# Wayne State University

## Football Stadium Elevator 079-326353

WAYNE STATE UNIVERSITY FACILITIES PLANNING AND MANAGEMENT Detroit, MI 48202

SILVERI ARCHITECTS Ferndale, MI 48220

DESAI / NASR CONSULTING ENGINEERS West Bloomfield Township, MI 48322

PETER BASSO ACCOCIATES Troy, MI 48098

## BIDS 11-21-19

SILVERI ARCHITECTS

ND	EX	08/22/19	DD 09/12/19	95% REVIEW
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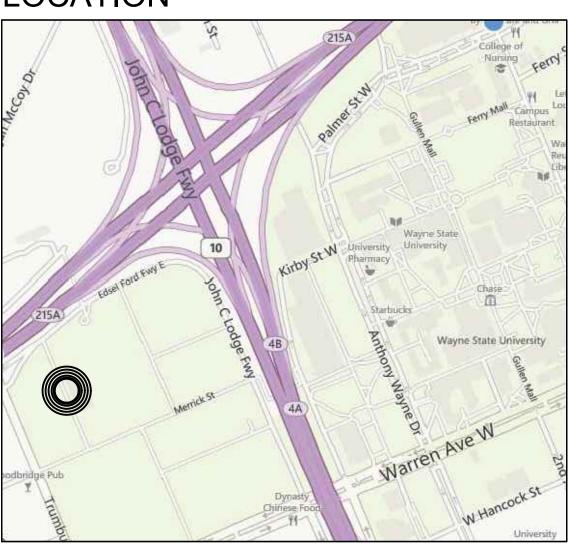
### PROJECT SUMMARY

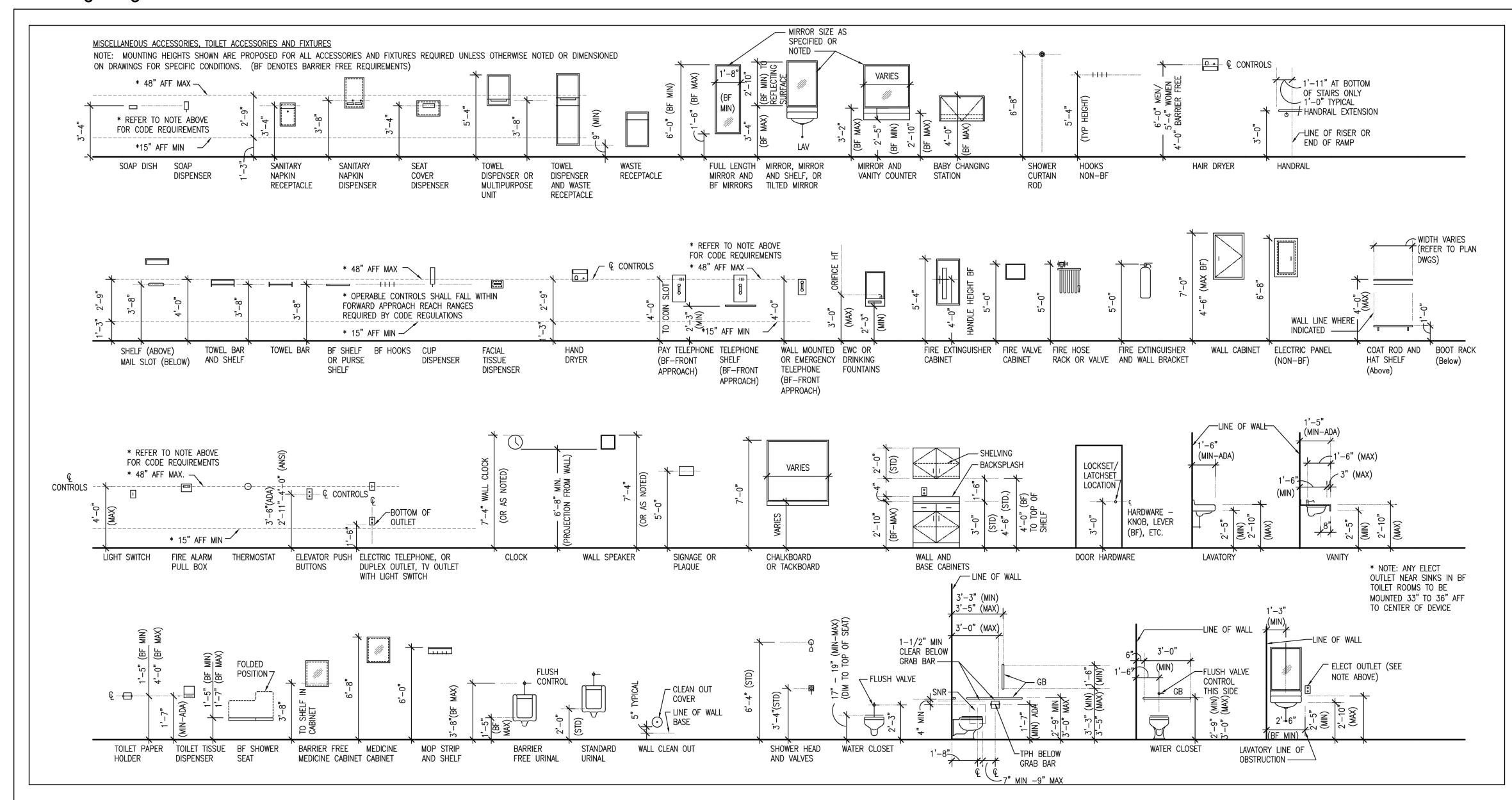
THE FOOTBALL STADIUM ELEVATOR PROJECT IS AN ELEVATOR AND BRIDGE ADDITION PROVIDING ACCESS TO THE ADAMS FIELD STADIUM PRESSBOX FROM THE STADIUM AUXILIARY BUILDING BELOW. THE 3,500 LB TRACTION ELEVATOR IS AN OCCUPANT EVACUATION TYPE ELEVATOR PROVIDING BARRIER FREE ACCESS TO THE PRESSBOX AND ACCESSIBLE EGRESS FROM THE PRESSBOX BACK TO GRADE

WORK INCLUDES A 69' TALL REINFORCED CMU HOISTWAY TOWER AND A STEEL FRAMED, METAL SIDED, 28' LONG ENCLOSED BRIDGE CONTAINING AN ELEVATOR LOBBY AND AREA OF REFUGE. WORK ALSO INCLUDES AN ELEVATOR LOBBY WITH MECHANICAL AND ELECTRICAL SUPPORT SPACES IN THE STADIUM AUXILIARY BUILDING AND ALTERATIONS TO THE PRESSBOX INTERIOR TO ACCOMMODATE THE NEW ACCESSIBLE ENTRANCE. THE EXISTING TOP CONCRETE STADIA IS EXTENDED IN AREAS NORTH AND SOUTH OF THE BRIDGE TO PROVIDE STADIA ACCESS TO THE BRIDGE.

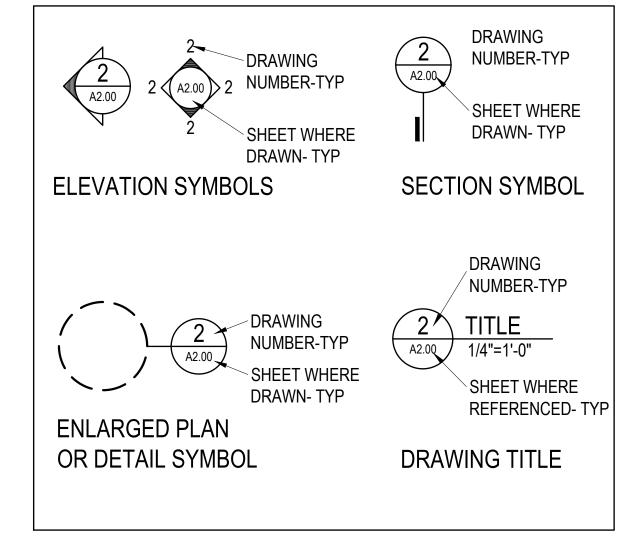
MECHANICAL AND ELECTRICAL WORK INCUDES MODIFICATIONS TO THE AUXILIARY BUILDING AND PRESSBOX MEP SYSTEMS IN AREAS IMPACTED BY THE NEW WORK, EMERGENCY GENERATOR, HOISTWAY VENTILATION, ELECTRIC HEAT AT THE BRIDGE LEVEL AND A FIRE ALARM SYSTEM THAT INCLUDES HAZARD AREAS OF THE AUXILIARY BUILDING.

### LOCATION





## Symbols



### GENERAL NOTES

ALL WORK INCLUDED UNDER THIS CONTRACT SHALL BE IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL CODES, STANDARDS AND REGULATIONS. THE GENERAL CONTRACTOR SHALL THROUGH CATEGORY ASSIGNMENT ARRANGE FOR ALL INSPECTIONS AND PAY FOR ALL PERMITS, FEES, AND INSURANCE REQUIRED.

GENERAL CONTRACTOR AS WELL AS SUB-CONTRACTOR SHALL BE FAMILIAR WITH AND COMPLY WITH ALL PROCEDURES SET FORTH BY FEDERAL, STATE, AND LOCAL GOVERNING AGENCIES IN THE CONSTRUCTION OF THIS PROJECT. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO FURNISH ALL AFFIDAVITS, CERTIFICATES, AND REPORTS AS MAY BE REQUIRED BY ANY AND ALL AGENCIES UPON REQUEST.

THE GENERAL CONTRACTOR, THROUGH CATEGORY ASSIGNMENT, SHALL BE RESPONSIBLE FOR BARRICADES/ENCLOSURES TO ASSURE PUBLIC, CONTRACTOR EMPLOYEE AND WORKER PROTECTION AT AREAS OF CONSTRUCTION.

THE GENERAL CONTRACTOR, THROUGH CATEGORY ASSIGNMENT, SHALL BE RESPONSIBLE FOR JOBSITE SAFETY.

#### **DEMOLITION WORK**

GENERAL CONTRACTOR IS RESPONSIBLE TO INSPECT THE SITE AND PROVIDE FOR THE REMOVAL AND/OR RELOCATION OF ALL ITEMS NOT INDICATED ON THE DRAWINGS THAT WOULD INTERFERE WITH THE INTENT AND COMPLETION OF THE PROJECT.

#### WOOD/METAL BLOCKING REQUIREMENTS

PROVIDE 16 GA. 10" STEEL PLATES ATTACHED TO FACE OF STUDS FOR THE FOLLOWING ITEMS UNLESS OTHERWISE NOTED.

SHELVING WALL STANDARDS WALL AND BASE CABINETS TACK BOARDS AND MARKER BOARDS COAT HOOKS

COUNTERS / COUNTER SUPPORT WALL MOUNTED ITEMS AS INDICATED IN DRAWINGS

#### REFLECTED CEILING PLAN

COORDINATE WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATION, MOUNTING CONDITIONS, QUANTITIES AND TYPE OF ALL LIGHTS, GRILLES, DIFFUSERS, EXIT SIGNS, SPEAKERS, AND ALL MISCELLANEOUS ITEMS. (NOTE: FOR LOCATION OF ALL MECHANICAL AND ELECTRICAL ITEMS LOCATED IN THE CEILING AND IN CEILING DROPS, REFER TO THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. ALL ITEMS ARE NOT SHOWN ON THE ARCHITECTURAL DRAWINGS. LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY AND BEFORE PROCEEDING WITH THE WORK.)

### MECHANICAL AND ELECTRICAL OPENINGS

SIZE AND LOCATION OF ALL FLOOR OPENINGS, ROOF OPENINGS AND WALL OPENINGS REQUIRED TO ACCOMMODATE DUCT PENETRATIONS, EQUIPMENT, ACCESS PANELS, ETC., TO BE COORDINATED WITH ALL RELATED TRADES.

### FIRE RESISTIVE ASSEMBLIES

THE PROJECT SHALL CONFORM TO UNDERWRITERS LABORATORY FIRE RESISTANCE DIRECTORY AND BUILDING MATERIALS DIRECTORY.

ANY MATERIAL SUBSTITUTIONS TO A LISTED U.L. DESIGN NUMBER SHALL BE COORDINATED BY THE GENERAL CONTRACTOR AND SUB-CONTRACTOR FOR MATERIAL COMPLIANCE. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL APPROVALS OR ANY MATERIAL SUBSTITUTIONS TO THE REQUIRED U.L. DESIGN NUMBERS LISTED. APPROVALS SHALL BE GRANTED FROM THE FIRE MARSHAL AND BUILDING INSPECTOR HAVING LOCAL JURISDICTION PRIOR TO ACCEPTANCE.

CHANGE IN THE U.L. DESIGN NUMBERS LISTED DUE TO MATERIAL SUBSTITUTIONS WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. GC TO COORDINATE ALL OTHER RELATED MATERIALS AFFECTED BY THE U.L. NUMBERS CHANGE.

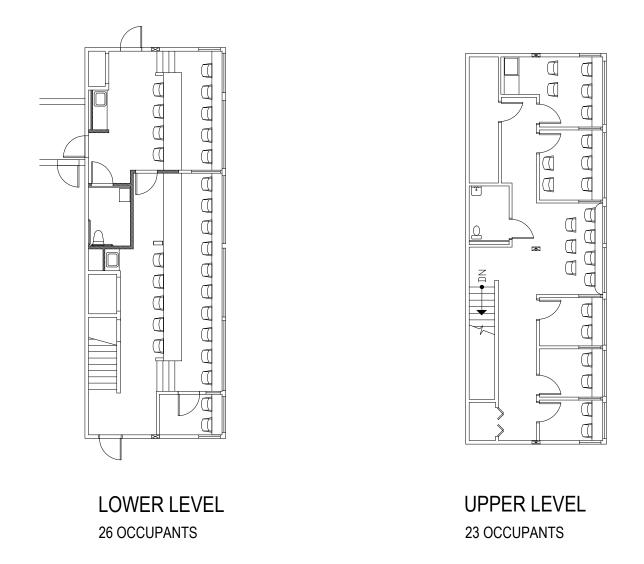
GENERAL CONTRACTOR THROUGH CATEGORY ASSIGNMENT TO SUBMIT CERTIFICATIONS AND ALL FINAL U.L. DESIGN NUMBERS USED FOR EACH REQUIRED ASSEMBLY.

## Applicable Codes

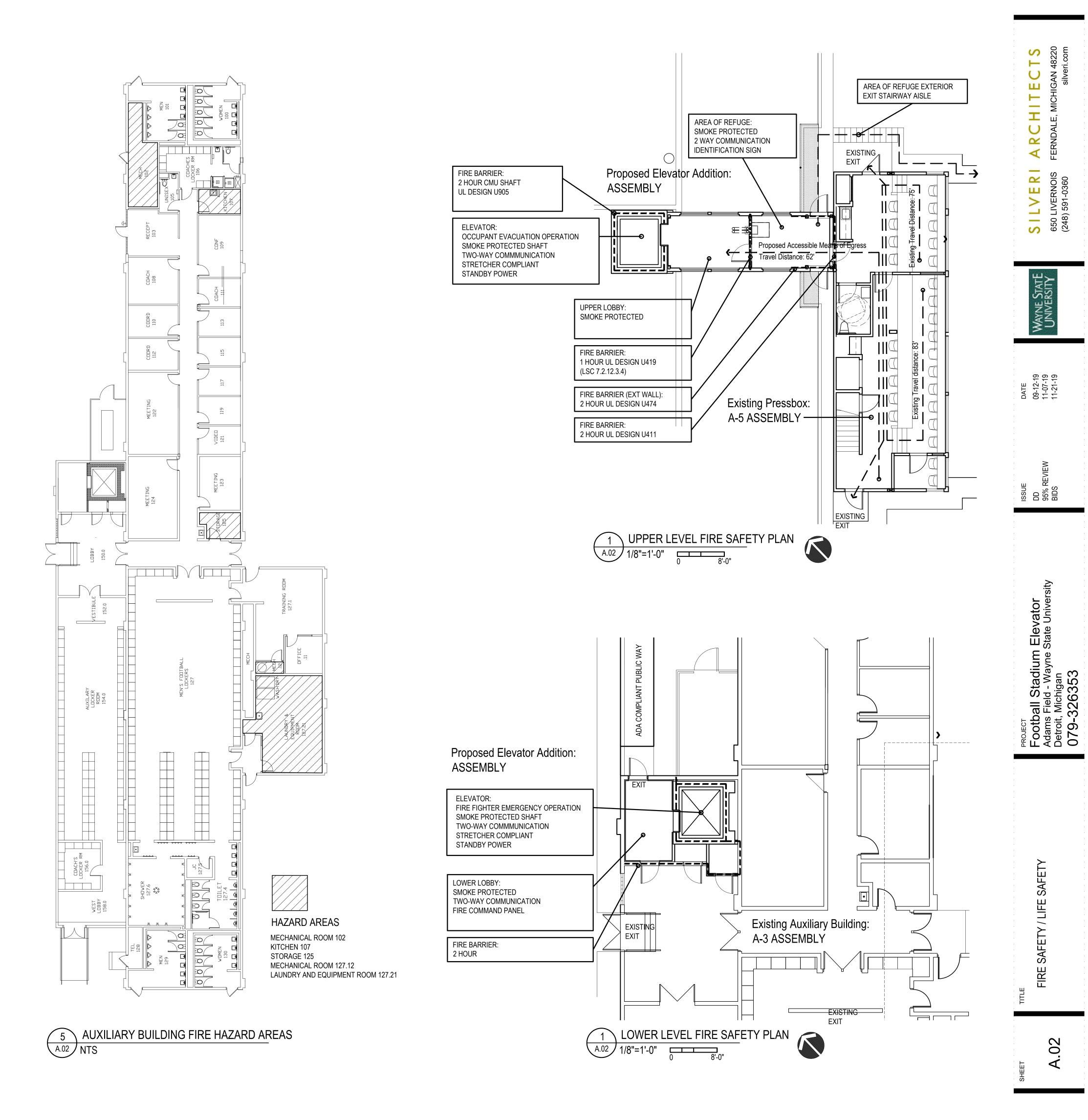
Michigan Building Code 2015
NFPA Life Safety Code 2018
Michigan Elevator Rules 2010
City of Detoit Code of Ordinances, Elevator Code, September 2019

	ELEVATOR, LOBBIES AND BRIDGE (PROPOSED)	PRESSBOX (EXISTING)
USE GROUP:	A-5, NEW ASSEMBLY OCCUPANCY	A-3, EXISTING ASSEMBLY OCCUPANCY
TYPE OF CONSTRUCTION:	TYPE IIB	V
OCCUPANCY:	NA	SEE DIAGRAMS THIS SHEET
NUMBER OF EXITS:	1 NEW EXIT FOR ACCESSIBLE EGRESS	2
ACCESSIBLE MEANS OF EGRESS TRAVEL DISTANCE:	NA	62' FROM ACCESSIBLE AREAS
NO. OF ACCESSIBLE MEANS OF EGRESS:	1 (LSC 7.5.4.1)	1 (LSC 7.5.4.1)
FIRE SEPARATION:	2 HOUR FIRE BARRIER AT UPPER AND LOWER LEVEL	2 HOUR AT FIRE BARRIER AT BRIDGE
AUTOMATIC SPRINKLER SYSTEM:	NONE	NONE
AREA OF REFUGE:	PROVIDED AT UPPER LOBBY (LSC 7.2.12)	PROVIDED AT UPPER LOBBY (LSC 7.2.12)
	TWO WAY COMMUNICATION PROVIDED (LSC 7.2.12.1.1 (1))	
ELEVATOR:	ACCESSIBLE MEANS OF EGRESS (MBC 2015 1009.4)	NA
	EMERGENCY OPERATION (MEC 2015 R408.7001- 8695)	
	STANDBY POWER (LSC 7.2.12.2.4 (3))	
	SMOKEPROOF ENCLOSURE SHAFT (LSC 7.2.12.2.4 (3))	

REFER TO SHEET A.04 FOR CODE RELATED INSPECTION ITEMS







## Ceiling System

CODE	BASIS OF DESIGN	CEILING TILE	SUSPENSION SYSTEM	FIRE RATING	COLOR	NOTES
ACT-1	ARMSTRONG	1755 DUNE 24 X 24 BEVELED TEGULAR	SILHOUETTE, 9/16"	CLASS A	WHITE	
ACT-2	ARMSTRONG	1851 DUNE 24 X 48 SQUARE LAY-IN	VERIFY EXISTING COMPATIBLITY	CLASS A	WHITE	FOR USE IN EXISTING GRID- VIF

### Wall Base

CODE	BASIS OF DESIGN	MODEL	TYPE	COLOR	NOTES
RB-1	ARMSTRONG	4"	RUBBER	TBD	MATCH EXISTING LOBBY 000- VIF
RB-2	ARMSTRONG	4"	RUBBER	TBD	

### Paint Color Codes

CODE	BASIS OF DESIGN	COLOR / FINISH	NOTES
CC-01	SHERWIN WILLIAMS	TBD / LOW-SHEEN	GYPSUM BOARD WALLS-
			MATCH EXISTING AUXILIARY BUILDING LOBBY 000 WALL COLOR (OFF WHITE)
CC-02	SHERWIN WILLIAMS	TBD / SEMIGLOSS	INTERIOR DOORS / FRAMES- MATCH EXISTING AUXILIARY BUILDING DOOR / FRAME COLOR (GRAY)
CC-03	SHERWIN WILLIAMS	TBD / SEMIGLOSS	EXPOSED INTERIOR CEILING CONSTRUCTION
			MATCH EXISTING AUXILIARY BUILDING LOBBY 000 WALL COLOR (OFF WHITE)
CC-04	SHERWIN WILLIAMS	TBD / GLOSS	BRIDGE EXTERIOR DOOR / FRAME DOORS D21, D21.1, EXPOSED STEEL CONSTRUCTION AT BRIDGE
			AND STADIA EXTENSION UNDERSIDE / LOWER FASCIA- MATCH EXISITNG STADIA STEEL FRAMING
CC-05	SHERWIN WILLIAMS	SW WSU STATE GOLD	STADIA EXTENSION STEEL UPPER FASCIA
		GLOSS	
CC-06	SHERWIN WILLIAMS	SW WSU STATE GREEN	CMU ELEVATOR HOISTWAY TOWER, OSHA GUARD RAIL, AUX. BLDG DOOR AND FRAME,
		GLOSS	HOISTWAY DOOR AND FRAME, CHAIN LINK POST AND RAILS
	= = = = = =		VE ADDROVAL FOR ALL TRE COLOR MATCHES PRIOR TO EVECUTING MORK

PROVIDE DRAW DOWN SAMPLE FOR OWNER REPRESENTATIVE APPROVAL FOR ALL TBD COLOR MATCHES PRIOR TO EXECUTING WORK

## Fire Extinguisher Cabinet

CODE	BASIS OF DESIGN	MODEL	TYPE	COLOR	NOTES
FEC-1	AMBASSADOR	1013	SURFACE MOUNT	WHITE	INCLUDE EXTINGUISHER MEETING WSU STANDARDS

## Flooring

CODE	BASIS OF DESIGN	MODEL	TYPE	COLOR	NOTES
CT-1	CROSSVILLE	COLOR BLOX18X18	PORCELAIN CERAMIC TILE	TBD	PROVIDE SAMPLE BOARD OF FULL COLOR RANGE FOR OWNER SELECTION
RF-1	ARMSTRONG EXCELON	12 X12 TILE IMPERIAL TEXTURE	COMMERCIAL VCT TILE	TBD	PRESSBOX LOWER LEVEL
RF-2	ARMSTRONG	R910-017 UNIPLUS 910	RUBBER FLOORING SHEET	017	ELEVATOR CAR FLOOR- ONE CENTRAL SEAM LENGTHWISE

### Toilet and Custodial Accessories

CODE	MFR./SOURCE	MODEL	COLOR / FINISH	NOTES
TA-1	SOAP DISPENSER	DIAL PROFESSIONAL CMK06055	SMOKE	1 LITER FOAMING HAND SOAP DISPENSER
TA-2	TOILET TISSUE DISPENSER	SAN JAMAR R4090TBK TWIN 9" JBT ORLEANS 3.25" CORE	BLACK PEARL	
TA-3	MIRROR	BOBRICK B-1556 1836 FRAMELESS SURFACE MTD	NA	ADA COMPLIANT MOUNTING HEIGHT
TA-4	GRAB BAR GROUP	BOBRICK B-5806 X 36, BOBRICK B-5806 X 42	SATIN STAINLESS	ADA COMPLIANT MOUNTING
TA-5	ROLL TOWEL DISPENSER	SAN JAMAR T850TBK LEVEL ROLL TOWEL DISPENSER	BLACK PEARL	

### Door Schedule

Windows

W03

W05

CODE BASIS OF DESIGN

MARVIN

MARVIN

Room Finishes

ELEVATOR LOBBY I

**ELEVATOR LOBBY II** 

AREA OF REFUGE

HOSPITALITY AREA I

HOSPITALITY AREA II

TOILET ROOM

SUMP PUMP

012 ELEV ELEC CLOSET

NO. ROOM NAME

DESCRIPTION

MAWN CRK

MAWN CRK

MAWN CRK

MAWN CRK

MAWN CRK

MAWN CRK

CS

CS

TCS

TCS

RF-1

RF-1

RF-1

FIBERGLASS AWNING CRANK OUT

RB-1

RB-1

/ RB-1

/ RB-1

RB-2

RB-2

RB-2

MTL TRIM

MTL TRIM | ECP

CODE	ROOM	SIZE	TYPE	FIRE RATING	MATERIAL	THRESHOLD	HARDWARE	FINISH	DETAIL	NOTES
D00	EXIT	36" X 84" X 1 3/4"	В	NONE	HM DOOR HM FRAME	ALUMINUM ADA COMPLIANT	1.0	PAINT	3 - 4 / A.41	1
D10	ELEVATOR LOBBY I	36" X 84" X 1 3/4"	С	90 MINUTE	HM DOOR / GLASS HM FRAME	ALUMINUM ADA COMPLIANT	3.0	PAINT	PER MFR	1, 4
D11	SUMP PUMP	36" X 84" X 1 3/4"	A	90 MINUTE	HM DOOR HM FRAME	ALUMINUM REDUCER STRIP	6.0	PAINT	3 - 4 / A.41	
D12	ELEV ELEC CLOSET	36" X 84" X 1 3/4"	В	90 MINUTE	HM DOOR HM FRAME	ALUMINUM REDUCER STRIP	6.0	PAINT	1 - 2 / A.41	
D13	ELEV SHAFT	36" X 84" X 1 3/4"	В	90 MINUTE	HM DOOR HM FRAME		2.0	PAINT	3 - 4 / A.41 SIMILAR	3
D20	ELEVATOR LOBBY II	36" X 84" X 1 3/4"	С	20 MINUTE	HM DOOR / GLASS HM FRAME		3.0	PAINT	PER MFR	1, 4
D21	STADIA ACCESS I	36" X 84" X 1 3/4"	А	90 MINUTE	HM DOOR HM FRAME	ALUMINUM	7.0	PAINT	7 - 8 / A.41	
D21.1	STADIA ACCESS II	36" X 84" X 1 3/4"	А	90 MINUTE	HM DOOR HM FRAME	ALUMINUM	7.0	PAINT	7 - 8 / A.41	
D22	BRIDGE	36" X 84" X 1 3/4"	А	90 MINUTE	HM DOOR HM FRAME	ALUMINUM ADA COMPLIANT	4.0	PAINT	9 - 10 / A.41	1
D23	TOILET ROOM	36" X 84" X 1 3/4"	А	NONE	HM DOOR HM FRAME		9.0	PAINT	1 - 2 / A.41	1, 2
D24	HOSPITALITY AREAS	36" X 84" X 1 3/4"	А	NONE	HM DOOR HM FRAME		8.0	PAINT	1 - 2 / A.41	1, 2

COLOR

COLOR

COLOR

COLOR

COLOR

COLOR

COLOR

TBD STANDARD

TBD STANDARD

TBD STANDARD

TBD STANDARD

TBD STANDARD

TBD STANDARD

EAST WALL

GBP

GBP

GBP

SEE NOTE 5,

SHEET A.11

SEE NOTE 5,

SHEET A.11

SIZE

60" W X 30" H

CMUP

CMUP

MPP

GBP

SEE NOTE 5, SHEET A.11

SEE NOTE 5,

SHEET A.11

CEILING NORTH WALL

ECP

ECP

GBP

ACT-2

ACT-2

ACT-2

NOTES

1, 2, 3, 4

1, 2, 3, 4

1, 2, 3, 4

1, 2, 3, 4

1, 2, 3, 4

1, 2, 3, 4

WEST WALL

GBP

GBP

GBP

GBP

SEE NOTE 5,

SHEET A.11

SEE NOTE 5,

SHEET A.11

DETAIL

5/ A.41

5/ A.41

5/ A.41

5/ A.41

5/ A.41

5/ A.41

SOUTH WALL

CMUP

GBP

MPP

MPP

GBP

SEE NOTE 5,

SHEET A.11

SEE NOTE 5,

SHEET A.11

#### NOTES

1. ADA COMPLIANT.

2. MATCH EXISTING PRESSBOX INTERIOR DOOR AND FRAME PAINT COLOR.

3. SEE ROOF PLAN FOR LOCATION.

4. FIRE RESISTIVE GLAZING IN FIRE RATED DOOR AND FRAME.

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1. COLOR PER OWNER REPRESENTATIVE SELECTION

FROM MANUFACTURER'S FULL RANGE OF STANDARD

2. WINDOW OPERATING HARDWARE AND LOCKING

DEVICES SHALL BE PER OWNER REPRESENTATIVE

SELECTION FROM MANUFACTURER'S FULL RANGE OF

4. DUAL PANE, LOW E1, AIR FILLED, CLEAR GLAZING,

COLORS.

STANDARD OPTIONS.

1, 2

3, 4

3, 4

3. PROVIDE INSECT SCREEN.

SATING NICKEL FOLDING LEVER,

1. BRIDGE FLOOR SLAB: COMPLY WITH ACI 302.1R. PROVIDE STEEL TROWELED FINISH WITH CLEAR SEALER.

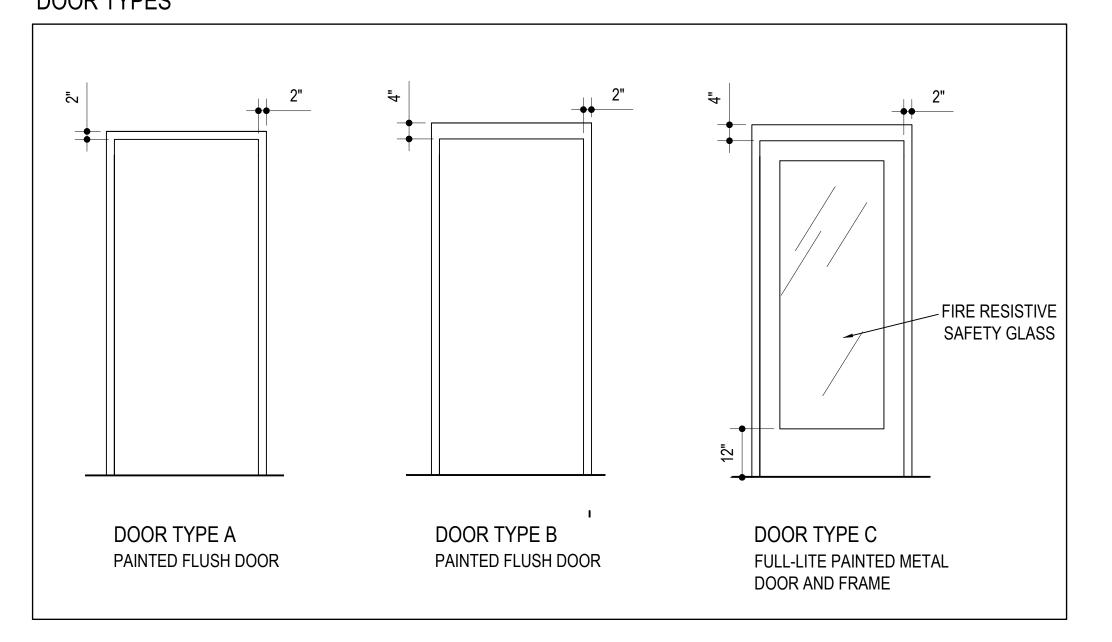
2. METAL PANEL RIBS HORIZONTAL AT INTERIOR WALLS.

3. MODIFY EXISTING LAY-IN CEILING GRID AT AREAS OF NEW WORK. REPLACE ALL CEILING TILES AT PRESSBOX LOWER LEVEL.

4. REMOVE AND REPLACE ALL EXISTING VCT FLOORING, STAIR COVERS AND RESILIENT BASE AT PRESSBOX LOWER LEVEL.

5. REMOVE EXISTING TILE FLOORING AND THIN SET.

### DOOR TYPES



### CODES:

GBP	GYP BD PAINTED
RB	RESILIENT BASE
ACT	ACOUSTICAL CEILING TILE
ECP	EXPOSED CONSTRUCTION PAINTED
CS	CONCRETE SEALED
RF	RESILIENT FLOORING
MPP	METAL PANEL PAINTED
CMUP	CMU PAINTED
TCS	TROWELLED CONCRETE SEALED

### Elevator Inspection Items

#### **City of Detroit Final Inspection Items** Inspection will not be scheduled without the below - bring complete Phone line in the machine room in EMT with a number and voltage to the line Hoistway ventilation unless you are sprinkling the hoistway or the car is 4 floors or over (Venting can be fixed open or powered open attached to smoke head in top of hoistway along with a thermostat that will open venting) Prevent entry of ground water All runs at or under 4' pit height need to be in approved material such as liquid tight. Lighting on a 3 way switch with top of hoistway lighting 4° vapor light usually satisfies lumen requirement GFCI outlet Non GFCI single outlet for sump Sump. Inspector will want to see sump work and where it discharges. Cover on sump with holes for draina Must be a break before drain. Cannot tie directly into storm or sanitary. Lid needs to withstand 200lbs TOP OF HOISTWAY If machine in top of hatch camera is needed GFCI for elevator mechanic Lighting for machine same as pit switch on three Fire extinguisher for ICS within 25' way from pit. The electrical run can be placed in hoistway. MACHINE ROOM (DOOR LABELED) With MRL - need light switch for hoistway Lighting with clear covers on bulbs or led shatterproof bulb . Climate controlled usually a mini split Smoke fan tied to smoke head and thermostat that exhausts to the outside of building Disconnect for car lights is 15 AMP light duty Disconnect for smokes unless building provides smokes GFCI outlet for elevator mechanic Fire extinguisher ABC rated Self-closing self-locking door 90 min rating must be labeled on door somewhere All penetrations sealed Phone line in machine room needs to be in EMT Additional outlet for camera and DVR LANDINGS REMOVABLE barricades at all floors Floors grouted to sills Netting provided by KONE at all landings Permanent Lighting No Storage within 6' of the opening to hoistway SMOKES Smoke relays need to be within 3' of controller not in hoistway 1 at each landing (1 signal from egress landing and 1 signal from all others) = 2 signals • 1 in the machine room (if the machine room is adjacent we need another signal) = maybe 1 signal If the elevator is an ICS (controller in the jamb) we will not need the machine room smoke or signal 1 in the top of the hoistway = 1 signal

and electrician as well as the mason.

Machine room & hoistway sealed to achieve fire rating

**Elevator General Notes** 

Sprinkler shutoff (labeled) if necessary and within 3 ft of controller

Phone line in the machine room or hoistway in EMT with a number and voltage to the line  VENTING  Hoistway ventilation unless you fill out State of Michigan ventilation letter stating that you will be able to meet the ventilation requirements and heating and cooling based on companies needs for equipment.  (Venting can be fixed open or powered open attached to smoke head in top of hoistway along with a thermostat that will open venting)  PIT  Prevent entry of ground water  All runs at or under 4' pit height need to be in approved material such as liquid tight.  Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements  Failure policy on Permit Final In the minimum requirements be violations are found at the time the minimum requirements be violations are found at t	UTOMATIC FAILURE
Phone line in the machine room or hoistway in EMT with a number and voltage to the line  VENTING  Hoistway ventilation unless you fill out State of Michigan ventilation letter stating that you will be able to meet the ventilation requirements and heating and cooling based on companies needs for equipment.  (Venting can be fixed open or powered open attached to smoke head in top of hoistway along with a thermostat that will open venting)  PIT  Prevent entry of ground water  All runs at or under 4' pit height need to be in approved material such as liquid tight.  Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements  the minimum requirements be violations are found at the time the Elevator Inspector will info device is considered an autom the appropriate denial and rein a device is considered to be an early of ground water and the inspection and leave the inspection or review taking plates.  Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements	on will implement an Automatic
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Prevent entry of ground water  All runs at or under 4' pit height need to be in approved material such as liquid tight.  Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements  end the inspection and leave to inspection or review taking plates the Contractor stating Automaterial such as liquid tight.  the Contractor stating Automaterial such as liquid tight.	
All runs at or under 4' pit height need to be in approved material such as liquid tight.  Inspection or review taking pla Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements the Contractor stating Automat	
<ul> <li>Lighting on a 3 way switch with top of hoistway lighting 4' vapor light usually satisfies lumen requirements</li> <li>the Contractor stating Automate</li> </ul>	Security of the first of the first of the security of the secu
■ GEC outlet	ntic Failure and the item(s) that
	es. After an automatic failure,
age.  Non GFCI single outlet for sump once the device is considered Sump cord cannot be longer than 6' (solution is to cut cord and put mini-disconnect in the pit) and is ready for a re-inspection	i complete by the Contractor on, the Elevator Inspector should
Sump. Inspector will want to see sump work and where it discharges. Cover on sump with holes for again be contacted to schedule drainage, must be break before drain. Cannot tie directly into storm or sanitary cover to withstand 200lbs.	le a new date and time. Please also be found by visiting
TOP OF HOISTWAY www.michigan.gov/bcc and cl	licking on the
Lighting for machine same as pit switch on three way from pit. The electrical run can be placed in hoistway.  GFCI for elevator mechanic  LIST OF AUTOMATIC FAILURE F	DEACONIC:
MACHINE ROUM (DOOR LABELED)	
Lighting with clear covers on builds or led shatterproof build	
Climate controlled usually a mini split (cannot tie into building system)  Disconnect for car lights is 15 AMP light duty  2. Weights not onsite (g	
4. FIRE SETVICE NOT COMPLETE	
5. Phone not complete and vol. 6. Machine room not complete	
Self-closing self-locking door 90 min rating must be labeled on door somewhere	GLG
8 Flevator tobby/s) not com	plete
9 Sump pump not operating	STRUCTURED CO.
LANDINGS  REMOVABLE barricades at all floors  Floors grouted to sills once entrances are up  system (if applicable)	r separator and alarm
System applicance	
Netting provided by KUNE at all landings installed by GU  No Storage within 6' of the opening to hoistway  Landings need to be finished	not valid and/or expired
SMOKES	
Smoke relays need to be within 3' of controller not in hoistway	
1 at each landing(1 signal from egress landing and 1 signal from all others) = 2 signals	
1 in the machine room (if the machine room is adjacent we need another signal) = maybe 1 signal	
<ul> <li>If the elevator is an ICS (controller in the jamb) we will not need the machine room smoke or signal</li> <li>1 in the top of the hoistway = 1 signal</li> </ul>	
Smokes at all floors giving signals to elevators	

#### iolations are found at the time of the scheduled inspection, he Elevator Inspector will inform the journeyperson that the levice is considered an automatic fail which will also result in he appropriate denial and reinspection fees being assessed. If device is considered to be an automatic failure a temporary car will not be authorized and the inspector will immediately end the inspection and leave the premises with no further nspection or review taking place. A violation will be sent to the Contractor stating Automatic Failure and the item(s) that esulted in those circumstances. After an automatic failure, once the device is considered complete by the Contractor and is ready for a re-inspection, the Elevator Inspector should gain be contacted to schedule a new date and time. Please note this announcement can also be found by visiting www.michigan.gov/bcc and clicking on the What's Happening button. LIST OF AUTOMATIC FAILURE REASONS: 1. Copy of the permit not onsite 2. Weights not onsite 3. Testing tools not onsite (gauges, etc.) 4. Fire Service not complete and working (if applicable) 5. Phone not complete and working (if applicable) 6. Machine room not complete Wet pit 8. Elevator lobby(s) not complete 9. Sump pump not operating properly and/or installation of non-accepted oil/water separator and alarm system (if applicable) 10. Journeyperson's licenses not valid and/or expired ■ Modernization note If the Building has phase 1 and adds phase 2 then a sump is necessary for a final or the building will need to exercise its right for a variance. If the building has phase 2 and does not have a sump We at Kone will need to talk to your smoke company, plumber, and electrician as well as the mason.

## **Elevator Basis of Design**

TRAVEL

**POWER** 

Generator

208V

Signals cannot be inside the hoistway

then a sump will not need to be added.

Machine room & hoistway sealed to achieve fire rating.

#### THE EMERGENCY TELEPHONE SHALL BE ONE-BUTTON, HANDS-FREE TYPE. WITH EMERGENCY OVERRIDE ON CALL-IN-PROGRESS TO UNIVERSITY PUBLIC SAFETY DEPARTMENT, AND VOICE/LOCATION IDENTIFICATION SIGNAL. TELEPHONE SHALL BE PROVIDED BY, AND TESTING ANDPROGRAMMING TO BE COMPLETED BY ELEVATOR VENDOR. 2. TRAVELING CABLES SHALL PROVIDE SPARE CONDUCTORS FOR POWER AND TELEPHONE USE. 3. ELEVATOR CAR SHALL BE PROVIDED WITH FIRE RESISTANT PROTECTIVE BLANKETS AND WALL MOUNTING HOOKS. 4. PROVIDE AN INFLEXIBLE PLATE ALUMINUM OR STEEL FLOOR TO PREVENT FLOOR DAMAGE WHEN HEAVY EQUIPMENT LOADS ARE APPLIED TO THE CAR FLOOR. VCT FINISH FLOOR BY OTHERS. 5. TWO COMPLETE SETS OF ELEVATOR SHOP DRAWINGS, FIELD WIRING DIAGRAMS, BLOCK OR CONTROL DIAGRAMS, SOFTWARE PROGRAMMING DOCUMENTATION, ETC. SHALL BE PROVIDED TO THE UNIVERSITY AT THE TIME OF ELEVATOR FINAL **APPROVAL** ELEVATOR CONTRACTOR SHALL INCLUDE AND PROVIDE, AT NO ADDITIONAL COST, CODE REQUIRED FULL SERVICE OPERATING AND PREVENTIVE MAINTENANCE FOR THE PERIOD OF THE NEW INSTALLATIONWARRANTY. 7. ELEVATOR CONTRACTOR SHALL INCLUDE A SCHEDULE OF HOURLY LABOR, SERVICE CALL, AND OTHER RELATED COSTS AT THE FOR REPAIRS NOT COVERED BY THE WARRANTY; WARRANTY LENGTH AS ESTABLISHED BY THE

Smokes at all floors giving signals to elevators (we will need to talk to your smoke company), plumber,

## Elevator Car Flooring (by GC)

UNIVERSITY.

1. PROVIDE RF-2 RUBBER FLOORING (REFER TO SCHEDULE) INSTALLED PER MANUFACTURER'S RECOMMENDATION OVER 3/8" APA TRADEMARKED POPLAR OR BIRCH PLYWOOD UNDERLAYMENT WITH EXTERIOR EXPOSURE DURABILITY, FULLY SANDED FACE AND EXTERIOR GLUE.

## Kone Elevator Car Design 42006

Kone Monospace 500 BASIS OF DESIGN KONE ELEVATOR CAR DESIGN 42008 CAPACITY / SPEED WALL PANEL ORIENTATION 3500 lb / 150 fpm CAR HEIGHT Alumasteel (L404) Metallic Laminate (Standard) Brushed Gold Aluminum (L405) Metallic Laminate **ENTRANCE HEIGHT** (Standard) 7 ft REVEAL STRIPS DOOR WIDTH Brushed Stainless Steel (4SS) FRONT WALL STRETCHER ACCOMODATION Brushed Stainless Steel (4SS) (Standard) CEILING OCCUPANT EVACUATION CL94 (4SS) Brushed Stainless Steel (Standard) Yes SIGNALIZATION FIRE FIGHTER EMERGENCY OPERATION KCS 570 (4SS) Brushed Stainless Steel (Standard) HOISTWAY INTERIOR 8'-9" X 6'-11" **HANDRAILS** 

Brushed Stainless Steel (4SS) (Standard) Flat, straight ends (HR63) Brushed Stainless Steel (4SS) DOOR CONFIGURATION Front / Reverse, Diagonal Opposed (Standard) 2 Stop, approx. 50' (refer to drawings) ACCESS CONTROL

Key upper level access control at car interior. Lock keyed per Owner requirements. Car always available for egress to lower level. ADDITIONAL POWER SUPPLY Automatic Standby Power with Emergency Building

REMOVE ROOF DECK AND FRAMING ABOVE-REFER TO STRUCTURAL

REMOVE SLAB

REMOVE MILLWORK

REMOVE PARTITIONS- REFER TO GENERAL NOTE 5 SHEET A.11

06) REMOVE CMU WALL

REMOVE DOORS

REMOVE EXTERIOR WALL AND FRAMING

REMOVE CEILING SYSTEM - ENTIRE PRESSBOX LOWER LEVEL

REMOVE FLOORING - ENTIRE PRESSBOX LOWER

REMOVE CURB AND RAIL- REFER TO 2 / A.42 AND 4 / A.42

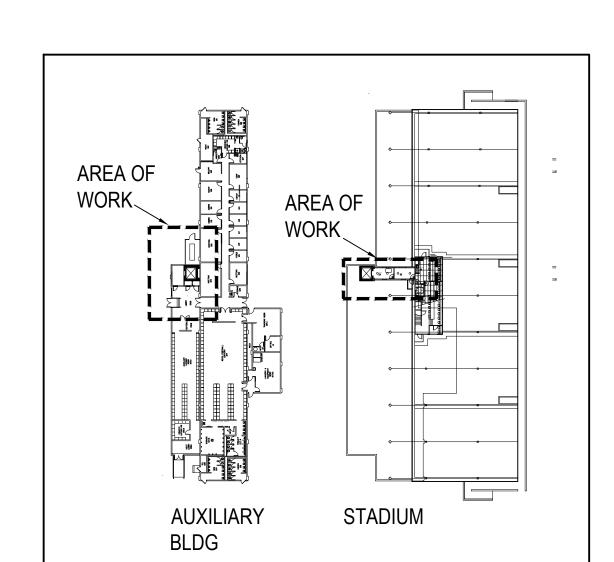
REMOVE PLUMBING - SEE MECHANICAL

REMOVE EXISTING CERAMIC TILE AND THINSET BELOW NEW PARTITION- PROTECT REMAINING

#### DEMOLITION GENERAL NOTES

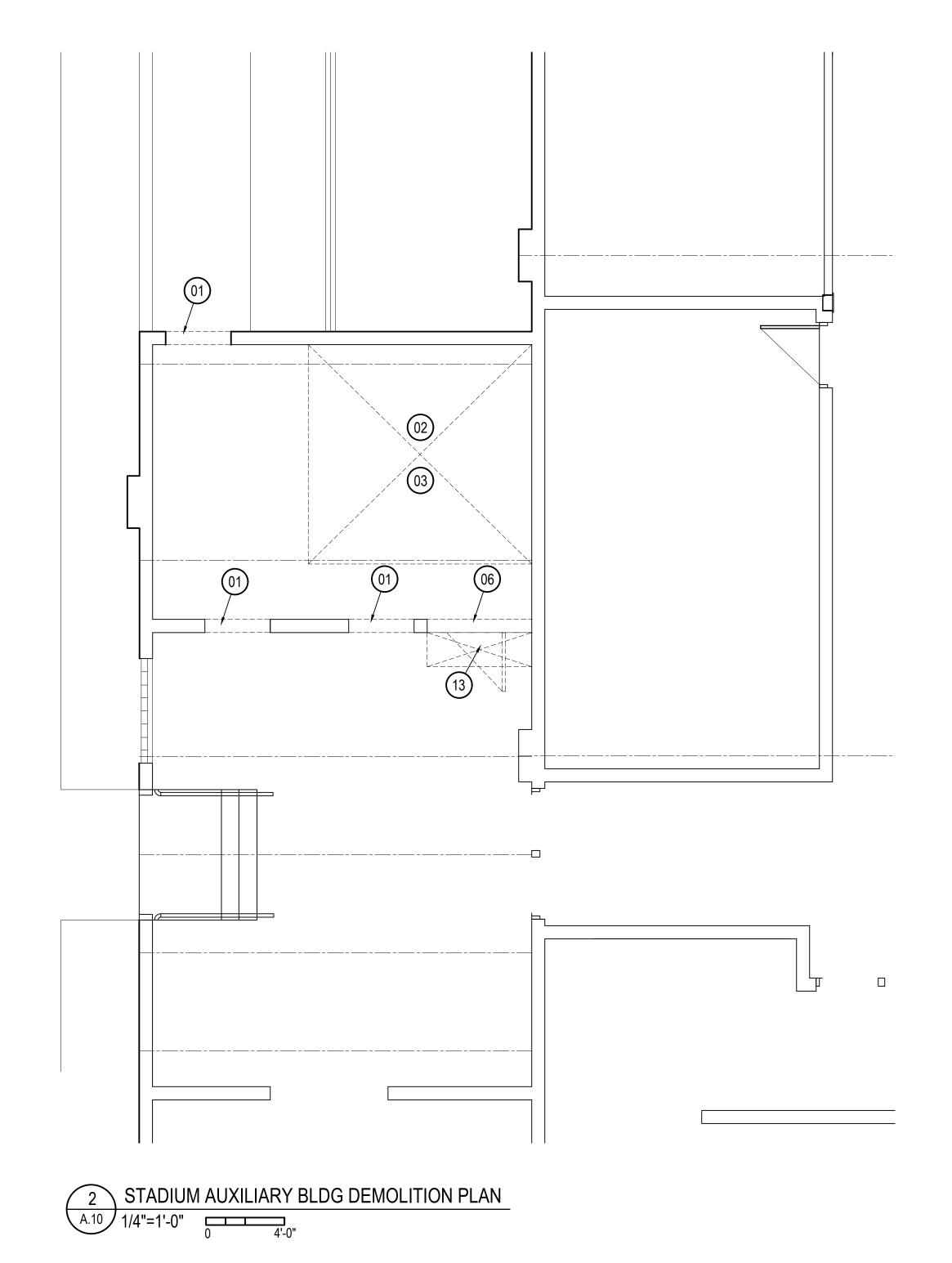
1. GENERAL CONTRACTOR IS RESPONSIBLE TO INSPECT THE SITE AND PROVIDE FOR THE REMVAL AND/OR RELOCATION OF ALL ITEMS NOT INDICATED IN THE DRAWINGS THAT WOULD INTERFERE WITH THE INTENT AND COMPLETION OF THE PROJECT.

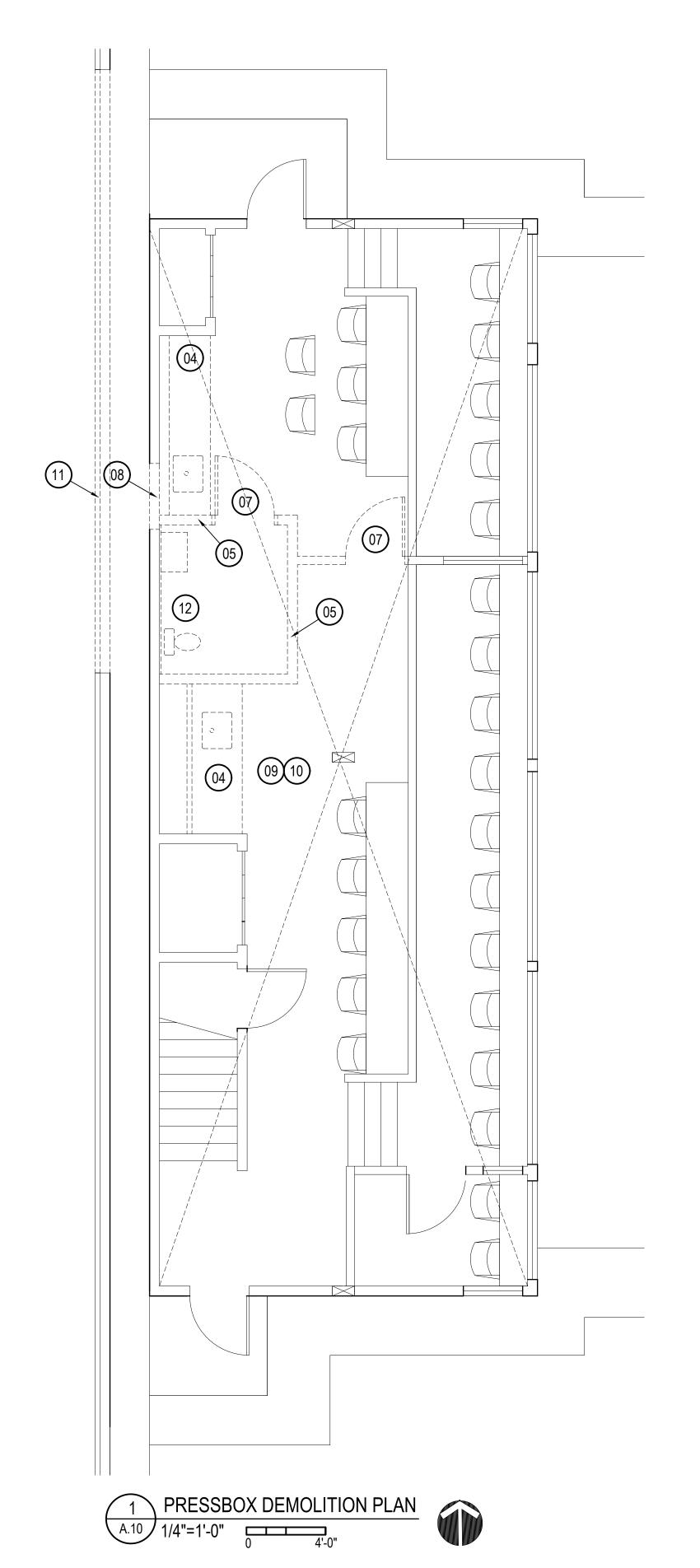
2. REFER TO STRUCTURAL DRAWINGS REGARDING NEW BEAM INSTALL PRIOR TO CUTTING EXISTING ROOF MEMBERS.











**DEMOLITION ITEMS EXISTING** CONSTRUCTION

DATE 09-12-19 11-07-19 11-21-19

1. VERIFY EXISTING FINISH FLOOR ELEVATIONS OF

OF STADIA, AND ADJUST WORK ACCORDINGLY.

ANY DISCREPANCY IMPACTING THE PROJECT.

3. PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF

4. ALL WOOD BLOCKING SHALL BE FIRETREATED

2. GC SHALL PROVIDE RESILIENT FLOORING AT

RATED WALL SYSTEMS.

STADIUM AUXILIARY BUILDING, PRESSBOX AND TOP

VERIFY POSITION OF ELEVATOR TOWER RELATIVE TO

PRESSBOX AND STADIA, AND NOTIFY ARCHITECT OF

ELEVATOR CAR FLOOR . REFER TO SCHEDULES A.03.

REMOVE EXISTING PRESS BOX INTERIOR PARTITIONS

TO NEAREST PANEL JOINT WHERE INDICATED FOR

PARTITIONS AND PROVIDE J BEAD AT INTERSECTION

DEMOLITION. PROTECT EXISTING VWC FINISH AT

REMAINING PARTITIONS. ALIGN NEW GYP BD

OF NEW FINISH WITH EXISTING FINISH.

PARTITIONS FOR PAINT FINISH WITH EXISTING

(D00) DOOR CODE-

CABINET

PARTITION OR

WINDOW CODE-REFER TO SHEET A.03

REFER TO SHEET A.03

FIRE EXTINGUISHER

FURRING TYPE- SEE

KEY THIS SHEET

(ACT-1) FINISH CODE- REFER

TO SHEET A.03

REINFORCED 12" CMU TOWER

CONCRETE WALK - SEE L.01

CRUSHED STONE - SEE L.01

SOUTH STADIA EXTENSION

NORTH STADIA EXTENSION

YELLOW SAFETY PAINT AT THRESHOLD

#### PARTITION OR FURRING TYPE

PARTITION TYPE- (2) LAYERS GYP BD EA. SIDE ON 3 5/8" METAL STUDS 16" OC

P3 PARTITION TYPE- 5/8" GYP BD ON 3 5/8" METAL STUDS UL DES U419 - REFER TO DWG SHEET A.41

REMOVE FLOORING AT LOBBY 000 AS NEEDED TO MAKE WAY FOR NEW WORK. PROTECT EXISTING FLOORING TO REMAIN. PROVIDE NEW WALL BASE TO MATCH EXISTING AT NORTH WALL.

7. PAINT ENTIRE NORTH WALL OF LOBBY 000 FROM INSIDE CORNER TO INSIDE CORNER TO MATCH EXISTING LOBBY WALL FINISH.

8. REPLACE ALL CEILING TILES AT PRESSBOX LOWER LEVEL. EXISTING SUSPENSION GRID TO REMAIN. MODIFY GRID AS NEEDED IN AREAS OF NEW WORK.

9. REPLACE ALL FLOORING AND WALL BASE AT PRESSBOX LOWER LEVEL. REMOVE EXISTING FLOORING, WALL BASE AND GLUE. INSTALL NEW FLOORING OVER TROWELABLE LEVELLING AND PATCHING COMPOUND.

10. REPLACE STAIR TREAD AND RISER FINISH MATERIAL AT PRESSBOX LOWER LEVEL. REMOVE EXISTING MATERIAL AND GLUE. INSTALL NEW RESILIENT STAIR TREAD AND STAIR RISER.

11. AT ALL FIRE BARRIERS: PROVIDE BLACK 3" HT STENCILLED WALL MARKING AT CENTER OF WALL ABOVE CEILING LINE "FIRE BARRIER - # HOUR"

WALL MARKING 12' FROM EACH END OF WALL 10'-6" AFF: "MASONRY FIRE BARRIER - 2 HOUR"

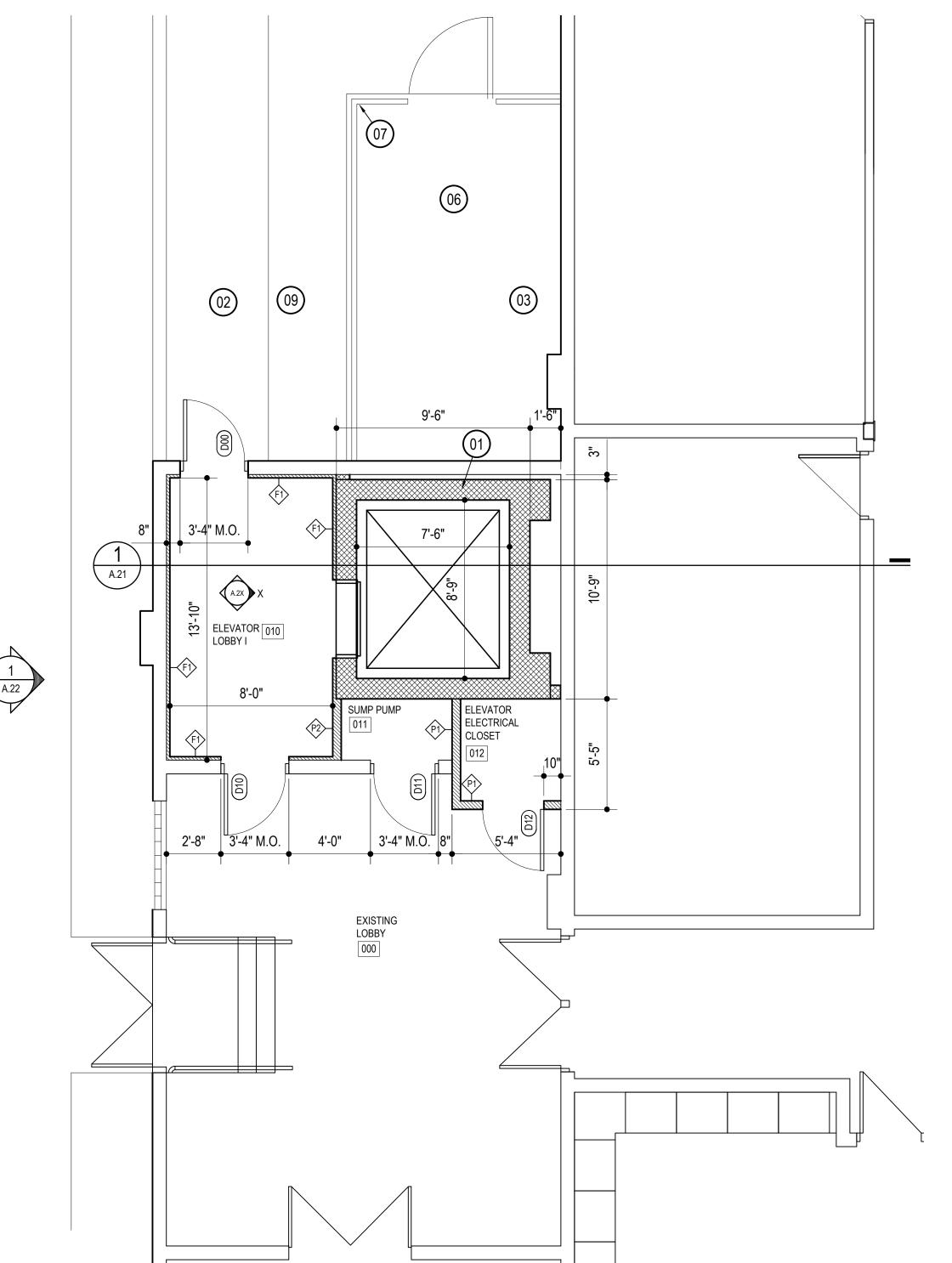
PROVIDE BLACK 3" HT STENCILLED

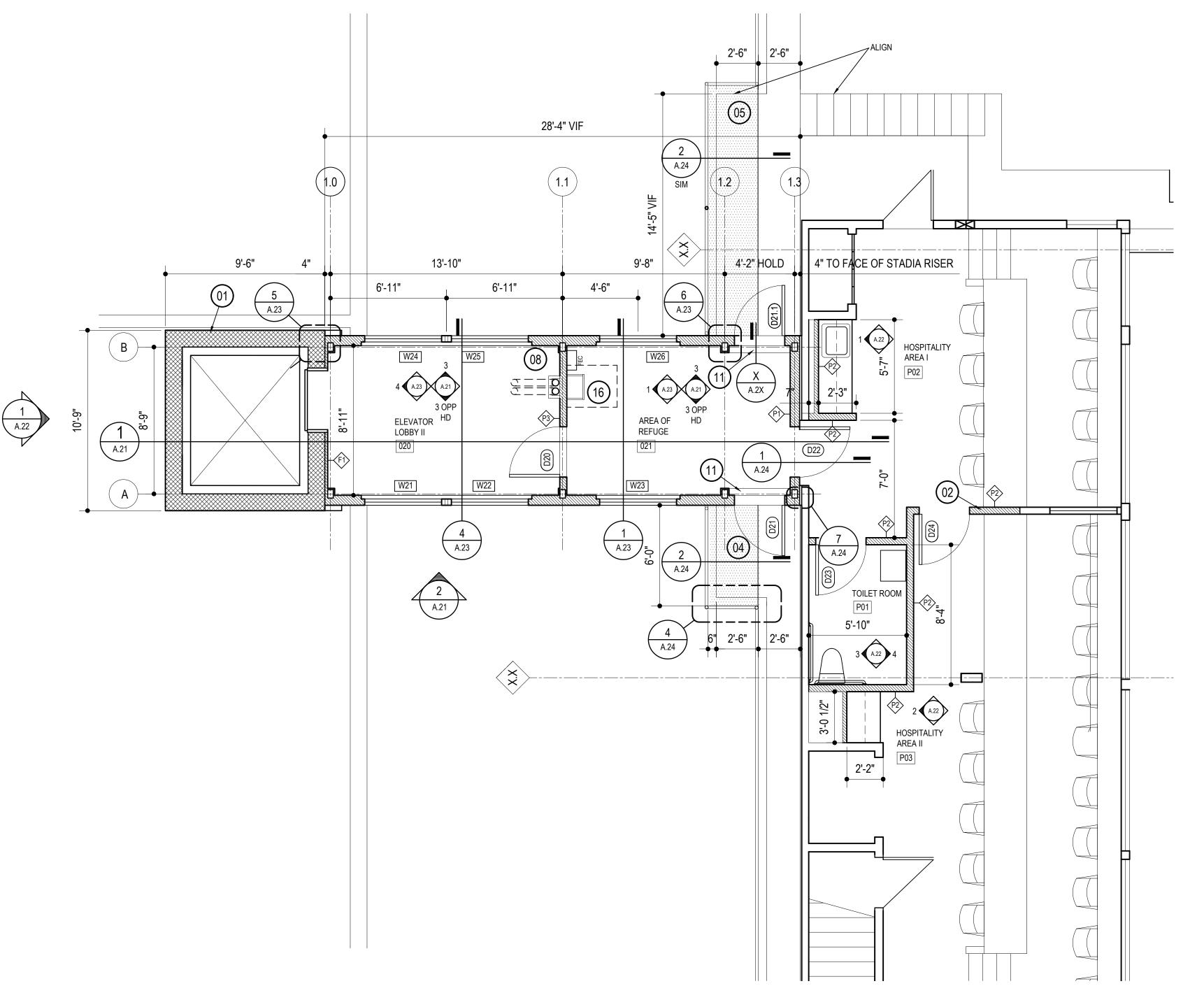


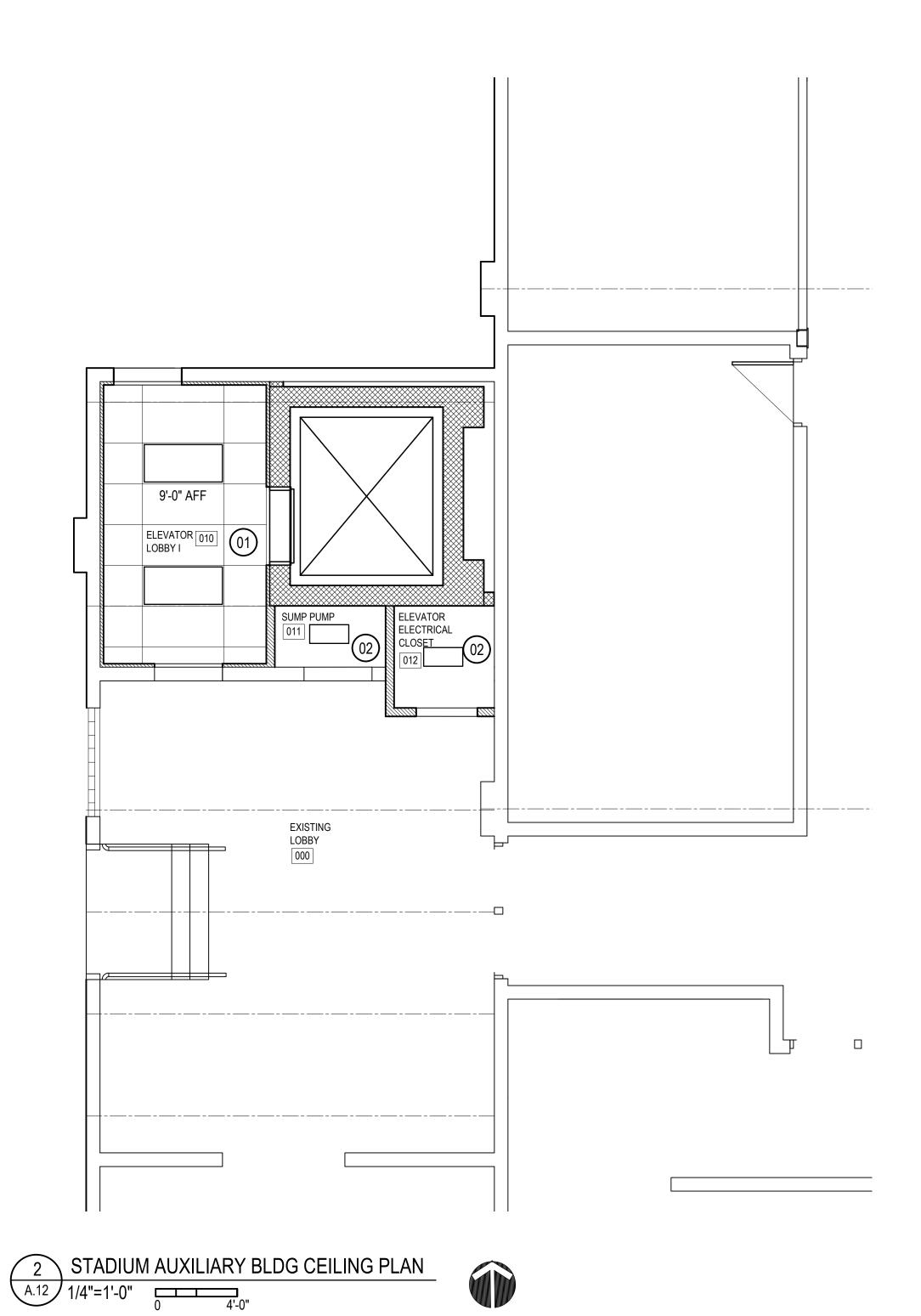
UL DES U411 - REFER TO DWG SHEET A.41

P2> PARTITION TYPE- 5/8" GYP BD ON 3 5/8" METAL STUDS REFER TO DWG SHEET A.41

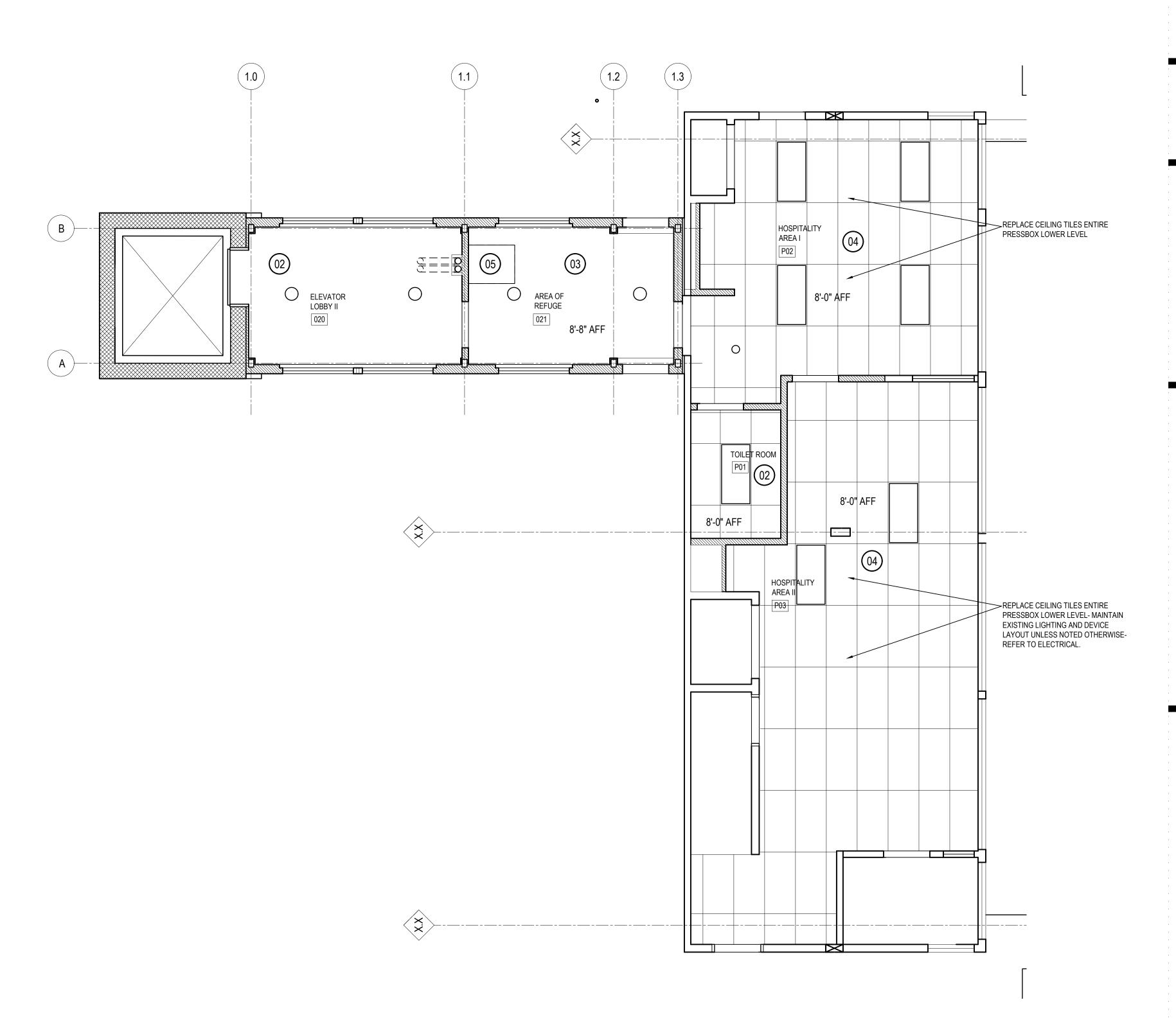
F1> FURRING TYPE- 5/8" GYP BD ON 1 1/2" METAL FURRING

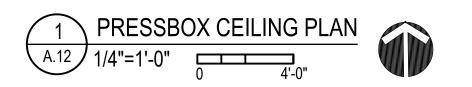






**GENERAL NOTES KEYNOTES** SYMBOLS KEY 01) LAY-IN CEILING AND SUSPENSION SYSTEM REPLACE ALL CEILING TILES AT PRESSBOX LOWER O RECESSED OR LAY-IN CEILING LEVEL. EXISTING SUSPENSION GRID TO REMAIN. SURFACE MOUNT SYSTEM 02 EXPOSED CONSTRUCTION PAINTED MODIFY GRID AS NEEDED IN AREAS OF NEW WORK.
REFER TO LIGHTING PLAN FOR FIXTURE TYPES. LIGHT FIXTURE- REFER TO LIGHTING PLAN 03 GYP BD PAINTED EXISTING CEILING SYSTEM- MODIFY GRID AS LAY-IN LIGHT FIXTURE-NEEDED AND REPLACE ALL CEILING TILES REFER TO LIGHTING 05 ROOF HATCH- SEE 3/A.24





ARCHITECTS
FERNDALE, MICHIGAN 4822
silveri.cor

**SILVERI** 650 LIVERNOIS (248) 591-0360





09-12-19 11-07-19 11-21-19

DD 95% REVIEW BIDS

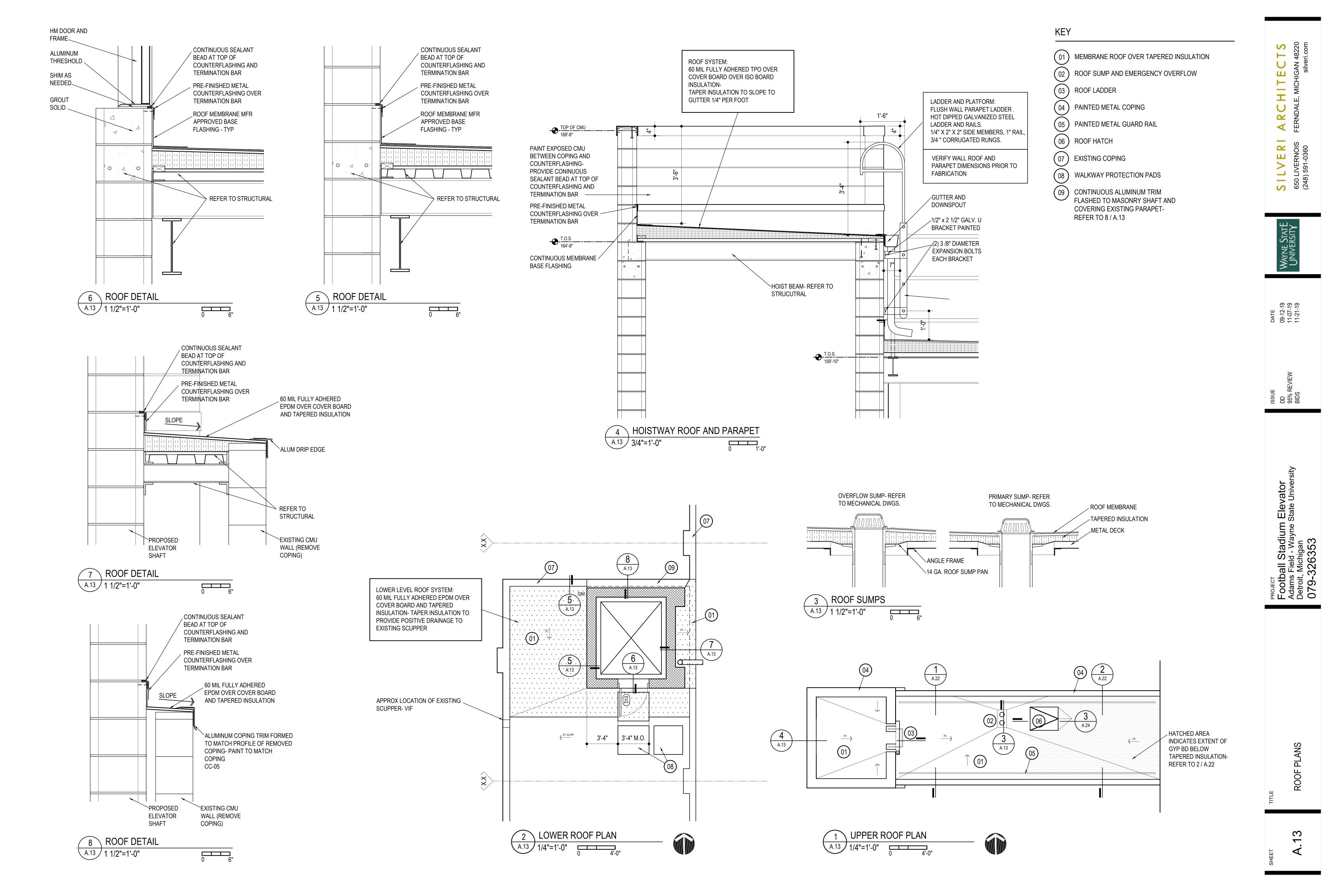
ECT

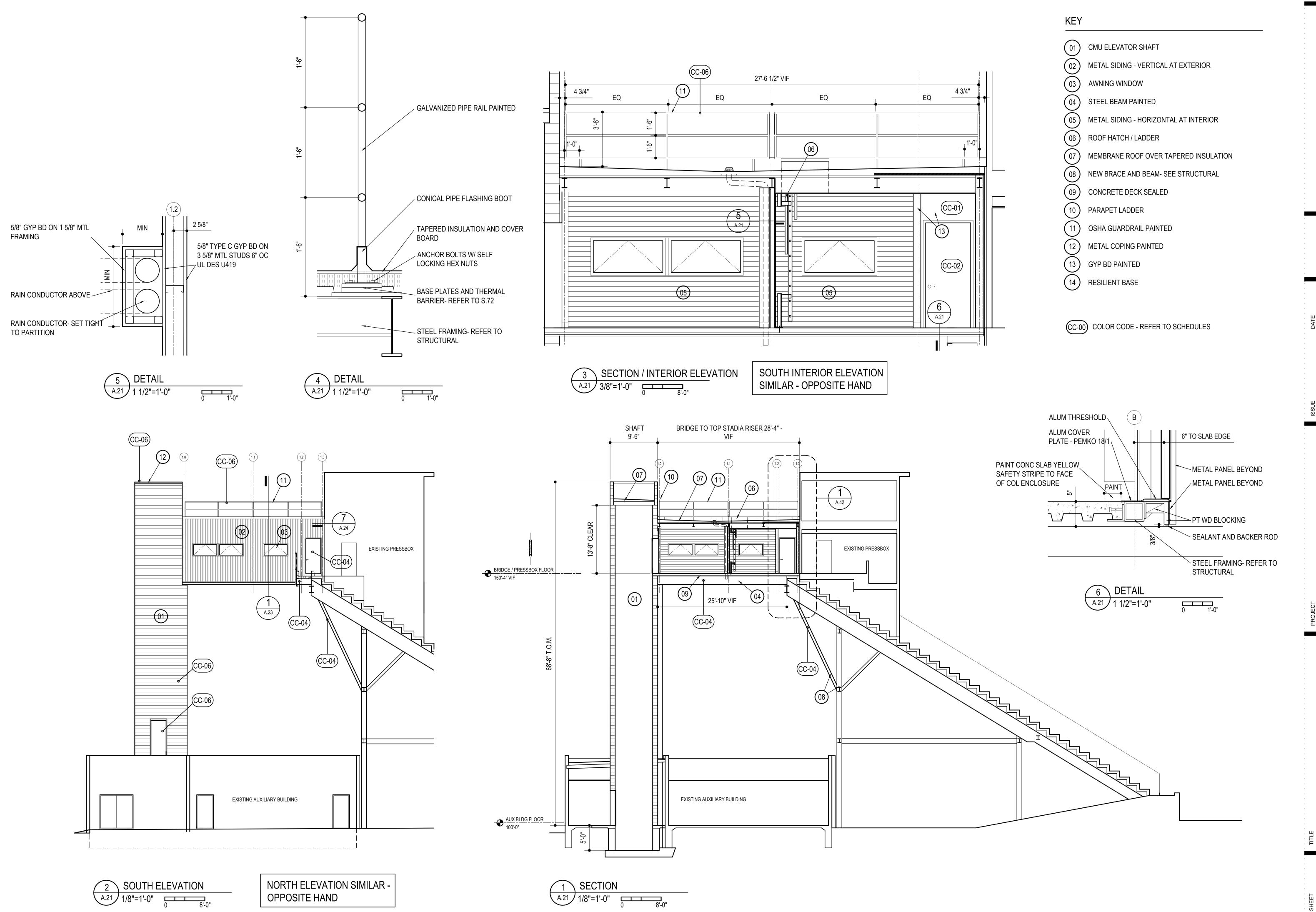
Stball Stadium Elevator
ms Field - Wayne State University
oit, Michigan

EFELECTED CEILING PLANS

4.12

4.7





KEY

01 CMU ELEVATOR SHAFT PAINTED

(03) CHAIN LINK GUARDRAIL AT STADIA EXTENSION

TA-00 TOILET ACCESSORY CODE - REFER TO SCHEDULES

CC-00 COLOR CODE - REFER TO SCHEDULES

02 METAL COPING PAINTED

**GENERATOR** 

(06) GYP BD PAINTED

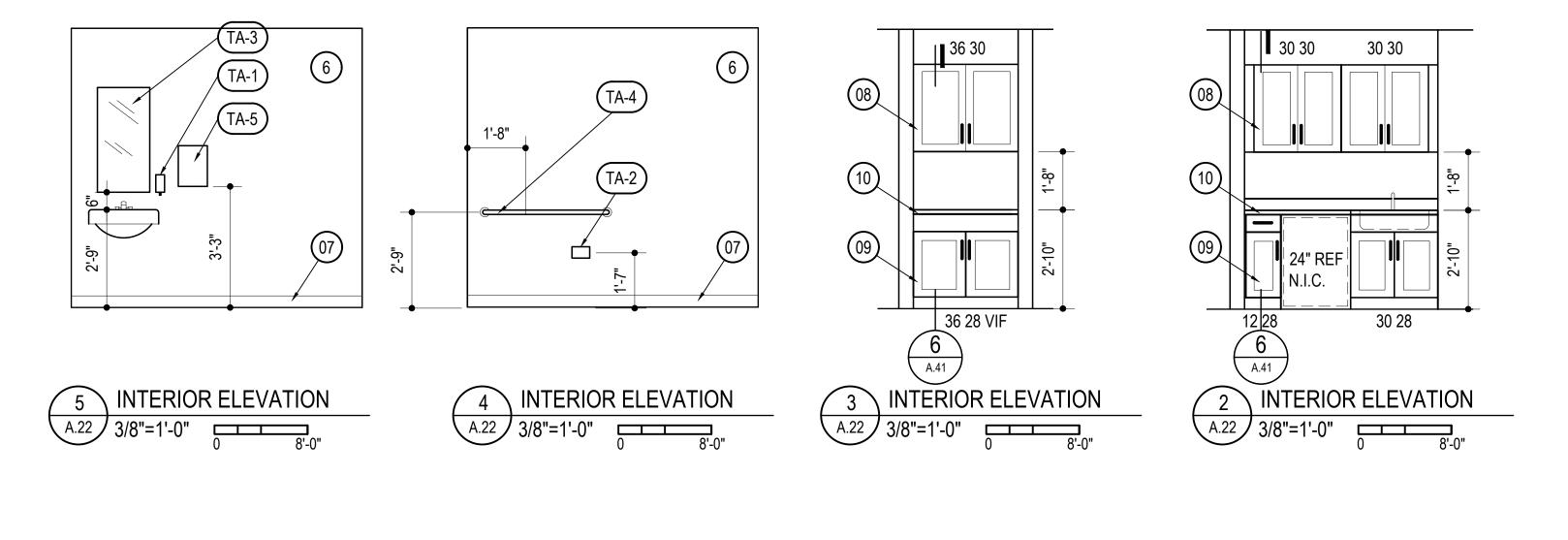
09 BASE CABINET

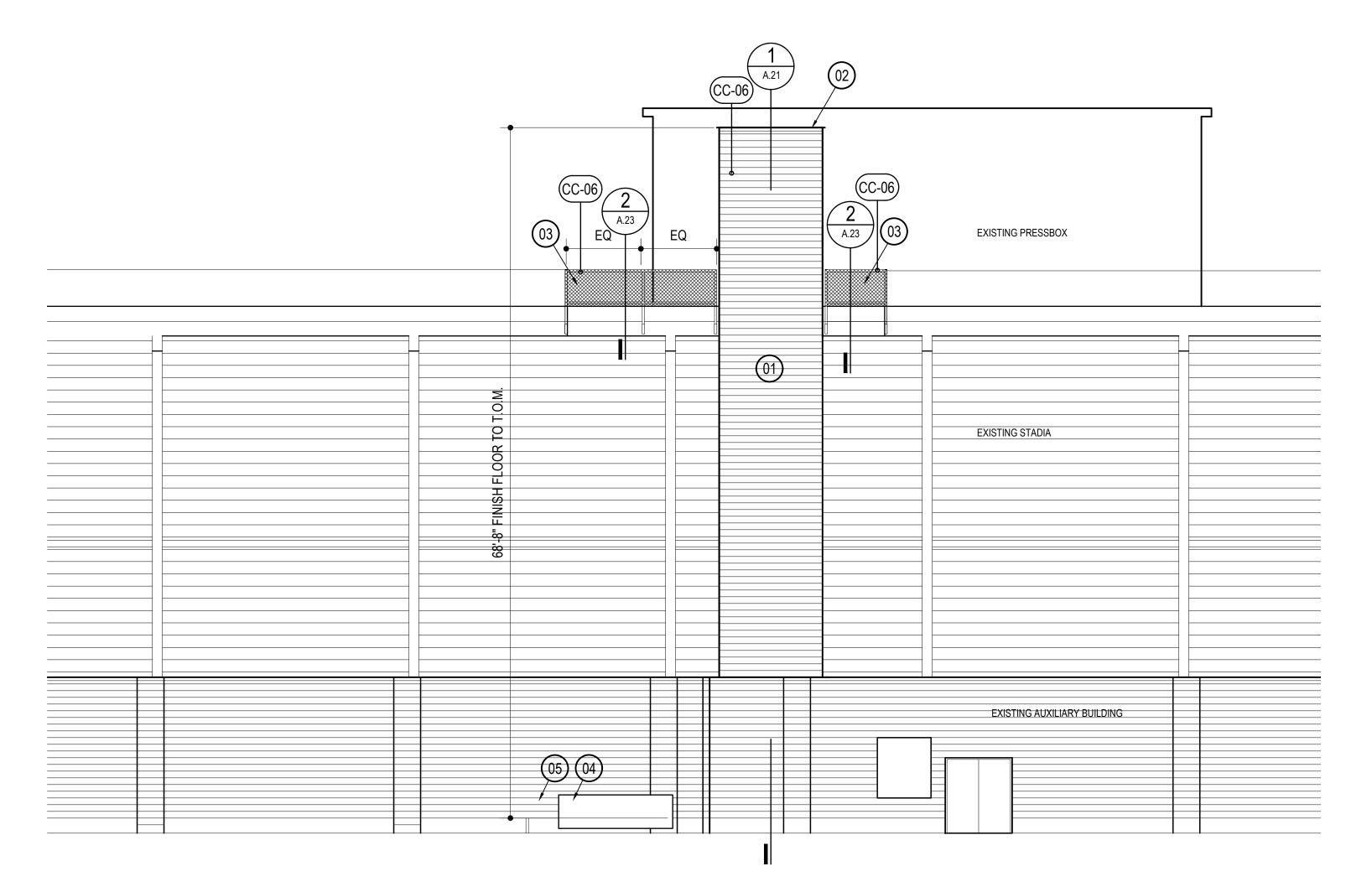
10 P LAM TOP

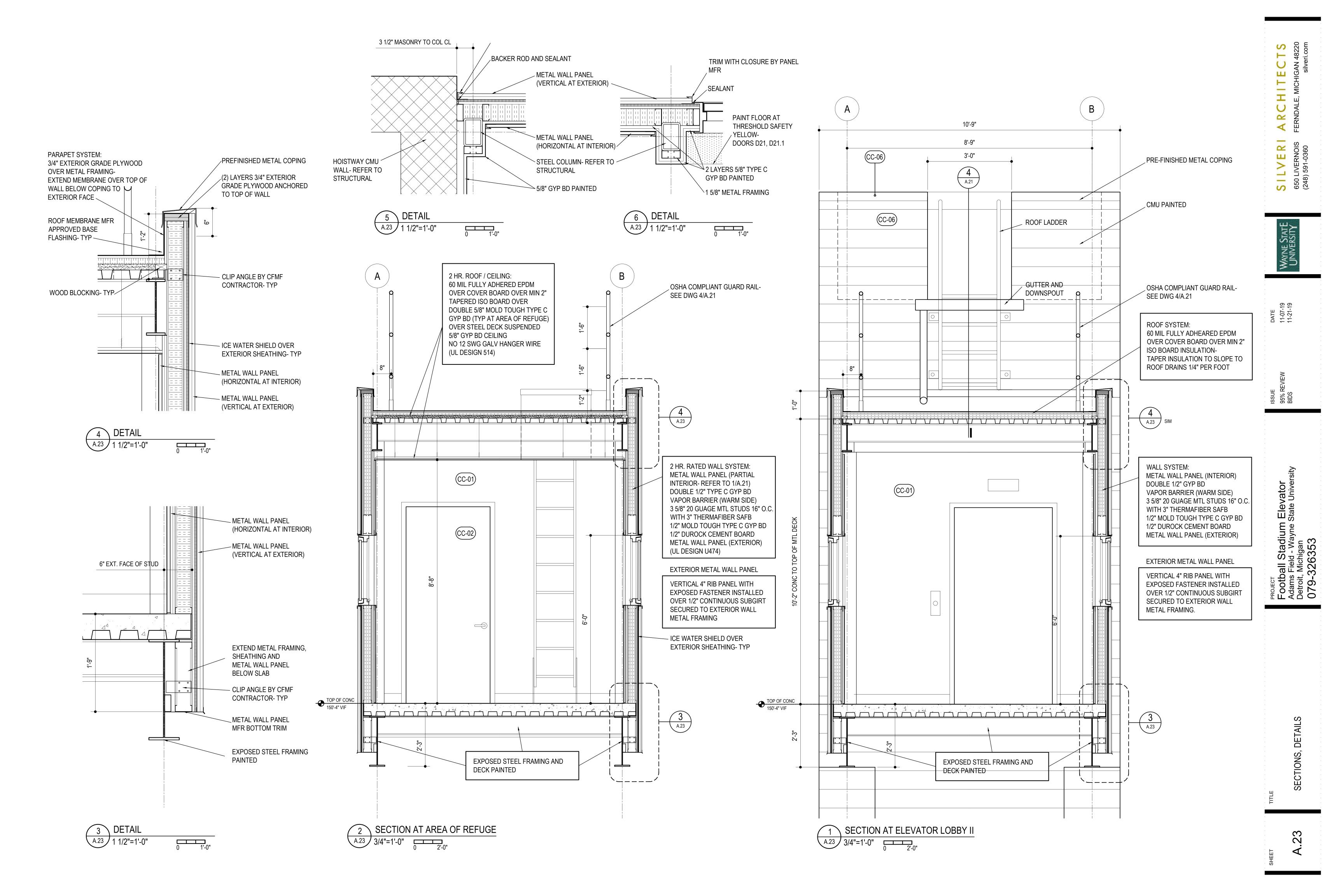
GENERATOR FENCE

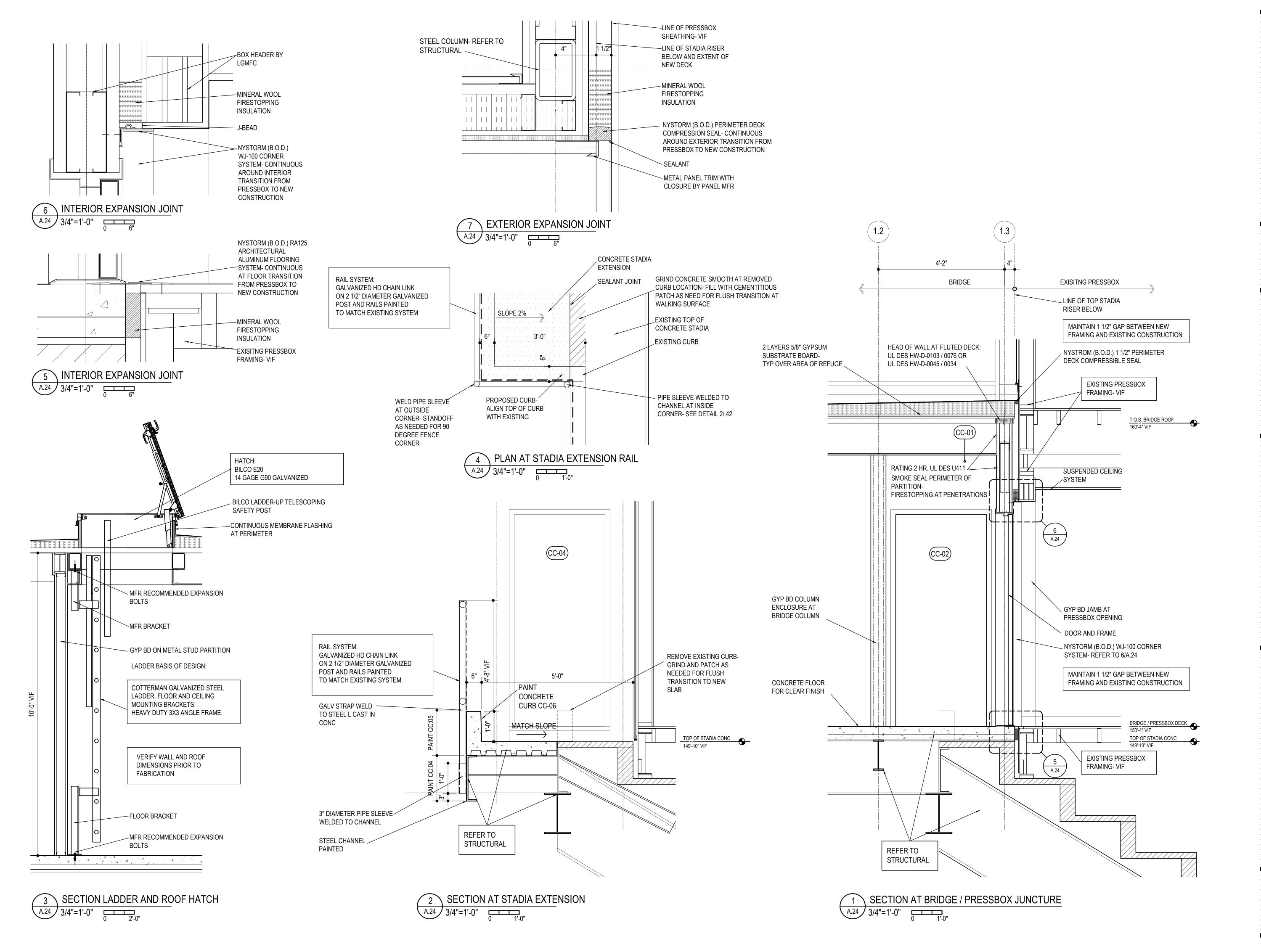
RESILIENT BASE

UPPER CABINET









**SILVERI** 650 LIVERNOIS (248) 591-0360

DATE 11-07-19 11-21-19

FROJECT
Football Stadium Elevator
Adams Field - Wayne State Univers
Detroit, Michigan
079-326353

#### SIGN SCHEDULE

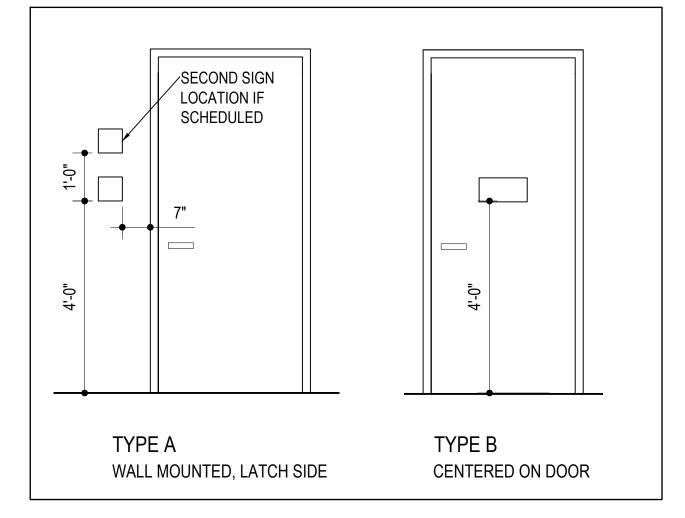
DOOR	SIZE	LOCATION	TEXT	NOTES
D00	6 X 6	A	EMERGENCY EXIT	1
D10	6 X 6	A (SOUTH)	STADIUM ELEVATOR	1
D11	6 X 6	А	MECHANICAL	
D12	6 X 6	А	ELEVATOR ELECTRICAL CLOSET	
D20	6 X 6	A (WEST)	STADIUM	
D20	6 X 6	A (WEST)	AREA OF REFUGE	1
D20	6 X 6	A (EAST)	STADIUM ELEVATOR	1
D21	6 X 6	В	CAUTION STEP DOWN	2
D21.1	6 X 6	В	CAUTION STEP DOWN	2
D22	6 X 6	A (WEST)	PRESSBOX	
D22	6 X 6	A (EAST)	ACCESSIBLE EXIT	1
D22	6 X 6	A (EAST)	AREA OF REFUGE	1
D23	6 X 8	А	RESTROOM	1
ELEV LVL 1	8 X 6		OCCUPANT SELF EVACUATION ELEVATOR	3
ELEV LVL 2	8 X 6		OCCUPANT SELF EVACUATION ELEVATOR	3

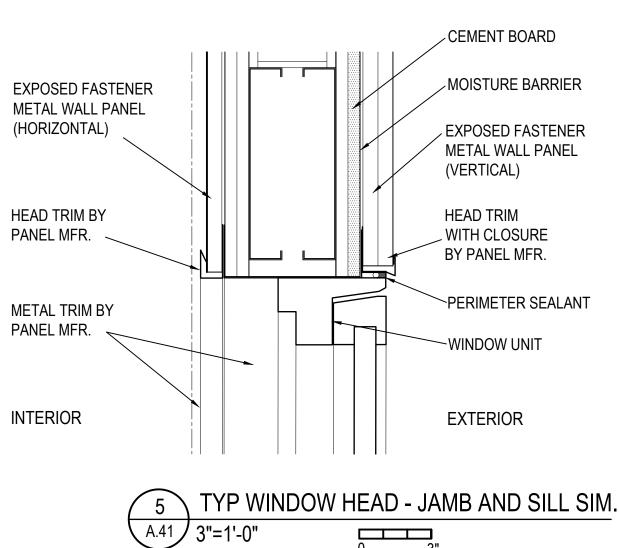
- 1. INTERNATIONAL SYMBOL OF ACCESSIBLITY
- 2. ALUMINUM, OSHA COMPLIANT
- 3. POSTED ON WALL ADJACENT TO ELEVATOR CALL STATION AT EACH LANDING

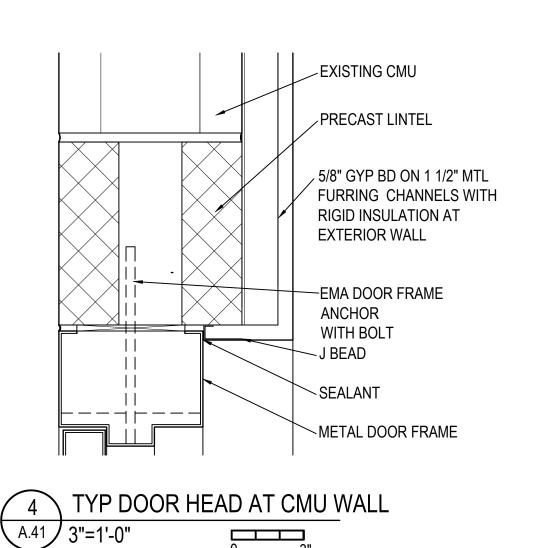
#### DIRECTION FOR CALL BOX USE SIGN

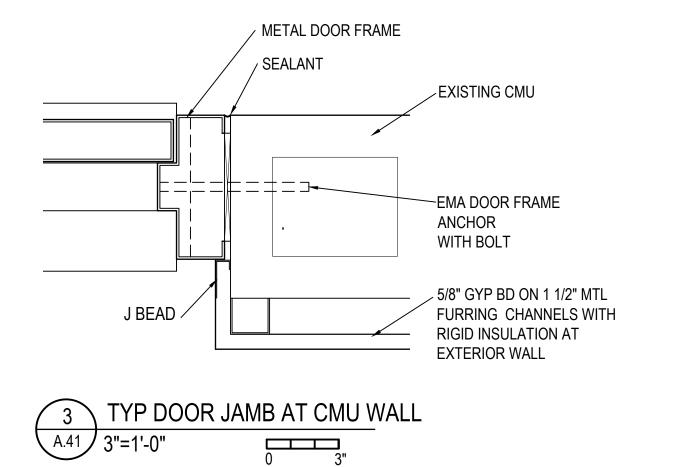
ROOM	SIZE	LOCATION	TEXT	NOTES
AREA OF REFUGE	8 X 6	AT 2 WAY COMM 48" AFF	PUSH TO CALL (PER MBC 2015)	

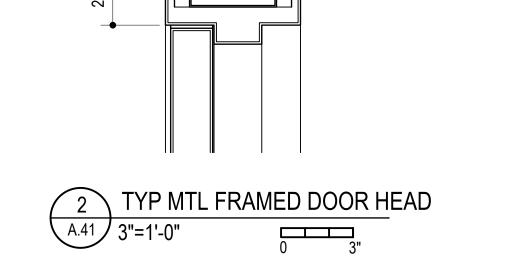
#### SIGN TYPES











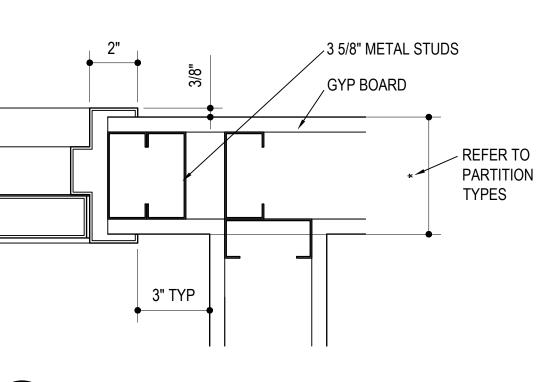
3/8"

REFER TO PARTITION

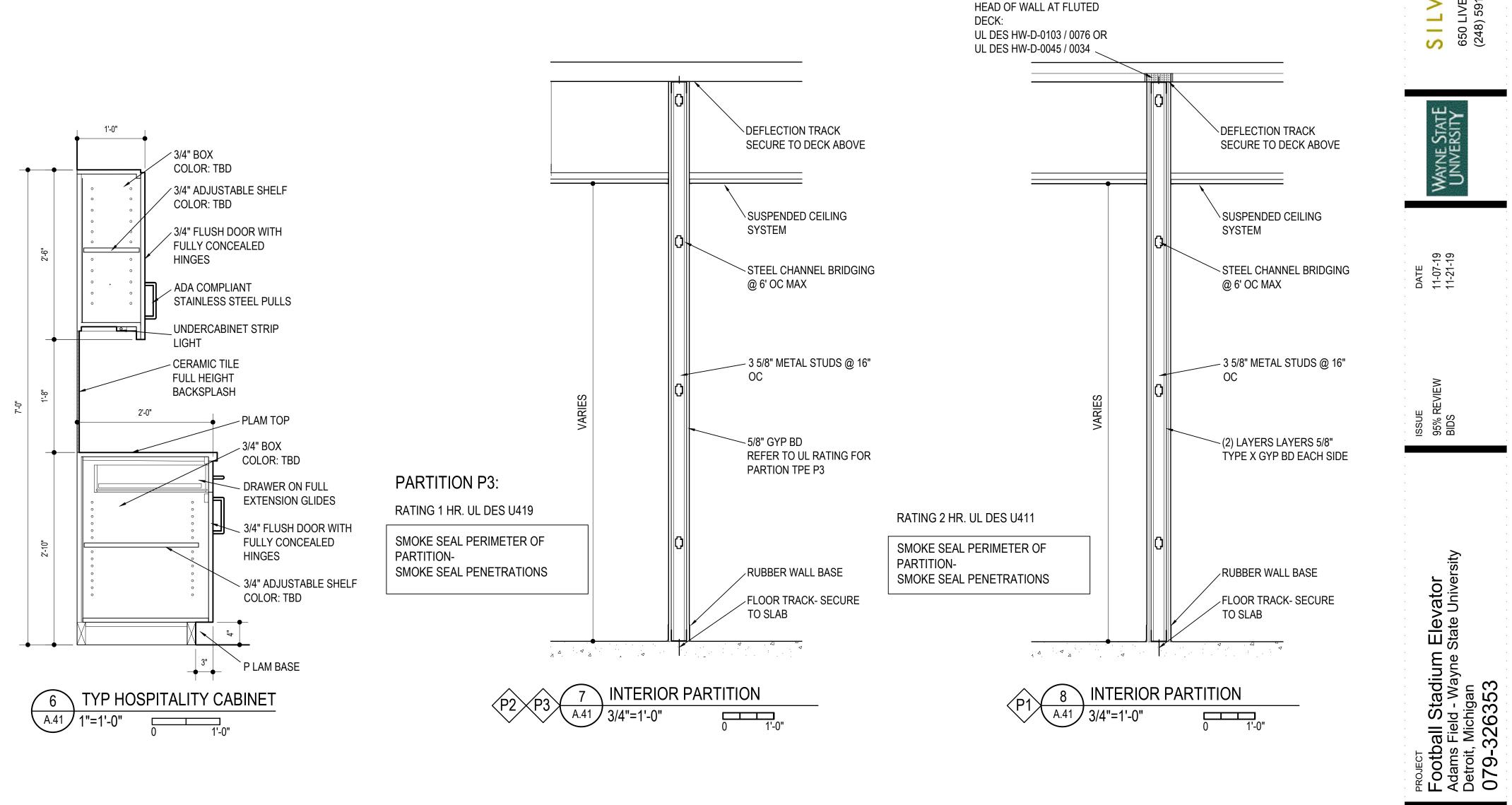
∠3 5/8" METAL STUDS

GYP BOARD

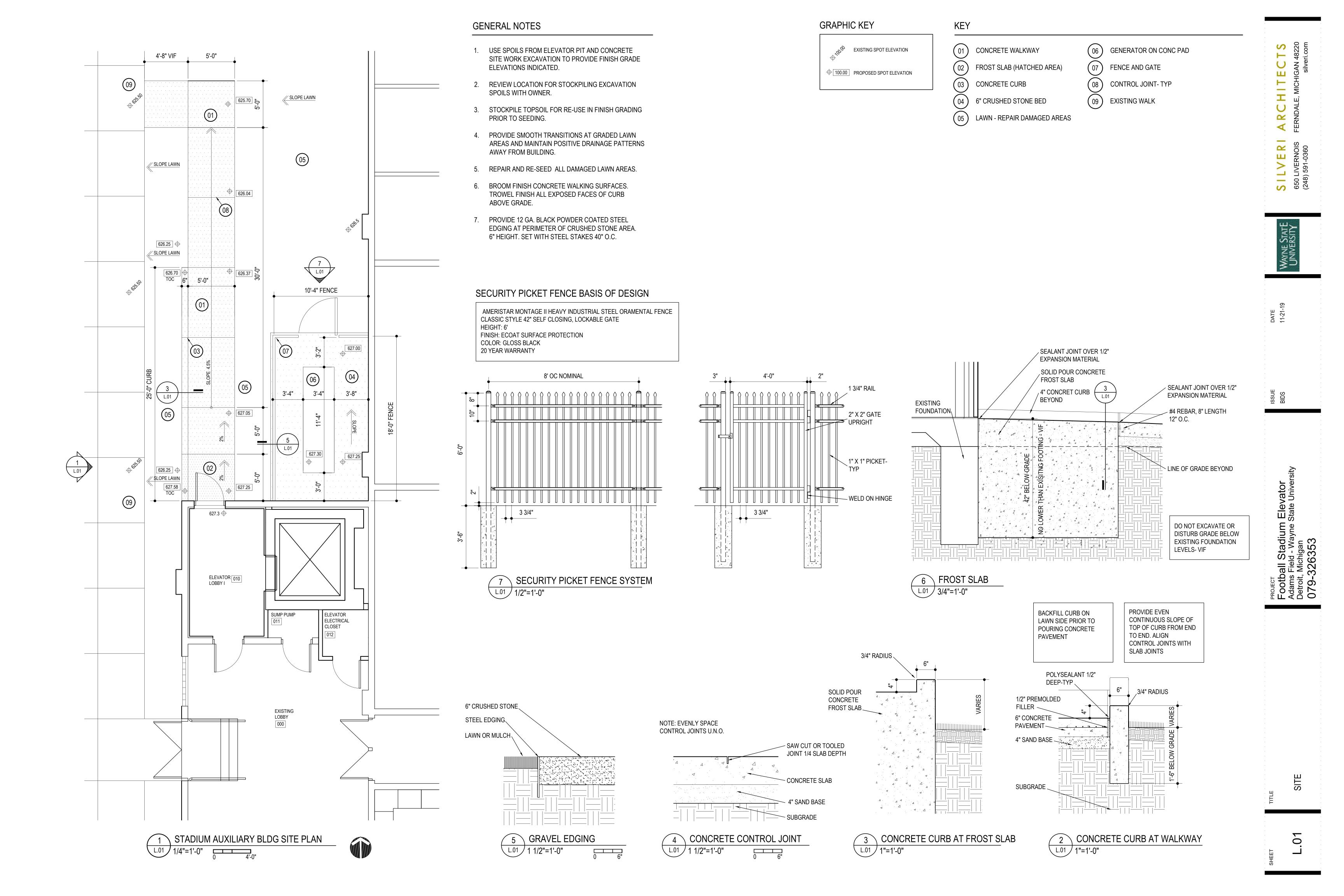
**TYPES** 







TYP MTL FRAMED DOOR JAMB



DESIGN CRITERIA							
ne structure is designed for the following live loads, in addition to the lateral loads, super-imposed dead loads, and sel eight of the structure. Where applicable, the live loads are reduced in accordance with the provisions of the governing uilding Code.							
		CODE REFERENCE					
isk Category		IBC Table 1604.5 ASCE Table 1.5-1					
FLOOR LIVE LOADS							

FLOOR LIVE LOADS				
		CODE REFERENCE		
BRIDGE	100 PSF	ASCE Table 4-1		
ROOF	25 PSF	ASCE Table 4-1		
CONSTRUCTION LIVE LOAD	25 PSF	ASCE Table 4-1		
	SNOW LOADS			
		CODE REFERENCE		
Ground Snow Load	Pg = 25 PSF	ASCE Figure 7-1		

SNOW LOADS					
		CODE REFERENCE			
Ground Snow Load	Pg = 25 PSF	ASCE Figure 7-1			
Flat Roof Snow Load	Pf = 25 PSF (minimum)	ASCE Section 7.3			
Exposure Factor	Ce = 1.0	ASCE Table 7-2			
Importance Factor	I = 1.0	ASCE Table 1.5-2			
Thermal Factor	Ct = 1.0	ASCE Table 7-3			
Snow loads adjacent to vertical proje	ections, on lower roofs adjacent to high roofs, or s	loped roofs are increased for the			

effects of drifting.

	WIND LOA	ADS		
				CODE REFERENCE
Ultimate Design Wind Speed (3 sec. gust)	Vult = 115 M	PH		ASCE Figure 26.5-1A
Nominal Design Wind Speed	Vasd = 89 M	PH		IBC Section 1609.3.1
Exposure Category	В			ASCE Section 26.7.3
Internal Pressure Coefficient	± 0.18 (Enclo	osed)		ASCE Section 26.11-1
Components and Cladding	Per Code Re	equirements Ba	sed on Above	ASCE Chapter 30
	ROOF COMPO	NENTS		
	Zone 1	Zone 2	Zone 3	CODE REFERENCE
Support Beams (A > 100 SF)	+/- 20 PSF	+/- 24 PSF	+/- 24 PSF	ASCE Table 30.7-2
Roof Sheathing (A = 50 SF)	+/- 22 PSF	+/- 26 PSF	+/- 26 PSF	ASCE Table 30.7-2
Deck Fasteners (A < 10 SF)	+/- 24 PSF	+/- 28 PSF	+/- 28 PSF	ASCE Table 30.7-2
	WALL COMPO	NENTS		
	Zone 4	Zone 5		CODE REFERENCE
A = 100 SF	+/- 24 PSF	+/- 25 PSF		ASCE Table 30.7-2
A = 50 SF	+/- 24 PSF	+/- 28 PSF		ASCE Table 30.7-2
A = 10 SF	+/- 26 PSF	+/- 32 PSF		ASCE Table 30.7-2

SEISIVIIC LUADS					
		CODE REFERENCE			
Seismic Importance Factor	le = 1.0	ASCE Table 1.5-2			
Short Period Mapped Spectral Response Acceleration Parameter (5% of Critical Damping)	SS = 0.096 g	ASCE Section 11.4.1			
1.0 sec. Mapped Spectral Response Acceleration Parameter (5% of Critical Damping)	S1 = 0.047 g	ASCE Section 11.4.1			
Soil Site Class	D	ASCE Section 11.4.2			
Design Spectral Response Acceleration Parameter (for short period)	SDS = 0.102 g	ASCE Section 11.4.4			
Design Spectral Response Acceleration Parameter (1 sec. period)	SD1 = 0.075 g	ASCE Section 11.4.4			
Seismic Design Category	В	ASCE Section 11.6			
Seismic Force Resisting System	Ordinary Plain Masonry Shear Walls	ASCE Table 12.2-1			
Seismic Response Coefficient	CS = 0.067 Kips	ASCE Section 12.8.1.1			
Response Modification Factor	R = 1.5	ASCE Table 12.2-1			
Analysis Procedure	Equivalent Lateral Force	ASCE Section 12.8			

SEISMIC LOADS

EARTH PRESSURE LOADS				
LATER	RAL EARTH EQUIVALENT FLUID PRESSURE			
Walls Unbraced at Top	40 PCF			
Walls Braced at Top	55 PCF			
Allowable Soil Bearing Capacity	3,000 PSF (TBD)			
<ol> <li>Refer to Geotechnical Report for addi</li> <li>Lateral earth pressure is based upon</li> </ol>	itional Information drained soil. Refer to drawings for foundation drainage.			
·	HANICAL / ELECTRICAL LOADS			
Typical Floors and Roof	10 PSF			

25 PSF

Penthouse Roof

Sheet List							
Sheet		Current					
Number	Sheet Name	Revision Date	Current Revision Description				
S.01	GENERAL STRUCTURAL NOTES						
S.02	GENERAL STRUCTURAL NOTES AND SPECIAL INSPECTION SCHEDULES						
S.03	SPECIAL INSPECTION SCHEDULES						
S.10	AUX. BUILDING FOUNDATION AND ROOF FRAMING PLANS						
S.11	BRIDGE FLOOR AND ROOF FRAMING PLANS						
S.40	TYPICAL MASONRY DETAILS AND SCHEDULES						
S.50	TYPICAL STEEL SECTIONS AND DETAILS						
S.70	SECTIONS AND DETAILS						
S.71	SECTIONS AND DETAILS						
S.72	SECTIONS AND DETAILS						

#### **ENERAL STRUCTURAL NOTES**

- The structural notes are intended to augment the drawings and specifications. Should exist between the Drawings, Specifications and the Structural notes, the strictest provision
- The Structural drawings form an integral part of Contract Documents, which include Architectural, Structural, Mechanical, Electrical, Civil/Site drawings and Specifications. Coordinate the Structural drawings with the requirements shown in the other components of the Contract Documents.
- Typical details and other sections/details apply to conditions that are similar to the conditions described in the sections/details, even if they are not specifically referenced on the plans.
- The Contractor shall be responsible for means, methods, sequences and procedures of
- The structure is designed to be self-supporting and stable after it is fully completed per requirements of Contract Documents. Contractor shall determine erection procedures and sequence, and ensure the safety of the building and its component parts during erection. This includes the addition of temporary bracing, guys or tie-downs if necessary. Contractor shall
- retain ownership of such material after completion of the project. Construction shall comply fully with the applicable provisions of OSHA and the local Governing Codes, current edition, and all requirements specified in the codes shall be adhered to as if they were called for or shown on the drawings. This shall not be construed to mean that requirements set forth on the drawing may be modified because they are more stringent than the code requirements or because they are not specifically required by code.
- Governing Building Code Michigan (International) Building Code 2015. Standards listed in structural note sections refer to the version and effective date identified in the REFERENCED STANDARDS Chapter in the Governing Building Code.
- Work constructed per these drawings shall be inspected by an Independent Testing Agency retained to ensure compliance with the requirements shown on the Drawings. Special Inspections required by the Governing Building Code, local building department and the Contract Documents shall be performed by a qualified Special Inspector. Project site visits by the Engineer do not constitute or replace inspection.

#### SHOP DRAWINGS

- Submit shop drawings for review as indicated in material section of general Structural notes.
- Use of Engineering Drawings as erection drawings by the Contractor is strictly prohibited.
- Allow in the schedule detailing, fabrication and erection a minimum of 10 working days for review of each shop drawing submittal by the Structural Engineer. Submit shop drawings in reasonable quantities at reasonable intervals (not more than 70 drawings per submittal per week). The 10 working days stated herein, will be in addition to the review time required by other project team members. Submit a shop drawing submittal schedule prior to the first
- Review of shop drawings and other submittals by the Structural Engineer does not relieve the Contractor of the responsibility to check the shop drawings prior to submittal. Errors and omissions associated with the preparation of shop drawings not conforming to the Construction Documents are the responsibility of the shop drawing preparer.
- Shop drawings are an aid for field placement and are superseded by the Contract Documents. Contractor shall ensure that construction is in accordance with the latest Contract Documents. Shop drawing review is only for general compliance with the Contract Documents. Review of the shop drawings by the Structural Engineer does not guarantee that the shop drawings are correct nor infer that the shop drawings supersede the Contract
- Contractor shall provide a set of approved shop drawings bearing the review stamp of the Structural Engineer, to the local building department and to the project site.
- Notes on submitted shop drawings for work "by others" cannot be responsibly approved by Structural Engineer. Contractor shall coordinate responsibility for materials, connections, etc. prior to shop drawing submittal to the Structural Engineer.
- Contractor shall verify all relevant dimensions and elevations for equipment installations against purchased Manufacturer's certified equipment drawings. Contractor shall coordinate dimensions that depend upon specific equipment, such as elevator openings, mechanical equipment supports, etc., prior to submittal. Such dimensions shall be provided on the shop drawings prior to submittal to the Structural Engineer. Contractor's failure to provide such dimensions on submitted shop drawings will result in shop drawing return without review.

#### MECHANICAL & ELECTRICAL EQUIPMENT

- Pipes of 3 inches or greater in diameter shall be suspended from steel members, using pipe hangers and clamps. Hangers and clamps shall be aligned with structural member centerlines. One sided beam connections, expansion anchors or other anchors to slabs are not allowed for pipes of 3 inches or greater in diameter. Submit details for pipe hangers and attachments for review by Architect/Structural Engineer.
- Mechanical and electrical equipment weights assumed for structural design are shown on the plans. If the equipment weight varies from that listed, consult with the Architect/Structural Engineer prior to steel shop drawing submittal.

#### **SHORING AND BRACING**

- Contractor shall provide temporary shoring and bracing of existing construction, new
- construction, and underground utilities as follows: Where shown or noted on the Drawings.
- Where existing construction is to be altered or disturbed until permanent support is Where existing construction is not undergoing alteration and is to remain
- undisturbed but is disturbed as a result of the work of this contract.
- As required for safe erection, installation of new construction, equipment, etc. When needed for Contractor's "means and methods" of construction and other safety related issues.
- Shoring and bracing shown on the Drawings is conceptual. Contractor shall be responsible for verifying existing conditions, shoring and bracing calculations, methods of installation, transfer of loads through to final load support, and work sequence phasing with new
- Shoring and bracing shall be performed by a Contractor with minimum 5 years demonstrated experience in similar size and scope of shoring and bracing projects.
- Shoring and bracing shall be designed by a Professional Engineer registered in the State of the Project with minimum 5 years demonstrated experience in similar size and scope of shoring and bracing projects. Design loads and methods shall conform to applicable codes. Soil and material strengths shall be verified by tests, unless conservative estimates that do not affect deflections and deformations are approved by the Architect/Structural Engineer.
- Contractor shall submit drawings and calculations sealed and signed by the Contractor's Professional Engineer showing complete design including temporary conditions, final conditions and sequence of work.
- Before starting work, Contractor shall perform condition survey of the existing building structure, exterior façade and interior finishes, including photographic documentation and submit survey to the Owner for record.
- During the shoring and bracing operations, Contractor shall: Keep the existing and new construction in a safe condition.
- Monitor existing and new construction to detect any signs of distress or deformation. Take immediate steps to prevent distress, deformation or damage.
- Contractor shall continuously monitor the shoring and bracing system. Contractor shall review and ascertain that all field connections are completed according to the Contractor's design and issue approval for inspection of the work by the Testing Agency.
- After completion of shoring and bracing and completion of work requiring shoring and bracing, Contractor shall repair any damage to the existing and new construction, without any cost to the Owner, and to the satisfaction of the Owner and Architect/Structural Engineer.

#### **EXISTING CONSTRUCTION**

- Contractor shall visit the site and become familiar with the existing conditions.
- Existing building dimensions and conditions shown are based upon original drawings or survey and have not been completely field verified. The Owner and Architect/Structural Engineer take no responsibility for the accuracy of existing dimensions shown. Contractor shall field measure existing dimensions prior to shop drawing preparation and fabrication.
- The analysis of the existing structure is based upon information shown on drawings by Hamilton Anderson Associates Inc.
- Contractor shall verify conditions covering or affecting the structural work; obtain and verify all dimensions and elevations to ensure the proper strength, fit and location of the structural work; report to the Architect/Structural Engineer any and all conditions/discrepancies which may interfere with or otherwise affect or prevent the proper execution and completion of the new work in compliance with the Construction Documents. All discrepancies shall be fully resolved prior to commencing work.
- Existing construction not undergoing alteration is to remain undisturbed. Where such construction is disturbed as a result of the operations of this contract, Contractor shall repair or replace as required and to the satisfaction of the Architect/Structural Engineer and Owner's Representative.
- Contractor shall verify the existence, location and elevation of existing utilities, sewers, drains, etc. in demolition areas before proceeding with the work. All discrepancies shall be documented and reported to the Architect/Structural Engineer and Owner's Representative
- Should uncharted piping or other utilities be encountered during excavation, Contractor shall consult the Architect/Structural Engineer and Owner's Representative for resolution.
- Contractor shall provide fire watch during field cutting and welding operations, meeting the
- Contractor shall provide temporary protection of existing equipment during execution of work, satisfying the Owner's requirements.
- Contractor shall provide temporary protection to prevent damage from the weather and
- Contractor shall coordinate work with the Owner's personnel to avoid any interference in
- Refer to SHORING AND BRACING notes for additional requirements.

#### **FOOTINGS AND FOUNDATIONS**

- Contractor shall verify all conditions, including underground utilities and field measurements at job site and report any discrepancies to Owner's Representative.
- Provide necessary sheeting, shoring, bracing, etc. as required during excavations to protect sides of excavations.
- Comply fully with requirements of OSHA and other regulatory agencies for safety
- Top of spread footing elevations noted on plan are minimum elevations. In all cases, footings are to bear on undisturbed natural soils or engineered fill having a minimum net allowable bearing capacity of 3,000 psf.
- Sides of foundations shall be formed. All concrete surfaces shall be maintained smooth and vertical. Slope sides of excavations as approved by the Geotechnical Engineer, and clean up sloughing before and during concrete placement. If existing soil conditions warrant earth forming, Geotechnical Engineer shall make recommendations for specific preparation and procedure to follow.
- Where footing steps are necessary, they shall be no steeper than one vertical to two horizontal unless noted otherwise.
- Footings shall be centered under columns and walls unless specifically detailed otherwise on the Drawings. No footings or slabs shall be placed on or against sub-grade containing free water, frost or
- ice. Should water or frost, however slight, enter a footing excavation after sub-grade approval, the sub-grade shall be re-inspected by the Geotechnical Engineer/Testing Laboratory after removal of water or frost.
- The Contractor shall provide all necessary measures to prevent any frost or ice from penetrating any footing or slab sub-grade before and after placing of concrete until the full building enclosure is completed and heated.
- Excavated material shall be legally disposed of off the Owner's property or stored at the site or used for backfilling operations as required in accordance with the Geotechnical Engineer's recommendations and Project Specification requirements.
- Contractor shall furnish all required de-watering equipment to maintain a dry excavation until backfill is complete.
- Where new footings are adjacent or abut existing foundations, carefully hand excavate and determine bottom of existing foundation. If different than anticipated, adjust new foundations to match existing. In no case shall the new footing be lower than the existing without protection against undermining such as underpinning or shoring.
- Foundation bearing soils shall be inspected by a qualified Geotechnical Engineer. The testing shall include, but not be limited to, identification of soils at and below the foundation bearing level, and the allowable bearing capacity of these soils.
- A Geotechnical Engineer registered in the State of the Project shall inspect the condition and assure the adequacy of all subgrades, fills, backfills before placement of foundations, footings, slabs and walls. They shall submit reports to the Architect/Engineer describing their investigations, including any non-conforming work.
- The design of foundations, retaining walls, and slab on grade is based on the criteria established in the Geotechnical Report No. 58871 by Testing Engineers & Consultants Inc. dated June 20,2018. Refer to the report for additional considerations related to ground water conditions and control, drainage, site preparations, earthwork operations and work adjacent to the existing building.

#### SITE PREPARATION

Consult with Geotechnical Engineer for consideration related to site preparation and earthwork operations. The requirements and recommendations contained in the report are part of Contract requirements.

#### **BACKFILLING**

- Do not place backfill against foundation walls designed as supported at top and bottom until basement level and first floor slabs are in place. Shore and/or brace walls as required if backfilling operations are to be carried out prior to placement of floor slabs.
- Place backfill against basement retaining walls designed as cantilevered after concrete has attained design strength and before lower level and first floor slabs are in place.
- Where backfill is to be placed on both sides of foundation walls, provide a balanced backfill against foundation walls to eliminate lateral load effects, or provide necessary temporary lateral support to the top of the wall until permanent support is installed.
- Backfill material shall consist of clean, well grade granular soils, free of organic material, silt and clay, or as specified in the Project Specifications.
- Backfill material shall be compacted to 95% of maximum density, as determined by the Modified Proctor Method (ASTM D1557), in lifts not exceeding 6 inches.

#### CAST-IN-PLACE CONCRETE

Structures".

- Concrete structural framing has been designed by the Ultimate Strength Method per ACI 318 "Building Code Requirements for Structural Concrete".
- Concrete work shall conform to the requirements of ACI 301, "Specifications for Structural Concrete of Buildings", and ACI 318 "Building Code Requirements for Structural
  - Concrete" except as modified by Structural requirements noted on the Drawings. All concrete work shall conform to ACI 201.2R, "Guide to Durable Concrete". Parking

structures shall also conform to ACI 362.1R, "Guide to Durable Concrete for Parking

- Cement shall conform to ASTM C150 "Specification for Portland Cement" type I or III.
- Concrete aggregates shall conform to ASTM C33 "Specification for Concrete
- Reinforcing shall conform to ASTM A615 grade 60, unless noted otherwise.
- Reinforcement shall be fabricated and erected according to the ACI standards: "Details and Detailing of Concrete Reinforcement", ACI 315 - and "Manual of Engineering and Placing Drawings for Reinforced Concrete Structures", ACI 315R.
- Welded wire fabric shall be furnished in flat sheets (rolls not permitted) and shall conform to ASTM A-185 and have a minimum side and end lap of 8 inches.
- Welding of reinforcing steel is prohibited unless specifically detailed. Welding where detailed shall conform to AWS D1.4 specification.
- A copy of ACI SP-15 "Field Reference Manual", ACI 301 "Specifications for Structural Concrete" with a selected ACI and ASTM references, shall be kept in the Contractor's field
- Concrete shall have a minimum 28-day compressive strength as follows: Foundations: 4.000 psi Slab-on-grade: 4,000 psi Concrete piers and walls: 4,000 psi
- Exterior concrete, and interior concrete subjected to freeze/thaw cycles, salt, etc., including walls, shall be air-entrained 6% +/- 1%.
- 13. Concrete shall be normal weight, unless indicated otherwise.
- Contractor shall submit the concrete mix design(s) for review by the Structural Engineer Proportion mix designs and provide proof of mix design strength as defined in ACI 301. The submittal shall include cement type and source, cement cube strength, aggregate gradations, water tests, admixture catalog information and cylinder strength test results from 30 tests, on specimens with identical mix design, for each concrete mix, or other proof of strength per ACI 301.
- The approved materials and mix design shall be fully documented and reviewed by the Testing Agency for full compliance. Responsibility for obtaining the required design strength is the Contractor's responsibility.
- Use of calcium chloride, chloride ions, or other salts in concrete is not permitted.
- Samples for strength tests of each class of concrete placed each day shall be taken by the Testing Agency in accordance with Project Specification requirements or ACI 301.
- Contractor shall prepare and submit reinforcement shop drawings to the Structural Engineer for review prior to fabrication. The shop drawings shall clearly show reinforcement lengths and bends, locations of bars, methods of support, details of placement and placement coordination with formwork, embedments, concrete vibration and construction joints. The drawings shall also indicate openings, sleeves, curbs and concrete dimensions in accordance with ACI 315. Provide, at minimum wall, column and beam elevations; wall, column and beam sections, material schedules, bar lap schedules and locations.
- Contractor shall tie reinforcing steel securely in place prior to placing concrete and provide sufficient supports to maintain the position of reinforcing within specified tolerances during all construction activities. Inserting dowels into wet concrete is not
- Contractor shall provide continuous reinforcement wherever possible; splice only as shown or approved; stagger splices where possible; use splice lengths as noted. Dowels shall match the size and spacing of the specified reinforcement and shall be lapped with tension
- Horizontal wall reinforcement shall be continuous with the minimum lap per ACI 318 unless detailed or noted otherwise. Corner bars shall be provided at changes in wall direction (however small) and shall be of the same size and spacing as the horizontal steel. Each corner bar leg to provide lap splice per ACI 318 unless detailed or noted otherwise. Extend horizontal wall reinforcing through piers.
- Hooked bars shall be standard 90 degree hooks per ACI unless noted otherwise on the
- Minimum lap splice shall be Class B per ACI 318. Location of lap splices shall be as indicated on Construction Documents and/or as shown on the approved reinforcing steel shop drawings.
- Approved rebar couplers may be used to aid placement of dowels through forms. Mechanical splices shall develop 125% of the tensile strength of the rebar.
- Reinforcing steel shall not be cut, bent or straightened in the field unless approved by the Structural Engineer or as indicated on the Drawings.
- Reinforcing steel shall be placed with the following concrete cover unless noted otherwise: Concrete cast against earth (not formed): 3' Formed concrete exposed to earth or weather:
  - #5 bars or smaller: #6 thru #18 bars: Formed concrete not exposed to earth or weather:
  - Slabs, joists, and walls, #11 bars or smaller: Slabs, joists, and walls, #14 bars or larger: 1 1/2" Beams, columns, pedestals, and tensions ties: 1 1/2" Clearance between parallel bars in a horizontal layer shall not be less than the

Clearance between longitudinal bars in columns, pedestals, struts, and boundary elements

bar diameter, 1", or 4/3 d agg, whichever is greater.

- Clearance between parallel bars in two or more horizontal layers, shall not be less than 1"
- in walls shall not be less than 1.5 times the bar diameter, 1 1/2", or 4/3 d agg, whichever is
- Maximum deviation from these requirements shall be: + 3/8" for sections with dimensions of 8" or less + 1/2" for sections with dimensions over 8"
- Tie embeds securely in place prior to placing concrete.

columns, piers and walls, unless otherwise noted.

- Do not place pipes or ducts exceeding one quarter the slab or wall thickness within the slab or wall unless specifically shown and detailed on the Structural drawings. Pipes or duct shall be located within middle third of slab or wall thickness.
- Install inserts and anchors in concrete for suspending mechanical, electrical and architectural items. If additional fasteners are needed in conventionally reinforced concrete, use drilled-in type anchors located to avoid conflict with reinforcement.
- Anchor rods and steel embeds (furnished by Structural Steel Contractor) shall be set by template to within a 1/8" tolerance in any direction with minimum embedment and exact projection indicated on the drawings, prior to placing concrete.
- No aluminum conduit or products containing aluminum or any other material injurious to the concrete shall be embedded in the concrete. Dowels into foundation shall match size and spacing of vertical reinforcement at all
- Contractor shall coordinate all masonry dowel sizes and spacing to be cast into concrete with masonry reinforcing shop drawings.

- Provide two #5 bars (one each face) around unframed openings in slabs and walls. Place bars parallel to sides of openings and extend them 24 inches beyond corners, unless
- Locate sleeves, openings, embeds, etc. as indicated on the drawings. The Concrete Contractor shall check with other trades to make sure the sleeves, openings and embeds that are to be provided and set by them are in place prior to placing of concrete in the
- Contractor shall obtain approval prior to placing openings or sleeves not shown on the Drawings, through any structural member.
- Contractor shall review Architectural, Mechanical and Electrical drawings for bases, openings, sleeves, anchors, inserts, conduits, recesses and other devices in concrete work before placing concrete.
- Horizontal construction joints are permitted only where indicated. The location of vertical construction joints shall be submitted to the Structural Engineer for review and approval. Construction joints shall be thoroughly mechanically roughened, cleaned and bonding agent applied before placement of adjoining concrete.
- For control joints in slabs, space joints at maximum 12'-0" on center unless otherwise noted on the Drawings. For control joints in walls, space joints at maximum 10'-0" on center unless otherwise noted on the Drawings.
- Construction joints shall be furnished with a full length keyway centered on members. Where the size of key is not shown on the Drawings, the key shall be 25% of the cross section dimension of the member and minimum 1-1/2 inches into the first pour of
- space. Refer to Drawings and Specifications for other waterproofing and damp proofing Provide 3/4" by 3/4" chamfer strips at all exposed corners of concrete members, unless
- Provide dovetail slots in concrete members where masonry abuts and where required for veneer attachment

Provide waterstops in construction joints in cast-in-place concrete elements that have one

side exposed to the weather or soil and the other side occurring adjacent to enclosed

- The Concrete Contractor shall be responsible for all pour sequences and construction procedures for all concrete work to account for temperature differentials and shrinkage occurring during the construction phase until the building is permanently in a mechanically controlled environment.
- Coordinate vapor retarder requirements with floor finish requirements.
- Provide pockets or recesses in concrete work for steel columns and beams as required and/or as called for in the Specifications even if not shown on the Drawings. Provide concrete fill after steel erection.
- Refer to Architectural drawings for slab recesses and for floor finish materials and
- openings, ramps, for support of thickened floor slabs, and to receive door jambs.
- minimum concrete thickness noted on the Drawings. The use of chlorides such as deicing salts is prohibited for melting ice prior to placement

Provide recess in top of basement walls and grade beams, where applicable, for door

Concrete shall be placed to the constant top of slab elevations, while maintaining the

- Sizes of concrete placements shall not exceed the following, unless otherwise indicated on
- the plans: 40 feet maximum length Slabs on grade: Place in alternating strips (approximate width 30 feet &
- maximum length 200 feet) For floor finish tolerances for interior slabs, refer to Specifications.
- Curing of concrete surfaces shall conform to ACI 308.1 "Standard Specification for Concrete Curing" and ACI 308R "Guide to Curing Concrete".
- Joints between the structural (and architectural) members shall be properly prepared and filled with joint sealant unless noted otherwise. All joint edges, including top and bottom surfaces and vertical and horizontal surfaces shall be formed or tooled as required. Joint sealant shall be applied only to the top, vertical, and horizontal surfaces unless noted otherwise on the Drawings.
- Joints to be prepared and filled with joint sealant shall include, but are not limited to, construction joints, control joints, isolation joints, and all interface joints between similar and dissimilar members. Specific locations may be indicated on the Drawings, or may be required by approved shop drawings, or may occur due to the construction sequence
- Prior to placing concrete adjacent to existing concrete, mechanically roughen, then thoroughly clean and de-grease existing concrete surfaces. Apply epoxy bonding agent prior to placing fresh concrete. Bonding agent shall be "Sika Armatec 110 EpoCem" by Sika Corporation, or approved equal. Follow all Manufacturer's instructions for surface
- preparation, mixing and application. Prior to placing concrete topping, mechanically roughen, then thoroughly clean and degrease existing concrete surfaces. Soak existing concrete surfaces for minimum 12
- hours. Place a concrete-slurry of cement and water within 1 hour of topping placement. Concrete toppings shall be reinforced with collated, fibrillated, polypropylene fibrous
- Non-shrink grout shall conform to ASTM C1107. Grout shall be premixed, non-shrink, noncatalyzed natural aggregate grout with a minimum 7-day compressive strength of 7,000 psi
- Reinforcing steel, anchor rods and embed placement shall be inspected, prior to placement of concrete, in accordance with ACI 318 and code required Special Inspection by qualified Inspector prior. These inspections are not included in the basic services ( the Structural Engineer of Record.

plastic, 6,000 psi flowable, and 5,000 psi fluid consistency.

#### Guidelines for Cold Weather concrete operations:

selected by the Contractor.

- Provide a concrete mix suitable for cold weather concreting taking into account curing 🏅 🤦 methods listed below.
- The concrete temperature should not be too low during placement; for not too low temperatures (between 32 degrees F and 60 degrees F) provide adequate insulation formwork and exposed surfaces, meanwhile, for temperatures below 32 degrees F, k the concrete heated by an external heat source either by heating the formwork directl by enclosing the concrete and the formwork and heating the enclosure. If dry-heat is used, special care must be taken not to dry-out the concrete.
- The concrete shall be allowed to cool down gradually. The maximum drop in concrete temperature during the first 24 hours shall not exceed 40 degrees F.
- For cold-weather application of grouts and bonding agents, follow the Manufacturers written instructions.

#### **CONCRETE CUTTING**

- Map existing reinforcing steel and adjust bolt hole locations to avoid cutting of any
- Do not use pneumatic concrete breaker, hammer or sledge for cutting openings in the existing concrete.
- Use ball peen hammer and diamond-blade reciprocating concrete saw for starting holes and cutting concrete near corners. Saw overcuts at corners of opening are not permitted. Overcut, if any, shall be injected with epoxy before placement of steel channels



6765 Daly Road West Bloomfield, MI 48322 T/ 248.932.2010 • F/ 248.932.3088 info@desainasr.com DNCE Project No.: 19-1312

#### **MASONRY NOTES**

- Concrete masonry has been designed in accordance with ACI 530, "Building Code Requirements for Masonry Structures" and shall be constructed in accordance with ACI 530.1, "Specifications for Masonry Structures".
- Concrete Masonry to have a minimum 28-day compressive strength f m=2,000 psi unless oted otherwise.
- Concrete Masonry units (CMU) shall conform to the following standards:
  - ASTM C90 Load-Bearing Units: Medium Weight Units: 105 to 125 pcf Normal Weight Units: greater than 125 pcf
- Load-bearing CMU shall be at minimum medium weight units, unless noted otherwise.
- Mortar for all masonry shall conform to ASTM C270 with minimum compressive strength of 1,800 psi. Mortar below grade shall be type M. Elsewhere mortar may be either type M or S unless specifically indicated otherwise. Use either Portland cement/lime or masonry cement for mortar.
- Grout shall conform to ASTM C476 with minimum 28-day compressive strength of 3,000
- Steel bar reinforcement shall conform to ASTM A615, grade 60.
- Horizontal joint reinforcement shall be "Ladder" type with (W1.7 for low walls without cavity wall with veneer) (3/16 inch for high walls and walls with cavity and veneer) diameter longitudinal bars. Spacing of horizontal joint reinforcing shall be 16" on center, maximum.
- Minimum vertical CMU wall reinforcing shall be continuous #5 bars at 48" on center, unless noted otherwise. Dowels to concrete foundation to match size and spacing of reinforcing unless noted otherwise. Reinforce CMU core at corners, each side of control joints and each side of wall openings with additional (2) #5 continuous vertical reinforcing
- Vertical cells containing reinforcing and grout shall form a continuous cavity, free of mortar droppings.
- Horizontal lintels shall be placed at the top of all masonry wall openings with (2) #5 minimum continuous horizontal reinforcing bars positioned at the bottom of the fully grouted lintel, unless noted otherwise. Coordinate lintel elevations with Architectural Drawings and approved masonry reinforcing shop drawings.
- Horizontal bond beams shall be placed at all floor levels, all stair landing levels, roof level, and top of parapets. Bond beams shall be reinforced with (2) #5 minimum continuous horizontal reinforcing bars positioned at the top of the fully grouted bond beam, unless noted otherwise. Coordinate bond beam elevations with Architectural Drawings and approved masonry reinforcing shop drawings.
- Horizontal bond beam and vertical reinforcing shall be continuous unless noted otherwise. Lap splice reinforcing per the schedule below or use mechanical splices adequate for 125% of specified yield strength of the bar. Lap vertical reinforcement with minimum dowels of same size and spacing that have been previously installed in the foundations. Dowel embedment in concrete shall conform to the requirements of the CAST-IN-PLACE CONCRETE notes. **BAR SIZE** LAP SPLICE LENGTH
- Reinforcing bars shall be held in position by wire ties or other approved means to insure design location and lap. Place bars and lap prior to grouting.

Provide mechanical splice

- Grouting of masonry walls shall conform to recommended procedure for "low lift grouting" or "high lift grouting" as outlined in the NCMA TEK 3-2A - "Grouting Concrete Masonry Walls" and ACI 530.1/ASCE 6 "Specification for Masonry Structures". Grout lifts shall not exceed 5 feet without mechanically consolidated (vibrated) grout pours.
- Lifts of grout shall be keyed 4 inches into the previous course of masonry below
- Masonry below grade shall be grouted solid.
- Sampling and Testing of mortar and grout shall be in accordance ASTM C780 and ASTM C1019, respectively. One test of each is required for each 5,000 square foot of wall.
- Construction and testing of masonry prisms shall be in accordance with the procedure outlined in the ASTM C1314.
- Special Inspection of masonry construction is required. Refer to project specifications and ACI 530 for quality assurance requirements. Special Inspection shall include at minimum: Mortar and grout testing.
  - Reinforcement placement and lap verification. Verification of clear grout space prior to grouting.
  - Verification of proper grouting procedures (grout lift and consolidation).
- Contractor shall brace masonry walls to resist wind loads until floors and roofs are in place, and the masonry has reached 75% of the required strength f'm. Bracing shall be provided in accordance with OSHA – Construction Safety Standards for Masonry Wall Bracing and NCMA TEK 3-4B - "Bracing Concrete Masonry Walls During Construction".
- 22. Contractor shall shore masonry walls above masonry bond beam lintels until the masonry is placed full height and has reached the required strength.

#### STRUCTURAL STEEL

- Design, fabrication and erection of structural steel shall be in accordance with the American Institute of Steel Construction (AISC) 360 Specification for Structural Steel Buildings and the Steel Construction Manual, Load and Resistance Factor Design LRFD.
- Structural steel shall conform to the following ASTM specifications and minimum yield strength:
- W Shapes A572 Gr. 50 Fy = 50 ksiMiscellaneous shapes and plates A36 Fv = 36 ksiRound Tubes A500 Grade B Fy = 42 ksiA53 Grade B Fv = 35 ksi A500 Grade B Fy = 46 ksi Square Tubes
- Masonry and brick lintels shall be galvanized G90 per ASTM A123.
- Checkered plate shall be Fy = 36 ksi steel per ASTM A786 and have medium raised lug
- Anchor rods shall conform to ASTM F1554 Grade 36, unless noted Grade 55 or other on Drawings.
- Structural steel bolting shall be ASTM A325 type N, 3/4" diameter snug tight except where other size, ASTM A490 N, pre-tensioned or slip-critical type bolts are indicated.
- ASTM A490 bolts in tension shall be pre-tensioned
- Shear connectors shall conform to the requirements of "Structural Welding Code Steel" of the American Welding Society, ANSI/AWS D1.1, Fu = 65 ksi, as manufactured by Nelson Stud Welding, Div. of TRW, or approved substitute, and welded as per Manufacturer's written instructions.
- Welding shall be done with appropriate E70 series electrodes compatible with the new and existing steel. Welds and welding procedures shall conform to, and welders shall be qualified in accordance with, the "Structural Welding Code - Steel" of the American Welding Society, ANSI/AWS D1.1.
- Detailing shall be performed using rational engineering design and standard practice in accordance with the Contract Documents. The typical details shown are approximate only and do not indicate the required number of bolts or weld sizes, unless specifically noted.
- Contractor shall submit for review, typical connection details and calculations sealed by a Professional Engineer registered in the State in which the Project is being constructed for proposed connections and for connections not specifically designed and detailed. Follow the details shown where specific connections are detailed.

- Contractor shall submit for review, engineered drawings showing shop fabrication details, field assembly details and erection diagrams for all structural steel. Show at minimum all details included in these Contract Documents with additional erection details as required to completely define the interconnection of structural steel pieces.
- Fabricator shall be AISC Certified or have an AISC equivalent Quality Assurance program as certified by a qualified independent testing agency.
- Anchor rods, base plates and bearing plates shall be located and built into connecting work, pre-set by templates or similar method prior to concrete placement. Plates shall be set in full beds of non-shrink grout.
- Contractor shall reference Architectural drawings for miscellaneous shapes and plates not shown on structural drawings. These items shall be shop welded to the structural framing sections to minimize field welding.
- The length, dimension and connection detail from new structural member to existing structures shall be field verified before fabrication. Field modifications to the fabricated member or connection are not allowed without prior approval by the Structural Engineer. Contractor shall submit sketches or shop drawings detailing proposed modifications for approval.
- Contractor shall provide L4x4x1/4 seats at column webs where required for support of roof and floor decks. Provide angle outrigger from exterior columns for slab and roof edge
- Non-composite beam connections shall be capable of supporting minimum 50% of the Maximum Total Uniform Load, AISC Steel Construction Manual, unless specifically noted
- on the Drawings. Beam connections shall be standard AISC approved connections. Extended shear plate connections protruding from column web only approved where beams/girders on either side of column web have equally loaded bays.
- Simple shear connections shall be capable of end rotation as per the requirements of the AISC Specification, Simple Connections, Specification Section J1.2 and Manual Part 10.
- Connections shall be shop welded in accordance with latest AWS Specifications for E70XX electrodes and field bolted with ASTM A325 or ASTM A490 bolts.
- Contractor shall install A325 and A490 bolts in accordance with the "Specification for Structural Joints Using ASTM A325 or A490 Bolts." Snug tight condition shall be achieved using an impact wrench, to bring the connected plies into firm contact, except where noted as slip-critical, pre-tensioned or finger tight.
- 23. Contractor shall provide slip-critical connections at braced frames, moment connections, beams and columns supporting cranes and equipment, mechanical penthouse and elevator room framing and where bolts are in tension.
- Contractor shall provide 3/4" diameter shoulder bolts, double nuts or tack welded nuts finger tight to allow vertical movement with lock washers at slotted connections of wind columns or as noted.
- Where field welding to existing structural steel is indicated, contractor shall thoroughly clean all surfaces to receive weld, removing rust, paint, dirt and other foreign matter in rea of work. Provide fire watch protection acceptable to the Owner.
- Beams shall be fabricated with the natural camber up. Provide cambers as indicated on the drawings.
- Stiffener plates and bearing stiffeners are to be provided in pairs.
- Brick relieving angles shall be bolted to plate work as indicated and field welded after alignment to a tolerance of +/- 1/8" from the location specified on the Architectural drawings. The alignment and adjustment shall be done after placement of concrete on floor slabs and after placement of roofing including ballast where applicable.
- Fabrication and erection tolerances for brick frames shall conform to the requirements for Architecturally Exposed Structural Steel (AESS) per AISC 303 Code of Standard Practice for Steel Buildings and Bridges Section 10, with adjustment to meet the brick shelf tolerance noted above unless otherwise specified.
- Secondary steel framing supporting exterior façade shall have connections with minimum 1 inch lateral and 1/2 inch vertical adjustment - allowance each direction from center of attachment point. Contractor shall provide slotted holes and shims as required to provide
- Wood blocking shall be fastened to adjacent steel members using minimum 0.177" diameter power actuated fasteners or equivalent fasteners coordinated with the steel hickness. Install 2 fasteners at 3" minimum spacing across the member spaced along the length at 24" on center.
- Clean steel per SSPC-SP3 and shall receive one shop coat of paint. Omit paint at holes for slip critical type connections, at structural steel to be fireproofed, encased or in contact with concrete, and on top flange of beams receiving shear connectors.
- Steel above the roof and outside the building envelope (exposed to weather) shall be cleaned per SSPC-SP6 and hot dip galvanized. Finish paint shall be epoxy second coat and acrylic finish coat by same paint manufacturer as prime paint per approved paint
- on center maximum vertical spacing at ends of all CMU walls which are adjacent to steel column locations. Contractor shall coordinate requirements with steel and masonry

Contractor shall provide adjustable channel slots on steel columns for masonry ties at 16"

- Contractor shall control erection procedures and sequences with relation to temperature differentials, especially with respect to structural steel framing into concrete walls, beams
- Contractor shall provide temporary bracing as required to ensure stability of the structure under full design loads until the permanent bracing is in place. Provide necessary shoring where required during construction.
- The steel frame is self supporting for lateral loads after:
  - Connections, braces and moment frames have been completely welded and
  - Concrete strength, f'c, of the slab has attained 3,000 psi. Masonry bearing and shear walls have reached design strength.
  - The roof deck has been properly installed and attached.
- Shop and Field Testing of welds and/or bolts shall be as follows:
- All welds shall be visually inspected; 15% at random shall be measured.
- Fillet welds for beam and girder shear connection plates (10% at random) shall be checked by magnetic particle (ASTM E709) for final pass only.
- Check 100% of continuity plate fillet welds by magnetic particle on last layers. Ultrasonically test 100% of full penetration welds (ASTM E94 & E1032). Ultrasonically test 100% of partially penetration column splice welds. Visually inspect that all bolted connections are made with proper fastener
- Check by calibrated torque wrench 25% of bolts in each slip critical shear connection, but not less than two (2) bolts per connection.
- Inspect all expansion anchors and adhesive (epoxy) anchors according to manufacturer's recommendations. Pull test minimum 5% and minimum 2 of each application of location and anchor type.

components, are fabricated properly and the bolted joint is drawn into firm

- Ultrasonically test for laminations in column flanges at moment connections to columns with flanges over 1-1/2 inch thickness. Test prior to fabrication, after fabrication and after final field welding of beam to column flange.
- Welding shall be inspected by an AWS Certified Welding Inspector (CWI).
- 40. Contractor shall schedule work to allow the above testing requirements to be completed

#### **COMPOSITE STEEL BEAMS**

- Beam and shear studs have been designed in accordance with AISC 360 Specification Load and Resistance Factor Design, Chapter I.
- STRUCTURAL STEEL Notes apply for material, quality and process requirements.
- Shear connectors shall conform to the requirements of "Structural Welding Code Steel" of the American Welding Society, ANSI/AWS D1.1, Fu = 65 KSI, as manufactured by Nelson Stud Welding, Div. of TRW, or approved substitute, and welded as per Manufacturer's
- Studs are headed 3/4" diameter with an after weld length of 4 inches and 1-1/2 inches minimum above the top of metal deck and minimum 1 inch below top of concrete slab.

- Studs shall be spaced uniformly each side of center span unless indicated otherwise on the schedule or on plan. Provide studs on all composite beams at maximum spacing of 24" on center. Minimum stud spacing is 6 inches along length of beam and 3 inches transverse to
- beam in single deck flute. Composite beams are proportioned for construction without temporary shoring, unless
- Connections for composite beams shall be adequate to carry end reactions noted on the plans or in the schedule. or minimum 75% of the Maximum Total Uniform Load, AISC Manual Table 3–6, whichever is greater.
- Contractor shall spot weld metal deck to steel prior to stud installation as required to resist
- uplift wind loading prior to placement of concrete. Studs shall be welded to upper flange of steel framing through the deck or through a flat sheet closure. Contractor shall snap lines to insure that the studs will be installed to at least

minimum spacing allowed by AISC. The Contractor may, at his option, slit the deck at girders. Welding shall be in accordance with AWS D1.1 by pre-qualified methods.

Contractor shall coordinate location of electrical conduits and any embedded items to not interfere with stud placement.

#### **POST-INSTALLED ANCHORS**

- Post-installed anchors include all mechanical and adhesive anchors noted on Construction Documents. All post-installed anchors shall conform to AC193 for mechanical anchors and AC308 for adhesive anchors.
- Use only code approved anchors with valid ICC-ESR Evaluation Report for use in base material shown on the Construction Documents. Submit ICC-ESR Evaluation Report to Structural Engineer and Special Inspection Agent for approval.
- Installer of post-installed anchors shall be trained by anchor Manufacturer.
- Clean existing concrete surface to solid structural concrete. Grind smooth for full steel contact and to prevent gaps between steel and concrete. Alternatively, provide non-shrink grout in all voids between steel and base material.
- Drill smaller diameter pilot hole in existing concrete and check for existing reinforcing. Do not cut or damage existing reinforcing.
- If existing reinforcing is found, shift hole to avoid existing reinforcing. Submit location of new hole to Structural Engineer for review.
- written recommendations and procedure detailed in ICC-ESR Evaluation Report. Special Inspections are required for all mechanical and adhesive anchors. Inspect and

test post-installed anchors as specified in ICC-ESR Evaluation Report.

that has been cured for at least 21 days.

Install mechanical anchors and adhesive anchors in strict accordance with Manufacturer's

Adhesive for rebar and anchors in concrete has been designed based on cracked concrete and seismic applications as applicable, in accordance with ACI 355.4 and ICC-ES AC308. Design adhesive bond strength shall be based on ACI 355.4 Temperature Category A with installation into dry holes, using a carbide drill bit into cracked concrete

- The following anchors are approved. Submittals for alternative equal anchors will be reviewed by Structural Engineer and approved at their discretion.
- Anchor Type: Approved Anchor ICC-ESR Report No. Base Material ESR-3027 Hilti Kwik HUS-EZ Screw Anchors Concrete ESR-3056 Grouted Masonry Steel Drop-In Anchor Hilti HDI/HDI-L (n/a) Concrete (n/a) **Precast Concrete** 
  - Hilti Kwik Bolt 3 ESR-2302 Concrete (un-cracked only)

ESR-1917

Concrete

Adhesive Anchors Hilti HIT-HY200 SAFESET ESR-3187 Concrete Hilti HIT-HY70 + HAS/REBAR ESR-3342 Grouted Masonry Hilti HIT-HY70 + HAS/REBAR ESR-2682 Hollow Masonry Note: Refer to plan notes, details and/or schedules for diameter of anchor rods or size of rebar used

#### **COLD FORMED METAL FRAMING**

Expansion Anchors Hilti Kwik Bolt TZ

and the embed depth required for post-installed anchors.

- All cold formed metal framing members shall be designed, fabricated and erected in accordance with the AISI-S100 "North American Specifications for Design of Cold-formed Steel Structural Members" and in accordance with Manufacturer's written instructions.
- All material shall conform to ASTM A1003, with minimum yield point of 33 ksi for 18 gauge and 50 ksi for 16 gauge and heavier material, and shall have galvanized coating conforming
- All welding shall conform to "Structural Welding Code Sheet Steel" of the American Welding Society, AWS D1.3 and AWS D19.0 welding zinc coated steel.
- Unless specifically noted, all material shall be of a minimum metal thickness of 43 mils (18 gauge). Studs serving as backup for brick veneer shall be of a minimum metal thickness of
- All cold formed metal framing members shall meet the deflection requirements of the finish material to be attached to the cold formed metal framing work. Deflection of cold formed metal framing members serving as back up for brick veneer shall not exceed span/600 under serviceability wind load.
- When not specifically designed, the contractor shall submit calculations and layout for stud size, spacing and connection prepared and sealed by a Professional Engineer registered in the State of the Project for review by the Architect/Engineer.
- All studs and joists shall be installed at spacing indicated on the drawings, unless noted, each side of the openings shall be framed with double studs.
- All studs and joists shall have a bridging line installed at a maximum distances of 4'-0" and
- All Joists shall have web stiffeners at reaction points and concentrated loads.
- The nomenclature used for the design of cold formed metal framing is from the AISI Manual. All members supplied shall meet or exceed the strength shown in the AISI Manual.
- Structural connections of cold formed metal framing members shall be made per manufacturer's recommendations, adequate to carry the imposed loads, and conforming to the AISI and AWS specifications. Connection design to be based on reactions given on the Drawings or as listed in the Manufacturer's uniform loading capacity tables, whichever is

#### STATEMENT OF SPECIAL INSPECTIONS

- SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE 2015 MICHIGAN (INTERNATIONAL) BUILDING CODE CHAPTER 17 AND AS MODIFIED HEREIN **DESIGNATIONS**:
- SI SPECIAL INSPECTOR QUALIFIED WITH DEMONSTRATED COMPETENCE DOCUMENTED BY CERTIFICATIONS FROM RECOGNIZED AGENCIES SUCH AS AWS, ACI, MASONRY INSTITUTE OF MICHIGAN (MIM), ETC. AS SUBMITTED AND APPROVED BY THE BUILDING OFFICIAL. SPECIAL INSPECTOR MAY BE A FIRM WITH MULTIPLE SPECIALISTS AND A PROJECT MANAGER PROVIDING REPORTS.
- TA TESTING AGENCY QUALIFIED TO TEST AND INSPECT MATERIALS AND ASSEMBLIES. TESTING AGENCY SHALL BE UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR.
- GE GEOTECHNICAL ENGINEER WHO PROVIDED THE ORIGINAL PROJECT GEOTECHNICAL SOILS INVESTIGATION REPORT. SPECIALTY ENGINEER RESPONSIBLE FOR DESIGNING ASSEMBLIES SUCH AS PRECAST CONCRETE, STEEL JOISTS, COLD FORMED FRAMING ASSEMBLIES, ETC. SPECIALTY ENGINEER SHALL PROVIDE
- OBSERVATION OF FABRICATED AND INSTALLED ITEMS OF THEIR DESIGN IN ADDITION TO THE SPECIAL INSPECTION TALGE AND SEISHALL SUBMIT RECORDS OF THE INSPECTION RESULTS TO THE SILTHE SLISHALL COMPILE AND SUBMIT INSPECTION RECORDS TO THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL RECORDS SHALL INCLUDE STATEMENTS OF TESTS, WHETHER INSTALLED/FABRICATED ITEM COMPLIES WITH CONTRACT DOCUMENTS, REMEDIAL WORK PERFORMED, RETESTS.
- SI SHALL PROVIDE A DAILY REPORT OF ANY DISCREPANCIES FROM THE CONTRACT DOCUMENTS FOUND ON THE SAME DAY OF THE INSPECTION TO THE ENGINEER OF RECORD. FORMAL REPORTS OF COMPLIANCE CAN FOLLOW BY A MAXIMUM OF 2 WEEKS. SI SHALL PROVIDE AND SIGN FINAL REPORT WITH A SUMMARY OF ALL TESTS PERFORMED AND RESULTS TO THE ENGINEER OF RECORD AND
- BUILDING OFFICIAL, IN ACCORDANCE WITH SECTION 1704.2.4. SI, TA & GE SHALL BE ENGAGED BY THE OWNER IN COMPLIANCE WITH THE MICHIGAN (INTERNATIONAL) BUILDING CODE.
- WHERE FABRICATION OF STRUCTURAL. LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED
- AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND THE GOVERNING BUILDING CODE. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING.
- REFER TO SPECIAL INSPECTION SCHEDULES AND GENERAL STRUCTURAL NOTES FOR ADDITIONAL QUALITY CONTROL TESTING AND INSPECTIONS.

	SPECIAL INSPECTION REQUIREMENTS - SOILS AND FOUNDATIONS								
	INSPECTION TASK	INSPECTION FREQUENCY		REFERENCED	IDO DEFEDENCE	RESPONSIBLE			
	INSPECTION TASK	CONTINUOUS	PERIODIC	STANDARD	IBC REFERENCE	AGENT			
1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	Х	GEOTECHNICAL REPORT	1705.6	SI/GE			
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	Х	GEOTECHNICAL REPORT	1705.6	SI/GE			
3.	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X	GEOTECHNICAL REPORT	1705.6	SI/GE/TA			
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	Х	-	GEOTECHNICAL REPORT	1705.6	SI/GE/TA			
5.	PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	Х	GEOTECHNICAL REPORT	1705.6	SI/GE/TA			

CONSULTING **ENGINEERS** 

6765 Daly Road West Bloomfield, MI 48322 T/ 248.932.2010 • F/ 248.932.3088 info@desainasr.com DNCE Project No.: 19-1312



TRUCTION

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0 0	0. 2010					
INS	PECTION TASKS PRIOR TO BOLTING:					
A.	MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS.	0	Р		1705.2	SI/TA
B.	FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.	0	0			
C.	PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR	0	0	AISC 360, SECTION N5, TABLE N5.6-1		
D.	PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL.	0	0			
E.	CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS.	0	0			
F.	PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED.	Р	0			
G.	PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER	0	0			
INS	PECTION TASKS DURING BOLTING:					

1705.2

1705.2

AISC 360,

SECTION N5,

**TABLE N5.6-2** 

AISC 360,

TABLE N5.6-3

SECTION N5,

**RESPONSIBLE** 

**AGENT** 

SI

**RESPONSIBLE** 

AGENT

SI/TA

SI/TA

	A.	DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS.	Р	
O:	OBSERVE T	THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED F	PENDING THESE INSPEC	TIONS.

O: OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P: PERFORM THESE TASKS FOR EACH STEEL ELEMENT.

FASTENER ASSMEBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED.

JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE

FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTING

FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST

WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE.

MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES

C.	MATERIAL IDENTIFICATION (TTPE/GRADE).					
D.	WELDER IDENTIFICATION SYSTEM.	0	0			
E.	FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY):  - JOINT PREPARATION  - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)  - CLEANLINESS (CONDITION OF STEEL SURFACES)  - TACKING (TACK WELD QUALITY AND LOCATION)  - BACKING TYPE AND FIT (IF AVAILABLE)	0	0	AISC 360, SECTION N5, TABLE N5.4-1	1705.2	SI/TA
F.	CONFIGURATION OF FINISH AND ACCESS HOLES.	0	0			
G.	FIT-UP OF FILLET WELDS: - DIMENSIONS (ALIGNMENT, GAPS AT ROOT) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION)	0	0			
H.	CHECK WELDING EQUIPMENT.	0	-			
. INS	PECTION TASKS DURING WELDING:					
Α.	USE OF QUALIFIED WELDERS.	0	0			
B.	CONTROL AND HANDLING OF WELDING CONSUMABLES: - PACKAGING - EXPOSURE CONTROL	0	0			
C.	NO WELDING OVER CRACKED TACK WELDS.	0	0			
D.	ENVIRONMENTAL CONDITIONS: - WIND SPEED WITHIN LIMITS - PRECIPITATION AND TEMPERATURE			AISC 360,		
E.	WPS FOLLOWED: - SETTINGS ON WELDING EQUIPMENT - TRAVEL SPEED - SELECTED WELDING MATERIALS - SHIELDING GAS TYPE/FLOW RATE - PREHEAT APPLIED - INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) - PROPER POSITION (F, V, H, OH)	O	O	SECTION N5, TABLE N5.4-2	1705.2	SI/TA
F.	WELDING TECHNIQUES: - INTERPASS AND FINAL CLEANING - EACH PASS WITHIN PROFILE LIMITATIONS - EACH PASS MEETS QUALITY REQUIREMENTS	0	0			
3. INSF	PECTION TASKS AFTER WELDING:					
A.	WELDS CLEANED.	0	0			
В.	SIZE, LENGTH AND LOCATION OF WELDS.	Р	Р			
C.	WELDS MEET VISUAL ACCEPTANCE CRITERIA: - CRACK PROHIBITION WELD/BASE-METAL FUSION CRATER CROSS SECTION WELD PROFILES WELD SIZE UNDERCUT POROSITY.	Р	Р	AISC 360, SECTION N5, TABLE N5.4-3	1705.2	SI/TA
D.	ARC STRIKES.	Р	Р			
E.	K-AREA.	Р	Р			
F.	BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED).	Р	Р			
G.	REPAIR ACTIVITY.	Р	Р			
Н.	DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER.	Р	Р			

			7 (0.0 10. 11.	0.2		
EQUIRED DESIGN MIX.	-	Х	ACI 318: Ch. 19, 26	.4.3, 26.4.4 1904.1	, 1904.2, 1908.2, 1908.3	SI / TA
ETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE E.	Х	-	ASTM C17 ASTM C3 ACI 318: 26.4,	1	1908.10	SI/TA
TE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION	Х	-	ACI 318: 26	3.5 190	08.6, 1908.7, 1908.8	SI
NCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3	-26.5.5	1908.9	SI
ORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE ORMED.	-	Х	ACI 318: 26.11	.1.2(b)	-	SI / SE / TA
VERIFICATION OF SLUMP FLOW AND V		' INDEX (VSI) A				
IN ACCORDANCE WITH SPECIFICA						
VERIFICATION OF I'M AND I'aac IN ACCORI EXCEPT WHER	DANCE WITH SPE RE SPECIFICALLY			R TO CONSTR	RUCTION,	
M	IINIMUM SPECIAL	L INSPECTION				
	INSPECTION I	FREQUENCY	REFE	ERENCE CRITE	ERIA	DECDONORY
TASK	CONTINUOUS	PERIODIC	IBC SECTION	TMS 402 ACI 530	TMS 602 ACI 530.1	RESPONSIBLE AGENT

PRETENSIONING OPERATION.

: PERFORM THESE TASKS FOR EACH BOLTED CONNECTION.

INSPECTION TASKS PRIOR TO WELDING:

AVAILABLE.

RIGID POINT TOWARD THE FREE EDGES.

MATERIAL IDENTIFICATION (TYPE/GRADE).

FROM ROTATING.

INSPECTION TASKS AFTER BOLTING:

INSPECTION OF WELDING:

**RESPONSIBLE** 

AGENT

SI / TA

SI / TA

**IBC REFERENCE** 

1908.4

		INSPECTION	FREQUENCY	RE	FERENCE CRITE	RIA	DEODONOIDI E
	TASK	CONTINUOUS	PERIODIC	IBC SECTION	TMS 402 ACI 530 ASCE 5	TMS 602 ACI 530.1 ASCE 6	RESPONSIBLE AGENT
1.	VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	-	Х	-	-	ART. 1.5	SI
2.	AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN CO	MPLIANCE:					
	A. PROPORTIONS OF SITE-PREPARED MORTAR.	-	X	-	-	ART. 2.1, 2.6A	
	B. CONSTRUCTION OF MORTAR JOINTS.	-	X	-	-	ART. 3.3B	
	C. LOCATION OF REINFORCEMENT AND CONNECTORS.	-	Х	-	-	ART. 3.4, 3.6A	SI
	D. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY.	X FOR FIRST 5,000 SQ.FT. OF ACC MASONRY	X AFTER FIRST 5,000 SQ.FT. OF ACC MASONRY	-	-	ART. 2.1C	
3.	PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
	A. GROUT SPACE.	-	X	-	-	ART. 3.2D, 3.2F	
	B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR RODS.	-	Х	-	SEC. 6.1	ART. 2.4, 3.4	
	C. PLACEMENT OF REINFORCEMENT AND CONNECTORS	-	Х	-	SEC. 6.1, 6.2.1, 6.2.6, 6.2.7	ART. 3.2E, 3.4, 3.6A	SI/TA
	D. PROPORTIONS OF SITE-PREPARED GROUT	-	Х	-	-	ART. 2.6B, 2.4 G.1.b	
	E. CONSTRUCTION OF MORTAR JOINTS.	-	Х	-	-	ART. 3.3B	
4.	VERIFY DURING CONSTRUCTION:				1		
	A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	-	X	-	-	ART. 3.3F	
	B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.	-	Х	-	SEC. 1.2.1(e), 6.1.4.3, 6.2.1	-	
	C. WELDING OF REINFORCEMENT.	Х	-	-	SEC. 8.1.6.7.2, 9.3.3.4(c),11.3.3.4(b)	-	
	D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	-	Х	-	-	ART. 1.8C, 1.8D	SI/TA
	E. PLACEMENT OF GROUT AND COMPLIANCE.	Х	-	-	-	ART. 3.5, 3.6C	
	F. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS.	X FOR FIRST 5,000 SQ.FT. OF ACC MASONRY	X AFTER FIRST 5,000 SQ.FT. OF ACC MASONRY	-	-	ART. 3.3 B.9, 3.3 F.1.b	
5.	OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS.	-	Х	-	-	ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4	SI/TA

**SPECIAL INSPECTION REQUIREMENTS - CONCRETE CONSTRUCTION** 

CONTINUOUS

**INSPECTION TASK** 

INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY

ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED

PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS,

PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE

INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION

VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.

INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE

A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706

B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.

B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"

INSPECT ANCHORS POST-INSTALLED IN HARDENED MEMBERS.

ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.

REINFORCING BAR WELDING:

C. INSPECT ALL OTHER WELDS

INSPECT ANCHORS CAST IN CONCRETE.

VERIFY USE OF REQUIRED DESIGN MIX.

OF THE CONCRETE.

MEMBER BEING FORMED.

TECHNIQUES.

INSPECTION FREQUENCY

PERIODIC

Χ

Х

REFERENCED

STANDARD

ACI 318: Ch. 20, 25.2, 25.3,

26.6.1-26.6.3

AWS D1.4

ACI 318: 26.6.4

ACI 318: 17.8.2

ACI 318: 17.8.2.4

ACI318: 17.8.2

IBC REFERENCE SECTION 1705.1 AND TABLE 3.1.2 TMS 402/ACI 530/ASCE 5

## SPECIAL INSPECTION REQUIREMENTS - POST-INSTALLED ANCHORS

INSPECTION TASK	REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
1. INSPECT AND TEST ALL POST-INSTALLED MECHANICAL AND ADHESIVE ANCHORS MANUFACTURER'S ICC-ESR EVALUATION REPORT FOR EACH ANCHOR.	ICC-ESR FOR EACH ANCHOR	1705.1.1	SI/TA

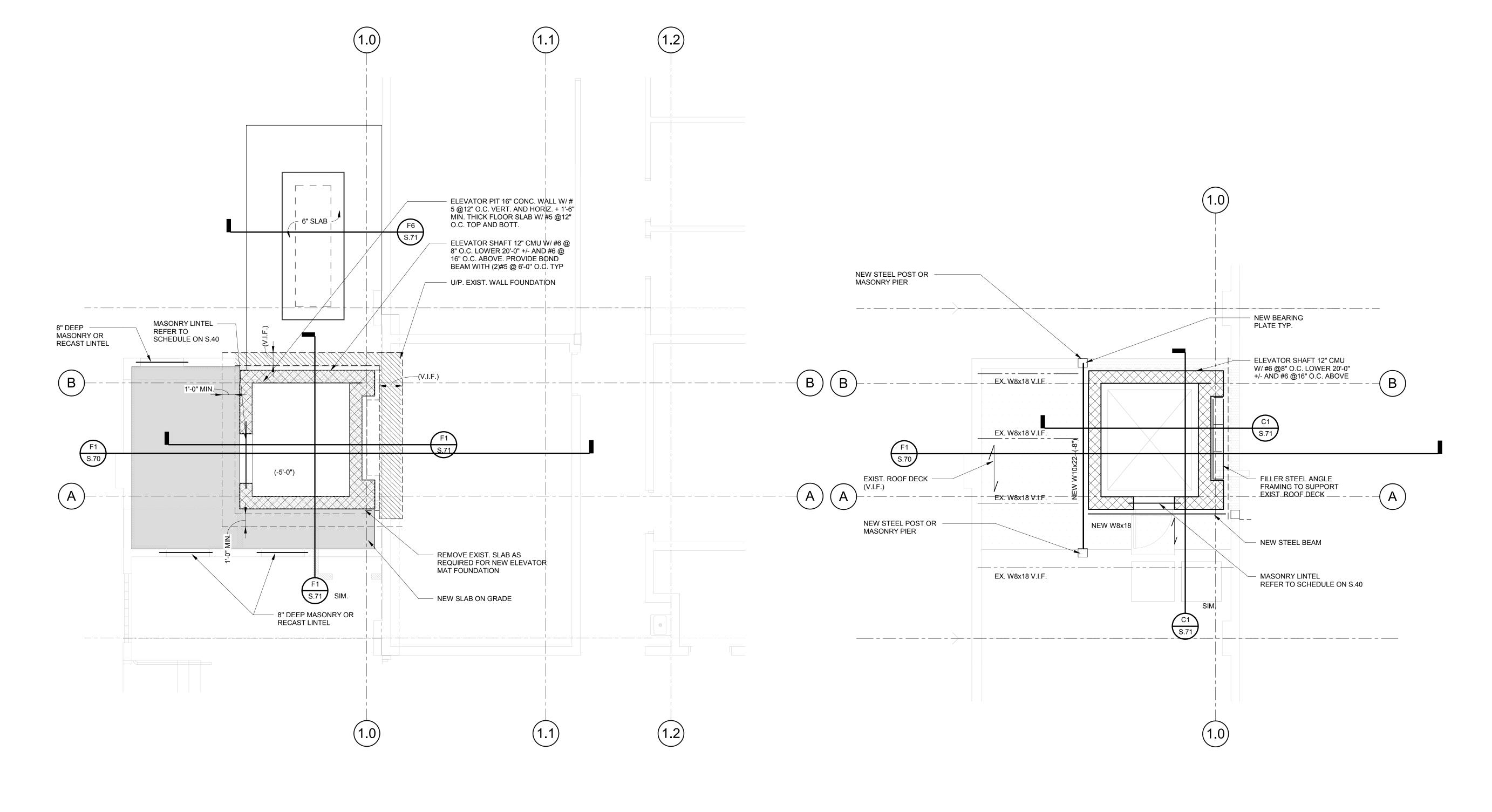
#### SPECIAL INSPECTION REQUIREMENTS - COLD FORMED METAL FRAMING

	INCRECTION TACK	INSPECTION	FREQUENCY	REFERENCED	IBC REFERENCE	RESPONSIBLE
	INSPECTION TASK	CONTINUOUS	PERIODIC	STANDARD	IBC REFERENCE	AGENT
1	. INSPECTION OF COLD FORMED METAL ASSEMBLIES PER APPROVED CALCULATIONS:					
	A. MEMBER SIZE AND CONFIGURATION.	-	X		2211	SI / SE
	B. CONNECTION SCREWS AND WELDING.	-	X	AISI-S100		
	C. MEMBER AND ASSEMBLY BRACING.	-	X			
2	. INSTALLATION PER APPROVED DETAILS:					
	A. MEMBER SIZE AND SPACING.	-	X	AISI-S100		
	B. CONNECTION SCREWS.	-	X	AISI-S100	2211	SI / SE
	C. WELDING.	-	X	AISI-S100, AWS D1.3		
	D. BRIDGING/BRACING.	-	X	AISI-S100		
	3. COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER					
	A. VERIFY THAT THE TEMPORARY INSTALLATION RESTRAINT/BRAING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE	-	Х	AISI-S100	1705.2.4	SI / SE

CONSULTING ENGINEERS

6765 Daly Road West Bloomfield, MI 48322 / 248.932.2010 • F/ 248.932.3088







## AUX. BUILDING FLOOR / FOUNDATION

#### **FOUNDATION NOTES**:

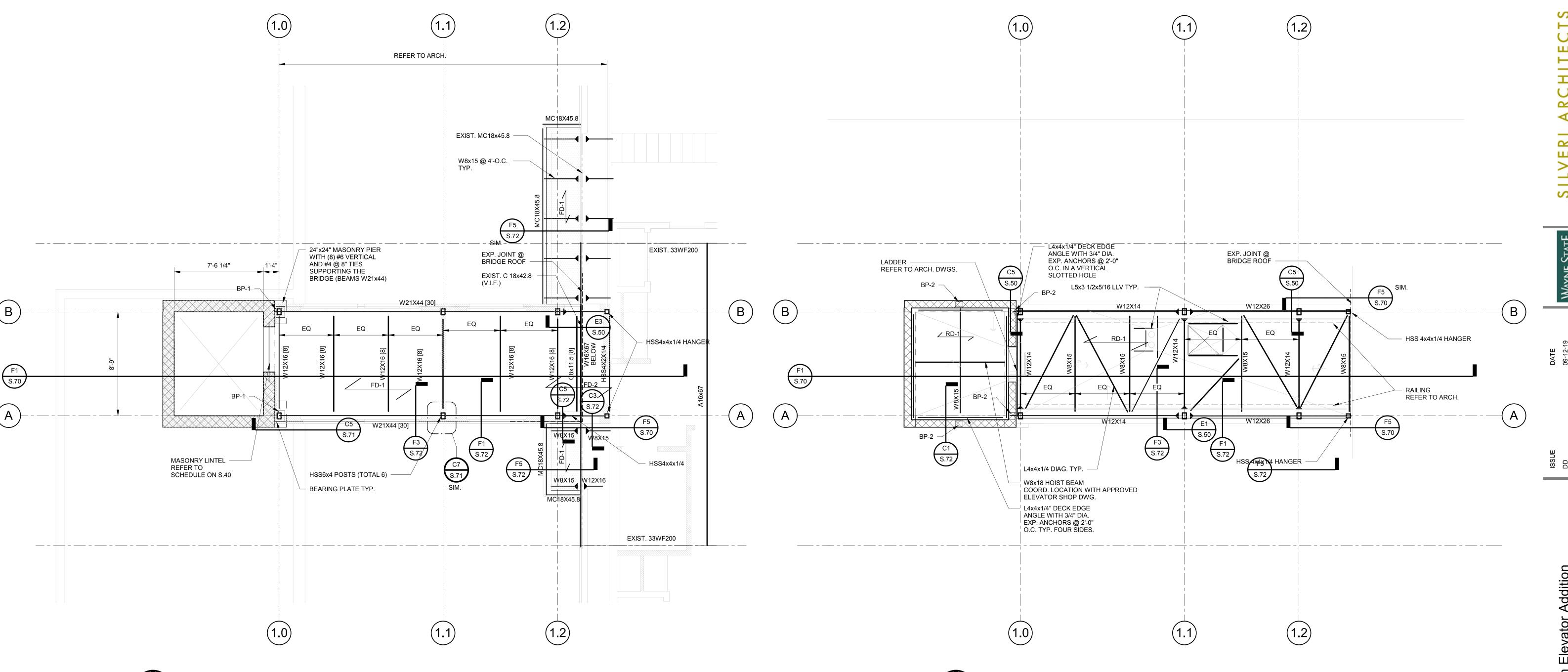
- 1. REFERENCE FINISHED FLOOR ELEVATION = REFER TO ARCH.
- FOOTING ARE DESIGNED TO BEAR ON UNDISTURBED NATURAL SOILS WITH A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 3,000 PSF (ASSUMED).
- 3. CONTRACTOR SHALL COORDINATE ALL MASONRY DOWEL SIZES AND SPACING TO BE CAST INTO CONCRETE WITH MASONRY REINFORCING SHOP DRAWINGS.
- REFER TO CIVIL/SITE DRAWINGS FOR PROPOSED GRADE ELEVATIONS AROUND THE PERIMETER OF THE BUILDING.
- REFER TO MEP DRAWINGS FOR ALL PIPE AND CONDUIT SIZES AND LOCATIONS PASSING THROUGH AND/OR UNDER FOUNDATIONS.
- REFERENCE DRAWINGS:
- S.01, S.02 GENERAL STRUCTURAL NOTES S.02, S.03 SPECIAL INSPECTION SCHEDULES
- S.70, S.71 GENERAL SECTIONS AND DETAILS







CONSTRUC

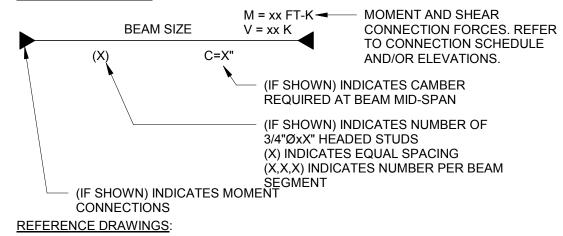




### BRIDGE FLOOR FRAMING PLAN

**BRIDGE FLOOR FRAMING NOTES:** 

- 1. FINISHED FLOOR REFERENCE ELEVATION = REFER TO ARCH.
- TOP OF STEEL REFERENCE ELEVATION (DECK BEARING ELEVATION) = -5 1/2" FROM FINISHED FLOOR ELEVATION UNLESS NOTED THUS [±X'-XX"]
- **DESIGNATIONS**:
  - FD-1: 3 1/2" LIGHT WT. CONCRETE ON 2" 20 GA. MIN. GALVANIZED COMPOSITE DECK (TOTAL 5 1/2" SLAB THICKNESS) MIN. 3 SPAN CONTINUOUS REINFORCED WITH 6x6-W2.1x2.1 W.W.F. PLACED 1" FROM TOP OF SLAB.
  - FD-2: 2 1/2" LIGHT WT. CONCRETE ON 1 1/2" 20 GA. MIN. GALVANIZED COMPOSITE DECK (TOTAL 4" SLAB THICKNESS) REINFORCED WITH 6x6-W2.1x2.1 W.W.F. PLACED 1" FROM TOP OF SLAB.
  - BP-x BEARING PLATE, REFER TO SCHEDULE
  - L-x LINTEL, REFER TO SCHEDULE
- 4. VERIFY SIZE AND LOCATION OF OPENINGS WITH ARCHITECTURAL AND MEP DRAWINGS.
- **BEAM DESIGNATIONS**:



GENERAL STRUCTURAL NOTES S.01, S.02 S.02, S.03 SPECIAL INSPECTION SCHEDULES TYPICAL MASONRY DETAILS AND SCHEDULES S.40 S.50 TYPICAL STEEL SECTIONS AND DETAILS S.70, S.71, S.72 TYPICAL DETAIL

### ROOF FRAMING PLAN

**ROOF FRAMING NOTES:** 

1. TOP OF STEEL REFERENCE ELEVATION (DECK BEARING ELEVATION) = REFER TO ARCH.

**DESIGNATIONS**:

RD-1: 1 1 1/2" - 20GA. MIN. WIDE RIB GALVANIZED STEEL ROOF DECK (MIN. 3 SPAN CONT.)

BP-x BEARING PLATE, REFER TO SCHEDULE

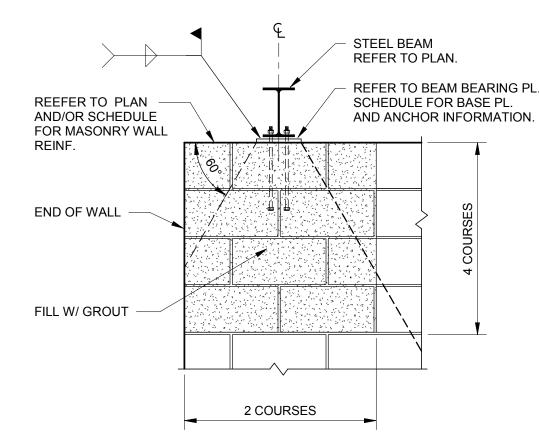
L-x LINTEL, REFER TO SCHEDULE

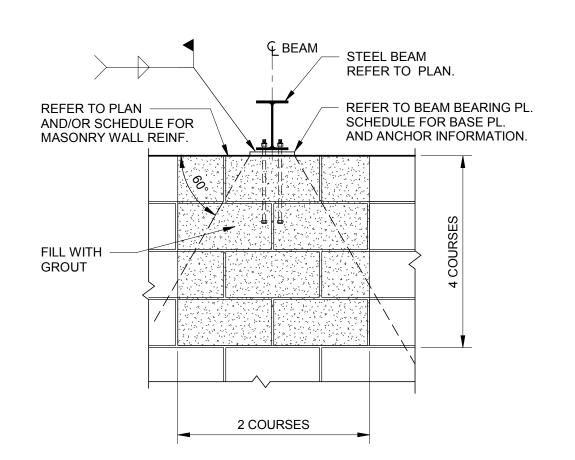
- PROVIDE 3/4" CAP PLATE ON COLUMN FOR JOIST BEARING AS REQUIRED.
- PROVIDE 1/4" CAP PLATE ON COLUMN FOR DECK BEARING AS REQUIRED.
- COORDINATE SIZES AND LOCATION OF ALL ROOF OPENINGS WITH ARCHITECTURAL AND MEP DRAWINGS. VERIFY SIZES, WEIGHTS, AND LOCATIONS OF ROOF TOP MECHANICAL EQUIPMENT WITH ARCHITECTURAL AND MEP DRAWINGS. REPORT ANY DISCREPANCIES WITH RESPECT TO SIZE AND WEIGHTS SHOWN ON THESE DRAWINGS TO THE ARCHITECT AND ENGINEER.
- FRAMING FOR ALL ROOF DRAINS AND OVERFLOW DRAINS SHALL BE L5x3 1/2x5/16 LLV TYPICAL, ALL SIDES OF SUPPORTED EDGE, UNLESS NOTED OTHERWISE.
- REFERENCE DRAWINGS:

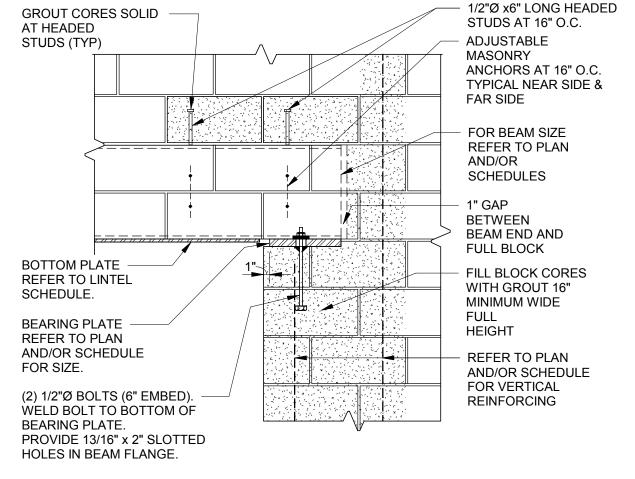
S.01, S.02 GENERAL STRUCTURAL NOTES SPECIAL INSPECTION SCHEDULES S.02, S.03 TYPICAL MASONRY DETAILS AND SCHEDULES S.40 S.50 TYPICAL STEEL SECTIONS AND DETAILS S.70, S.71, S.72 TYPICAL DETAILS

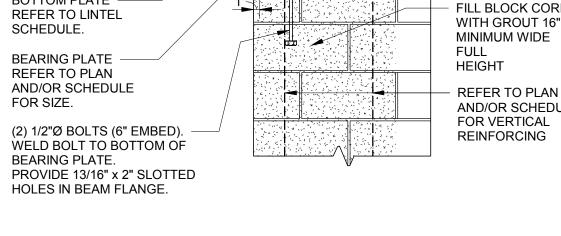
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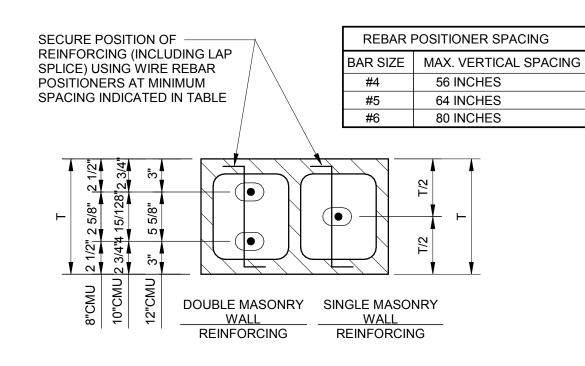




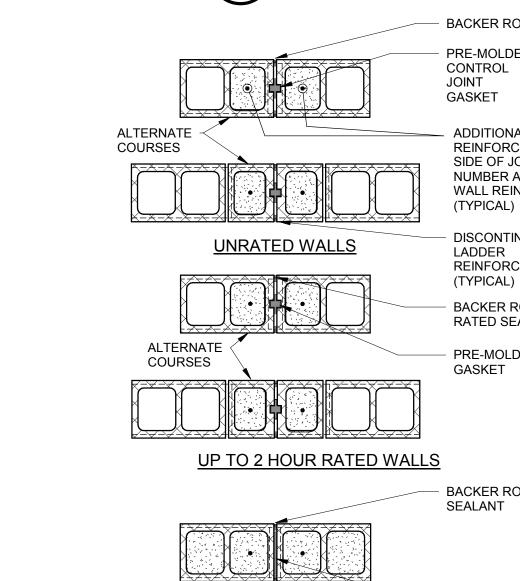


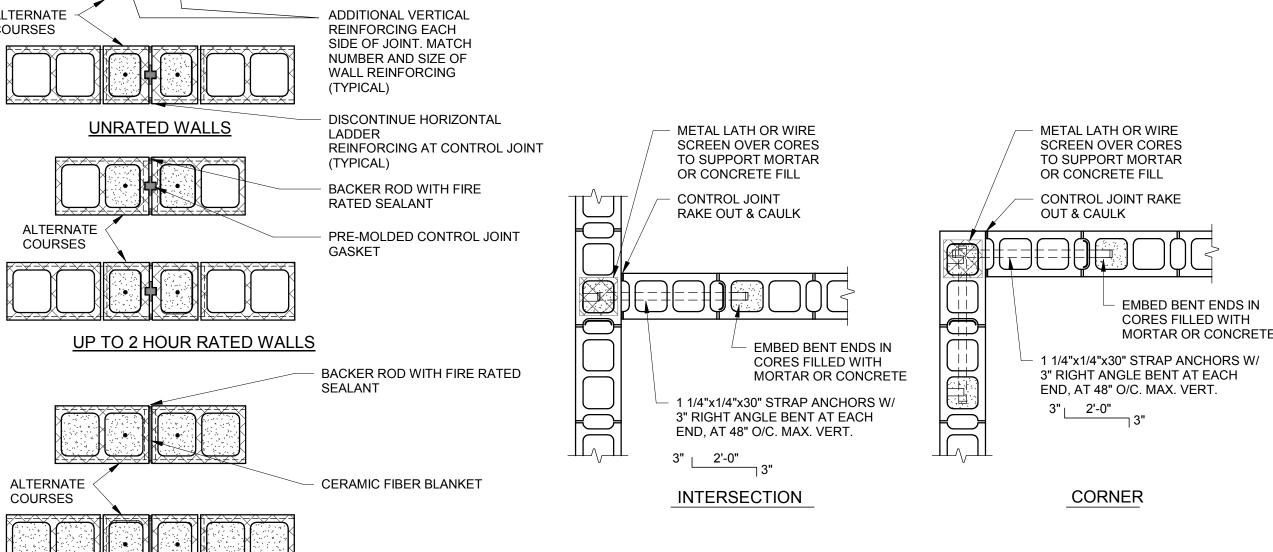


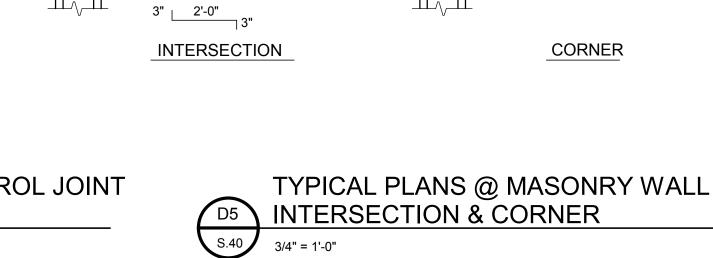
TYP - LINTEL BEARING DETAIL

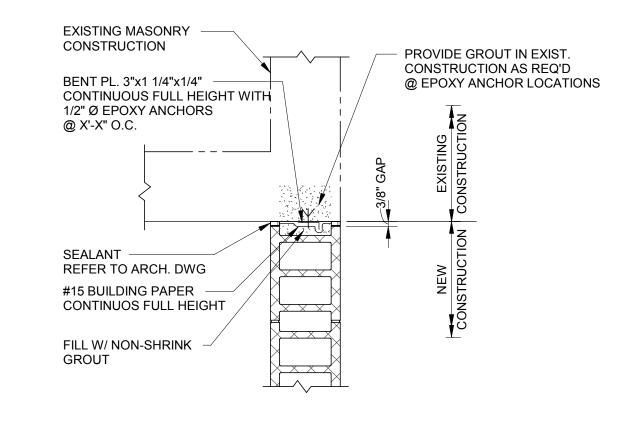














MASONRY WALL SCHEDULE												
MARK	MW1											
SIZE	12"											
REINF.	(1)#6 @8" O.C. LOWER +/- 20'-0"											
REMARK	(1)#6 @16" O.C. ABOVE +/- 20'-0"											
	PROVIDE (2)#5 AT JAMB OR OPENING AND ENDS, DOWEL INTO FOOTING. EXTEND REINFORCEMENT INTO MASONRY LINTEL, LAP WALL REINFORCEMENT WITH STUDS WELDED TO TOP OF STEEL LINTELS. (2)# ONE BAR AT EACH END (1)# ONE BAR AT CENTER OF CMU											

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**BOND BEAM** W/ 2-#5 CONT. STEEL BEAM BEARING ON MASONRY BOND BEAM

ADDL. REINF.

AT OPENING

2-#5

ABOVE LINTEL EQUALS 1/2" MASONRY OPENING + 8"

TYP. MASONRY LINTEL SCHED. AND

**DETAILS FOR NON-BEARING WALL** 

LENGTH OF LINTEL

MASONRY OPENING

TRIANGLE ZONE

SEE NOTE #2

BOND BEAM

STD. UNITS W/ WEB CUT OUT:

OPENING

2-#6

GROUT SOLID 3-COURSES

1'-4"

2-#6

2-#6

GROUTED SOLID

VERT. (MIN.)

UP TO 4'-0" | 4'-2" TO 6'-0" | 6'-2" TO 8'-0" | 8'-2" TO 10'-0" | 10'-2" TO 12'-0" | 12'-2" TO 14'-0

MASONRY OPENING

2-#5

LINTEL DESIGNED FOR WALL LOADS OF TRIANGULAR AREA ABOVE LINTELS HEIGHT OF TRIANGLE

REINF. BOTTOM OF 8" BOND BEAM AND TOP AND BOTTOM OF 16" BOND BEAM U.O.N.

REFER TO ARCH. DWG. FOR ALL MASONRY OPENINGS AND LINTEL CONFIGURATIONS.

BELOW BEARING

REFER TO PLAN.

REFER TO BEAM BEARING PL

AND ANCHOR INFORMATION.

SCHEDULE FOR BASE PL.

REFER TO PLAN

WEB CUT OUT

IF REQ'D. FOR

TOP REINF.

CONCRETE

WIDTH DEPTH

2-#5

3000 PSI

S.40

AND/OR SCHEDULE FOR

MASONRY WALL REINF.

GROUTING OF CORNER MASONRY WALL @ STEEL BEAM BEARING

GROUTING OF MASONRY @ STEEL BEAM B4 BEARING

BACKER ROD WITH SEALANT PRE-MOLDED

2 TO 4 HOUR RATED WALLS

S.40

TYP - MASONRY WALL CONTROL JOINT D4 DETAIL

3/4" = 1'-0"

CONSTRUCTION

36/4 PATTERN 5/8" Ø PUDDLE WELD AT INTERMEDIATE SUPPORTS 36/7 PATTERN 5/8" Ø PUDDLE WELD AT MOMENT FRAMES, BRACED FRAMES, AND BLDG PERIMETER WELD REQUIRED AT -ALL SIDELAP SUPPORT POINTS #10 TEK SIDELAP FASTENER @ 3'-0" MAX. MINIMUM ONE FASTENER BETWEEN EACH BEAM

TYPICAL ROOF DECK FASTENER

**PATTERNS** 1/2" = 1'-0" € COLUMN MOMENT PLATE "A" (TOP) 1/2" PLATE —— TOP & BOTTOM EXTEND OVER COL. AT ROOF. MOMENT PLATE "B" - (3) ROWS 3/4"Ø BOLTS (TOP & BOTT) TOP PLATE WELD "B" TYP. SHIM PLATE PLATE HSS COL

WELD THROUGH MULTIPLE SHEETS AT ALL END AND SIDE LAPS.

END LAPS SHALL OCCUR ONLY AT SUPPORT POINTS.

BEARING PLATE SCHEDULE ANCHOR BOLTS BEARING PLATE SIZE MARK REMARKS (L" x W" x T") EMBEDMENT PROJ. NO. & SIZE BP-1 12"X12"X1" (4) 3/4" DIA. 12" (2) 1/2" DIA. BP-2 10"X10"X3/4"

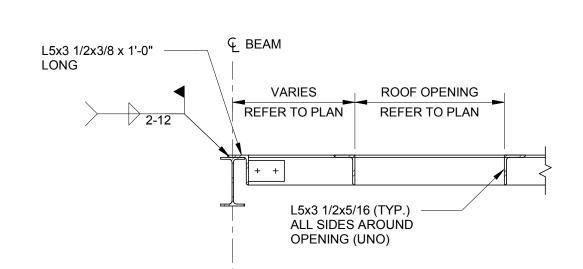
SECTION A-A

BOLTED MOMENT CONN. TO HSS COL (2

E1 SIDES)

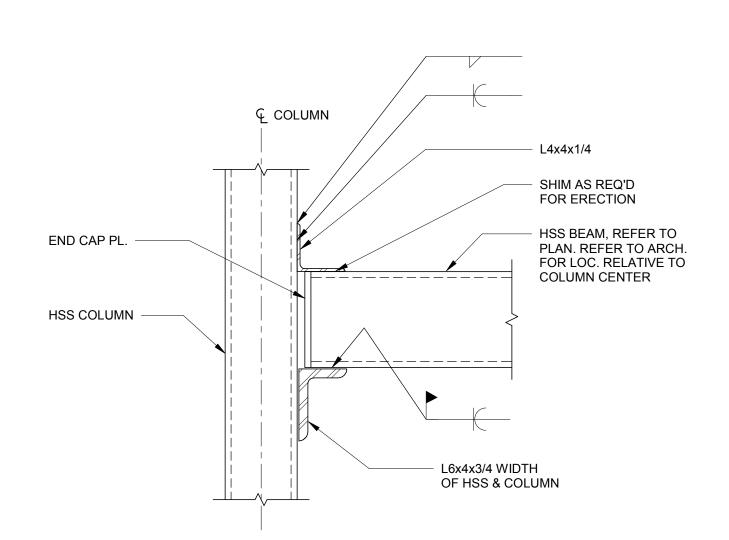
S.50

EDGE OF BEARING PLATE SHALL BE LOCATED NOT MORE THAN 1/2" FROM THE FACE OF THE WALL ON THE SIDE OF BEAM OR JOIST SPAN.

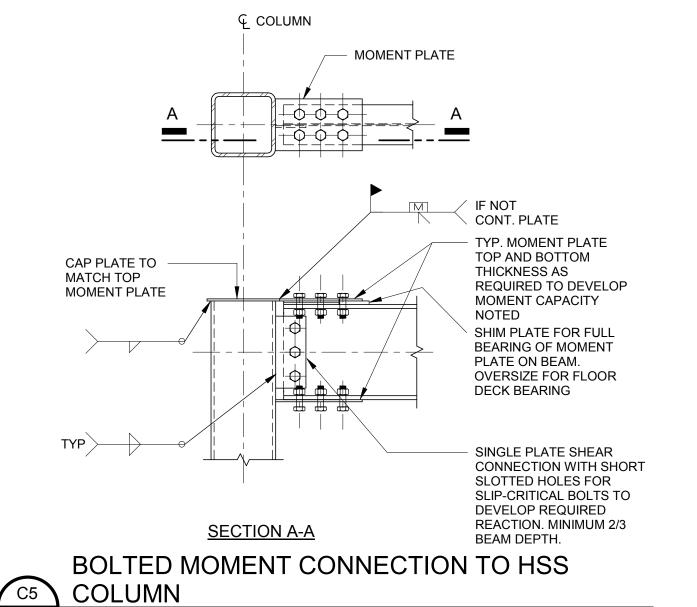


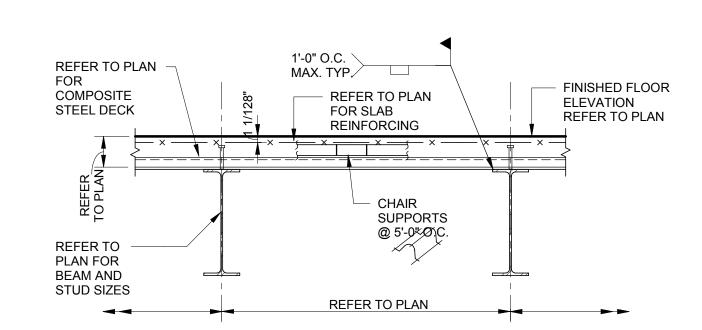
NOTE:
COORDINATE SIZE AND LOCATION
OF OPENINGS WITH MECHANICAL DRAWINGS AND APPROVED EQUIPMENT LAYOUT.

TYPICAL ROOF OPENING DETAIL







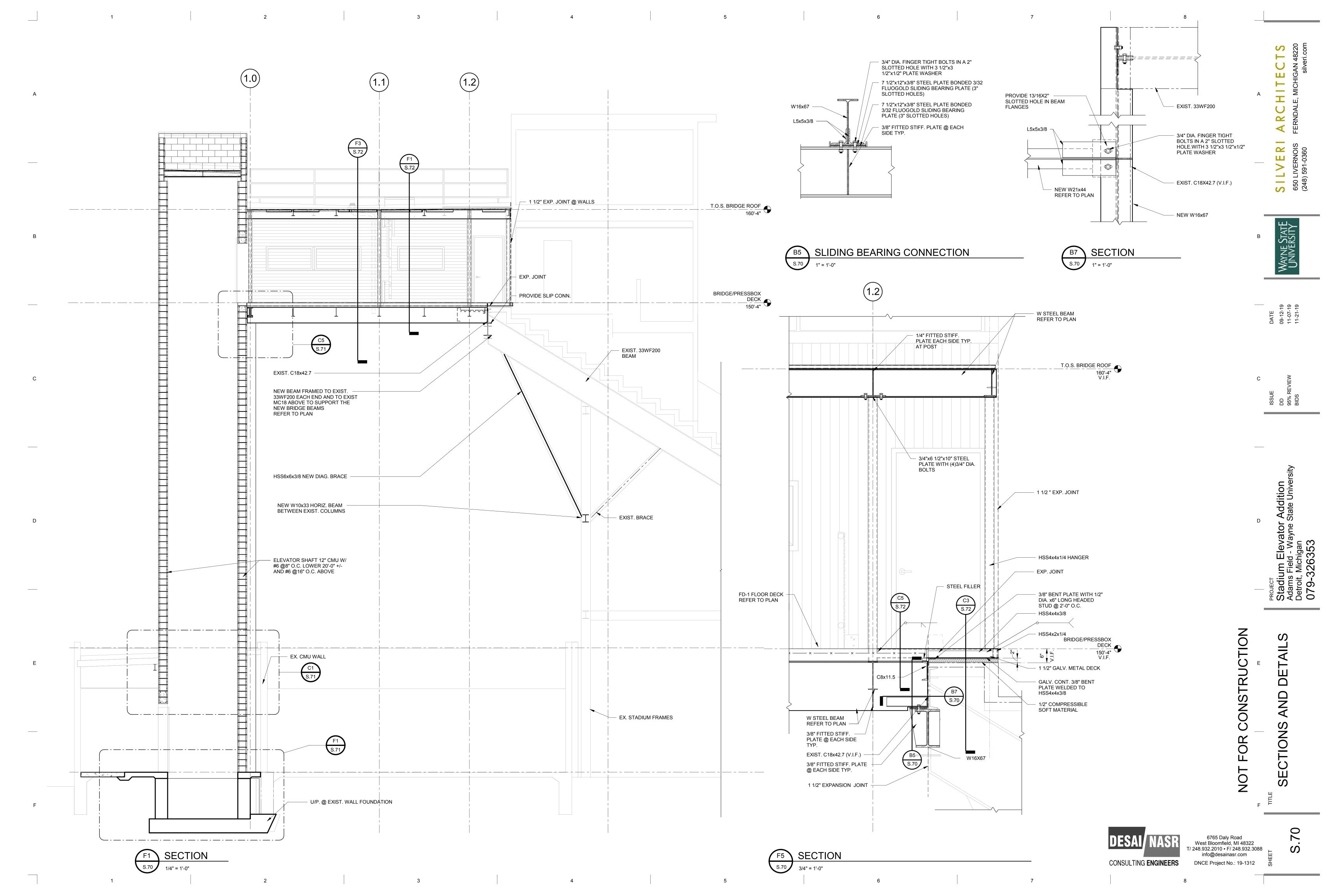


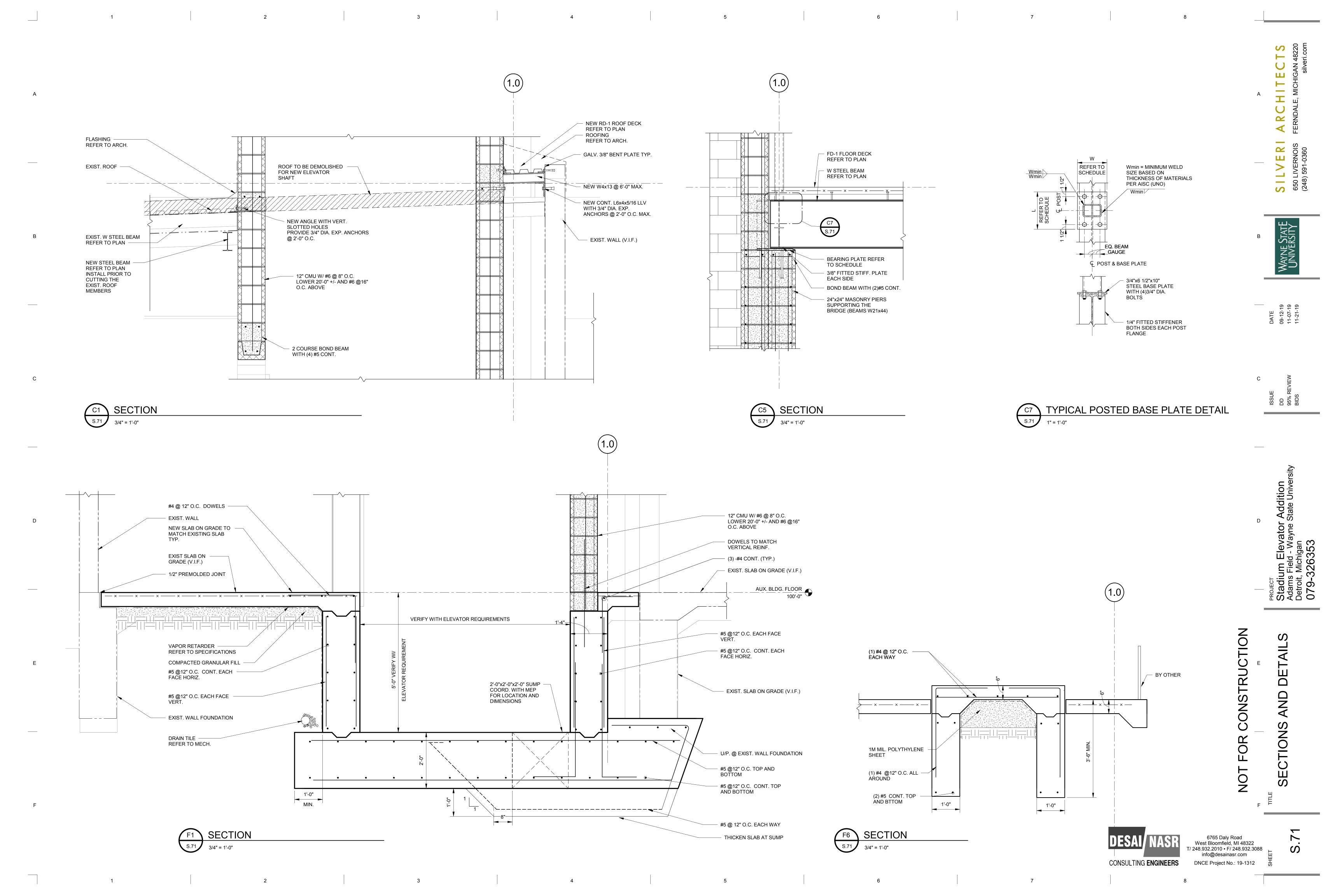


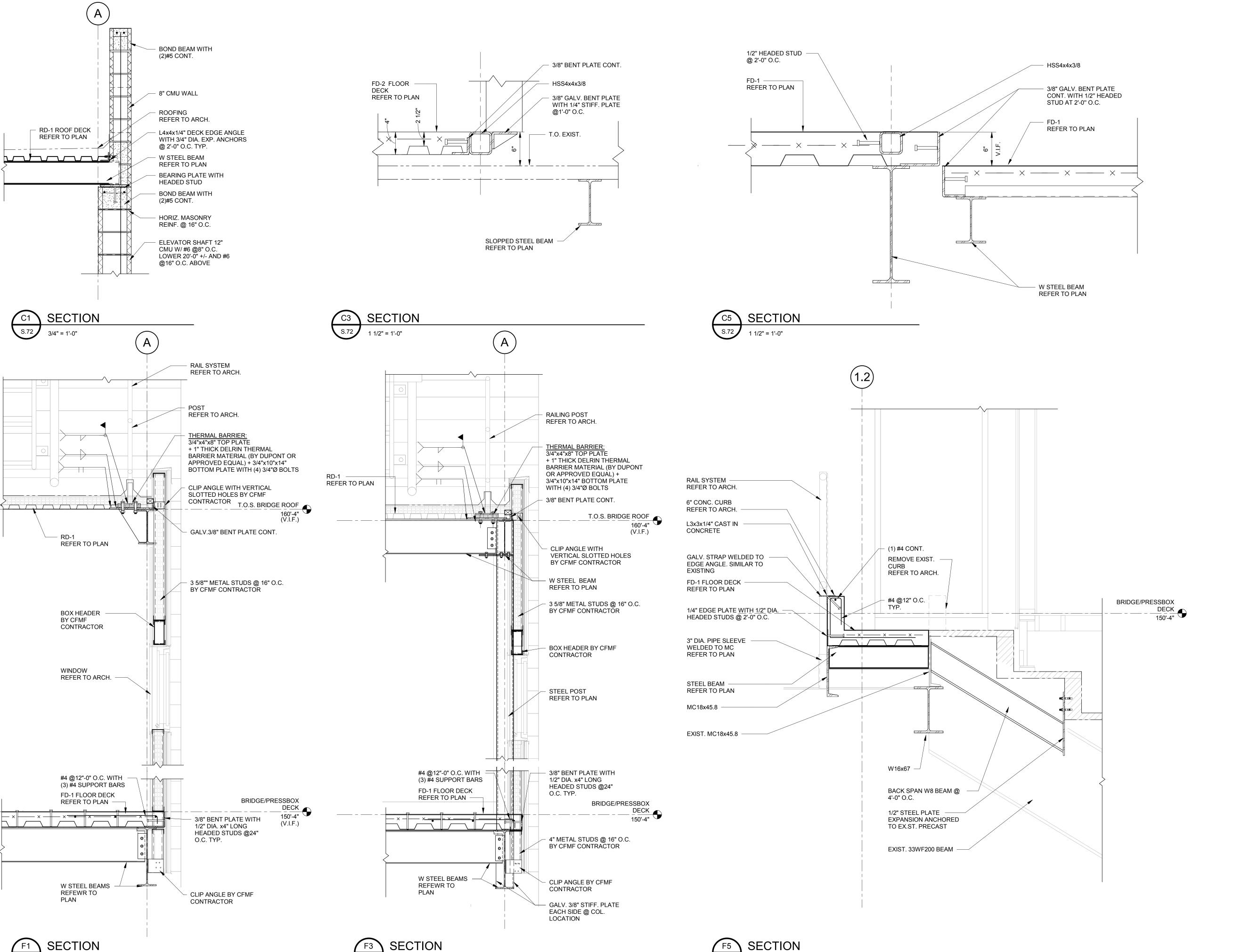








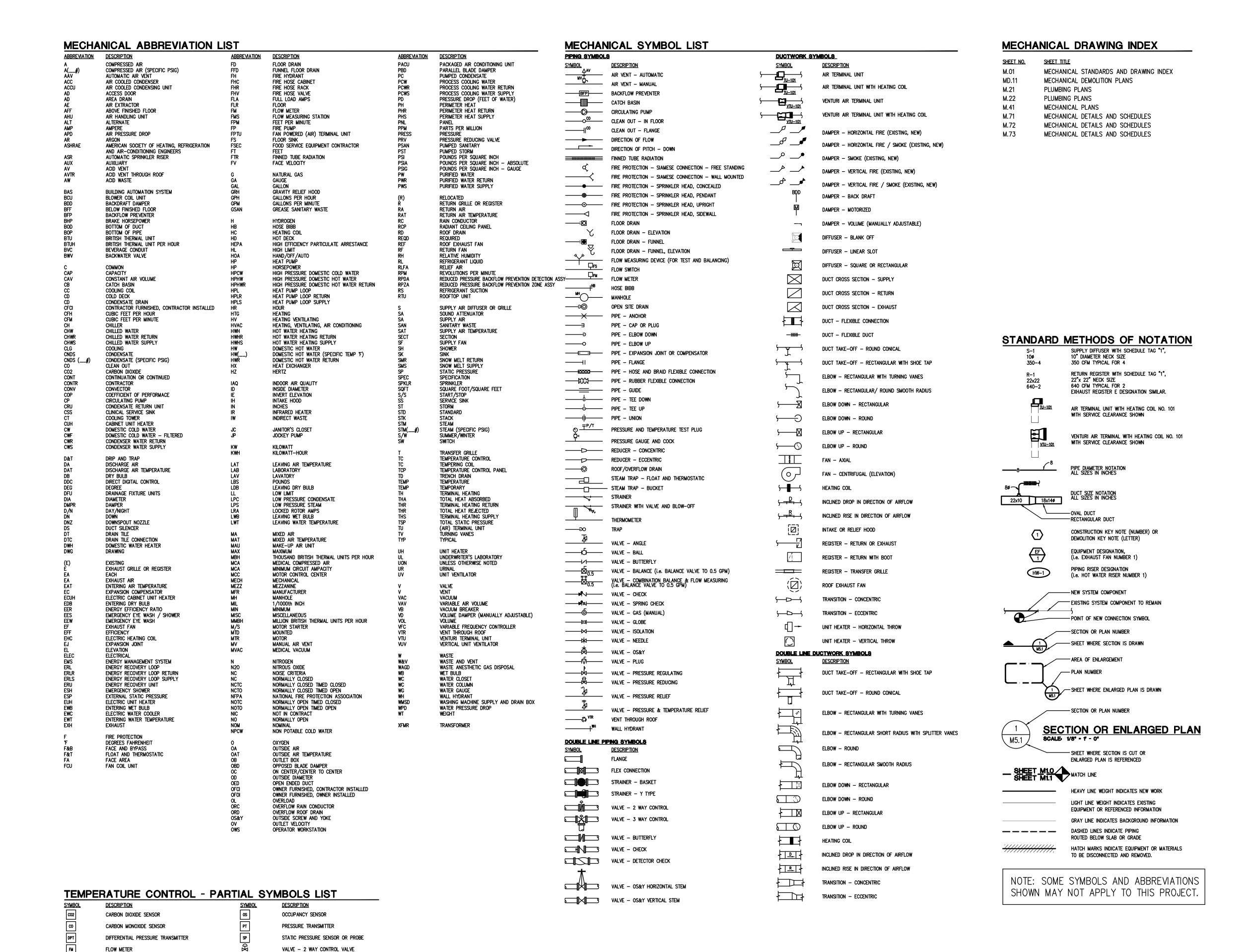




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VALVE - 3 WAY CONTROL VALVE

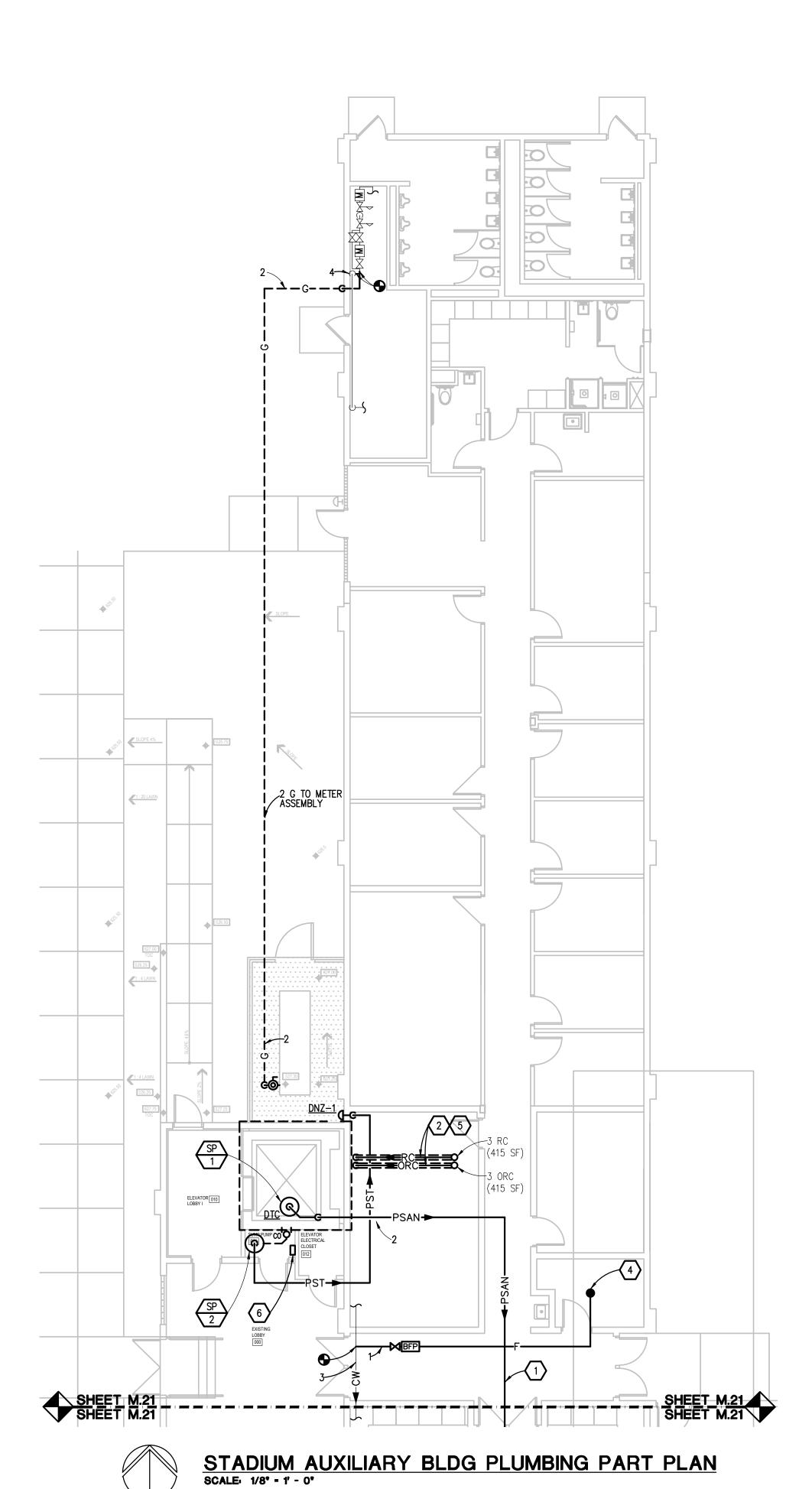
(AS DEFINED ON TC DRAWNGS)

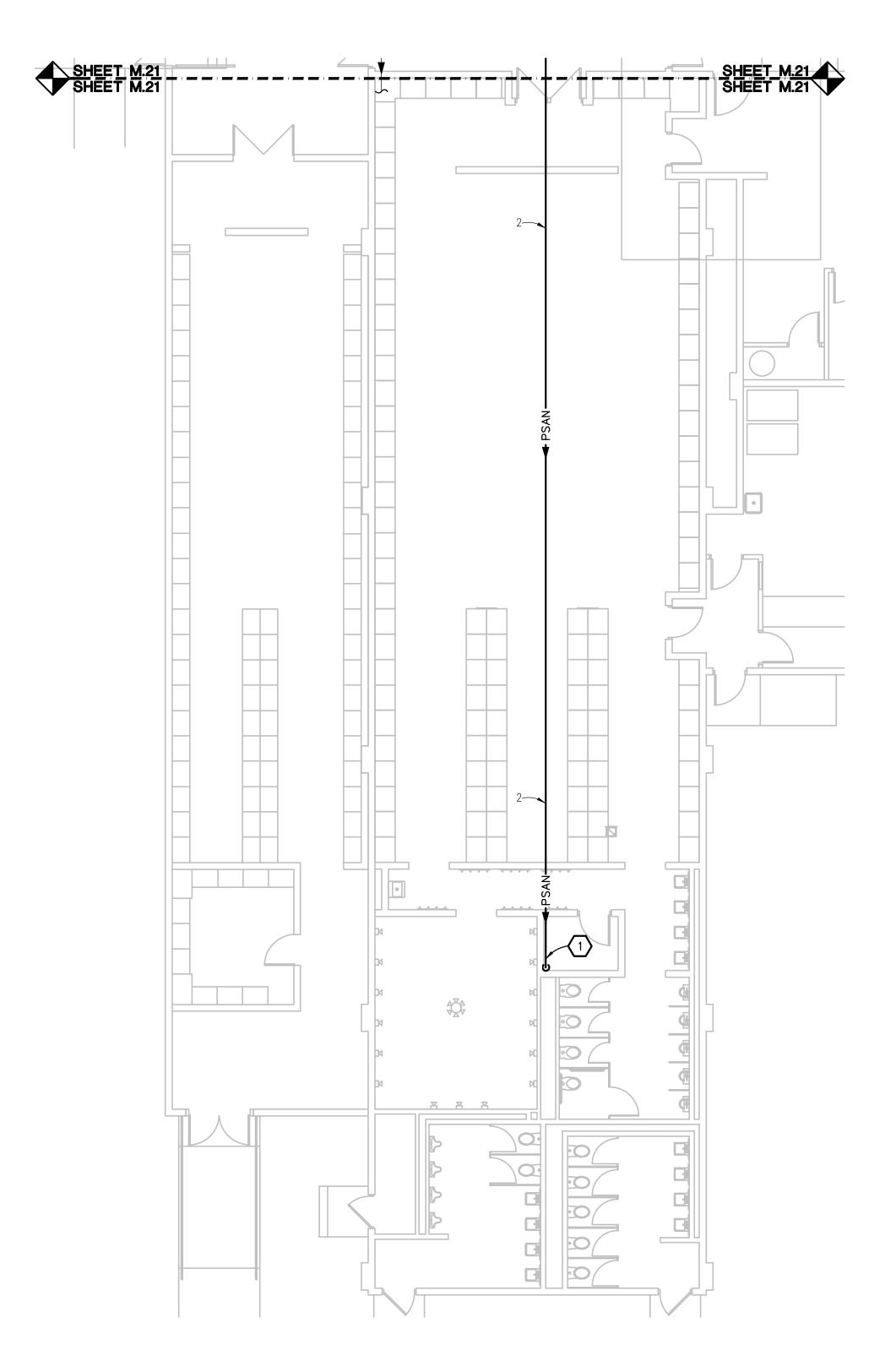
THERMOSTAT OR TEMPERATURE SENSOR

GUARD FOR STAT OR SENSOR

HUMIDISTAT OR HUMIDITY SENSOR

(AS DEFINED ON TC DRAWINGS)







- ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
- IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
- SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
- 4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

- 7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE
- 8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
- 9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

- 1. 2 PSAN. TERMINATE AT CODE REQUIRED DISTANCE ABOVE SERVICE SINK RIM.
- 2. ROUTE RC AND ORC PIPING OUTSIDE AND TIGHT TO UNDERSIDE OF BRIDGE TO TERMINATE AT ROOF LEVEL BELOW.
- 3. CONNECT TO EXISTING VERTICAL STACK.

- 6. SELF REGULATING HEAT CABLE CONTROLLER. PROVIDE WITH OUTSIDE TEMPERATURE

#### PLUMBING GENERAL NOTES:

- 1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND
- 2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE
- 3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS,
- 5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL
- 6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
- 1/2" UNLESS OTHERWISE NOTED.
- 10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".



- EXTERIOR WALL OF ELEVATOR. ROUTE DOWN ON ELEVATOR EXTERIOR WALL AND
- 4. PROVIDE A LIMITED AREA SPRINKLER SYSTEM SERVED FROM THE DOMESTIC COLD WATER MAIN AND PROVIDE A SPRINKLER HEAD IN THE ELECTRICAL ROOM.
- 5. PROVIDE SELF REGULATING HEAT CABLE THROUGH ENTIRE LENGTH OF RC AND ORC PIPING FROM ROOF DRAIN TO TERMINATION AT LOW ROOF. ATTACH HEAT CABLE AT ROOF. APPROXIMATE LENGTH OF EACH RUN IS 75', 150' TOTAL.







PRESSBOX LEVEL PLUMBING PLAN
SCALE: 1/4" - 1" - 0"

- 1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
- 2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
- 3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
- 4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- 5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
- 6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING
- 7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- 8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
- 9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
- 10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

### **\*** CONSTRUCTION KEY NOTES:

- 1. 2 PSAN. TERMINATE AT CODE REQUIRED DISTANCE ABOVE SERVICE SINK RIM.
- 2. ROUTE RC AND ORC PIPING OUTSIDE AND TIGHT TO UNDERSIDE OF BRIDGE TO EXTERIOR WALL OF ELEVATOR. ROUTE DOWN ON ELEVATOR EXTERIOR WALL AND TERMINATE AT ROOF LEVEL BELOW.
- 3. CONNECT TO EXISTING VERTICAL STACK.
- 4. PROVIDE A LIMITED AREA SPRINKLER SYSTEM SERVED FROM THE DOMESTIC COLD WATER MAIN AND PROVIDE A SPRINKLER HEAD IN THE ELECTRICAL ROOM.
- 5. PROVIDE SELF REGULATING HEAT CABLE THROUGH ENTIRE LENGTH OF RC AND ORC PIPING FROM ROOF DRAIN TO TERMINATION AT LOW ROOF. ATTACH HEAT CABLE AT ROOF. APPROXIMATE LENGTH OF EACH RUN IS 75', 150' TOTAL.
- 6. SELF REGULATING HEAT CABLE CONTROLLER. PROVIDE WITH OUTSIDE TEMPERATURE

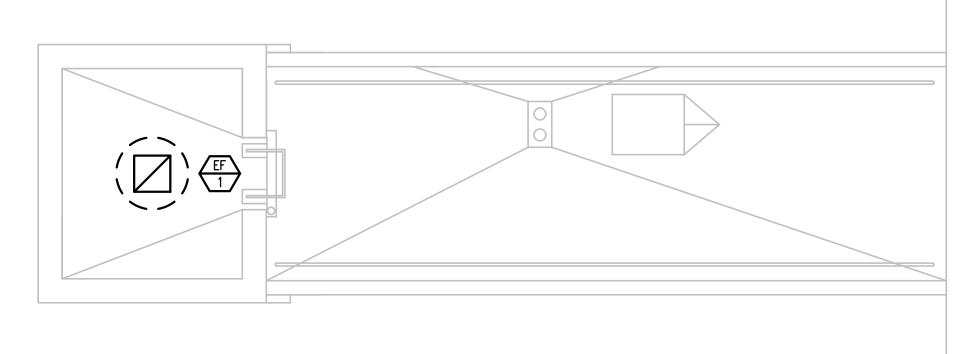




- 3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
- 4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- 5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL
- 6. SUBMIT PROPOSED METHODS OF ANCHORING AND GUIDING PIPING SYSTEMS TO STRUCTURAL ENGINEER FOR APPROVAL.
- 7. MOUNT THERMOSTATS 48" A.F.F., UNLESS OTHERWISE NOTED. LOCATE AS CLOSE AS POSSIBLE TO DOOR WHEN INDICATED NEAR DOOR. COORDINATE EXACT LOCATION WITH ALL OTHER TRADES.

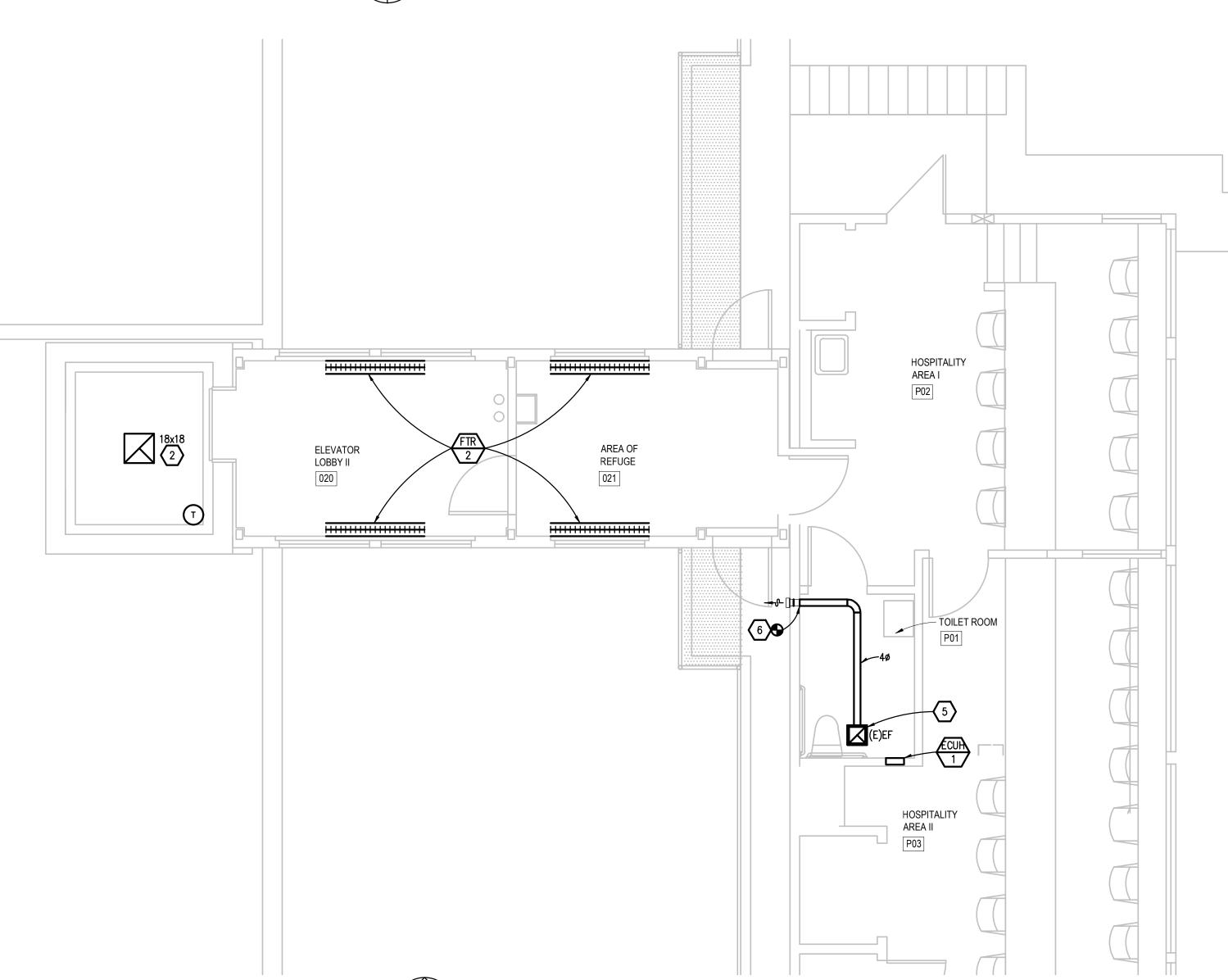
### **\*** CONSTRUCTION KEY NOTES:

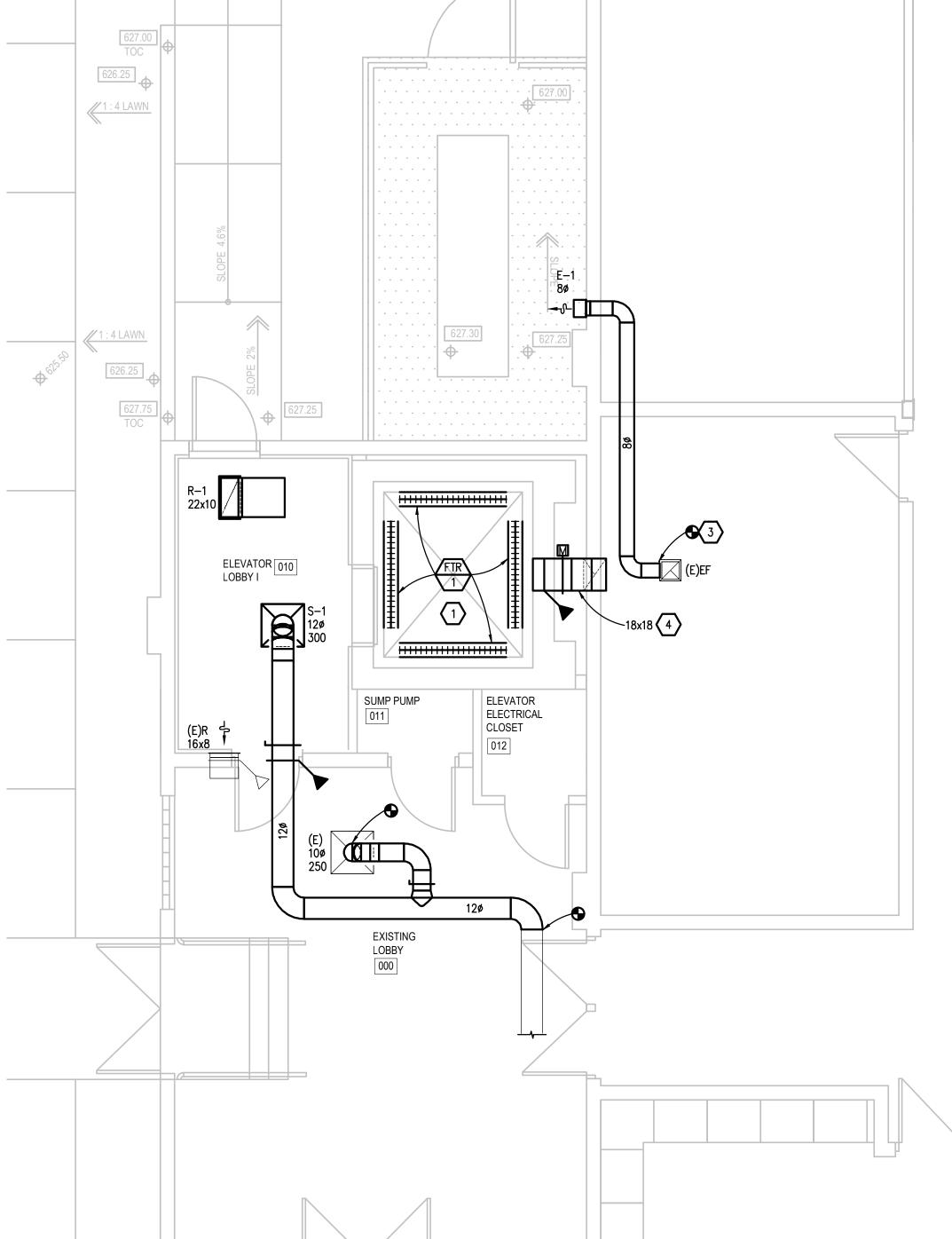
- 1. COORDINATE LOCATION OF ELECTRIC FINNED TUBE WITH ELEVATOR EQUIPMENT PURCHASED.
- 2. DUCTWORK DOWN THROUGH ROOF. TERMINATE WITH BELLMOUTH AND BIRD SCREEN.
- 3. CONNECT DUCTWORK TO EXISTING EXHAUST FAN.
- 4. MOUNT OUTDOOR AIR INTAKE 4'-0" ABOVE ROOF.
- 5. RE-INSTALL SALVAGED EXHAUST FAN.
- 6. CONNECT TO EXISTING DUCTWORK IN WALL PENETRATION.





ROOF MECHANICAL PLAN
SCALE: 1/4" - 1' - 0"





STADIUM AUXILIARY BLDG MECHANICAL PLAN
SCALE: 1/4' - 1' - 0"

PRESSBOX LEVEL MECHANICAL PLAN
SCALE: 1/4" - 1" - 0"



Peter Basso Associates Inc CONSULTING ENGINEERS 5145 Livernois, Suite 100 Troy, Michigan 48098-3276 Tel: 248-879-5666 Fax: 248-879-0007

HAND OPERATION.

**SILVER**|
650 LIVERNOIS
(248) 591-0360

Peter Basso Associates Inc CONSULTING ENGINEERS

5145 Livernois, Suite 100 Troy, Michigan 48098-3276 Tel: 248-879-5666 Fax: 248-879-0007

TO HAVE A SINGLE POINT ELECTRICAL CONNECTION, COMPLETE WITH FACTORY INSTALLED STARTERS. CONTACTORS, FUSING AND ALL NECESSARY PROVIDE A FACTORY MOUNTED UNIT

REQUIREMENTS, STRUCTURAL LOADING, OR S AND SHALL INCLUDE THE COST OF SUCH

ED TO INCLUDE A SERVICE RECEPTACLE, PROVIDE A CEPTACLE WITH APPROPRIATE FUSES AND THE LINE SIDE OF THE UNIT DISCONNECT. PROVIDE NECT SWITCH INDICATING THE PRESENCE OF LIVE TACLE WHEN THE UNIT DISCONNECT IS IN THE OFF

HEDULES SHEET.

Ľ	· · · · ·																									BE SUPPLIED BY THE MECHANICAL
0	UTDOOF	R AIR																			Χ					INSTALLED BY THE ELECTRICAL COL SIDE WIRING TO THE MOTOR AND II
_	ENERAL				01150	NIDIO A TE - A GO	-0.7.4.01.5	- 051507	ov 15 vo	005 TUAN						on				1TD 4 0T/		. OEL EST	<b></b>			THE SUPPORT AND MOUNTING OF LOCATION.
1.			DICATED			INDICATE ACC	.P I ABLE	E SELECT	ON. IF MC	URE THAN	ONE SE	ELECTIO	ON IS	INDICA	AIED F	OR A I	ouci :	SYS IEW	M, CON	NIRACIO	ЭК МА	SELECT	FROM		5.	WHERE EQUIPMENT IS INDICATED TO THAT EQUIPMENT SHALL COME COME MOTOR OVERLOAD PROTECTION, COINTERNAL WIRING AND CONTROLS. DISCONNECTING MEANS WHERE THE POINT CONNECTION. INSTALL PACK CONNECTION AND CONTROLS ARE ANATIONAL ELECTRICAL CODE.
																									6.	WHERE PACKAGED EQUIPMENT IS POVERCURRENT PROTECTION BY HACPROTECTION ONLY IS INDICATED, PITHE UNIT.
		ISOLA <sup>-</sup>	BUTTERFLY 20	ALVES																					7.	WHERE EQUIPMENT IS DESIGNATED THE BASIS OF DESIGN. IF THE CO OTHER SPECIFIED MANUFACTURERS BASIS OF DESIGN MANUFACTURER, ANY REVISIONS TO ELECTRICAL RECARCHITECTURAL APPURTENANCES AREVISIONS IN HIS BID.
HEAVY-DUTY HUBLESS	ll l	A BALL	GENERAL SERVICE BU	LUBRICATED PLUG	TE																				8.	WHERE EQUIPMENT IS SCHEDULED FACTORY MOUNTED SERVICE RECEP TRANSFORMERS CONNECTED ON THA NAMEPLATE ON THE DISCONNECT POWER TO THE SERVICE RECEPTAC POSITION.
뷔	BALL	AGA	GEI	In	GATE	KEYED NOT	S																		9.	SIZE ALL EQUIPMENT FEEDERS BAS PROTECTION). REFER TO THE FEEDE THE ELECTRICAL STANDARD SCHED
	Х		Х			A																				
										Δ	RO\	VEC	GR	$\bigcirc$ I	IND	P	1 1 11	MR	INC	3 P	IPF	٠,	ACC	<b>-88</b>	JR'	Y INSLILATION

ABOVEGROUND PLOMBI								UП	I	IIVC	OL	. A I		<b>'</b>
		NSULAT		ATERIAI (INCHES		HICKNE	SS	FIEL	D-APF	PLIED .	JACKET	MATE	RIAL	
	FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES)														
DOMESTIC COLD WATER	1	1						х		x				A
DOMESTIC HOT WATER SUPPLY & RETURN 140 DEG F AND LESS:														
NPS 1-1/4 AND SMALLER	1	1						Х		Х				Α
STORM WATER & OVERFLOW	1	1						Х		Х				Α
ROOF DRAIN AND OVERFLOW DRAIN BODIES	1	1												

UNLESS OTHERWISE INDICATED OR SCHEDULED, DO NOT INSULATE THE FOLLOWING:

1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.

2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.

A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.

	DUCT	- 8	SYS	TE	M.	AP	PLI	CA	TIC	NC	SC	CHE	EDL	JLE					
							Dl	JCT MA	ATERIAL	-									
JIR SYSTEMS		G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
UPPLY AIR		X														+2	Α	5	
ETURN AIR		Х														-2	Α	5	
XHAUST AIR		Χ														-2	Α	5	
UTDOOR AIR		Χ	Х													-2	Α	5	

#### **GENERAL NOTES**

1. 'X' INDICATES ACCEPTABLE SELECTION.

PLUMBING PIPING & VALVE APPLICATION SCHEDULE  MATERIAL  PRESSURE CONNECTIONS  CARBON SIET (SCHED 40)  MATERIAL  PRESSURE (SCHED 40)  GATA, SIETE (SCHED, 40)  GATA, SIETE (SCHED, 40)  FE SHE ATHED CARBON SIET (SCHED, 40)  FE SHE CARBON SIET (SCHED, 40)  FE SHE ATHED CONDESTITE SCHED SIET (SCHED, 40)  FE SHE ATHED CARBON SIET (SCHED, 40	₩ KEYED NOTES
SOFT COPPER TYPE K HARD COPPER TYPE K HARD COPPER TYPE L HARD COPPER TYPE L HARD COPPER TYPE M CARBON STEEL (SCHED. 40) PEX BEAZED WELDED THE ADWA DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE COPPER TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP PVC TYPE DWV DUCTILE IRON PIPE CSST NO-HUB CISP NECHANICALLY-FORMED TEE MECHANICALLY-FORMED TEE MECHAN	₩ KEYED NOTES
ABOVEGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F	
UP TO 4   X                     X   X       X   X                         X   X	А
ABOVEGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS. 10-FOOT HEAD OF WATER	
1–1/2 TO 15	
ABOVEGROUND PUMPED SANITARY WASTE - MIN. WORKING PRESS.: 125 PSIG	•
UP TO 2 X X X X X X X X X X X X X X X X X X	
ABOVEGROUND STORM DRAINAGE - MIN. WORKING PRESS.; 10-FOOT HEAD OF WATER	
	$\overline{}$
3 TO 15	
UNDERGROUND STORM DRAINAGE - MIN. WORKING PRESS,: 10-FOOT HEAD OF WATER	
3 TO 12 X X X X	
3 TO 12	
ABOVEGROUND PUMPED STORM DRAINAGE - MIN. WORKING PRESS.: 125 PSIG	
UP TO 2 X X X X X X X X X X X X X X X X X X	
ABOVEGROUND FUEL GAS - MIN. WORKING PRESS, 100 PSIG	
UP TO 2	В
2-1/2 TO 3 X X X X	
4 TO 10 X X X X X X X X X X X X X X X X X X	В
UNDERGROUND FUEL GAS - MIN. WORKING PRESS. 100 PSIG	

#### 1/2 TO 12 GENERAL NOTES

- 1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
- 2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS.
  - a. NPS 2 AND SMALLER: USE DIELECTRIC NIPPLE/WATERWAY.
  - b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
- 3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS. 4. PLUMBING EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED
- 5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

#### KEYED NOTES

- A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS
- ONLY FOR THIS PIPING SYSTEM. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
- B. VALVES, UNIONS, AND FLANGED JOINTS MAY BE USED IN ACCESSIBLE LOCATIONS ONLY, EXCLUDING CEILINGS USED AS AIR PLENUMS. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS. USE ONLY STEEL WELDED FITTINGS AND WELDED JOINTS IN CEILING USED AS AIR PLENUMS.
- C. NO JOINTS ALLOWED UNDERGROUND.

### SCHEDULES GENERAL NOTES:

TYPICAL FOR ALL SCHEDULE SHEETS:

1. REFER TO ELECTRICAL STANDARD SCHEDULES, ONE LINE DIAGRAM AND PANEL

SCHEDULES FOR ADDITIONAL ELECTRICAL INFORMATION

INDICATED IN SCHEDULE:

A - NON-FUSED DISCONNECT SWITCH B - UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND

CONTROLS

D - FUSED DISCONNECT SWITCH

F - UNIT SHALL HAVE (2) SINGLE POINT CONNECTIONS WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS. (1) CONNECTION SHALL BE FOR CONDENSING SECTION AND (1) CONNECTION SHALL BE FOR THE REMAINDER OF THE UNIT.

3. FOR MODULATION/CONTROL TYPE COLUMN, "VFC" INDICATES VARIABLE FREQUENCY CONTROLLERS, "AUTO" INDICATES AUTOMATIC OPERATION (CONTROLLED BY TEMPERATURE CONTROLS OR SELF CONTAINED CONTROLS), "MANUAL" INDICATES

4. IF VARIABLE FREQUENCY CONTROLLERS ARE INDICATED TO BE PROVIDED AND ARE NOT INSTALLED INTEGRAL TO THE UNIT. VARIABLE FREQUENCY CONTROLLERS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR (UNLESS OTHERWISE NOTED) AND CONTRACTOR INCLUDING THE LINE SIDE AND LOAD INCLUDING MISCELLANEOUS STEEL REQUIRED FOR THE VFC. REFER TO FLOOR PLANS FOR

THE ELECTRICAL CONTRACTOR SHALL MAKE SINGLE ACKAGED EQUIPMENT SUCH THAT THE ELECTRICAL E ACCESSIBLE AND HAVE CLEARANCES MEETING THE

S PROVIDED, NAMEPLATE MUST INDICATE MAXIMUM HACR RATED CIRCUIT BREAKERS OR FUSES. IF FUSE PROVIDE A FUSIBLE DISCONNECT AND FUSES WITH

TED BY MANUFACTURER AND MODEL NUMBER, THIS IS CONTRACTOR ELECTS TO PROVIDE EQUIPMENT BY ERS OR PROPOSED ALTERNATE EQUIPMENT BY THE ER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR

BASED ON THE LISTED MOP (MAXIMUM OVERCURRENT EDER AND BRANCH CIRCUIT SIZING SCHEDULE ON

ABOVEGROUND PLUMBING PIPE & ACCESSORY INSULATION

FIRE SUPPRESSION PIPING UNDERGROUND PIPING

#### **GENERAL NOTES**

FUEL GAS PIPING

DUCT SYSTEM INSULATION APPLICATION SCHEDULE

DUCT SYSTEMS LOCATED INDOORS

SUPPLY AIR

INSULATION MATERIAL & THICKNESS

(INCHES)

FIELD

APPLIED

JACKET MATERIAL

KEYED NOTES

#### <u>KEYED NOTES</u>

KEYED NOTES

MODEL

OPTIONS/ ACCESSORIES

NUMBER

CWH1207DSAF

									PO	WER VE	NTILATO	R SCHE	DULE											
UNIT IDENTIFICATION	SYSTEM SERVED	TYPE	AIRFLOW CFM	T.S.P. IN. W.G.	FAN RPM		N	MOTOR		CURB HEIGHT INCHES	MODULATION/ CONTROL TYPE		ELECTRICAL										MODEL NUMBER	KEYED NOTES
						BHP	HP	RPM	DRIVE TYPE			VOLTS	PHASE	OPTIONS/			UNIT	INLET Lw B	Y OCTAVE	BAND				
														ACCESSORIES	63 HZ (DB)	125 HZ (DB)	250 HZ (DB)	500 HZ (DB)	1000 HZ (DB)	2000 HZ (DB)	4000 HZ (DB)	8000 HZ (DB)		
EF-1	ELEVATOR SHAFT	CENTRIFUGAL	2,500	1.4	1,420	1.12	1 1/2	1,725	BELT	18	AUTO	208	3	A	77	81	85	77	73	70	66	61	GB-161-15	

HEATING ELEMENT

CAPACITY

MBH

6.83

ECUH-1

GENERAL NOTES:

1. REFER TO SCHEDULES GENERAL NOTES. 2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.

				El	ECTRIC	C FINNE	D TU	BE RA	DIATION	SCH	EDULE	=				
UNIT IDENTIFICATION		ENTERING AIR TEMP *F		ENCLO	SURE		ELE	MENT	MODULATION/ CONTROL TYPE			ELECTRICA	L		MODEL NUMBER	KEYED NOTES
	LINEAR FT.		TYPE	WIDTH INCHES	LENGTH INCHES	HEIGHT INCHES	LENGTH INCHES	NUMBER OF ELEMENTS		VOLTS	PHASE	FLA	MOP	OPTIONS/ ACCESSORIES		
FTR-1	500	65	CSH07A	5	61	7	60	2	AUT0	208	1			В	CSH07A	
FTR-2	250	65	CSH07A	5	61	7	60	1	AUTO	208	1			В	CSH07A	

RECESS DEPTH

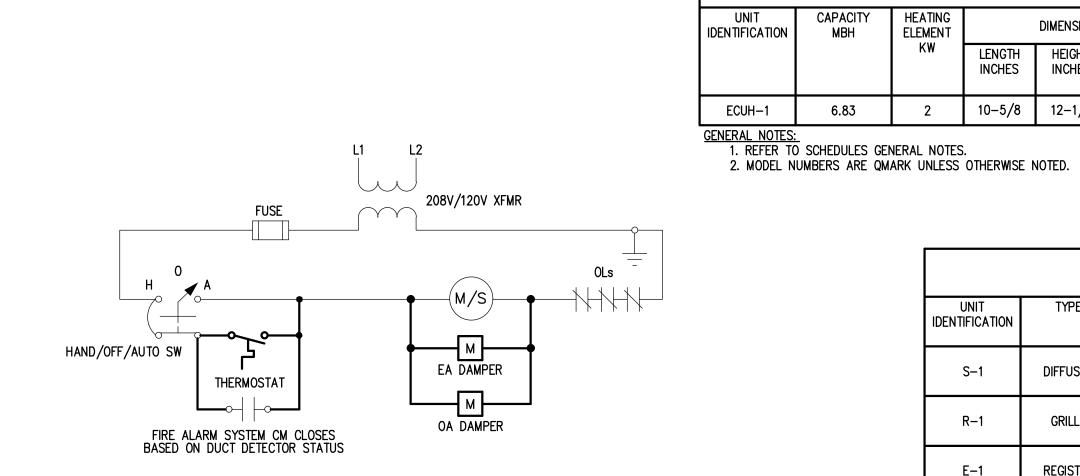
INCHES

ELECTRIC CABINET UNIT HEATER SCHEDULE

MODULATION/ CONTROL TYPE

MANUAL

INCHES



### **EF-1 MOTOR STARTER WIRING**

		GRILL	E, REGI	STER, AN	ID DIFFUS	SER SCH	EDULE		
UNIT IDENTIFICATION	TYPE	FACE SIZE	NECK SIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	MODEL NUMBER	KEYED NOTES
S–1	DIFFUSER	24x24	SEE PLANS	-	NONE	STEEL	WHITE	SPD	
R–1	GRILLE	24x12	SEE PLANS	-	NONE	STEEL	WHITE	PDDR	
E-1	REGISTER	11x11	SEE PLANS		NONE	ALUMINUM	NOTE 2	GREENHECK WC-8	

VOLTS PHASE

277

ELECTRICAL

GENERAL NOTES: MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
 COORDINATE FINISH WITH ARCHITECT.

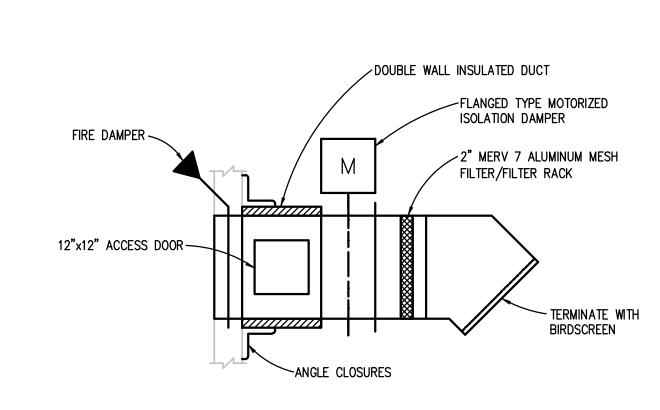
DIMENSIONS

LENGTH HEIGHT DEPTH

10-5/8 | 12-1/8

INCHES

INCHES



**EXHAUST** 

ELEVATOR SHAFT

**EF-1 CONTROL** 

1. THERMOSTAT SHALL ACTIVATE EXHAUST FAN WHEN SPACE TEMP IS ABOVE SETPOINT OF 78°F (ADJUSTABLE). WIRING INTERLOCK SHALL OPEN OUTSIDE

2. DUCT SMOKE DETECTOR SHALL ACTIVATE EF THRU FIRE ALARM SYSTEM CONTROL MODULE WHEN PRODUCTS OF COMBUSTION ARE DETECTED.

- LINE-VOLTAGE THERMOSTAT WITH REMOTE BULB AND COOLING SETPOINT ADJUSTMENT TO BE LOCATED IN NEMA-4X ENCLOSURE ON ROOF

DUCT SMOKE DETECTOR
PROVIDED BY ELEC CONTRACTOR
WRED TO FIRE ALARM SYSTEM

FIRE ALARM SYSTEM CONTROL
MODULE PROVIDED BY ELECTRICAL
CONTROL WITH SAFETY CUTOUT
WIRED TO EF MOTOR STARTER

WIRED TO FIRE ALARM SYSTEM

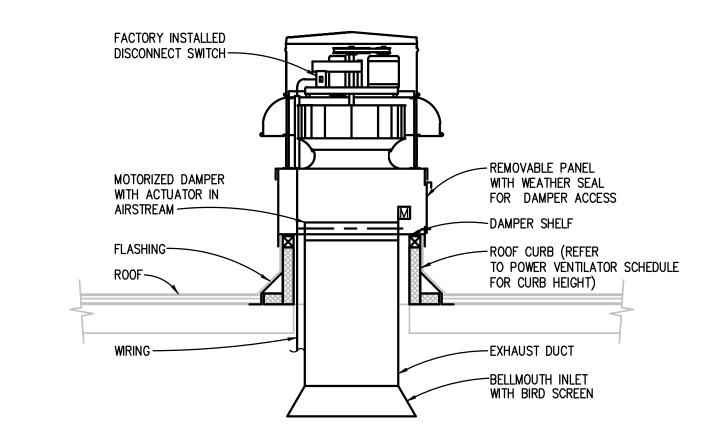
DAMPER AND ACTUATOR FOR NORMALLY CLOSED APPLICATION (TYPICAL)

OUTSIDE AIR

SEQUENCE OF OPERATION:

AIR AND EXHAUST AIR DAMPERŚ.

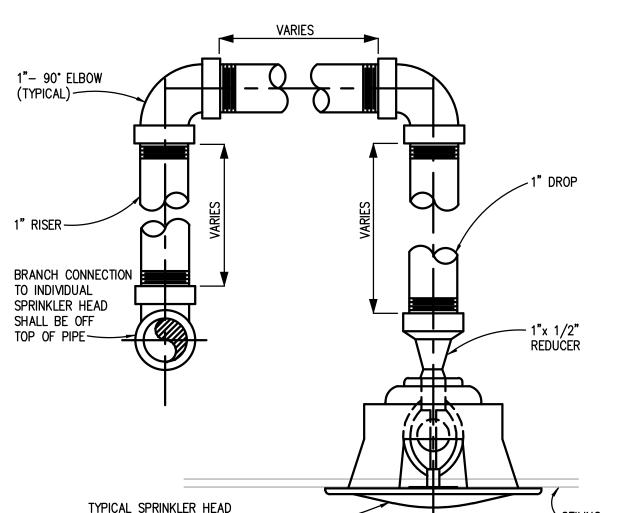
OUTDOOR AIR INTAKE DETAIL
NO SCALE



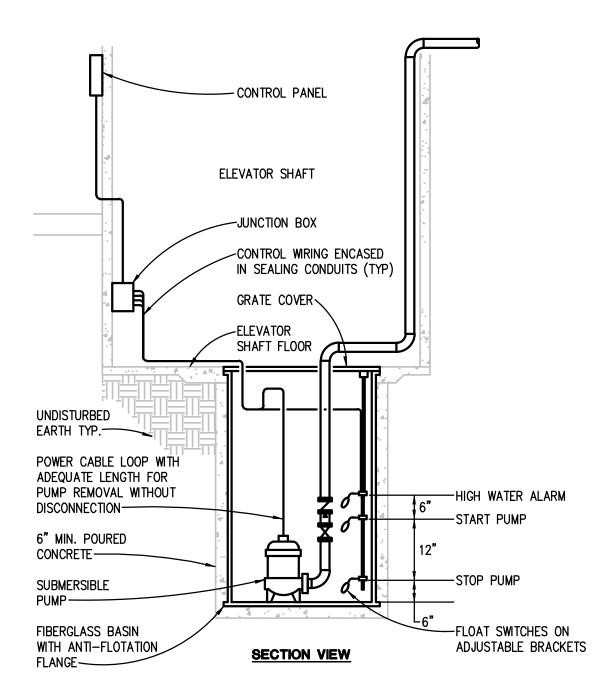
ROOF MOUNTED POWER VENTILATOR **CURB EXTENSION DETAIL** NO SCALE

					SEV	VAGE P	UMP A	ND SUM	IP PUMP	SCHED	ULE						
UNIT IDENTIFICATION	SYSTEM SERVED	SIMPLEX OR DUPLEX			PUMP				BASI	N		MODULATION/ CONTROL TYPE		ELECTRICA	L	MODEL NUMBER	KEYED NOTES
			QUANTITY	FLOW EACH GPM	W.P.D. FT. HEAD	HP EACH	RPM	CONSTRUCTION	DIAMETER INCHES	DEPTH INCHES	COVER TYPE		VOLTS	PHASE	OPTIONS/ ACCESSORIES		
SP-1	ELEVATOR SHAFT	SIMPLEX	1	50	20	1/2		FIBERGLASS	24	36	GRATE	AUT0	120	1		1411	
SP-2	DRAIN TILE	SIMPLEX	1	15	20	1/2		FIBERGLASS	24	96	STEEL	AUT0	120	1		1414	

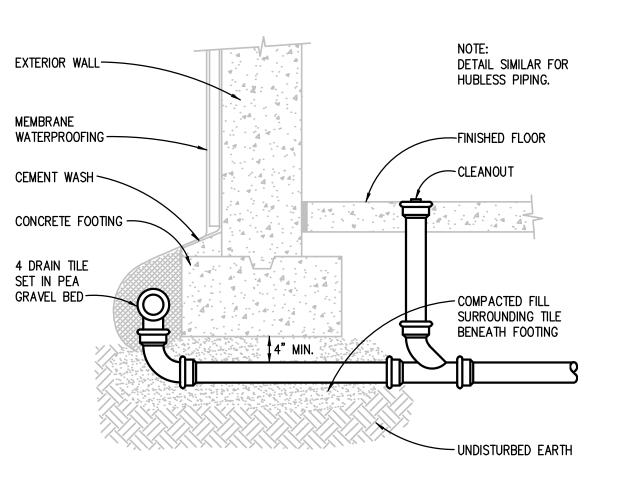
2. MODEL NUMBERS ARE WEIL UNLESS OTHERWISE NOTED.



TYPICAL SPRINKLER PIPING DETAIL
NO SCALE



ELEVATOR SUMP PUMP PIPING DIAGRAM NO SCALE



PLUMBING CONNECTION SCHEDULE

HW INCHES

1/2

1/2

GENERAL NOTES:

1. INDIVIDUAL WATER LINE BRANCHES, WASTE LINES, VENTS, AND TRAPS FOR CONNECTION TO INDIVIDUAL FIXTURES, FIXTURE FITTINGS, AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR AS INDICATED ON DRAWINGS, WHICHEVER IS GREATER.

SAN INCHES

1 1/2

1 1/2

VENT INCHES

1 1/2

1 1/2

UNIT IDENTIFICATION

LAV-1

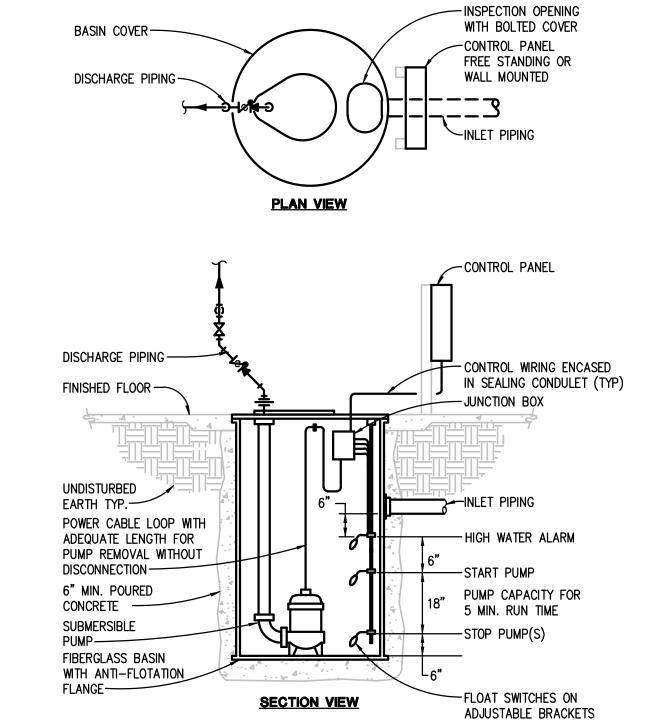
SK-1

KEYED NOTES: 1. PROVIDE MIXING VALVE.

CW INCHES

1/2

DRAIN TILE CONNECTION DETAIL
NO SCALE

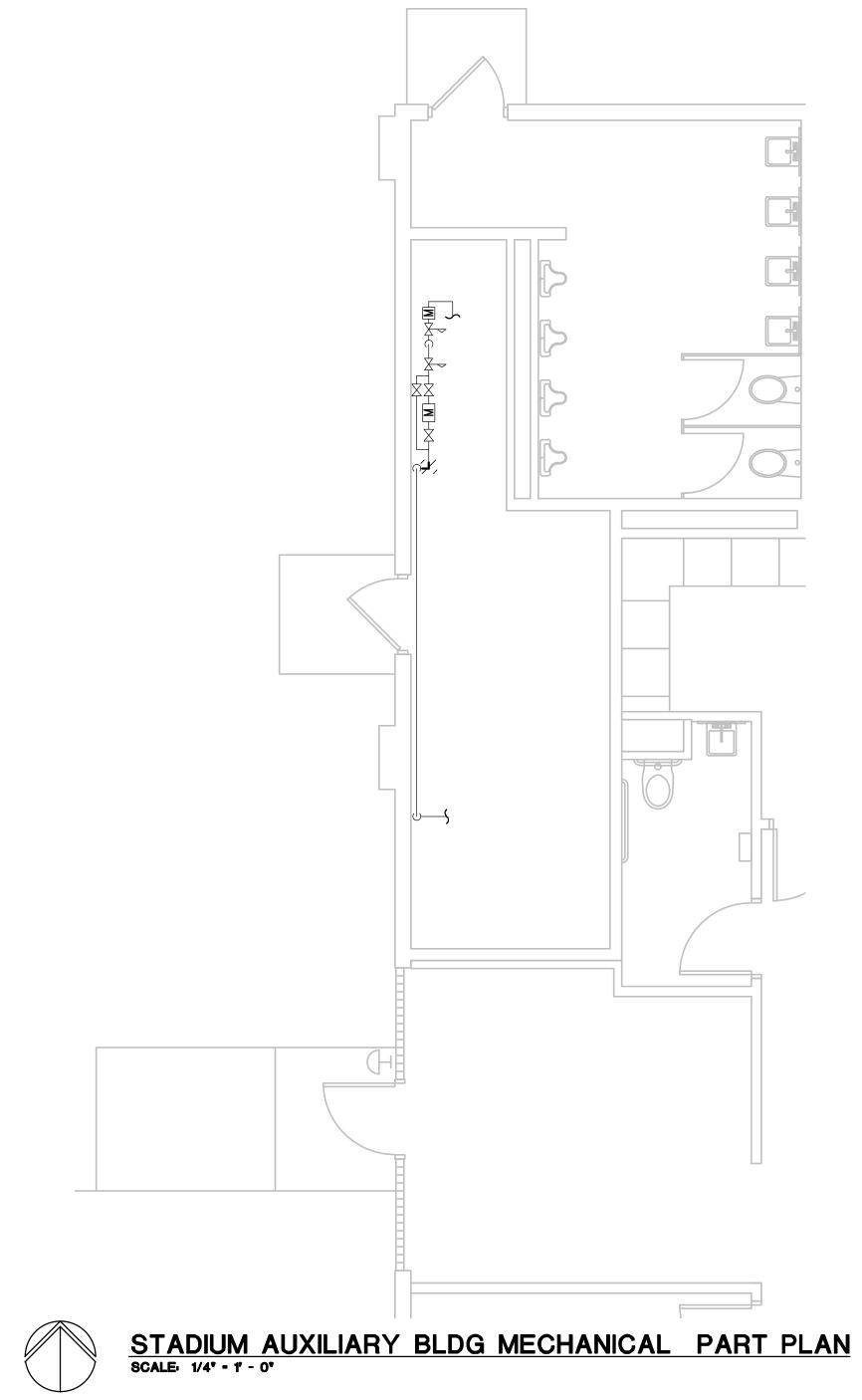


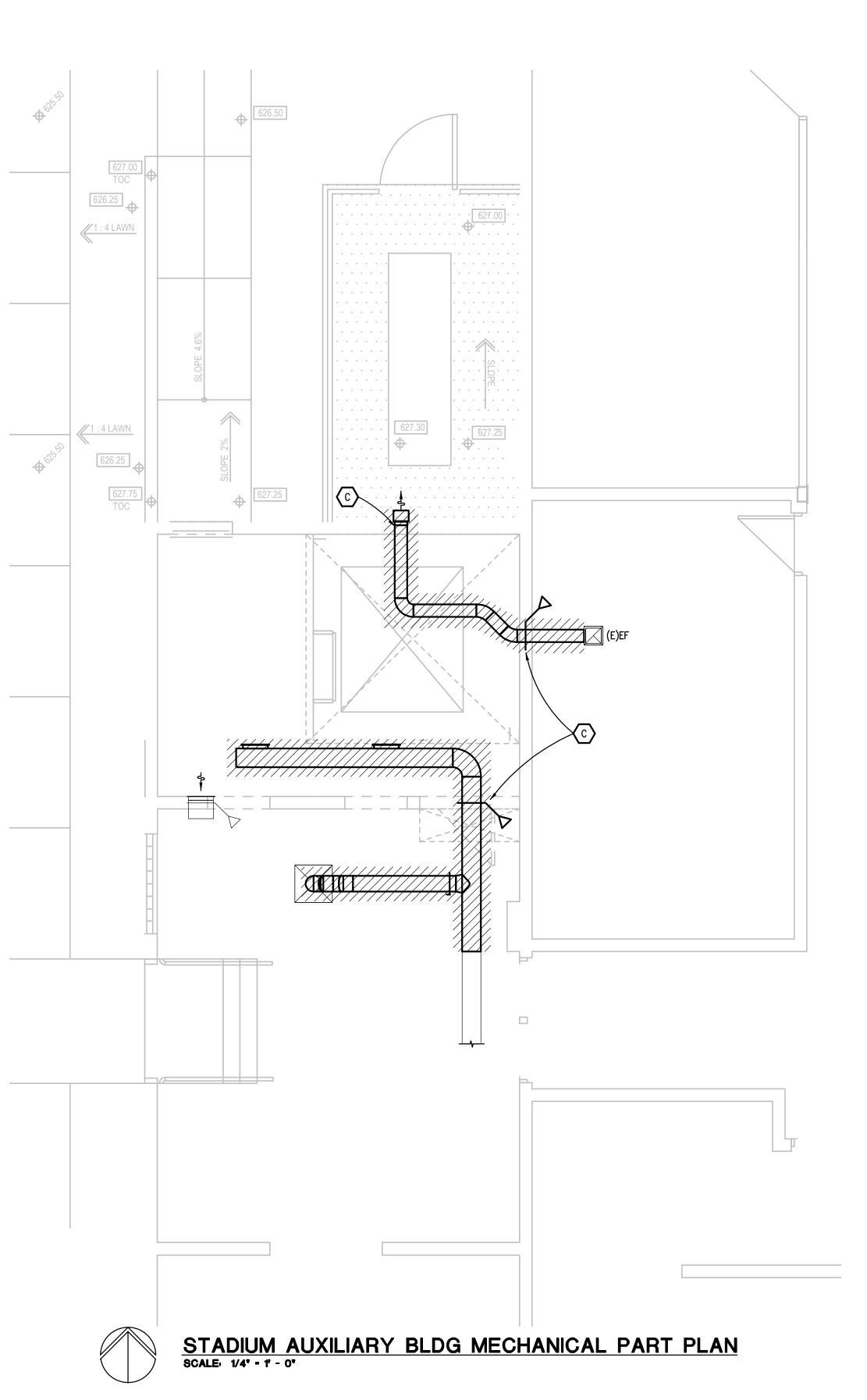
SIMPLEX SUMP PUMP PIPING DIAGRAM NO SCALE

GENERAL NOTES:

1. REFER TO SCHEDULES GENERAL NOTES.

TYPICAL SPRINKLER HEAD SHOWN FOR REFERENCE ONLY





#### MECHANICAL GENERAL DEMOLITION NOTES

- ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
- 2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
- 3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
- 4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

### **DEMOLITION KEY NOTES:**

- A. REMOVE PLUMBING FIXTURE AND ASSOCIATED PIPING COMPLETE.
- B. SALVAGE WATER HEATER FOR RE-INSTALLATION. REMOVE EXISTING ASSOCIATED PIPING COMPLETE.
- C. PATCH 1-HOUR FIRE RATED WALL.
- D. SALVAGE EXISTING EXHAUST FAN FOR RE-INSTALLATION.
- E. REMOVE EXISTING ELECTRIC CABINET UNIT HEATER.



Peter Basso Associates Inc CONSULTING ENGINEERS

5145 Livernois, Suite 100 Troy, Michigan 48098-3276 Tel: 248-879-5666 Fax: 248-879-0007

PRESSBOX LEVEL MECHANICAL DEMOLITION PLAN
SCALE: 1/4" - 1" - 0"



6" A.F.F. HORIZONTALLY TO TOP OF BOX, U.O.N.

ELECTRICAL STANDARD SCHEDULES

POWER AND AUXILIARY SYSTEMS PLANS

ELECTRICAL DETAILS AND DIAGRAMS

ELECTRICAL DEMOLITION PLANS

ELECTRICAL STANDARDS AND DRAWING INDEX

FIRST FLOOR COMPOSITE AND FIRE ALARM PLAN

<u>Sheet title</u>

LIGHTING PLANS

ONE LINE DIAGRAMS

PANEL SCHEDULES

SHEET NO.

E.01

E.02

E.03

ED.11

E.51

E.52

FUSE

GROUND FAULT CIRCUIT INTERRUPTER

GROUND FAULT PROTECTION

HAND-OFF-AUTO

ISOLATED GROUND

HORSEPOWER

HIGH VOLTAGE

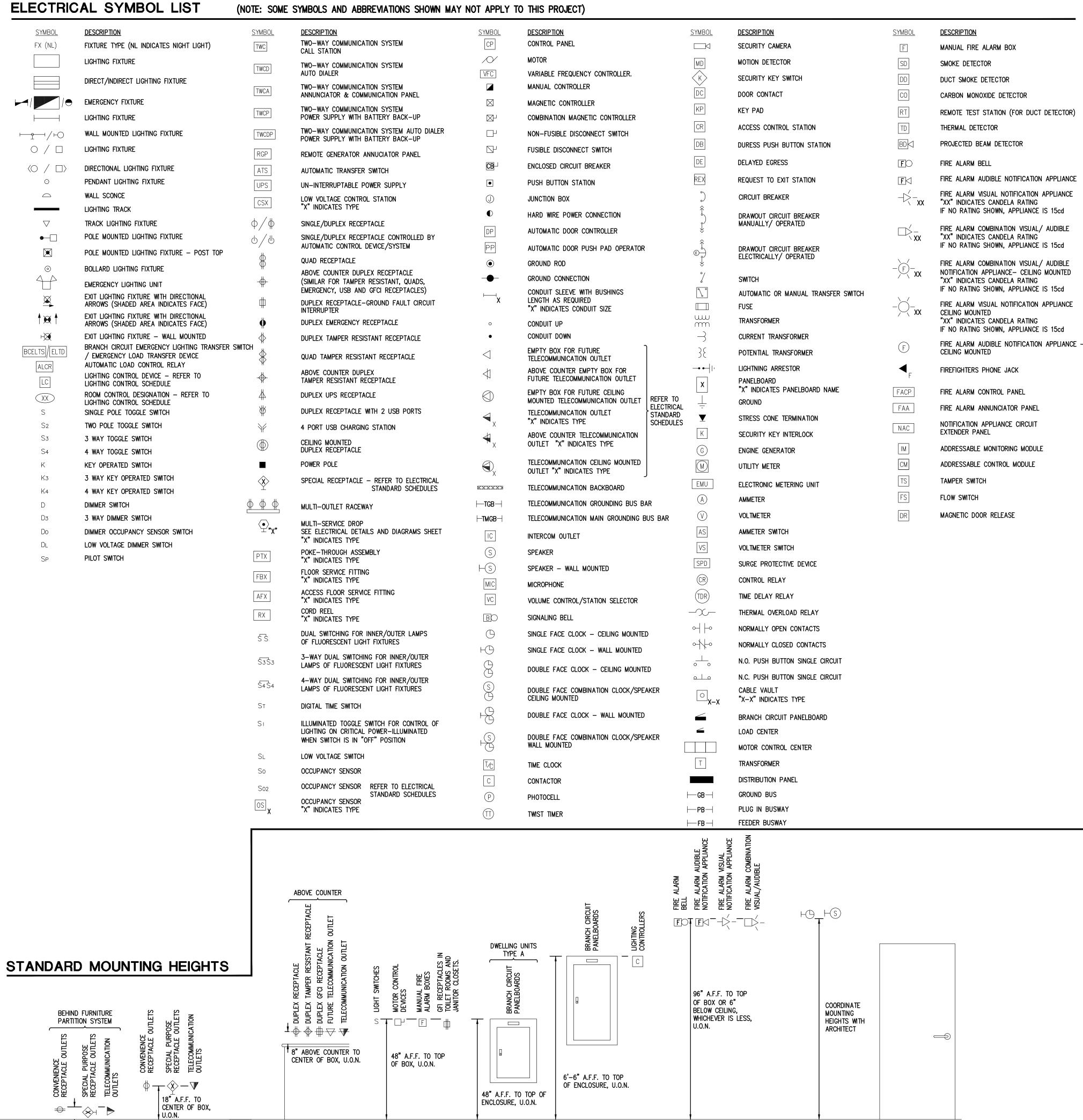
JUNCTION BOX

HERTZ

G/GRD/EG

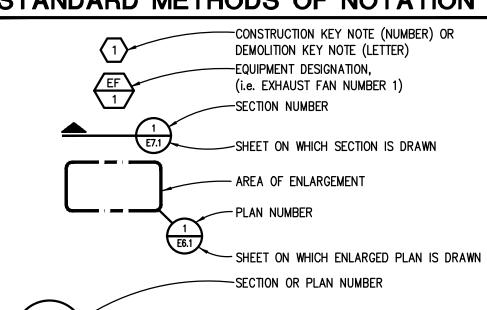
GFP

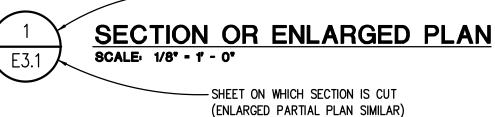
**S** 20

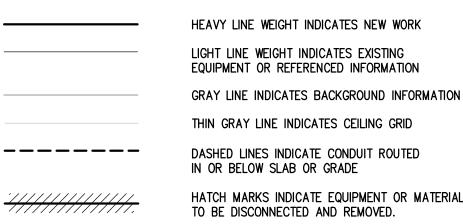


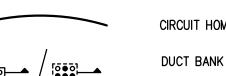
**ELECTRICAL ABBREVIATION LIST** 

ABBREVIATION .	<u>DESCRIPTION</u>	ABBREVIATION	DESCRIPTION	ABBREVIATION	<u>DESCRIPTION</u>
A	AMPERES FRAME (PREAMER BATING)	KV	KILOVOLT	P	POLE STATION
AF	AMPERES FRAME (BREAKER RATING)	KVA KW	KILOVOLT — AMPERES KILOWATT	PB	PUSHBUTTON STATION
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KWH	KILOWATT - HOURS	PH PT	PHASE TRANSFORMER
\.F.F.	ABOVE FINISH FLOOR	KWII	KILOWATT - TIOOKS	PDP	POTENTIAL TRANSFORMER
AIC .	AMPS INTERRUPTING CAPACITY	LA	LIGHTNING ARRESTOR		POWER DISTRIBUTION PANEL
AL AR	AUDIENCE LEFT	LP	LIGHTING PANEL	RECEPT.	RECEPTACLE
AK AT	AUDIENCE RIGHT AMPERES TRIP (BREAKER SETTING)	LDP	LIGHTING DISTRIBUTION PANEL	RDP	RECEPTACLE DISTRIBUTION PANE
NTS	AUTOMATIC TRANSFER SWITCH	MAX	MAXIMUM	RP	RECEPTACLE PANEL
AUX	AUXILIARY	MCB	MAIN CIRCUIT BREAKER	RSC	RIGID STEEL CONDUIT
			MOTOR CONTROL CENTER	SCHED	SCHEDULE
BKR	BREAKER	MCC MDP	MAIN DISTRIBUTION PANEL	SW	SWITCH
3PS	BOLTED PRESSURE SWITCH	MECH	MECHANICAL	SWBD	SWITCHBOARD
;	CONDUIT		MINIMUM	SWGR	SWITCHGEAR
CB	CIRCUIT BREAKER	MIN MISC.	MISCELLANEOUS	TD	TERMINAL BOX
CFCI	CONTRACTOR FURNISHED,	MLO	MAIN LUGS ONLY	TB TELECOM	TELECOMMUNICATIONS
	CONTRACTOR INSTALLED	MTD	MOUNTED	TR	TAMPER RESISTANT
CKT	CIRCUIT	MTG	MOUNTING	TTB	TELEPHONE TERMINAL BACKBOAF
CT	CURRENT TRANSFORMER	MTR	MOTOR	TYP	TYPICAL
DEMO	DEMOLITION	MTS	MANUAL TRANSFER SWITCH		
)IM	DIMENSION			U.O.N.	Unless otherwise noted
DISC	DISCONNECT	N	NEUTRAL	US	UPSTAGE
DP	DISTRIBUTION PANEL	NC	NORMALLY CLOSED	٧	VOLTS
OS .	DOWNSTAGE	NEC	NATIONAL ELECTRICAL CODE	•	
DWG	DRAWING	NF	NON-FUSIBLE	W	WIRE OR WATTS
		NIC	NOT IN CONTRACT	WG	WIRE GUARD
EBU	EMERGENCY BATTERY UNIT	NL	NIGHT LIGHT	WP	WEATHERPROOF
EC	ELECTRICAL CONTRACTOR	NO	NORMALLY OPEN	XFMR	TRANSFORMER
ELEC	ELECTRICAL	NTS	NOT TO SCALE	XP	EXPLOSION PROOF
EM/ EMERG	EMERGENCY	ОС	ON CENTER		
MT	ELECTRICAL METALLIC TUBING	OFCI	OWNER FURNISHED,	(E)	EXISTING
<u> </u>	ELECTRICALLY OPERATED	01 01	CONTRACTOR INSTALLED	(R)	RELOCATED
EPO	EMERGENCY POWER OFF	OFOI	OWNER FURNISHED,		
EWC	ELECTRIC WATER COOLER	01 01	OWNER INSTALLED		
EXIST	EXISTING		OWNER INSTALLED		
FA	FIRE ALARM				
FLA	FULL LOAD AMPS	QT.	ANDARD METH	ODS OF	
FLR	FLOOR	317	AINDAND MEIU	UDO UF	
FOH	FRONT OF HOUSE	<u> </u>		CONCEDUCATION	YEV MOTE (MUMPER) OR
FSEC	FOOD SERVICE EQUIPMENT CONTRACTO	K		-CONSTRUCTION K	EY NOTE (NUMBER) OR









DUCT BANK - CONCRETE ENCASED / DIRECT BURIED IN USE SPARE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS

CIRCUIT HOMERUN

CABLE/CORD

RACEWAY

	$\sim$	
	0	
<u> </u>	шİ	

			COPPER CON	IDUCTORS			KEYED NOTES				
OVERCURRENT		SIZE R KCMIL)	CONDUIT SIZE								
DEVICE RATING (AMPERES)	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G, 2PH, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)					
15-20	12	12	3/4"	3/4"	3/4"	3/4"					
25-30	10	10	3/4"	3/4"	3/4"	3/4"					
35-40	8	10	3/4"	3/4"	3/4"	3/4"					
45-50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1				
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1				
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"					
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1				
90-100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1				
110	2 (1)	6	_	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1				
125	1 (1/0)	6	-	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1				
150	1/0	6	-	1 1/2"	1 1/2"	1 1/2"					
175	2/0	6	-	2"	2"	2"					
200	3/0	6	-	2"	2"	2 1/2"					
225	4/0	4	-	2"	2"	2 1/2"					
250	250	4	-	2 1/2"	2 1/2"	2 1/2"					
300	350	4	-	2 1/2"	2 1/2"	3"					
350	500	3	-	3"	3"	3"					
400	500	3	_	3"	<b>3</b> "	3"					

- GENERAL NOTES:

  1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
- 2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.

CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.

- 3. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW. 4. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
- 5. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL
- 6. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE. 7. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY. 8. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER

#### <u>KEYED NOTES:</u>

1. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

TE	LECOMMUNICA SCHE	ATIONS OUTLET DULE
TAG	DESCRIPTION	REMARKS
1	1 DATA/VOICE	
2	2 DATA/VOICE	
3	3 DATA/VOICE	
4	4 DATA/VOICE	
5	5 DATA/VOICE	
6	6 DATA/VOICE	
TV 1	1 COAX	
TV 2	1 COAX + 1 DATA	
TV 3	1 COAX + 2 DATA	

GENERAL NOTES: 1. REFER TO SPECIFICATIONS FOR TELECOMMUNICATION

▼ EMPTY BOX W/ CONDUIT FOR FUTURE TELECOM

CABLE TYPE.

TELECOM OUTLET. PROVIDE CABLE QUANTITIES PER

SCHEDULE TAG ABOVE. XXFBX TELECOM OUTLET TO BE PROVIDED IN FLOOR SERVICE FITTING. PROVIDE CABLE QUANTITIES PER

SCHEDULE TAG ABOVE. XXPTX TELECOM OUTLET TO BE PROVIDED IN POKE-THRU ASSEMBLY. PROVIDE CABLE QUANTITIES PER

SCHEDULE TAG ABOVE. XX TELECOM OUTLET TO BE PROVIDED FOR CAMERAS. PROVIDE CABLE QUANTITIES PER SCHEDULE TAG

)	PRIMARY SECONDARY (480V) (208Y/120 VOLT)									
XFMR KVA	CIRCUIT	CIRCUIT	CONDU	ICTOR SIZE (AWG OR	KCMIL)	GROUNDING				
	BREAKER (NOTE 5)	BREAKER	PHASE & NEUTRAL	SUPPLY SIDE BONDING JUMPER	CONDUIT (4W + SSBJ)	ELECTRODE CONDUCTOR				
9	20A	30A	10	8	3/4"	8				
15	25A	60A	6	8	1"	8	1			
30	45A	100A	3	8	1 1/4"	8	1			
45	70A	175A	2/0	4	2"	4				
75	125A	300A/225A	350 / 4/0	2	<b>3</b> "	2	2			
112 1/2	175A	400A	600	1/0	3 1/2"	1/0				
150	225A	600A	2-350	2-2	2-3"	2/0				
225	350A	800A	2-600	2-1/0	2-3 1/2"	3/0				
300	500A	1200A	3-600	3-1/0	3-3 1/2"	3/0				
500	800A	1600A	4-600	4-1/0	4-3 1/2"	3/0	·			

#### GENERAL NOTES:

1. TRANSFORMERS AND FEEDERS ARE BASED ON 480 VOLT, 3 PHASE, 3 WIRE PRIMARY AND 208Y/120 VOLT, 3 PHASE, 4 WIRE,

2. ALUMINUM CONDUCTORS ARE PERMITTED ONLY IF INCLUDED IN FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE.

3. PRIMARY OVERCURRENT PROTECTION IS SIZED AT 125% OF TRANSFORMER FULL LOAD CURRENT. PROVIDE PRIMARY OVERCURRENT DEVICE SELECTION TO ALLOW TRANSFORMER IN-RUSH CURRENT AND PROTECT BASED ON THE ANSI DAMAGE CURVE. IF MANUFACTURER REQUIRES PRIMARY OVERCURRENT GREATER THAN 125% (NOT TO EXCEED 250%) THEN PRIMARY FEEDER SHALL BE

4. SECONDARY CONDUCTOR BASED ON TEN FOOT MAXIMUM LENGTH (NEC 240.21(C)(2)). IF CONDUCTORS ARE LONGER THAN TEN FOOT, REQUIREMENTS IN NEC 240.21(C)(6) MUST BE MET. IN NO CASE SHALL CONDUCTORS BE LONGER THAN TWENTY-FIVE FEET.

1. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. 2. THE SMALLER SIZE IS TO BE USED TO FEED 225A PANELBOARDS.

				IN	TERIOR LI	GHTING	CONTRO	L SCHE	EDUL	E									
PLAN	DOOM TYPE		LOCAL CONTROL		CONTROL	CENCOD TYPE	TURN ON LIGHTING	BI-LEVEL		DAYLIG	нт	SENSOR O	PARTIAL FF	SENSOR FULL	TIME-CLOCK	RECEPTACLE	EMERGENCY LIGHTING	HVAC	NOTES
REFERENCE	ROOM TYPE	SWITCH TYPE	SWITCH CONTROL	SCENE CONTROL	ON / OFF	SENSUR TIPE	TO %	CONTROL	SIDE LIGHT	TOP LIGHT	MAINTAIN FC LEVEL	TIME	%	OFF TIME	SCHEDULE	CONTROL	CIRCUIT CONTROL	CONTROL	NOTES
A	LOBBY (FOR AN ELEVATOR)	LINE VOLTAGE	ON-OFF	NA	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	NA	NA	NA	NA	NA	NA	20 MIN	NA	NA	BATTERY	NA	
В	CORRIDOR (ALL OTHER CORRIDORS)	LINE VOLTAGE	ON-OFF	NA	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	NA	NA	NA	NA	NA	NA	20 MIN	NA	NA	BATTERY	NA	
С	RESTROOM (ALL OTHER RESTROOMS)	LINE VOLTAGE	ON-OFF	NA	MANUAL ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	NA	NA	NA	NA	NA	NA	20 MIN	NA	NA	BATTERY	NA	
D	STORAGE ROOM ( < 50 SQFT)	LINE VOLTAGE	ON-OFF	NA	MANUAL ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	NA	NA	NA	NA	NA	NA	20 MIN	NA	NA	NA	NA	
E	ELECTRICAL/MECHANICAL ROOM	LINE VOLTAGE	ON-OFF	NA	MANUAL ON / MANUAL OFF	DUAL TECHNOLOGY	FULL 100%	NA	NA	NA	NA	NA	NA	20 MIN	NA	NA	NA	NA	

1. REFER TO PLANS FOR LOCATION OF LOCAL CONTROL. 2. REFER TO PLANS FOR SCENE CONTROL.

4. PROVIDE EMERGENCY LIGHTING CIRCUIT CONTROL (ELTD OR ALCR) PER SWITCHING CIRCUIT AS REQUIRED.

5. CONTRACTOR SHALL PROVIDE FLOOR PLAN INDICATING SENSOR LOCATIONS OF CHOSEN CONTROL SYSTEM.

6. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE CHARACTERISTICS.

3. REFER TO PLANS FOR PRIMARY AND SECONDARY DAYLIGHT ZONES.

7. LIGHTING SENSOR SHALL HAVE CONTACT FOR HVAC CONTROL WHEN A "YES" SELECTION IS MADE IN THE HVAC CONTROL COLUMN.

NA = NOT APPLICABLE

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		COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ELECTRICAL METALLIC TUBING (EMT)	RIGID STEEL CONDUIT (RSC)	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)	METAL CLAD TYPE CABLE WITH INSULATED GROUND WIRE (TYPE MC)	TWO HOUR FIRE RATED CABLE (RHW-2) (KEYED NOTE 1)	TWO HOUR RATED MC POWER CABLE (KEYED NOTE 1)
۱ %	EXPOSED, SURFACE MOUNTED TO STRUCTURE	+	Х	Г	X				_	╫	
FEEDERS - EXTERIOR	BELOW GREEN SPACE		Х			Х					
	WITHIN 5' OF FOUNDATION WALL		Х		Х						
ا ا ه	CONCEALED, ACCESSIBLE CEILINGS	Х		Х							
EEDERS -	CONCEALED, INACCESSIBLE CEILINGS	Х		Х							
빌	CONCEALED IN GYPSUM BOARD PARTITION WALLS	Х		Х							
± ', %	EXPOSED, SURFACE MOUNTED TO STRUCTURE		Х		Х						
BRANCH CIRCUITS - EXTERIOR	BELOW GREEN SPACE		Х			Х					
교육집	WITHIN 5' OF FOUNDATION WALL		Х		X						
	CONCEALED, ACCESSIBLE CEILINGS	Х		Х					Х		
BRANCH CIRCUITS INTERIOR	CONCEALED, INACCESSIBLE CEILINGS	Х		Х							
B S Z	CONCEALED IN GYPSUM BOARD PARTITION WALLS	Х		Х			Х		Х		
SPECIAL APPLICATIONS	EMERGENCY FEEDERS UNDER NEC 700.10(D) (KEYED NOTE 2)		х	х	х	х				х	х
SPE	CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		х				х	х			
	GENERAL NOTES:  1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL SWEEPS WHERE ( CONCRETE BASES, AND ASPHALT.	CONDUI	TS F	ENE	TRAT	E W	ALLS,	CON	NCRET	E SLA	BS,

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

CONCRETE BASES, AND ASPHALT. 2. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON MC/AC CABLE INSTALLATION.

1. SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS BASED ON UL TESTING AND RATING.

2. EMERGENCY FEEDERS IN OCCUPANCIES THAT ARE UNDER 700.10(D) SHALL HAVE A TWO HOUR RATING. RATING SHALL BE OBTAINED BY ROUTING CONDUIT AND BUILDING WIRE IN SPRINKLERED SPACE, IN A TWO HOUR SHAFT, OUTSIDE OF THE BUILDING, IN A LISTED TWO HOUR RATED RACEWAY, OR UNDER A MINIMUM OF 2" OF CONCRETE; OR BY USING A LISTED TWO-HOUR RATED CABLE ASSEMBLY.

	SPECIAL RECEPTACLES									
TYPE	DESCRIPTION									
$\Diamond$	250V, 30A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L6-30R)									

В	BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS										
BRANCH WIRE SIZE MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)											
CKT RATING (A)	(AWG)	120V	208V	240V	277V	480V					
20A	12	83	143	165	191	331					
	10	128	222	256	295	511					
	8	201	348	402	464	804					
	6	313	542	625	721	1250					
30A	10	85	148	170	197	341					
	8	134	232	268	309	536					
	6	208	361	417	481	833					
	4	313	542	625	721	1250					

- GENERAL NOTES:

  1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85 PER NEC CHAPTER 9, TABLE 9.
- 2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
- 3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT. 4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE

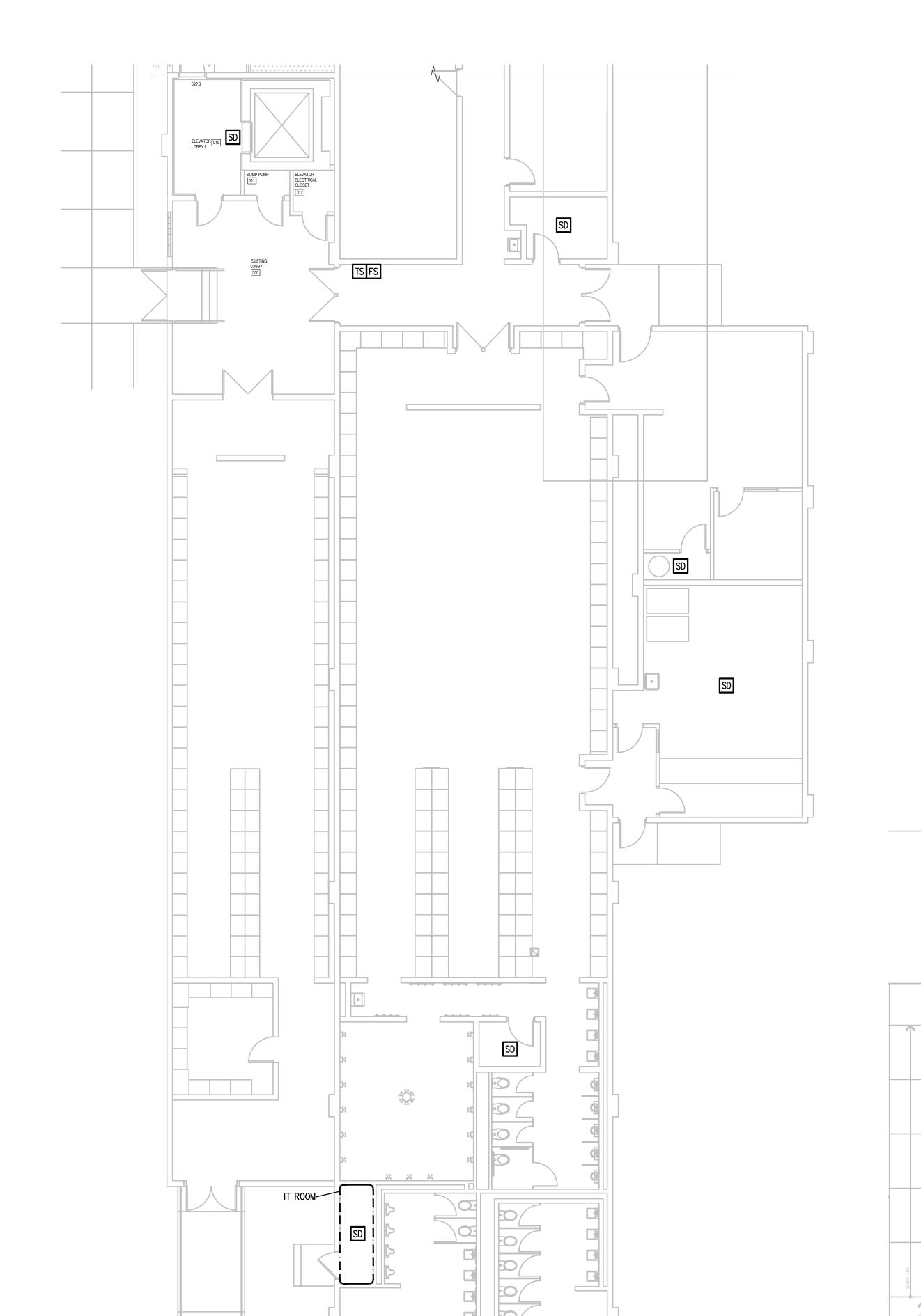
CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

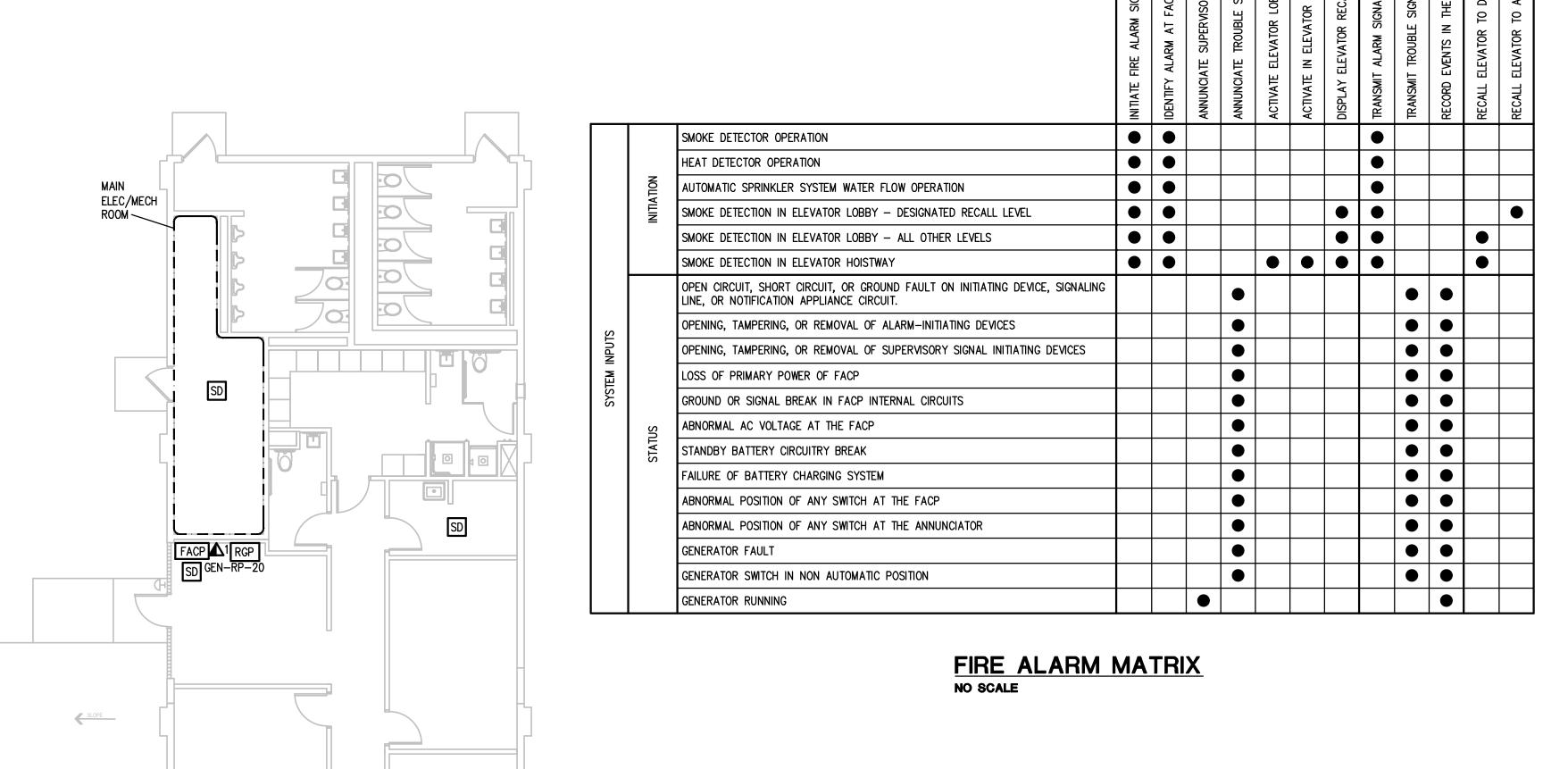
NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

NOTIFICATION

STADIUM SCALE: 1/8" - 1' -	BLDG	FIRST	FLOOR	COMPOSITE	AND	F





#### **ELECTRICAL GENERAL NOTES:**

- 1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.
- INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
- 3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- 4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL
- 5. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
- 6. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
- 7. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS

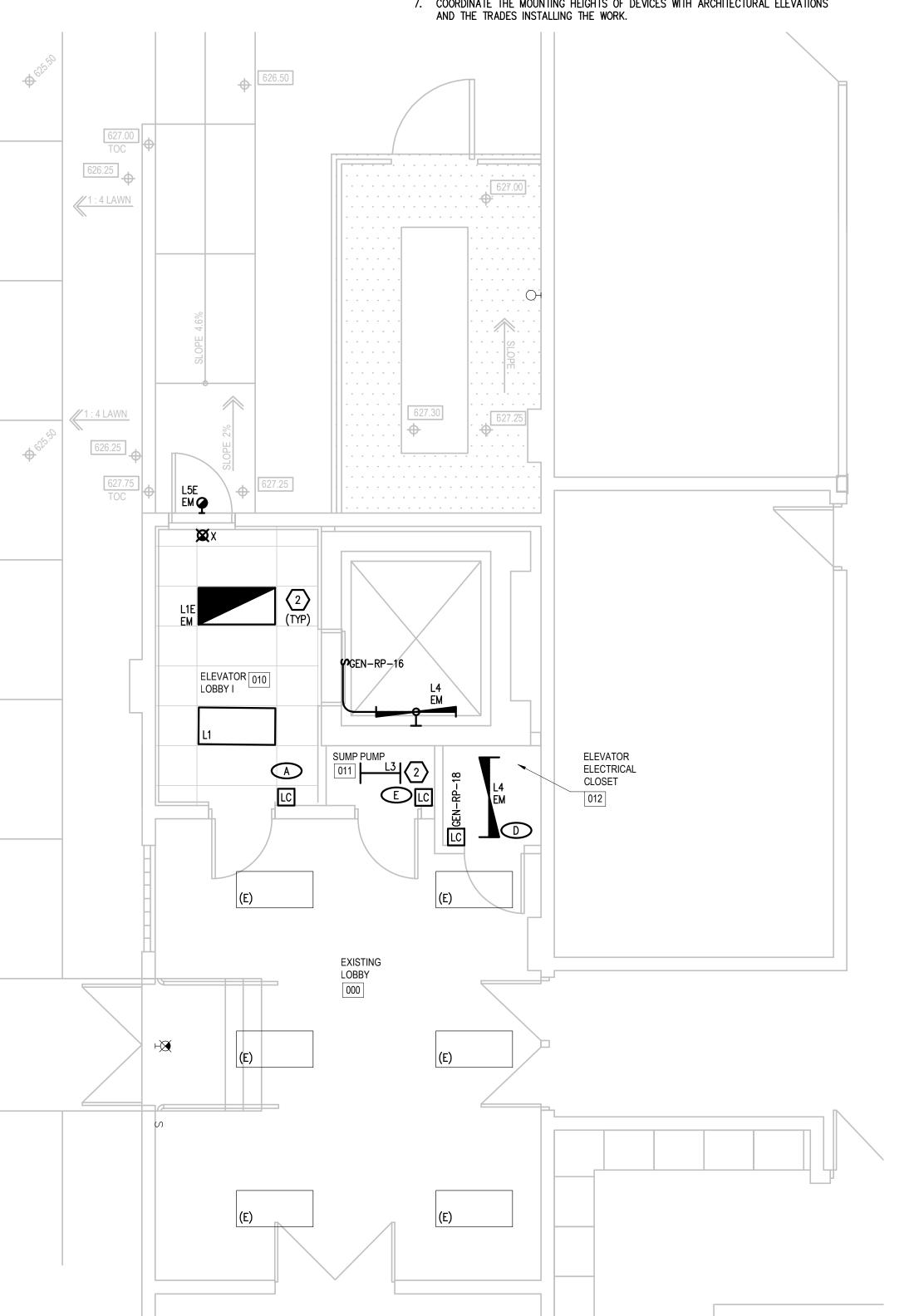
- 8. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
- 9. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
- 10. PROVIDE THE DESIGN AND INSTALLATION FOR A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH SPECIFICATIONS, DRAWNGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
- 11. REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

#### **#** CONSTRUCTION KEY NOTES:

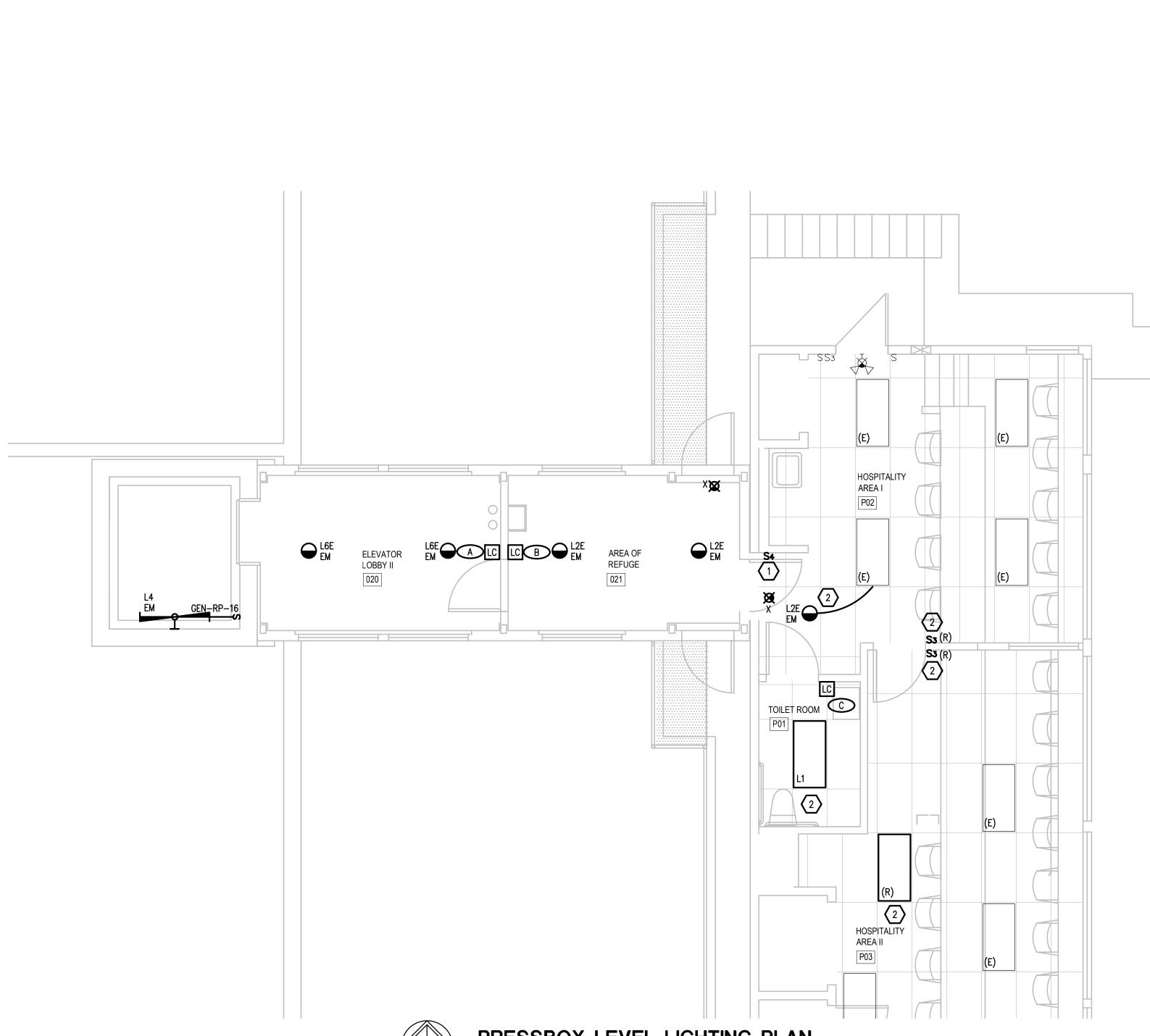
- 1. PROVIDE NEW 4-WAY SWITCH. TIE NEW 4-WAY SWITCH INTO (R)3-WAY SWITCH BRANCH CIRCUIT. EXTEND (E)3-WAY SWITCH BRANCH CIRCUIT AS REQUIRED.
- 2. EXTEND EXISTING BRANCH CIRCUIT AS REQUIRED.







STADIUM AUXILIARY BLDG LIGHTING PLAN
SCALE: 1/4" - 1" - 0"



PRESSBOX LEVEL LIGHTING PLAN
SCALE: 1/4" - 1' - 0"

Tel: 248-879-5666 Fax: 248-879-0007

### **ELECTRICAL GENERAL NOTES:**

- 1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.
- INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
- COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
- 4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
- TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH TRANSFORMER CIRCUIT SIZING SCHEDULE SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT
- UNLESS OTHERWISE NOTED. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS

SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING"

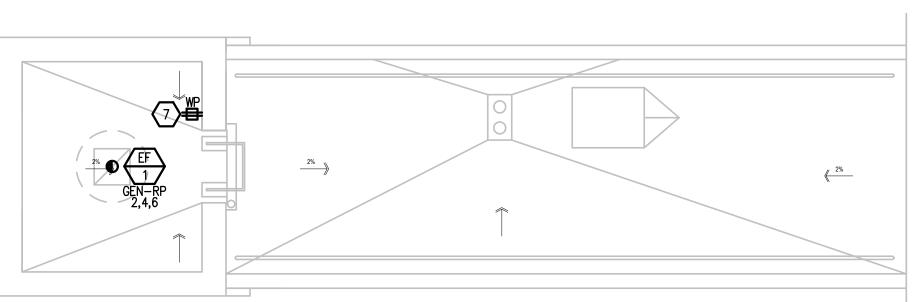
AND THE TRADES INSTALLING THE WORK.

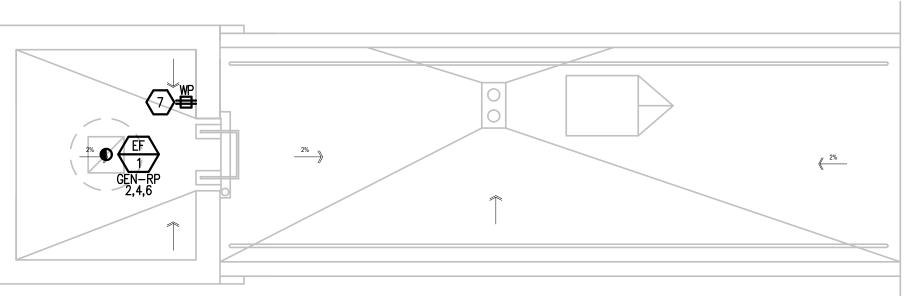
- REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
- REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
- 10. PROVIDE THE DESIGN AND INSTALLATION FOR A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES. SMOKE AND HEAT DETECTORS. CONTROL MODULES. INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.
- REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

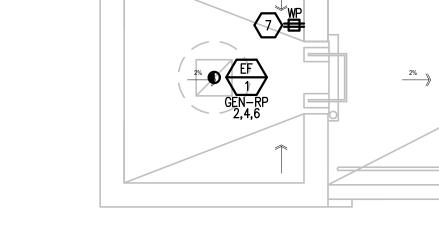
- **(#) CONSTRUCTION KEY NOTES:**
- 1. EXTEND EXISTING BRANCH CIRCUIT AS REQUIRED.
- 2. REFER TO ELEVATOR DETAIL.
- 3. WALL MOUNTED EXTERNAL SPD (SSP04EMA16D-SPD T1 EMA 160KA 480Y/277V IS 3P4W MOUNTED (EMA))
- 4. WALL MOUNTED EXTERNAL POWER METER IN ENCLOSURE (9761C05K0A0A7). MOUNT METER BELOW EXTERNAL SPD.
- 5. PROVIDE (2) NEW CIRCUIT BREAKERS IN EXISTING PANELBOARD. EXISTING
- PANELBOARD IS GE A SERIES II.
- 6. CORE EXISTING WALL AS REQUIRED.
- 7. EXTEND EXISTING BRANCH CIRCUIT FROM HOSPITALITY AREA 1 AS REQUIRED.
- 8. PROPOSED ROUTE FOR (E)LP-C CIRCUIT UP TO ELEVATOR LOBBY II AND AREA OF REFUGE.
- 9. PROVIDE NEW RIGID CONDUIT FROM EXISTING PULL BOX TO EXISTING PRESS BOX PENETRATION. REFER TO SUPPORT DETAIL. PULL EXISTING LINE VOLTAGE CABLING THROUGH NEW CONDUIT AS REQUIRED. TERMINATE ON EXISTING CABLING ONTO EXISTING TRANSFORMER AS REQUIRED.
- PENETRATION, REFER TO SUPPORT DETAIL, PULL EXISTING LOW VOLTAGE CABLES THROUGH NEW CONDUIT AS REQUIRED. TERMINATE EXISTING LOW VOLTAGE CABLES IN SAME LOCATIONS THAT WERE NOTED FROM DEMOLITION WORK. 11. ATTACH NEW RIGID CONDUIT TO EXISTING PRESS BOX BUILDING AS REQUIRED.

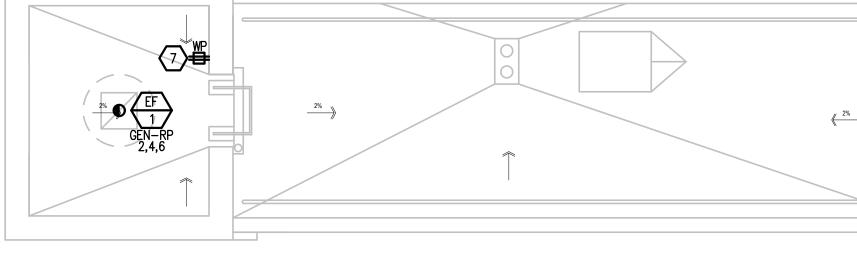
10. PROVIDE NEW RIGID CONDUIT FROM EXISTING PULL BOX TO EXISTING PRESS BOX

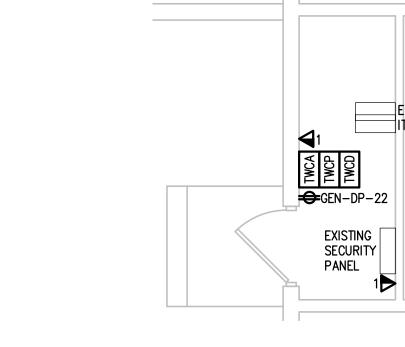
- 12. WEATHER SEAL EXISTING CONDUIT PENETRATION PER SPECIFICATIONS AFTER NEW CONDUIT IS INSTALLED.













-EXISTING CT CABINET WITH

(E)EPANE

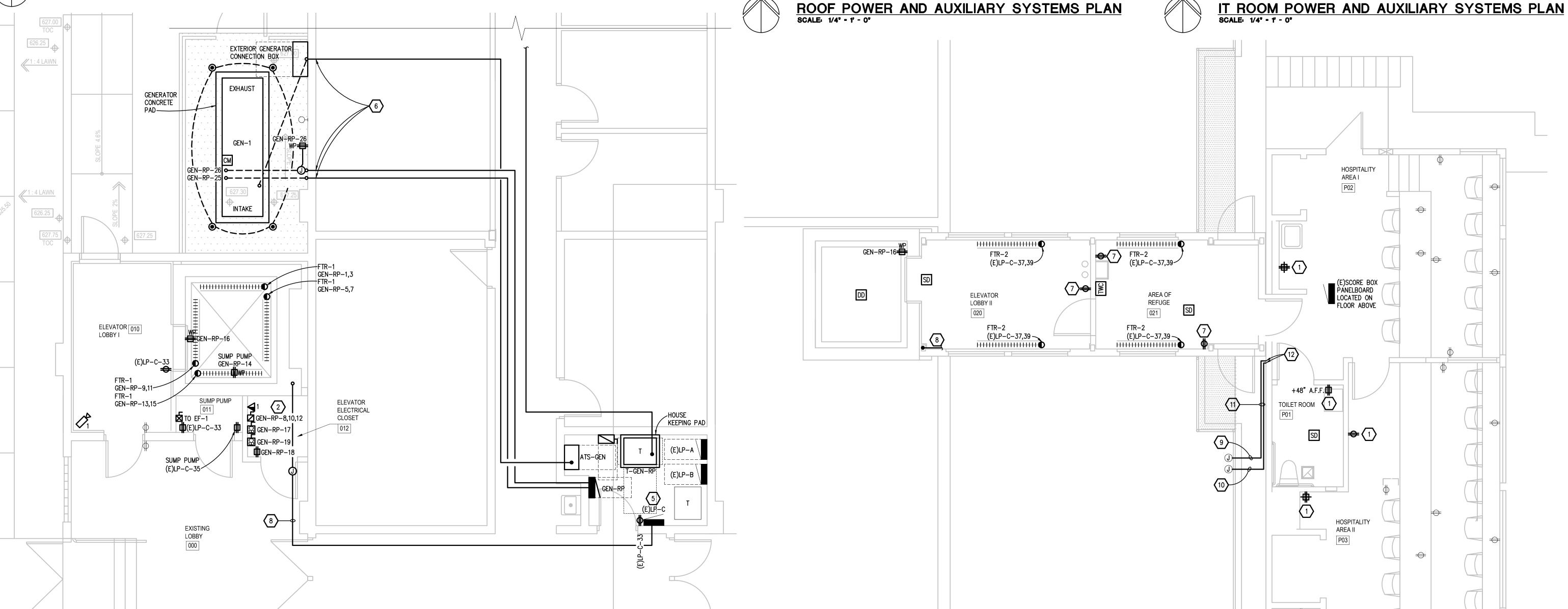
(E)LP-MECH RM

PANELBOAR

(E)30KVA

TRANSFORMER

UTILITY METER UNDERNEATH

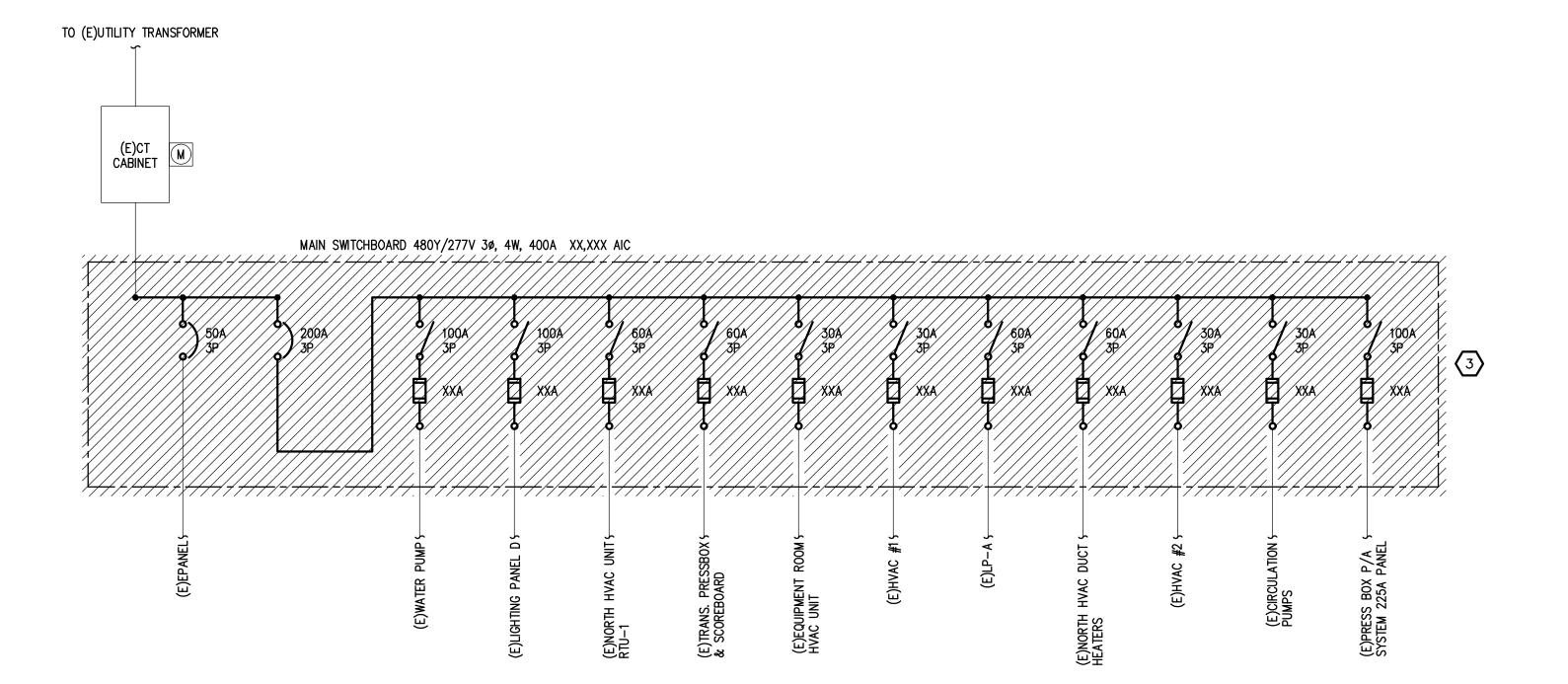


THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.

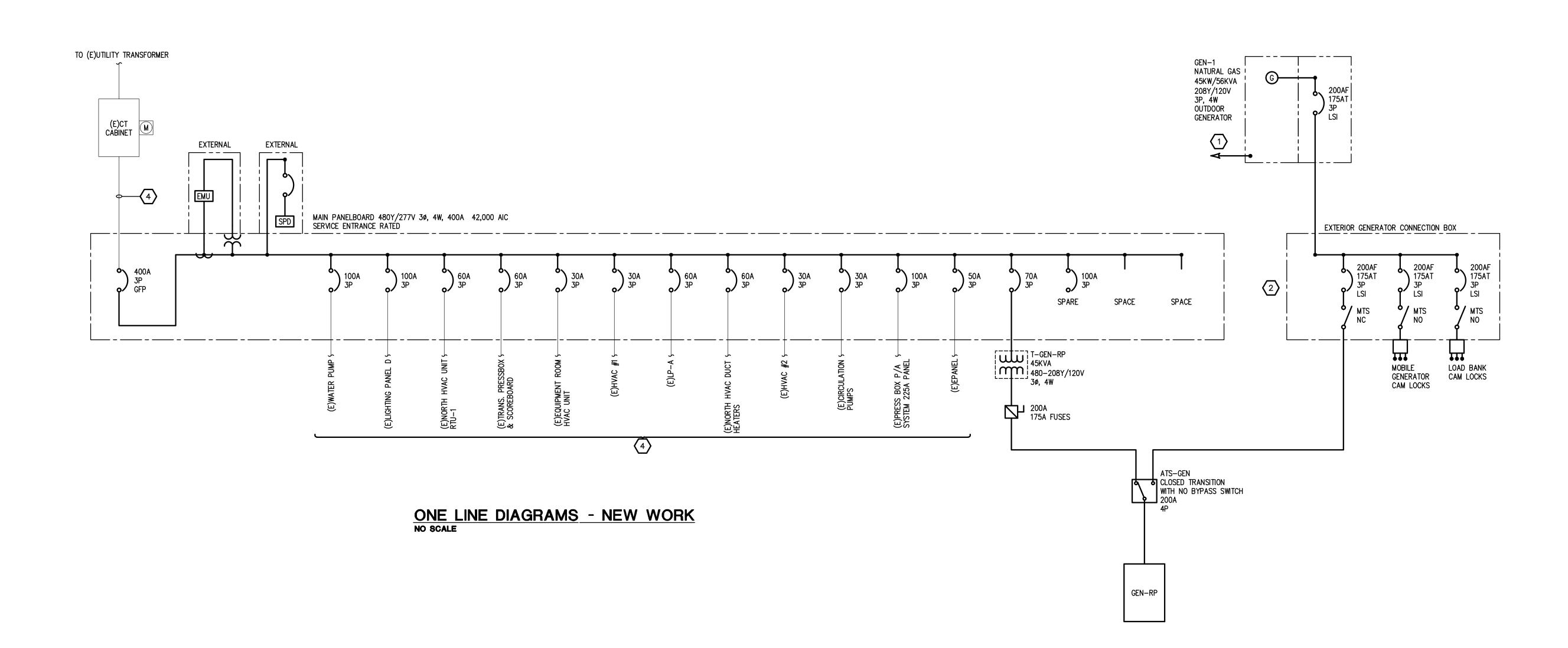
> EXISTING UTILITY TRANSFORMER

STADIUM AUXILIARY BLDG POWER AND AUXILIARY SYSTEMS PLAN
SCALE: 1/4" - 1" - 0"

PRESSBOX LEVEL POWER AND AUXILIARY SYSTEMS PLAN SCALE: 1/4" - 1' - 0"



#### ONE LINE DIAGRAMS - DEMOLITION NO SCALE



#### **DIAGRAM GENERAL NOTES:**

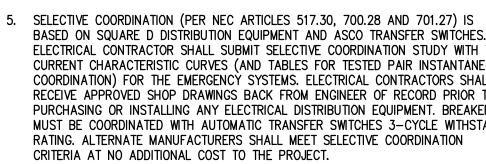
- 1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL
- 2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
- 3. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "TRANSFORMER CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
- 4. BASIS OF DESIGN IS SQUARE D DISTRIBUTION EQUIPMENT AND ASCO TRANSFER SWITCHES. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT FROM OTHER APPROVED MANUFACTURERS, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LAYOUT AND CLEARANCE REQUIREMENTS IN ALL SPACES CONTAINING ELECTRICAL EQUIPMENT AND PROVIDE EQUIPMENT MEETING THE SPECIFICATIONS AND ACHIEVING CODE REQUIRED CLEARANCES WITHIN THE SPACE
- 5. SELECTIVE COORDINATION (PER NEC ARTICLES 517.30, 700.28 AND 701.27) IS BASED ON SQUARE D DISTRIBUTION EQUIPMENT AND ASCO TRANSFER SWITCHES. ELECTRICAL CONTRACTOR SHALL SUBMIT SELECTIVE COORDINATION STUDY WITH TIME CURRENT CHARACTERISTIC CURVES (AND TABLES FOR TESTED PAIR INSTANTANEOUS COORDINATION) FOR THE EMERGENCY SYSTEMS. ELECTRICAL CONTRACTORS SHALL RECEIVE APPROVED SHOP DRAWINGS BACK FROM ENGINEER OF RECORD PRIOR TO PURCHASING OR INSTALLING ANY ELECTRICAL DISTRIBUTION EQUIPMENT. BREAKERS MUST BE COORDINATED WITH AUTOMATIC TRANSFER SWITCHES 3-CYCLE WITHSTAND RATING. ALTERNATE MANUFACTURERS SHALL MEET SELECTIVE COORDINATION CRITERIA AT NO ADDITIONAL COST TO THE PROJECT.
- LOAD FOR LIGHTING AND MOTOR LOADS THAT RUN CONTINUOUSLY FOR THREE HOURS OR MORE (NEC 210.19 A, 210.20 A, AND 215.2 A). DEMAND AND CONNECTED LOADS ARE CALCULATED PER NEC 220.

#### **EXAMPLE 2** CONSTRUCTION KEY NOTES:

- 1. REFER TO GENERATOR DETAIL FOR CONDUIT AND WIRING REQUIREMENTS.
- TEMPORARY GENERATOR AND PERMANENT GENERATOR CONNECTIONS. (MXD
- 3. REMOVE MAIN SWITCHBOARD COMPLETE. EXISTING MAIN FEEDER AND SECONDARY



NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.



6. BRANCH CIRCUIT CONDUCTORS, FEEDERS, AND BRANCH CIRCUIT OVERCURRENT PROTECTION ARE SIZED AT 125% OF THE TOTAL CONTINUOUS AND NON CONTINUOUS

2. PROVIDE ESL POWER SYSTEM TRIPLE TRANSFER SWITCH WITH LOAD BANK, X-175H-175H-175H-208-311-4-C)

FEEDERS TO REMAIN.

4. EXTEND TO NEW MAIN PANELBOARD AS REQUIRED.

Peter Basso Associates Inc 5145 Livernois, Suite 100 Troy, Michigan 48098-3276 Tel: 248-879-5666 Fax: 248-879-0007

				P	ANE	LBO	ARE	GE	EN-F	RP				
#	LOAD TYPE	DESCRIPTION	CB TYPE	СВ	VA	ØA	ØB	ØC	VA	СВ	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC NC	FTR-1		20	1440 1440	2268	2268		828 828	20		EF-1	NC NC	2
5 7	NC NC	FTR-1		20	1440 1440	6480		2268	828 5040				NC NC	6 8
9 11	NC NC	FTR-1		20	1440 1440		6480	6480	5040 5040	60		ELEVATOR	NC NC	10 12
13 15	NC NC	FTR-1		20	1440 1440	2616	1902		1176 462	20 20		ELEVATOR SUMP SHAFT RECEPTS AND LIGHTS	NC NC	14 16
17	NC	ELEVATOR CAB LIGHTS		20	1000			1231	231	20		CONTROL ROOM RECEPTS AND LIGHTS	NC	18
19		ELEVATOR AUXILIARY CONTROLS		20	1000	2200	4000		1200	20		FACP	C	20
21		SPARE		20			1000		1000	20		TWO WAY COMMUNICATION	С	22
23		SPARE GENERATOR COOLANT JACKET HEATER		20 20	1500	2255			755	20 20		SPARE GENERATOR HEATERS AND BATT, CHARGER	NC	24
25 27		SPARE		20	1300	2233			/55	20		SPARE	I NC	26 28
29		SPARE		20						20		SPARE		30
31		SPARE		20						20		SPARE	+	32
33		SPARE		20						20		SPARE	1	34
35		SPARE		20						20		SPARE		36
37		SPARE		20						20		SPARE		38
39		SPARE		20						20		SPARE		40
41		SPARE		20					<u> </u>	20		SPARE		42
					T 0011115	15819 ØA	11650 ØB	9979 ØC <u>D</u>	EMAND	CALCULA		FEEDER AND OVERCURRENT	•	
		BOARD INFORMATION				CTED LOA		_		DEMAND		SIZING NOTES:		
	VOLTA			UOUS LO IC HEAT			2200			2200	-	125% 2750	_	-
		MPACITY: 225A		ONTINUO		(NC)	75040	•	100%	75040		125%	_	-
	MAIN 1			N LOAD		(140)	35248	-		<u>35248</u>		100% 35248		-
		···········		ACLE BA		) (B)			100%		-	100%		-
	MOUNT		RECEPT	ACLE DE	MAND I	OAD (R)			100%		-	100%		-
		FEED-THROUGH LUGS DOUBLE LUGS		G LOAD		OND (II)			50% 100%		-	100% 125%		-
		INTEGRAL SPD			• •	TING LOA	n	(150	100% VA/2FT)		-	100%		-
	_	INTEGRAL SI D		S, HIGHE			U	(100	100%			125%		-
	<u>PANELI</u>	BOARD LOCATION		S, REMAI				· ·	100%		-	100%	_	- -
				EMAND AN TED FROM		INFORMATIO ED LOAD	N IS		AL(KVA): (AMPS):	37.45 104		L (AMPS): 105		-
© Сору	right 20	19 by Peter Basso Associates, Inc												

TIPE				PANELBOARD (E)LP-C									
<del>   </del>	DESCRIPTION	CB TYPE	CB	VA	ØA	ØB	ØС	VA	СВ	CB TYPE	DESCRIPTION	LOAD TYPE	#
S	SOUTH RESTROOM PLUGS		20						20		ROOM #123 PLUGS		2
L	OCKER ROOM PLUGS		20						20		HALL WATER COOLER		4
i P	PHONE ROOM AND ALARM PLUGS		20						20		ROOM #121 PLUGS		6
' S	SOUT RESTROOM ROOF TOP EXHAUST FAN		20						20		ROOM #121 PLUGS		8
s	SOUTH ROOF TOP SERVICE PLUG		20						20		SPARE		10
1 S	SOUTH ROOF TOP EXHAUST FANS		20						20		SPARE		12
3 L	OCKER ROOM PROJECTION PLUG		20						20		IT ROOM PHONE ROOM POWER RACK		14
5 S	SOUTH ROOF TOP EXHAUST FANS		20						1 20		II ROOM PHONE ROOM POWER RACK		16
7 E	EAST SPARE		20						- 30		TEMP ROOM COOLERS		18
9 J	JUCUZZI		20						] 30		TEMP ROOM COOLERS		20
1   10	CE MACHINE		30						- 30		TEMP ROOM COOLERS		22
3	GE MACHINE		30						] 30		TEMP ROOM COOLERS		24
	PLUG BEHIND ICE MACHINE		30						20		TRAINING ROOM PLUGS		26
7 P	PLUG BEHIND ICE MACHINE		20						20		TRAINING ROOM PLUGS		28
9 T	TAPE COUNTER PLUGS		20						20		WATER HEATER		30
	SPARE		20						20		DRYER		32
	RECEPTS.: ELEVATOR LOBBY, CLOSET	NEW	20	360		360			20		EQUIPMENT ROOM PLUGS		34
5 NC S	SUMP PUMP: CLOSET	NEW	20	1176			1176		20		EQUIPMENT ROOM ROOF TOP EXHAUST FAN		36
7 NC _	TTR-2s	NEW	30	2500	2500								38
9 NC	- IN-25	INEW	3	2500		2500			30		WASHER		40
1 S	SPACE												42
VOLTAGE BUS AMF MAIN TYI MINIMUM MOUNTIN  FI D I	PACITY: 125A PE: 70A MCB	CONTINI ELECTR NON-C KITCHEI RECEPT RECEPT LIGHTIN ADDITIC MOTORS	UOUS LO IC HEAT ONTINUO N LOAD TACLE BA TACLE DE IG LOAD ONAL TRA S, HIGHE	DAD (C) (E) US LOAD (K) ASE LOAD (MAND L' (L) ACK LIGH ST LOAD NING LO	D (R) OAD (R) ITING LOA (MH)	6176 360 D	E				FEEDER AND OVERCURRENT SIZING  125%  125%  100% 6176  100% 360  100% 125%  100%  125%  100%  125%  100%  125%  100%		- - - -

PANEL SCHEDULE INDEX								
		GEN-RP						
		(E)LP-C						

RCHITECTS

ERI ARCHI

**SILVERI** 650 LIVERNOIS F (248) 591-0360

Wayne State University

DATE 09-12-19 11-07-19 11-21-19

ISSUE
DD
95% REVIEW
BIDS



Football Stadium Elevator
Adams Field - Wayne State University
Detroit, Michigan
079-326353

ANEL SCHEDULES

E.52

AT FLOOR. (ASME A17.1 2010, 2.2.5.1, 2.8.2.3.4)

2. PIT LIGHTING SHALL BE IP66, WET LOCATION LISTED. PIT TO BE ILLUMINATED TO 10 FOOT-CANDLES

3. ELEVATOR MACHINE ROOM TO BE ILLUMINATED TO 19 FOOTCANDLES. (ASME A17.1 2010, 2.7.5.1)

4. ELEVATOR MACHINE ROOM TO BE DEDICATED FOR ELEVATOR EQUIPMENT ONLY. (ASME A17.1 2010,

SECTION 2.8) 5. ELEVATOR THRESHOLD LIGHTING TO BE 10 FOOT—CANDLES MINIMUM. (ASME A17.1 2010, 2.11.10.2)

6. CONTROL CLOSET AND ELEVATOR PIT LIGHTING AND RECEPTACLES SHALL BE SERVED FROM SEPARATE BRANCH CIRCUITS. CONTROL CLOSET LIGHTING AND RECEPTACLES MUST BE SERVED FROM SEPARATE BRANCH CIRCUITS. THE ELEVATOR PIT RECEPTACLES AND LIGHTING CAN BE SERVED FROM THE SAME CIRCUIT AS LONG AS THE LIGHTING IS CONNECTED TO THE LINE SIDE AHEAD OF THE GFCI DEVICE (NEC 620.23, 630.24).

7. ELEVATOR EMERGENCY PHONE MUST BE MONITORED 24 HOURS A DAY BY AUTHORIZED PERSONAL, HAVE THE ABILITY TO BE CALLED REMOTELY, AND STAY OPERATIONAL DURING EMERGENCY CONDITIONS (ASME A17.1 2010 2.27.1.1.1-2.27.1.1.5).

8. REFER TO NEW WORK PLANS FOR ALL CIRCUITING, LIGHTING FIXTURE TYPES, AND LIGHTING FIXTURE QUANTITIES.

### **#** KEYED NOTES:

3 POLE OUTPUT

GEN-RP FEEDER

REFER TO FEEDER AND

BRANCH CIRCUIT SIZING

NO SCALE

SCHEDULE FOR SIZE —

PER ONE-LINE

DIAGRAM -

DISCONNECT SWITCH OR ENCLOSED CIRCUIT BREAKER CAPABLE OF BEING LOCKED OFF FOR ELEVATOR CONTROLLER. GROUND CONDUCTOR TO BE SAME SIZE AS PHASE CONDUCTORS. COORDINATE EXACT MOUNTING LOCATION AND REQUIREMENTS WITH ELEVATOR CONTRACTOR.

2. PROVIDE 20A/1P ENCLOSED CIRCUIT BREAKER CAPABLE OF BEING LOCKED OFF FOR ELEVATOR CAB

LIGHTING. COORDINATE EXACT MOUNTING LOCATION AND REQUIREMENTS WITH ELEVATOR CONTRACTOR. 3. PROVIDE 20A/1P ENCLOSED CIRCUIT BREAKER CAPABLE OF BEING LOCKED OFF FOR ELEVATOR AND

AUXILIARY CONTROLS. COORDINATE EXACT MOUNTING LOCATION AND REQUIREMENTS WITH ELEVATOR CONTRACTOR.

4. COORDINATE EXACT DESIGNATED AND ALTERNATE RECALL FLOOR WITH ARCHITECT AND ELEVATOR MANUFACTURER AND INSTALLER.

5. PROVIDE REQUIRED CONDUIT, WIRING, AND CONNECTIONS BETWEEN SUMP PUMP CONTROL PANEL(S) AND SUMP PUMP(S). COORDINATE REQUIREMENTS WITH MECHANICAL TRADES AND SUMP PUMP MANUFACTURER.

6. THE LOBBY ELEVATOR SMOKE DETECTORS SHALL BE WITHIN 21' OF THE DOOR CENTERLINE. FOR LOBBIES WITH CEILINGS HIGHER THAN 15', THE SMOKE DETECTOR SHALL BE INSTALLED WITHIN 60" OF THE TOP OF THE ELEVATOR DOOR. (NFPA 72 2019 21.3.5)

7. COORDINATE GFCI RECEPTACLE, LIGHT SWITCH AND LIGHT FIXTURE PLACEMENT IN PIT/HOISTWAY WITH ELEVATOR MANUFACTURER DRAWINGS AND TRADES. LIGHT SWITCH TO BE LOCATED AT TOP OF LADDER. CIRCUIT GFCI RECEPTACLE AND LIGHT FIXTURE AS INDICATED ON PLAN.

8. FIRE ALARM CONTROL MODULES FOR ELEVATOR RECALL, REFER TO FIRE ALARM MATRIX FOR CONTROL MODULE FUNCTIONALITY. CONTROL MODULES TO BE LOCATED WITHIN 3' OF ELEVATOR CONTROLLER (NFPA 72 2019 21.2.4).

> GENERATOR CONTROL PANEL

9. PROVIDE TELEPHONE LINE FOR ELEVATOR EMERGENCY PHONE. REFER TO SPECIFICATIONS FOR CABLE

GENERATOR WIRING CONNECTION DETAIL

1. VERIFY ALL WIRING WITH SELECTED GENERATOR MANUFACTURERS DRAWINGS AND WIRING DIAGRAMS

-CEILING GRID TEE SUPPORT WIRE

SECURED TO STRUCTURE ABOVE-

—FIXTURE SUPPORT WIRE SECURED TO

STRUCTURE (PROVIDE SUPPORTS AT

RECESSED LIGHTING FIXTURE

LIGHTING FIXTURE

ENCLOSURE —

CEILING GRID TEE (TYP)

**INSTALLATION DETAIL** 

CEILING TILE (TYP)

NO SCALE

DIAGONAL CORNERS OF EACH FIXTURE

INSTALLED. REFER TO SPECIFICATIONS)

OOLANT JACKET HEATER, 1500W, 120V-10, VERIFY

EXACT SIZE AND WIRING REQUIREMENTS WITH

OIL HEATER, ALTERNATOR HEATER, BATTERY HEATER,

SIZE AND WIRING REQUIREMENTS WITH MANUFACTURER

MANUFACTURER

FIRE ALARM CONTROL PANEL

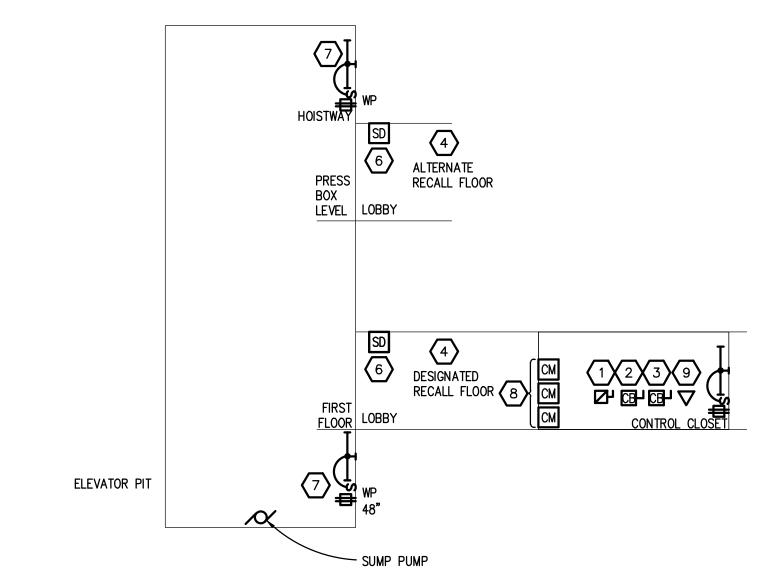
BUILDING MÄNAGEMENT SYSTEM

-1"C SPARE TO EMERGENCY ELECTRICAL ROOM

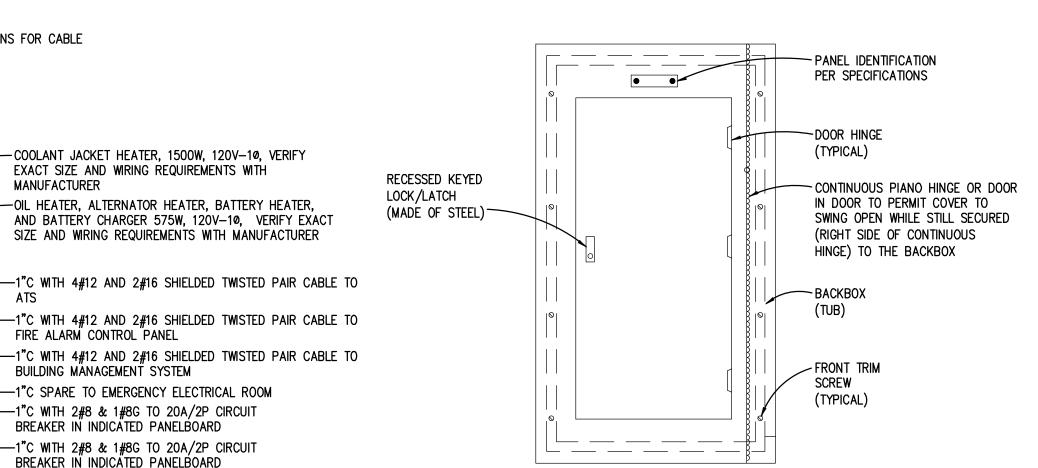
-1"C WITH 2#8 & 1#8G TO 20A/2P CIRCUIT BREAKER IN INDICÄTED PANELBOARD

-1"C WITH 2#8 & 1#8G TO 20A/2P CIRCUIT

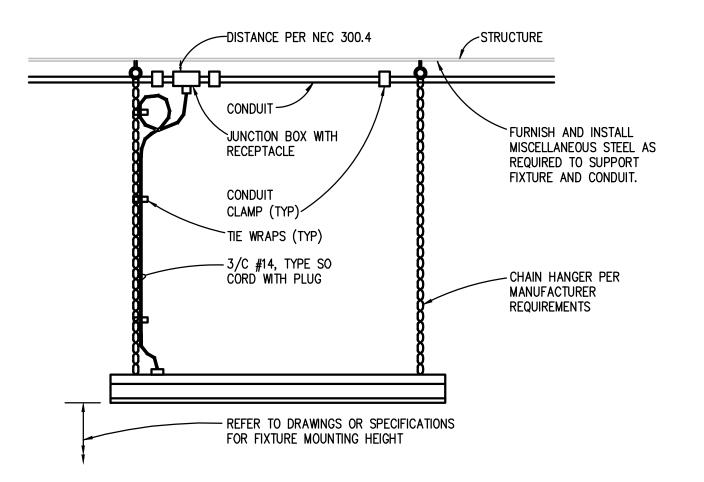
BREAKER IN INDICÄTED PANELBOARD



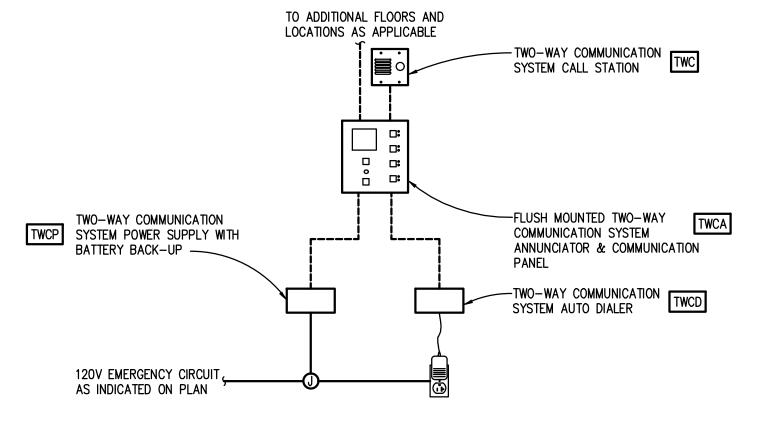
**ELEVATOR DETAIL - MACHINE ROOM** NO SCALE



#### PANELBOARD FRONT COVER DETAIL NO SCALE



TYPICAL MOUNTING DETAIL FOR CHAIN **HUNG LIGHTING FIXTURES** NO SCALE

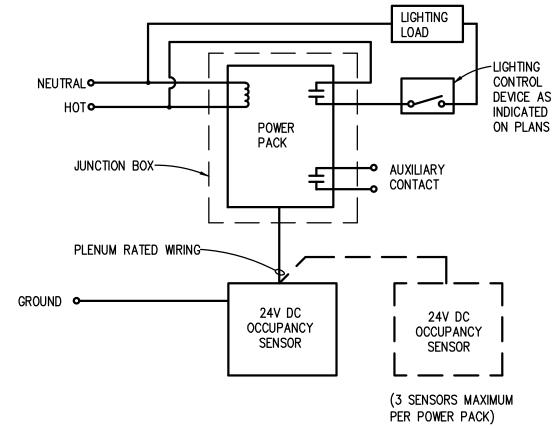


AREA OF REFUGE (AREA OF RESCUE ASSISTANCE) **EMERGENCY TWO-WAY COMMUNICATION** SYSTEM DIAGRAM - EMERGENCY POWER

1. REFER TO SPECIFICATIONS FOR SYSTEM REQUIREMENTS.

NO SCALE

2. REFER TO PLANS FOR SYSTEM DEVICE LOCATIONS.



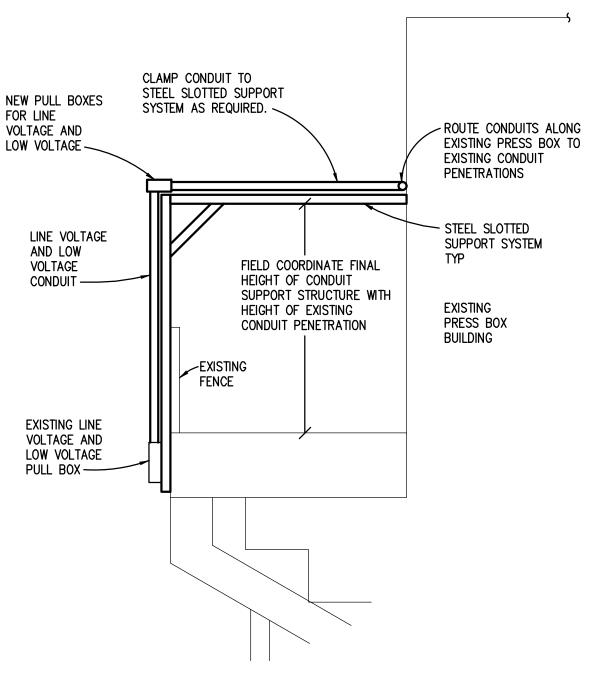
## OCCUPANCY SENSOR WIRING DIAGRAM

1. REFER TO SPECIFICATIONS FOR ACCEPTED MANUFACTURERS. 2. PROVIDE POWER PACKS AND SLAVE PACKS AS REQUIRED FOR SWITCHING AS INDICATED ON PLAN. REVISE DETAIL AS REQUIRED BY MANUFACTURER.

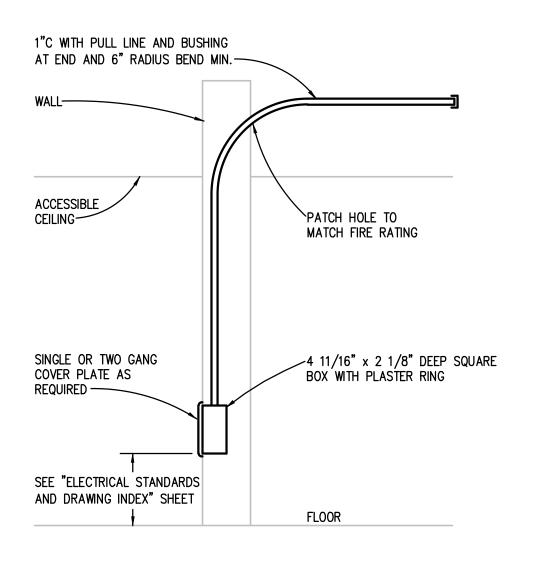
3. MOUNTING LOCATION PER MANUFACTURER'S RECOMMENDATION. 4. ADJUST SENSITIVITY LEVELS PER THE OWNER REQUIREMENTS.

5. PROVIDE FACTORY SUPPORT FOR AIMING/ADJUSTING OF SENSORS. 6. PLACE CEILING MOUNTED OCCUPANCY SÉNSORS IN CENTER OF A FULL CEILING TILE, WHERE

APPLICABLE. 7. SENSOR ADJUSTMENT: BEFORE MAKING ADJUSTMENTS, MAKE SURE ROOM FURNITURE IS INSTALLED, LIGHTING CIRCUITS ARE TURNED ON, AND THE HVAC SYSTEMS ARE IN THE ON POSITION. VAV SYSTEMS SHOULD BE SET TO THEIR HIGHEST AIRFLOW. SET THE LOGIC CONFIGURATION DIP SWITCHES TO "EITHER". EITHER REQUIRES MOTION DETECTION BY ONLY ONE TECHNOLOGY. SET THE TIME DELAY PER OWNERS DIRECTION.



#### CONDUIT SUPPORT DETAIL NO SCALE



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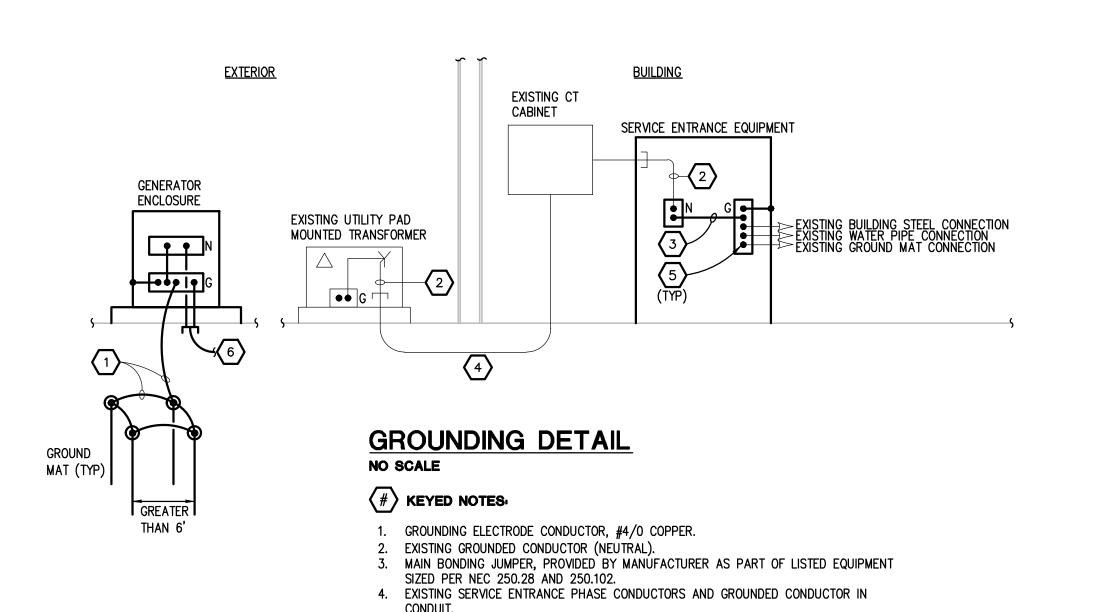
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Football Stadium Football Stadium Fedams Field - Wayne Station, Michigan 179-326353

#### TELE/DATA OUTLET DETAIL NO SCALE

NOTE:

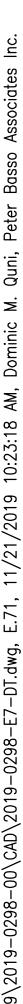
IF CEILING IN ROOM IS NOT ACCESSIBLE ROUTE CONDUIT TO NEAREST ACCESSIBLE CEILING IN DIRECTION OF TELECOM ROOM.



6. FEEDER IN CONDUIT (3P,N,G). SEE ONE LINE DIAGRAM.

REQUIRED.

5. CONNECT EXISTING GROUNDING SYSTEM CONNECTIONS TO NEW GROUND BUS AS



#### **ELECTRICAL DEMOLITION GENERAL NOTES:**

EQUIPMENT AND SYSTEMS IN CEILING SPACES.

- 1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
- 2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
- 3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
- 4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
- 5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW
- 6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
- 7. MAINTAIN ELECTRICAL SERVICE TO ALL LIGHTING FIXTURES, DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND CONDUIT AND WIRE AS REQUIRED WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM LOADS THAT ARE TO REMAIN.
- 8. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
- 9. PROVIDE BLANK COVER PLATES WHERE SWITCHES AND DEVICES ARE REMOVED BUT EXISTING WALLS REMAIN INTACT.
- 10. RING OUT AND TAG ALL CIRCUITS AFFECTED BY THIS ALTERATION AT BOTH ENDS. MARK ALL UNUSED CIRCUIT BREAKERS "SPARE".
- 11. PROVIDE UPDATED TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS
- 12. VERIFY ALL UNDERGROUND AND IN SLAB UTILITY LOCATIONS PRIOR TO SAW-CUTTING OR PENETRATING ANY FLOOR SLAB.
- 13. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

#### **#** DEMOLITION KEY NOTES:

- A. REMOVE LIGHT FIXTURE COMPLETE. EXISTING BRANCH CIRCUIT TO REMAIN FOR REUSE IN NEW WORK
- B. REMOVE, STORE AND PROTECT LIGHT FIXTURE FOR REINSTALLATION IN NEW WORK. EXISTING BRANCH CIRCUIT TO REMAIN FOR REUSE IN NEW WORK.
- C. REMOVE, STORE AND PROTECT SWITCH FOR REINSTALLATION IN NEW WORK. EXISTING BRANCH CIRCUIT TO REMAIN FOR REUSE IN NEW WORK.
- D. REMOVE RECEPTACLE COMPLETE. EXISTING BRANCH CIRCUIT TO REMAIN FOR REUSE IN NEW WORK.
- E. REMOVE LOW VOLTAGE CONDUIT BACK TO EXISTING JUNCTION BOX MOUNTED TO STANDS AS INDICATED. EXISTING LOW VOLTAGE CABLING TO REMAIN. CAREFULLY DISCONNECT AND NOTE CONNECTION LOCATIONS OF EXISTING LOW VOLTAGE WIRING AS REQUIRED. PULL BACK LOW VOLTAGE CABLES TO EXISTING JUNCTION BOX FOR REUSE IN NEW WORK.
- F. REMOVE LINE VOLTAGE CONDUIT BACK TO EXISTING JUNCTION BOX MOUNTED TO STANDS AS INDICATED. EXISTING LINE VOLTAGE CABLES TO REMAIN. CAREFULLY DISCONNECT CABLES FROM EXISTING TRANSFORMER AND PULL BACK LINE VOLTAGE CABLES TO EXISTING JUNCTION BOX FOR REUSE IN NEW WORK.
- G. REMOVE OLD FIRE ALARM PANEL COMPLETE.



Peter Basso Associates Inc 5145 Livernois, Suite 100 Troy, Michigan 48098-3276 Tel: 248-879-5666 Fax: 248-879-0007



(E)SCORE BOX PANELBOARD LOCATED ON FLOOR ABOVE