metal Piping:

a. Pipe Size: 1/2 inches to 1-1/4inches:

1) Maximum Hanger Spacing: 6.5 feet

2) Hanger Rod Diameter: 3/8 inches.

b. Pipe Size: 1-1/2 inches to 2inches:

1) Maximum Hanger Spacing: 10 feet

2) Hanger Rod Diameter: 3/8 inch.

c. Pipe Size: 2-1/2 inches to 3inches:

1) Maximum Hanger Spacing: 10 feet

2) Hanger Rod Diameter: 1/2 inch.

END OF SECTION

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SECTION 22 1006
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drains.

B. Cleanouts.

C. Hose bibbs.

D. Hydrants.

E. Refrigerator valve and recessed box.

F. Backflow preventers.

G. Water hammer arrestors.

1.02 REFERENCE STANDARDS

A. ASME A112.6.3 - Floor and Trench Drains; 2001 (R2007).

B. ASME A112.6.4 - Roof, Deck, and Balcony Drains; 2008 (Reaffirmed 2012).

C. ASSE 1011 - Hose Connection Vacuum Breakers; 2004.

D. ASSE 1012 - Backflow Preventer with Intermediate Atmospheric Vent; 2009.

E. ASSE 1013 - Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers; 2011.

F. ASSE 1019 - Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance; 2011.

G. NSF 61 - Drinking Water System Components - Health Effects; 2016.

H. NSF 372 - Drinking Water System Components - Lead Content; 2016.

I. PDI-WH 201 - Water Hammer Arresters; 2010.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

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A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 DRAINS

A. Manufacturers:

1. Josam Company; www.josam.com.
2. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
3. Zurn Industries, LLC; www.zurn.com.
4. Mifab: www.mifab.com

B. Roof Drains:

1. Assembly: ASME A112.6.4.
2. Body: Lacquered cast iron with sump.
3. Strainer: Removable polyethylene dome with vandal proof screws.

C. Roof Overflow Drains:

1. Lacquered cast iron body and clamp collar and bottom clamp ring; pipe extended to 2 inches above flood elevation.

D. Area Drains:

1. Assembly: ASME A112.6.4.
2. Body: Lacquered cast iron with sump.
3. Strainer: Round nickel-bronze.
4. Accessories: Membrane flange and membrane clamp with integral gravel stop, with adjustable under deck clamp.

E. Floor Drain:

1. ASME A112.6.3; lacquered cast iron or stainless steel, two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer.

F. Floor Sink:

1. Cast iron 8 inch square, 6 inch deep flanged receptor with seepage holes, acid resistant coated interior, loose set acid resistant coated cast iron grate, and aluminum dome bottom strainer.

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2.03 CLEANOUTS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
2. Josam Company: www.josam.com.
3. Zurn Industries, LLC: www.zurn.com.
4. Mifab: www.mifab.com

2.04 HOSE BIBBS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
2. Woodford: www.woodfordmfg.com.
3. Zurn Industries, LLC: www.zurn.com.
4. Mifab: www.mifab.com

2.05 HYDRANTS

A. Wall Hydrants:

1. ASSE 1019; freeze resistant, self-draining type with chrome plated wall plate hose thread spout, handwheel, and integral vacuum breaker.

2.06 REFRIGERATOR VALVE AND RECESSED BOX

A. Box Manufacturers:

1. IPS Corporation/Water-Tite: www.ipscorp.com.
2. Oatey Supply Chain Services, Inc: www.oatey.com.

B. Valve Manufacturers:

1. IPS Corporation/Water-Tite: www.ipscorp.com.
2. Zurn Industries, LLC: www.zurn.com.

2.07 BACKFLOW PREVENTERS

A. Manufacturers:

1. Conbraco Industries, Inc: www.apollovalves.com.
2. Watts Regulator Company, a part of Watts Water Technologies: www.wattsregulator.com.
3. Zurn Industries, LLC: www.zurn.com.

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B. Reduced Pressure Backflow Preventers:

1. ASSE 1013; bronze body with bronze internal parts and stainless steel springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve that opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks.

2.08 WATER HAMMER ARRESTORS

A. Manufacturers:

1. Precision Plumbing Products: www.pppinc.com.

2. Watts Regulator Company, a part of Watts Water Technologies: www.wattsregulator.com.

3. Zurn Industries, LLC: www.zurn.com.

4. Mifab: www.mifab.com

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Install floor cleanouts at elevation to accommodate finished floor.

D. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibbs.

E. Pipe relief from backflow preventer to nearest drain.

END OF SECTION

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SECTION 27 1000
STRUCTURED CABLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Communications system design requirements.

B. Communications pathways.

C. Copper cable and terminations.

D. Fiber optic cable and interconnecting devices.

E. Communications outlets.

F. Communications grounding and bonding.

G. Communications identification.

1.02 RELATED REQUIREMENTS

A. Section 26 05 33.13 - Conduit for Electrical Systems.

B. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. TIA-455-21 - FOTP-21 - Mating Durability of Fiber Optic Interconnecting Devices 1988a (Reaffirmed 2012).

C. TIA-606 - Administration Standard for Telecommunications Infrastructure 2017c.

D. TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises 2015c, with Addendum (2017).

E. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers Current Edition, Including All Revisions.

F. UL 1863 - Communications-Circuit Accessories Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate requirements for service entrance and entrance facilities with Communications Service Provider.

2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces dedicated for communications equipment.

3. Coordinate arrangement of communications equipment with the dimensions and clearance requirements of the actual equipment to be installed.

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4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

C. Shop Drawings: Show compliance with requirements on isometric schematic diagram of network layout, showing cable routings, telecommunication closets, rack and enclosure layouts and locations, service entrance, and grounding, prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).

D. Evidence of qualifications for installer.

E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.

F. Field Test Reports.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: At least 3 years experience manufacturing products of the type specified.

B. Installer Qualifications: A company having at least 3 years experience in the installation and testing of the type of system specified, and:

1. Employing a BICSI Registered Communications Distribution Designer (RCDD).

2. Supervisors and installers factory certified by manufacturers of products to be installed.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a 2 year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 SYSTEM DESIGN

A. Provide a complete permanent system of cabling and pathways for voice and data communications, including cables, conduits and wireways, pull wires, support structures, enclosures and cabinets, and outlets.

1. Provide fixed cables and pathways that comply with NFPA 70 and TIA-607 and are UL listed or third party independent testing laboratory certified.

2. Provide connection devices that are rated for operation under conditions of 32 to 140 degrees Fahrenheit at relative humidity of 0 to 95 percent, noncondensing.

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3. In this project, the term plenum is defined as return air spaces above ceilings, inside ducts, under raised floors, and other air-handling spaces.

B. Main Distribution Frame (MDF): Centrally located support structure for terminating horizontal cables that extend to telecommunications outlets, functioning as point of presence to external service provider.

1. For the entire campus there is one main distribution frame and for each building there is a building distribution frame (BDF) that functions as the main distribution frame (MDF) for that building.

2. Locate main distribution frame as indicated on the drawings.

C. Intermediate Distribution Frames (IDF): Support structures for terminating horizontal cables that extend to telecommunications outlets.

1. Locate intermediate distribution frames as indicated on the drawings.

D. Cabling to Outlets: Specified horizontal cabling, wired in star topology to distribution frame located at center hub of star; also referred to as "links".

2.02 PATHWAYS

A. Conduit: As specified in Section 26 05 33.13; provide pull cords in all conduit.

B. Overhead Service Entrance: Weatherhead or service entrance fitting located on outside of building with galvanized rigid steel or intermediate metallic conduit running to entrance facility.

C. Underground Service Entrance: Rigid polyvinyl chloride (PVC) conduit, Schedule 40.

2.03 COPPER CABLE AND TERMINATIONS

A. Manufacturers:

B. Copper Cable Terminations: Insulation displacement connection (IDC) type using appropriate tool; use screw connections only where specifically indicated.

C. Jacks and Connectors: Modular RJ-45, non-keyed, terminated with 110-style insulation displacement connectors (IDC); high impact thermoplastic housing; suitable for and complying with same standard as specified horizontal cable; UL 1863 listed.

1. Performance: 750 mating cycles.

2. Voice and Data Jacks: 8-position modular jack, color-coded for both T568A and T568B wiring configurations.

D. Copper Patch Cords:

1. Description: Factory-fabricated 4-pair cable assemblies with 8-position modular connectors terminated at each end.

2.04 FIBER OPTIC CABLE AND INTERCONNECTING DEVICES

A. Manufacturers:

1. CommScope; : www.commscope.com/#sle.

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2. General Cable Technologies Corporation; : www.generalcable.com/#sle.

3. Siemon Company; : www.siemon.com/#sle.

B. Fiber Optic Interconnecting Devices:

1. Connector Type: Type SC.

2. Connector Performance: 500 mating cycles, when tested in accordance with TIA-455-21.

3. Maximum Attenuation/Insertion Loss: 0.3 dB.

C. Fiber Optic Patch Cords:

1. Description: Factory-fabricated 2-fiber cable assemblies with suitable connectors at each end.

2.05 COMMUNICATIONS OUTLETS

A. Manufacturers:

1. CommScope; : www.commscope.com/#sle.

2. Siemon Company; : www.siemon.com/#sle.

B. Outlet Boxes: Comply with Section 26 05 33.16.

1. Provide depth as required to accommodate cable manufacturer's recommended minimum conductor bend radius.

C. Wall Plates:

1. Comply with system design standards and UL 514C.

2. Accepts modular jacks/inserts.

3. Capacity:

a. Data or Combination Voice/Data Outlets: 6 ports.

4. Wall Plate Material/Finish - Flush-Mounted Outlets: High impact thermoplastic, color to be selected.

2.06 IDENTIFICATION PRODUCTS

A. Comply with TIA-606.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Comply with Communication Service Provider requirements.

B. Grounding and Bonding: Perform in accordance with TIA-607 and NFPA 70.

3.02 INSTALLATION OF PATHWAYS

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A. Install pathways with the following minimum clearances:

1. 48 inches from motors, generators, frequency converters, transformers, x-ray equipment, and uninterruptible power systems.

2. 12 inches from power conduits and cables and panelboards.

3. 5 inches from fluorescent and high frequency lighting fixtures.

4. 6 inches from flues, hot water pipes, and steam pipes.

B. Conduit, in Addition to Requirements of Section 26 05 33.13:

C. Outlet Boxes:

1. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of telecommunications outlets provided under this section.

3.03 INSTALLATION OF EQUIPMENT AND CABLING

A. Cabling:

1. Do not bend cable at radius less than manufacturer's recommended bend radius; for unshielded twisted pair use bend radius of not less than 4 times cable diameter.

2. Do not over-cinch or crush cables.

3. Do not exceed manufacturer's recommended cable pull tension.

4. When installing in conduit, use only lubricants approved by cable manufacturer and do not chafe or damage outer jacket.

B. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:

1. At Distribution Frames: 120 inches.

2. At Outlets - Copper: 12 inches.

3. At Outlets - Optical Fiber: 39 inches.

C. Copper Cabling:

1. For 4-pair cables in conduit, do not exceed 25 pounds (110 N) pull tension.

2. Use T568B wiring configuration.

D. Fiber Optic Cabling:

1. Prepare for pulling by cutting outer jacket for 10 inches from end, leaving strength members exposed. Twist strength members together and attach to pulling eye.

2. Support vertical cable at intervals as recommended by manufacturer.

E. Identification:

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1. Use wire and cable markers to identify cables at each end.

2. Use manufacturer-furnished label inserts, identification labels, or engraved wallplate to identify each jack at communications outlets with unique identifier.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Comply with inspection and testing requirements of specified installation standards.

C. Visual Inspection:

1. Inspect cable jackets for certification markings.

2. Inspect cable terminations for color coded labels of proper type.

3. Inspect outlet plates and patch panels for complete labels.

D. Testing - Copper Cabling and Associated Equipment:

E. Testing - Fiber Optic Cabling:

F. Final Testing: After all work is complete, including installation of telecommunications outlets, and telephone dial tone service is active, test each voice jack for dial tone.

END OF SECTION

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SECTION 27 4100
AUDIO/VISUAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. The work covered in this document consists of furnishing all labor, material and services necessary to install a complete audiovisual system as indicated on the project drawings and in these specifications.

B. Deliverables: Prior to ordering materials or commencing any construction activities, the contractor shall provide the Owner with a complete bill of materials, including all quantities of components, devices, equipment, and wiring required to complete this work. Submit product data, including manufacturer's data sheets for all proposed system components. Submit three copies with all specific items that will be provided clearly indicated and any options highlighted.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Extron Electronics Address: 1230 South Lewis Street, Anaheim, Ca 92805 Phone 714.491.1500 or 800.633.9876

B. Exceptions to the specifications are not acceptable. No substitutions permitted.

2.02 SYSTEMS DESCRIPTION

A. Provide a complete Audiovisual System for small to medium sized classrooms. The system switching and audio amplification equipment shall be securely mounted and concealed in an enclosure above the ceiling mounted projector. Portable video source equipment (OFE) can be connected to the system and displayed via three interface panels located throughout the room. Video and audio signals from source devices shall be transmitted from the interface panels over standard UTP cabling architecture.

B. Owner Furnished Equipment (OFE): In each system, the video source equipment, projection screen and video projector shall be furnished by the Owner (OFE). Portable source equipment such as DVDs, VCRs, laptop computers, document cameras, etc. shall be owner furnished.

2.03 GENERAL EQUIPMENT REQUIREMENTS

A. Acceptable products are listed below categorized by type of equipment. Quantities are listed for movable, portable or loose equipment, and other selected entries. Where quantities are not listed, refer to the system drawings.

B. Deviations from this specification must be documented in writing to the Architect and Owner at least ten business days prior to the bid date.

C. The System components shall all be listed and labeled by Underwriters Laboratories Incorporated (UL).

D. All products shall be new and under warranty at the time of installation. B-stock, previously installed, refurbished or used equipment shall not be provided on this project.

E. Where the specification lists several manufacturers for a major item, or group of items, the AV Integrator shall provide that entire item from one manufacturer only.

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F. The contractor shall provide all options, accessories and hardware necessary to meet the function of the design even if they are not specifically listed (i.e. mounting kits, separate or additional power supplies, input modules, transformers, etc.).

2.04 FIXED EQUIPMENT

PROVIDE THE FOLLOWING POLEVAULT SYSTEM AS AN ALL INCLUSIVE SYSTEM AS DESCRIBED BELOW, ONE SYSTEM FOR EACH ROOM:

A. Projector Mounting - the Owner Furnished Projector (OFE) shall be mounted using the following components.

1. Extron PCM 240 (Part Number 60-772-03) drop ceiling mount.

a. The PCM 240 projector mount must be capable of mounting to the structural ceiling (concrete or wood joists), above the suspended ceiling via turnbuckles and tie wire or threaded rod. Note: this mount is only applicable for drop or suspended ceiling applications.

1) The mount shall be capable of supporting up to 50 pounds (23 kgs) of A/V equipment.

2) The mount must also include (1) single gang and (1) double gang knockout openings for junction boxes or for use as cable pass-throughs.

3) The mount must also include a 1.5” threaded pipe adapter for projector mount poles.

b. Extron UPB 25 (Part Number 60-773-02) Universal Projector Bracket.

1) The bracket shall be able to support projectors up to 25 pounds.

2) The projector bracket must have independent adjustments of horizontal tilt or roll (± 4 degrees of horizontal tilt), vertical angle or pitch (± 25 degrees of vertical angle), and rotation or yaw (360 degrees of rotation).

3) The projector bracket shall also use a 1.5” NTP (National Tapered Pipe) threaded pipe adapter for mounting a projector pole.

4) The projector bracket should also maintain positioning adjustments even if the projector is removed for service.

5) The bracket should also feature security flanges that enable the entire unit to be padlocked to prevent theft.

c. Extron PMP 6” (Part number 70-511-13) Projector Mounting Pole.

1) The projector mounting pole shall be 1.5” NTP (National Tapered Pipe) threaded pipe threaded at both ends to facilitate mounting the projector to the ceiling mount and to the universal projector mount.

2) The projector mounting pole shall be 6” with available optional lengths of 10” or 12” in lengths.

3) The pole shall provide a cutout section to all for cable access.

d. Extron PMK 450 (Part Number 70-618-03) Multi-Product Projector Mounting Kit.

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1) The multi-product projector mounting kit shall mount securely to the PMP mounting pole and house products used in each system. These products may be Extron PVS 204SA TP Switcher, power supplies, audio amplifiers, IP Link products and other Extron quarter rack product options.

2. Media Source Switching:

a. System source selection and switching shall be provided by the Extron PVS Switcher with Stereo Amplifier (Part Number 60-800-01).

1) The PVS 204SA Switcher shall have two (2) RGB video inputs capable of VGA

(a) - UXGA RGBHV, RGBS, RBsB and RsGsBs input resolution via (2) two pairs of female RJ-45 connectors.

2) The PVS 204SA Switcher shall have two (2) composite video inputs via two (2) female RJ-45 connectors.

3) Audio input shall be via four (4) stereo, balanced /unbalanced inputs via the same four (4) RJ-45 RGB and Composite video connectors.

4) The PVS 204SA Switcher shall have two video outputs, one (1) RGB output capable of outputting VGA - UXGA RGBHV, RGBS, RBsB and RsGsBs (following input type) via a 15-pin HD female connector and one (1) composite video via one (1) RCA female connector.

5) Connection from the PVS 204SA Switcher to the display device shall be provided with one 3' VGA to VGA molded cable (Part Number 26-567-01) and one 3' composite video cable (Part Number 26-600-03).

6) An onboard audio amplifier shall provide gain / volume adjustment from -10db to +10db, adjustable in 1 db steps. The speaker amplifier shall have two (2) channels, one (1) stereo (default) or dual (2) mono channels via one (1) 0.2 inch 4 pole captive screw connector. The output of the amplifier shall be 11 watts (rms) per channel at 4 ohms and 7 watts (rms) per channel at 8 ohms.

3. Media Source Control:

a. Classroom media sources shall be controlled with the Extron MLC 104 IP Plus (Part Number 60-818-03) MediaLink Controller with IP Link.

1) The MediaLink Controller shall contain six tri-color, multi-status LEDs push- buttons for device selection and projector on / off control. A rotary volume control knob with five (5) LED volume indicators shall permit system volume level control.

2) The MLC 104 IP Plus controller shall feature Extron IP Link Ethernet for monitoring, scheduling and control. This IP technology shall enable the device

(a) to be controlled, scheduled and monitored over a LAN, WAN or the Internet using Extron Global Viewer or MLC controller software.

3) The Controller shall contain a serial host port which shall consist of one (1) bi- directional RS-232 front panel 2.5mm mini stereo jack. This host connection port shall be for configuration and control of the controller itself and to install device drivers for the equipment to be controlled.

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4) The Controller shall also feature (2) bi-directional serial ports to provide device control. These two ports shall control the display device and PVS 204SA switcher respectively via bi-directional RS-232 control via one (1) 3.5mm direct insertion captive screw connector.

5) The MLC 104 IP plus shall also have two (3) configurable (via software) digital input / outputs for devices such as sensors, switches, LEDs and relays via one

(a) 3.5mm 4-pole direct insertion captive screw connector.

6) Connection from the MLC 104 IP Plus to the display shall be provided by one

(a) 50' Projector control cable (Part Number 26-621-50).

7) Connection from the MLC 104 IP Plus to the PVS 204SA switcher shall be provided by one (1) 50' Switcher Control cable (Part Number 26-626-50).

4. Speakers:

a. In suspended ceiling applications, a pair of Extron SI 3CT LP (Part Number 42-103-03 for a pair) shall be used.

1) These speakers shall feature 4" deep low profile metal back can for plenum environments.

2) The speakers shall feature a frequency response of 75 Hz to 17 kHz - 10 db, half space.

3) The power capacity shall be 16 watts of continuous pink noise or 32 watts of continuous program media.

4) The coverage angle of the speaker shall be 170 degrees of conical coverage.

5) The nominal impedance shall be 8 ohms.

6) The speakers shall feature 70volt rotary taps with taps at 16W, 8W, 4W, 2W, 1W and 100volt rotary taps with taps at null, 16W, 8W, 4W, and 2W.

7) The input connector shall be (1) 5mm captive screw for 1 input and 1 loop- through connection.

8) Connection from the PVS 204SA switcher to the SI 3CT LP speaker shall be provided by one (1) 25' Plenum rated 18 Gauge Speaker Cable Extron SPK-18 (Part Number 26-627-25).

9) Optional - second pair of Extron SI 3CT LP speakers and Extron SPK-18 cable

5. Media Source Interfacing:

a. Owner furnished media source equipment (OFE) shall be connected to the audiovisual system via four Twisted Pair Transmitter Wall Plates. These wall plates shall enable the system to display video and graphic data from Laptop computers, DVD and VCRs, document camera, camcorders, etc.

1) These interfaces shall be placed in convenient locations throughout the classroom to facilitate easy connection of sources.

2) Provide two types of interface panels. They are the Extron PVT RGB D VGA Transmitter (Part Number 60-820-03) and the PVT CV D Composite Video Transmitter (Part number 60-819-03).

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b. The System shall include two (2) Extron PVT RGB D - RGB Video Twisted Pair Transmitter - Wall Plates (Part Number 60-820-03).

1) The RGB Video Twisted Pair Transmitter - Wall Plates shall be used to connect up to two (2) RGB devices to the system and transmit the video and audio data to the switcher.

2) The RGB Video Twisted Pair Transmitter - Wall plates shall fit in a standard, single-gang electrical box and feature Decora® type faceplates.

3) The RGB Video Twisted Pair Transmitter - Wall plates shall transmit RGB video over UTP cable to the PVS 204SA Switcher and support video input resolutions of VGA - UXGA RGBHV, RGBS, RBsB and RsGsBs via one (1) female 15-pin HD connector.

4) Stereo audio shall be input via one (1) 0.14 inch mini stereo jack.

5) Connection to each PVT RGB D shall be provided via an Extron male VGA to male VGA and male 3.5mm TRS to male 3.5mm TRS cable for RGBHV and audio (Part Number 26-490-XX), length to be coordinated by owner.

6) The output of the interface shall be via two (2) female RJ-45 connectors.

7) Connection to the PVS 204SA Switcher shall be via two (2) plenum rated UTP cables.

c. The System shall include two (2) Extron PVT CV D Composite Video Twisted Pair Transmitter - Wall Plates. (Part number 60-819-03)

1) The Composite Video Twisted Pair Transmitter - Wall Plates shall transmit composite video over UTP cable to the PVS 204SA Switcher and support video input via a RCA female connector.

2) The Composite Video Twisted Pair Transmitter - Wall plates shall fit in a standard, single-gang electrical box and feature Decora® type faceplates.

3) Stereo audio shall be input via two (2) RCA female connectors.

4) Connections to the PVT CV D from the DVD/VCR shall be provided via one

(a) Extron male 3 x RCA to male 3 x RCA cable for composite video and audio, cable length to be coordinated by owner.

5) The output of the interface shall be via one (1) female RJ-45 connector.

6) Connection to the PVS 204SA Switcher shall be via one (1) plenum rated UTP cable.

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment and enclosures described in this specification shall be installed plumb and square per manufacturer's instructions.

B. All equipment, except that designated as movable, portable or loose equipment, shall be secured and permanently attached to the permanent structure in a manner which will require the use of a tool (e.g.: screw driver, nut driver, etc.) for removal.

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C. All supports shall meet or exceed the load requirements of the intended application with a minimum safety factor of five.

D. Provide support structure and hardware with a SAE Grade 8 load rating (min.).

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that related conditions, including equipment that has been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

B. All devices connected to equipment specified in this section shall bear the UL label and comply with the applicable National Electrical Code (NEC) standards.

3.03 INSTALLATION

A. Contractor shall furnish all equipment, labor, system setup, and other services necessary for the proper installation of the products/system as indicated on the drawings and specified herein. System setup information shall include each components proper mounting and alignment and properly verified signal pathways and operation. Proper operational and network support control functions shall be verified.

1. Install in accordance with manufacturer's handling and installation instructions.

B. Install in accordance with all local and pertaining codes and regulations

C. Utilize an installer with demonstrated experience in projects of similar size and complexity.

D. Equipment shall be ready for use to condition at the end of installation.

E. Energize equipment in accordance with manufacturer's instructions.

3.04 PROTECTION AND CLEANING

A. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

B. Repair or replace damaged components before Substantial Completion of the project.

C. Remove temporary tags, coverings, and construction debris from interior and exterior surfaces of the equipment. Remove construction debris from equipment area and dispose of properly.

END OF SECTION

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SECTION 27 5116
PUBLIC ADDRESS SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Amplifier and control equipment.

B. Input equipment.

C. Reproducer equipment.

D. Sound system cable.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. California Electrical Code; 2019.

1.04 SYSTEM DESCRIPTION

A. Public address system for voice.

B. Input components:

1. Local VOIP devices.

C. Features:

1. Interface to telephone system.

2. Talk back feature.

3. Selective speaker talkback.

1.05 SUBMITTALS

A. Shop Drawings: Indicate electrical characteristics and connection requirements. Indicate layout of equipment mounted in racks and cabinets, component interconnecting wiring, and wiring diagrams of field wiring to speakers and remote input devices.

B. Product Data: Provide data showing electrical characteristics and connection requirements for each component.

C. Test Reports: Indicate satisfactory completion of each test recommended by the manufacturer.

D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and

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starting of product.Project Record Documents: Record actual locations of speakers, control equipment, and outlets for input/output connectors.

E. Operation Data: Include instructions for adjusting, operating, and extending the system.

F. Maintenance Data: Include repair procedures and spare parts documentation.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70 and Federal Communications Commission.

B. Installer Qualifications: Authorized installer of specified manufacturer with service facilities within 100 miles of Project.

1. Products: Listed, classified, and labeled as suitable for the purpose intended.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Atlas IED: www.atlasied.com.

B. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAGING HEAD END

A. Analog Inputs: 1 10kohm input with 2.0 VPP maximum.

B. Compatible with SIP server or VOIP communications manager.

C. Atlas IED IPS-VPS

2.03 COMPONENTS

A. Speakers: 8 inch POE+ Indoor Horn System with LED Display

1. Power Rating: 15 watts.

2. Frequency Range: 600Hz - 14kHz.

3. IEEE802.3 10/100Base0T Ethernet

4. Product: Atlas IED I8SCH+ w/ SEA-I8SC.

B. Software: Advanced Notification Application Software.

1. Atlas IED GCK

2.04 WIRE AND CABLE

A. Existing CAT6A

PART 3 EXECUTION

3.01 INSTALLATION

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A. Install in accordance with manufacturer's instructions.

B. Mounting Heights: Coordinate existing drop locations with school district prior to installation.

C. Splice cable only in accessible junction boxes or at terminal block units.

D. Remove all existing PA/Clock equipment from existing MPOE equipment room.

3.02 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Measure and record sound power levels at designated locations.

3.03 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.04 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate operation of system to Owner's personnel.

1. Use operation and maintenance data as reference during demonstration.

2. Conduct walking tour of project.

3. Briefly describe function, operation, and maintenance of each component.

B. Training: Train Owner's personnel on operation and maintenance of system.

1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

2. Provide minimum of two hours of training.

3. Location: At project site.

END OF SECTION

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SECTION 28 1000
ACCESS CONTROL

PART 1 GENERAL (NOT USED)

PART 2 PRODUCTS

2.01 ACCESS CONTROL SYSTEM REQUIREMENTS

A. Provide new access control system consisting of required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

1. Access Control Units and Readers: Listed and labeled as complying with UL 294.

2.02 ACCESS CONTROL UNITS AND SOFTWARE

A. Provide access control units and software compatible with readers to be connected.

B. Unless otherwise indicated, provide software and licenses required for fully operational system.

2.03 ACCESS CONTROL POINT PERIPHERALS

A. Provide devices compatible with control units and software.

B. Provide devices suitable for operation under the service conditions at the installed location.

C. Door Locking Devices (Electric Strikes and Magnetic Locks): Comply with Section 08 7100.

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 28 1600
INTRUSION DETECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. The work under this section includes all labor, materials, equipment, and accessories required to furnish and install additions to the existing Intrusion Detection System as indicated on the drawings and as specified herein.

2. The system shall consist of door switches and motion detection devices connected to detect intrusion into covered areas. The system shall be zoned per classroom or as indicated on the drawings and have a control panel capable of providing alarm and trouble signals, by zone, for connection to the district equipment or transmitted as per District requirements. System on-off and access control from remote equipment furnished by the district or by a remote pushbutton key pad.

3. Each building shall be a separate compartment and can have a key pad mounted as shown. A master key pad position shall be provided as shown in the administrative area.

4. Document affecting work of the section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and sections of Division 16 of these specifications.

5. The work described by this part includes the furnishing of all materials, equipment, supplies, labor and the performing of all operations necessary of the installation of complete and operation systems.

6. All conduits, outlet boxes, back boxes, junction boxes, terminal cabinets, backboards, wiring, cables, equipment, devices, etc., shall be furnished and installed complete under this section. Conduit and junction box size shall be determined by the Installing Alarm System Contractor for the particular wire and cable fills required for the systems installed. Conduit sizes shall comply with requirements indicated in section 1611, Conduit. The entire responsibility of the systems, including the installation, operation, function, testing, and maintenance as required by this section shall be the responsibility of the Alarm System Contractor.

7. The Installing Contractor shall furnish and install all equipment, cables, devices, and other materials even though not specifically mentioned herein, which are necessary for the proper integration of all equipment so that the system shall perform the functions listed herein in compliance with all specified requirements.

1.03 DEFINITIONS

A. LCD: Liquid-crystal display.

B. LED: Light-emitting diode.

C. PIR: Passive infrared.

D. RFI: Radio-frequency interference.

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E. UPS: Uninterruptible power supply.

1.04 SUBMITTALS

A. Product Data: Components for sensing, detecting, systems integration, and control, including dimensions and data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: Detail assemblies of standard components that are custom assembled for specific application on this Project.

1. Functional Block Diagram: Show single-line interconnections between components including interconnections between components specified in this Section and those furnished under other Sections. Indicate methods used to achieve systems integration. Indicate control, signal, and data communication paths and identify programmable logic controllers networks and control interface devices and media to be used. Describe characteristics of network and other data communication lines.

2. Raceway Riser Diagrams: Detail raceway runs required for intrusion detection and for systems integration. Include designation of devices connected by raceway, raceway type, and size, and type and size of wire and cable fill for each raceway run.

3. UPS: Sizing calculations.

4. Site and Floor Plans: Indicate final outlet and device locations, routing of raceways, and cables inside and outside the building. Include room layout for central-station control-unit console, terminal cabinet, racks, and UPS.

5. Central-Station Control-Unit Console Layout: At 1" = 1'-0" (1:12) scale, showing required artwork and device identification.

6. Device Address List: Coordinate with final system programming.

7. System Wiring Diagrams: Include system diagrams unique to Project. Show connections for all devices, components, and auxiliary equipment. Include diagrams for equipment and for system with all terminals and interconnections identified.

8. Details of surge-protection devices and their installation.

9. Sensor detection patterns and adjustment ranges.

C. Equipment and System Operation Description: Include method of operation and supervision of each component and each type of circuit. Show sequence of operations for manually and automatically initiated system or equipment inputs. Description must cover this specific Project; manufacturer's standard descriptions for generic systems are not acceptable.

D. Samples for Initial Selection: For units with factory-applied color finishes.

E. Samples for Verification: For each type of exposed finish required.

F. Qualification Data: For Installer and testing agency.

G. Field quality-control test reports.

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H. Operation and Maintenance Data: For intrusion detection system to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Data for each type of product, including features and operating sequences, both automatic and manual.

2. Central-station control-unit hardware and software data.

I. Warranty: Special warranty specified in this Section.

J. Other Information Submittals:

1. Test Plan and Schedule: Test plan defining all tests required to ensure that system meets technical, operational, and performance specifications within 15 of date of Contract award.

2. Examination reports documenting inspections of substrates, areas, and conditions.

3. Anchor inspection reports documenting inspections of built-in and cast-in anchors.

1.05 QUALITY ASSURANCE

A. Installer Qualifications:

1. An employer of workers, at least one of whom is a technician certified by the National Burglar & Fire Alarm Association.

2. Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Intrusion Detection Systems Integrator Qualifications: An experienced intrusion detection equipment supplier and Installer who has completed systems integration work for installations similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Testing Agency Qualifications: An independent testing agency, with the experience and capability to conduct the testing indicated, that is a member company of the National Burglar & Fire Alarm Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to Owner's insurance underwriter.

1. Testing Agency's Field Supervisor: Person currently certified as an advanced alarm technician by the National Burglar & Fire Alarm Association to supervise on-site testing specified in Part 3.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of detection devices and central-station control units and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. FMG Compliance: FMG-approved and -labeled intrusion detection devices and equipment.

G. Comply with CEC

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1.06 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer and Installer agree to repair or replace components of intrusion detection devices and equipment that fail in materials or workmanship within specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

1.07 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Intrusion Detection Devices: Furnish quantity equal to five percent of the number of units of each type installed, but no fewer than one of each type.

2. Fuses: Three of each kind and size.

3. Tool Kit: Provide six sets of tools for use with security fasteners, each packaged in a compartmented kit configured for easy handling and storage.

4. Security Fasteners: Furnish no fewer than 1 box for every 50 boxes or fraction thereof, of each type and size of security fastener installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Radonics or approved equal

2.02 SYSTEM COMPONENT REQUIREMENTS

A. Compatibility: Detection devices and their communication features, connecting wiring, and central-station control unit shall be selected and configured with accessories for full compatibility with the existing system .

B. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor entry connection to components.

1. Minimum Protection for Power Lines 120 V and More: Auxiliary panel suppressors complying with requirements in Division 16 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits."

2. Minimum Protection for Communication, Signal, Control, and Low-Voltage Power Lines: Comply with requirements in Division 16 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits" as recommended by manufacturer for type of line being protected.

C. Interference Protection: Components shall be unaffected by radiated RFI and electrical induction of 15 V/m over a frequency range of 10 to 10,000 MHz and conducted interference signals up to 0.25-V RMS injected into power supply lines at 10 to 10,000 MHz.

D. Tamper Protection: Tamper switches on detection devices, controllers, annunciators, pull boxes, junction boxes, cabinets, and other system components shall initiate a tamper-alarm signal when unit is opened or partially

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disassembled and when entering conductors are cut or disconnected. Central-station control-unit alarm display shall identify tamper alarms and indicate locations.

E. Self-Testing Devices: Automatically test themselves periodically, but not less than once per hour, to verify normal device functioning and alarm initiation capability. Devices transmit test failure to central-station control unit.

F. Antimasking Devices: Automatically check operation continuously or at intervals of a minute or less, and use signal-processing logic to detect blocking, masking, jamming, tampering, or other operational

1. dysfunction. Devices transmit detection of operational dysfunction to central-station control unit as an alarm signal.

G. Addressable Devices: Transmitter and receivers shall communicate unique device identification and status reports to central-station control unit.

H. Remote-Controlled Devices: Individually and remotely adjustable for sensitivity and individually monitored at central-station control unit for calibration, sensitivity, and alarm condition.

2.03 SECURE AND ACCESS DEVICES

A. Manufacturers:

1. Radionics

B. Keypad and Display Module: Arranged for entering and executing commands for system-status changes and for displaying system-status and command-related data.

C. Key-Operated Switch: Change protected zone between secure and access conditions.

2.04 DOOR SWITCHES

A. Manufacturers:

1. Sentrol or approved equal.

B. Description: Balanced-magnetic switch, complying with UL 634, installed on frame with integral overcurrent device to limit current to 80 percent of switch capacity. Bias magnet and minimum of three encapsulated reed switches shall resist compromise from introduction of foreign magnetic fields.

C. Flush-Mounted Switches: Unobtrusive and flush with surface of door and window frame.

D. Overhead Door Switch: Balanced-magnetic type, listed for outdoor locations, and having door-mounting magnet and floor-mounting switch unit.

E. Remote Test: Simulate movement of actuating magnet from central-station control unit.

2.05 MICROWAVE-PIR DUAL-TECHNOLOGY MOTION SENSORS

A. Manufacturers:

1. Sentrol or approved equal.

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B. Description: Single unit combining a sensor that detects changes in microwave signals and a PIR sensor that detects changes in ambient level of infrared emissions caused by standard-intruder movement within detection pattern.

C. Device Performance: An alarm is transmitted when either sensor detects a standard intruder within a period of three to eight seconds from when the other sensor detects a standard intruder.

1. Minimum Detection Pattern: A room 20 by 30 feet.

2. PIR Sensor Sensitivity: Adjustable pattern coverage to detect a change in temperature of 2 degrees Fahrenheit or less, and standard-intruder movement within sensor's detection patterns at any speed between 0.3 to 7.5 fps (0.09 to 2.52 yard/s) across 2 adjacent segments of detector's field of view.

3. Microwave Sensor Sensitivity: Adjustable, able to detect standard-intruder movement within sensor's detection pattern at any speed between 0.3 to 7.5 fps (0.09 to 2.52 yard/s). Sensor sensitivity adjustments shall be accessible only when sensor housing is removed, and sensors shall comply with 47 CFR 15.

4. Activation Indicator: LED indicator shall not be visible during normal operation. Indicator shall light when sensor detects a standard intruder. Locate test enabling switch under sensor housing cover.

5. Remote Test: When initiated by central-station control unit, start a test sequence for each detector element that simulates standard-intruder movement within sensor's detection patterns, causing an alarm.

PROVIDE ALL NECESSARY HARDWARE AND SOFTWARE FOR A COMPLETE AND OPERABLE SYSTEM.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of intrusion detection.

1. Examine roughing-in for embedded and built-in anchors to verify actual locations of intrusion detection connections before intrusion detection installation.

2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of intrusion detection.

B. Inspect built-in and cast-in anchor installations, before installing intrusion detection, to verify that anchor installations comply with requirements. Prepare inspection reports.

1. Remove and replace anchors where inspections indicate that they do not comply with requirements. Reinspect after repairs or replacements are made.

2. Perform additional inspections to determine compliance of replaced or additional anchor installations. Prepare inspection reports.

C. For material whose orientation is critical for its performance as a ballistic barrier, verify installation orientation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SYSTEM INSTALLATION

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A. Comply with UL 681.

B. Security Fasteners: Where accessible to inmates, install intrusion detection components using security fasteners with head style appropriate for fabrication requirements, strength, and finish of adjacent materials except that a maximum of two different sets of tools shall be required to operate security fasteners for Project. Provide stainless-steel security fasteners in stainless-steel materials.

3.03 WIRING INSTALLATION

A. Wiring Method: Install wiring in metal raceways according to Division 16 Section "Raceway and Boxes for Electrical Systems." Conceal raceway except in unfinished spaces and as indicated. Minimum conduit size shall be ¾ inch 0.79 inch. Control and data transmission wiring shall not share conduit with other building wiring systems.

B. Wiring Method: Install wiring in raceways except in accessible indoor ceiling spaces and in interior hollow gypsum board partitions where cable may be used. Conceal raceways and wiring except in unfinished spaces and as indicated. Minimum conduit size shall be ¾ inch 0.79 inch. Control and data transmission wiring shall not share conduit with other building wiring systems.

C. Wiring Method: Cable, concealed in accessible ceilings, walls, and floors when possible.

D. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points. Use lacing bars and distribution spools. Separate power-limited and non-power-limited conductors as recommended in writing by

1. manufacturer. Install conductors parallel with or at right angles to sides and back of enclosure. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

E. Wires and Cables:

1. Conductors: Size as recommended in writing by system manufacturer, unless otherwise indicated.

2. 120-V Power Wiring: Install according to Division 16 Section "Low-Voltage Electrical Power Conductors and Cables," unless otherwise indicated.

3. Control and Signal Transmission Conductors: Install unshielded, twisted-pair cable, unless otherwise indicated or if manufacturer recommends shielded cable, according to Division 16 Section "Conductors and Cables for Electronic Safety and Security."

F. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

G. Install power supplies and other auxiliary components for detection devices at controllers, unless otherwise indicated or required by manufacturer. Do not install such items near devices they serve.

H. Identify components with engraved, laminated-plastic or metal nameplate for central-station control unit and each terminal cabinet, mounted with corrosion-resistant screws. Nameplates and label products are specified in Division 16 Section "Identification for Electrical Systems."

3.04 GROUNDING

A. Ground system components and conductor and cable shields to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

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B. Signal Ground Terminal: Locate at main equipment rack or cabinet. Isolate from power system and equipment grounding. Provide 5-ohm ground. Measure, record, and report ground resistance.

C. Install grounding electrodes of type, size, location, and quantity indicated. Comply with installation requirements in Division 16 Section "Grounding and Bonding for Electrical Systems."

3.05 FIELD QUALITY CONTROL

A. Pretesting: After installation, align, adjust, and balance system and perform complete pretesting to determine compliance of system with requirements in the Contract Documents. Correct deficiencies observed in pretesting. Replace malfunctioning or damaged items with new ones and retest until satisfactory performance and conditions are achieved. Prepare forms for systematic recording of acceptance test results.

1. Report of Pretesting: After pretesting is complete, provide a letter certifying that installation is complete and fully operable; include names and titles of witnesses to preliminary tests.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field

1. testing. Report results in writing.

C. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

D. Perform the following field tests and inspections and prepare reports:

1. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

2. Operational Tests: Schedule tests after pretesting has been successfully completed. Test all modes of system operation and intrusion detection at each detection device. Test for detection of intrusion and for false alarms in each protected zone. Test for false alarms by simulating activities outside indicated detection patterns.

3. Electrical Tests: Comply with NFPA 72, Section A-7. Minimum required tests are as follows:

a. Verify the absence of unwanted voltages between circuit conductors and ground.

b. Test all conductors for short circuits using an insulation-testing device.

c. With each circuit pair, short circuit at the far end of circuit and measure circuit resistance with an ohmmeter. Record circuit resistance of each circuit on Record Drawings.

d. Verify that each controller is in normal condition as detailed in manufacturer's operation and maintenance manual.

e. Test signal and data transmission circuits complying with requirements in Division 16 Section "Conductors and Cables for Electronic Safety and Security" for proper signal transmission under open-circuit conditions. One connection each should be opened at not less than 10 percent of initiating and indicating devices. Observe proper signal transmission according to class of wiring used.

f. Verify that transient surge-protection devices are installed according to manufacturer's written instructions.

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g. Test each initiating and indicating device for alarm operation and proper response at central-station control unit.

h. Test both primary and secondary power. Verify, by test, that UPS is capable of operating the system for period and in manner specified.

E. Report of Tests and Inspections: Prepare a written record of tests, inspections, and detailed test results in the form of a test log.

F. Tag all equipment, stations, and other components for which tests have been satisfactorily completed.

3.06 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain intrusion detection. Refer to Division 01 Section "Demonstration and Training."

3.07 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to three visits to Project during other than normal occupancy hours for this purpose. Visits for this purpose shall be in addition to any required by warranty.

END OF SECTION

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SECTION 28 2000
VIDEO SURVEILLANCE

PART 1 GENERAL (NOT USED)

PART 2 PRODUCTS

2.01 VIDEO SURVEILLANCE SYSTEM

A. Provide new video surveillance system consisting of all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. System Description: IP system with connection to network (IP) cameras.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B, consumer application.

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 28 3111
DIGITAL, ADDRESSABLE FIRE ALARM SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. SECTION INCLUDES:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Air-sampling smoke detectors.
5. Nonsystem smoke detectors.
6. Heat detectors.
7. Notification appliances.
8. Device guards.
9. Firefighters' two-way telephone communication service.
10. Firefighters' smoke-control station.
11. Magnetic door holders.
12. Remote annunciator.
13. Graphic annunciator.
14. Addressable interface device.
15. Digital alarm communicator transmitter.
16. Radio alarm transmitter.
17. Network communications.
18. System printer.

B. RELATED REQUIREMENTS

1. Section 280513 "Conductors and Cables for Electronic Safety and Security" for cables and conductors for fire alarm systems.

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1.03 DEFINITIONS

A. Retain terms that remain after this section has been edited for a project.

B. EMT: electrical metallic tubing.

C. FACP: fire alarm control panel.

D. HLI: high level interface.

E. NICET: national institute for certification in engineering technologies.

F. PC: personal computer.

G. VESDA: very early smoke-detection apparatus.

1.04 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT, INCLUDING FURNISHED OPTIONS AND ACCESSORIES.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.

2. Include rated capacities, operating characteristics, and electrical characteristics.

B. SHOP DRAWINGS: FOR FIRE-ALARM SYSTEM

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

2. Include plans, elevations, sections, details, and attachments to other work.

3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.

4. Detail assembly and support requirements.

5. Include voltage drop calculations for notification-appliance circuits.

6. Include battery-size calculations.

7. Include input/output matrix.

8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.

9. Include performance parameters and installation details for each detector.

10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.

11. Provide program report showing that air-sampling detector pipe layout balances pneumatically within the airflow range of the air-sampling detector.

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12. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.

    b. Retain one of first three subparagraphs below.

    c. Show field wiring required for HVAC unit shutdown on alarm.

    d. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' control system.

    e. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.

    f. Locate detectors according to manufacturer's written recommendations.

    g. Show air-sampling detector pipe routing.

13. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.

14. Retain subparagraph below for projects where routing of cable or conduit is critical and only outlet locations are indicated on Drawings. Delete reference to device addresses if indicated on Drawings.

15. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. GENERAL SUBMITTAL REQUIREMENTS:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.

2. Shop Drawings shall be prepared by persons with the following qualifications:

    a. Trained and certified by manufacturer in fire-alarm system design.

    b. NICET-certified, fire-alarm technician; Level III minimum.

    c. Retain subparagraph below if authorities having jurisdiction have licensing requirements.

    d. Licensed or certified by authorities having jurisdiction.

D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Drawings showing the location of each notification appliance and smoke and heat detector, ratings of each, and installation details as needed to comply with listing conditions of the device.

2. Design Calculations: Calculate requirements for selecting the spacing and sensitivity of detection, complying with NFPA 72. Calculate spacing and intensities for strobe signals and sound-pressure levels for audible appliances.

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3. Indicate audible appliances required to produce square wave signal per NFPA 72.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Seismic Qualification Certificates: For fire-alarm control unit, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Field quality-control reports.

1.06 Sample Warranty: For special warranty.

1.07 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.

d. Riser diagram.

e. Device addresses.

f. Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.

g. Record copy of site-specific software.

h. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.

2) Frequency of testing of installed components.

3) Frequency of inspection of installed components.

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4) Requirements and recommendations related to results of maintenance.

5) Manufacturer's user training manuals.

i. Manufacturer's required maintenance related to system warranty requirements.

j. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.

2. Program Software Backup: On magnetic media or compact disk, complete with data files.

3. Device address list.

4. Printout of software application and graphic screens.

1.08 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Revise subparagraphs below to suit Project.

2. Lamps for Remote Indicating Lamp Units: Quantity equal to 10 percent of amount installed, but no fewer than one unit.

3. Lamps for Strobe Units: Quantity equal to 10 percent of amount installed, but no fewer than one unit.

4. Insert flame detectors in Part 2 if retaining first option in "Smoke Detectors, Fire Detectors(, and Flame Detectors)" Subparagraph below.

5. Smoke Detectors, Fire Detectors: Quantity equal to 10 percent of amount of each type installed, but no fewer than one unit of each type.

6. Detector Bases: Quantity equal to two percent of amount of each type installed, but no fewer than one unit of each type.

7. Keys and Tools: One extra set for access to locked or tamperproofed components.

8. Audible and Visual Notification Appliances: One of each type installed.

9. Fuses: Two of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.

10. Filters for Air-Sampling Detectors: Quantity equal to two percent of amount of each type installed, but no fewer than one unit of each type.

1.09 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

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B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

C. Retain one of four "NFPA Certification" paragraphs below to require independent system verification.

D. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL (nationally recognized testing laboratory).

E. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.

F. NFPA Certification: Obtain certification according to NFPA 72 inch the form of a placard by an FM Global-approved alarm company.

G. NFPA Certification: Obtain certification according to NFPA 72

1.10 PROJECT CONDITIONS

A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:

1. Notify Construction Manager no fewer than three days in advance of proposed interruption of fire-alarm service.

2. Do not proceed with interruption of fire-alarm service without Construction Manager's written permission.

C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.11 SEQUENCING AND SCHEDULING

A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.12 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 SYSTEM DESCRIPTION

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A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.02 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices:

1. Manual stations.
2. Heat detectors.
3. Flame detectors.
4. Smoke detectors.
5. Duct smoke detectors.
6. Carbon monoxide detectors.
7. Automatic sprinkler system water flow.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Unlock electric door locks in designated egress paths.
5. Release fire and smoke doors held open by magnetic door holders.
6. Activate voice/alarm communication system.
7. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
8. Activate smoke-control system (smoke management) at firefighters' smoke-control system panel.
9. Activate stairwell and elevator-shaft pressurization systems.
10. Close smoke dampers in air ducts of designated air-conditioning duct systems.
11. Coordinate first subparagraph below with "Elevator Recall" Paragraph in "Fire-Alarm Control Unit" Article.

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12. Activate emergency lighting control.

13. If supplies are not essential to life safety, retain first subparagraph below for shutoffs installed in supplies that may be hazardous.

14. Activate emergency shutoffs for gas and fuel supplies.

15. Record events in the system memory.

16. Record events by the system printer.

17. Indicate device in alarm on the graphic annunciator.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.

2. Independent fire-detection and -suppression systems.

3. User disabling of zones or individual devices.

4. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.

2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.

3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.

4. Loss of primary power at fire-alarm control unit.

5. Ground or a single break in internal circuits of fire-alarm control unit.

6. Abnormal ac voltage at fire-alarm control unit.

7. Break in standby battery circuitry.

8. Failure of battery charging.

9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.

2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.

3. Record the event on system printer.

4. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

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5. Transmit system status to building management system.

6. Display system status on graphic annunciator.

2.03 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.04 FIRE-ALARM CONTROL UNIT

A. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.

a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.

b. Include a real-time clock for time annotation of events on the event recorder and printer.

c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.

d. The FACP shall be listed for connection to a central-station signaling system service.

e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.

2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.

3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.

2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

C. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.

2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

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D. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: NFPA 72, Class B.

2. Pathway Survivability: Level 0.

3. Install no more than 50 addressable devices on each signaling-line circuit.

4. Serial Interfaces:

a. One dedicated RS 485 port for central-station operation using point ID DACT.

b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).

c. One USB port for PC configuration.

d. One RS 232 port for VESDA HLI connection.

e. One RS 232 port for voice evacuation interface.

E. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.

2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.

3. Record events by the system printer.

4. Sound general alarm if the alarm is verified.

5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

F. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.

2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.

3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

G. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.

H. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

I. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

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J. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

K. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory signals supervisory and digital alarm communicator shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

L. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed lead calcium.

M. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.05 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.

2. Station Reset: Key- or wrench-operated switch.

3. Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.

4. Weatherproof Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

2.06 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.

2. Detectors shall be two-wire type.

3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.

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5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.

6. Integral Visual-Indicating Light: LED type, indicating detector has operated.

7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 degrees Fahrenheit per minute.

    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 degrees Fahrenheit.

    c. Multiple levels of detection sensitivity for each sensor.

    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

    b. Device type.

    c. Present average value.

    d. Present sensitivity selected.

    e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

    b. Device type.

    c. Present average value.

    d. Present sensitivity selected.

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e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.

2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.

b. Device type.

c. Present average value.

d. Present sensitivity selected.

e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.

4. Each sensor shall have multiple levels of detection sensitivity.

5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.

6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.07 CARBON MONOXIDE DETECTORS

A. General: Carbon monoxide detector listed for connection to fire-alarm system.

1. Mounting: Adapter plate for outlet box mounting.

2. Testable by introducing test carbon monoxide into the sensing cell.

3. Detector shall provide alarm contacts and trouble contacts.

4. Detector shall send trouble alarm when nearing end-of-life, power supply problems, or internal faults.

5. Comply with UL 2075.

6. Locate, mount, and wire according to manufacturer's written instructions.

7. Provide means for addressable connection to fire-alarm system.

8. Test button simulates an alarm condition.

2.08 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.

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B. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

C. Chimes, Low-Level Output: Vibrating type, 75-dBA minimum rated output.

D. Chimes, High-Level Output: Vibrating type, 81-dBA minimum rated output.

E. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.

F. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.

1. Rated Light Output:

a. 15/30/75/110 cd, selectable in the field.

2. Mounting: Wall mounted unless otherwise indicated.

3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.

4. Flashing shall be in a temporal pattern, synchronized with other units.

5. Strobe Leads: Factory connected to screw terminals.

6. Mounting Faceplate: Factory finished, white.

G. Voice/Tone Notification Appliances:

1. Comply with UL 1480.

2. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.

3. High-Range Units: Rated 2 to 15 W.

4. Low-Range Units: Rated 1 to 2 W.

5. Mounting: Flush, semirecessed or surface mounted and bidirectional.

6. Matching Transformers: Tap range matched to acoustical environment of speaker location.

H. Exit Marking Audible Notification Appliance:

1. Exit marking audible notification appliances shall meet the audibility requirements in NFPA 72.

2. Provide exit marking audible notification appliances at the entrance to all building exits.

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3. Provide exit marking audible notification appliances at the entrance to areas of refuge with audible signals distinct from those used for building exit marking.

2.09 MAGNETIC DOOR HOLDERS

A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.

1. Electromagnets: Require no more than 3 W to develop 25-lbf (111-N) holding force.

2. Wall-Mounted Units: Flush mounted unless otherwise indicated.

3. Rating: 24-V ac or dc.

4. Rating: 120-V ac.

B. Material and Finish: Match door hardware.

2.10 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Surface cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.11 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

2. Store an internal identifying code for control panel use to identify the module type.

3. Listed for controlling HVAC fan motor controllers.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

C. Integral Relay: Capable of providing a direct signal

1. Allow the control panel to switch the relay contacts on command.

2. Have a minimum of two normally open and two normally closed contacts available for field wiring.

D. Control Module:

1. Operate notification devices.

2. Operate solenoids for use in sprinkler service.

2.12 DIGITAL ALARM COMMUNICATOR TRANSMITTER

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A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.

B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture two telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

C. Local functions and display at the digital alarm communicator transmitter shall include the following:

1. Verification that both telephone lines are available.
2. Programming device.
3. LED display.
4. Manual test report function and manual transmission clear indication.
5. Communications failure with the central station or fire-alarm control unit.

D. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.
2. Address of the supervisory signal.
3. Address of the trouble-initiating device.
4. Loss of ac supply.
5. Loss of power.
6. Low battery.
7. Abnormal test signal.
8. Communication bus failure.

E. Secondary Power: Integral rechargeable battery and automatic charger.

F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.13 RADIO ALARM TRANSMITTER

A. Transmitter shall comply with NFPA 1221 and 47 CFR 90.

B. Description: Manufacturer's standard commercial product; factory assembled, wired, and tested; ready for installation and operation.

1. Packaging: A single, modular, NEMA 250, Type 1 metal enclosure with a tamper-resistant flush tumbler lock.

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2. Signal Transmission Mode and Frequency: VHF or UHF 2-W power output, coordinated with operating characteristics of the established remote alarm receiving station designated by Owner.

3. Normal Power Input: 120-V ac.

4. Secondary Power: Integral-sealed, rechargeable, 12-V battery and charger. Comply with NFPA 72 requirements for battery capacity; submit calculations.

5. Antenna: Omnidirectional, coaxial half-wave, dipole type with driving point impedance matched to transmitter and antenna cable output impedance. Wind-load strength of antenna and mounting hardware and supports shall withstand 100 mph (160 km/h) ???Insert value??? with a gust factor of 1.3 without failure.

6. Antenna Cable: Coaxial cable with impedance matched to the transmitter output impedance.

7. Antenna-Cable Connectors: Weatherproof.

8. Alarm Interface Devices: Circuit boards, modules, and other auxiliary devices, integral to the transmitter, matching fire-alarm and other system outputs to message-generating inputs of the transmitter that produce required message transmissions.

C. Functional Performance: Unit shall receive alarm, supervisory, or trouble signal from fire-alarm control unit or from its own internal sensors or controls and shall automatically transmit signal along with a unique code that identifies the transmitting station to the remote alarm receiving station. Transmitted messages shall correspond to standard designations for fire-reporting system to which the signal is being transmitted and shall include separately designated messages in response to the following events or conditions:

1. Transmitter Low-Battery Condition: Sent when battery voltage is below 85 percent of rated value.

2. System Test Message: Initiated manually by a test switch within the transmitter cabinet, or automatically at an optionally preselected time, once every 24 hours, with transmission time controlled by a programmed timing device integral to transmitter controls.

3. Transmitter Trouble Message: Actuated by failure, in excess of one-minute duration, of the transmitter normal power source, derangement of the wiring of the transmitter, or any alarm input interface circuit or device connected to it.

4. Local Fire-Alarm-System Trouble Message: Initiated by events or conditions that cause a trouble signal to be indicated on the building system.

5. Local Fire-Alarm-System Alarm Message: Actuated when the building system goes into an alarm state. Identifies device that initiated the alarm.

6. Local Fire-Alarm-System, Supervisory-Alarm Message: Actuated when the building alarm system indicates a supervisory alarm ???Insert condition???.

2.14 SYSTEM PRINTER

A. Printer shall be listed and labeled as an integral part of fire-alarm system.

2.15 DEVICE GUARDS

A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.

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1. Factory fabricated and furnished by device manufacturer.

2. Finish: Paint of color to match the protected device.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.

2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

1. Comply with requirements for seismic-restraint devices specified in Section 260548.16 "Seismic Controls for Electrical Systems."

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.

2. Mount manual fire-alarm box on a background of a contrasting color.

3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

D. Smoke- or Heat-Detector Spacing:

1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.

2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.

3. Smooth ceiling spacing shall not exceed 30 feet.

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4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A in NFPA 72.

5. HVAC: Locate detectors not closer than 36 inches ((35.83 inch)) from air-supply diffuser or return-air opening.

6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

E. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.

G. Air-Sampling Smoke Detectors: If using multiple pipe runs, the runs shall be pneumatically balanced.

H. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.

I. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.

J. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

K. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

L. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

M. Device Location-Indicating Lights: Locate in public space near the device they monitor.

N. Antenna for Radio Alarm Transmitter: Mount to building structure where indicated. Use mounting arrangement and substrate connection that resists 100-mph (160-km/h) wind load with a gust factor of 1.3 without damage.

3.03 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

B. Pathways shall be installed in EMT.

C. Exposed EMT shall be painted red enamel.

3.04 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

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1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Alarm-initiating connection to smoke-control system (smoke management) at firefighters' smoke-control system panel.
2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
3. Smoke dampers in air ducts of designated HVAC duct systems.
4. Magnetically held-open doors.
5. Electronically locked doors and access gates.
6. Alarm-initiating connection to elevator recall system and components.
7. Alarm-initiating connection to activate emergency lighting control.
8. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
9. Supervisory connections at valve supervisory switches.
10. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
11. Supervisory connections at elevator shunt-trip breaker.
12. Data communication circuits for connection to building management system.
13. Data communication circuits for connection to mass notification system.
14. Supervisory connections at fire-extinguisher locations.
15. Supervisory connections at fire-pump power failure including a dead-phase or phase-reversal condition.

3.05 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.06 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.07 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by authorities having jurisdiction.

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B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.

4. Test audible appliances for the private operating mode according to manufacturer's written instructions.

5. Test visible appliances for the public operating mode according to manufacturer's written instructions.

6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.08 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

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2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.09 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION

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SECTION 32 8410
IRRIGATION SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Includes all labor, materials, equipment, and operations required to complete the Irrigation System in accordance with the SSPWC latest edition, and the applicable Drawings.

1.2 RELATED SECTIONS

A. Section 32 0190 – Landscape Maintenance

B. Section 32 9000 – Landscape Planting

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. Secure all permits and licenses necessary for the work. Give all notices and comply with all laws, ordinances, rules, and regulations concerning the installation of the sprinkler system as drawn and specified.

1.4 SITE CONDITIONS

A. Prior to beginning any work, the Contractor and the District Representative shall participate in a thorough irrigation system review of the project site. All remote-control valves shall be turned on and observed in operation by both the Contractor and District Representative. Any existing defects will be listed in detail identifying the specific valve station number and describing the exact broken or non-functioning irrigation component noted during the site review. At the conclusion of the irrigation review, the Contractor shall generate a summary of the items identified by both parties listing all remote-control valves operated, identifying if the valve performed without any defects or specifically identifying any observed defects or non-functioning components, such as broken heads, clogged nozzles, non-operating valve solenoids, broken piping, or other noted defects. The completed summary of items noted shall be listed on a document called 'Existing Irrigation System Observations.' This document shall be signed by the Contractor and submitted to the District Representative for a confirming signature. The mutually signed 'Existing Irrigation System Observations' document shall be sent to the attention of the Landscape Architect for inspection purposes at the conclusion of the construction work. If requested by the District Representative, the Contractor shall provide a list of the existing defective irrigation components noted with a detailed written proposal to repair each item identified on the list. A copy of this proposal will be sent to the Landscape Architect. This additional work proposal must be reviewed and approved in writing by the District and formally presented to the General Contractor before the Landscape Subcontractor can begin any additional repair work. The mutually signed 'Existing Irrigation System Observation' document shall be used as a guide to identify any collateral damage caused to the existing irrigation system because of new construction performed on site by the Contractors. Any damage caused to the existing irrigation system not specifically identified on the 'Existing Irrigation System Observation' document shall be repaired or replaced at the Contractor's expense. If the Contractor does not participate or perform the existing irrigation site review, any existing irrigation equipment or components damaged on the project site noted by the Landscape Architect during the final irrigation system review shall be repaired or replaced by the Contractor at their expense to the satisfaction of the District.

B. Do not willfully install the sprinkler system as indicated on the drawing when it is obvious in the field that unknown obstructions or grade differences exist that might not have been considered in the engineering. Such obstructions or differences should be brought to the attention of the District Engineer.

C. Before excavating for sprinkler lines, locate all underground utility lines so that the proper precautions may be taken to avoid damage to such utilities. In the event of a conflict between underground lines, promptly notify the District Engineer who will arrange for the relocation of one or the other. Failure to follow this procedure places the responsibility upon the Contractor for making all repairs for damage of any kind at his own expense.

D. Provide necessary safeguards and exercise caution against injury or defacement of any existing site improvements. Contractor shall be responsible for any damage resulting from his operations and shall repair or replace such damage at his own expenses. No trucks or vehicles of any kind shall be allowed to pass over sidewalks, curbs, etc., unless adequate protection is provided.

E. Existing Trees

1. Exercise all possible care and precautions to avoid injury to tree roots, trunks, and branches. All excavating within drip line of trees shall be done very carefully and by hand pick and shovel if it appears that large roots are within trenching zones.

2. Alter alignment of pipe to avoid large tree roots, 2-inch and larger in diameter.

3. Wrap exposed and bridging tree roots with several layers of burlap and keep moist. Close all trenches within drip lines, within 24 hours.

4. All severed roots 1-inch and larger shall be hand pruned with sharp tools and painted with acceptable horticultural seal.

1.5 MATERIAL LIST

A. Submit to the District for acceptance, five (5) copies of all materials and equipment, including Manufacturer's names and catalog numbers, to be furnished and installed under this contract within 10 days after the award of the contract.

1.6 RECORD DRAWINGS

A. Provide and record daily a complete record set of prints on bond which shall be corrected to show changes from the original drawings and specifications and the exact installed locations, sizes, and kinds of equipment. Prints for this purpose may be obtained from the District. Keep this set of drawings on the site and use only as a record set.

B. Use these drawings as work progress sheets. Make neat and legible annotations thereon as the work proceeds, showing the work as actually installed. Keep these drawings available at all times for inspection and in a location designated by the District.

C. Before the date of the final inspection, transfer all information from the record prints to a clean set of prints procured from the District. Make work neat, in ink and subject to review and acceptance of the District. District will scan final drawings into a permanent electronic record document.

D. Dimension from two permanent points of reference such as building corners, sidewalks or road intersections, the location of:

1. Connection to existing water lines.

2. Connection to existing electrical power.

3. Gate valves.

4. Routing of sprinkler pressure lines and control wiring.

5. Electric control valves.

6. Quick coupling valves.

7. Other related equipment as directed by District.

1.7 CONTROLLER CHARTS

A. Record drawings shall be reviewed and accepted by the District before charts are prepared.

B. Provide one controller chart for each controller supplied.

C. The chart shall show the area controlled by automatic controller and shall be the maximum size controller door will allow.

D. The chart is to be reduced from the final record drawing set. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

E. Chart shall be blackline print and a different color shall be used to show area of coverage for each station.

F. The chart shall be mounted using Velcro, or an approved equal type of tape.

G. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils. thick.

H. These charts shall be completed and approved prior to final inspection of the irrigation system.

1.8 TESTS AND SITE OBSERVATIONS

A. All tests shall be made in the presence of the District; at least forty-eight (48) hours' notice shall be given for tests.

B. Record drawings must be current and shall be verified by the District at the time of all observations.

C. Site observations for all items pertaining to the work of this Section shall be performed by the District.

D. Specific site observations for valve assemblies, sprinkler coverage, control wires and splices and any other observations deemed necessary by the District shall be performed by the District.

E. An open trench main line check for pipe quality and depths shall be performed by the District.

F. Head Layout - using flag marker layout all drip emitter, tree flood bubblers, and spray heads in field prior to trenching. Review head layout with District and Landscape Architect and adjust in field as directed prior to installing irrigation.

G. Center load pipe with small amount of backfill to prevent arching and whipping under pressure. Leave joints exposed for observation during pressure test. No water shall be permitted in the pipe until the above has been accomplished and a period of at least 24 hours has elapsed for solvent weld setting and curing.

Main lines to be tested up to valve at 125 pounds pressure and there shall be no leaks. Furnish force pump and pressure gauge. Lateral lines of system to be tested at line pressure with risers capped. Tests to be for 2-hour period and verified by the District.

H. Backfill quality and compaction of trenches shall be verified by the District. Do not backfill trenches until all tests have been completed and accepted.

I. The new auto controller shall be Toro 'Eagle Plus' Series auto controller capable of direct connection to the internet via cell phone connection. Unit shall be housed in a factory plastic wall mounted enclosure. The auto controller will be able to measure remote control valve flow on actual site weather conditions. Toro Model EGPi16-PLAST-RM-ISVC-5Y. Field verify the exact location desired for wall mounted auto controller with District Representative. Perform as related work required to connecting flow sensor to auto controller so that it measures discharge flow of sprinkler valves as per manufacturers' specifications. 1

J. Perform a coverage test in the presence of the District to determine if the water coverage for planting areas is complete and adequate. Furnish materials and perform all work required to correct any inadequacies of coverage due to deviations from drawings, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the District.

K. The coverage test shall be completed, and the irrigation system modified if necessary and accepted, prior to the start of the planting operations.

L. The entire system shall be checked out thoroughly and completely by the Contractor, five (5) days prior to the final observation. All heads shall be properly aligned and adjusted for coverage and cleared of any foreign materials. All valves shall be properly adjusted. Sprinkler controller valve chart shall be checked for accuracy.

M. At the end of the Maintenance Period, a final observation shall be made by the Contractor and District to check out the entire system.

N. Final inspection prior to acceptance:

1. Operate each system in its entirety for the District at time of final inspection. Rework any items deemed not acceptable to the District.

2. Deliver to the District all accessories, charts, record drawings, and equipment as required before final inspection.

1.9 GUARANTEE

A. The entire sprinkler system shall be guaranteed for a period of one (1) year from date of final acceptance.

B. Should any portion of the irrigation system malfunction due to poor workmanship or defective materials, corrections shall be promptly made by the Contractor at his own expense.

C. Any damage to paving, plating, or other developments due to the settlements of improperly compacted trench soil, shall also be promptly repaired at the Contractor's expense, to the satisfaction of the District.

PART 2 PRODUCTS

2.1 GENERAL

A. Irrigation materials shall be in accordance with Subsection 212-2 in the SSPWC “Greenbook” and as specified herein.

B. The irrigation products specified on the drawings in these specifications are selected to match existing products in use. Substitutions are permitted only when product name is followed by or equal.

C. Use only new materials of brands and types as noted on the drawings and as specified.

2.2 MATERIALS

A. Electrical conductors - 24-volt conductors shall be U.F. type, solid wire, U.L. approved for direct burial. Minimum size shall be 14-gauge or as noted on drawings. Acceptable products for 14-gauge wires splice connections shall be 3M Model DBR-Y6, Toro Model TW-SPLICE, Spears Model DS-400 Dri-Splice, or King Innovation Dryconn Dry-Splice wire connectors. Use only 3M Model DBR-Y6 or Toro Model TW-SPLICE wire connectors for Toro EV-CAB-SEN sensor cable splice connections. No known equal.

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B. Fittings - galvanized malleable steel, Schedule 40.

C. PVC primer and solvents - as recommended by Manufacturer. John-Manville, Lasco, or Pacific Western.

D. Main Line Fittings for Mainline Piping - Schedule 80, PVC Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco Spears, or approved equal.

E. Lateral non-pressure line fittings - Schedule 40, PVC Type 1, Grade 1, Cell Classification 12454-B, side gated, Lasco or approved equal.

F. Ball valve shall be Schedule 80 PVC manufactured by Spears, Tru-Union-Series, line size, or approved equal.

G. Pop up turf rotors shall be 6” pop up height furnished with built in check valves and stainless steel riser. Hunter Model i20-06-SS, with 35’ MPR Series nozzles, Rain Bird Model 5006+PCSAMSS and 5006+FCSAMSS with 35’ MPR Series nozzles.

H. Nipples and Risers - PVC Schedule 80.

I. Irrigation Mainline

1. Mainline piping sized 2 ½” to 4” shall be Class 315 PVC, solvent weld pipe in conformance with ASTM D-1785 and ASTM D-1784. JM Eagle, Pacific Plastics, or approved equal.

2. Mainline piping sized 1 ½" or less shall be Schedule 40 PVC, solvent weld pipe in conformance with ASTM D-1785 and ASTM D-1784. JM Eagle, Pacific Plastics, or approved equal.

J. Pipe, Lateral Non-Pressure Lines shall be PVC Schedule 40, solvent weld in conformance with ASTM D-1785, D-1784. JM Eagle, Pacific Plastics, or approved equal.

K. Thread Sealant shall be smooth, non-hardening sealant, compatible with the pipe materials specified. Do not use Teflon tape.

L. Valve Boxes

1. Schedule 80 PVC ball valves shall be housed in a Carson Model 1220-12-4B with bolt down lid, NDS Model 218BCB, or approved equal.

2. Remote Control Valves shall be housed in a Carson Model 1220-12-4B with bolt down lid, NDS Model 218BCB, or approved equal.

3. Quick coupling valves shall be housed in a Carson Model 910-4B Series, NDS Model 212BCB, or approved equal.

4. Wire pull boxes, master valve and flow sensor shall be Carson Model 1419-12-4B Series, NDS Model 214BCB, or approved equal.

M. Irrigation Mainlines 1 ½" size or less shall be furnished with concrete thrust blocks. Concrete sidewalks to access controller and controller pads shall be hardrock concrete with minimum compressive strength at 28 days of 2,500 PSI and conform to ASTM L-94. Finish for walks shall be medium broom finish.

N. Mainline fittings and transition couplers for existing asbestos cement mainline shall be manufactured by Romac, Smith-Blair or approved equal.

O. Furnish and install 8'-0" copper clad lightning ground rod and install in a standard rectangular valve box for Toro Irrigation Systems auto controllers. Install ground rod with copper clamp and #8 copper wire as per Toro specifications. House exposed copper grounding wire in a 1" Sch. 40 PVC electrical conduit from base of wall mounted auto controller to valve box housing ground rod and clamp a minimum distance of 8'-0" from controller location. 1

P. PVC flange fittings shall be PVC Schedule 80, Type 1, Grade 1, loose ringer, ANSI Class 150 flange, Lasco Series 954 or approved equal with full face 1/8" thick elastomeric gasket, 5-70 Shore A hardness.

Q. Irrigation wire shall be 14-gauge, solid, polyethylene coated, colors as per irrigation plan. Paige Wire Spec 'P7079D' or approved equal.

R. Auto controller shall be Toro Model EGPi16-PLAST-RM-ISVC-5Y, housed in a factory plastic box enclosure, 16 stations and flow sensing capability. No known equal.

S. Wireless Rain Shut Off Device shall be Toro Model RS1000. Provide all required batteries. No known equal.

T. Flow Sensor shall be Creative Sensor Technology Model FSI-T15-001, plastic solvent weld body, 1 ½" size. No known equal. 1

U. Drip Remote Control Vales shall be Rain Bird PESB Series, 1" size, in an assembly with a Rain Bird pressure regulating drip filter model PRB-QKCHK-100 or Hunter 1" ICV-FS Series remote control valve with a 1" x ¾" Hunter drip filter Model HY-100-075 with Hunter ¾" pressure regulator Model (30 PSI) PRLV30MF3F3FV.

V. Remote Control Valves shall be Rain Bird PESB Series or Hunter Model ICV-FS-Series.

W. Pop Up Lawn Spray Bodies shall be manufactured by Rain Bird, built-in 30 PSI pressure regulator, built-in check valve, 6" plastic riser, Model No. RD-06-S-P30 furnished with Rain Bird high efficiency adjustable nozzles Model No. HE-VAN series or Hunter Model PROS-06-PRS30-CV-PRO with Pro High Efficiency adjustable nozzle series.

X. Tree and flood bubblers with PVC Flexible Hose shall be manufactured by GPH Irrigation. Flood bubblers shall be pressure compensating with built-in check valves and an FPT plastic body. Flood bubbler nozzle shall be Model GPCBCV1 for 1.0 gallon per minute flood bubbler. PVC Flexible Hose shall be 3/8" IPS size, algae resistant, UVR treated, hose Model No. GPVCSSAR050IRR with matching 3/8" x ½" PVC black colored male adapters Model No. G436073B or Hunter Model IH-250 brown PVC flexible hose with brown male adapters Model IH-FIT-3850 and a tree flood bubbler nozzle Model PCB-10.

Y. Dripline tubing shall be 0.56" x 0.66" wall thickness (17 MM) tubing with 0.9 GPH emitters spaced 12" O.C. with matching 17 MM barbed fittings. Manufactured by NDS, Model No. SFCV-BR-6412-025S. Tubing system will be furnished with dripline air relief valve NDS Model No. AVRV, installed on highest elevation on tubing system installed in a 6" round valve box or Netafim Techline CV Series, Model TLCV9-1210 with 17 mm fittings Model TLAVRV or approved equal.

Z. Sand backfill for irrigation mainline trench shall be angular plaster sand. Provide sample for approval by the District.

2.3 SPARE EQUIPMENT

A. Furnish to the District the following spare equipment:

1. Five (5) 1-gallon per hour tree bubblers 1

PART 3 EXECUTION

3.1 GENERAL

A. Irrigation materials shall be in accordance with Subsection 308-5 in the SSPWC "Greenbook" and as specified herein.

3.2 WORKMANSHIP AND INSTALLATION.

A. Layout and Adjustments

1. The drawings are diagrammatic to the extent that many offsets, special fittings, and exact locations of the equipment are not shown. The locations of all valves, heads, lines, etc., shall be installed, however, as accurately as possible to the locations that are indicated on the drawings.

2. The locations of main lines are indicated as bordering walks, curbs and fences shall be placed as close as possible. Locate lines within planting areas wherever possible.

3. All indicated locations of heads and equipment are placed with careful consideration to overlap, protection of the premises, lights, proposed tree locations and general layout. Coordinate installation of sprinkler irrigation materials, including pipe, so there is no interference with utilities, other construction, or difficulty in planting trees and shrubs. Layout sprinkler heads and make any minor adjustments required due to differences between site and drawings. Adjustments shall be accomplished, maintaining proper sprinkler head coverage and overlap of sprinkler throws.

B. Connections

1. All connections shall be made into existing lines as indicated on the drawings.

2. Field verify existing line types in the field.

C. Cutting and Patching

1. When piping crosses concrete paving and asphalt paving, saw cutting is required. Cut AC paving and/or concrete with concrete saw cutting tools straight and, in those locations, approved by the District.

2. Remove concrete and/or AC, base, and soil to the required depth for mainlines.

3. Concrete walks shall be backfilled entirely with compacted plaster sand. Compact to 95% and patched with new concrete.

4. AC paving shall be backfilled entirely with a 2-sac sand slurry mix. Compact to 95% and patch with new AC paving.

5. Concrete paving shall be received medium broom finish.

6. Remove from site any excavated soil.

D. Trenching and Backfilling

1. Trench and excavate as necessary to install the system. Excavated material shall be neatly arranged to cause a minimum of inconvenience to pedestrian and vehicular traffic. No soil shall be placed on concrete paving without an adequate moisture proof membrane to protect paving.

2. Trenches for all pipes shall be open vertical construction with firm level bottom and sufficiently wide to provide free working space around the work installed and to provide ample space for backfilling and tamping. Provide a 6" deep layer of plaster sand between bottom of excavated trench and bottom of irrigation mainline piping.

3. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:

a) Mains and control wires: 24-inches minimum cover.

b) PVC laterals: 12-inches minimum cover.

4. When two (2) pipes are to be placed in the same trench, provide a minimum of 3-inch horizontal clearance. Place pipe side by side; do not install one pipe on top of another.

5. After the installation is complete and the required tests and inspections have been made and approved, the excavations and trenches shall be backfilled with plaster sand until the irrigation mainline and wire conduit have a minimum cover from top of mainline of a 6" layer of sand. The remainder of the trench can be backfilled with native soil.

E. Plastic Pipe

1. Do not install multiple assemblies on plastic lines. Provide each assembly with its own outlet.

2. Install assemblies specified herein in accordance with respective detail. In absence of detail drawings or specifications pertaining to specific items required to complete work, perform such work in accordance with best standard practice.

3. Clean PVC pipe and fittings before installation. For solvent weld pipe use installation and solvent welding methods as recommended by the pipe and fitting manufacturer. For gasketed pipe installation follow detailed assembly instructions furnished by the manufacturer.

4. On PVC to metal connections, work the metal connections first. Use non-hardening sealant on all threaded joints. Screw hand tight and ½ turn by wrench. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.

5. Pipe shall have a firm, uniform bearing, for the entire length of each pipeline, to prevent uneven settlement. Pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction. One additional foot per 100 feet of pipe is the minimum allowance for snaking. Never lay PVC pipe when there is water in the trench or when the temperature is 32° F or below.

6. Use 45° fittings at all changes in depth of pipe. Coupling to be of same materials and wall thickness as pipe.

F. Concrete Thrust Blocks – for mainline 1 ½" and less. Install concrete thrust blocks at all directional changes.

G. Control Wiring

1. Control wires and mains shall be installed in common trenches wherever possible housed in Schedule 40 PVC electrical conduits. All wires shall be 14-gauge size.

2. Control wires shall be installed at least 24-inches below finish grade within Schedule 40 PVC electrical conduits equipped with sch. 40 PVC sweep elbows into and out of all valve boxes. Wire conduits shall be kept to the side of the main line where possible. Wire conduits shall be a minimum of 3" from any pipe or fittings except at terminal points. Provide looped 3'-0" hand loop slack at valves and pull boxes. Tie wires in bundles within conduits at 10' intervals.

3. Control wire splices allowed only on runs more than 500 feet. Splice as follows:

   a) Strip off minimum of 2 ½" inches of insulation from each wire and twist wires together 4 complete twists.

   b) Make splices with 3M model DBR-Y6, or Spears model DS-400 Dri-Splice, or King Innovation model Dry Conn Dry-Splice wire connectors. Use one splice per connector sealing pack. All wire splices shall be housed in either a remote-control valve box or separate wire splice box. Do not make field splices outside of any valve box.

4. Wire conduits passing under future or existing paving, construction, etc., shall be encased in a PVC sleeve, size, and pipe material as per Irrigation Plan, extending at least 12-inches beyond edges of paving or construction.

5. Identify all control wires at valve boxes and controller with "wire marker tags" manufactured by Christy, 3M or equal.

6. Pull one extra common (white with red stripe) and one spare (red) to all valve locations.

H. Valves:

1. Piping systems shall be supplied with valves at all points shown on the drawings or specified herein and shall be arranged to give complete regulating control throughout.

2. Valves shall be the full size of the line in which they are installed unless otherwise indicated.

3. Valves shall be installed in accordance with the drawings and Manufacturer's specifications, so all parts are easily accessible and maintained. Valves near walk, curbs, etc., shall be set with 12-inches and parallel to same. Remote control valves shall be installed in groundcover or shrub areas wherever feasible.

4. Remote control valves shall be adjusted so that the sprinkler heads operate at pressure recommended by the head manufacturer. Remote control valves shall be adjusted so that a uniform distribution of water is applied by the sprinkler heads to the planting areas from each individual valve system.

5. Valve boxes shall be set ½-inch above the designated finish grade at each valve.

I. Sprinkler Heads

1. Prior to installing heads, flush laterals, and risers with full line pressure. Repeat whenever system is opened for repairs or replacements. Start flushing operation at the highest point of delivery and work to the lowest.

2. Align all part circle heads so that no spray shall hit building walls or concrete paving.

3. Adjust all spray nozzles so that there will be no amount of overspray, and so that the entire set will be as evenly balanced as possible.

4. Install with each lawn area sprinkler head, a "Triple Swing" joint with Schedule 80 PVC nipples and threaded elbows.

5. Install all tree bubblers on PVC flexible hose with two (2) solvent weld male adapters. Install two (2) bubbler assemblies per each tree planted on project.

3.3 FIELD QUALITY CONTROL

A. Adjustment to System

1. Flush and adjust all sprinkler heads for optimum performance and to prevent overspray onto walk, roadways, and buildings wherever possible.

2. Select the best degree of arc to fit existing site conditions.

3. Set all sprinkler heads perpendicular to finished grades unless other designated on the drawings.

3.4 TESTING AND INSPECTION

A. Do not allow or cause any work of this section to be covered up or enclosed until it has been inspected, tested, and approved by the District. Before backfilling the main line, and with all control valves in place, but before lateral pipes are connected, completely flush and test the mainline, and repair all leaks. Flush out each section of lateral pipe before emitters are attached.

B. Make all necessary provisions for thoroughly bleeding the line of air and debris. Before testing, fill the line with water for a period of at least 24 hours.

C. After valves have been installed, test all pressure main lines for leaks at a pressure of 150 PSI for a period of two hours, with all couplings exposed, and all pipe sections carefully center-loaded. Furnish all necessary testing equipment and personnel. Correct all leaks, and retest until accepted by the Engineer.

3.5 FINAL INSPECTION

A. Thoroughly clean, adjust and balance all systems. Demonstrate the entire system to the District proving that all remote control valves are properly balanced, that all emitters are properly flowing, and that the entire system is installed and is workable, clean, and efficient.

END OF SECTION

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DSA ADDENDUM No. 1

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Date: August 28, 2026

Project: Gateway Annex School
DSA A#: 03-122398 File #: 56-44

Owner: Ventura County Office of Education
5100 Adolfo Road
Camarillo, CA 93012

Architect: Perkins Eastman
3333 Michelson Dr, Suite 400
Irvine, CA 92612
PE No.: 88910.00

The clarifications, modifications, changes, additions and/or deletions contained herein shall be incorporated within the construction documents for the project. Such information shall take precedence over that previously published.

The Addendum consists of 245 pages including:

ATTACHMENTS

Specifications: 08 7100, 09 9900, 11 4000, 21, 22 0010, 22 0517, 22 1005, 22 1006, 27 1000, 27 4100, 27 5116, 28, 32 8410

Sheets: G001, G003, G004, G005, C-1, C-2, C-3, C-4, L1, L2, L3, L4, L7, L8, AD001, A001, A002, A011, A013, A014, A101, A102, A103, A121, A131, A201, A202, A221, A231, A232, A301, A403, A404, A602, A701, A702, A704, A721, A732, A734, A771, A801, A802, A823, A831, A832, A841, A843, S101, S102, S301, S303, S402, S601, S602, S603, S604, S612, S613, M101, M141, M601, M602, P101, P141, P401, P701, E141, E502, E601, E602, E701, FA202, FA302

CHANGES TO THE BID DOCUMENTS

None

CHANGES TO THE SPECIFICATIONS

Item No. 1.1 Door Hardware
Reference: 08 7100
Description: Replace specification 08 7100 with the attached **08 7100**. The changes are as follows:

- 3.07 through 3.23: Hardware Groups 012, 020, 030, 040, 044, 405, 442.1, 442.2, 443.1, 453.1, 455.1, A032.7, A482.1, A482.5, A582R.1, and A585R.1 revised.

Item No. 1.2 Colors
Reference: 09 9900
Description: Replace specification 09 9900 with attached **09 9900**. The changes are as follows:

- The Color/Finish on the Finish List matrix are revised for the following

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Specification Sections: 08 4313, 08 8000, 09 6519, and 09 6813.

Item No. 1.3 Foodservice Equipment
Reference: 11 4000
Description: Replace specification 11 4000 with attached **11 4000**. The changes are as follows:
- Specification section completely updated.

Item No. 1.4 Fire Supression
Reference: Division 21
Description: Replace Division 21 with attached **Division 21**. The changes are as follows:
- All sections are completely updated.

Item No. 1.5 Basic Plumbing Requirements
Reference: 22 0010
Description: Replace specification 22 0010 with attached **22 0010**. The changes are as follows:
- Specification section completely updated.

Item No. 1.6 Sleeves and Sleeve Seals for Plumbing Piping
Reference: 22 0517
Description: Replace specification 22 0517 with attached **22 0517**. The changes are as follows:
- Specification section completely updated.

Item No. 1.7 Plumbing Piping
Reference: 22 1005
Description: Replace specification 22 1005 with attached **22 1005**. The changes are as follows:
- Specification section completely updated.

Item No. 1.8 Plumbing Piping Specialties
Reference: 22 1006
Description: Replace specification 22 1006 with attached **22 1006**. The changes are as follows:
- Specification section completely updated.

Item No. 1.9 Structured Cabling
Reference: 27 1000
Description: Replace specification 27 1000 with attached **27 1000**. The changes are as follows:
- Specification section completely updated.

Item No. 1.10 Audio/Visual Systems
Reference: 27 4100
Description: Replace specification 27 4100 with attached **27 4100**. The changes are as follows:
- Specification section completely updated.

Item No. 1.11 Public Address Systems
Reference: 27 5116
Description: Replace specification 27 5116 with attached **27 5116**. The changes are as follows:
- Specification section completely updated.

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Item No. 1.12	Access Control
Reference:	28 1000
Description:	Replace specification 28 1000 with attached **28 1000**. The changes are as follows: • Specification section completely updated.
Item No. 1.13	Intrusion Detection
Reference:	28 1600
Description:	Replace specification 28 1600 with attached **28 1600**. The changes are as follows: • Specification section completely updated.
Item No. 1.14	Video Surveillance
Reference:	28 2000
Description:	Replace specification 28 2000 with attached **28 2000**. The changes are as follows: • Specification section completely updated.
Item No. 1.15	Digital, Addressable Fire Alarm System
Reference:	28 3111
Description:	Replace specification 28 3111 with attached **28 3111**. The changes are as follows: • Specification section completely updated
Item No. 1.16	Irrigation System
Reference:	32 8410
Description:	Replace specification 32 8410 with the attached **32 8410**. The changes are as follows: • 1.8-I: Auto controller manufacturer revised. • 2.2-A: Wire splice connector options updated. • 2.2-O: Ground rod manufacturer revised. • 2.2-R: Auto controller manufacturer revised. • 2.2-S: Wireless rain shut off device product revised. • 2.2-T: Flow sensor product revised. • 2.3-A.2: Line deleted.

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CHANGES TO THE DRAWINGS

GENERAL

Item No. 1.17 Cover Sheet
Reference: G001
Description: Replace sheet G001 with attached **G001**. The changes are as follows:

- Revised Sheet A701 sheet name.
- Added Sheet A702 sheet number and name.
- Revised Sheet S612 sheet name.
- Added Sheet S613 to the Drawing Index.
- Revised total number of sheets.

Item No. 1.18 Site Plan – Code Analysis
Reference: G003
Description: Replace sheet G003 with attached **G003**. The changes are as follows:

- On plan C10: the buildings (A, B and C) and the central recreation area have been moved 21'-0" to the south of their current location to avoid the existing easements, resulting on landscape increasing on the north of Building A and C. The courts and the safe dispersal area have been rearranged to accommodate the shift of the buildings.
- Buildings design has not been impacted by this change.

Item No. 1.19 Site Plan – Local Fire Authority
Reference: G004
Description: Replace sheet G004 with attached **G004**. The changes are as follows:

- On plan D10: On plan C10: the buildings (A, B and C) and the central recreation area have been moved 21'-0" to the south of their current location to avoid the existing easements, resulting on landscape increasing on the north of Building A and C.
- Buildings design has not been impacted by this change.
- The Fire Lane coming into the south courts was reduced to 90'-0".

Item No. 1.20 Floor Plan – Egress Analysis
Reference: G005
Description: Replace sheet G005 with attached **G005**. The changes are as follows:

- On plan A10: Exit Path was rearranged based on the updated courts layout and Safe Dispersal Area.

CIVIL

Item No. 1.21 Horizontal Control Plan
Reference: C-1
Description: Replace sheet C-1 with attached **C-1**. The changes are as follows:

- Civil sheets have been renumbered in comparison to the previously submitted set. Horizontal Control Plan sheet was moved from C-3 to C-1.
- Revised site dimensions for the new building location.

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Item No. 1.22 Engineered Site Plan Grading, Drainage, and Storm Drain
Reference: C-2
Description: Replace sheet C-2 with attached **C-2**. The changes are as follows:

- Civil sheets have been renumbered in comparison to the previously submitted set. Engineered Site Plan Grading, Drainage, and Storm Drain sheet was moved from C-1 to C-2.
- The previous Engineered Site Plan Grading, Drainage, and Storm Drain sheet has been split into two sheets. C-2 shows the northern part of the site plan.
- Revise finished grade elevations for the update site layout.

Item No. 1.23 Engineered Site Plan Grading, Drainage, and Storm Drain
Reference: C-3
Description: Replace sheet C-3 with attached **C-3**. The changes are as follows:

- Civil sheets have been renumbered in comparison to the previously submitted set. Engineered Site Plan Grading, Drainage, and Storm Drain sheet was moved from C-1 to C-3.
- The previous Engineered Site Plan Grading, Drainage, and Storm Drain sheet has been split into two sheets. C-3 shows the southern part of the site plan.
- Revise finished grade elevations for the update site layout.

Item No. 1.24 Overall Utility Site Plan Water and Sewer
Reference: C-4
Description: Replace sheet C-4 with attached **C-4**. The changes are as follows:

- Civil sheets have been renumbered in comparison to the previously submitted set.
- New sheet C-4 added. Overall Utility Site Plan Water and Sewer sheet was moved from C-2 to C-4.
- Maintain utility connection location to the building with the shift and adjust all utility routes back to main line services. Add underground storage and water quality treatment requirements to meet the new permit.

LANDSCAPE

Item No. 1.25 Irrigation Plan
Reference: L1
Description: Replace sheet L1 with attached **L1**. The changes are as follows:

- The irrigation system was redesigned to accommodate the modified school site layout due to the buildings being repositioned approximately 20’-0” to the south from the original layout.

Item No. 1.26 Irrigation Legend and Notes
Reference: L2
Description: Replace sheet L2 with attached **L2**. The changes are as follows:

- The MWELO landscape water use calculations were revised to address the changes to the landscape square foot areas due to the site modification.
- Ventura County Schools have standardized sprinkler auto controllers to an interned based control system. The product is manufactured by Toro Irrigation. The auto controller, flow sensor, and rain shut-off device have been changed to reflect the desired Toro products.

Item No. 1.27 Planting Plan
Reference: L3
Description: Replace sheet L3 with attached **L3**. The changes are as follows:
- The planting plan has been redesigned to accommodate the modified school site layout due to the buildings being repositioned approximately 20'-0" to the south from the original layout.

Item No. 1.28 Planting Legend and Notes
Reference: L4
Description: Replace sheet L4 with attached **L4**. The changes are as follows:
- The tree and shrub quantities were modified to accommodate the revised planting areas and new site design.

Item No. 1.29 Landscape Shading Plan
Reference: L7
Description: Replace sheet L7 with attached **L7**. The changes are as follows:
- Shading area on the north revised per updated site plan.

Item No. 1.30 Landscape Shading Plan Legend and Notes
Reference: L8
Description: Replace sheet L8 with attached **L8**. The changes are as follows:
- Tree legend revised.

ARCHITECTURE

Item No. 1.31 Demolition Site Plan
Reference: AD001
Description: Replaced sheet AD001 with attached **AD001**. The changes are as follows:
- On Plan A10: added Keynote 2.

Item No. 1.32 Site Plan
Reference: A001
Description: Replace sheet A001 with attached **A001**. The changes are as follows:
- On plan A10: revised location of Buildings A, B and C. The courts and their finishes have been rearranged based on the updated buildings location.
- Buildings design has not been impacted by this change.

Item No. 1.33 Enlarged Site Plan
Reference: A002
Description: Replace sheet A002 with attached **A002**. The changes are as follows:
- On plan A10: revised location of Buildings A, B and C. The courts and their finishes have been rearranged based on the updated buildings location.
- Buildings design has not been impacted by this change.
- Revised elevation callouts for South Gate at Workout Area and East Gate between Buildings B and C.

Item No. 1.34 Site Details
Reference: A011
Description: Replace sheet A011 with attached **A011**. The changes are as follows:
- On Details A4, A6, A8, E6, G4, J4, & J6: revised or added various notes,

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graphics, and/or dimensions.

Item No. 1.35 Ornamental Metal Fencing & Gate Details
Reference: A013
Description: Replace sheet A013 with attached **A013**. The changes are as follows:
- On Details A3 & A10: revised or added various notes, graphics, and/or dimensions.

Item No. 1.36 Miscellaneous Site Details
Reference: A014
Description: Replace sheet A014 with attached **A014**. The changes are as follows:
- On Detail D4: revised blocking detail callout.

Item No. 1.37 Overall Floor Plan
Reference: A101
Description: Replace sheet A101 with attached **A101**. The changes are as follows:
- Revised Floor Plan Legend.
- On Plan A10: added a few new gridlines to represent the exterior walls of Building A as necessary; added a few new centerlines to represent the steel canopy posts or fence posts as necessary; revised or added various gridline or steel post dimensions as necessary; revised or added various notes as necessary.

Item No. 1.38 Enlarged Floor Plan – Building A
Reference: A102
Description: Replace sheet A102 with attached **A102**. The changes are as follows:
- Revised Floor Plan Legend.
- On Plan A10: revised or added various notes, wall tags, storefront tags, and dimensions as necessary.

Item No. 1.39 Enlarged Plan – Buildings A, B, & C
Reference: A103
Description: Replace sheet A103 with attached **A103**. The changes are as follows:
- Revised Floor Plan Legend.
- On Plan A10: revised or added various notes, wall tags, storefront tags, and dimensions as necessary.

Item No. 1.40 Reflected Ceiling Plan
Reference: A121
Description: Replace sheet A121 with attached **A121**. The changes are as follows:
- On Plan A10: revised or added various notes, ceiling heights, and dimensions as necessary.

Item No. 1.41 Roof Plan
Reference: A131
Description: Replace sheet A131 with attached **A131**. The changes are as follows:
- Revised Roof Legend.
- Removed roof type R1 under Roof Assembly Types.
- On Plan A10: revised or added various notes, roof slopes, and spot elevation callouts as necessary.

Item No. 1.42 Exterior Elevations
Reference: A201

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Description: Replace sheet A201 with attached **A201**. The changes are as follows:
- On elevation A10: relocation of the monument sign and its landscape on the West Elevation of building A.
- On Elevation A5: lowered exterior ceiling height over east entry at Building A.

Item No. 1.43 Exterior Elevations
Reference: A202
Description: Replace sheet A202 with attached **A202**. The changes are as follows:
- On Elevations F10 & J7: removed clerestory windows at Building B.

Item No. 1.44 Building Sections
Reference: A221
Description: Replace sheet A221 with attached **A221**. The changes are as follows:
- On Section A10: added various detail callouts as necessary.

Item No. 1.45 Exterior Wall Sections
Reference: A231
Description: Replace sheet A231 with attached **A231**. The changes are as follows:
- On wall sections: revised or added various detail callouts, wall tags, storefront tags, and graphics as necessary.

Item No. 1.46 Exterior Wall Sections
Reference: A232
Description: Replace sheet A232 with attached **A232**. The changes are as follows:
- On wall sections: revised or added various detail callouts, wall tags, storefront tags, and graphics as necessary.

Item No. 1.47 Enlarged Restroom Floor Plans & Elevations
Reference: A301
Description: Replace sheet A301 with attached **A301**. The changes are as follows:
- On Enlarged Plans A4, A8, & A10: revised or added various dimensions as necessary.

Item No. 1.48 Interior Elevations – Building A
Reference: A403
Description: Replace sheet A403 with attached **A403**. The changes are as follows:
- Added missing Legends to right hand margin.
- On Elevation K4: revised glazing graphic at Reception Area as necessary.

Item No. 1.49 Interior Elevations – Building B
Reference: A404
Description: Replace sheet A404 with attached **A404**. The changes are as follows:
- On Elevations G6 & G10: lowered ceiling heights and removed clerestory windows at Building B as necessary.

Item No. 1.50 Interior Finish Schedule
Reference: A602
Description: Replace sheet A602 with attached **A602**. The changes are as follows:
- Added some finishes under Finish Legend.
- Revised some finishes in the Finish Schedule.

Item No. 1.51 Schedules
Reference: A701

Description: Replace sheet A701 with attached **A701**. The changes are as follows:
- Added an Exterior Wall Schedule to sheet for reference.
- Revised height for Gate 6 on Gate Schedule.
- Revised height for Door B109 on Door Schedule.
- On Storefront Type Elevations: revised or added various storefront tags or dimensions as necessary.

Item No. 1.52 Typical Assemblies – Exterior Walls
Reference: A702
Description: Add sheet **A702**:
- New sheet added for typical exterior wall assemblies.

Item No. 1.53 Interior Wall Schedule and Details
Reference: A704
Description: Replace sheet A704 with attached **A704**. The changes are as follows:
- Added Partition Type E02.
- Revised title at Partition Type B.

Item No. 1.54 Exterior Wall Details
Reference: A721
Description: Replace sheet A721 with attached **A721**. The changes are as follows:
- On Details A6, A10, D4, D6, G10, & K10: revised or added various notes, detail callouts, wall tags, and graphics as necessary.

Item No. 1.55 Door and Window Details
Reference: A732
Description: Replace sheet A732 with attached **A732**. The changes are as follows:
- Added Detail C6 showing exterior window head condition.
- On Details E8 & E10: revised or added various notes as necessary.

Item No. 1.56 Tubular Skylight Details
Reference: A734
Description: Replace sheet A734 with attached **A734**. The changes are as follows:
- Removed Roof Assembly Types and General Roof Notes from sheet.
- Removed Details A6 and E6 from sheet.

Item No. 1.57 Stair and Ramp Details
Reference: A771
Description: Replace sheet A771 with attached **A771**. The changes are as follows:
- On Details A6 & F8: revised or added various notes, detail callouts, wall tags, and graphics as necessary.

Item No. 1.58 Casework Details
Reference: A801
Description: Replace sheet A801 with attached **A801**. The changes are as follows:
- On Details A2, A4, A8, & C2: revised or added various notes and detail callouts as necessary.
- Removed Details G8 and J10 from sheet.

Item No. 1.59 Reception Desk Details
Reference: A802
Description: Replace sheet A802 with attached **A802**. The changes are as follows:
- On Details A3, K2, K6, & L2: revised or added various notes, detail callouts,

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and graphics as necessary.

Item No. 1.60
Reference: Typ. Lay-in Ceiling Details
A823
Description: Replace sheet A823 with attached **A823**. The changes are as follows:

- On Details A2 & D6: revised or added various notes and detail callouts as necessary.

Item No. 1.61
Reference: Roof Details
A831
Description: Replace sheet A831 with attached **A831**. The changes are as follows:

- Removed Detail C5 from sheet.

Item No. 1.62
Reference: Roof Details
A832
Description: Replace sheet A832 with attached **A832**. The changes are as follows:

- On Details A3, A6, D6, & G8: revised or added various notes and detail callouts as necessary.

Item No. 1.63
Reference: Miscellaneous Details
A841
Description: Replace sheet A841 with attached **A841**. The changes are as follows:

- On Details A6, C10, E4, E10, G6, J8, K2, K4, & L10: revised or added various notes, detail callouts, and graphics as necessary.

Item No. 1.64
Reference: Folding Partition Details
A843
Description: Replace sheet A843 with attached **A843**. The changes are as follows:

- On Details A2, A4, E4, G2, G4, & J6: revised or added various notes, dimensions, and graphics as necessary.

STRUCTURAL

Item No. 1.65
Reference: Foundation Plan
S101
Description: Replace sheet S101 with attached **S101**. The changes are as follows:

- Dimensions for gridlines removed to prevent duplicate reference from Architect.
- At Gridline A: Top of Footing Elevation denoted. Footings stepped for underground utilities.
- At Gridline B: Post and hold-down clarified at shear wall.
- At Gridline 1: Detail callout added to show wall over footing.
- At Gridline 2: Post and hold-down clarified at shear wall.
- At Gridline 6 between AA & BB: Top of Footing Elevations denoted. Footings stepped for underground utilities.

Item No. 1.66
Reference: Roof Framing Plan
S102
Description: Replace sheet S102 with attached **S102**. The changes are as follows:

- Detail 3/S102: Deflection limit changed to ¾" max under code limit and truss easier to fabricate.
- Symbols for fall arrest and blocking added to Framing Legend.

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- At Gridline A.2: Detail callout updated to show correct equipment support detail.
- Fall arrest anchors added to plans.

Item No. 1.67 Typical Concrete Slab on Grade Details
Reference: S301
Description: Replace sheet S301 with attached **S301**. The changes are as follows:
- Detail 12/S301: Pipe in wall curb detail added on detail sheet.
- Detail 14/S301: Detail for slab at stepped footing added on detail sheet.

Item No. 1.68 Concrete Footing Details
Reference: S303
Description: Replace sheet S303 with attached **S303**. The changes are as follows:
- Detail 8/S303: Details 13/S301 called out for slab isolation pocket detail.
- Detail 12/S303: Detail 13/S301 called out for slab isolation pocket detail.
- Detail 16/S303: Light pole footing detail added.

Item No. 1.69 Trash Enclosure
Reference: S402
Description: Replace sheet S402 with attached **S402**. The changes are as follows:
- Detail 2/S402: Middle post added to gate for trash enclosure.
- Detail 3/S402: CMU cap added to wall.
- Detail 4/S402: Angle and anchor bolt added to section view to match elevation.
- Detail 7/S402: Post foundation added for trash enclosure gate.

Item No. 1.70 Typical Wood Connection Details
Reference: S601
Description: Replace sheet S601 with attached **S601**. The changes are as follows:
- Detail 4/S601: Note added referring to truss connections.

Item No. 1.71 Typical Wood Details
Reference: S602
Description: Replace sheet S602 with attached **S602**. The changes are as follows:
- Detail 8/S602: Channel rim beam removed from detail.

Item No. 1.72 Typical Wood Details
Reference: S603
Description: Replace sheet S603 with attached **S603**. The changes are as follows:
- Detail 6/S603: Equipment support updated to reflect trusses parallel to cross section. Blocking added at top of truss.

Item No. 1.73 Wood Details
Reference: S604
Description: Replace sheet S604 with attached **S604**. The changes are as follows:
- Detail 4/S604: Gap between wall and drag truss closed.

Item No. 1.74 Wood Details
Reference: S612
Description: Replace sheet S612 with attached **S612**. The changes are as follows:
- Titleblock updated to reflect information on details.
- Detail 7/S612: Blocking between truss joists added to provide anchorage point for equipment above.

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Item No. 1.75 Wood Details
Reference: S613
Description: Add sheet **S613**:

- New sheet added for fall protection system details.

MECHANICAL

Item No. 1.76 Mechanical First Floor Plan – Duct
Reference: M101
Description: Replace sheet M101 with attached **M101**. The changes are as follows:

- Adjusted ductwork in multiple locations.
- Added reference Note 14/S621 at GL C.3 for duct through shear wall detail.

Item No. 1.77 Mechanical Roof Plan
Reference: M141
Description: Replace sheet M141 with attached **M141**. The changes are as follows:

- Rotated units 90 degrees to align with roof truss openings for HP-5, HP-6, HP-7, HP-8, and HP-9.

Item No. 1.78 Mechanical Schedules
Reference: M601
Description: Replace sheet M601 with attached **M601**. The changes are as follows:

- Updated model number of HVAC units to new model for Split Heat Pumps (SHP) and Fan Coils (FC). Approved units no longer being manufactured. Units are comparable in size and weights.

Item No. 1.79 Mechanical Schedules
Reference: M602
Description: Replace sheet M602 with attached **M602**. The changes are as follows:

- Updated model number of HVAC units to new model for Rooftop Packaged Heat Pumps (HP). Approved units no longer being manufactured. Units are comparable in size and weights.
- Updated structural anchorage detail to 7/S612.

PLUMBING

Item No. 1.80 Plumbing First Floor Plan
Reference: P101
Description: Replace sheet P101 with attached **P101**. The changes are as follows:

- Added missing storm drain and overflow drain at Building A on GL 3A.

Item No. 1.81 Plumbing Roof Plan
Reference: P141
Description: Replace sheet P141 with attached **P141**. The changes are as follows:

- Revised connections for condensate drain lines for HVAC units that rotated on roof.

Item No. 1.82 Plumbing Enlarged Plans
Reference: P401
Description: Replace sheet P401 with attached **P401**. The changes are as follows:

- Added sewer connection and venting to floor drain per Enlarged Plan 3.
- Updated sewer connection per Civil drawings per Enlarged Plan 1.

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Item No. 1.83 Plumbing Riser Diagram
Reference: P701
Description: Replace sheet P701 with attached **P701**. The changes are as follows:

- Added floor drain to riser diagram and updated calculations.

ELECTRICAL

Item No. 1.84 Electrical Roof Plan – Auxiliary
Reference: E141
Description: Replace sheet E141 with attached **E141**. The changes are as follows:

- Updated electrical for HVAC Unit HP-9 on Building A.
- Updated associated Sheet Note 2.
- Updated electrical for HVAC Unit HP-A on Building B.
- Updated reference Note 5 for HVAC equipment.

Item No. 1.85 Electrical Details
Reference: E502
Description: Replace sheet E502 with attached **E502**. The changes are as follows:

- Added Detail 11 Area Light Base.

Item No. 1.86 Electrical Schedules
Reference: E601
Description: Replace sheet E601 with attached **E601**. The changes are as follows:

- Updated Lighting Fixture Schedule.

Item No. 1.87 Electrical Schedules
Reference: E602
Description: Replace sheet E602 with attached **E602**. The changes are as follows:

- Updated various Panel Schedules.

Item No. 1.88 Electrical Single Line Diagram
Reference: E701
Description: Replace sheet E701 with attached **E701**. The changes are as follows:

- Updated Single Line Diagram.

FIRE PROTECTION

Item No. 1.89 Four Square Building Fire Alarm Plan
Reference: FA202
Description: Replace sheet FA202 with attached **FA202**. The changes are as follows:

- Added missing duct detector for HVAC Unit HP-A on Building B.

Item No. 1.90 Fire Alarm Riser Diagrams and Calcs
Reference: FA302
Description: Replace sheet FA302 with attached **FA302**. The changes are as follows:

- Added duct detector on Fire Alarm Riser Diagram.
- Updated battery calculations.

END OF DSA ADDENDUM