REGULATORY AGENCIES & UTILITIES

ZONING DEPARTMENT:	PLANNING & ZONING DIVISION 433 HAY STREET FAYETTEVILLE, NC 28301 CONTACT: CHESTER GREEN II E: cgreen@ci.fay.nc.us T: 910.433.1497	BUILDING DEPARTMENT:	BUILDING INSPECTIONS DIVISION 433 HAY STREET FAYETTEVILLE, NC 28301 CONTACT: DAVID WINSTEAD E: dwinstead@ci.fay.nc.us T: 910.433.1062		
FIRE DEPARTMENT:	FAYETTEVILLE FIRE DEPARTMENT 632 LANGDON STREET FAYETTEVILLE, NC 28301 CONTACT: JEFF OLUND E: jolund@ci.fay.nc.us T: 910.433.1730	WATER UTILITY:	FAYETTEVILLE PUBLIC WORKS COMISSION 955 OLD WILMINGTON ROAD FAYETTEVILLE, NC 28301 CONTACT: SAM POWERS E: samuel.powers@faypwc.com T: 910.223.4370	SEWER UTILITY:	FAYETTEVILLE PUBLIC WORKS COMISSION 955 OLD WILMINTON ROAD FAYETTEVILLE, NC 28301 CONTACT: SAM POWERS E: samuel.powers@faypwc.com T: 910.223.4370
NATURAL GAS UTILITY:	TBD	ELECTRICAL UTILITY:	TBD	TELEPHONE UTILITY:	TBD

PROJECT INFORMATION

LANDLORD:	COLUMBIA DEVELOPMENT 1845 ST. JULIAN PLACE COLUMBIA, SC 29204 CONTACT: ALBERT JAMES E: albert@columbiadevelopment.com T: 803.454.1310	ARCHITECT:	RED ARCHITECTS + PLANNING 589 W. NATIONWIDE BLVD. SUITE B COLUMBUS, OH 43215 CONTACT: KRISTA MATHEWS E: kmathews@redarchitects.com T: 614.487.8770 x227 F: 614.487.8777	CIVIL ENGINEER:	BOHLER ENGINEERING NC, PLLC 1927 S. TRYON STREET SUITE 310 CHARLOTTE, NC 28203 CONTACT: BRIAN MILLER E: bmiller@bohlereng.com T: 980.272.3400
MECHANICAL ELECTRICAL PLUMBING ENGINEER:	ANNEX ENGINEERING 589 W. NATIONWIDE BLVD SUITE B COLUMBUS, OH 43215 CONTACT: SCOTT STAMPER E: sstamper@annexmep.com T: 614.481.2292	STRUCTURAL ENGINEER:	JEZERINAC GEERS & ASSOCIATES, INC 5640 FRANTZ ROAD DUBLIN, OH 43017 CONTACT: ALAIN KABBARA, P.E., M.S. E: akabbara@jgaeng.com T: 614.766.0066 x7039		

GRAPHIC SYMBOLS

- EXTERIOR ELEVATION MARKER (1 / A101 / 1)
- INTERIOR ELEVATION MARKER (1 / A101 / 1)
- SECTION MARKER (SIM / 1 / A101)
- SECTION / DETAIL (SIM / 1 / A101)
- VIEW LABEL (1 / A101 View Name, View Scale)
- COLUMN GRID LABEL (0)
- ROOM NAME & NUMBER (Room name 101)
- REVISION NUMBER (1)
- DOOR NUMBER (1i)
- MISCELLANEOUS EQUIPMENT NUMBER (XX.X)
- FURNITURE NUMBER (XX.X)
- KITCHEN EQUIPMENT NUMBER (XX.X)
- WASHROOM ACCESSORIES NUMBER (X)
- WALL TAG (W1)
- LEVEL TARGET
- NORTH ARROW
- DIMENSION TARGET
- FINISH TAG (P1)

ABBREVIATIONS

℄	CENTER LINE
(E)	EXISTING CONSTRUCTION
(N)	NEW CONSTRUCTION
@	AT
Ø	DIAMETER OR ROUND
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
ARCH	ARCHITECT(URAL)
ASS	ALARM SYSTEM SUPPLIER
BD	BOARD
BLDG	BUILDING
CMU	CONCRETE MASONRY UNIT
CO2	CO2 SUPPLIER
CO2AS	CO2 ALARM SUPPLIER
CS	CHEMICAL SUPPLIER
DIM	DIMENSION(S)
EA	EACH
EL	ELEVATION (VERTICAL HEIGHT)
ELEC	ELECTRIC(AL)
ELEV	ELEVATION
EQ	EQUAL
EXT	EXTERIOR
FC	FOR CONSTRUCTION
FRP	FIBERGLASS REINFORCED PANEL
FRT	FIRE RETARDANT-TREATED
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GYP	GYPSUM
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
HS	HOOD SUPPLIER
HVAC	HEATING AND VENTILATING
ICP	INITIAL COST PROJECTION
IFP	IN FOR PERMIT
INT	INTERIOR
KES	KITCHEN EQUIPMENT SUPPLIER
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MSS	MUSIC SYSTEMS SUPPLIER
N.I.C.	NOT IN CONTRACT
NO	NUMBER
OC	ON CENTER
OSB	ORIENTED STRAND BOARD
POS	POINT OF SALE
PREP	PREPARATION
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
R	RADIUS
RTU	ROOF TOP UNITS
SIM	SIMILAR
SPS	SODA POP SUPPLIER
SS	SUPPORT SIGNAGE
STR	STRUCTURE
T	TENANT
TAB	TENANT'S TEST & BALANCE VENDOR
TBD	TO BE DETERMINED, SEE FIELD REFERENCE MANUAL
TCC	TENANT'S CABLING CONTRACTOR
TDC	TENANT'S DUCT CLEANER
TEMS	TENANT'S ENERGY MANAGEMENT SYSTEM SUPPLIER
THS	TENANT'S HARDWARE SUPPLIER
TLS	TENANT'S LIGHT/LAMP SUPPLIER
TMB	TENANT'S MENU BOARD SUPPLIER
TMS	TENANT'S MILLWORK SUPPLIER
TP	TENANT'S PHONE SUPPLIER
TRS	TENANT'S RAILING SUPPLIER
TS	TENANT'S SAFE SUPPLIER
TSS	TENANT'S SMART SAFE SUPPLIER
TSV	TENANT'S SIGN VENDOR
TUV	TENANT'S UV SUPPLIER
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTED POWER SUPPLY
VAR	VARIES
VIF	VERIFY IN FIELD
W/	WITH
WA	WASHROOM ACCESSORIES
WCS	TENANT'S WALK-IN COOLER SUPPLIER
WHS	WATER HEATER SUPPLIER
WS	TENANT'S WINDOW SHADE SUPPLIER

COLUMBIA DEVELOPMENT

STORE NUMBER: 000

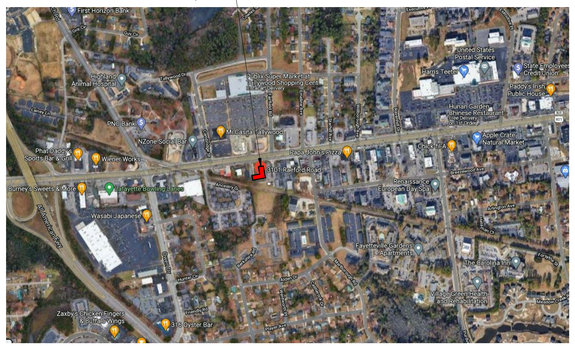
CMG FAYETTEVILLE SHELL
3017 RAEFORD RD.
FAYETTEVILLE, NC 28303

SCOPE OF WORK

LANDLORD TO PROVIDE NEW COLD DARK SHELL BUILDING TO BE BUILT OUT BY TENANT UNDER SEPARATE PERMIT. LANDLORD TO PROVIDE BUILDING WITH ELECTRICAL SERVICE STUBBED IN LOCATION, GREASE INTERCEPTOR AND GAS METER LOCATION. LANDLORD TO ALSO PROVIDE DUMPSTER ENCLOSURE AND PATIO SLAB ALONG WITH OTHER SITE MODIFICATIONS.

VICINITY MAP

3017 RAEFORD ROAD,


First Horizon Bank
Alamance Foods
Chick-fil-A
Mission Barbecue
Phat Burrito
Sports Bar & Grill
Buffalo Wild Wings
Bonefish Grill
Wasabi Japanese
Zaxby's Chicken Fingers & Buffalo Wings
Fayetteville Outlet Center
Apple Crate Natural Market
Hibbett Sports
Ross Dress for Less
Fayetteville Technical Community College
Fayetteville Technical Community College Continuing Education
Fayetteville Technical Community College Public Safety Training Center
Fayetteville Technical Community College Public Safety Training Center
Fayetteville Technical Community College Public Safety Training Center

BUILDING CODE & ZONING DATA

1. OCCUPANCY GROUP: A-2
   OCCUPANCY SEPARATION REQUIRED: N/A
   OCCUPANCY SEPARATION PROVIDED: N/A

2. TYPE OF CONSTRUCTION: V-B

3. USE GROUP: A-2
   ALLOWABLE AREA: 6,000 S.F.
   AREA INCREASE W/ SPRINKLERS: N/A
   ACTUAL AREA: 2,325 S.F.
   TENANT LEASE AREA: 2,325 S.F.

4. ALLOWABLE NO. OF STORIES: 2
   ACTUAL NO. OF STORIES: 1
   ALLOWABLE BUILDING HEIGHT: 40'-0" MAXIMUM HEIGHT
   ACTUAL BUILDING HEIGHT: 20'-8"

5. MEANS OF EGRESS REQUIRED: 2
   MEANS OF EGRESS PROVIDED: 3

6. FIRE SPRINKLERS: NONE

CODE AUTHORITIES

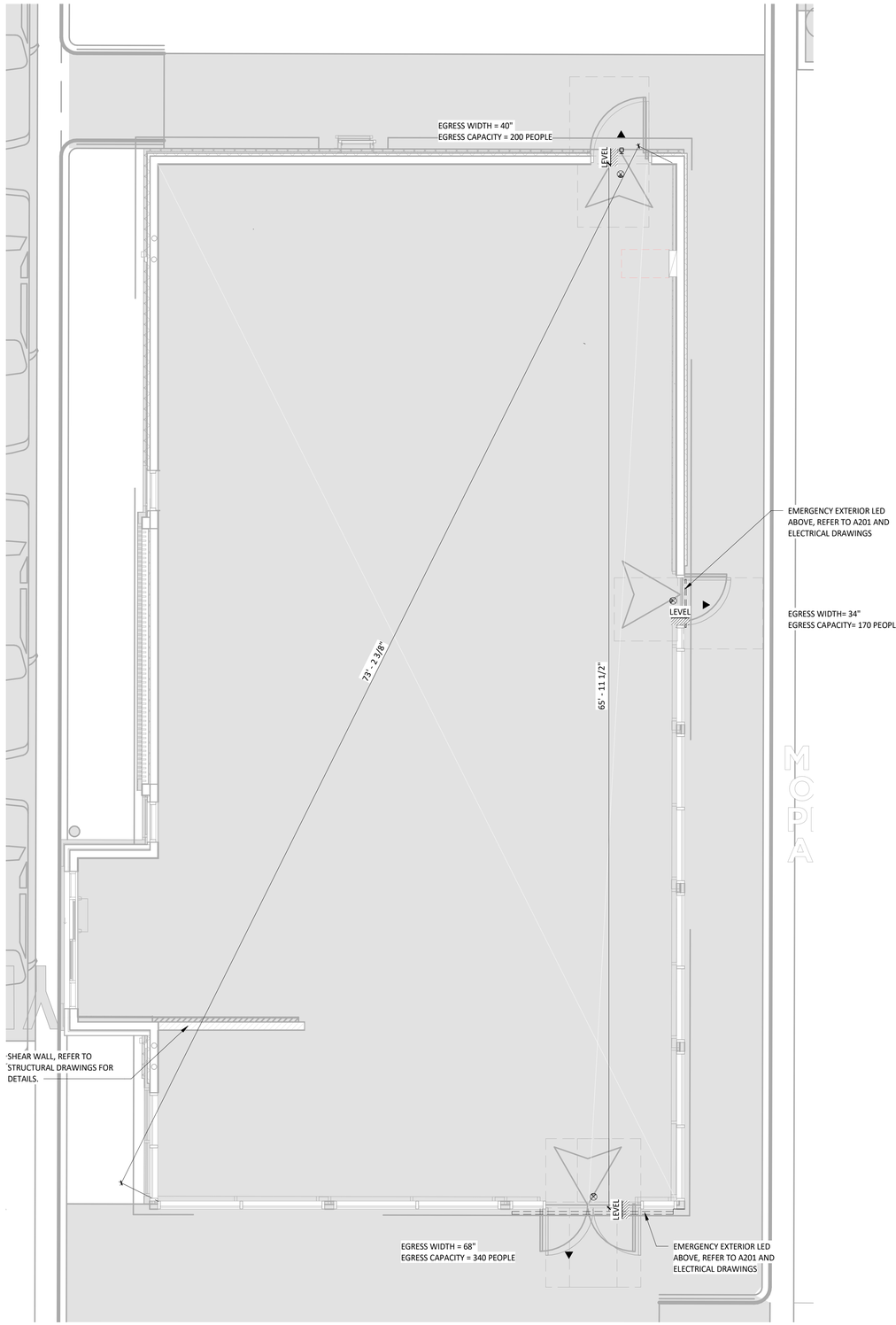
BUILDING CODE:	2018 NORTH CAROLINA BUILDING CODE, CITY OF FAYETTEVILLE CODE OF ORDINANCES
MECHANICAL CODE:	2018 NORTH CAROLINA STATE MECHANICAL CODE
PLUMBING CODE:	2018 NORTH CAROLINA STATE PLUMBING CODE
ENERGY CODE:	2018 NORTH CAROLINA STATE ENERGY CONSERVATION CODE
FUEL GAS CODE:	2018 NORTH CAROLINA STATE FUEL GAS CODE
ELECTRICAL CODE:	2017 NORTH CAROLINA STATE ELECTRIC CODE
FIRE CODE:	2018 NORTH CAROLINA STATE FIRE CODE
ACCESSIBLITY:	2018 NORTH CAROLINA BUILDING CODE CHATPER 10, 2009 ANSI A117.1

EGRESS SEPARATION NOTE

OVERALL DISTANCE: 73'-2 3/8"

REQUIRED SEPARATION: 36'-7 11/16" (NON-SPRINKLERED)

PROVIDED SEPARATION: 65' -11 1/2"



1 G001 **LIFE SAFETY PLAN**
1/4" = 1'-0"

GENERAL NOTES PER 2018 NORTH CAROLINA BUILDING CODE

- ☒ 44" REQUIRED EGRESS CORRIDOR WIDTH FOR OCCUPANCIES 50+. 36" REQUIRED EGRESS WIDTH FOR OCCUPANCIES UNDER 50. TABLE 1020.2 & SECT. 1024.2
- ☒ NO DEAD END CORRIDORS OVER 20'-0" SECT. 1020.4
- ☒ MAXIMUM EGRESS TRAVEL DISTANCE TO AN EXIT IS 75'-0" FOR AREAS SERVING LESS THAN 50 OCCUAPNTS. SECT 1029.8
- ☒ A HORIZONTAL EXIT SHALL NOT SERVE AS THE ONLY EXIT FROM A PORTION OF A BUILDING, AND WHERE TWO OR MORE EXITS ARE REQUIRED, NOT MORE THAN 1/2 OF THE TOTAL NUMBER OF EXITS OR TOTAL EXIT MINMUM WIDTH OR REQUIRED CAPACITY SHALL BE HORIZONTAL EXIT. SECT. 1026.1
- ☒ MAXIMUM EXIT ACCESS TRAVEL DISTANCE 200' W/OUT SPRINKLER, 250' W/ SPRINKLER. TABLE 1017.2
- ☐ MINIMUM DISTANCE BETWEEN SEATS IS 12" FOR A DISTANCE OF 12'-0" WITH AN ADDITIONAL 1/2" OF WIDTH FOR EACH 1'-0" OR FRACTION THEREOF BEYOND ORIGINAL 12'-0". SECT. 1029.12.1.1
- ☒ DOORS IN FULLY OPEN POSITION SHALL NOT REDUCE A REQUIRED DIMENSION BY MORE THAN 7 INCHES. SECTION 1010.1.6 LANDINGS SHALL HAVE A LENGTH MEASURED IN THE DIRECTION OF TRAVEL OF NOT LESS THAN 44 INCHES.
- ☐ DOORS, WHEN FULLY OPENED SHALL NOT REDUCE THE REQUIRED MEANS OF EGRESS WIDTH BY MORE THAN 7 INCHES. DOORS IN ANY POSITION SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN ONE-HALF. SECT. 1005.7
- ☒ DOOR OPENING SHALL PROVIDE A MINIMUM CLEAR WIDTH OF 32". CLEAR OPENING OF DOORWAYS WITH SWINING DOORS SHALL BE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH A DOOR OPENING AT 90 DEGREES. SPACE BETWEEN TWO DOORS IN A SERIES SHALL BE 48 INCHES MIN. PLUS WIDTH OF A DOOR SWINGING INTO SPACE. SECT. 1010.1
- ☐ MINIMUM AISLE WIDTH OF 48" FOR AISLE HAVING SEATING ON EACH SIDE. 36" WHERE THE AISLE SERVICES LESS THAN 50 SEATS. SECT. 1029.9.1

Consultant:
r e d
architecture + planning
589 w. nationwide blvd.
suite b
columbus, ohio 43215
tel: 614.487.8770
fax: 614.487.8777

DAVID A. EFAW SEAL 10486 NORTH CAROLINA COLUMBUS, OH

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COLUMBIA DEVELOPMENT

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STORE NO.: 000
CMG FAYETTEVILLE SHELL
3017 RAEFORD RD.
FAYETTEVILLE, NC 28303

Issue Record:

01.19.21	TENANT/ OWNER REVIEW
03.08.21	PERMIT SET

Revisions:

Drawn: KM
Checked: KM

Project No.: CMGXXX

Contents:

PROJECT DATA & LIFE SAFETY PLAN

G001

2018 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: CMG FAYETTEVILLE SHELL
Address: 3017 RAEFORD RD. FAYETTEVILLE, NC Zip Code 28303
Owner/Authorized Agent: KRISTA MATHEWS Phone # (614) 487 - 8770 E-Mail kmathews@redarchitects.com
Owned By: ☐ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☒ City ☐ County ☐ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	red arch + planning	DAVE EFAW	10408	(614) 487-8770	defaw@redarchitects.com
Civil	N/A			( )	
Electrical	DOUG SMELKER	DOUG SMELKER	046108	(614) 487-8770	dsmelker@annexmep.com
Fire Alarm	N/A			( )	
Plumbing	DOUG SMELKER	DOUG SMELKER	046108	(614) 487-8770	dsmelker@annexmep.com
Mechanical	DOUG SMELKER	DOUG SMELKER	046108	(614) 487-8770	dsmelker@annexmep.com
Sprinkler-Standpipe	N/A			( )	
Structural	JEZERINAC GEERS	STANLEY FULLER	042361	(614) 766-0066	sfuller@jgaeng.com
Retaining Walls >5' High	N/A			( )	
Other	N/A			( )	

("Others" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC CODE FOR: ☒ New Construction ☐ Addition ☐ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core
☐ Phased Construction – Shell/Core
☐ Renovation

2018 NC EXISTING BUILDING CODE: ☐ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use
CONSTRUCTED: (date) _____ **ORIGINAL OCCUPANCY(S)** (Ch. 3): NONE
RENOVATED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): DARL SHELL 1
RISK CATEGORY (table 1604.5) **Current:** ☐ I ☐ II ☐ III ☒ IV
Proposed: ☐ I ☐ II ☐ III ☐ IV

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ☒ II-B ☐ III-B ☐ V-B
Sprinklers: ☒ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes (Primary) **Flood Hazard Area:** ☒ No ☐ Yes
Special Inspections Required: ☐ No ☒ Yes

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior		0	0				
North		0	0				
East		0	0				
West		0	0				
South		0	0				
Interior		0	0				
Nonbearing Walls and Partitions							
Exterior walls							
North		0	0				
East		0	0				
West		0	0				
South		0	0				
Interior walls and partitions		0	0				
Floor Construction Including supporting beams and joists		0	0				
Floor Ceiling Assembly							
Column Supporting Floors							
Roof Construction, including supporting beams and joists		0	0				
Roof Ceiling Assembly							
Column Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/ Sleeping Unit Separation							
Incidental Use Separation							

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET FROM PERPERTY LINES	DEGREES OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
GREATER THAN 30'	UNPROTECTED, NON SPRINKLERED	NO LIMIT	50%

Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENO/ALTER (SQ.FT)	SUB-TOTAL
6th Floor				
5th Floor				
4th Floor				
3rd Floor				
2nd Floor				
Mezzanine				
1st Floor		2,325		2,325
Basement				
TOTAL		2,325 SF		2,325 SF

ALLOWABLE AREA

Primary Occupancy Classification: **SELECT ONE**
Assembly ☐ A-1 ☒ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): _____
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections) _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: ☒ No ☐ Yes Separation: ____ Hr. Exception: _____
☐ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) -
See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

_____ + _____ + ... = _____ ≤ 1.00

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☒ No ☐ Yes
Smoke Detection Systems: ☒ No ☐ Yes ☐ Partial _____
Carbon Monoxide Detection: ☒ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G001

☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on the site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.2)
☐ Occupant loads for each area
☒ Exit access travel distances (1017)
☒ Common path of travel distances (1006.2.1 & 2006.3.2(1))
☒ Dead end lengths (1020.4)
☒ Clear exit widths for each exit door
☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☒ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation and supporting construction for a fire barrier/fire partition/smoke barrier.
☒ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

Section/Table/Note	Title

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

ACCESSIBLE PARKING

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	ASSEMBLY	2,325 SF	6,000 SF	N/A	N/A

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase I_f = 100 [F/P - 0.25] x W/30 = _____ (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55'	H= 19'-6"	504.3
Building Height in Stories (Table 504.4)	2*	H= 1 STORY	504.4

[1] Provide code reference if the "Show on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1
[3] The maximum height of open parking garages must comply with Table 406.5.4

(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
TOTAL						

PART OF CIVIL DRAWINGS

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS / TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE	EXIST'G										
	NEW										
	REQ'D										

TO BE COMPLETED AS PART OF TENANT FIT OUT DRAWINGS

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SCO, DPI, DHHS, ICC, etc., describe below)

_____
_____
_____

Consultant:
r e d
architecture + planning
589 w. nationwide blvd.
suite b
columbus, ohio 43215
tel: 614.487.8770
fax: 614.487.8777

DAVID A. EFAW LICENSED 10408 NORTH CAROLINA COLUMBUS, OH

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Issue Record:
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03.08.21 PERMIT SET

Revisions:
1 03/11/21 Municipality Revisions

Drawn: KM Checked: KM

Project No.: CMGXXX

Contents: APPENDIX B

G001a

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the **North Carolina Energy Conservation Code** shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: ☒ No ☐ Yes (The remainder of this section is not applicable)

Exempt Building: ☒ No ☐ Yes (Provide Code or Statutory reference): _____

Climate Zone: ☒ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Performance ☒ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If "Other" specify source here) _____

THERMAL ENVELOPE (Prescriptive method only)

Roof/ceiling Assembly (each assembly)
Description of assembly: 4-ply built-up roofing
U-Value of total assembly: .032
R-Value of insulation: R-25. min. 5" thickness
Skylights in each assembly: N/A
U-Value of skylight: N/A
Total square footage of skylights in each assembly: N/A

Exterior Walls (each assembly)
Description of assembly: EIFS w/ air barrier over 2x6 wood studs w/ R-19 insulation
U-Value of total assembly: .036
R-Value of insulation: R-19
Openings (windows or doors with glazing)
U-Value of assembly: .28
Solar heat gain coefficient: .38
Projection factor: .48
Door R-Values: .28

Walls below grade (each assembly)
Description of assembly: N/A
U-Value of total assembly:
R-Value of insulation:

Floors over unconditioned space (each assembly)
Description of assembly: N/A
U-Value of total assembly:
R-Value of insulation:

Floors slab on grade
Description of assembly: Concrete slab on grade
U-Value of total assembly: .09
R-Value of insulation: N/A
Horizontal/Vertical requirement: N/A
Slab Heated: No

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (I_S) 1.0
Seismic (I_E) 1.0

Live Loads: Roof 20 psf
Mezzanine N/A psf
Floor 100 psf

Ground Snow Load: 10 psf

Wind Load: Ultimate Wind Speed 120 mph (ASCE-7) 1
Exposure Category C

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☒ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV
Spectral Response Acceleration S_S .259 %g S_1 .108 %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F
Data Source: ☐ Field Test ☒ Presumptive ☐ Historical Data
Basic structural system ☒ Bearing Wall ☐ Dual w/Special Moment Frame
☒ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Analysis Procedure: ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☒ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☒

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity 2500 psf
Pile size, type, and capacity _____

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY
WE ARE ONLY SUBMITTING A COLD DARK SHELL. THIS SECTION TO BE COMPLETED AS PART OF THE FIT UP.
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY
WE ARE ONLY SUBMITTING A COLD DARK SHELL. THIS SECTION TO BE COMPLETED AS PART OF THE FIT UP..
ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code: ☐ Prescriptive ☐ Performance
ASHRAE 90.1: ☐ Prescriptive ☐ Performance

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient Mechanical Equipment
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

Consultant:
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architecture + planning
589 w. nationwide blvd.
suite b
columbus, ohio 43215
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fax: 614.487.8777

DAVID A. EFAW — REGISTERED — 10468 — NORTH CAROLINA — COLUMBUS, OH

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3017 RAEFORD RD.
FAYETTEVILLE, NC 28303

Issue Record:
01.19.21 TENANT/ OWNER REVIEW
03.08.21 PERMIT SET

Revisions:
1 03/11/21 Municipality Revisions

Drawn: KM
Checked: KM

Project No.
CMGXXX

Contents:
APPENDIX B

G001b

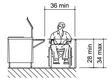
A.D.A.A.G. INTERIOR ACCESSIBILITY COMPONENTS

THIS TENANT SPACE IS REQUIRED TO BE ACCESSIBLE AS SET FORTH IN THE AMERICANS WITH DISABILITIES ACT OF 1994 AND ITS REVISED 2010 STANDARDS FOR ACCESSIBLE DESIGN. MAINTAIN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE ACT AND ITS ACCESSIBILITY GUIDELINES (A.D.A.), (A.D.A.A.G.).

TABLEWARE AREAS

1. FOOD SERVICE LINES SHALL HAVE A MINIMUM CLEAR WIDTH OF 36" WITH TRAY SLIDES MOUNTED NO HIGHER THAN 34" ABOVE THE FLOOR. IF SELF-SERVICE SHELVES ARE PROVIDED, AT LEAST 50% OF EACH TYPE MUST BE WITHIN REACH RANGES SPECIFIED IN A.D.A.A.G. SECTION 308.

2. SELF-SERVICE SHELVES AND DISPENSING DEVICES FOR DISHWARE, CONDIMENTS, FOOD AND BEVERAGES SHALL BE INSTALLED TO COMPLY WITH A.D.A.A.G. SECTION 308.



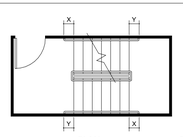
FOOD SERVICE LINES

STAIRS

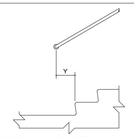
1. ACCESSIBLE STAIRS SHALL COMPLY WITH A.D.A.A.G. SECTION 504.

2. ALL STEPS ON A FLIGHT OF STAIRS SHALL HAVE UNIFORM RISER HEIGHTS TREAD DEPTHS ALONG EACH RUN. RISERS SHALL BE 4" HIGH MIN. AND UNIFORM AND 7" HIGH MAX. TREAD SHALL BE 11" DEEP MIN.

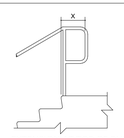
3. THE CLEAR SPACE BETWEEN HANDRAILS AND WALL SHALL BE 1-1/2" MIN. HANDRAIL GRIPPING SURFACES SHALL BE CONTINUOUS ALONG THEIR LENGTH AND SHALL NOT BE OBSTRUCTED ALONG THEIR TOP AND SIDES. THE TOP OF HANDRAIL GRIPPING SURFACES SHALL BE INSTALLED BETWEEN 34" AND 38" ABOVE STAIR NOSINGS.



PLAN



EXTENSION AT BOTTOM OF RUN



EXTENSION AT TOP OF RUN

NOTE:
X IS THE MINIMUM HANDRAIL EXTENSION REQUIRED AT EACH TOP RISER. X = 12" MIN. Y IS THE MINIMUM HANDRAIL EXTENSION REQUIRED AT EACH BOTTOM RISER. Y IS EQUAL TO OR GREATER THAN THE TREAD DEPTH.

RESTROOMS

1. ELEMENTS OF ACCESSIBLE RESTROOMS SHALL COMPLY WITH A.D.A.A.G. SECTIONS 603, 604, 605, 606, 607, 608, 609 & 610.

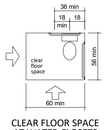
2. ACCESSIBLE URINALS SHALL BE STALL-TYPE OR WALL-HUNG AT A MAXIMUM OF 17" ABOVE FINISH FLOOR. URINALS SHALL HAVE A 30" x 48" CLEAR FLOOR SPACE TO ALLOW A FRONT APPROACH AND THE FLUSH CONTROLS SHALL BE HAND-OPERATED WITH THE CONTROLS INSTALLED ACCORDING TO SECTION 308.

3. HOT WATER LINES AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.

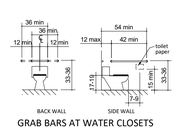
4. IF HAND OPERATED METERING FAUCETS ARE USED, THE FAUCET SHALL REMAIN OPEN FORO 10 SECONDS MINIMUM.

5. THE SPACE BETWEEN ANY OBSTRUCTION AND THE GRAB BAR SHALL BE 1-1/2". THE GRAB BAR ASSEMBLY SHALL BE CAPABLE OF WITHSTANDING BENDING STRESSES, SHEAR STRESSES, SHEAR FORCES, AND TENSILE FORCES OF UP TO 250 LBF.. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.

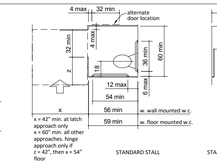
6. MOUNTING HEIGHTS TO OPERATING CONTROLS FOR RESTROOM ACCESSORIES NOT SPECIFICALLY CALLED OUT IN THE A.D.A.A.G. SHALL COMPLY WITH THE REACH RANGES SPECIFIED IN A.D.A.A.G. SECTION 308.

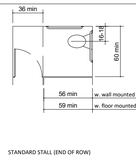


CLEAR FLOOR SPACE AT WATER CLOSETS

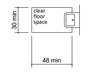


GRAB BARS AT WATER CLOSETS

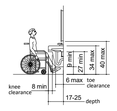




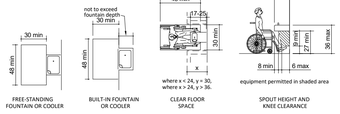
TOILET STALLS



CLEAR FLOOR SPACE AT LAVATORIES



LAVATORY CLEARANCE



DRINKING FOUNTAINS AND WATER COOLERS

DOORS

1. ACCESSIBLE DOORS SHALL COMPLY WITH A.D.A.A.G. SECTION 404.

2. THRESHOLD, IF PROVIDED AT DOORWAYS, SHALL BE 1/2" HIGH MAXIMUM. EXISTING OR ALTERED THRESHOLDS 3/4" HIGH MAXIMUM THAT HAVE A BEVELED EDGE ON EACH SIDE WITH A SLOPE NOT STEEPER THAN 1:2 ARE ALSO PERMITTED.

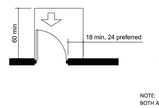
3. DOOR AND GATE HARDWARE. HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERABLE PARTS ON DOORS AND GATES SHALL COMPLY WITH 309.4. OPERABLE PARTS OF SUCH HARDWARE SHALL BE 34" MINIMUM AND 48" MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. WHERE SLIDING DOORS ARE IN THE FULLY OPEN POSITION, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES.

4. DOOR CLOSERS AND GATE CLOSERS. DOOR CLOSERS AND GATE CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM. SPRING HINGES. DOOR AND GATE SPRING HINGES SHALL BE ADJUSTED SO THAT FROM THE OPEN POSITION OF 70 DEGREES, THE DOOR OR GATE SHALL MOVE TO THE CLOSED POSITION IN 1.5 SECONDS MINIMUM.

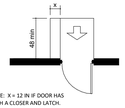
5. ACCESSIBLE DOORS THAT ARE NOT FIRE DOORS OR EXTERIOR HINGED DOORS SHALL HAVE A MAXIMUM FORCE FOR PUSHING OR PULLING THE DOOR OPEN OF 5 LBF. THIS FORCE DOES NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT MAY HOLD A DOOR IN A CLOSED POSITION.

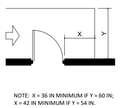
NOTE: ALL DOORS IN ALCOVES SHALL COMPLY WITH THE CLEARANCES FOR FRONT APPROACHES.

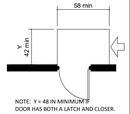
CLEAR DOORWAY WIDTH



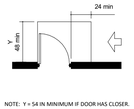
FRONT APPROACHES - SWINGING DOORS

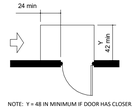




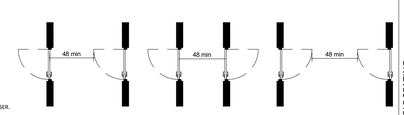


HINGE SIDE APPROACHES - SWINGING DOORS





LATCH SIDE APPROACHES - SWINGING DOORS



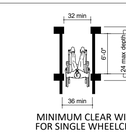
TWO HINGED DOORS IN SERIES

PATH OF TRAVEL

1. ALL WALKS, HALLS, CORRIDORS, AISLES, SKYWALKS, TUNNELS, AND OTHER SPACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH A.D.A.A.G. SECTION 402 AND ANY OTHER APPLICABLE SECTION OF CH. 4.

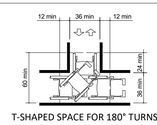
2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDING OR FACILITY ENTRANCES WITH ALL ACCESSIBLE SPACES AND ELEMENTS.

3. AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 1:20 IS A RAMP AND SHALL COMPLY WITH 405. NOWHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:48.

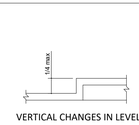


MINIMUM CLEAR WIDTH FOR SINGLE WHEELCHAIR

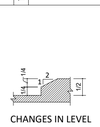
60-IN DIAMETER SPACE



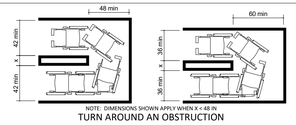
T-SHAPED SPACE FOR 180° TURNS



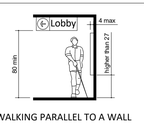
VERTICAL CHANGES IN LEVEL



CHANGES IN LEVEL



TURN AROUND AN OBSTRUCTION



WALKING PARALLEL TO A WALL

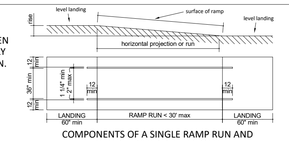
RAMPS

1. ACCESSIBLE RAMPS SHALL COMPLY WITH A.D.A.A.G. SECTION 405.

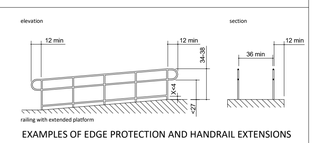
2. IF A RAMP HAS A RISE GREATER THAN 6" OR A HORIZONTAL PROJECTION GREATER THAN 72", THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES. HANDRAILS ARE NOT REQUIRED ADJACENT TO ASSEMBLY SEATING AREAS. CLEAR SPACE BETWEEN A HANDRAIL AND AN ADJACENT WALL SHALL BE 1-1/2" MIN.

3. THE CROSS SLOPE OF RAMP SURFACES SHALL BE NO GREATER THAN 1:48.

4. EXISTING RAMP'S SLOPE SHALL COMPLY WITH SECTION 405.2. FOR A RAMP NOT RISING MORE THAN 3" THE MAXIMUM SLOPE CAN BE 1:8>X>1:10. FOR A RAMP RISING GREATER THAN 3" BUT NOT MORE THAN 6" THE MAXIMUM SLOPE CAN BE 1:10>X>1:12.



COMPONENTS OF A SINGLE RAMP RUN AND SAMPLE RAMP DIMENSIONS



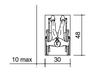
EXAMPLES OF EDGE PROTECTION AND HANDRAIL EXTENSIONS

CONTROLS

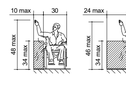
1. CONTROLS & OPERATING MECHANISMS SHALL COMPLY WITH A.D.A.A.G. SECTION 309.

2. ALL CONTROLS & OPERATING MECHANISMS WHICH ARE INTENDED FOR NORMAL USE BY BUILDING OCCUPANTS SHALL BE PROVIDED WITH A.D.A.A.G.-COMPLIANT CLEAR FLOOR SPACES & SHALL COMPLY WITH REACH RANGES IN SECTION 308.

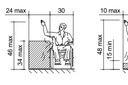
3. REACH RANGES FOR CHILDREN UNDER AGES 12 SHALL COMPLY WITH SECTION 308.1.



CLEAR FLOOR SPACE PARALLEL APPROACH



OBSTRUCTED HIGH SIDE REACH

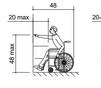


UNOBSTRUCTED SIDE REACH

SIDE REACH

CLEAR FLOOR SPACE FORWARD APPROACH

UNOBSTRUCTED SIDE REACH



OBSTRUCTED HIGH SIDE REACH

FORWARD REACH

SIGNAGE

1. ACCESSIBLE SIGNAGE SHALL COMPLY WITH A.D.A.A.G. SECTION 703.

2. LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1 AND A STROKE-WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10.

3. CHARACTERS AND NUMBERS ON SIGNS SHALL BE SIZED ACCORDING TO THE VIEWING DISTANCE FROM WHICH THEY ARE TO BE READ. CHARACTER HEIGHT SHALL BE MEASURED VERTICALLY FROM THE BASELINE OF THE CHARACTER SHALL BE 5/8" MIN. AND 2" MAX. BASED ON THE HEIGHT OF THE UPPERCASE LETTER "I"

4. LETTERS AND NUMERALS SHALL BE RAISED 1/32", UPPER-CASE SANS SERIF TYPE, AND SHALL BE ACCOMPANIED WITH GRADE 2 BRAILLE. RAISED CHARACTERS SHALL BE AT LEAST 5/8" HIGH, BUT NO HIGHER THAN 2". PICTOGRAMS SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE BORDER DIMENSION OF THE PICTOGRAM SHALL BE 6" MINIMUM IN HEIGHT. BRAILLE SHALL NOT BE LOCATED IN THE PICTOGRAM FIELD.

5. THE CHARACTERS AND BACKGROUND OF SIGNS SHALL BE EGGSHELL, MATTE, OR OTHER NON-GLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND - EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.

6. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAFS, THE SIGN SHALL BE LOCATED TO THE RIGHT SIDE OF THE RIGHT HAND DOOR.WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF A SINGLE DOOR OR AT THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE LOCATED ON THE NEAREST ADJACENT WALL. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18" MIN. BY 18" MIN, CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED DOOR AND THE 45 DEGREE OPEN POSITION.

HEIGHT TO FINISH FLOOR OR GROUND FROM BASELINE OF CHARACTER	HORIZONTAL VIEWING DISTANCE	MINIMUM CHARACTER HEIGHT
40" TO LESS THAN OR EQUAL TO 70"	LESS THAN 72"	5/8"
	72" AND GREATER	5/8" PLUS 1/8"/FT OF VIEWING DISTANCE ABOVE 72"
GREATER THAN 70" TO LESS THAN OR EQUAL TO 120"	LESS THAN 180"	2"
	180 INCHES AND GREATER	2" PLUS 1/8"/FT OF VIEWING DISTANCE ABOVE 180"
GREATER THAN 120"	LESS THAN 21'	3"
	21' AND GREATER	3" PLUS 1/8"/FT OF VIEWING DISTANCE ABOVE 21'

INTERNATIONAL SYMBOL OF ACCESSIBILITY

DISPLAY CONDITIONS - INTERNATIONAL SYMBOL OF ACCESSIBILITY

TABLE SEATING

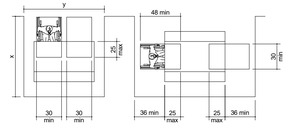
1. WHERE FIXED TABLES (OR DINING COUNTERS WHERE FOOD IS CONSUMED BUT THERE IS NO SERVICE) ARE PROVIDED, AT LEAST 5 %, BUT NOT LESS THAN ONE, OF THE FIXED TABLES (OR A PORTION OF THE DINING COUNTER) SHALL BE ACCESSIBLE AND SHALL COMPLY WITH A.D.A.A.G. SECTION 902.

2. IN ESTABLISHMENTS WHERE SEPARATE AREAS ARE DESIGNATED FOR SMOKING AND NON-SMOKING PATRONS, THE NUMBER OF ACCESSIBLE FIXED TABLES (OR COUNTERS) SHALL BE PROPORTIONALLY DISTRIBUTED BETWEEN THE SMOKING AND NON-SMOKING AREAS.

3. WHERE FOOD OR DRINK IS SERVED AT COUNTERS EXCEEDING 34" IN HEIGHT FOR CONSUMPTION BY CUSTOMERS SEATED ON STOOLS OR STANDING AT THE COUNTER, A PORTION OF THE MAIN COUNTER WHICH IS 60" IN LENGTH MINIMUM SHALL BE PROVIDED IN COMPLIANCE WITH A.D.A.A.G. SECTION 305 OR SERVICE SHALL BE AVAILABLE AT ACCESSIBLE TABLES WITHIN THE SAME AREA.

4. AT LEAST 5% OF ALL TABLE SEATING SHALL BE ACCESSIBLE PER THE REQUIREMENTS OF A.D.A.A.G. SECTION 226.

5. ACCESSIBLE SEATING AT TABLES AND/OR COUNTERS SHALL COMPLY WITH CHAPTER 3.



MINIMUM CLEARANCES FOR SEATING AND TABLES

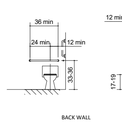
ADDITIONAL ACCESSIBILITY COMPONENTS

IN ADDITION TO ALL A.D.A./A.D.A.A.G. REQUIREMENTS, THIS FACILITY SHALL MEET THE REQUIREMENTS OF THE LOCAL JURISDICTION FOR ACCESSIBILITY AS LISTED BELOW AND SHALL MEET ALL REQUIREMENTS ICC/ANSI A117.1.

* WHERE INFORMATION LISTED/SHOWN IN THIS SECTION CONFLICTS WITH THE A.D.A.A.G. INTERIOR ACCESSIBILITY COMPONENTS, THE MORE RESTRICTIVE OF THE TWO REQUIREMENTS SHALL BE FOLLOWED.

RESTROOMS

1. ELEMENTS OF ACCESSIBLE RESTROOMS SHALL COMPLY WITH ICC/ANSI A117.1 - 2009 SECTIONS 603, 604, 605, 606, AND 609.



GRAB BARS AT WATER CLOSETS

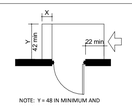
DOORS

1. ACCESSIBLE DOORS SHALL COMPLY WITH ICC/ANSI A117.1 - 2009 SECTION 404.

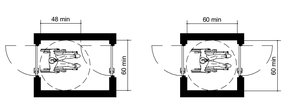
2. THRESHOLD AT DOORWAYS SHALL NOT EXCEED 1/2" IN HEIGHT. RAISED THRESHOLDS AND FLOOR LEVEL CHANGES AT DOORWAYS SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2.

3. HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE. LEVER-OPERATED MECHANISMS, PUSH-TYPE MECHANISMS, AND U-SHAPED HANDLES ARE ACCEPTABLE DESIGNS. HARDWARE REQUIRED FOR ACCESSIBLE DOOR PASSAGE SHALL BE MOUNTED NO HIGHER THAN 48" ABOVE FINISHED FLOOR AND NOT LOWER THAN 34" ABOVE FINISH FLOOR.

4. IF A DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90°, THE DOOR WILL TAKE AT LEAST 5 SECONDS TO MOVE TO AN OPEN POSITION OF 12°.



HINGE SIDE APPROACHES - SWINGING DOORS



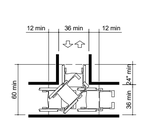
TWO HINGED DOORS IN SERIES

PATH OF TRAVEL

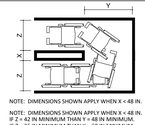
1. ALL WALKS, HALLS, CORRIDORS, AISLES, SKYWALKS, TUNNELS, AND OTHER SPACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH ICC/ANSI A117.1 - 2009 SECTION 402

2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDING OR FACILITY ENTRANCES WITH ALL ACCESSIBLE SPACES AND ELEMENTS.

3. AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 1:20 IS A RAMP AND SHALL COMPLY WITH ICC/ANSI A117.1 - 2009 SECTION 405. NOWHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:48.



T-SHAPED SPACE FOR 180° TURNS



TURN AROUND AN OBSTRUCTION

SIGNAGE

1. ACCESSIBLE SIGNAGE SHALL COMPLY WITH ICC/ANSI A117.1 - 2009 SECTION 703.

2. LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO SUCH THAT THE WIDTH OF AN UPPERCASE 'O' SHALL BE 55% MINIMUM AND 110% MAXIMUM OF THE HEIGHT OF AN UPPERCASE 'I'.

3. CHARACTERS AND NUMBERS ON SIGNS SHALL BE SIZED ACCORDING TO THE VIEWING DISTANCE FROM WHICH THEY ARE TO BE READ, TABLE 703.2.4. THE MINIMUM HEIGHT IS MEASURED USING AN UPPER-CASE I. LOWER CASE CHARACTERS ARE PERMITTED. SIGNS INSTALLED OVER 120" ABOVE FINISHED FLOOR SHALL HAVE A MINIMUM CHARACTER HEIGHT OF 3".

4. WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE-LEAF DOORS. SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL. MOUNTING HEIGHT SHALL BE 60" ABOVE FINISHED FLOOR TO THE BOTTOM OF HIGHEST LINE OF TEXT. MOUNTING LOCATION FOR SUCH SIGNAGE SHALL BE LOCATED SO THAT A CLEAR FLOOR AREA 18" MINIMUM BY 18" MINIMUM CENTERED ON THE TACTILE CHARACTERS IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSTITION AND 45 DEGREE OPEN POSITION.

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Issue Record:

01.19.21	TENANT/ OWNER REVIEW
03.08.21	PERMIT SET

Revisions:

Drawn: KM
Checked: KM

Project No.
CMGXXX

Contents:
ACCESSIBILITY REQUIREMENTS

G002

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01100 - SUMMARY

1.1 Contract Documents:

A. Contractor shall use the following Tenant provided documents in the negotiation and execution of the Work. Contact Tenant's office for copies of these documents:
   1. Columbia Development Instructions to Bidders.
   2. Construction Contract for Columbia Development.

B. Definitions:
   1. The term "Owner" used in these documents refers to the building Owner/Landlord.
   2. The term "Tenant" used in these documents refer to the restaurant Tenant.
   3. The term "Contractor" used in these documents refers to the entity responsible for performing the Work under Construction Contract for Columbia Development.

1.2 Scope of Work:

A. The Work shall include construction of the site and building facilities as shown and specified in these Specifications and Drawings.

B. When required and necessary, the Tenant will provide a subsurface exploration report as an attachment the bidding documents.

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

1.1 Coordination:

A. Immediately inform the Architect of discrepancies between the information indicated in the Contract Documents and existing project conditions, and of discrepancies between information indicated on the architectural, structural, mechanical, plumbing and electrical documents.

B. Prior to fabrication and installation of new components, field verify all existing and new dimensions and installation conditions that may affect the Work. Do not scale the drawings to establish locations of items that are not located using dimensions.
   1. All dimensions are to rough face of stud or centerline of structure, unless otherwise indicated.
   2. Verify that all Subcontractors have reviewed and coordinated locations of their equipment and furnishings exposed to view with the architectural drawings. Review questions with the Architect.

C. Coordinate new work indicated on the Contract Documents with new work that may be provided by the Owner and Tenant under separate contracts.

D. Coordinate the work of Vendors, Contractors and Subcontractors providing fixtures, furniture and equipment identified as "by Tenant" in these drawings and specifications.
   1. Notify the Tenant in timely fashion if any problems develop with the performance of these Vendors, Contractors or Subcontractors.

E. Coordinate the scheduling, sequencing, and the work of all trades and Subcontractors to assure efficient and orderly sequences of installation of interdependent construction elements.

F. Verify that the utility requirement characteristics of operating equipment are compatible with the building utility services. Coordinate work of the various specification sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

G. Coordinate the installation and physical space requirements of plumbing, mechanical and electrical work that are indicated diagrammatically on the drawings. Follow routing shown for piping, ducts and conduit as closely as practical. Install runs parallel with and perpendicular to the line of the building. Utilize spaces as efficiently as possible to maximize accessibility for other work installation and for maintenance and for repair.
   1. Conceal piping, ducts and conduit within the construction, except as otherwise indicated.
   2. Coordinate locations of registers, fixtures and outlets with finish elements.

H. Coordinate completion and cleanup work of all trades and Subcontractors in preparation for Substantial Completion.

I. To minimize disruption of Tenant's activities after Tenant occupancy of the property, coordinate access to the property with the Tenant's Construction Manager for correction of defective work and work not in accordance with the Contract Documents.

1.2 Submittals:

A. Only when indicated in the specifications or drawings submit shop drawings, product data, and/or samples to the Architect, Design Manager, and Development Analyst for review. All submittals shall be made directly to the Architect by the general contractor. Only submittals for specified products will be accepted unless prior approval has been obtained for a substitution (refer to Section 01630).

   Shop drawings: Submit electronic copies of each sheet of drawings. Shop drawings are original drawings prepared by the subcontractor or vendor for the purpose of conveying information to the Architect and/or Engineer on how a building element or product will be constructed in sufficient detail for the Architect and/or Engineer to determine compliance with the design intent.

   In all cases one copy of the submittal shall be returned to the General Contractor. Electronic submittals for shop drawing or product data in either PDF or DWF format are acceptable for review. All submittals, regardless of format, must bear the General Contractor's stamp indicating the submittal has been reviewed and approved. Any submittal not meeting the requirements set forth will be rejected by the Architect.

   Submittals shall be made with respect to the construction schedule to allow for adequate review time: allow (5) business days for review of submittals for any structural steel and trusses and allow (3) business days for review of submittals in all other divisions. Review timeline will commence from the time the submittal with General Contractor's approval stamp is received by the Architect, Design Manager, and Development Analyst.

1.3 Requests For Information

A. In the event that the general contractor, or a subcontractor, at any tier, determines that some portion of the drawings, specifications, or other contract documents requires a clarification or interpretation by the architect, the general contractor shall submit a Request For Information in writing to the architect in an electronic copy.

   Requests for Information may only be submitted by the general contractor and may only be submitted to the architect. The general contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from the architect or the architect's consultants. In the Request for Information, the general contractor shall set forth an interpretation or understanding of the requirement along with an explanation of why such an understanding was reached.

B. The architect will review all Requests for Information to determine whether they are Requests for Information within the meaning of this term. If the architect determines that the document is not a request for information, it will be returned to the general contractor, un-reviewed as to content, for re-submittal in the proper form and in the proper manner.

   Responses to Requests for Information shall be issued upon receipt, but no later that five (5) working days of receipt of the Request from the general contractor; unless the architect determines that a longer amount of time is necessary to provide an adequate response. If a longer amount of time is determined necessary by the architect, the architect will, within five (5) working days of receipt of the Request, notify the general contractor of the anticipated response time. If the general contractor submits a Request for Information on an activity with five (5) working days or less of float on the current project schedule the general contractor shall not be entitled to any time extension due to the time it takes the architect to respond to the Request provided that the architect responds within the parameters set forth above.

C. Responses to Requests for Information from the architect will not change any requirements of the contract documents. In the event that the general contractor believes that a response to a Request For Information will cause a change to the requirements of the contract documents, the general contractor shall immediately give written notice to the architect and the tenant stating that the general contractor considers the response to be a Change Order. Failure to give such written notice immediately shall waive the general contractor's (or any subcontractor's) right to seek additional time or cost under the Administrative Requirements of these contract documents.

SECTION 01400 - QUALITY REQUIREMENTS

1.1 Regulatory Requirements:

A. Perform all work in accordance with applicable local, state, and federal building codes, plumbing codes, mechanical codes, electrical codes, ordinances and rules and regulations governing food service establishments.

B. Comply with local, state and federal requirements governing accessibility.

C. Obtain all required demolition and erosion control permits required by authorities having jurisdiction.

1.2 Quality Control:

A. Maintain quality control over manufacturers, suppliers, products, services, site conditions and workmanship, to produce work of specified quality.

B. Comply with manufacturer's instructions and applicable trade standards.

C. Handle, install, connect, clean, condition and adjust products in strict accordance with manufacturer's instructions and complying with specified requirements.
   1. Request clarification from the Architect before proceeding, where manufacturer's instructions conflict with the Contract Documents.

D. Comply with specified standards as a minimum quality for the Work, except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of the specified quality. Secure products in place with positive anchorage devices designed, sized and installed to withstand stress, vibration, physical distortion or disfigurement.

F. All dimensions shall be considered "hold-to" dimensions unless indicated otherwise (e.g. minimum or maximum dimensions.)

1.3 Testing:

A. Employ and pay for the services of an independent testing laboratory to perform inspections, tests and other services when required.

B. Include inspection and tests as indicated in the specification sections, drawings, and as required by authorities having jurisdiction.
   1. Test concrete in accordance with Section 03300 and drawing requirements.
   2. Test structural steel in accordance with Section 05110 and drawing requirements.

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

1.1 Provide temporary facilities and controls as shown and specified:

A. Codes and Standards: Provide temporary construction facilities and controls complying with all applicable local, State and Federal local laws, regulations and codes and utility company requirements.

B. Temporary Heating, Ventilating and Cooling:
   1. Provide, pay for and maintain all temporary heating, ventilating and cooling equipment and facilities required during the progress of the work to protect materials, finished work, and equipment against damage from low and high temperatures and humidity.
   2. Provide temporary heating, ventilating and cooling when the outside temperature and humidity is low/high enough to damage or affect in any way the performance or quality of material and product stored in the building, in any temporary storage area, or any material or product incorporated into the work.
   3. Provide temporary heating, ventilating and cooling when the outside temperature and humidity is low/high enough to significantly slow or hamper effectiveness of workers and to provide suitable working conditions.

C. Temporary Electrical Lighting and Power:
   1. Provide, pay for and maintain all temporary electrical service for lighting and power required during the progress of the work. Include all necessary wiring, fuses, disconnect switches, safety devices, junction boxes, panels, ground fault protections, and transformer if required. Include cost for providing temporary electric generators in the Contract Sum, if temporary electric service is not available for use during progress of the work.
   2. Temporary service and lighting and power items and installations shall conform to the requirements of the NFPA National Electric Code and OSHA Occupational Safety and Health Act of 1970.

D. Water: Provide, pay for and maintain all temporary water required during the progress of the work. Include all necessary storage tanks, piping, valves, fittings, hose and hose connections during construction and testing.

E. Temporary Toilets: Provide, pay for and maintain temporary toilet facilities for use by the Contractor, Contractor's employees and all Subcontractors and Subcontractors' employees. Comply with all local requirements for installation, use and maintenance of temporary toilet facilities.

F. Barriers and Enclosures:
   1. Provide temporary construction barriers in accordance with project requirements. Exercise all necessary precautions to protect adjacent properties, outside project contact limits, during progress of the work. Take special precautions to avoid damage to existing overhead and underground utilities and services owned or operated by the Owner or by public or private utility companies.
   2. Provide temporary weather-tight enclosures at exterior openings to provide acceptable working conditions and protection of materials and to allow for temporary heating, ventilating and cooling.

G. Field Office, Telephone and Email:
   1. Provide and maintain a temporary field office at the project site during progress of the work. A designated area within the existing building will be available for use as a temporary field office. Verify area size and location with the Tenant.
   2. Maintain copies of permits, approved shop drawings, specifications, addenda and record documents at field office.
   3. Provide temporary telephone service and internet service with email and photo capabilities to field office throughout progress of the work.
   4. Provide weekly photographic documentation of project progression to Tenant.

H. Safety and Security
   1. Provide and maintain all necessary safety provisions for protection and safety of the project work, workers and general public.
   2. Provide and maintain operable fire extinguishing devices in well-marked, accessible locations throughout the project. Provide types, quantities and locations in compliance with governing codes and ordinances.
   3. Provide all necessary security barriers and enclosures to protect the work and Tenant's operations from unauthorized entry of persons, vandalism and theft. Provide doors, when required, with self-closing hardware and locks.

I. Cleaning
   1. During Construction: Provide an approved on-site container for the use of all Contractors and Subcontractors for the collection of waste materials, debris and rubbish. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations. Remove crates and cartons in which materials, equipment, or fixtures are received to on-site containers daily.
      a. Maintain the property in a clean and orderly condition. Remove waste materials, debris and rubbish from the site on a daily basis and dispose of at legal disposal areas away from the site.
   2. Dust Control:
      a. Remove debris and rubbish from pipe chases, plenums and other similar closed or remote spaces prior to covering or enclosing the space.
      b. Sweep and vacuum clean interior surfaces before start of surface finishing and painting. Continue cleaning on an as-needed basis until finishing and painting is completed.
      c. Cleaning operations shall be acceptable to the Tenant's Construction Manager.

SECTION 01630 - SUBSTITUTIONS

1.1 General:

A. Products, including materials, equipment and systems described in the Contract Documents establish the standards of required function, dimension, appearance, quality and performance of the Work. Base all bids on the "Standards" indicated.

B. Requests by the Contractor for changes in products, manufacturers, fabricators, suppliers, installers, and methods of construction required by the Contract Documents are considered requests for "substitutions:" Substitutions will be considered only under the following conditions:
   1. The indicated "Standard" cannot be provided within the Contract Time
   2. The indicated "Standard" cannot receive necessary approval by the governing authority.
   3. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit as determined by the Architect.

C. Submit each request for substitution to the Architect. Identify the product, manufacturer, fabricator, supplier, installer or the fabrication or installation method to be replaced in each request. Identify related Specification Section and Drawing numbers. Provide documentation as directed by the Architect.

D. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate written request, when requested directly by subcontractor, manufacturer, fabricator, or supplier, or when acceptance will require substantial revision of the Contract Documents.

E. Substitute products, manufacturers, fabricators, suppliers, and installers shall not be used for the Project without Tenant and Architect's written acceptance.

SECTION 01700 - EXECUTION REQUIREMENTS

1.1 Preparation:

A. Protection of existing construction: Use all necessary care and appropriate means and methods to protect and prevent damage to existing construction and property not part of the Contract Work. Repair and refinish or replace construction an property damaged during construction work, at Contractor's expense.

1.2 Selective Demolition: Provide selective demolition as shown and specified.

A. Preparation:
   1. Coordinate work of this Section with work of various Contractors and Tenant's staff.
   2. Maintain protected access at all times.
   3. Erect and maintain weatherproof closures at exterior openings.
   4. Erect and maintain dust-proof interior partitions to prevent spread of dust or fumes.
   5. Erect and maintain barricades, enclosures, bracing, shoring, lights, warning signs and guards necessary for worker and public safety and protection of property.
   6. Disconnect, remove and cap designated utility services. Identify and mark locations of disconnected and capped utilities at the project site and on Project Record Documents.
   7. Notify and coordinate with the Tenant's Construction Manager and the building Owner for any demolition occurring outside the lease limit.
   8. Coordinate hours of operation and construction access with the Tenant's Construction Manager and the building Owner.

B. Selective Demolition
   1. Remove existing construction to accommodate new construction as indicated.
   2. Perform selective demolition in an orderly, systematic and careful manner with least possible disturbance to public and adjacent property. Use of explosives is prohibited.
   3. Immediately remove from the site and legally dispose of demolished materials, except as indicated otherwise. Do not burn or bury materials on the project site.

1.3 Cleaning

A. Final Cleaning: Perform final cleaning upon completion of project work.
   1. Remove waste and surplus materials, rubbish, tools, equipment and temporary construction facilities from the site.
   2. Clean exterior grounds; remove stains, spills and foreign materials from paved areas, power wash and sweep clean. Rake clean landscaped surfaces of the grounds.
   3. Remove temporary protection and labels not required to remain.
   4. Clean all finished surfaces. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign materials from exposed interior and exterior surfaces.
      a. Clean all plumbing, fire protection and electrical fixtures and equipment including ceiling area elevated ductwork and lighting fixtures.
      b. Clean permanent equipment filters and replace temporary disposable filters in mechanical units used during construction.
      c. Clean ducts, blowers and coils if mechanical units were operated without filters during construction.
   5. Clean interior and exterior glazing and mirrors, polish transparent and glossy surfaces and clean floors with appropriate materials and equipment.
   6. Remove waste, foreign material and debris from roofs, areaways and drainage systems.
   7. Before Tenant occupancy, conduct an inspection, with the Tenant, of exposed interior and exterior surfaces at all work areas, to verify that the entire work is clean.

1.4 Starting and Adjusting:

A. Prior to Substantial Completion, coordinate the start-up, test and balance, placement in operation and adjustment all systems, controls and equipment to verify proper operation. All systems shall be complete and operating prior to final inspection.

1.5 Contract Closeout:

A. Operation and Maintenance Data: Submit one operation and maintenance manual, bound in 8-1/2" x 11" text pages, three D side ring capacity expansion binders with durable plastic covers.
   1. Subdivide the binder contents internally with permanent dividers logically organized as described below. Provide tab titles clearly printed under reinforced laminated plastic tabs.
   2. Provide a table of contents with each product or system description identified.
   3. Provide a directory listing names, addresses, and telephone numbers of the project Architect/Engineer, Contractor, Subcontractors and major equipment suppliers.
   4. Prepare operations and maintenance instructions arranged by system and subdivided by specification section. Identify names, addresses, and telephone numbers of project Subcontractors and suppliers. For each category, identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for each equipment item and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions for identifying detrimental agents.
   5. Submit operations and maintenance data to the Tenant with final application for payment in accordance with Exhibit C of the Construction Contract.

B. Record/As Built Documents:
   1. Prepare and maintain on site one set of the following record/as built documents:
      a. Contract Documents.
      b. Construction Documents.
      c. Change orders and other modifications to the Contract.
      d. Shop drawings, product data, and samples.
      e. Construction schedule.
   2. Store record/as built documents separate from documents used for construction.
   3. Record actual revisions to the Work, concurrently with construction progress.
   4. Legibly mark and record a description of actual products installed at each specification section, including the following:
      a. Manufacturer's name and product model and number.
      b. Approved product substitutions or alternates utilized.
      c. Changes made by addenda, change orders, and other modifications.
   5. Legibly mark each item to record actual construction, including the following:
      a. Measured depths of foundations in relation to finish first main floor datum.
      b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
      c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
      d. Field changes of dimension and detail.
      e. Details not on original Contract Document drawings.
   6. Submit record/as built documents to the Tenant with final application for payment in accordance with Exhibit C of the Construction Contract.

C. Warranties and Bonds:
   1. Compile warranties and bonds required by the Contract Documents.
   2. Submit duplicate copies of warranties and bonds to the Tenant with final application for payment in accordance with Exhibit C of the Construction Contract.

D. Maintenance Materials and Spare Parts:
   1. Provide extra maintenance materials and spare parts in quantities indicated in the specification sections.
   2. Place in location as directed by the Tenant's Construction Manager.

DIVISION 2 - SITE CONSTRUCTION

1.1 General: Provide site construction work, including services, utilities, earthwork, paving and landscaping in accordance with the site construction work drawings and details.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

1.1 General: Provide cast-in-place concrete work in accordance with the General Structural Notes, structural drawing and details. Follow shell building documents for specifications, joints and geotech.

A. Standards: Materials and construction shall conform to the following:
   1. ACI 117 "Standard Tolerances for Concrete Construction and Materials."
   2. ACI 301 "Structural Concrete for Buildings."
   3. ACI 305R "Recommended Practice for Hot Weather Concreting."
   4. ACI 306R "Recommended Practice for Cold Weather Concreting."
   5. ACI 315 "Details and Detailing of Concrete Reinforcement."
   6. ACI 318 "Building Code Requirements for Reinforced Concrete."

2.1 Materials:

A. Under Slab Vapor Retarder: Stego Industries LLC, 877-464-7834, internet www.stegoindustries.com high density polyethylene Stego Wrap (10 mil) Vapor Barrier meeting or exceeding ASTM E1745 performance criteria for Class C vapor retarders.
   1. Seam Tape: High density polyethylene tape with pressure sensitive adhesive.
   2. Pipe boots: Shop or site fabricated from vapor retarder material and seam tape.

B. Concrete:
   1. Portland Cement: ASTM C150, Type I
   2. Aggregate: ASTM C33.
   3. Water: Clean and potable.
   4. Reinforcement: When required, comply with drawings reinforcement requirements.
   5. Compressive Strength: Minimum 3000 psi at 28 days.
   6. Admixtures: All admixtures shall be approved by the Tenant's Construction Manager prior to placement in the concrete mix.

C. Topping Concrete: When required to suit installation conditions, Ardex Diama-Top of Ardex Engineered Cements (888) 512-7339, internet www.ardex.com
   1. ULTRAFLOR ARDEX DIAMA-TOP, self-leveling concrete repair material.
   2. Any pinholes that need to be filled shall be filled with ARDEX DIAMA-FILL filling compound for polished concrete, concrete terrazzo and other cementitious wear surfaces applied at the appropriate time during the polishing process.
   3. The primer for areas to receive ARDEX DIAMA-TOP will be ARDEX EP 2000 Substrate Preparation Epoxy.
   4. Installation shall be performed by factory-trained professional applicators in strict accordance with manufacturer's installation instructions.

3.1 Installation

A. Vapor Retarder: Place, protect and repair vapor retarder sheets in accordance with ASTM E1643 and manufacturer's installation instructions.
   1. Provide a single layer of vapor retarder material over level compacted slab base.
   2. Lap joints and seams 6 inches and seal with seam tape.
   3. Seal all penetrations and repair damaged areas before concrete placement.

B. Reinforcement Place and inspect all reinforcing steel before concrete is placed.

C. Concrete Placement:
   1. Place cast-in-place concrete in accordance with ACI 301 and ACI 305R and 306R recommended practices for hot weather and cold weather concreting. Do not place concrete when temperature is below 40 degrees F.
   2. Wet cure concrete in accordance with ACI 301, using moist curing or moisture-retaining covers

D. Finish: Except where additional floor finish is scheduled, provide a smooth steel trowel finish.
   1. Exposed concrete used as a finish floor surface shall have a smooth finished surface, uniform in texture and appearance and free of trowel marks and other defects affecting ease of maintenance.
   2. Grind smooth surface defects as directed by the Tenant's Construction Manager.

E. Testing: When required, comply with drawings and specification sections testing requirements.

F. Topping Concrete: Prepare concrete floor slab substrate surfaces, prime substrate surfaces, mix, install and finish topping concrete in accordance with manufacturer's application instructions.

NOT USED

SECTION 03600 - RESINOUS FLOORING

1.1 General: Section includes: Decorative resinous flooring systems.

1.2 System Description:

A. Performance Requirements: Provide resinous flooring that has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.3 Quality Assurance:

A. Qualifications:
   1. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
      a. Installer shall be an established company with at least 3 years experience in the installation of polymer floors.
      b. Contractor shall demonstrate the ability to undertake and complete the required work and furnish documentation regarding the successful completion of projects of similar size and complexity.
   2. Manufacturer Qualifications: Manufacturer shall be capable of providing technical support, qualified applicators, and approval of application methods.

B. Pre-installation Meetings: Conduct a pre-installation meeting to verify flooring system specifications (color, texture, etc.), substrate analysis, and manufacturer's installation instructions.

C. Pre-installation Testing: Conduct pre-installation testing as follows:
   1. Water Vapor Transmission: Calcium Chloride tests should be conducted to determine the amount of water vapor coming through the slab. The results should be compared to limitations set forth by the manufacturer.
   2. Core Sample Testing: (optional) Core samples should be taken and analyzed if the installer believes there to be a problem with the integrity of the substrate that may affect flooring system performance.

1.4 Delivery, Storage & Handling:

A. Ordering: Comply with manufacturer's ordering procedures and allow for enough lead-time for custom blends so as not to interfere with construction schedules.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials where they are protected from direct sunlight and harmful weather conditions. Meet manufacturer's condition for temperature, humidity, etc.

1.5 Project Conditions:

A. Environmental Requirements/Conditions: Substrate and ambient air temperatures shall be in accordance with manufacturer's requirements.

B. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during and after installation as recommended by manufacturer.

Consultant:
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architecture + planning
589 w. nationwide blvd.
suite b
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Project No.
CMGXXX

Contents:
ARCHITECTURAL SPECIFICATIONS

G010

2.1 Materials:

A. Resinous Flooring: Manufacturer: aiflooring
   1. Contact: 1218 West 41st Street, Suite B, Tulsa, Oklahoma 74107. Phone: 918-445-0627

2.1 Flooring System:

A. System Description: Clear, thin film system 18-22 mils thick with texture agent added for slip resistance.
   1. TerraPrime: A 2 component, 100% solids clear polyamide-cured epoxy coating.
   2. TerraThane Satin: A 2 component, 90% solids polyurea clear finish coat.
   3. TerraGrip: A graded, plastic aggregate added to finish coat for slip resistance.

2.3 Product Substitutions:

A. Substitutions: No substitutions permitted.

2.4 Source Quality:

A. Source Quality: Obtain resinous materials, including patching and leveling materials from a single manufacturer.

3.1 Manufacturer's Instructions:

A. Compliance: Comply with manufacturer's product data, including product technical data sheets and application instructions.

3.2 Examination:

A. Site Verifications of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
   1. Before applying materials, inspect surfaces to receive new materials and report any unsatisfactory conditions. Absence of any such report shall constitute installer's acceptance of surfaces as satisfactory for installing materials.

3.3. Preparation:

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

B. Surface Preparation:
   1. Mechanical Cleaning: Concrete floor surfaces receiving polymer flooring systems shall be thoroughly cleaned and prepared by shotblasting and/or diamond grinding.
   2. Patching Damaged Substrate: Holes, voids, static cracks, and other substrate surface defects should be patched and repaired according to manufacturer's recommendations.
   3. Prepare and clean control joints well and fill with an appropriate elastomeric.

3.4 Installation:

A. Resinous Flooring Installation: The following are abbreviated guidelines that should provide for basic application steps for the installation of the systems. Detailed instructions should be obtained from the manufacturer.
   1. Patching: After substrate preparation, surface defects shall be patched according to manufacturer's recommendations.
   2. Priming: Apply aiflooring TerraPrime, 100% solids epoxy primer, at a rate of 125-150 square feet per gallon. Allow 6-12 hours (depending on temperatures) of cure before applying finish coat. Finish coat must be applied within 24 hours of TerraPrime application.
   3. Finish Coat: Apply aiflooring TerraThane Satin, 90% solids polyurea topcoat, at a rate of 200 square feet per gallon. TerraGrip should be added to the TerraThane mix at a rate of 1 pint per 3 gallon kit for slip resistance. Note that TerraThane Satin must be metered out by notched squeegee prior to rolling.

B. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.5 Protection:

A. Protection: Protect installed product and finish surfaces from damage during construction.

NOT USED

SECTION 03350 - CONCRETE SEALING AND POLISHING

1.1 General: Provide a sealed and polished concrete floor finish as shown and specified.

A. Standards
   1. American Society for Testing and Materials:
      a. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
      b. ASTM G23-81, Ultraviolet Light & Water Spray
      c. ASTMC805, Impact Strength
   2. American Concrete Institute
      a. ACI 302. 1R-89, Guide for Concrete Floor and Slab Construction

B. Submittals: Provide the following:
   1. Manufacturer's product data, specifications and installation instructions. Include Material Safety Data Sheets (MSDS) and identify application requirements, curing time and safety requirements.
   2. Certified test reports, prepared by an independent testing laboratory, confirming compliance with performance criteria.
   3. Manufacturer's certification that installer is a certified applicator of special concrete floor finishes, and familiar with manufacturer's installation procedures and requirements for the specified sealed and polished concrete floor finish.
   4. Manufacturer's and installer's written acceptance of substrate surface and installation conditions.

C. Quality Assurance:
   1. Installer Qualifications:
      a. Use a certified installer and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
      b. The special concrete finish manufacturer shall certify the applicator.
      c. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section. Applicator shall have not less than three years successful experience installing sealed and polished floor finishes similar to those required for this project.
      d. Provide a letter of certification from special concrete finish manufacturer stating that installer is a certified applicator and is familiar with proper procedures and installation requirements required by the manufacturer.
   2. Protection: Contractor shall provide all necessary materials, means, methods and procedures acceptable to the floor finish manufacturer and required to protect the concrete floor surface and provide a suitable substrate for the installation of the specified sealed and polished concrete floor finish.

D. Project Conditions:
   1. Comply with the floor finish manufacturer's environmental limitations for substrate temperature and moisture content, ambient temperature, and humidity, ventilation and other conditions affecting the special floor finish performance.
      a. Concrete must have an average Floor Flatness rating of at least 40.
      b. Concrete must have an average Floor Levelness rating of at least 40.
      c. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of RetroPlate can begin. Wet cure of the concrete is preferred. No concrete sealer is necessary.
      d. Application of RetroPlate shall take place prior to installation of equipment, thus providing a complete, uninhibited concrete slab for application.
   2. Before general sealer/hardener application, prepare and coat a jobsite test area of size acceptable to the Architect, to verify and approve proper surface preparation, application techniques and coverage rate.
   3. Close finished floor areas to traffic during floor finish application and after application for time period directed by the floor finish manufacturer.
   4. The completed RetroPlated slab will be covered to prevent damage by the other trades during store completion.

2.1 Materials

A. Hardening/ Sealing Agent
   1. RetroPlate 99 manufactured by Advanced Floor Products Inc. (801) 812-3420 www.retroplatesystem.com
   2. RetroGuard Stain Inhibitor
   3. Joint Filler: CreteFill Pro 75. Two component 100% solids non-staining Polyurea Elastomer.
   4. Spall Repair: Multiple minor surface defects and irregularities: Crete Fill Spall Repair: High Strength hybrid urethane, two part 100% solids.
   5. Coefficient of friction for Retroguard finish shall not be lower than .40.
   6. Manufacturer's Representative: Contact Scott Maxfield at RetroPlate for a list of Certified Applicators (888)942-3144 scott.maxfield@retroplatesystem.com

3.1 Installation

A. Surface Conditions
   1. Examine substrate, with installer present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
   2. Verify that base slab meets finish and surface profile requirements in Division 3 Section "Cast-In-Place Concrete," and Project Conditions above.
   3. Prior to application, verify that floor surfaces are free of construction latents.

B. Application
The following RetroPlate process will be followed as listed below:
A concrete grinding machine must be used. Please proceed accordingly. The process is as follows:
   1. Floors should be started using 50, 80 or 100 grit diamond pucks depending on the condition of the slab.
   2. Clean the floor using automatic scrubber or comparable.
   3. Grind floor using 200 grit resin diamonds.
   4. Clean the floor using automatic scrubber or comparable.
   5. Apply RetroPlate 99 to floor at 200 sq. ft. per gallon, scrubbing product into the floor and allowing product to soak until turning slick. If it becomes sticky, apply water to the surface as necessary, leaving the product on the floor for at least 60 minutes.
   6. Grind floor using 400 grit resin diamonds.
   7. Clean the floor using automatic scrubber or comparable.
   8. Clean and remove any excess RetroPlate. Let the floor dry overnight.
   9. Continue the polishing process using 800 grit resin diamonds.
   10. Clean the floor using automatic scrubber or comparable.
   11. Alternately, depending on slab condition, grind floor using 1200-1500 grit resin diamonds.
   12. Clean the floor using automatic scrubber or comparable.
   13. The same process will be used for new floors as well as rehab floors. Floor prep for the rehab floors will be separate.
   14. Apply an even coat of RetroGuard Sealer with a brush, roller, or low-pressure sprayer, and when surface is dry, burnish the floor with a black burnishing pad. Apply a second coat of RetroGuard one hour after the initial application, and again burnish the floor with a black burnishing pad.
   15. Do not walk on surface for 12 hours, and do not introduce any water or moisture for at least 48 hours, allowing for proper drying and setting of RetroPlate and RetroGuard. Water will minimize the sealing properties of RetroPlate and RetroGuard.

C. Start any of the floor finish applications in presence of manufacturer's technical representative.

D. Sealing, Hardening and Polishing of Concrete Surface
   1. Concrete must be in place a minimum of 28 days or as directed by the manufacturer before application can begin.
   2. Application is to take place at least 10 days to the prior to racking and other in-store accessory installation, thus providing a complete, uninhibited concrete slab for application.
   3. Only a certified applicator shall apply RetroPlate 99. Procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
   4. Achieve waterproofing, hardening, dust-proofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the sheen.
   5. Polish to a level 2 shine.

E. Workmanship and Cleaning
   1. The premises shall be kept clean and free of debris at all times.
   2. Remove spatter from adjoining surfaces, as necessary.
   3. Repair damages to surface caused by cleaning operations.
   4. Remove debris from jobsite
      a. Dispose of materials in separate, closed containers in accordance with local regulations.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

1.1 General: Provide unit masonry assemblies as shown and specified.

A. Standards: Materials and construction shall conform to the following:
   1. ACI 530.1-02/ASCE 6-02/TMS 602-02 "Specifications for Masonry Structures."
   2. NCMA "TEK Bulletins."
   3. BIA "Technical Notes on Brick Construction."

2.1 Materials:

A. Concrete Masonry Units (CMU): Size and thickness as shown on drawings.
   1. ASTM C 90, load-bearing, normal weight, natural color CMU, properly cured at time of delivery, linear shrinkage not to exceed 0.065%.
   2. Provide special shapes where required.
   3. Provide exterior wall CMU containing an integral polymeric water-repellent admixture.
      a. Manufacturer: W. R. Grace "Dry-BlockR System Block Admix ".

B. Face Brick:
   1. Manufacturer:
      a. Endicott, (402) 729-3315, www.endicott.com (Iron Spot Brick), or as approved by architect
      b. Belden Brick Company, (330) 451-2031, www.beldenbrick.com (White Brick), or as approved by architect
   2. Type: "Face Brick C216" complying with ASTM C216, Grade SW, Type FBS. No efflorescence when tested in accordance with ASTM C67.
   3. Size: Modular size, laying three courses to 8" vertically.
   4. Color: "Alaska White Velour" or "Maganese Ironspot, Velour" as noted on Exterior Elevations
   5. Provide special shapes where required.

C. Mortar Materials:
   1. Portland cement: ASTM C150, Type I or III, natural color.
   2. Masonry cement: ASTM C91, Type indicated, natural color.
   3. Aggregate: ASTM C144, clean masonry sand.
   4. Water: Clean, fresh and potable.
   5. Provide all exterior wall masonry mortar containing an integral polymeric water-repellent admixture.
      a. Manufacturer W. R. Grace, "Dry-BlockR Integral Water-Repellent Mortar Admixture".

D. Unit Masonry Mortar Mixes: ASTM C270 proportions by volume.
   1. Face brick: Type N mortar.
   2. Dye:
      a. SGS #60A "White" by Solomon Grind Services (White)
      b. SM #750 "Silverstone" by Spec Mix (Iron Spot)

E. Reinforced Unit Masonry Grout Mixes
   1. Concrete fill: ASTM C94 3,000 psi concrete.

F. Joint Reinforcement, Wall Ties And Anchors: Finish, ASTM A-153 hot-dip galvanized
   1. Manufacturer: Hohman & Barnard, INC.
   2. Horizontal joint reinforcement: Welded ladder type with matching corners and Tee units.
      a. Single Wythe masonry: Standard single 9 gage side and cross rods. H&B - #220 Ladder-Mesh.
   3. Anchoring devices: Provide strap anchors, inserts, bolts and rods of type and size indicated.
      a. CMU to CMU: Strap anchors 1/4" x 1-1/4" x 24" steel with bent ends.
      b. CMU to structural steel: H&B - VBT - Vee Byne-Tie With Plain Steel (Tie) Used In Conjunction With H&B #359 Weld-on Ties (Anchor Rods).
   4. Masonry Veneer To Woof Framing: H&B - DW-10HS Veneer Anchor, With Adjustable 3/16" Cold-Drawn Steel Wire Tie Sections and 14 GA. Screw-On Attachment Plate.
      a. Fasteners: Self-Drilling, Self-Tapping Screws, 1-1/4" X #10, Corrosion-Resistant Coated. Provide Two (2) Screw Fasteners for each Attachment Plate.
   5. Seismic Masonry Veneer to Wood Framing: (When Required) H&B Seismic Plate Pintle HB-213S with HB-213 (T-Lok Tie)
      a. Fasteners: Seld-Drilling, Self-Tapping Screws, 1-1/4" X #10, Corrosion-Resistant Coated. Provide Two (2) Screw Fasteners For Each Attachment Plate.

G. Concealed Masonry Through-Wall Flashing: W. R. Grace "Perm-A-Barrier" self-adhering modified bituminous sheet, 40 mils thick.
   1. Termination Mastic: W.R. Grace "Bituthene Mastic."
   2. Primer: W.R. Grace "Bituthene P-300 Primer."
   3. Termination bars: Extruded aluminum or stainless steel, 1" wide and .098" thick pre-punched at 6" on center, secured with stainless steel drive pins.

H. Accessories
   1. Reinforcing bars: ASTM A615, Grade 60, deformed billet steel bars of sizes indicated.
   2. Wall weeps: Dur-O-Wal D/A 1006 "Cell Vent", clear flexible polypropylene co-polymer.
   3. Compressible joint material: Dur-O-Wal "Rapid Soft-Joint" D/A 2010.
   4. Bond breaker strips: ASTM D226 No. 15 asphalt saturated roofing felt.
   5. Cleaning agents:
      a. Face Brick and CMU: ProSoCo, Inc., "Sure Klean New Masonry Cleaners."
      b. ACMU: ProSoCo, Inc., "Sure Klean Burnished Custom Masonry Cleaner."
   6. Expansion/Control joint sealants: Polyurethane-based, elastomeric joint sealant complying with ASTM C920 and Section 07900 requirements. Color matched to adjacent surfaces.

3.1 Installation

A. Preparation
   1. Wet absorbent face brick masonry units requiring wetting, in accordance with BIA recommendations.
   2. Lay concrete masonry units dry.
   3. Establish, lines, levels and coursing. Ensure ties, anchors and flashing are correctly installed
   4. Mix mortar cementitious materials and aggregate in a mechanical mixer. Add water in amount to provide satisfactory workable consistency of mortar. Retemper mortar as required within two hours of mixing to replace water lost be evaporation. Discard mortar after two and one-half hours of initial mixing. Do not use mortar after it has started to set.

B. Installation - General:
   1. Build walls and other masonry construction to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.
   2. Cut masonry units using motor-driven masonry saws to provide clean, sharp edges. Cut units to fit adjoining work neatly. Provide 100% solid units where cores would be exposed.
   3. Cold weather construction, hot weather construction, and masonry construction tolerances: Comply with unit masonry standard ACI 530.1/ASCE 6/TMS 602 requirements.

C. Laying Masonry
   1. Layout walls in advance to ensure accurate spacing of surface bond patterns, with uniform joint widths, and to properly locate openings, movement type joints, returns and offsets. Do not use less than half-size units at corners, jambs and other locations.
   2. Lay up walls plumb and true to comply with ACI 530.1 tolerances. Provide square corners and angles, except as otherwise indicated, with courses level, accurately spaced and coordinated with other work.
   3. Pattern bond: Running bond. Do not use units with less than 4" of horizontal face dimensions at corners or jambs.
   4. Lay hollow CMU/ACMU with full mortar coverage on horizontal and vertical face shells. Bed CMU webs in mortar in starting courses. Maintain uniform 3/8" joint widths.
   5. Lay face brick and solid CMU/ACMU with completely filled bed and head joints. Do not slush head joints. Maintain uniform 3/8" joint widths.
   6. Compress and cut joints flush for masonry walls below grade or covered by other materials.
   7. Tool joints in all exposed masonry work to a concave joint.
   8. Provide interlocking masonry bond in each course at corners and intersecting walls.
   9. As the work progresses, build in masonry accessories and related items. Fill in solidly with masonry around built-in items.
      a. Bed hollow metal frame anchors in mortar and fill space between hollow metal frames and masonry solid with fine mortar grout.
      b. Provide solid masonry bearing for all lintels, beams, joists, plates and load-bearing members.
      c. Take particular care to embed all conduits and pipes within concrete masonry without fracturing exposed shells and to fit units around switch, receptacle and other boxes set in walls. Where electric conduit, outlets, switch boxes and similar items occur, grind and cut units before building in services.
      d. Install anchors, plates and related work built into masonry work.
      e. Install reinforcing steel and concrete fill where indicated. Comply with drawing details.
   10. Horizontal joint reinforcing: Provide continuous joint reinforcing at all concrete masonry walls as follows:
      a. In every second block course, 16" on center vertically, full height of wall and every block course where shown on the drawings.
      b. Lap reinforcement a full width at the corners and at intersections or use special fabricated sections.
      c. Fully embed side rods in mortar.
   11. Anchoring masonry work: Provide anchoring devices of the type indicated or required.
   12. Provide vertical expansion, control and isolation joints in masonry where indicated.
      a. When not indicated, at maximum 30'-0" on center.
      b. Locate control joints at points of natural weakness in masonry and acceptable to Architect.
      c. Joint sealant color shall match masonry materials sealed.
   13. Lintels: Install loose steel lintels furnished under structural steel work where shown. Set lintels in full bed of mortar.
   14. Flashing and weeps:
      a. Install concealed through wall masonry flashing at all wall sills, masonry openings in exterior walls with masonry above head, over all horizontal steel members built into masonry and elsewhere as indicated. Provide "drainage wall system" masonry construction.
      b. Provide end dams and positive slope to drain. Extend flashing vertically at least 8" and built into or anchor to back-up with a termination bar for a complete watertight installation.
      c. Flexible Membrane Flashing:
         1.) Install membrane flashing in accordance with manufacturer's installation instructions.
         2.) Fully adhere flashing to substrate.
         3.) Lap flashing joints a minimum of 6", seal and roll with a hand roller.
         4.) Trim bottom edge 1/4" back from exposed face of masonry.
         5.) Seal edges, seams, cuts and penetrations with manufacturer's recommended mastic.
   15. Install weeps in head joints of final course of exterior masonry wythe above flashing. Space weeps maximum of 24" on center horizontally and located to avoid door openings. Install weeps at head joints with outside face of weep material held 1/8" from the finish face of masonry unit.
   16. Install compressible joint material at lintels and horizontal steel members. Build in joint fillers and seal with elastomeric joint sealant.

D. Masonry Veneer Walls:
   1. Metal framed walls: Tie exterior masonry veneer wythe to back-up wall with individual metal ties screwed to metal stud framing.
   2. Space ties 16" on center vertically and horizontally.
   3. Maintain veneer wall cavity free of mortar droppings during masonry installation.

E. Parging:
   1. Dampen masonry walls prior to parging.
   2. Scarify each parging coat to ensure full bond to subsequent coat.
   3. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch (19mm).
   4. Steel trowel surface smooth abs flat with a maximum surface variation of 1/8 inch per foot (1mm/meter).

F. Architectural Concrete Masonry Units: Install ACMU in accordance with the manufacturer's installation instructions and the following:
   1. Draw ACMU from more than one pallet at a time during installation.

G. Reinforced Concrete Masonry
   1. Reinforce and fill CMU/ACMU wall and column masonry where indicated. Fill all cores solid with concrete fill. Comply with NCMA TEK Bulletins 3-2, 3-3A and 14-2 recommendations.
      a. Comply with drawing details for reinforcing steel size and spacing.
   2. Install bond beams where indicated. Reinforce and fill units solid with concrete fill. Comply with drawing details for reinforcing steel size and spacing.

H. Repair, Pointing and Cleaning
   1. In process cleaning: Wipe off excess mortar as the work progresses. Dry brush with bristle brushes exposed masonry at the end of each day's work. Remove mortar spatters and joint ridges.
   2. Clean all exposed masonry. Cleaning agents subject to Architect's approval. Before applying any cleaning agent to the entire wall, clean a sample wall area of approximately 20 square feet in a location acceptable to the Architect. Do not proceed with final cleaning until the sample area has been allowed to dry a minimum of 3 days and the test area cleaning approved. Protect all windows, doors, louvers, metal lintels and other corrodible parts. Damaged materials and work replaced at Contractor's expense.
   3. Dry clean exposed surfaces to remove large particles of mortar using hardwood wood paddles and scrapers. Metal tools not acceptable.
   4. Presoak exposed masonry surfaces by saturating with water and flush off loose mortar and dirt.
   5. Apply cleaning solutions and clean masonry in accordance with the cleaning material manufacturer's cleaning instructions.
   6. Muriatic acid cleaning of masonry not permitted.

I. Architectural Concrete Masonry:
   1. Keep ACMU walls clean during installation. Remove excess mortar on daily basis using brushes, rags or burlap squares.
   2. Clean completed walls with detergent masonry cleaner recommended by the ACMU manufacturer. Acid cleaning agents, abrasive cleaners, tools or powders and metal cleaning tools and brushes are not permitted.
   3. After final clean down and when walls are dry, apply ACMU acrylic finish coating in accordance with ACMU manufacturer's application instructions.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

1.1 General: Provide structural steel in accordance with the General Structural Notes and structural drawings and details.

A. Standards: Materials and construction shall conform to following:
   1. AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings."
   2. AISC "Code of Standard Practice."
   3. AWS "Structural Welding Code, D1.1-Steel."

2.1 Materials:

A. Materials compliance: When requested, submit acceptable data documenting materials compliance for each type of material required.

B. Structural Shapes: ASTM A36/A36M, 36 ksi steel.

C. Tubular Steel: ASTM A500, 46 ksi yield strength steel, cold-formed welded and seamless.

D. Structural pipe: ASTM A53, type and grade selected by the fabricator as required for design loading, standard finish, standard weight (Schedule 40) except as otherwise indicated.

E. Grout: ASTM C1107, pre-mixed, shrinkage resistant, non-metallic, non-corrosive, non-staining grout.

F. Shop paint primer: Refer to Section 09900 - Paints and Coatings.

G. Fabrication: Fabricate structural steel in accordance with AISC "Specification - Structural Steel for Buildings" and "Code of Standard Practice." Provide welded or bolted connections in accordance with the Structural Drawings connection requirements.
   1. Welding: Conform to AWS welding standards. Provide only continuous welds, spot welding is not acceptable. Grind all exposed welds smooth.
   2. Splicing: Material, if spliced, shall have maximum one splice per structural member. Perform splicing by full penetration butt-welding using AWS qualified welders and welding methods.
   3. Shop painting: Shop paint structural metal members, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded and galvanized surfaces. Refer to Section 09900 - Paints and Coatings.

3.1 Installation:

A. Erection: Erect structural steel in accordance with AISC "Specification - Structural Steel for Buildings" and "Code of Standard Practice".
   1. Plumb, level and align base plates for structural members with steel shims.
   2. Grout structural steel base plates solid that bear on concrete or masonry surfaces.

B. Testing: When required, comply with drawings testing requirements.

SECTION 05400 - COLD-FORMED METAL FRAMING

1.1 General: Provide cold-formed metal framing in accordance with the General Structural Notes and structural drawings and details.

A. Standards: Materials and construction shall conform to following:
   1. AISI SG02.2-01 "Design of Cold-Formed Steel Structural Members."
   2. AWS "Structural Welding Codes, D1.3-Sheet Steel."

2.1 Materials:

A. Materials compliance: When requested, submit acceptable data documenting materials compliance for each type of material required.

B. Load-Bearing Cold-Formed Metal Framing: ASTM A1003, Gage, Grade and Type indicated.
   1. Components: Provide sizes and shapes indicated.
   2. Finish: Galvanized complying with ASTM A653, minimum G60 coating.

C. Fabrication:
   1. Cold-formed metal framing may be prefabricated into panels before erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded.
      a. Provide one-piece full-length cold-formed metal framing members. Splicing not permitted.
   2. Attach and join other components by welding or screw fasteners, as indicated. Wire tying of framing components is not permitted.
   3. Cut framing to fit squarely for attachment to perpendicular members or as required for angular fit against abutting members. Hold members securely in position until properly fastened.
   4. Saw cut field cut framing. Torch cutting not acceptable.

3.1. Installation:

A. Erection: Erect cold-formed metal framing members of gage and at spacing indicated on the Structural Drawings. Align and secure studs to top and bottom runner tracks by welding or screw fasteners at both inside and outside flanges.

B. Tolerance Acceptance: Install cold-formed metal framing member as indicated on the plans. Install to 1/16" tolerance.

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Contents:

ARCHITECTURAL SPECIFICATIONS

G011

SECTION 05500 - METAL FABRICATIONS

1.1 General: Provide metal fabrications as shown and specified.

A. Submit shop drawings for the following:
1. Patio Rail systems.
   a. Show thickness, size, construction and manner of assembling various members, joint locations and railing layout.
   b. Show true profiles, connections and relationship to adjoining work and methods of anchoring.

2.1 Materials

A. Materials compliance: When requested, submit acceptable data documenting materials compliance for each type of material required.

B. Steel Shapes: ASTM A36/A36M, 36 ksi steel.

C. Stainless Steel:
1. Wall: 18 gage, ASTM A167, AISI Type 304 stainless steel, No. 4 finish.

D. Diamond Plate: Nominal 1/8" thick ASTM B209, Alloy 6061-T6, Aluminum Diamond Tread Plate.
1. Wall: Bright reflective finish.
2. Floor: Mil finish.

E. Patio Railing System
1. Submit shop drawings including the following:
   a. Show thickness, size, construction and welding, as well as assembly drawings.
   b. Show true profiles, connections of all typical joint configurations
   c. Show installation (fastening) and proposed grout (non-gypsum base)
   d. Show gate detail and gate hardware manufacturer and model number
   e. Patio railing plan, with dimensions and panel assembly locations.
2. Fabrication
   a. Patio rails and gate shall be fabricated from steel flat bar, 3/8" x 2 1/2", grade A36.
   b. Corner connector angles shall be 2 1/2" x 2 1/2" x 1/4" steel L angle.
   c. Gate hinges shall be a self-closing, adjustable tension type. Hinge installation shall be drilled and tapped. Permanently welded are unacceptable.
   d. Gate stop shall have a rubber cushion stop and be affixed to the active gate.
   e. All corners and joints shall be seal welded and outside joints ground smooth.
   f. All welding spatter shall be removed before sand blasting.
3. Finish
   a. Patio railing shall be painted PPG Durethane, color 518-6 Knight's Armor. Refer to Section 09900 - Paints and Coatings for preparation.

F. Exposed Fasteners:
1. Diamond Plate: #8 x 1" bevel headed stainless steel screw.
2. Patio Railing:
   a. All fasteners shall be stainless steel and powder coated to match railing sections.
   b. Spacer washers separating railing sections shall be 1 1/2" diameter and 1/2" thick they shall be one piece thick washers and not comprised of stacking washers
   c. Spacer washers shall be used on all straight sections and when railing panels join at 90 degree corner angles.

G. Shop paint primer: Refer to Section 09900 - Paints and Coatings

3.1 Installation: Comply with the Architectural Drawing details and the following:

A. Exposed Fasteners:
1. Flat Metal Panels: Provide 18" vertical and horizontal pattern or spaced equally if 18" pattern does not finish evenly. Exposed fasteners shall remain unpainted in natural factory supplied finish.
2. Diamond Plate: Provide counter sunk fasteners at perimeter of panels at 2'-0" on center maximum as well as fully adhering to surface.

B. Stainless Steel:
1. Wall:
   a. Clean stainless steel panel with mineral spirits.
   b. Install stainless steel panels with Henry 117 oil based adhesive applied to wall with 1/8" notch tooth trowel.
   c. Trim seams as indicated on the Drawings. No exposed fasteners.

C. Diamond Plate:
1. Wall: Mount over plywood substrate w/ flush exposed fasteners.
2. Floor: Provide continuous bead of silicone sealant to back side perimeter of plate prior to installation.
3. Mount with exposed fasteners. Provide continuous bead of silicone sealant to perimeter of plate after installation.

D. Patio Railing System:
1. Railing posts shall be set 6" deep into a core drilled hole, 4"-6" diameter
2. Railing posts shall be grouted in using non gypsum quick set grout.
3. Railing posts shall be set in grout plumb and level, with a tolerance of 1/8" in 4 feet.

E. Hand-inspect all joints and edges of installed metal materials. Unless otherwise indicated, fit exposed connections accurately together to form tight hairline joints. Grind and ease exposed joints, and edges smooth and free of burrs.

DIVISION 6 - WOOD AND PLASTICS

SECTION 06100 - ROUGH CARPENTRY

1.1 General: Provide rough carpentry work as shown and specified.

A. Standards: Materials and construction shall conform to following:
1. NIST PS-1-95 "Construction and Industrial Plywood."
2. NIST PS-2-95 "Performance Standards for Wood-Based Structural-Use Panels."
3. NIST PS-20-99 "American Softwood Lumber Standard."
4. NF&PA NDS-97 "Wood Construction and Supplement."
5. AWPA "Wood Treatment Standards."

2.1 Materials:

A. Lumber: Factory grade-marked, dressed, seasoned dimension lumber, S4S, air-dried, maximum 19% moisture content complying with PS-20, dimensions indicated.
1. Blocking, nailers and similar members: Standard Grade Western Dimension Lumber or Southern Pine species.
   a. Provide preservative treated lumber, where indicated.

B. Plywood: Factory grade-marked, complying with PS-1, square edge, 5/8" thick.
1. APA-RATED SHEATHING EXP1.
   a. Provide Exterior Grade (EXT) plywood, where indicated.
   b. Provide fire-retardant treated plywood, where required by Building Code.

C. Oriented Strand Board (OSB): Factory grade-marked, complying with PS-2, square edge, 5/8" thick

2.2 Wood Treatment:

A. Preservative Treatment: Comply with applicable requirements of AWPA Standards C2 (Lumber).
1. Pressure preservative treat lumber with water-borne preservatives, acceptable to authorities having jurisdiction, to a minimum retention of 0.25 pcf.
2. Treat wood blocking, nailers and similar members in connection with roofing and flashing.
3. Treat wood plates, blocking, furring and similar concealed members in contact with masonry or concrete.

B. Fire-Retardant Treatment: Comply with applicable requirements of AWPA Standards C27 (Plywood). Identify "fire-retardant-treated plywood" with appropriate UL classification marking.
1. Treated materials shall meet "Interior Type A" FR-S ratings of not more than 25 for flame spread, smoke developed and fuel contributed when tested in accordance with UL 723 or ASTM E84, with no increase in flame spread and evidence of significant progressive combustion upon continuation of test for additional 30 minutes.

C. Kiln-dry all treated lumber and plywood materials after treatment to maximum 15% moisture content.

3.1 Installation:

A. Lumber: Provide wood blocking, nailers and similar members where shown and where required for attachment of other work and surface applied items. Attach to substrate as required to support applied loading.
1. Use only sound, seasoned materials of longest practical lengths and sizes to minimize joints.
2. Use materials free of warp. Make tight connections between members.

NOT USED

SECTION 06200 - FINISH CARPENTRY AND MILLWORK

1.1 General: Provide finish carpentry and millwork as shown and specified.

A. Standards: Materials and construction shall conform to the following:
1. AWI "Architectural Woodwork Quality Standards - 1999."

B. Doors and door hardware: Install all door hardware furnished under Division 8 specification Sections.

C. Submit shop drawings for designated millwork.
1. Include complete details, materials lists and drawings showing fabrication of typical units, unit assemblies, locations and installation details.
2. List proposed cabinet hardware to suit indicated unit use or function.
3. Identify materials required to complete work ready for installation.
4. Obtain shop drawing approval before starting fabrication.

2.1 Materials:

A. Plywood: AWI Section 200
1. Concealed use substrates: D-3 Paint Grade hardwood plywood, with aspen veneer core, 5/8" thick.
2. Exposed to view finishes: Random plank matched or slip and swing matched spalted maple veneer on 3/4" Baltic birch core, with mill option sound grade hardwood backer. Spalted maple grain to run horizontally .5 sheen matte clear waterborne finish. Panels to be provided at 47" height, with widths varying from 24" to 96".

B. Millwork: Materials and construction as detailed on the Drawings.

C. Fabrication:
1. Millwork design and fabrication details shown on the drawings indicate design intent. Unless otherwise indicated, provide manufacturer's standard fabrication methods. Indicate all proposed variations from the drawing design and fabrication details on shop drawings.
2. Fabricate millwork in accordance with AWI "Custom Grade" requirements. Where details are not shown, comply with applicable Quality Standards or with alternate details acceptable to Architect as fabricator's option.
3. Fabricate finished work properly framed, closely fit and accurately set to required lines and levels and rigidly secured in place.
4. Fabricate work straight, plumb, level and in true alignment; neatly and accurately fit, scribed and thoroughly secured. Plane and sand miters and other joints. Ease all square edges. Provide millwork clean and free from warp, twist, open joints and other defects.
5. Provide finished woodwork dressed and sanded free from machine and tool marks, abrasions, raised grain or other defects on surfaces exposed to view in finished work.

D. Finish: Sayerlack Hydroplus Waterborne Clear, 5 sheen.

3.1 Installation

A. Install finish carpentry and millwork products plumb, level, true and straight with no distortion. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including countertops) and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.
1. Scribe and cut finish carpentry and millwork products to fit adjoining work.
2. Anchor finish carpentry and millwork items to built-in place blocking, furnished under Section 06100, or directly attach to substrate framing. Secure to grounds, blocking and nailers with countersunk, concealed fasteners and blind nailing as required for a complete installation.
3. For installation of prefinished millwork wall panels, use finish nails for exposed nailing, installed with pneumatic nailer as per the following guidelines:
   a. Nailer to be set for countersunk head approximately 1/8" on the face.
   b. Use 16 ga straight finish nails in 2" length
   c. Provide "dab" of construction adhesive on backside of panels at regular intervals.
   d. Random placement preferred, do NOT group nails together.
   e. No nails closer than 2" from any edge.
   f. All nails to be no greater than 16-18" apart in any direction.
4. Touch-up shop finished plywood materials marred or damaged during delivery, storage and installation with custom blended polyurethane to equal Minwax "Wipe on Poly".

B. Install casework without distortion so that doors and drawers will fit openings properly and be accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.

C. Install plastic laminate countertops, shelving and trim. Provide work level, true to alignment, accurately fit to wall conditions and securely fastened to base units and other support systems as indicated.

SECTION 06600 - FIBERGLASS REINFORCED PLASTIC PANELS

NOT USED

1.1 General: Provide fiberglass reinforced plastic panels as shown and specified.

2.1 Materials:

A. Manufacturer: Marlite, (330) 343-6621, internet www.marlite.com, Email: info@marlite.com

B. Panel System: 'P6' Per Finish Schedule, Series: Standard FRP - "Marlite Class 1/A" Fiberglass Reinforced Polyester (FRP) Panels, 3/32" thick, 48" wide x full height required. Color: P100 White, Class A, pebbled matte surface texture. USDA approved for incidental food contact.
1. Panel trim: Extruded PVC, color matching panel color. Provide 1/2" x 1/2" inside corners, edge trim, and division moldings as required to complete the installation.
   a. Inside Corner - M350
   b. Division - M365
   c. Edge - M370
2. Panel trim: Stainless Steel, color matching panel color. Provide 1-1/2" x 1-1/2" outside corners as required to complete the installation.
3. Sealant: Marlite "Silicone Sealant", white gunnable silicone sealant.
4. Panel adhesive: Marlite "C-551" water-based construction adhesive for panel application over porous surfaces.

C. Panel System: 'P2' Per Finish Schedule, Series: Standard FRP - "Marlite Class 1/A" Fiberglass Reinforced Polyester (FRP) Panels, 3/32" thick, 48" wide x full height required. Color: S100G White, smooth matte surface texture. USDA approved for incidental food contact.
1. Panel trim: Extruded PVC, color matching panel color. Provide division moldings as required to complete the installation.
   a. Division - M365
2. Sealant: Marlite "Silicone Sealant", white gunnable silicone sealant.
3. Panel adhesive: Marlite "C-551" water-based construction adhesive for panel application over porous surfaces.

3.1 Installation

A. Install the FRP system products using panel adhesive in accordance with the manufacturer's instructions and layout as shown in drawings.
1. Install panels plumb, level, true and straight with no distortion; providing a continuous bead of silicone sealant in each joint and trim groove and between trim and adjacent construction.
2. Provide corner trim, closure trim at intersections of dissimilar materials and moldings at abutting panels.

SECTION 07210 - BUILDING INSULATION

1.1 General: Provide building insulation as shown and specified.

2.1 Materials:

A. Extruded polystyrene foam rigid board insulation: Dow Chemical Co., 866-583-2583, internet www.dowbuildingmaterials.com
1. Type: Dow "Styrofoam" Type IV, 1.6 pcf minimum density, 25 psi compressive strength complying with ASTM C 578, R-value equal 5 per inch of thickness. Provide lengths and widths as required to coordinate with space insulated.
2. Perimeter foundation walls: Styrofoam SE, R-value indicated.

B. Glass fiber batt/blanket insulation: Owens Corning Corp., (800) 438-7465, internet www.owenscorning.com.
1. Type: Owens Corning " Thermal Batt" Type I unfaced glass fibers and binders formed into flexible blankets or batts complying with ASTM C665,. Provide lengths and widths required to coordinate with spaces insulated.
2. Exterior walls: Unfaced, R-value/thickness indicated

C. Vapor barrier membrane: Polyethylene, minimum 6 mils thick, complying with ASTM D 4397, maximum permeance rating of 0.13 perm.
1. Joint tape: Pressure sensitive tape designed for sealing joints and penetrations of above and below grade vapor barrier sheets.
2. Mounting tape: Double-faced pressure sensitive tape suitable for mounting vapor barriers to steel framing.

3.1 Installation:

A. General:
1. Install insulation in accordance with manufacturer's recommendations for conditions of installation indicated. Install insulation in single layer of required thickness over entire area to be insulated. Cut and fit tightly around obstructions. Fill all voids.
2. Install exterior wall insulation continuous behind electrical boxes, conduit, piping and ductwork.

B. Foundation perimeter walls and slabs:
1. Install rigid foam insulation vertically from top of slab to frost line or horizontally under slabs, extending a minimum 36" in from exterior walls.
2. Protect insulation from displacement and damage during backfilling and slab placement

C. Exterior Walls:
1. Install batt/blanket insulation full height at exterior wall framing. Use blanket widths and lengths that fill cavities formed by framing members and provide a friction fit between edges of insulation and metal framing members.
2. Provide galvanized wire mesh or metal strapping to provide supplementary support when required to maintain insulation in permanent proper location.

D. Vapor Barriers:
1. Install a single layer of vapor barrier membrane over the interior of exterior metal wall framing after installation of insulation. Secure with double faced tape at wall framing.
2. Provide single unspliced material height. Horizontal joints not acceptable. Minimize vertical joints. Lap vertical joints and secure in place with joints taped. Provide tape sealed contact with door frames, window frames, piping, conduit, ductwork, registers and the vapor barrier.
3. Seal all cuts and penetrations of vapor barrier membrane with tape before installing surface finishes.

SECTION 07240 -EXTERIOR INSULATION AND FINISH SYSTEM (PB)

1.1 General: Provide the exterior insulation and finish system (EIFS) as shown and specified.

A. Standards: Materials and construction shall conform to the following:
1. EIMA (EIFS Industry Members Association) Standards and Publications.
   a. 101.01, 101.02, 101.03, 101.86, 105.01, 200.02.
   b. EIMA "Guideline Specification for Expanded Polystyrene (EPS) Insulation board."

B. Quality Assurance:
1. System components:
   a. Produced by a single manufacturer or by manufacturers approved by the EIFS system manufacturer.
   b. Fire performance: Flame spread of 25 or less, smoke developed of 450 or less when tested in accordance with ASTM E84.
2. Installer Qualifications: Performed by the system manufacturer or an applicator trained and approved by the system manufacturer. During application, the work shall be inspected by system manufacturer's representative.

C. Environmental conditions: Comply with manufacturer's requirements. Do not install materials during wet or freezing weather.

2.1 Materials

A. Manufacturer: STO Corp., (800) 221-2397, internet www.stocorp.com

B. Exterior insulation and finish system: Sto Class PB "Essence NExt" EIFS.
1. Air/Moisture barrier: Sto Guard system.
   a. Sto Gold Fill Joint compound for rough opening protection, sheathing joints and inside and outside corners.
   b. Sto Guard Mesh: Coated glass fiber fabric reinforcing mesh.
   c. Sto Gold coat: Waterproof coating for wall sheathing.
2. Primer/adhesive and base coat: Sto Primer/Adhesive-B, one-component, polymer modified, cement -based factory blended primer/adhesive used to attach insulation board to prepared sheathing substrates and as a base coat in Essence claddings.
3. Insulation board: ASTM C578 Type 1, nominal 1.0 lb/ft^3 expanded polystyrene meeting EIMA Guideline specifications for EPS insulation board.
4. Finish coating: Sto Essence DPR, ready-mixed 100% acrylic-based, textured wall coating.
   a. Medium/Fine Sand Finish.
   b. Color as indicated on the Architectural drawings from manufacturer's full color range or match custom color.
5. System warranty: 10 year labor and material.

C. Portland cement: ASTM C150, Type I or II, white or gray in color.

D. Water: Clean, potable and free of foreign matter.

E. Reinforcing mesh: Sto open-weave glass fiber fabric with alkaline resistant coating.
1. Standard mesh: Sto Mesh, nominal 4.5 oz/yd^2 fabric.
2. Ultra-High impact mesh: Sto Armor Mat, nominal 15 oz/yd^2 ultra-high impact fabric.
3. Specialty mesh:
   a. Sto Detail Mesh, nominal 4.2 oz/yd^2 flexible, symmetrical, interlaced glass fiber fabric.
   b. Sto Corner Mat, nominal 7.8 oz/yd^2 pre-creased, heavy-duty, glass fiber fabric.

F. Joint sealants: Polyurethane base elastomeric joint sealant complying with ASTM C920 and Section 07900 requirements.
1. Adhesion: Evaluated in accordance with ASTM C1382.
2. Color: Matching EIFS finish coating color, and visually acceptable to the Architect.

G. Accessories: Provide plastic stops and trim where indicated. Materials shall be compatible with EIFS materials and acceptable to EIFS manufacturer.
1. Starter Track: Rigid PVC plastic track with weepholes and drip edge.

3.1 Mixing

A. Mix materials in accordance with manufacturer's published instructions.
1. Mix with a clean, rust-free high speed mixer to a uniform consistency.
2. No rapid binder, anti-freeze or accelerator additives permitted.

4.1 Installation

A. Preparation:
1. Coordinate installation of roofing membrane, windows, doors and other wall penetrations to provide a continuous exterior wall air/moisture barrier.
2. Coordinate installation of windows, doors and window and door flashing to provide a continuous exterior wall air/moisture barrier.
3. Install copings and joint sealants immediately after installation of the EIFS, when EIFS coatings are dry.

B. Installation: Install Sto Guard air/moisture barrier system and exterior insulation and finish system (EIFS) in strict accordance with manufacturer's installation instructions, complying with governing regulations and industry standards applicable to the work.
1. Back wrap exposed board edges with mesh.
2. Provide double wrap or corner mat reinforcing at all inside and outside corners.
3. Provide expansion joints in accordance with manufacturer's recommendations for type of substrates and systems required, and visually acceptable to the Architect.
4. Provide drainable starter track horizontal edge trim as base of wall, above windows and doors openings and beneath windows with concealed flashing.

C. Insulation and adhesive application:
1. Install insulation board with long edge horizontal using running bond pattern. Off set insulation joints with substrate joints. Stagger joints and interlock joints at corners.
2. Apply adhesive to insulation board with a stainless steel trowel notched trowel, providing vertical uniform ribbons of adhesive when board is installed. Mount insulation board on substrate. Level, align and tamp insulation in place. Provide uniform contact and bond with joints tightly butted. Rasp edges and high areas as required to produce a level, plane surface.

D. Base coat and reinforcing mesh application:
1. Apply detail mesh at corners of windows, doors, and all penetrations through the EIFS.
2. Standard mesh: Apply base coat over insulation board to a uniform 1/8 inch thickness, including high impact mesh where indicated. Embed standard reinforcing mesh into wet adhesive, lap edges at seams. Smooth surface until mesh is not visible. Allow to base coat to dry.
3. Ultra-High impact mesh: Apply base coat over insulation board to a uniform 1/8 inch thickness. Fully embed ultra-high impact reinforcing mesh into wet adhesive, butt edges at seams. Smooth surface until mesh is not visible. Allow to base coat to dry. Locate at 4'-0" wide perimeter of the rear service door to 6'-0" above grade and as indicated on Architectural drawings.

E. Apply finish coating continuously in one operation to the entire wall surface Provide a uniform finished appearance. Level and texture to the specified finish texture.

F. Install joint sealants at perimeter joints and joints within the system using elastomeric joint sealants, in accordance with drawing details and sealant manufacturer's recommendations.

SECTION 07250 - WEATHER BARRIERS

1.1 Section Includes

A. Weather barrier membrane
B. Seam Tape
C. Flashing
D. Fasteners

1.2 References

A. ASTM International
1. ASTM C920; Standard Specification for Elastomeric Joint Sealants
2. ASTM C1193; Standard Guide for Use of Joint Sealants
3. ASTM D882; Test Method for Tensile Properties of Thin Plastic Sheeting
4. ASTM D1117; Standard Guide for Evaluating Non-woven Fabrics
5. ASTM E84; Test Method for Surface Burning Characteristics of Building Materials
6. ASTM E96; Test Method for Water Vapor Transmission of Materials
7. ASTM E1677; Specification for Air Retarder Material or System for Framed Building Walls.
8. ASTM E2178; Test Method for Air Permeance of Building Materials

B. AATCC - American Association of Textile Chemists and Colorists
1. Test Method 127 Water Resistance: Hydrostatic Pressure Test

C. TAPPI
1. Test Method T-410; Grams or Paper and Paperboard (Weight per Unit Area)
2. Test Method T-460; Air Resistance (Gurley Hill Method)

1.3 Quality Assurance

A. Qualifications
1. Installer shall have experience with installation of commercial weather barrier assemblies under similar conditions.
2. Installation shall be in accordance with weather barrier manufacturer's installation guidelines and recommendations.
3. Source Limitations: Provide commercial weather barrier and accessory materials produced by single manufacturer.

1.4 Delivery, Storage and Handling

A. Refer to Section 01400 Quality Requirements.
B. Deliver weather barrier materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.
C. Store weather barrier materials as recommended by weather barrier manufacturer.

1.5 Scheduling

A. Review requirements for sequencing of installation of weather barrier assembly with installation of windows, doors, louvers and flashings to provide a weather-tight barrier assembly.
B. Schedule installation of weather barrier materials and exterior cladding within nine months of weather barrier assembly installation.

2.1 Manufacturer

A. DuPont Building Innovations; 4417 Lancaster Pike, Chestnut Run Plaza 721, Wilmington, D19805; 1.800.44TYVEK (8-9835); http://constructiontyvek.com

2.2 Materials

A. Basis of Design: Hi-performance, spunbonded polyolefin, non-woven, non perforated, weather barrier is based upon DuPont Tyvek CommercialWrap and related assembly components.

B. Performance Characteristics:
1. Air Penetration: 0.001 CFM/feet squared at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677.
2. Water Vapor Transmission: 28 perms, when tested in accordance with ASTM E96 Method B.
3. Water Penetration Resistance: 280 cm when tested in accordance with AATCC Test Method 127.
4. Basis Weight: 2.7 oz/yard squared, when tested in accordance with TAPPI Test Method T-410.
5. Air Resistance: Air infiltration at >1500 seconds, when tested in accordance with TAPPI Test Method T-460.
6. Tensile Strength: 38/35 lbs/inch, when tested in accordance with ASTM D882, Method A.
7. Tear Resistance: 12/10 lbs., when tested in accordance with ASTM D1117.
8. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 10, Smoke Developed: 10.

2.3 Accessories

A. Seam Tape: 3 inch wide, DuPont Tyvek Tape for commercial applications.

B. Fasteners:
1. For steel frame construction - DuPont Tyvek Wrap Cap Screws, as manufactured by DuPont Building Innovations: 1-5/8" rust resistant screw with 2-inch diameter plastic cap or manufacturer approved 1-1/4" or 2" metal gasketed washer.
2. For wood frame construction - Tyvek Wrap Caps, as manufactured by DuPont Building Innovations: #4 nails with large 1-inch plastic cap fasteners.
3. For masonry construction - masonry tap-con fasteners with Tyvek Wrap Caps as manufactured by DuPont Building Innovations: 2 inch diameter plastic cap fasteners.

C. Adhesives:
1. Provide adhesive recommended by weather barrier manufacturer.
2. Products:
   a. Liquid Nails LN-109
   b. Polyglaze SM 5700
   c. Denso Butyl Liquid
   d. 3M High Strength 90
   e. SIA 665
   f. Adhesives recommended by the weather barrier manufacturer.

D. Primers:
1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
2. Product:
   a. 3M High Strength 90
   b. Denso Butyl Spray
   c. SIA 655
   d. Permagrip 105
   e. ITW TACC Sta' Put SPH
   f. Primers recommended by the flashing manufacturer.

E. Flashing:
1. DuPont FlexWrap, as manufactured by DuPont Building Innovations: flexible membrane flashing materials for window openings and penetrations.
2. DuPont Straightflash, as manufactured by DuPont Building Innovations: straight flashing membrane materials for flashing windows and doors and sealing penetrations such as masonry ties, etc.
3. DuPont Straightflash VF, as manufactured by DuPont Building Innovations: dual-sided straight flashing membrane materials for brick mold and non-flanged windows and doors.

Consultant:

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3.1 Examination

A. Verify substrate and surface conditions are in accordance with weather barrier manufacturer recommended tolerances prior to installation of weather barrier and accessories.

3.2 Installation - Weather Barrier

A. Install weather barrier per regional requirements in accordance with manufacturer recommendations.
B Install weather barrier prior to installation of windows and doors.
C. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.
D. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather barrier plumb and level.
E. Sill Plate Interface: Extend lower edge of weather barrier over sill plate interface 3-6 inches. Secure to foundation with elastomeric sealant as recommended by weather barrier manufacturer.
F. Window and Door Openings: Extend weather barrier completely over openings.
G. Overlap weather barrier
1. Exterior corners: minimum 12 inches.
2. Seams: minimum 6 inches.
H. Weather barrier Attachment:
1. For steel or wood frame construction - Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12-18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.
2. For masonry construction - Attach weather barrier to masonry. Secure using weather barrier manufacturer recommended fasteners, spaced 12-18 inches vertically on center and 24 inches maximum horizontally. Weather barrier may be temporarily attached to masonry using recommended adhesive, placed in vertical strips spaced 24 inches on center, when coordinated on the project site.
I. Apply 4 inch by 7 inch piece of DuPont StraightFlash to weather barrier membrane prior to the installation cladding anchors.

3.3 Seaming

A. Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.
B. Seal any tears or cuts as recommended by weather barrier manufacturer.

3.4 Opening Preparation (for use with non-flanged windows - all cladding types)

A. Flush cut weather barrier at edge of sheathing around full perimeter of opening.
B. Cut a head flap at 45-degree angle in the weather barrier at window head to expose 8 inches of sheathing. Temporarily secure weather barrier flap away from sheathing with tape.

3.5 Flashing (for use with non-flanged windows - all cladding types)

A. Cut 9-inch wide DuPont FlexWrap a minimum of 12 inches longer than width of sill rough opening. Apply primer as required by manufacturer.
B. Cover horizontal sill by aligning DuPont FlexWrap edge within side edge of sill. Adhere to rough opening across sill and up jambs a minimum of 6 inches. Secure flashing tightly into corners by working in along the sill before a adhering up the jambs.
C. Fan DuPont FlexWrap at bottom corners onto face of wall. Firmly press into place. Mechanically fasten fanned edges.
D. Apply 9-inch wide strips of DuPont StraightFlash at jambs. Align flashing with interior edge of jamb framing. Start DuPont StraightFlash at head of opening and lap sill flashing down to the sill. Spray-apply primer to top 6 inches of jambs and exposed sheathing.
E. Install DuPont FlexWrap at opening head using same installation procedures used at sill. Overlap jamb flashing a minimum of 2 inches.
F. Coordinate flashing with window installation.
G. On exterior, install backer-rod in joint between window frame and flashed rough framing. Apply sealant at jambs and head. leaving sill unsealed. Apply sealants in accordance with sealant manufacturer's instructions and ASTM C 1193.
H. Position weather barrier head flap across head flashing. Adhere using 4-inch wide DuPont StraightFlash over the 45-degree seams.
I. Tape top of window in accordance with manufacturer recommendations.
J. On interior, install backer rod in joint between frame of window and flashed rough framing. Apply sealant around entire window to create air seal. Apply sealant in accordance with sealant manufacturer's instructions and ASTM C 1193.

3.6 Protection

A. Protect installed weather barrier from damage.

NOT USED

SECTION 07530 - ROOFING REPAIR

1.1 General: When penetration of the existing roofing system is required to accommodate new construction, perform necessary roofing system repair.

A. Coordination: Before starting work, verify with the Tenant's Construction Manager and the Owner the following:
1. Existing roof system materials and installation methods.
2. Repair work responsibilities and warranty requirements. To maintain original warranty, where provided use original roof contractor.

B. Qualifications: Repair work shall be performed only by an experienced roofing installer approved or licensed by the existing roofing system materials manufacturer; with not less than five years of successful experience installing and repairing roofing systems similar to this projects existing roofing system.

2.1 Materials:

A. Provide and install only materials approved and recommended by the roofing manufacturer for repairing the existing roofing system.

3.1 Installation:

A. Preparation: Inspect roof surface conditions with roof manufacturer's representative to verify extent and location of any other repairs required to ensure a watertight roofing system upon completion of the repair work.

B. Make necessary repairs. Match existing roof slope, insulation materials and roofing membrane materials, except as otherwise approved by the existing roofing system manufacturer to accommodate new construction and repair work.

C. Install curb flashing furnished by mechanical and electrical trades for new roof top equipment.

SECTION 07540 - THERMOPLASTIC MEMBRANE (PVC) ROOFING

1.1 General: Provide the thermoplastic membrane (PVC) roofing system as shown and specified.

A. Standards: Materials and construction shall conform to following:
1. ASTM D5036 "Application of Adhered Poly(Vinyl Chloride) Sheet Roofing."
2. FM 1-29 Loss Prevention Data Adhered or Mechanically Attached Single Ply Membrane Roof Systems."
3. NRCA "Single-Ply Roofing Membrane."
4. UL "790 - Tests for Fire Resistance of Roof Covering Materials."

B. Installer Qualifications: An experienced roofing installer approved by roofing system manufacturer and with not less than five years of successful experience installing membrane roofing systems similar to those required for this project.

C. Deliver, store and handle roof system materials in accordance with manufacturer's recommendations to avoid damage and deterioration.
1. Comply with manufacturer's recommendations for handling and protection during installation.

D. Install roofing work only when weather conditions are in compliance with manufacturer's specific environmental requirements and conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.
1. Protect adjacent materials and surfaces from damage and soiling during roofing system installation.
2. Provide special protection on completed roofing work.
3. Protect paving and structure walls adjacent to hoists before starting work.
4. Do not overload the building structure with storage of materials or installation equipment on the substrate decking.

E. Warranty
1. Contractor and roof system installer shall jointly warrant roofing materials and installation for a period of two years from the date of Substantial Completion. Warranty shall include roofing membrane, flashing, roof insulation, roofing accessories and sheet metal work provided under Section 07600.
2. Manufacturer's warranty: Submit executed copy of roofing system manufacturer's 15 year total system warranty, including labor and materials for the entire roof system. Including perimeter edge metal, Section 07600 Flashing & Sheet Metal

2.1 Materials

A. Manufacturer: Duro-Last Roofing, Inc, (614) 370-5569, Mike Suman, www.duro-last.com
B. Thermoplastic single ply membrane roofing system: DL Membrane (PVC) fully adhered, smooth surface, UL Class A fire-rated single ply membrane roofing system.
1. Thermoplastic membrane: DL Membrane, thermoplastic fiber reinforced PVC membrane, not less than 40 mils (.040), complying with ASTM D4434 and membrane manufacturer's published physical properties.
C. The roof covering design must resist a wind load of 100 mph, Exposure C and shall resist impact damage based on results of tests based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or FM 4470
1. Insulation cover board: Georgia-Pacific Corp. (800) 284-5347, internet www.gp.com, "Dens-Deck" nonstructural fiberglass- faced, silicone-treated gypsum core panels, 1/2"" thickness.
2. Roof insulation: Rigid closed cell polyisocyanurate boards approved by the membrane manufacturer; complying with ASTM C1289, Type II, minimum 20 psi compressive strength, aged R-value equal 5.6 per inch of thickness.
a. Provide a double layer installation. Minimum total R-value as indicated on plans.
b. Specified perimeter edge metal shall be compliant with International Building Code ANSI / SPRI ES-1, ER2 testing requirements.
3. Flashing: Roof system manufacturer's standard sheet flashing of same material, type, and color as sheet membrane. Specified perimeter edge metal will be compliant with International Building Code ANSI / SPRI ES-1, RE2 testing requirements.
4. Membrane Bonding Adhesive: Roof system manufacturer's standard membrane bonding adhesive.
5. Insulation and Cover Board Adhesive: Dow Chemical Company, (888) 868-1183, internet www.flexibeproducts.com, "INSTA-STIK Professional Roof Insulation Adhesive", a single component, moisture cured polyurethane adhesive.
6. Fasteners: Roof system manufacturer's standard fasteners for project conditions indicated.
7. Accessories: Roof system manufacturer's recommended pourable sealers, preformed penetration flashing, preformed corner flashing, seam caulk, termination bars and other accessories required for substrate surfaces and installation conditions indicated.
8. Traffic walkways: Duro-Last Roof Track II walkway pads.3.1 Installation

A. Preparation:
1. Clean substrate surfaces of debris and other substances detrimental to roofing installation.
2. Correct unsatisfactory conditions before starting roofing. Roof deck surface conditions shall comply with manufacturer's requirements and be acceptable to the roofing system installer.

B. Installation:
1. General: Provide roofing system materials and installation complying with roofing system manufacturer's instructions and governing codes and regulations.
a. Mix and apply roof insulation and cover board adhesive in strict accordance with the adhesive manufacturer's installation instructions. Dispense adhesive at manufacturer's recommended application rate using approved dispensing equipment.
2. Roof insulation.
a. Extend insulation full thickness over entire surface to be insulated. Cut and fit around obstructions; fill all voids with insulation. Provide saddles and tapered edges as required to provide positive proper drainage.
b. Install and secure in place with insulation adhesive, a double layer of insulation units of the required thickness. Run long joints of insulation in continuous straight lines, perpendicular to roof slope, with end joints staggered between rows. Stagger joints of each layer of insulation. Butt edges to moderate contact. Limit joints between adjacent units to maximum 1/4".
3. Insulation cover board: Install and secure in place with insulation adhesive a single layer of insulation cover board on installed roof insulation. Secure cover board in accordance with membrane manufacturer's recommendations. Stagger joints with joints of roof insulation.
4. Thermoplastic membrane: Comply with membrane manufacturer's instructions and recommendations for handling and installing single ply membrane roofing.
a. Unroll and position roofing sheet membrane without stretching. Align top sheet with pr-marked lines on bottom sheet. Allow membrane to "relax" for at least 30 minutes before adhering, splicing and flashing.
b. Adhere membrane to insulation cover board with bonding adhesive. Broom bonded membrane to achieve maximum contact.
c. Join membrane seams using approved heat welding equipment. Check all splices for voids and repair voids with heat gun and roller.
d. When required, mechanically fasten membrane at roof perimeter, curb flashing and similar penetrations in accordance with manufacturer's installation instructions.
e. Flash and make weathertight all equipment curbs, pipes, conduits, drains and other penetrations or projections through sheet roofing using roofing system manufacturer's recommended flashing materials, accessories and procedures.
5. Install roof accessories and traffic walkways in accordance with manufacturer's instructions.
6. Install sheet metal work furnished under section 07600.

SECTION 07600 - FLASHING AND SHEET METAL

General:

A. Standards: Materials and construction shall conform to following:
1. SMACNA "Architectural sheet Metal Manual- 1993."
B. Installation: Performed under Section 07540 work.

1.1 Pre-manufactured perimeter edge metal and accessories

Manufacturer: Duro-Last Roofing / Exceptional Metals, Inc, (800) 248-0280, Jason Dark, www.Duro-Last.com

A. Duro-Last / Exceptional Metals Snap Coping made of 24-gauge galvalume, cover provided with Kynar architectural finish providing a 35 year finish warranty. Meets ANSI/SPRI ES-1 2003 method RE-2 testing requirements. (Color - Refer to Exterior Elevations)
B. Duro-Last / Exceptional Metals Vinyl backed scupper. Scupper profile & size indicated Fig 1-20.

1.2 General: Miscellaneous sheet metal

A. Standards: Materials and construction shall conform to following:
1. SMACNA "Architectural sheet Metal Manual- 1993."
B. Installation: Performed under Section 07540 work.

2.1 Materials:

A. Galvanized steel: ASTM A653 commercial quality sheet steel with 0.2% copper, G90 hot-dip galvanized. Gage indicated.
1. Scuppers: Minimum 16 gage.
2. Coping/Wall caps: Minimum 18 gage.
B. Aluminum sheet: ASTM B209 alloy 3003, temper as required for forming and performance. Thickness indicated.
1. Conductor Boxes: Minimum 0.040"thickness.
2. Downspouts: Minimum 0.025"thickness.
C. Joint sealers: One-component silicone elastomeric joint sealant complying with ASTM C920. Color matched to sheet metal finish.
D. Metal accessories: Provide sheet metal fasteners, clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material installed, non-corrosive, size and gage as required for performance and acceptable to the Architect.
E. Fabrication: Shop fabricate sheet metal work to comply with profiles and sizes indicated and to comply with standard industry standards as shown by SMACNA in the "Architectural Sheet Metal Manual."
1. Conductor boxes: SMACNA Chapter 1 - Roof Drainage Systems. Profile and size indicated Fig 1-25.
2. Scuppers: SMACNA Chapter 1 - Roof Drainage Systems. Profile and size indicated Fig 1-20.
3. Downspouts: SMACNA Chapter 1 - Roof Drainage Systems. Profile and size indicated. Installation Fig. 1-31 with strap hanger Fig. 1-35.
4. Formed coping/wall caps: SMACNA Chapter 3 - Copings. Design Fig 3-1. Profile and size indicated with Fig. 3-3 butt joints and concealed back-up plates. Install formed copings with continuous cleat fasteners similar to Fig 3-1 at exposed face and screw fasteners with washers space maximum 24" on center at roof side.

3.1 Installation:

A. Preparation: Coordinate sheet metal work with other work for the correct sequencing of items which make up the entire roof system of weatherproofing and rain drainage:
B. Installation: Comply with SMACNA "Architectural Sheet Metal Manual" recommendations, drawing details and approved shop drawings for installation of the work.
1. Anchor sheet metal items securely in place by methods indicated, providing for thermal expansion. Conceal fasteners and expansion provisions whenever possible. Install joint sealants where required.
2. Set units true to lines and levels indicated. Install work with sealed laps, joints and seams that will be permanently watertight and weatherproof. Bed flanges of sheet metal work in thick coat of roofing cement or sealant compatible with roofing membrane.
3. Separate sheet metal work from dissimilar metals and treated wood materials. Provide rosin-sized paper slipsheet over treated wood.
4. Fabricate, support and anchor conductor boxes and downspouts to withstand thermal expansion, stresses and full loading by ice or water without damage, deterioration or leakage.

SECTION 076113 - SHEET METAL WALL PANELS

1.1 General:

A. Standards:
1. Furnish all labor, material, tools, equipment and services for all preformed fascia and wall panels as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

B. Related work specified elsewhere:

1. Structural steel: Section 05100
2. Steel joists: Section 05200 or 05400
3. Flashing and sheet metal: Section 07600

1.2 Quality Assurance:

A. Applicable standards:
1. SMACNA: "Architectural Sheet Metal Manual" Sheet Metal and Air Conditioning Contractors National Association, Inc.
2. AISC:"Steel Construction Manual" American Institute of Steel Construction.
3. AISI: "Cold Form Steel Design Manual: American Iron and Steel Institute.
4. ASTM A792-83-AZ50: Specifications for steel sheet, aluminum-zinc alloy coated (galvanized) by the hot dip process, general requirements (Galvalume).

B. Manufacturer's qualifications:
1. Manufacturer has a minimum of three years experience in manufacturing metal wall systems of this nature. Panels specified in this section shall be produced in a factory environment (not job site roll formed) with fixed base roll forming equipment assuring the highest level of quality control. A letter from the manufacturer certifying compliance will accompany the product material submittals.

1.3 Product Delivery, Storage and Handling

A. Delivery: Deliver metal wall system to job site properly packaged to provide protection against transportation damage.
B. Handling: Exercise extreme care in unloading, storing and erecting metal wall system to prevent bending, warping, twisting and surface damage.
C. Storage: Store all materials and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation of metal wall system to prevent condensation build up between each panel or trim/ flashing component.

2.1 Materials

A. Metal wall system profile:
1. Shadow Rib: 3 inch deep x 16 inch width with 1 1/2 inch deep x 5 1/4 inch wide fluting
B. Metal wall system style:
1. Fluted face
2. Concealed fasteners
C. Gauge: 24 gauge
D. Substrate: Per Plans
E. Texture: Smooth
F. Finish: Premium thermoset silicone polyester (20 year warranty)
G. Color: Polar White, to be painted per Exterior Elevations
H. Acceptable Manufacturer: MBCI Houston, Texas (281) 445-8555.

3.1 Surface Conditions

A. Examination:
1. Inspect installed work of other trades and verify that such work is complete to a point where this work may continue.
2. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions.

3.2 Installation

A. Install metal wall system system so that it is weathertight, without waves, warps, buckles, fastening stresses or distortion.
B. Install metal wall system in accordance with manufacturer's instructions and shop drawings.
C. Provide concealed anchors at all panel attachment locations.
D. Install panels plumb, level and straight with seams parallel, conforming to design as indicated.

3.3 Cleaning, Protection

A. Dispose of excess materials and remove debris from site.
B. Clean work in accordance with manufacturer's recommendations.
C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the architect and work that becomes damaged prior to final acceptance.
D. Touch up minor scratches and abrasions.

3.4 Field Painting

A. Refer to section 09900 on G017
B. Follow manufacturer's technical bulletin for Precoated Signature 200 MBCI wall panels.

SECTION 07720 - ROOF SCUTTLE & LADDER SAFETY POST

1.1 General: Provide roof scuttle and safety post as shown & specified.

A. Coordination: Before starting work, verify with the Tenant's Construction Manager and the Owner the following:
1. Verify that other trades with related work are complete before installing roof scuttle(s).
2. Mounting surfaces shall be straight and secure; substrates shall be of proper width.
3. Refer to the construction documents, shop drawings, and manufacturer's installation instructions.
4. Coordinate installation with roof membrane and roof insulation manufacturer's instructions before starting.

2.1 Materials:

A. Manufacturer: The Bilco Company, (203) 934-6363, internet www.bilco.com or approved equal.
1. Roof Scuttle: Type S-50 metal roof scuttle, size 3'-0" width x 2'-6" length (length denotes hinge side). The roof scuttle shall be single leaf and come pre-assembled from the manufacturer. Factory finish shall be mill finish aluminum.
2. Safety Post: Model 4 ladder safety post. The ladder safety post shall come pre-assembled from the manufacturer. Factory finish shall be mill finish aluminum.

3.1 Installation:

A. Verify that roof scuttle & ladder safety post installation will not disrupt other trades. Verify that the substrate is dry, clean, and free of foreign matter. Report and correct defects prior to any installation.

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Section 07900 – JOINT SEALERS

1.1 General: Provide joint sealers as shown and specified.

A. Standards:Comply with ASTM C 920 requirements.

B. Application: Performed by skilled, experienced joint sealer applicators.

2.1 Materials:

A. Poly urethane sealants:
1. Tremco Commercial Sealants (800) 321-7906, internet www.tremcosealants.com,
   a. "Dymonic FC" One component, fast skinning, Low Modulus Polyurethane.
   b. "Dymeric 240 FC" Multi Component, gun grade, chemically curing, tintable fast setting polyurethane sealant.
2. Sonneborn, (724) 756-9582, internet www.sonneborn.com
   a. Color pack for polyurethane multi component, gun grade chemically curing sealant.

B. Silicone Sealants:
1. General Electric Silicones, (800) 295-2392, internet www.gesilicones.com
   a. "SCS1700 Sanitary – Mold/Mildew Resistant Silicone", one component 100% silicone, fungicidal based sealant.
   b. "SCS2700 Silpruf Silicone" one component medium modulus, natural cure silicone all purpose sealant.
   c. "Silglaze II SCS2800- Glazing Sealant" one component, 100% silicone based sealer.
   d. "GE Paintable Silicone" one component paintable silicone.
   e. "SCS1009 Silicone Sealant" one-component acetoxy silicone for general purpose sealing and bonding
2. Dow Corning Silicones, (989)496-4000, www.dowcorning.com
   a. "Dow 795" – one component, medium modulus, natural cure silicone.

C. Firestopping Sealants: 3M Fire Protection Products, (800) 328-1687, internet www.3M.com/firstop
1. "3M Fire Barrier CP 25WB+ Caulk" or approved equal

D. Joint backing: Non-absorptive, non-staining compressible, non-gassing, polyethylene foam backer rod compatible with joint sealants.

3.1 Installation:

A. Preparation: Clean and prepare joints prior to installing sealers:
1. Wipe shipping oils from surfaces to be sealed. Remove protective films and/or install joint backer rod if joint is larger than ¼" in width.

B. Installation: Install joint sealant materials in strict accordance with manufacturer's installation instructions.
1. Apply sealants in a uniform, continuous bead without gaps or air pockets. Hand tool and finish all joints so that a smooth, small, lip free uniform line is created along the substrate being shot. Remove any excess materials from tooled edges and ends of joint.
2. Install joint sealants to a depth no more than ½ the width of the joint.
3. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
4. Immediately, after sealant application, and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
5. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

4.1 Sealant Schedule:

A. Kitchen Area:
- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Base of FRP wall panels
  2. Base of FRP wall panels to T.O. specified base material.
  3. Walk in cooler walls to FRP wall panels.
  4. Stainless closure pieces at cooler walls to FRP wall panels.
  5. FRP/stainless corner guards to FRP wall panels.
  6. Ceiling tile pipe penetrations.
  7. Wall pipe penetrations and/or escutcheons perimeters. (water & gas lines).
  8. Mop sink stainless surround perimeter to walls.
  9. FRP closure panel, at top of cooler, to cooler walls.
  10. FRP wall panels to hollow metal door frames.
  11. Coke line bundle to PVC cap.
  12. FRP inside corner pieces to FRP wall panels. Both sides of corner piece.
  13. Battery backup cover panel to FRP.
  14. Faucet's to FRP wall panels.
  15. FRP wall panels to quarry tile cove base.
  16. FRP to aluminum plate at walk thru.
  17. Menu board light bracket to ceiling.
  18. Mop sink base at quarry tile.
  19. All sinks (multi-compartment, hand, mop and prep) to FRP/tile walls.
  20. Paper towel dispensers & soap dispensers to FRP/tile walls.

- Provide a continuous bead of aluminum GE SCS1009 silicone at the following locations:
  1. Stainless closer pieces, at sides of cooler walls - to cooler walls.
  2. Stainless or aluminum plate closure pieces to diamond plate at cooler walls.
  3. Diamond plate panel seam joints.
  4. Diamond plate perimeter to cooler walls.
  5. Base of diamond plate to quarry tile cove base.
  6. Stainless closure panel, at top of cooler walls, to cooler walls.
  7. Top of quarry tile cove base to cooler walls at inside of cooler.
  8. Cooler wall/diamond plate penetrations.
  9. Cooler door hinges and handles to diamond plate. DO NOT caulk door locking unit.
  10. Stainless wrap at hollow metal door frame.
  11. Stainless mop surround to stainless corners on mop sink.
  12. Base of stainless corner pieces to schlutter strip at base.
  13. Exit door threshold perimeters. To frame and floor, interior and exterior.

- Provide a continuous bead of dark gray GE SCS2000 silicone at the following locations:
  1. Base of hollow metal door jambs to quarry tile floor.

B. Managers Office:
- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Ceiling grid to FRP wall panels.
  2. Perimeter of manager's desk to FRP wall panels.
  3. Hollow metal door frame to FRP wall panels.
  4. Top and ends of coat hanger bracket to FRP walls.
  5. Base of FRP wall panels to quarry tile base.
  6. Ceiling tile wire/pipe penetrations.
  7. FRP inside corners to FRP wall panels. Both sides of corner piece.
  8. Base of FRP wall panels to quarry tile.

- Provide a continuous bead of black or light bronze (use color of safe) GE SCS2000 silicone at the following locations:
  1. Base of safe to floor.

C. Cooking Area:
- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Top of wall tile to sheetrock ceiling.
  2. Ceiling diffusers perimeters to sheetrock ceiling.
  3. Ceiling pipe penetrations.
  4. Wall tile to aluminum walk thru surround.
  5. Tile wall penetrations/escutcheons perimeters.
  6. FRP wall panels to sheetrock ceilings.
  7. FRP wall panels to aluminum end wall plates.
  8. FRP inside corners to FRP wall panels. Both sides of corner piece.
  9. Sink to white wall tile.
  10. Paper towel dispenser/soap dispenser to white tile.
  11. POS/Serving counter to wall tile.
  12. Stainless shelf behind grill to wall tile.
  13. Faucets to ceramic wall tile.

NOT USED

- Provide a continuous bead of aluminum GE SCS1009 silicone at the following locations:
  1. Joint between hood and closure skirt.
  2. Joint between hood support and hood. Both sides.
  3. Connection joint between stainless shelf behind grill.
  4. Hood to tile walls & sheetrock ceiling.
  5. Hood gusset to wall tile on both sides.
  6. Sink to bronze wall tile.
  7. Paper towl dispenser/soap dispenser to bronze tile.
  8. DML counter to bronze tile.

- Provide a continuous bead of dark gray GE SCS2000 at the following locations:
  1. Base of equipment to concrete curbs/quarry tile.

- Provide a continuous bead of light bronze GE SCS2096 at the following locations:
  1. Ceramic tile inside corners.
  2. Ceramic tile to aluminum end wall plates.

D. Restrooms:
- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Top of FRP to sheetrock ceiling or top of FRP trim to sheetrock wall.
  2. Perimeter of toilets/urinals to floor or FRP.
  3. Perimeter of mirror to FRP.
  4. Sink to wall.
  5. Perimeter of paper towel/garbage unit to wall.
  6. Toilet paper/napkin disposals units to walls.
  7. Stainless shelf to wall.
  8. Wall penetrations under sink and or escutcheons to perimeters.
  9. Hollow metal door frames to FRP.
  10. Base of FRP wall panels to top of wall base.
  11. FRP inside corners to FRP wall panels.

- Provide a continuous bead of black GE SCS2000 silicone at the following locations:
  1. Base of black rubber wall base to floor.

- Provide a continuous bead of dark gray GE SCS2000 silicone at the following locations:
  1. Base of hollow metal door frames to floor.

E. Dining area:
- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Wall tile to sheetrock walls.
  2. Perimeter of aluminum storefront/windows/entrances to sheetrock walls.
  3. Wainscot wall panels (Stonewood or other) to painted walls.
  4. Diffuser/louvers perimeters to sheetrock walls.
  5. Hollow metal door frames to painted walls - if needed.
  6. Frame of service line counter to tile (joint to be caulked behind front face panels of counter).
  7. Wall tile at serving line wall to POS counter.

- Provide a continuous bead of black GE SCS2000 silicone at the following locations:
  1. Base of black rubber to floor (concrete or quarry tile) and gyp. bd. wall.
  2. Wainscot (Stonewood or other) wall panels to sill of aluminum storefront/ windows.
  3. Vertical joints of wainscot (Stonewood or other) wall panels to frames/painted walls/tile (ONLY if joint is uneven or plywood is showing).
  4. Stonewood panels at serve line.

- Provide a continuous bead of aluminum GE SCS1009 silicone at the following locations:
  1. Base of garbage surround to floor.

- Provide a continuous bead of Dow 795 silicone at the following locations:
  1. Sill of aluminum storefronts to concrete or tile floor. Color to be determined per store to match storefront (Charcoal/Anodized Aluminum/Dark Bronze).

F. Utensil Counter:
- Provide a continuous bead of aluminum GE SCS1009 silicone at the following locations:
  1. Stainless countertop to backsplash. Horizontal & vertical joints.
  2. Base of Coke machine to countertop.
  3. Perimeter of tea drain tray to countertop.
  4. Stainless backsplash to white tile walls/painted walls.

- Provide a continuous bead of white GE SCS1700 silicone at the following locations:
  1. Coke line bundle to PVC cap.

G. Fire Rated Walls:
- Provide a continuous bead of 3M 25WB+ at wall/ceiling penetrations in rated walls.

H. Exterior Joints:
- Provide a continuous bead of Tremco Dymeric limestone urethane sealant at the following locations:
  1. Sidewalk/concrete expansion joints.

- Provide a continuous bead of Dow 795 silicone or Tremco Dymeric 240 FC at the following locations:
  1. Hollow metal door frames.
  2. EIFS to abutting services.
  3. Penetrations in EIFS.
  4. Face brick or block control joints.
  5. Perimeter of Aluminum Storefronts.
  *Colors to be determined per store to match adjacent material colors. Verify with Chipotle Construction Manager and Architect.
  - For "Fog" EIFS use Tremco - "Natural White"
  - For "Knight's Armor" EIFS use Sonneborn - "Charcoal Gray" #276-U
  - For white brick use Tremco - "China White"
- Provide a continuous bead of aluminum GE SCS1009 silicone at the following location:
  1. CO2 fill port stainless box.
  2. Faucet for hose. (Please note: color to be determined per store. Verify with Chipotle Construction Manager and Architect).

DIVISION 8 - DOORS AND WINDOWS

SECTION 08110 - STEEL DOORS AND FRAMES

1.1 General: Tenant to provide steel doors and frames as shown and specified.

A. Standards: Materials and construction shall conform to the following:
1. ANSI A250.8-2009 "Specifications for Standard Steel Doors and Frames."
2. ANSI A250.11-01 "Erection Instructions for Steel Frames."
3. SDI 122-99 " Installation for Standard Steel doors and Frames.

B. Manufacturer: A member of the Steel Door Institute (SDI).

2.1 Materials:

A. Steel Doors:
1. Interior: Heavy-duty Level 2, physical performance B, Model 2 seamless construction, ASTM A1008, 18 gage cold-rolled steel face sheets, manufacturer's standard core.

2. Exterior: Extra heavy-duty Level 3, physical performance A, Model 2 seamless construction, ASTM A1008, 16 gage cold-rolled steel face sheets; tops and bottoms closed with flush galvanized steel caps, manufacturer's standard plastic foam insulating core.

B. Steel Frames: ASTM A1008, 16 gage cold-rolled steel.
1. Provide combination buck, jamb and trim type frames for 1-3/4" thick doors, unless otherwise indicated.
2. Interior and exterior frames: Set-up welded type with mitered corners, reinforced, fully seam welded with exposed welds ground smooth.

C. Door and frame fabrication:
1. Provide cutouts for mortised hardware, accurately located and made to fit hardware. Provide closer reinforcement for all doors with surface mounted door closers.
2. Punch frames and factory install rubber door silencers.
3. Provide minimum three anchors of suitable design for each jamb.
4. Provide floor clip on bottom of each jamb. Provide angle spreaders at bottom of each set-up frame.

D. Shop painting: Clean and paint exposed surfaces of steel door and frame units. Apply one baked-on shop coat of rust-inhibitive prime paint in accordance with ANSI A250.10, unless doors and frames are used at the restrooms or as indicated on door hardware and finish schedule. Provide a uniformly finished surface ready to receive finish paint.

3.1 Installation:

A. Install frames plumb, level, rigid, and in true alignment as recommended in ANSI A250.11.

B. Install doors plumb and in true alignment and fastened to achieve the maximum operational effectiveness and appearance as recommended in SDI 122.

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

1.1 General: Provide aluminum entrances and storefronts as shown and specified.

1.2 Related Documents:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.

B. Standards: Materials and construction shall conform to the following:
1. AAMA SFM-1-87 "Aluminum Storefront and Entrance Manual."

1.3 Summary:

A. Section Includes:
1. Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
   a. Types of Kawneer Aluminum Storefront include:
      (1.) Trifab 601T Storefront System - 2" x 6" nominal dimension; Thermal; Center-Set
      (2.) Trifab VG 451T Storefront System - 2" x 4-1/2" nominal dimension; Thermal; Front-Set

2. Kawneer Aluminum Entrances, glass and glazing, and components
   a. Types of Kawneer Aluminum Entrances include:
      (1.) 500 Swing Door; Wide stile, 5" vertical face dimension, 1-3/4" depth, high traffic applications or as indicated on Drawings.

3. Kawneer Tube for Feature Exterior Slat Wall

4. Alternate Storefront Systems only when approved by Arch PM and Chipotle DM.
   a. YKK
      (1.) YES 60 TU Storefront System - 2" x 6" nominal dimension; Thermal
      (2.) YES 45 TU Storefront System - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
   b. Oldcastle
      (1.) Series 6000XT Storefront System - 2" x 6" nominal dimension; Thermal
      (2.) Series 3000 Thermal MultiPlane Storefront System - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
   c. US Aluminum
      (1.) Series FT601 - 2" x 6" nominal dimension; Thermal
      (2.) Series FT451 - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
   d. EFCO
      (1.) Series 406 (T) Storefront System - 2" x 6-1/2" nominal dimension; Thermal
      (2.) Series 403 (T) Storefront System - 2" x 4-1/2" nominal dimension; Thermal
   e. Wausau
      (1.) TU24650 Storefront System - 2" x 6-1/2" nominal dimension; Thermal
      (2.) TU24000 Storefront System - 2" x 4-1/2" nominal dimension; Thermal

1.4 Performance Requirements:

A. General Performance: Aluminum-framed storefront system shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction;
1. Design Wind Loads: Determine design wind loads applicable to the Project from basic wind speed indicated in miles per hour, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
   a. Basic Wind Speed (MPH): Determine to meet local codes listed on A000
   b. Importance Factor: (1.00)
   c. Exposure Category (A, B, C, D): Determine to meet local codes listed on A000

B. Storefront System Performance Requirements:
1. Wind loads: Provide storefront system; include anchorage, capable of withstanding inward and outward wind load design pressures meeting local codes listed on sheet A000.
2. Air Infiltration:
   a. Air Infiltration for storefront frame system: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft. sq. at a static air pressure differential of 6.24 psf.
   b. Air Infiltration for storefront entrances: For single acting offset pivot or butt hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E 283 at a pressure differential of 6.24 psf (300 Pa) for single doors and 1.567 psf (75 PA) for pairs of doors. A single 3'0" x 7'0" entrance door and frame shall not exceed 0.50 cfm per square foot. A pair of 6'0" x 7'0" entrance doors and frame shall not exceed 1.0 cfm per square foot.
3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf as defined in AAMA 501.
4. Uniform Load: A static air design load of 20 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no defection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
5. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall be not more than:
   a. Glass to Exterior - 0.47 (low-e)
6. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
   a. Glass to Exterior - 70 frame and 69 glass (low-e)
7. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC): When tested to AAMA Specification 1801 and in accordance with ASTM E1425 and ASTM E90, the STC and OITC Rating shall not be less than:
   a. Glass to Exterior - 38 (STC) and 31 (OITC)

1.5 Submittals:

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum frame storefront system and storefront entrance doors indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to work, operational clearances and installation details.

C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color section.

1.6 Quality Assurance

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope

B. Manufacturer Qualifications: A manufacturer capable of providing aluminum framed storefront system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of rest reports, and calculations.

C. Source Limitations: Obtain aluminum framed storefront system and storefront entrance doors through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum framed storefront system and are based on the specific system indicated. Do not modify size and dimensional requirements.
1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.7 Project Conditions:

A. Field Measurements: Verify actual dimensions of a aluminum framed storefront openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 Warranty

A. Manufactures Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

2.1 Manufacturers:

A. Manufacturer: Kawneer Company Inc., Contact: Cheryl Wilkerson, Phone: 317-771-9263; email:cheryl.wilkerson@arconic.com

1. Basis-of-Design Product Storefront Framing:
   a. Trifab 601T (thermal) Storefront System
      i. 2" x 6" System Dimensions
      ii. Glass: Exterior (Center-Set)
   b. Trifab 451T (thermal) Storefront System
      i. 2" x 4-1/2" System Dimensions
      ii. Glass: Exterior (Front-Set)

2. Basis-of-Design Product Storefront Entrances:
   a. The door stile and rail face dimensions of the 500-Wide Stile entrance door will be as follows or as indicated on Drawings: Door: 500; Vertical Stile: 5"; Top Rail: 5"; Bottom Rail: 10"
   b. Major portions of the door members to be 0.125" nominal in thickness and glazing molding to be 0.05" thick.
   c. Glazing gaskets shall be either EPDM elastometric extrusions or a thermoplastic elastomer.
   d. Provide adjustable glass jacks to help center the glass in the door opening.

3. Basis-of-Design Product Feature Exterior Slat Wall:
   a. Kawneer Tube #027881 (1" x 3"), capped at top and bottom

B. Alternate Storefront Systems only when approved by Arch PM and Chipotle DM.
1. YKK
   a. YES 60 TU Storefront System - 2" x 6" nominal dimension; Thermal
   b. YES 45 TU Storefront System - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
2. Oldcastle
   a. Series 6000XT Storefront System - 2" x 6" nominal dimension; Thermal
   b. Series 3000 Thermal MultiPlane Storefront System - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
3. US Aluminum
   a. Series FT601 - 2" x 6" nominal dimension; Thermal
   b. Series FT451 - 2" x 4-1/2" nominal dimension; Thermal; Front-Set
4. EFCO
   a. Series 406 (T) Storefront System - 2" x 6-1/2" nominal dimension; Thermal
   b. Series 403 (T) Storefront System - 2" x 4-1/2" nominal dimension; Thermal
5. Wausau
   a. TU24650 Storefront System - 2" x 6-1/2" nominal dimension; Thermal
   b. TU24000 Storefront System - 2" x 4-1/2" nominal dimension; Thermal

2.2 Materials:

A. Provide aluminum entrances and storefront matching the existing building aluminum entrances and storefronts, unless otherwise indicated.

B. Aluminum Frame Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6 alloy and temper.

C. Aluminum Storefront Entrance Extrusions:Alloy and temper recommended by aluminum-framed glass door manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.090" wall thickness at any location for the main frame and sash members.

D. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window and door members, trim hardware, anchors, and other components.

E. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions, or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

F. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

G. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

H. Tolerances: Reference to tolerances for wall thickness and other cross-section dimensions of storefront members are nominal and in compliance with AA Aluminum Standard Data.

2.3 Storefront Framing System:

A. Thermal Barrier: Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.
1. Kawneer IsoLock Thermal Break with a 1/4" separation consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bearing fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.

D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 Glazing Systems:

A. Glazing: As specified in Section 08800 - Glazing.

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
1. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.
   a. Color: Black
2. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
   a. Color: Matching structural sealant.

2.5 Entrance Door Systems:

A. Entrance Door Hardware: As specified in Section 08710 Door Hardware.

2.6 Accessory Materials:

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in section 07900 - Joint Sealers

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Contents:
ARCHITECTURAL SPECIFICATIONS

G014

2.7 Storefront Framing Fabrication:

A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fit joints; make joints flush, hairline and weatherproof.
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

B. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

C. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

D. Storefront Framing: Fabricate components for assembly using manufacturers standard installation instructions.

E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 Storefront Entrance Door Fabrication:

A. Fabricate aluminum-framed glass entrance doors in sizes indicated. Include a complete system for assembling components and anchoring doors.

B. Fabricate aluminum-framed glass doors that are reglazable without dismantling perimeter framing.
1. Door corner construction shall consist of mechanical clip fastening, SIGMA deep penetration plug welds and 1-1/8" long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with EPDM glazing gaskets reinforced with non-stretchable cord.
2. Accurately fit and secure joints and corners. Make joints hairline in appearance.
3. Prepare components with internal reinforcement for door hardware.
4. Arrange fasteners and attachments to conceal from view.

C. Weather Stripping: Provide weather stripping locked into extruded grooves in door panels or frames as indicated on manufactures drawings and details.

2.9 Aluminum Finishes:

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:
1. Kawneer Permafluor (70% PVDF), AAMA 2605, Fluoropolymer Coating (Color: Charcoal or as noted on Drawings)
2. Finishing for alternate storefront specifications to be verified by Arch PM and Chipotle DM
   a. YKK "Charcoal" UC99477, Superior Painted Finishes
   b. All others to be verified with samples and submittals to Arch PM

2.10 Brake Metal Trim:

A. Shop Drawings: Show layout and elevations, dimensions and thickness of panels, connections, details and location of joints, sealants and gaskets, method of anchorage, number of anchors, supports, reinforcement, trim, flashings, and accessories.
1. Show actual field measurements on shop drawings.
2. Differentiate between shop and field fabrication.
3. Indicate substrates and adjacent work with which the fabrications must be coordinated.
4. Include large-scale details of anchorages and connecting elements.
5. Include large-scale or schematic exploded or isometric diagrams to fully explain flashing at a scale of not less than 1-1/2 inches per 12 inches (1:10)

2.11 Formed Metal Fabrications - General:

A. Shop assembly: Preassemble items to greatest extent possible. Minimize field splices and field assembly. Disassemble only as necessary for transportation and handling. Mark items clearly for assembly and installation.

B. Coordinaton: Match dimensions and attachement of formed metal items to adjacent construction. Produce integrated assembles. Closely fit joints; align edges and flat surfaces unless indicated otherwise.

C. Forming: Profiles indicated. Maximize lenghts. Fold exposed edges to form hem indicated or ease edges to radius indicated with cocealed stiffener. Provide flat, flush surfaces without cracking or grain seperation at bends.

D. Reinforcement: Increase metal thickness; use concealed stiffeners, backing materials or both. Provide stretcher leveled standard of flatness and stiffness required to maintain flatness and hold adjacent items in flush alignment.

E. Anchors: Straps, plates and anchors as required to support and anchor items to adjacent construction.

F. Supports: Miscellaneous framing, mounting, clips, sleeves, fasteners and accessories required for installation.

G. Welding and brazing: Weld or braze joints continuously. Grind smooth, fill or dress to produce smooth, flush, exposed surfaces. Do not discolor metal. Grind Smooth, polish, and restore damaged finishes to required condition.
1. Ease exposed edges to small uniform radius.
2. Welded joints.
   a. Carbon Steel: Perform welding in accordance with AWS D1.1/D1.1M.
   b. Stainless Steel: Perform welding in accordance with AWS D1.6/D1.6M
3. Brass/Bronze Brazed Joints:
   a. Perform torch brazing in accordance with AWS C3.4M/C3.4
   b. Perform induction brazing in accordance with AWS C3.5M/C3.5
   c. Perform resistance brazing in accordance with AWS C3.9M/C3.9

H. Performance requirements;
1. Thermal Movements:
   a. Allow for thermal movements in exterior metal fabrications due to temperature changes. Prevent buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
   b. Temperature Change Range: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), on material surfaces.
2. Corrosion: Prevent galvanic action and other forms of corrosion by isolating metals and other materials from direct contact with incompatible materials.

2.12 Formed Metal Fabrications - Sheet Metal

A. Closures, Trim, and Fill Panels:
1. Form Closures from type and thickness of metal indicated.
2. Conceal fasteners when possible.
3. Drill and tap holes for securing to other surfaces.
4. Provide gaskets where indicated or needed for continuous seal at adjacent surfaces.
5. Miter or cope at corners and reinforce with bent metal plate. Form tigh joints.

2.13 Materials

A. Genaral: Provide sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections exposed to view on finished units.
B. Galvanized Steel Sheet: ASTM A653/A653M, G90 (Z275) coating. 14 gauge min. thick base material.
C. Anchors, Clips, and Accessories: Use one of the following:
1. Stainless steel complying with ASTM A276/A276M, ASTM A480/A480M, or ASTM A666.
2. Steel complying with ASTM A36/A36M and hot-dipped galvanized to ASTM A153/A153M.
3. Steel complying with ASTM A36/A36M and hot-dipped galvenized to ASTM A123/A123M Coating Grade 35
4. Interior locations: Carbon steel; zinc coated in accordance with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5.
5. Exterior Locations or in contact with Stainless Steel:
   a. Bolts: Stainless steel; ASTM F593, Group 1 (A1)
   b. Nuts: Stainless steel; ASTM F594.
6. Structural Anchors: Provide anchors where work is indicated to comply with design loads.
   a. Type: Provide chemical or torque controled expansion anchors.
   b. Capacity: When tested according to ASTM E488/E488M; four times the load imposed when installed in concrete.
7. Nonstructural Anchors: Provide powder-actuated fasteners where work is not indicated to comply wit design loads. Provide size and number required for load, installation, and as recommended by manufacturer, unless indicated otherwise.
D. Fasteners, General: Same basic metal and alloy as formed metal sheet unless indicated otherwise. Do not use metals incompatible with the materials joined.
E. Gaskets: As required to seal joints in decorative formed metal and remain airtight; as recommended in writing by decorative formed metal manufacturer.

2.14 Finishes

A. Finishes, General: Comply with NAAMM AMP 500-06
1. Complete mechanical finishes befor fabrication. After fabrication, finish joints, bends, abrasions and surface blemishes to match sheet.
2. Protect mechanical finishes on exposed surfaces from damage.
3. Apply organic and anodic finishes to formed metal after fabrication unless indicated otherwise.
4. Appearance: Limit variations in appearance of adjacent to one-half the range represented in approved samples. noticeable variations in the same piece are not acceptable. Install components in the range of approved samples to minimize contrast.
B. Galvanized Steel Finishes:
1. Repair Galvanized Surfaces: Clean welds and abraded areas and repair galvanizing to comply with ASTM A780/A780M
2. Color: As shown on the drawings.
3. Factory Prime: Apply shop primer to pepared surfaces of items where field painting after installation indicated, unless indicated otherwise. Comply with requirements in SSPC-PA1
4. High Performance Organic Coatings: AAMA 2604; multiple coats, thermally cured fluoropolymer system.

3.1 Examination:

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight framed aluminum storefront system installation.
1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches of opening.
3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation:

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum framed storefront system, aluminum swing storefront entrance doors, accessories, and other components.

B. Install aluminum framed storefront system and storefront doors level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

C. Set sill members and door threshold in bed of sealant or with gaskets, as indicated, for weather tight construction.

D. Install aluminum framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within sliding door to the exterior. Refer to section 07900 - Joint Sealers.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

F. Install aluminum storefront framing system glass and glazing, in accordance with section 08800 and the manufacturer's requirements.

3.3 Adjusting, Cleaning, and Protection:

A. Clean aluminum surfaces immediately after installing aluminum framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

SECTION 085619 - PASS-THRU WINDOW

1.1 General: Provide door hardware as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ASTM A240 - Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
2. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
3. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
4. ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
5. ASTM B580 - Standard Specification for Anodic Oxide Coatings on Aluminum.
6. ASTM B680 - Standard Test Method for Seal Quality of Anodic Coatings on Aluminum by Acid Dissolution.
7. ASTM C1048 - Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
8. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
9. ASTM E774 - Standard Specification for Sealed Insulating Glass Units.
10. Aluminum Association AA DAF-45 - Designation System for Aluminum Finishes.

B. Quality Assurance:
1. Manufacturer Qualifications: Minimum of 25 years successful experience continuously manufacturing pass-thru windows.
2. Installer Qualifications: Installer shall have five years experience manufacturing and fabricating windows of similar type and scope as those specified in this section.
3. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   a. Finish areas designated by Architect.
   b. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   c. Refinish mock-up area as required to produce acceptable work.

2.1 Materials:

A. Acceptable Manufacturer: Quikserv; Toll Free: 1.800.388.8307; Email: sales@quikserv.com; Web: https://www.quikserv.com/;

B. No substitutions allowed. Requirements for manufacturer, design, grade, function, finish, size and other distinctive qualities of each type of door hardware are indicated on the drawings.

2.2 In-Line Side Sliding Window - Automatic

A. Custom Complete Unit Size 104"W x 59-1/2"H, Side Sliding Window (Model: SS-4035-E-CHIPOTLE): 65"W x 43-1/2"H window with 16" transom height and (2) sidelights at 19 1/2"W x 43-1/2"H
1. Service Opening: 28"W x 31-1/2"H
2. Finish: Dark Bronze Anodized
3. Glass: 1" Clear Tempered unit + Low E (Solarban 60e) for fixed & moving panel, sidelights and transom
4. Includes heated air curtain with relay to sync operation of air curtain with window.
5. See elevation for direction of opening. Refer to sliding direction from inside of building when ordering.

B. Alternate California Code Option: Model: SS-4035-E-CHIPOTLE-CALI, same as above except as noted.
1. Service Opening: 28"W x 15-3/8"H, limits opening size to meet California code.
2. Includes ambient air curtain, pre-wired to window.

C. Alternate Impact Resistant Option: In Line Miami Dade Horizontal Bi-Parting Impact Slider, Model: BP-7241E-IP-CHIPOTLE, Complete Unit Size: 72"W x 41"H plus ambient air curtain, to be supplied separate from window unit.
1. Service Opening: 27"W x 27"H
2. Rough Opening: 72-1/2"W x 41-1/2"H
3. Glass: Impact Resistant Glass
4. Miami-Dade NOA #18-0814.02

2.3 Electrical Requirements

A. Electrical Windows: 120V / 60 Hz, 20 amp branch circuit, single phase. Power supplied through base of window. Conforms to UL Standard 325 – Certified to CAN/CSA C22.2 NO. 247. Confirm with Electrical Drawings.
B. Integrated Heated Air Curtain (when indicated in plans): 230V. Power Supply for heated air curtain. Air curtain pre-wired through window frame with power supply routed to base of window. Confirm with Electrical Drawings.
C. Alternate Impact Resistant Option: Air Curtain separate from window unit, 120V / 60Hz, 20 amp branch cricuit, single-phase required for both

3.1 Installation

A. Install in accordance with manufacturer's instructions.
B. Install pass-thru windows plumb, level, square, true to line, and without warp or rack. Maintain dimensional tolerances and alignment with adjacent Work.
C. Install thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
D. Install pass-thru window components weathertight.
E. Anchor pass-thru windows securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
F. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
G. Coordinate installation of related sheet metal flashing as specified in Section 07 62 00 - Sheet Metal Flashing and Trim.
H. Install perimeter joint sealants as specified in Section 07 91 23 - Backer Rods.

SECTION 08710 - DOOR HARDWARE

1.1 General: Provide door hardware as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ANSI A117.1-2009 Accessible and Usable Buildings and Facilities.
2. ANSI/BHMA A156 Series Builders Hardware

B. Quality Assurance:
1. Codes and standards: Provide hardware complying with local Building Code requirements and the Tenant's standards for keying and security systems.
2. Project scheduling: Performed by an Architectural Hardware Consultant (AHC).
3. Package each item of hardware and each lockset, complete with all screws, anchors, installation instructions and templates. Identify package indexing with corresponding item number of the hardware schedule.
4. After hardware schedule acceptance, provide necessary templates or physical hardware to required trades for cutting, reinforcing, or preparing their products to receive hardware. Furnish templates to metal door manufacturer's.

2.1 Materials:

A. No substitutions allowed. Requirements for manufacturer, design, grade, function, finish, size and other distinctive qualities of each type of door hardware are indicated on the drawings.

B. Review the keying system with the Tenant and provide the type required.

3.1 Installation

A. Install each hardware item in strict accordance with manufacturer's installation instructions and recommendations. Securely fasten all attached parts. Fit faces of mortised parts snug and flush. Verify operating parts move freely and smoothly without binding or sticking, without excessive clearance.

B. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as required for proper installation and operation. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

C. Mount hardware units at heights indicated in DHI "Recommended Locations for Builders Hardware", unless otherwise required to comply with requirements of governing codes and regulations. Conform to ANSI A117.1 and ADAGG guidelines for accessibility.
1. Top Butts: 5 inches; top of butt from head of frame.
2. Middle Butts: 3'-2", centerline from finish floor.
3. Bottom Butts: 5 inches; finish floor to bottom of butt.
4. Locks: centerline from finish floor per hardware schedule.
5. Knobs: 3'-2", centerline from finish floor.
6. Pulls: centerline from finish floor per hardware schedule.
7. Pushes: centerline from finish floor per hardware schedule.

SECTION 08800 - GLAZING

1.1 General: Provide glass and glazing as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. CPSC 16 CFR Part 1201 (1-91)"Safety Standard for Architectural Glazing Materials."
2. GANA "Glazing Manual - 1990."

B. Quality Assurance:
1. Codes and standards: Provide type of glass and glazing products that comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials. Comply with all applicable codes, standards and regulations that control safety glazing materials and installation.
2. System Performance: Provide glass and glazing that has been produced, fabricated and installed to withstand normal thermal movement, wind loading and, where applicable, impact loading, without failure including loss or breakage of glass, failure of glazing sealants or gaskets to remain watertight and airtight, deterioration of glass and glazing materials and other defects in the work.
3. Installation: Performed only by experienced glaziers.

C. Warranty:
1. Insulating glass: Five years from date of installation against defects that materially obstruct vision through the glass or affect thermal and physical integrity.

2.1 Materials:

A. Glass:
1. Float Glass (FG): 1/4" thick clear float glass.
2. Tempered Glass (TG): 1/4" and 1/2" thick clear, tempered safety glass, free-of-tong marks.
3. Insulating Glass (IGL): 1" thick clear, low-e tempered sealed glass; 1/4" thick interior and exterior glass lites with 1/2" aluminum desiccated dual sealed air space; with the following characteristics:
   a. Low-emissivity coating on #2 surface.
   b. Visible Light Transmittance: 64% - 70%
   c. Visible Light Reflectance - Outdoors: 9%-11%
   d. Solar Energy Transmittance: 32%-34%
   e. Solar Energy Reflactance-Outdoors: 30%-34%
   f. U-Value - Winter Night: 0.29
   g. U-value - Summer days: 0.28
   h. Solar Heat gain Coefficient: 0.25-0.39
   i. Shading Coefficient: 0.43-0.45
   j. Manufacturers/Products:
      i. AGC/Comfort Ti-AC40, or similar to meet code
      ii. Sun Guard/SN-68, or similar to meet code
      iii. PPG/Solarban 60, or similar to meet code
      iv. Viracon/VE1-2M, or similar to meet code
4. Frosted Glass (SG) 1/4" thick, Spandrel Ceramic Glass, (Color: GrayBlack or as noted on drawings) by Old Castle Building Envelope (419) 666-2000, Contact: Doug Dewar

B. Glazing Materials:
1. Glazing Sealants: Provide elastomeric glazing sealants suitable for applications indicated; compatible with one another and with other materials they will contact, complying with ASTM C920.
2. Glazing Tape: Provide preformed, non-staining and non-migrating elastomeric tape, as recommended by tape and glass manufacturers for application indicated, complying with ASTM C 1281.
3. Glazing gaskets: Provide manufacturer's standard snap-on aluminum stops and neoprene, vinyl or EPDM glazing gaskets.
4. Provide setting blocks, spacers and edge blocks of material, size, and shape complying with referenced glazing standard, and compatible with surfaces contacted in installation.

C. Fabrication: Factory fabricate and size all glass.

3.1 Installation

A. Preparation:
1. Field verify measurements and conditions of installation.
2. Examine all details. Provide proper fitting to details indicated.
3. Glazing channel dimensions shown are intended to provide for necessary bite on glass, minimum edge clearance and adequate glazing materials thickness, with reasonable tolerances. Adjust as required by job conditions at time of installation.

B. Install glass and glazing in accordance with the GANA "Glazing Manual" and glass manufacturer's recommendations.
1. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association (SIGMA).

C. Install setting blocks of proper size at quarter points of sill rabbet. Provide spacers as required.

D. Install glazing sealants, tapes and gaskets in accordance with manufacturer's recommendations. Set glass without springing and install securely to prevent rattling or breakage.

E. Protect glass from breakage during remaining construction. Do not remove non-permanent labels until final acceptance.

DIVISION 9 -- FINISHES

SECTION 09260 - GYPSUM BOARD SYSTEMS

1.1 General: Provide gypsum board systems as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. GA 214-90 "Levels of Gypsum Board Finish."
2. GA-216 "Specifications for Application and Finishing of Gypsum Board."
3. USG "SA923 Drywall/Steel Framed Systems."

2.1 Materials:

A. Manufacturer: United States Gypsum Co. (USG), (800) 874-4968, internet www.usg.com.

B. Metal framing: Comply with ASTM C 754 and ASTM C 645 for materials and sizes.
1. Partition metal framing:
   a. Studs: Galvanized steel, C-shaped, sizes indicated, 20 gage "ST20"
   b. Runners: Match studs, type recommended by stud manufacturer for floor and ceiling support of studs. Provide flexible ceiling runners for full height metal stud framed partitions continuous from floor to underside of structural members or deck above.

C. Ceiling and Soffit metal framing/suspension systems:
1. Small areas: Metal stud framing of appropriate size and gage for spans indicated.
2. Large areas: Furring channel "Grillage" or "Direct Suspension System" designed for concealed support of gypsum board ceilings, of proper type for use indicated.
3. Furring members: 20 gage, galvanized steel screw type, hat-shaped furring.

D. Gypsum board panels: USG "Sheetrock" complying with ASTM C1396, tapered edge face panels, 48" wide, in maximum lengths available to minimize end joint conditions, 5/8" thick.
1. General use panels: Sheetrock Regular panels.
2. Fire rated panels: Sheetrock Firecode Core panels.
3. Water-resistant: panels: Sheetrock HUMITEK panels.

E. Cement board: USG DUROCK Cement Board, 5/8" thick x manufacturer's standard width, complying with ANSI A118.9, and in maximum lengths available to minimize end-to-end butt joints.

F. Fasteners: USG Type "S" bugle head screws for metal framing, USG Type "W" bugle head screws for wood framing, manufacturer's recommended length for panel thickness indicated.

G. Trim: Galvanized steel with knurled and perforated flanges. USG Dur-A-Bead corner bead, No. 200B casing bead metal trim, No. 093 Control Joint.

H. Joint treatment: USG Joint Treatment System, utilizing "Sheetrock Brand Joint Tape", and "Sheetrock Brand Setting-Type (DURABOND)" compound for tape bedding and topping.

I. Adhesives: USG "Sheetrock Brand Setting-Type (DURABOND) 210 or 90" compound for tape bedding and topping.

J. Acoustical sealant: USG Sheetrock Acoustical Sealant, water-base type, gunnable sealant for sealing sound-rated gypsum board systems.

K. Sound attenuation insulation: USG Thermafiber unfaced 3-1/2" thick, mineral fiber insulating batts/blankets; standard lengths and widths required to coordinate with spaces insulated.

3.1 Installation

A. Install metal wall and partition framing and ceiling suspension/ support systems in accordance with USG Bulletin SA 923 and complying with ASTM C754.
1. Ceiling suspension/ support systems: Metal furring system/direct suspension or steel stud framing system.
2. Wall and partition framing:
   a. Install steel studs per schedule or at spacing indicated with bottom and top runner tracks anchored to substrates. Provide flexible ceiling runner tracks at full height partitions.
   b. Terminate partition stud system 4" above ceilings, except where indicated to be extended to structural support or roof deck above. Brace tops of partition framing to structure or roof deck at maximum 4'-0" on center spacing.
   c. Frame openings more than 2'-0" wide with two 20 gage studs at each jamb.
   d. Coordinate the installation of supplementary blocking and nailers, provided under Section 06100 work, to support shelving, millwork, toilet accessories, and similar work that cannot be adequately supported by gypsum board alone.

B. Application and Finishing: Install and finish gypsum board to comply with ASTM C 840 and Gypsum Association GA 216 "Recommended Specifications for the Application and Finishing of Gypsum Board."
1. Screw fasten all gypsum board panels.
2. Metal Trim: Install metal corner beads at external corners of gypsum board work and metal trim wherever edge of gypsum board would be exposed. Use longest practical lengths.
3. Control Joints: Locate and install control joints in accordance with USG Bulletin SA923 "Good Design Practice" recommendations.

C. Acoustical Treatment:
1. Where sound-attenuation insulation is indicated, seal gypsum board construction at perimeters, control joints, junction boxes, openings and penetrations with a continuous bead of acoustical sealant including a bead at both faces of partitions.
2. Install sound attenuation insulation at scheduled partitions and ceilings. Install insulation in single layer of required thickness. Extend full thickness over entire area to be insulated. Cut and fit tight around obstructions. Fill all voids.
3. At openings and cutouts, fill open spaces between edges of gypsum board and fixtures, cabinets, ducts, and other flush or penetrating items, with continuous bead of acoustical sealant.
4. Seal sides and backs of electrical boxes to completely close up openings and joints with a bead of acoustical treatment.

D. Finishing:
1. Comply with manufacturer's instructions for mixing, handling, and application of materials. Apply treatment at joints both directions, at flanges of trim accessories, penetrations of gypsum board (electrical boxes, piping, and similar work), fastener heads, surface defects, and elsewhere as indicated. Apply in manner that will result in each of these items being concealed when applied decoration has been completed.
2. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
3. Interior Exposed Gypsum Board Finish: Level 5 Finish.
   a. Locations: Typical for all walls and ceilings, unless otherwise indicated
   b. Finish interior gypsum board by applying the following joint compounds in four coats (not including prefill of openings in base), and sand between coats and after last coat:
   c. Embedding and First Coat: Setting-type joint or taping compound.
   d. Fill (Second) Coat: Setting-type topping compound.
   e. Fill (Third) Coat: Setting-type topping compound.
   f. Finish (Fourth) Coat: Skim coat entire surface.
4. Interior Concealed Gypsum Board: Level 3 Partial Finishing.
   a. Finish concealed gypsum board construction that requires finishing same as exposed gypsum board construction, except the third coat and sanding can be omitted.

E. Cement Board: Install cement board as a 16" high base at all kitchen and kitchen cook line wall types as indicated on drawings.

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G015

SECTION 092816 - GLASS-MAT FACED GYPSUM BACKING BOARDS

NOT USED

1.1 General: Provide glass-mat faced, moisture resistant gypsum backer board as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.
2. ASTM C1002 Standard Specifiation for Steel Self Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
3. ASTM C1178 Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel
4. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
5. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
6. ASTM E96 Standard Test Methods for Water Vapor Transmision of Materials
7. Tile Council of North America, Inc. (TCNA): TCA Handbook for Ceramic Tile Installation, Current Edition.

2.1 Materials:

A. Manufacturer: Georgia-Pacific Gypsum LLC, (800) 225-6119, internet: www.buildgp.com

B. Fiberglass-Mat Faced Gypsum Backing Board: DensShield Fireguard Tile Backing Board complying with ASTM C1178, Type X, Square edges, 4' wide in maximum lengths available to minimize end joint conditions, 5/8" thick. Surfacing: Coated fiberglass mat on face, back and long edges.
1. General use panels: 5/8" DensShield Fireguard Tile Backer, Georgia-Pacific Gypsum.

C. Fasteners: Screws meeting ASTM C1002, with corrosion resistant treatment. Size and type per manufactuer's recommendations:
1. Walls (Steel Frame): Bungle head, fine thread, sharp point rust resistant drywall screw
2. Walls (Walls Frame): Bungle head, coarse thread, sharp point rust resistant screw

D. Metal Framing, Trim, joint treatment, adhesives, acoustical sealant, and sound attenuation insulation: Refer to Section 09260 Gypsum Board Systems

3.1 Installation

A. Install DenShield at all tile walls excluding hood area as indicated on drawings.

B. General: Install in accordance with ASTM C840, manufacturer's recommendations and TCA Handbook for Ceramic Tile Installation.
1. Manufacturers Recommendations: refer to Current "Product Catalog", Georgia Pacific Gypsum.
a. Attach DensShield Tile Backer with grey side facing the interior. Tile should be applied on the grey coated side of DensShield Tile Backer. Cut panel to required size and make cutouts. Fit ends and dges closely. Do not leave gaps between panels.
b. DensShield Tile Backer may be cut by using a utility knife to score, then snap, working from the grey face side.
c. For walls, when used as a tile substrate a minimum 20-gauge steel or wood framing should be spaced no greater than 24" o.c. for 5/8" DensShield Tile Backer. Board can be applied horizontally or vertically.
d. Fasteners shall be spaced 6" o.c. for walls for wood and steel framing. Do not countersink. Drive fasteners flush with grey coated surface. See manufacturer installation Fastener Guide for proper selection.
e. In all corners, imbed with a bead of flexible sealant when installing panels into corner. Apply self-adhesive 2" wide fiberglass mesh tape and bed tape on all joints and corners with material used to set tiles.
f. Caulk or seal fixture/plumbing penetrations and abutments to dissimilar materials.
g. Do not use all purpose joint compound or tape in wet areas.
h. Do not apply DensShield Tile Backer directly to concrete or masonry block. Framing or furring of the walls is necessary.
i. DensShield Tile Backer should not be used for exterior installations.
j. DensShield Tile Backer panels should not be used as a base for nailing and mechanical fastening.
k. DensShield Tile Backer has a built in moisture barrier. Never install vapor retarders directly behind DensShield Tile Backer panels. In retrofit applications, some paints or other wall coverings may constitute a vapor barrier; remove or effectively penetrate these coverings prior to installing DensShield Tile Backer panels.

C. Refer to Section 09260 Gypsum Board Systems for additional installation and sound treatment instructions

SECTION 09330 - QUARRY TILE

NOT USED

1.1 General: Provide quarry tile flooring and base as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ANSI A137.1 "Ceramic Tile."
2. TCA "Handbook for Ceramic Tile Installation."

2.1 Materials:

A. Manufacturers:
1. Quarry Tile: Daltile, (877) 556-5728, internet: http://daltile.com
a. For ordering purposes, email all orders to chipotle@daltile.com
2. Waterproofing, Setting and Grouting Materials:
a. Setting and Grouting Materials and Tile Base Membrane: Mapei
i. For ordering purposes, email all orders to chipotle@daltile.com
ii. For technical questions, contact Mapei, (800) 992-6273, internet: www.mapei.com
3. Stainless steel Outside Corner Cove Base by Decimet Sales Inc.
a. For ordering purposes, email all orders to chipotle@daltile.com

B. Quarry Tile: Daltile 6" x 6" x 1/2" Quarry Textures with 5" base as scheduled on finish plan and appropriate trim; Color: "Ashen Gray" 0T03
1. Entire Kitchen Area: Provide non-abrasive finish quarry tile.
2. Rest Rooms: Provide non-abrasive finish quarry tile.
3. Outside Corner Cove Base (Kitchen): 5 1/2" Stainless steel corner by Decimet Sales Inc.
4. Inside Corner Cove Base: #QB-3565 1" x 5"
5. Bullnose Coveless Base: #Q-1665, 6" x 6".
6. Bullnose Corner Coveless Base: #QCRL-1665, 6" x 6".

C. Waterproofing for elevated floor slabs: Mapei, Mapelastic AquaDefense, Premium Waterproofing and Crack Isolation Membrane
D. Setting Adhesive: Mapei, Ultraflex 3, Color: Gray
E. Grout: Mapei, Kerapoxy IEG CQ, Color: #9, "Gray", 1/4" grout joints.
F. Quarry Tile Base Membrane: Mapei, Mapelastic AquaDefense, Premium Waterproofing and Crack Isolation Membrane

3.1 Installation

A. Preparation: Clean substrate surfaces, scheduled to receive quarry tile, thoroughly and remove all coatings that may impair bond.
1. Center tile fields both directions in each floor area. Adjust layout to minimize tile cutting. Avoid tile less than one-half size. Locate cuts to be least conspicuous.
2. Maintain units uniformly "in plane." Provide straight, uniform joint widths and grout lines.

B. Elevated Floor Slabs: Install waterproofing membrane at elevated floor slab surfaces scheduled to receive quarry tile floor finish. Install membrane materials in accordance with manufacturer's installation instructions to produce a waterproof membrane of uniform minimum 30 mil thickness bonded securely to substrate.
1. Extend waterproofing up vertical wall surfaces minimum 10" high.
2. Extend membrane down into floor drain flanges to assure continuous waterproofing at drainage points.

C. Wet Areas: Install waterproofing membrane at all quarry tile wall base. Install membrane materials in accordance with manufacturer's installation instructions to produce a waterproof membrane of uniform minimum 30 mil thickness bonded securely to substrate.
1. Extend waterproofing up all vertical wall surfaces receiving quarry tile base minimum 10" high. Extend waterproofing membrane 10" minimum horizontally from all vertical wall surfaces receiving quarry tile base.

D. Installation: Install, grout and clean ceramic tile in accordance with referenced TCA installation details and ANSI standard specifications for setting methods scheduled.
1. Floors: Latex-portland cement mortar on concrete; TCA detail F113 and ANSI A108.5, grout ANSI A108.10.
2. Base: Latex-portland cement mortar on cement board.
3. Outside stainless steel Corner Cove Base: Install a day prior to quarry tile base. Apply adhesive liberally to the back of the corner cove base and press and tape firmly in place until adhesive has set. Neatly caulk the top of the stainless with GE Silicone II (color Aluminum).
a. Over Cement Board: Bond with GE Silicone II, 100% silicone sealant for aluminum and metal.
b. Over Stainless Steel: Bond with Hydroment Ultra-Set.

SECTION 09340 - CERAMIC TILE

NOT USED

1.1 General: Provide ceramic tile as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ANSI A137.1 "Ceramic Tile."
2. TCA "Handbook for Ceramic Tile Installation."

2.1 Materials:

A. Manufacturers:
1. Ceramic Tile: Daltile, P: (877) 556-5728, internet: http://daltile.com
a. For ordering purposes, email all orders to chipotle@daltile.com
2. Accent Tile: Nemo Tile, Hudson (Glazed Brick) Collection
a. Contact: Nic Jennings, A&D Account Mgr, P: (212) 477-1425 x225, njennings@nemotile.com
b. Nemo Hudson Old Bronze tile has an 10-12 week lead time and should be ordered as soon as possible.

B. Ceramic Tile: Series - Color Wheel Glazed Ceramic:
1. Kitchen Tile or as noted in plans
a. Color- Arctic White 0190, Size - 4 x 16, Pattern - stacked bond
2. Accent Tile
a. Color - Old Bronze F-1387-B, Size 2 x 8, Pattern - stacked bond

C. Setting Adhesive: Thinset Mortar, Mapei, Ultraflex LFT - Gray

D. Grout:
1. Kitchen Tile or as noted in plans
a. Mapei, Series - Flexcolor CQ - Gray #09, 1/8" grout joints.
2. Accent Tile
b. Mapei, Series - Flexcolor CQ - Cocoa #79, 1/8" grout joints.

3.1 Installation

A. Preparation: Clean substrate surfaces scheduled to receive ceramic tile thoroughly and remove all coatings that may impair bond.
1. Protect surrounding work from damage.
2. Remove any curing compounds or other contaminates.
3. Vacuum clean surfaces and damp clean.
4. Install cementitious backer board or glass-mat faced gypsum backing board as indicated in drawings in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.
5. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

B. Kitchen:
1. Install, grout and clean ceramic tile in accordance with referenced TCA installation details and ANSI standard specifications for setting methods scheduled.
2. Lay tile in horizontal stack bond, following detail drawings for layout considerations. Horizontal rows of tile shall be full-height courses, unless noted otherwise.
3. Arrange pattern so that a full tile or joint is centered on each wall horizontally and that no tile less than 1/2 width is used at the ends of the wall. Exception: when one end of the wall is a tile-to-gypsum board transition. Do not interrupt tile pattern through openings.
4. Use specified stainless steel corner guards at tile-to-tile and tile-to-FRP outside corners.
5. Use corner bead of 100% silicone sealant, color to match grout, at inside corners where tile meets tile.
6. Use corner bead of 100% silicone sealant, white, at inside corners where tile meets paint gyp. board, tile meets FRP or tile meets aluminum.
7. Cut and fit tile to penetrations through tile, leaving sealant joint space. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, escess mortar, or excess grout.
8. Sound tile after setting. Replace hollow sounding units.
9. Keep expansion joints free of adhesive or grout. Allow tile to set for a minimum of 48 hours prior to grouting. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes. Refer to section 07900 Joint Sealers.
10. Clean tile and grout surfaces.

SECTION 09510 - SUSPENDED CEILING SYSTEMS

NOT USED

1.1 General: Provide suspended ceiling systems as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. CISCA "Acoustical Ceilings - Use and Practice."
2. ASTM C635.
3. ASTM C636.

B. Related Sections:
1. 09515 Cementitious Wood Fiber Acoustical Panels: Suspension system.

2.1 Materials:

A. Manufacturer:
1. USG Interiors, Inc., (800) 950-3839, www.usg.com
2. Pittcon Industries, (800) 637-7638, www.pittconindustries.com

B. Ceiling Panels: USG "Sheetrock Lay-In ClimaPlus No. 3270" ceiling panels with white, stipple texture, vinyl facing, 24" x 48" x 1/2".

C. Light Pocket: Pittcon "LP-700-800", White, Height of cove should be field verified by GC to end on a full tile height.
1. Light pocket can have up to 6 week lead time and should be ordered as soon as possible.
2. Light pocket endcap should only be installed when the end of the cove is not against a wall.

D. Suspension System: Provide intermediate duty, structural class, direct hung systems adequate to support light fixtures, ceiling diffusers and other normal accessories.
1. Exposed "Tee" Grid System for use with Lay-In Ceiling panels: USG "Donn DX System" non-fire rated with 15/16" exposed face, cold-rolled galvanized steel with aluminum face cap, white paint finish on exposed surfaces. Provide hemmed edge aluminum wall angles, 15/16" exposed leg, white paint finish matching exposed grid.
2. Concealed "Tee" Grid System for use with Painted Gypsum Board Ceilings & Soffits or with Cementitious Wood Fiber Acoustical Panels (Tectum): USG "DGLW" Heavy Duty Drywall Suspension System with 1 5/8" deep by 1 1/2" wide main tees and 1 1/2" deep by 1 1/2" wide cross tees.
3. Hanger Wire: No. 12 SWG galvanized steel wire.
4. Heavy Duty "Tee" Grid System for use with Felt Baffle Ceiling System: USG Donn Brand DX/DXL with 15/16" wide face tees, color: black

3.1 Installation

A. Install acoustical ceiling materials and suspension systems in strict accordance with manufacturer's recommendations, complying with governing regulations and industry standards applicable to the work.

B. Suspension system installation shall be laser leveled with a maximum surface leveling tolerance of 1/8" in 12'-0".

C. Install exposed Tee suspension systems with main tees nominally 12 ft long spaced 48 in O.C. and cross tees nominally 4 feet long spaced 24 in O.C.

D. Install concealed Tee suspension systems with main tees nominally 12 ft long spaced 24 inches O.C. and cross tees nominally 2 ft long spaced 48 in O.C.

E. Hanger wire shall be spaced 48" O.C. along main tees, at all four corners of light fixtures (where applicable), at midpoint of cross tees adjacent to light fixtures and duct outlets, and adjacent to main tee splices.

F. Secure wire hangers by looping and wire-tying either directly to building structure or to hangers that are secure and appropriate for substrate.

G. Provide edge trim molding at perimeter of acoustical ceiling installation and intermediate vertical surfaces. Use maximum lengths. Miter trim corners to Provide tight, accurate joints. Connect moldings securely to substrate surfaces.

SECTION 09653 - RUBBER WALL BASE

NOT USED

1.1 General: Provide resilient rubber wall base as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. ASTM D 2240 Rubber - 85 Shore A

2.1 Materials:

A. Manufacturer:
1. Johnsonite, Inc., (800) 899-8916, internet: www.johnsonite.com

B. Resilient Rubber:
1. .125" (3.17 mm) Thickness
2. "Black" color
3. Straight (toeless) or coved as specified on finish plan
4. Inside and outside corners with 4" returns.

C. Setting Adhesive: Johnsonite 960 Acrylic Cove Base Adhesive

3.1 Installation:

A. Preparation: Clean substrate surfaces scheduled to receive resilient rubber and vinyl wall base thoroughly and remove all coatings that may impair bond. A uniform temperature of at least 65 degrees Fahrenheit shall be maintained for 24 hours before, during and after the installation is completed. The wall base and adhesives shall be conditioned in the same manner. Coiled wall base shall be uncoiled and lay flat for at least 24 hours at 65 degrees Fahrenheit prior to installation. Floor and walls shall be clean, dry, and free of dust, all paints, wallpaper, and all other foreign material, which may affect proper adhesive bonding. Wall base may be installed on interior plaster, gypsum wall board, concrete, masonry, mineral-reinforced cement board or similar porous surfaces. Wall base shall not be installed on surfaces that will be exposed to drastic temperature changes or moisture.

B. Application: Use a 1/8" square notch trowel to apply adhesive. Allow adhesive to set up and then apply wall base in accordance with manufacturer's instructions.

SECTION 09770 - SPECIAL WALL SURFACING - PHENOLIC INTERIOR WALL PANELS

NOT USED

1.1 General: Provide Exterior solid phenolic panels and accessories for interior walls and millwork as shown and specified.

1.2 Related Sections:

A. Section 05400 - Cold Formed Metal Framing

B. Section 06210 - Finish Carpentry and Millwork

C. Section 07900 - Joint Sealers

D. Section 09260 - Gypsum Board Systems

1.3 Standards: Materials and construction shall conform to the following:

A. ASTM D638 - 10 Standard Test Method for Tensile Properties of Plastics.

B. ASTM D790 - 10 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

C. ASTM E84 - 12 Standard Test Method for Surface Burning Characteristics of Building Materials.

D. NEMA Standards Publication LD3-2005. High pressure decorative laminates.

1.4 Design/Performance Requirements:

A. Design and size of wall panel assemblies including wall panels, mounting system to support weight of panels.

B. Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on expected movement of material as defined in fabrication guidelines.

1.5 Quality Assurance:

A. Manufacturer's Qualifications:
1. Sufficient plant facilities to provide quality and quantity of materials as required without delaying progress of work.
2. Minimum of 40 years of experience in paper saturation of phenolic resin, and producing phenolic paper laminate.

B. Fabricator:
1. Fabricated by the manufacturer, and/or;
2. Contracted by the customer, minimum 5 years' experience in fabrication work for the size and complexity of the projects.

C. Installer
1. Proven professional installer with a minimum of 5 years of documented experience.
2. Approved by the manufacturer.

1.6 Delivery, Storage and Handling:

A. Refer to Section 01400 Quality Requirements.

B. Delivery: Deliver materials in manufacturer's original unopened containers/packages, with labels clearly identifying product name, manufacturer, color/texture and weight.

C. Storage:
1. Keep panels dry and stored indoors in original packaging until installation.
2. Store Stonewood panels on a smooth, dry, flat surface, making sure there are no bends or bowing in the load.
3. Do not store directly on cold concrete floors as moisture may migrate.
4. Do not store under heating units or air conditioning units.
5. Keep load stored within outer wrap until use. Remove pallet straps once load is moved to storage area.
6. Reseal plastic wrap if partial load is used.
7. Keep foam dividers in place.

D. Handling:
1. Handle materials in accordance with manufacturer's instructions.
2. Protect materials during handling to prevent damage.
3. When moving sheets, lift evenly to avoid dragging panels across each other and scratching the surface. PLEASE TAKE CARE NOT TO SCRATCH THE SURFACE OF THE PANEL DURING HANDLING, MACHINING AND INSTALLATION.

1.7 Warranty:

A. Limited Warranty: Fibbers warrants Stonewood for a period of 10 years. Refer to www.stonewoodpanels.com for details.

1.8 Project Conditions:

A. Environmental Limitations: Buildings are to be fully enclosed prior to installation with sufficient heat (70 degrees) and ventilation consistent with good working conditions for finish work.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

C. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before composite wall panel fabrication and indicate field measurements on Shop Drawings.

2.1 Manufacturer:

A. Fiberesin Industries, Inc. PO Box 808, Oconomowoc, WI 53066. Phone: (262) 567-4427, Fax: (262) 567-4814, Web Site: www.stonewoodpanels.com Email: info@fiberesin.com

B. Made in the United States from materials sourced in the USA.

2.2 Application:

A. Apply Solid Phenolic Laminate Wall Panels at walls and other surfaces as indicated on the Drawings. Phenolic Wall Panels are architectural wall panels applied over a sheathed stud wall or other solid blocking per Drawings.

2.3 Interior Stonewood:

A. Material: Solid phenolic laminate panel w/o overlay.
B. Color: Black ND
C. Finish: Matte
D. Standard Size: 48"x96"
E. Panel Thickness: 5/16", 1/2"
F. Panel Core: HR Black

2.4 Minimum Material Properties

A. NEMA Requirements:

Description	NEMA Requirements	
Dimensional Change:	3.11	
Length (Machine Direction)	0.3% Maximum	0.25%
Width (Cross Direction)	0.7% Maximum	0.50%
Density (PCF)	82	

B. Mechanical Properties:

Property	NEMA Requirements	
Flexural Strength ASTM D-790		
MD (psi)	18,000	20,000
CD (psi)	12,000	16,000
Flexural Modulus ASTM D-790		
MD (psi)	1.6x10^6	2.0 x10^6
CD (psi)	1.4x10^6	1.5x10^6
Tensile Modulus ASTM D-638		
MD (psi)	18,000	18,000
CD (psi)	12,000	13,000

C. Fire Resistance:

	Class A (0.250")	Class B (0.250")
Flame Spread Index - ASTM E-84 (BLDG):	5	30
Smoke Developed Values - ASTM E-84 (BLDG):	5	105
Fire Rating (Standard Product is Class B):	A	B

D. Manufacturing Tolerance:

Thickness (.156 to .375)	+/- .020
Thickness (above .375 to 1.000)	+/- .030
CNC Shaped Size (Length - Width)	+/- .020
Drill Diameter	+/- .003
Drill Depth	+/- .020
CNC Hole to Hole	+/- .020
CNC Hole to Edge (1 Oper)	+/- .020
CNC Hole to Edge (2 Oper)	+/- .030
Routing - (Slots Width and Length)	+/- .015
Routing - (Slots Depth)	+/- .020

2.5 Accessories (Fasteners):

A. Panel Fasteners: #10 x 1-1/4" flat phillips head black oxide wood screws to be used with wood blocking and #10 x 1-1/4" flat phillips head black oxide sheet metal screws to be used with sheet metal blocking as recommended by the manufacturer.
B. Provide exposed fasteners with heads matching color of composite wall panels by means of factory-applied coating.
C. Fasteners shall by designed to withstand the effects of dead load and accommodate hygrothermal expansion/contraction of the panel.
D. Wall Panel Accessories: Provide components required for a complete composite wall panel assembly including trim, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of composite wall panels unless otherwise indicated.

3.1 Manufacturer's Execution Instructions:

A. Compliance: Comply with manufacturer's/fabricator's/supplier's product data, handling and installation instruction/manual, shop drawings, shipping container/package ticket identification, etc.

3.2 Examination:

A. Verify correct panels received including dimension, tolerance, color/texture.
B. Verify correct attachment system received for the specific project/job.
C. Verify all the documents including shop drawing and installation guidelines.
D. Verify installation conditions are satisfactory to receive work of this section before the commencement
E. Verify substrate installation is complete, flat, and true to plane.
F. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.3 Preparation:

A. Field Measurements: Verify prior to fabrication and installation of the cladding panel.
B. Protect surrounding areas and surfaces to preclude damage during work of this section.
C. Lay out work before beginning installation as necessary for true, plumb and aligned panel installations.
D. Verify locations of joints and panel lengths.

3.4 Installation:

A. Conform to manufacturer's instructions and provisions of shop drawings.
B. Install to allow hydro-thermal expansion/contraction.
C. Use appropriate techniques/tools to work with the panel.
D. Do not force to fit, do not bend, stretch/compress.
E. Make cutting and fitting neat, square, and true. Where required cut, de-burr edges, and clean filings from adjacent surfaces.
F. Do not install damaged or questionable panels.
G. Install solid phenolic wall panels plumb and level and accurately spaced.
H. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.
I. Shim or otherwise plumb substrates receiving composite wall panels.
J. Do not use construction adhesives to apply wall panels directly to substrates or wall board. Use mechanical fasteners only.

3.5 Erection Tolerances:

A. Shim and align composite wall panel units within installed tolerance of 1/4 inch in 20 feet, non-accumulative, on level, plumb, and location lines as indicated and within 1/8 inch offset of adjoining faces and of alignment of matching profiles.

3.6 Field Quality Control:

A. Manufacturer's Field Service: Provide field services to ensure product installation is in accordance with manufacturer's/fabricator's /supplier's instructions and installation manual, shop drawings etc.

3.7 Adjusting:

A. Correct identified defects and irregularities.
B. Replace damaged soiled, and discolored work.

3.8 Cleaning:

A. Leave installation clean and free from residue and debris from work of this Section.
B. Panels best cleaned with warm soapy water and rinsed with clear water; allowed to dry fully.

Consultant:

r e d

architecture + planning
589 w. nationwide blvd.
suite b
columbus, ohio 43215
tel: 614.487.8770
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Contents:
ARCHITECTURAL SPECIFICATIONS

G016

SECTION 09900 - PAINTS AND COATINGS

1.1 General: Provide paints and coatings as shown and specified.

A. Provide surface preparation, prime, intermediate and finish coatings for interior and exterior and existing scheduled surfaces and items.

B. Provide Tenant-selected finishes and colors for all exposed surfaces, unless otherwise indicated.

1.2 Related Documents:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.3 Summary:

A. This section includes surface preparation and field painting of the following:
1. Exposed exterior items and surfaces.
2. Exposed interior items and surfaces.
3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

1.4 Quality Assurance:

A. Applicator Qualifications: Engage an experienced applicator that has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

B. Source Limitations: Obtain block fillers, primers and undercoat materials for each coating system from the same manufacturer as the finish coats.

C. Provide lead free prime and finish coatings. All top coatings shall be mold and mildew resistant.

1.5 Delivery, Storage and Handling:

A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
1. Product name or tile of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F (7 degrees C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing and application.

1.6 Project Conditions

A. Apply water-based paints only when the temperatures of surfaces to be painted and surrounding air temperatures are between 50 and 90 degrees F (10 and 32 degrees C) unless otherwise stated on the technical data bulletin.

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 degrees F (7.2 and 35 degrees C).

C. Do not apply paint in snow, rain, fog, or mist, or when the relative humidity exceeds 85 percent, or at temperatures less than 5 degrees F (3 degrees C) above the dew point, or to damp or wet surfaces.
1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

2.1 Manufacturers:

A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.

B. Manufacturers Names: The following manufacturer is referred to in the paint schedule by use of shortened versions of the name, which is shown below:
1. PPG Industries, Inc.
2. Materials - No substitutions allowed.

2.2 Paint Materials, General

A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality "professional" paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

Colors: Color guided selected by owner and will be strictly adhered too, unless otherwise noted.

C. Exterior Coatings:

Exterior Ferrous Metals:

Preparation: Remove all visible oil, grease, soil, rust and all other soluble contaminates from steel surface. Uniformly roughen surface with 150-grit paper. Remove all dust before solvent cleaning by the use of stiff bristle brush.
Prime: (1) coat PPG; 4020PF Series Pitt-Tech Plus Int/Ext DTM Acrylic Industrial Primer (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.
Finish: (2) coats PPG; 4216 Plus HP Series Pitt-Tech Plus Semi-Gloss DTM Industrial Enamels (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.
Application: Conventional or HVLP (high volume low pressure)

Exterior and Interior Gas Piping:

Preparation: Remove all visible oil, grease, soil, rust and all other soluble contaminates from pipe surface. Remove all dust before solvent cleaning by the use of stiff bristle brush.
Prime: (1) Coat PPG; 4020PF Series Pitt-Tech Plus Int/Ext DTM Acrylic Industrial Primer (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.
Finish: (2) Coats PPG; 4216 Plus HP Series Pitt-Tech Plus Semi-Gloss DTM Industrial Enamels (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils
Application: Conventional or HVLP (high volume low pressure)

Exterior Patio Railing:

Preparation: Remove all visible oil, grease, soil, loose paint, rust and all other soluble contaminates from steel surface. Remove all dust before solvent cleaning SSPC-SP1 by the use of stiff bristle brush. SSPC-SP3 may be required as a more aggressive preparation to remove loose mill scale, loose rust, loose paint and other loose detrimental foreign matter from the surface. Performance is better with more aggressive preparation.
Prime: (1) coat PPG; 95-3300 Durathane DTM Urethane Mastic (250 g/L VOC): Applied at a dry film thickness of not less than 3.0 to 5.0 mils.
Finish: (1) coat PPG; 95-3300 Durathane DTM Urethane Mastic (250 g/L VOC): Applied at a dry film thickness of not less than 3.0 to 5.0 mils.
Application: Conventional or HVLP (high volume low pressure) be done with conventional spray or airless equipment or brush or roller.

Exterior Prefinished Metal Wall Panels:

Preparation: Before applying primer or other surface treatments, clean galvanized metal surface to SSPC-SP1 that could impair bond of the various coatings. Remove oil, grease and soap film before priming use of Krud Kutter Metal Clean & Etch may be required on bare or new galvanized. Surface must be clean, dry and free of contaminants, including salt deposits. Additional prep may be needed to SSPC-SP2. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Note: Some selected areas of bare concrete surfaces will require (1) coat of Perma Crete 4-603XI Alkali Resistant Concrete Primer before steel installation over all concrete surfaces.

Owner Option 1:
Prime: (1) coat XIM Primer Bond - Applied at a dry film thickness of not less than 1.5 to 2.0 mils.
Finish: (2) coats PPG; 90-1110 Series Pitt-Tech Satin DTM Industrial Enamels (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.

Owner Option 2:
Prime: (1) coat PPG; 97-245 Pitt-Guard DTR Epoxy Mastic Primer (263 g/L VOC): Applied at a dry film thickness of not less than 4.0 to 7.0 mils.
Finish: (2) coats PPG; 95-3300 Durathane Urethane Mastic (240 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.

Owner Option 3 (Low VOC):
Prime: (1) coat PPG; Amerlock 2 Fast Dry VOC Compliant Epoxy (84 g/L VOC): Applied at a dry film thickness of not less than 4.0 to 6.0 mils.
Finish: (2) coats PPG; Amershield VOC Aliphatic Urethane (84 g/L VOC): Applied at a dry film thickness of not less than 5.0 to 8.0 mils.

Application: Conventional or HVLP (high volume low pressure) be done with conventional spray or airless equipment or brush or roller.

Exterior Galvanized Metal:

Preparation: Before applying primer or other surface treatments, clean galvanized metal surface to SSPC-SP1 that could impair bond of the various coatings. Remove oil, grease and soap film before priming use of Krud Kutter Metal Clean & Etch may be required on bare or new galvanized. Surface must be clean, dry and free of contaminants, including salt deposits. Additional prep may be needed to SSPC-SP2. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Note: Some selected areas of bare concrete surfaces will require (1) coat of Perma Crete 4-503 Concrete Primer before steel installation over all concrete surfaces.

Owner Option 1:
Prime: (1) coat PPG; 6-209 SpeedHide Galvanized Metal Primer (400 g/L VOC): Applied at a dry film thickness of not less than 3.0 to 5.0 mils.
Finish: (2) coats PPG; 4216 Plus HP Series Pitt-Tech Plus Semi-Gloss DTM Industrial Enamels (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.

Owner Option 2:
Prime: (1) coat PPG; 97-245 Pitt-Guard DTR Epoxy Mastic Primer (263 g/L VOC): Applied at a dry film thickness of not less than 4.0 to 7.0 mils.
Finish: (2) coats PPG; 95-3300 Durathane Urethane Mastic (240 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.

Owner Option 3 (Low VOC):
Prime: (1) coat PPG; Amerlock 2 Fast Dry VOC Compliant Epoxy (84 g/L VOC): Applied at a dry film thickness of not less than 4.0 to 6.0 mils.
Finish: (2) coats PPG; Amershield VOC Aliphatic Urethane (84 g/L VOC): Applied at a dry film thickness of not less than 5.0 to 8.0 mils.

Application: Conventional or HVLP (high volume low pressure) be done with conventional spray or airless equipment or brush or roller.

Exterior CMU Primer:

CMU Preparation: Mortar should cure for at least 30 days and preferably 90 days prior to priming. Fill block with an appropriate block filler. Surfaces previously coated with water thinned cement-based paint must be prepared with extra care. If the material appears to be adhering tightly, a masonry sealer may be applied to seal the surface. Check adhesion by applying a piece of masking tape. If the sealer peels off and has loose particles, remove all chalking or crumbling material, re-seal and re-check adhesion.

Field Preparation: Surfaces to be coated must be dry, clean, sound, and free from all contamination including loose and peeling paint, dirt, grease, oil, wax, concrete curing agents and bond breakers, chalk, efflorescence, mildew, rust, product fines, and dust. Remove loose paint, chalk, and efflorescence by wire brushing, scraping, sanding, and/or pressure washing. Putty all nail holes and caulk all cracks and open seams. Sand all glossy, rough, and patched surfaces. Feather back all rough edges to sound surface by sanding.

Prime: (2) Coats PPG; Speedhide Interior/Exterior Masonry Hi Fill Latex Block Filler

Application: Brush, Roll or Spray

Exterior Stucco/EIFS Surfaces (including wet areas):

Preparation: Remove all visible oil, grease, soil and all other foreign substances with cleaning solutions and/or scrapers. Allow to dry and sand all areas that need smoothing and dust off.
Prime: (1) coat PPG; 4-603 Perma-Crete Alkali Resistant Primer (100 g/L VOC): Applied at a dry film thickness of not less than 1.2 to 1.9 mils.
Finish: (2) coats PPG; 4-22 Perma-Crete Hi-Build Acrylic (100 g/L VOC): Applied at a dry film thickness of not less than 3.2 to 5.8 mils.
Application: Airless spray with back roll using 3/4" nap roller.

Exterior Wood:

Preparation: Remove all visible oil, grease, soil and all other foreign substances with cleaning solutions and or scrapers. Allow to dry and sand all areas that need smoothing and dust off.
Prime: (1) coat PPG; 17-921 Seal Grip Primer Sealer (100 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.
Finish: (2) coats PPG; 70-501 Manor Hall Exterior Semi-Gloss or PPG Acri-Shield Semi-Gloss PP649 (50 g/L VOC): Applied at a dry film thickness of not less than 1.5 to 3.0 mils.
Application: Brush, Roll or Spray

D. Interior Coatings:

Interior Metals: (Doors, door frames, where indicated)
Preparation: Remove all visible rust, oil, grease, soil and all other foreign substances with cleaning solutions and/or scrapers. Allow to dry and sand all areas that need smoothing and dust off.
Prime: (1) coat PPG; 4020PF Series Pitt-Tech Plus Int/Ext DTM Acrylic Industrial Primer (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils. (Repaints only require spot prime on bare metal surfaces.)
Finish: (2) coats PPG; V-50-410 Breakthrough Semi-gloss Sheen Acrylic (250 g/L VOC): Applied at a dry film thickness of not less than 1.4 to 2.0 mils.
Application: Conventional spray, HVLP or Airless spray. Touch-ups shall be done with conventional spray or airless equipment or brush or roller.

Interior Metals: (Metal Deck if indicated on Finish Plan)
Preparation: Remove all visible rust, oil, grease, soil and all other foreign substances with cleaning solutions and allow to dry before priming.
Prime: (1) coat PPG; 4020PF Series Pitt-Tech Plus Int/Ext DTM Acrylic Industrial Primer (90 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils. (Primer only required on unpainted decking or to spot prime bare areas in decking.)
Finish: (2) coats PPG; 90-1110 Pitt-Tech Plus Satin Acrylic (100 g/L VOC): Applied at a dry film thickness of not less than 2.0 to 4.0 mils.
Application: Conventional spray, HVLP or Airless spray. Touch-ups shall be done with conventional spray or airless equipment or brush or roller.

Interior Gyp. Bd.:
Preparation: Remove all visible oil, grease, soil and all other foreign substances with cleaning solutions. Fill hairline cracks, holes and other defects with filler compatible with finish coats. Sand smooth all areas filled and/or areas to make a smooth overall finish.
Prime: (1) coat PPG; 9-900 Pure Performance Acrylic Primer (0 g/L VOC): Applied at a dry film thickness of not less than 1.4 to 2.0 mils. (Spot prime required only on repaint projects.)
Finish: (2) coats PPG; Pure Performance Zero VOC Eggshell 9-500 Series, sheen as shown on finish plan: Applied at a dry film thickness of not less than 1.5 to 2.0 mils.
Application: Conventional spray, HVLP or Airless spray. Touch-ups shall be done with conventional spray or airless equipment or brush or roller.

Interior Wood Trim and Plywood - Clear Polyurethane Finish:
(Plywood finishes shall be shop applied in a controlled environment)

Shop Preparation: Scuff sand between coats.

Shop Finish: (2) coat, ML Campbell Krystal conversion varnish, Clear Dull Sheen
Application: Spray

Field Preparation: All cuts in field are to be sanded smooth. Scuff sand between coats.

Field Finish: (2) coat, ML Campbell High Performance Pre-Cat Lacquer, Clear Dull Sheen
Application: Wipe on with t-shirt rag.

E. Color Guide: Refer to Finish Plan and drawings for exact location of all colors.

WHERE	WHAT	COLOR	SHEEN	FINISH TAG
Exterior Galvanized Metal Flashing and Prefinished Metal Wall Panels	PPG Pitt-Tech Plus Satin Acrylic Finish 90-1110 Series	PPG 1001-6 "Knight's Armor"	Satin	N/A
Exterior (Roof Mounted) Gas Piping	PPG Pitt-Tech Plus Semi-Gloss Acrylic Finish 4216 Plus HP Series	Yellow	Semi-Gloss	N/A
Exterior and Interior Gas Piping, Where Exposed	PPG Pitt-Tech Plus Semi-Gloss Acrylic Finish 4216 Plus HP Series	Match surrounding finishes/verify with architect	Semi-Gloss	N/A
Exterior CMU Primer	PPG Speedhide Interior/Exterior Masonry Hi Fill Latex Block Filler	White	Flat	N/A
Exterior CMU	PPG Pitt-Tech Plus Semi-Gloss Acrylic Finish 4216 Plus HP Series	PPG 1001-6 "Knight's Armor"	Semi-Gloss	N/A
Exterior Ferrous Metals	PPG Pitt-Tech Plus Semi-Gloss Acrylic Finish 4216 Plus HP Series	PPG 1001-6 "Knight's Armor"	Semi-Gloss	N/A
Exterior Wood	PPG Manor Hall Acrylic Semi-Gloss 70-501 Series or PPG Acri-Shield Acrylic Semi-Gloss PP649 Series	PPG 1001-6 "Knight's Armor"	Semi-Gloss	N/A
Exterior Stucco and EIFS Patio and Wet Areas	PPG Perma-Crete High Build Acrylic Topcoat 4-22 Series	PPG 1001-6 "Knight's Armor"	Flat	N/A
Exterior Stucco and EIFS Patio and Wet Areas	PPG Perma-Crete High Build Acrylic Topcoat 4-22 Series	PPG 1010-2 "Fog"	Flat	N/A
Exterior Stucco and EIFS Patio and Wet Areas	PPG Perma-Crete High Build Acrylic Topcoat 4-22 Series	PPG 1058-7 "Autumn Ridge"	Flat	N/A
Interior Doors, Door Frames, Rails and Rail Frames, Where Specified	PPG Breakthrough 50 Acrylic Satin	PPG V51-90 Black	Satin	D1
Interior Ferrous Metals, Where Specified	PPG Breakthrough 250 Acrylic Eggshell V50-410 Series	PPG 1013-5 "Victorian Pewter"	Eggshell	N/A
Dining Room and Hallway Gyp. Bd.	PPG Pure Performance Zero VOC Semi-Gloss 9-500 as indicated on finish plan	PPG 1001-3 "Thin Ice"	Semi-Gloss	P4
Dining Room and Hallway Gyp. Bd.	PPG Pure Performance Zero VOC Eggshell 9-310 as indicated on finish plan	PPG 1001-3 "Thin Ice"	Eggshell	P3
Dining Room and Hallway Gyp. Bd. Ceiling	PPG Pure Performance Zero VOC Flat 9-100 Series or PPG Speedhide 6-4110XI Flat	PPG 1041-1 "Moonlit Snow"	Flat	C3
Restroom, Cooking, Kitchen and Serving Area Soffit Gyp. Bd.	PPG Pure Performance Zero VOC Eggshell 9-500 Series	PPG 1041-1 "Moonlit Snow"	Eggshell	C3
Interior Metal Roof Deck and Metal Columns	PPG Pitt-Tech Plus Satin Acrylic Finish 90-1110 Series	PPG 1013-5 "Victorian Pewter"	Satin	C1
Patio Railing	Durethane DTM Urethane 95-3300 Series	PPG 1001-6 "Knight's Armor"	Gloss	N/A

3.1 Installation:

A. Examination:
1. Verify that site environmental conditions are appropriate for application of coatings specified.
2. Immediately prior to coating application, ensure that surfaces to receive coatings are dry.
3. Ensure that moisture-retaining substrates to receive coatings have moisture content within tolerances allowed by coating manufacturer, using moisture measurement techniques recommended by coating manufacturer.
4. Immediately prior to coating application, examine surfaces to receive coatings for surface imperfections and for contaminants which could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.
5. Correct the above conditions and any other conditions which could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

B. Preparation:
1. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
2. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; seal with shellac or other coating acceptable to paint manufacturer stains and marks that might bleed through paint finishes which cannot be completely removed.
3. Remove or protect hardware, electrical plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings which are adjacent to surfaces to receive coatings.
4. Remove mildew from impervious surfaces by scrubbing with solution of disodium phosphate and bleach. Rinse with clean water and allow substrate to thoroughly dry.
5. For specific substrate preparation, see individual specifications.
6. Provide necessary staging, ladders, shield, protective coverings and drop cloths. Protect floors, walls and adjacent work and materials. Remove and properly replace temporary protection and coverings removed from any part of the work or finish. Repair damage at Contractor's expense.

C. Application:
1. General: Mix, prepare and apply paint according to manufacturer's written instructions.
   a. Use applicators and techniques best suited for substrate and type of material being applied.
   b. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
   c. Coating surface treatments, and finishes are indicated in the coating system descriptions.
   d. Provide finish coats compatible with primers used.
   e. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
2. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
   a. The number of coats and film thickness required is the same regardless of application method.
   b. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements as directed by Tenant. Paints and coatings work is subject to acceptance by the Tenant.
   c. Keep brushes and rollers clean, free from contamination and suitable for the finish required.
   d. Unless otherwise indicated, allow exterior paints to dry for 48 hours and interior paints to dry for 24 hours between coats.
   e. Sand lightly and remove dust between coats to achieve required finish.
   f. Finished surfaces shall be uniform in finish and color and free of brush marks, sagging, holidays, corduroy and other imperfections. Coverage and hide shall be complete.
   g. Edges of paint or finish adjoining other materials or colors shall be sharp and clean without overlapping. Cut paint in neatly around glass or other edges.
   h. Paints and coatings work is subject to acceptance by the Tenant. Correct unsatisfactory work not complying with these specifications as directed by the Tenant.

D. Cleaning:
1. After completing painting, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

E. Protection:
1. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect / Tenant.

2. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

3. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

F. Maintenance: Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Tenant.
1. Provide one gallon of paint and wood stain of each type and color required for maintenance purposes. Provide original, unopened, labeled containers with color samples and a list of project use.

DIVISION 10 - SPECIALTIES

SECTION 10522 - PORTABLE FIRE EXTINGUISHES

1.1 General: Provide portable fire extinguishers as shown and specified.

A. Standards: Materials and installation shall conform to the following:
1. NFPA 10 "Standard for Portable Fire Extinguishers.

2.1 Materials:

A. Provide minimum 10 lb. capacity fire extinguishers in quantity and type complying with local code and fire regulations requirements.
1. Provide new fire extinguishers fully loaded, tested, UL and FM labeled and listed and ready for use.
2. Provide manufacturer's recommended mounting brackets and hardware.

3.1 Installation:

A. Install fire extinguishers in accordance with manufacturer's installation instructions, at heights and locations acceptable to the local fire regulations enforcement authority

DIVISION 11- NOT APPLICABLE

DIVISION 12 - FURNISHINGS

NOT USED

SECTION 12495 - WINDOW SHADES

1.1 General: Provide window shades as shown and specified.

A. Standards: Shade fabric material shall meet the requirements of the following:
1. NFPA 701 Flame Test and California US Title 19 for flame retardant materials.

B. Field measure window openings and verify installation conditions prior to window shade fabrication

C. Warranty:
1. 5 years against defects in materials and workmanship.
2. 1 year for service call repairs and adjustments.

2.1 Materials:

A. Manufacturer: Insolroll Window Shading Systems, Inc. (800) 447-5534, internet www.insolroll.com

B. Window Shades: Insolroll 2000 Solar Screen Shades, manual operation.
1. Solar Screen Shade Fabric: Insolroll woven fiberglass yarn, 5% openness, Charcoal/Bronze color.
2. Provide manufacturer's recommended mounting brackets and hardware.

C. Fabrication: Unless otherwise indicated, fabricate window shade units to completely fill existing window openings from jamb to jamb and from head to 42" AFF or the nearest horizontal mullion from 40"-44" AFF.
1. Adjustment system controlled by plastic bead chain on polyester cord. Multi-banded steel spring clutches keep shade in desired position.
2. Roller tube 2" extruded aluminum, sized to minimize deflection.
3. Fabric attached to roller tube using two-sided adhesive tape.
4. Fabric bottom hem RF heat sealed pocket with enclosed hem bar.

3.1 Installation:

A. Install window shades level and plumb in accordance with manufacturer's installation instructions and drawing details. Provide units securely anchored in place with recommended hardware and accessories to provide smooth operation without binding.

DIVISIONS 13 - 14 - NOT APPLICABLE

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fax: 614.487.8777

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03.08.21 PERMIT SET

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Drawn: KM
Checked: KM

Project No.
CMGXXX

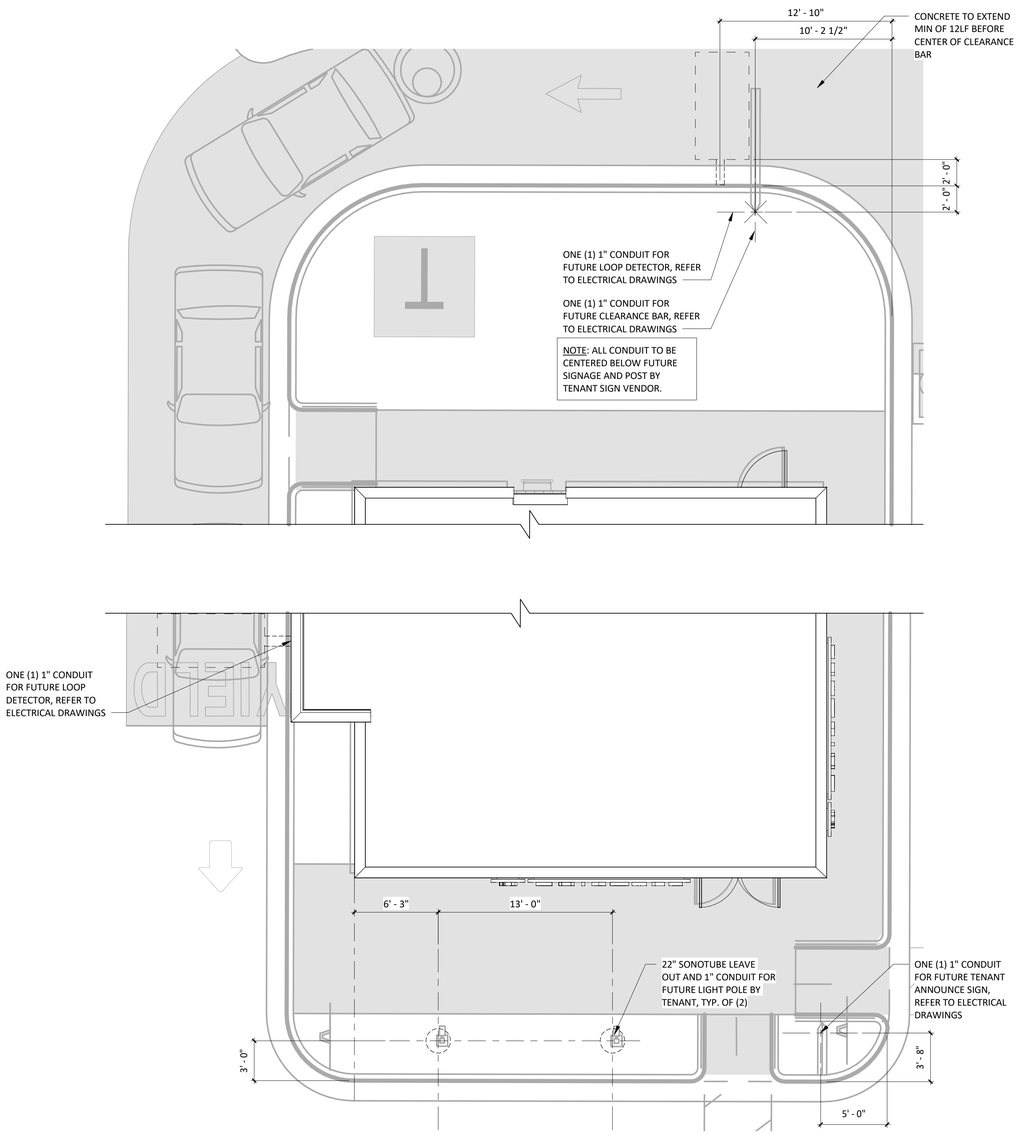
Contents:
ARCHITECTURAL SPECIFICATIONS

G017

GENERAL NOTES

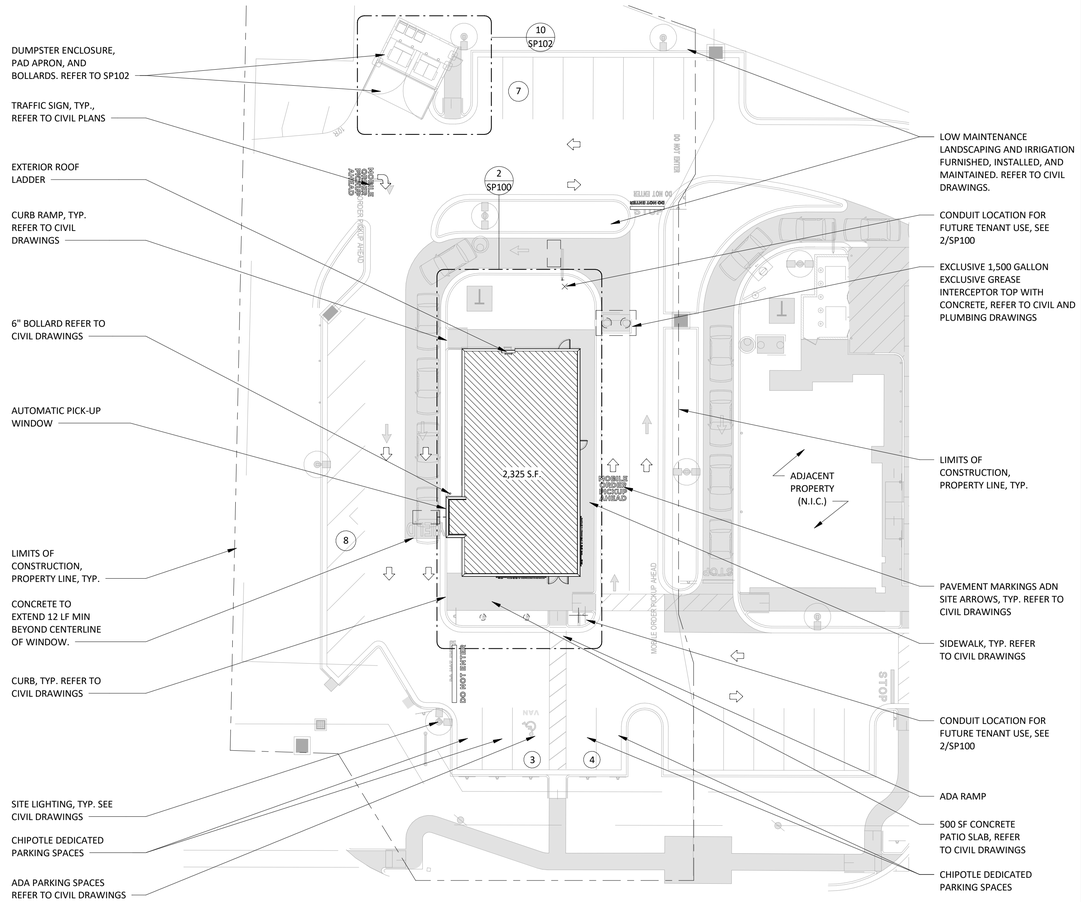
STENCILS FOR PARKING MARKINGS AVAILABLE FROM PAVEMENT STENCIL COMPANY, PHONE: (800) 250-5547, EMAIL: STENCILS@PAVEMENTSTENCIL.COM

NOTE: ARCHITECTURAL SITE PLAN IS FOR REFERENCE ONLY. GC TO BUILD FROM CIVIL DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN ARCHITECTURE AND CIVIL, CONTACT ARCHITECT IMMEDIATELY.



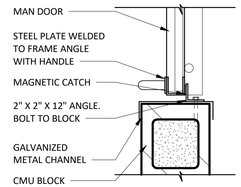
2 SP100 **ARCHITECTURAL SITE PLAN - DIMENSIONS**

3/16" = 1'-0"

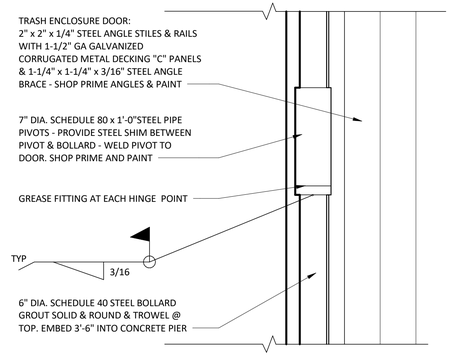

DUMPSTER ENCLOSURE, PAD APRON, AND BOLLARDS. REFER TO SP102
TRAFFIC SIGN, TYP., REFER TO CIVIL PLANS
EXTERIOR ROOF LADDER
CURB RAMP, TYP. REFER TO CIVIL DRAWINGS
6" BOLLARD REFER TO CIVIL DRAWINGS
AUTOMATIC PICK-UP WINDOW
LIMITS OF CONSTRUCTION, PROPERTY LINE, TYP.
CONCRETE TO EXTEND 12 LF MIN BEYOND CENTERLINE OF WINDOW.
CURB, TYP. REFER TO CIVIL DRAWINGS
SITE LIGHTING, TYP. SEE CIVIL DRAWINGS
CHIPOTLE DEDICATED PARKING SPACES
ADA PARKING SPACES REFER TO CIVIL DRAWINGS
LOW MAINTENANCE LANDSCAPING AND IRRIGATION FURNISHED, INSTALLED, AND MAINTAINED. REFER TO CIVIL DRAWINGS.
CONDUIT LOCATION FOR FUTURE TENANT USE, SEE 2/SP100
EXCLUSIVE 1,500 GALLON EXCLUSIVE GREASE INTERCEPTOR TOP WITH CONCRETE, REFER TO CIVIL AND PLUMBING DRAWINGS
LIMITS OF CONSTRUCTION, PROPERTY LINE, TYP.
PAVEMENT MARKINGS ADN SITE ARROWS, TYP. REFER TO CIVIL DRAWINGS
SIDEWALK, TYP. REFER TO CIVIL DRAWINGS
CONDUIT LOCATION FOR FUTURE TENANT USE, SEE 2/SP100
ADA RAMP
500 SF CONCRETE PATIO SLAB, REFER TO CIVIL DRAWINGS
CHIPOTLE DEDICATED PARKING SPACES
10 SP102
7
2 SP100
2,325 S.F.
ADJACENT PROPERTY (N.I.C.)
8
3
4
DO NOT ENTER
DO NOT ENTER
DO NOT ENTER
DO NOT ENTER
DRIVE-THRU ONLY
DRIVE-THRU ONLY
DRIVE-THRU ONLY

DUMPSTER ENCLOSURE FINISH SCHEDULE

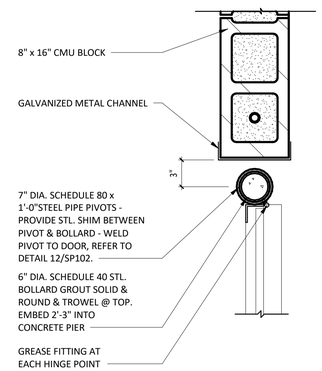
MATERIAL	COLOR/FINISH
CMU - PRIMER	REFER TO PAINT SPECIFICATIONS, COLOR 'WHITE'
CMU	REFER TO PAINT SPECIFICATIONS
METAL COPING	PREFINISHED TO MATCH PAINTED CMU
CORRUGATED METAL & DOOR FRAMES	PAINTED 'KNIGHTS ARMOR' PPG 1001-6



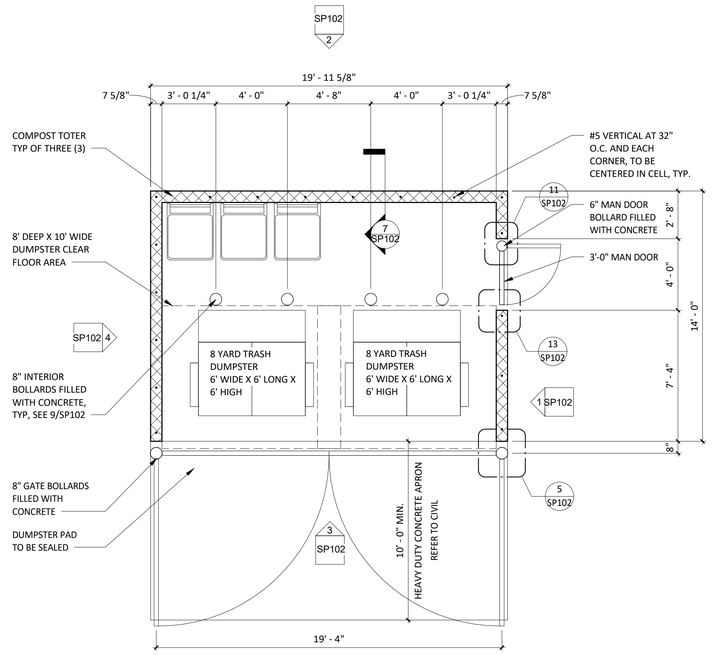
13 SP102 **MAN DOOR LATCH DETAIL**
1 1/2" = 1'-0"



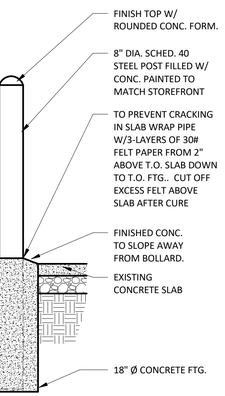
12 SP102 **MAN DOOR PIVOT**
1 1/2" = 1'-0"



11 SP102 **MAN DOOR PIVOT DETAIL**
1 1/2" = 1'-0"



10 SP102 **DUMPSTER PLAN**
1/4" = 1'-0"



9 SP102 **TYP. BOLLARD DETAIL**
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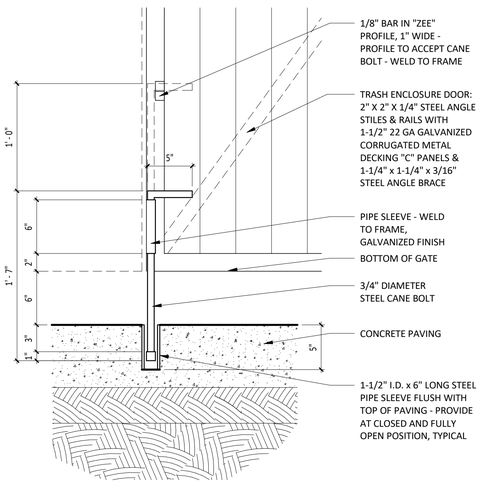

8 SP102 **TYPICAL CANE BOLT DETAIL**
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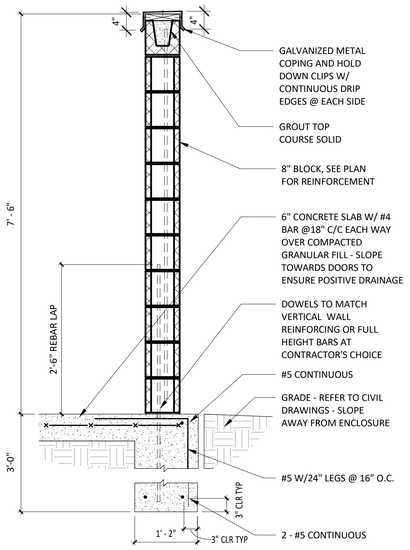
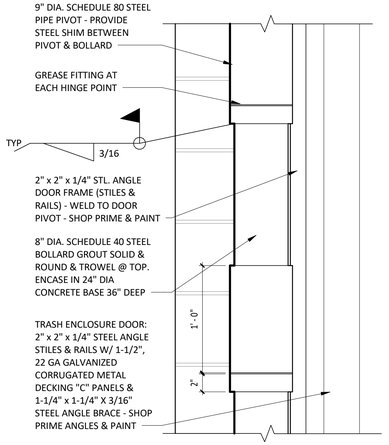


7 SP102 **DUMPSTER DETAIL**
3/4" = 1'-0"



6 SP102 **DUMPSTER DOOR PIVOT**
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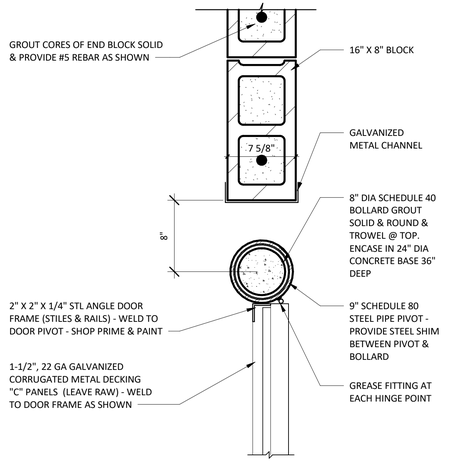

5 SP102 **DUMPSTER WALL DETAIL**
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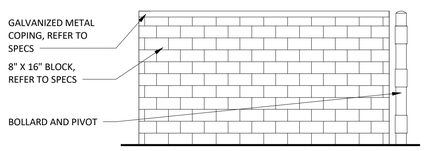
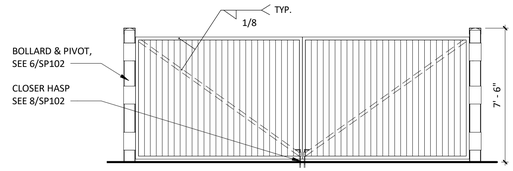


4 SP102 **DUMPSTER ELEVATION**
1/4" = 1'-0"



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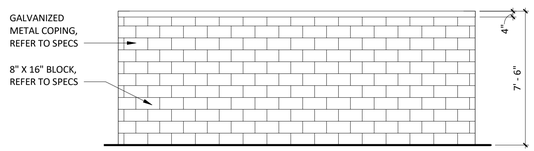

2 SP102 **DUMPSTER ELEVATION**
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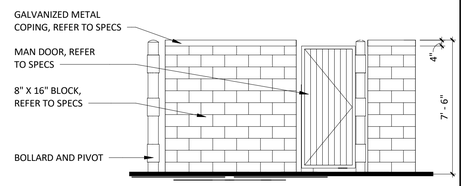

1 SP102 **DUMPSTER ELEVATION**
1/4" = 1'-0"

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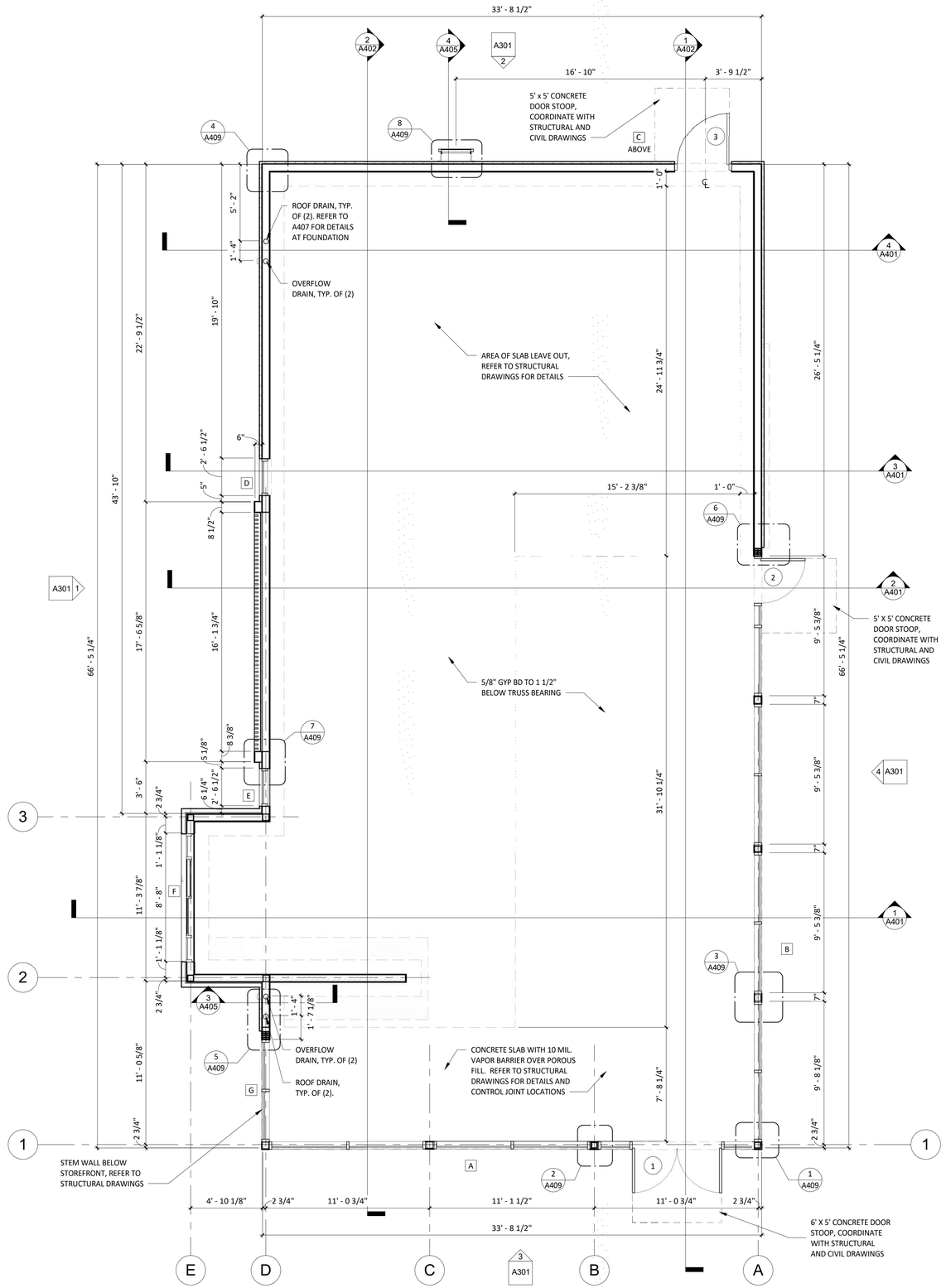
Revisions:

Drawn: KM
Checked: KM

Project No.
CMGXXX

Contents:
DUMPSTER PLAN & DETAILS

SP102



ARCHITECTURAL SHELL PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES

1. REFER TO A601 FOR DOOR INFORMATION & A602 FOR STOREFRONT DIMENSIONS.
2. ALL DIMENSIONS ARE TO FACE OF FRAMING (STUD WALL) OR CENTERLINE OF STRUCTURE UNLESS NOTES OTHERWISE.
3. SEE STRUCTURAL SHEETS FOR ALL STUD FRAMING CONFIGURATIONS, SIZES, SPACING AND GAUGES.
4. ALL EXTERIOR WOOD BLOCKING TO BE MOISTURE RESISTANT PRESERVATIVE TREATED (P.T.)
5. TAPE SEALANT AT ALL ANCHOR LOCATIONS.
6. ALL FLASHING AND SEAMS BETWEEN SHEATHING IN COMPOSITE WOOD STUD WALL CONSTRUCTION CONDITIONS TO BE TAPED AND SEALED WITH TAPE SEALANT.
7. LAP ALL WEATHER RESISTANT BARRIERS AND THRU-WALL FLASHING IN A WATER SHEDDING FASHION. TAPE ALL EXPOSED EDGES.
8. EXTEND ALL THRU-WALL FLASHING TO 1/4 INCH PAST THE EXTERIOR FACE OF WALL.
9. PROVIDE CONTINUOUS ANCHORAGE FOR ALL THRU-WALL FLASHING.
10. EXTEND FLASHING VERTICALLY A MINIMUM OF 8 INCHES ABOVE THE BASE OF THE FLASHING.
11. APPLY SEALANT TO ALL SHEATHING JOINTS AND FASTENER PENETRATIONS.
12. PROVIDE FULLY ADHERED FLASHING AT ALL WINDOW AND DOOR OPENING HEADS, SILLS AND JAMBS.

Consultant:
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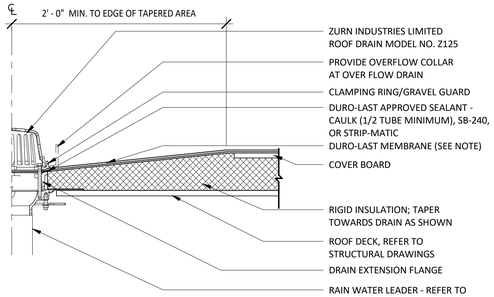
CMGXXX

Contents:
ARCHITECTURAL SHELL PLAN

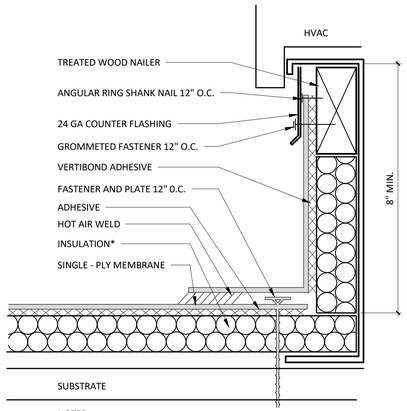
A100



NOTE:
DURO-LAST MEMBRANE MUST EXTEND BEHOND THE INSIDE OF THE CLAMPING RING. BE SURE THE OPENING WHERE WATER PASSES THROUGH THE MEMBRANE IS NOT SMALLER THAN THE OPENING OF THE DRAIN.

4 A140 ROOF DRAIN DETAIL

1 1/2" = 1'-0"

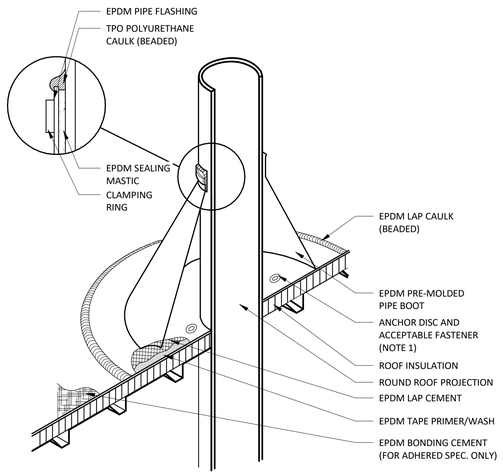


NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. USE PREFABRICATED OUTSIDE CORNERS.
4. INSULATION MUST BE SECURELY FASTENED.
5. *GLASS - FACED POLYISO INSULATION IS OPTIONAL AND MAY NOT BE REQUIRED ON EVERY PROJECT. IF INSULATION IS NOT REQUIRED, THE MEMBRANE MUST BE ADHERED TO AN APPROVED SURFACE.

3 A140 CURB FLASHING

1/2" = 1'-0"

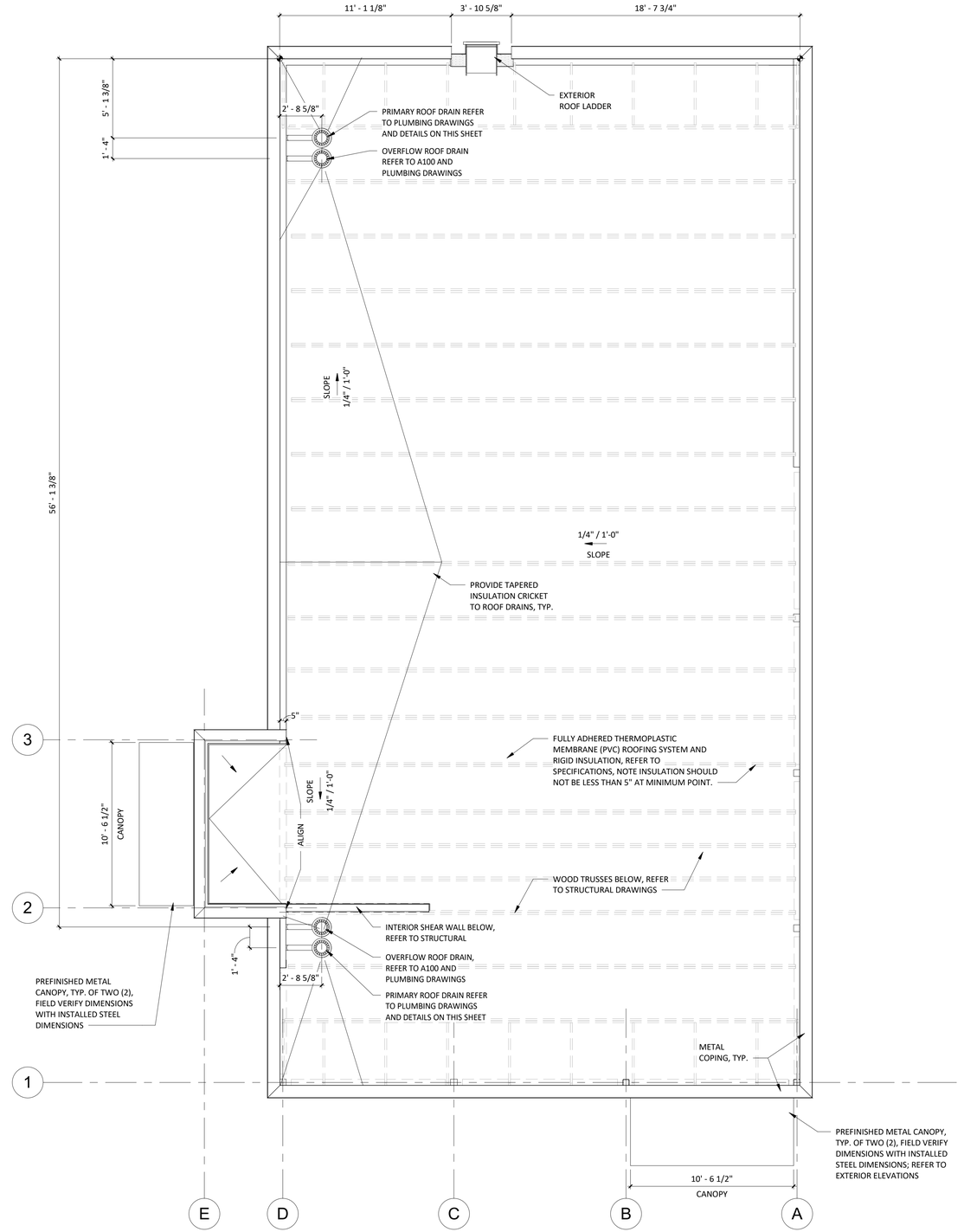


NOTE:

1. WITH MECHANICALLY FASTENED OR BALLASTED SPECIFICATIONS, MEMBRANE MUST BE MECHANICALLY ATTACHED WITH 2" (50 mm) ANCHOR DISC AND ACCEPTABLE FASTENERS (MINIMUM OF 4 PER PIPE).
2. DO NOT OVERLAP THE FLANGES FROM ADJACENT PIPE FLASHINGS.
3. ANY SEAM UNDER BOOT FLANGE TO BE TREATED AS T-JOINT.
4. BOTH SURFACES TO BE MATED MUST BE CLEANED WITH TAPE PRIMER/WASH. EPDM TAPE PRIMER/WASH MUST BE COMPLETELY DRY AND TACK FREE BEFORE APPLYING EPDM LAP CEMENT.

2 A140 BOOT DETAIL

1/2" = 1'-0"



1 A140 ROOF PLAN

1/4" = 1'-0"

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Contents:
ARCHITECTURAL ROOF PLAN

A140

GENERAL NOTES

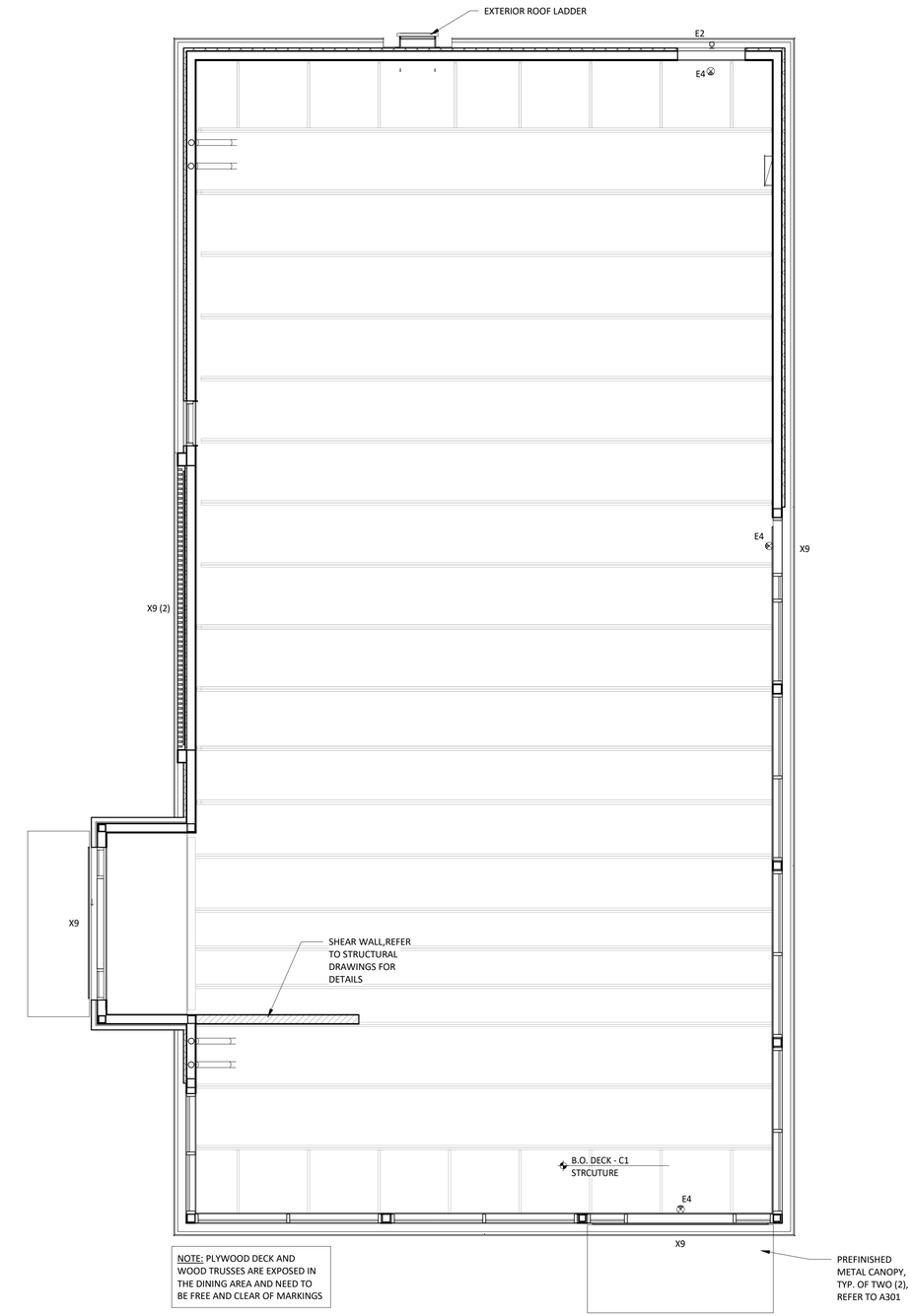
1.	ALL EXTERIOR LIGHT FIXTURES AND LAMPS PROVIDED BY FURNISHED AND INSTALLED BY GC .
9.	ALL HEIGHTS ARE TO BOTTOM OF FIXTURE UNLESS NOTED OTHERWISE.
13.	ALL WATER LINES AND EXPOSED PCV SHALL BE INSTALLED UP IN TRUSSES AND PAINTED VICTORIAN PEWTER.
14.	ALL DIMENSIONS ARE TO FACE OF FRAMING, OR CENTERLINE OF FIXTURE UNLESS NOTED OTHERWISE.
15.	SEE ELECTRICAL DRAWINGS FOR SHATTER RESISTANT LAMP LOCATIONS.
16.	ALL EMERGENCY FIXTURES, LIGHTS AND STROBES SHALL BE ALIGNED OR CENTERED ON WALLS.
18.	ALL CONDUIT AND PIPE PENETRATIONS OF THE SERVING LINE SOFFIT ARE TO BE HELD TIGHT TO THE DECK. PLEASE CONSULT WITH THE CHIPOTLE CM SHOULD ANY CONFLICTS ARISE.
22.	ALL PATIO LIGHT FIXTURES TO BE FURNISHED AND ISNTALLED AS PART OF SEPARATE PERMIT.
23.	ALL EXTERIOR PARKING LOT LIGHT FIXTURES AND LAMPS PROVIDED BY AND INSTALLED BY G.C. CAREFULLY REVIEW LIGHTING FIXTURE SCHEDULE ON SHEET E100.

CONDUIT GUIDELINES

SEE ELECTRICAL DRAWINGS FOR CONDUIT REQUIREMENTS. METAL CLAD CABLE AND FLEXIBLE METAL CONDUIT SHALL NOT BE INSTALLED IN AREAS EXPOSED TO VIEW UNLESS SPECIFICALLY NOTED OTHERWISE.

LIGHT FIXTURE SCHEDULE

ITEM #	QTY	MOUNT	DESCRIPTION	REMARKS
E2	1	VARIOUS	EMERGENCY LIGHT - SINGLE HEAD	SEE SHEET E100
E4	3	VARIOUS	WHITE EXIT LIGHT - STANDARD RED LETTERS	SEE SHEET E100
X9	5	SURFACE	LED CHANNEL LIGHT	SEE SHEET E100



NOTE: PLYWOOD DECK AND WOOD TRUSSES ARE EXPOSED IN THE DINING AREA AND NEED TO BE FREE AND CLEAR OF MARKINGS

REFLECTED CEILING PLAN

1/A201 1/4" = 1'-0"

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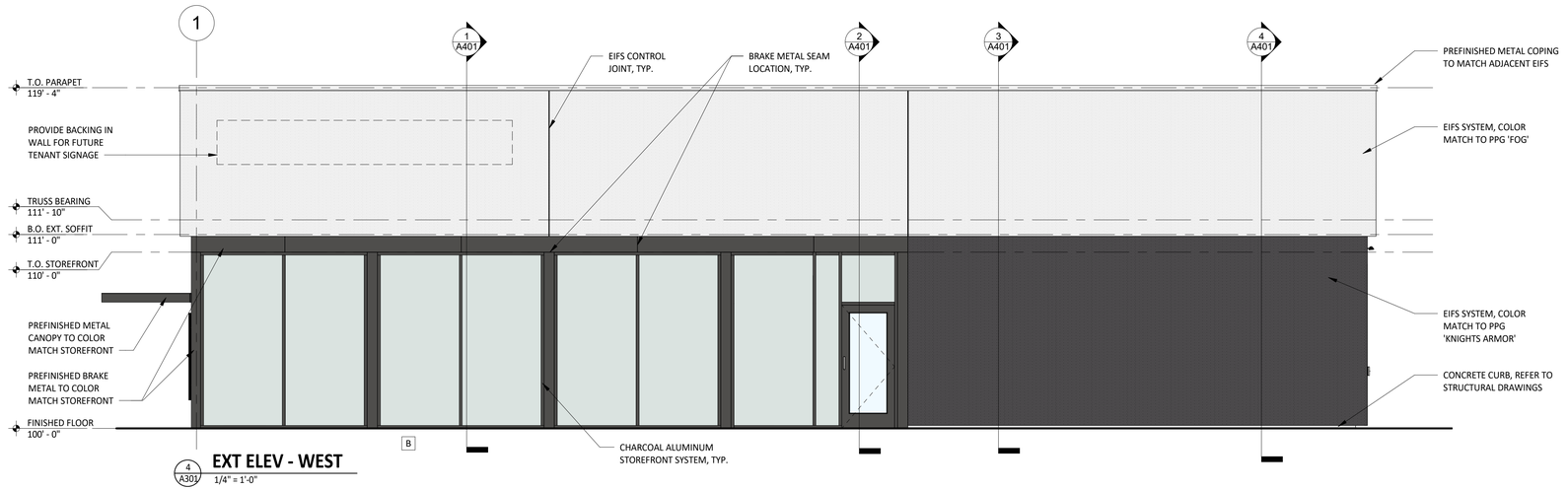
Contents:
REFLECTED CEILING PLAN

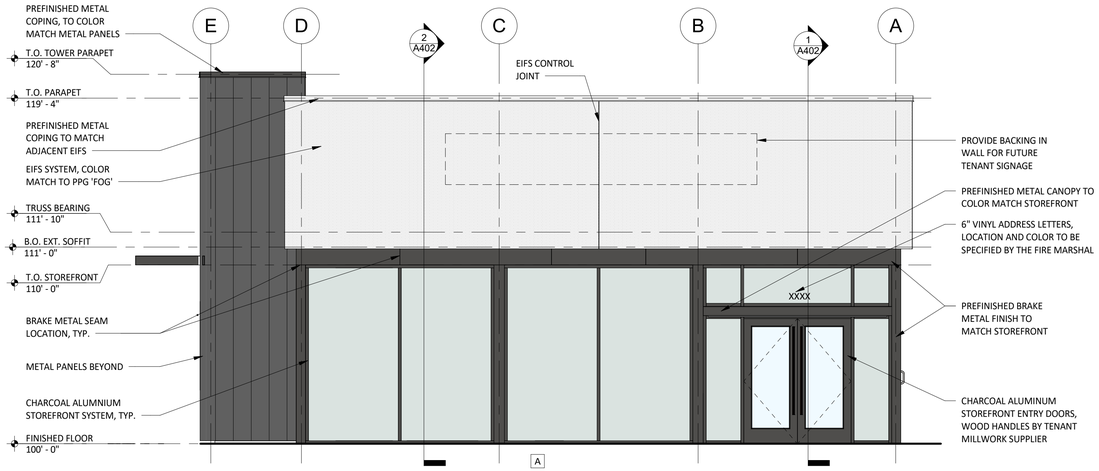
A201

GENERAL NOTES

1. METAL CANOPY AVAILABLE FROM AMERICAN PRODUCTS, INC. (API), PHONE: (813) 925-0144, E-MAIL: BIDS@AMERICANPROD.COM



4 A301 **EXT ELEV - WEST**
1/4" = 1'-0"



3 A301 **EXT ELEV - NORTH**
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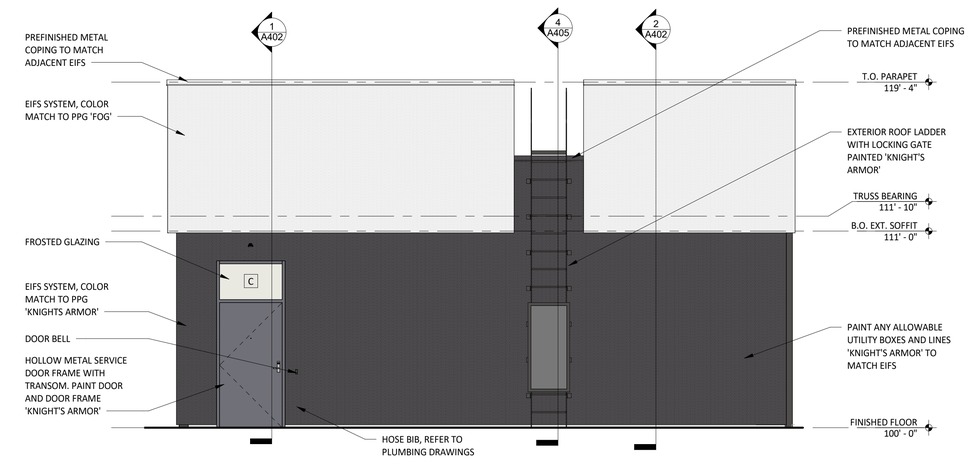
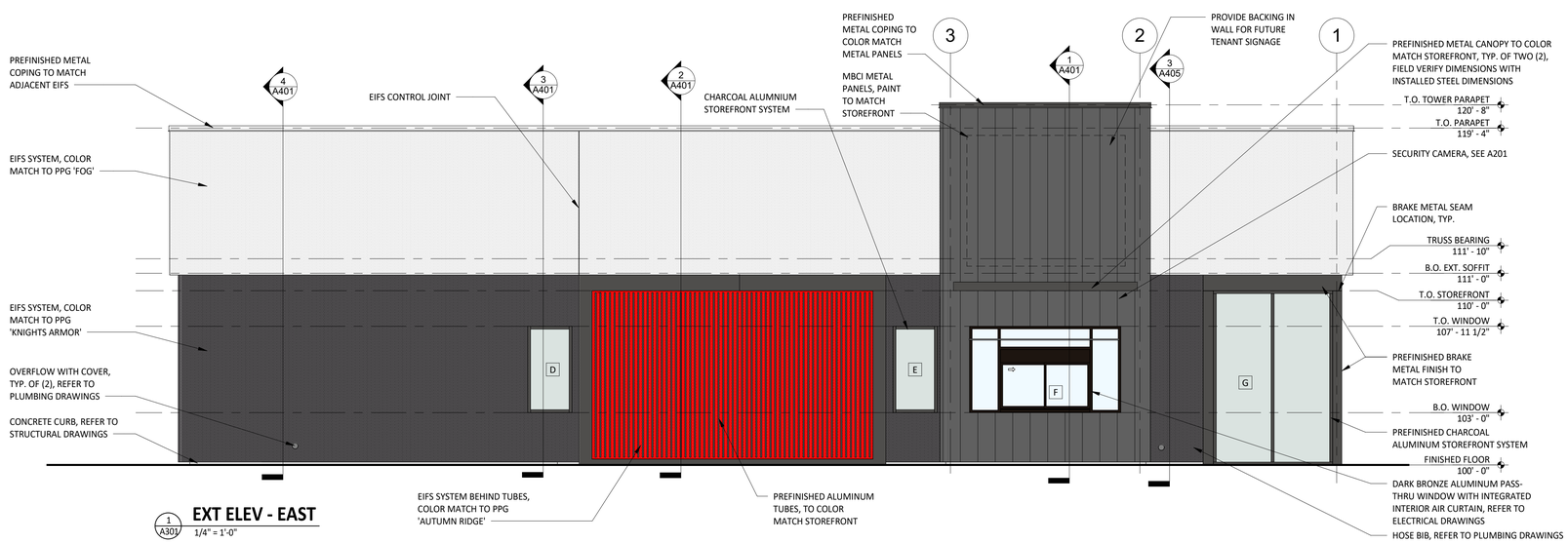


2 A301 **EXT ELEV - SOUTH**
1/4" = 1'-0"



1 A301 **EXT ELEV - EAST**
1/4" = 1'-0"

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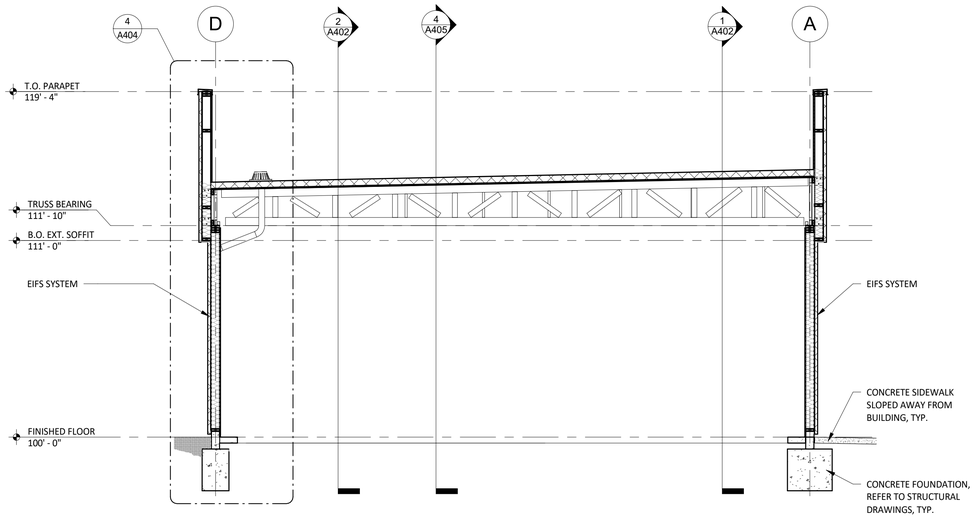
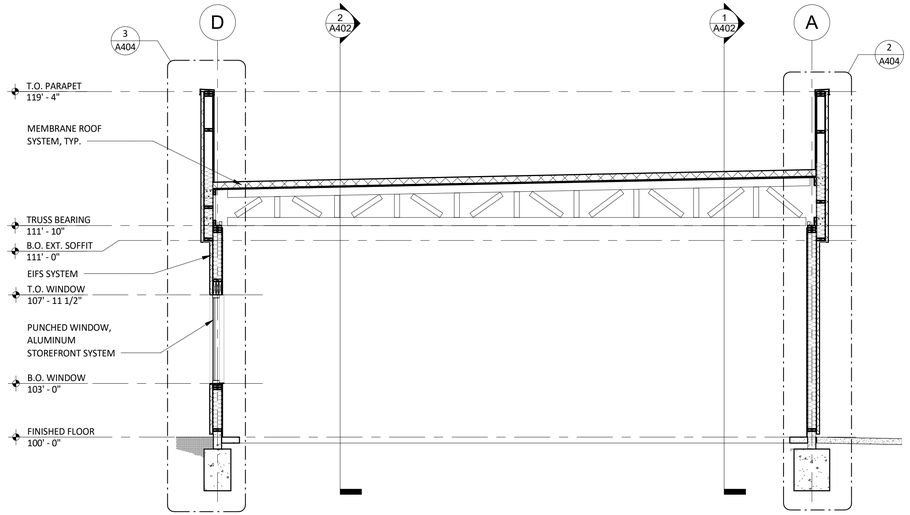
EXTERIOR ELEVATIONS

A301



4 A401 **BUILDING SECTION**
1/4" = 1'-0"



3 A401 **BUILDING SECTION**
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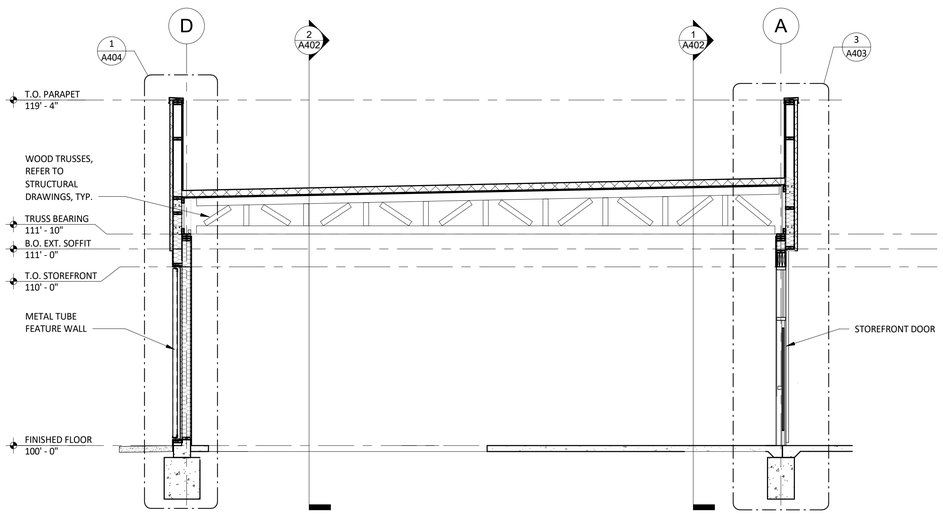
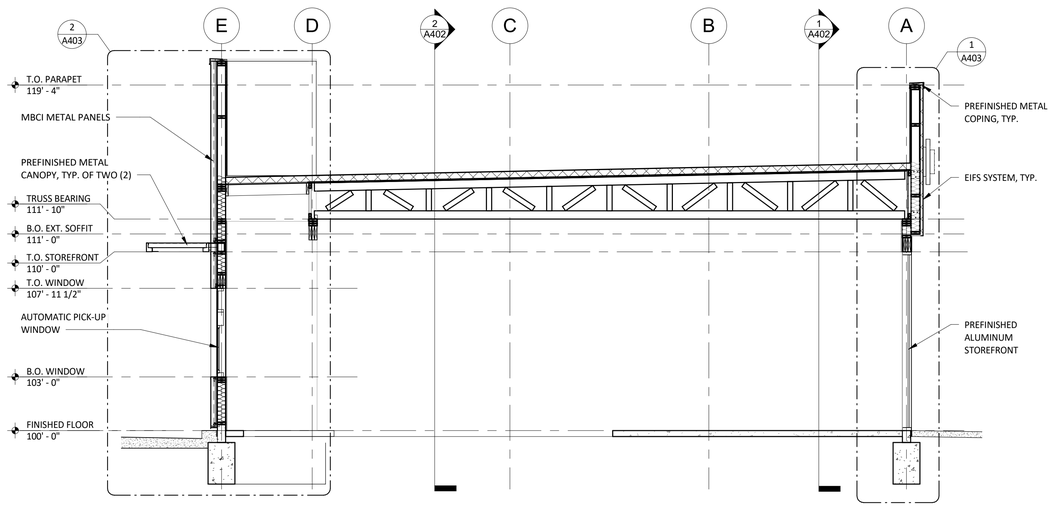


2 A401 **BUILDING SECTION**
1/4" = 1'-0"



1 A401 **BUILDING SECTION**
1/4" = 1'-0"

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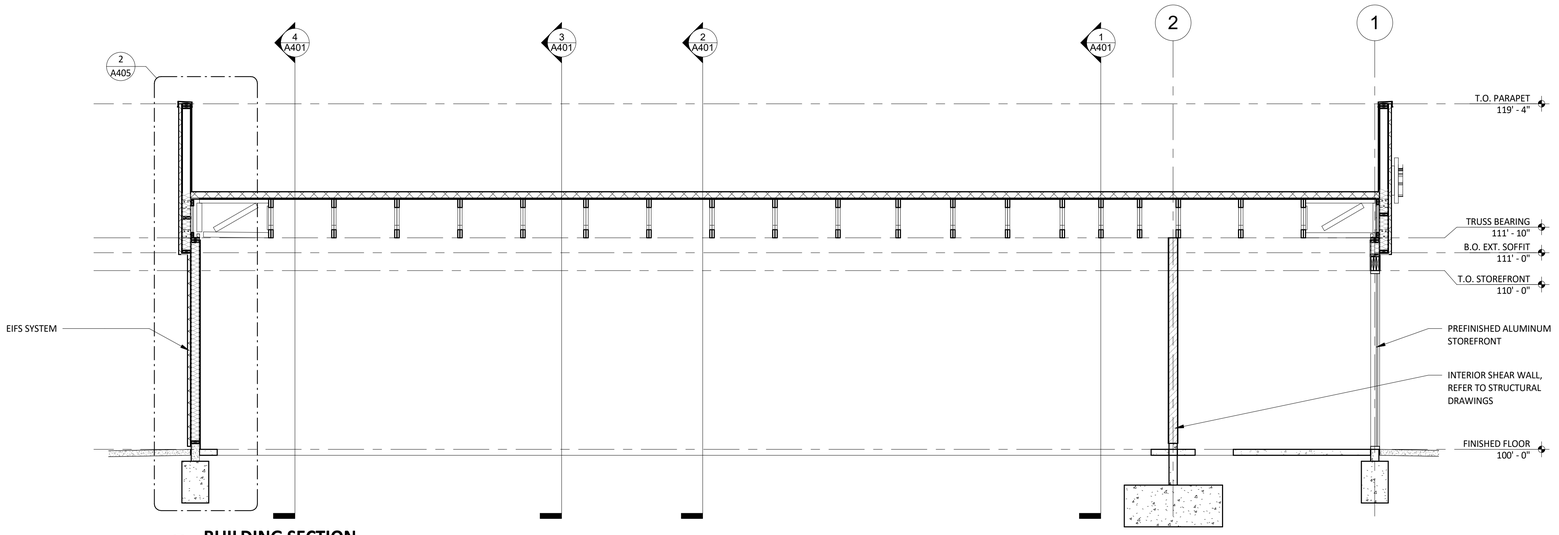
BUILDING SECTIONS

A401



2 A402 **BUILDING SECTION**
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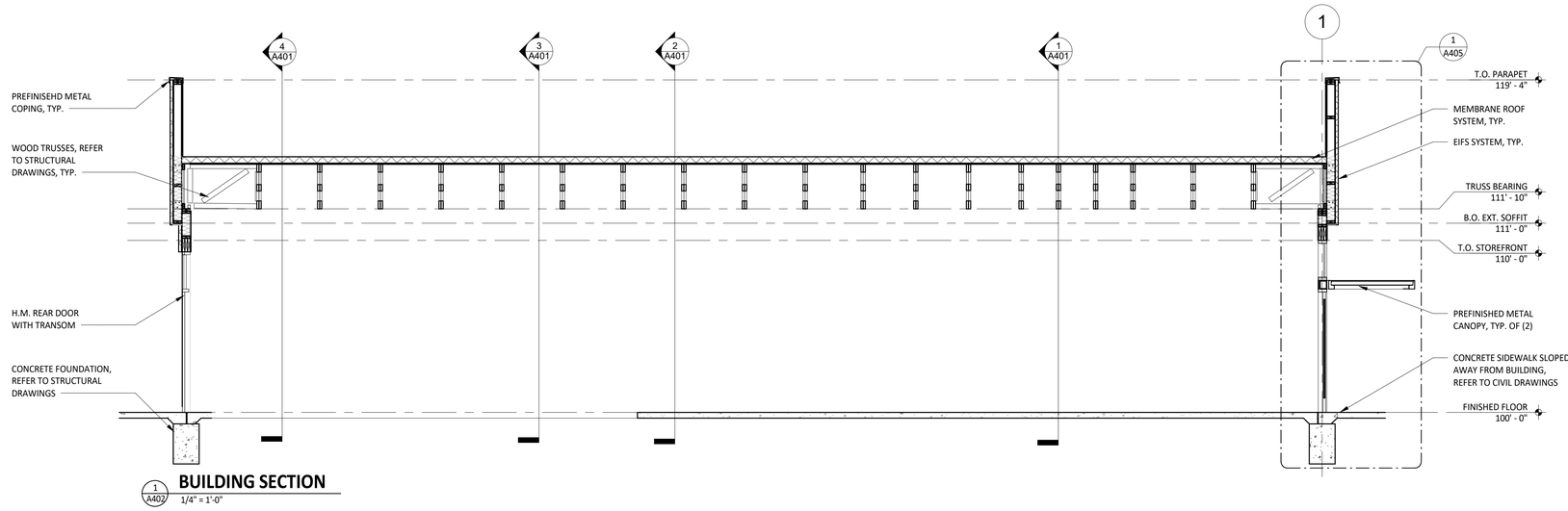

1 A402 **BUILDING SECTION**
1/4" = 1'-0"

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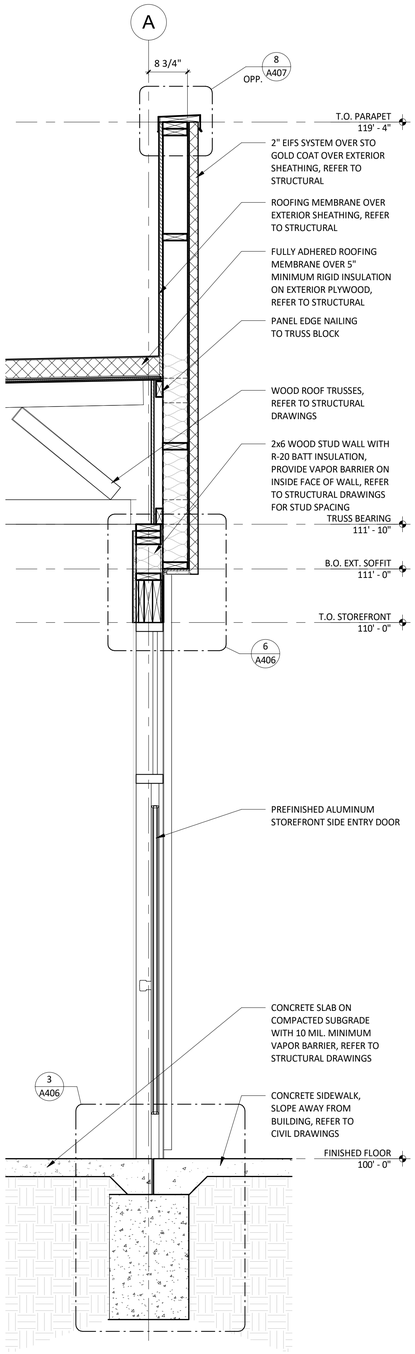
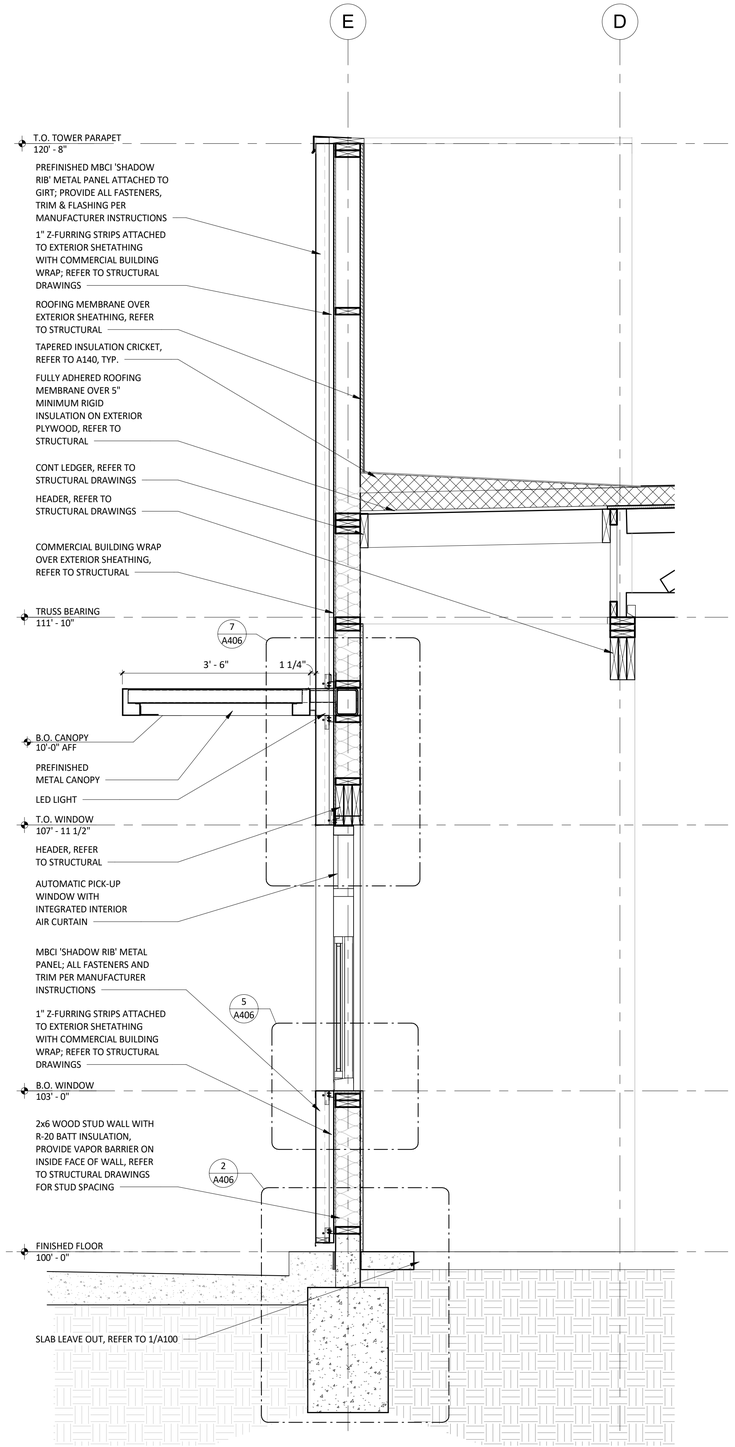
A402



3 A403 WALL SECTION

3/4" = 1'-0"



2 A403 WALL SECTION

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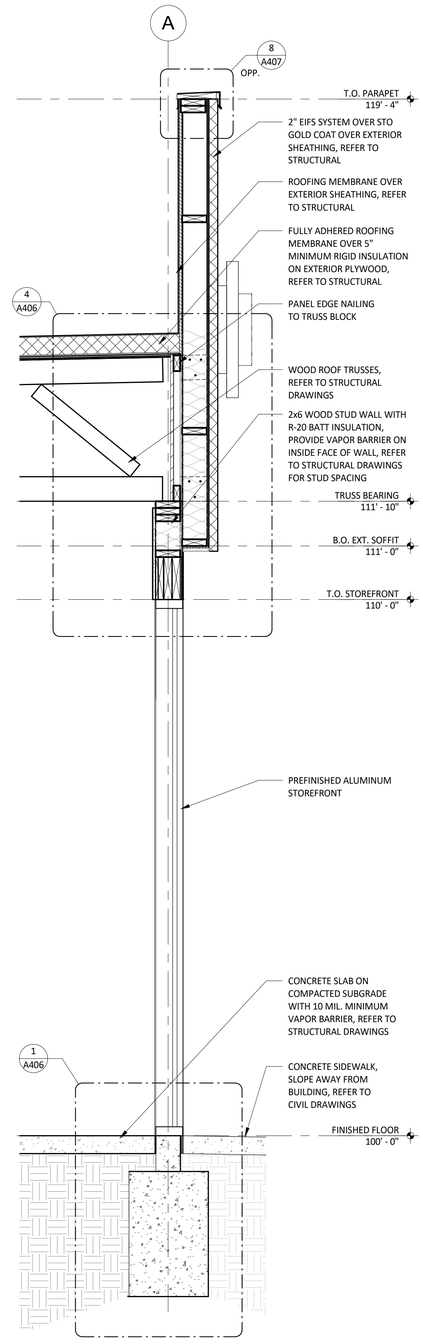

1 A403 WALL SECTION

3/4" = 1'-0"

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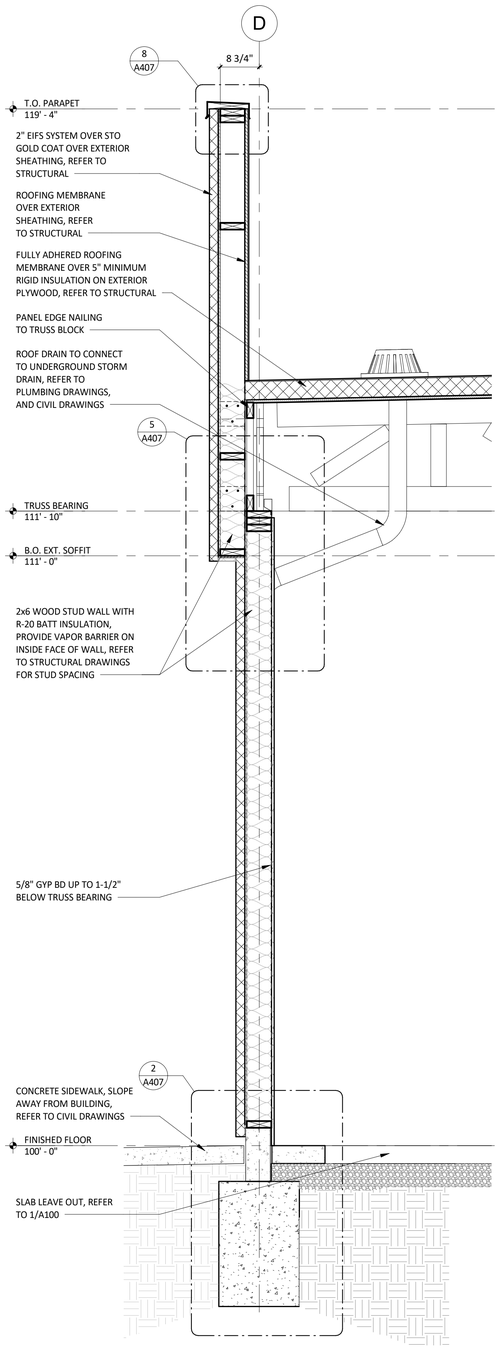
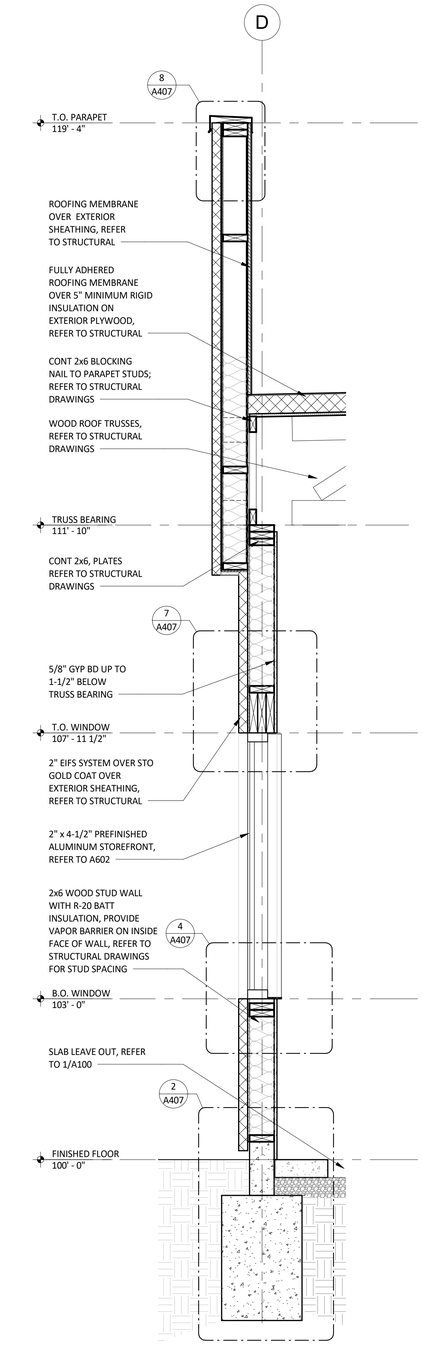
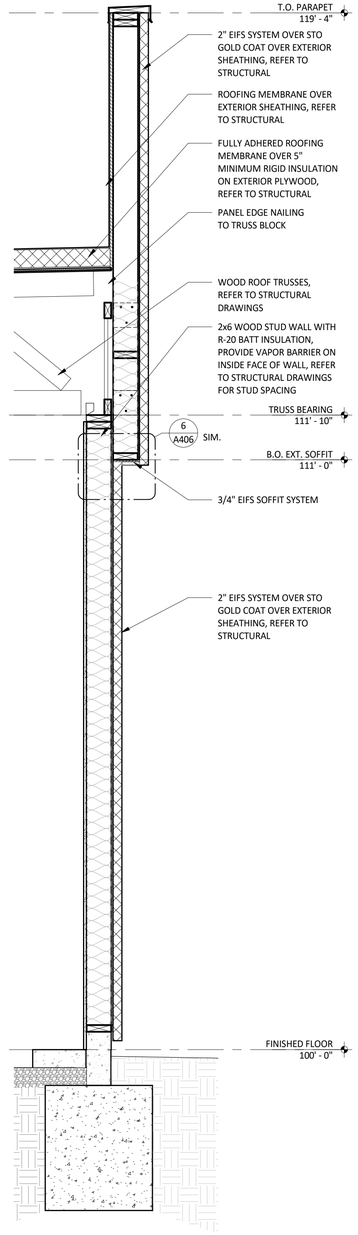


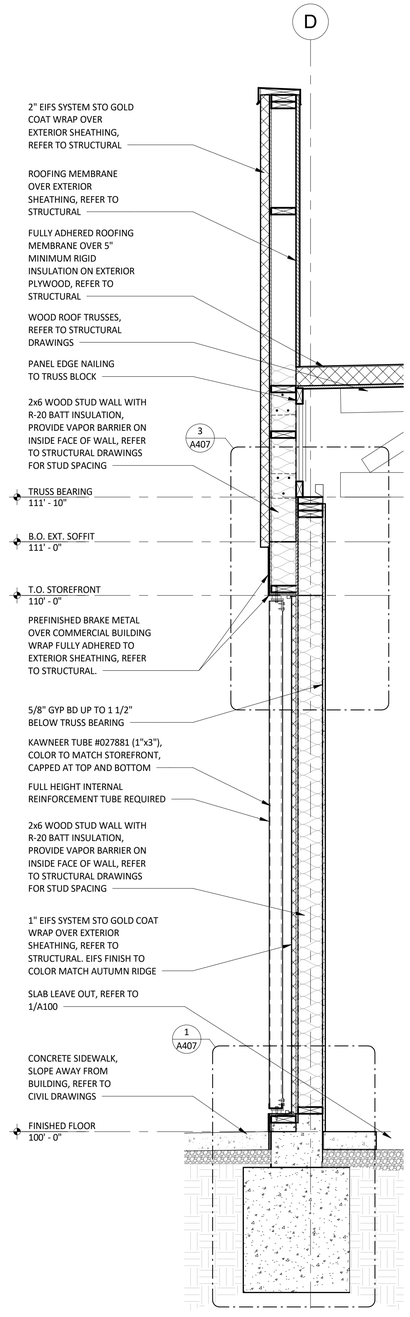
4 A404 **WALL SECTION**
3/4" = 1'-0"



3 A404 **WALL SECTION**
3/4" = 1'-0"



2 A404 **WALL SECTION**
3/4" = 1'-0"



1 A404 **WALL SECTION**
3/4" = 1'-0"

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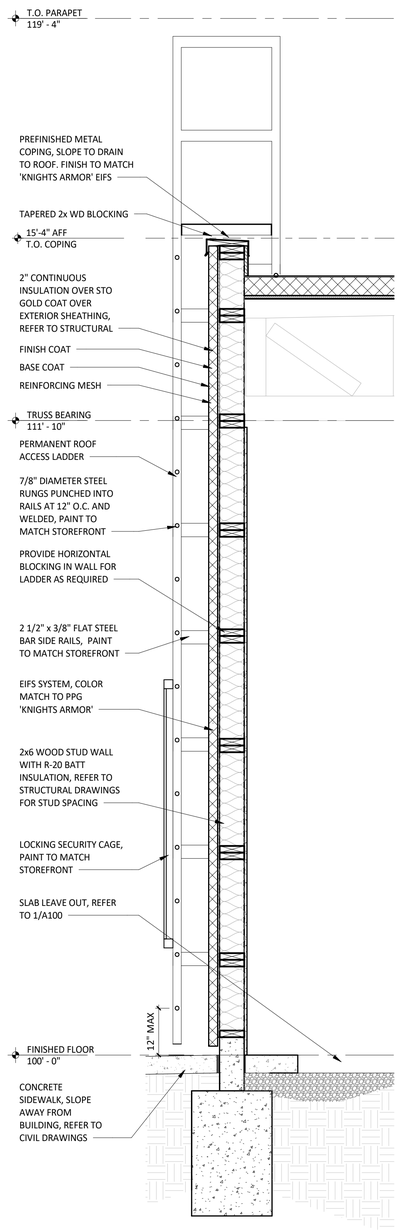
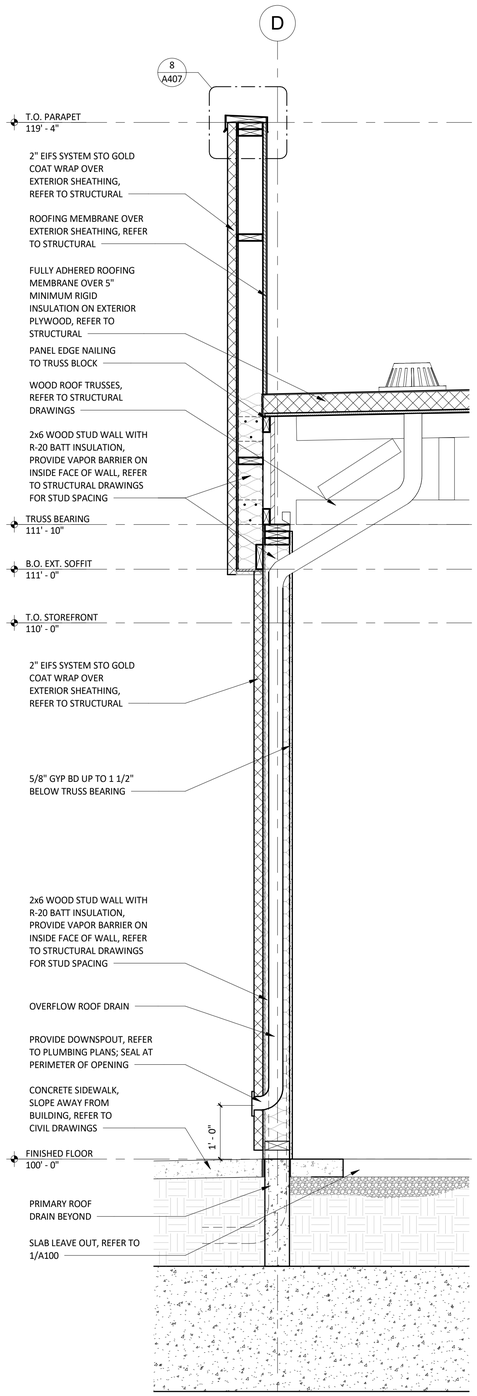
WALL SECTIONS

A404



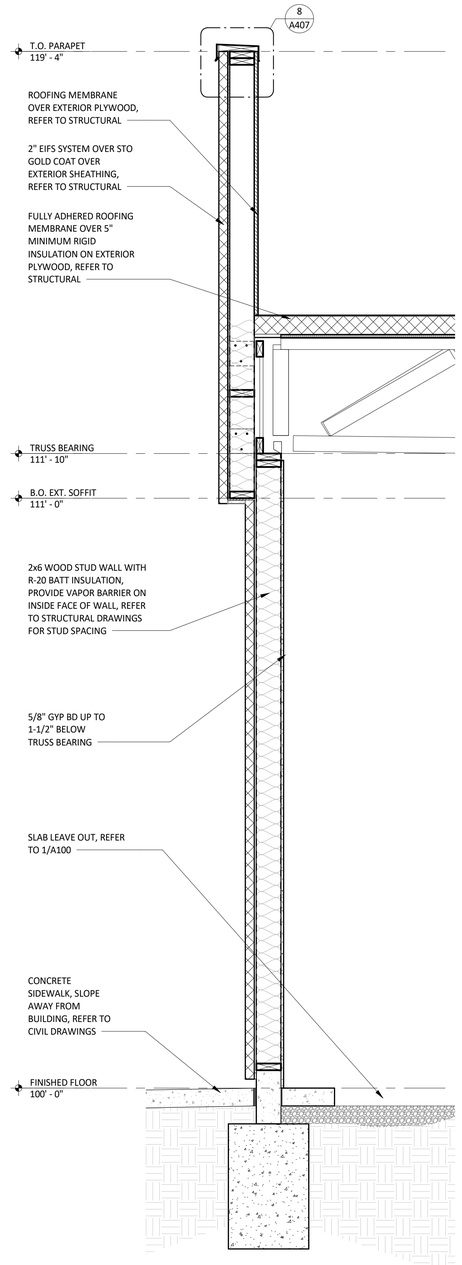
4 A405 WALL SECTION @ ROOF LADDER

3/4" = 1'-0"



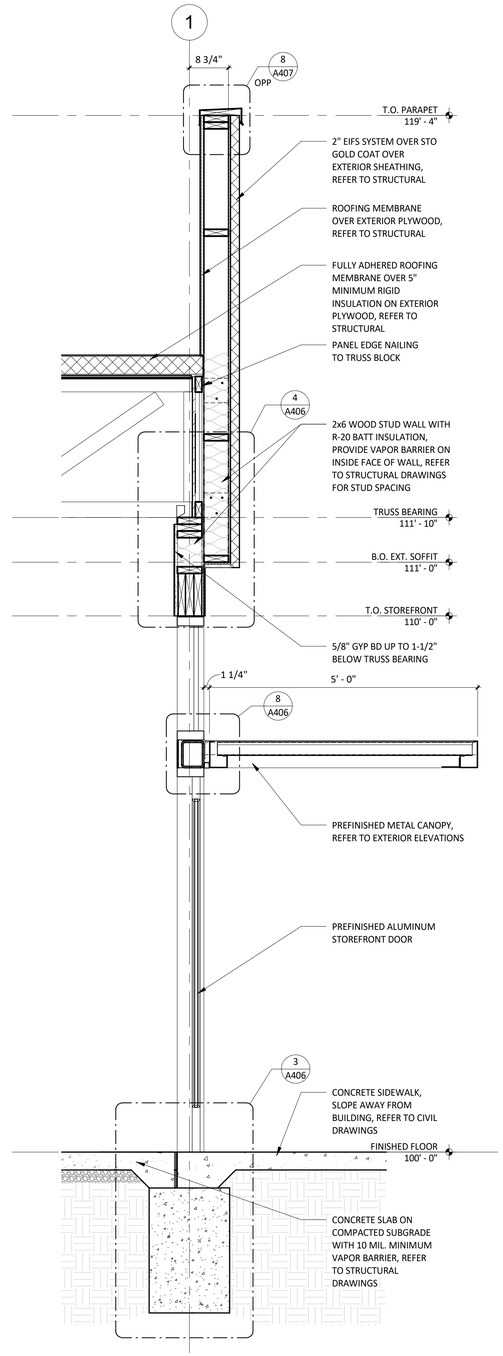
3 A405 WALL SECTION

3/4" = 1'-0"



2 A405 WALL SECTION

3/4" = 1'-0"



1 A405 WALL SECTION

3/4" = 1'-0"

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Project No.: CMGXXX

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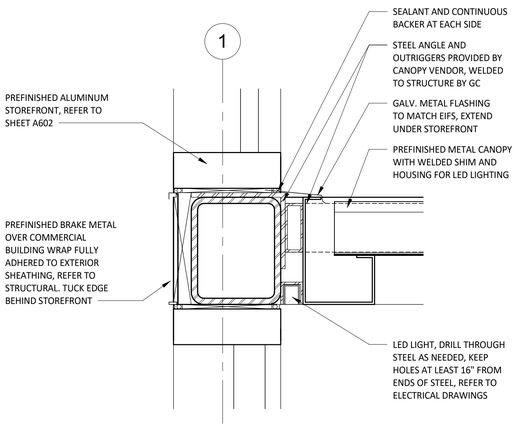
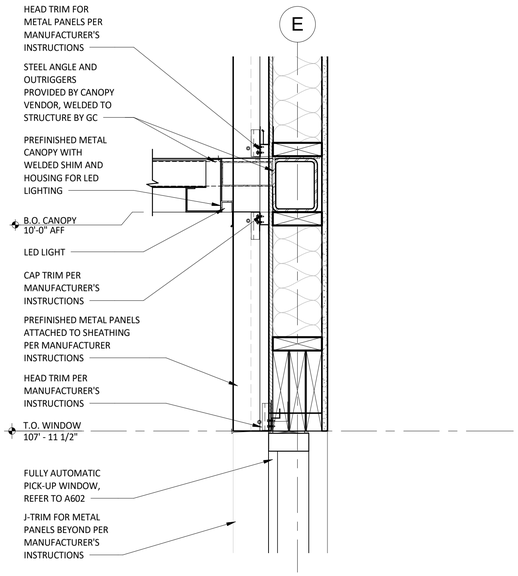
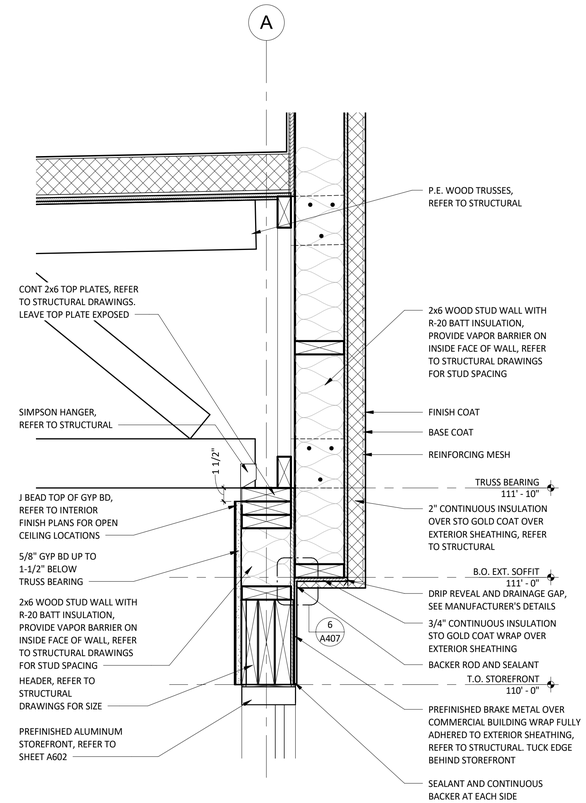
A405



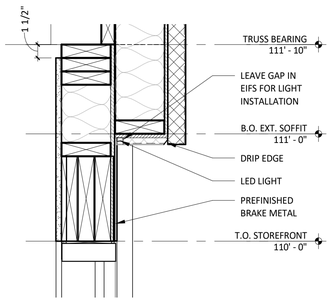
8 A405 CANOPY DETAIL
3" = 1'-0"



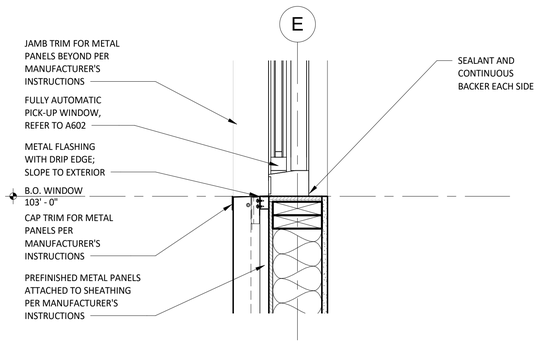
7 A406 HEAD DETAIL - PICK-UP WINDOW
1 1/2" = 1'-0"



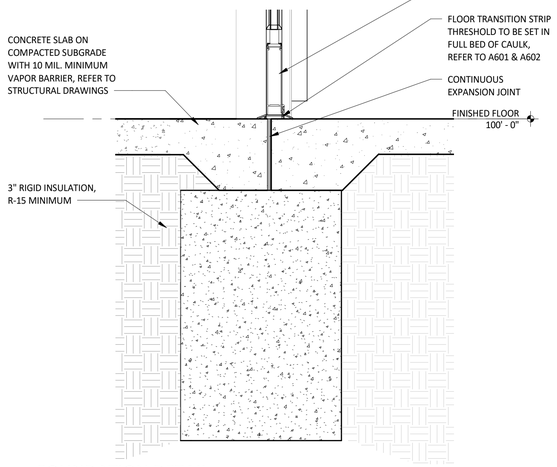
4 A406 SOFFIT DETAIL
1 1/2" = 1'-0"



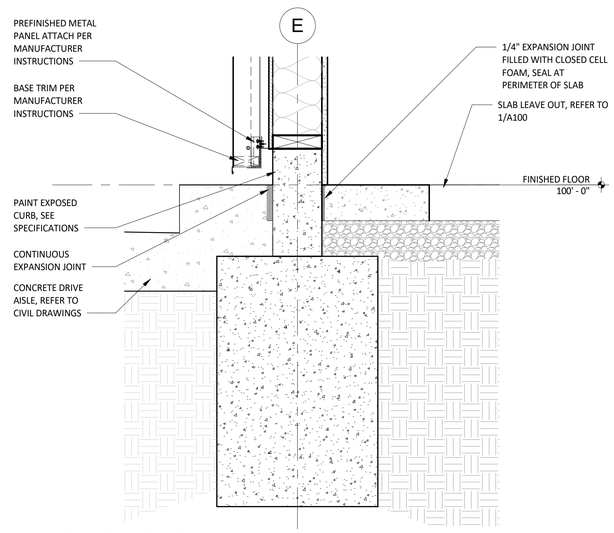
6 A406 SOFFIT DETAIL W/ LIGHT
1 1/2" = 1'-0"



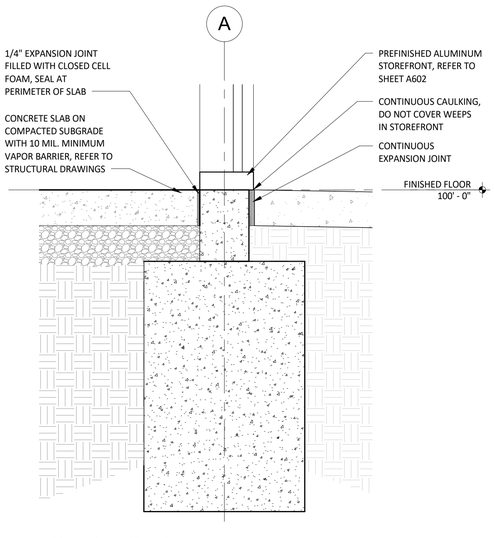
5 A406 SILL DETAIL
1 1/2" = 1'-0"



3 A406 FOUNDATION DETAIL
1 1/2" = 1'-0"



2 A406 FOUNDATION DETAIL
1 1/2" = 1'-0"



1 A406 FOUNDATION DETAIL
1 1/2" = 1'-0"

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Project No.
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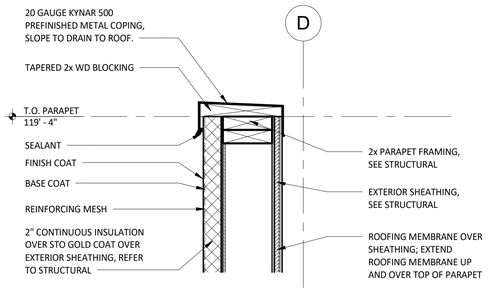
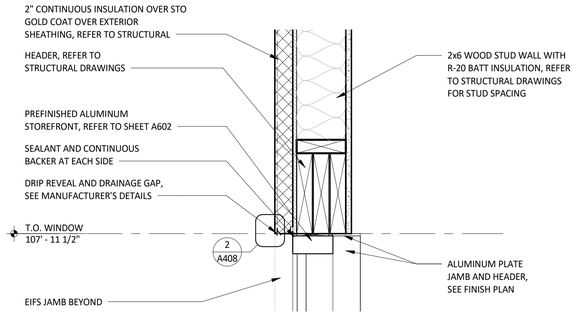
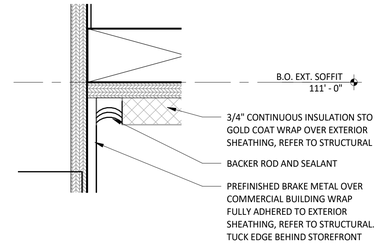


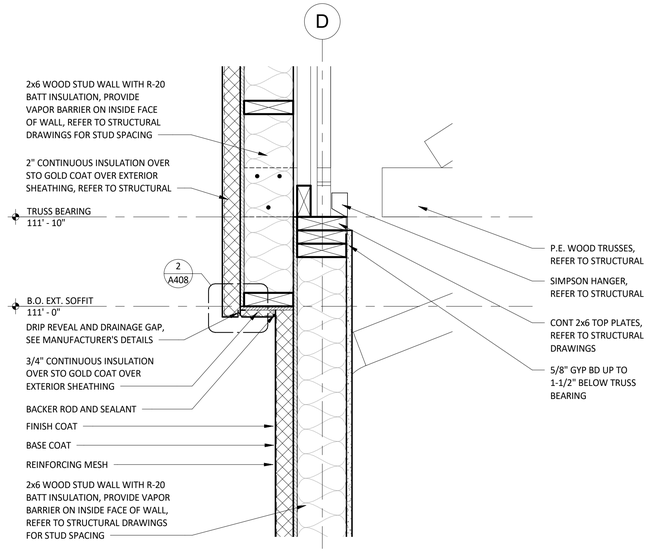
8/A407 PARAPET DETAIL
1 1/2" = 1'-0"



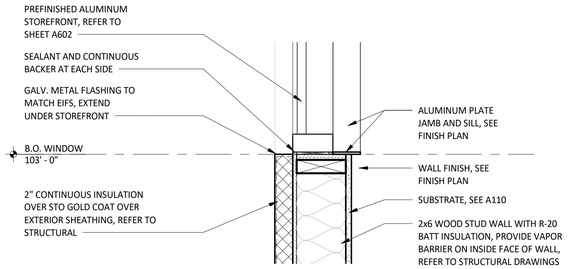
7/A407 HEADER DETAIL
1 1/2" = 1'-0"



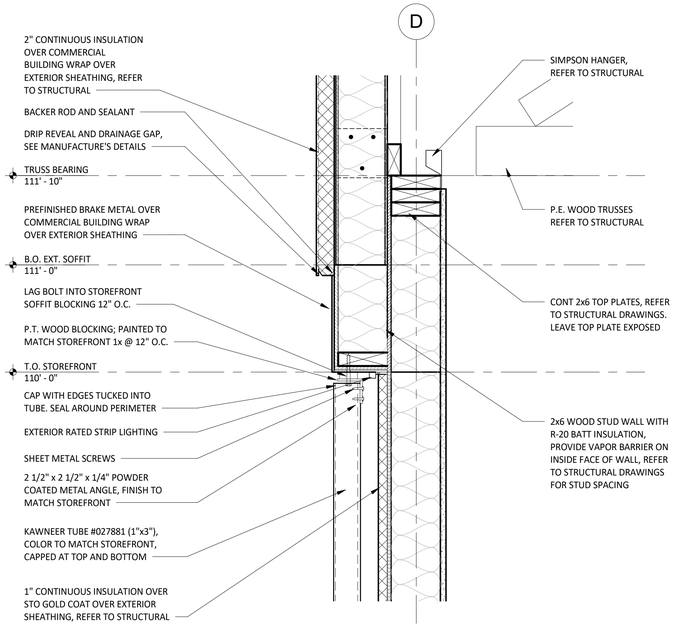
6/A407 SEALANT DETAIL @ INSIDE CORNER
6" = 1'-0"



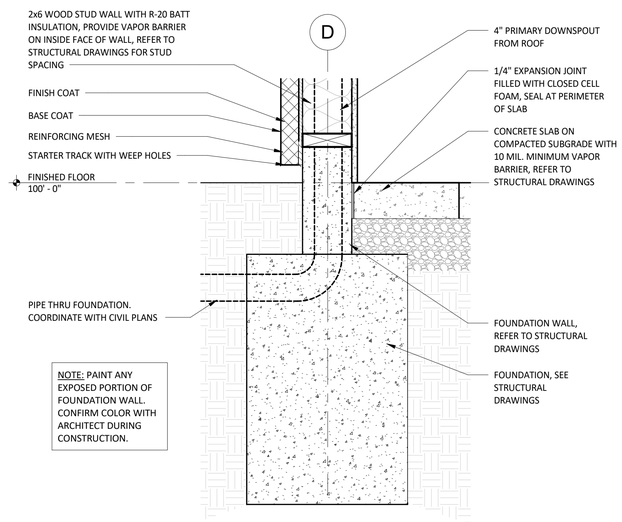
5/A407 SOFFIT DETAIL
1 1/2" = 1'-0"



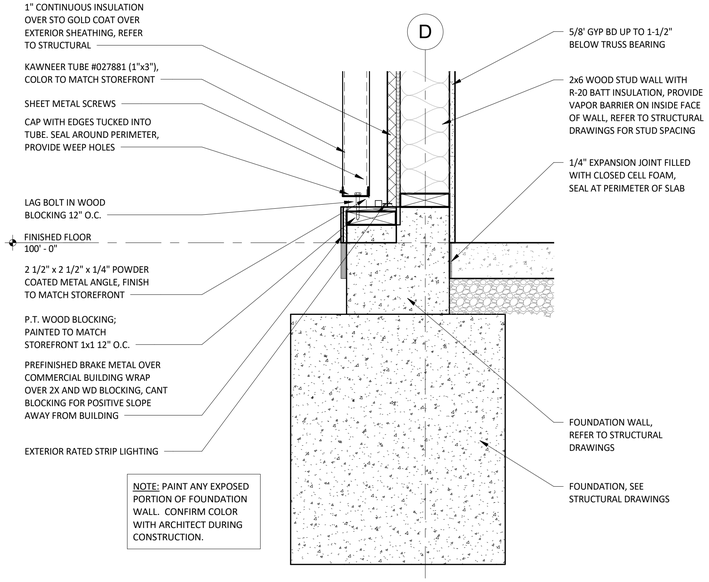
4/A407 SILL DETAIL
1 1/2" = 1'-0"



3/A407 SOFFIT DETAIL
1 1/2" = 1'-0"



2/A407 FOUNDATION DETAIL
1 1/2" = 1'-0"



1/A407 FOUNDATION DETAIL
1 1/2" = 1'-0"

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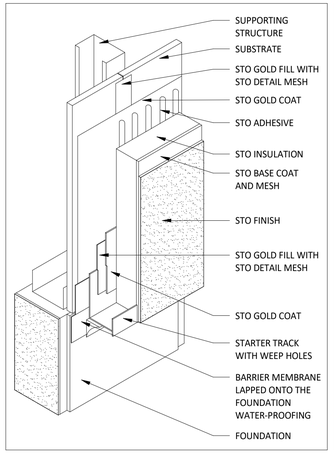
A407



Notes:

1) Protect wall assembly from rising damp.
2) Terminate system a minimum of 8" (200mm) above grade or as required by code.
3) Direct sprinklers away from the wall.
4) Protect the wall from dirt accumulation by covering exposed earth where back splash may occur.
5) Provide ulra-high impact resistance (Sto Detail 1.00b) to a minimum height of 6'-0" (1.8m) above finished grade at areas accessible to pedestrian traffic and other areas exposed to abnormal stress or impact.

Detail No: 10.10B

Date: September 2007

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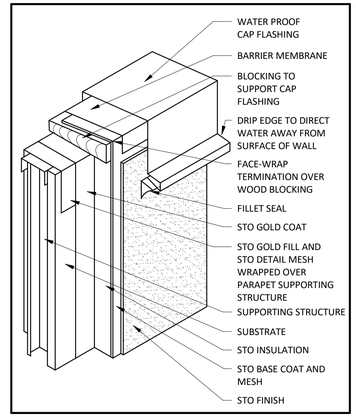
4 A408 EIFS TERMINATION AT GRADE

1 1/2" = 1'-0"



Notes:

1) Provide a barrier membrane over the parapet and integrate it with the roofing or deck waterproofing assembly. This provides air barrier continuity over the parapet and secondary weather protection under the cap flashing.
2) Provide minimum 2.5" (65mm) overlap of flashing over face of EIFS. Increase overlap with building height.
3) Install Sto Guard System over parapet supporting structure lapping onto compatible sheathing.

Detail No: 10.42

Date: September 2001

TM Sto Gold Coat and Sto Gold Fill are registered trademarks of Sto Corp.

3 A408 EIFS TERMINATION AT PARAPET

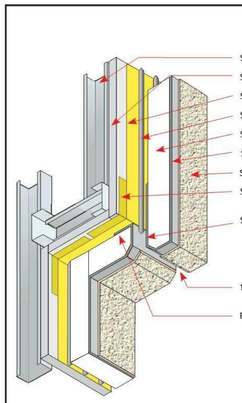
1 1/2" = 1'-0"

sto

StoTherm™ NExT
Unvented Insulated Soffit (without Starter Track)

Detail No.: 10.33

Date: October 2007



Notes:

1. Where wall/soffit are subject to differential movement provide a joint at the inside corner.
2. For multi-story buildings of noncombustible construction, verify conformance of detail with fire testing criteria.
3. Install EIFS on soffit with back wrap edge in line with fascia substrate.
4. Prewrap fascia insulation to provide a minimum of 2.5" (65 mm) of base coat and mesh contact area with the substrate.
5. Limit fascia insulation overhang to 2" (50 mm) maximum.
6. Install insulation with vertical ribbons of adhesive to provide 1/4" (6 mm) +/- drainage gap.
7. Sealant with weeps at drainage opening is optional, depending on project conditions.

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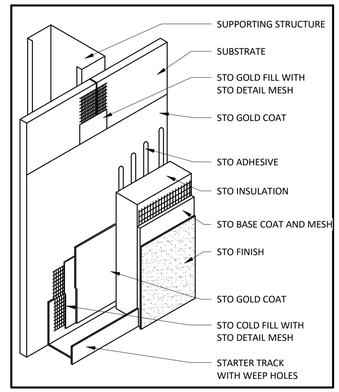
2 A408 EIFS UNVENTED INSULATED SOFFIT (WITHOUT STARTER TRACK)

1 1/2" = 1'-0"



Notes:

Details show the components of a Sto Exterior Insulation Finish System (EIFS) with Gold Guard Moisture Protection ™

Sto Gold Guard ™

1) Sto Gold Fill with Sto Detail Mesh
2) Sto Gold Coat

Sto EIFS:

1) Sto adhesive
2) Sto insulation
3) Sto base coat
4) Sto mesh
5) Sto finish

™ STO GOLD COAT AND STO GOLD FILL ARE REGISTER TRADEMARKS OF STO CORP.

1 A408 EIFS SYSTEM COMPONENTS

1 1/2" = 1'-0"

sto

Sto EIFS NExT

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Sto details are illustrations of construction. They are guidelines, intended for use by the design/construction professional, to assist in developing project specific details. They should be modified where necessary to accomodate individual project conditions. Refer to appropriate Sto specification for design requirements. Refer to local building code for any special requirements.

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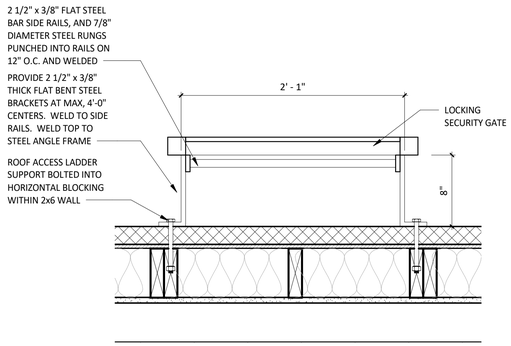
A408



8 A409 **PLAN DETAIL - EXTERIOR ROOF LADDER**
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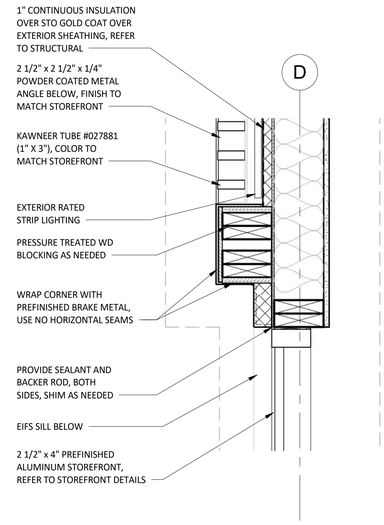

7 A409 **PLAN DETAIL**
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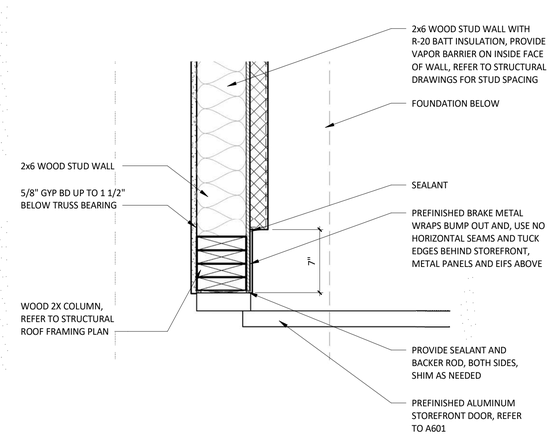
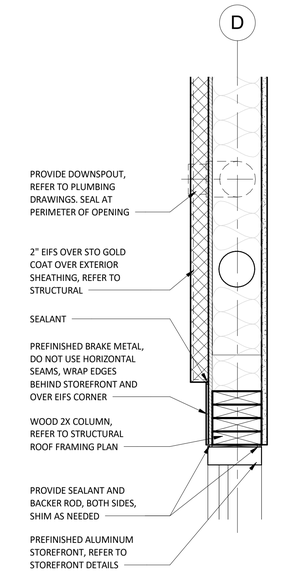
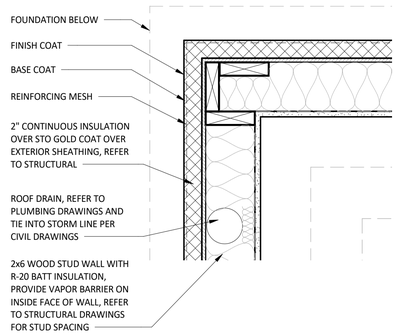


6 A409 **PLAN DETAIL**
1 1/2" = 1'-0"



5 A409 **PLAN DETAIL**
1 1/2" = 1'-0"



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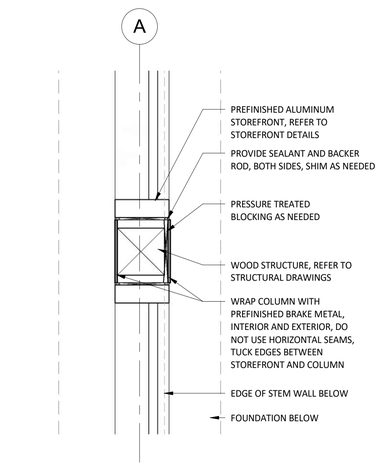

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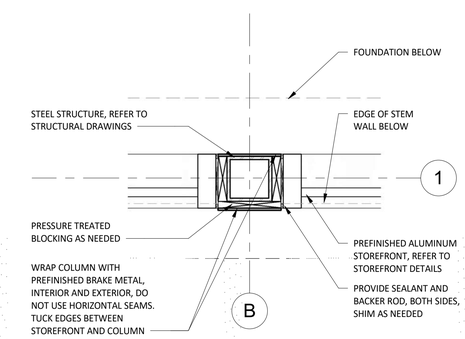
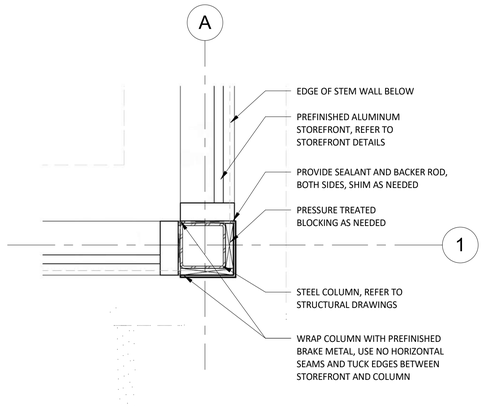


2 A409 **PLAN DETAIL**
1 1/2" = 1'-0"



1 A409 **PLAN DETAIL**
1 1/2" = 1'-0"

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PLAN DETAILS

A409

DOOR SCHEDULE

TAG	ROOM	DOOR STATUS *	FRAME STATUS	DOOR DESCRIPTION	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR TYPE	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	STILE	HARDWARE SET	HARDWARE STATUS*	FIRE RATING	REMARKS
1		NEW	NEW	DOUBLE STOREFRONT (WIDE STILE, WOOD PULL/PUSH)	6' - 0"	7' - 0"	0' - 1 3/4"	A	SEE A301	STOREFRONT	ALUM	WIDE (5")	1	NEW		1,2,4,5
2		NEW	NEW	SINGLE STOREFRONT (WIDE STILE, NON-OFFSET, PANIC)	3' - 0"	7' - 0"	0' - 1 3/4"	A	SEE A301	STOREFRONT	ALUM	WIDE (5")	2A	NEW		1,3,4,5
3		NEW	NEW	HM REAR KITCHEN (STANDARD)	3' - 6"	7' - 0"	0' - 1 3/4"	D	D1/D2 (SEE A120)	2	H.M.	-	3	NEW		1,4,7

REMARK NOTES

1.	DOORS WITH REMARK #1 TO BE KEYED THE SAME
2.	EXIT INDICATOR ARRIVES WITH SIGNS STATING "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS" AND "THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED". VERIFY REQUIRED SIGN WORDING WITH LOCAL JURISDICTION PRIOR TO INSTALLATION. ONE SIGN IS TO BE PLACED IN A VISIBLE LOCATION ABOVE THE DOORS.
3.	THERE IS TO BE NO EXTERIOR HOLE OR CYLINDER
4.	USE NON-SHRINK STRUCTURAL GROUT BED UNDER THRESHOLD
5.	BLACK DOOR SWEEP TO BE USED WITH CHARCOAL, BLACK OR BRONZE STOREFRONT. LIGHT GRAY DOOR SWEEP TO BE USED WITH CLEAR ANODIZED ALUMINUM STOREFRONT
6.	IF STATUS IS "EXISTING" G.C TO DETERMINE CONDITION OF EXISTING HADWARE. IF HARDWARE IS IN POOR CONDITION, PROVIDE HARDWARE IN HARDWARE SCHEDULE. CONFIRM REPLACEMENT WITH CHIPOTLE CM.
7.	REAR KITCHEN DOOR TO BE PAINTED 'BLACK' ON INTERIOR AND 'KNIGHT'S ARMOR' ON EXTERIOR U.N.O.

HARDWARE SETS

SET 1 - MAIN ENTRY - PAIR - WOOD PULL/PUSH			
(2)	HINGE	HAGER, MODEL 780-224HD-83"-CLR	
(2)	MORTISE CYLINDER	SCHLAGE, MODEL 80-103, BRUSHED CHROME; C.O. CYLINDER AT 34" MIN. FROM BOTTOM OF DOOR	
(2)	TEMP CORE	SCHLAGE, MODEL 80-035 INTERCHANGEABLE CORE, (BRUSHED CHROME)	
(2)	PUSH HARDWARE	1 1/2" DIAMETER WOOD PUSH, VARIES HIGH - PROVIDED BY MILLWORK SUPPLIER. MOUNT TOP OF PULLS FLUSH WITH TOP OF GLAZING STOP IN DOOR, RE: SHOP DRAWINGS	(BY TENANT)
(2)	PULL HARDWARE	1 1/2" DIAMETER WOOD PULL, VARIES HIGH - PROVIDED BY MILLWORK SUPPLIER. MOUNT TOP OF PULLS FLUSH WITH TOP OF GLAZING STOP IN DOOR, RE: SHOP DRAWINGS	(BY TENANT)
(1)	DEADBOLT	ADAMS RITE, MODEL MS1850S-310-628	
(1)	EXIT INDICATOR	ADAMS RITE, MODEL 4089-00-130	
(1)	HEADER BOLT	ADAMS RITE, MODEL 4016-30-01	
(1)	THRESHOLD BOLT	ADAMS RITE, MODEL 4015-18-1B	
(2)	CLOSER	DORMA, MODEL 8916-AF89P-689 (TOP JAMB), (ALUMINUM)	
(2)	DOOR STOP	IVES, MODEL FS18S (ALUMINUM)	
(2)	OVERHEAD STOP	GLYNN-JOHNSON, MODEL 454S-SP28 (ALUMINUM)	
(2)	CLOSER BACK PLATE	DORMA, MODEL BP89, ALUMINUM	
(1)	THRESHOLD	REESE, MODEL S239A-72 (SIZE 72")	
(2)	SMOKE SEAL	REESE, MODEL 797B-21	
(2)	DOOR SWEEP	PEMKO, MODEL SFSC-200-36 (36" DOOR),OWNER FURNISHED	

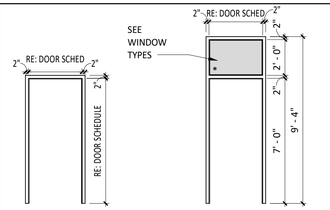
SET 2A - ENTRY - SINGLE - NON-OFFSET - PANIC HARDWARE		
(1)	HINGE	HAGER, MODEL 780-224HD-83"-CLR
(1)	PUSH HARDWARE	ADAMS RITE, MODEL 8801-36-628 (ALUMINUM FINISH, 36" DOOR); C.O. EXIT DEVICE AT 38" FROM BOTTOM OF DOOR
(1)	PULL HARDWARE	HIAWATHA, MODEL 535B-32D (8" OVERALL)
(1)	CLOSER	DORMA, MODEL 8916-AF89P-689 (TOP JAMB), (ALUMINUM)
(1)	CLOSER BACK PLATE	DORMA, MODEL BP89, ALUMINUM
(1)	OVERHEAD STOP	GLYNN-JOHNSON, MODEL 454S-US32D (ALUMINUM)
(1)	THRESHOLD	REESE, MODEL S424A-36 (SIZE 36")
(1)	SMOKE SEAL	REESE, MODEL 797B-21
(1)	DOOR SWEEP	PEMKO, MODEL SFSC-200-36 (36" DOOR), OWNER FURNISHED
(1)	DOOR STOP	IVES, MODEL FS18S (ALUMINUM)

SET 3 - REAR EXIT - SINGLE		
(1)	HINGE	HAGER, MODEL 780-224HD-83"-CLR
(1)	PUSH HARDWARE	FALCON, MODEL 25-R-EO-4'-US28 (SIZE 42")
(1)	PULL HARDWARE	FALCON, MODEL 510L-DANE-LHR-US26D, ALUMINUM (EXTERIOR SIDE)
(1)	RIM CYLINDER	GLS, MODEL RCIC-7-LZ-626
(1)	TEMP CORE	SCHLAGE, MODEL 80-035 INTERCHANGEABLE CORE (FINISH: BRUSHED CHROME)
(1)	CLOSER	DORMA, MODEL 8916-AF89P-689 (TOP JAMB), ALUMINUM
(1)	CLOSER BACK PLATE	DORMA, MODEL BP89, ALUMINUM
(1)	THRESHOLD	REESE, MODEL S239A-42, (SIZE 42")
(1)	WEATHERSTRIP	REESE, MODEL DS75C-4070
(1)	DOOR SWEEP	PEMKO, MODEL SFSC-200-42 (42" DOOR) (BLACK) OWNER FURNISHED
(1)	DOOR VIEWER	IVES, MODEL U698B26D, C.O. VIEWER AT 60" FROM BOTTOM OF DOOR
(1)	EXIT ALARM	TRINE, MODEL 206-3
(1)	DOOR SILENCERS	IVES, MODEL SR64
(1)	DOOR BUZZER	TRINE, MODEL 240
(1)	KICKPLATE	HIAWATHA, MODEL KP834-US32D

DOOR NOTES

1.	ALL EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
2.	LATCHES, HANDLES, PANIC BARS AND ALL DOOR HARDWARE WILL COMPLY WITH SECTION 7.2 OF NFPA 101 PER THE SPECIFICATIONS.
4.	ALL DOORS TO REMAIN UNLOCKED DURING BUSINESS HOURS.
6.	MAXIMUM EFFORT TO OPERATE EXTERIOR OR INTERIOR DOORS WITH CLOSERS SHALL NOT EXCEED 5 POUNDS. THIS MAY BE INCREASED TO 15 POUNDS FOR FIRE-RATED DOORS.
7.	ALL FRAMES, DOORS AND HARDWARE TO BE FURNISHED BY GC HARDWARE SUPPLIER AND INSTALLED BY G.C. CALL PETE KLIMEK WITH TWIN CITY HARDWARE AT 763-535-4660 TO ARRANGE DELIVERY. STOREFRONT DOORS ARE TO BE PROVIDED BY G.C., STOREFRONT HARDWARE PROVIDED BY GC HARDWARE SUPPLIER.
8.	THE BOTTOM 10 INCHES OF ALL DOORS SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.

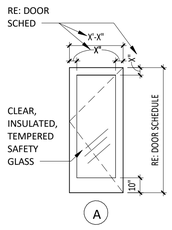
DOOR FRAMES



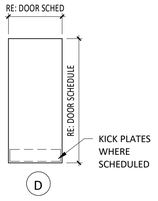
1 NOTE: GC TO VERIFY THE WALL THICKNESS PRIOR TO ORDERING DOOR FRAMES.

2 NOTE: GC TO VERIFY THE WALL THICKNESS PRIOR TO ORDERING DOOR FRAMES.

DOOR TYPES

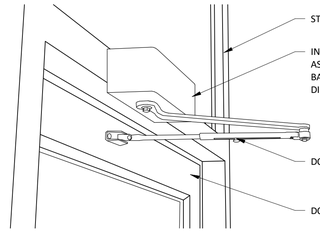


A ALUMINUM DOOR W/ TEMPERED GLAZING



D INSULATED HOLLOW METAL DOOR

DOOR CLOSER



TOP JAMB MOUNT INSTALLATION. (NOTE THAT BACKPLATE IS MISSING IN THIS INSTALLATION BECAUSE HEAD JAMB IS OF ADEQUATE HEIGHT TO RECEIVE ALL MOUNTING SCREWS WITHOUT IT.) WHEN IN DOUBT ABOUT THE HEAD JAMB DIMENSION OR STABILITY, ORDER THE BACKPLATE.

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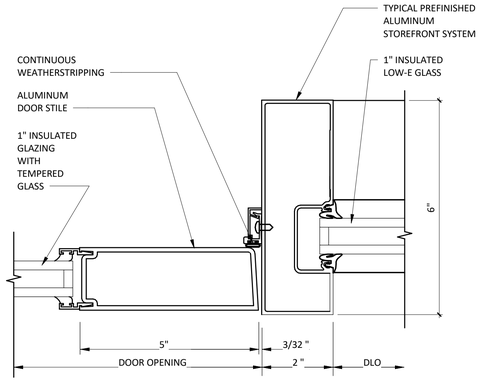
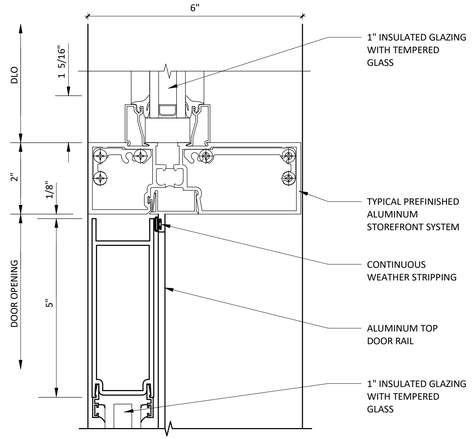
Contents:
DOOR & HARDWARE SCHEDULE

A601

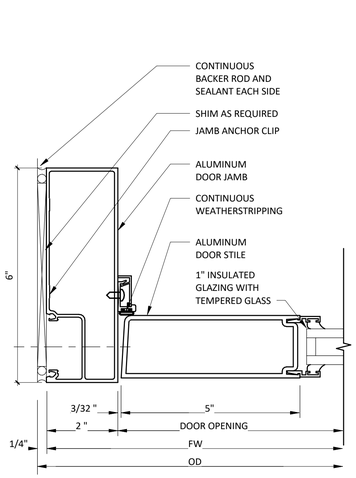
STOREFRONT DETAILS



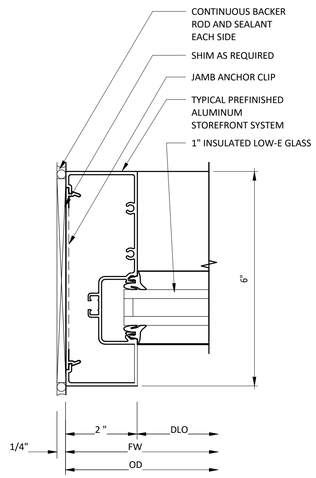
9 A602 **STOREFRONT DOOR JAMB DETAIL**
6" = 1'-0"



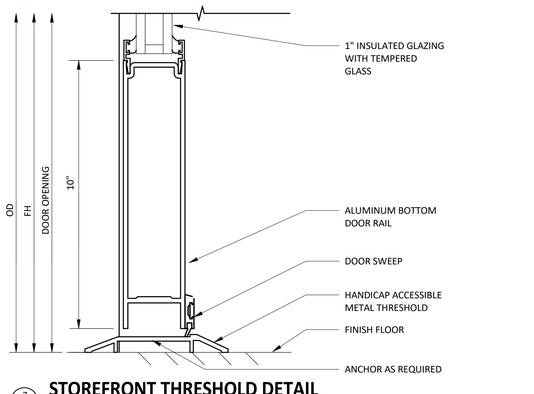
8 A602 **STOREFRONT TRANSOM BAR DETAIL**
6" = 1'-0"



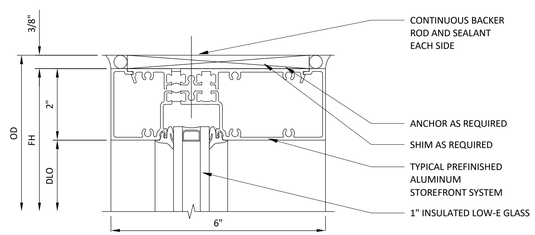
6 A602 **STOREFRONT DOOR JAMB DETAIL**
6" = 1'-0"



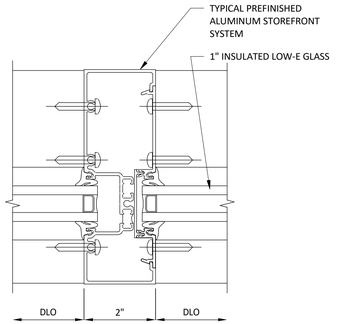
5 A602 **STOREFRONT JAMB DETAIL**
6" = 1'-0"



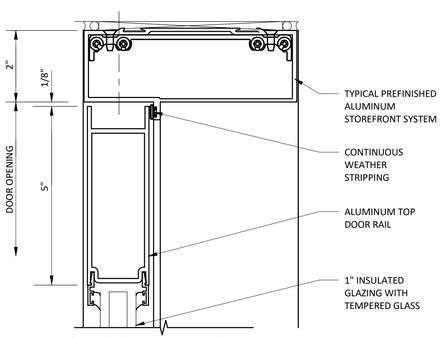
7 A602 **STOREFRONT THRESHOLD DETAIL**
6" = 1'-0"



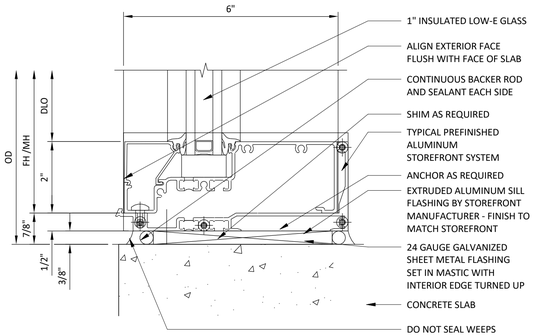
4 A602 **STOREFRONT HEAD DETAIL**
6" = 1'-0"



3 A602 **STOREFRONT MULLION DETAIL**
6" = 1'-0"



2 A602 **STOREFRONT TRANSOM BAR DETAIL**
6" = 1'-0"



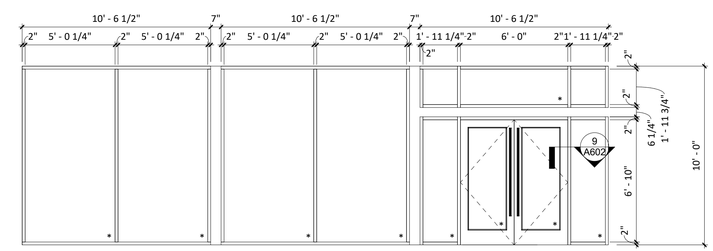
1 A602 **STOREFRONT SILL DETAIL**
6" = 1'-0"

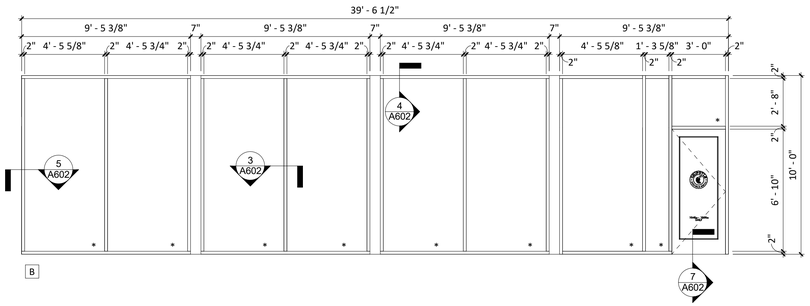
GENERAL NOTES

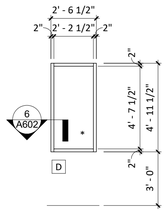
1. ALL WINDOW AND DOOR GLAZING IS TO BE CLEAR / INSULATED UNLESS NOTED OTHERWISE.
2. WINDOW AND DOOR GLAZING TO BE TEMPERED AT LOCATIONS INDICATED WITH "*".
3. NEW STOREFRONT FRAMING SYSTEM TO BE SUPPLIED BY TENANT G.C. TENANT G.C. TO VERIFY FRAMING OPENING SIZES AND MATERIALS WITH ARCHITECT AND/OR CHIPOTLE CONSTRUCTION MANAGER PRIOR TO FABRICATION.
4. STOREFRONT GLAZING DESIGN IS BASED ON KAWNEER FRONT SET PREFINISHED ALUMINUM STOREFRONT WITH 1" INSULATED GLAZING, REFER TO SPECIFICATIONS.
5. STOREFRONT SYSTEM IS 2" x 6" NOMINAL DIMENSION; FRONT SET, UNLESS NOTED OTHERWISE

STOREFRONT TYPES

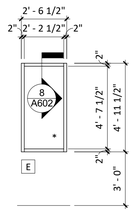
NOTE: ALL VIEWS FROM THE EXTERIOR



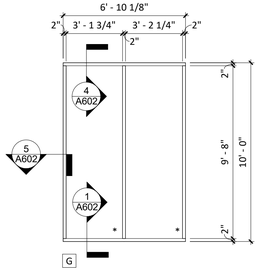




NOTE: PUNCHED WINDOW FRAME IS 2" x 4 1/2" NOMINAL DIMENSION

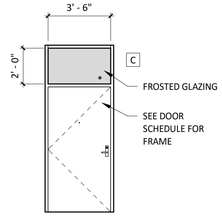


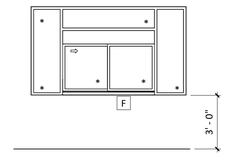
NOTE: PUNCHED WINDOW FRAME IS 2" x 4 1/2" NOMINAL DIMENSION



WINDOW TYPES

NOTE: ALL VIEWS FROM THE EXTERIOR





NOTE: FULLY AUTOMATIC ELECTRIC PASS-THRU WINDOW

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Contents:
STOREFRONT DETAILS

A602

4 A901 **EXTERIOR PERSPECTIVE**

3 A901 **EXTERIOR PERSPECTIVE**

2 A901 **EXTERIOR PERSPECTIVE**

1 A901 **EXTERIOR PERSPECTIVE**

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EXTERIOR PERSPECTIVES

A901

ABBREVIATIONS

AB	ANCHOR BOLT
ADD'L	ADDITIONAL
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
B/	BOTTOM OF
BFB	BOTTOM FLANGE BRACE
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
CFMF	COLD-FORMED METAL FRAMING
CFMT	COLD-FORMED METAL TRUSS
CJ	CONTROL OR CONSTRUCTION JOINT
CLR	CLEAR
CM	CONSTRUCTION MANAGER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
CY	CUBIC YARD
DBL	DOUBLE
DEMO	DEMOLISH OR DEMOLITION
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
EA	EACH
EJ	EXPANSION JOINT
ENGR	ENGINEER
EW	EACH WAY
EXP	EXPANSION
FDN	FOUNDATION
FIN	FINISH OR FINISHED
FLR	FLOOR
FTG	FOOTING
FRTW	FIRE-RETARDANT TREATED WOOD
FV	FIELD VERIFY
GA	GAGE
GALV	GALVANIZE
GC	GENERAL CONTRACTOR
HC	HOLLOW CORE
HORIZ	HORIZONTAL
ID	INSIDE DIMENSION
IF	INSIDE FACE
INT	INTERIOR
JST	JOIST
JT	JOINT
L	ANGLE
LGMF	LIGHT GAGE METAL FRAMING
LLBB	LONG LEG BACK-TO-BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAS	MASONRY
MAX	MAXIMUM
MIN	MINIMUM
MTL	METAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPP	OPPOSITE
OPNG	OPENING
OSB	ORIENTED STRAND BOARD
PAF	POWDER ACTUATED FASTENERS
PC	PRECAST
PEMB	PRE-ENGINEERED METAL BUILDING
PERP	PERPENDICULAR
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
REINF	REINFORCING OR REINFORCED
REQ'D	REQUIRED
SCH	SCHEDULE
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SL	SLOPED
SLBB	SHORT LEG BACK-TO-BACK
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
SY	SQUARE YARD
SYM	SYMMETRICAL
T/	TOP OF
T&B	TOP AND BOTTOM
TEMP	TEMPORARY OR TEMPERATURE
T&G	TONGUE AND GROOVE
TYP	TYPICAL
UN	UNLESS NOTED
UNO	UNLESS NOTED OTHERWISE
VB	VAPOR BARRIER
VERT	VERTICAL
W	WIDE FLANGE
W/O	WITHOUT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD

ENERAL STRUCTURAL NOTES

GENERAL

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE CONSTRUCTION IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYS, OR TIEDOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL IS TO REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.
2. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
3. MECHANICAL EQUIPMENT LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR IS TO OBTAIN APPROVAL OF MECHANICAL AND OTHER TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS TO BE BORNE BY MECHANICAL CONTRACTOR.
4. DO NOT SCALE THE DRAWINGS WHERE DIMENSIONS ARE NOT SPECIFICALLY GIVEN. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND ELEVATIONS NOT SHOWN. COORDINATE ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS. ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE NOT INTENDED TO AUGMENT, NOR SUPERSEDE THOSE SHOWN ON THE ARCHITECTURAL DRAWINGS.
5. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY THE ARCHITECT IMMEDIATELY WHERE CONFLICTS EXIST WITHIN THE DRAWINGS OR BETWEEN THE DRAWINGS AND FIELD CONDITIONS.
6. THROUGHOUT THESE PLANS, THE TERM "PROVIDE" IS DEFINED AS "SUPPLY AND INSTALL".
7. SHOP DRAWINGS ARE TO BE SUBMITTED BY COMPLETE ERECTION PHASE OR SEQUENCE. LIMITS OF EACH INDIVIDUAL ERECTION PHASE OR SEQUENCE ARE TO BE CLEARLY INDICATED ON THE PLANS. INCOMPLETE OR PIECEMEAL SHOP DRAWINGS WILL BE RETURNED PRIOR TO REVIEW. RESUBMITTALS ARE TO HAVE REVISIONS CLEARLY MARKED OR IDENTIFIED. THE CONTRACTOR SHALL REVIEW AND ACCEPT FULL RESPONSIBILITY FOR DIMENSIONAL CORRECTNESS. ALL SHOP DRAWINGS MUST BEAR THE APPROVAL STAMP OF THE CONTRACTOR PRIOR TO REVIEW BY THE ARCHITECT OR ENGINEER.
8. PREFABRICATED ITEMS SHOWN ON THE STRUCTURAL DRAWINGS ARE REFERENCED FOR GENERAL COORDINATION PURPOSES ONLY, AND MAY INCLUDE BUT NOT BE LIMITED TO: STAIRS, HANDRAILS, CURTAIN WALLS, STOREFRONT SYSTEMS, AWNINGS, COLD-FORMED METAL FRAMING, AND PREFABRICATED FRAMING MEMBERS. THESE SYSTEMS SHALL BE DESIGNED, FURNISHED, AND INSTALLED AS REQUIRED BY OTHER PORTIONS OF THE CONTRACT DOCUMENTS. JEZERINAC GEERS WILL REVIEW THE DESIGN METHODOLOGY, LOADS, AND INSTALLATION DETAILS AS PART OF THE SHOP DRAWING REVIEW PROCESS, AND MAY REQUEST A SEALED CALCULATION PACKAGE FOR REVIEW.
9. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THE GENERAL STRUCTURAL NOTES, THE SPECIFICATIONS OR WITH EACH OTHER, THE STRICTEST PROVISION WILL GOVERN.
10. CODE INFORMATION

- GOVERNING CODE:	2018 INTERNATIONAL BUILDING CODE
- BUILDING RISK CATEGORY:	CATEGORY II
ROOF LIVE LOADS	
- ORDINARY FLAT, PITCHED, AND CURVED ROOFS	20 PSF
- FABRIC AWNINGS AND CANOPIES	5 PSF
SNOW LOADS	
- GROUND SNOW LOAD (Pg):	10 PSF
- FLAT ROOF SNOW LOAD (Pf)	10 PSF
- SNOW EXPOSURE FACTOR (Ce)	1.0
- SNOW LOAD IMPORTANCE FACTOR (Is)	1.0
- THERMAL FACTOR (Ct)	1.0
- SNOW DRIFTING	SEE PLAN
WIND LOADS	
- WIND IMPORTANCE FACTOR	1.0
- BASIC ULTIMATE WIND SPEED (V ult)	121 MPH
- BASIC ALLOWABLE WIND SPEED (V asd)	90 PSF
- SITE EXPOSURE CATEGORY	C
- INTERNAL PRESSURE COEFFICIENT	+/- 0.18
SEISMIC LOADS:	
- SEISMIC IMPORTANCE FACTOR	1.0
- MAPPED SPECTRAL RESPONSE ACCELERATION (Ss)	0.225
- MAPPED SPECTRAL RESPONSE ACCELERATION (S1)	0.098
- SEISMIC SITE CLASS	D
- DESIGN SPECTRAL RESPONSE ACCELERATION (Sds)	0.240
- DESIGN SPECTRAL RESPONSE ACCELERATION (Sd1)	0.156
- SEISMIC DESIGN CATEGORY	C
- RESPONSE MODIFICATION COEFFICIENT (R)	6.5
- SEISMIC RESPONSE COEFFICIENT (Cs)	0.037
- SEISMIC DESIGN BASE SHEAR (V)	1.8 K
- ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
- BASIC SEISMIC FORCE-RESISTING SYSTEM:	LIGHT FRAMED WALL SYSTEMS WITH WOOD SHEARWALLS
SPECIAL LOADS	
- INTERIOR WALLS & PARTITIONS	5 PSF HORIZONTAL
- HANDRAIL LOADS (ANY DIRECTION)	50 PLF/200# CONC.
GEOTECHNICAL:	
- GEOTECHNICAL ENGINEER:	ECS Southeast, LLP
- REFERENCE REPORT I.D. OR NUMBER:	33-5380
- REFERENCE REPORT DATE:	11/06/2020
- ALLOWABLE DESIGN BEARING PRESSURE:	2,000 PSF
- FOUNDATION TYPE:	SHALLOW SPREAD FOOTING

REINFORCED CONCRETE

1. SPECIFICATIONS: IN GENERAL, COMPLY WITH ACI-301-16, "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
2. MATERIALS:
   A. STRUCTURAL CONCRETE:

MIX USAGE	f'c (PSI)	MAX w/cm	AIR CONTENT
LEAN CONCRETE	1,500	---	---
FOOTINGS & INTERIOR COLUMN PIERS	3,500	0.55	---
INTERIOR SLABS ON GRADE WHICH RECEIVE MOISTURE-SENSITIVE FLOOR COVERINGS	4,000	0.45	---
EXTERIOR FOUNDATION STEMWALLS & EXTERIOR UNREINFORCED SLABS ON GRADE	4,500	0.45	5%-7%

   B. ALL DEFORMED REINFORCING BARS: FY = 60,000 PSI.
   C. CEMENT: PORTLAND CEMENT, ASTM C150, TYPE 1. ALL CEMENT FOR CONCRETE EXPOSED TO VIEW IS TO BE FROM THE SAME MILL.
   D. AGGREGATES: ASTM C33, USE SIZE NO. 57 FOR ALL MIXES UNLESS NOTED OTHERWISE.
   E. ADMIXTURES:
      1. WATER-REDUCING, LOW AND MID RANGE: ASTM C494, TYPE A OR D.
      2. HIGH-RANGE WATER REDUCING, SUPERPLASTICIZER: ASTM C494, TYPE F OR G.
   F. AIR-ENTRAINING: ASTM C260.
   G. FLY-ASH: ASTM C618, TYPE C OR F.
   H. NON-CHLORIDE, NON-CORROSIVE ACCELERATOR: ASTM C494, TYPE C OR E.
   I. VAPOR RETARDER SHALL CONFORM TO ASTM E1745 "STANDARD SPECIFICATION FOR PLASTIC WATER VAPOR RETARDERS USED IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS". CLASS A.
   J. VAPOR RETARDER SHALL BE INSTALLED IN ACCORDANCE WITH ASTM E1643 "STANDARD PRACTICE FOR INSTALLATION OF WATER VAPOR RETARDERS USED IN CONTACT WITH EARTH OR GRANULAR FILL UNDER CONCRETE SLABS. THE VAPOR RETARDER/BARRIER SHALL BE A MINIMUM OF 10 MILS THICK AND PLACED DIRECTLY ON THE GRANULAR FILL, BELOW THE CONCRETE FLOOR SLAB. LAP JOINTS A MINIMUM OF 6 INCHES AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE OR ADHESIVE.
3. FIELD MANUAL: PROVIDE AT LEAST ONE COPY OF THE ACI FIELD REFERENCE MANUAL, SP-15 IN THE FIELD OFFICE AT ALL TIMES.
4. SUBMITTALS:
   A. SUBMIT A MIX DESIGN FOR EACH MIXTURE USAGE REQUIRED FOR THE PROJECT. CONCRETE PROPORTIONS ARE TO BE ESTABLISHED ON THE BASIS OF PREVIOUS FIELD EXPERIENCE OR TRIAL MIXTURES.
   B. SUBMIT PLACING DRAWINGS FOR ALL REINFORCING. INDICATE STRENGTH, SIZE, AND DETAILS OF ALL BAR REINFORCING.
   C. SUBMIT PRODUCT LITERATURE FOR ADMIXTURES AND CURING COMPOUNDS PROPOSED FOR USE.
   D. SUBMIT REPORTS OF ALL REQUIRED TESTING AND INSPECTIONS.
5. CONTINGENCIES:
   A. PROVIDE LEAN CONCRETE UNDER FOUNDATIONS FOR ACCIDENTAL OVER EXCAVATION, SOFT SPOTS, AND UTILITY TRENCHES.
6. FOOTINGS:
   A. PROVIDE CORNER BARS AT WALL AND FOOTING CORNERS TO MATCH HORIZONTAL REINFORCING. MINIMUM LENGTH OF EACH LEG - 36 BAR DIAMETERS.
7. SPLICES:
   A. LAP SPLICE REINFORCING BARS AS SCHEDULED. MINIMUM LAP = 36 DIAMETERS.
8. CONSTRUCTION JOINTS:
   A. CONSTRUCTION JOINTS PERMITTED ONLY WHERE SHOWN OR AS APPROVED BY THE STRUCTURAL ENGINEER.
9. FINISHES:
   A. PER ACI 117, SURFACES OF INTERIOR SLABS ON GRADE ARE TO BE FINISHED TO THE FOLLOWING TOLERANCES: FLOOR FLATNESS F(f)= 30 AND LEVELNESS F(l)=20 UNLESS NOTED OTHERWISE IN SPECIFICATIONS.
   B. TYPICAL INTERIOR FLOOR AREAS TO RECEIVE CARPET, RESILIENT FLOOR COVERING, OR TO REMAIN EXPOSED - TROWELED FINISH.
   C. INTERIOR FLOOR AREAS TO RECEIVE QUARRY TILE OR CERAMIC TILE - FLOATED FINISH.
   D. EXTERIOR SLABS - BROOM FINISH.
10. CURING:
    A. CURING IS TO COMMENCE IMMEDIATELY AFTER CONCRETE PLACEMENT AND CONTINUE FOR AT LEAST 7 DAYS. DO NOT ALLOW CURING TO BE DELAYED OVERNIGHT.
    B. INTERIOR SLABS TO RECEIVE QUARRY TILE OR CERAMIC TILE ARE TO BE MOIST-CURED WITHOUT THE USE OF A CURING COMPOUND.
    C. ALL OTHER SLABS MAY BE EITHER MOIST-CURED OR RECEIVE AN APPLICATION OF CURING COMPOUND.
11. FIELD QUALITY CONTROL:
    A. OBTAIN CONCRETE FOR REQUIRED TESTS AT POINT OF PLACEMENT. IF CONCRETE IS PUMPED, OBTAIN CONCRETE AT DISCHARGE END.
    B. FOR EACH CLASS OF CONCRETE, OTHER THAN LEAN CONCRETE, PERFORM ONE STRENGTH TEST FOR EACH 50 YARDS, OR FRACTION THEREOF, FOR ONE DAY PLACEMENT.
    C. DETERMINE SLUMP FOR EACH STRENGTH TEST.
    D. DETERMINE AIR CONTENT FOR EACH STRENGTH TEST OF EXTERIOR EXPOSED CONCRETE.
    E. MAINTAIN RECORDS OF ALL TESTS INDICATING EXACT LOCATION OF THE STRUCTURE REPRESENTED BY EACH TEST.

STRUCTURAL STEEL

1. MATERIALS:
   A. STRUCTURAL STEEL CHANNELS, ANGLES, ETC.: ASTM A36, Fy = 36 KSI
   B. STRUCTURAL STEEL PLATES: UNLESS NOTED OTHERWISE - ASTM A36, Fy = 36 KSI; ASTM A529 OR A572, Fy = 50 KSI, WHERE NOTED
   C. HIGH STRENGTH BOLTS: ASTM A325 OR A490
   D. ANCHOR RODS: ASTM F1554, GRADE 36, UNLESS NOTED OTHERWISE
   E. ELECTRODES: SERIES E70
   F. RECTANGULAR HSS: ASTM A500, GRADE C, FY = 50 KSI
2. SPECIFICATIONS:
   A. WELDING PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER AWS D1.1. UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION TO BE GOVERNED BY THE LATEST REVISIONS OF:
      1. AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
      2. AISC CODE OF STANDARD PRACTICE.
      3. STRUCTURAL WELDING CODE, AWS D1.1 OF THE AMERICAN WELDING SOCIETY.
      4. SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
3. SUBMITTALS:
   A. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL WHICH INCLUDE ERECTION PLANS, CONNECTION DETAILS, AND SHOP DETAILS INDICATING CUTS, COPES, CAMBERS, CONNECTIONS, HOLES, THREADED FASTENER TYPES AND SIZES, AND SIZES AND LENGTHS OF WELDS.
   B. INDICATE MATERIAL SPECIFICATIONS, STRENGTHS, AND FINISHES.
4. CONNECTIONS:
   A. FIELD CONNECTIONS ARE TO BE BOLTED, EXCEPT AS INDICATED OTHERWISE. SHOP CONNECTIONS MAY BE WELDED OR BOLTED.
   B. CONNECTIONS ARE TO BE DESIGNED BY THE FABRICATOR TO DEVELOP EITHER 100% OF THE FULL UNIFORM LOAD CAPACITY OF THE MEMBER, OR THE FORCES SHOWN ON THE PLANS. COMPOSITE BEAM CONNECTIONS ARE TO BE DESIGNED FOR 150% OF THE UNIFORM LOAD CAPACITY OF THE MEMBER, OR THE FORCES SHOWN ON THE PLANS. MINIMUM CONNECTION CAPACITY TO BE 15 KIPS. FOLLOW INSTRUCTIONS ON DRAWINGS FOR GENERAL ARRANGEMENT OR PARTICULAR DETAILS.
5. COATINGS:
   A. DO NOT PAINT STEEL OR ANCHOR RODS WHICH WILL BE ENCASED IN CONCRETE OR MASONRY, NOR ANY STEEL WHICH IS SCHEDULED TO RECEIVE SPRAY-APPLIED OR INTUMESCENT MASTIC FIREPROOFING.
   B. PAINT ALL INTERIOR EXPOSED STEEL (INCLUDING INTERIOR LINTELS) WITH TWO COATS OF RED-OXIDE PRIMER.
   C. PROVIDE A FIELD-APPLIED COAT OF ASPHALT MASTIC PAINT FOR ALL BELOW-GRADE STEEL (INCLUDING ANCHOR RODS, NUTS, WASHERS, BASE PLATES, AND THE BELOW-GRADE PORTION OF COLUMNS) WHICH IS NOT FULLY ENCASED IN CONCRETE.
   D. INTERIOR NON-EXPOSED STEEL NEED NOT BE PRIME PAINTED.
6. MISCELLANEOUS:
   A. PROVIDE HOLES FOR OTHERS. IF OPENING IS NOT SHOWN ON THE STRUCTURAL DRAWINGS, OBTAIN PRIOR APPROVAL.
   B. STEEL SUPPORTING OR CONNECTING TO MECHANICAL AND OTHER EQUIPMENT AND ROOF OPENINGS AS SHOWN ON ARCHITECTURAL, MECHANICAL AND/OR ON STRUCTURAL DRAWINGS IS SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR IS TO RECONCILE EXACT SIZE LOCATION WITH MECHANICAL AND OTHER REQUIREMENTS BEFORE PROCEEDING WITH THIS WORK.
   C. GROUT UNDER BEARING PLATES TO BE NON-METALLIC, NON-SHRINKING TYPE.
   D. STEEL BELOW GRADE TO BE PROTECTED BY A MINIMUM OF 2" OF CONCRETE, 4" OF SOLID MASONRY, OR A FIELD-APPLIED COAT OF ASPHALT-MASTIC PAINT.
   E. PROVIDE 1/4" THICK FITTING PLATES FOR ALL BEAMS AND BEAM LINTELS BEARING ON MASONRY OR CONCRETE WHICH DO NOT REQUIRE A THICKER BEARING PLATE.
   F. PROVIDE HEAVY PLATE WASHERS AT ALL ANCHOR RODS.
   G. FINISH ENDS OF ALL COLUMNS, STIFFENERS AND ALL OTHER MEMBERS IN DIRECT BEARING.
   H. PROVIDE BOLT HOLES FOR WOOD NAILERS AND JOISTS BOLTED TO BEAMS.
   I. STEEL IN CONTACT WITH PRESSURE-TREATED LUMBER IS TO BE PROTECTED FROM CORROSION FROM PRESERVATIVE CHEMICALS WITH A 20 MIL (MIN.) VAPOR BARRIER. BOLTS AND SCREWS THROUGH PRESSURE-TREATED LUMBER ARE TO BE HOT DIPPED GALVANIZED PER ASTM A153 WITH A MINIMUM G185 COATING OR STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316.
   J. SEE ARCHITECTURAL SECTIONS AND DETAILS FOR ALL MISCELLANEOUS STRUCTURAL STEEL NOT OTHERWISE INDICATED IN THE STRUCTURAL DRAWINGS.
7. FIELD QUALITY CONTROL:
   A. INSPECTION AGENCY IS TO PERFORM INSPECTION OF BOLTED CONNECTIONS PER THE REQUIREMENTS OF AISC SPECIFICATION FOR STRUCTURAL JOINTS.
8. CONTINGENCY:
   A. PROVIDE AND ERECT 1 TONS OF STRUCTURAL AND/OR MISCELLANEOUS STEEL (STRUCTURAL SHAPES, ANGLES, PLATES, ETC.) TO BE USED AS DIRECTED BY THE ARCHITECT/ENGINEER. CONNECTIONS TO BE FIELD-WELDED IF REQUIRED.

STRUCTURAL LUMBER

1. MATERIALS:
   A. STRUCTURAL LUMBER: ALL DESIGN VALUES PER 2015 NFPA NATIONAL DESIGN SPECIFICATION. ANY SUBSTITUTIONS ARE TO MEET MINIMUM DESIGN VALUES OF ABOVE MEMBERS. UNLESS NOTED OTHERWISE FRAMING MATERIALS SHALL BE:
      1) BEAMS, HEADERS, JOISTS, AND RAFTERS - SPRUCE-PINE-FIR NO.1/NO.2
      2) WALL STUDS 2x6 - SPRUCE-PINE-FIR NO.1/NO.2 GRADE.
      3) MICRO-LAM (M-L) OR LAMINATED VENEER LUMBER (LVL): Fb = 2,600 PSI, Fv =285 PSI, Fc (PERP.) = 750 PSI, E = 1,900 KSI.
      4) PARALLAM OR PARALLEL STRAND LUMBER (PSL)
         a. BEAMS: Fb = 2,900 PSI, Fv = 290 PSI, Fc (PERP.) = 750 PSI, E = 2,000 KSI.
         b. COLUMNS: Fb = 2,400 PSI, Fv = 190 PSI, Fc (PERP.) = 545 PSI, E = 1,800 KSI.
      5) LAMINATED STRAND LUMBER (LSL) BEAMS: Fb = 2360 PSI, Fv = 410, Fc (PERP.) = 875 PSI, E = 1,550 KSI.
      6) DECKING AND SHEATHING:
         ROOFS: 23/32 (3/4" NOMINAL) APA RATED SHEATHING, 32/16, EXPOSURE 1 (PLYWOOD ONLY).
         WALL SHEATHING: 7/16" APA RATED SHEATHING, WALL-24, EXPOSURE 1 (OSB OR PLYWOOD)
   B. ALL LUMBER IN CONTACT WITH CONCRETE, MASONRY, GROUNDSOIL, OR USED IN CONDITIONS WITH MOISTURE PRESENT, IS TO BE PRESSURE-TREATED TO RESIST DECAY. PRESERVATIVES USED FOR PRESSURE TREATMENT ARE TO BE ALKALINE COPPER QUAT, ACQ-C OR ACQ-D. OTHER PRESERVATIVES PROPOSED FOR USE ARE TO BE SUBMITTED FOR REVIEW PRIOR TO ERECTION OR INSTALLATION ON THE PROJECT.
2. SPECIFICATIONS:
   A. UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
      1. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
      2. U.S. PRODUCT STANDARD PS-1 FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD.
      3. APA PS 2-18, PERFORMANCE STANDARD FOR WOOD STRUCTURAL PANELS.
      4. APA DESIGN/CONSTRUCTION GUIDE - RESIDENTIAL AND COMMERCIAL.
3. CONNECTIONS:
   A. CONNECTIONS FOR WOOD MEMBERS SHALL BE MINIMALLY FASTENED AS PRESCRIBED IN TABLE 2304.10.1 OF THE REFERENCED BUILDING CODE UNLESS DETAILED OTHERWISE. ALL NAILS ARE TO BE COMMON WIRE NAILS, UNLESS SPECIFICALLY NOTED OTHERWISE.
   B. FOUNDATION PLATES ON CONCRETE OR MASONRY WALLS SHALL BE PRESSURE TREATED LUMBER, SYP #2 GRADE MINIMUM. SILLS SHALL BE ANCHORED TO CONCRETE OR MASONRY WITH 5/8" DIAMETER x 6" LONG SIMPSON TITEN HD ANCHORS SPACED AT 48" O.C. MAXIMUM, UNLESS NOTED OTHERWISE. THERE SHALL BE A MINIMUM OF 3 BOLTS PER SILL PIECE WITH ONE BOLT LOCATED WITHIN 12" OF EACH END OF EACH PIECE. DO NOT PROVIDE A SILL PLATE SPLICE UNDER ANY POST OR STUD. SEE SHEARWALL SCHEDULE AND DETAILS FOR ADDITIONAL REQUIREMENTS.
   C. JOISTS TO BEAMS OR JOISTS TO TRUSSES - 16 GA. STD. JOIST HANGERS, UNLESS SHOWN OTHERWISE. BEAMS TO BEAMS - 16 GA. BEAM HANGERS, UNLESS SHOWN OTHERWISE.
   D. ALL HANGERS, STRAPS, CAPS, BASES, HOLDOWNS, TIES OR OTHER CONNECTORS IN CONTACT WITH PRESSURE-TREATED LUMBER ARE TO BE BATCHPOST HOT DIPPED GALVANIZED PER ASTM A123 WITH A MINIMUM G185 COATING OR STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316.
   E. ALL FASTENERS INCLUDING NAILS, ANCHOR RODS, POWDER ACTUATED FASTENERS, SCREWS, BOLTS, AND THREADED RODS, IN CONTACT WITH PRESSURE TREATED LUMBER ARE TO BE HOT DIPPED GALVANIZED PER ASTM A153 WITH A MINIMUM G185 COATING OR STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316. FASTENERS AND CONNECTORS ARE TO BE OF THE SAME MATERIAL, STAINLESS STEEL OR HOT DIPPED GALVANIZED, DO NOT MIX MATERIALS.
   F. ALL MECHANICAL ANCHORS INCLUDING WEDGE ANCHORS AND SLEEVE ANCHORS IN CONTACT WITH PRESSURE TREATED LUMBER ARE TO BE STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316.
   G. SHEATHING TO FRAMING:
      1. ROOFS - USE 10d NAILS AT 6" ON CENTER AT PANEL EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS (UNO).
      2. STUD WALLS - USE 8d COMMON OR GALVANIZED BOX NAILS AT 6" ON CENTER AT PANEL EDGES AND 12" ON CENTER AT INTERMEDIATE SUPPORTS (UNO). SEE SHEARWALL SCHEDULES FOR ADDITIONAL FASTENING REQUIREMENTS.
      3. GYPSUM-SHEATHED WALLS - USE 6d COOLER OR No. 6 x 1-1/4" TYPE S OR W SCREWS AT 7" ON CENTER AT PANEL EDGES AND 7" ON CENTER AT INTERMEDIATE SUPPORTS (UNO).
   H. TRUSS TO WALL OR RAFTERS TO WALL - STANDARD HURRICANE ANCHORS AT EACH BEARING POINT. ADDITIONAL ANCHORS MAY BE REQUIRED BASED UPON FINAL LAYOUT AND DESIGN BY THE TRUSS MANUFACTURER DURING THE SHOP DRAWING PROCESS.
4. MISCELLANEOUS:
   A. PROVIDE ONE LINE OF SOLID BLOCKING OR CROSS BRIDGING AT 6'-0" O/C MAX. FOR ALL FLOOR JOISTS. USE SOLID BLOCKING AT ALL JOIST AND RAFTER BEARINGS.
   B. PROVIDE SOLID BLOCKING AT MID-HEIGHT OF WALLS FOR EACH OF THE FOLLOWING CONDITIONS: EXTERIOR STUD WALLS, INTERIOR BEARING PARTITIONS, AND ALL WALL FRAMING WHICH IS NOT SHEATHED ON EACH SIDE WITH GYPSUM OR WOOD SHEATHING.
   C. USE SINGLE JACK STUDS UNDER BEAM AND HEADER BEARINGS FOR ROUGH OPENINGS UP AND INCLUDING 4'-0", AND DOUBLE JACK STUDS UNDER BEAM AND HEADER BEARINGS FOR SPANS GREATER THAN 4'-0". UNLESS SHOWN OTHERWISE.
   D. APPLY CONTINUOUS BEAD OF GLUE ON JOISTS AND GROOVE OF TONGUE-AND-GROOVE PANELS.
   E. EACH MEMBER OF MULTIPLE MEMBER BEAMS AND COLUMNS ARE TO BE NAILED TOGETHER WITH 2 ROWS OF 10d NAILS AT 6" ON CENTER, STAGGERED, THE FULL LENGTH OF THE MEMBER. FOR MULTIPLE MEMBER LVL OR LSL PRODUCTS, FOLLOW MINIMUM FASTENING REQUIREMENTS OF THE MANUFACTURER.

ENGINEERED WOOD TRUSSES

1. MATERIALS:
   A. LUMBER: AS REQUIRED BY THE TRUSS MANUFACTURER. MINIMUM GRADE TO BE SYP NO. 2 KD 15 PERCENT MC, EXCEPT FOR WEBS, WHICH MAY BE MINIMUM GRADE OF SYP NO. 3, KD 15 PERCENT MC.
   B. MEMBER SIZES: THE FOLLOWING MEMBERS SHALL BE OF A MINIMUM SIZE SPECIFIED:
      1. TOP CHORD: 2X6
      2. BOTTOM CHORD: 2X6
      3. END VERTICALS: 2X6
   C. CONNECTIONS: ALL INTERNAL TRUSS CONNECTIONS ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER. CONNECTORS ARE TO BE DEFORMED PLATE TYPE, OF MINIMUM 20 GAUGE GALVANIZED STEEL SHEET. ALL JOINTS ARE TO BE DESIGNED USING METHODS AS SET FORTH IN TPI STANDARDS.
   D. ALL HANGERS, STRAPS, CAPS, BASES, HOLDOWNS, TIES OR OTHER CONNECTORS IN CONTACT WITH PRESSURE-TREATED LUMBER ARE TO BE BATCHPOST HOT DIPPED GALVANIZED PER ASTM A123 WITH A MINIMUM G185 COATING OR STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316.
   E. ALL FASTENERS INCLUDING NAILS, ANCHOR RODS, POWDER ACTUATED FASTENERS, SCREWS, BOLTS, AND THREADED RODS, IN CONTACT WITH PRESSURE TREATED LUMBER ARE TO BE HOT DIPPED GALVANIZED PER ASTM A153 WITH A MINIMUM G185 COATING OR STAINLESS STEEL WITH CHEMICAL COMPOSITION CONFORMING TO AISI 303/304 OR AISI 316. FASTENERS AND CONNECTORS ARE TO BE OF THE SAME MATERIAL, STAINLESS STEEL OR HOT DIPPED GALVANIZED, DO NOT MIX MATERIALS.
   F. SPECIFICATIONS AND REFERENCE STANDARDS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION, ERECTION, HANDLING AND BRACING REQUIREMENTS ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
      1. NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
      2. TIMBER CONSTRUCTION STANDARDS.
      3. DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES.
      4. TRUSS PLATE INSTITUTE PUBLICATION BTW BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS EXCEPT AS NOTED BELOW.
2. DESIGN:
   A. ALL TRUSSES ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER FOR THE FOLLOWING LOADS:

ROOFS:	
- TOP CHORD DEAD LOAD:	10 PSF + MECHANICAL SHOWN
- TOP CHORD LIVE LOAD:	20 PSF + DRIFT
- BOTTOM CHORD DEAD LOAD:	10 PSF
- BOTTOM CHORD LIVE LOAD:	0 PSF
LIVE LOAD DEFLECTION LIMIT:	L/360

   SNOW LOADS:
   IN ACCORDANCE WITH ASCE 7-10 USING THE CRITERIA DEFINED IN THE "DESIGN LOADS" SECTION OF THE GENERAL STRUCTURAL NOTES. SNOW LOADS ARE TO INCLUDE THE EFFECTS OF "UNBALANCED SNOW LOADS FOR HIP AND GABLE ROOFS".

   WIND LOADS:
   IN ACCORDANCE WITH ASCE 7-10 USING THE CRITERIA DEFINED IN THE "DESIGN LOADS" SECTION OF THE GENERAL STRUCTURAL NOTES. TRUSSES ARE TO BE DESIGNED FOR "COMPONENTS AND CLADDING" WIND LOADS UNLESS NOTED OTHERWISE.

   OTHER LATERAL LOADS:
   SEE PLANS AND DETAILS FOR DRAG STRUT LOCATIONS AND LOADING REQUIREMENTS.

   SPECIAL LOADS:
   SEE PLANS AND ELEVAT

IN ACCORDANCE WITH CHAPTER 17 OF THE REFERENCE BUILDING CODE, THE OWNER SHALL EMPLOY INSPECTION AGENCIES TO PERFORM SPECIAL INSPECTIONS DURING CONSTRUCTION INCLUDING INSPECTIONS OF SHOP-FABRICATED ITEMS WHEN APPLICABLE. ALL INSPECTION AGENCIES, INCLUDING FABRICATION FACILITIES, WHEN REQUIRED, SHALL BE QUALIFIED AND APPROVED BY THE BUILDING OFFICIAL. REFER TO OTHER DISCIPLINES FOR SPECIAL INSPECTIONS OF NON-STRUCTURAL SYSTEMS.

TABLE 1 STATEMENT OF SPECIAL INSPECTIONS FOR STRUCTURAL DISCIPLINE

REQUIRED SPECIAL INSPECTIONS AND TESTS FOR SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	---	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	---	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	---	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	---
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	---	X

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT.	---	X
2. REINFORCING BAR WELDING:		
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.	---	X
B. INSPECT SINGLE PASS FILLET WELDS, MAXIMUM 5/16".	---	X
C. INSPECT ALL OTHER WELDS.	X	---
3. INSPECT ANCHORS CAST IN CONCRETE.	---	X
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.		
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	---
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4A.	---	X
5. VERIFY USE OF REQUIRED DESIGN MIX.	---	X
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	---
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	---
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	---	X
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	---	X

REQUIRED SPECIAL INSPECTIONS AND TESTS OF WOOD CONSTRUCTION		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. FABRICATED LOAD BEARING ASSEMBLIES (TRUSSES/COMPOSITE I-JOISTS) CONDUCTED ON THE PREMISES OF THE FABRICATORS SHOP.	---	X

TABLE 2 STATEMENT OF SPECIAL INSPECTIONS FOR STRUCTURAL DISCIPLINE

REQUIRED SPECIAL INSPECTIONS AND TESTS OF STRUCTURAL STEEL CONSTRUCTION		
TYPE	PERFORM	OBSERVE
1. INSPECTION TASKS PRIOR TO WELDING:		
A. WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS.	---	X
B. WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE.	X	---
C. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE.	X	---
D. MATERIAL IDENTIFICATION (TYPE/GRADE)	---	X
E. WELDER IDENTIFICATION SYSTEM.	---	X
F. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY):		
• JOINT PREPARATIONS.	---	X
• DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL.	---	X
• CLEANLINESS (CONDITION OF STEEL SURFACES).	---	X
• TACKING (TACK WELD QUALITY AND LOCATION).	---	X
• BACKING TYPE AND FIT (IF APPLICABLE).	---	X
G. FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y-, AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY):		
• JOINT PREPARATIONS.	---	X
• DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL.	---	X
• CLEANLINESS (CONDITION OF STEEL SURFACES).	---	X
• TACKING (TACK WELD QUALITY AND LOCATION).	---	X
H. CONFIGURATION AND FINISH OF ACCESS HOLES.	---	X
I. FIT-UP OF FILLET WELDS:		
• DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL.	---	X
• CLEANLINESS (CONDITION OF STEEL SURFACES).	---	X
• TACKING (TACK WELD QUALITY AND LOCATION).	---	X
2. INSPECTION TASKS DURING WELDING:		
A. CONTROL AND HANDLING OF WELDING CONSUMABLES.		
• PACKAGING	---	X
• EXPOSURE CONTROL	---	X
B. NO WELDING OVER CRACKED TACK WELDS.	---	X
C. ENVIRONMENTAL CONDITIONS:		
• WIND SPEED WITHIN LIMITS	---	X
• PRECIPITATION AND TEMPERATURE	---	X
D. WPS FOLLOWED:		
• SETTINGS ON WELDING EQUIPMENT	---	X
• TRAVEL SPEED	---	X
• SELECTED WELDING MATERIALS	---	X
• SHIELDING GAS TYPE/FLOW RATE	---	X
• PREHEAT APPLIED	---	X
• INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)	---	X
• PROPER POSITION (F, V, H, OH)	---	X
• TRAVEL SPEED	---	X
E. WELDING TECHNIQUES		
• INTERPASS AND FINAL CLEANING	---	X
• EACH PASS WITHIN PROFILE LIMITATIONS	---	X
• EACH PASS MEETS QUALITY REQUIREMENTS	---	X
F. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	X	---
3. INSPECTION TASKS AFTER WELDING:		
A. WELDS CLEANED.	---	X
B. SIZE, LENGTH, AND LOCATION OF WELDS	X	---
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA:		
• CRACK PROHIBITION	X	---
• WELD /BASE-METAL FUSION	X	---
• CRATER CROSS SECTION	X	---
• WELD PROFILES	X	---
• WELD SIZE	X	---
• UNDERCUT	X	---
• POROSITY	X	---
D. ARC STRIKES.	X	---
E. K-AREA	X	---
F. WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES.	X	---
G. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED).	X	---
H. REPAIR ACTIVITIES.	X	---
I. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER.	X	---
J. NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR.	---	X
K. NON-DESTRUCTIVE TESTING FOR COMPLETE-JOINT-PENETRATION (CJP) WELDS.		
• UT SHALL BE PERFORMED ON ALL CJP JOINTS IN MATERIAL 5/16" AND GREATER.	X	---
4. INSPECTION TASKS AFTER BOLTING.		
A. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS.	X	---
5. ANCHOR ROD PLACEMENT.		
A. INSPECTION DURING PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS (ANCHOR DIAMETER, GRADE, TYPE, AND LENGTH OF THE ANCHOR ROD OR EMBEDED ITEM AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE) PRIOR TO PLACEMENT OF CONCRETE.	---	X
6. INSPECTION OF THE FABRICATED STEEL OR ERECTED STEEL FRAME IN COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS.	---	X

STRUCTURAL STEEL INSPECTION NOTES:
1. "PERFORM" — THESE TASKS SHALL BE PERFORMED FOR EACH WELDED/BOLTED JOINT OR MEMBER.
2. "OBSERVE" — THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE.

CONCRETE REINFORCING CLEARANCES/COVER

(#3 - #11 BARS)

EXPOSURE CONDITION	MIN. COVER U.N.O.	TOLERANCE
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"	-3/8", + 1"
EXPOSED TO EARTH OR WEATHER: #5 AND SMALLER BARS #6 AND LARGER BARS	1 1/2" 2"	-1/4", +1/2" -1/4", +1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS, BEAMS, COLUMNS, PIERS - TO TIES & STIRRUPS	3/4" 1 1/2"	-1/4", +3/8" -1/4", +1/2"

"-" INDICATES TOLERANCE DECREASE TOWARDS MEMBER FACE.
"+" INDICATES AWAY FROM MEMBER FACE

LAP SPLICE SCHEDULE FOR CONCRETE REINFORCING

3,000 psi & 3,500 psi CONCRETE UNCOATED REINFORCING BARS

BAR SIZE	3/4" CLR.		1 1/2" CLR. AND GREATER	
#4	3'-1"	2'-4"	3'-1"	2'-4"
#5	3'-10"	3'-0"	3'-10"	3'-0"
#6	4'-8"	3'-7"	4'-8"	3'-7"
#7	7'-6"	5'-9"	6'-9"	5'-2"
#8	9'-3"	7'-1"	7'-9"	5'-11"
#9	11'-2"	8'-7"	8'-8"	6'-8"
#10	13'-6"	10'-4"	9'-10"	7'-6"
#11	15'-10"	12'-2"	10'-11"	8'-4"

1. TOP BARS / OTHER BARS — TOP BARS DEFINED AS HORIZONTAL WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BAR.
2. BAR SPACING TO BE A MINIMUM OF THREE DIAMETERS UNLESS NOTED OR SCHEDULED OTHERWISE.
3. APPLICABLE ONLY FOR 60ksi STEEL AND NORMAL WEIGHT CONCRETE.
4. IN LIEU OF LAP SPLICING, BARS MAY BE SPLICED BY MECHANICAL MEANS WHICH DEVELOP 125% OF THE BAR'S SPECIFIED YIELD STRENGTH.

Consultant:

Jezerinac Geers Structural Engineering

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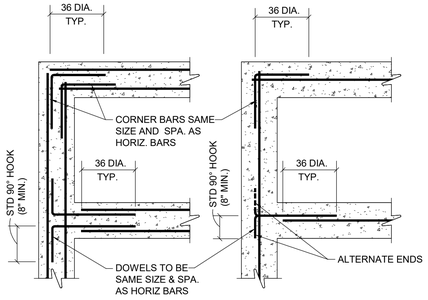
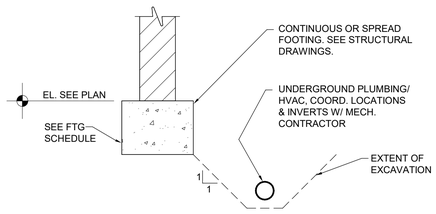
Contents:
SPECIAL INSPECTIONS

S001



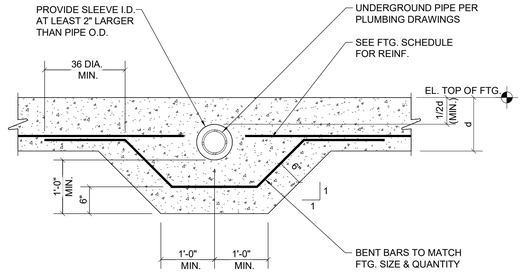
TYP. CORNER BARS FOR CONCRETE WALL AND FOOTING CONSTRUCTION

SECTION 1 — 3/4" = 1'-0"

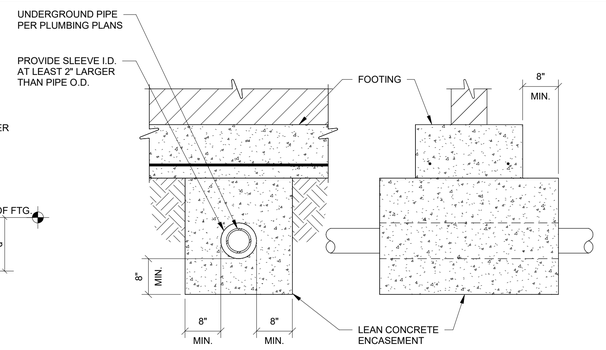


TYPICAL EXCAVATION CLEARANCE REQUIREMENTS

SECTION 2 — 3/4" = 1'-0"

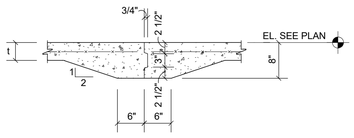


SECTION 3 — 3/4" = 1'-0"

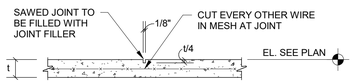


TYPICAL PLUMBING UNDER FOOTING DETAIL

DETAIL 4 — 3/4" = 1'-0"

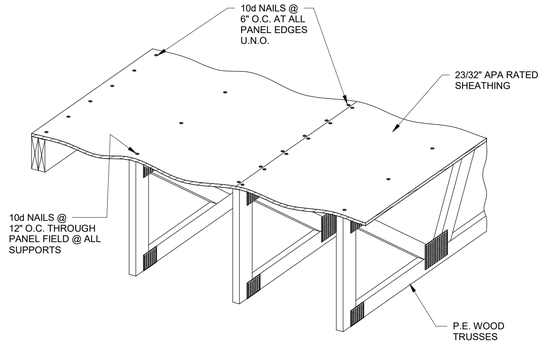


TYPICAL FLOOR CONSTRUCTION JOINT



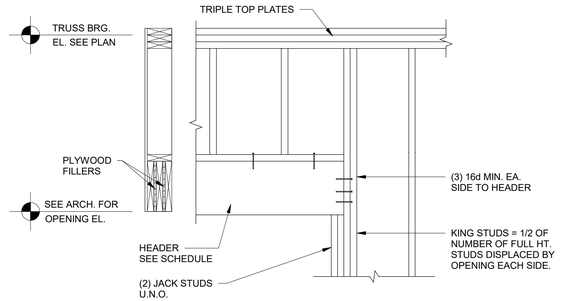
TYPICAL FLOOR CONTROL JOINT

SECTION 5 — 3/4" = 1'-0"



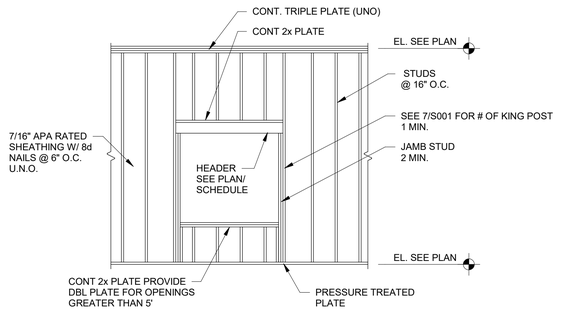
TYPICAL DIAPHRAGM NAILING

SECTION 6 — 3/4" = 1'-0"



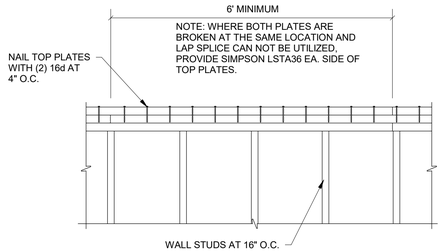
TYPICAL WOOD HEADER CONSTRUCTION

SECTION 7 — 3/4" = 1'-0"



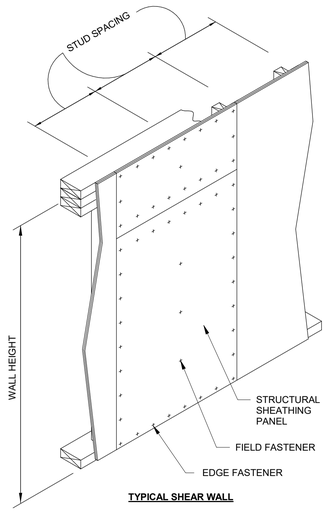
TYPICAL WALL AND OPENING CONSTRUCTION

SECTION 8 — 3/4" = 1'-0"



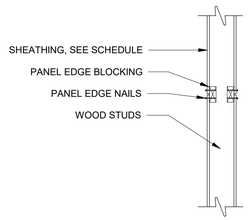
TYPICAL SHEARWALL - TOP PLATE SPLICE

SECTION 9 — 3/4" = 1'-0"



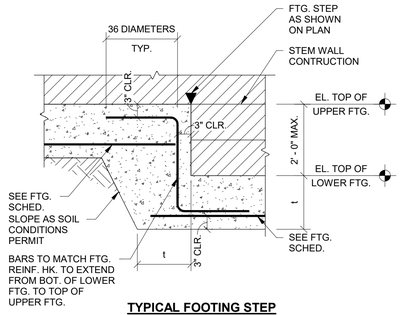
TYPICAL SHEAR WALL

SECTION 10 — 3/4" = 1'-0"



TYPICAL SHEARWALL - PANEL EDGE BLOCKING

SECTION 11 — 3/4" = 1'-0"



TYPICAL FOOTING STEP

SECTION 12 — 3/4" = 1'-0"

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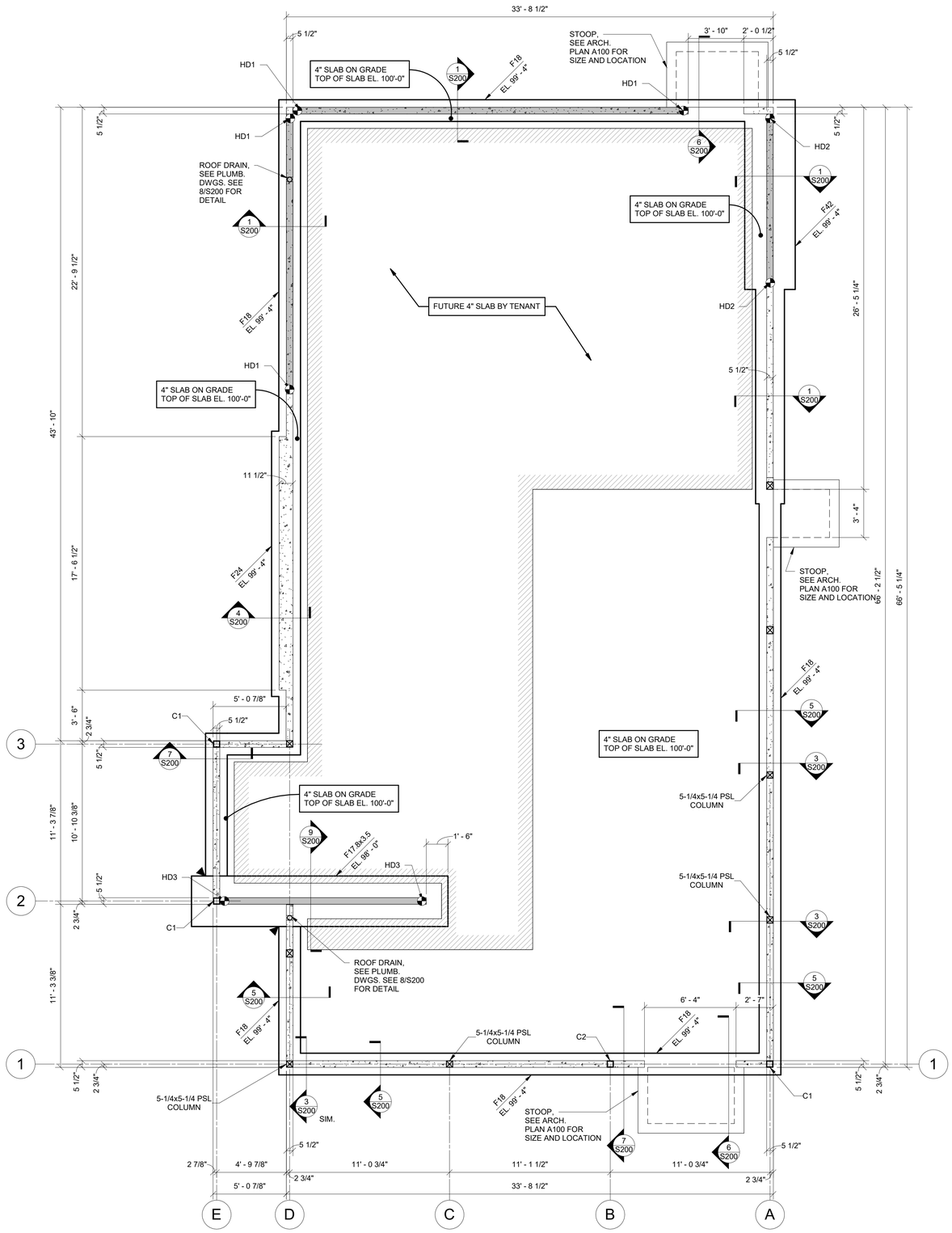
Contents:

TYPICAL DETAILS

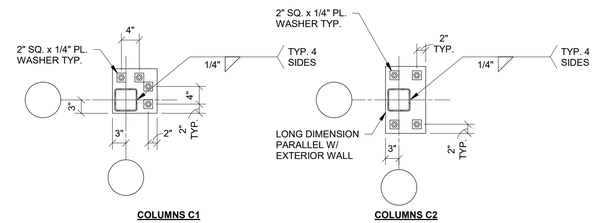
S002



FOUNDATION PLAN

1/4" = 1'-0"

COLUMN SCHEDULE			
MARK	SIZE	BASE PLATE	ANCHOR BOLT
C1	HSS5x5x1/4	1" x 10" x 10"	(4)1"Ø x 18 LG. W/ DBL. NUT BOTTOM
C2	HSS5x5x1/4	1" x 15" x 9"	(4)1"Ø x 18 LG. W/ DBL. NUT BOTTOM



COLUMNS C1 **COLUMNS C2**

SHEARWALL HOLDOWN SCHEDULE		
MARK	HOLDOWN (LOCATE EA. END)	SHEARWALL BOUNDARY END STUDS/POSTS
HD1	HDU2-SDS2.5	2
HD2	HDU4-SDS2.5	2
HD3	HDU14-SDS2.5	6x6

SHEARWALL SCHEDULE NOTES:

1. ALL HOLDOWNS INDICATED ARE MANUFACTURED BY SIMPSON STRONG TIE®. FOLLOW ALL MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
2. 'BOUNDARY END STUDS' ARE STUD PACKS OR COLUMNS LOCATED AT THE EACH END OF SHEARWALLS. STUDS SHALL BE OF SAME SIZE AND MATERIAL WITH THE WALL THEY ARE INTEGRAL WITH. SEE GENERAL STRUCTURAL NOTES FOR MINIMUM 'PSL' MATERIAL STANDARDS.
3. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL LENGTHS OF ALL WALLS INDICATED AS SHEARWALLS. LOCATE BOUNDARY END STUDS/POSTS AT THE END OF WALLS MARKED AS SHEAR WALLS. SEE DETAIL BLOW UPS OF WALL INTERSECTIONS AND LOCATION OF STUD/POSTS.

CONT. WALL FOOTING SCHEDULE			
MARK	WIDTH	THICKNESS	REINFORCING
F18	1' - 6"	2' - 0"	(2) #5 CONT. TOP & BOTTOM
F24	2' - 0"	2' - 0"	(2) #5 CONT. TOP & BOTTOM
F42	3' - 6"	2' - 0"	(3) #5 CONT. TOP & BOTTOM

SPREAD FOOTING SCHEDULE				
MARK	WIDTH	LENGTH	THICKNESS	REINFORCING
F17.8x3.5	3' - 6"	17' - 9"	2' - 0"	(6) #5 TOP & BOTTOM LONG WAY, #5 TOP & BOTTOM @ 12" O.C. SHORT WAY

FOUNDATION NOTES

1. DESIGN SOIL BEARING PRESSURE = 2500 PSF. SEE S000 FOR REFERENCE SOILS REPORT INFORMATION. REFERENCE THIS REPORT FOR ANY REQUIRED SITE BUILDING PAD PREPARATION PRIOR TO FOUNDATION AND/OR SLAB-ON-GRADE CONSTRUCTION. FOOTING EXCAVATIONS MAY BE REQUIRED TO EXTEND THROUGH EXISTING FILL REGIONS IN ORDER TO BEAR ON SUITABLE MATERIAL. OVER-EXCAVATIONS ARE TO BE FILLED WITH LEAN CONCRETE UP TO THE PLANNED BOTTOM OF FOOTING ELEVATION. PLACE NO CONCRETE PRIOR TO INSPECTION AND APPROVAL OF BEARING SURFACES BY SOILS ENGINEER.
2. KEEP FOUNDATIONS FREE OF WATER AT ALL TIMES. REPLACE WEAKENED SOIL WITH LEAN CONCRETE OR FLOWABLE FILL.
3. BOTTOM OF FOOTINGS ARE TO BE AT LEAST 36-INCHES BELOW THE ADJACENT EXTERIOR FINISHED GRADE FOR FROST PROTECTION.
4. VERIFY LOCATION, SIZE, AND NUMBER OF FLOOR DEPRESSIONS AND SLOOR SLOPES WITH ARCHITECTURAL AND MEP DRAWINGS.
5. ELEVATIONS SHOWN ON FOOTINGS INDICATE ELEVATION AT TOP OF FOOTING. REFERENCE ELEVATION/TOP OF CONCRETE SLAB ELEVATION AS NOTED ON PLANS. COORDINATE ABSOLUTE ELEVATION OF TOP OF SLAB WITH SITE DRAWINGS.
6. NOT ALL UNDERGROUND UTILITIES ARE SHOWN ON THE STRUCTURAL DRAWINGS. FOUNDATIONS BUILT PRIOR TO THE INSTALLATION OF UNDERGROUND UTILITIES ARE TO BE STEPPED OR DROPPED COMPLETELY BELOW THE UTILITY DEPTH PER SECTION 3/S001. WHERE UNDERGROUND UTILITIES ARE IN PLACE PRIOR TO FOUNDATION CONSTRUCTION, THEY ARE TO BE ENCASED PER SECTION 4/S001. SEE SECTION 2/S021 FOR TRENCH EXCAVATION AND UTILITY PLACEMENT REQUIREMENTS FOR WORK THAT IS LAID ADJACENT TO FOOTINGS.
7. PROVIDE CORNER BARS AT ALL FOOTING AND CONCRETE WALL INTERSECTIONS PER DETAIL 1/S001.
8. "Cx" INDICATES COLUMN TYPE PER COLUMN SCHEDULE.
9. "HDx" INDICATES SHEARWALL HOLDOWN PER HOLDOWN SCHEDULE.
10. SHADED WALL ABOVE DENOTES SHEARWALL LOCATION. SEE S110 FOR SHEARWALL REQUIREMENTS.
11. DENOTES STEP IN DFOUNDATIONS. SEE DETAIL 12/S002 FOR TYPICAL STEP DETAIL.
12. SEE SHEET S000 FOR GENERAL STRUCTURAL INFORMATION.

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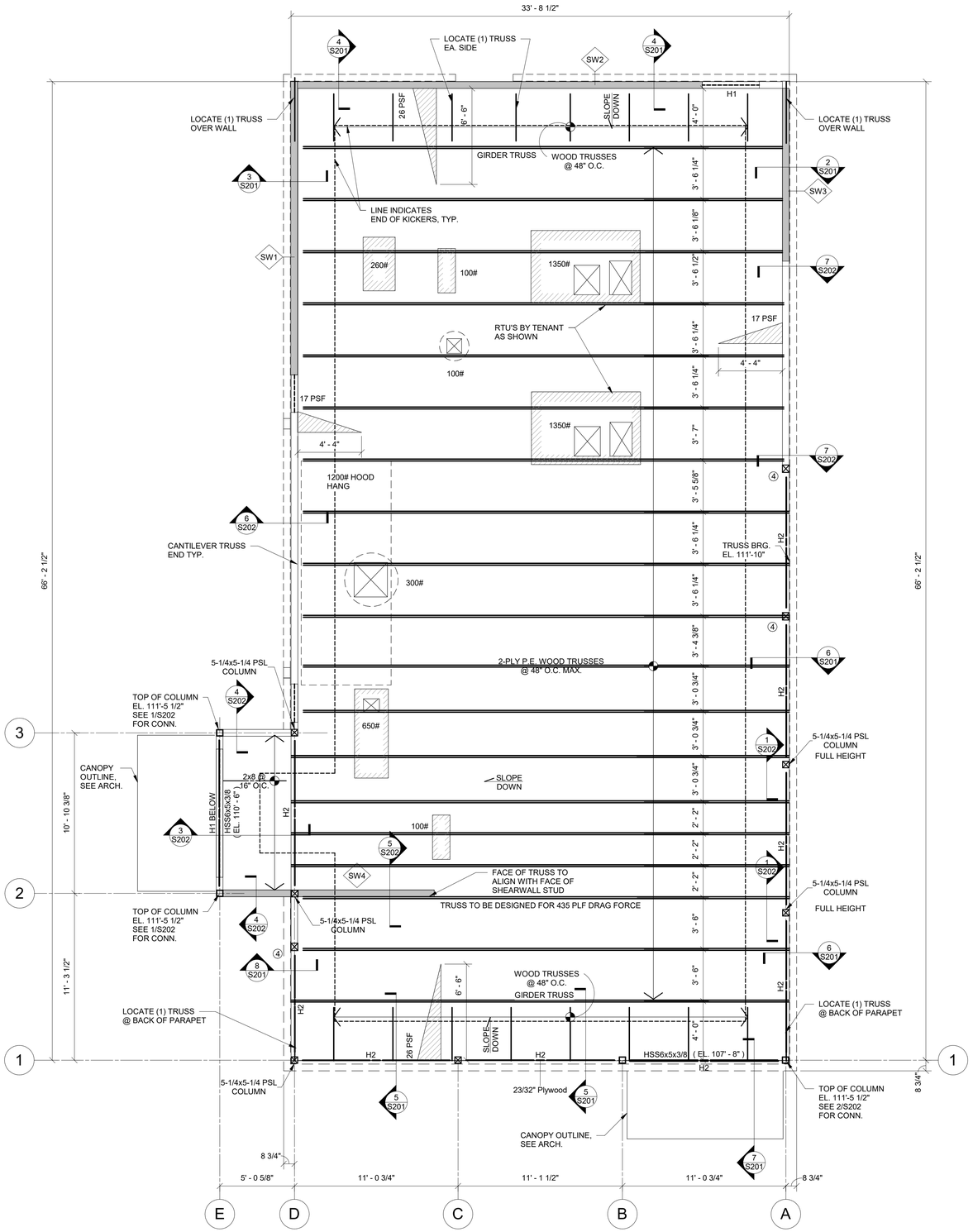
Contents:
FOUNDATION PLAN

S100



ROOF FRAMING PLAN

1/4" = 1'-0"

SHEAR WALL SCHEDULE

MARK	SHEATHING PANEL	PANEL APPLICATION	SHEATHING PANEL FASTENING			SOLE PLATE ANCHORAGE	ADDITIONAL REQUIREMENTS
			FASTENER	PANEL EDGES	PANEL FIELD		
SW1	7/16" APA RATED	ONE SIDE	8d COMMON	6"	12"	5/8"ø ANCHOR BOLTS @ 48" O.C.	
SW2	7/16" APA RATED	ONE SIDE	8d COMMON	4"	12"	5/8"ø ANCHOR BOLTS @ 32" O.C.	
SW3	7/16" APA RATED	ONE SIDE	8d COMMON	3"	12"	5/8"ø ANCHOR BOLTS @ 32" O.C.	
SW4	7/16" APA RATED	EACH SIDE	8d COMMON	3"	12"	5/8"ø ANCHOR BOLTS @ 12" O.C.	(13) ANCHOR BOLTS MIN.

SHEARWALL SCHEDULE NOTES:

1. 'APA RATED' SHEATHING INCLUDES PLYWOOD OR ORIENTED STRAND BOARD (OSB) MATERIALS AS RATED BY THE AMERICAN PLYWOOD ASSOCIATION (APA).
2. ALL PANEL EDGES SHALL BE LOCATED ON STUDS, BLOCKING, BLOCKING LAID FLATWAYS AGAINST SHEATHING, PLATES, OR RIM BOARD.
3. FASTENER SUBSTITUTIONS ARE NOT PERMITTED, UNLESS APPROVED ENGINEER REVIEW IS COMPLETED AT CONTRACTOR'S EXPENSE.
4. PROVIDE SIMPSON BPS5/8-6 PLATE WASHERS AT ALL SILL PLATE ANCHORS ATTACHING BOTTOM OF SHEAR WALL TO FOUNDATION OR CONCRETE SLAB. NEAREST EDGE OF PLATE WASHERS SHALL BE LOCATED NO FARTHER THAN 1/2-INCH FROM INSIDE FACE OF SHEAR WALL SHEATHING.
5. SEE HOLD DOWN SCHEDULE FOR SHEARWALL BOUNDARY STUDS TO BE LOCATED ON EACH END OF WALL.
6. COORDINATE SOLE PLATE ANCHORAGES WITH TYPICAL CONSTRUCTION DETAILS INDICATED THROUGHOUT STRUCTURAL DRAWINGS.
7. ALL SHEARWALL TOP PLATES MUST BE A MINIMUM OF TWO IN NUMBER, HAVE STAGGERED SPLICED LOCATIONS, AND OCCUR OVER STUD LOCATIONS. SEE STRUCTURAL DETAILS FOR TRIPLE TOP PLATE REQUIREMENTS, IF ANY. SEE 9/S002 FOR TYPICAL TOP PLATE SPLICING DETAIL.
8. CAST-IN-PLACE (CIP) ANCHORS SHALL BE EMBEDDED IN CONCRETE A MINIMUM OF 6".

WOOD HEADER SCHEDULE

MARK	SIZE	JACK STUDS	KING STUDS	Remarks
H1	(3) 2x8	(1) 2x	(2) 2x	
H2	(3) 1.75" x 9.25" LVL	(2) 2x	(2) 2x	

HEADER SCHEDULE NOTES:

1. JACK AND KING STUDS SHALL MATCH WALL FRAMING SIZE AND SPECIES OF DESIGNATED STUD WALLS THEY ARE INTEGRAL WITH, U.N.O.
2. SEE GENERAL STRUCTURAL NOTES FOR MINIMUM LUMBER GRADES FOR HEADER FRAMING, U.N.O.
3. SEE SECTION 2/S202 FOR WOOD HEADERS SUPPORTED BY STEEL COLUMNS.
4. SEE GENERAL STRUCTURAL NOTES FOR MINIMUM STRUCTURAL COMPOSITE LUMBER DESIGN VALUES.

ROOF FRAMING NOTES

1. DESIGN LIVE LOADS:

FLAT ROOF LIVE	20 PSF
FLAT ROOF SNOW	10 PSF + DRIFT
WIND (ASD NET UPLIFT)	15 PSF
MECHANICAL LIVE	AS SHOWN

2. ROOF CONSTRUCTION:
   3/4" NOMINAL APA RATED SHEATHING ON PRE-ENGINEERED WOOD TRUSSES OR 2x FRAMING WITH (2) PANEL CLIPS BETWEEN TRUSSES. UNLESS NOTED OTHERWISE, FASTEN SHEATHING TO SUPPORTS AS INDICATED IN THE GENERAL STRUCTURAL NOTES.
3. INDICATES SNOW DRIFT ROOF LOADING. WOOD TRUSSES ARE TO BE DESIGNED TO ACCOMMODATE ADDITIONAL LOADING.
4. INDICATES FUTURE ROOF OPENING. NOT ALL OPENINGS ARE SHOWN ON THE STRUCTURAL DRAWINGS. NOTIFY THE ARCHITECT BEFORE PROCEEDING IF OPENINGS CANNOT BE FIT BETWEEN FRAMING MEMBERS.
5. WT# INDICATES FUTURE TENANT MECHANICAL LOAD SUPPORTED ON ROOF. COORDINATE FINAL SIZE, WEIGHT, LOCATION, AND OPENING REQUIREMENTS WITH TENANT MECHANICAL CONTRACTOR. TOLERANCE FOR LOCATION OF ACTUAL UNIT IS 3 FEET IN ANY DIRECTION FROM WHERE SHOWN ON THE STRUCTURAL DRAWINGS. WOOD TRUSSES ARE TO BE DESIGNED TO ACCOMMODATE LOADING.
6. TRUSS BEARING ELEVATION = 111'-10" UNLESS NOTED OTHERWISE. REFERENCE ELEVATION 100'-0" = TOP OF FIRST FLOOR SLAB ON GRADE.
7. SEE SHEET S100 FOR COLUMN SCHEDULE.
8. H# INDICATES WOOD HEADER FOR WALL OPENINGS PER SCHEDULE. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND DETAILS 7/S002 AND 8/S002 FOR STANDARD HEADER CONSTRUCTION.
9. (4) INDICATES THE NUMBER OF 2x WOOD STUDS REQUIRED TO CREATE A STUD COLUMN SUPPORT UNDER BEAM OR GIRDER BEARING. PROVIDE A MINIMUM OF (2) 2x STUDS AT ALL BEAMS AND GIRDER TRUSSES, UNLESS NOTED OTHERWISE.
10. INDICATES WOOD FRAMED SHEARWALL PER SCHEDULE.
11. SEE ARCHITECTURAL DRAWINGS FOR ANY DIMENSIONS NOT INDICATED HEREIN.
12. SEE SHEET S001 FOR GENERAL STRUCTURAL INFORMATION.

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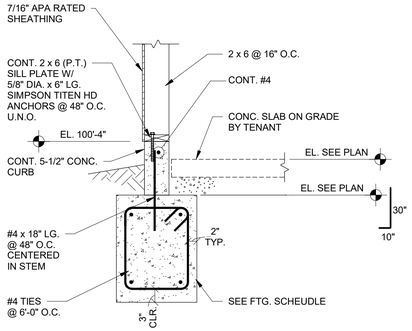
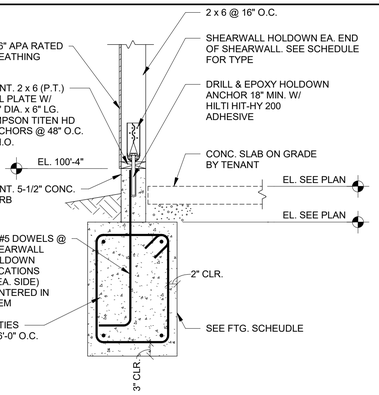
Contents:
ROOF FRAMING PLAN

S110



SECTION 1
3/4" = 1'-0"



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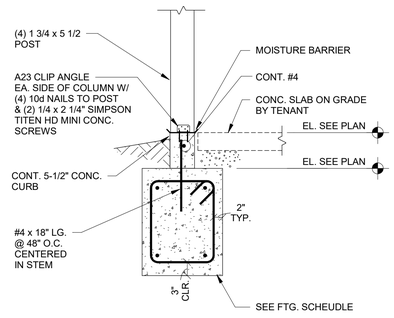

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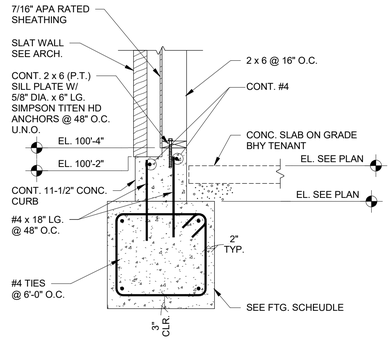

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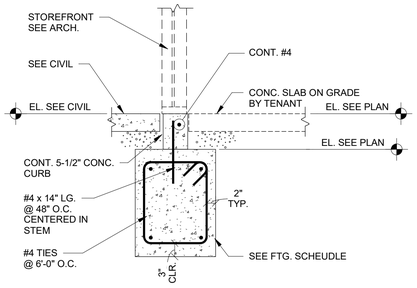

SECTION 5
3/4" = 1'-0"

SECTION 6
3/4" = 1'-0"

SECTION 7
3/4" = 1'-0"

SECTION 8
3/4" = 1'-0"

SECTION 9
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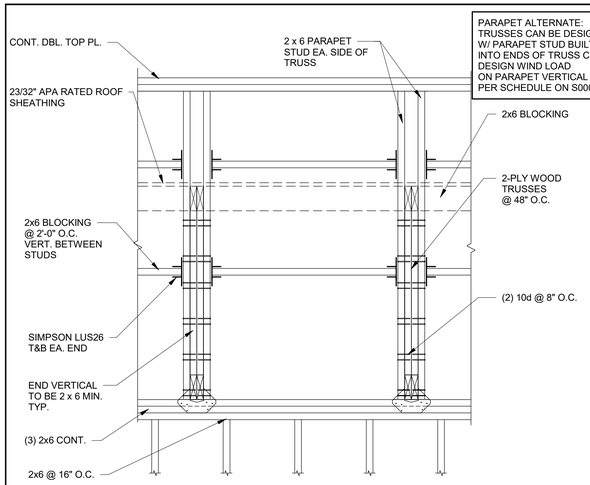
FOUNDATION DETAILS

S200



PARAPET ALTERNATE: TRUSSES CAN BE DESIGNED W/ PARAPET STUD BUILT INTO ENDS OF TRUSS C+C DESIGN WIND LOAD ON PARAPET VERTICAL PER SCHEDULE ON S000

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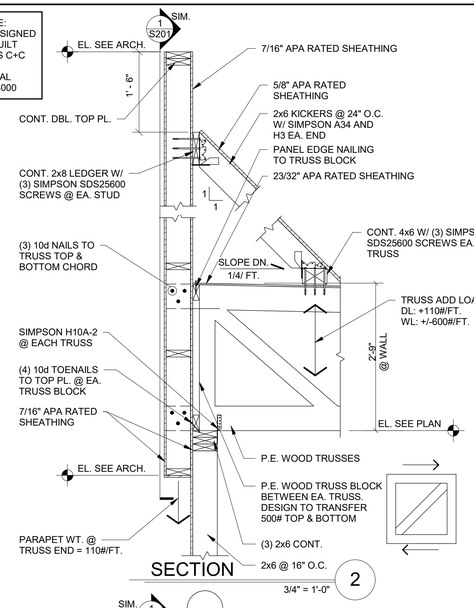

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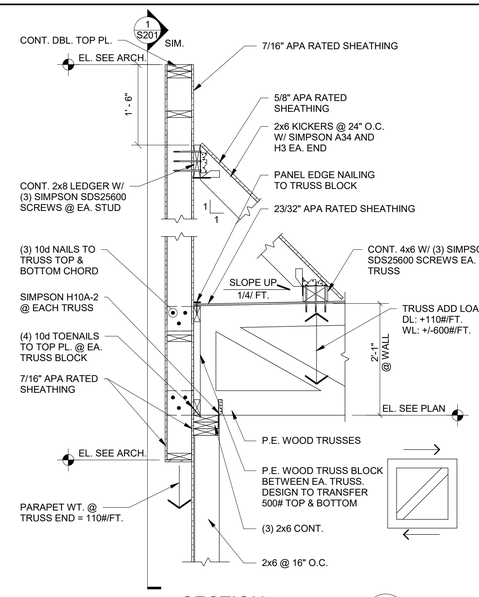

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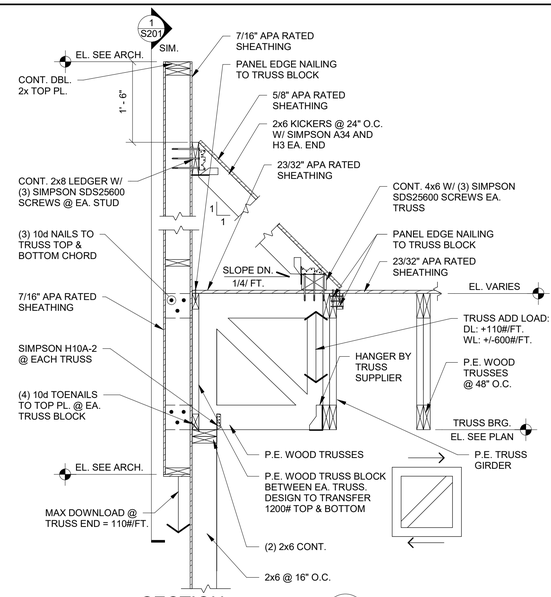

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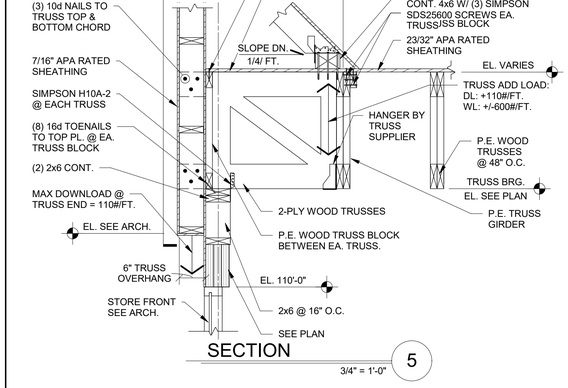

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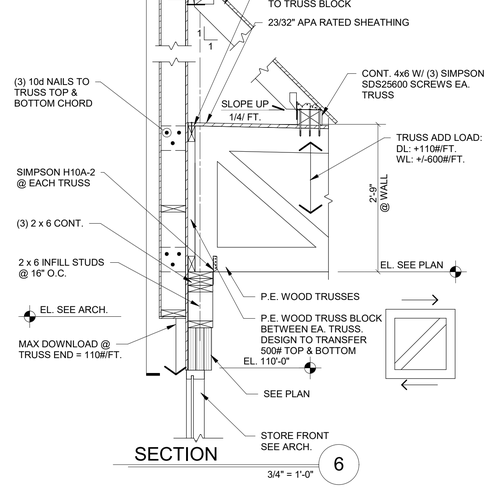

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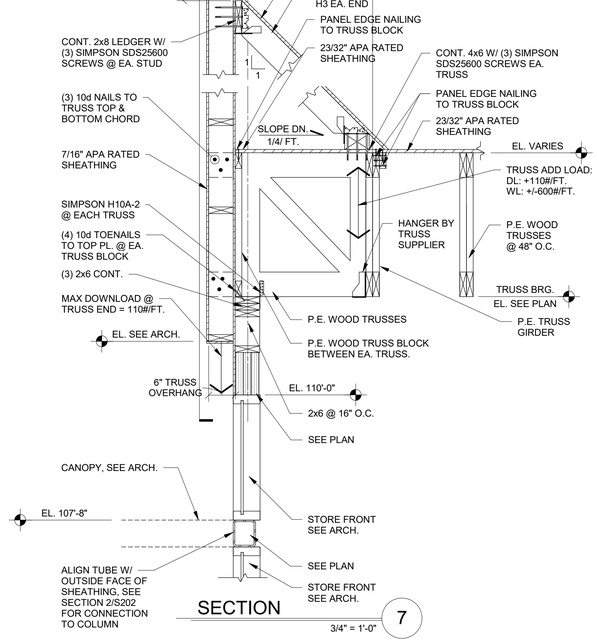

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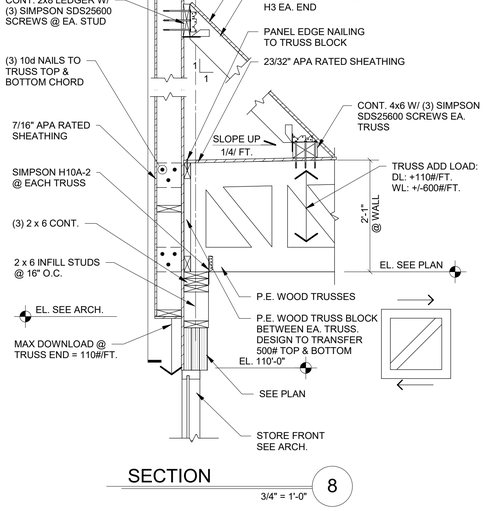

SECTION 8
3/4" = 1'-0"

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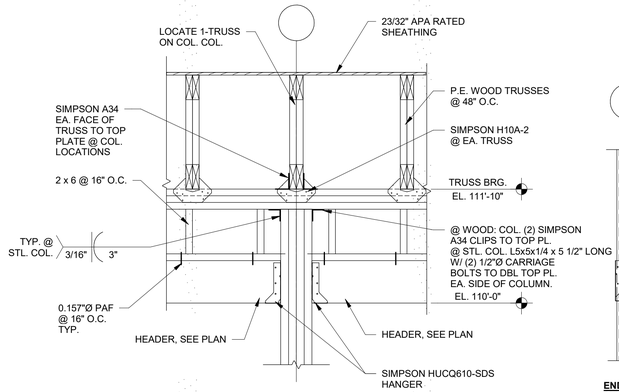
ROF FRAMING DETAILS

S201



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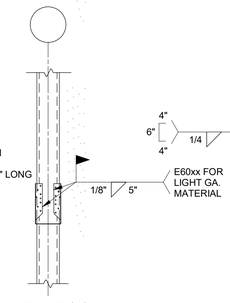
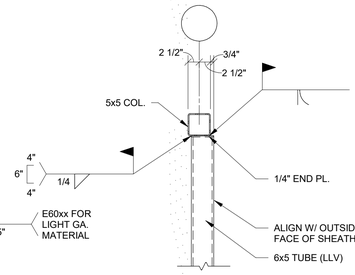


END VIEW @ STEEL COLUMN



PLAN VIEW

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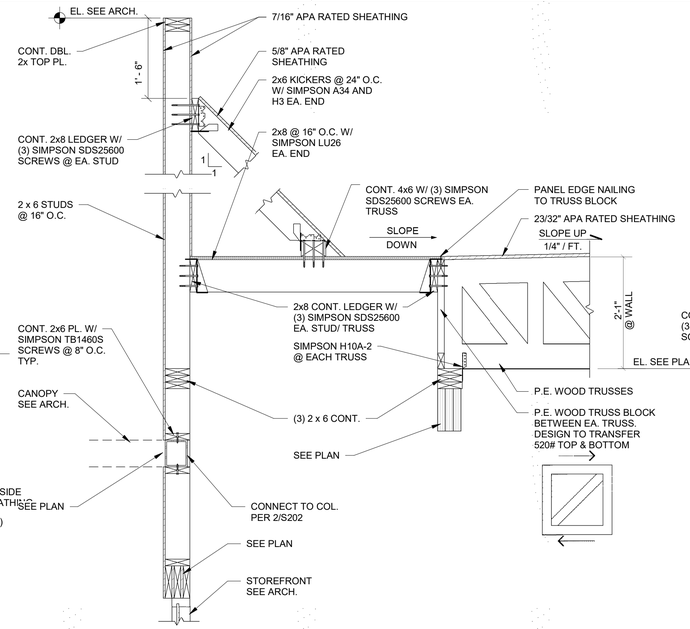

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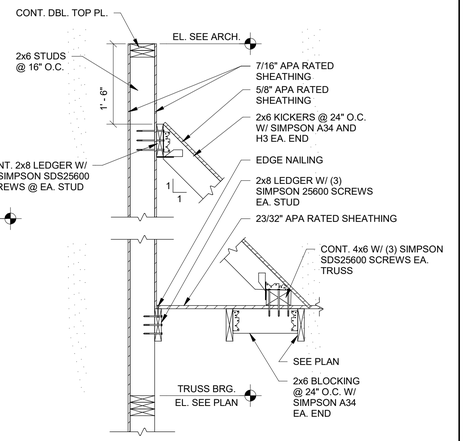

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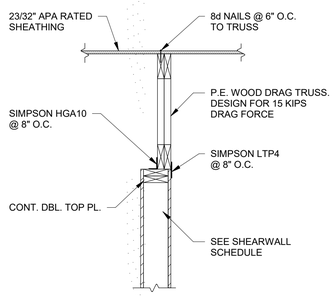

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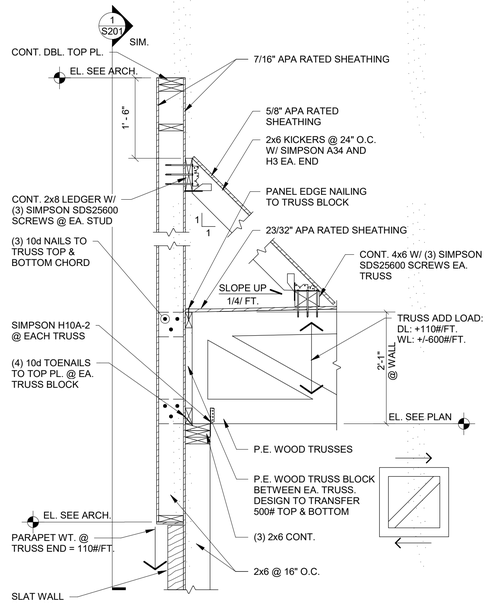

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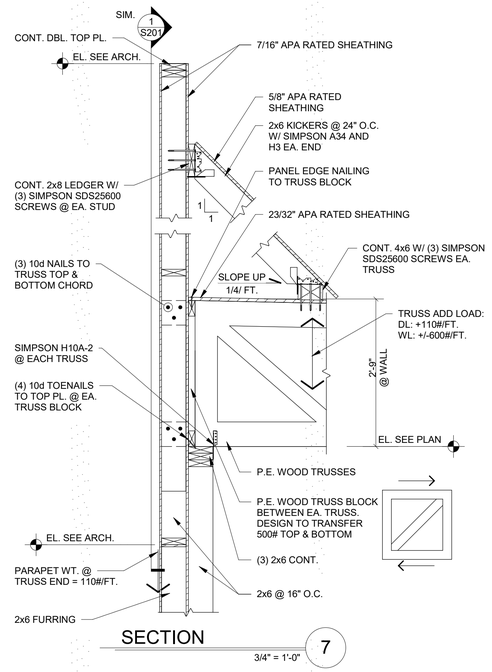

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Contents:
FRAMING DETAILS

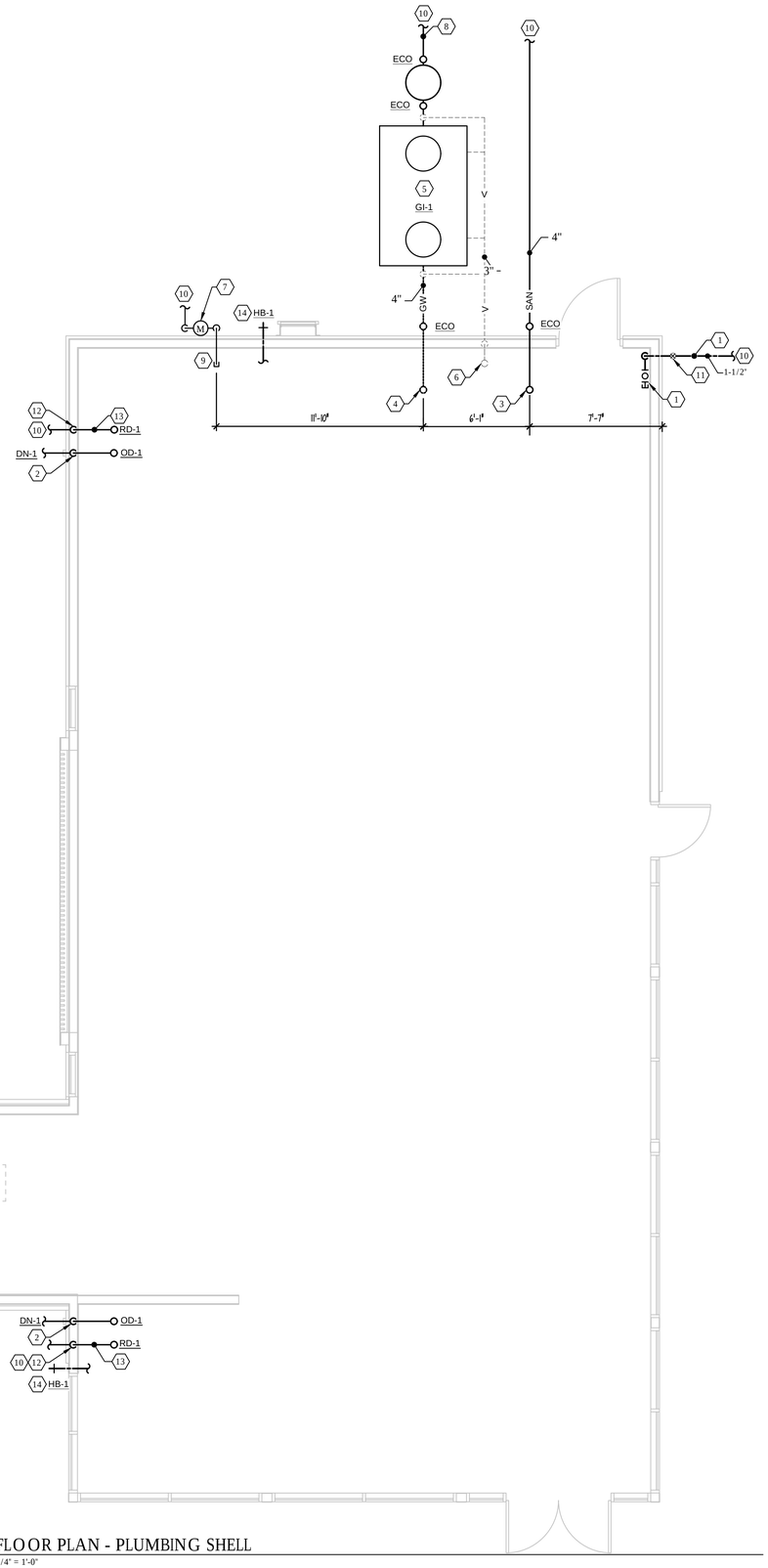
S202

PLUMBING LEGEND

SAN	SANITARY		BALANCING VALVE
GW	GREASE WASTE		BALL VALVE
STM	STORM		CONNECT TO EXISTING
	DOMESTIC COLD WATER		PIPE TURNED UP
	DOMESTIC HOT WATER		PIPE TURNED DOWN
G	NATURAL GAS		FLOOR PENETRATION MARKER
V	VENT		EXISTING SANITARY

ABBREVIATIONS

(D)	DEMOLITION	GPM	GALLONS PER MINUTE
(E)	EXISTING	HB	HOSE BIBB
(F)	FUTURE	INV	INVERT
(R)	RELOCATE	IW	INDIRECT WASTE
AAV	AIR ADMITTANCE VALVE	LF	LINEAR FEET
ABV	ABOVE	LG	LENGTH
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AFG	ABOVE FINISHED GRADE	MIN	MINIMUM
AUTO	AUTOMATIC	MS	MOP SINK
AVG	AVERAGE	N/A	NOT APPLICABLE
BFF	BELOW FINISHED FLOOR	NTS	NOT TO SCALE
BFP	BACKFLOW PREVENTER	OD	OVERFLOW DRAIN
CO	CLEANOUT	PSI	POUNDS PER SQUARE INCH
CONN	CONNECTION OR CONNECT	PSIG	PSI GAUGE
CONT	CONTINUATION	RPZ	REDUCED PRESSURE ZONE
DCW	DOMESTIC COLD WATER	SH	SHOWER
DEPT	DEPARTMENT	SRD	SECONDARY ROOF DRAIN
DHW	DOMESTIC HOT WATER	STD	STANDARD
DIA	DIAMETER	STR	STRAINER
EWC	ELECTRIC WATER COOLER	TEMP	TEMPERATURE
EXH	EXHAUST	TMV	THERMOSTATIC MIXING VALVE
FD	FLOOR DRAIN	TOP	TOP OF PIPE
FIN	FINISHED	TWS	TEMPERED WATER SUPPLY
FT	FOOT OR FEET	TYP	TYPICAL
G	GAS	UNO	UNLESS NOTED OTHERWISE
GA	GAUGE	UR	URINAL
GAL	GALLONS	V	VENT
GPD	GALLONS PER DAY	VTR	VENT THRU ROOF
GPH	GALLONS PER HOUR	WC	WATER CLOSET



1 FLOOR PLAN - PLUMBING SHELL
1/4" = 1'-0"

GENERAL NOTES:

A. ALL PLUMBING WORK SHALL BE IN STRICT COMPLIANCE WITH STATE, CITY & LOCAL CODE REQUIREMENTS.

B. ALL PLUMBING MUST BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL PLUMBING CODE IN THE PRESENCE OF THE PLUMBING INSPECTOR.

C. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. PROVIDE PLUMBING SYSTEMS STUBBED INTO TENANT SPACE PER APPLICABLE CODES INCLUDING REQUIRED COMPONENTS, OFFSETS REQUIRED TO AVOID THE STRUCTURE, ETC.

D. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING AND PIPING WITH THE WORK OF ALL OTHER TRADES.

E. PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.

F. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS.

G. CONTRACTOR SHALL PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL PLUMBING SYSTEMS.

H. PLUMBING VENT PIPING THRU THE ROOF SHALL BE LOCATED 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

I. MINIMUM UNDERGROUND SANITARY SEWER PIPE SIZE SHALL BE 4". MINIMUM SLOPE OF UNDERGROUND SANITARY WASTE PIPING SHALL BE 1/8" PER FOOT FOR PIPING 3" AND LARGER. MINIMUM SLOPE OF UNDERGROUND GREASE WASTE PIPING AND SANITARY WASTE PIPING 2-1/2" AND SMALLER SHALL BE 1/4" PER FOOT.

J. GENERAL CONTRACTOR SHALL COORDINATE WATER AND GAS METER LOCATIONS AND INSTALLATIONS WITH TENANT REQUIREMENTS, LOCAL AUTHORITIES AND CIVIL DRAWINGS.

K. FUEL GAS PIPING, VENTING SYSTEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE INTERNATIONAL FUEL GAS CODE.

L. CAST IRON PIPE SLEEVE WITH LINK SEAL SHALL BE USED FOR ALL PIPING PASSING THROUGH A FOUNDATION WALL AND SLAB ON GRADE.

M. COORDINATE UNDERGROUND PIPING WITH WALL AND COLUMN FOOTINGS AND GRADE BEAMS.

N. PLUMBING CONTRACTOR TO REMOVE FROM THE SITE ANY SURPLUS EXCAVATION.

O. THE REQUIREMENTS AND LOCATION OF THE WATER METER, THE WATER METER REMOTE READER AND WIRING PROVISIONS SHALL BE DETERMINED BY LOCAL WATER AUTHORITY.

P. SHUT OFF VALVES ARE REQUIRED ON BOTH SIDES OF WATER METERS.

Q. SCOPE AND JET EXISTING SANITARY LINES PRIOR TO CONSTRUCTION AND AFTER COMPLETION. VERIFY ALL TIE-IN POINTS FOR SANITARY PIPING PRIOR TO CONSTRUCTION. IF ANY ISSUES ARISE, CONTACT THE ARCHITECT AND ENGINEER OF RECORD IMMEDIATELY.

R. VERIFY EXACT SIZE AND LOCATION OF EXISTING SANITARY AND SUPPLY MAINS PRIOR TO CONSTRUCTION. IF ANY DISCREPANCY ARISES, CONTACT THE ARCHITECT AND ENGINEER OF RECORD IMMEDIATELY.

CODED NOTES: (#)

1. PROVIDE 2" UNDERGROUND WATER SERVICE FROM 5'-0" OUTSIDE BUILDING WALL. CAPACITY SHALL BE A MINIMUM OF 45 GPM AT 60 PSI. SITE CONTRACTOR TO PROVIDE 1-1/2" WATER METER AND BACKFLOW PREVENTER EXTERIOR TO THE BUILDING. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND LOCAL AUTHORITY REQUIREMENTS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO BID. REFER TO DETAILS ON SHEET P400 FOR FURTHER INFORMATION.
2. 4" OVERFLOW (SECONDARY) STORM DRAIN DISCHARGE TO DAYLIGHT AT 12" A.F.F. PROVIDE WALL MOUNTED DISCHARGE NOZZLE (DN-1) WITH REMOVABLE STAINLESS STEEL SCREEN.
3. PROVIDE 4" SANITARY WASTE AS INDICATED FOR TENANT CONNECTION. STUB 1'-0" AFF WITH AN INVERT OF AT LEAST 48" BFF.
4. PROVIDE 4" GREASE WASTE AS INDICATED FOR TENANT CONNECTION. STUB 1'-0" AFF WITH AN INVERT OF AT LEAST 48" BFF.
5. PROVIDE CODE COMPLIANT 1,500 GALLON GREASE INTERCEPTOR. INSTALL PER DETAIL ON SHEET P400. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION.
6. PROVIDE 2" VENT FROM GREASE WASTE INLET PIPING AND A 2" VENT FROM GREASE INTERCEPTOR AND RUN INDEPENDENTLY TO 1'-0" AFF INSIDE BUILDING PRIOR TO TYING TOGETHER. RISE 3" COMBINED VENT AND OFFSET AT UNDERSIDE OF ROOF STRUCTURE AND PROVIDE A 3" VTR. REFER TO DETAIL ON SHEET P400. COORDINATE EXACT LOCATION WITH TENANT.
7. NATURAL GAS SERVICE LINE AND METER PROVIDED BY LOCAL GAS PROVIDER. COORDINATE WITH COMPANY TO LOCATE SERVICE REGULATOR RELIEF VENT IN COMPLIANCE WITH CODE CLEARANCES. METER OUTLET PRESSURE SHALL BE NO LESS THAN 7" W.C. WITH A MINIMUM CAPACITY OF 1600 CFH. SITE CONTRACTOR TO PROVIDE GAS PIPING BELOW GROUND FROM METER TO LOCATION SHOWN.
8. 4" SANITARY WASTE SEWER BY CIVIL.
9. PROVIDE 3" NATURAL GAS PIPING FROM SITE CONTRACTOR INTO BUILDING AND CAP.
10. SEE CIVIL DRAWINGS FOR CONTINUATION.
11. CURB STOP FOR DOMESTIC WATER SERVICE.
12. CONNECT 4" PRIMARY STORM DRAIN TO UNDERGROUND SITE STORM SEWER. PROVIDE CLEANOUT AT MINIMUM 18" AFF. COORDINATE DEPTH OF INVERT WITH CIVIL DRAWINGS.
13. ROUTE DRAIN PIPING AS HIGH TO ROOF DECK AND AS TIGHT TO WALL AS POSSIBLE. COORDINATE EXACT LOCATION AND ROUTING WITH TENANT PRIOR TO BID.
14. PROVIDE 3/4" DCW PIPING IN WALL TO WALL HYDRANT. MOUNT WALL HYDRANT 24" A.F.F.

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2-22-21

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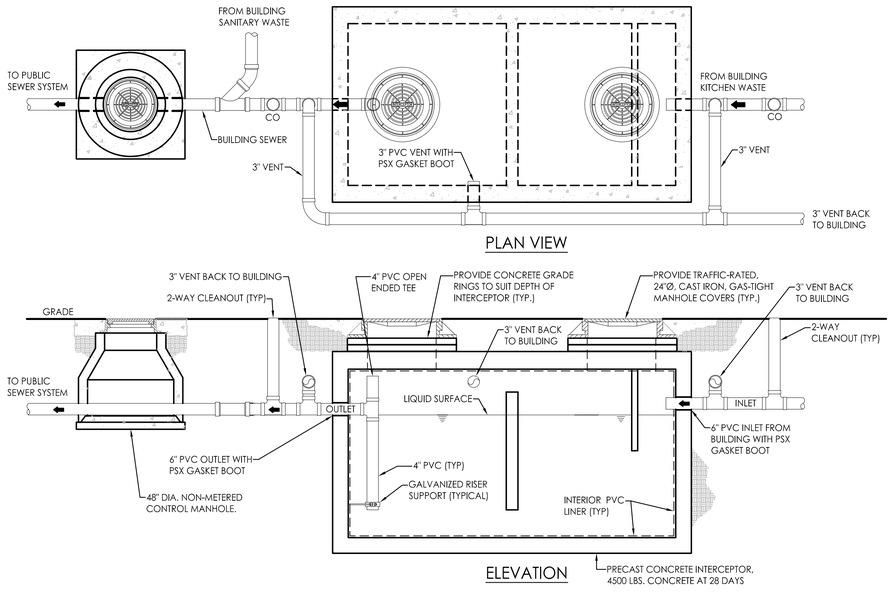
Contents:
WASTE, VENT, & SUPPLY PLAN
PLUMBING SHELL

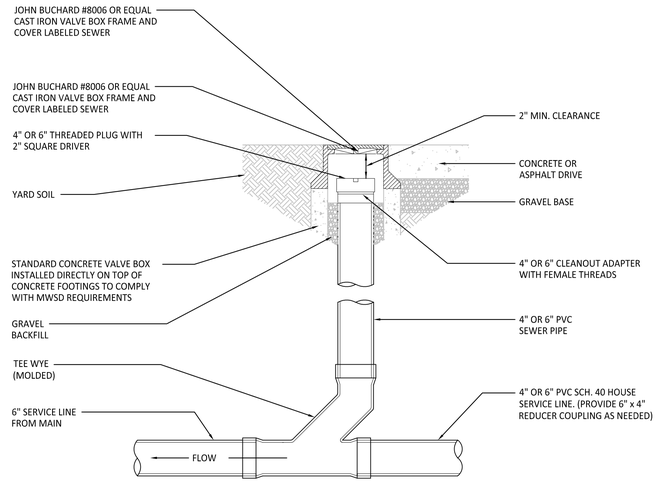
P100

PLUMBING DRAIN AND CLEANOUT SCHEDULE SHELL				
TAG	ITEM	MANUFACTURER	MODEL NO.	DESCRIPTION
DN-1	DOWNSPOUT NOZZLE	WATTS	RD-950	STAINLESS STEEL DOWNSPOUT COVER WITH PERFORATED HINGED STRAINER.
OD-1	OVERFLOW DRAIN	WATTS	RD-103-W	PROVIDE SAME AS RD-1. FURNISH WITH 4" HIGH INTERNAL WATER DAM. PIPE SIZE AS INDICATED.
RD-1	ROOF DRAIN	WATTS	RD-103	EPOXY COATED CAST IRON ROOF DRAIN WITH FLASHING CLANP WITH INTERNAL GRAVEL STOP. SELF LOCKING POLYETHYLENE DOME AND NO HUB OUTLET.
HB-1	EXTERIOR WALL HYDRANT (HOSE BIBB)	J.R. SMITH	5619QT	GENERAL CONTRACTOR TO FURNISH AND INSTALL WALL HYDRANT; ANTI-SIPHON, AUTOMATIC DRAINING QUARTER TURN WALL HYDRANT, NON-FREEZE INTEGRAL VACUUM BREAKER, ALL BRONZE INTERIOR PARTS, KEY OPERATED, 3/4" SOLDER INLET, MOUNT 18" AFG 3/4" DCW LINE.



NOTES:
1. 1,500 GALLON HEAVY DUTY GREASE INTERCEPTOR.
2. THE GREASE INTERCEPTOR SHALL BE STRUCTURALLY AND HYDRAULICALLY ENGINEERED TO CONFORM TO LOCAL CODE INDUSTRIAL PRE-TREATMENT REQUIREMENTS.
3. ALL PIPING SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR.
4. REFER TO GREASE INTERCEPTOR MANUFACTURER FOR FINAL DIMENSIONS.
5. PROVIDE TRAFFIC BEARING MANHOLE EXTENSIONS TO GRADE AS REQUIRED.

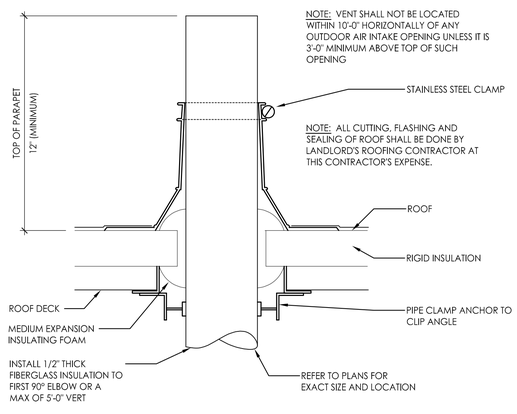
6 GREASE INTERCEPTOR DETAIL
N.T.S.



IMPORTANT INSTALLATION NOTE

CLEANOUT DETAIL IS SCHEMATIC IN NATURE. EXTERIOR CLEANOUT TO BE INSTALLED TO COMPLY WITH FRANKLIN COUNTY DEPARTMENT OF SANITARY ENGINEERING STANDARD SANITARY CLEANOUT DETAIL.

5 TYPICAL EXTERIOR CLEANOUT DETAIL
N.T.S.



4 VENT THRU ROOF DETAIL
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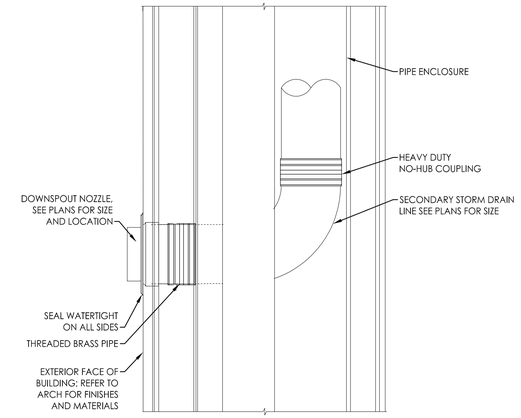

3 SECONDARY ROOF DRAIN DOWNSPOUT DETAIL
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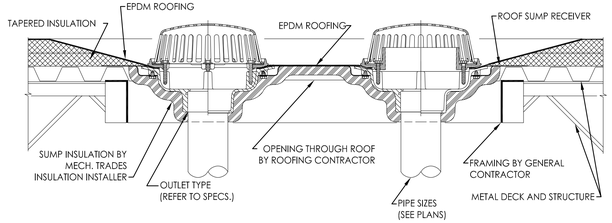

2 PRIMARY & OVERFLOW ROOF DRAIN DETAIL
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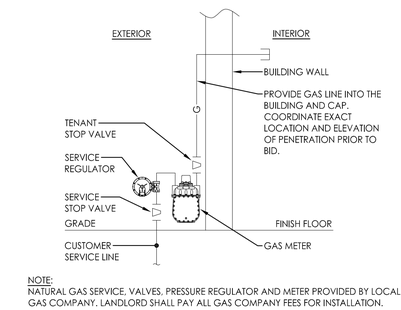

NOTE:
NATURAL GAS SERVICE, VALVES, PRESSURE REGULATOR AND METER PROVIDED BY LOCAL GAS COMPANY. LANDLORD SHALL PAY ALL GAS COMPANY FEES FOR INSTALLATION.

1 GAS SERVICE RISER DETAIL
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Contents:

DETAILS & SCHEDULES
PLUMBING SHELL

P400

SPECIFICATIONS - DIVISION 22 - PLUMBING

SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. HANGERS AND SUPPORTS FOR PLUMBING PIPING EQUIPMENT:

1. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.

a. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, AND SYSTEM CONTENTS.

b. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.

c. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

2.2 SLEEVES AND SLEEVE SEALS

A. GALVANIZED-STEEL-PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, ZINC COATED, WITH PLAIN ENDS.

B. PVC-PIPE SLEEVES: ASTM D 1785, SCHEDULE 40.

C. GALVANIZED-STEEL-SHEET SLEEVES: 0.0239-INCH MINIMUM THICKNESS; ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT.

2.3 GROUT

A. STANDARD: ASTM C 1107/C 1107M, GRADE B, POST-HARDENING AND VOLUME-ADJUSTING, DRY, HYDRAULIC-CEMENT GROUT.

1. CHARACTERISTICS: NONSHRINK; RECOMMENDED FOR INTERIOR AND EXTERIOR APPLICATIONS.

2. DESIGN MIX: 5000-PSI, 28-DAY COMPRESSIVE STRENGTH.

3. PACKAGING: PREMIXED AND FACTORY PACKAGED.

2.4 ESCUTCHEONS AND FLOOR PLATES

A. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN, BOX-SHAPED BRASS WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

B. ONE-PIECE, STAMPED-STEEL TYPE: WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

C. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.

2.6 HANGERS AND SUPPORTS FOR PLUMBING PIPING EQUIPMENT

A. CARBON-STEEL PIPE HANGERS AND SUPPORTS:

1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, FACTORY-FABRICATED COMPONENTS.

2. GALVANIZED METALLIC COATINGS: PREGALVANIZED OR HOT DIPPED.

3. NONMETALLIC COATINGS: PLASTIC COATING, JACKET, OR LINER.

4. PADDED HANGERS: HANGER WITH FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION TO SUPPORT BEARING SURFACE OF PIPING.

5. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF CARBON STEEL.

B. COPPER PIPE HANGERS:

1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, COPPER-COATED-STEEL, FACTORY-FABRICATED COMPONENTS.

2. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF COPPER-COATED STEEL.

C. FASTENER SYSTEMS:

1. MECHANICAL-EXPANSION ANCHORS: INSERT-WEDGE-TYPE, ZINC-COATED STEEL ANCHORS, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE; WITH PULL-OUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.

D. MISCELLANEOUS MATERIALS:

1. STRUCTURAL STEEL: ASTM A 36/A 36M, CARBON-STEEL PLATES, SHAPES, AND BARS; BLACK AND GALVANIZED.

2. GROUT: ASTM C 1107, FACTORY-MIXED AND -PACKAGED, DRY, HYDRAULIC-CEMENT, NONSHRINK AND NONMETALLIC GROUT; SUITABLE FOR INTERIOR AND EXTERIOR APPLICATIONS.

a. PROPERTIES: NONSTAINING, NONCORROSIVE, AND NONGASEOUS.

b. DESIGN MIX: 5000-PSI, 28-DAY COMPRESSIVE STRENGTH.

PART 3 - EXECUTION

3.1 GENERAL PIPING INSTALLATIONS

A. INSTALL PIPING FREE OF SAGS AND BENDS.

B. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.

C. SLEEVES:

1. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, ROOFS, AND WALLS.

2. INSTALL SLEEVES IN CONCRETE FLOORS, CONCRETE ROOF SLABS, AND CONCRETE WALLS AS NEW SLABS AND WALLS ARE CONSTRUCTED.

a. USE GROUT AND SEAL THE SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS WITHOUT SLEEVE-SEAL SYSTEM.

3. INSTALL SLEEVES FOR PIPES PASSING THROUGH INTERIOR PARTITIONS.

4. 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 078446 "PENETRATION FIRESTOPPING."

D. ESCUTCHEONS AND FLOOR PLATES:

4. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.

5. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

6. INSTALL FLOOR PLATES FOR PIPING PENETRATIONS OF EQUIPMENT-ROOM FLOORS.

7. INSTALL FLOOR PLATES WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

G. INSTALL UNIONS AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT.

H. INSTALL DIELECTRIC UNIONS AND FLANGES TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS IN GAS PIPING.

I. INSTALL DIELECTRIC COUPLING AND NIPPLE FITTINGS TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS IN WATER PIPING.

3.2 HANGERS AND SUPPORTS

A. COMPLY WITH MSS SP-69 AND MSS SP-89. INSTALL BUILDING ATTACHMENTS WITHIN CONCRETE OR TO STRUCTURAL STEEL.

B. INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED THERMAL AND SEISMIC MOVEMENT OF PIPING SYSTEMS.

C. INSTALL POWDER-ACTUATED FASTENERS AND MECHANICAL-EXPANSION ANCHORS IN CONCRETE AFTER CONCRETE IS CURED. DO NOT USE IN LIGHTWEIGHT CONCRETE OR IN SLABS LESS THAN 4 INCHES THICK.

D. LOAD DISTRIBUTION: INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADING AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.

E. HORIZONTAL-PIPING HANGERS AND SUPPORTS: UNLESS OTHERWISE INDICATED AND EXCEPT AS SPECIFIED IN PIPING SYSTEM SPECIFICATION SECTIONS, INSTALL THE FOLLOWING TYPES:

8. ADJUSTABLE STEEL CLEVIS HANGERS (MSS TYPE 1): FOR SUSPENSION OF NONINSULATED OR INSULATED STATIONARY PIPES, NPS 1/2 TO NPS 30.

9. PIPE HANGERS (MSS TYPE 5): FOR SUSPENSION OF PIPES, NPS 1/2 TO NPS 4, TO ALLOW OFF-CENTER CLOSURE FOR HANGER INSTALLATION BEFORE PIPE ERECTION.

10. ADJUSTABLE STEEL BAND HANGERS (MSS TYPE 7): FOR SUSPENSION OF NONINSULATED STATIONARY PIPES, NPS 1/2 TO NPS 8.

11. ADJUSTABLE BAND HANGERS (MSS TYPE 9): FOR SUSPENSION OF NONINSULATED STATIONARY PIPES, NPS 1/2 TO NPS 8.

12. ADJUSTABLE SWIVEL-RING BAND HANGERS (MSS TYPE 10): FOR SUSPENSION OF NONINSULATED STATIONARY PIPES, NPS 1/2 TO NPS 2.

F. VERTICAL-PIPING CLAMPS: UNLESS OTHERWISE INDICATED AND EXCEPT AS SPECIFIED IN PIPING SYSTEM SPECIFICATION SECTIONS, INSTALL THE FOLLOWING TYPES:

1. EXTENSION PIPE OR RISER CLAMPS (MSS TYPE 8): FOR SUPPORT OF PIPE RISERS, NPS 3/4 TO NPS 20.

2. CARBON- OR ALLOY-STEEL RISER CLAMPS (MSS TYPE 42): FOR SUPPORT OF PIPE RISERS, NPS 3/4 TO NPS 20, IF LONGER ENDS ARE REQUIRED FOR RISER CLAMPS.

3.3 GENERAL EQUIPMENT INSTALLATIONS

A. INSTALL EQUIPMENT TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE NOT INDICATED.

B. INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED.

C. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS. EXTEND GREASE FITTINGS TO ACCESSIBLE LOCATIONS.

D. INSTALL EQUIPMENT TO ALLOW RIGHT OF WAY FOR PIPING INSTALLED AT REQUIRED SLOPE.

END OF SECTION

SECTION 220523 - GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS:

1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. ASME COMPLIANCE: ASME B16.10 AND ASME B16.34 FOR FERROUS VALVE DIMENSIONS AND DESIGN CRITERIA.

B. NSF COMPLIANCE: NSF 61 FOR VALVE MATERIALS FOR POTABLE-WATER SERVICE.

2.2 GENERAL-DUTY VALVES

A. VALVE SIZES: SAME AS UPSTREAM PIPING UNLESS OTHERWISE INDICATED.

B. VALVES IN INSULATED PIPING: WITH 2-INCH STEM EXTENSIONS.

C. END CONNECTIONS: THREADS SHALL COMPLY WITH ANSI B1.20.1. FLANGES SHALL COMPLY WITH ANSI B16.24 FOR BRONZE VALVES. SOLDER-JOINT CONNECTIONS SHALL COMPLY WITH ANSI B16.18.

D. ONE-PIECE, COPPER-ALLOY BALL VALVES: LEAD FREE BRONZE BODY WITH CHROME-PLATED BRASS BALL, MTFE SEATS, AND 600-PSIG MINIMUM CWP RATING.

E. TWO-PIECE, COPPER-ALLOY BALL VALVES: LEAD FREE BRONZE BODY WITH FULL-PORT, CHROME-PLATED BRASS BALL; RPTFE SEATS; AND 600-PSIG MINIMUM CWP RATING AND BLOWOUT-PROOF STEM.

F. LEAD FREE BRONZE, SWING CHECK VALVES: CLASS 125, BRONZE BODY WITH BRONZE DISC AND SEAT.

PART 3 - EXECUTION

3.1 INSTALLATION

A. USE BALL VALVES FOR SHUTOFF DUTY AND FOR THROTTLING DUTY.

B. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.

C. INSTALL VALVES FOR EACH FIXTURE AND ITEM OF EQUIPMENT.

D. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.

E. INSTALL VALVES IN A POSITION TO ALLOW FULL STEM MOVEMENT.

F. INSTALL CHECK VALVES FOR PROPER DIRECTION OF FLOW IN HORIZONTAL POSITION WITH HINGE PIN LEVEL.

END OF SECTION 220523

SECTION 220700 - PLUMBING INSULATION

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. INSULATION INSTALLED INDOORS: FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS ACCORDING TO ASTM E 84.

2.2 INSULATION MATERIALS

A. MINERAL-FIBER, PREFORMED PIPE INSULATION: COMPLY WITH ASTM C 547, TYPE I, GRADE A, WITH FACTORY-APPLIED ASJ.

1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:

a. JOHNS MANVILLE; MICRO-LOK.

b. KNAUF INSULATION; 1000-DEGREE PIPE INSULATION.

c. OWENS CORNING; FIBERGLAS PIPE INSULATION.

2. TYPE I, 850 DEG F MATERIALS: MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE I, GRADE A, WITH FACTORY-APPLIED ASJ. FACTORY-APPLIED JACKET REQUIREMENTS ARE SPECIFIED IN "FACTORY-APPLIED JACKETS" ARTICLE.

B. PROTECTIVE SHIELDING PIPE COVERS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. MCGUIRE MANUFACTURING.

b. PLUMBEREX.

c. TRUEBRO; A BRAND OF IPS CORPORATION.

d. ZURN INDUSTRIES, LLC; TUBULAR BRASS PLUMBING PRODUCTS OPERATION.

2. DESCRIPTION: MANUFACTURED PLASTIC WRAPS FOR COVERING PLUMBING FIXTURE HOT- AND COLD-WATER SUPPLIES AND TRAP AND DRAIN PIPING. COMPLY WITH AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.

2.3 ADHESIVES

A. MINERAL-FIBER ADHESIVE: COMPLY WITH MIL-A-3316C, CLASS 2, GRADE A.

1. FOR INDOOR APPLICATIONS, ADHESIVE SHALL HAVE A VOC CONTENT OF 80 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

2. ADHESIVE SHALL COMPLY WITH THE TESTING AND PRODUCT REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES' "STANDARD PRACTICE FOR THE TESTING OF VOLATILE ORGANIC EMISSIONS FROM VARIOUS SOURCES USING SMALL-SCALE ENVIRONMENTAL CHAMBERS."

2.4 MASTICS

A. VAPOR-BARRIER MASTIC: WATER BASED; SUITABLE FOR INDOOR USE ON BELOW AMBIENT SERVICES.

1. FOR INDOOR APPLICATIONS, USE MASTICS THAT HAVE A VOC CONTENT OF 50 G/L OR LESS.

2. WATER-VAPOR PERMEANCE: ASTM E 96/E 96M, PROCEDURE B, 0.013 PERM AT 43-MIL DRY FILM THICKNESS.

3. SERVICE TEMPERATURE RANGE: MINUS 20 TO PLUS 180 DEG F.

4. SOLIDS CONTENT: ASTM D 1644, 58 PERCENT BY VOLUME AND 70 PERCENT BY WEIGHT.

5. COLOR: WHITE.

B. BREATHER MASTIC: WATER BASED; SUITABLE FOR INDOOR AND OUTDOOR USE ON ABOVE AMBIENT SERVICES.

1. WATER-VAPOR PERMEANCE: ASTM F 1249, 1.8 PERMS AT 0.0625-INCH DRY FILM THICKNESS.

2. SERVICE TEMPERATURE RANGE: MINUS 20 TO PLUS 180 DEG F.

3. SOLIDS CONTENT: 60 PERCENT BY VOLUME AND 66 PERCENT BY WEIGHT.

4. COLOR: WHITE.

2.5 SEALANTS

A. JOINT SEALANTS:

1. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES.

2. PERMANENTLY FLEXIBLE, ELASTOMERIC SEALANT.

3. SERVICE TEMPERATURE RANGE: MINUS 100 TO PLUS 300 DEG F.

4. COLOR: WHITE OR GRAY.

5. FOR INDOOR APPLICATIONS, SEALANTS SHALL HAVE A VOC CONTENT OF 420 G/L OR LESS.

B. ASJ FLASHING SEALANTS:

1. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES.

2. FIRE- AND WATER-RESISTANT, FLEXIBLE, ELASTOMERIC SEALANT.

3. SERVICE TEMPERATURE RANGE: MINUS 40 TO PLUS 250 DEG F.

4. COLOR: WHITE.

5. FOR INDOOR APPLICATIONS, SEALANTS SHALL HAVE A VOC CONTENT OF 420 G/L OR LESS.

2.6 FACTORY-APPLIED JACKETS

A. INSULATION SYSTEM SCHEDULES INDICATE FACTORY-APPLIED JACKETS ON VARIOUS APPLICATIONS. WHEN FACTORY-APPLIED JACKETS ARE INDICATED, COMPLY WITH THE FOLLOWING:

1. ASJ: WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE I.

2.7 TAPES

A. ASJ TAPE: WHITE VAPOR-RETARDER TAPE MATCHING FACTORY-APPLIED JACKET WITH ACRYLIC ADHESIVE, COMPLYING WITH ASTM C 1136.

1. WIDTH: 3 INCHES.

2. THICKNESS: 11.5 MILS.

3. ADHESION: 90 OUNCES FORCE/INCH IN WIDTH.

4. ELONGATION: 2 PERCENT.

5. TENSILE STRENGTH: 40 LBF/INCH IN WIDTH.

6. ASJ TAPE DISKS AND SQUARES: PRECUT DISKS OR SQUARES OF ASJ TAPE.

PART 3 - EXECUTION

3.1 PIPE INSULATION INSTALLATION

A. COMPLY WITH REQUIREMENTS OF THE MIDWEST INSULATION CONTRACTORS ASSOCIATION'S "NATIONAL COMMERCIAL & INDUSTRIAL INSULATION STANDARDS" FOR INSULATION INSTALLATION ON PIPES AND EQUIPMENT.

B. INSULATION INSTALLATION AT INTERIOR WALL AND PARTITION PENETRATIONS (THAT ARE NOT FIRE RATED): INSTALL INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS.

C. INSULATION INSTALLATION AT FIRE-RATED WALL, PARTITION, AND FLOOR PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH PENETRATIONS. SEAL PENETRATIONS. COMPLY WITH REQUIREMENTS IN SECTION 078400.

D. MINERAL-FIBER INSULATION INSTALLATION:

1. INSULATION INSTALLATION ON STRAIGHT PIPES AND TUBES: WHERE VAPOR BARRIERS ARE INDICATED, SEAL LONGITUDINAL SEAMS, END JOINTS, AND PROTRUSIONS WITH VAPOR-BARRIER MASTIC AND JOINT SEALANT.

2. FOR INSULATION WITH FACTORY-APPLIED JACKETS ON ABOVE AMBIENT SURFACES, SECURE LAPS WITH OUTWARD CLINCHED STAPLES AT 6 INCHES O.C.

3. FOR INSULATION WITH FACTORY-APPLIED JACKETS ON BELOW AMBIENT SURFACES, DO NOT STAPLE LONGITUDINAL TABS BUT SECURE TABS WITH ADDITIONAL ADHESIVE AS RECOMMENDED BY INSULATION MATERIAL MANUFACTURER AND SEAL WITH VAPOR-BARRIER MASTIC AND FLASHING SEALANT.

E. INTERIOR PIPING SYSTEM APPLICATIONS: INSULATE THE FOLLOWING PIPING SYSTEMS:

1. DOMESTIC HOT WATER.

2. RECIRCULATED DOMESTIC HOT WATER.

3. EXPOSED WATER SUPPLIES AND SANITARY DRAINS OF FIXTURES FOR PEOPLE WITH DISABILITIES.

F. DO NOT APPLY INSULATION TO THE FOLLOWING SYSTEMS, MATERIALS, AND EQUIPMENT:

1. FLEXIBLE CONNECTORS.

2. SANITARY DRAINAGE AND VENT PIPING.

3. DRAINAGE PIPING LOCATED IN CRAWLSPACES UNLESS OTHERWISE INDICATED.

4. CHROME-PLATED PIPES AND FITTINGS, EXCEPT FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES.

5. PIPING SPECIALTIES, INCLUDING AIR CHAMBERS, UNIONS, STRAINERS, CHECK VALVES, PLUG VALVES, AND FLOW REGULATORS.

3.2 INDOOR PIPING INSULATION SCHEDULE

A. DOMESTIC COLD WATER:

1. NPS 1 AND SMALLER: INSULATION SHALL BE THE FOLLOWING:

a. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1/2 INCH THICK.

2. NPS 1-1/4 AND LARGER: INSULATION SHALL BE THE FOLLOWING:

a. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH THICK.

B. DOMESTIC HOT AND RECIRCULATED HOT WATER:

1. NPS 2 AND SMALLER: INSULATION SHALL BE THE FOLLOWING:

a. MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I: 1 INCH THICK.

C. EXPOSED SANITARY DRAINS, DOMESTIC WATER, DOMESTIC HOT WATER, AND STOPS FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES:

1. ALL PIPE SIZES: INSULATION SHALL BE THE FOLLOWING:

a. PROTECTIVE SHIELDING PIPING COVERS.

b. MANUFACTURED PLASTIC WRAPS FOR COVERING PLUMBING FIXTURE HOT- AND COLD-WATER SUPPLIES AND TRAP AND DRAIN PIPING. COMPLY WITH AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.

END OF SECTION

SECTION 221116 - DOMESTIC WATER PIPING

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. POTABLE-WATER PIPING AND COMPONENTS SHALL COMPLY WITH NSF 14 AND NSF 61.

2.2 PIPE AND FITTINGS

A. HARD COPPER TUBING: ASTM B 88, TYPE L, WATER TUBE, DRAWN TEMPER WITH WROUGHT-COPPER, SOLDER-JOINT FITTINGS. FURNISH WROUGHT-COPPER FITTINGS IF INDICATED.

1. COPPER UNIONS: CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES AND SOLDER-JOINT OR THREADED ENDS.

2. JOINING MATERIALS: USE ASTM B 813, WATER-FLUSHABLE, LEAD-FREE FLUX; ASTM B 32, LEAD-FREE-ALLOY SOLDER.

B. SOFT COPPER TUBING: ASTM B 88, TYPES K, WATER TUBE, ANNEALED TEMPER WITH COPPER PRESSURE FITTINGS, CAST-COPPER-ALLOY OR WROUGHT-COPPER, SOLDER-JOINT FITTINGS. FURNISH WROUGHT-COPPER FITTINGS IF INDICATED.

1. JOINING MATERIALS: USE ASTM B 813, WATER-FLUSHABLE, LEAD-FREE FLUX; ASTM B 32, LEAD-FREE-ALLOY SOLDER.

C. CPVC PIPING: ASTM F 441/F 441M, SCHEDULE 40 PIPE WITH ASTM F 438, CPVC SCHEDULE 40 SOCKET-TYPE FITTINGS.

D. UPONOR PEX TUBE AND FITTINGS: ASTM F 877, SDR 9 PEX TUBING AND ASTM F 1807, METAL INSERT-TYPE FITTINGS WITH COPPER OR STAINLESS-STEEL CRIMP RINGS.

1. MANIFOLD: ASTM F 877 PLASTIC OR CORROSION-RESISTANT-METAL ASSEMBLY, WITH A PLASTIC OR CORROSION-RESISTANT-METAL VALVE FOR EACH OUTLET.

E. SPECIAL-DUTY VALVES:

1. COMPLY WITH REQUIREMENTS IN SECTION 220523 "GENERAL-DUTY VALVES FOR PLUMBING PIPING" FOR GENERAL-DUTY METAL VALVES.

2. COMPLY WITH REQUIREMENTS IN SECTION 221119 "DOMESTIC WATER PIPING SPECIALTIES" FOR BALANCING VALVES, DRAIN VALVES, BACKFLOW PREVENTERS, AND VACUUM BREAKERS.

F. TRANSITION FITTINGS: MANUFACTURED PIPING COUPLING OR SPECIFIED PIPING SYSTEM FITTING. SAME SIZE AS PIPES TO BE JOINED AND PRESSURE RATING AT LEAST EQUAL TO PIPES TO BE JOINED.

G. FLEXIBLE CONNECTORS: STAINLESS-STEEL, CORRUGATED-METAL TUBING WITH WIRE-BRAID COVERING. WORKING-PRESSURE RATING A MINIMUM OF 200 PSIG.

PART 3 - EXECUTION

3.1 INSTALLATION

A. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR BASIC PIPING INSTALLATION REQUIREMENTS.

B. INSTALL WALL PENETRATION SYSTEM AT EACH SERVICE PIPE PENETRATION THROUGH FOUNDATION WALL. MAKE INSTALLATION WATERTIGHT. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR WALL PENETRATION SYSTEMS.

C. INSTALL SHUTOFF VALVE, HOSE-END DRAIN VALVE, STRAINER, PRESSURE GAGE, AND TEST TEE WITH VALVE, INSIDE THE BUILDING AT EACH DOMESTIC WATER SERVICE ENTRANCE. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR PRESSURE GAGES AND SECTION 221119 "DOMESTIC WATER PIPING SPECIALTIES" FOR DRAIN VALVES AND STRAINERS.

D. INSTALL DOMESTIC WATER PIPING WITHOUT PITCH FOR HORIZONTAL PIPING AND PLUMB FOR VERTICAL PIPING.

E. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR BASIC PIPING JOINT CONSTRUCTION.

1. SOLDERED JOINTS: COMPLY WITH PROCEDURES IN ASTM B 828 UNLESS OTHERWISE INDICATED.

F. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR PIPE HANGER AND SUPPORT DEVICES.

1. INSTALL HANGERS FOR STEEL PIPING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS:

a. NPS 1-1/4 AND SMALLER: 84 INCHES WITH 3/8-INCH ROD.

b. NPS 1-1/2: 108 INCHES WITH 3/8-INCH ROD.

c. NPS 2: 10 FEET WITH 3/8-INCH ROD.

d. NPS 2-1/2: 11 FEET WITH 1/2-INCH ROD.

e. SUPPORT VERTICAL PIPING AT EACH FLOOR.

2. INSTALL VINYL-COATED HANGERS FOR CPVC PIPING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS:

a. NPS 1 AND SMALLER: 36 INCHES WITH 3/8-INCH ROD.

b. NPS 1-1/4 TO NPS 2: 48 INCHES WITH 3/8-INCH ROD.

c. NPS 2-1/2 TO NPS 3-1/2: 48 INCHES WITH 1/2-INCH ROD.

d. INSTALL SUPPORTS FOR VERTICAL CPVC PIPING EVERY 60 INCHES FOR NPS 1 AND SMALLER, AND EVERY 72 INCHES FOR NPS 1-1/4 AND LARGER.

3. INSTALL VINYL-COATED HANGERS FOR PEX PIPING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS:

a. NPS 1 AND SMALLER: 32 INCHES WITH 3/8-INCH ROD.

b. INSTALL HANGERS FOR VERTICAL PEX PIPING EVERY 48 INCHES.

3.2 INSPECTING AND CLEANING

A. INSPECT AND TEST PIPING SYSTEMS AS FOLLOWS:

1. FILL DOMESTIC WATER PIPING. CHECK COMPONENTS TO DETERMINE THAT THEY ARE NOT AIR BOUND AND THAT PIPING IS FULL OF WATER.

2. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED.

B. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING BY FILLING SYSTEM WITH WATER/CHLORINE SOLUTION WITH AT LEAST 50 PPM OF CHLORINE. ISOLATE WITH VALVES AND ALLOW TO STAND FOR 24 HOURS. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME.

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SPECIFICATIONS
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SPECIFICATIONS - DIVISION 22 - PLUMBING

3.3 PIPING SCHEDULE

A. ABOVEGROUND DISTRIBUTION PIPING: TYPE L HARD COPPER TUBING, CPVC PLASTIC PIPING OR PEX PIPING.

B. BELOWGROUND DISTRIBUTION PIPING: TYPE K SOFT COPPER TUBING OR PEX PIPING INSTALLED IN PROTECTIVE PVC CONDUIT.

3.4 VALVE SCHEDULE

A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:

1. SHUTOFF DUTY: USE BRONZE BALL VALVES FOR PIPING NPS 2 AND SMALLER.
2. THROTTLING DUTY: USE BRONZE BALL VALVES FOR PIPING NPS 2 AND SMALLER.
3. HOT-WATER-PIPING, BALANCING DUTY: MEMORY-STOP BALANCING VALVES.
4. DRAIN DUTY: HOSE-END DRAIN VALVES.

B. INSTALL BALL VALVES CLOSE TO MAIN ON EACH BRANCH AND RISER SERVING TWO OR MORE PLUMBING FIXTURES OR EQUIPMENT CONNECTIONS AND WHERE INDICATED.

C. INSTALL BALL VALVES ON INLET TO EACH PLUMBING EQUIPMENT ITEM, ON EACH SUPPLY TO EACH PLUMBING FIXTURE NOT HAVING STOPS ON SUPPLIES, AND ELSEWHERE AS INDICATED.

D. INSTALL DRAIN VALVE AT BASE OF EACH RISER, AT LOW POINTS OF HORIZONTAL RUNS, AND WHERE REQUIRED TO DRAIN WATER DISTRIBUTION PIPING SYSTEM.

E. INSTALL SWING CHECK VALVE ON DISCHARGE SIDE OF EACH PUMP AND ELSEWHERE AS INDICATED.

F. INSTALL BALL VALVES IN EACH HOT-WATER CIRCULATING LOOP AND DISCHARGE SIDE OF EACH PUMP.

END OF SECTION

SECTION 221119 - DOMESTIC WATER PIPING SPECIALTIES

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PIPING SPECIALTIES

A. POTABLE-WATER PIPING AND COMPONENTS SHALL COMPLY WITH NSF 61AND NSF 14.

2.2 PERFORMANCE REQUIREMENTS

A. MINIMUM WORKING PRESSURE FOR DOMESTIC WATER PIPING SPECIALTIES: 125 PSIG UNLESS OTHERWISE INDICATED.

2.3 MANUFACTURED UNITS

A. PIPE-APPLIED, ATMOSPHERIC-TYPE VACUUM BREAKERS:

1. STANDARD: ASSE 1001.
2. SIZE: NPS 1/4 TO NPS 3, AS REQUIRED TO MATCH CONNECTED PIPING.
3. BODY: BRONZE.
4. INLET AND OUTLET CONNECTIONS: THREADED.
5. FINISH: CHROME PLATED.

C. REDUCED-PRESSURE-PRINCIPLE BACKFLOW PREVENTERS:

2. STANDARD: ASSE 1013.
3. OPERATION: CONTINUOUS-PRESSURE APPLICATIONS.
4. PRESSURE LOSS: 12 PSIG MAXIMUM, THROUGH MIDDLE THIRD OF FLOW RANGE.
5. BODY: LEAD FREE BRONZE OR STAINLESS STEEL FOR NPS 2 AND SMALLER.
6. END CONNECTIONS: THREADED FOR NPS 2 AND SMALLER.
7. CONFIGURATION: DESIGNED FOR HORIZONTAL, STRAIGHT-THROUGH FLOW.
8. ACCESSORIES:
   a. VALVES NPS 2 AND SMALLER: BALL TYPE WITH THREADED ENDS ON INLET AND OUTLET.
   b. AIR-GAP FITTING: ASME A112.1.2, MATCHING BACKFLOW-PREVENTER CONNECTION.

F. THERMOSTATIC, WATER MIXING VALVES:

4. STANDARD: ASSE 1017.
5. PRESSURE RATING: 125 PSIG MINIMUM UNLESS OTHERWISE INDICATED.
6. TYPE: EXPOSED-MOUNTED, THERMOSTATICALLY CONTROLLED, WATER MIXING VALVE.
7. MATERIAL: LEAD FREE BRONZE BODY WITH CORROSION-RESISTANT INTERIOR COMPONENTS.
8. CONNECTIONS: THREADED OR UNION INLETS AND OUTLET.
9. ACCESSORIES: MANUAL TEMPERATURE CONTROL, CHECK STOPS ON HOT- AND COLD-WATER SUPPLIES, AND ADJUSTABLE, TEMPERATURE-CONTROL HANDLE.
10. TEMPERED-WATER SETTING: AS SPECIFIED ON DRAWINGS.
11. PRESSURE DROP AT DESIGN FLOW RATE: NOT EXCEED 15 PSIG.
12. VALVE FINISH: CHROME PLATED.
13. PIPING FINISH: CHROME PLATED.

K. WATER-HAMMER ARRESTERS:

7. STANDARD: ASSE 1010 OR PDI-WH 201.
8. TYPE: COPPER TUBE WITH PISTON.
9. SIZE: ASSE 1010, SIZES AA AND A THROUGH F, OR PDI-WH 201, SIZES A THROUGH F.

L. SUPPLY-TYPE, TRAP-SEAL PRIMER DEVICE:

1. STANDARD: ASSE 1018
2. PRESSURE RATING: 125 PSIG MINIMUM.
3. BODY: BRONZE.
4. INLET AND OUTLET CONNECTIONS: NPS 1/2 THREADED, UNION, OR SOLDER JOINT.
5. GRAVITY DRAIN OUTLET CONNECTION: NPS 1/2 THREADED OR SOLDER JOINT.
6. FINISH: CHROME PLATED, OR ROUGH BRONZE FOR UNITS USED WITH PIPE OR TUBE THAT IS NOT CHROME FINISHED.

M. WATER FILTERS: CARTRIDGE TYPE, INCLUDING HOUSING, FITTINGS, FILTER CARTRIDGES, AND CARTRIDGE END CAPS.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL BACKFLOW PREVENTERS IN EACH WATER SUPPLY TO MECHANICAL EQUIPMENT AND SYSTEMS AND TO OTHER EQUIPMENT AND WATER SYSTEMS THAT MAY BE SOURCES OF CONTAMINATION. COMPLY WITH AUTHORITIES HAVING JURISDICTION.

B. INSTALL WATER-HAMMER ARRESTERS IN WATER PIPING ACCORDING TO PDI-WH 201.

C. INSTALL SUPPLY-TYPE, TRAP-SEAL PRIMER VALVES WITH OUTLET PIPING PITCHED DOWN TOWARD DRAIN TRAP A MINIMUM OF 1 PERCENT, AND CONNECT TO FLOOR-DRAIN BODY, TRAP, OR INLET FITTING. ADJUST VALVE FOR PROPER FLOW.

3.2 FIELD QUALITY CONTROL

A. PERFORM THE FOLLOWING TESTS AND INSPECTIONS:

1. TEST EACH PRESSURE VACUUM BREAKER, REDUCED-PRESSURE-PRINCIPLE BACKFLOW PREVENTER, AND DOUBLE-CHECK BACKFLOW-PREVENTION ASSEMBLY ACCORDING TO AUTHORITIES HAVING JURISDICTION AND THE DEVICE'S REFERENCE STANDARD.
2. DOMESTIC WATER PIPING SPECIALTIES WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS.
3. PREPARE TEST AND INSPECTION REPORTS.

END OF SECTION 221119

SECTION 221316 - SANITARY WASTE AND VENT PIPING

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. COMPONENTS AND INSTALLATION SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING MINIMUM WORKING PRESSURE UNLESS OTHERWISE INDICATED:

1. SOIL, WASTE, AND VENT PIPING: 10-FOOT HEAD OF WATER.

B. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.

C. COMPLY WITH NSF/ANSI 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS.

2.2 PIPES AND FITTINGS

A. PVC PLASTIC, DWV PIPE AND FITTINGS: ASTM D 2665, SCHEDULE 40, PLAIN ENDS WITH PVC SOCKET-TYPE, DWV PIPE FITTINGS.

1. ADHESIVE PRIMER: ASTM F 656.
   a. ADHESIVE PRIMER SHALL HAVE A VOC CONTENT OF 550 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
2. SOLVENT CEMENT: ASTM D 2564.
   a. PVC SOLVENT CEMENT SHALL HAVE A VOC CONTENT OF 510 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. INSTALL WALL PENETRATION SYSTEM AT EACH PIPE PENETRATION THROUGH FOUNDATION WALL. MAKE INSTALLATION WATERTIGHT. COMPLY WITH REQUIREMENTS IN SECTION 220513 "COMMON WORK RESULTS FOR PLUMBING" FOR WALL PENETRATION SYSTEMS.

B. MAKE CHANGES IN DIRECTION FOR SOIL AND WASTE DRAINAGE AND VENT PIPING USING APPROPRIATE BRANCHES, BENDS, AND LONG-SWEEP BENDS. SANITARY TEES AND SHORT-SWEEP 1/4 BENDS MAY BE USED ON VERTICAL STACKS IF CHANGE IN DIRECTION OF FLOW IS FROM HORIZONTAL TO VERTICAL. USE LONG-TURN, DOUBLE Y-BRANCH AND 1/8-BEND FITTINGS IF TWO FIXTURES ARE INSTALLED BACK TO BACK OR SIDE BY SIDE WITH COMMON DRAIN PIPE. STRAIGHT TEES, ELBOWS, AND CROSSES MAY BE USED ON VENT LINES. DO NOT CHANGE DIRECTION OF FLOW MORE THAN 90 DEGREES. USE PROPER SIZE OF STANDARD INCREASERS AND REDUCERS IF PIPES OF DIFFERENT SIZES ARE CONNECTED. REDUCING SIZE OF DRAINAGE PIPING IN DIRECTION OF FLOW IS PROHIBITED.

C. LAY BURIED BUILDING DRAINAGE PIPING BEGINNING AT LOW POINT OF EACH SYSTEM. INSTALL TRUE TO GRADES AND AUGNMENT INDICATED, WITH UNBROKEN CONTINUITY OF INVERT. PLACE HUB ENDS OF PIPING UPSTREAM. INSTALL REQUIRED GASKETS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER INSTALLATION REQUIREMENTS. MAINTAIN SWAB IN PIPING AND PULL PAST EACH JOINT AS COMPLETED.

D. INSTALL SOIL AND WASTE DRAINAGE AND VENT PIPING AT THE FOLLOWING MINIMUM SLOPES, UNLESS OTHERWISE INDICATED:

1. HORIZONTAL SANITARY DRAINAGE PIPING: 2 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 2-1/2 AND SMALLER; 1 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 3 AND LARGER.
2. VENT PIPING: ALL VENT AND BRANCH VENT PIPING SHALL BE GRADED AND CONNECTED TO DRAIN BACK TOWARD VERTICAL FIXTURE VENT OR TOWARD VENT STACK.

G. INSTALL PVC SOIL AND WASTE DRAINAGE AND VENT PIPING ACCORDING TO ASTM D 2665.

H. INSTALL UNDERGROUND PVC SOIL AND WASTE DRAINAGE PIPING ACCORDING TO ASTM D 2321.

I. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

J. COMPLY WITH REQUIREMENTS IN SECTION 220513 "COMMON WORK RESULTS FOR PLUMBING" FOR BASIC PIPING JOINT CONSTRUCTION.

K. COMPLY WITH REQUIREMENTS IN SECTION 220513 "COMMON WORK RESULTS FOR PLUMBING" FOR PIPE HANGER AND SUPPORT DEVICES.

3.2 PIPE SCHEDULE

A. ABOVEGROUND APPLICATIONS: PVC PLASTIC, DWV PIPE AND FITTINGS WITH SOLVENT-CEMENTED JOINTS, COPPER DRAINAGE TUBE AND FITTINGS WITH SOLDERED JOINTS. PVC PLASTIC PIPE AND FITTINGS SHALL NOT BE PERMITTED FOR INSTALLATION IN RETURN AIR PLENUMS OR LOCATIONS EXPOSED TO RETURN AIR PLENUMS.

B. BELOWGROUND APPLICATIONS: PVC PLASTIC, DWV PIPE AND DRAINAGE-PATTERN FITTINGS WITH CEMENTED JOINTS.

END OF SECTION

SECTION 221319 - SANITARY WASTE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS:

1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
   a. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, AND ACCESSORIES FOR GREASE INTERCEPTORS.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. DRAINAGE PIPING SPECIALTIES SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.

2.2 MANUFACTURED UNITS - AS INDICATED ON DRAWINGS

A. FLOOR CLEANOUTS: PER STANDARD ASME A112.36.2M-2002.

B. WALL CLEANOUTS:

C. FLOOR DRAINS: PER STANDARD ASME A112.6.3-2001.

D. CAST IRON FLOOR SINKS: PER STANDARD ASME A112.6.7-2001.

E. PVC PLASTIC FLOOR SINKS: PER STANDARD ASME A112.6.7-2001.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL CLEANOUTS AT GRADE AND EXTEND TO WHERE BUILDING SANITARY DRAINS CONNECT TO BUILDING SANITARY SEWERS.

B. INSTALL FLOOR DRAINS AT LOW POINTS OF SURFACE AREAS TO BE DRAINED. SET GRATES OF DRAINS FLUSH WITH FINISHED FLOOR UNLESS OTHERWISE INDICATED.

1. INSTALL FLOOR-DRAIN FLASHING COLLAR OR FLANGE SO NO LEAKAGE OCCURS BETWEEN DRAIN AND ADJOINING FLOORING. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES WHERE PENETRATED.
2. INSTALL INDIVIDUAL TRAPS FOR FLOOR DRAINS CONNECTED TO SANITARY BUILDING DRAIN, UNLESS OTHERWISE INDICATED.

C. PROVIDE A 2" MINIMUM AIR-GAP OR 2 TIMES THE PIPE DIAMETER (WHICHEVER IS GREATER) ON INDIRECT-WASTE PIPING DISCHARGE INTO SANITARY DRAINAGE SYSTEM.

END OF SECTION

SECTION 224000 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS:

1. PRODUCT DATA FOR EACH TYPE OF PLUMBING FIXTURE, INCLUDING TRIM, FITTINGS, ACCESSORIES, APPLIANCES, APPURTENANCES, EQUIPMENT, AND SUPPORTS.
2. DOCUMENTATION INDICATING FLOW AND WATER CONSUMPTION REQUIREMENTS.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. REGULATORY REQUIREMENTS: COMPLY WITH REQUIREMENTS IN ICC A117.1, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES", PUBLIC LAW 90-480, "ARCHITECTURAL BARRIERS ACT"; AND PUBLIC LAW 101-336, "AMERICANS WITH DISABILITIES ACT" FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES.

B. REGULATORY REQUIREMENTS: COMPLY WITH REQUIREMENTS IN PUBLIC LAW 102-486, "ENERGY POLICY ACT," ABOUT WATER FLOW AND CONSUMPTION RATES FOR PLUMBING FIXTURES.

C. NSF STANDARD: COMPLY WITH NSF 61, "DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS," FOR FIXTURE MATERIALS THAT WILL BE IN CONTACT WITH POTABLE WATER.

D. FIXTURES SHALL BE PROVIDED AS SCHEDULED ON THE DRAWINGS.

PART 3 - EXECUTION

3.1 INSTALLATIONS

A. INSTALL FITTING INSULATION KITS ON FIXTURES FOR PEOPLE WITH DISABILITIES.

B. INSTALL FIXTURES WITH FLANGES AND GASKET SEALS.

C. INSTALL TANKS FOR ACCESSIBLE, TANK-TYPE WATER CLOSETS WITH LEVER HANDLE MOUNTED ON WIDE SIDE OF COMPARTMENT.

D. FASTEN WALL-HANGING PLUMBING FIXTURES SECURELY TO SUPPORTS ATTACHED TO BUILDING SUBSTRATE WHEN SUPPORTS ARE SPECIFIED, AND TO BUILDING WALL CONSTRUCTION WHERE NO SUPPORT IS INDICATED.

E. FASTEN FLOOR-MOUNTED FIXTURES TO SUBSTRATE. FASTEN FIXTURES HAVING HOLES FOR SECURING FIXTURE TO WALL CONSTRUCTION, TO REINFORCEMENT BUILT INTO WALLS.

F. FASTEN WALL-MOUNTED FITTINGS TO REINFORCEMENT BUILT INTO WALLS.

G. FASTEN COUNTER-MOUNTING PLUMBING FIXTURES TO CASEWORK.

H. SECURE SUPPLIES TO SUPPORTS OR SUBSTRATE WITHIN PIPE SPACE BEHIND FIXTURE.

I. SET MOP BASINS IN LEVELING BED OF CEMENT GROUT.

J. INSTALL INDIVIDUAL SUPPLY INLETS, SUPPLY STOPS, SUPPLY RISERS, AND TUBULAR BRASS TRAPS WITH CLEANOUTS AT FIXTURE.

K. INSTALL WATER-SUPPLY STOP VALVES IN ACCESSIBLE LOCATIONS.

L. INSTALL TRAPS ON FIXTURE OUTLETS. OMIT TRAPS ON FIXTURES HAVING INTEGRAL TRAPS. OMIT TRAPS ON INDIRECT WASTES UNLESS OTHERWISE INDICATED.

M. INSTALL ESCUTCHEONS AT WALL, FLOOR, AND CEILING PENETRATIONS IN EXPOSED, FINISHED LOCATIONS AND WITHIN CABINETS AND MILLWORK. USE DEEP-PATTERN ESCUTCHEONS WHERE REQUIRED TO CONCEAL PROTRUDING PIPE FITTINGS.

N. SEAL JOINTS BETWEEN FIXTURES AND WALLS, FLOORS, AND COUNTERS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT, SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.

O. INSTALL PIPING CONNECTIONS BETWEEN PLUMBING FIXTURES AND PIPING SYSTEMS AND PLUMBING EQUIPMENT. INSTALL INSULATION ON SUPPLIES AND DRAINS OF FIXTURES FOR PEOPLE WITH DISABILITIES.

END OF SECTION

SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

PART 2 - PRODUCTS

2.1 METAL ROOF DRAINS

A. CAST-IRON, LARGE-SUMP, GENERAL-PURPOSE ROOF DRAINS

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
   a. MARATHON ROOFING PRODUCTS.
   b. MIFAB, INC.
   c. SMITH, JAY R. MFG. CO.
   d. TYLER PIPE.
   e. WATTS WATER TECHNOLOGIES, INC.
   f. ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION.
2. STANDARD: ASME A112.6.4, FOR GENERAL-PURPOSE ROOF DRAINS.
3. BODY MATERIAL: CAST IRON
4. DIMENSION OF BODY: NOMINAL 14-INCH DIAMETER.
5. COMBINATION FLASHING RING AND GRAVEL STOP: REQUIRED.
6. FLOW-CONTROL WEIRS: REQUIRED.
7. OUTLET: BOTTOM
8. EXTENSION COLLARS: REQUIRED.
9. UNDERDECK CLAMP: REQUIRED.
10. EXPANSION JOINT: REQUIRED.
11. SUMP RECEIVER PLATE: REQUIRED.
12. DOME MATERIAL: CAST IRON
13. PERFORATED GRAVEL GUARD: STAINLESS STEEL.
14. VANDAL-PROOF DOME: REQUIRED.
15. WATER DAM: 2 INCHES HIGH.

2.3 MISCELLANEOUS STORM DRAINAGE PIPING SPECIALTIES

A. DOWNSPOUT ADAPTORS:

1. DESCRIPTION: MANUFACTURED, GRAY-IRON CASTING, FOR ATTACHING TO HORIZONTAL-OUTLET, PARAPET ROOF DRAIN AND TO EXTERIOR, SHEET METAL DOWNSPOUT.
2. SIZE: INLET SIZE TO MATCH PARAPET DRAIN OUTLET.

B. DOWNSPOUT BOOTS:

1. DESCRIPTION: MANUFACTURED, ASTM A 48/A 48M, GRAY-IRON CASTING, WITH STRAP OR EARS FOR ATTACHING TO BUILDING; NPS 4 (DN 100) OUTLET; AND SHOP-APPLIED BITUMINOUS COATING.
2. SIZE: INLET SIZE TO MATCH DOWNSPOUT AND NPS 4 (DN 100) OUTLET.

C. CONDUCTOR NOZZLES:

1. DESCRIPTION: BRONZE BODY WITH THREADED INLET AND BRONZE WALL FLANGE WITH MOUNTING HOLES.
2. SIZE: SAME AS CONNECTED CONDUCTOR.

2.4 CLEANOUTS

A. FLOOR CLEANOUTS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
2. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
   a. JOSAM COMPANY.
   b. OATEY.
   c. SIOUX CHIEF MANUFACTURING COMPANY, INC.
   d. SMITH, JAY R. MFG. CO.
   e. TYLER PIPE.
   f. WATTS WATER TECHNOLOGIES, INC.
   g. ZURN PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS OPERATION.
   h. ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION.
3. STANDARD: ASME A112.36.2M, FOR HEAVY-DUTY, ADJUSTABLE HOUSING CLEANOUTS.
4. SIZE: SAME AS CONNECTED BRANCH.
5. TYPE: HEAVY-DUTY, ADJUSTABLE HOUSING.
6. BODY OR FERRULE MATERIAL: CAST IRON.
7. CLAMPING DEVICE: REQUIRED.
8. OUTLET CONNECTION: THREADED.
9. CLOSURE: CAST-IRON PLUG.
10. ADJUSTABLE HOUSING MATERIAL: CAST IRON WITH THREADS.
11. FRAME AND COVER MATERIAL AND FINISH: PAINTED CAST IRON.
12. FRAME AND COVER SHAPE: ROUND.
13. TOP-LOADING CLASSIFICATION: HEAVY DUTY.
14. RISER: ASTM A 74, EXTRA-HEAVY CLASS, CAST-IRON DRAINAGE PIPE FITTING AND RISER TO CLEANOUT.

B. TEST TEES:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
2. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
   a. JOSAM COMPANY.
   b. MIFAB, INC.
   c. SMITH, JAY R. MFG. CO.
   d. TYLER PIPE.
   e. WATTS WATER TECHNOLOGIES, INC.
   f. ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION.
3. STANDARD: ASME A112.36.2M AND ASTM A 74, ASTM A 888, OR CISPI 301, FOR CLEANOUT TEST TEES.
4. SIZE: SAME AS CONNECTED DRAINAGE PIPING.
5. BODY MATERIAL: HUB-AND-SPIGOT, CAST-IRON SOIL-PIPE T-BRANCH OR HUBLESS, CAST-IRON SOIL-PIPE TEST TEE AS REQUIRED TO MATCH CONNECTED PIPING.
6. CLOSURE PLUG: COUNTERSUNK, BRASS.
7. CLOSURE PLUG SIZE: SAME AS OR NOT MORE THAN ONE SIZE SMALLER THAN CLEANOUT SIZE.

C. WALL CLEANOUTS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
2. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
   a. JOSAM COMPANY.
   b. MIFAB, INC.
   c. SMITH, JAY R. MFG. CO.
   d. TYLER PIPE.
   e. WATTS WATER TECHNOLOGIES, INC.
   f. ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION.
3. STANDARD: ASME A112.36.2M, FOR CLEANOUTS. INCLUDE WALL ACCESS.
4. SIZE: SAME AS CONNECTED DRAINAGE PIPING.
5. BODY MATERIAL: HUBLESS, CAST-IRON SOIL-PIPE TEST TEE AS REQUIRED TO MATCH CONNECTED PIPING.
6. CLOSURE: COUNTERSUNK OR RAISED-HEAD PLUG.
7. CLOSURE PLUG SIZE: SAME AS OR NOT MORE THAN ONE SIZE SMALLER THAN CLEANOUT SIZE.
8. WALL ACCESS: ROUND, DEEP, CHROME-PLATED BRONZE COVER PLATE WITH SCREW.
9. WALL ACCESS: ROUND, NICKEL-BRONZE, COPPER-ALLOY, OR STAINLESS-STEEL WALL-INSTALLATION FRAME AND COVER.

D. PLASTIC FLOOR CLEANOUTS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
2. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
   a. CANPLAS LLC.
   b. IPS CORPORATION.
   c. NDS INC.
   d. PLASTIC ODDITIES; A DIVISION OF DIVERSE CORPORATE TECHNOLOGIES.
   e. SIOUX CHIEF MANUFACTURING COMPANY, INC.
   f. ZURN PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS OPERATION.
3. SIZE: SAME AS CONNECTED BRANCH.
4. BODY MATERIAL: PVC.
5. CLOSURE PLUG: PVC.
6. RISER: DRAINAGE PIPE FITTING AND RISER TO CLEANOUT OF SAME MATERIAL AS DRAINAGE PIPING.

2.8 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. THROUGH-PENETRATION FIRESTOP ASSEMBLIES:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
2. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
   a. PROSET SYSTEMS INC.
3. STANDARD: ASTM E 814, FOR THROUGH-PENETRATION FIRESTOP ASSEMBLIES.
4. CERTIFICATION AND LISTING: INTERTEK TESTING SERVICE NA FOR THROUGH-PENETRATION FIRESTOP ASSEMBLIES.
5. SIZE: SAME AS CONNECTED PIPE.
6. SLEEVE: MOLDED PVC PLASTIC, OF LENGTH TO MATCH SLAB THICKNESS AND WITH INTEGRAL NAILING FLANGE ON ONE END FOR INSTALLATION IN CAST-IN-PLACE CONCRETE SLABS.

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SPECIFICATIONS
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SPECIFICATIONS - DIVISION 22 - PLUMBING

1.

2. STACK FITTING: ASTM A 48/A 48M, GRAY-IRON, HUBLESS-PATTERN, WYE BRANCH WITH NEOPRENE O-RING AT BASE AND GRAY-IRON PLUG IN THERMAL-RELEASE HARNESS. INCLUDE PVC PROTECTIVE CAP FOR PLUG.

3. SPECIAL COATING: CORROSION RESISTANT ON INTERIOR OF FITTINGS.

2.9 FLASHING MATERIALS

A. COPPER SHEET: ASTM B 152/B 152M,12 OZ./SQ. FT.

B. ZINC-COATED STEEL SHEET: ASTM A 653/A 653M, WITH 0.20 PERCENT COPPER CONTENT AND 0.04-INCH MINIMUM THICKNESS UNLESS OTHERWISE INDICATED. INCLUDE G90 HOT-DIP GALVANIZED, MILL-PHOSPHATIZED FINISH FOR PAINTING IF INDICATED.

C. ELASTIC MEMBRANE SHEET: ASTM D 4068, FLEXIBLE, CHLORINATED POLYETHYLENE, 40-MIL MINIMUM THICKNESS.

D. FASTENERS: METAL COMPATIBLE WITH MATERIAL AND SUBSTRATE BEING FASTENED.

E. METAL ACCESSORIES: SHEET METAL STRIPS, CLAMPS, ANCHORING DEVICES, AND SIMILAR ACCESSORY UNITS REQUIRED FOR INSTALLATION; MATCHING OR COMPATIBLE WITH MATERIAL BEING INSTALLED.

F. SOLDER: ASTM B 32, LEAD-FREE ALLOY.

PART 3 - EXECUTION

3.1 INSTALLATION

G. INSTALL ROOF DRAINS AT LOW POINTS OF ROOF AREAS ACCORDING TO ROOF MEMBRANE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

1. INSTALL FLASHING COLLAR OR FLANGE OF ROOF DRAIN TO PREVENT LEAKAGE BETWEEN DRAIN AND ADJOINING ROOFING. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES WHERE PENETRATED.

2. INSTALL EXPANSION JOINTS, IF INDICATED, IN ROOF DRAIN OUTLETS.

3. POSITION ROOF DRAINS FOR EASY ACCESS AND MAINTENANCE.

B. INSTALL DOWNSPOUT ADAPTERS ON OUTLET OF BACK-OUTLET PARAPET ROOF DRAINS AND CONNECT TO SHEET METAL DOWNSPOUTS.

C. INSTALL DOWNSPOUT BOOTS AT GRADE WITH TOP 12 INCHES ABOVE GRADE. SECURE TO BUILDING WALL.

D. INSTALL CONDUCTOR NOZZLES AT EXPOSED BOTTOM OF CONDUCTORS WHERE THEY SPILL ONTO GRADE.

E. INSTALL CLEANOUTS IN ABOVEGROUND PIPING AND BUILDING DRAIN PIPING ACCORDING TO THE FOLLOWING INSTRUCTIONS UNLESS OTHERWISE INDICATED:

1. USE CLEANOUTS THE SAME SIZE AS DRAINAGE PIPING UP TO NPS 4. USE NPS 4 FOR LARGER DRAINAGE PIPING UNLESS LARGER CLEANOUT IS INDICATED.

2. LOCATE CLEANOUTS AT EACH CHANGE IN DIRECTION OF PIPING GREATER THAN 45 DEGREES.

3. LOCATE CLEANOUTS AT MINIMUM INTERVALS OF 50 FEET FOR PIPING NPS 4 AND SMALLER AND 100 FEET FOR LARGER PIPING.

4. LOCATE CLEANOUTS AT BASE OF EACH VERTICAL SOIL AND WASTE STACK.

F. FOR FLOOR CLEANOUTS FOR PIPING BELOW FLOORS, INSTALL CLEANOUT DECK PLATES WITH TOP FLUSH WITH FINISHED FLOOR.

G. FOR CLEANOUTS LOCATED IN CONCEALED PIPING, INSTALL CLEANOUT WALL ACCESS COVERS, OF TYPES INDICATED, WITH FRAME AND COVER FLUSH WITH FINISHED WALL.

H. INSTALL HORIZONTAL BACKWATER VALVES IN FLOOR WITH COVER FLUSH WITH FLOOR.

I. INSTALL DRAIN-OUTLET BACKWATER VALVES IN OUTLET OF DRAINS.

J. INSTALL TEST TEES IN VERTICAL CONDUCTORS AND NEAR FLOOR.

K. INSTALL WALL CLEANOUTS IN VERTICAL CONDUCTORS. INSTALL ACCESS DOOR IN WALL IF INDICATED.

L. INSTALL TRENCH DRAINS AT LOW POINTS OF SURFACE AREAS TO BE DRAINED. SET GRATES OF DRAINS FLUSH WITH FINISHED SURFACE UNLESS OTHERWISE INDICATED.

M. ASSEMBLE CHANNEL DRAINAGE SYSTEM COMPONENTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. INSTALL ON SUPPORT DEVICES SO THAT TOP WILL BE FLUSH WITH ADJACENT SURFACE.

N. INSTALL THROUGH-PENETRATION FIRESTOP ASSEMBLIES IN PLASTIC CONDUCTORS AT CONCRETE FLOOR PENETRATIONS.

O. INSTALL SLEEVE FLASHING DEVICE WITH EACH CONDUCTOR PASSING THROUGH FLOORS WITH WATERPROOF MEMBRANE.

3.2 CONNECTIONS

A. COMPLY WITH REQUIREMENTS FOR PIPING SPECIFIED IN SECTION 221413 "FACILITY STORM DRAINAGE PIPING." DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.

3.3 FLASHING INSTALLATION

A. FABRICATE FLASHING FROM SINGLE PIECE OF METAL UNLESS LARGE PANS, SUMPS, OR OTHER DRAINAGE SHAPES ARE REQUIRED. JOIN FLASHING ACCORDING TO THE FOLLOWING IF REQUIRED:

1. LEAD SHEETS: BURN JOINTS OF 6.0-LB/SQ. FT. LEAD SHEETS, 0.0938-INCH THICKNESS OR THICKER. SOLDER JOINTS OF 4.0-LB/SQ. FT. LEAD SHEETS, 0.0625-INCH THICKNESS OR THINNER.

2. COPPER SHEETS: SOLDER JOINTS OF COPPER SHEETS.

B. INSTALL SHEET FLASHING ON PIPES, SLEEVES, AND SPECIALTIES PASSING THROUGH OR EMBEDDED IN FLOORS AND ROOFS WITH WATERPROOF MEMBRANE.

1. PIPE FLASHING: SLEEVE TYPE, MATCHING THE PIPE SIZE, WITH A MINIMUM LENGTH OF 10 INCHES AND WITH SKIRT OR FLANGE EXTENDING AT LEAST 8 INCHES AROUND PIPE.

2. SLEEVE FLASHING: FLAT SHEET, WITH SKIRT OR FLANGE EXTENDING AT LEAST 8 INCHES AROUND SLEEVE.

3. EMBEDDED SPECIALTY FLASHING: FLAT SHEET, WITH SKIRT OR FLANGE EXTENDING AT LEAST 8 INCHES AROUND SPECIALTY.

C. SET FLASHING ON FLOORS AND ROOFS IN SOLID COATING OF BITUMINOUS CEMENT.

D. SECURE FLASHING INTO SLEEVE AND SPECIALTY CLAMPING RING OR DEVICE.

E. FABRICATE AND INSTALL FLASHING AND PANS, SUMPS, AND OTHER DRAINAGE SHAPES.

3.4 PROTECTION

A. PROTECT DRAINS DURING REMAINDER OF CONSTRUCTION PERIOD TO AVOID CLOGGING WITH DIRT OR DEBRIS AND TO PREVENT DAMAGE FROM TRAFFIC OR CONSTRUCTION WORK.

B. PLACE PLUGS IN ENDS OF UNCOMPLETED PIPING AT END OF EACH DAY OR WHEN WORK STOPS.

END OF SECTION 221423

SECTION 221623 - FACILITY NATURAL-GAS PIPING

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. MINIMUM OPERATING-PRESSURE RATINGS:

1. PIPING AND VALVES: 100 PSIG MINIMUM UNLESS OTHERWISE INDICATED.

B. NATURAL-GAS SYSTEM PRESSURE WITHIN BUILDING: ONE DISTRIBUTION PRESSURE. 14" W.C., BUT NOT MORE THAN 2.0 PSIG.

2.2 PIPES, TUBES, AND FITTINGS

A. STEEL PIPE: ASTM A 53/A 53M, BLACK STEEL, SCHEDULE 40, TYPE E OR S, GRADE B.

1. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3, CLASS 150, STANDARD PATTERN.

2. WROUGHT-STEEL WELDING FITTINGS: ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING.

3. UNIONS: ASME B16.39, CLASS 150, MALLEABLE IRON WITH BRASS-TO-IRON SEAT, GROUND JOINT, AND THREADED ENDS.

4. PROTECTIVE COATING FOR UNDERGROUND PIPING: FACTORY-APPLIED, THREE-LAYER COATING OF EPOXY, ADHESIVE, AND PE.

B. CORRUGATED, STAINLESS-STEEL TUBING: COMPLY WITH ANSI/IAS LC 1; INCLUDE FLAME-RETARDANT PE COATING, COPPER-ALLOY THREADED ENDS, AND STRIKER PLATES.

2.3 SPECIALTIES

A. APPLIANCE FLEXIBLE CONNECTORS:

1. INDOOR, FIXED-APPLIANCE FLEXIBLE CONNECTORS: COMPLY WITH ANSI Z21.24.

2. INDOOR, MOVABLE-APPLIANCE FLEXIBLE CONNECTORS: COMPLY WITH ANSI Z21.69.

3. OUTDOOR, APPLIANCE FLEXIBLE CONNECTORS: COMPLY WITH ANSI Z21.75.

4. CORRUGATED STAINLESS-STEEL TUBING WITH POLYMER COATING.

B. STRAINERS: ASTM A 126, CLASS B, CAST-IRON BODY, Y-PATTERN, FULL SIZE OF CONNECTING PIPING, CWP RATING OF 125 PSIG. INCLUDE 40-MESH STARTUP STRAINER, AND PERFORATED STAINLESS-STEEL BASKET.

C. WEATHERPROOF VENT CAP: CAST- OR MALLEABLE-IRON INCREASER FITTING WITH CORROSION-RESISTANT WIRE SCREEN, WITH FREE AREA AT LEAST EQUAL TO CROSS-SECTIONAL AREA OF CONNECTING PIPE AND THREADED-END CONNECTION.

2.4 VALVES

A. GENERAL REQUIREMENTS FOR METALLIC MANUAL GAS SHUTOFF VALVES: COMPLY WITH ASME B16.33.

1. CWP RATING: 125 PSIG.

B. ONE-PIECE, BRONZE BALL VALVE WITH BRONZE TRIM: MSS SP-110.

1. BODY: BRONZE, COMPLYING WITH ASTM B 584.

2. BALL: CHROME-PLATED BRASS.

3. STEM: BRONZE; BLOWOUT PROOF.

4. SEATS: REINFORCED TFE; BLOWOUT PROOF.

5. PACKING: SEPARATE PACKNUT WITH ADJUSTABLE STEM PACKING THREADED ENDS.

6. CWP RATING: 600 PSIG.

7. LISTING: VALVES NPS 1 AND SMALLER SHALL BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

8. SERVICE: SUITABLE FOR NATURAL-GAS SERVICE WITH "WOG" INDICATED ON VALVE BODY.

C. TWO-PIECE, FULL-PORT, BRONZE BALL VALVES WITH BRONZE TRIM: MSS SP-110.

1. BODY: BRONZE, COMPLYING WITH ASTM B 584.

2. BALL: CHROME-PLATED BRONZE.

3. STEM: BRONZE; BLOWOUT PROOF.

4. SEATS: REINFORCED TFE; BLOWOUT PROOF.

5. PACKING: THREADED BODY PACKNUT DESIGN WITH ADJUSTABLE STEM PACKING.

6. CWP RATING: 600 PSIG.

7. LISTING: VALVES NPS 1 AND SMALLER SHALL BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

8. SERVICE: SUITABLE FOR NATURAL-GAS SERVICE WITH "WOG" INDICATED ON VALVE BODY.

D. BRONZE PLUG VALVES: MSS SP-78.

1. BODY: BRONZE, COMPLYING WITH ASTM B 584.

2. PLUG: BRONZE.

3. OPERATOR: SQUARE HEAD OR LUG TYPE WITH TAMPERPROOF FEATURE WHERE INDICATED.

4. PRESSURE CLASS: 125 PSIG.

5. LISTING: VALVES NPS 1 AND SMALLER SHALL BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

6. SERVICE: SUITABLE FOR NATURAL-GAS SERVICE WITH "WOG" INDICATED ON VALVE BODY.

E. CAST-IRON, NONLUBRICATED PLUG VALVES: MSS SP-78.

1. BODY: CAST IRON, COMPLYING WITH ASTM A 126, CLASS B.

2. PLUG: BRONZE OR NICKEL-PLATED CAST IRON.

3. SEAT: COATED WITH THERMOPLASTIC.

4. STEM SEAL: COMPATIBLE WITH NATURAL GAS.

5. OPERATOR: SQUARE HEAD OR LUG TYPE WITH TAMPERPROOF FEATURE WHERE INDICATED.

6. PRESSURE CLASS: 125 PSIG.

7. LISTING: VALVES NPS 1 AND SMALLER SHALL BE LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

8. SERVICE: SUITABLE FOR NATURAL-GAS SERVICE WITH "WOG" INDICATED ON VALVE BODY.

F. ELECTRICALLY OPERATED, AUTOMATIC GAS VALVES: COMPLY WITH UL 429.

2.5 PRESSURE REGULATORS

A. GENERAL REQUIREMENTS: SINGLE STAGE, STEEL JACKETED, AND CORROSION RESISTANT. INCLUDE ELEVATION COMPENSATOR.

B. LINE PRESSURE REGULATORS: ANSI Z21.80; 2-PSIG MAXIMUM INLET PRESSURE. FACTORY- OR FIELD-INSTALLED, STAINLESS-STEEL SCREEN IN VENT OPENING IF NOT CONNECTED TO VENT PIPING.

C. APPLIANCE PRESSURE REGULATORS: ANSI Z21.18; 2-PSIG MAXIMUM INLET PRESSURE. REGULATOR MAY INCLUDE VENT LIMITING DEVICE, INSTEAD OF VENT CONNECTION, IF APPROVED BY AUTHORITIES HAVING JURISDICTION.

PART 3 - EXECUTION

3.1 INDOOR PIPING INSTALLATION

A. COMPLY WITH REQUIREMENTS IN SECTION 220500 "COMMON WORK RESULTS FOR PLUMBING" FOR BASIC PIPING INSTALLATION REQUIREMENTS.

B. INSTALL PIPING IN CONCEALED LOCATIONS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS.

C. INSTALL ESCUTCHEONS AT PENETRATIONS OF INTERIOR WALLS, CEILINGS, AND FLOORS.

D. 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 IN SECTION 078413 "PENETRATION FIRESTOPPING."

E. INSTALL GAS STOPS FOR SHUTOFF TO APPLIANCES WITH LOW-PRESSURE GAS SUPPLY.

F. INSTALL NATURAL-GAS PIPING AT UNIFORM GRADE OF 2 PERCENT DOWN TOWARD DRIP AND SEDIMENT TRAPS.

G. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.

H. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.

I. INSTALL UNIONS IN PIPES NPS 2 AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT. UNIONS ARE NOT REQUIRED AT FLANGED CONNECTIONS.

J. INSTALL STRAINER ON INLET OF EACH LINE PRESSURE REGULATOR AND AUTOMATIC OR ELECTRICALLY OPERATED VALVE.

K. INSTALL PRESSURE GAGE PLUG UPSTREAM AND DOWNSTREAM FROM EACH LINE REGULATOR.

L. CONNECT GAS PIPING TO EQUIPMENT AND APPLIANCES WITH SHUTOFF VALVES AND UNIONS. INSTALL GAS VALVE UPSTREAM FROM AND WITHIN 72 INCHES OF EACH APPLIANCE USING GAS. INSTALL UNION OR FLANGED CONNECTIONS DOWNSTREAM FROM VALVES.

M. EXTEND RELIEF VENT CONNECTIONS FOR SERVICE REGULATORS, LINE REGULATORS, AND OVERPRESSURE PROTECTION DEVICES TO THE OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.

N. DO NOT USE NATURAL-GAS PIPING AS GROUNDING ELECTRODE.

3.2 PIPING JOINT CONSTRUCTION

A. THREADED JOINTS: THREAD PIPE WITH TAPERED PIPE THREADS COMPLYING WITH ASME B1.20.1.

B. WELDED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWS D10.12M/D10.12, USING QUALIFIED PROCESSES AND WELDING OPERATORS.

C. JOINTS IN STEEL PIPING WITH PROTECTIVE COATING: APPLY JOINT COVER KITS TO PIPE AFTER JOINING TO COVER, SEAL, AND PROTECT JOINTS.

D. FLANGED JOINTS: INSTALL GASKET MATERIAL, SIZE, TYPE, AND THICKNESS APPROPRIATE FOR NATURAL-GAS SERVICE. INSTALL GASKET CONCENTRICALLY POSITIONED.

3.3 VALVE INSTALLATION

A. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE AHEAD OF CORRUGATED STAINLESS-STEEL TUBING, ALUMINUM, OR COPPER CONNECTOR.

B. INSTALL REGULATORS AND OVERPRESSURE PROTECTION DEVICES WITH MAINTENANCE ACCESS SPACE ADEQUATE FOR SERVICING AND TESTING.

3.4 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES MORE THAN 7" W.C. AND LESS THAN 5 PSIG.

A. ABOVEGROUND, BRANCH PIPING NPS 1 AND SMALLER SHALL BE THE FOLLOWING:

1. CORRUGATED STAINLESS-STEEL TUBING WITH MECHANICAL FITTINGS HAVING SOCKET OR THREADED ENDS TO MATCH ADJACENT PIPING.

2. STEEL PIPE WITH MALLEABLE-IRON FITTINGS AND THREADED JOINTS.

B. ABOVEGROUND, DISTRIBUTION PIPING SHALL BE THE FOLLOWING:

1. STEEL PIPE WITH MALLEABLE-IRON FITTINGS AND THREADED JOINTS.

C. UNDERGROUND, BELOW BUILDING, SHALL BE[ONE OF] THE FOLLOWING:

1. STEEL PIPE WITH MALLEABLE-IRON FITTINGS AND THREADED JOINTS.

2. STEEL PIPE WITH WROUGHT-STEEL FITTINGS AND WELDED JOINTS.

D. CONTAINMENT CONDUIT: STEEL WITH WROUGHT-STEEL FITTINGS AND WELDED JOINTS. COAT PIPE AND FITTINGS WITH PROTECTIVE COATING FOR STEEL PIPING.

E. CONTAINMENT CONDUIT VENT PIPING: STEEL PIPE WITH MALLEABLE-IRON FITTINGS AND THREADED OR WROUGHT-STEEL FITTINGS WITH WELDED JOINTS. COAT UNDERGROUND PIPE AND FITTINGS WITH PROTECTIVE COATING FOR STEEL PIPING.

END OF SECTION

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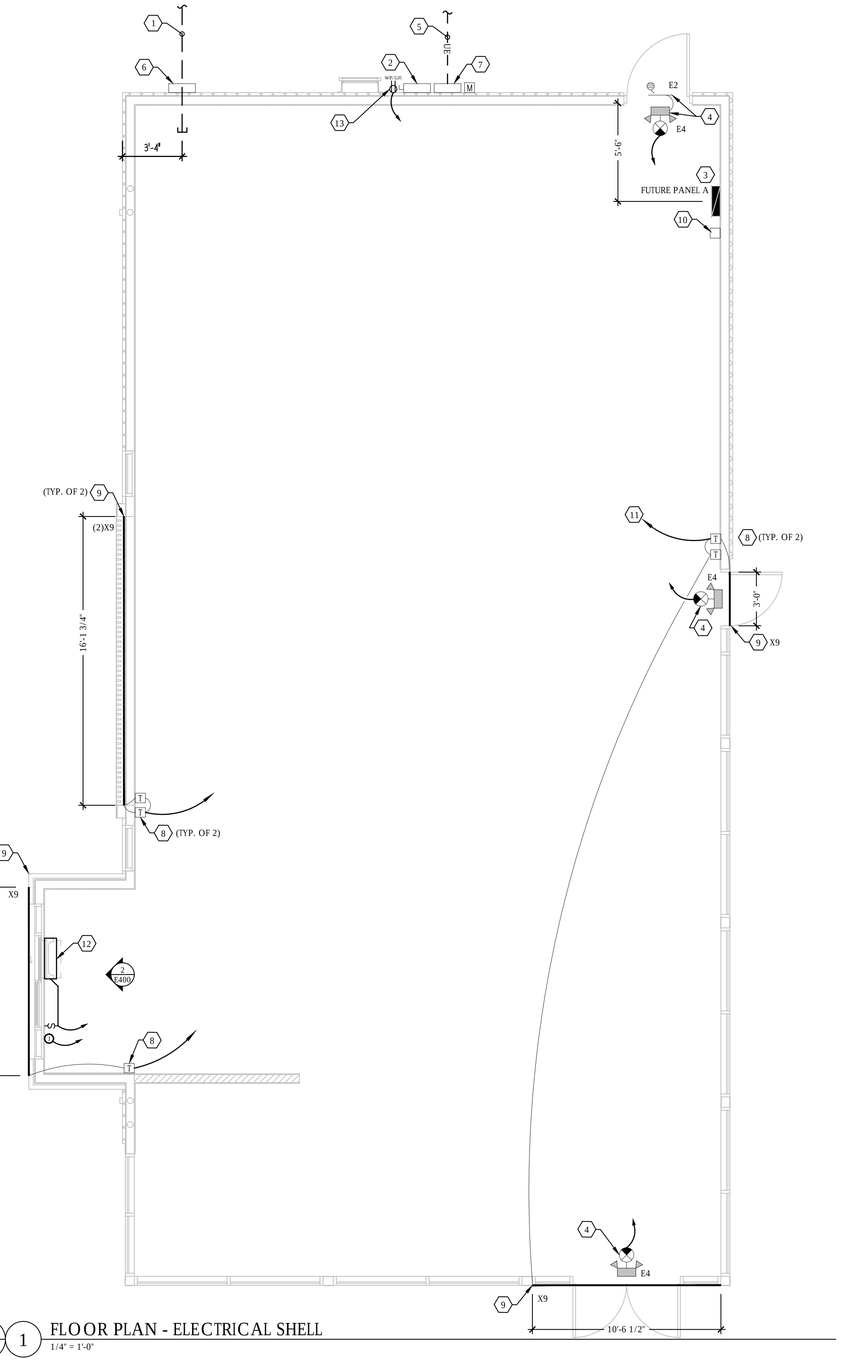
Contents:
SPECIFICATIONS
PLUMBING

P730



1 FLOOR PLAN - ELECTRICAL SHELL
1/4" = 1'-0"

CODED NOTES: (#)

1. PROVIDE 12 PAIR TELEPHONE CABLE IN 2" CONDUIT FROM TELEPHONE DEMARC LOCATION TO STUB INTO BUILDING. COORDINATE EXACT LOCATION WITH TENANT. CONDUIT SHALL BE STUBBED UP 12" AND CAPPED IN SPACE. SEE CIVIL PLAN FOR CONTINUATION.
2. PROVIDE SERVICE ENTRANCE DISC SWITCH: 400A/3P NEMA 3R, 208Y/120V-3 PHASE, 4 WIRE. SEE ONE LINE DIAGRAM. COORDINATE EXACT LOCATION WITH TENANT PLANS PRIOR TO ROUGH IN.
3. FUTURE LOCATION OF ELECTRICAL PANEL. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
4. PROVIDE EXIT/EMERGENCY LIGHTING. PROVIDE 3/4" CONDUIT WITH PULLSTRING BACK TO FUTURE PANEL. TENANT TO PROVIDE BRANCH CIRCUIT AND MAKE FINAL CONNECTION.
5. UNDERGROUND SECONDARY ELECTRIC. SEE ONE LINE DIAGRAM & SITE ELECTRIC PLAN FOR FURTHER INFORMATION.
6. TELEPHONE CABINET PROVIDED BY LOCAL PHONE COMPANY. COORDINATE LOCATION PRIOR TO INSTALLATION.
7. METER SOCKET/CT CABINET (IF REQUIRED - EC SHALL COORDINATE WITH LOCAL POWER CO.) LOCATION. SEE ONE LINE DIAGRAM FOR COORDINATION.
8. X9 LIGHT FIXTURE LED DRIVER. MOUNT HIGH ON WALL NEAR STRUCTURE. COORDINATE QUANTITY OF DRIVERS WITH DIMENSIONS OF FIXTURE.
9. PROVIDE LIGHTING FIXTURES AS SHOWN. PROVIDE 3/4" CONDUIT WITH PULLSTRING TO STUB INSIDE EXTERIOR WALL. TENANT TO PROVIDE BRANCH CIRCUIT AND MAKE FINAL CONNECTION. RUN CONDUIT AND WIRING CONCEALED IN WALL CAVITY.
10. FUTURE EMERGENCY INVERTER BY TENANT.
11. TENANT TO PULL EMPTY 3/4" CONDUIT AND STUB TO FUTURE EMERGENCY INVERTER ADJACENT TO PANELBOARD.
12. AIR CURTAIN INTEGRAL TO SLIDING WINDOW. COORDINATE WITH G.C. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE 3/4" CONDUIT WITH PULLSTRING TO STUB INSIDE EXTERIOR WALL. TENANT TO PROVIDE BRANCH CIRCUIT AND MAKE FINAL CONNECTION. REFER TO ELEVATION FOR FURTHER INFORMATION.
13. PROVIDE RECEPTACLE NEXT TO ELECTRICAL SERVICE ENTRANCE. PROVIDE 3/4" CONDUIT WITH PULLSTRING TO STUB INSIDE EXTERIOR WALL. TENANT TO PROVIDE BRANCH CIRCUIT AND MAKE FINAL CONNECTION.

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Contents:
POWER & LIGHTING PLAN
ELECTRICAL SHELL

E100

LIGHTING LEGEND

TAG	DESCRIPTION
	INTERIOR RECESSED DOWNLIGHT
	INTERIOR RECESSED DOWNLIGHT
	INTERIOR RECESSED DOWNLIGHT
	PENDANT
	PENDANT
	PENDANT
	TRACK LIGHT
	VANITY LIGHT
	WALL SCONCE
	2X4 LAY-IN TROFFER
	2X4 NIGHT LIGHT
	2X4 EMERGENCY LIGHT
	EXIT/EMERGENCY LIGHT W/ BATTERY PACK AND DUAL HEADS
	EXIT/EMERGENCY LIGHT WITH BATTERY PACK
	EXIT LIGHT (SURFACE MOUNTED)
	EXIT LIGHT (CEILING MOUNTED)
	REMOTE EMERGENCY HEADS
	EMERGENCY BATTERY PACK AND DUAL HEADS
S^{6}	DIMMER SWITCH EQUAL TO LUTRON NOVA SERIES T
S	TOGGLE SWITCH SINGLE POLE SWITCH WITH COVER PLATE
S^{2}	TOGGLE SWITCH 2 POLE SWITCH WITH COVER PLATE
S^{3}	TOGGLE SWITCH 3 WAY SWITCH WITH COVER PLATE
S^{K}	TOGGLE SWITCH KEY OPERATED SWITCH WITH COVER PLATE
PC	PHOTOCELL
	WALL MOUNTED OCCUPANCY SENSOR / DIMMER
	CEILING MOUNTED OCCUPANCY SENSOR

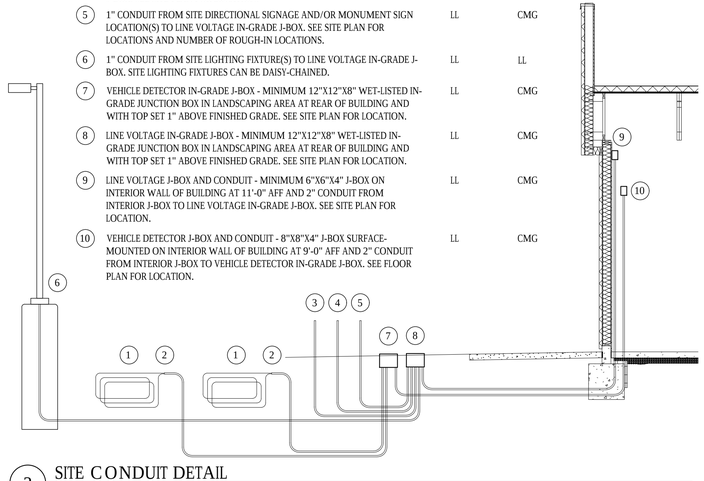
ELECTRICAL LEGEND

DETAIL	DESCRIPTION
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE ABOVE COUNTER
GFI	DUPLEX RECEPTACLE - GFCI
GFI	DUPLEX RECEPTACLE - GFCI, ABOVE COUNTER
	SPLIT RECEPTACLE
WP/GFI	DUPLEX RECEPTACLE - WITH WEATHERPROOF COVER & GFCI
	DOUBLE DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE IN CEILING
20	DUPLEX RECEPTACLE - 20A, 125V, WITH ISOLATED GROUND
A-1	BRANCH CIRCUIT HOME-RUN WITH CIRCUIT NUMBER
	FLOOR MOUNTED DUPLEX RECEPTACLE
	SPECIAL RECEPTACLE (SEE PLANS FOR TYPE)
J	JUNCTION BOX
	MOTOR (SINGLE PHASE & THREE PHASE)
TC	TIME CLOCK
V	VOLUME CONTROL
P	PULL BOX - SIZE & TYPE AS REQUIRED
	TELEPHONE / DATA OUTLET
TV	TV CABLE OUTLET
	DISCONNECT - NON FUSED
	DISCONNECT - FUSED
M	UTILITY METER
	ELECTRICAL PANEL

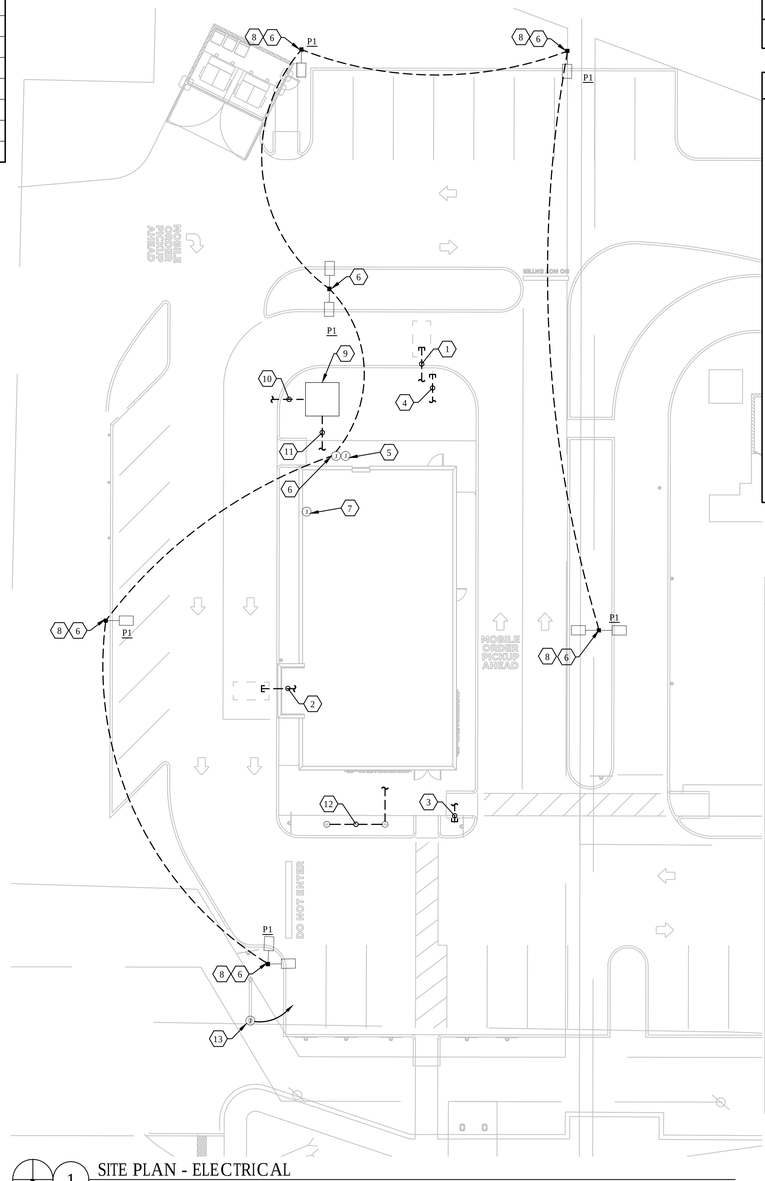
TAG	DESCRIPTION	RESPONSIBILITY: DEVICE OR CONDUIT	RESPONSIBILITY: CONNECTION OR CONDUCTORS
1	VEHICLE DETECTOR LOOP - 6'x4' WITH 4 TURNS (EMX PR-46-XX). VERIFY LENGTH OF LEAD-IN WIRE PRIOR TO ORDERING TO ALLOW WIRE TO REACH VEHICLE DETECTOR WITHOUT SPLICING. SEE SITE PLAN FOR LOCATIONS.	CMG	CMG
2	1" CONDUIT FROM VEHICLE DETECTOR LOOP LOCATION TO VEHICLE DETECTOR IN-GRADE J-BOX.	LL	CMG
3	1" CONDUIT FROM MARKETING BOARD LOCATION TO LINE VOLTAGE IN-GRADE J-BOX. SEE SITE PLAN FOR LOCATION.	LL	CMG
4	1" CONDUIT FROM CLEARANCE BAR LOCATION TO LINE VOLTAGE IN-GRADE J-BOX. SEE SITE PLAN FOR LOCATION.	LL	CMG
5	1" CONDUIT FROM SITE DIRECTIONAL SIGNAGE AND/OR MONUMENT SIGN LOCATION(S) TO LINE VOLTAGE IN-GRADE J-BOX. SEE SITE PLAN FOR LOCATIONS AND NUMBER OF ROUGH-IN LOCATIONS.	LL	CMG
6	1" CONDUIT FROM SITE LIGHTING FIXTURE(S) TO LINE VOLTAGE IN-GRADE J-BOX. SITE LIGHTING FIXTURES CAN BE DAISY-CHAINED.	LL	LL
7	VEHICLE DETECTOR IN-GRADE J-BOX - MINIMUM 12"X12"X8" WET-LISTED IN-GRADE JUNCTION BOX IN LANDSCAPING AREA AT REAR OF BUILDING AND WITH TOP SET 1" ABOVE FINISHED GRADE. SEE SITE PLAN FOR LOCATION.	LL	CMG
8	LINE VOLTAGE IN-GRADE J-BOX - MINIMUM 12"X12"X8" WET-LISTED IN-GRADE JUNCTION BOX IN LANDSCAPING AREA AT REAR OF BUILDING AND WITH TOP SET 1" ABOVE FINISHED GRADE. SEE SITE PLAN FOR LOCATION.	LL	CMG
9	LINE VOLTAGE J-BOX AND CONDUIT - MINIMUM 6"X6"X4" J-BOX ON INTERIOR WALL OF BUILDING AT 11'-0" AFF AND 2" CONDUIT FROM INTERIOR J-BOX TO LINE VOLTAGE IN-GRADE J-BOX. SEE SITE PLAN FOR LOCATION.	LL	CMG
10	VEHICLE DETECTOR J-BOX AND CONDUIT - 8"X8"X4" J-BOX SURFACE-MOUNTED ON INTERIOR WALL OF BUILDING AT 9'-0" AFF AND 2" CONDUIT FROM INTERIOR J-BOX TO VEHICLE DETECTOR IN-GRADE J-BOX. SEE FLOOR PLAN FOR LOCATION.	LL	CMG

GENERAL NOTES

A. WORK AND MATERIALS SHALL BE COMPLIANT WITH THE NEC AND REQUIREMENTS OF THE AHJ.
B. CONDUCTORS AND CONNECTIONS BELOW GRADE, EVEN WHERE WITHIN CONDUITS OR ENCLOSURES, SHALL BE SUITABLE FOR WET LOCATIONS.
C. PROVIDE PULL STRING IN EMPTY CONDUITS.
D. SEAL ENDS OF CONDUITS STUBBED UP ABOVE GRADE TO PROTECT FROM THE ELEMENTS.



2 SITE CONDUIT DETAIL
1/16" = 1'-0"



1 SITE PLAN - ELECTRICAL
1/16" = 1'-0"

GENERAL NOTES:

A. ALL WORK TO COMPLY TO ALL STATE, LOCAL, NEC, & NFPA CODES.
B. ELECTRICAL CONTRACTOR TO VISIT THE SITE PRIOR TO SUBMITTING A BID & INCLUDE IN THEIR BID ANY ITEMS NECESSARY FOR A COMPLETE & OPERATIONAL SYSTEM.
C. DRAWINGS ARE SCHEMATIC IN NATURE. ELECTRICAL CONTRACTOR IS TO ADD ANY ITEMS THAT ARE REQUIRED FOR A COMPLETE & OPERATIONAL SYSTEM IN THEIR PROPOSAL.
D. ELECTRICAL CONTRACTOR IS TO COORDINATE THEIR INSTALLATION WITH THE OTHER TRADES. IF A CONFLICT OCCURS AND IT IS DUE TO THE ELECTRICAL CONTRACTOR'S LACK OF COORDINATION, ALL WORK INVOLVED IN RESOLVING THE CONFLICT WILL BE AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
E. ELECTRICAL CONTRACTOR TO PAY ALL FEES AND PERMITS.
F. SEE ARCHITECTURAL DRAWINGS FOR PATIO CONDUIT DETAIL. COORDINATE PRIOR TO ROUGH-IN.
G. ANY MC CABLE MUST BE RUN IN WALL. ALL CONDUIT OUTSIDE OF WALL TO BE HARD PIPE.
H. CANOPY LIGHTING CONDUIT SHALL BE RUN IN MC CABLE.
I. NO LIGHTING SUBSTITUTIONS.

CONDUITS AND WIRING NOTES:

ALL WIRING RUN THROUGH TENANT'S EXPOSED CEILING SHALL BE IN EMT OR IMC AND RUN TIGHT TO THE DECK OR EITHER PARALLEL OR PERPENDICULAR TO MAIN ENTRY STOREFRONT. THERE SHALL BE NO DIAGONAL RUNS AND ALL CONDUITS SHALL BE IN STRAIGHT LINES.

SITE CONDUIT NOTES:

PROVIDE ALL SITE ELECTRICAL CONDUITS TO EXACT LOCATIONS CALLED FOR IN ARCHITECTURAL SITE PLAN.

CODED NOTES: (#)

1. VEHICLE LOOP. REFER TO SITE CONDUIT DETAIL ON THIS PAGE CIVIL AND ARCHITECTURAL PLANS FOR CONTINUATION.
2. VEHICLE LOOP. REFER TO SITE CONDUIT DETAIL ON THIS PAGE CIVIL AND ARCHITECTURAL PLANS FOR CONTINUATION.
3. DIGITAL MARKETING BOARD. REFER TO SITE CONDUIT DETAIL.
4. CLEARANCE BAR. REFER TO SITE CONDUIT DETAIL.
5. LINE IN VOLTAGE J BOX. REFER TO SITE CONDUIT DETAIL.
6. PROVIDE PARKING AREA LIGHT - SEE LUMINAIRE SCHEDULE AND POLE BASE DETAIL. REFER TO CIVIL SITE PLAN FOR FURTHER INFORMATION AND COORDINATION. PROVIDE CONDUIT TO LINE VOLTAGE IN-GRADE J-BOX. REFER TO SITE CONDUIT DETAIL.
7. VEHICLE DETECTOR IN GRADE J BOX. REFER TO SITE CONDUIT DETAIL.
8. PROVIDE (2) #10, #10 G. IN 1" CONDUIT FROM NEW SITE LIGHTING TO JUNCTION BOX AS SHOWN FOR FUTURE CONNECTION WITHIN BUILDING BY TENANT.
9. UTILITY COMPANY PROVIDED PAD MOUNTED TRANSFORMER. COORDINATE SPECIFICATIONS AND LOCATION WITH LOCAL UTILITY COMPANY PRIOR TO BID.
10. UNDERGROUND PRIMARY ELECTRIC BY LOCAL UTILITY. PROVIDE (2) 5" EMPTY CONDUIT WITH PULLSTRING TO PAD-MOUNTED TRANSFORMER. COORDINATE WITH CIVIL PLANS AND LOCAL UTILITY.
11. UNDERGROUND SECONDARY ELECTRIC. SEE ONE LINE DIAGRAM & FLOOR PLAN FOR FURTHER INFORMATION.
12. PATIO LIGHTING BY TENANT. PULL 1" EMPTY CONDUIT WITH PULLSTRING TO FUTURE PANELBOARD LOCATION. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
13. MONUMENT SIGN. REFER TO NOTE 5 ON SITE CONDUIT PLAN.

ABBREVIATIONS

(A)	EXISTING TO BE ABANDONED	INCD	INCANDESCENT
(D)	EXISTING TO BE DEMOLISHED	KVA	KILOVOLT AMPERE
(E)	EXISTING TO REMAIN	KW	KILOWATT
(F)	FUTURE	LTG	LIGHTING OR LIGHT
(R)	EXISTING TO BE RELOCATED	LRA	LOCKED ROTOR AMPS
A	AMPERE	MCA	MAXIMUM CURRENT AMPACITY
AC	ALTERNATING CURRENT OR AIR CONDITIONER	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISHED GRADE	MDP	MAIN DISTRIBUTION PANEL
AIC	AMPS INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
ANNC	ANNUNCIATOR	MOCP	MAXIMUM OVERCURRENT PROTECTION
AWG	AMERICAN WIRE GAUGE	MSB	MAIN SWITCHBOARD
BPS	BOLTED PRESSURE SWITCH	MH	METAL HALIDE
C	CONDUIT	MTS	MANUAL TRANSFER SWITCH
CB	CIRCUIT BREAKER	NAC	NOTIFICATION APPLIANCE CIRCUIT
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSED
CKT	CIRCUIT	NO	NORMALLY OPEN
CM	CONSTRUCTION MANAGER	NF	NON-FUSED
DC	DIRECT CURRENT	OCC	OCCUPANCY
DP	DISTRIBUTION PANELBOARD	PA	PUBLIC ADDRESS
DTT	DOUBLE TWIN TUBE	PB	PULL BOX OR PUSH BUTTON
EB	ELECTRONIC BALLAST	PVC	POLYVINYL CHLORIDE (PLASTIC PIPE)
EC	ELECTRICAL CONTRACTOR	PWR	POWER
EM	EMERGENCY	REC.PT	RECEPTACLE
EMT	ELECTRICAL METAL TUBING	STP	SHIELDED, TWISTED PAIR
EWC	ELECTRIC WATER COOLER	TC	TIME CLOCK
FA	FIRE ALARM	TRT	TRIPLE TUBE
FLA	FULL LOAD AMPS	TYP	TYPICAL
G	GROUND	UNO	UNLESS NOTED OTHERWISE
GC	GENERAL TRADES CONTRACTOR	UTP	UNSHIELDED, TWISTED PAIR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	V	VOLT
GEN	GENERATOR	W	WATT
HOA	HAND-OFF-AUTOMATIC	WAP	WIRELESS ACCESS POINT
HP	HORSEPOWER	WH	WATTHOUR
HPC	HIGH PRESSURE CONTACT SWITCH	WP	WEATHERPROOF, NEMA 3R UNO
HZ	HERTZ	XFMR	TRANSFORMER
IG	ISOLATED GROUND	Z	IMPEDANCE
IMC	INTERMEDIATE METAL CONDUIT	Φ	PHASE

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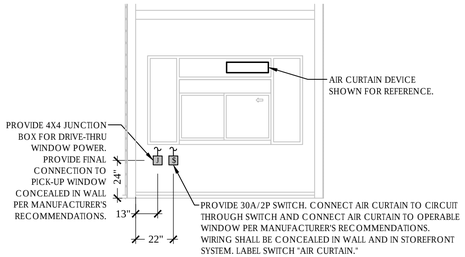
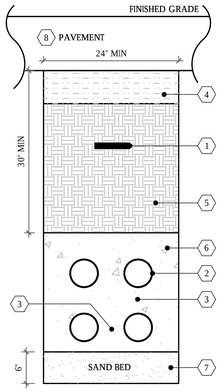
SITE PLAN
ELECTRICAL SHELL

ES100



5 DRIVE THRU WINDOW ELEVATION DETAIL

N.T.S.



KEYED NOTES:

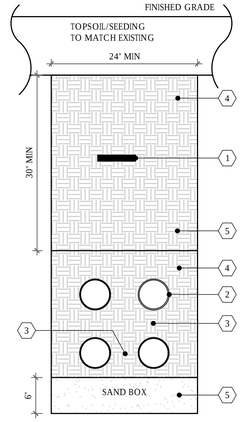
1. 3" WIDE DETECTABLE TAPE. INSTALL 12" BELOW FINISHED GRADE. (ONE PER 12" OF TRENCH WIDTH)
2. ELECTRICAL DUCTS SHALL BE 4"(UNLESS OTHERWISE NOTED) SCHEDULE 40 PVC.
3. INSTALL 4" SEPARATION BETWEEN DUCTS AND SIDES OF TRENCH.
4. SUB-BASE MATERIAL 6" DEEP AND COMPACTED TO 90%.
5. BACKFILL WITH EXCAVATED OR BORROWED MATERIAL. MATERIAL SHALL BE FREE OF ROCKS 2" DIAMETER AND LARGER. COMPACT TO 90% IN MAX 8" LIFT OF LOOSE SOIL.
6. CONCRETE ENCASEMENT.
7. ALL PIPING SHALL BE LAID ON A BED OF SAND 6" DEEP, WELL TAMPED INTO PLACE AND PROPERLY GRADED TO PERMIT THE PIPE TO HAVE AN EVEN BEARING THROUGHOUT ITS ENTIRE LENGTH.
8. PAVEMENT BY OTHERS.

GENERAL NOTES:

A. TYPICAL FOR ALL CONDUITS/DUCT BANKS, REGARDLESS OF QUANTITY.

4 DUCTBANK UNDER NEW PAVEMENT DETAIL

N.T.S.



KEYED NOTES:

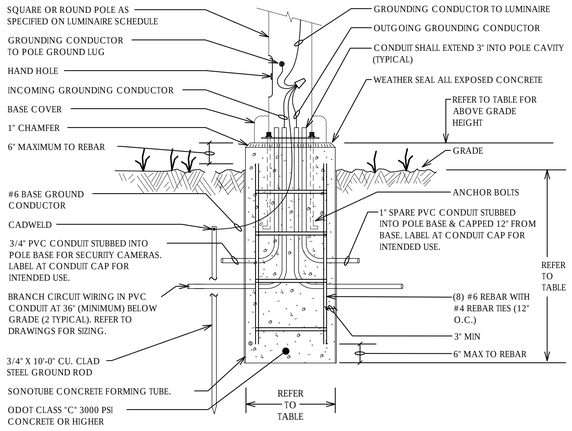
1. 3" WIDE DETECTABLE TAPE. INSTALL 12" BELOW FINISHED GRADE. (ONE PER 12" OF TRENCH WIDTH)
2. ELECTRICAL DUCTS SHALL BE 4"(UNLESS OTHERWISE NOTED) SCHEDULE 40 PVC.
3. INSTALL 4" SEPARATION BETWEEN DUCTS AND SIDES OF TRENCH. ALIGN DUCTS ON CHAIRS.
4. BACKFILL WITH EXCAVATED OR BORROWED MATERIAL. MATERIAL SHALL BE FREE OF ROCKS 2" DIAMETER AND LARGER. COMPACT TO 90% IN MAX 8" LIFT OF LOOSE SOIL.
5. ALL PIPING SHALL BE LAID ON A BED OF SAND 6" DEEP. WELL TAMPED INTO PLACE AND PROPERLY GRADED TO PERMIT THE PIPE TO HAVE AN EVEN BEARING THROUGHOUT ITS ENTIRE LENGTH.

GENERAL NOTES:

A. TYPICAL FOR ALL CONDUITS/DUCT BANKS, REGARDLESS OF QUANTITY.
B. BRANCH CIRCUITS SHALL BE LIMITED TO 40A/3 PHASE FOR THIS DETAIL.

3 DUCTBANK UNDER LAWN DETAIL

N.T.S.



LUMINAIRE BASE DIMENSIONS

LUMINAIRE TYPE	POLE HEIGHT	LOCATION	BASE DEPTH	BASE DIA	ABOVE GRADE HEIGHT
	≤10'-0"	[NON-PARKING] [PARKING]	48"	18"	[2"] [30"]
	15'-0"	[NON-PARKING] [PARKING]	48"	24"	[2"] [30"]
	20'-0"	[NON-PARKING] [PARKING]	48"	24"	[2"] [30"]
	25'-0"	[NON-PARKING] [PARKING]	60"	24"	[2"] [30"]
	30'-0"	[NON-PARKING] [PARKING]	72"	24"	[2"] [30"]

NOTES:

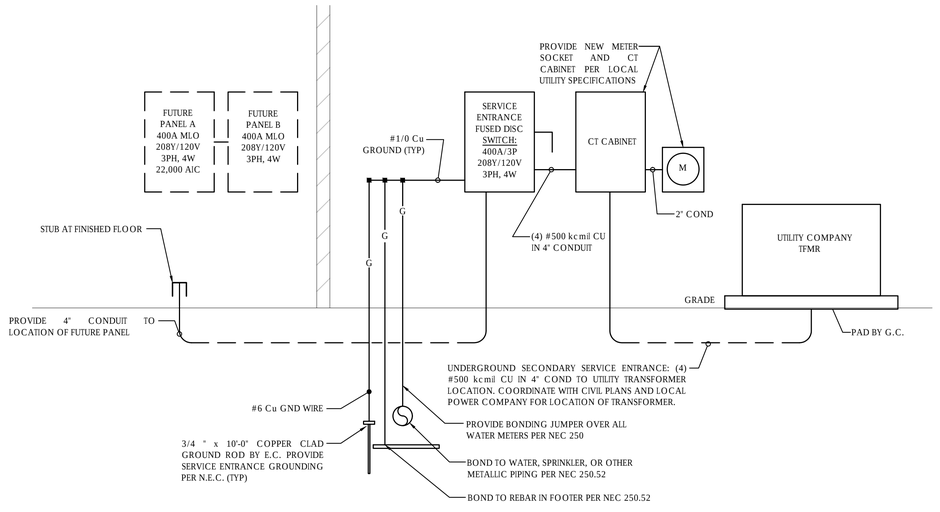
1. DETAIL ASSUMES 2000 PSF AVERAGE LATERAL SOIL BEARING CAPACITY IN UNDISTURBED (OR WELL COMPACTED) EARTH.
2. DESIGN ASSUMES SINGLE OR DOUBLE LUMINAIRE NOT EXCEEDING POLE MANUFACTURE'S SPECIFICATIONS FOR WEIGHT, MAXIMUM EPA (EFFECTIVE PROJECTED AREA), AND 100 MPH DESIGN WIND SPEED.
3. CONSULT STRUCTURAL ENGINEER IF ACTUAL SITE CONDITIONS (OR LUMINAIRE CONFIGURATION) VARIES FROM DESIGN ASSUMPTIONS.
4. USE GRADE 60 REINFORCING STEEL. USE EPOXY COATED STEEL IN PARKING LOT APPLICATIONS OR IN AREAS WHERE DE-ICING SALT IS USED. MAINTAIN 3" (MINIMUM).
5. INSTALL POLE IN STRICT ACCORDANCE WITH POLE MANUFACTURER'S RECOMMENDATIONS. VIBRATION DAMPENERS SHALL BE PROVIDED.
6. ANCHOR BOLTS SHALL NOT BE CUT OFF FOR ANY REASON. EXTENSION COUPLERS ARE NOT PERMITTED.
7. INSTALL FOUNDATION A MINIMUM OF 2'-6" FROM BACK OF CURB IN PARKING LOTS. INSTALL FOUNDATION A MINIMUM OF 36" FROM STORM OR SANITARY PIPING.
8. AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION SHALL APPLY TO THE LOW SIDE OF SLOPE.

4 POLE MOUNTED LUMINAIRE BASE DETAIL

N.T.S.

NOTE:

- EC IS RESPONSIBLE TO PROVIDE A LETTER FROM UTILITY COMPANY WHICH INCLUDES THE ESTIMATED KAIC RATING FOR THE SERVICE TO THE STRUCTURE. LETTER MUST BE PRESENT AT INSPECTION.



1 ONE LINE DIAGRAM

N.T.S.

LUMINAIRE SCHEDULE SHELL

TAG	DESCRIPTION	MANUFACTURER	MODEL	LAMP	FINISH/ COLOR	COMMENTS	VOLTS	INPUT WATTS
E2	LED EMERGENCY REMOTE HEAD	EXITRONIX	MLED1-B-WP	LED	BLACK		120	1
E4	LED EXIT SIGN	EXITRONIX	CLED-U-WH	LED	WHITE	PROVIDE WITH 90 MINUTE BATTERY BACKUP	120	2
P1	SITE LIGHTING	LITHONIA	DSX1 LED P5-40K-T3M-MVOLT-SPA-DDBXD	LED ENGINE	BLACK	MOUNT TO 30'-0" SQUARE STEEL POLE	120	138
X9	LED LINEAR FIXTURE	PARADIGM LED	PL-AMC-2415 W / OPAL LENS AND END CAPS	PL-FLEXSR590-WW-WP-3000K	WHITE	FURNISHED W / REMOTE-MOUNTED NEMA 3R DIMMABLE PL-PS-M100-DIM-24 LED DRIVER. FIELD CUTTABLE; SEE PLAN FOR LENGTHS.	120	4.5W /FT

ONE LINE NOTES:

A. PARALLEL FEEDER CONDUCTORS SHALL BE CUT TO EXACTLY THE SAME LENGTHS AND SHALL BE FROM THE SAME FACTORY RUN. ALL CONNECTIONS FOR SAME SHALL BE TORQUED TO IDENTICAL VALUES.

B. EXTERIOR ELECTRICAL WORK SHALL NOT ONLY BE WEATHERPROOF AND WATER-TIGHT, BUT SHALL ALSO BE RUST-RESISTANT.

C. CONDUCTORS BELOW GRADE OR SUBJECT TO MOISTURE SHALL BE "XHHW-2".

D. POWER DISTRIBUTION EQUIPMENT SUPPLIER SHALL PROVIDE EQUIPMENT APPROPRIATELY RATED AND BRACED TO ACCOMMODATE THE AVAILABLE FAULT CURRENT AT THE UTILITY COMPANY TRANSFORMER SECONDARIES. THIS SUPPLIER SHALL ACCORDINGLY PROVIDE ANY RELATED CALCULATIONS SO THAT THEIR EQUIPMENT IS PROPERLY COORDINATED FOR THE AVAILABLE FAULT CURRENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THIS SUPPLIER WITH COPIES OF THE ELECTRICAL DOCUMENTS AS REQUIRED SO THAT PROPERLY RATED/BRACED EQUIPMENT IS PROVIDED UNDER BASE BID.

E. GROUNDING ELECTRODE CONDUCTORS SHALL BE PROVIDED IN STRICT COMPLIANCE WITH NEC, INCLUDING NEC ARTICLE 250 AND TABLE 250.102(C)(1).

F. EQUIPMENT GROUNDING CONDUCTORS SHALL BE PROVIDED IN STRICT COMPLIANCE WITH NEC, INCLUDING NEC ARTICLE 250 AND TABLE 250.122. THESE CONDUCTORS MAY NOT BE INDICATED ON RISERS OR SINGLE-LINES, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.

G. WORKING CLEARANCES SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT (SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, STARTERS, DISCONNECTS, ETC. AS APPLICABLE) IN STRICT COMPLIANCE WITH NEC CHAPTER 1, PART B, SECTION 110-26(a). LOCATIONS SHOWN ON FLOOR PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE ABOVE NEC REFERENCE. THIS REQUIREMENT APPLIES TO EQUIPMENT ON FLOOR PLANS AS WELL AS TO EQUIPMENT SHOWN ON RISER.

H. HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHT AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. LOCATE ANY RELATED PULLBOXES SO THAT THEY WILL BE FULLY ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. AS WITH ALL WORK, COORDINATE IN ADVANCE WITH ALL OTHER TRADES.

I. ROUTE FEEDER CONDUITS BELOW GRADE WHEREVER POSSIBLE. COORDINATE WITH ALL ARCHITECTURAL, STRUCTURAL & MECHANICAL DRAWINGS VERY CAREFULLY BEFORE LAYING OUT FEEDER ROUTES.

J. ALL PANELS SHALL BE NEMA 1 ENCLOSURES UNLESS OTHERWISE NOTED.

K. ALL PANELS SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.

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E400

ELECTRICAL SPECIFICATIONS - SECTION 26

GENERAL REQUIREMENTS

THE GENERAL PROVISIONS OF THE CONTRACT INCLUDING THE GENERAL AND SUPPLEMENTAL CONDITIONS AND GENERAL REQUIREMENTS APPLY TO THE WORK IN THIS SECTION. BEFORE SUBMITTING A BID, EXAMINE DOCUMENTS OF ALL OTHER TRADES, VISIT THE SITE AND GET ACQUAINTED WITH ALL CONDITIONS THAT MAY IN ANY WAY WHATSOEVER AFFECT THE EXECUTION OF THIS CONTRACT. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED FOR THE INSTALLATION OF WORK. FIGURED DIMENSIONS ARE REASONABLY ACCURATE AND SHOULD GOVERN IN SETTING OUT WORK. WHERE DETAILED METHOD OF INSTALLATION IS NOT INDICATED OR WHERE VARIATIONS EXIST BETWEEN DESCRIBED WORK AND APPROVED PRACTICE, DIRECTION OF THE OWNERS REPRESENTATIVE ON JOB SITE SHALL BE FOLLOWED.

THE CONTRACT INCLUDES ALL ITEMS OF MATERIAL AND LABOR REQUIRED FOR THE COMPLETE INSTALLATION AND FULL OPERATION OF THE ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AND HEREINAFTER SPECIFIED. ALL MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH APPLICABLE CODES, REGULATIONS AND/OR ORDINANCES AND MEET THE APPROVAL OF LOCAL INSPECTION AUTHORITY HAVING JURISDICTION. THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE SHALL BE THE MINIMUM REQUIREMENT FOR ALL WORK. EXAMINE THE DRAWINGS AND SPECIFICATIONS FOR COMPLIANCE WITH THE ABOVE CODES, REGULATIONS AND ORDINANCES AND BASE BID AND WORK ACCORDINGLY. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS RELATED TO THIS WORK. A CERTIFICATE OF APPROVAL FOR WORK FROM INSPECTION AUTHORITY SHALL BE GIVEN TO THE OWNER BEFORE FINAL ACCEPTANCE WILL BE GIVEN BY OWNERS REPRESENTATIVE.

ALL WORK, MATERIALS, AND EQUIPMENT SHALL HAVE A WARRANTY FOR THE DURATION OF THE INSTALLATION OR A PERIOD OF 1 YEAR, WHICHEVER IS LESS, AFTER ACCEPTANCE OF THE WORK BY THE OWNER. ANY DEFECTIVE ITEMS SHALL BE REMOVED AND REPLACED AT THE ELECTRICAL SUB-CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE OWNER.

PERFORM WORK UNDER THIS CONTRACT IN CLOSE HARMONY WITH OTHER CONTRACTORS SO COMPLETED WORK SHALL PRESENT A NEAT AND WORKMANLIKE INSTALLATION. EXPOSED FINISHED MATERIALS AND EQUIPMENT SHALL BE CAREFULLY CLEANED AND WIPED TO REMOVE GREASE, SMUDGES, DUST AND OTHER SPOTS AND LEFT SMOOTH AND CLEAN. DURING THE PROGRESS OF THE WORK, THE ELECTRICAL SUB-CONTRACTOR SHALL CAREFULLY CLEAN UP AFTER HIS MEN AND SHALL LEAVE THE PREMISES AND ALL PORTIONS OF THE BUILDING IN WHICH HE IS WORKING FREE OF DEBRIS AND IN A CLEAN AND SAFE CONDITION.

WHENEVER THE WORDS 'CONTRACTOR', "THIS CONTRACTOR', ETC. APPEAR ON DRAWINGS OR IN THESE SPECIFICATIONS FOR THE ELECTRICAL WORK, IT SHALL REFER TO THE ELECTRICAL SUB-CONTRACTOR. WHENEVER THE WORD "PROVIDE" APPEARS IN THESE DOCUMENTS, IT SHALL BE INTERPRETED TO MEAN "FURNISH & INSTALL'.

THE EXACT MOUNTING HEIGHT OF OUTLETS SHALL BE DETERMINED IN THE FIELD WITH RELATION TO ARCHITECTURAL DETAILS AND EQUIPMENT BEING SERVED. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE OUTLET LOCATION WITH EQUIPMENT. THE OWNERS REPRESENTATIVE SHALL BE PERMITTED TO RELOCATE ANY OUTLET PRIOR TO INSTALLATION WITHIN A 15 FOOT LIMIT AT NO ADDITIONAL CHARGE IN CONTRACT PRICE. ALL FASTENERS, HANGERS AND METHODS OF HANGING EXPOSED WORK IN FINISHED AREAS SHALL BE SUBMITTED TO THE OWNERS REPRESENTATIVE FOR APPROVAL BEFORE INSTALLATION.

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSTRUCTION OF EACH SYSTEM TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE.

THE ELECTRICAL CONTRACTOR SHALL CONSULT THE PLUMBING, HEATING AND ARCHITECTURAL PLANS IN ALL INSTANCES BEFORE INSTALLING HIS WORK SO THAT HIS PIPING PLACE NOT INTERFERE WITH THOSE BRANCHES. IN THE EVENT OF A CONFLICT, THIS CONTRACTOR SHALL REPORT TO THE OWNERS REPRESENTATIVE AT ONCE AND DO NO FURTHER WORK UNTIL A SATISFACTORY ARRANGEMENT IS DECIDED UPON. ANY WORK DONE, OR EQUIPMENT PLACED IN POSITION BY THIS CONTRACTOR, CREATING A CONFLICT IN VIOLATION HEREOF, SHALL BE READJUSTED TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE AT THE EXPENSE OF THE CONSTRACTOR. THE DECISION OF THE OWNERS REPRESENTATIVE SHALL BE FINAL IN REGARD TO CHANGES DUE TO CONFLICTING CONDITIONS. CONTRACTOR SHALL COMPLETE HIS WORK OR ANY PART THEREOF AT SUCH TIME AS MAY BE DESIGNATED BY THE OWNER, SO THAT IT CAN BE USED FOR TEMPORARY OR PERMANENT USE AND SUCH USE OF THE SYSTEM SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF SAME BY OWNER.

MATERIALS AND EQUIPMENT

ALL MATERIALS AND EQUIPMENT SHALL BE NEW. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES INC., LABEL WHERE REGULARLY SUPPLIED. CERTAIN MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. THIS CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.

WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, THE CONTRACTOR SHALL STATE IN HIS BID WHICH MAKE HE PROPOSES TO FURNISH. SHOP DRAWINGS SHALL BE SUBMITTED ON MATERIAL AND EQUIPMENT TO BE FURNISHED BY THE CONTRACTOR FOR ENGINEERS APPROVAL. THIS APPROVAL TO BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.

ELECTRICAL IDENTIFICATION

PROVIDE MANUFACTURERS STANDARD SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS THICK BY 1-1/2' WIDE. WHERE APPLICABLE, INSTALL ON ALL CONCEALED RACEWAYS AT CONNECTION TO ALL JUNCTION BOXES, PULL BOXES, EQUIPMENT, WALL/FLOOR/ROOF PENETRATIONS, ETC. UNLESS OTHERWISE INDICATED OR REQUIRED BY GOVERNING REGULATIONS, PROVIDE ORANGE TAPE WITH BLACK LETTERS. PROVIDE CIRCUIT IDENTIFICATION BANDS FOR ALL CABLES AND CONDUCTORS. PROVIDE MANUFACTURERS STANDARD COLOR CODING FOR CABLE/CONDUCTOR JACKET AND/OR INSULATION FOR ALL CABLES AND CONDUCTORS OF ALL SYSTEMS. MATCH IDENTIFICATION WITH MARKING SYSTEM USED IN EXISTING SYSTEMS SHOP DRAWINGS, CONTRACT DOCUMENTS, AND SIMILAR PREVIOUSLY ESTABLISHED IDENTIFICATION FOR PROJECTS ELECTRICAL WORK. PROVIDE ON ALL CONDUCTORS OF ALL SYSTEMS.

THE FOLLOWING INSULATION COLOR CODE SHALL BE USED FOR SYSTEM AND VOLTAGE IDENTIFICATION. THIS SHALL APPLY TO BOTH FEEDER AND BRANCH CIRCUIT WIRING. INTERCHANGE OF COLORS SHALL NOT BE PERMITTED.

208Y/120V SYSTEM:	BLACK, RED, BLUE & WHITE (NEUTRAL)
480Y/277V SYSTEM:	BROWN, ORANGE, YELLOW & GRAY (NEUTRAL)
EQUIPMENT GROUNDING:	GREEN

ALL EQUIPMENT & SYSTEM IDENTIFICATION NOMENCLATURE SHOWN ON DRAWINGS OR LISTED HEREIN IS SHOWN FOR GENERAL DESIGN AND INSTALLATION REFERENCE ONLY. THE ACTUAL NAMEPLATE, ETC. NOMENCLATURE FOR THIS PROJECT SHALL BE VERIFIED BY ELECTRICAL CONTRACTOR IN FIELD PRIOR TO FABRICATION AND WHERE APPLICABLE, SHALL BE AN EXTENSION OF EXISTING NOMENCLATURE USED ON THE SITE AS DETERMINED IN FIELD BY ELECTRICAL CONTRACTOR.

GROUNDING

ALL METALLIC CONDUIT, SURFACE WIREWAYS, SUPPORTS, CABINET AND EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST ISSUE OF THE NATIONAL ELECTRIC CODE.

CONDUIT AND FITTINGS

NORMAL SYSTEM BRANCH CIRCUITS SHALL BE INSTALLED IN SEPARATE RACEWAYS FROM EMERGENCY SYSTEM POWER.

ALL WIRING FOR DIFFERENT POWER VOLTAGES SHALL BE INSTALLED IN RACEWAY SYSTEMS SEPARATE FROM EACH OTHER.

ALL WIRING FOR THE VARIOUS ELECTRICAL SYSTEMS SHALL BE INSTALLED IN RACEWAY SYSTEMS SEPARATE FROM EACH OTHER.

ALL CONDUIT INSTALLED INDOORS SHALL BE GALVANIZED STEEL EMT (3/4' MINIMUM); ALL FITTINGS FOR SAME SHALL BE SET-SCREW OR COMPRESSION TYPE STEEL, WITH INSULATED THROATS. UNLESS INDICATED OTHERWISE ON DRAWINGS OR IN OTHER PARTS OF THE ELECTRICAL SPECIFICATIONS.

CONDUIT SHALL BE CLEANED INSIDE BEFORE ANY WIRES ARE PULLED. CONDUIT ENDS SHALL BE CAPPED AND PLUGGED WITH STANDARD ACCESSORES AS SOON AS CONDUIT HAS BEEN PERMANENTLY INSTALLED. CONDUIT INSTALLED WITHOUT CONDUCTORS SHALL BE PROVIDED WITH SWEEP BENDS AND BALING WIRE FOR PULLING.

ALL JOINTS SHALL BE MADE TIGHT WITH WATERTIGHT COUPLINGS MATCHING CONDUIT AND ALL CORNERS SHALL BE MAKE WITH LONG RADIUS. THE ENDS OF ALL CONDUITS SHALL BE CUT SQUARE AND REAMED AND ALL JOINTS BROUGHT TO A SHOULDER. CONDUIT SHALL BE CONTINUOUS BETWEEN OUTLETS TO MAKE A COMPLETE INSTALLATION AND TO EFFECT A CONTINUOUS GROUND. SUITABLE SUPPORTS AND FASTENING SHALL BE PROVIDED FOR CONDUIT.

CONDUIT SHALL BE SUPPORTED BY APPROVED STRAPS, FASTENERS AND HANGERS. HANGERS SHALL BE SUSPENDED FROM RODS. PERFORATED STRAPS WILL NOT BE ACCEPTABLE. FASTENERS SHALL BE LEAD EXPANSION SHEILDS IN BLOCK OR CONCRETE, TOGGLE BOLTS IN HOLLOW WALLS, MACHINE SCREWS ON METAL SURFACES AND WOOD SCREWS ON WOOD CONSTRUCTION. ALL CONDUIT SHALL BE SUPPORTED INDEPENDENTLY FROM ALL OTHER BUILDING SYSTEMS AND SHALL BE SUPPORTED DIRECTLY FROM STRUCTURAL COMPONENTS. WHERE DEFLECTION IS EXPECTED, CONDUITS SHALL BE PROVIDED WITH EXPANSION FITTINGS WITH BONDING JUMPERS. CONDUITS PASSING THROUGH STRUCTURAL MEMBERS SHALL BE PROVIDED WITH STUB AND COUPLING OR SLEEVE IN THE MEMBER.

ALL RACEWAYS SHALL BE ENTIRELY FREE OF PLASTER, MORTAR, WATER AND OTHER FOREIGN MATTER.

WIRE AND CABLE

FURNISH AND INSTALL ALL NECESSARY CABLE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS OR SPECIFIED HEREINAFTER. ALL WIRE SHALL BE COPPER. ALL WIRING SHALL BE NEW. NO WIRE SMALLER THAN #12 AWG SHALL BE INSTALLED UNLESS SPECIFICALLY DESIGNATED. USE OF #14 COLOR CODED WIRE WILL BE ALLOWED FOR CONTROL CIRCUITS ONLY. ALL CONDUCTORS SHALL BE COPPER. PROVIDE STRANDED CONDUCTORS FOR ALL SIZES UNLESS INDICATED OTHERWISE.

PROVIDE THHN/THWN INSULATION FOR ALL CONDUCTORS NO. 8 AWG AND SMALLER. FOR ALL OTHER SIZES PROVIDE THW OR THHN/THWN INSULATION AS APPROPRIATE FOR THE LOCATIONS WHERE INSTALLED. PROVIDE COLOR CODED INSULATION/JACKET FOR PHASE IDENTIFICATION. ALL WIRES SHALL BE RATED AT 600 VOLTS.

TYPE AC AND MC CABLE SHALL BE FORMED FROM CONTINUOUS LENGTH OF SPIRALLY WOUND, INTERLOCKED ZINC-COATED OR GALVANIZED (INSIDE & OUTSIDE) STRIP STEEL. ALL CONDUCTORS SHALL BE RATED FOR 90 DEG. C. MINIMUM. PROVIDE WITH FULL PARITY SIZED GREEN INSULATED EQUIPMENT GROUND CONDUCTOR. PROVIDE COMPATIBLE STEEL FITTINGS WITH INTEGRAL RED PLASTIC INSULATED THROAT BUSHINGS, COMPLIANT WITH NEC 350-5. CABLES SHALL BE 90 DEG. C. RATED WITH ALL COMPONENTS AND FITTINGS LISTED FOR GROUNDING AND COMPLIANT WITH THE FOLLOWING.

UL STD.4 AND UL STD. 83.
ANSI E119 AND E814.
NEC ARTICLES 250 AND 333.

METHOD OF WIRING - POWER

NEATLY DRESS ALL WORK. INSTALL ALL WORK PARALLEL AND PERPENDICULAR TO SURFACES OR EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS, WHERE POSSIBLE. KEEP CONDUCTOR SPLICES TO MINIMUM. INSTALL SPLICE AND TAP CONNECTORS WHICH POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATING THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS WHICH ARE COMPATIBLE WITH CONDUCTOR MATERIAL. ALL WIRES SHALL BE RUN CONTINUOUS FROM OUTLET TO OUTLET/LUMINAIRE TO LUMINAIRE. INSULATION VALUE OF JOINTS TO BE 100% IN EXCESS OF WIRE. PROVIDE ADEQUATE LENGTH OF CONDUCTORS WITHIN ELECTRICAL ENCLOSURES AND TRAIN THE CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. BUNDLE MULTIPLE CONDUCTORS, WITH CONDUCTORS LARGER THAN NO 10 AWG CABLED IN INDIVIDUAL CIRCUITS. MAKE TERMINATIONS SO THERE IS NO BARE CONDUCTOR AT THE TERMINAL.

KEEP CONDUCTOR SPLICES TO MINIMUM. PULL CONDUCTORS SIMULTANEOUSLY WHERE MORE THAN ONE IS BEING INSTALLED IN SAME RACEWAY. USE UL LISTED PULLING COMPOUND OR LUBRICANT, WHERE NECESSARY. INSTALL SPLICE AND TAP CONNECTORS WHICH POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATING THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS WHICH ARE COMPATIBLE WITH CONDUCTOR MATERIAL. INCREASE WIRE SIZES PER NEC TO OFFSET VOLTAGE DROP AS/IF REQUIRED.

NO WIRE SIZE SMALLER THAN NO. 12 SHALL BE USED FOR ANY BRANCH CIRCUIT UNLESS OTHERWISE NOTED ON PLANS FOR CONTROL CIRCUITS. LARGER SIZES SHALL BE USED WHERE REQUIRED AND/OR INDICATED ON THE PLANS.

PROVIDE THE FOLLOWING MINIMUM WIRE SIZES BASED ON DISTANCES FROM PANEL TO FIRST DEVICE OF A 15 OR 20 AMPERE GENERAL LIGHTING OR RECEPTACLE BRANCH CIRCUIT. IN ADDITION TO UPSIZING CONDUCTORS AS REQUIRED FOR VOLTAGE DROP, PROVIDE MINIMUM #10 AWG CONDUCTORS TO THE LAST DEVICE FOR BRANCH CIRCUITS MORE THAN 150 FEET IN LENGTH.

DISTANCE	AWG WIRE SIZES
UP TO 60 FEET	#12
61 TO 90 FEET	#10
91 TO 150 FEET	# 8
151 TO 240 FEET	# 6

PROVIDE THE FOLLOWING MINIMUM AWG CONDUCTOR SIZES FOR GENERAL BRANCH CIRCUITING THAT ARE NOT INDICATED ON DRAWINGS, BASED ON USING COPPER CONDUCTORS. WHERE APPLICABLE INCREASE AS REQUIRED TO ACCOMMODATE VOLTAGE DROP AND TO ACCOMMODATE SPECIAL CONDITIONS. DO NOT DERATE ANY GROUNDED (NEUTRAL) CONDUCTORS. TEMPERATURE RATINGS LISTED BELOW PERTAIN TO BOTH WIRE AND TERMINATIONS.

	60 DEG. C RATING	75 DEG. C RATING	EQUIPT. GROUNDING
SOURCE BREAKER/FUSE	AWG WIRE SIZE	AWG WIRE SIZE	AWG WIRE SIZE
15 AMPERE	#12	#12	#12
20 AMPERE	#12	#12	#12
25 AMPERE	#10	#10	#10
30 AMPERE	#10	#10	#10
35 AMPERE	# 8	# 8	#10
40 AMPERE	# 8	# 8	#10

OUTLETS SHALL BE LOCATED APPROXIMATELY AS SHOWN ON THE PLANS AND SHALL BE WIRED TO PROVIDE CONTROL OF OUTLETS INDICATED. ALL WIRES OF ANY ONE CIRCUIT SHALL BE RUN IN THE SAME CONDUIT.

TYPE AC/MC CABLE MAY BE UTILIZED ONLY IF NEC APPROVED AND IF APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION AND IF INCLUDED IN THE APPLICATIONS DEFINED BELOW.

15 THROUGH 30 AMPERE BRANCH CIRCUIT WORK. THIS SHALL APPLY ONLY UNDER ALL OF THE FOLLOWING CIRCUMSTANCES AND CONDITIONS.

ONLY WHERE CONCEALED (ALL EXPOSED WIRING SHALL BE INSTALLED IN CONDUIT).

ROUTE ALL CABLES PERPENDICULAR AND PARALLEL TO THE BUILDING ARCHITECTURAL LINES/SURFACES/STRUCTURAL MEMBERS, KEEPING OFFSETS TO A MINIMUM AND FOLLOWING SURFACE CONTOURS WHERE POSSIBLE. MAINTAIN A UNIFORM ELEVATION FOR ALL CABLE RUNS WHEREVER POSSIBLE. ALL CABLES SHALL BE SUPPORTED/ANCHORED AT MAXIMUM 4 FOOT INTERVALS AND WITHIN 12' OF BOX OR OUTLET AND SHALL NOT SAG. INSTALL CABLES IN A MANNER THAT PREVENTS OVERHEATING. CABLES SHALL BE FASTENED DIRECTLY TO THE STRUCTURE USING FACTORY CLAMPS/CLIPS SPECIFICALLY DESIGNED FOR THE RESPECTIVE CABLE (CADDY OR EQUAL).

OUTLET, JUNCTION AND SWITCHBOXES

IN GENERAL, GANG TYPE OUTLET BOXES SHALL NOT BE USED. THE OUTLET BOX LOCATIONS INDICATED ON DRAWINGS SHALL BE CONSIDERED APPROXIMATE, AND THEREFORE, IT SHALL BE INCUMBENT UPON THIS CONTRACTOR TO STUDY THE GENERAL CONSTRUCTION WITH RELATION TO SPACES AND EQUIPMENT SURROUNDING EACH OUTLET. ALL OUTLET, SWITCH AND JUNCTION BOXES SHALL BE MADE OF CODE GALVANIZED STEEL COMPLETE WITH RINGS AND SCREW COVER PLATES AND LOCATED WHERE SHOWN AND NOTED ON DRAWINGS. WHERE CONDUIT IS CONCEALED, BOXES SHALL NOT BE LESS THAN 4" SQUARE X 1-1/2" DEEP. ALL BOXES SHALL BE EQUIPPED WITH PROPER COVERS TO BRING FLUSH WITH FINISHED WALL SURFACE.

WHERE OUTLET BOXES OCCUR IN FACING TILE OR OTHER MATERIAL WHERE SUCH MATERIALS FORM THE FINISHED WALL SURFACE, THE OPENING FOR THE BOX SHALL BE CUT NEATLY AND OF THE SIZE THAT THE COVER PLATE WILL COVER ALL PARTS OF THE OPENING. CONDULETS SHALL BE USED ON EXPOSED RACEWAYS. IN GENERAL, JUNCTION BOXES SHALL BE FURNISHED AND REQUIRED BY THE NATIONAL ELECTRIC CODE, OF THE PROPER SIZES, AND SHALL BE CONSTRUCTED OF #12 GAUGE STEEL WITH REMOVABLE FRONT FASTENED ON WITH COUNTER SUNK HEAD SCREWS OR OTHER APPROVED MEANS. FOR SPECIAL APPLICATION, JUNCTION BOXES SHALL BE NOTED, DETAILED AND/OR SIZED ON THE DRAWINGS OR IN THE FIELD AS REQUIRED.

HEIGHT OF BOXES

PRIOR TO ROUGH-IN, VERIFY ALL BOX/DEVICE MOUNTING HEIGHTS AND LOCATIONS IN FIELD WITH OWNERS REPRESENTATIVE. IN GENERAL, WHERE NOT LOCATED AT COUNTER AREAS, THE HEIGHT OF BOXES FROM FINISHED FLOOR TO CENTER OF BOXES SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON PLANS:

SWITCHES: 48"
DEVICES AT SPECIAL HEIGHTS: AS DIRECTED IN FIELD.
RECEPTACLES: 18" (UNLESS COUNTER HEIGHT)
TELEPHONE OUTLETS (DESK PHONE): 18"
TELEPHONE OUTLETS (WALL PHONE): 48"
DATA CABLE OUTLETS: 18"
CONTROL STATIONS: 48"

WIRING DEVICES

UNLESS SPECIFICALLY INDICATED OTHERWISE, OR DIRECTED OTHERWISE IN FIELD, PROVIDE WHITE COLOR FOR NORMAL UTILITY WIRING DEVICES.

PROVIDE WALL SWITCHES, THAT ARE FLUSH SELF-GROUNDING WITH GREEN GROUND SCREW AND COLOR CODED COVER, SNAP TOGGLE TYPE, BACK AND SIDE WIRED, SPECIFICATION GRADE. PROVIDE WALL SWITCHES RATED 20A, 120/277 VOLTS, 1 HP AT 120V, A.C. QUIET TYPE. SINGLE POLE SWITCHES SHALL BE EQUAL TO LEVITON #1221-2 SERIES. DOUBLE-POLE SWITCHES SHALL BE EQUAL TO LEVITON #1222-2 SERIES.

PROVIDE DUPLEX AND SINGLE SPECIFICATION GRADE RECEPTACLES, 2-POLE, 3-WIRE GROUNDING, SELF-GROUNDING, GREEN GROUNDING SCREW, GROUND TERMINALS AND POLES INTERNALLY CONNECTED TO MOUNTING YOKE, COLOR CODED BASE, 20-AMPERES, 125-VOLTS, WITH METAL PLASTER EARS, BACK & SIDE WIRING, NEMA CONFIGURATION 5-20R. PROVIDE DUPLEX RECEPTACLES EQUAL TO LEVITON #5362 SERIES. FOR RECEPTACLE CIRCUITS PROTECTED WITH 15A BREAKERS, PROVIDE NEMA 5-15R EQUIVALENTS.

PROVIDE SELF-GROUNDING COMMERCIAL SPECIFICATION GRADE, DUPLEX RECEPTACLES, GROUND-FAULT CIRCUIT INTERRUPTERS; FEED-THRU TYPE, CAPABLE OF PROTECTING CONNECTED DOWNSTREAM RECEPTACLES ON SINGLE CIRCUIT, GROUNDING TYPE UL-RATED 943, CLASS A, GROUP 1, SPECIFICATION GRADE, 20-AMPERES RATING (DEVICE & FEED-THRU), 125-VOLTS, 60 HZ; WITH SOLID-STATE GROUND-FAULT SENSING AND SIGNALING (MAXIMUM THRESHOLD OF 5MA AT 0.025 SECONDS MAXIMUM); EQUIP WITH 20-AMPERE PLUG CONFIGURATION, NEMA 5-20R. PROVIDE GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLES EQUAL TO LEVITON #8898 SERIES.

SPECIAL PURPOSE RECEPTACLES SHALL BE OF THE SIZE, TYPE AND MANUFACTURER AS INDICATED ON THE PLANS OR AS DETERMINED IN FIELD. REFER TO GROUNDING SECTION FOR SPECIAL RECEPTACLE GROUNDING REQUIREMENTS.

ALL DEVICE WALLPLATES SHALL BE STANDARD SIZE; 'MIDWAY', 'OVERSIZED' ('JUMBO') OR 'EXTRA DEEP' WALLPLATES SHALL NOT BE ACCEPTABLE. CONSTRUCT WITH METAL SCREWS FOR SECURING PLATES TO DEVICES; SCREW HEADS COLORED TO MATCH FINISH OF PLATES. WALLPLATES IN FINISHED AREAS SHALL BE COMMERCIAL SPECIFICATION GRADE, THERMOPLASTIC TO MATCH DEVICE COLOR.

SUPPORTS, INSERTS, CUTTING AND PATCHING

THIS CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR THE ADMISSION OF HIS WORK. ANY DAMAGE DONE BY THIS CONTRACTOR TO THE BUILDING DURING THE PROGRESS OF HIS WORK SHALL BE MADE GOOD AT HIS OWN EXPENSE. ALL PATCHING SHALL BE DONE BY A SKILLED CRAFTSMAN IN THAT RESPECTIVE TRADE. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO SUPERVISE THE INSTALLATION OF, AND PAY FOR ALL ADDITIONAL MEMBERS, WOOD OR METAL AND LABOR WHICH MAY BE REQUIRED TO SUPPORT ANY TYPE OF PERMANENT OR TEMPORARY ELECTRICAL APPARATUS EMPLOYED IN THE EXECUTION OF THIS CONTRACTORS WORK.

SEAL ALL NEW FLOOR, CEILING, WALL, SLAB, ETC. PENETRATIONS TO MATCH OR EXCEED EXISTING ASSEMBLY FIRE RATINGS. PROVIDE SLEEVE SEALS FOR ALL SLEEVES, PROVIDE SLEEVES FOR ALL PENETRATIONS. ALL PENETRATIONS OF FIRE-RATED OR SMOKE-RATED WALL, FLOORS CEILINGS, ETC. SHALL BE SEALED IMMEDIATELY AFTER RACEWAYS ARE INSTALLED. ALL NEW ELECTRICALLY RELATED WORK SHALL BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURAL MEMBERS. NEW ELECTRICALLY RELATED WORK SHALL NOT BE SUPPORTED FROM DUCTWORK, DUCTWORK HANGER, CEILING SUPPORTS, EXISTING CONDUIT SUPPORT, ETC.. ALL CONDUITS (AND CABLE ASSEMBLIES, WHERE APPLICABLE) SHALL BE ROUTED PARALLEL TO BUILDING STRUCTURAL MEMBERS. ANY AND ALL NONCOMPLYING WORK INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE REMOVED AND REINSTALLED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND THE ENGINEER, AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.

LUMINAIRES

ALL RECESSED LUMINAIRES SHALL BE EQUIPPED WITH NECESSARY PLASTER FRAMES AND SURFACE TRIM. ALL RECESSED FLUORESCENT LUMINAIRES SHALL BE EQUIPPED AND SUITABLY CONSTRUCTED TO OPERATE WITH 'P' RATED BALLASTS. ALL JUNCTION BOXES AND SERVICEABLE COMPONENTS (BALLASTS, THERMAL PROTECTION DEVICES, FUSES, ETC.,) FOR RECESSED LUMINAIRES SHALL BE READILY ACCESSIBLE FOR SERVICE OR REPLACEMENT FROM BELOW THE CEILING, WITHOUT REMOVING ANY CEILING COMPONENTS (OTHER THAN TILES).

PROVIDE LOW ENERGY SOLID STATE RAPID START OR PROGRAMMED RAPID START (SEE PLANS) ELECTRONIC FLUORESCENT LAMP BALLASTS SPECIFICALLY DESIGNED FOR OPERATING LAMP TYPES INDICATED. FLUORESCENT BALLASTS SHALL BE MOTOROLA OR ADVANCE EQUAL (LESS THAN OR EQUAL TO 20% THD). ALL LUMINAIRES MAY CONTAIN EITHER SINGLE BALLASTS OR MULTIPLE BALLASTS AS REQUIRED TO FULFILL REQUIRED FUNCTION AND AS REQUIRED TO COMPLY WITH CONSTRUCTION SCHEDULE.

FLUORESCENT LAMP COLOR TEMPERATURE SHALL BE AS INDICATED ON DRAWINGS OR AS DIRECTED IN FIELD.

PROVIDE LUMINAIRES AND/OR LUMINAIRE OUTLET BOXES WITH HANGERS TO PROPERLY SUPPORT LUMINAIRE WEIGHT. ALL LUMINAIRES INSTALLED IN OR ON SUSPENDED CEILING SYSTEMS SHALL BE ANCHORED DIRECTLY TO THE BUILDING STRUCTURAL SYSTEM ABOVE (ANCHORED PER NEC). SUCH ANCHORING SHALL BE INDEPENDENT OF THE CEILING SUPPORT SYSTEM. ALL LUMINAIRES SHALL BE INSTALLED PLUMB AND LEVEL. SUPPORT SURFACE MOUNTED LUMINAIRES GREATER THAN 2 FEET IN LENGTH AT A POINT IN ADDITION TO THE OUTLET BOX LUMINAIRE STUD.

MECHANICAL EQUIPMENT

PROVIDE ALL CONDUIT AND OUTLET BOXES AS REQUIRED FOR ALL CONTROL WIRING AND THERMOSTATS. FURNISH AND INSTALL POWER WIRING AND MAKE LINE CONNECTIONS TO ALL HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY DISCONNECTS TO OPERATE THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEM AS DESCRIBED ON DRAWINGS OF ALL OTHER TRADES. THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONTROL AND INTERLOCK WIRING AS SPECIFICALLY INDICATED ON THE DRAWINGS. ALL OTHER CONTROL WIRING REQUIRED FOR OPERATION OF THE SYSTEMS SHALL BE PROVIDED BY THE HEATING CONTRACTOR.

ELECTRICAL CONTRACTOR SHALL EXAMINE THE APPROVED DRAWINGS OF ALL BRANCHES AND SHALL WIRE AND CONNECT ALL MOTORS, DISCONNECTS, CONTROL DEVICES AND OTHER ITEMS REQUIRING ELECTRICITY FOR OPERATION. THIS CONTRACTOR SHALL MAKE THE NECESSARY ELECTRICAL CONNECTIONS BETWEEN THE SPECIFIED EQUIPMENT AND THE JUNCTION BOX NEAR EQUIPMENT WITH FLEXIBLE METALLIC CONDUIT AND MATCHED CONNECTORS. NO FLEXIBLE CONDUIT SHALL BE EXPOSED IN FINISHED ROOMS.

PANELBOARDS

SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PANELBOARD PRODUCTS OF ONE OF THE FOLLOWING (FOR EACH TYPE AND RATING OF PANELBOARD AND ENCLOSURE):

1. SQUARE D COMPANY.
2. GENERAL ELECTRIC COMPANY.
3. SIEMENS/ITE.
4. EATON.

EXCEPT AS OTHERWISE INDICATED, PROVIDE PANELBOARDS, ENCLOSURES AND ANCILLARY COMPONENTS, OF TYPES, SIZES, AND RATINGS INDICATED, WHICH COMPLY WITH MANUFACTURER'S STANDARD MATERIALS; WITH THE DESIGN AND CONSTRUCTION IN ACCORDANCE WITH PUBLISHED PRODUCT INFORMATION.

PROVIDE PANELBOARDS WITH PROPER NUMBER OF UNIT PANELBOARD DEVICES AS REQUIRED FOR COMPLETE INSTALLATION. WHERE TYPES, SIZES, OR RATINGS ARE NOT INDICATED, COMPLY WITH NEC, UL AND ESTABLISHED INDUSTRY STANDARDS FOR THOSE APPLICATIONS INDICATED.

PROVIDE PANELBOARDS THAT ARE NEW AND MANUFACTURER'S LATEST STANDARD CATALOG DESIGN.

PROVIDE PANELBOARDS THAT BEAR UL LABELS FOR THEIR SPECIFIC APPLICATIONS.

PROVIDE PANELBOARDS SUITABLE FOR SERVICE VOLTAGE WITH NUMBER OF BRANCH CIRCUITS OF CAPACITY SCHEDULED.

PROVIDE PANELBOARDS, AND SECTIONS THEREOF IF APPLICABLE, WITH MAIN-LUGS-ONLY OF CAPACITY EQUAL TO, OR GREATER THAN, THE RATING OR SETTING OF THE OVERCURRENT PROTECTIVE DEVICE NEXT BACK ON THE LINE.

PROVIDE PANELBOARD BRANCHES AS SCHEDULED ON THE DRAWINGS.

PROVIDE CIRCUIT BREAKER PANELBOARD BUS ASSEMBLIES WITH DISTRIBUTED (SEQUENCE) TYPE BUSSING THROUGHOUT, SO THAT ANY TWO ADJACENT SINGLE-POLE BREAKERS, OR SPACES, ARE REPLACEABLE BY A TWO-POLE INTERNAL COMMON TRIP BREAKER, AND SO THAT ANY THREE ADJACENT SINGLE-POLE BREAKERS, OR SPACES, ARE REPLACEABLE BY A THREE-POLE INTERNAL COMMON TRIP BREAKER. THIS APPLIES FOR BRANCH BREAKERS SIZED 15 AMP THROUGH 70 AMP INCLUSIVE, WITHOUT DISTURBING ANY OTHER BREAKER.

PROVIDE PANELBOARDS THAT ARE UL LISTED AND LABELED FOR USE AS SER