



The University of Texas Health Science Center at Houston

MSB SWITCHGEAR REPLACEMENT

Houston, Texas

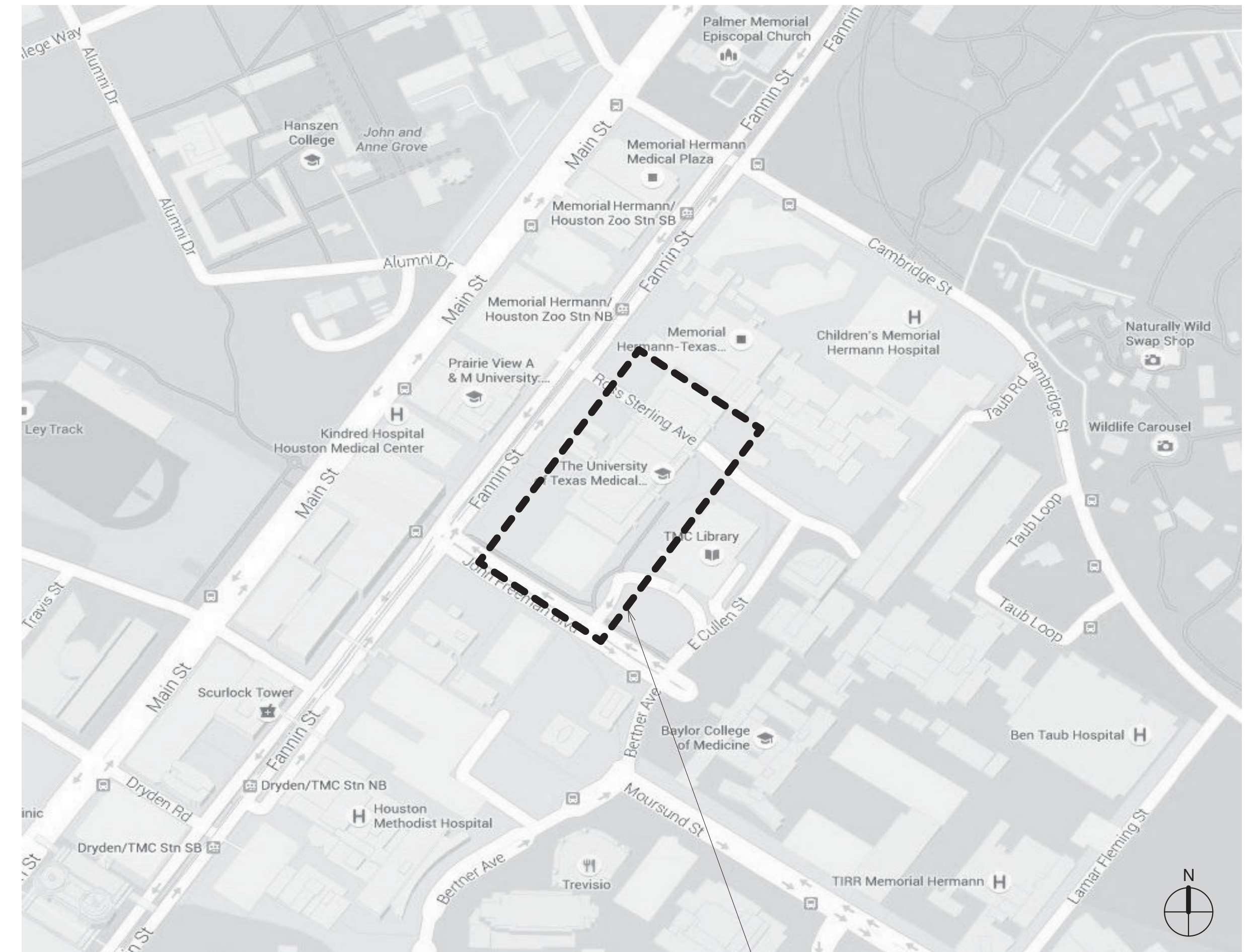
ISSUE FOR CONSTRUCTION

SEPTEMBER 30, 2016



SHAH SMITH & ASSOCIATES, INC.
HOUSTON/AUSTIN/DALLAS/COLLEGE STATION
TX. REGISTRATION NO. F-2113

ENGINEER



PROJECT SITE
UT HEALTH MEDICAL SCHOOL
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HOUSTON, TEXAS 77030

DRAWING LIST

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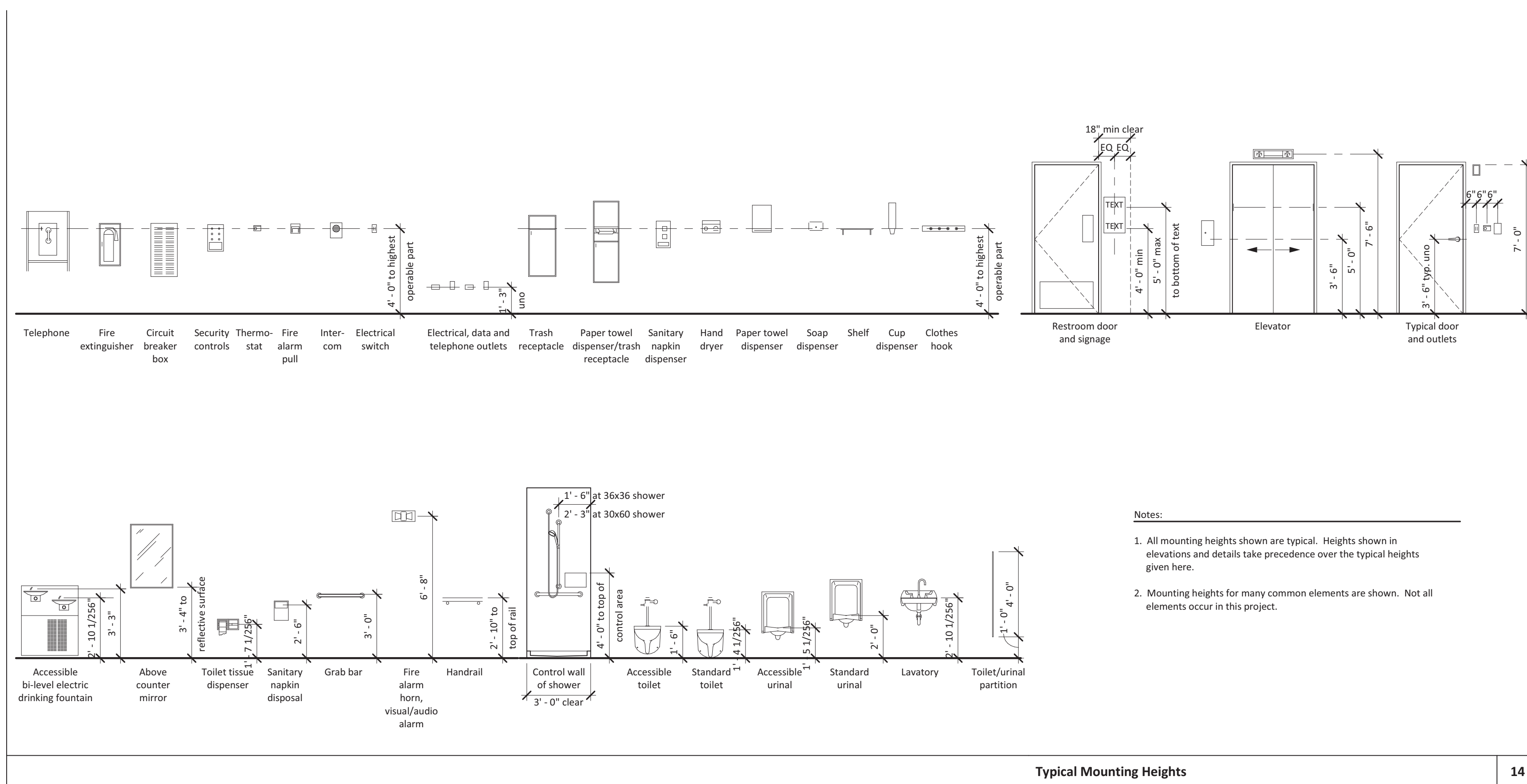
PLUMBING

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FIRE PROTECTION

FP201 - PENTHOUSE FIRE PROTECTION PLAN

Telephone	Fire extinguisher	Circuit breaker	Security controls	Thermo-stat	Fire alarm pull	Inter-com	Electrical switch	Electrical, data and telephone outlets	Trash receptacle	Paper towel dispenser/trash receptacle	Sanitary napkin dispenser	Hand dryer	Paper towel dispenser	Soap dispenser	Shelf dispenser	Cup dispenser	Clothes hook
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Symbol	Description
A/C	Air Conditioning
A/W	Air/Water
ACOUS	Acoustical
ADJ	Adjustable
AF	Above Finish Floor
ALUM	Aluminum
AMP	Amps
AMS	Automated
AND	Anodized
ATTN	Attention, Attention
AUX	Auxiliary
BLDG	Building
BLK	Black
BTU	British Thermal Units
BTUH	Btu Per Hour
C	Cabinet
C.I.	Cast Iron
C.O.	Clean Out
CFM	Cubic Feet Per Minute
CI	Construction Joint
CKT	Circuit
CLOS	Closet
CLR	Clear
CMU	Concrete Masonry Unit
COL	Column
COND	Condensing, Condition
CONN	Connection
CONT	Continuous
CTR	Center
CW	Cold Water
D	Depth
DESCR	Description
DET	Detail
DIA	Diameter
DM	Dimension
DL	Dead Load
DN	Down
DWG	Drawing
E.C.	Electrical Contractor
EA	Each
EDF	Electronic Drinking Fountain
EF	Exhaust Fan
EL	Elevation, Elevator
ELEC	Electrical
EMER	Emergency
EQ	Equal
EQUIP	Equipment
EXT	Exterior
F	Fahrenheit
FACP	Fire Alarm Control Panel
FD	Floor Drain
FEC	Fire Extinguisher Cabinet
FIN	Finish
FLUOR	Fluorescent
FURN	Furnish, Furniture
G.C.	General Contractor
GAMTL	Galvanized Metal
GALV	Galvanized
GFI	Ground Fault Interrupter
GND	Ground
GYP BD	Gypsum Board
H	Height
H.M.	Hollow Metal
HARDWD	Hardwood
HDW	Hardware
HPDL	High Pressure Decorative Laminate
HORIZ	Horizontal
HT	Height
HWAC	Heating, Ventilation, & A/C
HW	Hot Water
HZ	Hertz
IG	Isolated Ground
IN	Inch
INSUL	Insulation
IPS	Inside Pipe Size
JT(S)	Joint(s)
KSI	Kips Per Square Inch
KW	Kilowatt
LAM	Laminate
LL	Live Load
LTS	Lights
LPDL	Low Pressure Decorative Laminate
M.O.	Masonry Opening
MANUF	Manufacturer
MAX	Maximum
MECH	Mechanical
MED	Medium, Medical
MIN	Minimum
MISC	Miscellaneous
MTG	Mounting, Mounting
MTL	Metal, Material
N.C.	Normally Closed
N.O.	Normally Opened
N/A	Not Applicable
NO	Number
O.C.	On Center
O.D.	Overflow Drain, Outside Dimension
O/A	Outside-Air
PART	Partition
PS	Push Button
PLAS	LAM Plastic Laminate
PLUMB	Plumbing
PLYWD	Plywood
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
PTD	Painted
PVC	Poly Vinyl Chloride
R.D.	Roof Drain
R/A	Return Air
RE	Refer To
REF	Reference
REIN	Reinforced
REQD	Required
RH	Relative Humidity
RO	Rough Opening
RPM	Revolutions Per Minute
RTU	Roof Top Unit
S/A	Supply Air
SC WD	Solid-core Wood
SCHED	Schedule
SIM	Similar
SPST	Single Pole, Single Throw
STD	Standard
STL	Steel
STOR	Storage
STRUCT	Structure, Structural
SYS	System
TEMP	Tempered, Temperature
THK	Thick
TYB	Telephone Terminal Board
TYP	Typical
UNO	Unless Noted Otherwise
VAC	Volt Alternative Current
VDC	Volt Direct Current
VTR	Vent Through Roof
W	Width
WV	With
WB	Wet Bulb
WD	Wood
WVF	Welded Wire Fabric
WVM	Welded Wire Mesh

Section	Description
Reflected Ceiling Plan	Surface mounted incandescent, compact fluorescent or LED downlight Recessed incandescent, compact fluorescent or LED downlight Recessed wall washer - shading indicates direction
Floorplans	110V, 20A duplex outlet (Height indicated if not standard) 110V, 20A duplex dedicated outlet (Height indicated if not standard) 220V, 30A duplex outlet (Height indicated if not standard) 110V, 20A quadplex outlet (Height indicated if not standard) 110V, 20A flush floor mounted duplex outlet Flush floor mounted telephone outlet Telephone outlet (R111) (Height indicated if not standard) Computer data outlet (R145) (Height indicated if not standard) Combined telephone/computer data outlet (Height indicated if not standard) Electrical/communications junction box
Elevations	Electrical, voice, data, voice/data outlets in elevation Medical gases/lab gas outlets (Air, Vacuum, Oxygen, Waste Anes Vac, Nitrogen, Slide)

Section	Description
Acoustical Ceiling Board	Plaster with Expanded Metal Lath
Aluminum	Plastic Glazing
Brick	Plastic Laminate (Large Scale)
Carpet	Plywood
Ceramic Tile	Precast Concrete, Cast Stone
Concrete	Resilient Flooring, Pre-Molded Joint Filler
Concrete Masonry Unit	Rigid Insulation Board
Earth	Sand, Grout
Exterior Insulation and Finishing System	Steel
Insulation - batt or blanket	
Finished Wood, Hardwood	Ceramic Tile
Glass	Concrete, Plaster, Lime-stone, Synthetic Stone
Gravel, Coarse Porous Fill	Glass, Mirrors
Gypsum Board	Metal, Plastic Laminate
Gypsum Sheathing	
Oriented Standard Board (OSB)	
Ornamental Metal, Bronze, Brass	
Particle Board	Gypsum Board or Plaster
Pre-finished Metal Suspension Grid with Lay-in Panels	

Notes: Refer to the Construction Specifications Institute's (CSI) publication TD-2-6 Standard Reference Symbols, 10/91 Edition, for additional material indications not shown.

Description	Symbol	Designators
Benchmark Indicator	F.F. EL = BM	BM = Coordinate, Elevation, or Station Sequence Designation
Building Section	No Dwg	No = Detail Number Dwg = Sheet Number
Control Elevation Indicator	No	No = Alphanumeric Grid Designation
Detail Indicator (Enlarged Detail)	No Dwg	No = Detail Number Dwg = Sheet Number
Detail Indicator (Section)	No SIM	No = Detail Number Dwg = Sheet Number
Wall Section	No Dwg	No = Detail Number Dwg = Sheet Number
Door Tag	No HS	No = Door Type HS = Hardware Set
Exterior Elevation/View Indicator	No Dwg	No = Detail Number Dwg = Sheet Number
Interior Elevation/View Indicator	30 A-210	No = Detail Number Dwg = Sheet Number
Equipment Identifier	No QP-ID	No = Equipment Designation
Face Dimension	Dim	Dim = Distance, Face of Finish to Face of Finish
Finish Grade Indicator (New)	Elev	Elev = Finish Grade Elevation
Finish Grade Indicator (Existing)	Elev	Elev = Finish Grade Elevation
Finish Type Identifiers	No	No = Finish Designation
Cabinet type Identifiers	No	No = Cabinet Type Identifier
Countertop Type Identifiers	No	No = Countertop Type Identifier, See 3 A560 for legend
Glass Type/Opening Identifier	No	No = Glass Type or Opening Designation
Graphic Scale	0 4 8 16	No = Note Designation
Keyed Note Indicator	No	No = Note Designation
North Indicator	PN	PN = Plan North TN = True North
Partition Type Indicator	No	No = Partition Type Designation
Revision Indicator	No	No = Revision Designation
Room Identifier	No	Name = Name of Space No = Room Designation
Room and Finish Type Identifier	Name No FT	Name = Name of Space No = Room Designation FT = Room Finish Type Designator
Toilet Accessory Identifier	No	No = Accessory Designation

Notes: Refer to the Construction Specifications Institute's (CSI) publication TD-2-6 Standard Reference Symbols, 10/91 Edition, for additional material indications not shown.

Standard Abbreviations	21
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UTHealth
 The University of Texas Health Science Center at Houston

No.	Description	Date
4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

Keyplan

No.	Description	Date
4	Issued for Construction	09/30/2016
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2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

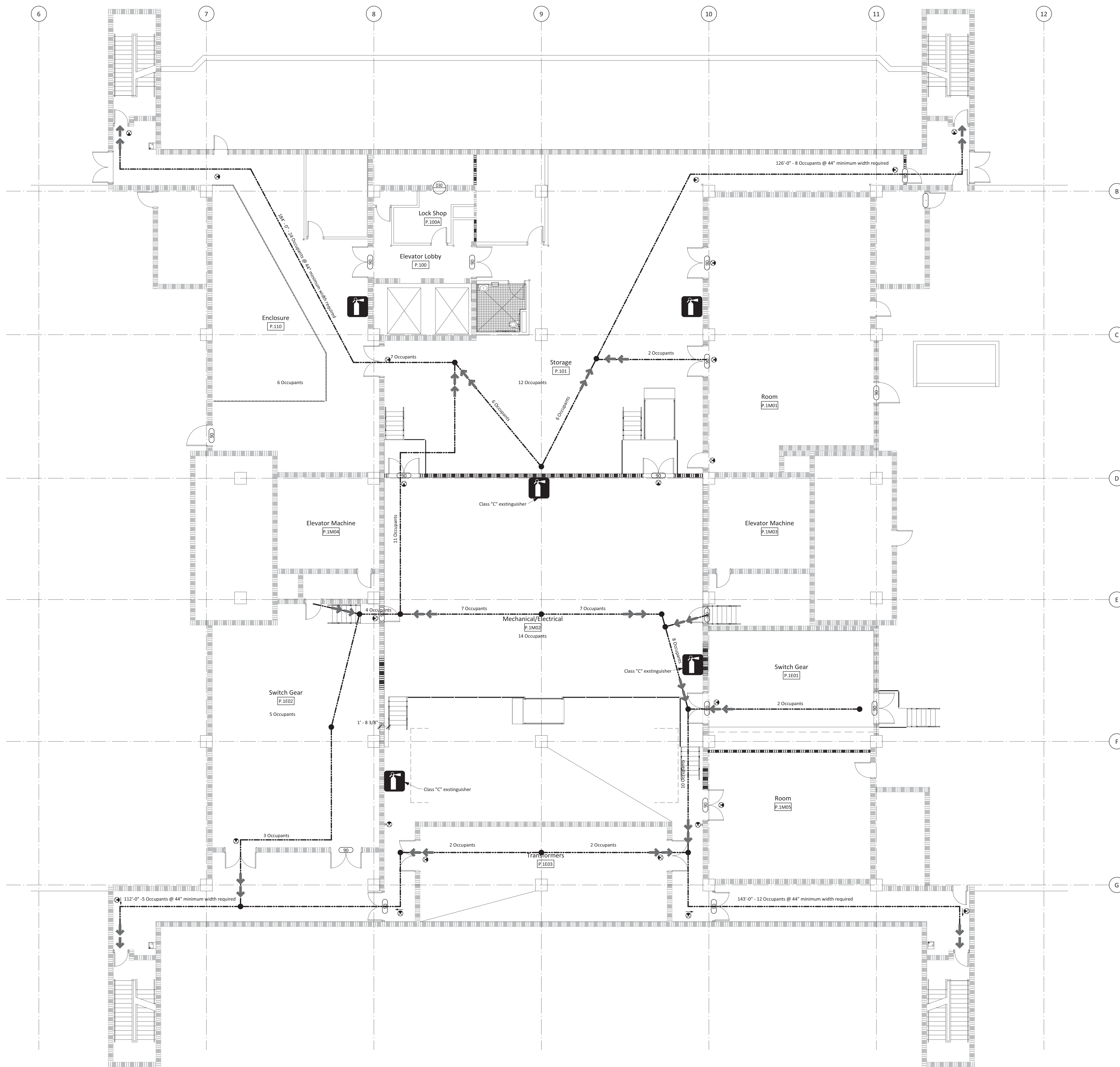
Professional Engineer Seal for **Carroll A. Hines**, State of Texas, License No. 12666, dated 9/30/2016.

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MSB SWITCHGEAR REPLACEMENT
 General Information

PWP Project Number	215-218R
Date	09/30/2016
Designed By	DS
Checked By	BL
Drawing No.	G-100
Scale	As indicated

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General Note - Fire Safety

- Existing fire walls show lighter for clarity

Legend - Fire Safety

- 1-hour fire barrier with 45 minute C-label doors. Partition types D
- 2-hour fire barrier with 90 minute B-label doors. Partition types S

- Building exit, clear exit width in inches
- FE-1 Fire extinguisher cabinet location
- Longest travel distance - Path of longest exit travel
- xx Door and frame fire rating in minutes



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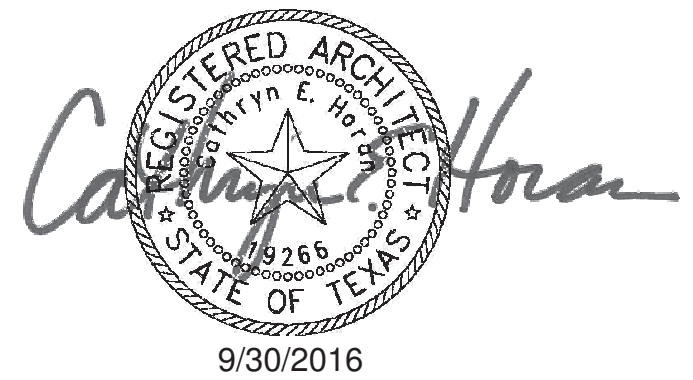


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No.	Description	Date
4	Issued for Construction	09/30/2016
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Keyplan

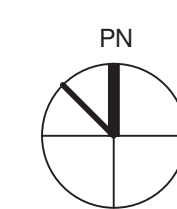


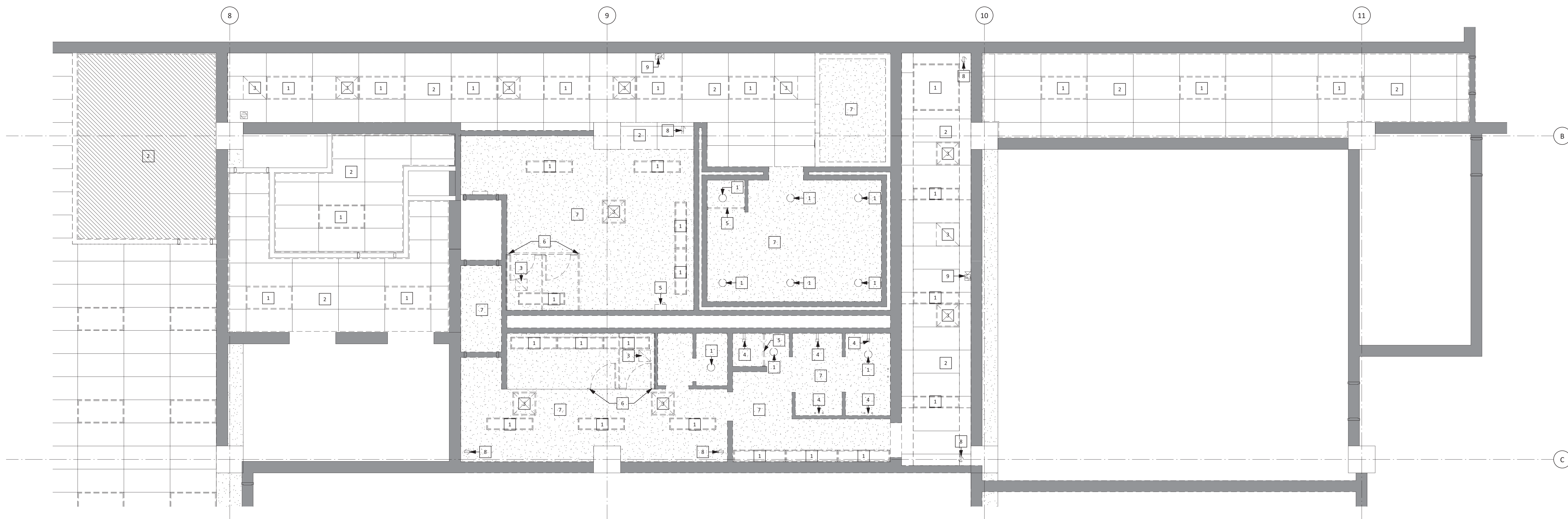
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MSB SWITCHGEAR
REPLACEMENT
Fire Safety Plan

PWP Project Number	215-218R
Date	09/30/2016
Designed By	DS
Checked By	BL
Drawing No.	G-110

Scale 1/8" = 1'-0"





Keyed Notes - Demo Reflected Ceiling Plan

- 1 Remove existing light fixture.
- 2 UTHSC will test and mastic and demo separate from contract if ACMs are present.
- 3 Remove existing diffuser.
- 4 Remove existing plumbing fixture and cap associated plumbing. Demo back to riser or main if no longer required.
- 5 Remove existing toilet accessories.
- 6 Remove existing toilet partition.
- 7 Remove existing gypsum ceiling.
- 8 Remove existing electrical fixture.
- 9 Remove existing fire alarm.

General Notes - Demolition Plan

- 1. Contractor to demolish and dispose of all items shown / noted to be removed, unless otherwise noted.
- 2. Before starting the demolition work, confirm all dimensions and other existing conditions in the field. Report any discrepancies to the Engineer and Architect.
- 3. See MEP drawings for removal of any utilities.

Legend - Floor/Demo Plan

- Existing to be removed
- Existing to remain
- ===== New Partitions

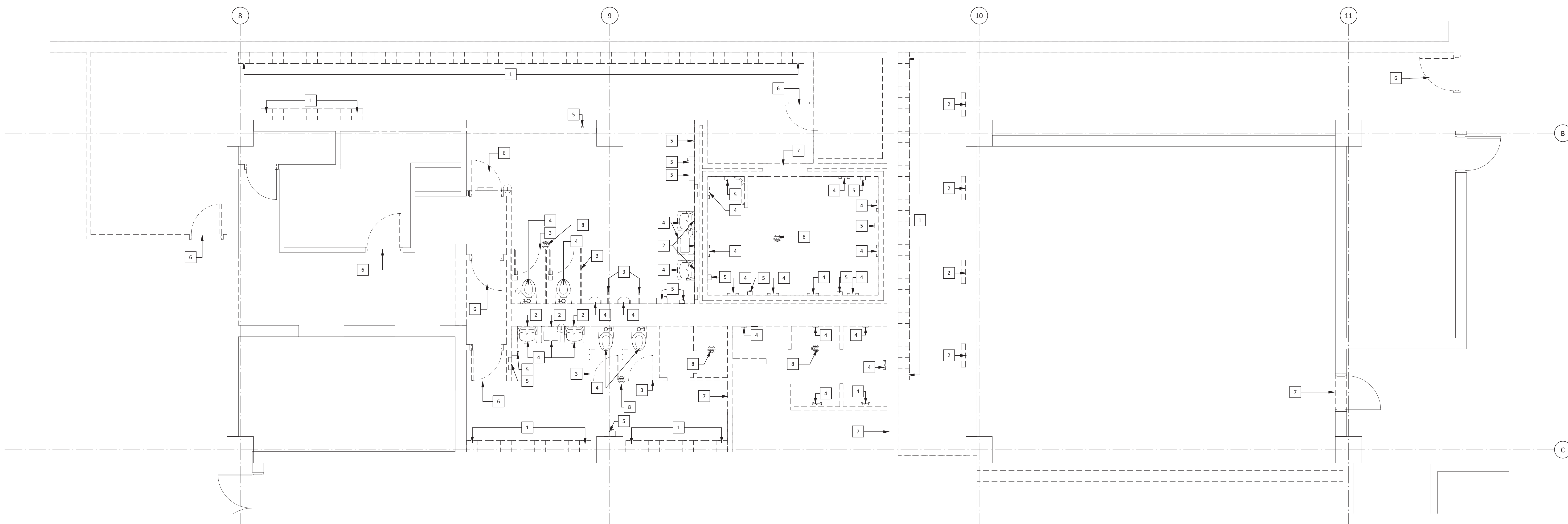


Penthouse Level Demolition - Office, Restroom and Corridor 1/4" = 1'-0" 2

4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

No.	Description	Date
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Keyplan



Keyed Notes - Demolition Plan

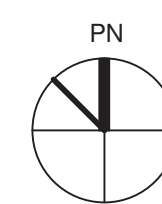
- 1 Salvage and return lockers and benches to UTHSC.
- 2 Remove existing mirrors.
- 3 Remove existing toilet partition.
- 4 Remove existing plumbing fixture and cap associated plumbing.
- 5 Remove existing toilet accessories.
- 6 Remove existing door, frame and hardware.
- 7 Remove existing curbs, grills, smooth and level off slab. Including curbs under demolished CMU partitions.
- 8 Remove and cap existing floor drains; see plumbing drawings. Fill existing openings and level with concrete.

General Notes - Demolition Plan

- 1. Contractor to demolish and dispose of all items shown / noted to be removed, unless otherwise noted.
- 2. Before starting the demolition work, confirm all dimensions and other existing conditions in the field. Report any discrepancies to the Engineer and Architect.
- 3. See MEP drawings for removal of any utilities.

Legend - Floor/Demo Plan

- Existing to be removed
- Existing to remain
- ===== New Partitions



Penthouse Level Demolition - Restroom and Showers 1/4" = 1'-0" 1

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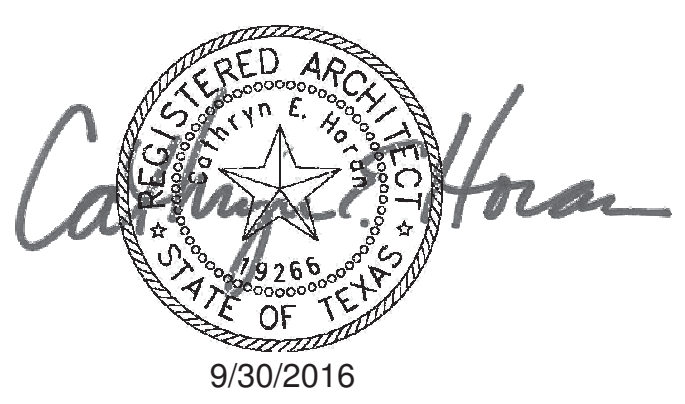
**MSB SWITCHGEAR
 REPLACEMENT**
 Enlarged Demolition Plans

PWP Project Number	215-218R
Date	09/30/2016
Designed By	DS
Checked By	BL
Drawing No.	A-102

Scale 1/4" = 1'-0"

No.	Description	Date
4	Issued for Construction	09/30/2016
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2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

Keyplan

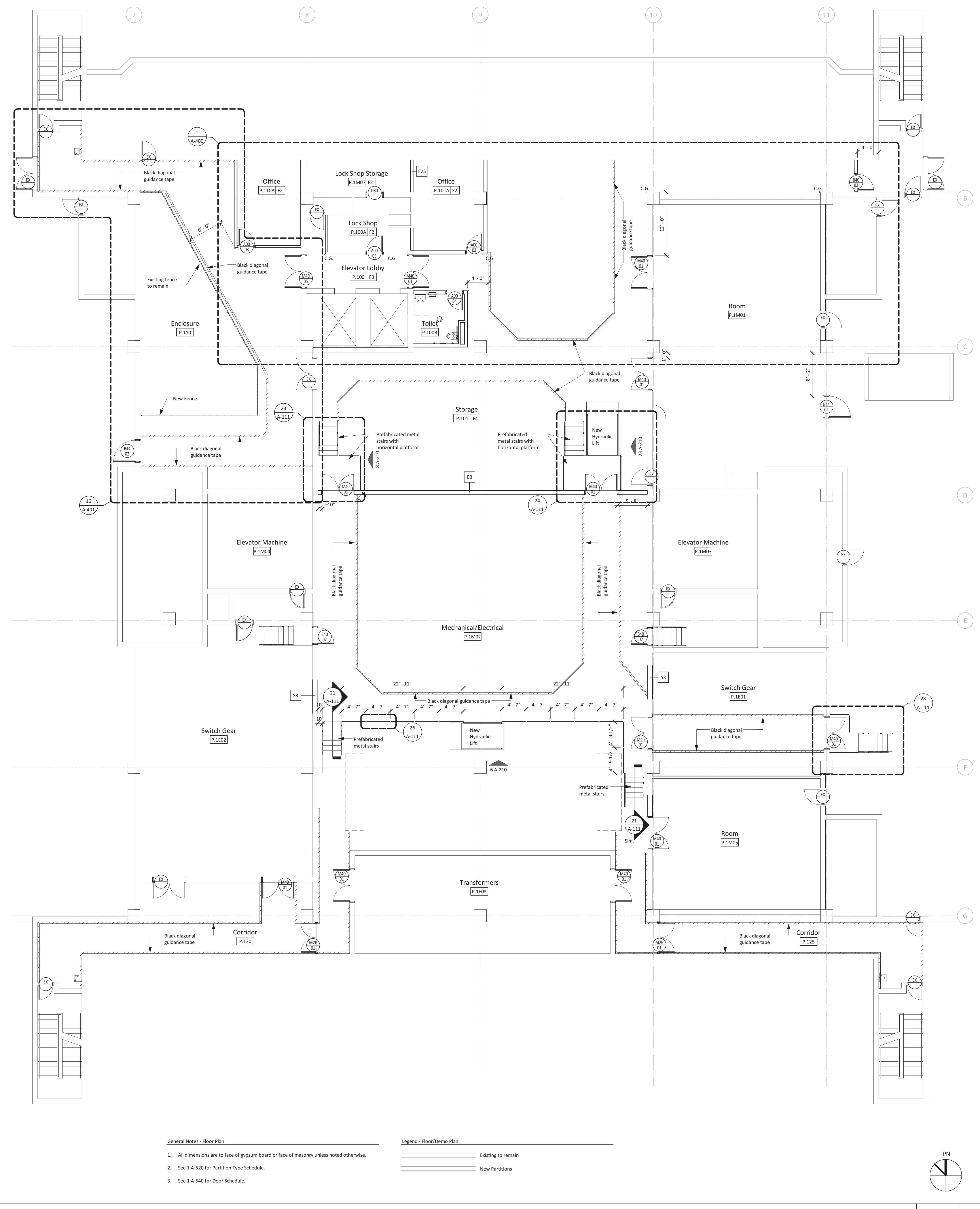


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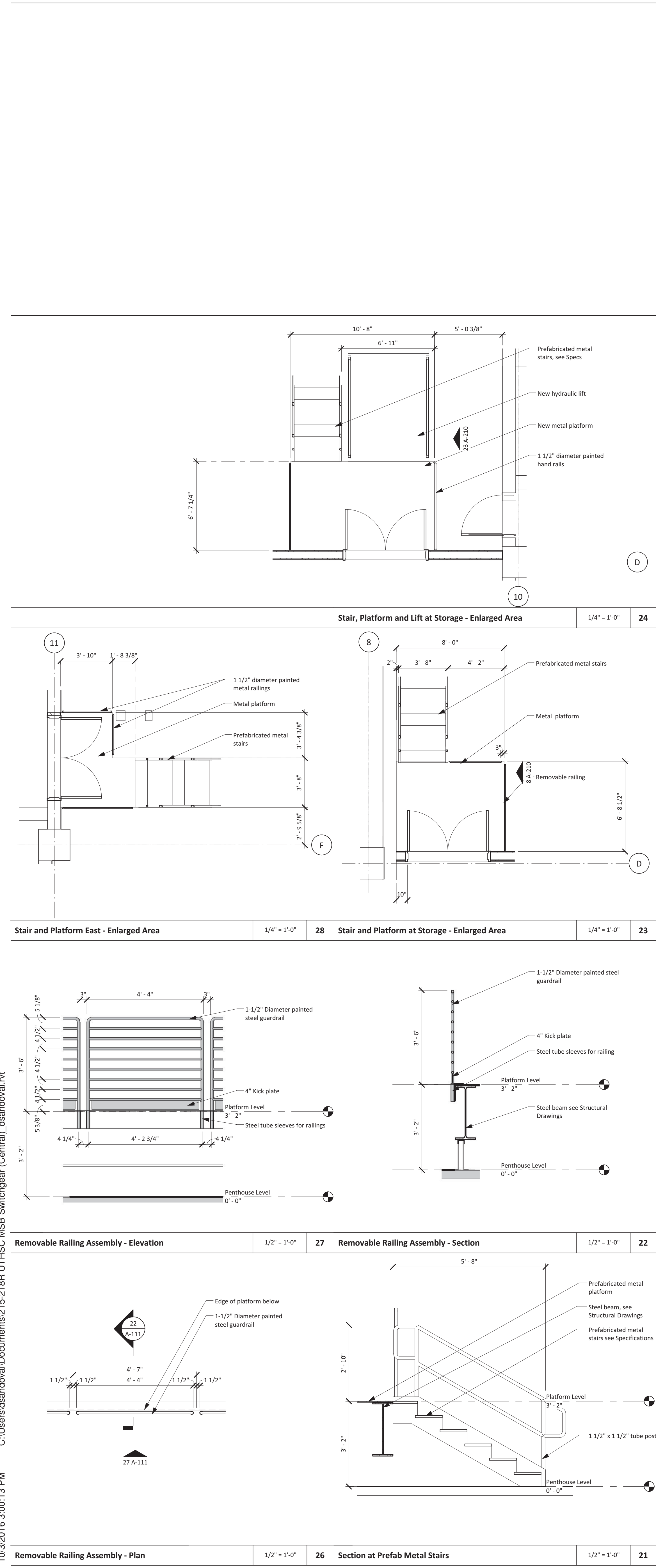
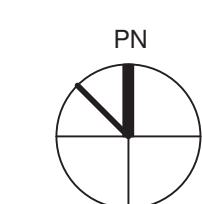
**MSB SWITCHGEAR
REPLACEMENT
Floor Plan**

PWP Project Number	215-218R
Date	09/30/2016
Designed By	DS
Checked By	BL
Drawing No.	A-111

Scale As indicated



- General Notes - Floor Plan**
- All dimensions are to face of gypsum board or face of masonry unless noted otherwise.
 - See 1 A-520 for Partition Type Schedule.
 - See 1 A-540 for Door Schedule.
- Legend - Floor/Demo Plan**
- Existing to remain
 - New Partitions

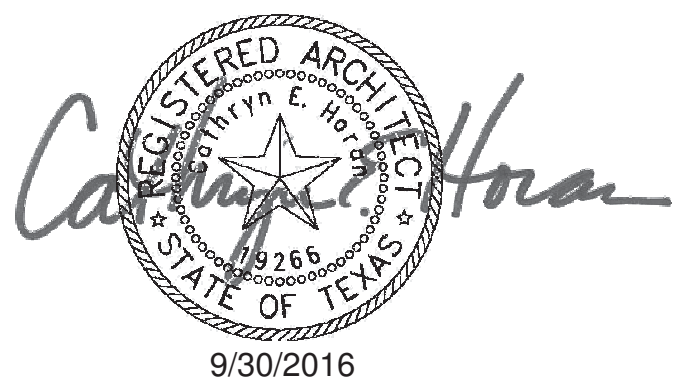


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2	90% CD Review	05/13/2016
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No.	Description	Date
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Keyplan



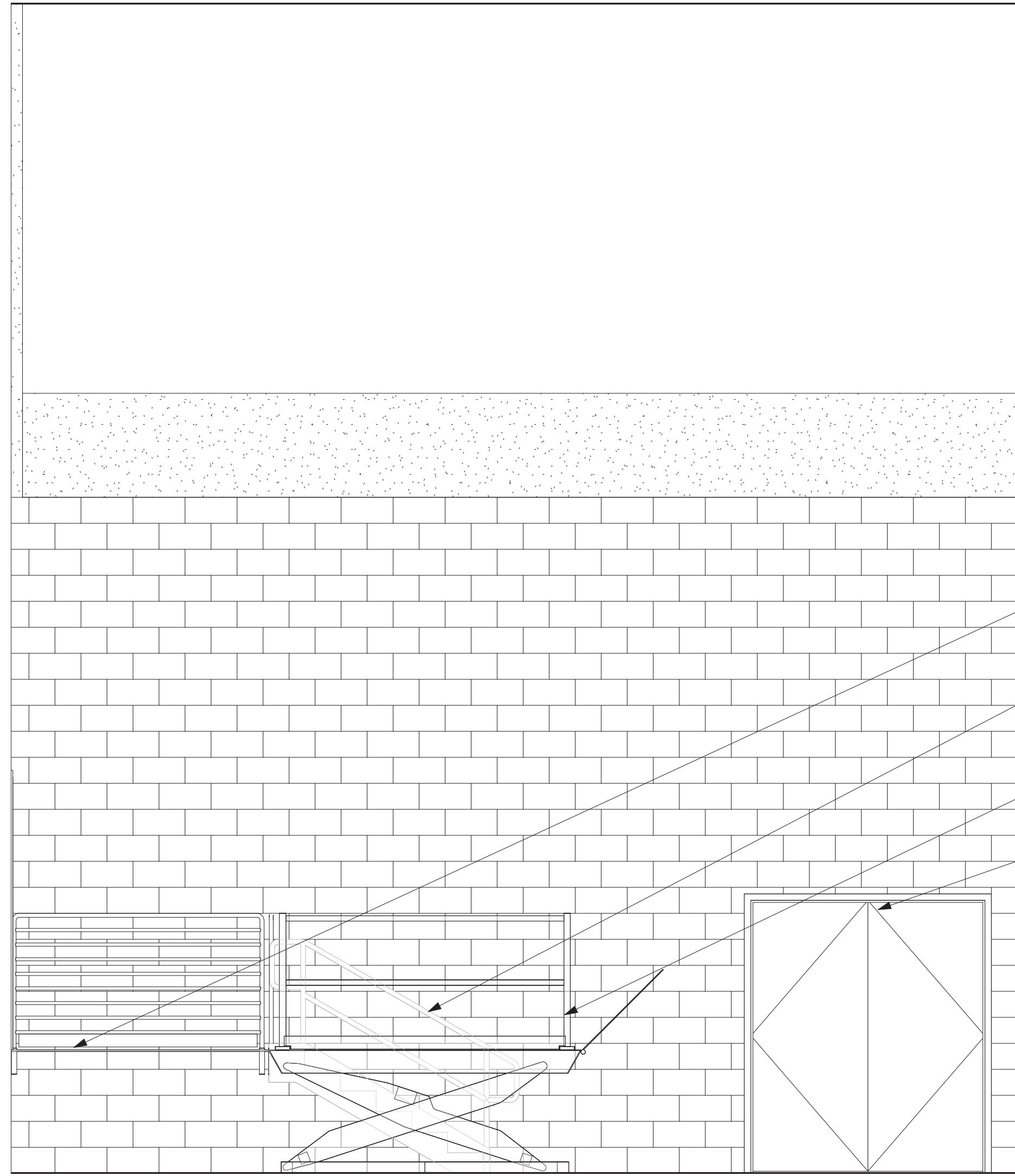
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**MSB SWITCHGEAR
 REPLACEMENT**
 Interior Elevations

PWP Project Number	215-218R
Date	09/30/2016
Designed By	JK
Checked By	JK
Drawing No.	

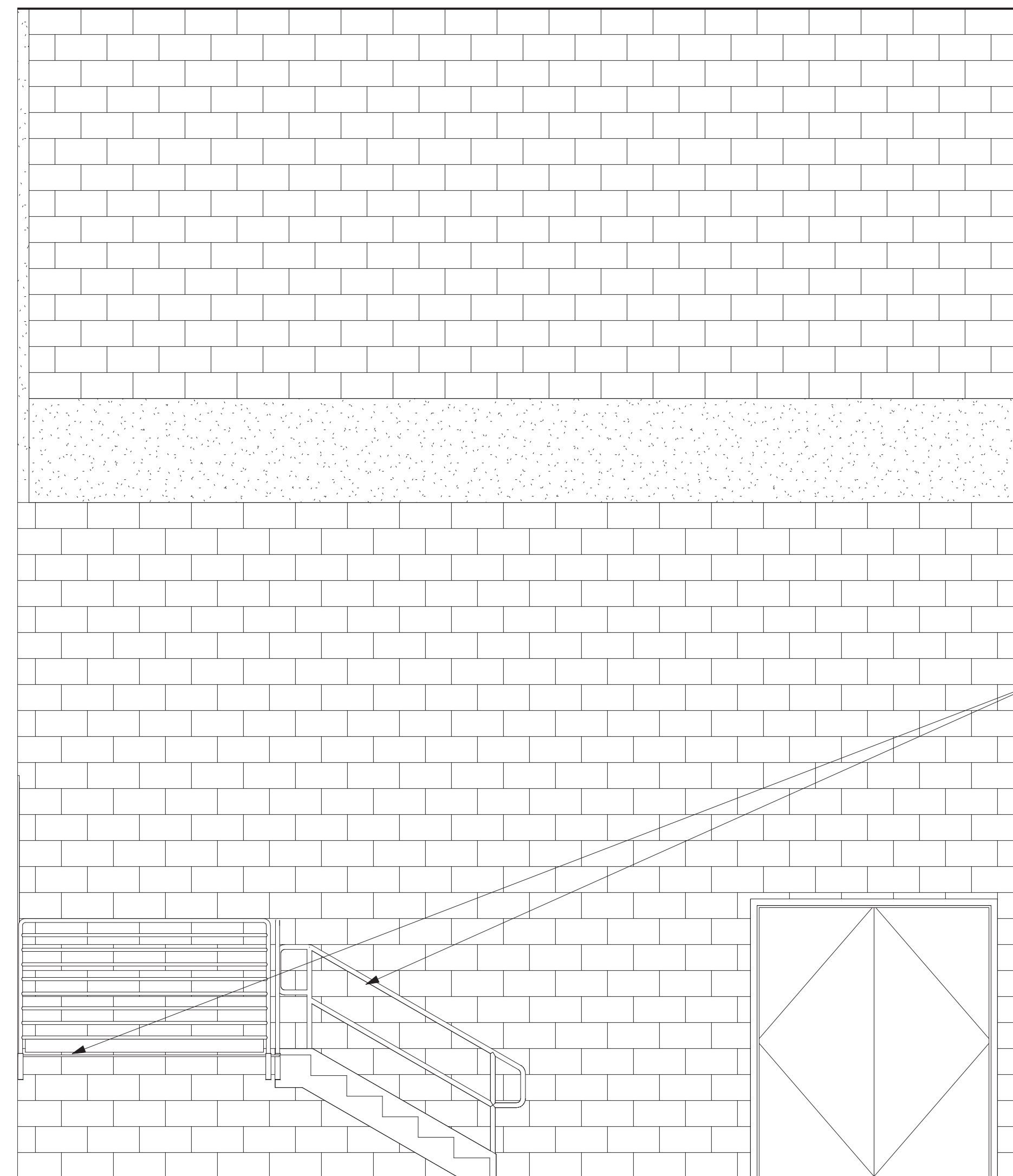
A-210

Scale 3/8" = 1'-0"



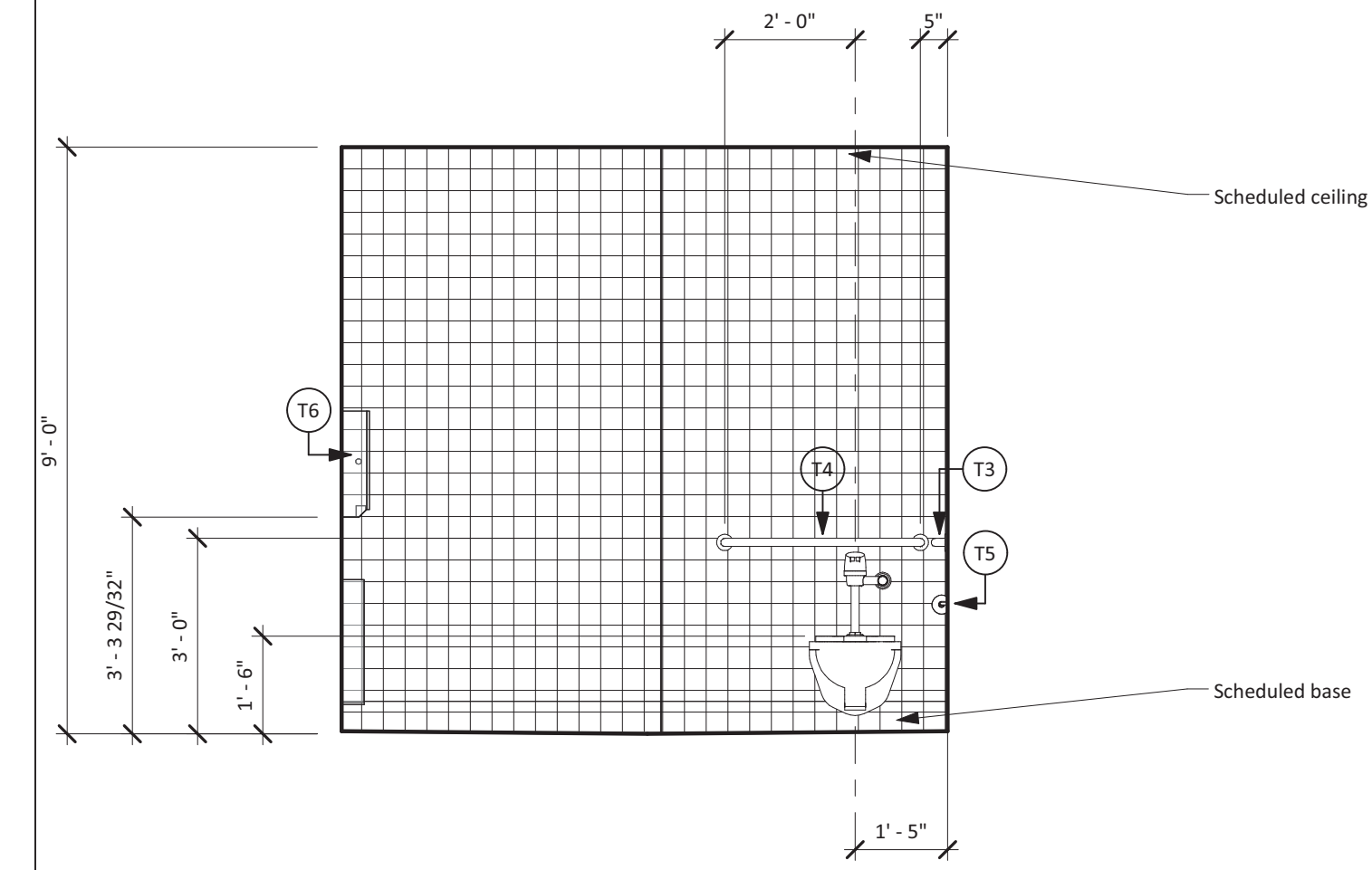
Stair and Platform Elevation at Lift

3/8" = 1'-0" 23



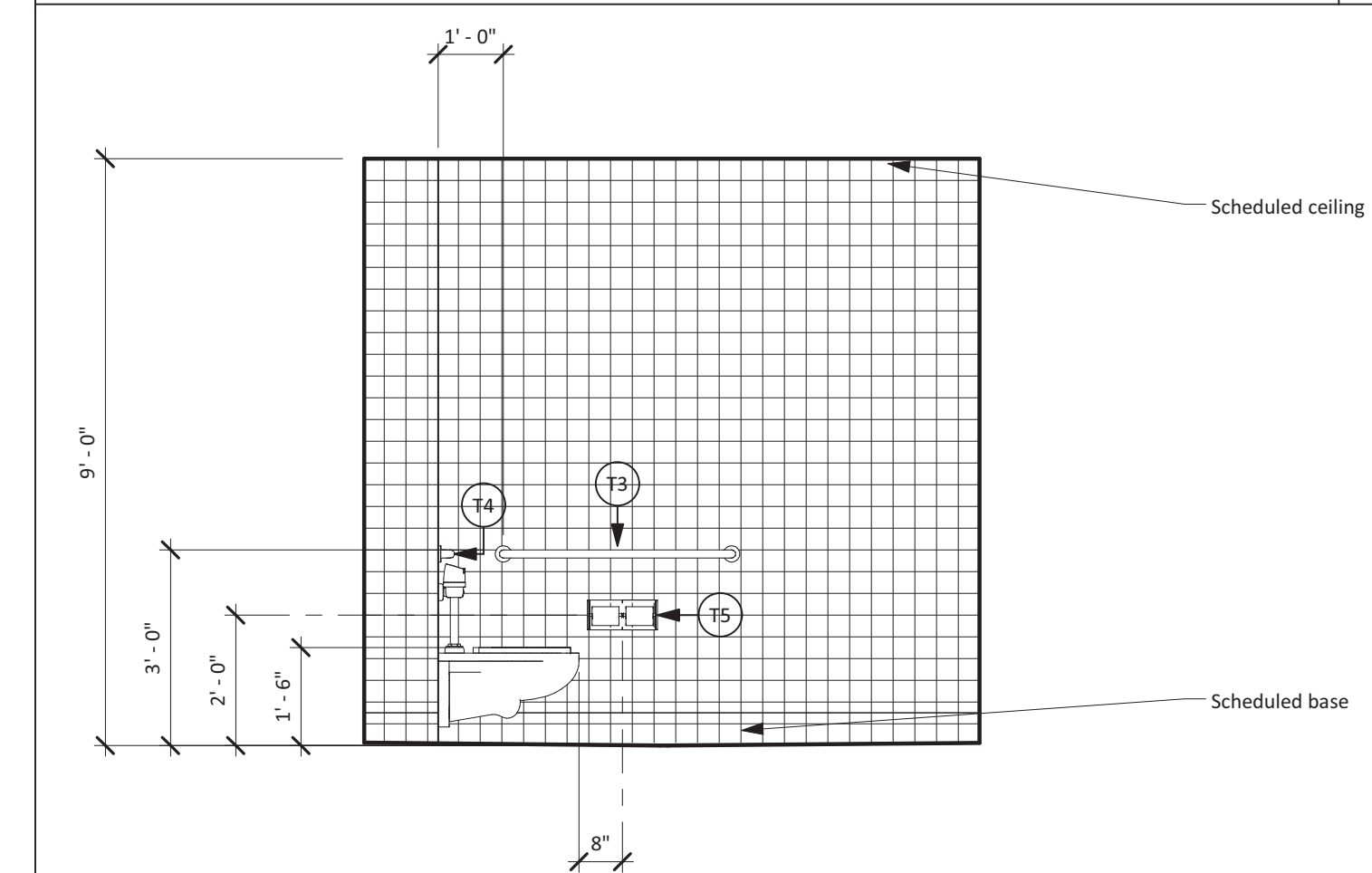
Stair and Platform Elevation

3/8" = 1'-0" 8



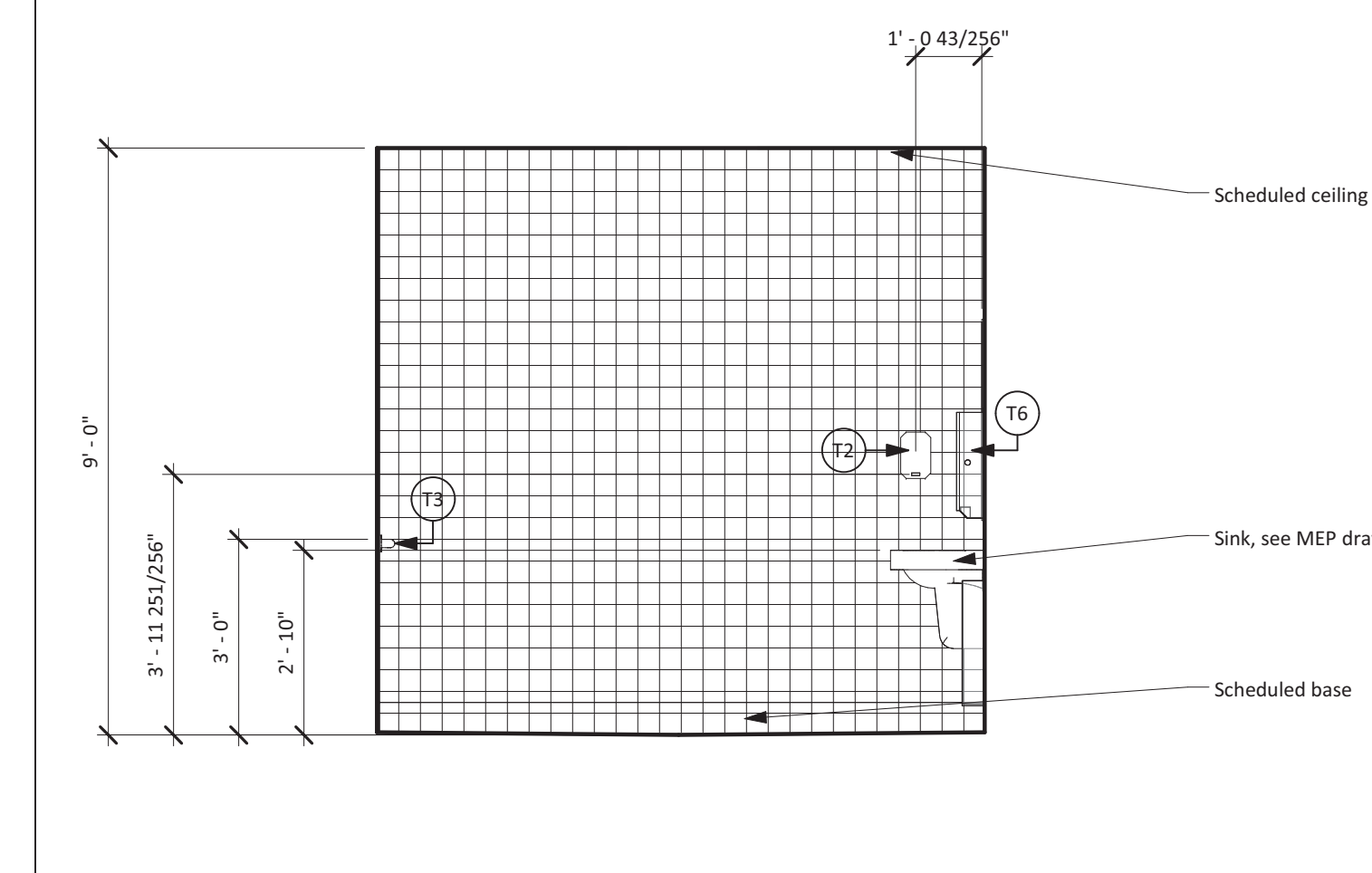
Toilet Elevation - East

3/8" = 1'-0" 4



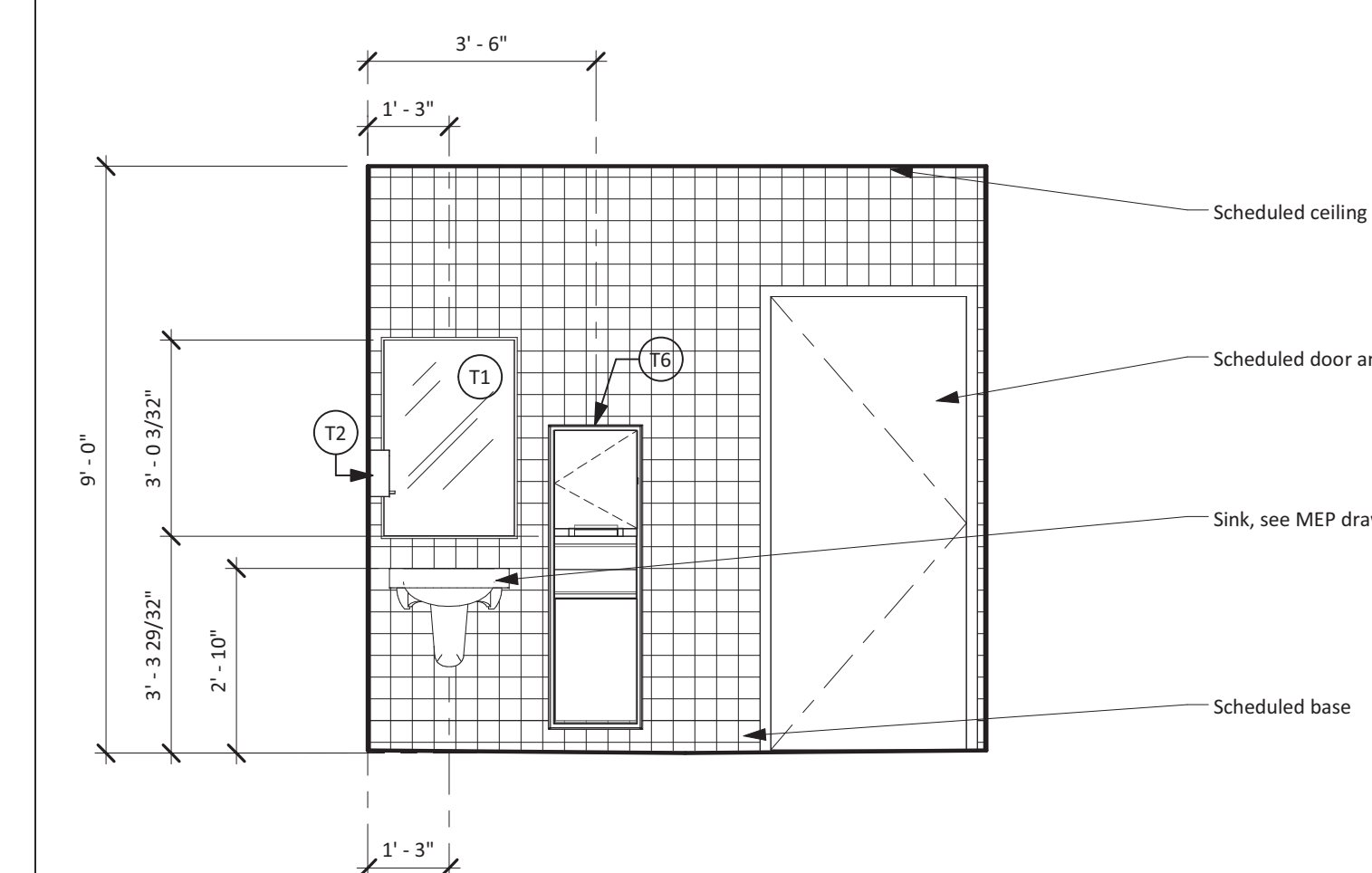
Toilet Elevation - South

3/8" = 1'-0" 3



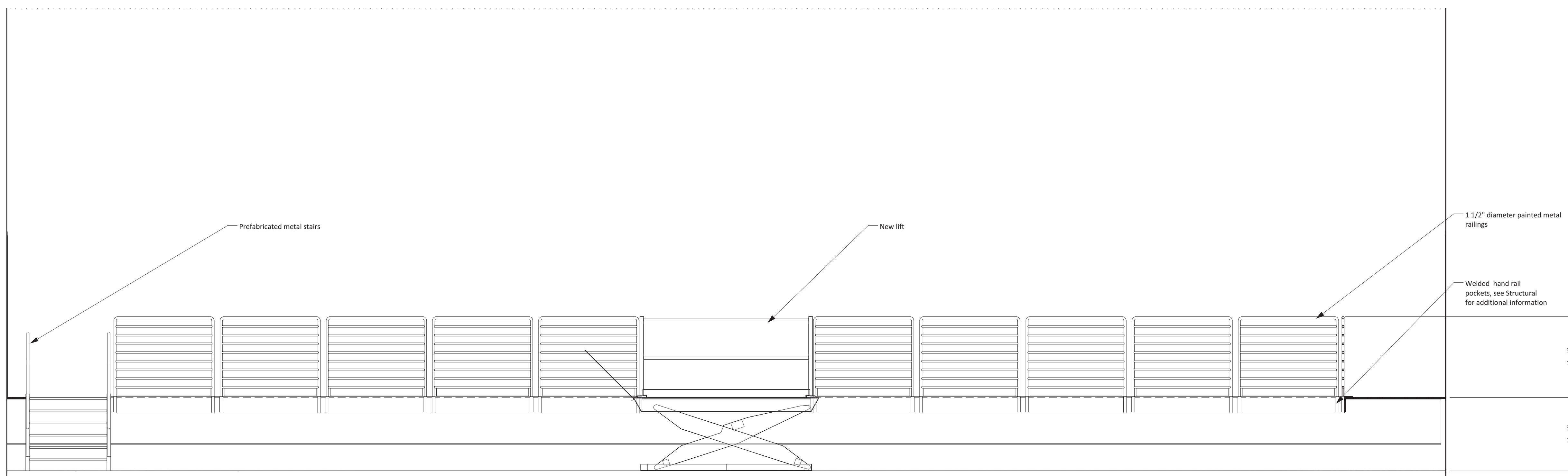
Toilet Elevation - West

3/8" = 1'-0" 2



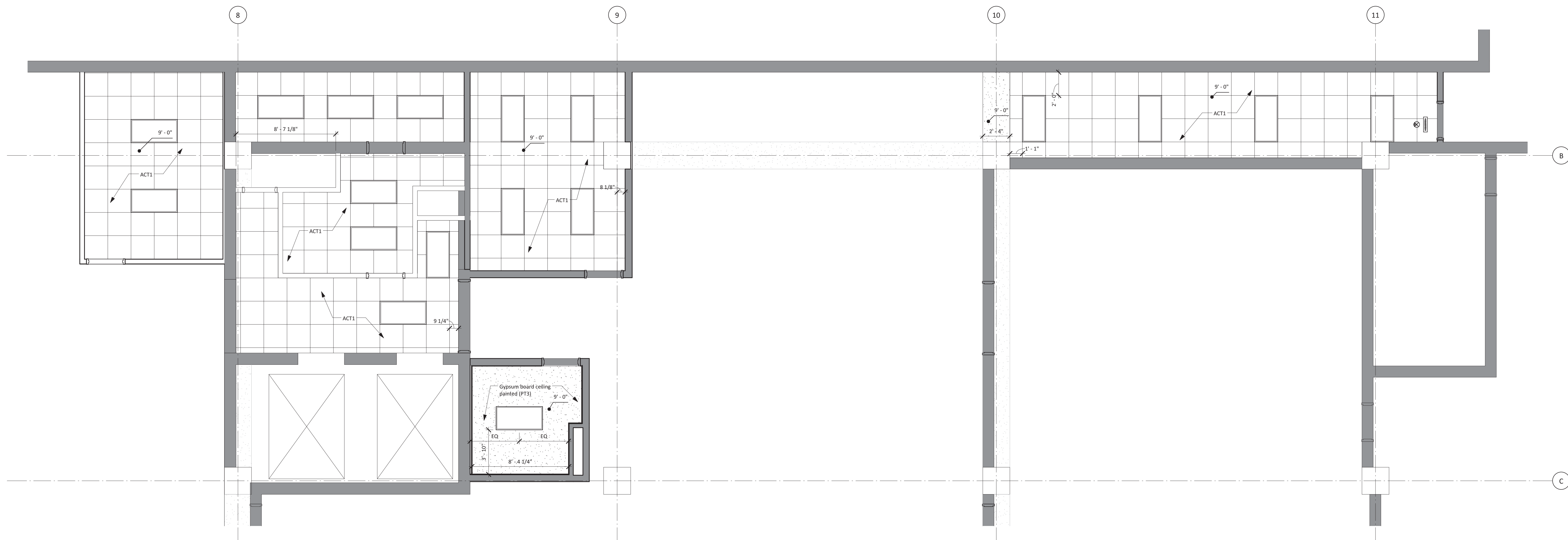
Toilet Elevation - North

3/8" = 1'-0" 1



New Lift and Platform Elevation - South

3/8" = 1'-0" 6

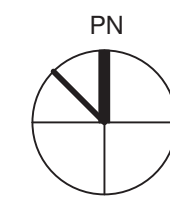


General Notes - Reflected Ceiling Plan

- All new ceilings to be 2' x 2' lay-in acoustical ceiling tile at 9'-0" a.f.f., unless noted otherwise. See Finish Schedule for types.
- See Interior Elevations for furr-down heights and dimensions.
- Center all down-lights, sprinkler heads, and wall washers in center of ceiling tile, unless noted otherwise.

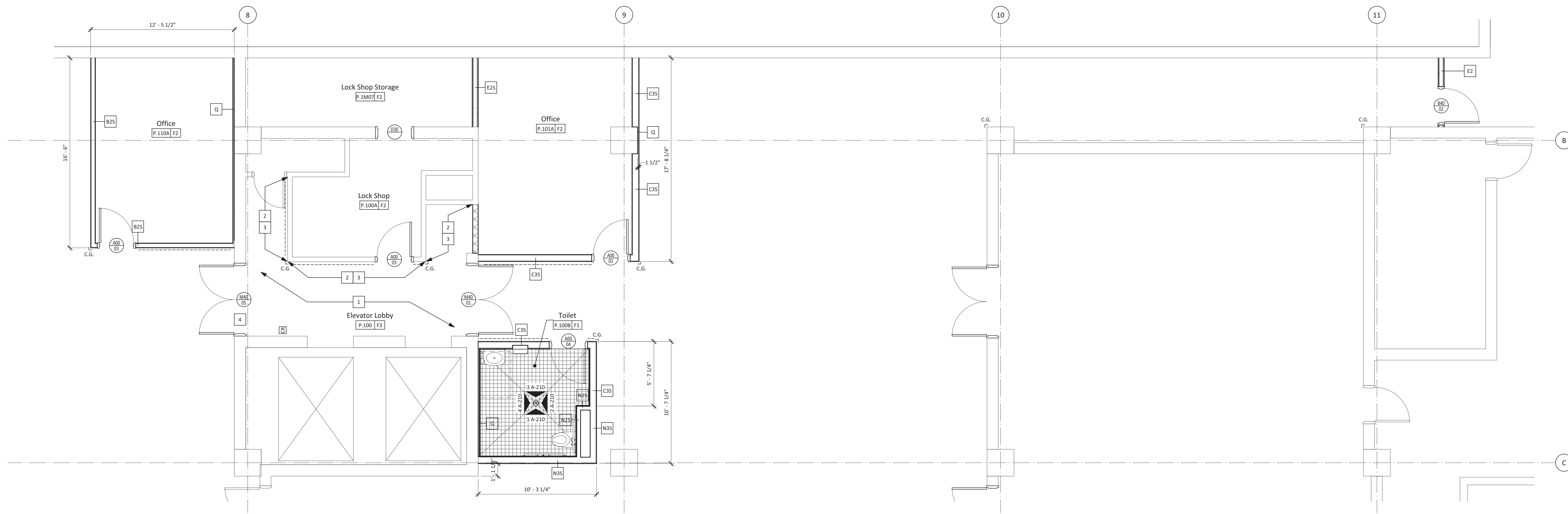
Legend - Reflected Ceiling Plan

— New partition to structure. See 1 A-520 for partition schedule.



Penthouse Level - Office, Restroom and Corridor

1/4" = 1'-0" 3



Keyed Notes

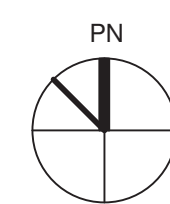
- Patch and repair wall as needed. Paint to match existing (Worldly Grey).
- Remove gypsum, replace with impact resistant gypsum. Existing stud framing to remain.
- Replace stud framing damaged by demolition activities.
- Remove existing mechanical duct opening above door. Infill opening to match adjacent partition rating.

General Notes - Floor Plan

- All dimensions are to face of gypsum board or face of masonry unless noted otherwise.
- See 1 A-520 for Partition Type Schedule.
- See 1 A-540 for Door Schedule.

Legend - Floor/Demo Plan

— Existing to remain
 — New Partitions
 — C.G. Corner Guard, surface mounted
 - - - Stainless steel wall protection to cover up to 5'-0" a.f.f.

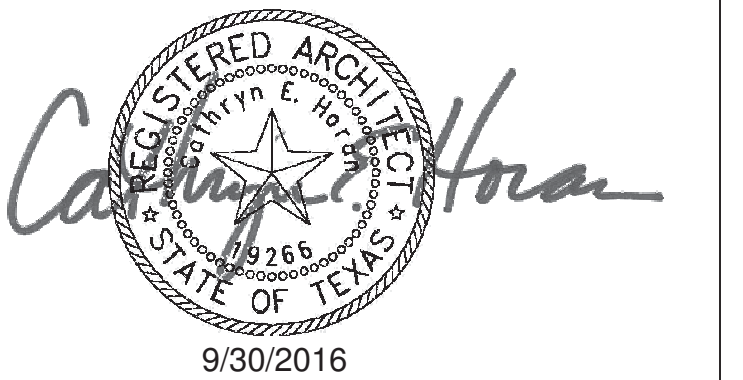
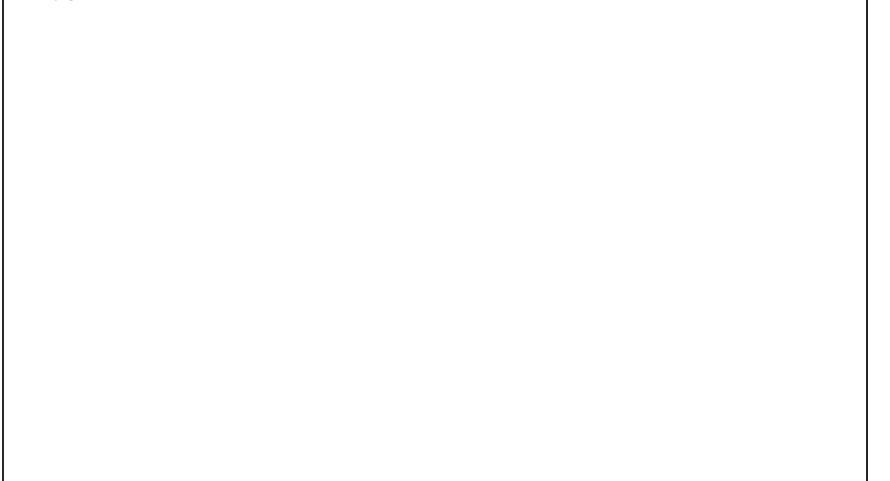


Penthouse Level - Office, Restroom and Corridor

1/4" = 1'-0" 1

No.	Description	Date
4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

Keyplan



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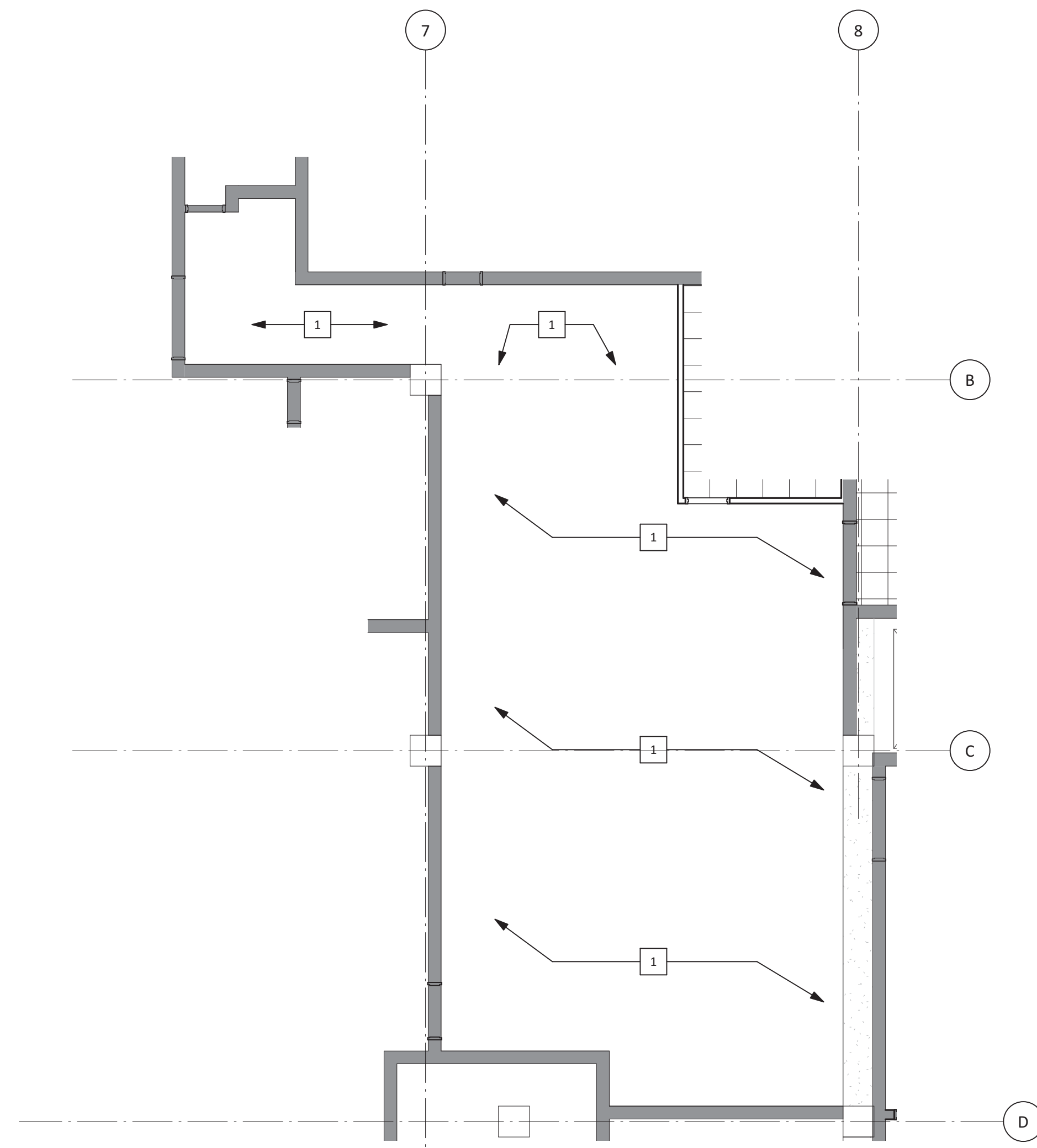
**MSB SWITCHGEAR
 REPLACEMENT**

Enlarged Plans - Restrooms

PWP Project Number 215-218R
 Date 09/30/2016
 Designed By DS
 Checked By BL
 Drawing No.

A-400

Scale 1/4" = 1'-0"



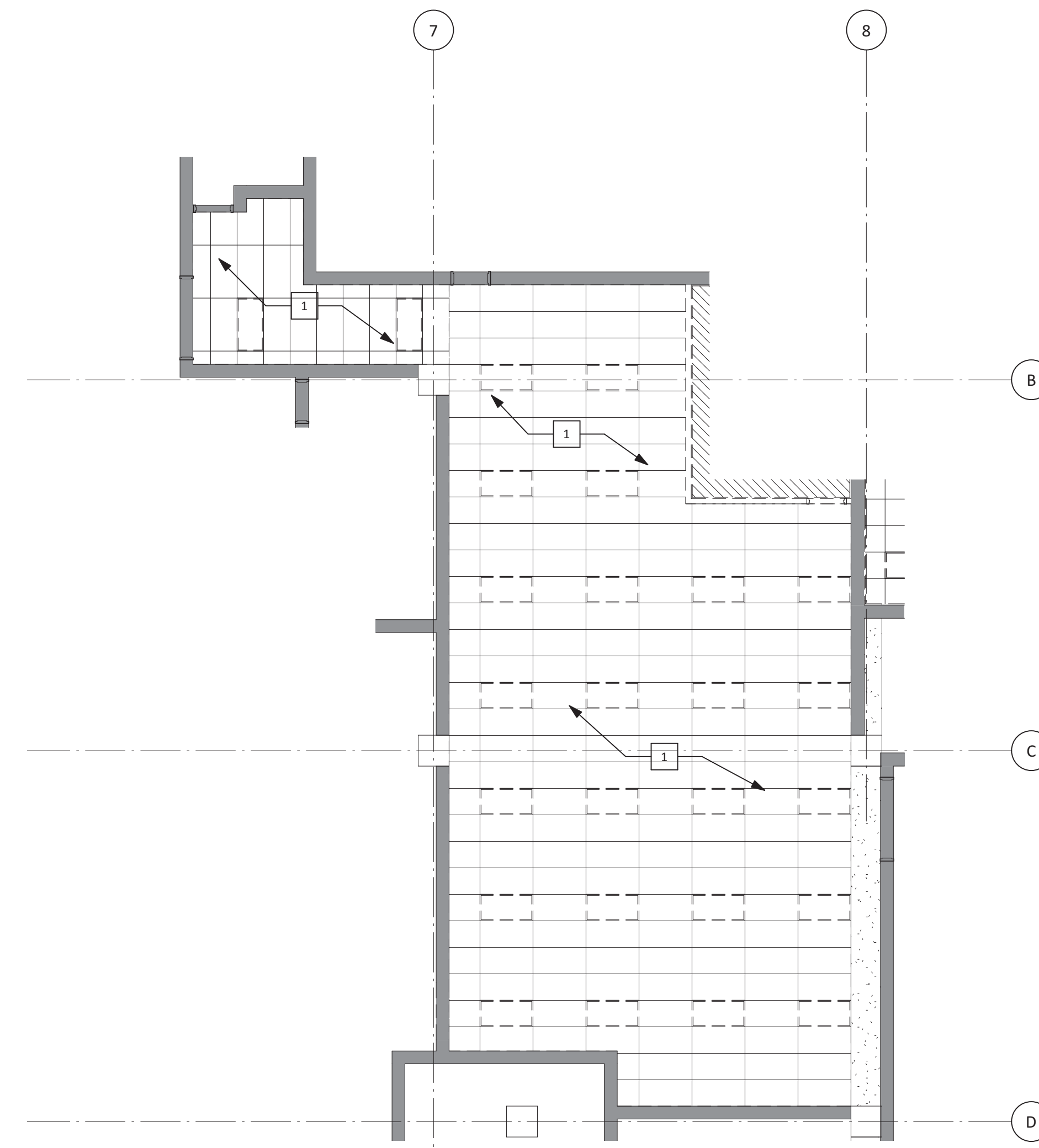
Keyed Notes
 1 New light fixtures see MEP Drawings for additional information

General Notes - Reflected Ceiling Plan
 1. All new ceilings to be 2' x 2' lay-in acoustical ceiling tile at 9'-0" a.f.f., unless noted otherwise. See Finish Schedule for types.
 2. See Interior Elevations for furr down heights and dimensions.
 3. Center all down-lights, sprinkler heads, and wall washers in center of ceiling tile, unless noted otherwise.

Legend - Reflected Ceiling Plan
 [Symbol] New partition to structure. See 1 A-520 for partition schedule.



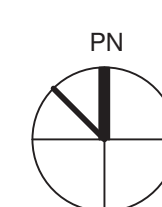
Penthouse Level RCP - Storage Plan Alternate 1/8" = 1'-0" 18



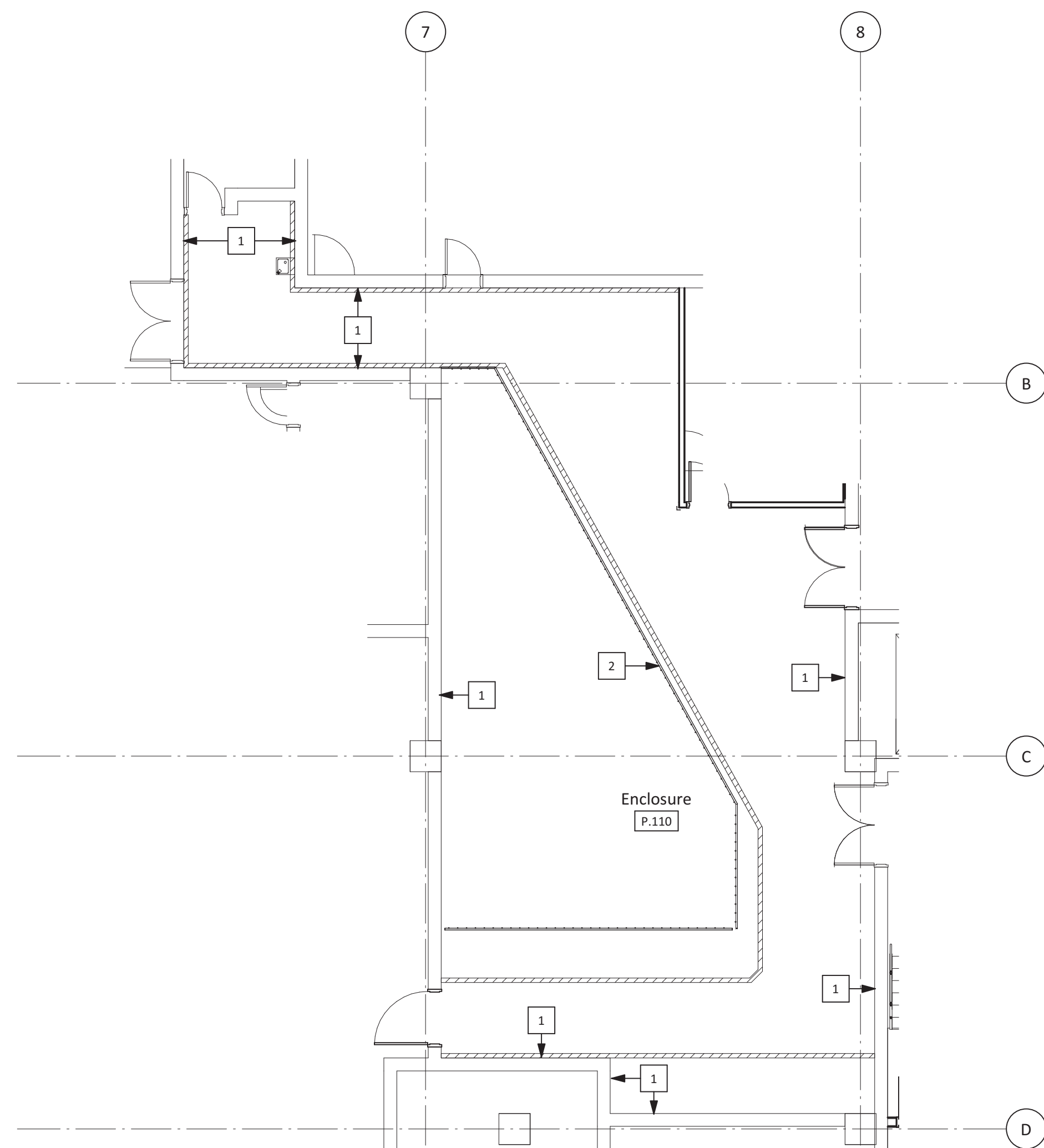
Keyed Notes
 1 Remove existing ceiling grid. Light fixtures to be replaced using existing electrical lines.

General Notes - Demolition Plan
 1. Contractor to demolish and dispose of all items shown / noted to be removed, unless otherwise noted.
 2. Before starting the demolition work, confirm all dimensions and other existing conditions in the field. Report any discrepancies to the Engineer and Architect.
 3. See MEP drawings for removal of any utilities.

Legend - Floor/Demo Plan
 [Symbol] Existing to be removed
 [Symbol] Existing to remain
 [Symbol] New Partitions



Penthouse Level Demolition RCP - Storage Plan Alternate 1/8" = 1'-0" 3



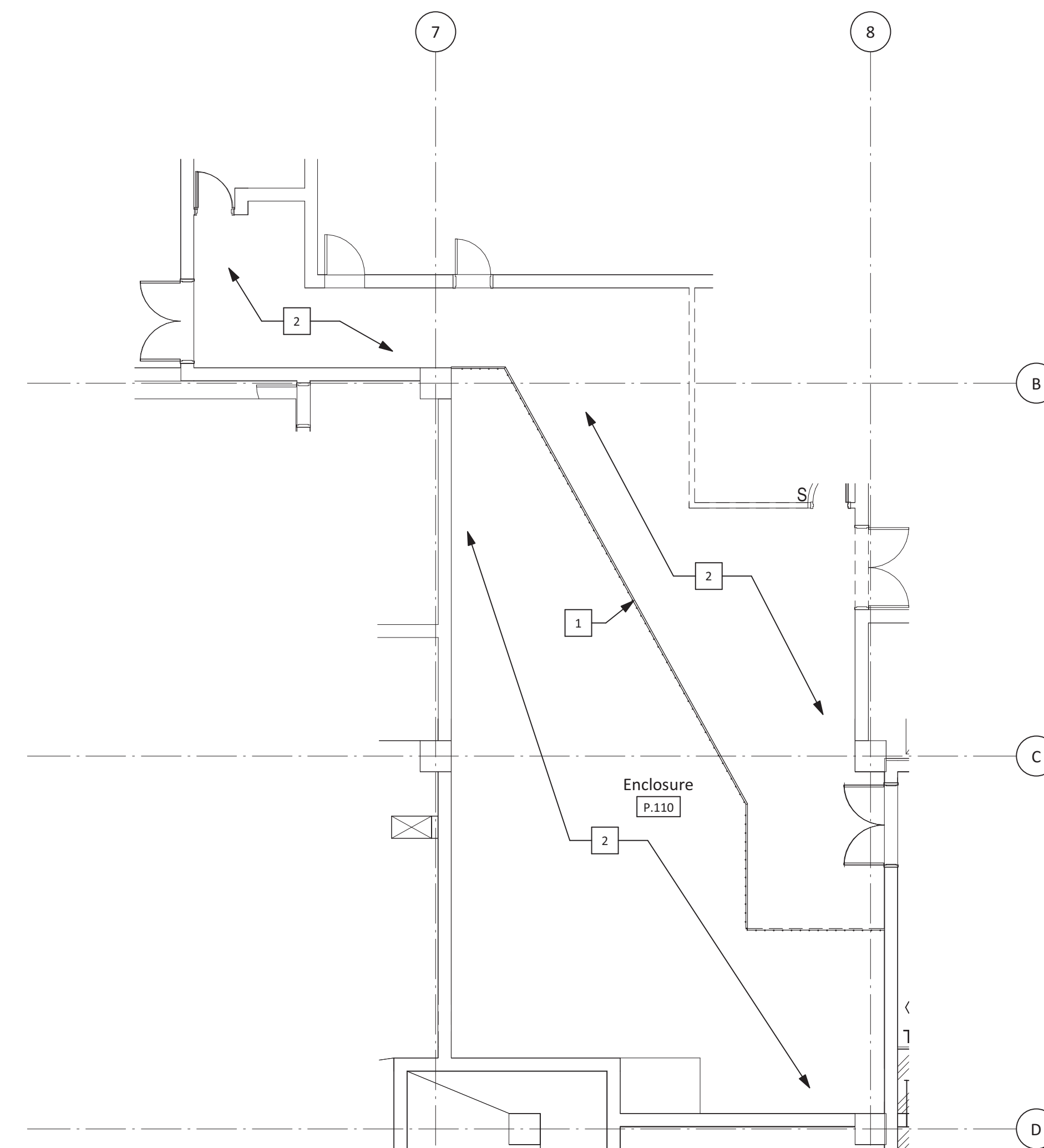
Keyed Notes
 1 Patch and repair wall as needed. Paint to match existing (Worldly Gray).
 2 Fencing to be replaced to original location.

General Notes - Floor Plan
 1. All dimensions are to face of gypsum board or face of masonry unless noted otherwise.
 2. See 1 A-520 for Partition Type Schedule.
 3. See 1 A-540 for Door Schedule.

Legend - Floor/Demo Plan
 [Symbol] Existing to remain
 [Symbol] New Partitions



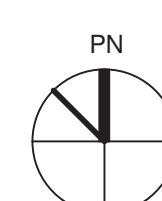
Penthouse Level Floor Plan - Storage Plan Alternate 1/8" = 1'-0" 16



Keyed Notes
 1 Remove existing fencing and store for future use.
 2 Strip and seal concrete floor.

General Notes - Demolition Plan
 1. Contractor to demolish and dispose of all items shown / noted to be removed, unless otherwise noted.
 2. Before starting the demolition work, confirm all dimensions and other existing conditions in the field. Report any discrepancies to the Engineer and Architect.
 3. See MEP drawings for removal of any utilities.

Legend - Floor/Demo Plan
 [Symbol] Existing to be removed
 [Symbol] Existing to remain
 [Symbol] New Partitions



Penthouse Level Demolition Plan - Storage Plan Alternate 1/8" = 1'-0" 1

4	Issued for Construction	09/30/2016
No.	Description	Date

Keyplan



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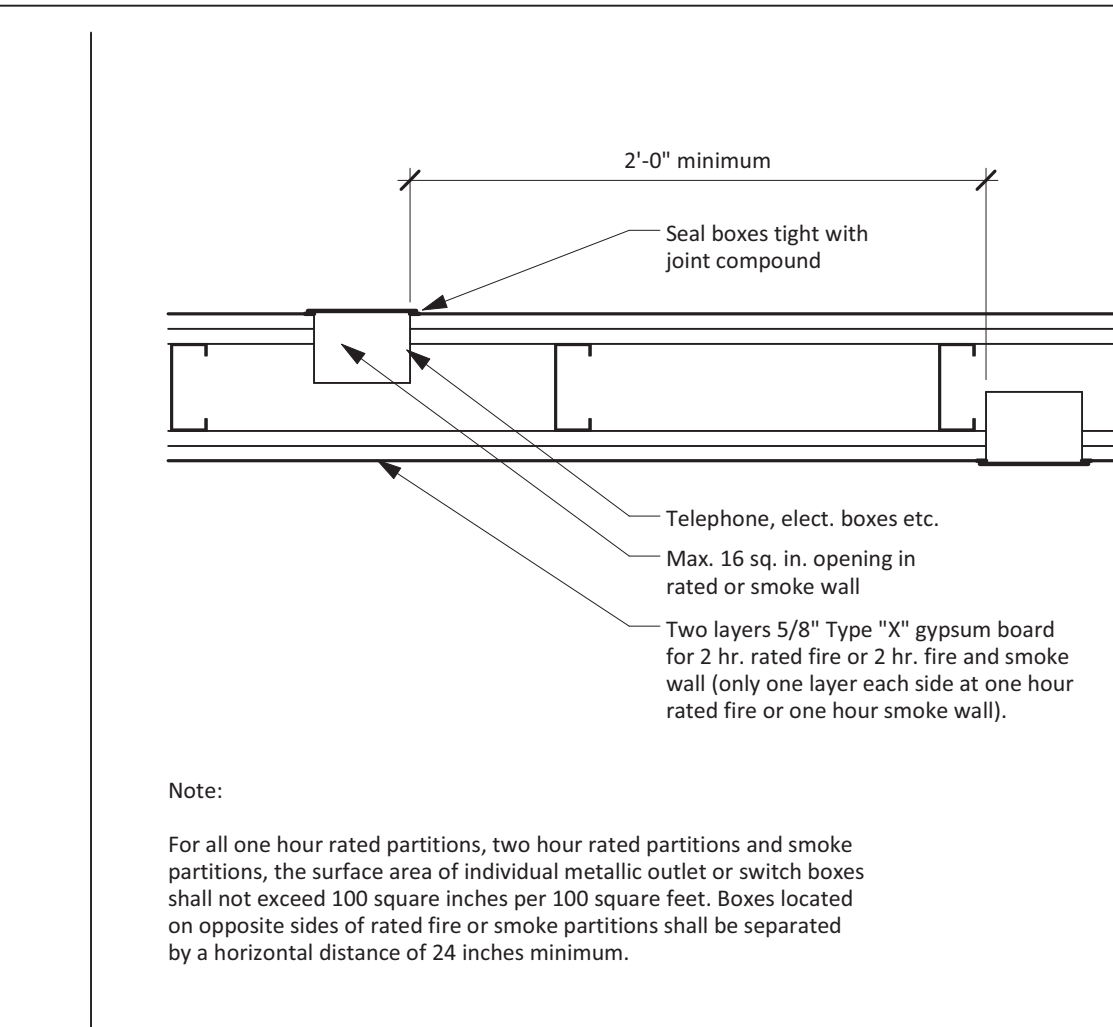
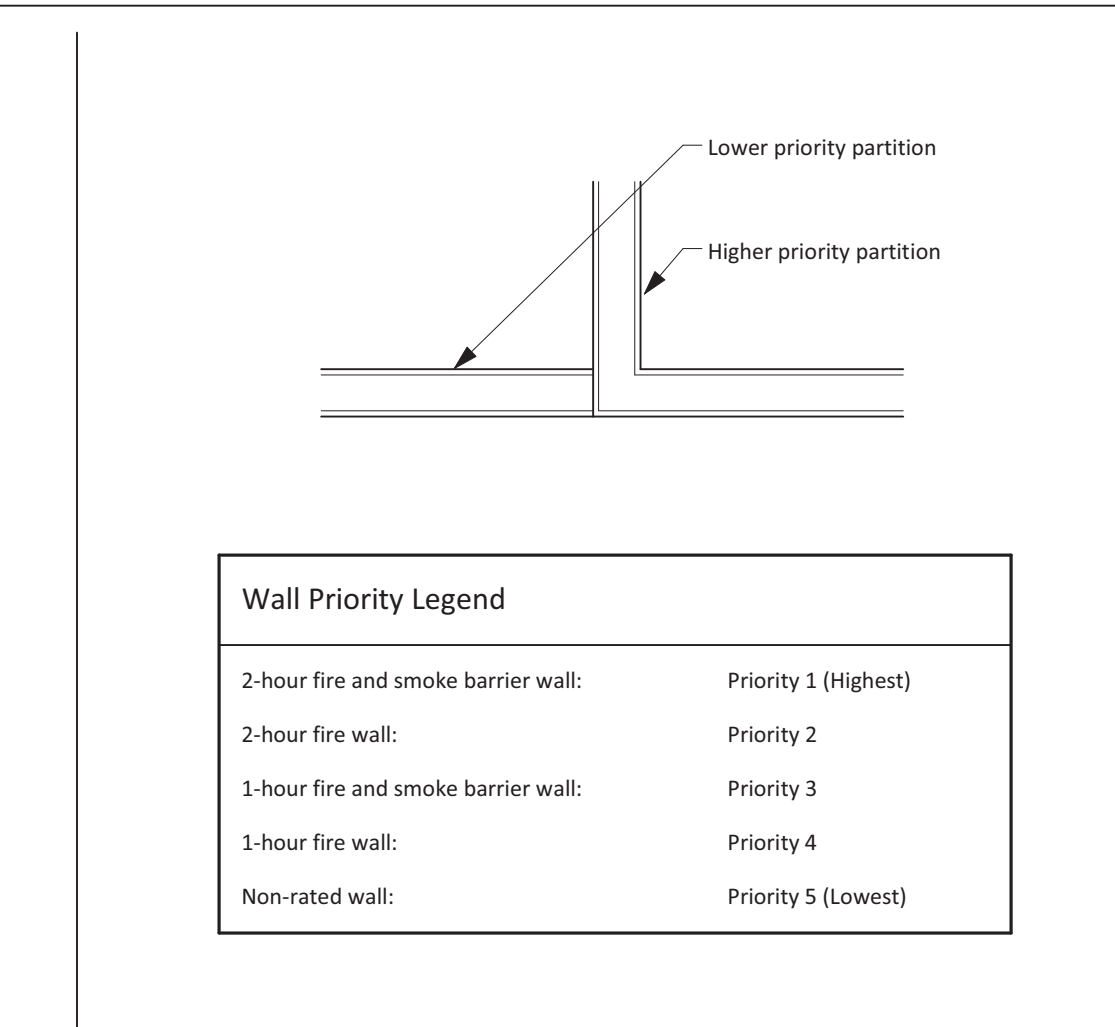
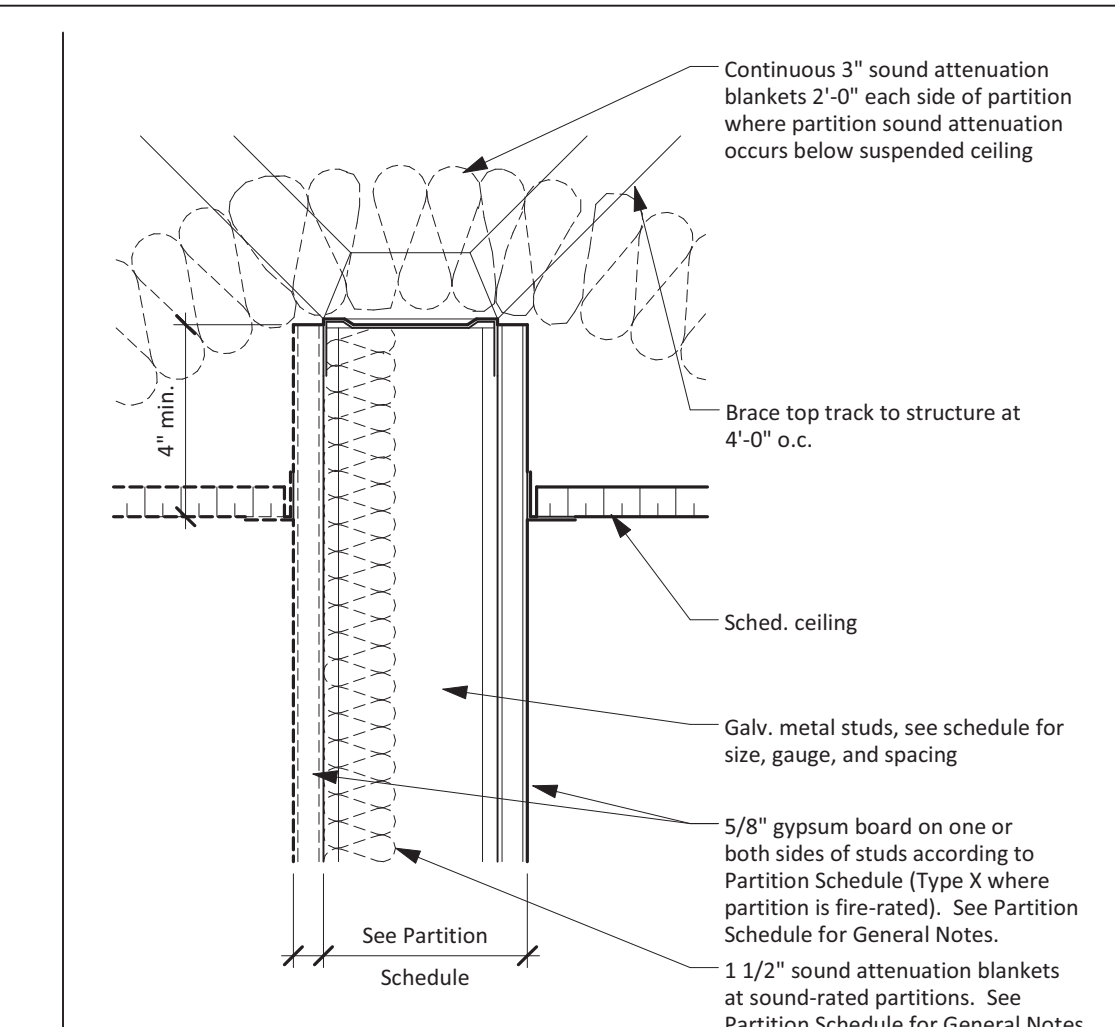
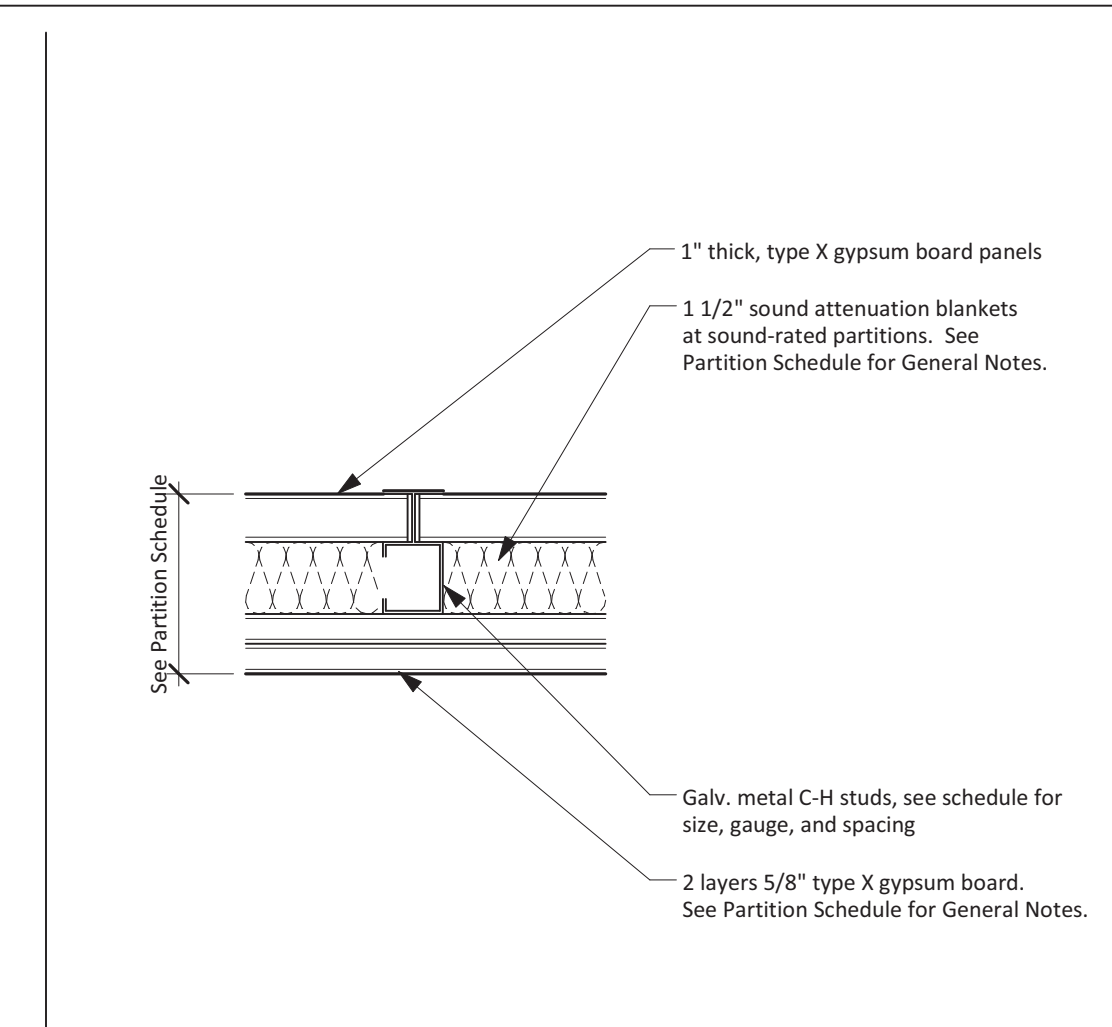
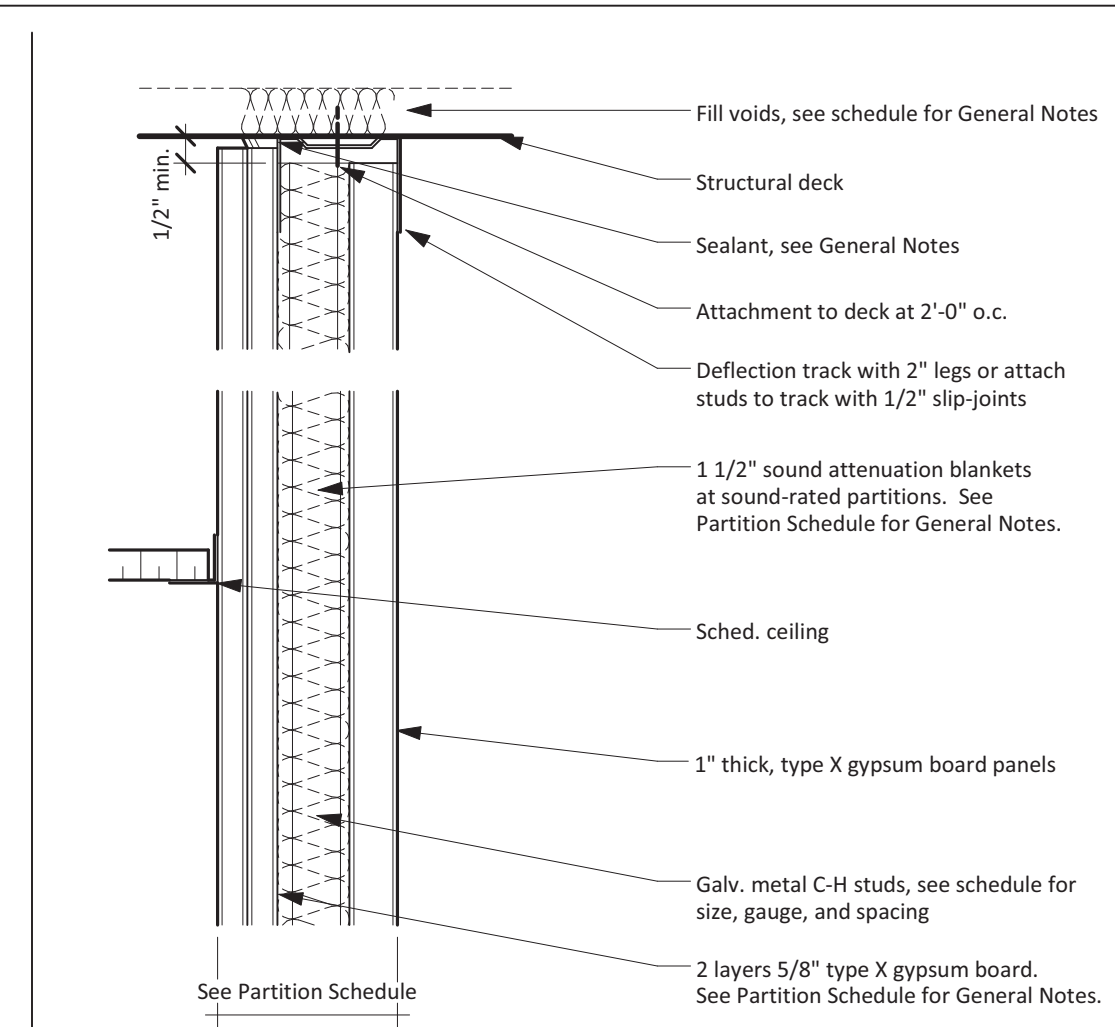
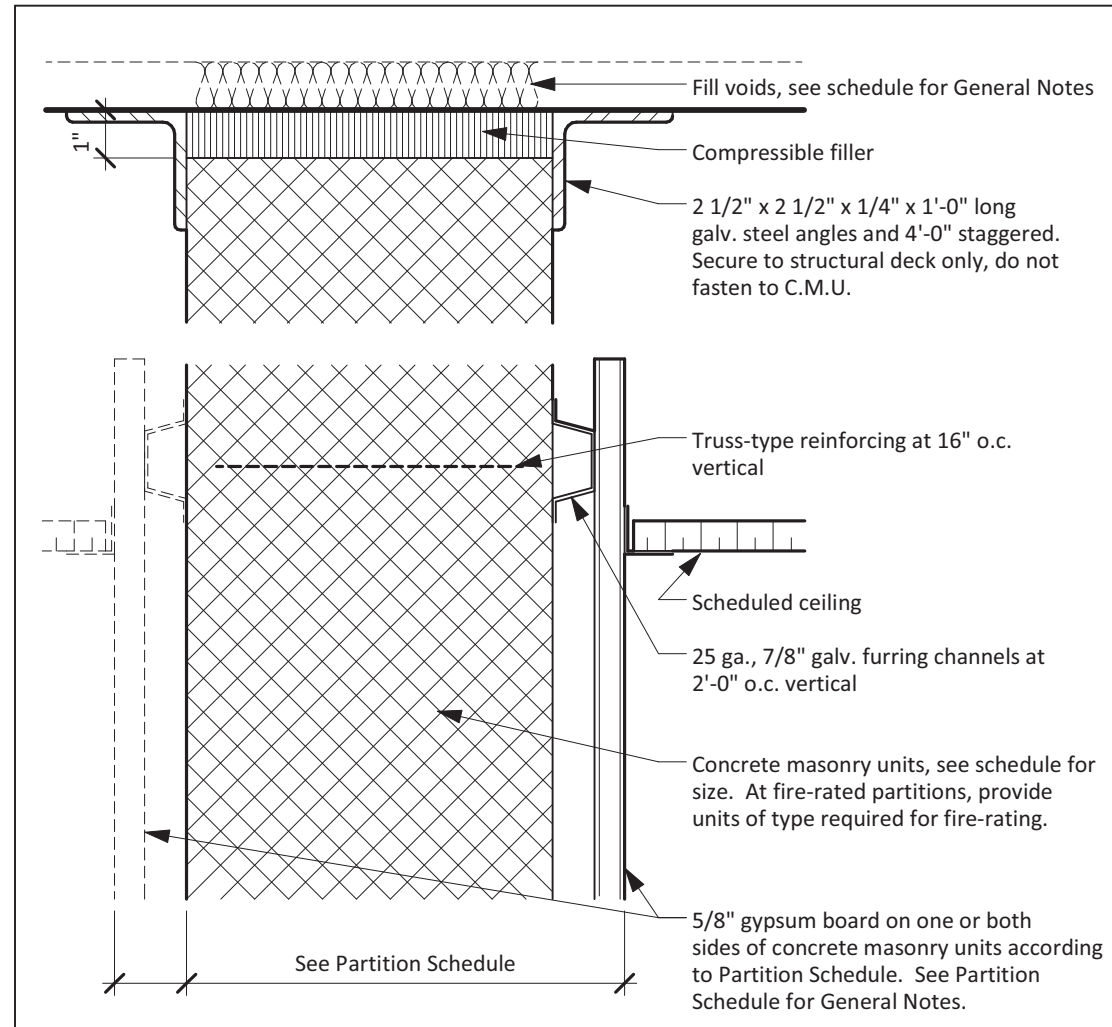
**MSB SWITCHGEAR
 REPLACEMENT**

Enlarged Plans - Alternates

PWP Project Number 215-218R
 Date 09/30/2016
 Designed By DS
 Checked By BL
 Drawing No.

A-401

Scale 1/8" = 1'-0"



Partition at Ceiling/Structural Deck N.T.S. 30

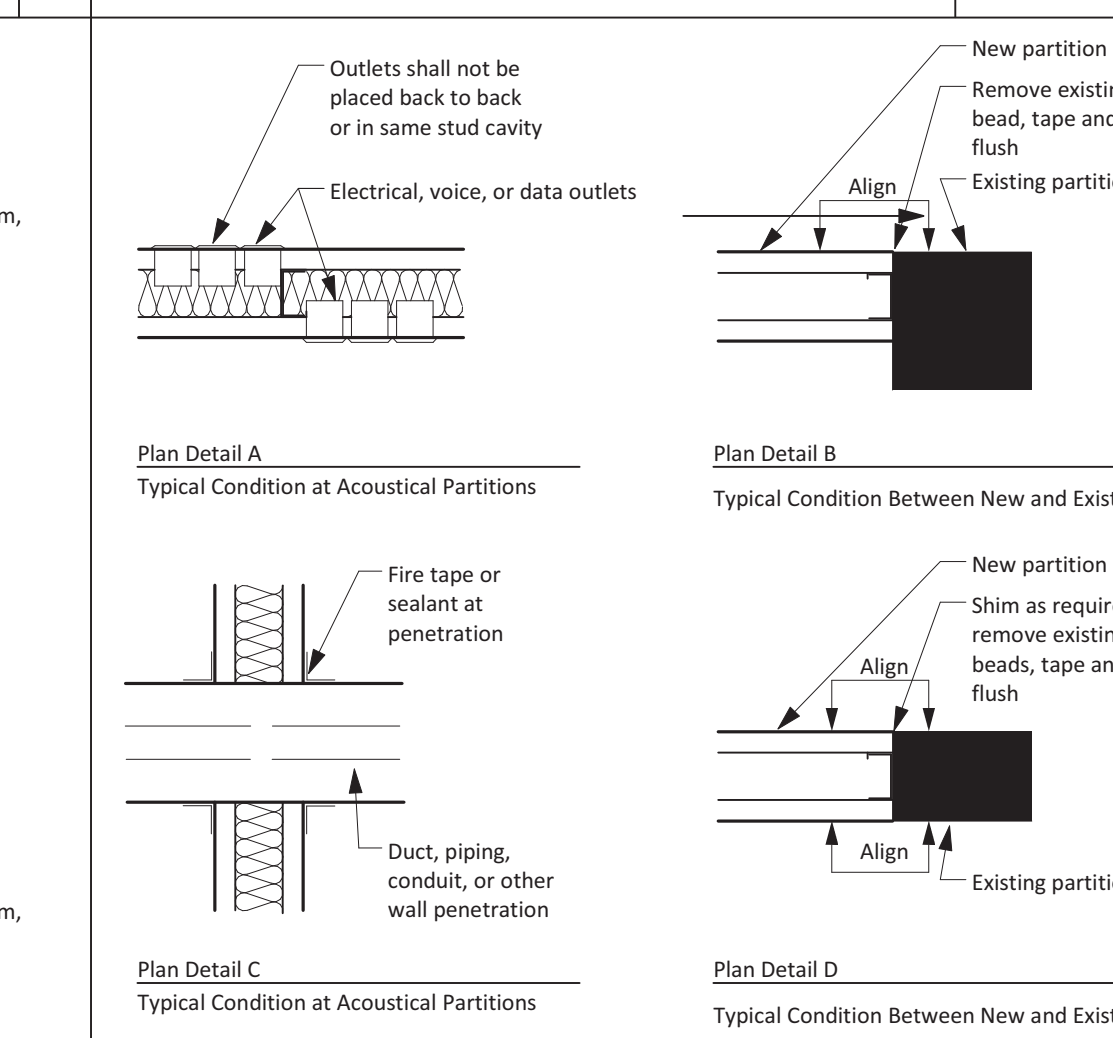
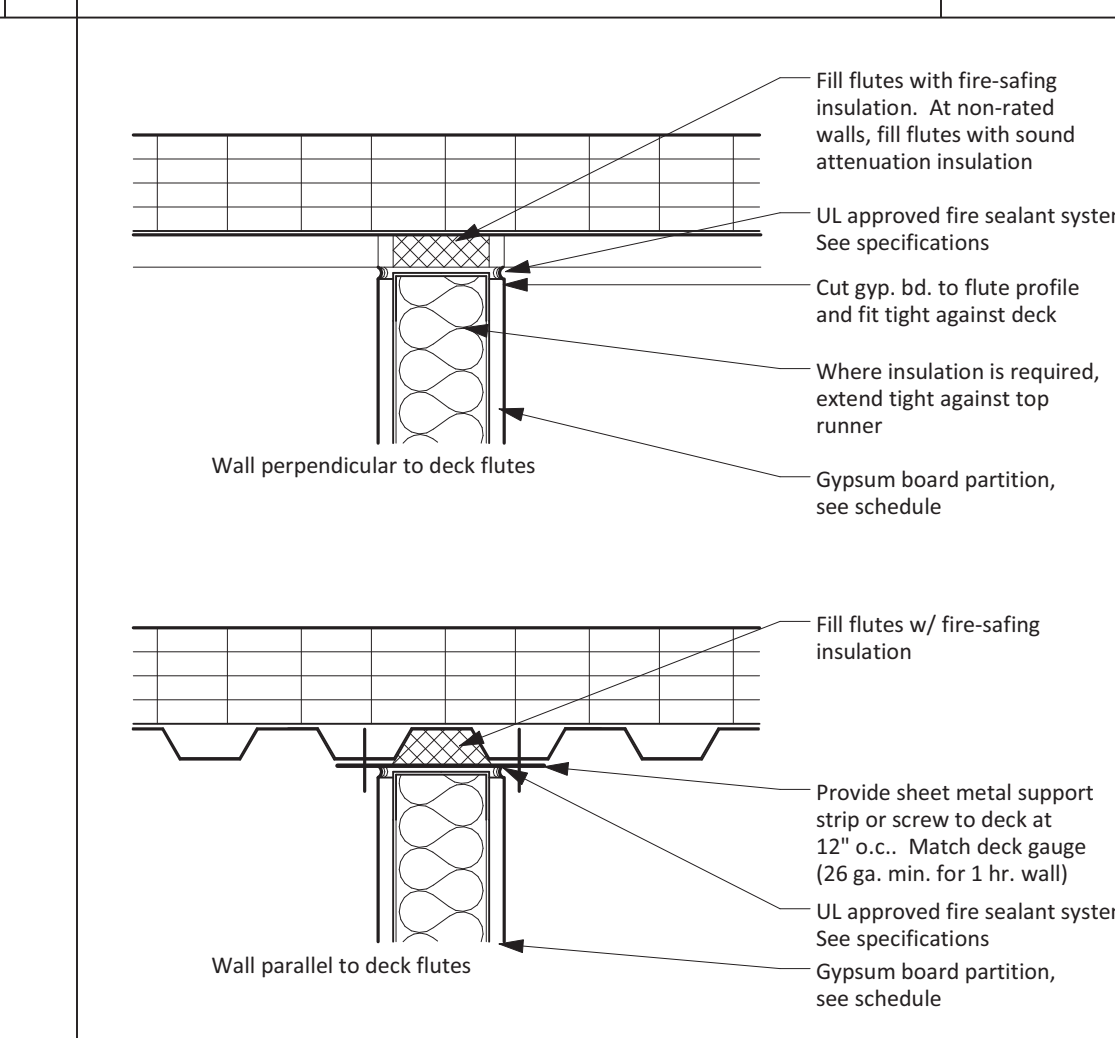
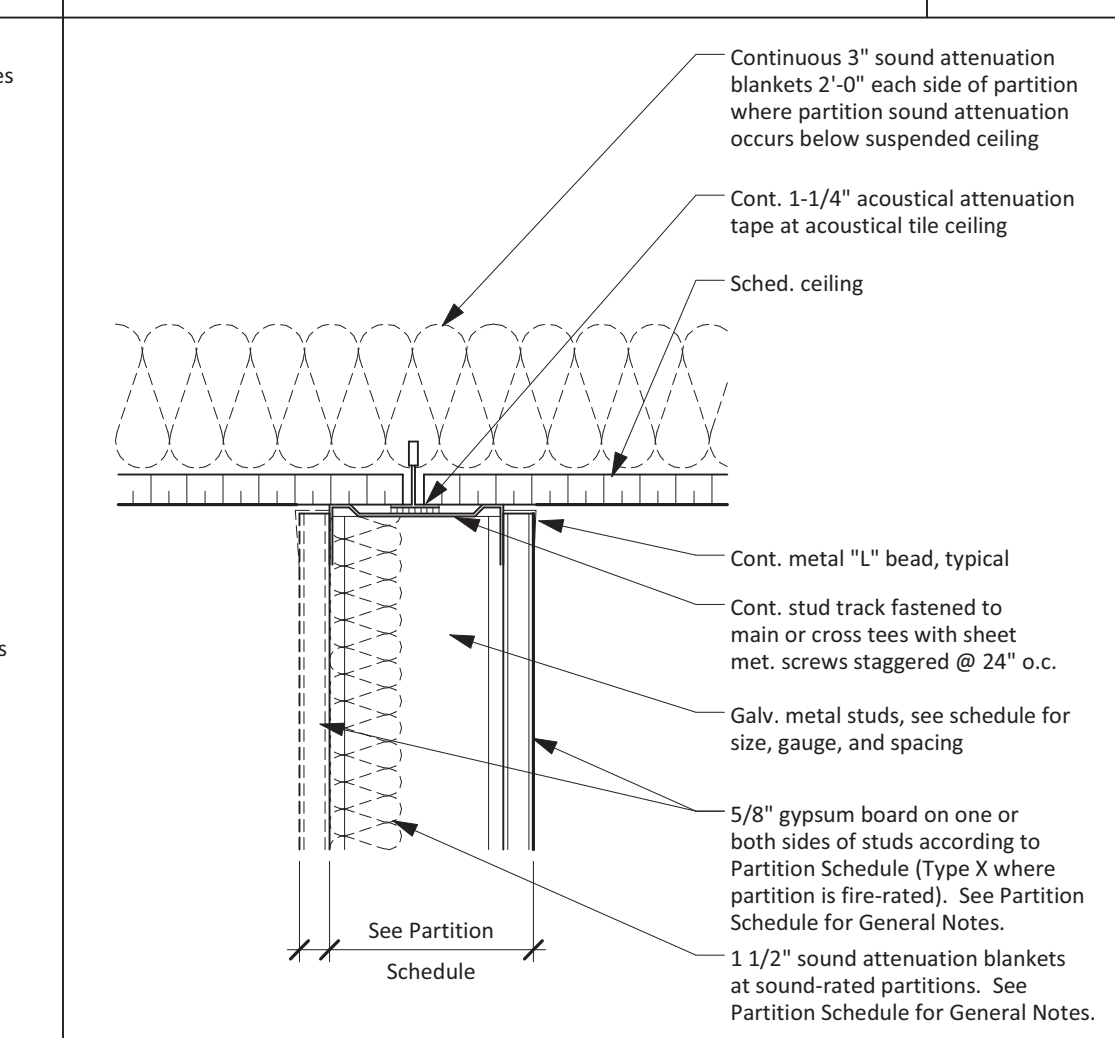
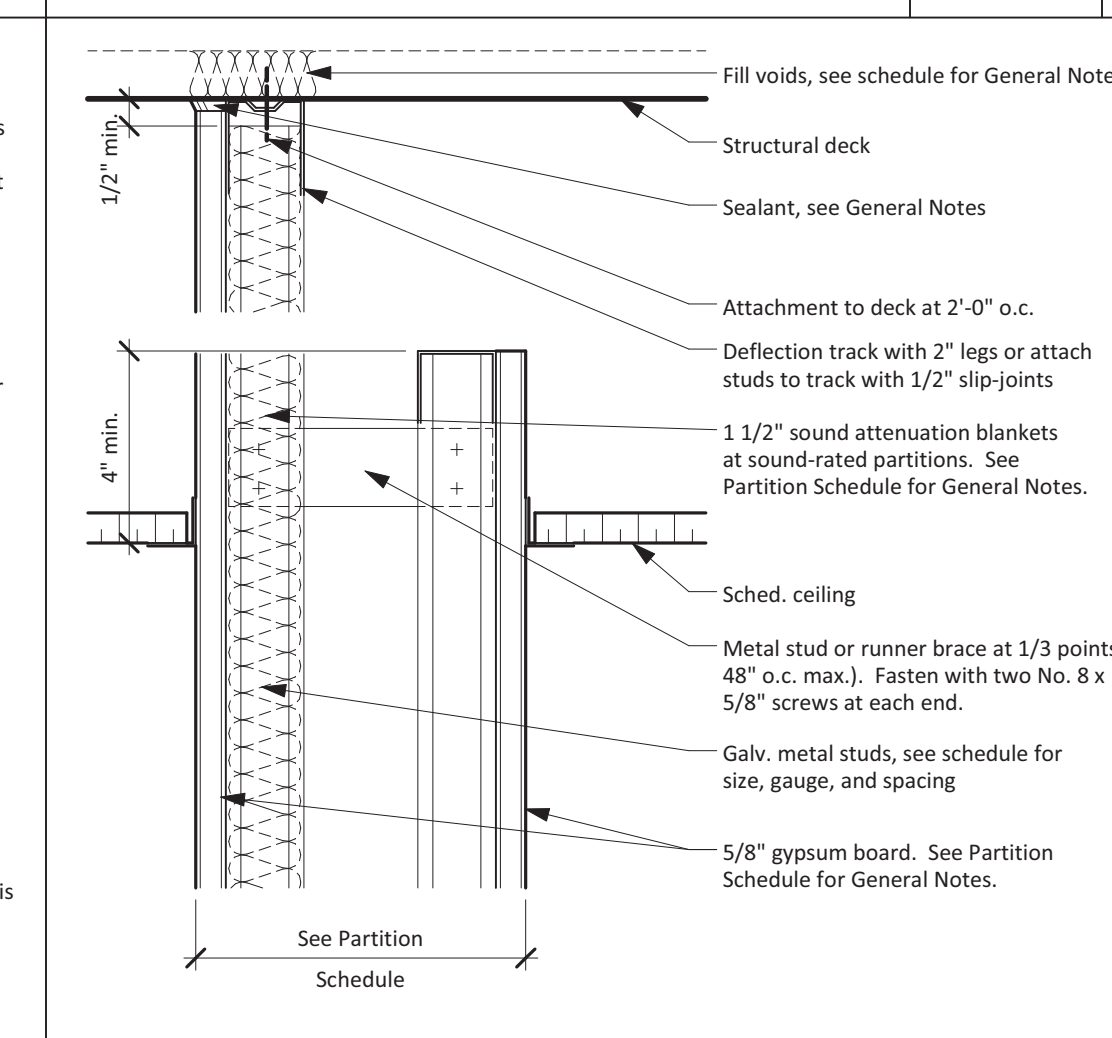
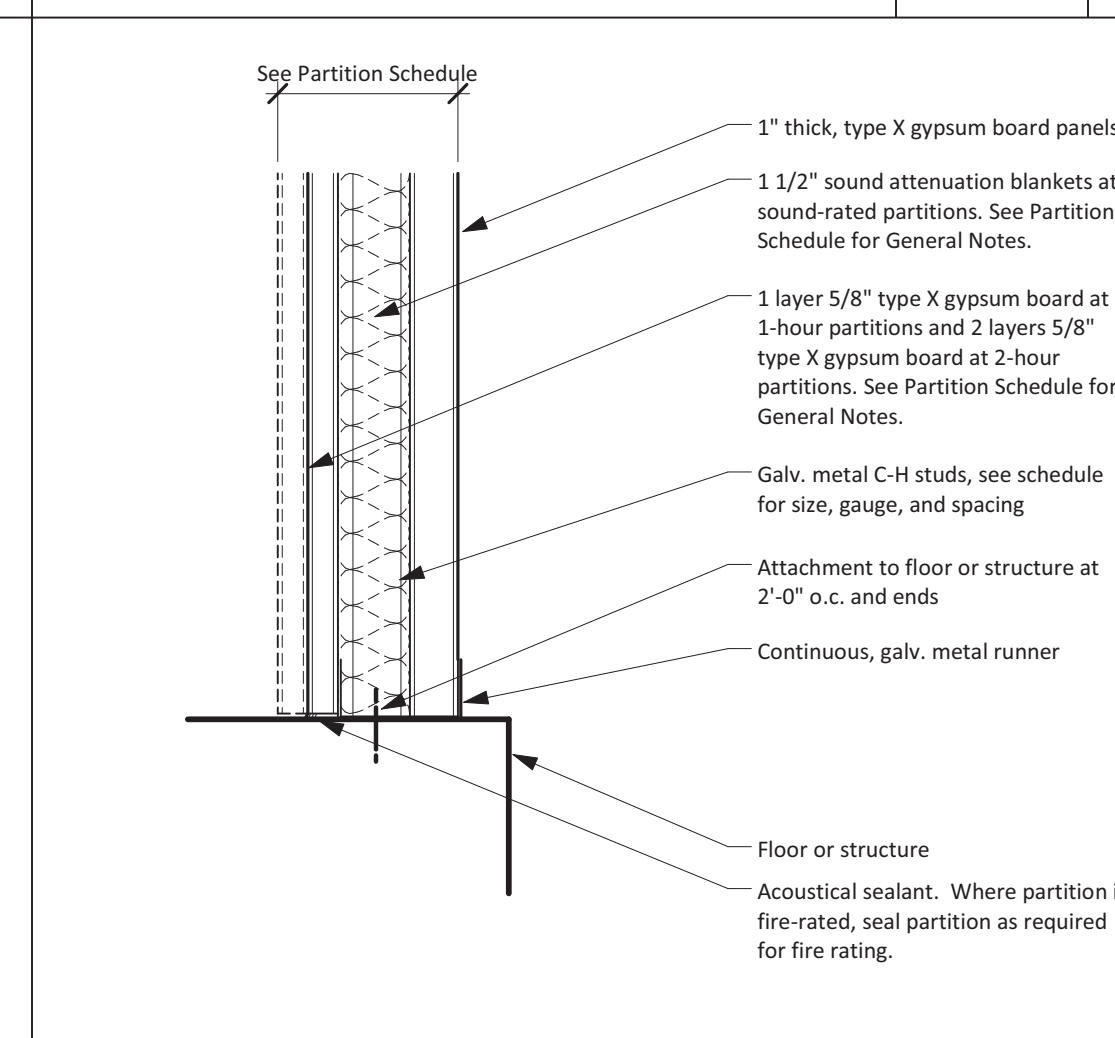
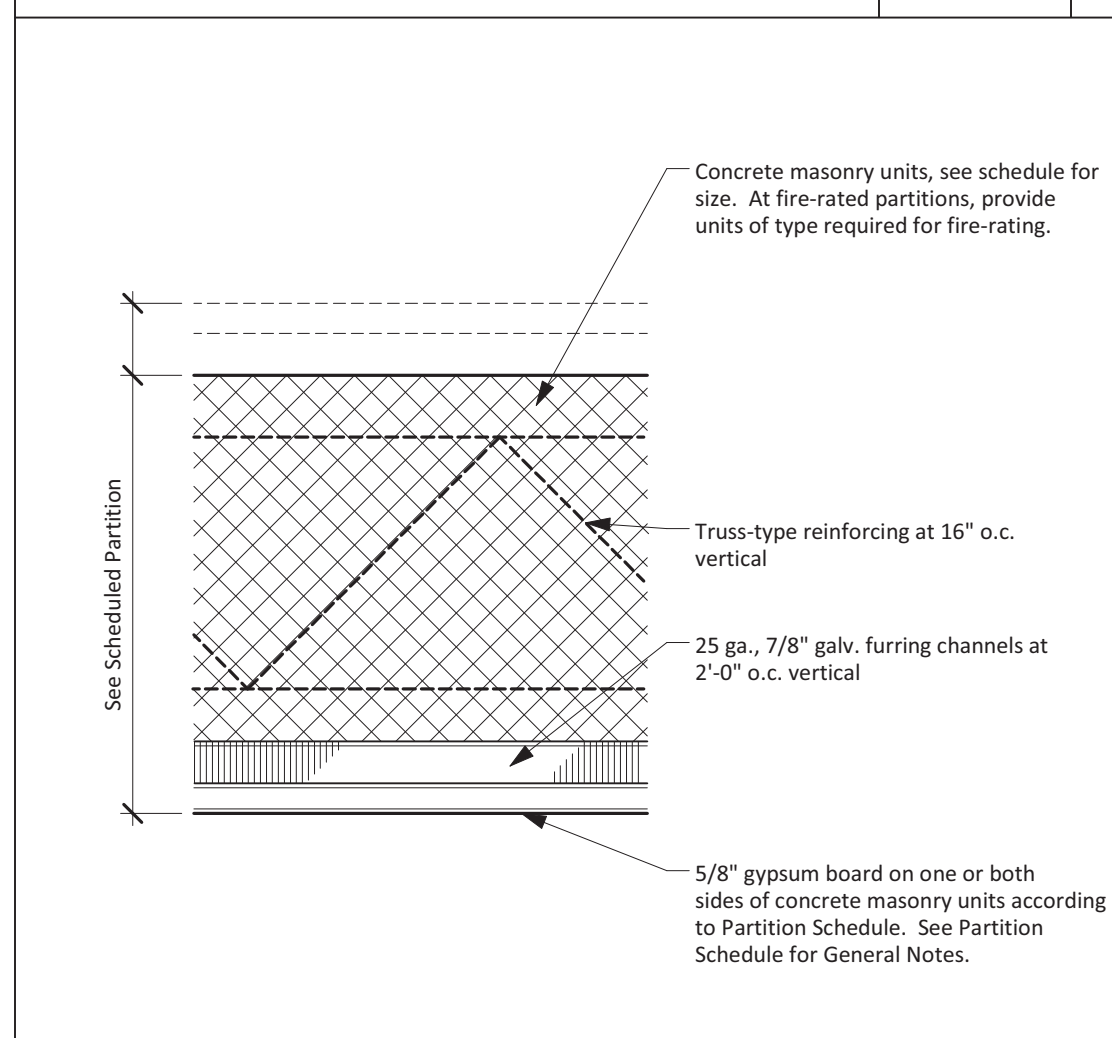
Partition at Ceiling/Structural Deck N.T.S. 25

Partition Detail N.T.S. 20

Partition at Ceiling N.T.S. 15

Wall Priority Legend N.T.S. 10

Metallic Boxes in Smoke and Fire-Rated Walls N.T.S. 5



Partition Detail N.T.S. 29

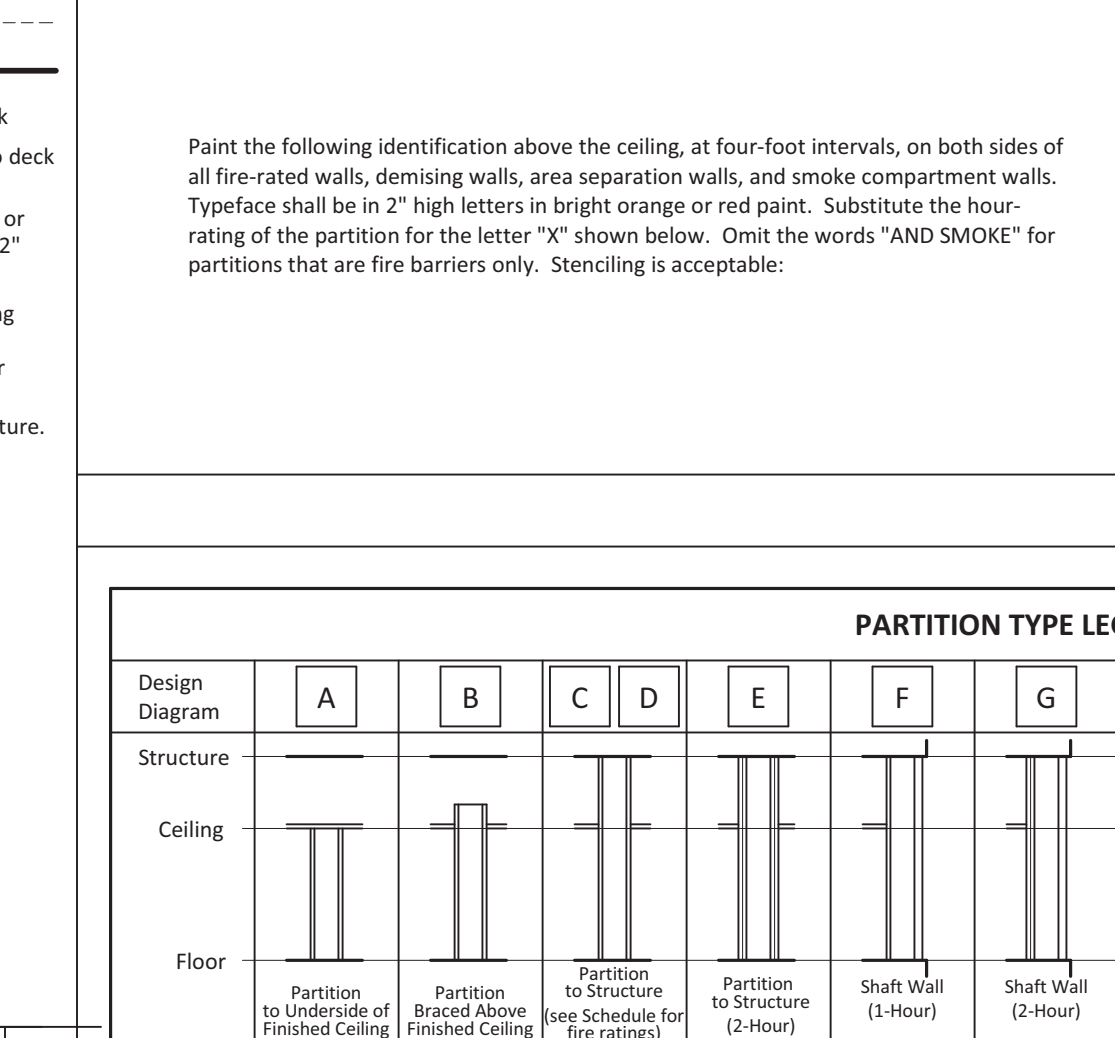
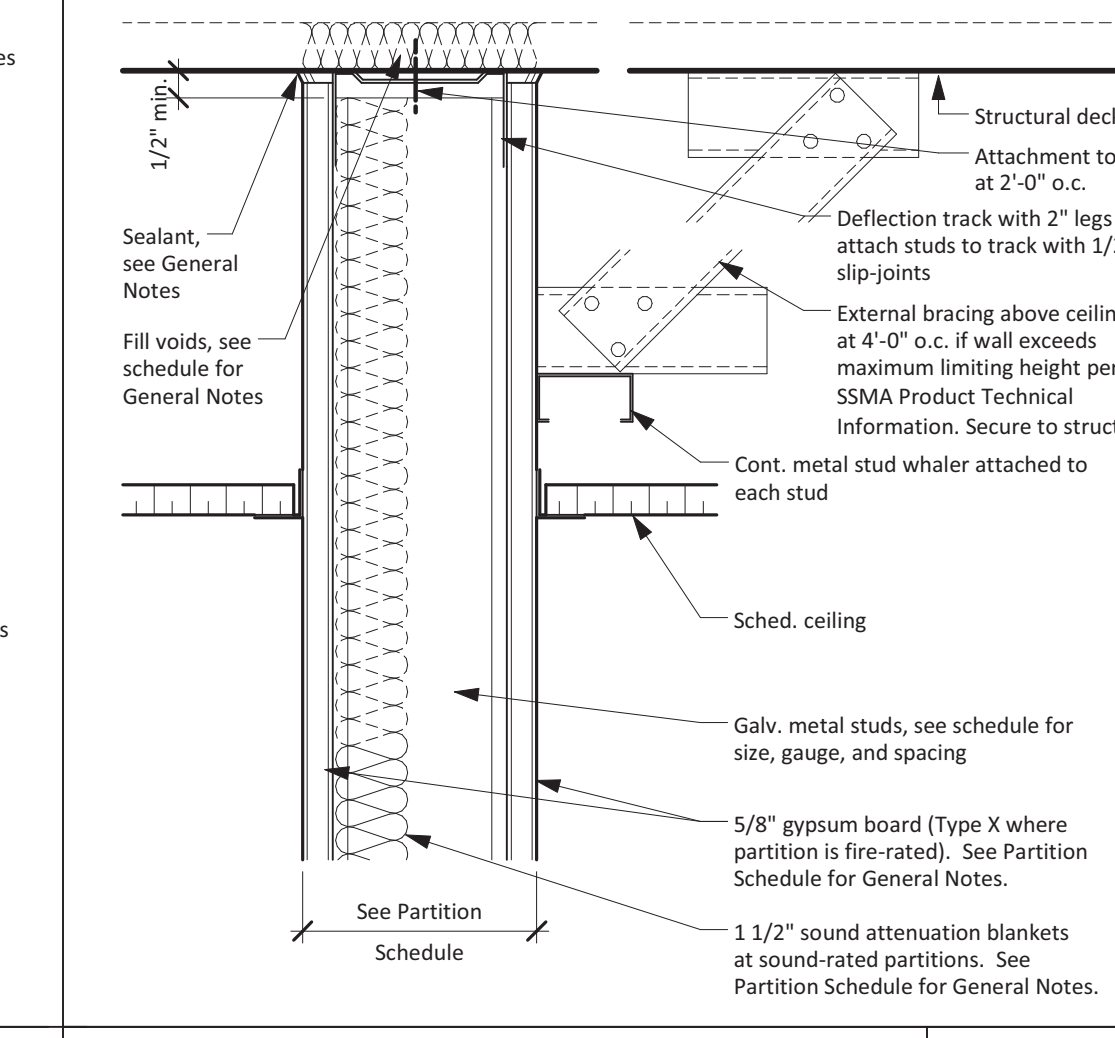
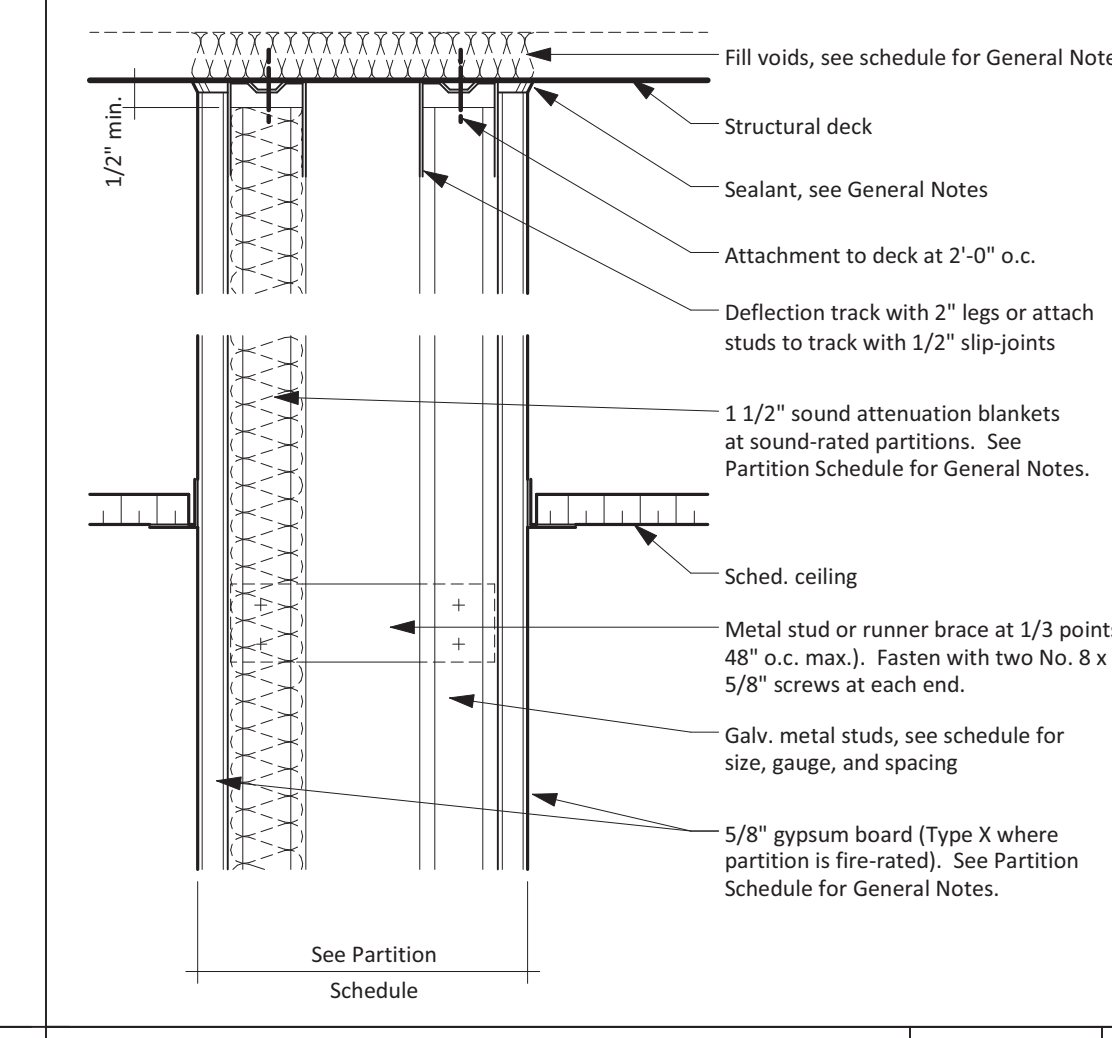
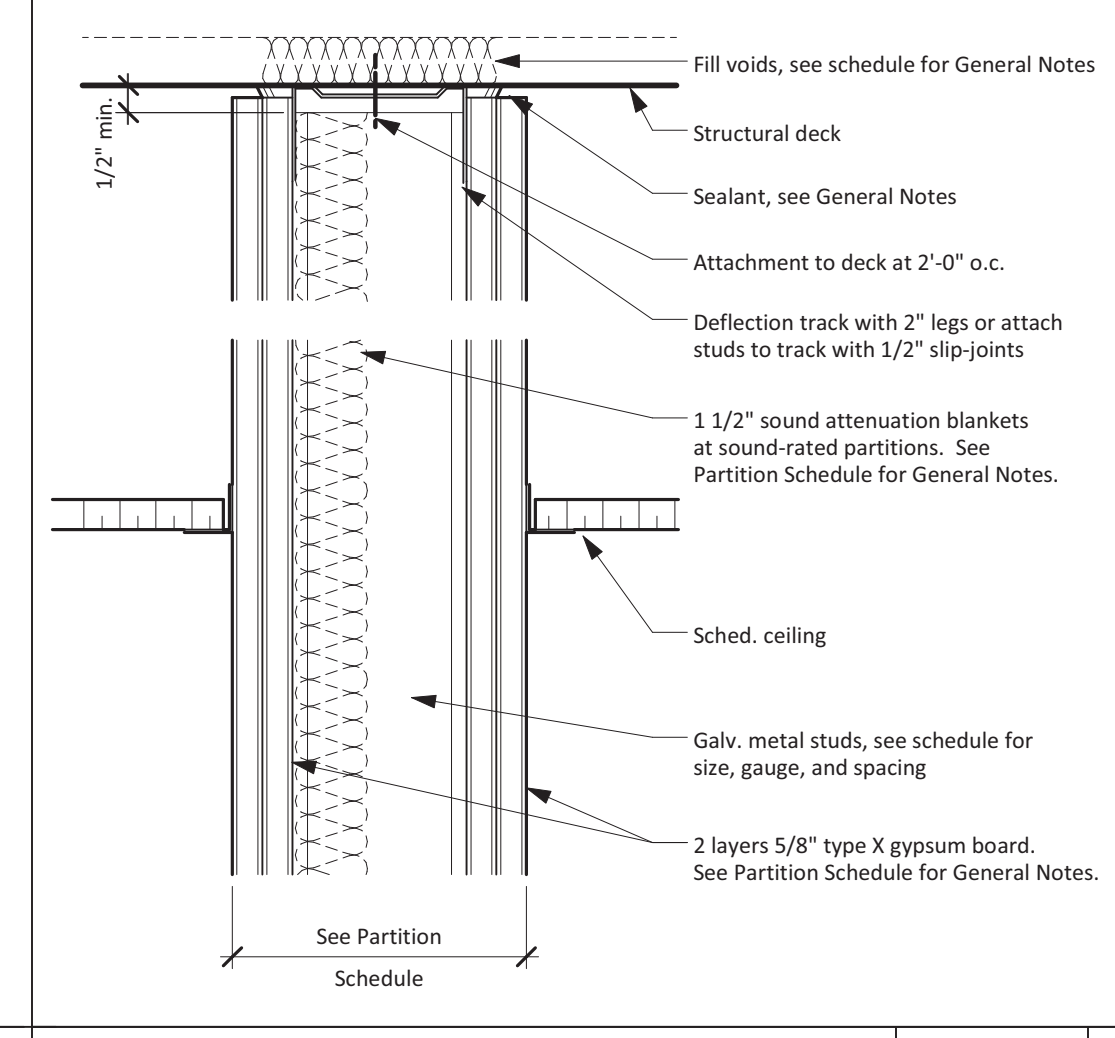
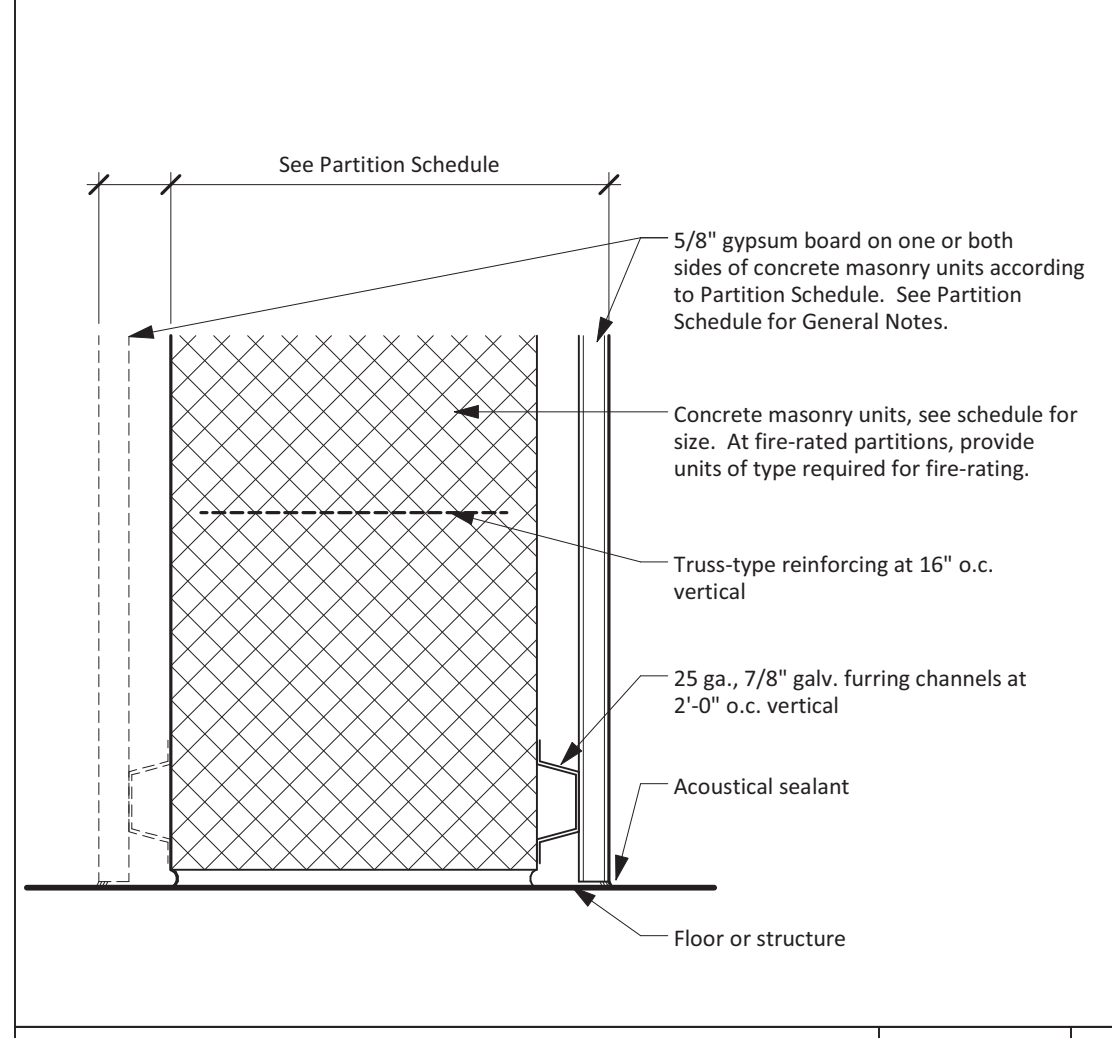
Partition at Floor N.T.S. 24

Partition at Ceiling/Structural Deck N.T.S. 19

Partition at Ceiling N.T.S. 14

Gypsum Board Partitions at Fluted Metal Deck N.T.S. 9

Typical Partition Details N.T.S. 4



Labeling for Smoke and Fire Walls

Design	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W	X
Structure	Partition to Structure (2-Hour)	Partition to Structure (1-Hour)	Partition to Structure (Fire Rating)	Partition to Structure (2-Hour)	Partition to Structure (2-Hour)	Shall Wall (2-Hour)	Shall Wall (2-Hour)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)	Chase Wall to Structure (Fire Rating)
Ceiling	Partition to Ceiling (2-Hour)	Partition to Ceiling (1-Hour)	Partition to Ceiling (Fire Rating)	Partition to Ceiling (2-Hour)	Partition to Ceiling (2-Hour)	Shall Wall (2-Hour)	Shall Wall (2-Hour)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)	Chase Wall to Ceiling (Fire Rating)
Floor	Partition to Floor (2-Hour)	Partition to Floor (1-Hour)	Partition to Floor (Fire Rating)	Partition to Floor (2-Hour)	Partition to Floor (2-Hour)	Shall Wall (2-Hour)	Shall Wall (2-Hour)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)	Chase Wall to Floor (Fire Rating)

Partition at Floor N.T.S. 28

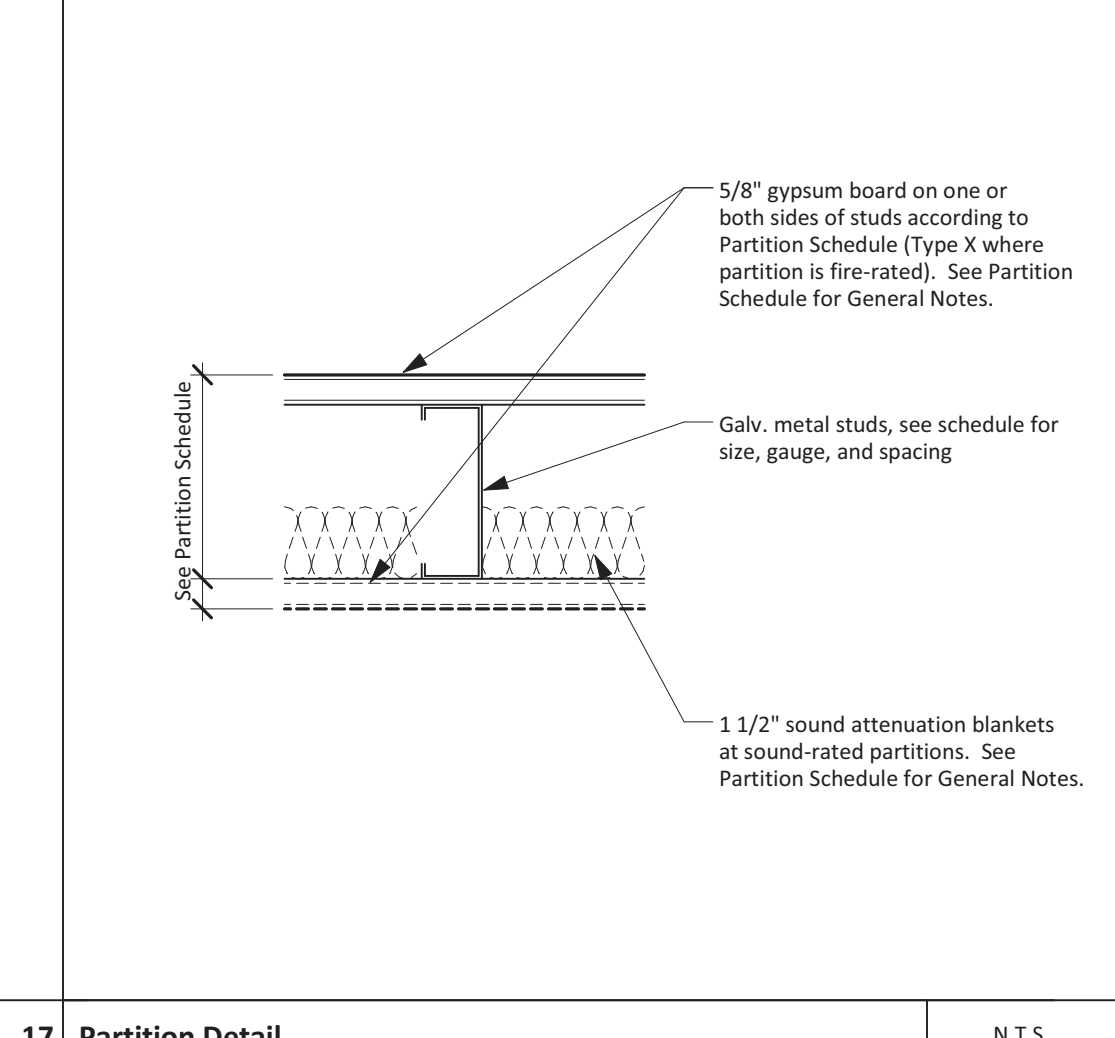
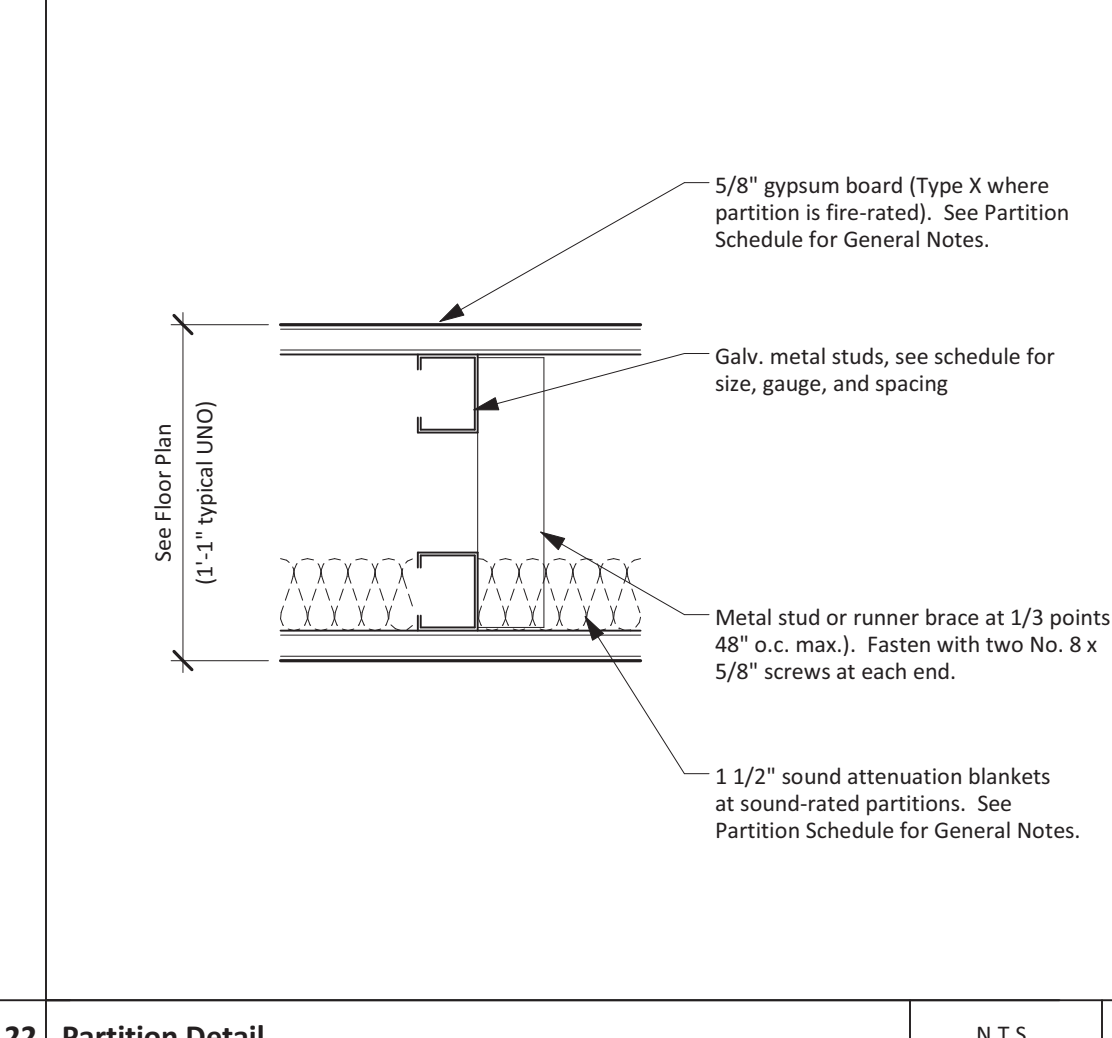
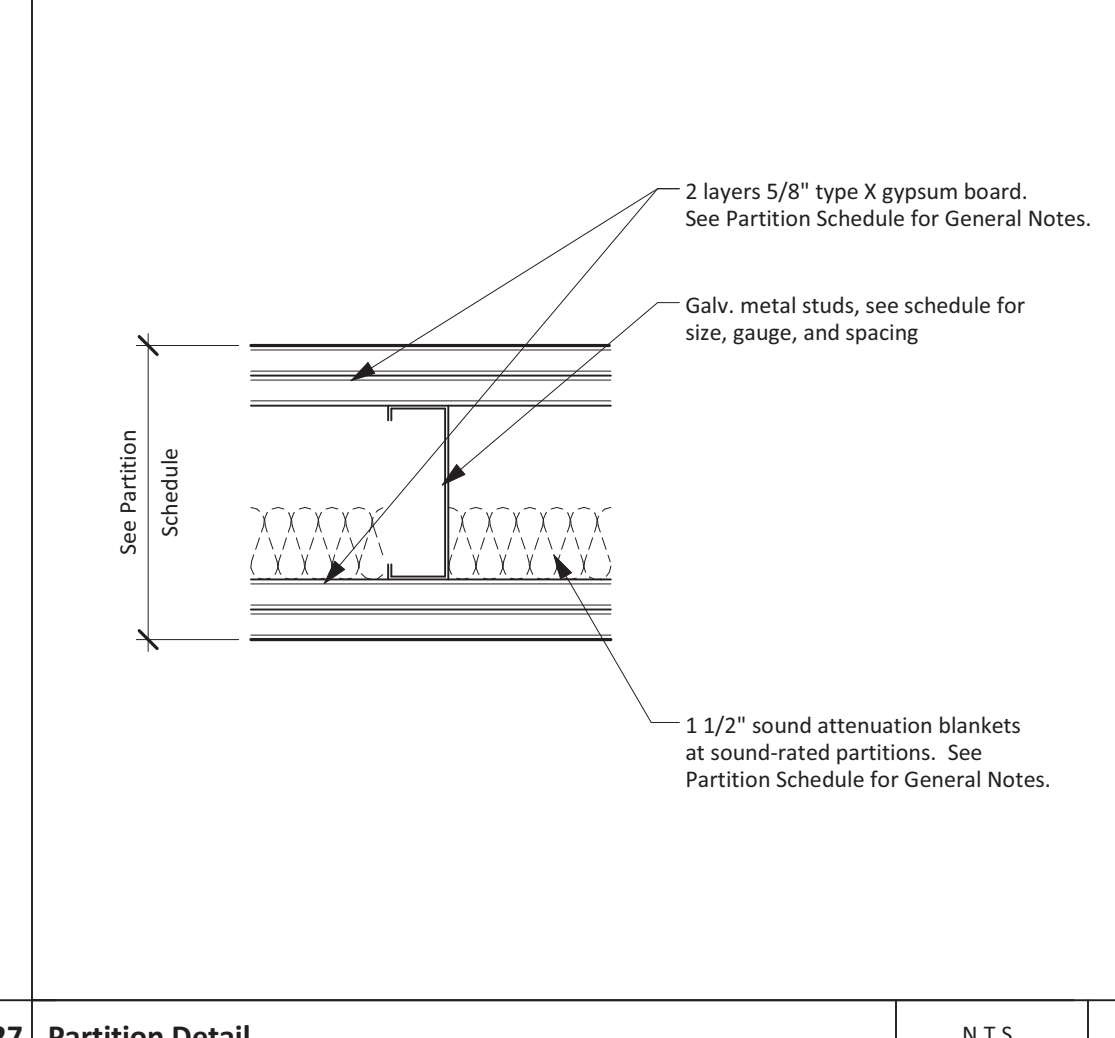
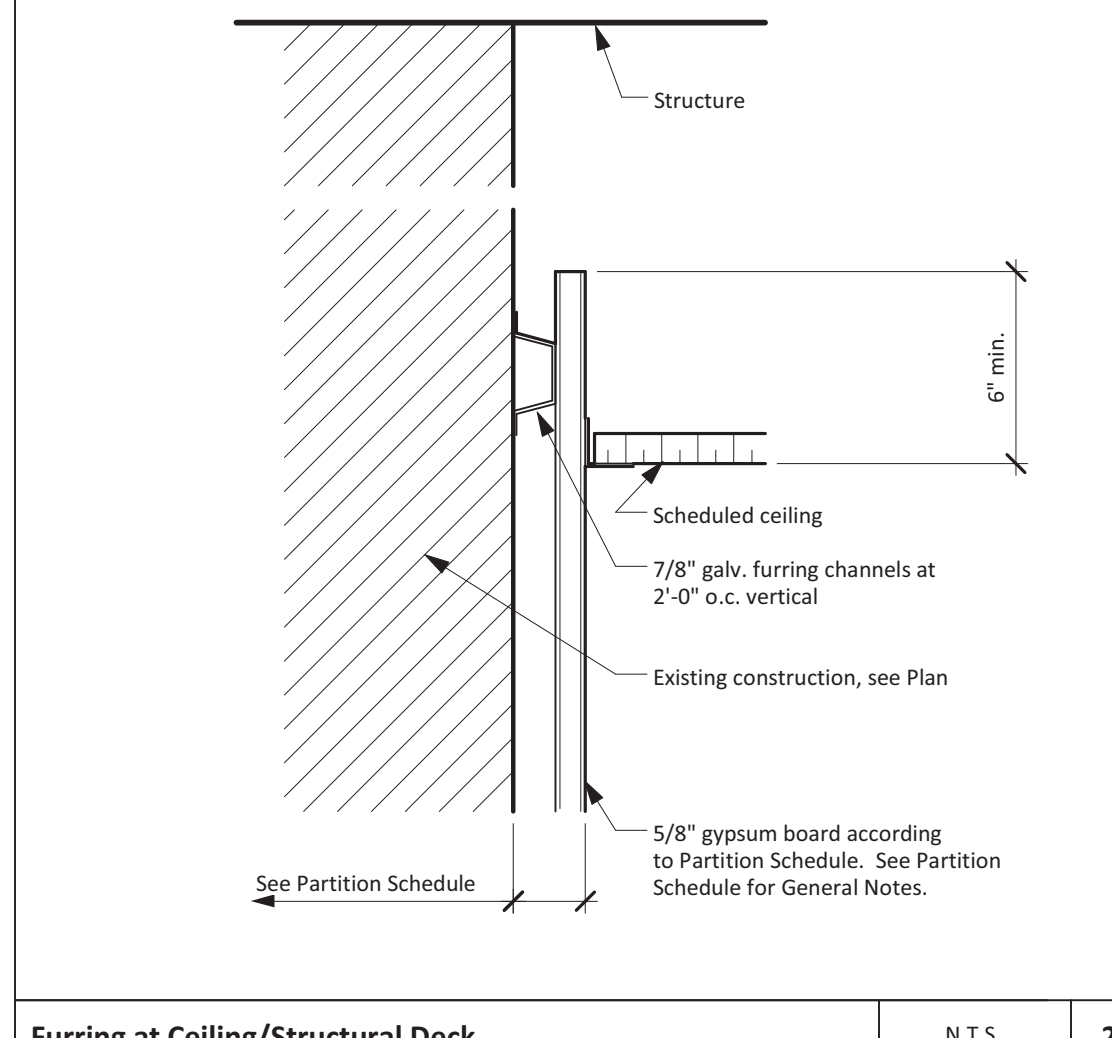
Partition at Ceiling/Structural Deck N.T.S. 23

Partition at Ceiling/Structural Deck N.T.S. 18

Partition at Ceiling/Structural Deck N.T.S. 13

Partition Type Schedule

Partition Type Legend and Schedule



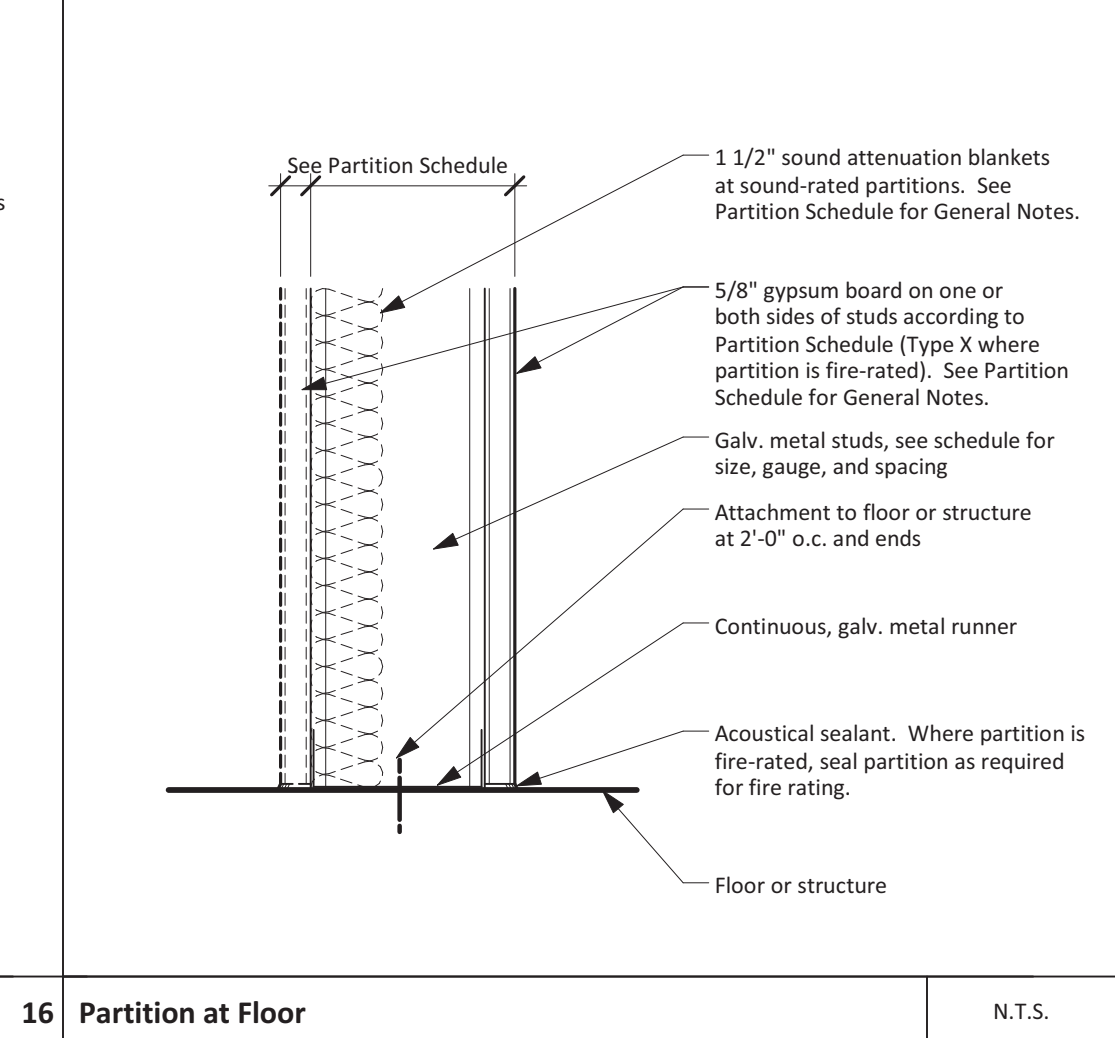
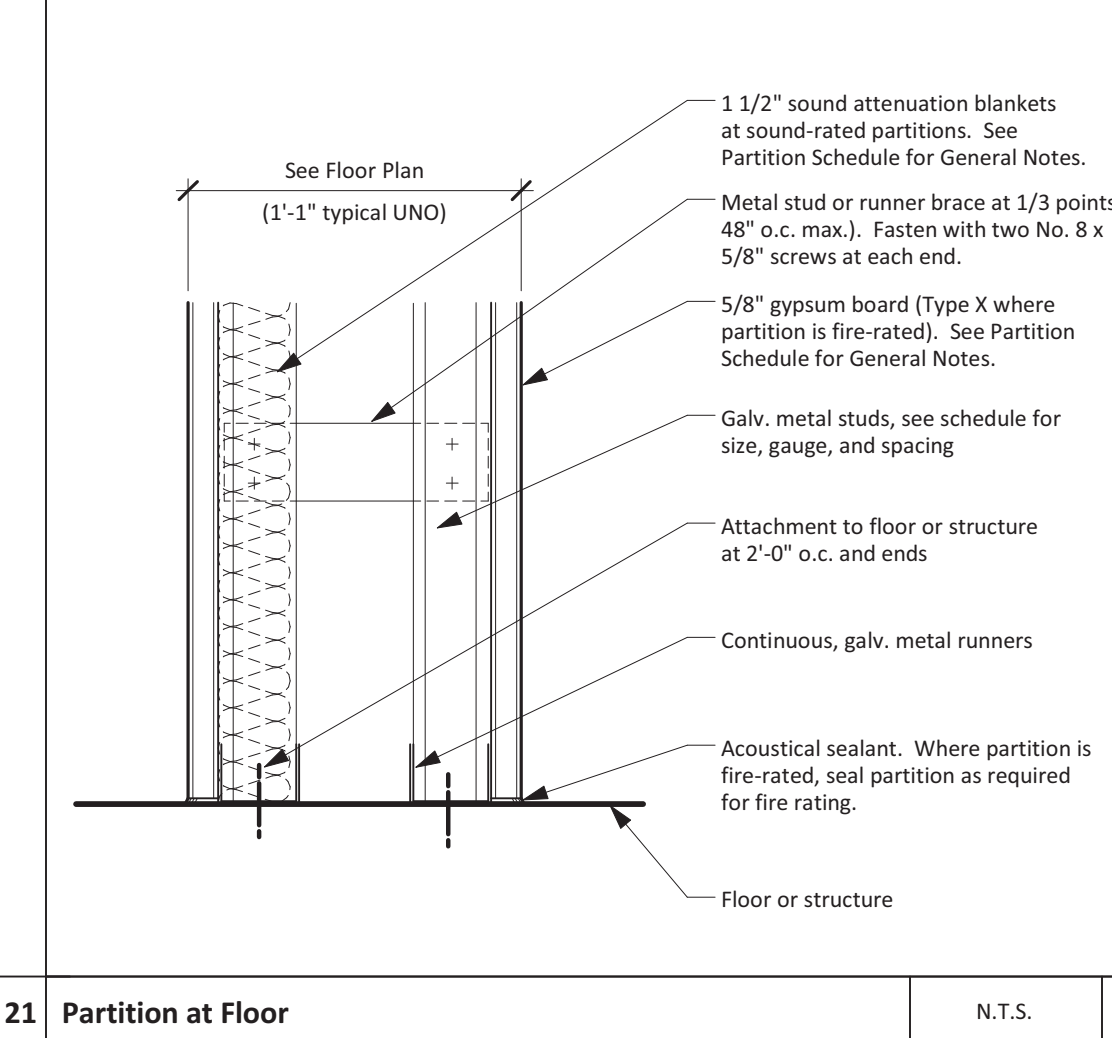
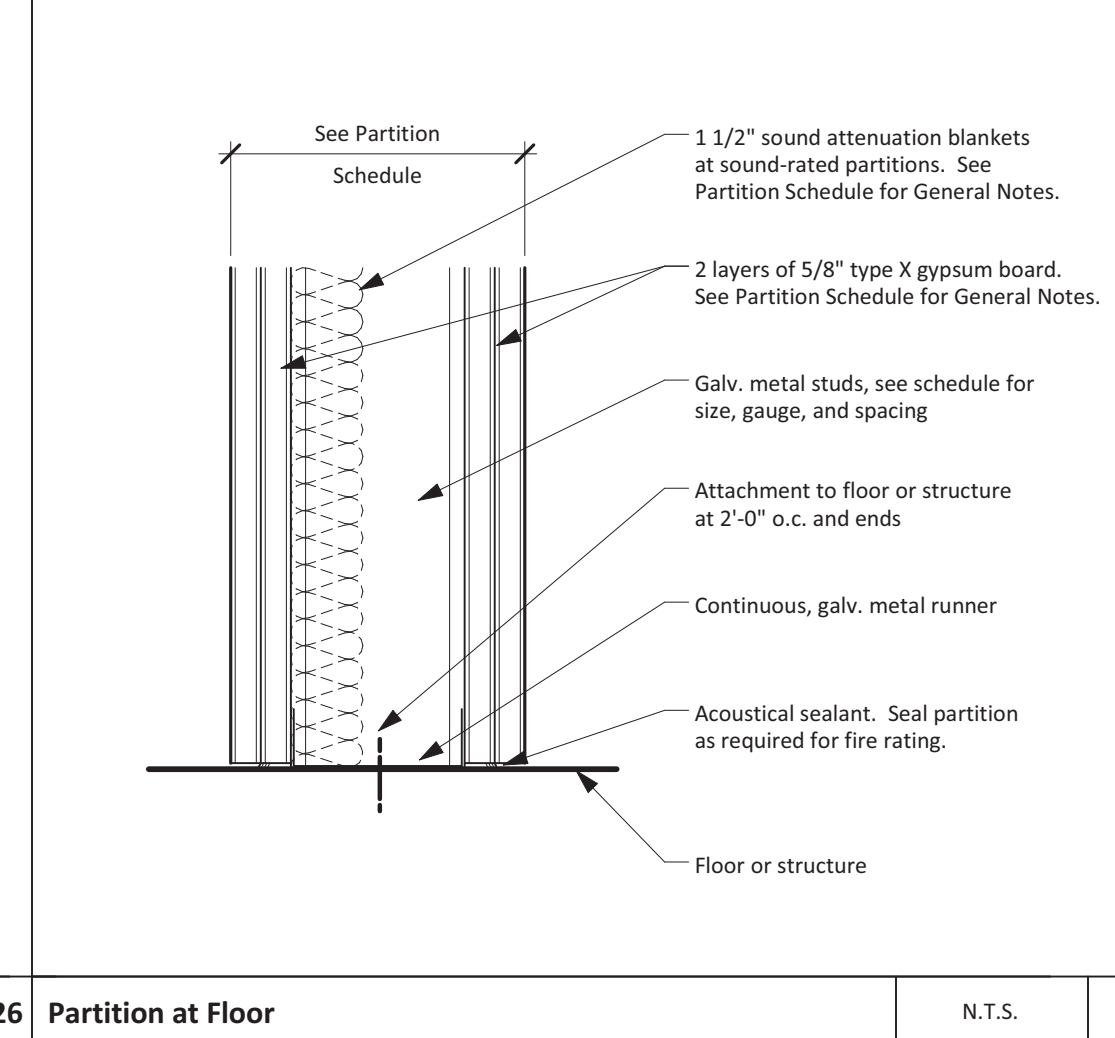
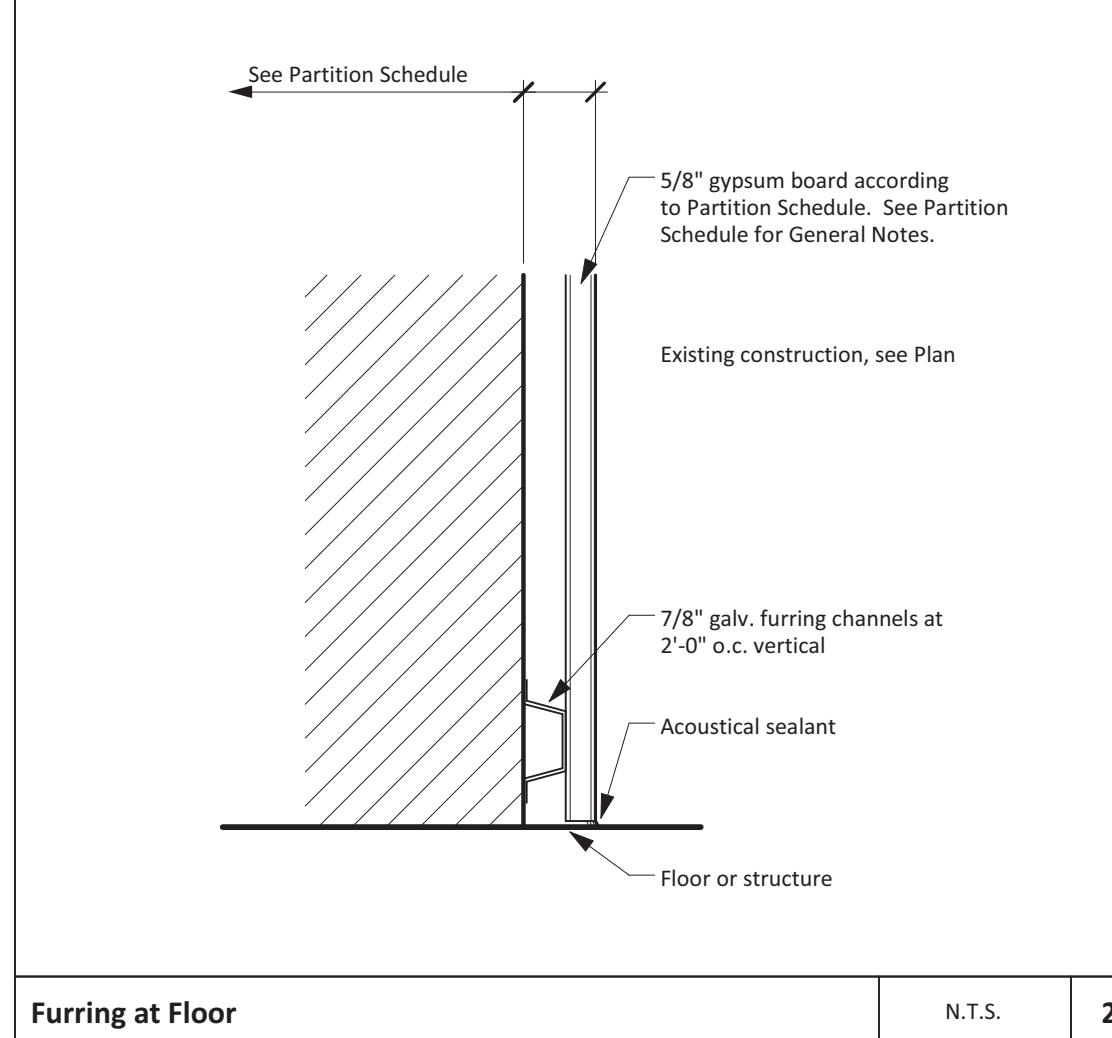
Type Mark	Description	Thickness	Stud/Block Size	Stud Thickness (in)	Stud Spacing	Stud Limiting Height	Fire Rating		Details					
							Rating	Design No.	STC	Section Plan	Ceiling/Structure	Design Test	Notes	
CMU	CMU Wall to structure (2-Hour)	5 5/8"	7 5/8"	18	2'-0"	13'-5"	2-Hour	UL 1905	45	28 A-520	29 A-520	30 A-520	4 G-102	
B2	Partition to 4" above ceiling	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	40	11 A-520	12 A-520	15 A-520	-	
B25	Partition to 4" above ceiling	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	47	11 A-520	12 A-520	15 A-520	-	
C25	Partition to structure (non-rated)	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	47	11 A-520	12 A-520	13 A-520	-	
C35	Partition to structure (non-rated)	7 1/4"	6"	18	2'-0"	16'-9"	-	-	47	11 A-520	12 A-520	13 A-520	-	
E2	Partition to structure (2-Hour rated)	6 1/8"	3 5/8"	30	1'-4"	15'-8"	2-Hour	UL 1411	48	23 A-520	22 A-520	23 A-520	16 G-102	
E25	Partition to structure (2-Hour rated)	6 1/8"	3 5/8"	30	1'-4"	15'-8"	2-Hour	UL 1411	55	23 A-520	22 A-520	23 A-520	16 G-102	
E3	Partition to structure (2-Hour rated)	8 1/2"	6"	33	1'-0"	28'-1"	2-Hour	UL 1411	48	23 A-520	23 A-520	23 A-520	16 G-102	
N25	Chase partition, to structure one side only	4 1/4"	3 5/8"	18	2'-0"	19'-9"	-	-	54	16 A-520	17 A-520	19 A-520	-	
N35	Chase partition to structure (non-rated)	6 5/8"	6"	18	2'-0"	19'-9"	-	-	54	16 A-520	17 A-520	18 A-520	-	
Q	Furring to 4" above ceiling	1 1/2"	1 1/2"	18	1'-4"	0"	-	-	N/A	26 A-520	27 A-520	-	-	
S3	CMU Wall to structure (2-Hour)	11 5/8"	7 5/8"	18	2'-0"	13'-5"	2-Hour	UL 1905	45	28 A-520	29 A-520	30 A-520	4 G-102	

Furring at Ceiling/Structural Deck N.T.S. 27

Partition Detail N.T.S. 22

Partition Detail N.T.S. 17

Partition Detail N.T.S. 12



- General Notes**
- All interior partitions are Type B2 unless noted otherwise.
 - Allowable deflection for all partitions shall be L/240 with a horizontal load of 5 psf, except as noted in individual partition types. The Contractor shall decrease the stud spacing or increase the stud thickness noted to insure partitions forming the substrate for brittle finishes such as ceramic tile meet an allowable deflection criteria of L/260 with a horizontal load of 5 psf.
 - Where partitions are noted to be fire-rated:
 - Provide 5/8" Type X fire-resistive gypsum board, seal the partition with saffing insulation and sealant as shown in detail 9 A-520 and in accordance with the reference design.
 - Sound-Rated Partitions:
 - Sound-rated partitions and partitions with thermal insulation are indicated with a suffix "S" (Example: A15). Refer to the floor plans for locations.
 - Provide 1/2" thick, glass-fiber sound attenuation blankets unless noted otherwise.
 - Fill all deck voids or similarly irregular surfaces, with insulation and sealant as shown in detail 9 A-520.
 - Seal partition perimeter and all penetrations with acoustical sealant or tape and insulation to fill voids.
 - Arrange back-boxes for electrical, data, telephone, and other outlets as shown in detail A-520.
 - Furring to 4" above ceiling.
 - Where sound-rated partitions are also fire-rated, seal partition and fill voids as required for fire rating.
 - Nails shall comply with ASTM F 547 or ASTM C514. Screws shall meet the requirements of ASTM C 1002 or ASTM C 954.
 - Unless otherwise required by reference designs for fire-rated partitions, fasteners shall be spaced 8" o.c. along at vertical joints and 12" o.c. at floor and ceiling runners and intermediate studs. Space all fasteners in panels that are substrates for brittle finishes, such as ceramic tile or stone, a maximum of 8" o.c.
 - Joints in multi-layer gypsum board partitions shall be staggered 24" on each side and on opposite sides.
 - Metallic outlet boxes shall be permitted to be installed in walls or partitions classified as having a fire-resistance of two-hours or less. The surface area of individual boxes shall not exceed 16 square inches. The aggregate surface area of the boxes shall not exceed 100 square inches in any 100 square feet. Boxes located on opposite sides of walls or partitions shall be separated by a minimum horizontal distance of 24 inches. See detail 5 A-520.
 - Fiberglass-mat faced, silicized gypsum-core boards shall be installed over or as part of the fire-resistance rated system in shower and tub areas to receive brittle finishes such as ceramic tile or plastic finished wall panels. When fire or sound ratings are indicated, the gypsum board required for the rating shall extend down to the floor behind fixtures.
 - Label all fire-rated and smoke compartment walls or partitions above finished ceiling as shown on detail 3 A-520.
 - Install penetration seals at all penetrations through fire-rated and smoke compartment walls or partitions in accordance with Specifications Section 07 84 00. See details 16, 17, 19, 21, 23, 26, and 28 G-102 for reference designs of penetration seal systems based upon the penetrating element.
 - Accurately align new and existing partitions in the same plane when shown on the floor plans. See detail 4 A-520.
 - Maintain the fire or sound rating of partitions at all intersections. Maintain the construction of the highest rated partition where partitions of two different ratings meet. See the Wall Priority Legend - detail 10 A-520.

Partition Type Legend and Schedule

Type Mark	Description	Thickness	Stud/Block Size	Stud Thickness (in)	Stud Spacing	Stud Limiting Height	Fire Rating	Design No.	STC	Section Plan	Ceiling/Structure	Design Test	Notes
CMU	CMU Wall to structure (2-Hour)	5 5/8"	7 5/8"	18	2'-0"	13'-5"	2-Hour	UL 1905	45	28 A-520	29 A-520	30 A-520	4 G-102
B2	Partition to 4" above ceiling	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	40	11 A-520	12 A-520	15 A-520	-
B25	Partition to 4" above ceiling	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	47	11 A-520	12 A-520	15 A-520	-
C25	Partition to structure (non-rated)	4 7/8"	3 5/8"	18	2'-0"	13'-5"	-	-	47	11 A-520	12 A-520	13 A-520	-
C35	Partition to structure (non-rated)	7 1/4"	6"	18	2'-0"	16'-9"	-	-	47	11 A-520	12 A-520	13 A-520	-
E2	Partition to structure (2-Hour rated)	6 1/8"	3 5/8"	30	1'-4"	15'-8"	2-Hour	UL 1411	48	23 A-520	22 A-520	23 A-520	16 G-102
E25	Partition to structure (2-Hour rated)	6 1/8"	3 5/8"	30	1'-4"	15'-8"	2-Hour	UL 1411	55	23 A-520	22 A-520	23 A-520	16 G-102
E3	Partition to structure (2-Hour rated)	8 1/2"	6"	33	1'-0"	28'-1"	2-Hour	UL 1411	48	23 A-520	23 A-520	23 A-520	16 G-102
N25	Chase partition, to structure one side only	4 1/4"	3 5/8"	18	2'-0"	19'-9"	-	-	54	16 A-520	17 A-520	19 A-520	-
N35	Chase partition to structure (non-rated)	6 5/8"	6"	18	2'-0"	19'-9"	-	-	54	16 A-520	17 A-520	18 A-520	-
Q	Furring to 4" above ceiling	1 1/2"	1 1/2"	18	1'-4"	0"	-	-	N/A	26 A-520	27 A-520	-	-
S3	CMU Wall to structure (2-Hour)	11 5/8"	7 5/8"	18	2'-0"	13'-5"	2-Hour	UL 1905	45	28 A-520	29 A-520	30 A-520	4 G-102

Furring at Floor N.T.S. 26

Partition at Floor N.T.S. 21

Partition at Floor N.T.S. 16

Partition at Floor N.T.S. 11

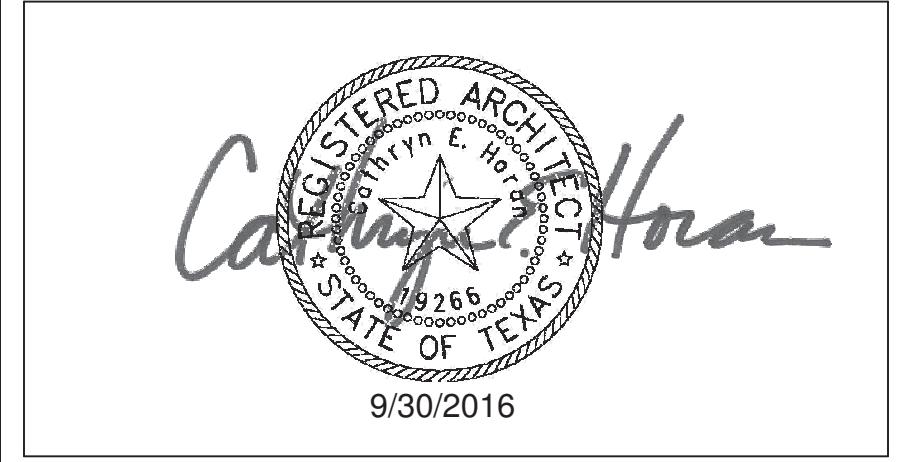
Partition Type Legend and Schedule

Partition Type Legend and Schedule

No.	Description	Date
4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016

Keyplan

No.	Description	Date
4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016



The University of Texas
 Health Science Center at
 Houston

MSB SWITCHGEAR REPLACEMENT
 Partition Types and Interior Construction Details

PWP Project Number	215-218R
Date	09/30/2016
Designed By	JK
Checked By	JK
Drawing No.	JK

Scale: **A-520**
 As indicated

4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016
No.	Description	Date

Keyplan



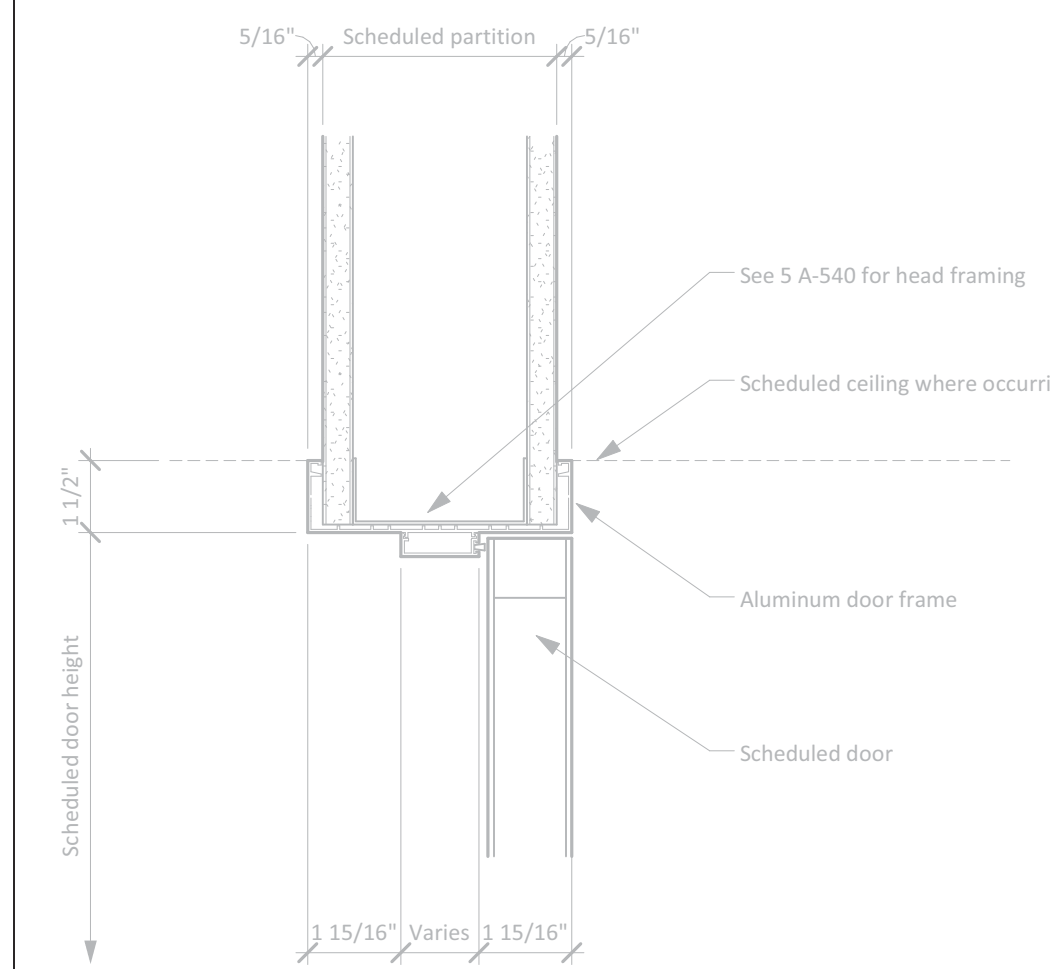
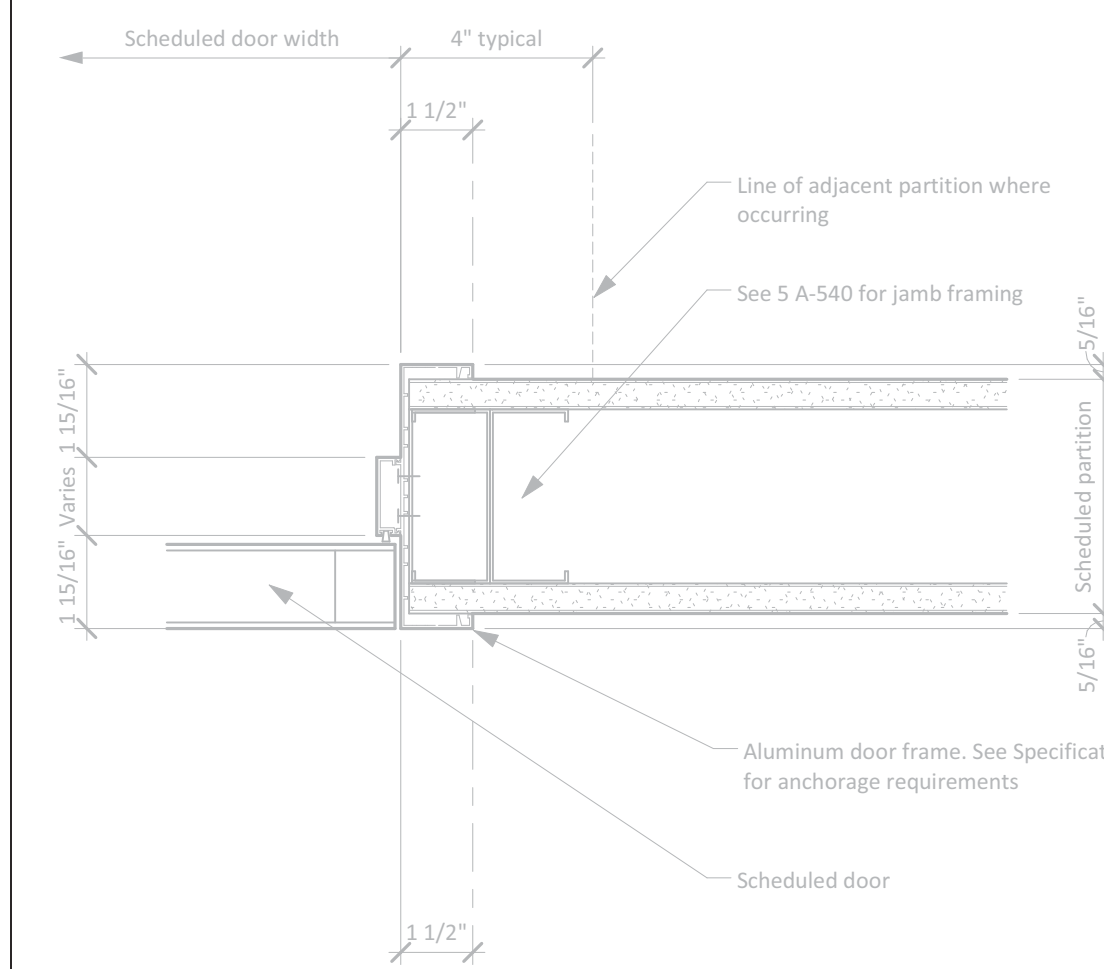
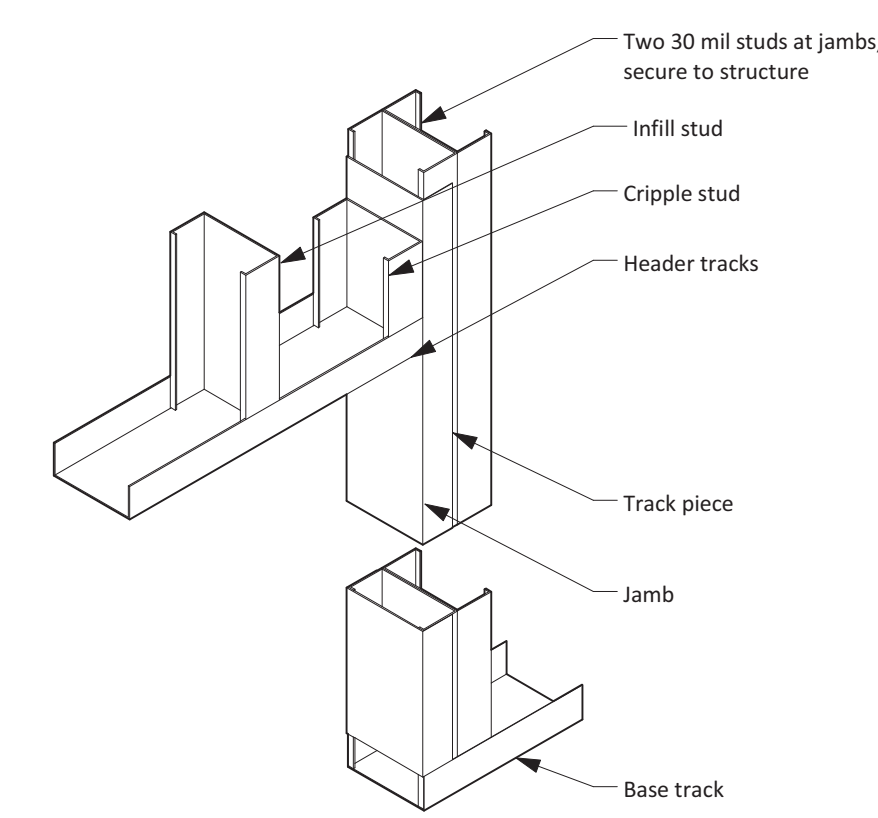
The University of Texas
 Health Science Center at
 Houston

**MSB SWITCHGEAR
 REPLACEMENT**
 Door and Window Details

PWP Project Number 215-218R
 Date 09/30/2016
 Designed By DS
 Checked By BL
 Drawing No.

A-540

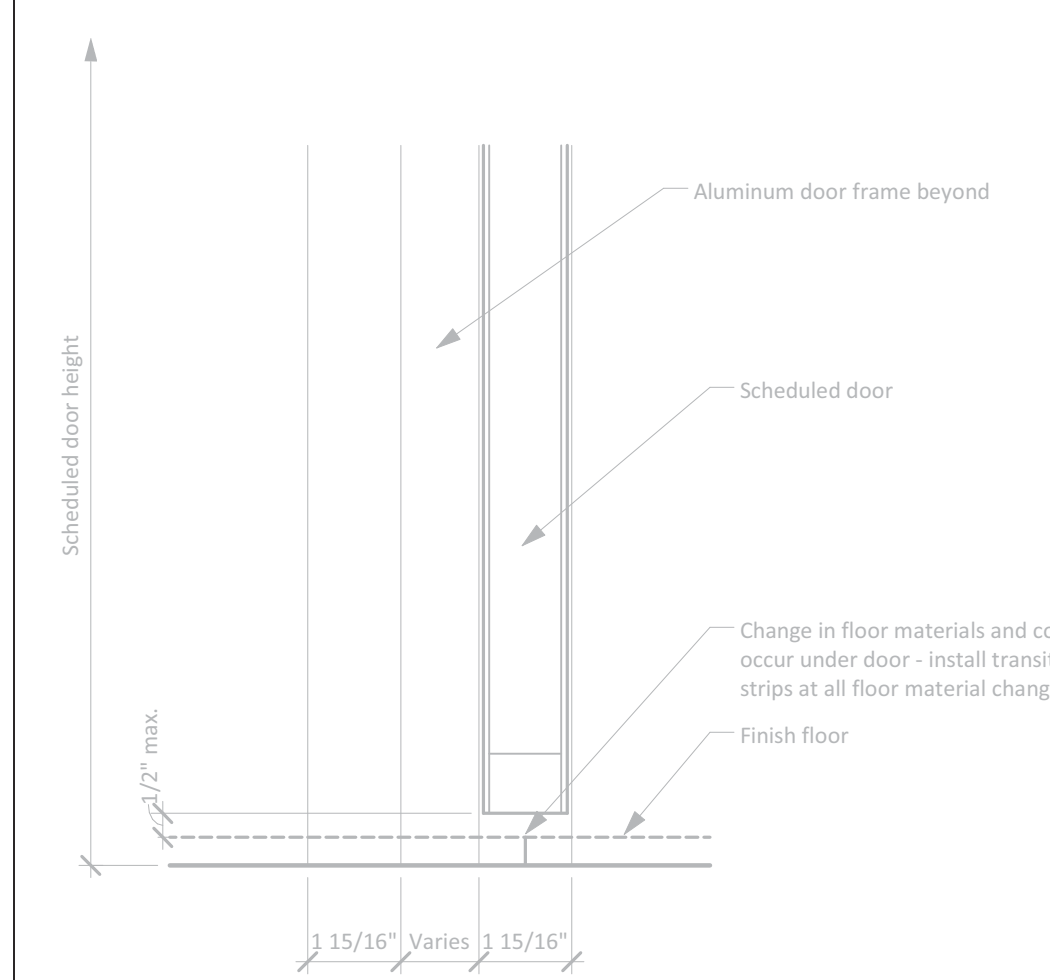
Scale As indicated



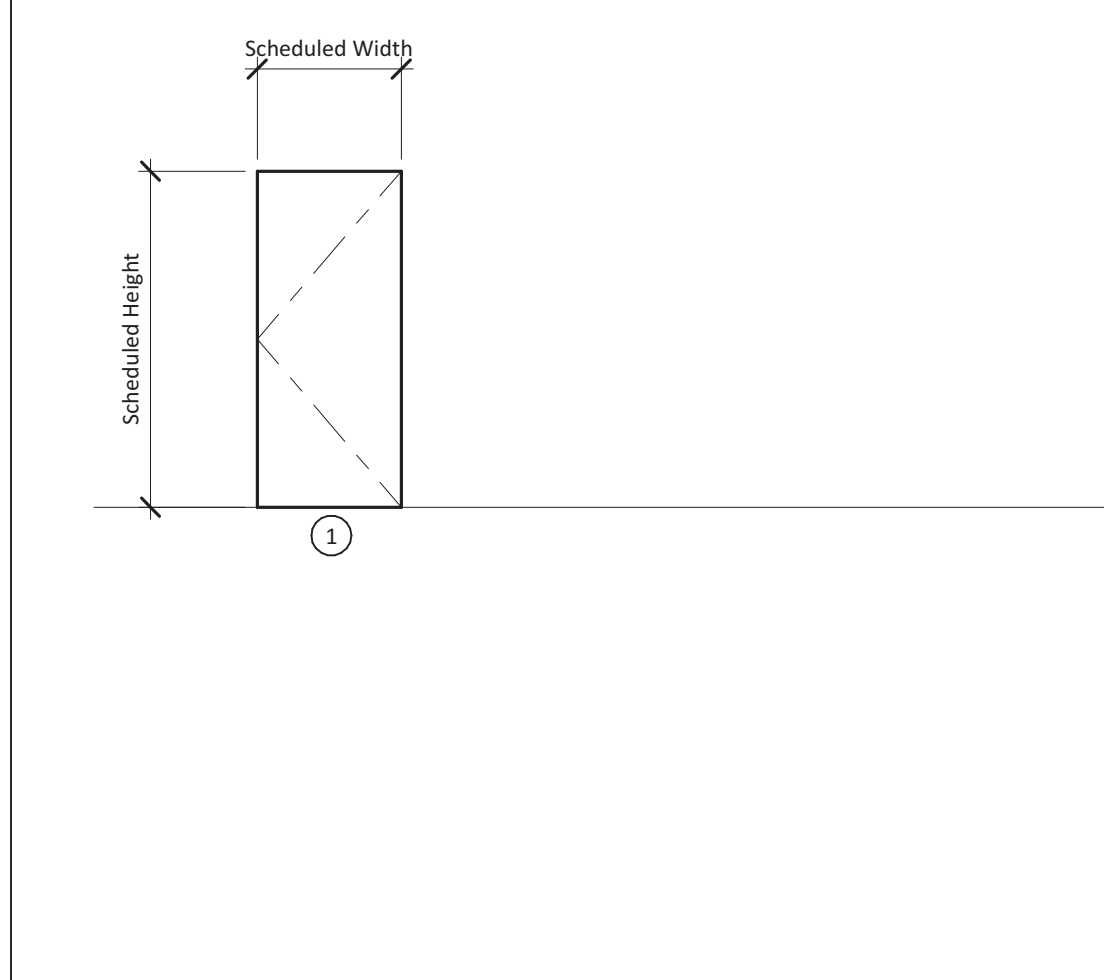
Head at Interior Aluminum Door Frame 3" = 1'-0" 15

Jamb at Interior Aluminum Door Frame 3" = 1'-0" 10

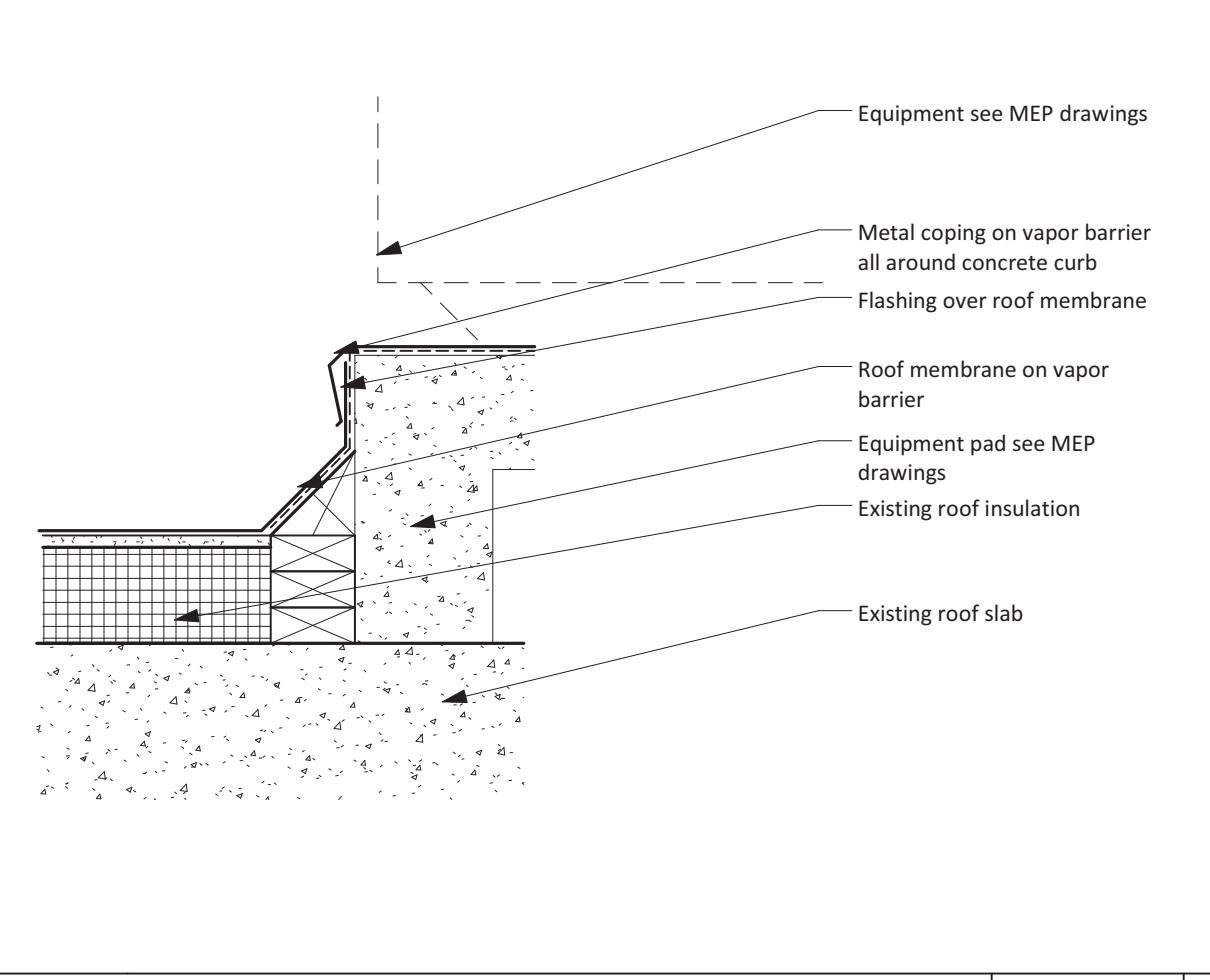
Typical Framing at Opening N.T.S. 5



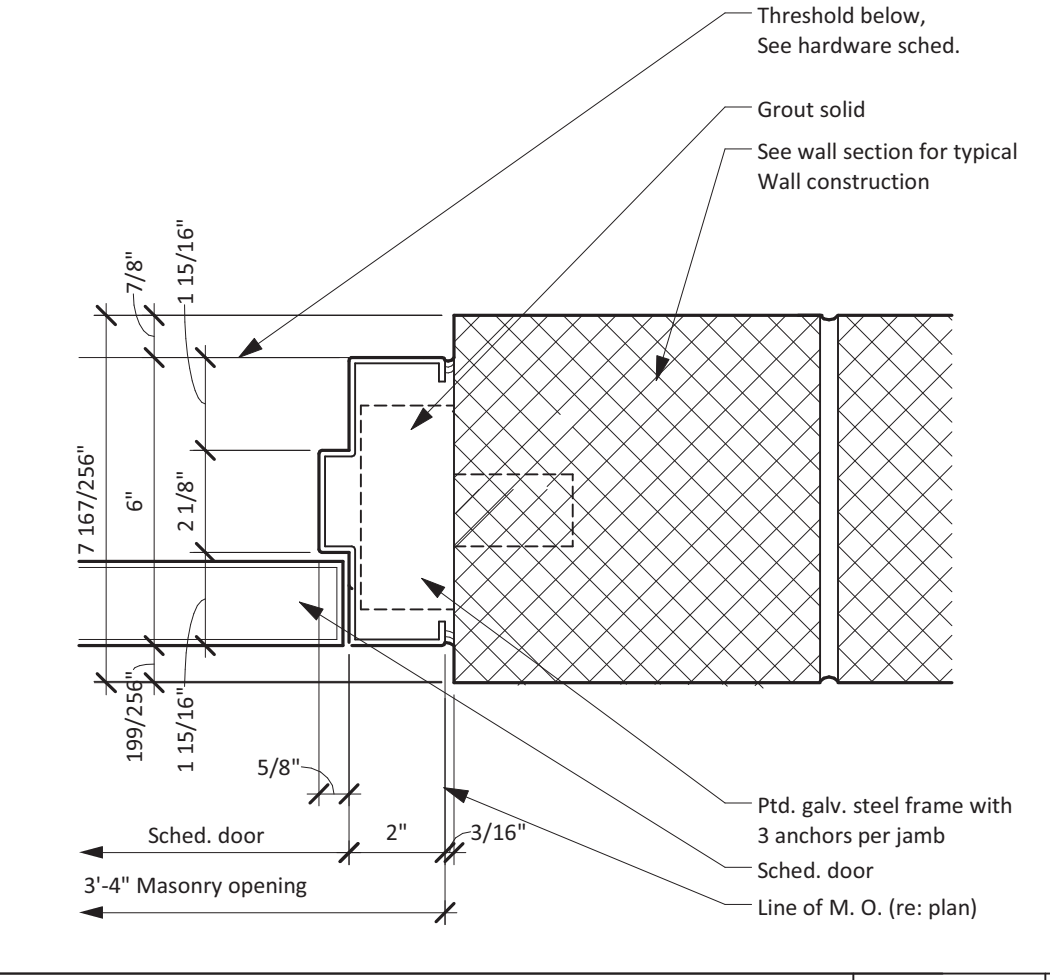
Sill at Interior Aluminum Door Frame 3" = 1'-0" 14



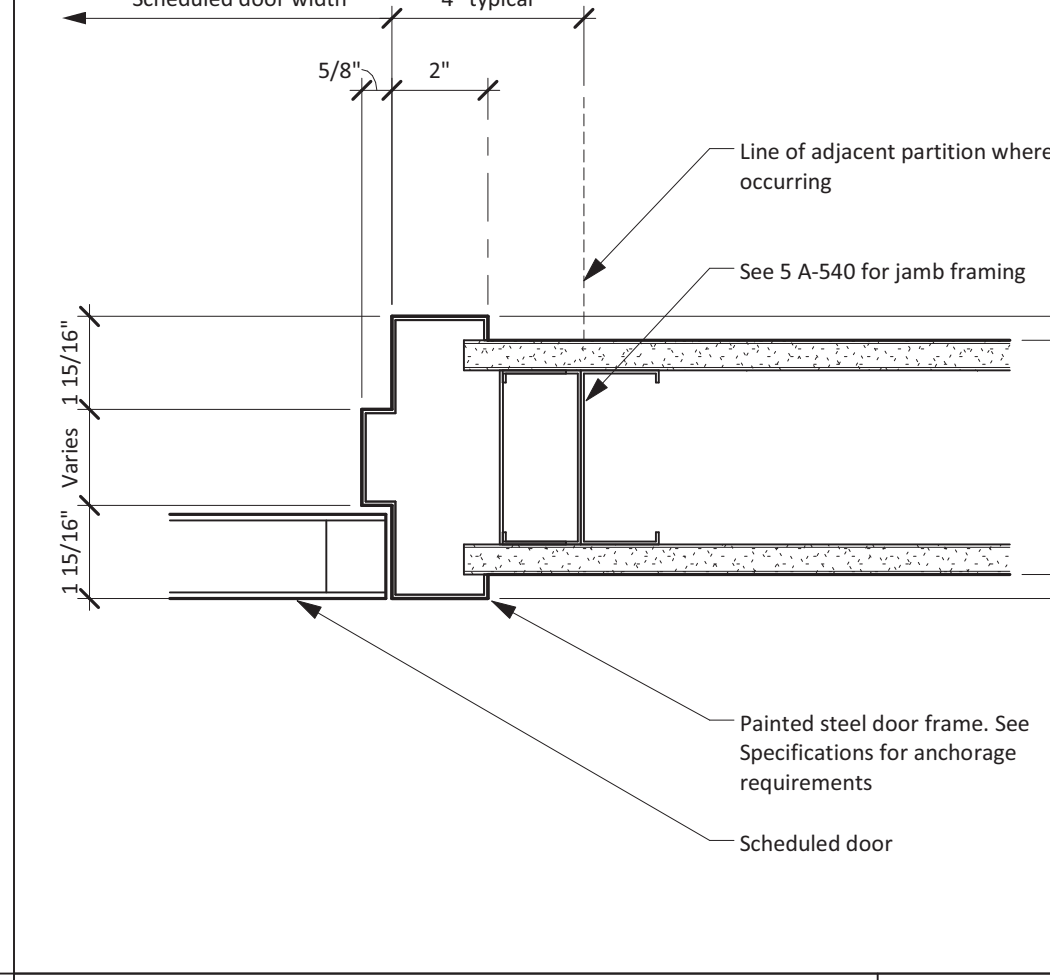
Sched. Width 11



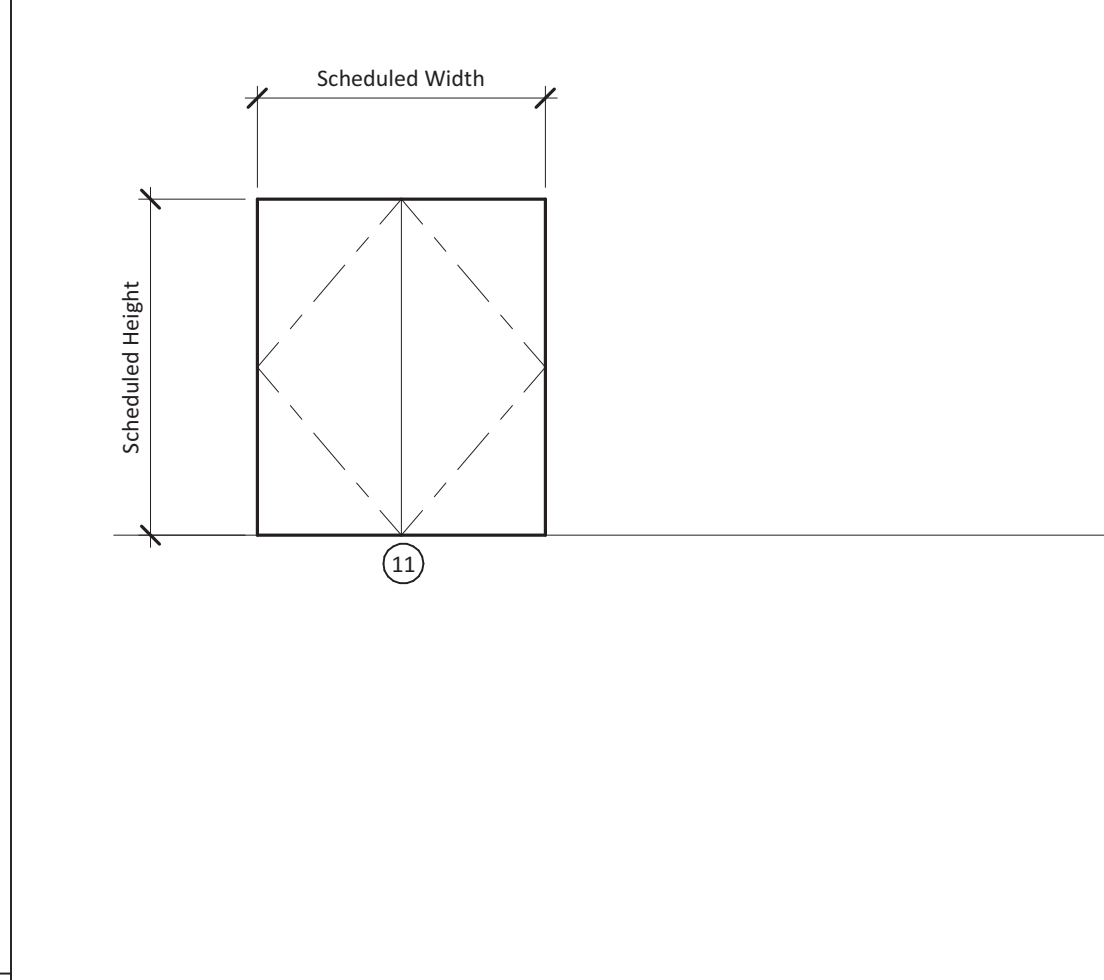
Roof - Pad Edge Detail 1 1/2" = 1'-0" 1



Jamb at H.M. Door in CMU Wall 3" = 1'-0" 18



Jamb at Interior Steel Door Frame 3" = 1'-0" 13



Sched. Width 11

Door Panel Elevations 1/4" = 1'-0" 2

Type	Description	Door				Frame				Fire Rating (min.)	Notes			
		Width	Height	Thick.	No.	Mat'l	Finish	Mat'l	Finish			Sill Detail	Jamb Detail(s)	Head Detail
A00	Interior flush door	3'-0"	7'-0"	1 3/4"	1	Wood	DPL1	Steel	FPT1	11 A-540	13 A-540	12 A-540	-	
B40	Interior fire-rated flush door - 90m	3'-0"	7'-0"	1 3/4"	1	Steel	DPT1	Steel	FPT1	16 A-540	18 A-540	17 A-540	90	
B44	Interior fire-rated flush door - 90m	4'-0"	7'-0"	1 3/4"	1	Steel	DPT1	Steel	FPT1	16 A-540	18 A-540	17 A-540	90	
D30	Metal Frame - no door	3'-0"	7'-0"	0"	-	-	-	-	-	11 A-540	13 A-540	12 A-540	-	
M2E	Interior pair of fire-rated flush doors - 90m	5'-6"	7'-0"	1 3/4"	11	Steel	DPL1	Steel	FPT1	16 A-540	18 A-540	17 A-540	90	
M40	Interior pair of fire-rated flush doors - 90m	6'-0"	7'-0"	1 3/4"	11	Steel	DPL1	Steel	FPT1	16 A-540	18 A-540	17 A-540	90	

HW SET: 01
 Each to have:
 8 EA HINGE 5B81HW 4.5 X 4.5 NRP 630 IVE
 1 EA PANIC HARDWARE 9947DT-F 626 VON
 1 EA FIRE EXIT HARDWARE 9947NL-F 626 VON
 1 EA RIM CYLINDER 951 6 PIN 626 FAL
 1 SET ASTRAGAL 115NA CL NGP
 2 EA SURFACE CLOSER 4040XP SCUSH 689 LEN
 2 EA CUSH SHOE SUPPORT 4046-30 AS REGD 689 LEN
 2 EA KICK PLATE 8400 10" X 1" LOW 630 IVE
 1 SET SEALS 5050B 8RN NGP
 1 EA DOOR SWEEP 1031VA CL NGP
 1 EA THRESHOLD 425 AL NGP

HW SET: 05
 Each to have:
 5 Hinge (heavy weight) T4A3786 NRP 4-1/2" x 4-1/2" US260 MK
 3 Hinge (heavy weight, ETW) T4A3786 QC12 4-1/2" x 4-1/2" US260 MK
 1 Exit Device 12 NB 59 W08710 96" US320 SA
 1 Exit Device 12 NB 59 W08713 96" US320 SA
 1 Thumbturn Controller 21 313 GMK US260 SA
 2 Closer 281 CPS EN SA
 2 Kickplate K1050 10" High US320 RO
 2 Wire Harness QC-C1500P MK
 2 Wire Harness QC-C012 MK
 1 Wire Harness QC-C200 MK
 1 Wall Proximity Reader 4303 MK SA
 1 Power Supply 8PS 24-3 SU
 1 Gasketing 588BL PE
 1 Astragal Seal 5771x68L PE

HW SET: 02
 Each to have:
 4 EA HINGE 5B81HW 4.5 X 4.5 NRP 630 IVE
 1 EA PANIC HARDWARE 9947DT-F 626 VON
 1 EA RIM CYLINDER 951 6 PIN 626 FAL
 1 EA SURFACE CLOSER 4040XP SCUSH 689 LEN
 1 EA CUSH SHOE SUPPORT 4046-30 AS REGD 689 LEN
 1 EA KICK PLATE 8400 10" X 2" LOW 630 IVE
 1 SET SEALS 5050B 8RN NGP
 1 EA DOOR SWEEP 1031VA CL NGP
 1 EA THRESHOLD 425 AL NGP

HW SET: 03
 Each to have:
 4 EA HINGE 5B81 4.5 X 4.5 652 IVE
 1 EA ENTRY/OFFICE LOCK MAS21P6 AG 626 FAL
 1 EA DOOR STOP VS407CCV/PS436 626 IVE
 AS REGD
 1 SET SEALS BY FRAME SUPPLIER 8/O

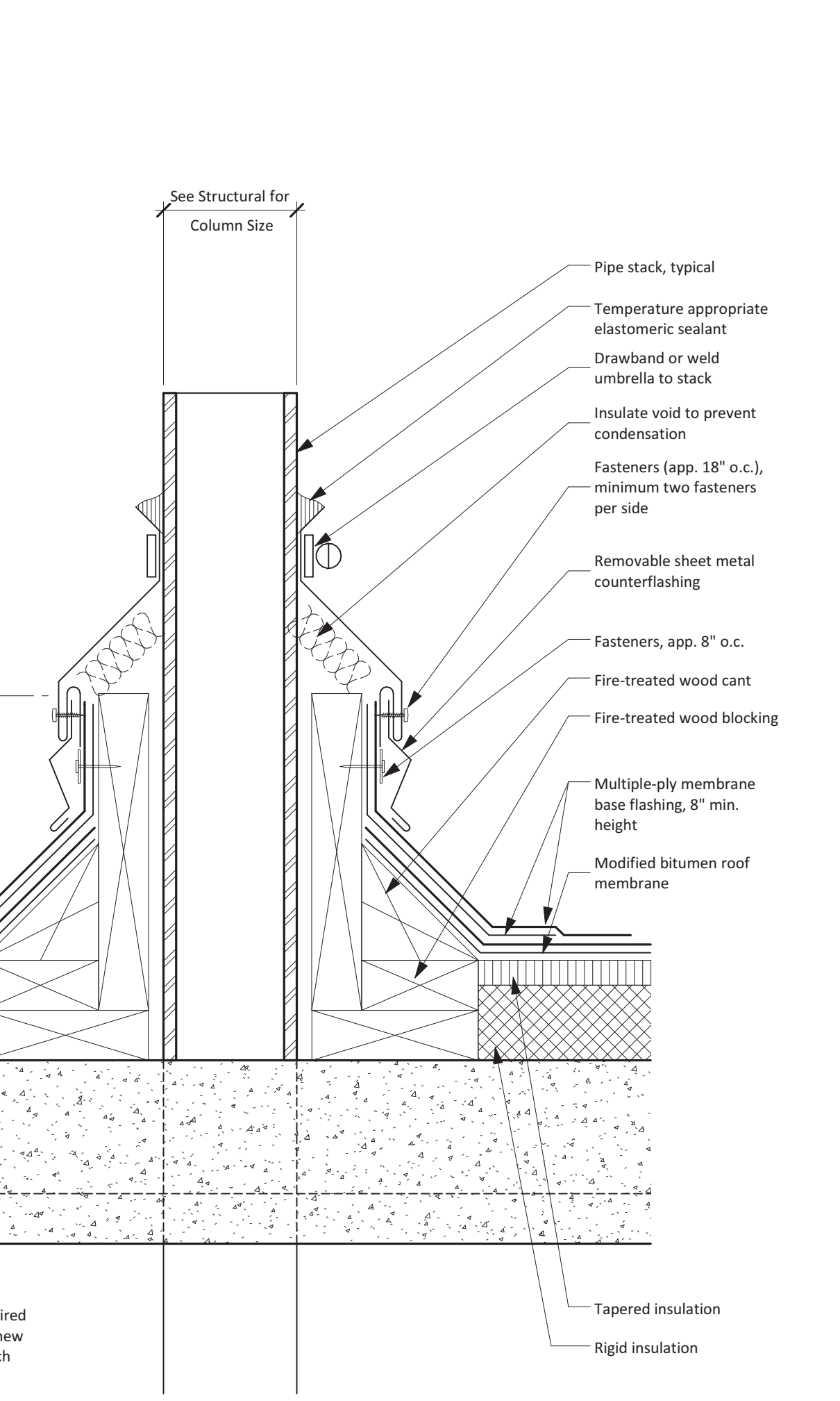
HW SET: 04
 Each to have:
 4 EA HINGE 5B81 4.5 X 4.5 652 IVE
 1 EA PUSH PLATE 8200 6" X 16" 630 IVE
 1 EA PULL PLATE 8300 E2 6" X 16" 630 IVE
 1 EA SURFACE CLOSER 1463 EC 689 LEN
 1 EA DOOR STOP VS407CCV/PS436 626 IVE
 AS REGD
 1 SET SEALS BY FRAME SUPPLIER 8/O

Door Type Schedule

Note: Use Best brand hardware see Door Hardware Specifications.

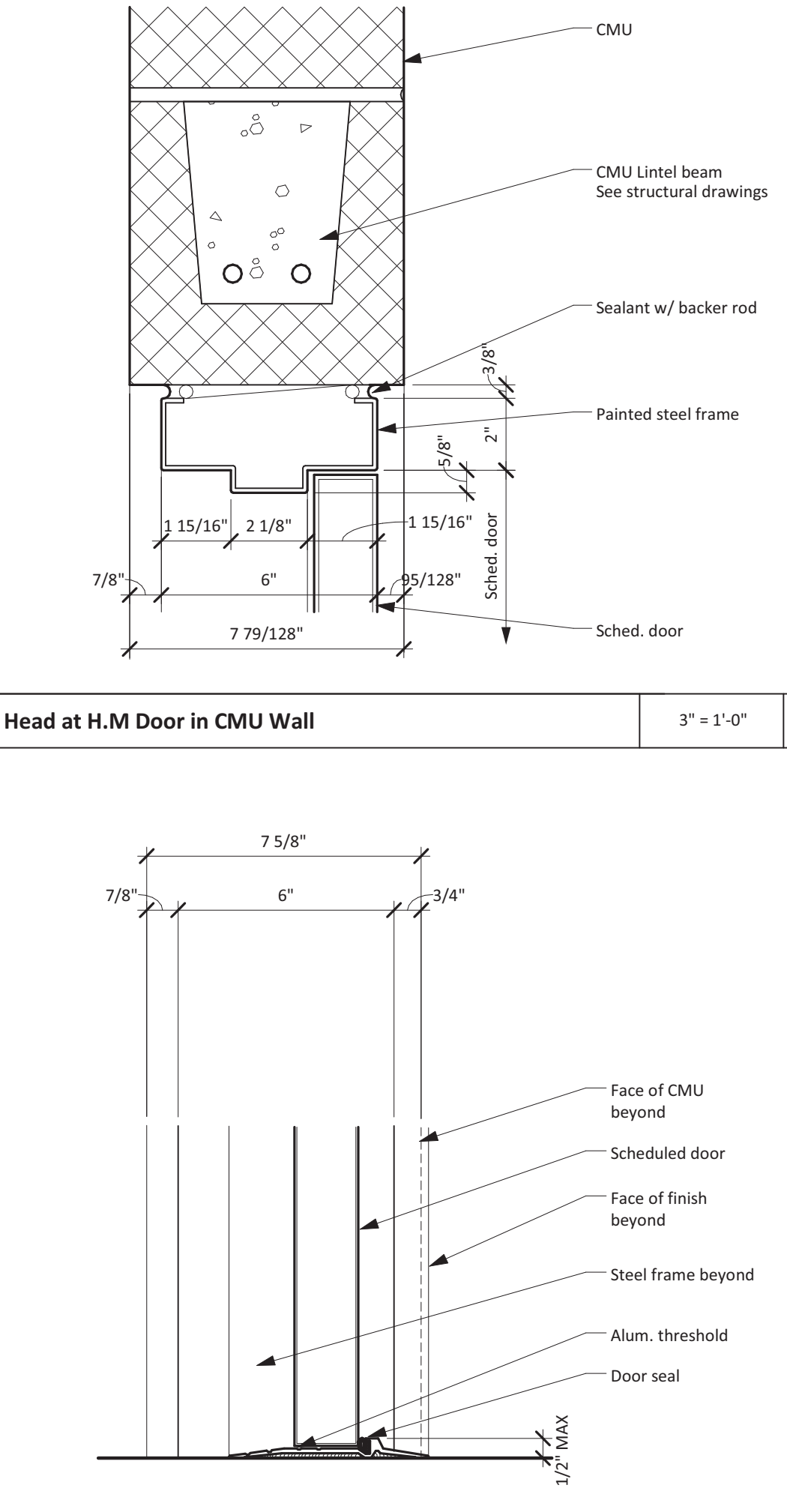
Door Type Schedule 1

Typical Pipe Roof Penetration Detail 3" = 1'-0" 21



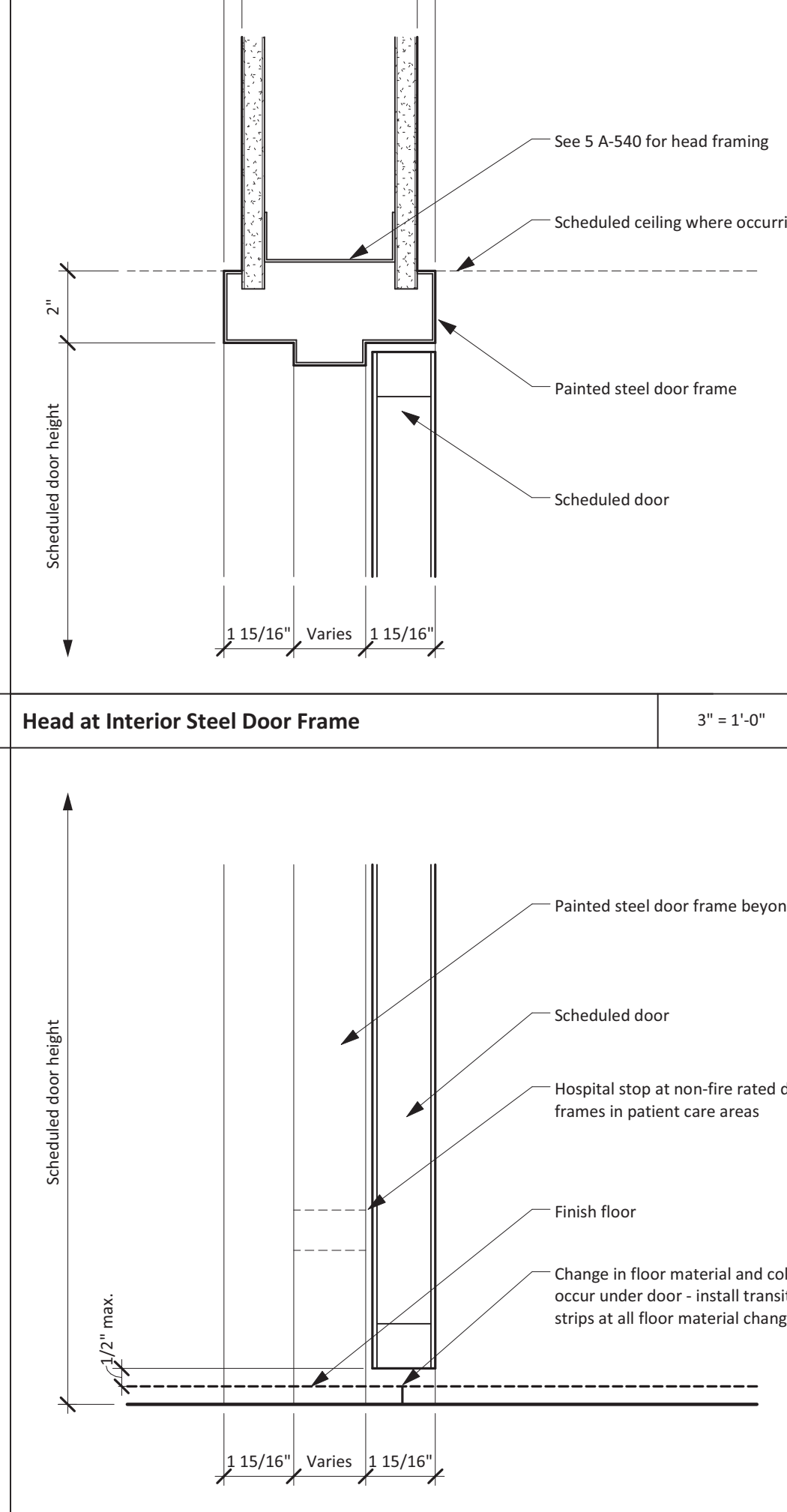
Typical Pipe Roof Penetration Detail 3" = 1'-0" 21

Sill at H.M. Door in CMU Wall 3" = 1'-0" 17



Sill at H.M. Door in CMU Wall 3" = 1'-0" 17

Head at Interior Steel Door Frame 3" = 1'-0" 12



Head at Interior Steel Door Frame 3" = 1'-0" 12

Finish Material Schedule					
Type Mark	Description	Manufacturer	Pattern/Line	Color	Notes
Floors					
CT1	Ceramic tile	Daltile		D182 Suede Gray	
Base					
CT1	Ceramic tile	Daltile		D182 Suede Gray	
RBC	Rubber base, cove	Roppe		P193 Black/Brown	
Walls					
CT1	Ceramic tile	Daltile		D182 Suede Gray	-
PT1	Paint	Sherwin Williams	SW 7043	Wordly Gray Semi-gloss	-
Ceilings					
ACT1	Acoustical ceiling tile, 2' X 2'	Armstrong	Fine Fissured - 1723	White	-
PT3	Paint	Sherwin Williams	SW 7042 - Orange Peel Texture	Shoji White Semi-gloss	-
Misc/Trim					
PT1	Paint	Sherwin Williams	SW 7043	Wordly Gray Semi-gloss	-
Millwork					
-	NO MATERIAL	-	-	-	-
Doors					
WV	Hollow Metal	See Specifications		Intellectual Gray	-
Frames					
FPT1	Paint (frame)	Sherwin Williams	SW 7045	Intellectual Gray	-

Notes to Schedule:
1.
2.

General Notes:
1.
2.

Finish Material Schedule 3

Room Finish Type Schedule								
Finish Type Mark	Floor	Base	Wall	Ceiling	Misc/Trim	Door	Frame	Notes
F1	CT1	CT1	CT1	PT3	-	WV	FPT1	
F2	SC	RBC	PT1	PT3	-	WV	FPT1	
F3	SC	RBC	PT1	ACT1	-	DPL1	FPT1	
F4	SC	RBC	PT1	-	-	DPL1	FPT1	

Notes to Schedule:
1.
2.

General Notes:
1. All restrooms are to receive floor to ceiling tile unless noted otherwise.
2.

Room Finish Type Schedule 1

Equipment Schedule						
Mark	Description	Manufacturer	Model	Contractor Furnished	Owner Furnished	Notes

Notes to Schedule:
1.
2.

General Notes:
1. Provide treated wood blocking in walls for mounting of equipment as recommended by the manufacturer.
2.

Equipment Schedule 12

Toilet Accessories Schedule				
Mark	Description	Manufacturer	Model	Notes
T1	Mirror	Bobrick	B-165 2436	
T2	Soap Dispenser	Bobrick	-	Owner furnished contractor installed
T3	Grab Bar 42"	Bobrick	B-5806.99 x 42	
T4	Grab Bar 36"	Bobrick	B-5806.99 x 36	
T5	Toilet Tissue Dispenser	Bobrick	-	Owner furnished contractor installed
T6	Automatic Towel and Waste Unit	Bobrick	-	

Notes to Schedule:
1. Contractor to confirm toilet accessories' model and manufacturer with Owner.

General Notes:
1. Where not shown on elevations, mount all accessories as shown on 14' G-100, or if not shown at the manufacturer's recommended mounting height and in compliance with all local and national accessibility requirements.
2. Provide treated wood blocking in walls for mounting of all accessories as recommended by the manufacturer.
3. All accessories must meet the Texas Accessibility Standards requirements.

Toilet Accessories Schedule 11



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Texas Registered Engineering Firm F-2113



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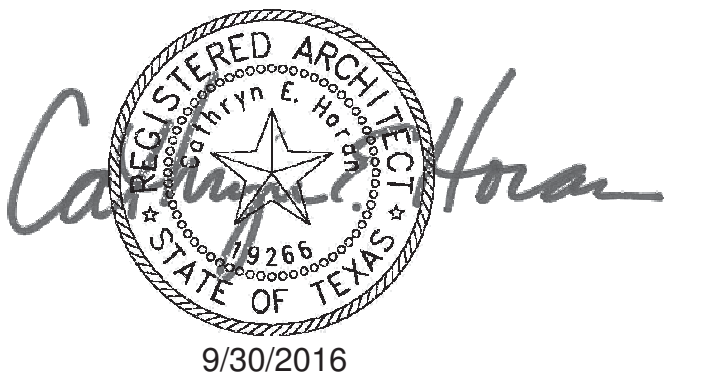


3120 Southwest Freeway, Suite 410
Houston, TX 77098
713.807.8911



4	Issued for Construction	09/30/2016
3	100% CD Review	06/24/2016
2	90% CD Review	05/13/2016
1	50% Construction Documents	02/10/2016
No.	Description	Date

Keyplan



The University of Texas
Health Science Center at
Houston

MSB SWITCHGEAR
REPLACEMENT
Schedules

PWP Project Number	215-218R
Date	09/30/2016
Designed By	JK
Checked By	JK
Drawing No.	A-600

Scale

GENERAL NOTES

I. CODES AND SPECIFICATIONS

A. GENERAL BUILDING CODE

1. International Building Code 2012 with City of Houston Amendments

B. STRUCTURAL STEEL CODES

1. AISC - Load and Resistance Factor Design, Thirteenth Edition.
2. ANSI/AWS D1.1, American Welding Society - Steel.
3. Standard Practice for Steel Buildings and Bridges.
4. Structural Joints Using ASTM A 325 and A 400 Bolts as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

C. CONFLICTS IN STRUCTURAL REQUIREMENTS

1. Where conflicts exists between the various publications as specified herein, the strictest requirements of the various publications shall govern unless noted otherwise. Where conflict exists among the various parts of the Structural Contract Documents, (Structural Drawings, General Notes, Specifications) the strictest requirements shall govern.

All Codes and Specifications listed above shall include all amendments and addenda in force at the date of the contract documents.

II. TYPICAL DETAILS

- A. Details labeled "Typical Details" on the Drawings shall apply to all situations on the Project that are the same or similar to those specifically detailed. Such details shall apply whether or not they are keyed in at each location. Questions regarding applicability of typical details shall be determined by the Engineer.

III. DESIGN CRITERIA

A. DEAD LOADS

1. Dead loads. Dead load materials assumed in the design are shown on the Architectural and Structural Drawings. Any changes in construction materials from those shown on the Architectural or Structural Drawings shall be reported by the General Contractor to the Structural Engineer for verification of load carrying capacity of the structure.
2. Mechanical Rooms: Loadings for mechanical rooms are based on the minimum live loads as specified in Paragraph B, below unless the weights of the actual equipment including housekeeping pads as shown on the Mechanical Drawings are larger, in which case, the actual loads are used. The General Contractor shall submit weights to the Structural Engineer for all equipment placed in mechanical rooms and rooftops for verification of loads used in the design and shall report any changes in location, number of pieces, and weight of equipment as shown on the Mechanical Drawings.

B. LIVE LOADS

CATEGORY	UNIFORM LOAD (PSF)	CONCENTRATED LOAD (#)
Walkways and elevated Platforms (other than exit ways)	60	0
Guard Rails & Hand Rails	50 plf or 200 lbs. applied at top rail in any direction. Intermediate rails = 25 plf.	
Stairways, Exit Facilities	100	300

Live loads have been reduced on any member based on the Code cited in CODES AND SPECIFICATIONS, Paragraph I. A.

IV. STRUCTURAL STEEL

A. MATERIAL

1. All hot rolled steel plates, shapes and bars shall be new steel conforming to ASTM Specification AB.
2. All wide flanged sections shall conform to ASTM A992, Grade 50.
3. All tubes shall conform to ASTM A500 Grade B.
4. All connection material shall conform to ASTM A36 unless stronger required.
5. All pipe columns shall conform to ASTM A53, Grade B or ASTM A501.
6. All anchor rods shall conform to ASTM F 1554, Gr. 36, unless noted otherwise.

B. CONNECTIONS

1. Typical connection details are indicated on the Drawings.
2. The design of all steel connections shall be performed under the direct supervision of a registered professional engineer in the state where the project is located, employed by the fabricator. Calculations sealed by the fabricator's professional engineer must be submitted if requested.
3. It is the intention of the plans and specifications that shop connections be welded or bolted and that field connections be bolted, unless detailed otherwise on the Drawings.
4. All typical beam simple connections shall be standard double angle or single angle framed beam connections. Shear tab connections may be used at locations where double angle connections are not possible. Seated beam connections shall not be used unless indicated on the Drawings. Provide full depth shear tab if beam frames on only one side of a girder.
5. Beam Reactions
 - a. Non-Composite beams: Design connections to support a reaction R (unless specified otherwise) equal to one half the total uniform load capacity from the table of Uniform Load Constants in the AISC Manual.

Add to the reaction listed above, any loads or reactions of members supported by the beam within three feet of beam end and the vertical components of forces in brace members framing into the beams.

6. Bracing connections shall develop full tensile forces at each end of the bracing member unless bracing forces are specified on the Drawings.
7. MC = Moment Connections
8. Welds:
 - a. All welds shall conform to the American Welding Society (AWS) standards.
 - b. All welding shall be performed by a welder certified in accordance to the AWS standards.
9. Bolts:
 - a. All bolts shall conform to ASTM A325 Type 1, High Strength Bolts. All bolts shall be designed as bearing bolts with threads included in the shear plane. Minimum bolt diameter shall be 3/4 inch. All bolts shall be tightened to a snug-tight position, unless noted below.
 - b. All bolts at braces and moment connections shall be tightened using load indicating washers or tension bolts.
 - c. All bolts shall be new and shall not be re-used.
10. All continuous deck edge angles and bent plates shall use full penetration butt welds at splices.
11. Steel-to-Aluminum Connections
 - a. Provide Neoprene washers to fully separate aluminum and steel materials. Use only stainless steel fasteners with complete separation of steel from aluminum.

C. MISCELLANEOUS - STAIRS, HANDRAILS, AND ACCESS LADDERS

1. Handrails and guardrails (including attachment to structure) shall be designed by the fabricator for the loads indicated in Chapter 16 of the Building Code. Shop drawings shall be sealed by a Professional Engineer in the State of Texas, representing the fabricator.
2. Stairs shall be designed by the fabricator for code required loads of Chapter 16. Shop drawings shall be sealed by a Professional Engineer in the State of Texas, representing the fabricator.
3. Access ladders (including attachment to structure) shall be designed by the fabricator for the loads indicated in Chapter 16 of the Building Code. Shop drawings shall be sealed by a Professional Engineer in the State of Texas, representing the fabricator.

V. STRUCTURAL BOLTS AND THREADED FASTENERS

A. SPECIFICATION

1. A325 Bolts: All bolts in structural connections shall conform to ASTM A325 Type 1, High Strength Bolts for Structural Steel Joints, unless indicated otherwise on the Drawings.

B. DESIGN

1. Minimum Bolt Diameter: Minimum bolt diameter shall be 3/4 inch unless noted otherwise
2. Connection Type: Unless noted otherwise on the Drawings or in these General Notes, all bolted connections shall be bearing type connections using standard holes (hole diameter nominally 1/16 inch in excess of nominal bolt diameter with threads included in the shear planes. All bolts at braces and moment connections shall be tightened using load indicating washers or tension bolts.

C. INSTALLATION

1. Fastener Tension: High strength bearing bolts shall be tightened using an impact wrench to a snug tight condition. The snug tight condition is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. At braces and moment connections, bolts shall be tightened as required by the load indicating washers or tension bolts.

VI. WELDING OF STRUCTURAL STEEL

A. WELDER CERTIFICATION

1. All shop and field welders shall be certified according to AWS procedures for the welding process and welding position used.

B. MINIMUM SIZE AND STRENGTH

1. Fillet Welds: Minimum size of fillet welds shall be as specified in the AISC Manual.
2. Partial Penetration Groove Welds: The minimum effective throat thickness of partial penetration groove welds shall be as specified in the AISC Manual.
3. Minimum Strength of Welded Connections: Unless noted otherwise on the drawings, all shop and field welds shall develop the full tensile strength of the member or elements joined.
 - a. All members with moment connections, noted on the drawings with "MC", shall be welded to develop the full flexural capacity of the member, unless noted otherwise on the Drawings.
4. Connection of all miscellaneous steel shall consist of 1/4" fillet welds all-around (minimum) if no other connection information is provided on the structural drawings.
5. At slotted connections, and anywhere a gap may exist between base metal and connecting material, weld size shall be increased to account for gap width (per AWS recommendations).

C. FILLER METAL REQUIREMENTS

1. Strength: Weld shall be as specified in the AISC Manual.
2. Electrodes. Electrodes for various welding processes shall be as specified below:
 - a. SMAW: E70XX low hydrogen
 - b. SAW: F7X-EXXX

D. WELDING

1. All welding shall comply with the requirements of AWS.
2. All full penetration welds shall be tested to verify compliance u.n.o..
3. All fillet welds shall be visually inspected u.n.o.

VII. SUBMITTALS

A. SHOP DRAWINGS

1. The General Contractor shall submit for Engineer review shop drawings for the following items:
 - a. Structural Steel (*)
 - b. Steel Stair (*)
 - c. Guard Rails and Hand Rails (*)
 - d. Miscellaneous Steel

Items marked (*) shall have shop drawings sealed by a registered engineer in the state where the project is located. Items marked (#) shall be submitted to Engineer for Owner's record only and will not have Engineer's shop drawing stamp.

2. All shop drawings must be reviewed and sealed by the General Contractor prior to submittal.
3. Contractor shall submit a minimum of two sets of blackline prints for all shop drawings specified to be returned by the Engineer.
4. The omission from the shop drawings of any material required by the Contract Documents to be furnished shall not relieve the contractor of the responsibility of furnishing and installing such materials, regardless of whether the shop drawings have been reviewed and approved.

B. MANUFACTURER'S LITERATURE

1. Submit two copies of manufacturer's literature for all materials and products used in construction on the project.

C. REPRODUCTION

1. The use of reproductions of these Contract Documents by any contractor, subcontractor, erector, fabricator, or material supplier in lieu of preparation of shop drawings signifies his acceptance of all information shown herein as correct, and obligates himself to any job expense, real or implied, arising due to any errors that may occur hereon.

VIII. MISCELLANEOUS

A. CONTRACT DOCUMENTS

1. It is the responsibility of the General Contractor to obtain all Contract Documents and latest addenda and to submit such documents to all subcontractors and material suppliers prior to the submittal of shop drawings, fabrication of any structural members, and erection in the field.

B. DRAWING CONFLICTS

1. The General Contractor shall compare the Architectural and Structural drawings and report any discrepancy between each set of drawings and within each set of drawings to the Architect and Engineer prior to the fabrication and installation of any structural members.

C. EXISTING CONDITIONS

1. The General Contractor shall verify all dimensions and existing conditions at the job site and report any discrepancies from assumed conditions shown on the drawings to the Architect and Engineer prior to the fabrication and erection of any members.

D. RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION

1. All structural elements of the project have been designed by the Structural Engineer to resist the required code vertical and lateral forces that could occur in the final completed structure only. It is the responsibility of the Contractor to provide all required bracing during construction to maintain the stability and safety of all structural elements during the construction process until the structure is tied together and completed.

IX. SITE OBSERVATION BY THE STRUCTURAL ENGINEER

A. GENERAL

1. The contract structural drawings and specifications represent the finished structure, and except where specifically shown, do not indicate the method or means of construction. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, and procedures, techniques, and sequence.
2. The Engineer shall not have control or charge of, and shall not be responsible for, construction means, methods, techniques, sequences, or procedures, for safety precautions and programs in connection with the work, for the acts or omission of the Contractor, Subcontractor, or any other persons performing any of the work, or for the failure of any of them to carry out the work in accordance with the contract documents.
3. Periodic site observation by field representatives are solely for the purpose of determining if the work of the Contractor is proceeding in accordance with the structural contract documents. This limited site observation should not be construed as exhaustive or continuous to check the quality or quantity of the work, but rather periodic in an effort to guard the Owner against defects or deficiencies in the work of the Contractor.



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THE UNIVERSITY of TEXAS

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GENERAL NOTES

SSA Project Number 1095-023-01

Date 06/27/2016

Designed By RGV

Checked By TM

Drawing No.

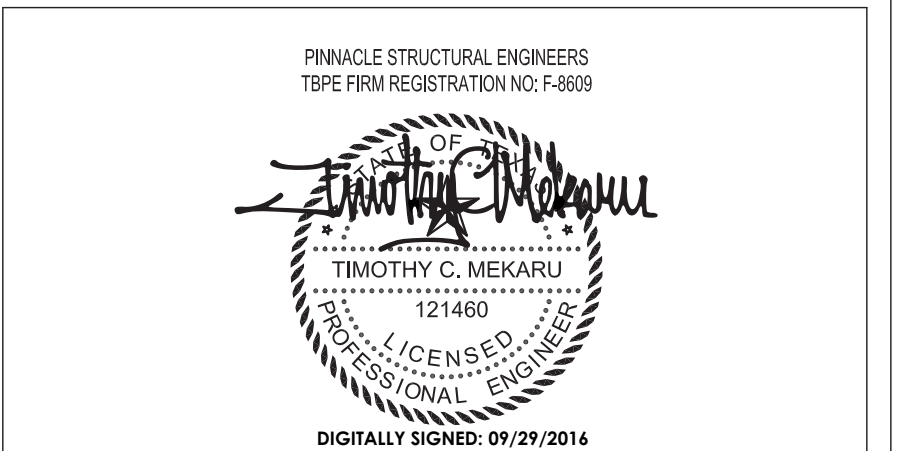
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Scale AS SHOWN



2	ISSUED FOR CONSTRUCTION	9/30/2016
1	100% CD REVIEW	6/27/2016
No.	Description	Date

Keyplan



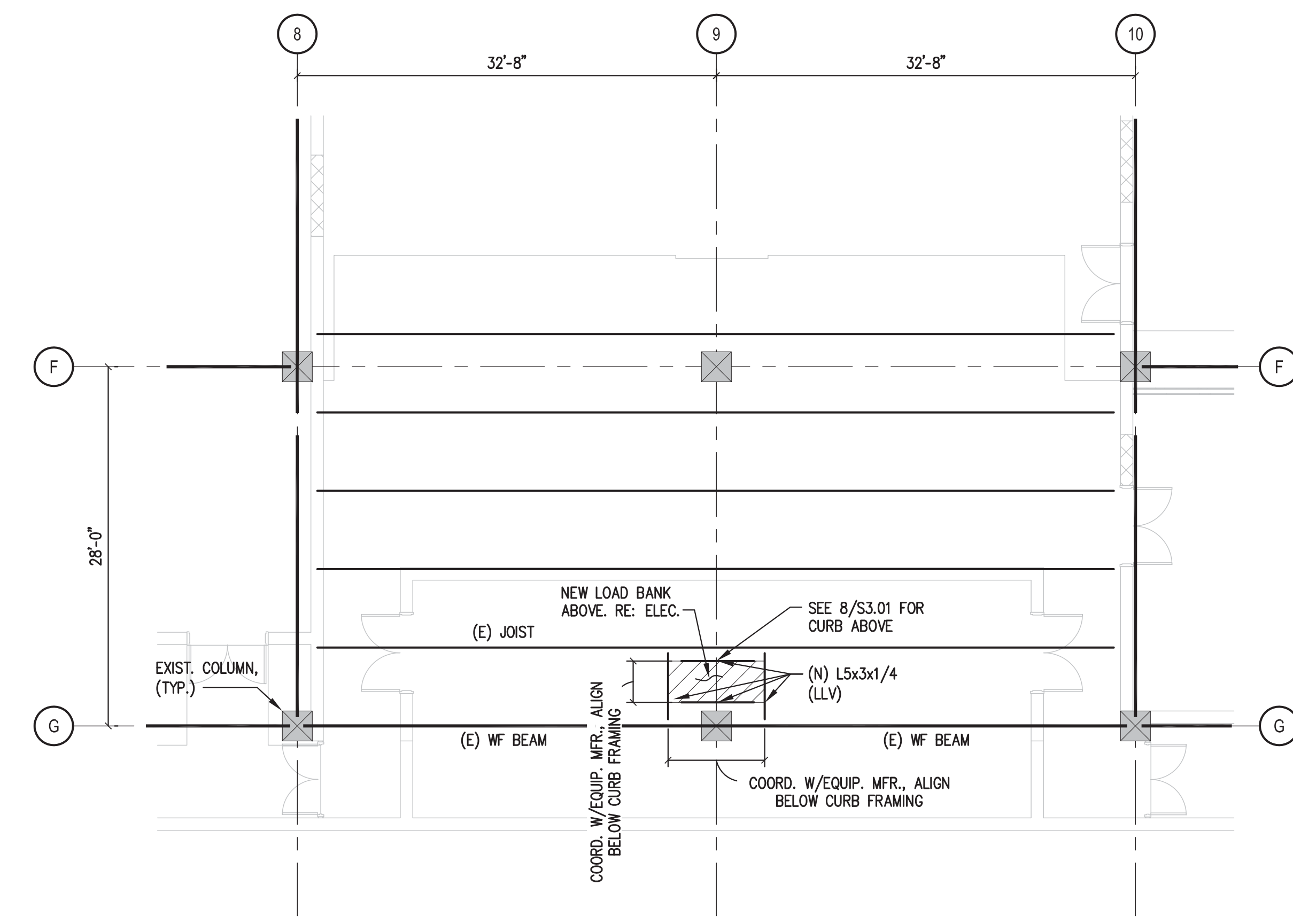
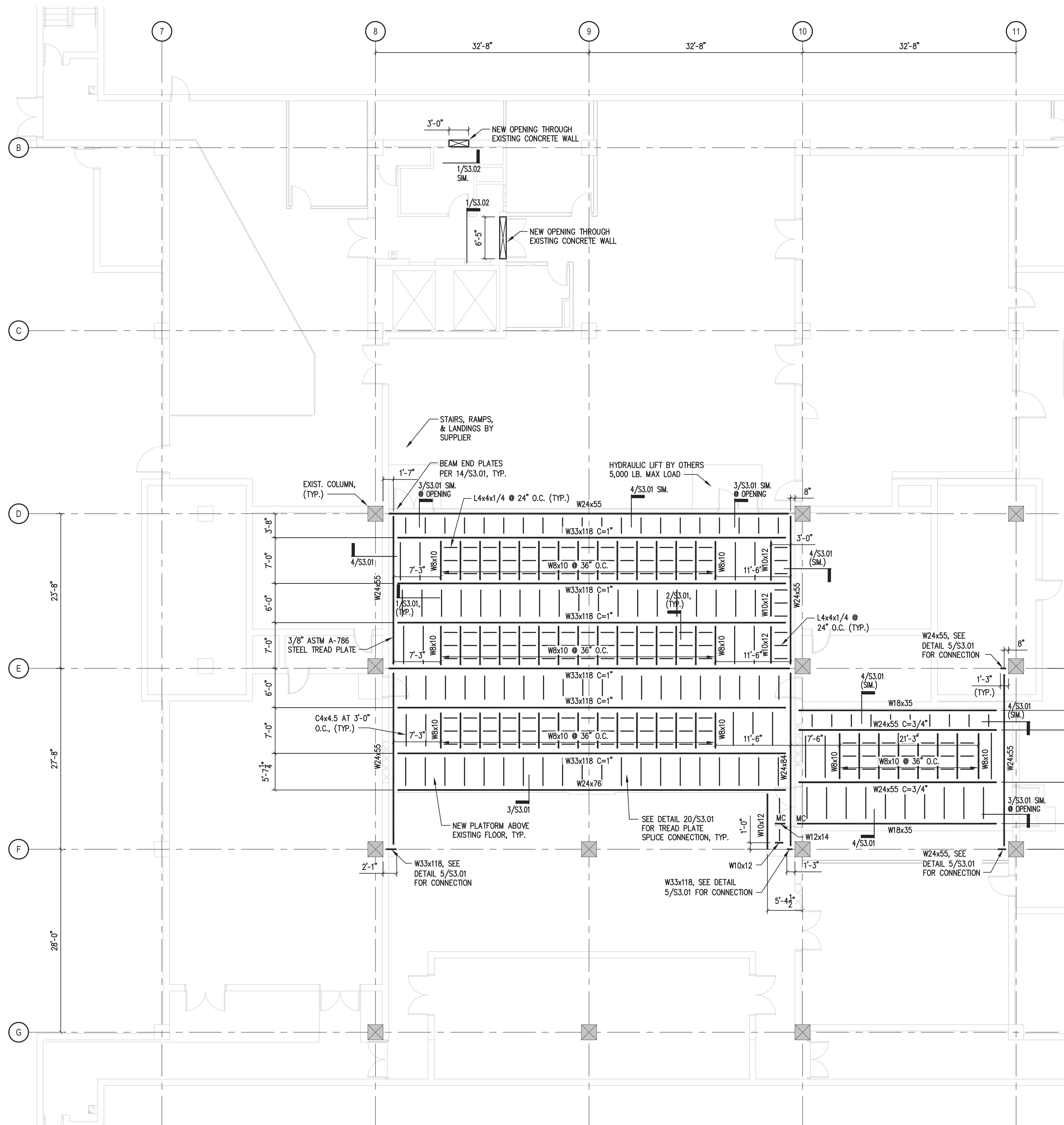
The University of Texas
Health Science Center at
Houston

**MSB
SWITCHGEAR
REPLACEMENT**

FRAMING PLANS

SSA Project Number	1095-023-01
Date	06/27/2016
Designed By	RGV
Checked By	TM
Drawing No.	S2.01

Scale AS SHOWN

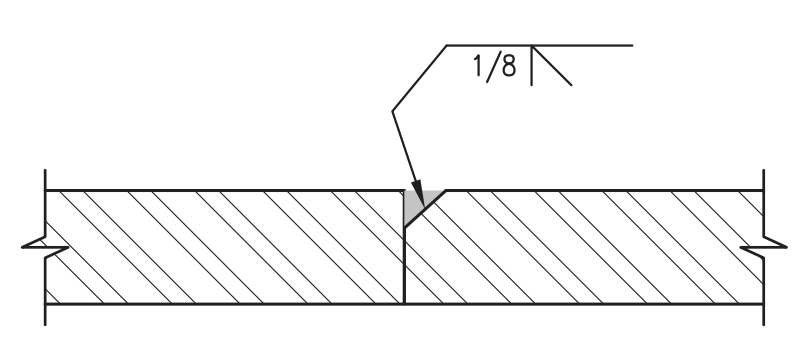


ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

- NOTES:
1. FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION.
 2. PROVIDE EQUIPMENT LAYOUT & WEIGHTS TO ENGINEER FOR POSSIBLE MODIFICATION PRIOR TO CONSTRUCTION.
 3. (E) = EXISTING, (N) = NEW
 4. SEE MEP DRAWINGS FOR NEW ROOF OPENING LOCATION ASSOCIATED WITH NEW LOAD BANK. REFER TO DETAIL 9/S3.01 FOR FRAMING.

FRAMING PLAN
SCALE: 1/8" = 1'-0"

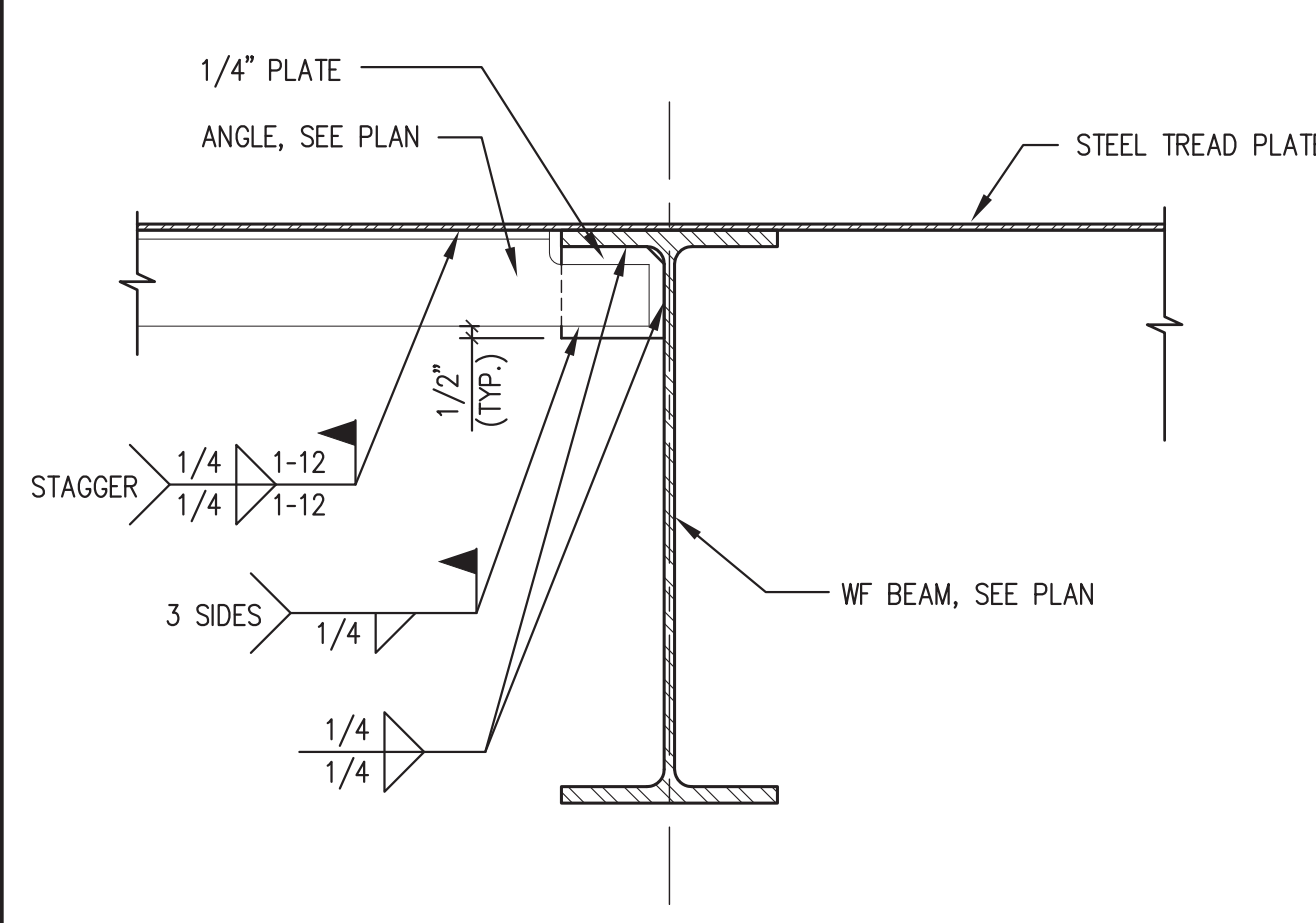
- NOTES:
1. FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION.
 2. PROVIDE EQUIPMENT LAYOUT & WEIGHTS TO ENGINEER FOR POSSIBLE MODIFICATION PRIOR TO CONSTRUCTION.
 3. T.O.S. = 3'-0" ABOVE HIGHEST EXISTING SLAB ELEVATION.
 4. MC = MOMENT CONNECTION.
 5. ALL WIDE FLANGE BEAM SPLICES SHALL BE FULLY C.P. WELDED. SPLICE DESIGN SHALL NOT ENCRUSH ABOVE T.O.S. ALL SHOP CONNECTION DETAILS INCLUDING SPLICES SHALL BE SUBMITTED TO E.O.R. FOR REVIEW PRIOR TO FABRICATION.
 6. SEE ARCH. DRAWINGS FOR LOCATIONS OF NEW OPENINGS IN EXISTING CMU WALLS. REFER TO 17/S3.01



TYPICAL PLATE TO PLATE CONNECTION

SCALE: 3" = 1'-0"

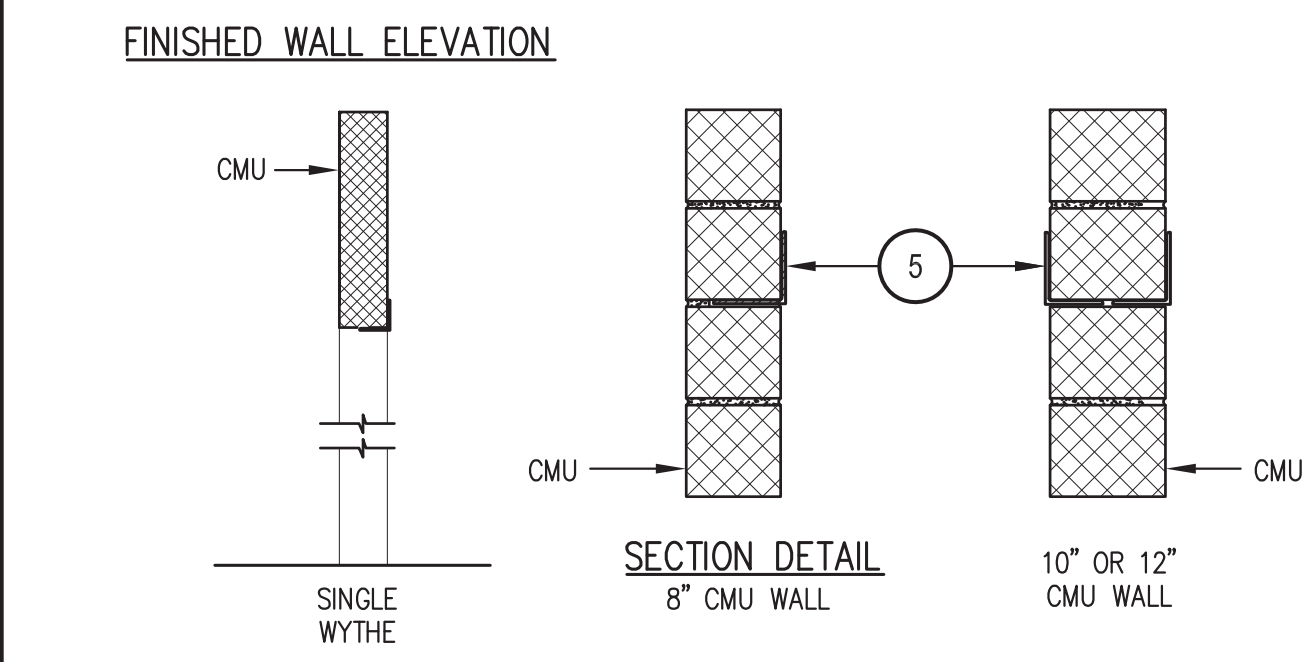
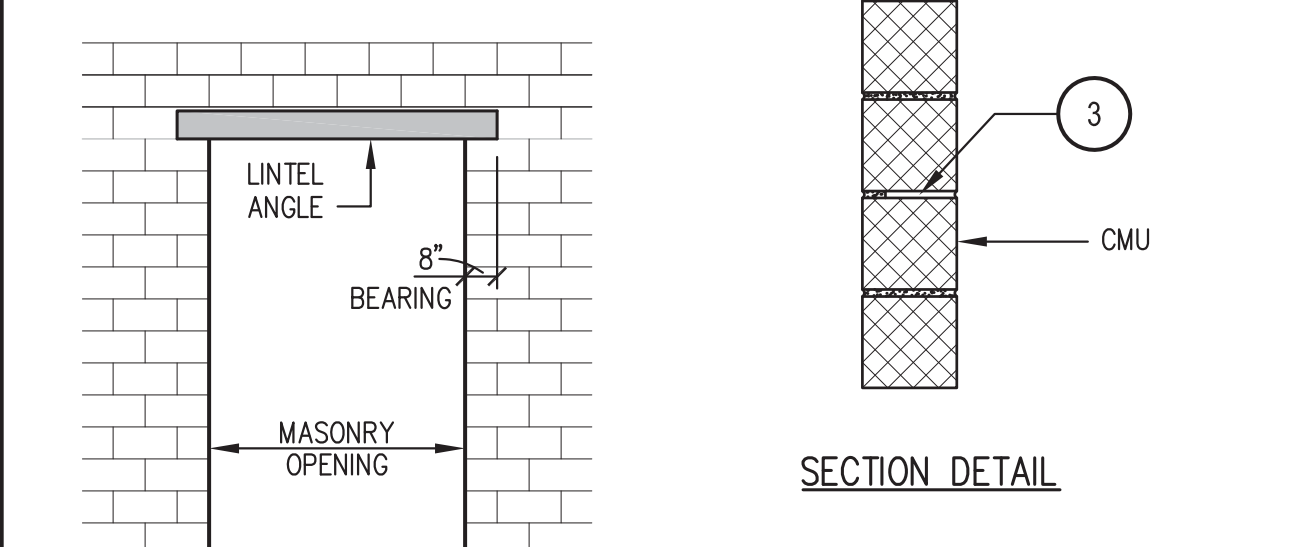
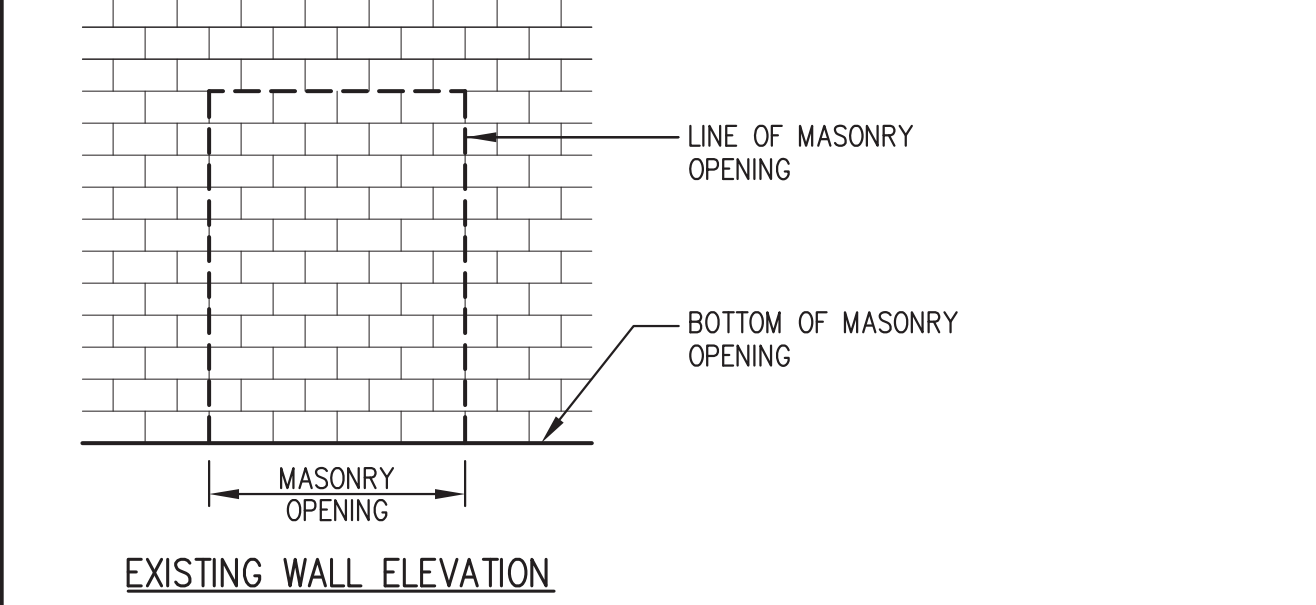
20



TYPICAL ANGLE TO BEAM CONNECTION

SCALE: 1 1/2" = 1'-0"

19

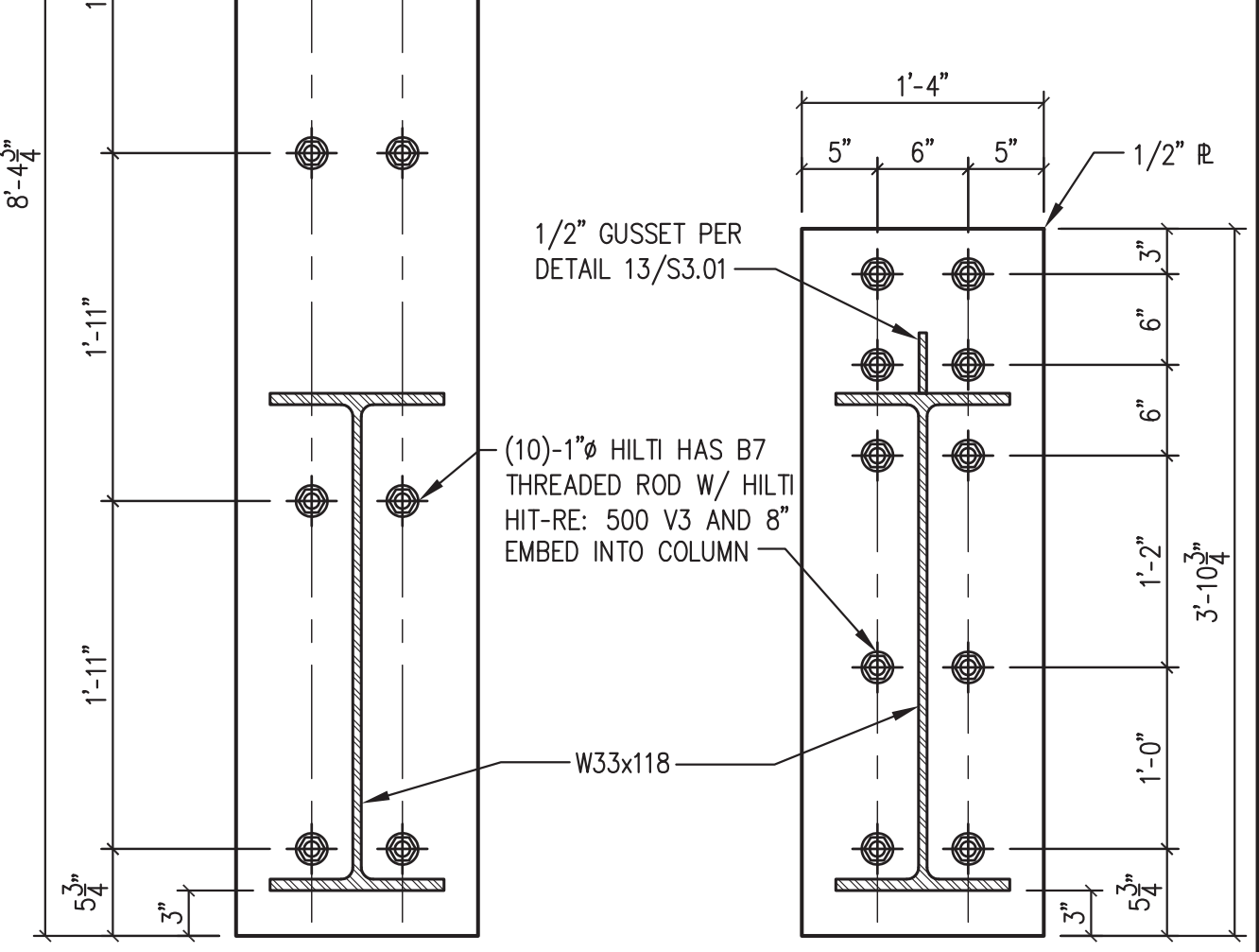
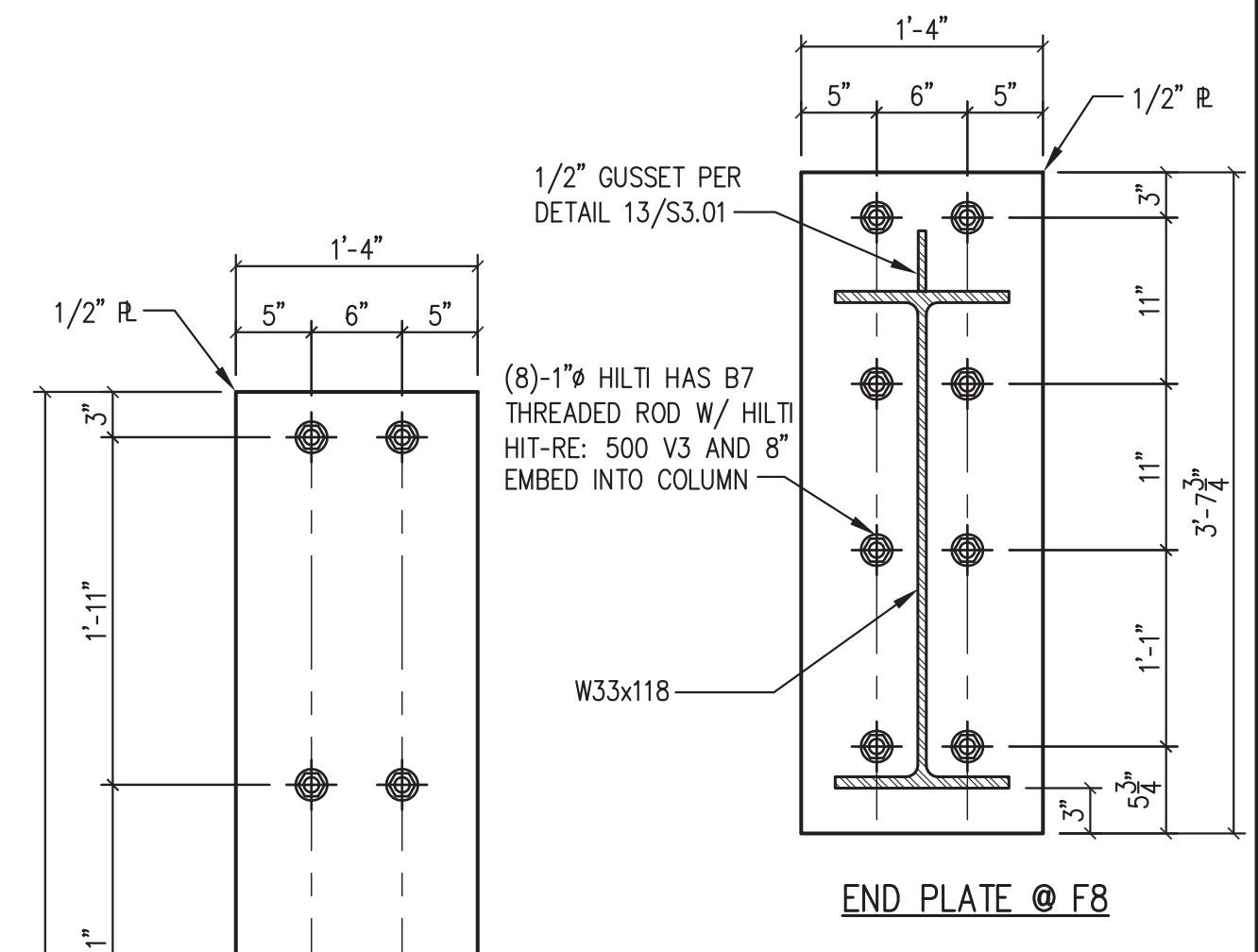


- CONSTRUCTION SEQUENCE:**
1. ESTABLISH THE SIZE OF THE MASONRY OPENING.
 2. FURNISH A LOOSE LINTEL ANGLE 1'-4" LONGER THAN THE MASONRY OPENING, THIS ALLOWS 8" OF BEARING AT EACH END.
 3. SYSTEMATICALLY REMOVE THE MORTAR FROM THE JOINT THAT IS TO RECEIVE THE HORIZONTAL LEG OF THE LOOSE LINTEL. LEAVE SOME MORTAR IN PLACE OR INSTALL SHIMS @ 12" O.C. TO SUPPORT THE UPPER MASONRY.
 4. SAW OUT THE JAMES.
 5. HAMMER THE ANGLE INTO PLACE. THIS STEP WILL DISLODGE THE SHIMS.
 6. REMOVE THE MASONRY AT THE DOOR OPENING.
 7. AT 8" CMU WALL, USE AN L6x6x5/16 FOR SPANS UP TO 8'-0".
 8. AT 8" CMU WALL, USE AN L5x4x5/16 (LTV) FOR SPANS UP TO 8'-0".
 9. AT 10" OR 12" CMU WALL, USE (2) L6x4x5/16 (LTV), ONE FROM EACH SIDE, FOR SPANS UP TO 8'-0".
 10. AT WALLS WITH MULTIPLE WYTHES, PROVIDE ANGLE SUPPORT AT EACH WYTHE.
 11. ALL ANGLES SHALL BE HOT-DIPPED GALVANIZED AT EXTERIOR OPENING.

TYPICAL DETAIL NEW OPENING IN EXISTING CMU WALL

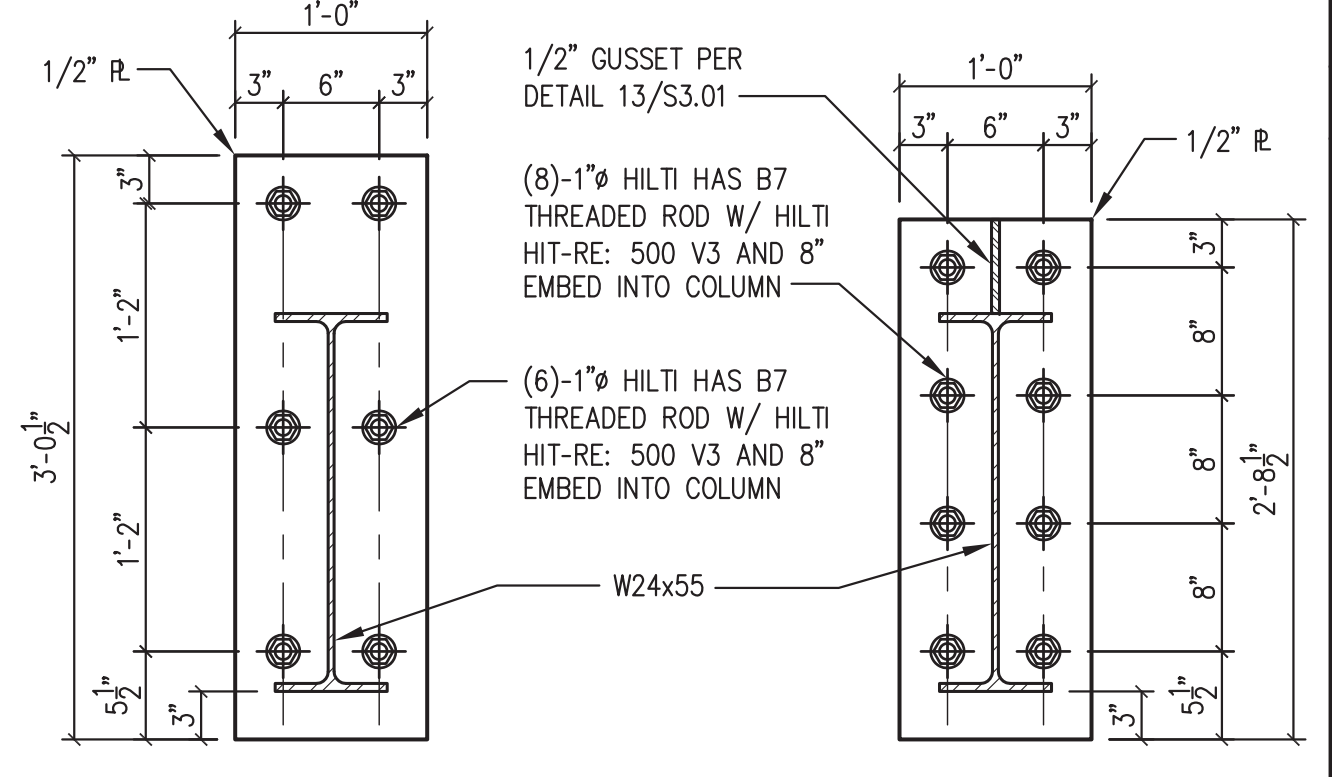
NO SCALE

17



END PLATE @ F8, E10

END PLATE @ F10



END PLATE @ D8, D10

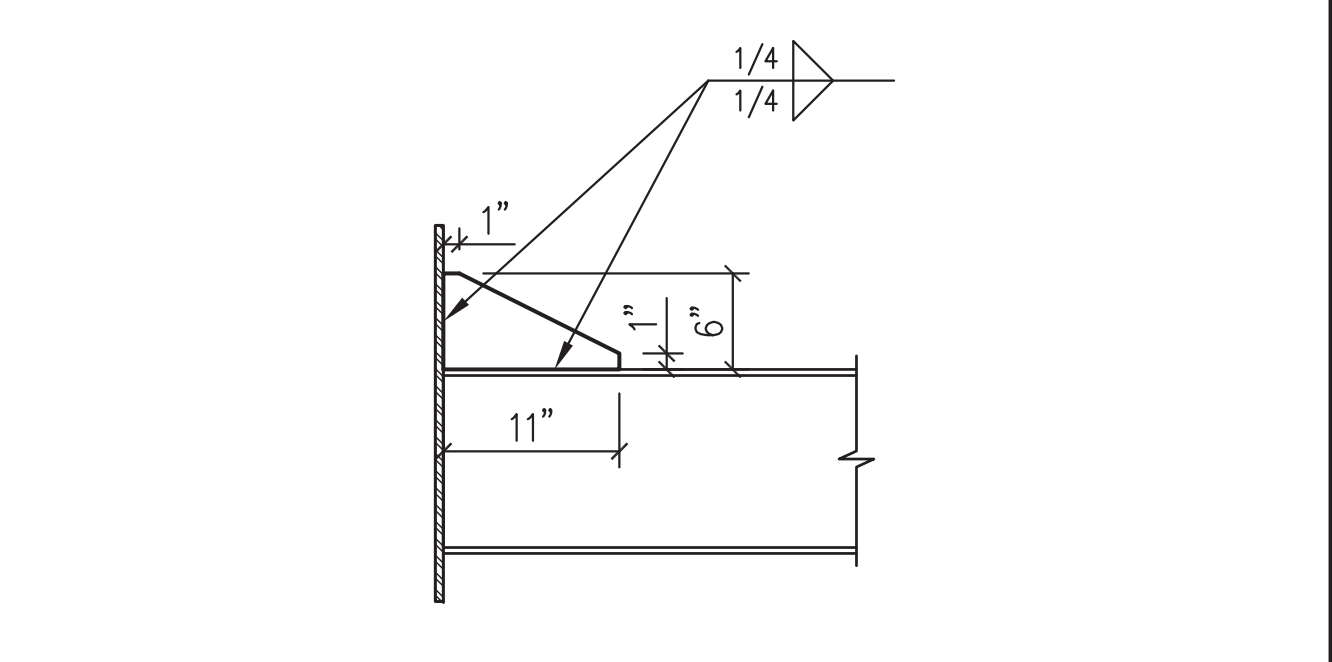
END PLATE @ E11, F11

- NOTES:**
1. MINIMUM FILLET WELD ACCORDING TO A.I.S.C. (1/4" MIN.).
 2. CONTRACTOR SHALL PROVIDE 1/8" THICK TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 3. SEE DETAIL 5/S3.01 FOR CONNECTION FROM BEAM TO PLATE AT STUB BEAM LOCATIONS PER PLAN.
 4. PROVIDE SHEAR TAB CONNECTIONS FOR FULL-LENGTH BEAMS.
 5. SCAN COLUMN PRIOR TO DRILLING HOLES TO CONFIRM NO INTERFERENCE WITH REBAR. NOTIFY A/E OF INTERFERENCE FOR POSSIBLE MODIFICATIONS.
 6. ANCHOR INSTALLERS SHALL BE CERTIFIED BY ANCHOR VENDOR.

TYPICAL DETAIL BEAM END PLATES

SCALE: 1" = 1'-0"

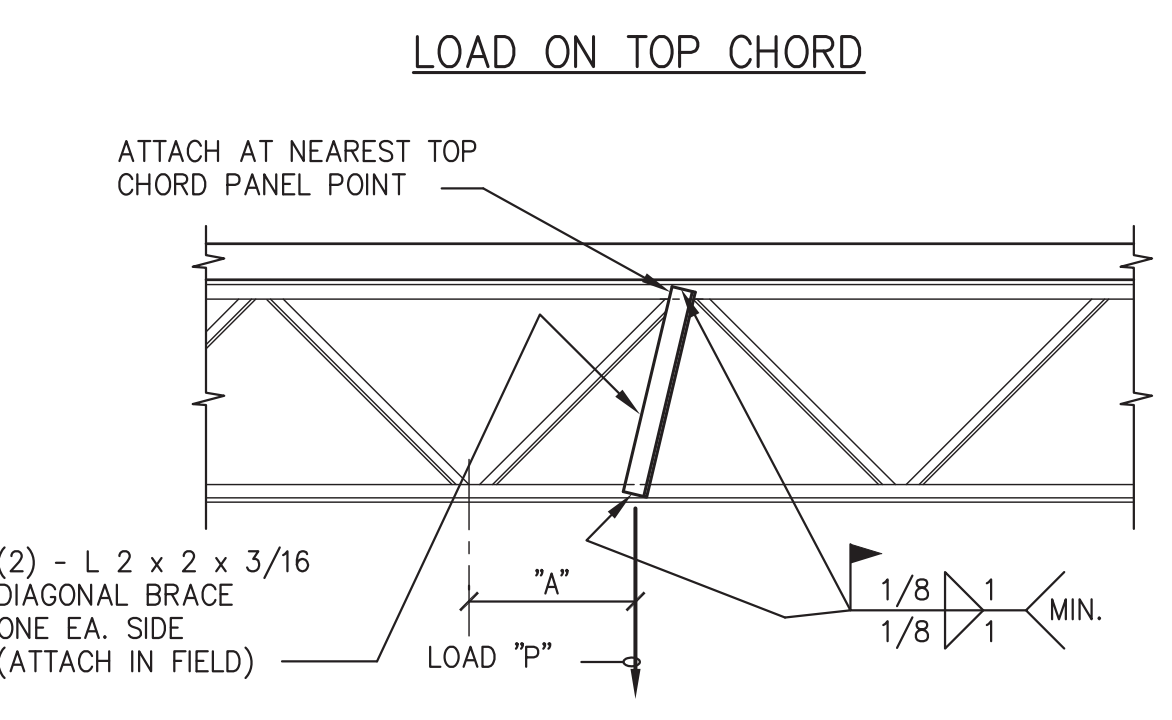
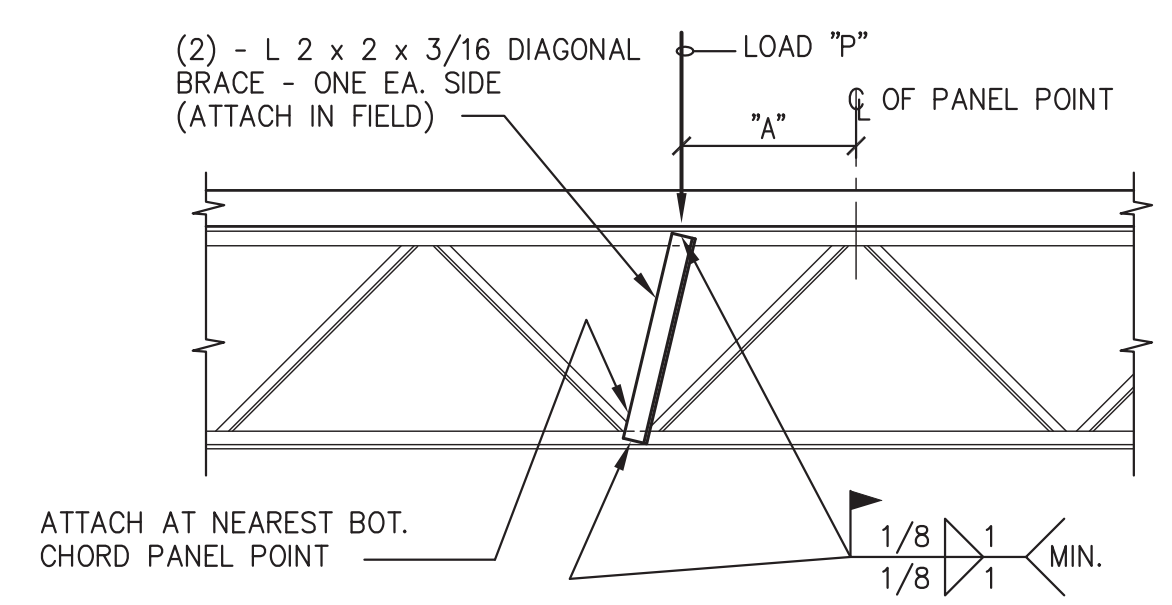
14



TYPICAL DETAIL TOP END PLATE GUSSET

SCALE: 1" = 1'-0"

13

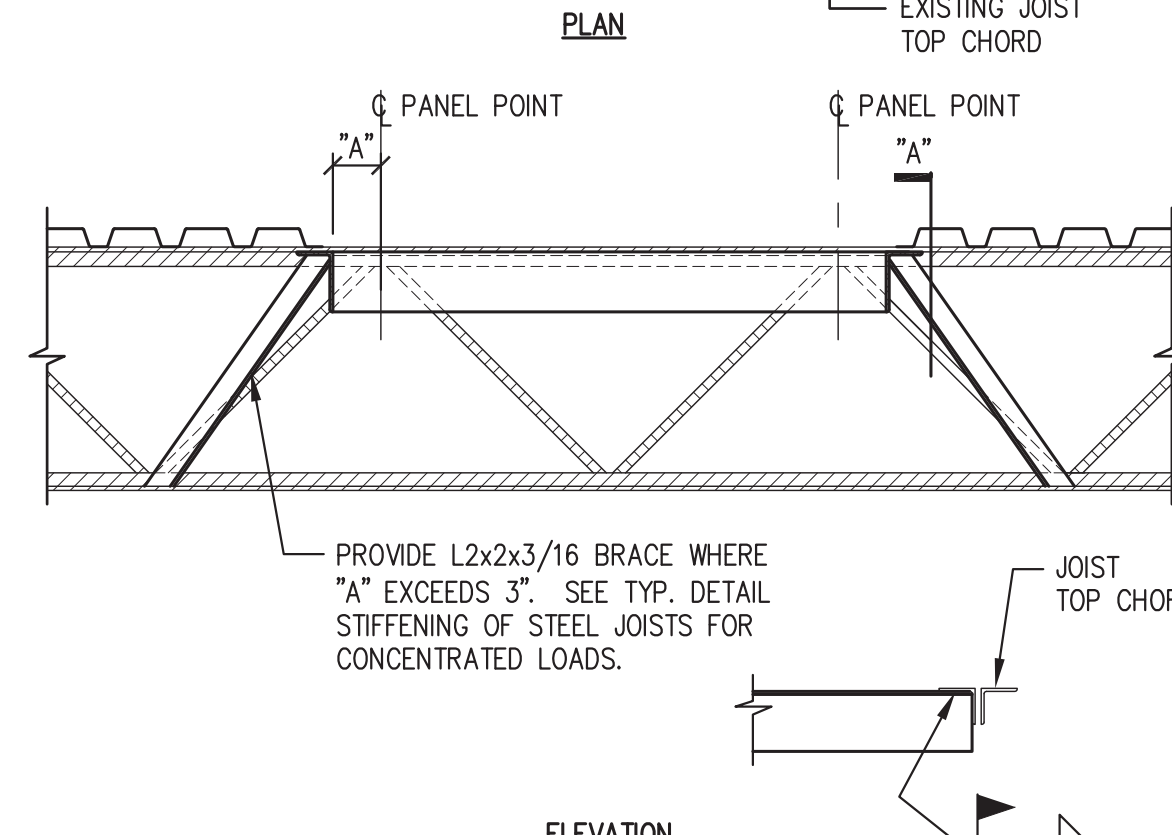
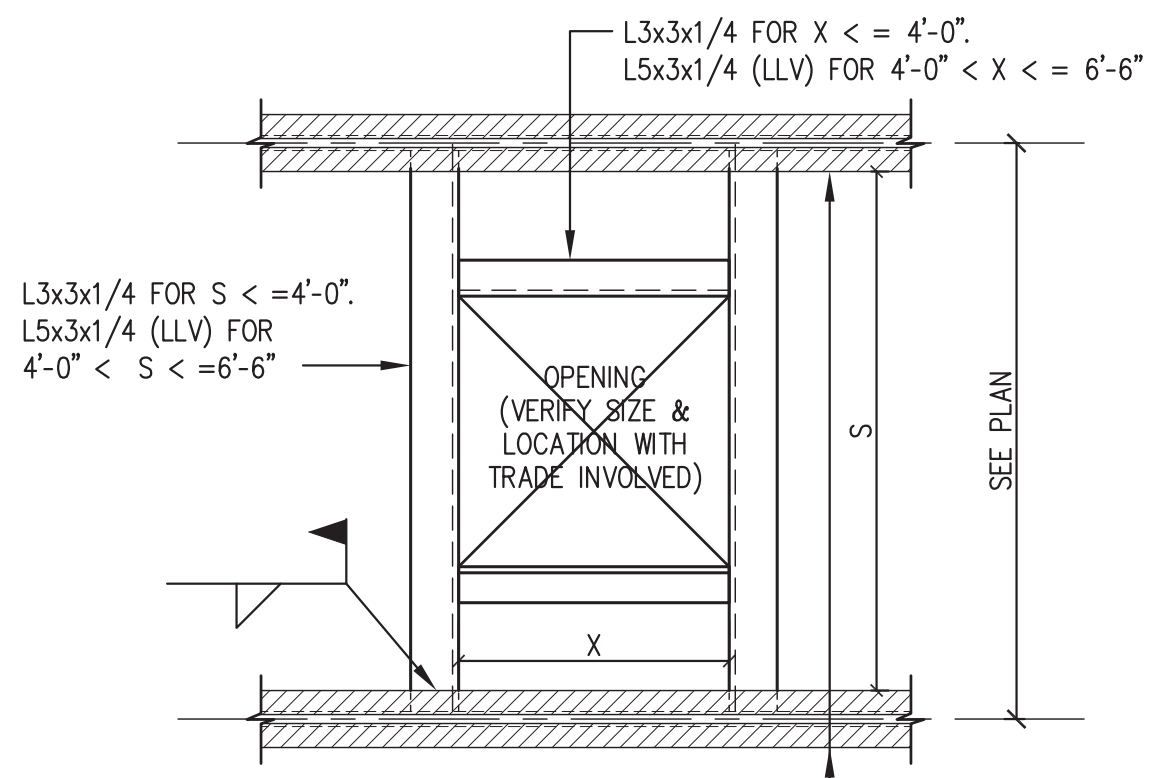


- NOTES:**
1. DIAGONAL BRACE IS NOT REQUIRED FOR "A" LESS THAN 3".
 2. PROVIDE DIAGONAL BRACE AT LOCATION OF CONCENTRATED LOADS SUCH AS HEAVY PIPES, MECHANICAL UNITS, HEAVY LIGHTS & ANY OTHER CONCENTRATED LOADS AS DIRECTED BY ENGINEER.
 3. P = CONCENTRATED LOAD.

TYPICAL DETAIL STIFFENING OF STEEL JOIST FOR CONCENTRATED LOADS

NO SCALE

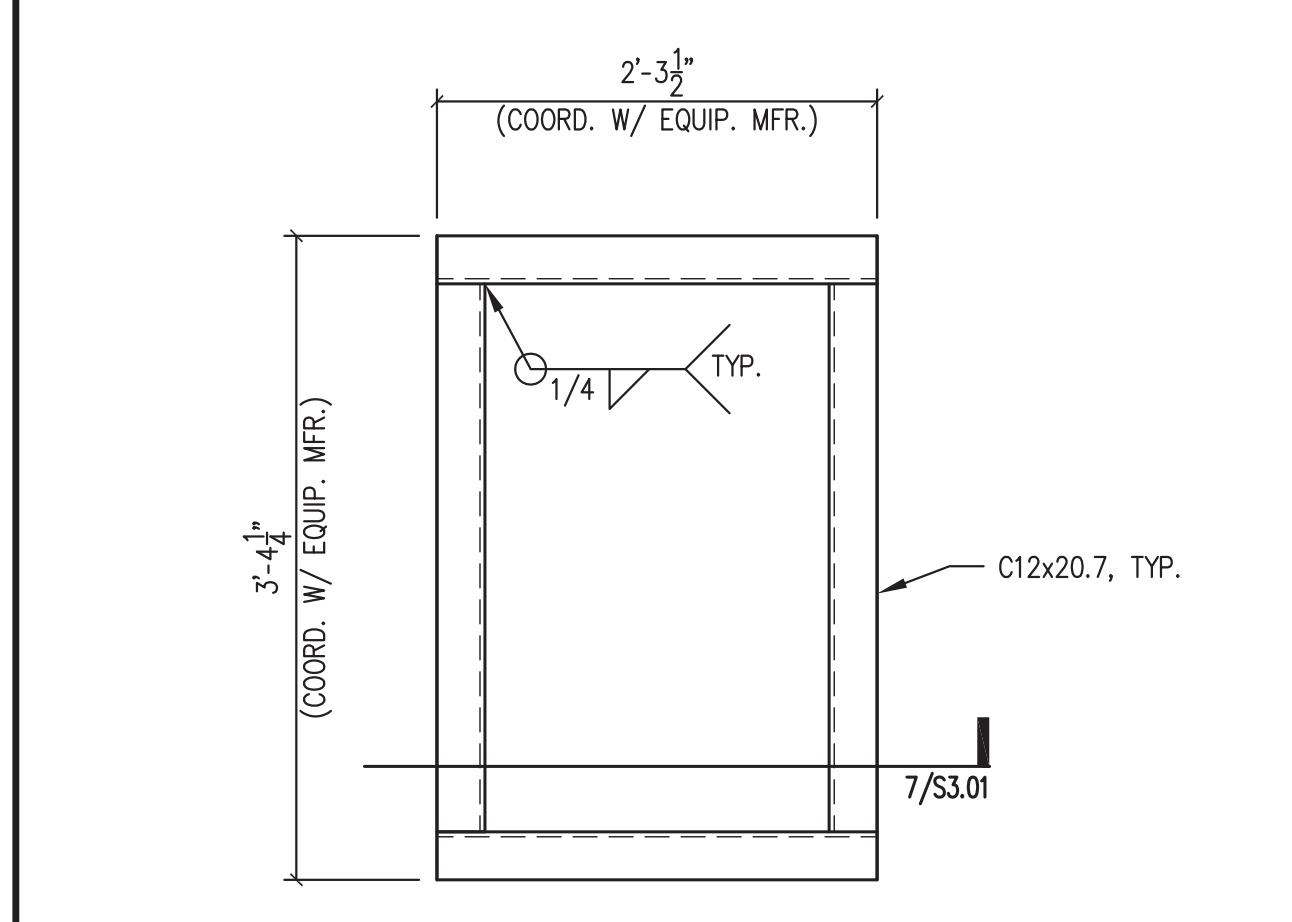
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TYPICAL DETAIL EXISTING OPEN WEB STEEL JOIST ROOF OPENING

NO SCALE

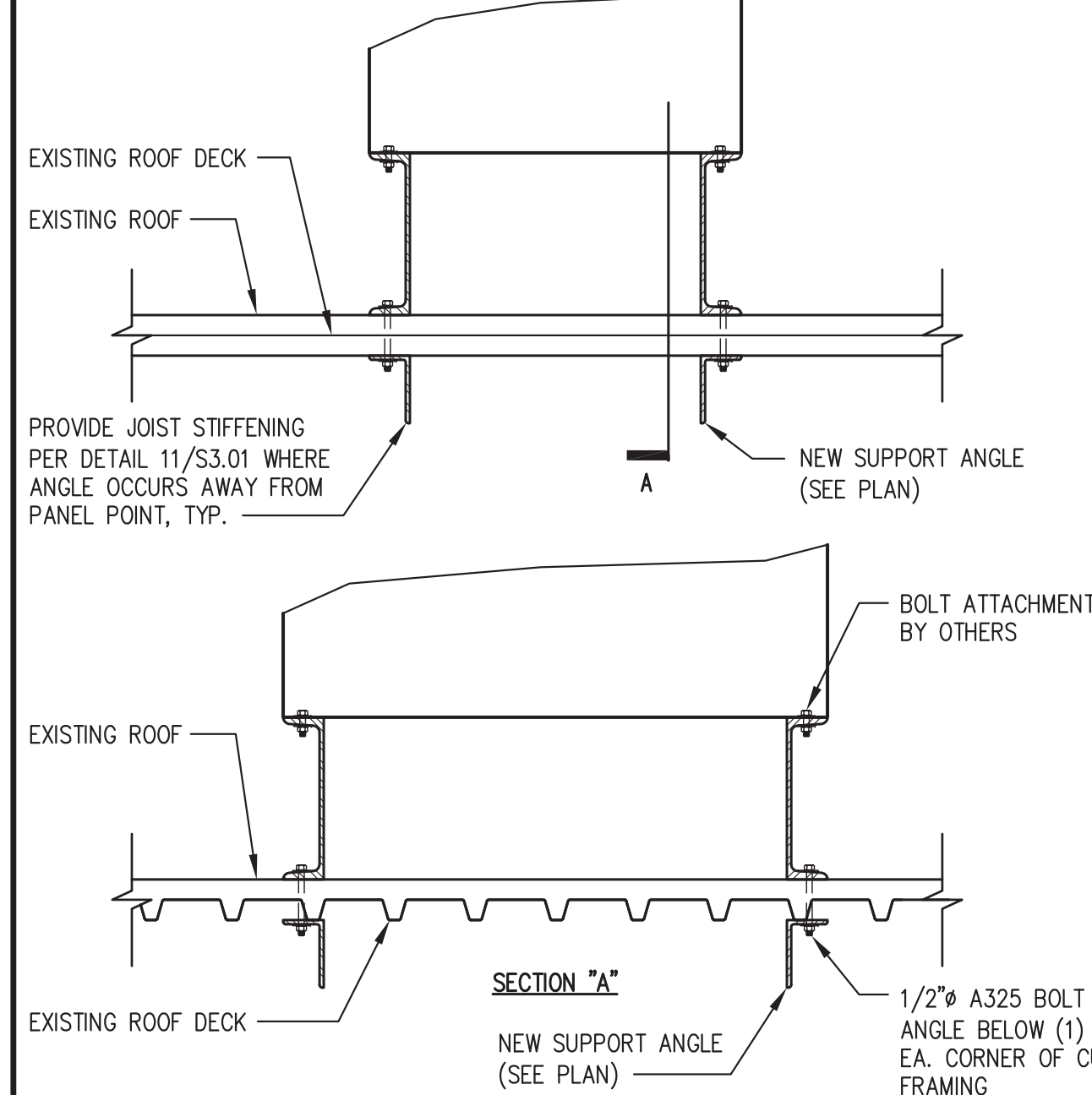
9



ROOFTOP LOAD BANK CURB - PLAN

SCALE: 1" = 1'-0"

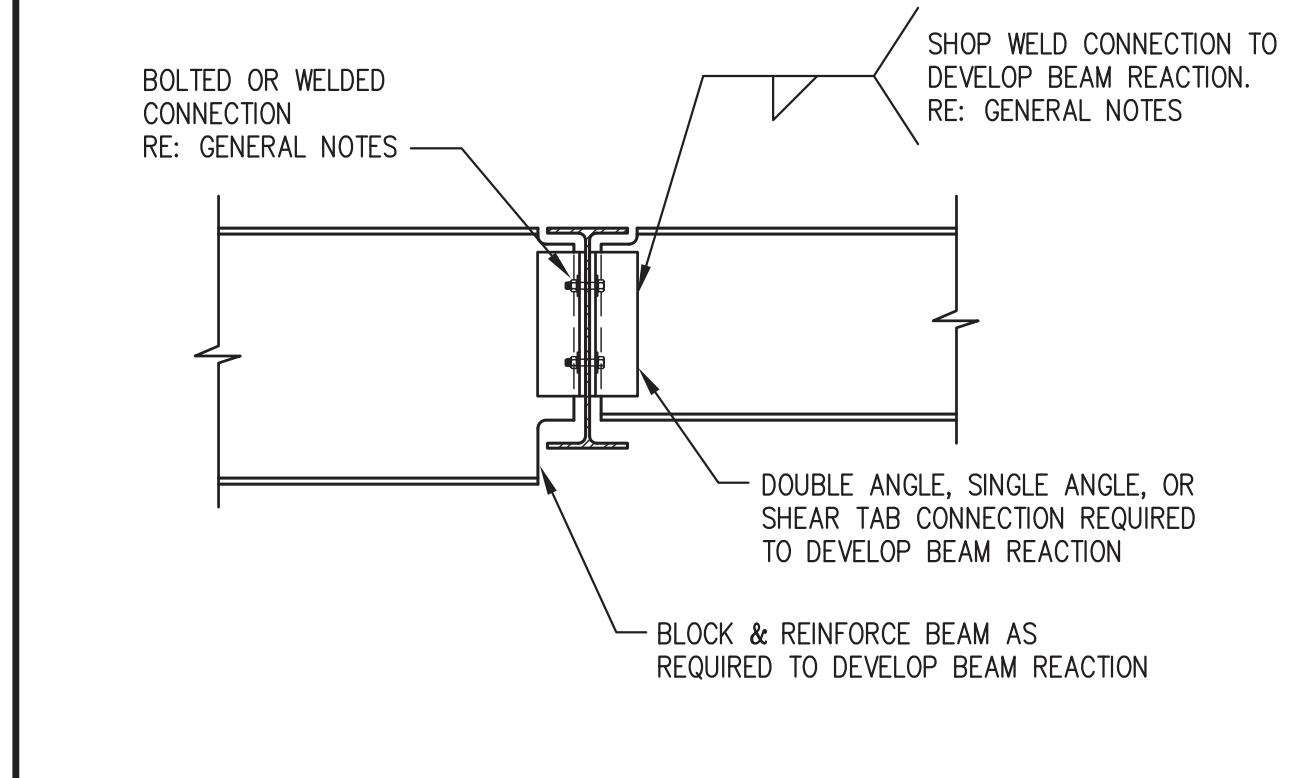
8



ROOFTOP LOAD BANK CURB - SECTIONS

SCALE: 1" = 1'-0"

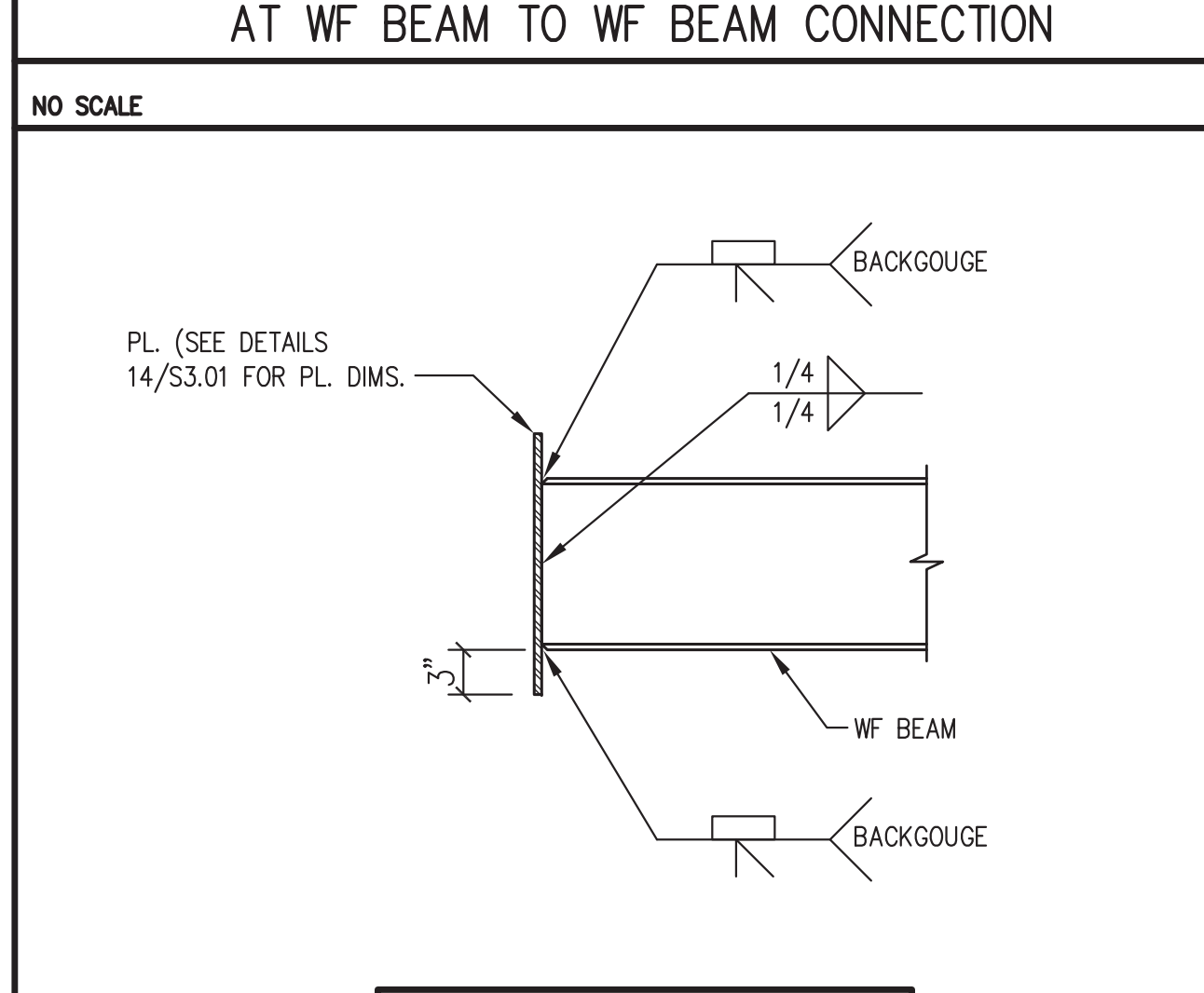
7



TYPICAL DETAIL AT WF BEAM TO WF BEAM CONNECTION

NO SCALE

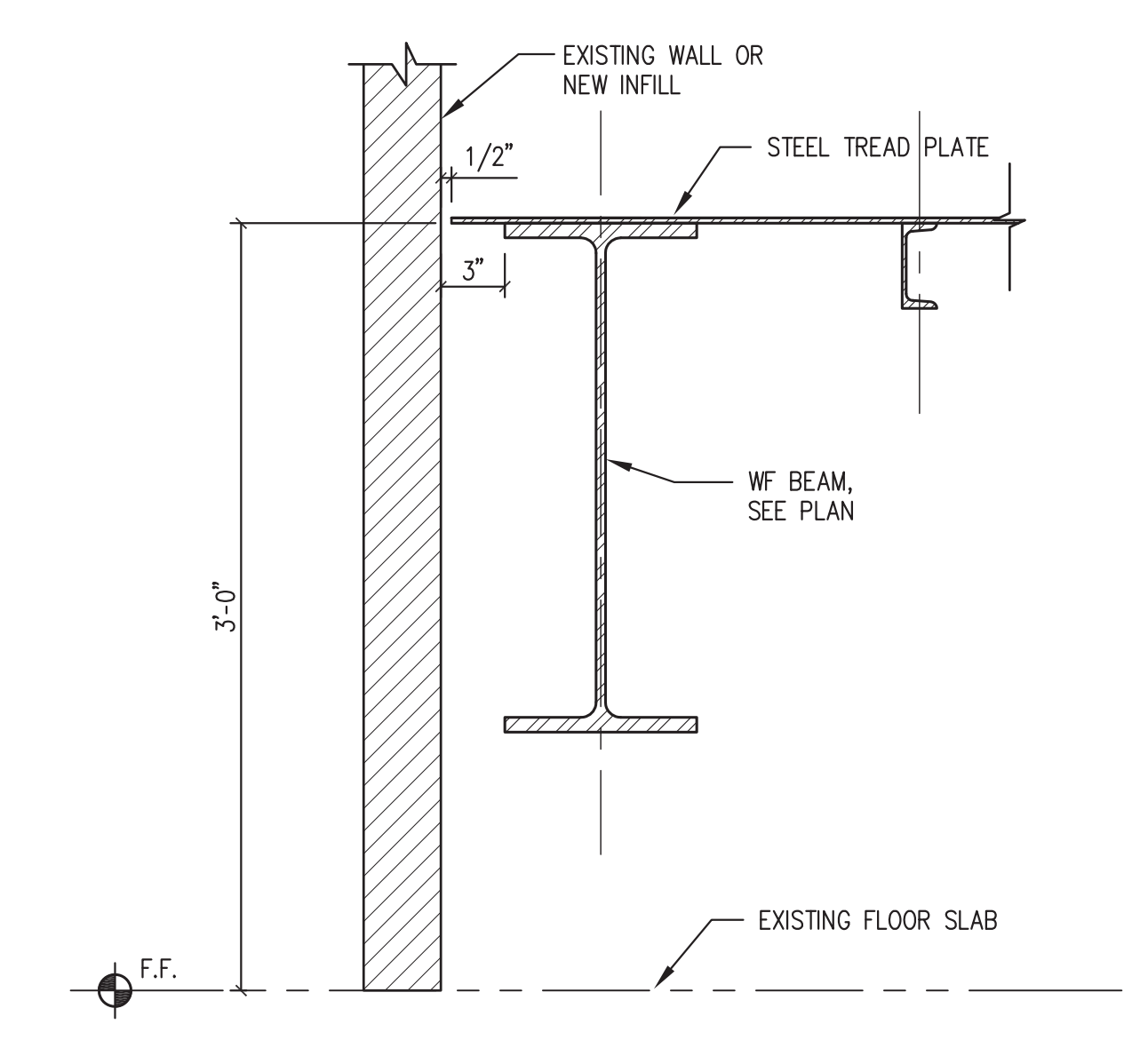
6



TYPICAL DETAIL BEAM TO END PLATE CONNECTION

SCALE: 1" = 1'-0"

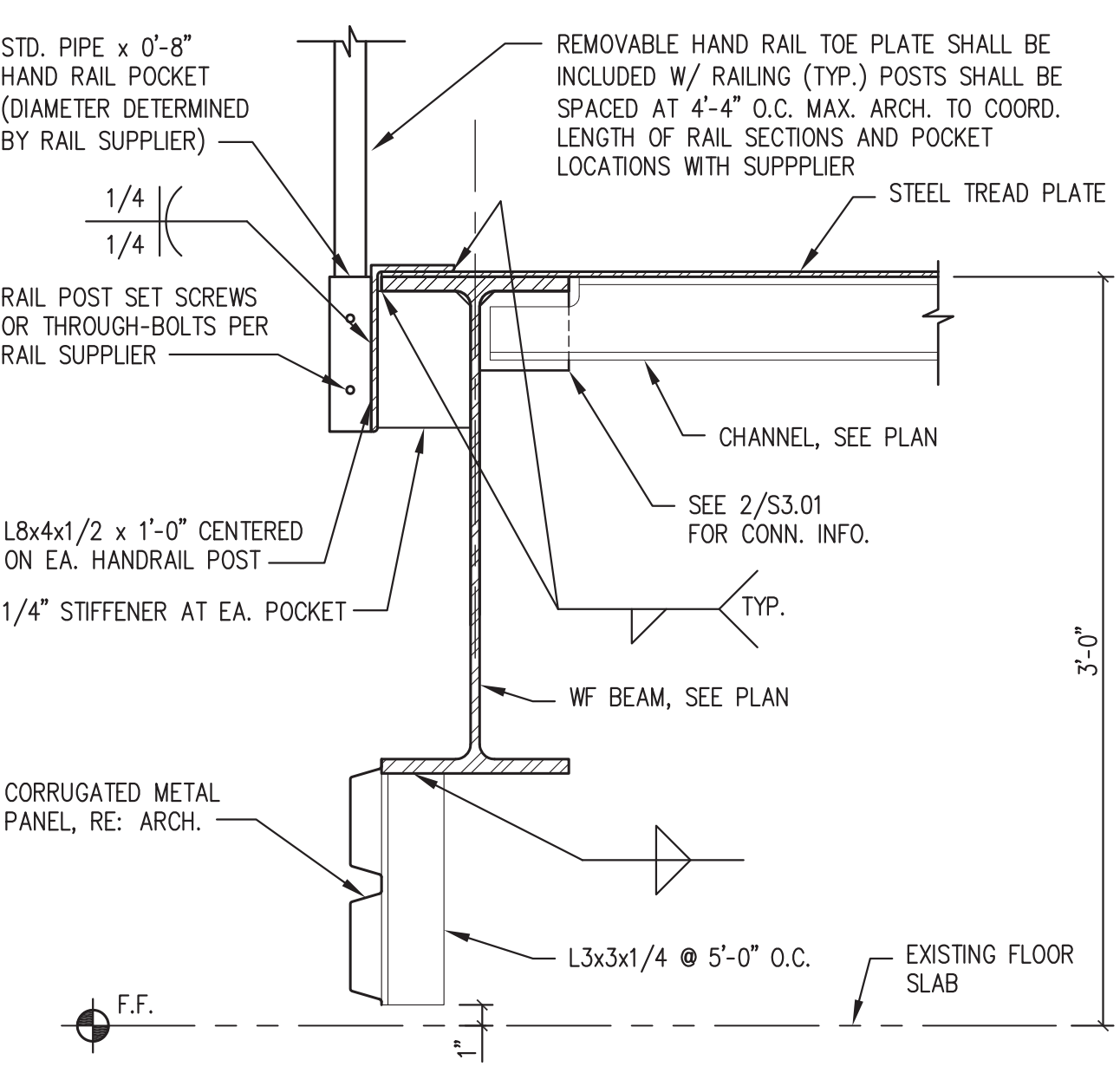
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TYPICAL SECTION AT PLATFORM EDGE

SCALE: 1 1/2" = 1'-0"

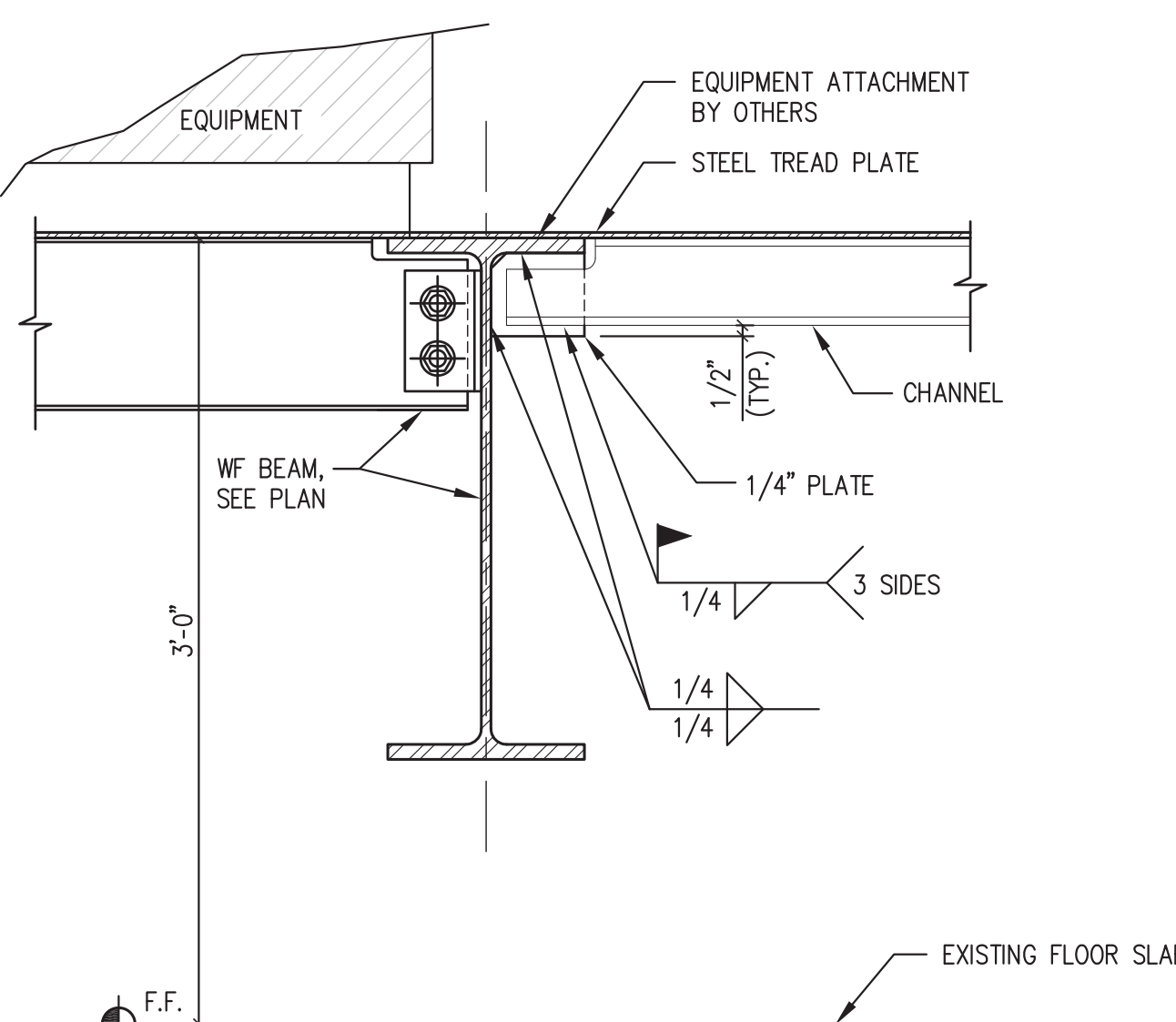
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TYPICAL SECTION AT PLATFORM EDGE W/ HANDRAIL

SCALE: 1 1/2" = 1'-0"

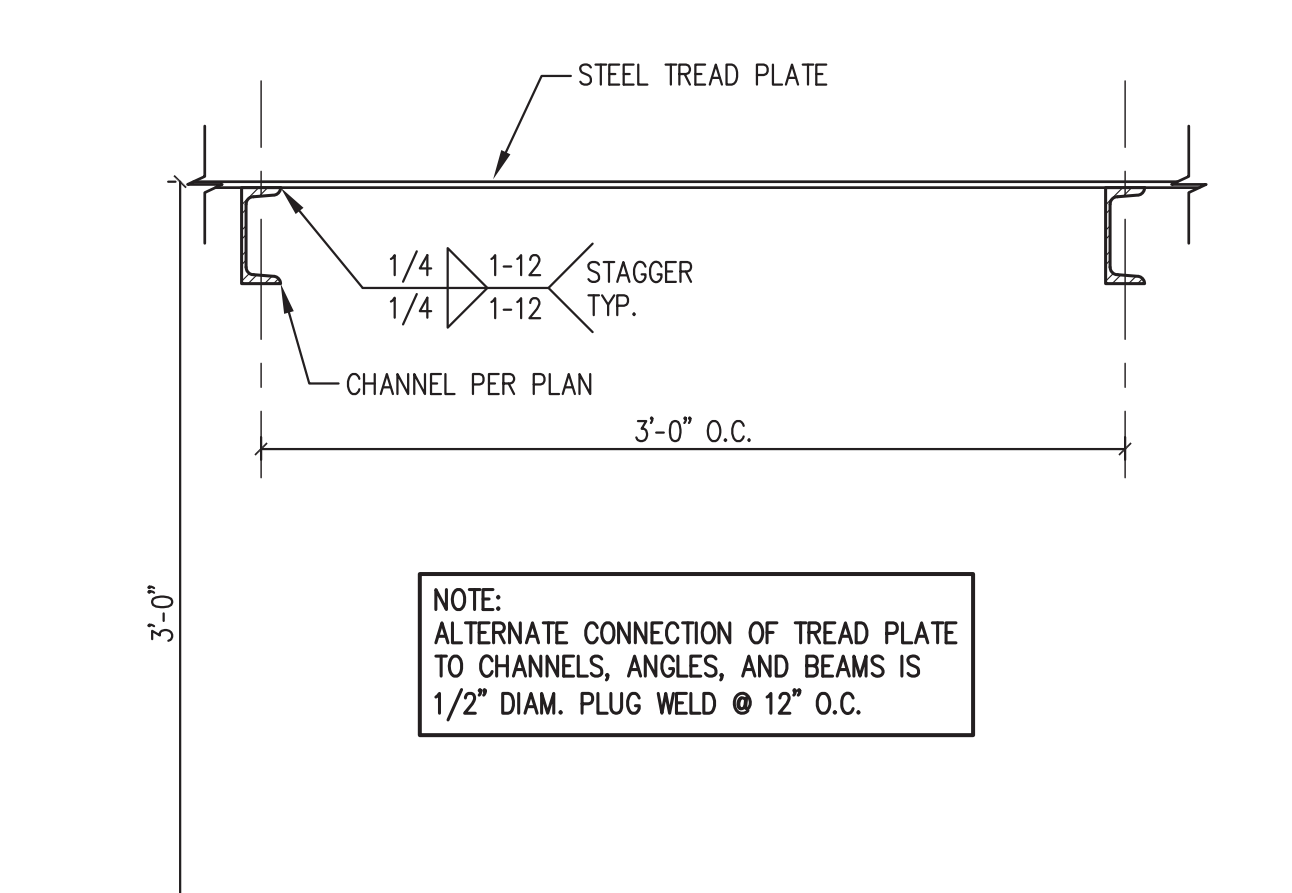
3



TYPICAL SECTION AT EQUIPMENT SUPPORT

SCALE: 1 1/2" = 1'-0"

2



TYPICAL SECTION AT WALKWAY PLATFORM

SCALE: 1 1/2" = 1'-0"

1

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The University of Texas Health Science Center at Houston

2	ISSUED FOR CONSTRUCTION	9/30/2016
1	100% CD REVIEW	6/27/2016

No.	Description	Date
-----	-------------	------

Keyplan

Philo Wilke
 Pinnacle Structural Engineers
 TPE Firm Registration No. F-8009
 Timothy C. McKeary
 124460
 LICENSED PROFESSIONAL ENGINEER
 DIGITALLY SIGNED: 09/29/2016

The University of Texas Health Science Center at Houston

MSB SWITCHGEAR REPLACEMENT

FRAMING DETAILS

SSA Project Number	1095-023-01
Date	06/27/2016
Designed By	RGV
Checked By	TM
Drawing No.	S3.01

Scale AS SHOWN



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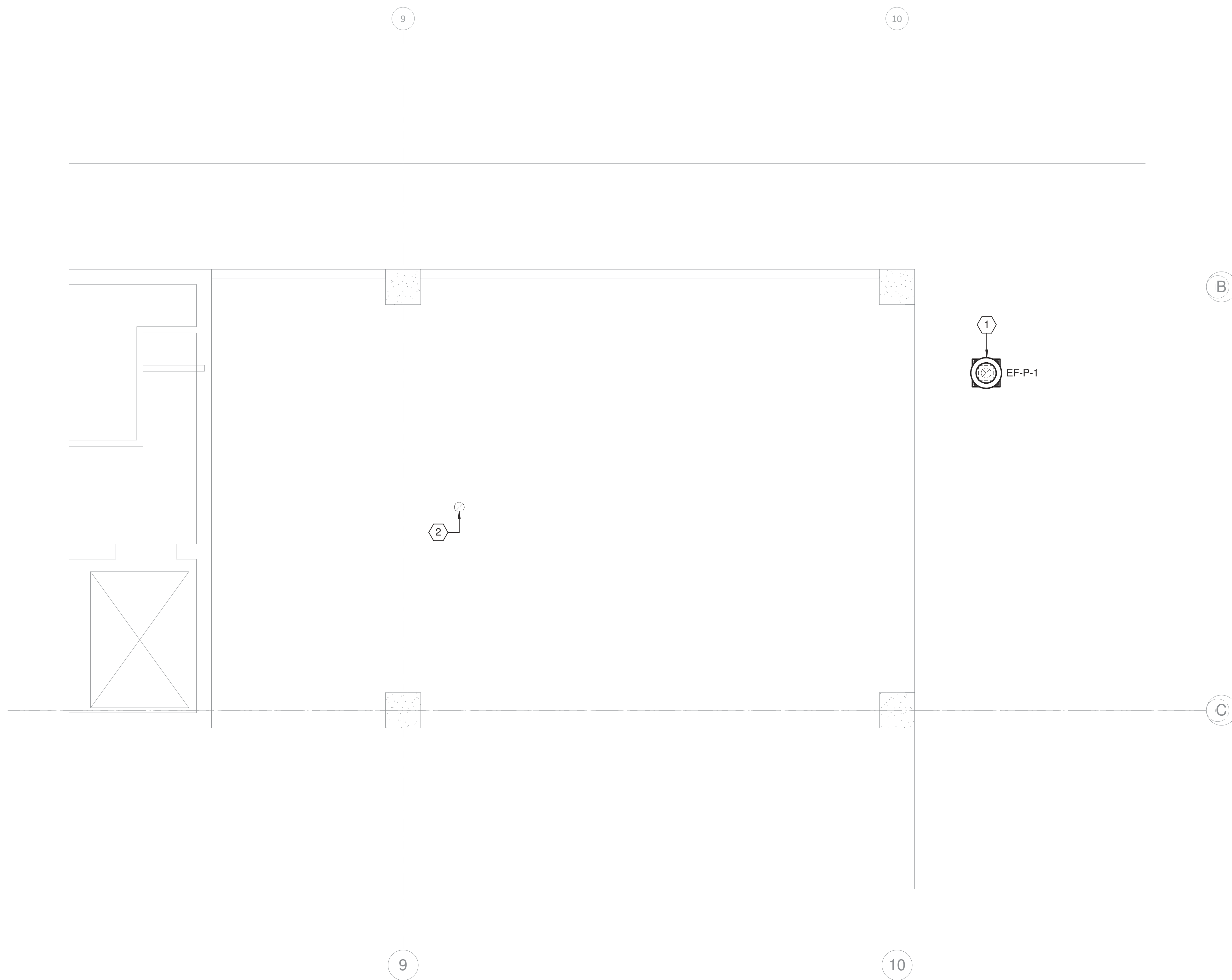
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KEYED NOTES - M104

- 1 DEMOLISH EXISTING EXHAUST FAN THAT IS NO LONGER IN SERVICE. PROVIDE TOILET EXHAUST FAN, EF-P-1. REUSE EXISTING ROOF PENETRATION. RE: 2/M102 FOR CONTINUATION.
- 2 OUTSIDE AIR DUCT TO BELOW. RE: 7/M900 FOR OUTSIDE AIR INTAKE DETAIL. RE: 2/M102 FOR CONTINUATION.

LEGEND

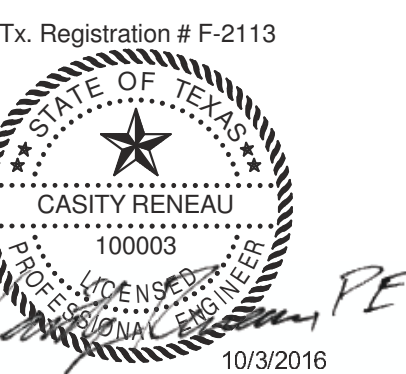
- CONNECT TO EXISTING
- EXISTING
- RENOVATION



1 ROOF - MECHANICAL PLAN
 1/4" = 1'-0"

2	ISSUED FOR CONSTRUCTION	09/30/2016
1	100% CD REVIEW	06/27/2016
No.	Description	Date

Keyplan



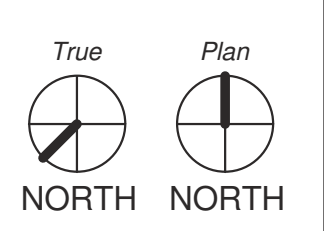
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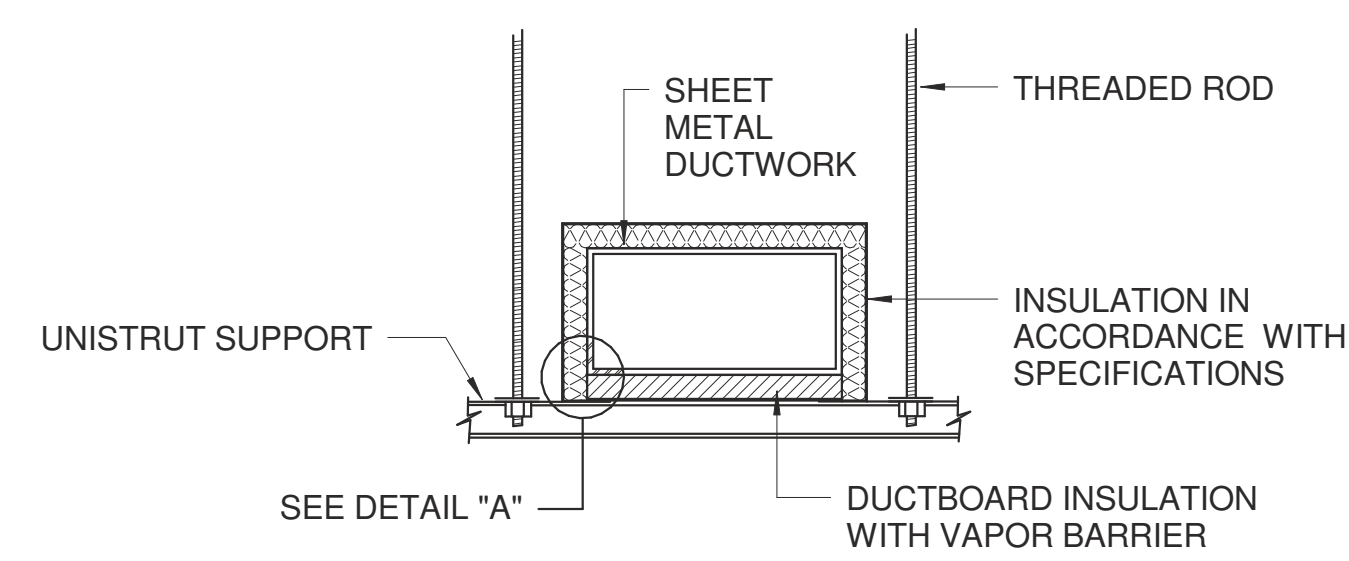
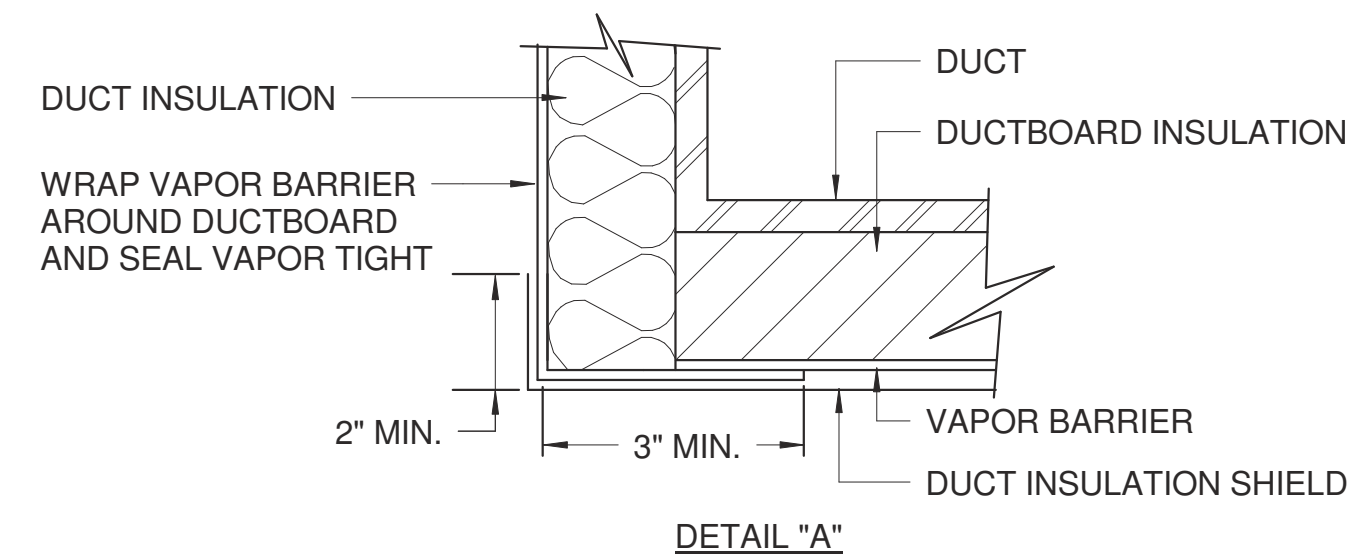
**MSB SWITCHGEAR
 REPLACEMENT**

ROOF PLAN

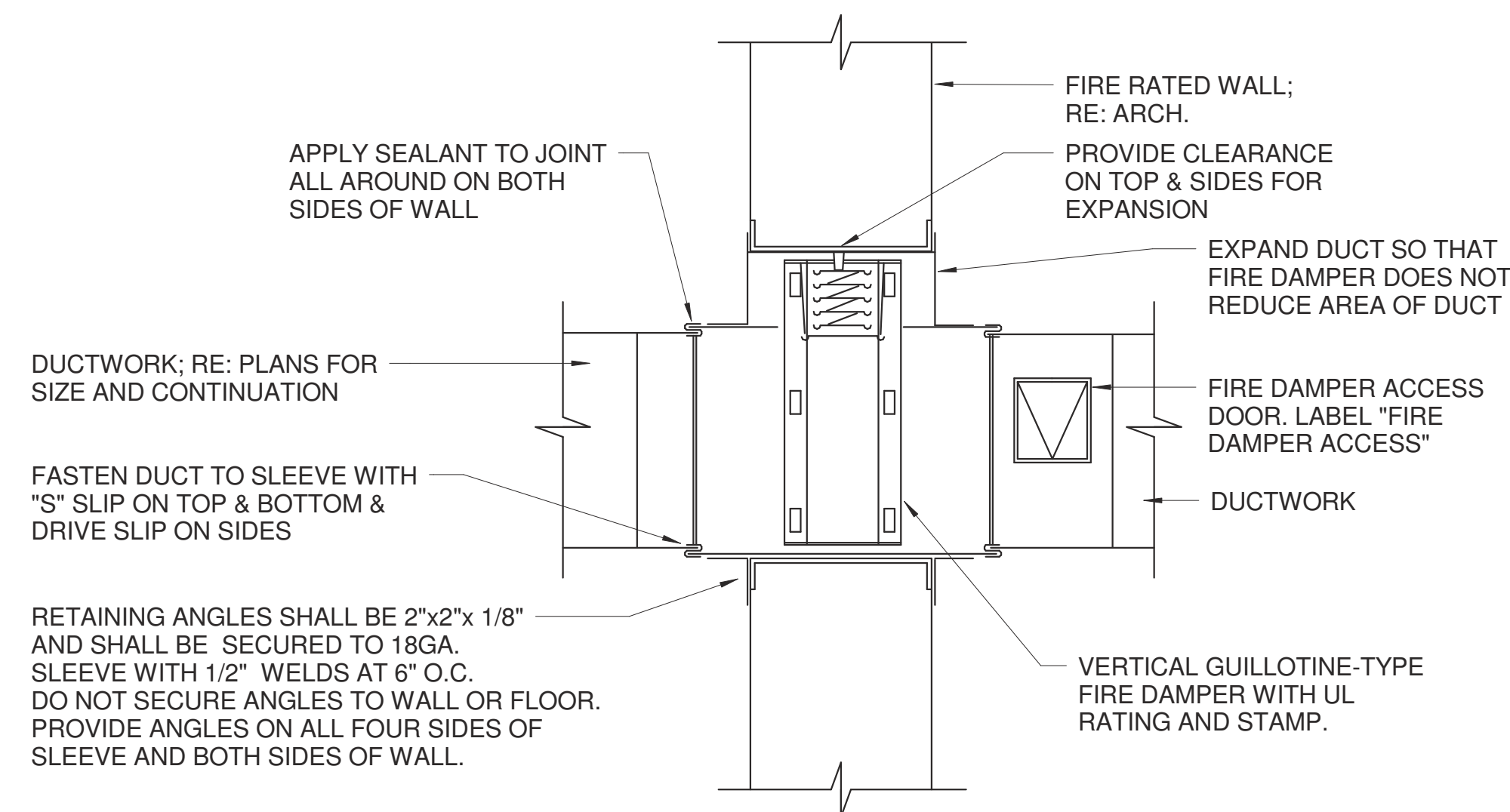
SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	DG
Checked By	DG
Drawing No.	M104

Scale As indicated

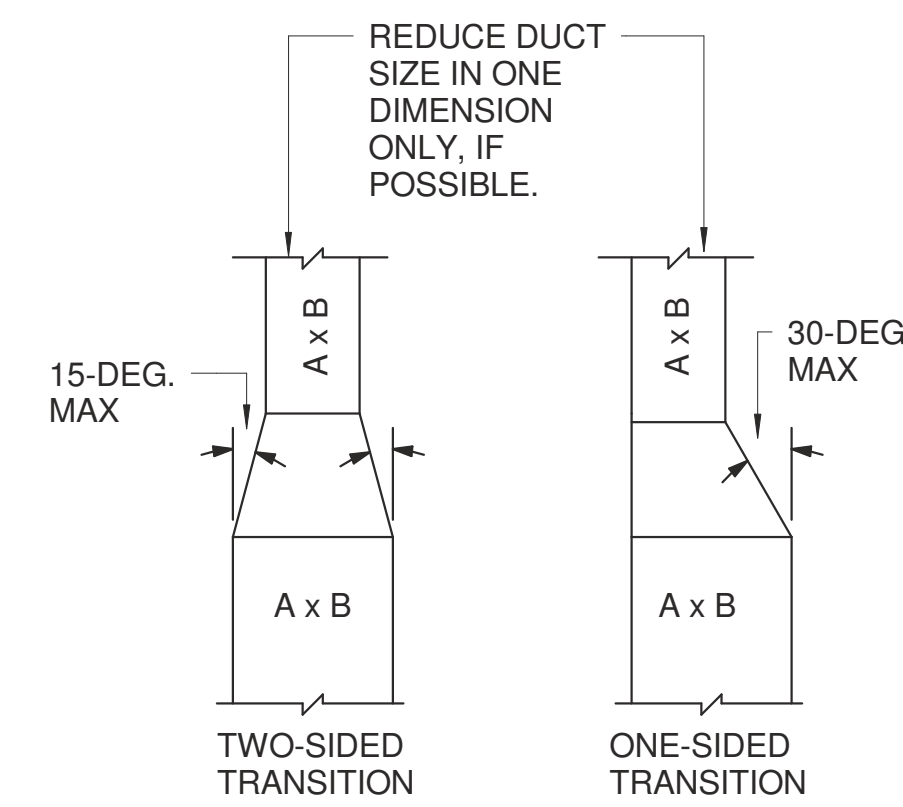




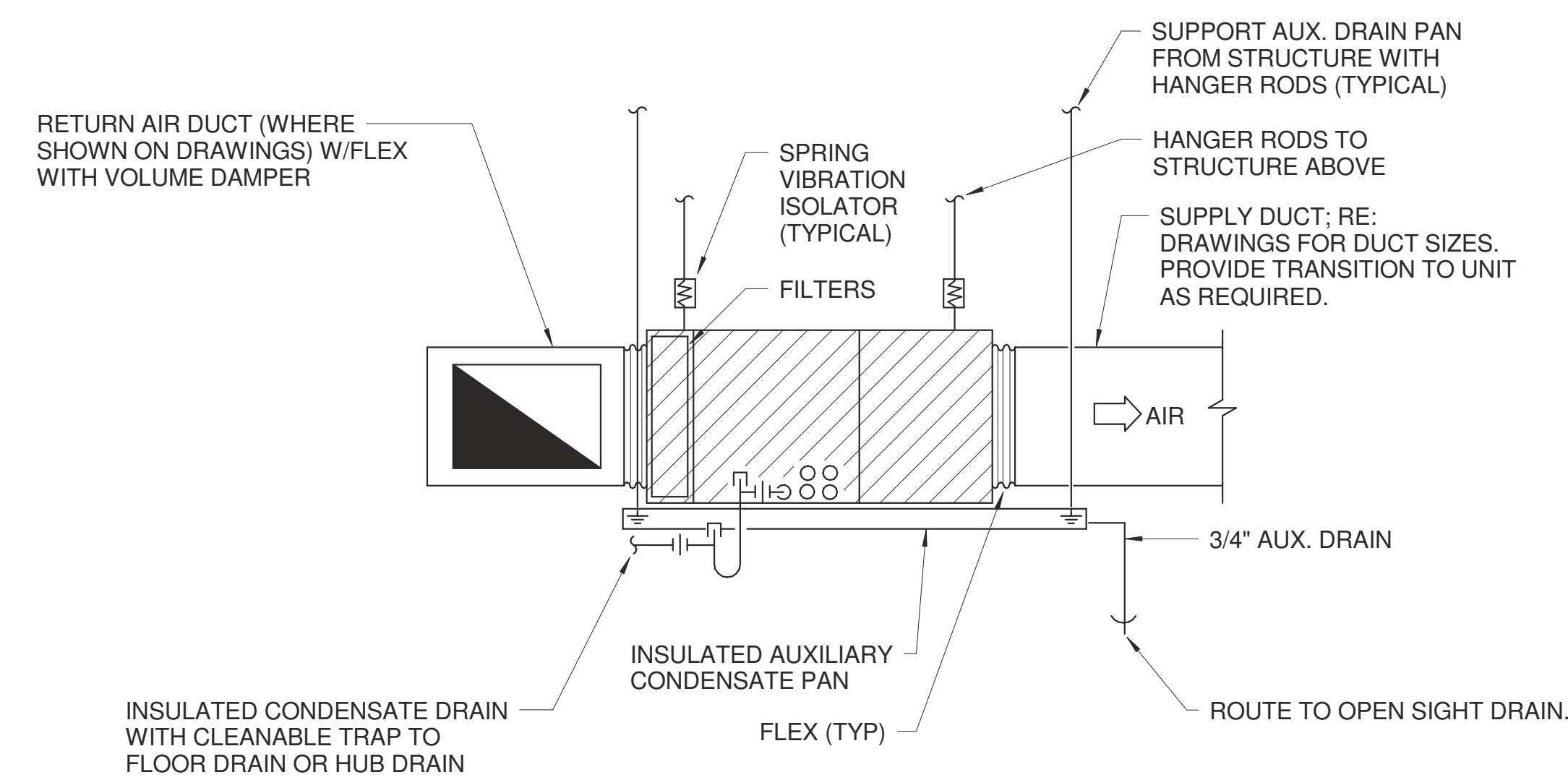
1 RECTANGULAR DUCT SUPPORTED BY UNISTRUT DETAIL
NO SCALE



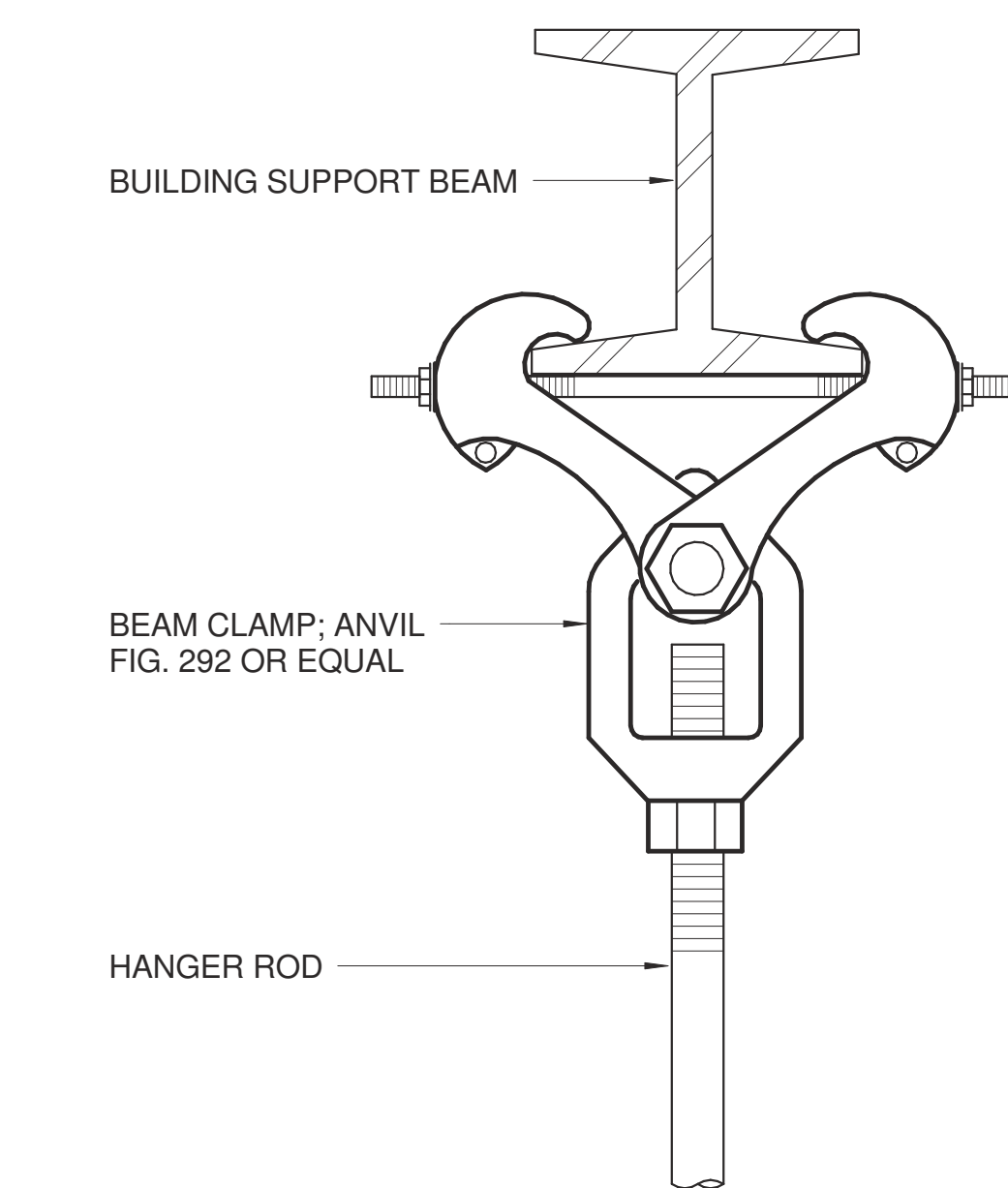
2 DUCT PENETRATION THRU FIRE WALL DETAIL
NO SCALE



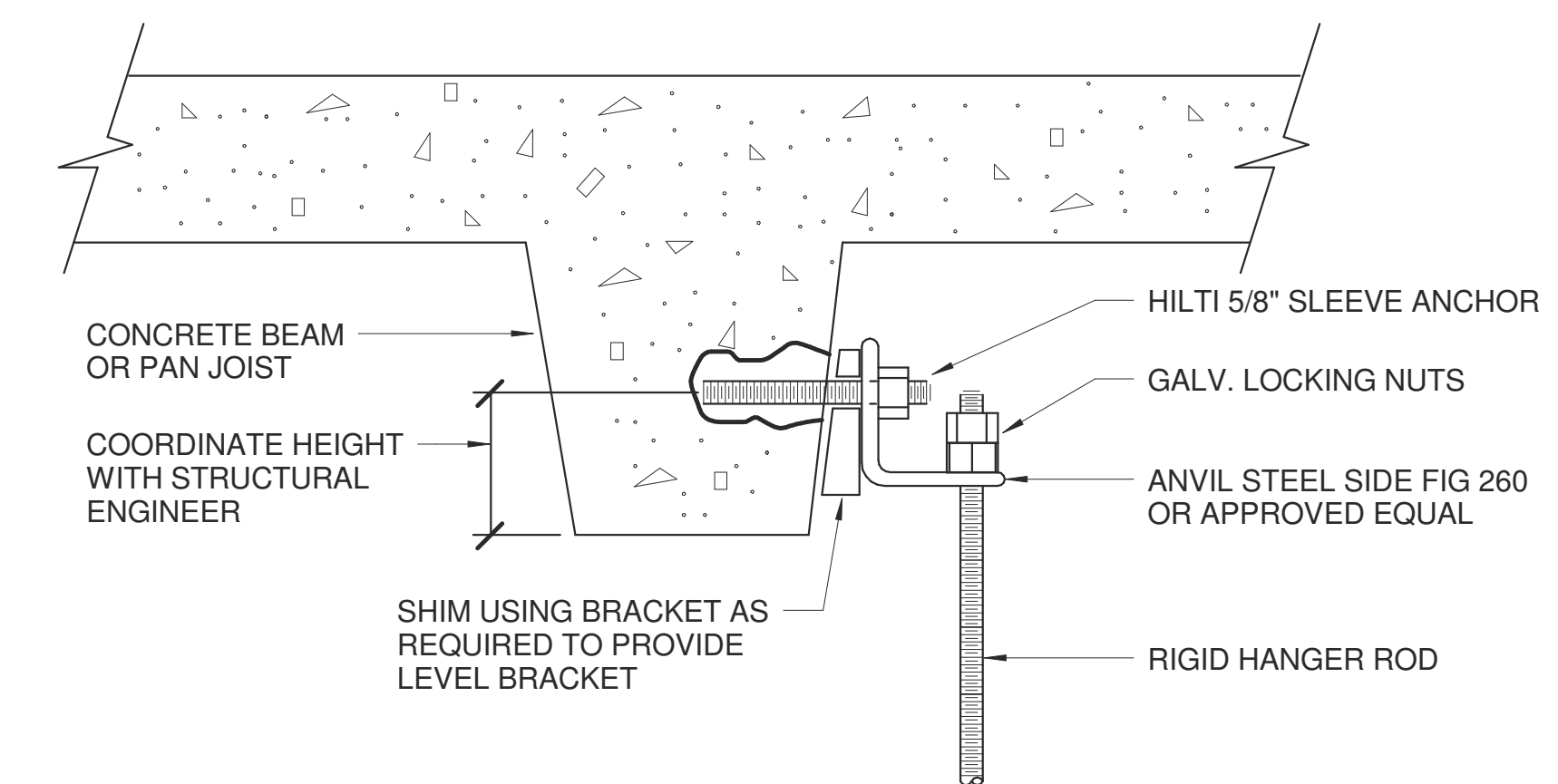
3 TYPICAL ONE & TWO SIDED RECTANGULAR DUCT TRANSITION DETAIL
NO SCALE



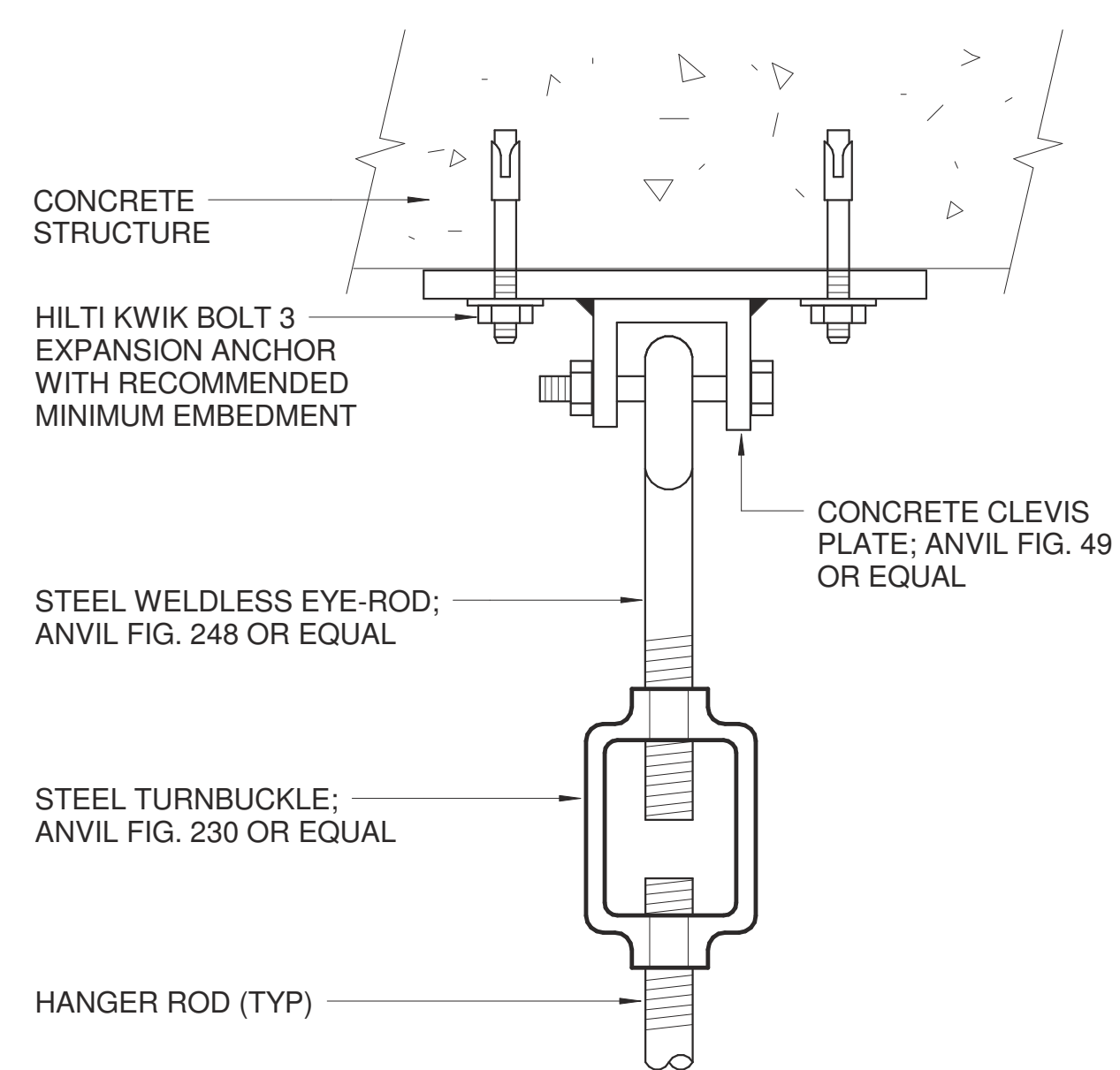
4 FAN COIL UNIT DETAIL
NO SCALE



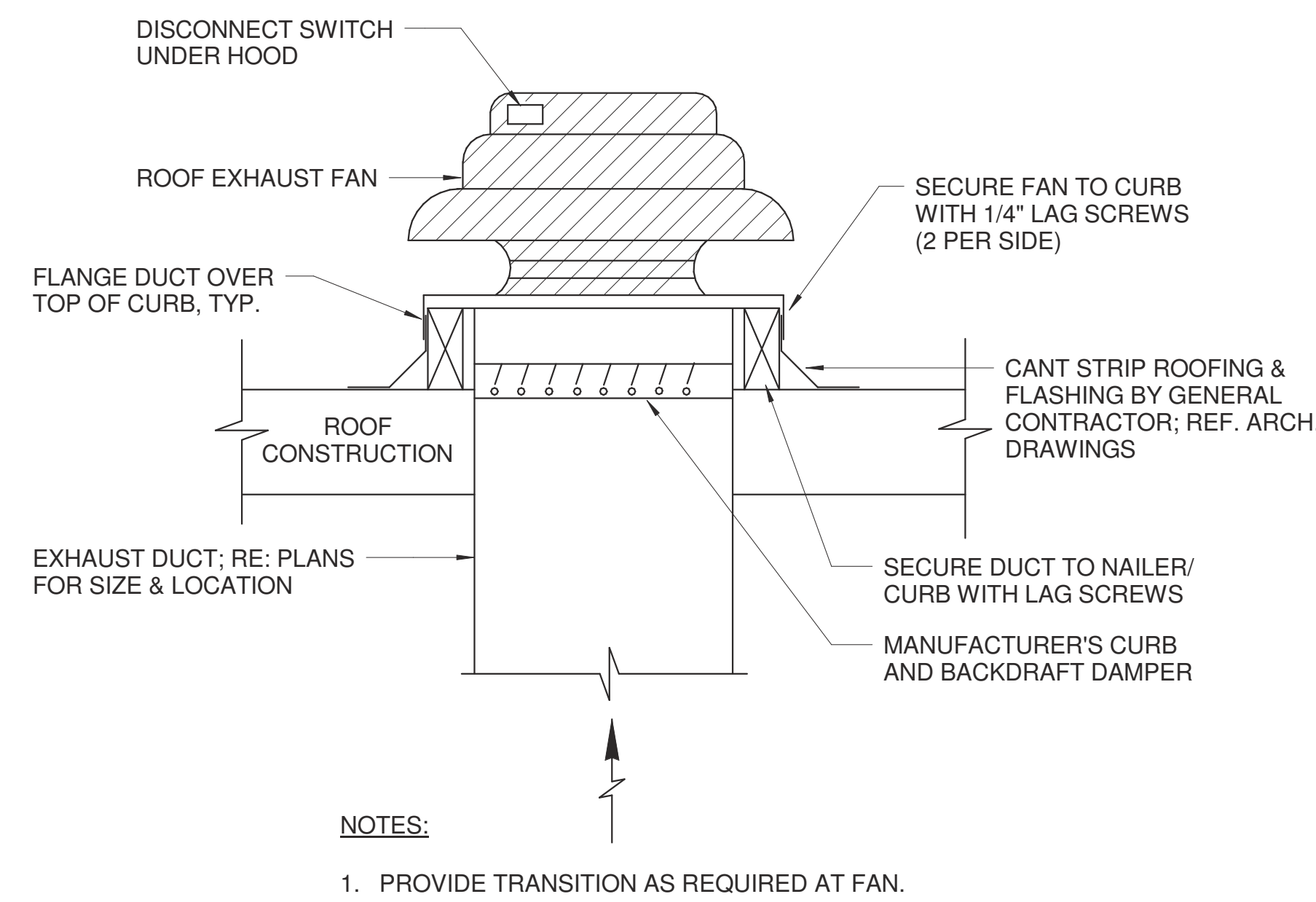
5 BEAM CLAMP TYPE SUPPORT DETAIL
NO SCALE



6 HANGER CONNECTION TO STRUCTURE DETAIL
NO SCALE



7 CONCRETE SUPPORT DETAIL
NO SCALE



8 ROOF MOUNTED EXHAUST FAN DETAIL
NO SCALE

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2	ISSUED FOR CONSTRUCTION	09/30/2016
1	100% CD REVIEW	06/27/2016
No.	Description	Date

Keyplan

Tx. Registration # F-2113
CASITY RENEAU
Professional Engineer
2016

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Houston

**MSB SWITCHGEAR
REPLACEMENT**
MECHANICAL DETAILS

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	DG
Checked By	DG
Drawing No.	M901
Scale	NO SCALE

ELECTRICAL SEQUENCE OF CONSTRUCTION

THE FOLLOWING IS A GENERAL SEQUENCE OF CONSTRUCTION FOR THE INSTALLATION OF ALL MAJOR ELECTRICAL EQUIPMENT ON THIS PROJECT. THE SEQUENCE IS MEANT TO BE USED AS A REFERENCE AND IS NOT INTENDED TO BE A DETAILED STEP BY STEP GUIDE FOR THE INSTALLATION OF ALL EQUIPMENT AND THE TRANSFER OF ALL EXISTING LOADS TO THE NEW SWITCHGEAR. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A DETAILED SEQUENCE OF CONSTRUCTION FOR ALL WORK (MEP, STRUC, ARCH) TO BE PERFORMED, CLEARLY INDICATING ALL OUTAGES. THE CONNECTION OF ALL NEW EQUIPMENT IS NOT NOTED HERE.

IN ORDER TO LIMIT THE NUMBER OF POWER OUTAGES, ALL NEW SWITCHGEAR THAT IS ENERGIZED AND SERVING ANY LOADS SHALL REMAIN ENERGIZED. THIS MEANS THAT ALL LOAD SIDE FEEDER CONDUCTORS SHALL BE TERMINATED ON THE BREAKERS BEFORE THE SWITCHGEAR IS ENERGIZED. IN MANY INSTANCES NOT ALL OF THE FEEDER CONDUCTORS AND BUSWAYS WILL BE CONNECTED TO THE LOADS DUE TO SEQUENCING. FOR THESE CASES, THE CONDUCTORS SHALL BE INSTALLED AS CLOSE AS PRACTICAL TO THE LOAD WITH ENOUGH SLACK LEFT IN A JUNCTION BOX TO CONNECT TO THE LOAD AT THE APPROPRIATE TIME. LIKEWISE, THE BUSWAYS SHALL BE INSTALLED AS CLOSE AS PRACTICAL TO THE LOAD FOR FUTURE EXTENSION. JUNCTION BOXES HAVE NOT BEEN SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING BOXES AS APPROPRIATE AND SIZING THE BOXES PER NEC.

ALL SHUTDOWNS SHALL BE COORDINATED WITH UTHSC ODR.

ANY REFERENCE TO THE TERM FEEDER SHALL MEAN CONDUIT AND CONDUCTORS.

1. BEGIN ARCHITECTURAL MODIFICATIONS IN ALL AREAS. SEE ARCHITECTURAL PLANS. THE EXCEPTION TO THIS IS THE REMOVAL AND RELOCATION OF THE WALL THAT SEPARATES ROOM P.113 AND P.117. THIS WALL CAN ONLY BE REMOVED AFTER THE REMOVAL OF THE 4.16KV AND 480V FEEDERS LOCATED ON THE WALL. SEE ITEMS 11 AND 12 BELOW.
2. INSTALL STRUCTURAL SUPPORT PLATFORM FOR NEW ELECTRICAL EQUIPMENT, SEE STRUCTURAL PLANS AND SHEET E203.
3. INSTALL LOAD BANK TRANSFORMER/SWITCHGEAR AND ASSOCIATED LOAD BANK ON ROOF.
4. REPLACE 480-208Y/120V DRY TYPE TRANSFORMERS WITH NEW TRANSFORMERS. RECONNECT TO EXISTING PRIMARY AND SECONDARY FEEDERS. SEE E012, E023, AND E024.
5. INSTALL NEW 4.16KV NATURAL GAS GENSET PER THE GENERATOR PROJECT.
6. AFTER EQUIPMENT PLATFORM HAS BEEN COMPLETED, INSTALL 4.16KV-480Y/277V AND 208Y/120V SUBSTATION LINEUPS USHC-A/B, USLB-A/B AND USHXB-A/B. BEGIN INSTALLATION OF NEW FEEDERS FROM NEW SWITCHGEAR TO EXISTING LOADS SERVED FROM EXISTING SWITCHGEAR AND ANY NEW LOADS. ALL CONDUCTORS SHALL BE TERMINATED IN NEW SWITCHGEAR AT THIS TIME TO ELIMINATE ANY FUTURE SHUTDOWNS AFTER THE NEW SUBSTATIONS ARE ENERGIZED. LEAVE ENOUGH SLACK IN NEW CONDUCTORS AT EXISTING AND NEW LOADS FOR CONNECTIONS NOTED BELOW. SEE SHEETS E025-E027 AND E203.
7. INSTALL NEW CIRCUIT BREAKER IN EXISTING 5KV SWITCHGEAR PSWGRA/B. INSTALL ADDITIONAL RELAYS IN DOORS. SEE E010A AND E011. INSTALL NEW FEEDERS FROM BREAKERS TO NEW SUBSTATION USHC-A/B PRIMARY CABINETS. OPEN ALL FEEDER BREAKERS IN USHC-A/B. ENERGIZE USHC AND COMMISSION. USHC IS NOW READY TO ACCEPT LOADS. CONNECT EXISTING LOADS CURRENTLY CONNECTED TO USHC AND USHD (VERTICAL BUS RISERS, DISTRIBUTION PANELS, TRANSFORMERS ETC.) TO USHC-A/B VIA NEW CONDUCTORS INSTALLED PER ITEM 6. NOTE THAT NEW SWITCHGEAR USHC-A/B TAKES THE PLACE OF EXISTING USHC AND USHD. ALL EXISTING LOADS ARE NOW CONNECTED TO THE NEW SWITCHGEAR. SEE E016, E019 AND E025.
8. REUSE BREAKERS THAT PREVIOUSLY SERVED EXISTING USHC TO SERVE NEW SUBSTATION USLB-A/B. INSTALL ADDITIONAL RELAYS IN DOORS. SEE E026. INSTALL FEEDERS FROM BREAKERS TO USLB-A/B PRIMARY CABINETS. OPEN ALL FEEDER BREAKERS IN USLB. ENERGIZE USLB AND COMMISSION. USLB-A/B IS NOW READY TO ACCEPT LOADS. CONNECT EXISTING LOADS CURRENTLY CONNECTED TO USLB AND USLC (VERTICAL BUS RISERS, DISTRIBUTION PANELS, TRANSFORMERS ETC.) TO USLB-A/B VIA NEW CONDUCTORS INSTALLED PER ITEM 6. NOTE THAT NEW SWITCHGEAR USLB-A/B TAKES THE PLACE OF EXISTING USLB AND USLC. ALL EXISTING LOADS ARE NOW CONNECTED TO THE NEW SWITCHGEAR. SEE E020, E021 AND E026.
9. REMOVE 4.16KV FEEDERS THAT PREVIOUSLY SERVED USLB, USLC, USHC AND USHD. SEE E010, DETAIL 1 AND 2 ON SHEET E101, AND SHEET E201. REMOVE SUBSTATIONS USHC, USHD, USLB AND USLC. REMOVE ALL ABANDONED CONDUITS, CONDUCTORS, BUSWAYS, PADS ETC.
10. REPLACE MCC'S AND DISTRIBUTION PANELS WITH NEW DISTRIBUTION PANELS, STARTERS ETC. RECONNECT EXISTING INCOMING FEEDERS AND BRANCH CIRCUITS TO NEW BREAKERS. SEE SHEETS E101 AND E201. SEE E012, E024 AND E029-E038. LOCATE STARTERS ON UNISTRUT FRAMEWORK, PADS IN AREA LEFT VACANT BY REMOVAL OF 208V SUBSTATIONS, OR AT LOCATIONS SHOWN ON E201.
11. INSTALL NEW 480V PANEL PDPH, ASSOCIATED 480-208Y/120V TRANSFORMER AND 208V PANEL PL IN ROOM P.117. THIS EQUIPMENT REPLACES EQUIPMENT WITH THE SAME NAMES LOCATED IN ROOM P.117. TRANSFER ALL 120V AND 480V LOADS FROM EXISTING PANELS PDPH AND PL TO NEW PDPH AND PL. SEE DETAIL 1 AND 2 ON E101. REMOVE EXISTING PANEL PDPH, TRANSFORMER, PANEL PL AND ALL ASSOCIATED CONDUITS.
12. REMOVE CMU WALL BETWEEN ROOMS P.113 AND P.117 AND CONSTRUCT NEW WALL BETWEEN THESE ROOMS. SEE ARCHITECTURAL PLANS.
13. INSTALL 5KV PARALLELING SWITCHGEAR PSE AND ASSOCIATED MASTER CONTROLLER, GENERATOR CONTROLLERS AND BATTERY CABINET. SEE SHEET E013-E016 AND E201.
14. INSTALL FEEDERS FROM PSE TO USHXB-A/B PRIMARY CABINETS. SEE E010A.
15. INSTALL FEEDERS FROM PSE TO LOAD BANK TRANSFORMER PRIMARY CABINET. SEE E013.
16. INSTALL FEEDERS FROM PSE TO THE 7TH FLOOR CHASE IN PREPARATION FOR SPLICING TO EXISTING 4.16KV FEEDERS FOR EXISTING USHXA LOCATED ON THE GROUND FLOOR. SEE SHEET E207 FOR LOCATION.
17. INSTALL NEW FEEDERS FROM PSE UP TO EXISTING GENERATORS 1 AND 2 WITH ENOUGH SLACK TO ALLOW FOR CONNECTION TO THE GENERATORS.
18. REUSE BREAKER THAT PREVIOUSLY SERVED EXISTING USLB-A TO SERVE NEW PARALLELING SWITCHGEAR PSE. THIS IS THE ONE NORMAL FEED INTO PSE. INSTALL FEEDER FROM BREAKER TO PSE.
19. UNDER THE GENERATOR PROJECT, NEW FEEDERS WILL BE INSTALLED FROM THE NEW GENERATOR TO PSE.
20. OPEN ALL FEEDER BREAKERS IN PSE AND USHXB-A/B. ENERGIZE AND COMMISSION PSE. USHXB-A/B, LOAD BANK SWITCHGEAR AND LOAD BANK. AT THIS POINT, ONE NORMAL POWER SOURCE AND ONE GENERATOR SOURCE IS CONNECTED TO PSE. THE PEAK LOAD ON EXISTING PSE IS APPROXIMATELY 800KW SO EXISTING GENERATORS 1 AND 2 WILL BE TRANSFERRED TO NEW PSE AFTER SOME EXISTING LOAD HAS BEEN TRANSFERRED FROM EXISTING PSE TO NEW PSE PER ITEM 21.
21. CONNECT EXISTING LOADS ON EXISTING SWITCHGEAR USHXD AND USHXE TO USHXB-A/B VIA NEW CONDUCTORS INSTALLED PER ITEM 6.
22. CONNECT EXISTING GENERATOR 1 TO NEW PSE VIA CONDUCTORS INSTALLED PER ITEM 17. COMMISSION PSE FOR TWO GENERATOR OPERATION.
23. CONNECT REMAINING EMERGENCY/STANDBY LOADS CURRENTLY CONNECTED TO USHXB AND USHXC (VERTICAL BUS RISERS, DISTRIBUTION PANELS, TRANSFORMERS ETC.) TO PSE VIA CONDUCTORS INSTALLED PER ITEM 6. NOTE THAT NEW SWITCHGEAR USHXB-A/B TAKES THE PLACE OF EXISTING USHXB, USHXC, USHXD AND USHXE.
24. CONNECT EXISTING GROUND FLOOR SWITCHGEAR USHXA TO NEW PSE BY SPLICING INTO EXISTING 4.16KV CONDUCTORS ON THE 7TH FLOOR. ALL EMERGENCY/STANDBY LOADS ARE NOW CONNECTED TO NEW SWITCHGEAR PSE. ALL EXISTING EMERGENCY/STANDBY LOADS ARE NOW CONNECTED TO THE NEW SWITCHGEAR PSE.
25. CONNECT EXISTING GENERATOR 2 TO NEW PSE VIA CONDUCTORS INSTALLED PER ITEM 17. COMMISSION PSE FOR THREE GENERATOR OPERATION.
26. REMOVE SUBSTATIONS USHXB, USHXC, USHXD, USHXE AND PSE INCLUDING CONCRETE PADS. REMOVE ANY ABANDONED CONDUITS, CONDUCTORS, BUSWAYS ETC.



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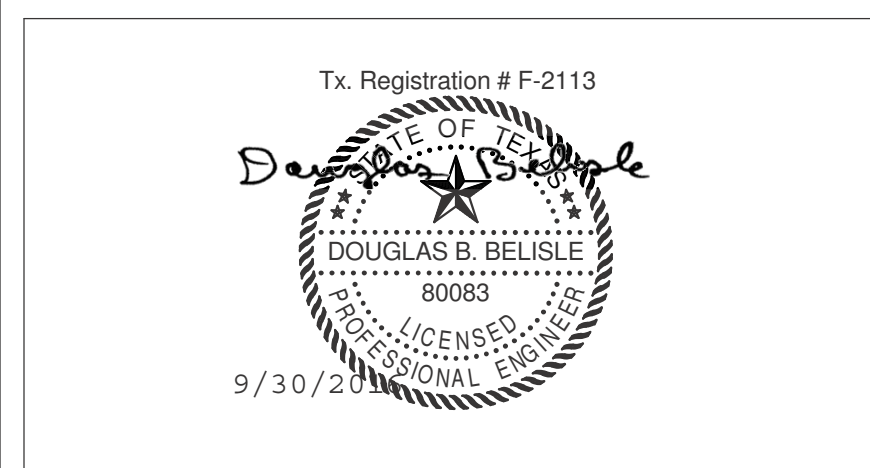


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No.	Description	Date
4	ISSUED FOR CONSTRUCTION	09/30/2016
3	100% CD REVIEW	06/24/2016

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MSB SWITCHGEAR REPLACEMENT

ELECTRICAL SEQUENCE OF CONSTRUCTION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	E002
Scale	NO SCALE

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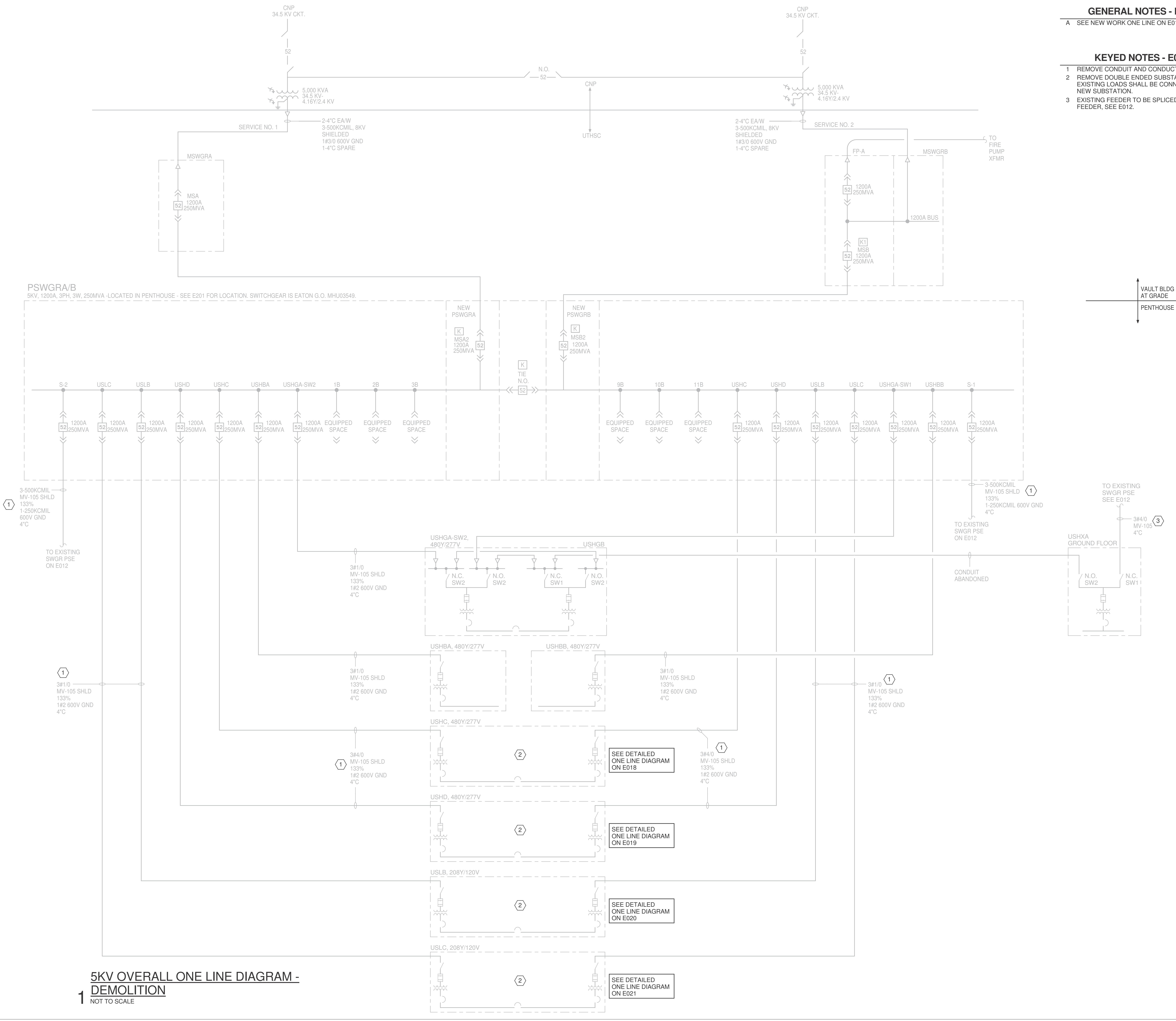
- GENERAL NOTES - E010**
 A SEE NEW WORK ONE LINE ON E010A.
- KEYED NOTES - E010** #
- 1 REMOVE CONDUIT AND CONDUCTORS.
 - 2 REMOVE DOUBLE ENDED SUBSTATION. EXISTING LOADS SHALL BE CONNECTED TO NEW SUBSTATION.
 - 3 EXISTING FEEDER TO BE SPLICED TO NEW FEEDER, SEE E012.

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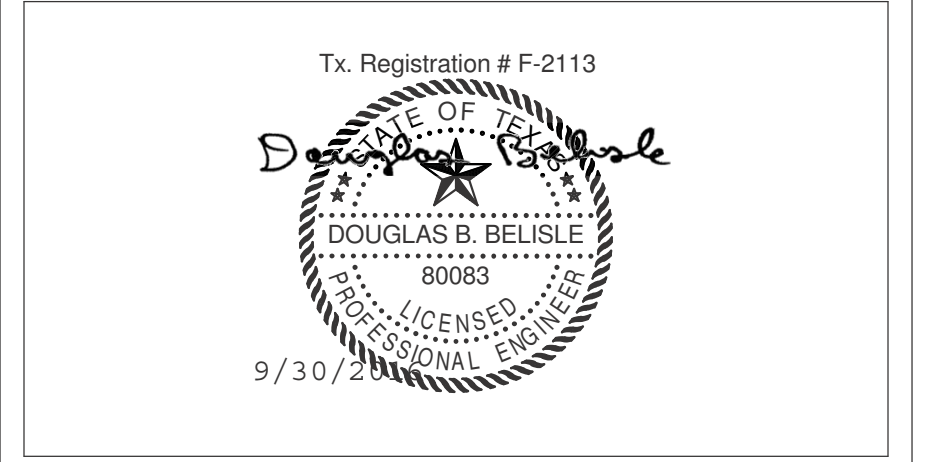
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No.	Description	Date
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3	100% CD REVIEW	06/24/2016
2	90% PKG 1/2 REVIEW	05/13/2016
1	50% CD	02/10/2016

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**MSB SWITCHGEAR
 REPLACEMENT**

**5KV OVERALL ONE LINE
 DIAGRAM - DEMOLITION**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E010

Scale NOT TO SCALE

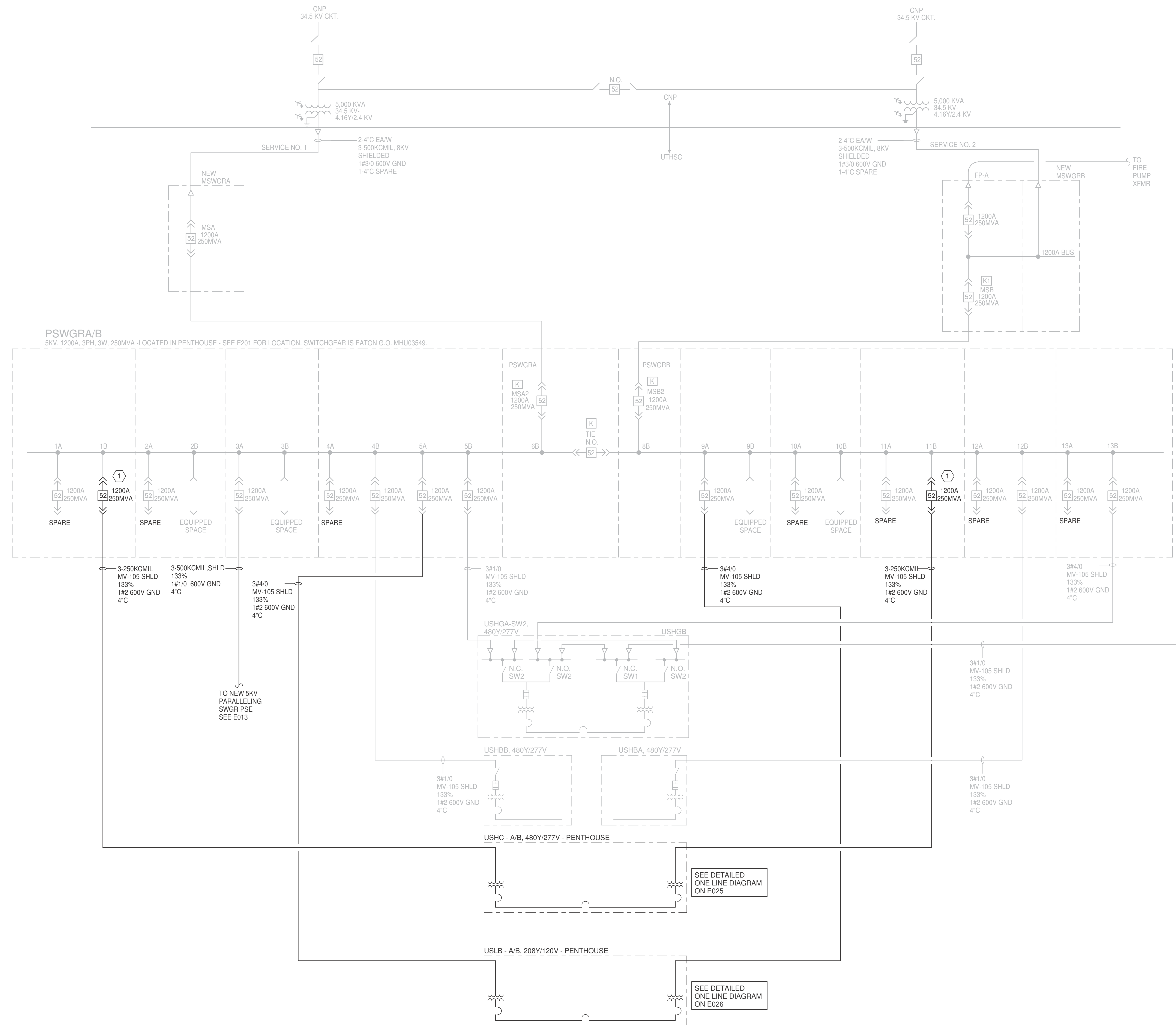
**5KV OVERALL ONE LINE DIAGRAM -
 DEMOLITION**
 1 NOT TO SCALE

GENERAL NOTES - E010A

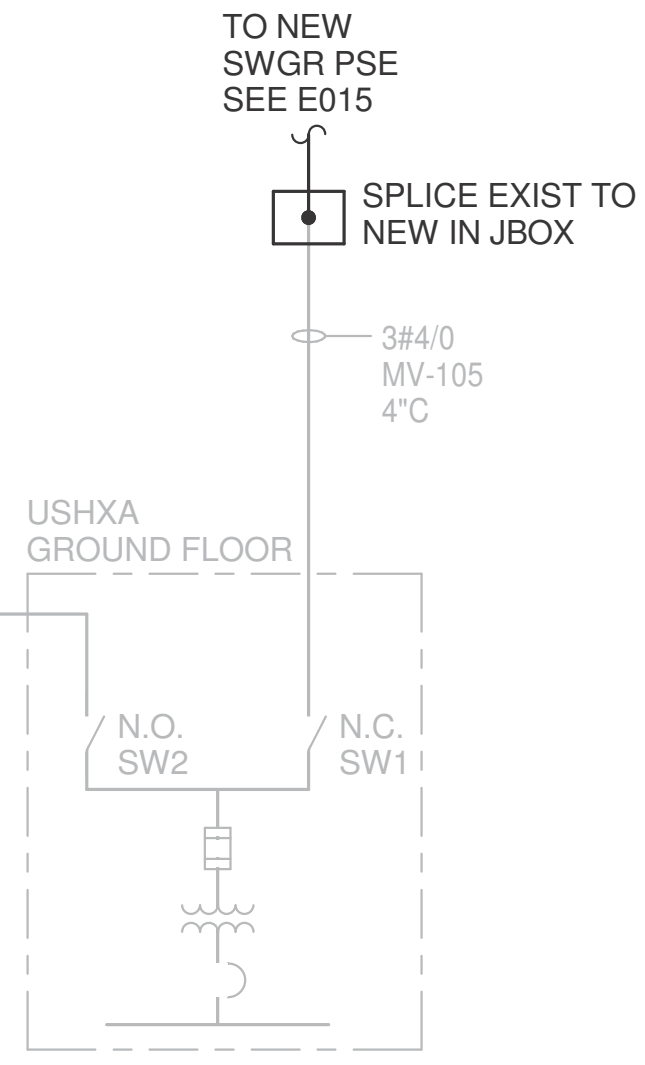
- A NEW WORK SHOWN BOLD.
- B SEE E201 FOR LOCATION OF EXISTING SWITCHGEAR IN PENTHOUSE.

KEYED NOTES - E010A

- 1 PROVIDE NEW BREAKER TO MATCH EXISTING IN EQUIPPED SPACE. SEE DETAILED ONE LINE DIAGRAM ON SHEET E011.



SEE DETAILED ONE LINE DIAGRAM ON E011



5KV OVERALL ONE LINE DIAGRAM - RENOVATION
1 NOT TO SCALE

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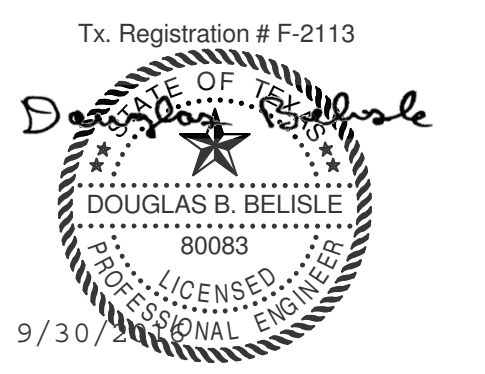
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MSB SWITCHGEAR REPLACEMENT

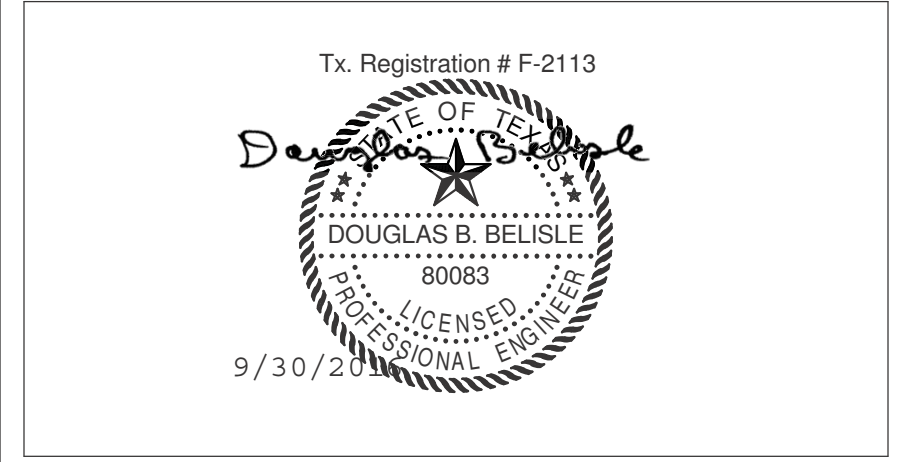
5KV OVERALL ONE LINE DIAGRAM - RENOVATION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	E010A

Scale NOT TO SCALE

No.	Description	Date
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2	90% PKG 1/2 REVIEW	05/13/2016
1	50% CD	02/10/2016

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MSB SWITCHGEAR REPLACEMENT

MAIN 5KV SWGR PSWGRA AND PSWGRB - DEMOLITION/RENOVATION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E011

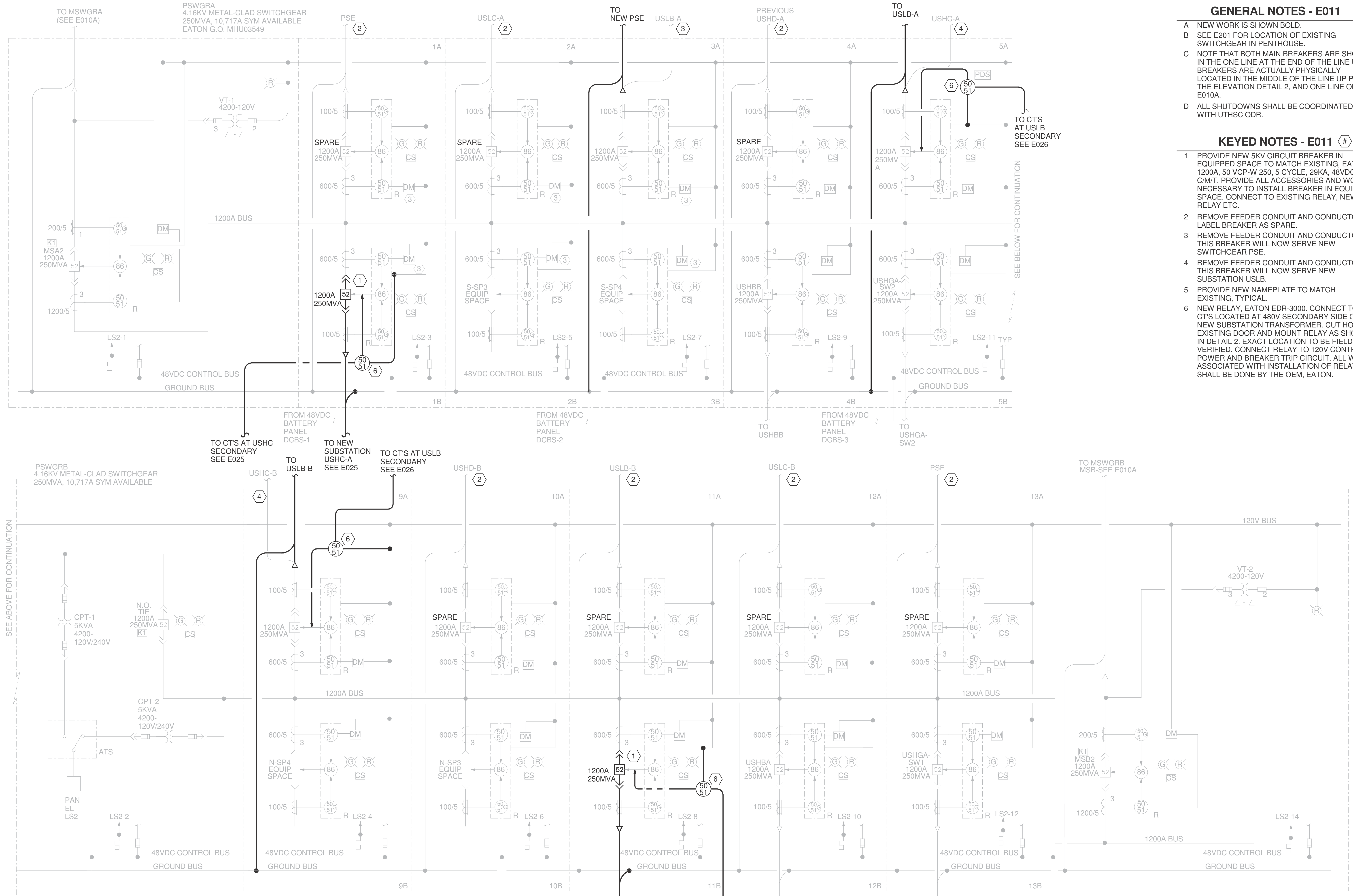
Scale NOT TO SCALE

GENERAL NOTES - E011

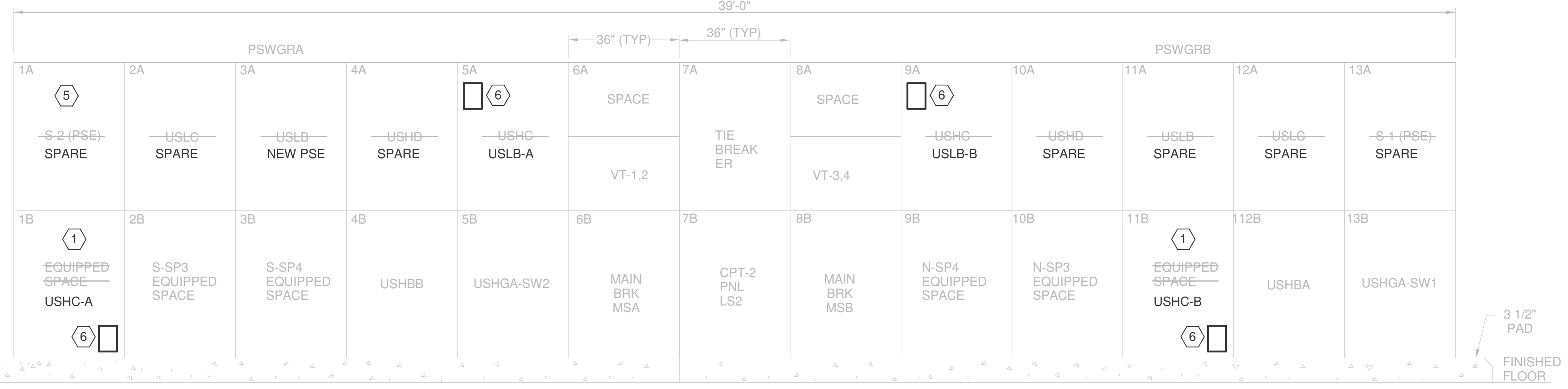
- A NEW WORK IS SHOWN BOLD.
- B SEE E010 FOR LOCATION OF EXISTING SWITCHGEAR IN PENTHOUSE.
- C NOTE THAT BOTH MAIN BREAKERS ARE SHOWN IN THE ONE LINE AT THE END OF THE LINE UP. BREAKERS ARE ACTUALLY PHYSICALLY LOCATED IN THE MIDDLE OF THE LINE UP PER THE ELEVATION DETAIL 2, AND ONE LINE ON E010A.
- D ALL SHUTDOWNS SHALL BE COORDINATED WITH UTHSC ODR.

KEYED NOTES - E011

- 1 PROVIDE NEW 5KV CIRCUIT BREAKER IN EQUIPPED SPACE TO MATCH EXISTING. EATON 1200A, 50 VCP-W 250, 5 CYCLE, 29KA, 48VDC C/M.T. PROVIDE ALL ACCESSORIES AND WORK NECESSARY TO INSTALL BREAKER IN EQUIPPED SPACE. CONNECT TO EXISTING RELAY, NEW RELAY ETC.
- 2 REMOVE FEEDER CONDUIT AND CONDUCTORS, LABEL BREAKER AS SPARE.
- 3 REMOVE FEEDER CONDUIT AND CONDUCTORS. THIS BREAKER WILL NOW SERVE NEW SWITCHGEAR PSE.
- 4 REMOVE FEEDER CONDUIT AND CONDUCTORS. THIS BREAKER WILL NOW SERVE NEW SUBSTATION USLB.
- 5 PROVIDE NEW NAMEPLATE TO MATCH EXISTING, TYPICAL.
- 6 NEW RELAY, EATON EDR-3000. CONNECT TO CT'S LOCATED AT 480V SECONDARY SIDE OF NEW SUBSTATION TRANSFORMER. CUT HOLE IN EXISTING DOOR AND MOUNT RELAY AS SHOWN IN DETAIL 2. EXACT LOCATION TO BE FIELD VERIFIED. CONNECT RELAY TO 120V CONTROL POWER AND BREAKER TRIP CIRCUIT. ALL WORK ASSOCIATED WITH INSTALLATION OF RELAY SHALL BE DONE BY THE OEM, EATON.



MAIN 5KV SWGR PSWGRA AND PSWGRB - DEMO/RENO - ONE LINE DIAGRAM
1 NOT TO SCALE



MAIN 5KV SWGR PSWGRA AND PSWGRB - DEMO/RENO - FRONT ELEVATION
2 NOT TO SCALE

SEQUENCE OF OPERATION FOR PSE

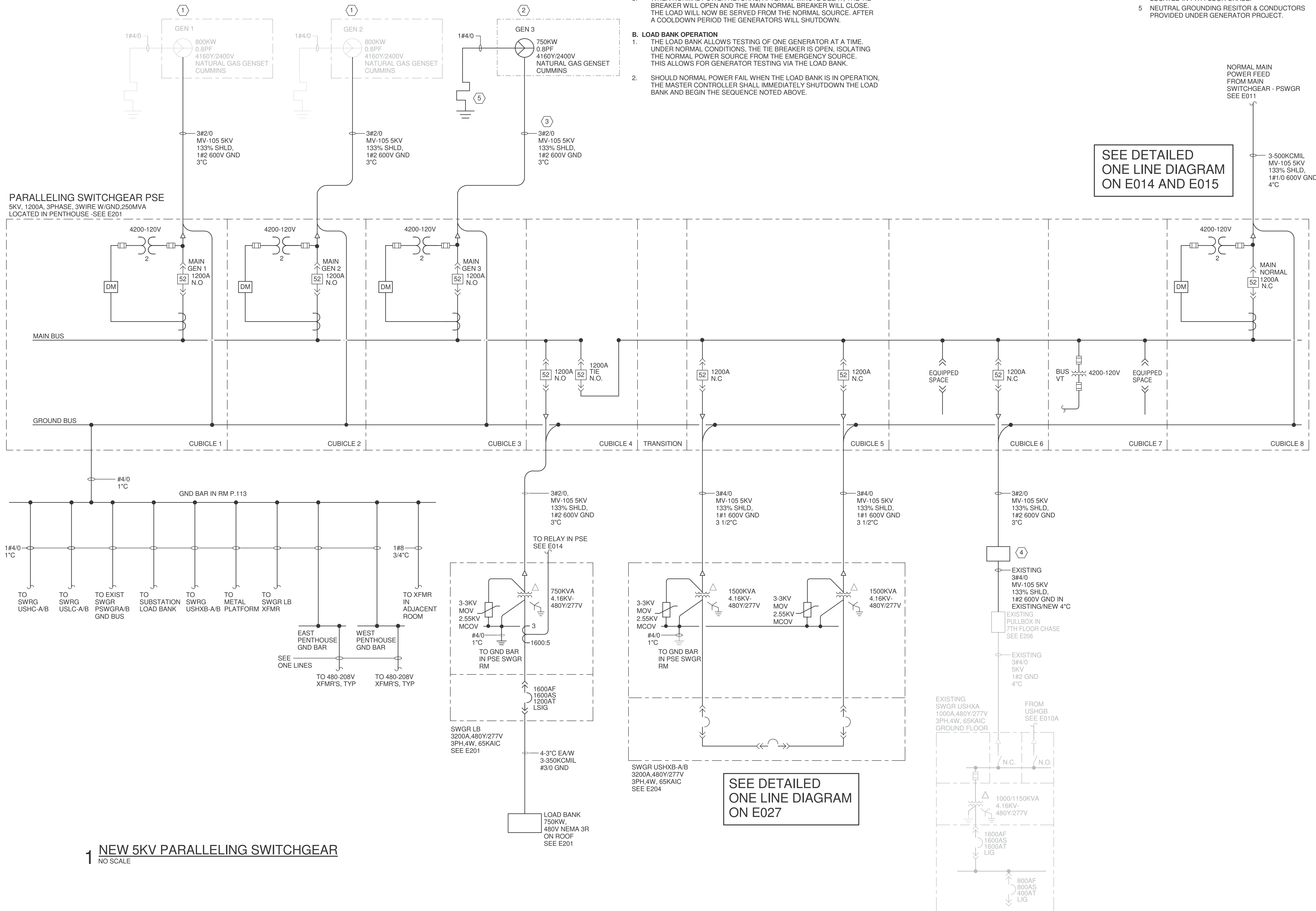
- A. NORMAL/ EMERGENCY**
1. UNDER NORMAL CONDITIONS, THE NORMAL POWER FEEDER PROVIDES POWER TO THE LOADS VIA NORMALLY CLOSED MAIN BREAKER IN SWITCHGEAR PSE.
 2. ON A LOSS OF NORMAL POWER, GEN 1, 2, & 3 WILL START AND THE MAIN NORMAL POWER BREAKER WILL OPEN AND BUS TIE BREAKER WILL CLOSE. THE FIRST GENERATOR TO REACH RATED VOLTAGE AND FREQUENCY WILL RESULT IN THE MAIN GENERATOR BREAKER IN PSE CLOSING INTO THE BUS AND SERVING THE LOAD. THE SECOND AND THIRD GENERATOR WILL CLOSE INTO THE PSE BUS AS THEY ARE SYNCHRONIZED WITH THE FIRST GENERATOR.
 3. WHEN NORMAL POWER RETURNS, AFTER A 5 MINUTE DELAY, THE TIE BREAKER WILL OPEN AND THE MAIN NORMAL BREAKER WILL CLOSE. THE LOAD WILL NOW BE SERVED FROM THE NORMAL SOURCE. AFTER A COOLDOWN PERIOD THE GENERATORS WILL SHUTDOWN.
- B. LOAD BANK OPERATION**
1. THE LOAD BANK ALLOWS TESTING OF ONE GENERATOR AT A TIME. UNDER NORMAL CONDITIONS, THE TIE BREAKER IS OPEN, ISOLATING THE NORMAL POWER SOURCE FROM THE EMERGENCY SOURCE. THIS ALLOWS FOR GENERATOR TESTING VIA THE LOAD BANK.
 2. SHOULD NORMAL POWER FAIL WHEN THE LOAD BANK IS IN OPERATION, THE MASTER CONTROLLER SHALL IMMEDIATELY SHUTDOWN THE LOAD BANK AND BEGIN THE SEQUENCE NOTED ABOVE.

GENERAL NOTES - E013

- EXISTING EQUIPMENT SHOWN LIGHT, NEW WORK SHOWN BOLD.
- SEE ELEVATIONS ON E015 FOR 5KV PARALLELING SWITCHGEAR AND MASTER/GENERATOR CONTROL CUBICLES. MASTER/GENERATOR CONTROL CUBICLES ARE LOCATED REMOTE FROM SWITCHGEAR AND ARE NOT SHOWN ON THIS SHEET.

KEYED NOTES - E013

- 1 REPLACE EXISTING GENERATOR CONTROLLER WITH NEW CUMMINS PCC 3.3 CONTROLLER. THE SYNCHRONIZATION/PARALLELING OF GENERATORS 1, 2, & 3 WILL BE CONTROLLED VIA GENERATOR CONTROLLERS.
- 2 NEW GENERATOR GEN 3 AND FEEDER TO PSE ARE PROVIDED UNDER GENERATOR PROJECT AND SHOWN HERE FOR REFERENCE ONLY.
- 3 CONDUIT AND CONDUCTORS PROVIDED UNDER GENERATOR REPLACEMENT PROJECT.
- 4 48"L X 24"W X 12"D PULL BOX WITH HINGED BOTTOM COVER. SPLICE EXISTING CONDUCTORS TO NEW CONDUCTORS. JBOX LOCATED IN 7TH FLOOR CHASE.
- 5 NEUTRAL GROUNDING RESISTOR & CONDUCTORS PROVIDED UNDER GENERATOR PROJECT.



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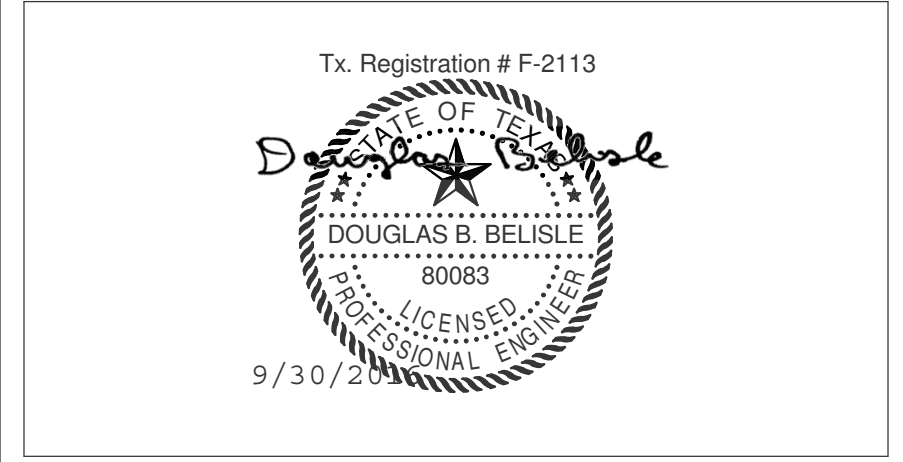
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1	50% CD	02/10/2016

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**MSB SWITCHGEAR
REPLACEMENT**
NEW 5KV PARALLELING
SWITCHGEAR

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E013

Scale: NO SCALE

GENERAL NOTES - E014

- A NEW WORK IS SHOWN BOLD.
- B NOTE THAT PARALLELING SWITCHGEAR MASTER CONTROLLER/GENERATOR CONTROLLERS WILL BE REMOTE FROM 5KV SWITCHGEAR. SEE ELEVATIONS ON E016.

KEYED NOTES - E014

- 1 RESISTOR AND CONDUCTORS AND CONDUIT PROVIDED UNDER GENERATOR PROJECT.
- 2 THIS GENERATOR AND FEEDER CONDUITS AND CONDUCTORS PROVIDED UNDER GENERATOR PROJECT. SHOWN HERE FOR REFERENCE.
- 3 48V DC CONTROL POWER FOR BREAKERS. PROVIDE 48VDC/24VDC CONVERTER TO PROVIDE 24VDC CONTROL POWER FOR SWITCHGEAR CONTROLS.
- 4 EATON POWER EXPERT OR EQUAL DIGITAL METER.
- 5 GENERATOR MANAGEMENT RELAY, GEMULTILIN SR489.
- 6 GEMULTILIN 350 PROTECTIVE RELAY.
- 7 PROVIDE PULL-OUT FUSES FOR EACH LOAD TAPPED FROM 48V DC CONTROL BUS. TYP ONE FUSE PER BREAKER.
- 8 MOUNT IN GENERATOR TERMINAL BOX OR IN NEMA ENCLOSURE ABOVE GENERATOR SUSPENDED FROM STRUCTURE ABOVE.



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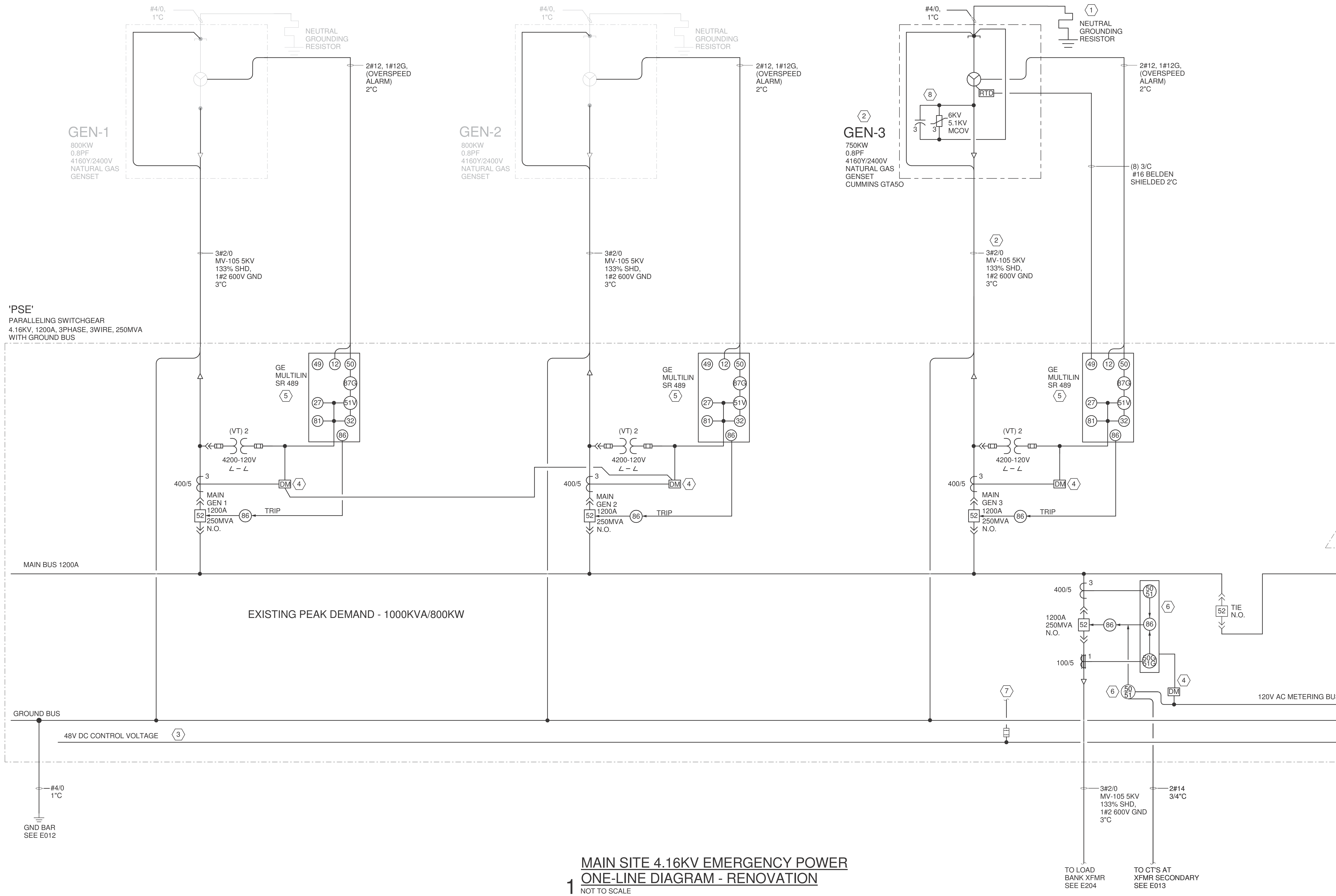
**MSB SWITCHGEAR
REPLACEMENT**

**MAIN SITE 4.16KV EMERGENCY
POWER ONE-LINE DIAGRAM -
RENOVATION**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	

E014

Scale NOT TO SCALE



**1 MAIN SITE 4.16KV EMERGENCY POWER
ONE-LINE DIAGRAM - RENOVATION**
NOT TO SCALE

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GENERAL NOTES - E015

A NEW WORK IS SHOWN BOLD.

KEYED NOTES - E015

- 1 EATON POWER EXPERT OR EQUAL DIGITAL METER.
- 2 GE/MULTILIN 350 PROTECTIVE RELAY OR EQUAL.
- 3 PROVIDE PULL-OUT FUSES FOR EACH LOAD TAPPED FROM 48V DC CONTROL BUS. TYP ONE FUSE PER BREAKER.
- 4 SPLICE EXISTING CONDUCTORS TO NEW IN JUNCTION BOX. JUNCTION BOX SHALL BE 4'L X 2'W X 1'D. LOCATE BOX IN CHASE BASED ON EXISTING FIELD CONDITIONS, SEE E207.



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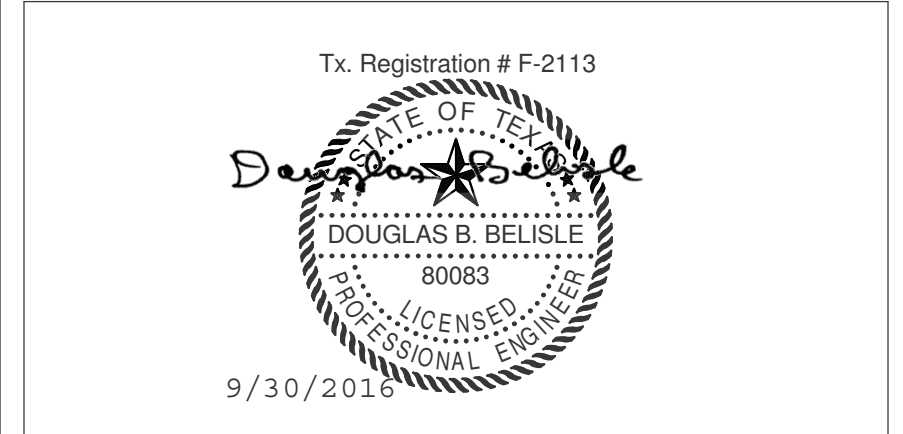
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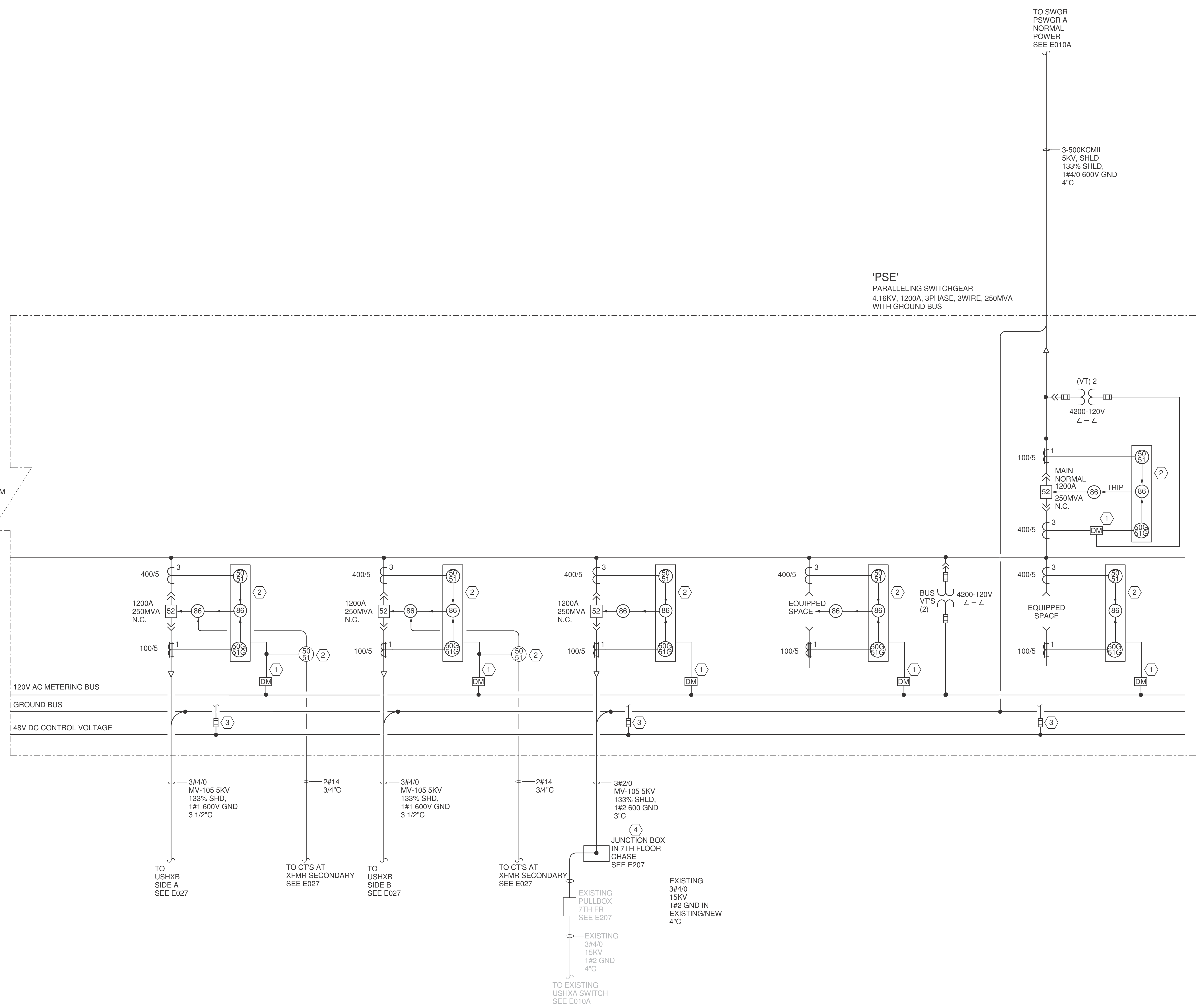
**MSB SWITCHGEAR
REPLACEMENT**

**MAIN SITE 4.16KV EMERGENCY
POWER ONE-LINE DIAGRAM**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E015

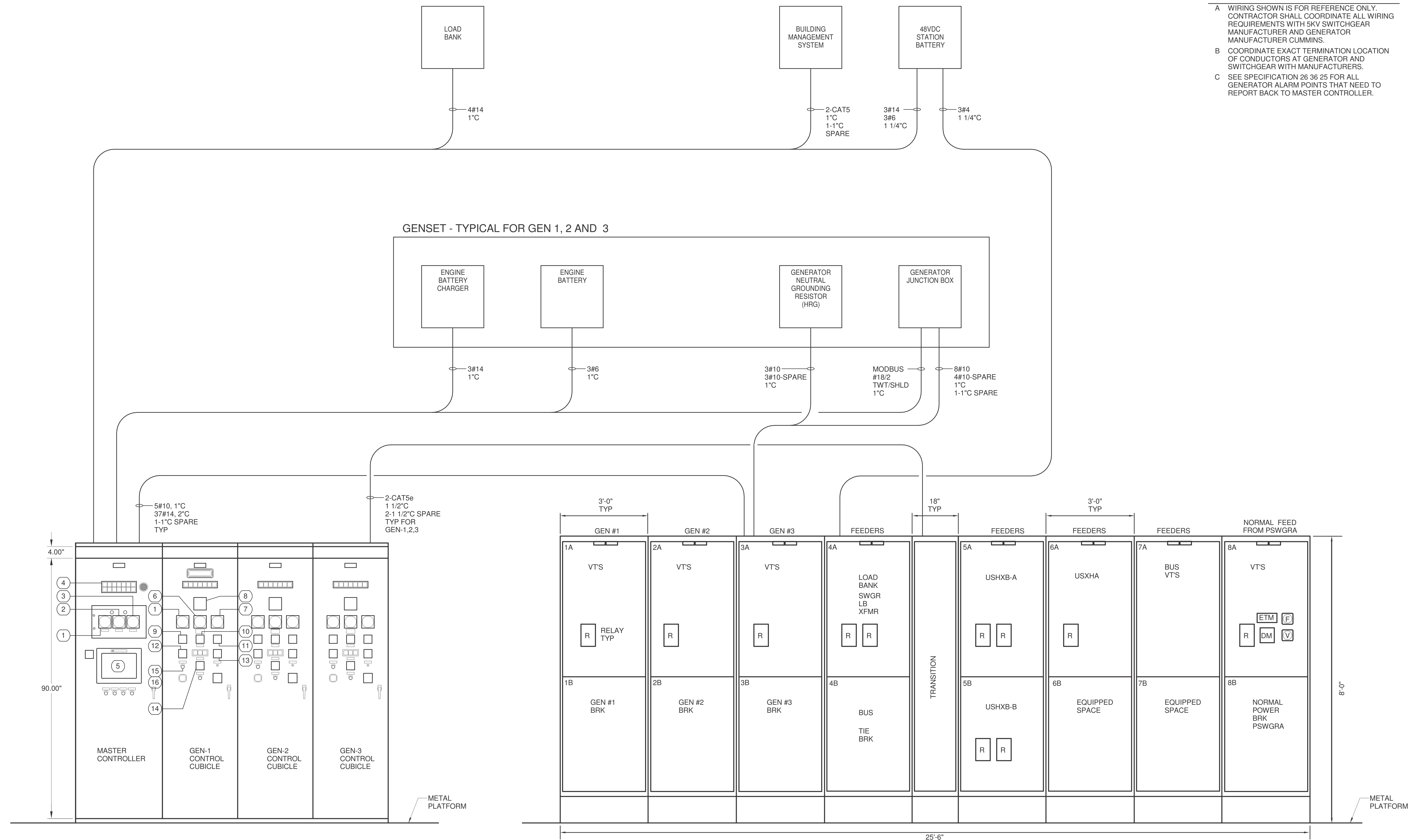
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CONTINUED FROM SHEET E014



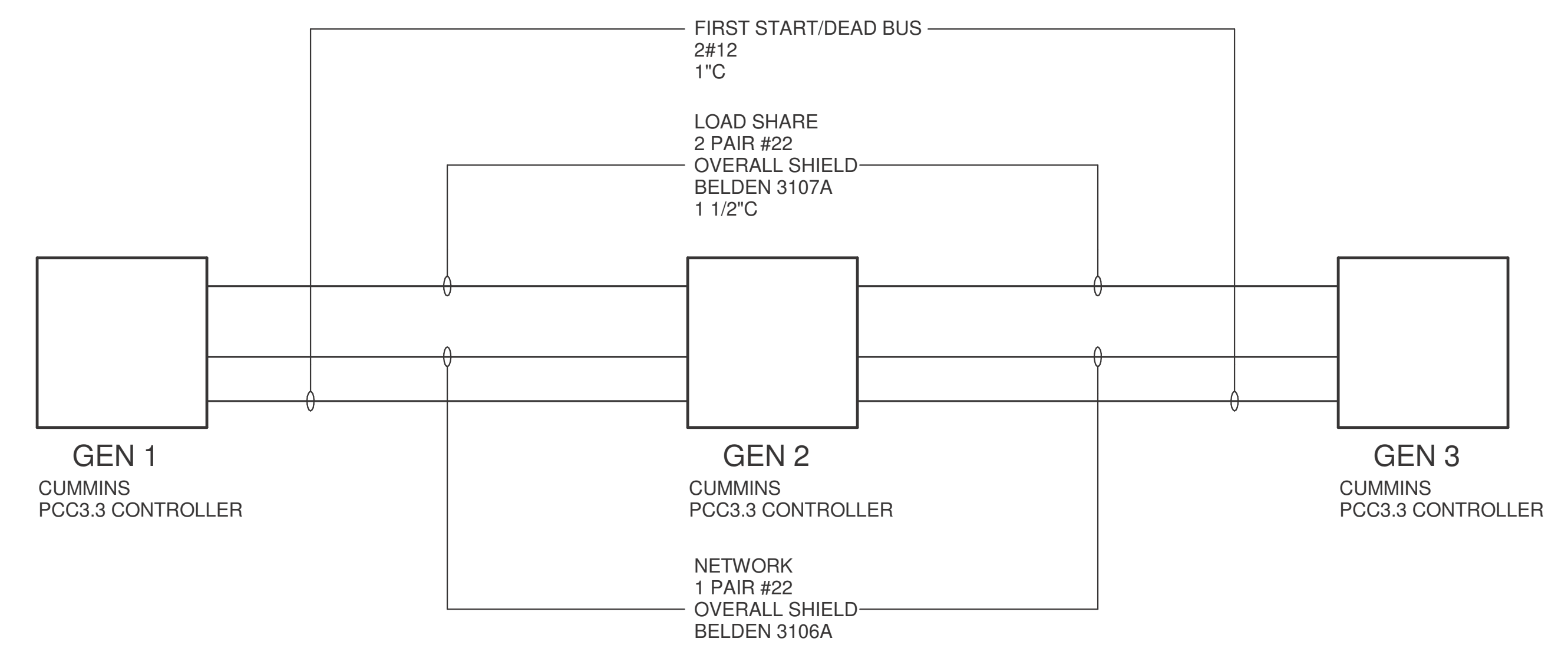
**MAIN SITE 4.16KV NORMAL POWER
ONE-LINE DIAGRAM**
1 NOT TO SCALE

- GENERAL NOTES - E016**
- A WIRING SHOWN IS FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE ALL WIRING REQUIREMENTS WITH SKV SWITCHGEAR MANUFACTURER AND GENERATOR MANUFACTURER CUMMINS.
 - B COORDINATE EXACT TERMINATION LOCATION OF CONDUCTORS AT GENERATOR AND SWITCHGEAR WITH MANUFACTURERS.
 - C SEE SPECIFICATION 26 36 25 FOR ALL GENERATOR ALARM POINTS THAT NEED TO REPORT BACK TO MASTER CONTROLLER.



NEW 5KV PARALLELING SWITCHGEAR PSE & PARALLELING MASTER/GENSET CONTROLLERS - FRONT ELEVATION
1 NOT TO SCALE

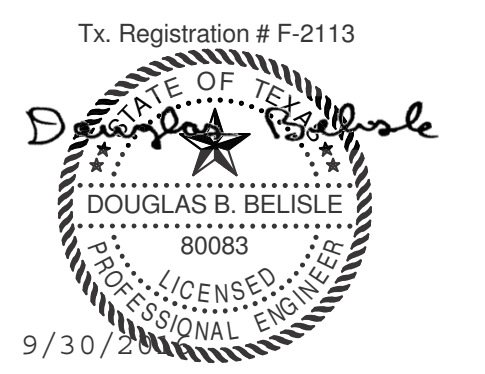
- 1 0-5KV SCALE VOLTMETER -150V MOVEMENT
- 2 SYNCHROSCOPE
- 3 55-65 HZ FREQUENCY METER
- 4 MASTER LIGHT ASSEMBLY
- 5 17" OPERATOR INTERFACE
- 6 ANALOG WATTMETER
- 7 ANALOG AMMETER
- 8 POWER METER
- 9 VOLTMETER SWITCH
- 10 ENGINE SELECTOR SWITCH
- 11 AMMETER SWITCH
- 12 SYNCHRONIZING SWITCH
- 13 FREQUENCY METER SWITCH
- 14 CIRCUIT BREAKER SWITCH
- 15 VOLTAGE ADJUST
- 16 SPEED ADJUST
- 17 MANUAL SYNCH



WIRING REQUIREMENTS BETWEEN GENERATORS 1, 2 AND 3 (VERIFY WITH CUMMINS)
2 NOT TO SCALE

No.	Description	Date
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MSB SWITCHGEAR REPLACEMENT

NEW 5KV PARALLELING SWITCHGEAR PSE - FRONT ELEVATION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	

E016
Scale NOT TO SCALE

GENERAL NOTES - E018

- A REFER TO SHEET E025 FOR NEW WORK.
- B DEMOLITION WORK SHOWN BOLD.

KEYED NOTES - E018

- 1 REMOVE MOST OF THE HORIZONTAL BUSWAY BACK TO SWITCHGEAR. LEAVE A SECTION OF HORIZONTAL BUSWAY FOR CONNECTION TO NEW G.E. SPECTRA BUS. SEE NEW WORK ON SHEET E025.
- 2 REMOVE PANEL/MCC, FEEDER CONDUIT AND CONDUCTORS. BRANCH CIRCUIT SHALL BE EXTENDED TO NEW PANEL.
- 3 REMOVE CONDUIT AND CONDUCTORS. ATS WILL BE SERVED FROM NEW SWITCHGEAR, SEE E025.
- 4 REMOVE SWITCHGEAR INCLUDING INCOMING CONDUIT AND CONDUCTORS.



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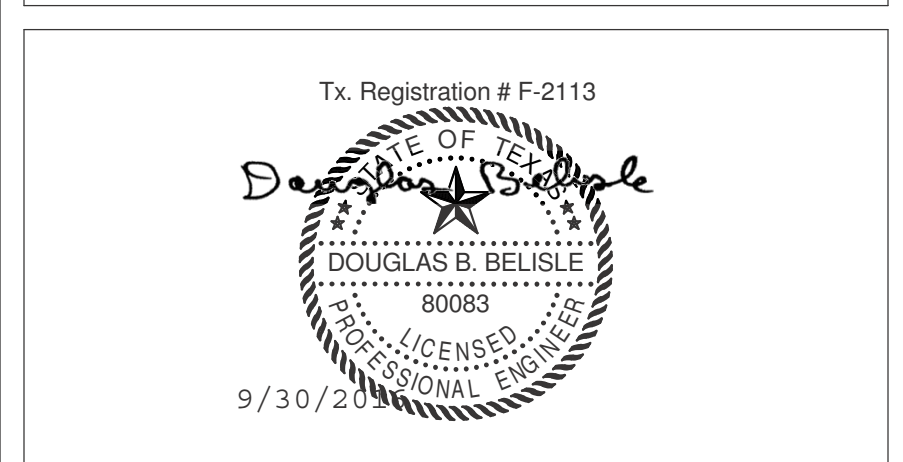


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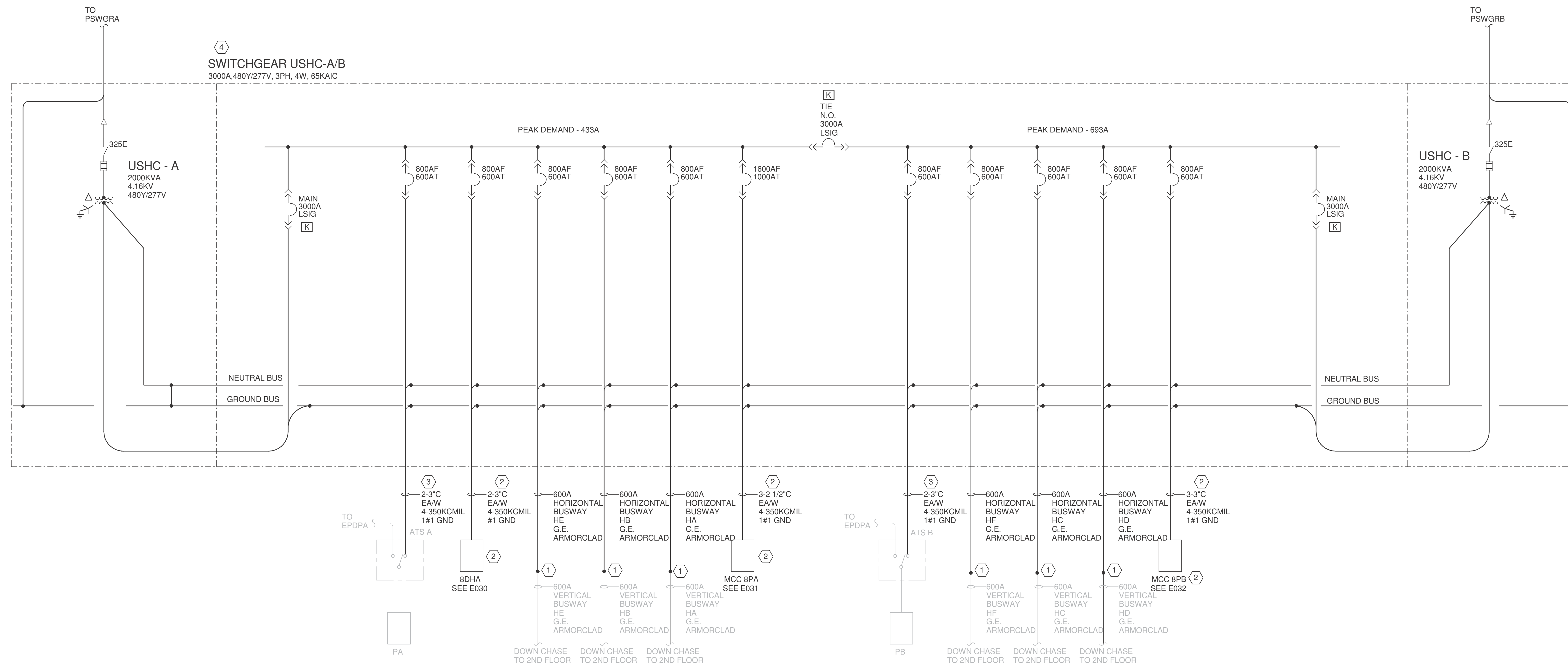


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MSB SWITCHGEAR REPLACEMENT

ONE LINE DIAGRAM - USHC-A, B - DEMOLITION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E018
Scale	NOT TO SCALE



ONE LINE DIAGRAM - USHC-A, B - DEMOLITION
NOT TO SCALE

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GENERAL NOTES - E019

A DEMOLITION WORK SHOWN BOLD.

KEYED NOTES - E019

- 1 REMOVE MOST OF THE HORIZONTAL BUSWAY BACK TO SWITCHGEAR. LEAVE A SECTION OF HORIZONTAL BUSWAY FOR CONNECTION TO NEW G.E. SPECTRA BUS. SEE NEW WORK ON SHEET E025.
- 2 REMOVE PANEL/MCC, FEEDER CONDUIT AND CONDUCTORS. BRANCH CIRCUIT SHALL BE EXTENDED TO NEW PANEL. NOTE THAT NEC LOADS WILL BE CONNECTED TO NEW DISTRIBUTION PANELS.
- 3 REMOVE SWITCHGEAR INCLUDING INCOMING CONDUIT AND CONDUCTORS.

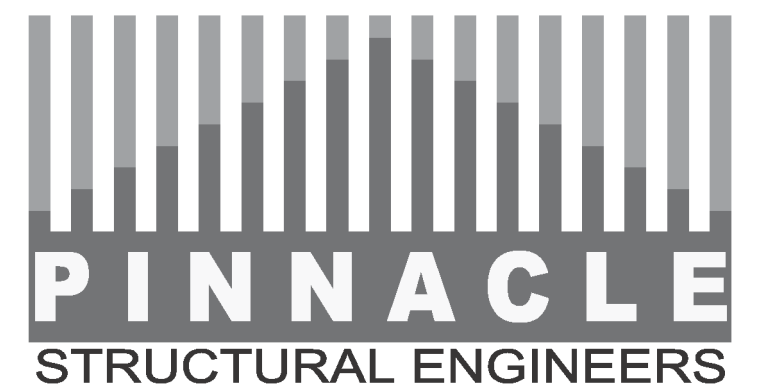


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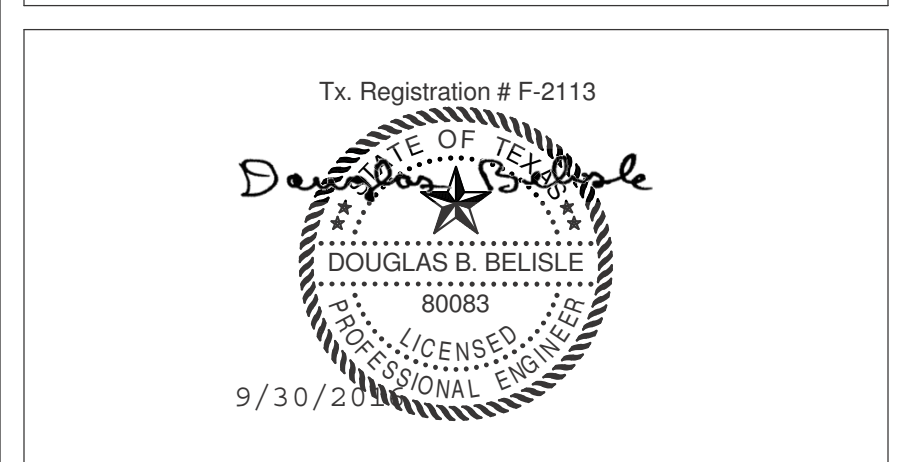


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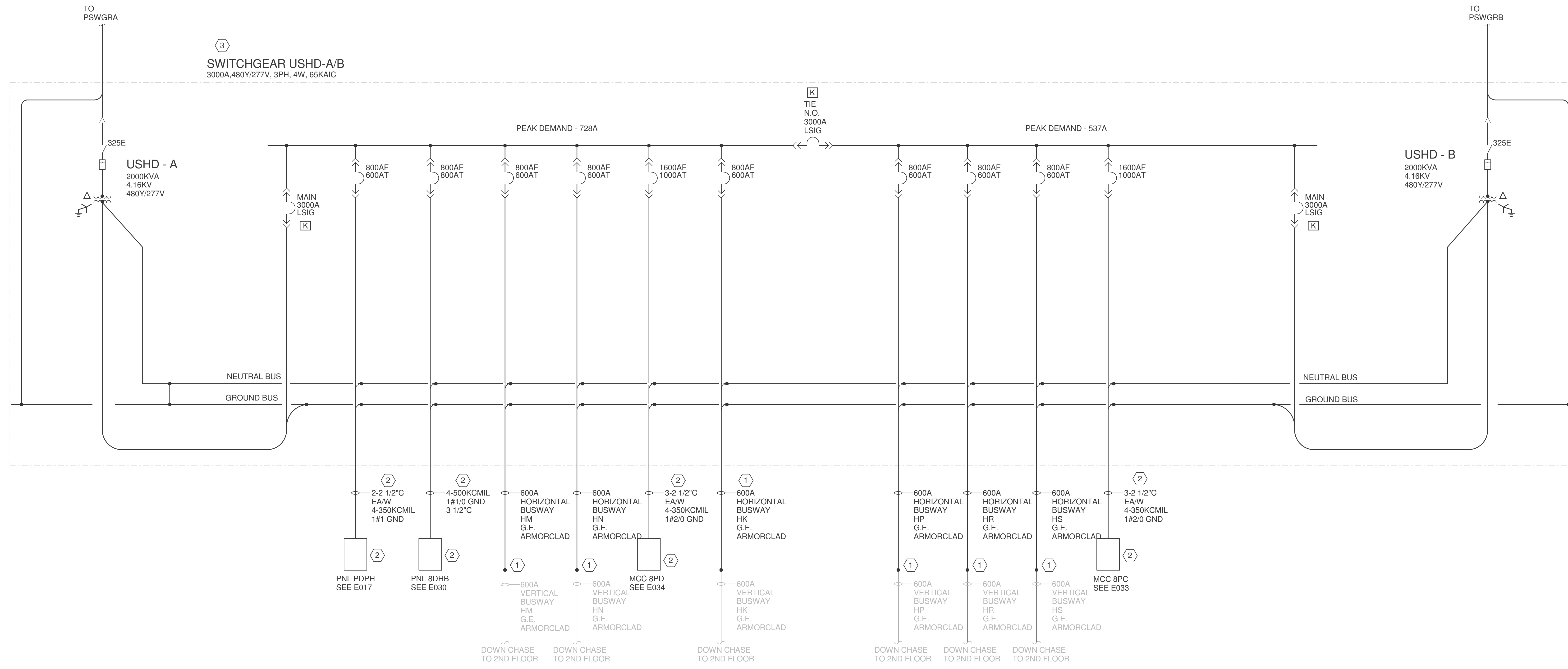


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MSB SWITCHGEAR REPLACEMENT

ONE LINE DIAGRAM - USHD-A, B - DEMOLITION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E019
Scale	NOT TO SCALE



ONE LINE DIAGRAM - USHD-A, B - DEMOLITION

1 NOT TO SCALE

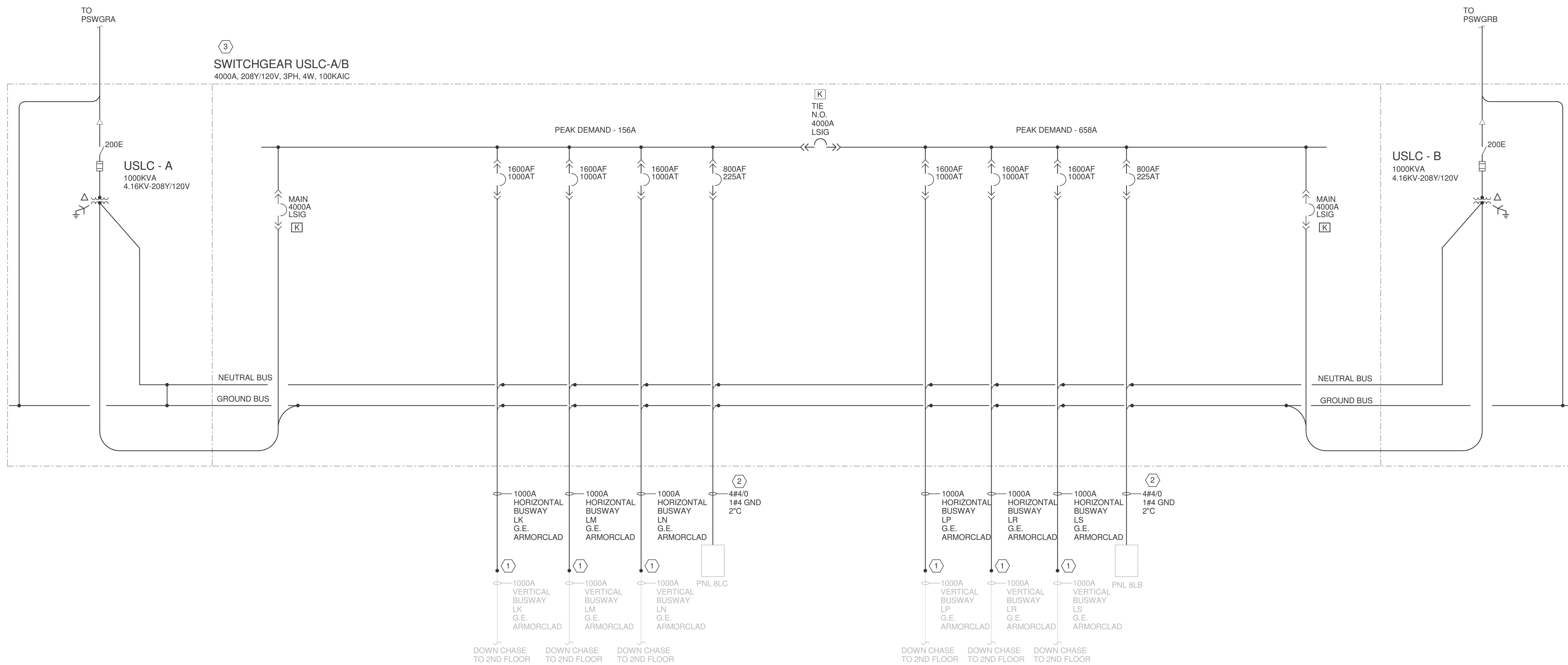
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GENERAL NOTES - E021

A DEMOLITION WORK SHOWN BOLD.

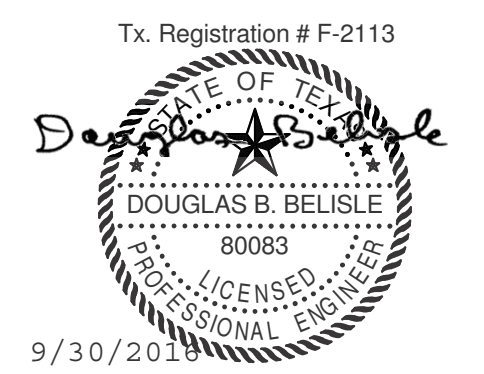
KEYED NOTES - E021

- 1 REMOVE MOST OF THE HORIZONTAL BUSWAY BACK TO SWITCHGEAR. LEAVE A SECTION OF HORIZONTAL BUSWAY FOR CONNECTION TO NEW G.E. SPECTRA BUS. SEE NEW WORK ON SHEET E026.
- 2 REMOVE FEEDER CONDUIT AND CONDUCTORS. PROVIDE NEW CONDUIT AND CONDUCTORS TO RE-FEED EXISTING PANEL, SEE E026.
- 3 REMOVE SWITCHGEAR INCLUDING INCOMING CONDUIT AND CONDUCTORS.



No.	Description	Date
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3	100% CD REVIEW	06/24/2016

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**MSB SWITCHGEAR
REPLACEMENT**

ONE LINE DIAGRAM - USLC-A, B -
DEMOLITON

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E021

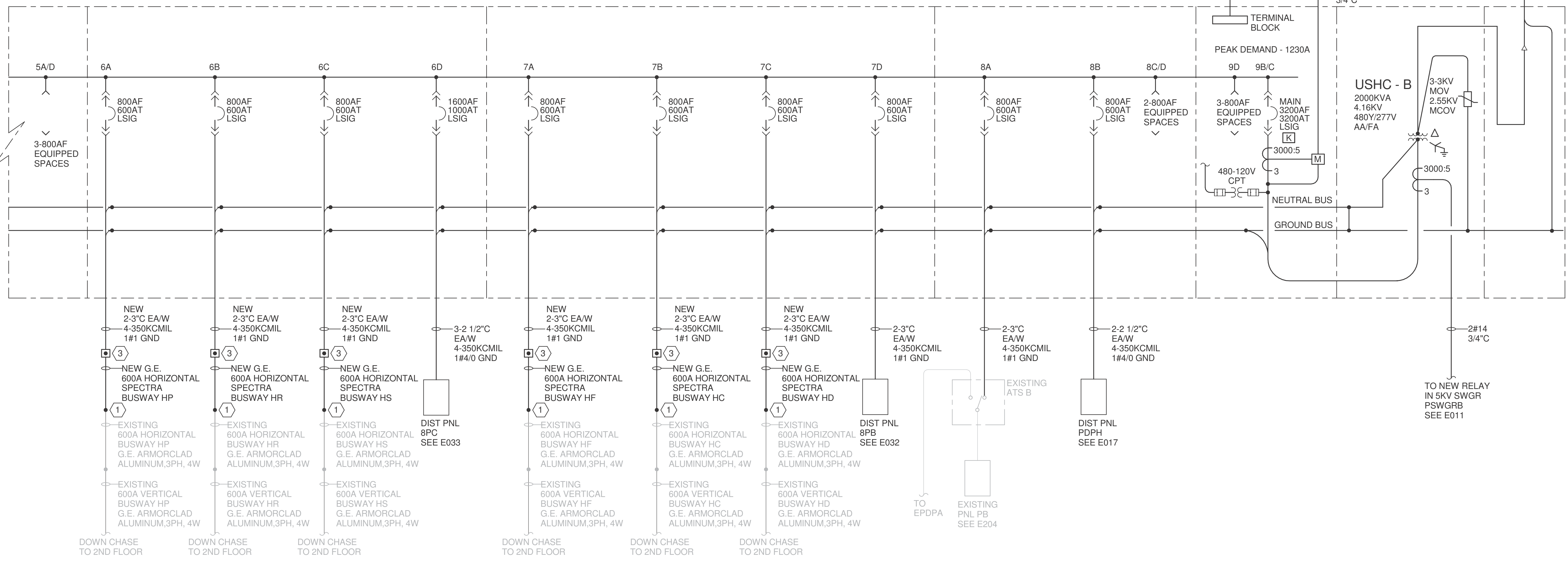
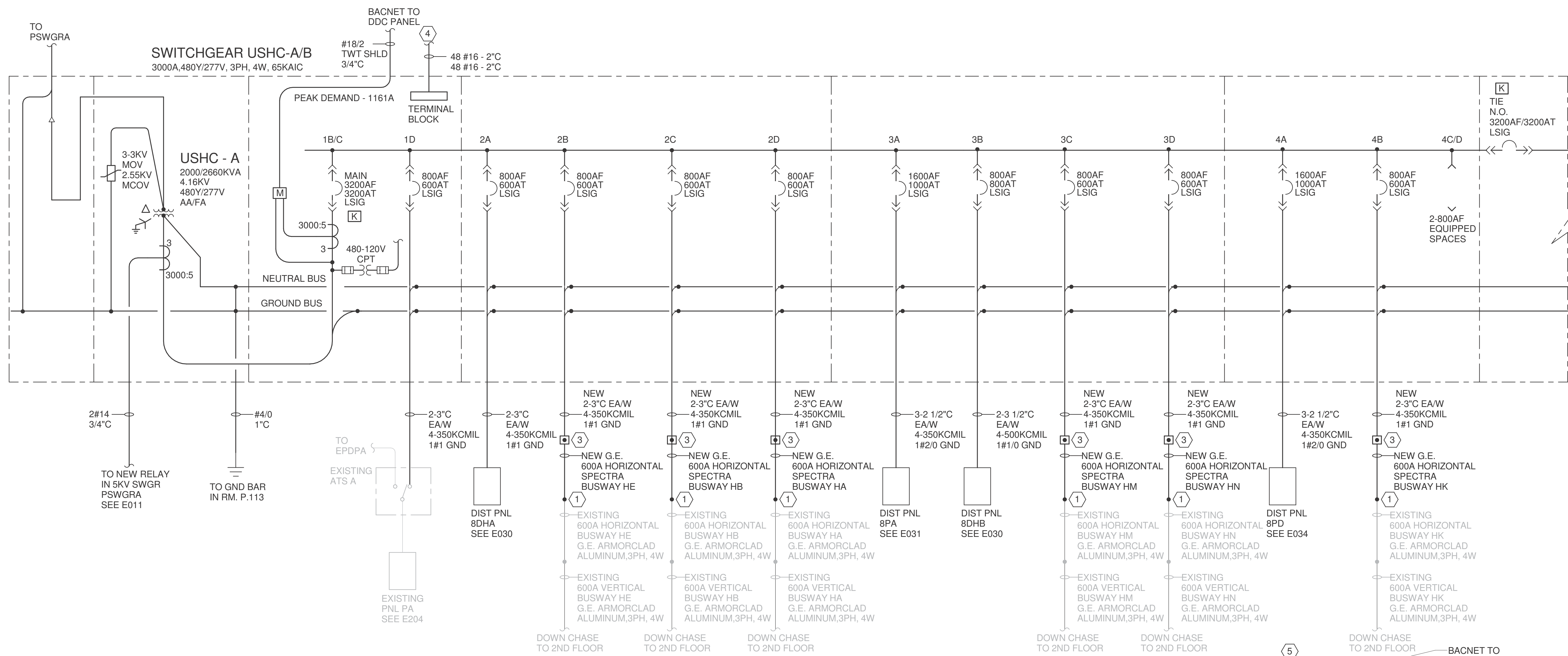
Scale NOT TO SCALE

**ONE LINE DIAGRAM - USLC-A, B -
DEMOLITION**

1 NOT TO SCALE

KEYED NOTES - E025

- 1 PROVIDE NEW G.E. SPECTRA BUSWAY FROM TAP BOX TO EXISTING G.E. ARMORCLAD HORIZONTAL BUSWAY. THE EXISTING HORIZONTAL SECTION SHALL BE AS SHORT AS POSSIBLE BASED ON EXISTING CONDITIONS. FIELD VERIFY EXACT CONNECTION LOCATION.
- 2 TRANSITION SECTION IS NOT REQUIRED. IF TRANSITION SECTION IS NOT NEEDED TO HOUSE CT'S AT TRANSFORMER SECONDARY, IT SHALL BE OMITTED. IF REQUIRED IT SHALL BE 18" WIDE MAXIMUM.
- 3 NEW G.E. 600A CABLE TAP BOX. COORDINATE LOCATION WITH EXISTING CONDITIONS. TRANSITION TO NEW SPECTRA BUSWAY.
- 4 TO CONTROL PANEL FOR REMOTE BREAKER OPERATION AND STATUS. COORDINATE EXACT WIRING REQUIREMENTS WITH SWGR MANUFACTURER.
- 5 TO CONTROL PANEL FOR REMOTE BREAKER OPERATION AND STATUS. INSTALL ALL WIRING FOR SIDE B IN THIS CONDUIT. COORDINATE EXACT WIRING REQUIREMENTS WITH SWGR MANUFACTURER.

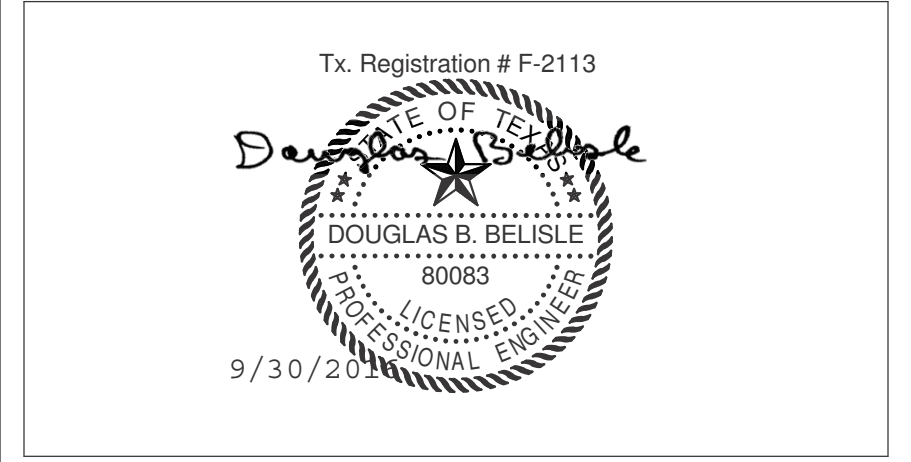


5KV TERM CABINET	XFMR	②	METERING	1A	2A	3A	4A	5A	6A	7A	8A	9A	②	5KV TERM CABINET
			MAIN	1BC	2B	3BC	4B	5BC	6B	7B	8B	9BC		
				BUS RISER HE	PNL 8DHB	BUS RISER HK	TIE	BUS RISER HR	BUS RISER HC	800A PNL PDPH	MAIN			
				BUS RISER HB	BUS RISER HM	800A EQUIPPED SPACE	BUS RISER HS	BUS RISER HD	800A EQUIPPED SPACE					
ATS-A	1D	2D	3D	4D	5D	6D	7D	8D	9D					
			BUS RISER HA	BUS RISER HN	800A EQUIPPED SPACE	800A EQUIPPED SPACE	PNL 8PC	PNL 8PB	800A EQUIPPED SPACE	800A EQUIPPED SPACE				

ONE LINE DIAGRAM - USHC-A, USHC-B - RENOVATION
1 NOT TO SCALE

4	ISSUED FOR CONSTRUCTION	09/30/2016
3	100% CD REVIEW	06/24/2016
No.	Description	Date

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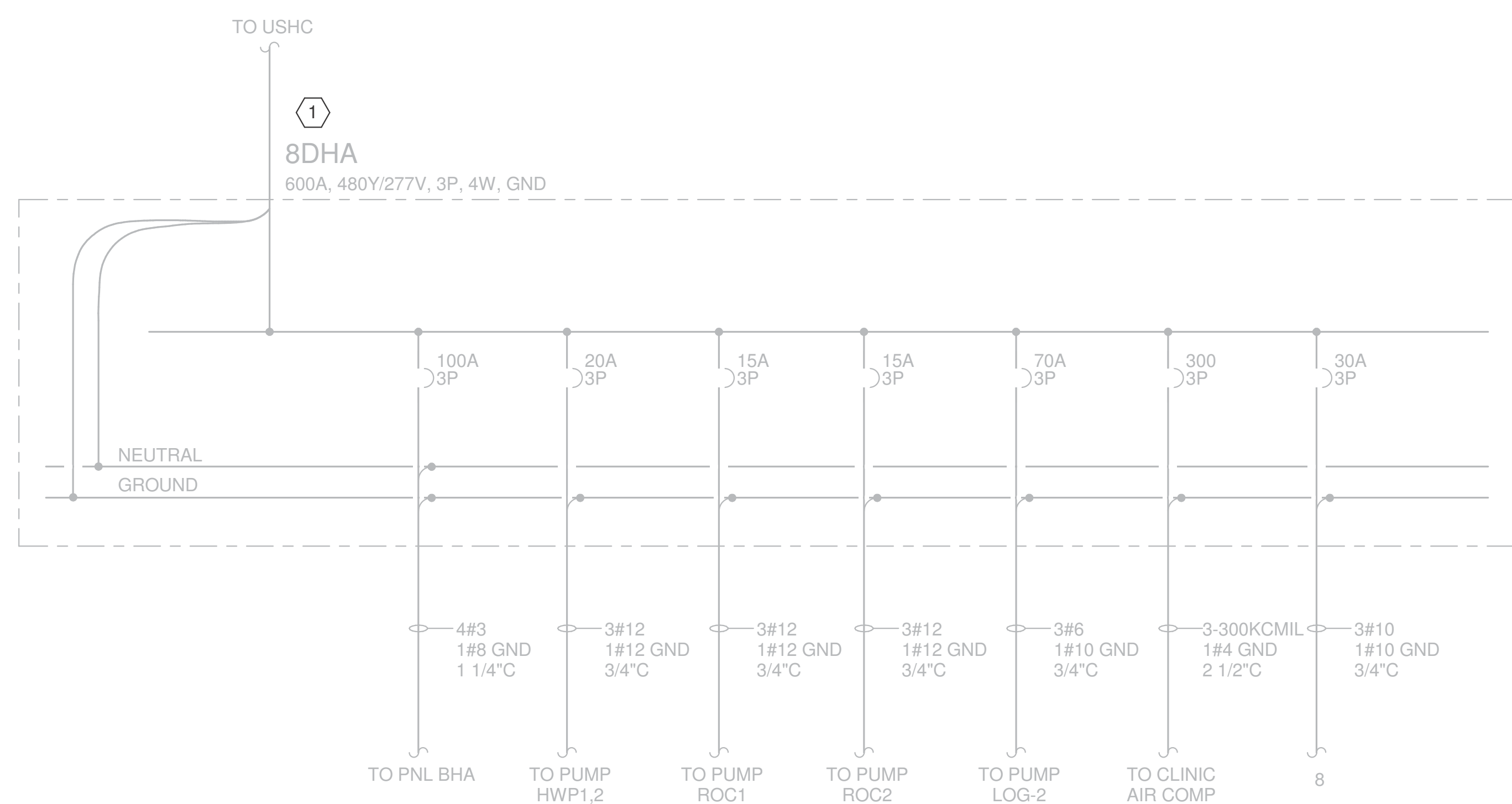
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MSB SWITCHGEAR REPLACEMENT

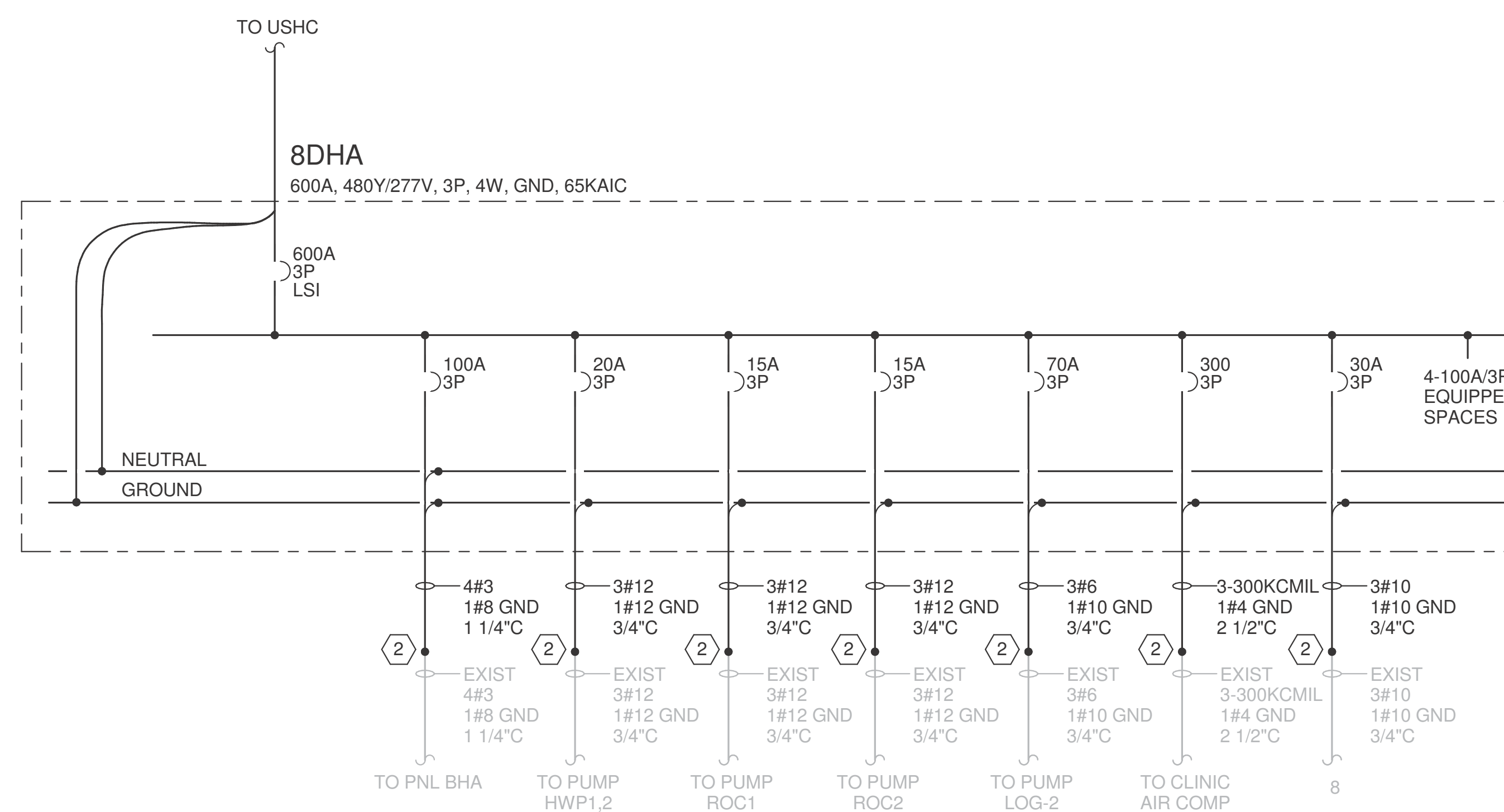
ONE LINE DIAGRAM - USHC-A, USHC-B - RENOVATION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	

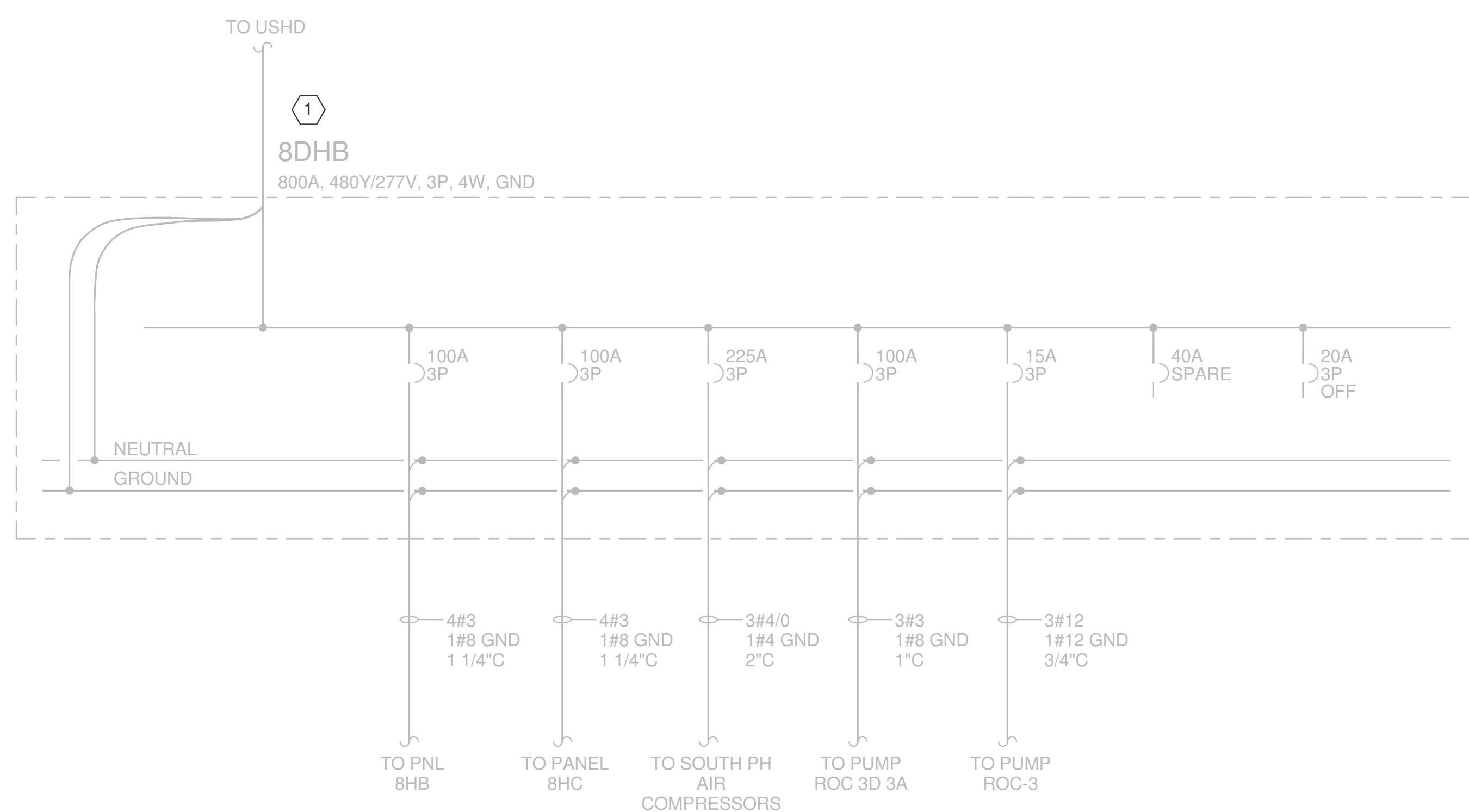
E025
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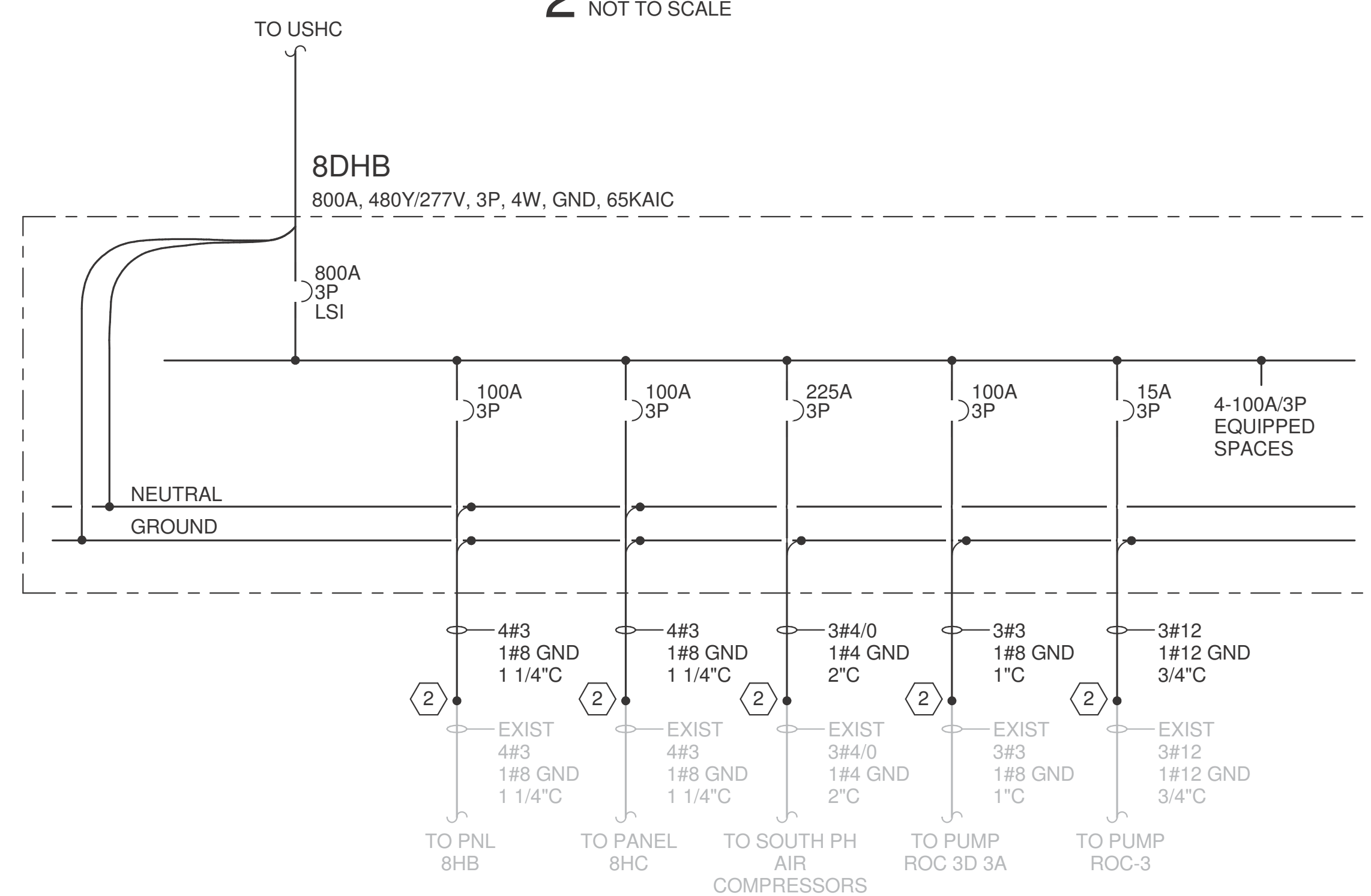
1 ONE LINE DIAGRAM - 8DHA DEMOLITION
NOT TO SCALE



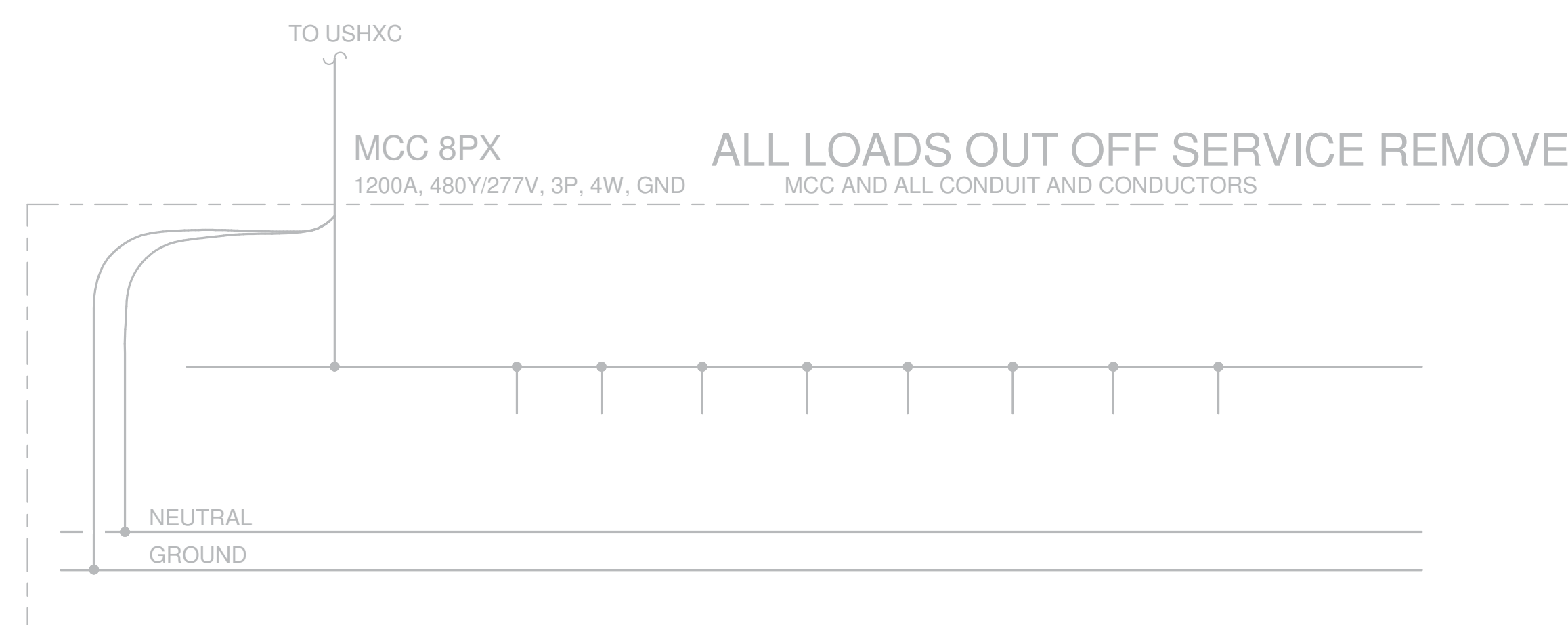
2 ONE LINE DIAGRAM - DISTRIBUTION PANEL 8DHA RENOVATION
NOT TO SCALE



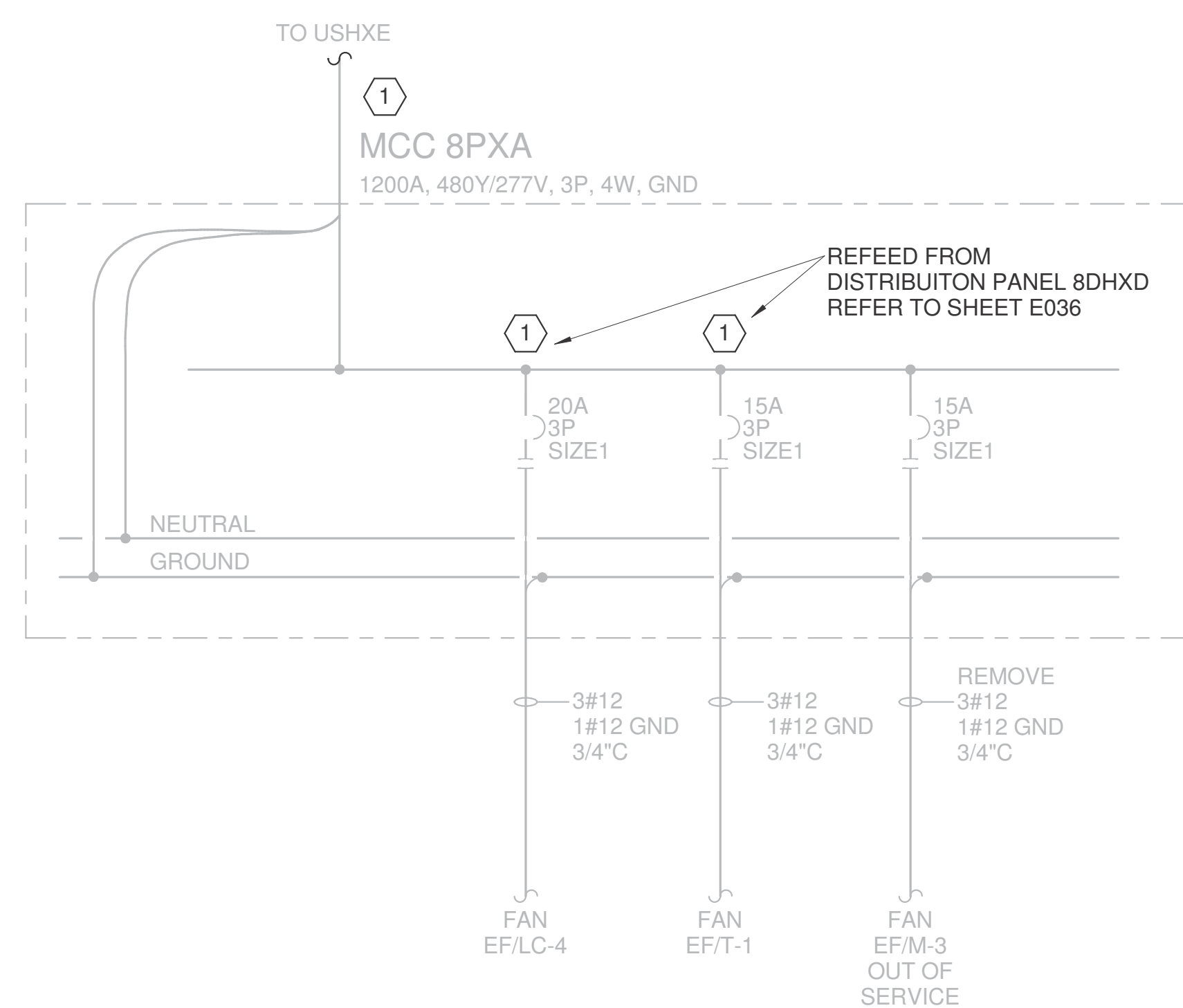
3 ONE LINE DIAGRAM - 8DHB DEMOLITION
NOT TO SCALE



4 ONE LINE DIAGRAM - DISTRIBUTION PANEL 8DHB RENOVATION
NOT TO SCALE



5 ONE LINE DIAGRAM - MCC 8PX DEMOLITION
NOT TO SCALE



6 ONE LINE DIAGRAM - MCC 8PXA DEMOLITION
NOT TO SCALE

GENERAL NOTES - E030
A NEW WORK SHOWN BOLD.

KEYED NOTES - E030

- 1 REMOVE PANELBOARD/MCC FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS.
- 2 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL.

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Douglas B. Belisle
DOUGLAS B. BELISLE
198003
LICENSED PROFESSIONAL ENGINEER
9/30/2016

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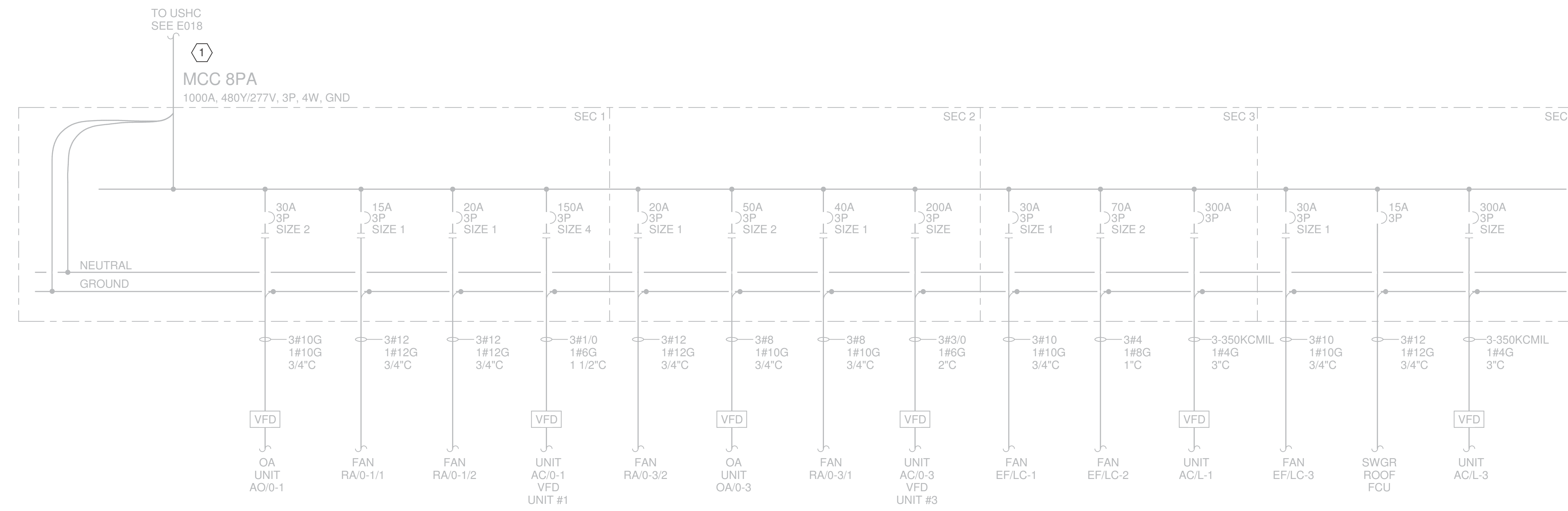
ONE LINE DIAGRAM PANELS/MCC'S DEMO AND RENO

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	

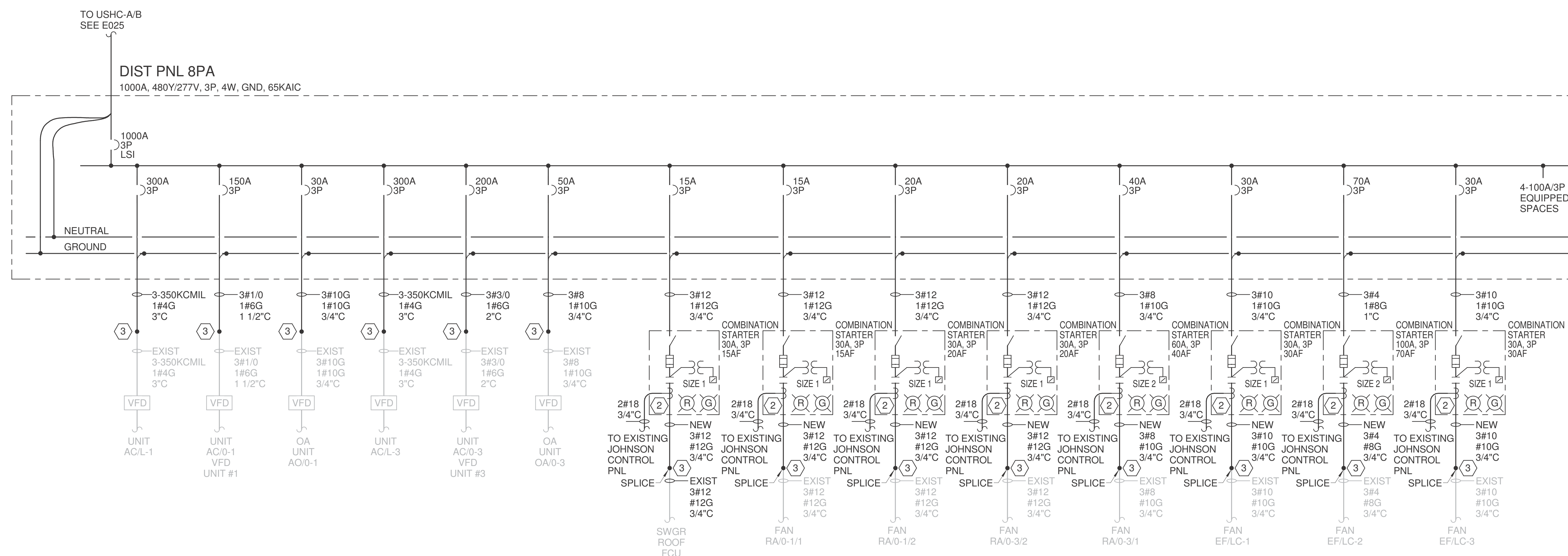
E030
Scale NOT TO SCALE

KEYED NOTES - E031

- 1 REMOVE MCC AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS. EXTEND START/STOP WIRING IN 3/4" C TO NEW COMBINATION STARTER PER KEYED NOTE 2.
- 2 SPLIT CORE CT FOR MOTOR STATUS, LOCATE AROUND "A" PHASE. WRAP CONDUCTORS THROUGH SERVING HOLE AS REQUIRED FOR CURRENT DETECTION. CONNECT TO EXISTING JOHNSON CONTROL PNL AS INDICATED. IN ADDITION, EXTEND START/STOP CONTROL WIRING FROM EXISTING MCC STARTER TO NEW STARTER AND INSTALL IN 3/4" C. SEE DETAIL 6/E501. COORDINATE EXACT LOCATION OF DDC PANEL WITH OWNER.
- 3 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL, OR STARTER.



ONE LINE DIAGRAM - MCC 8PA
1 DEMOLITION
 NOT TO SCALE



ONE LINE DIAGRAM - DIST PNL 8PA
2 RENOVATION
 NOT TO SCALE



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**MSB SWITCHGEAR
 REPLACEMENT**

**ONE LINE DIAGRAM
 PANEL/MCC
 DEMO AND RENO**

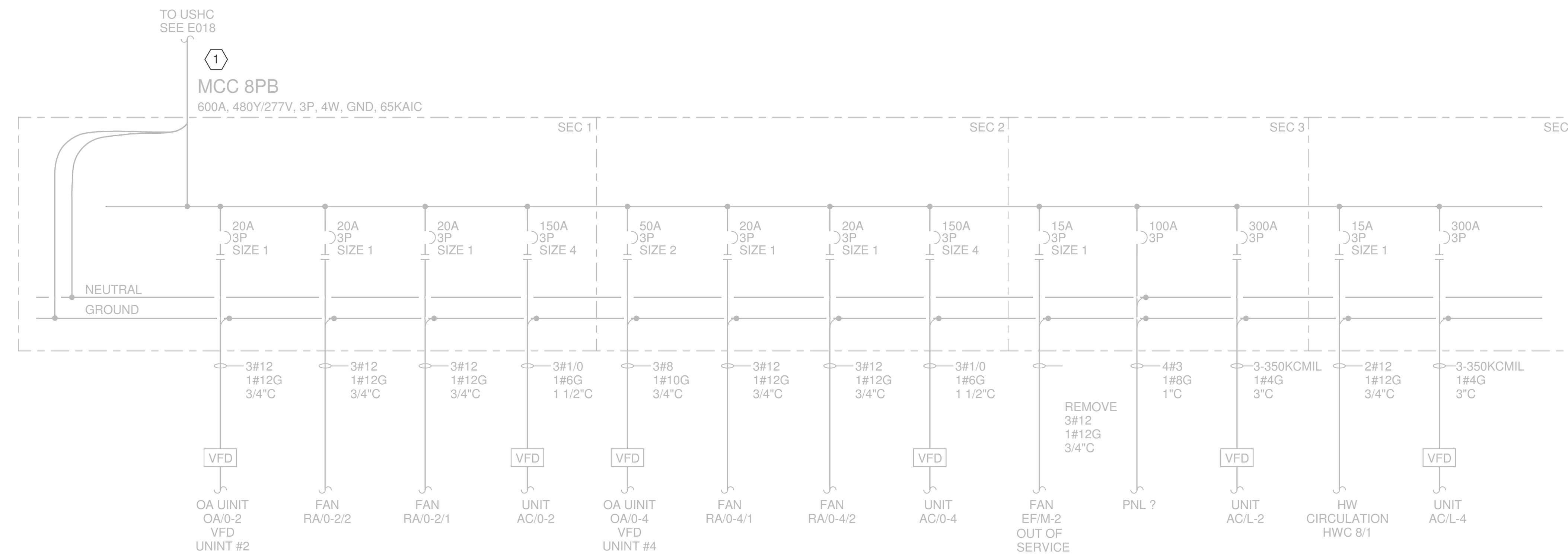
SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	E031

Scale NOT TO SCALE

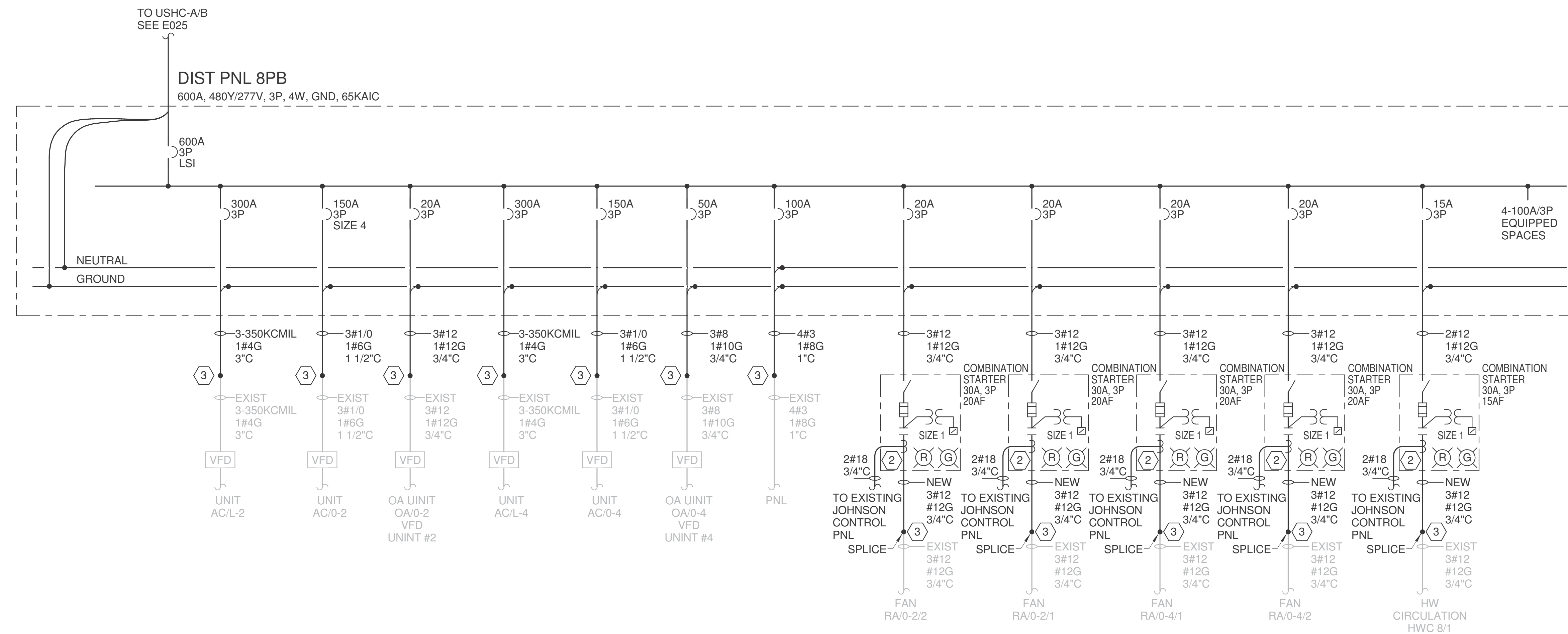
GENERAL NOTES - E032
 A NEW WORK SHOWN BOLD.

KEYED NOTES - E032

- 1 REMOVE MCC AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS. EXTEND START/STOP WIRING IN 3/4" TO NEW COMBINATION STARTER PER KEYED NOTE 2.
- 2 SPLIT CORE CT FOR MOTOR STATUS. LOCATE AROUND "A" PHASE. WRAP CONDUCTORS THROUGH SERVING HOLE AS REQUIRED FOR CURRENT DETECTION. CONNECT TO EXISTING JOHNSON CONTROL PNL AS INDICATED. IN ADDITION, EXTEND START/STOP CONTROL WIRING FROM EXISTING MCC STARTER TO NEW STARTER AND INSTALL IN 3/4" C. SEE DETAIL 6/E501. COORDINATE EXACT LOCATION OF DDC PANEL WITH OWNER.
- 3 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL, OR STARTER.



ONE LINE DIAGRAM - MCC 8PB
1 DEMOLITION
 NOT TO SCALE



ONE LINE DIAGRAM - DIST PNL 8PB
2 RENOVATION
 NOT TO SCALE



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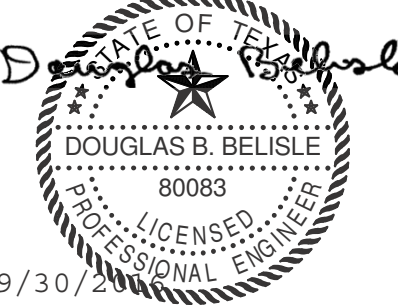
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**MSB SWITCHGEAR
 REPLACEMENT**

ONE LINE DIAGRAM PANEL/MCC
 DEMO AND RENO

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Designed By	Designer
Checked By	Checker
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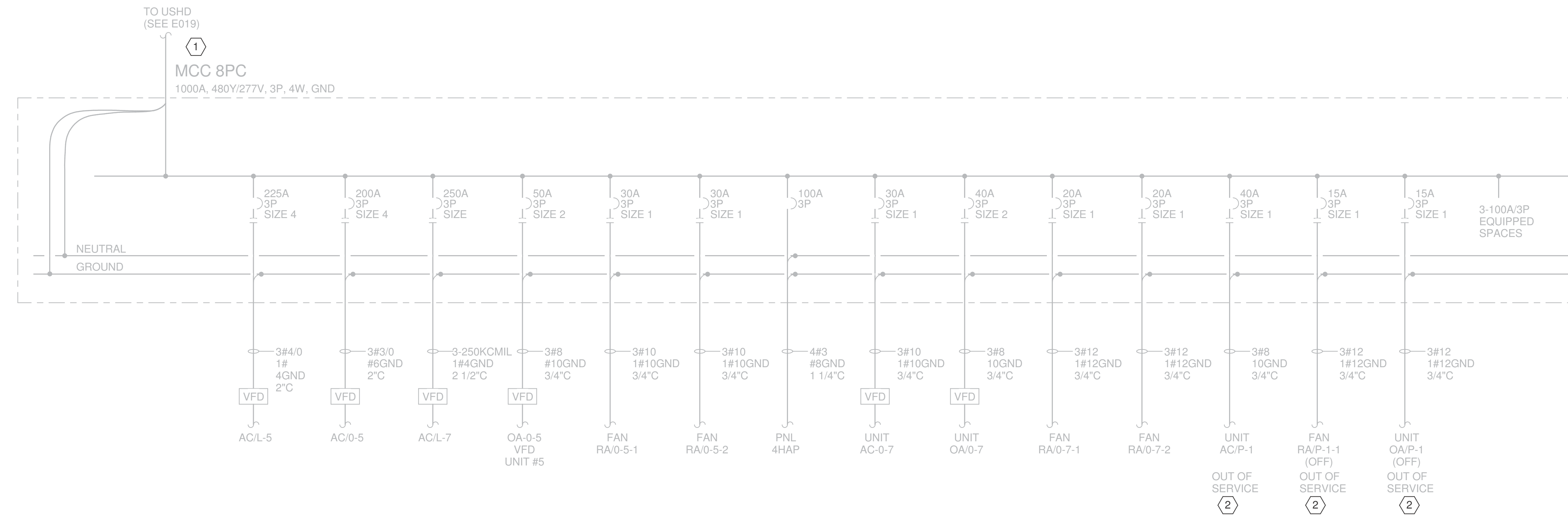
E032

Scale NOT TO SCALE

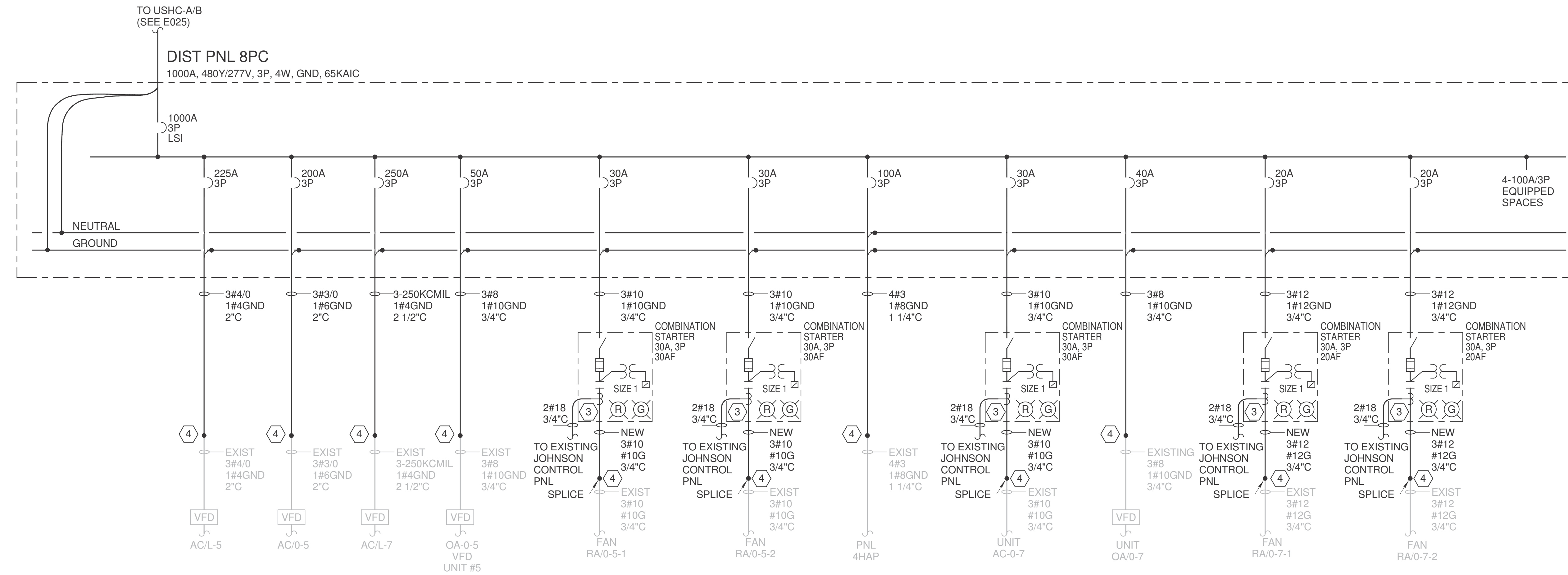
GENERAL NOTES - E033
 A NEW WORK SHOWN BOLD.

KEYED NOTES - E033

- 1 REMOVE MCC AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS. EXTEND START/STOP WIRING IN 3/4" C TO NEW COMBINATION STARTER PER KEYED NOTE 3.
- 2 REMOVE CONDUIT AND CONDUCTORS BETWEEN LOAD AND SOURCE.
- 3 SPLIT CORE CT FOR MOTOR STATUS. LOCATE AROUND "A" PHASE. WRAP CONDUCTORS THROUGH SERVING HOLE AS REQUIRED FOR CURRENT DETECTION. CONNECT TO EXISTING JOHNSON CONTROL PNL AS INDICATED. IN ADDITION, EXTEND START/STOP CONTROL WIRING FROM EXISTING MCC STARTER TO NEW STARTER AND INSTALL IN 3/4" C. SEE DETAIL 6/E501. COORDINATE EXACT LOCATION OF DDC PANEL WITH OWNER.
- 4 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL OR STARTER.



ONE LINE DIAGRAM - MCC 8PC
1 DEMOLITION
 NOT TO SCALE

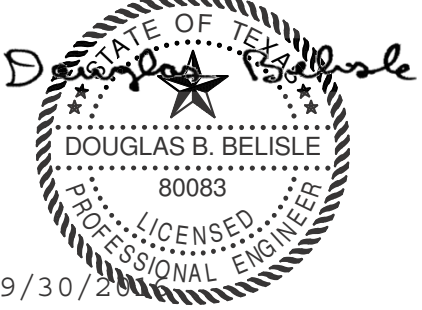


ONE LINE DIAGRAM - DIST PNL 8PC
2 RENOVATION
 NOT TO SCALE

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ONE LINE DIAGRAM PANEL/MCC
 DEMO AND RENO

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E033

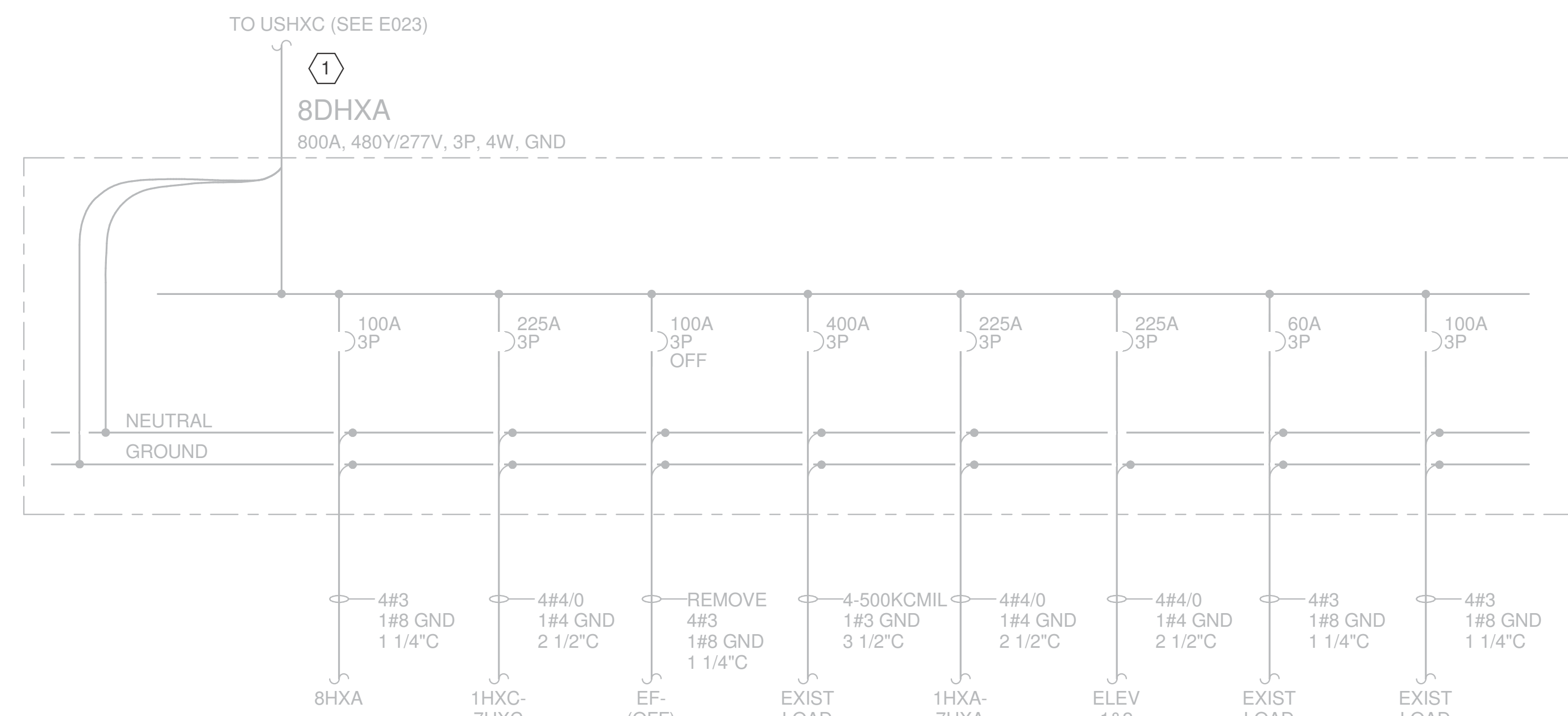
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GENERAL NOTES - E035

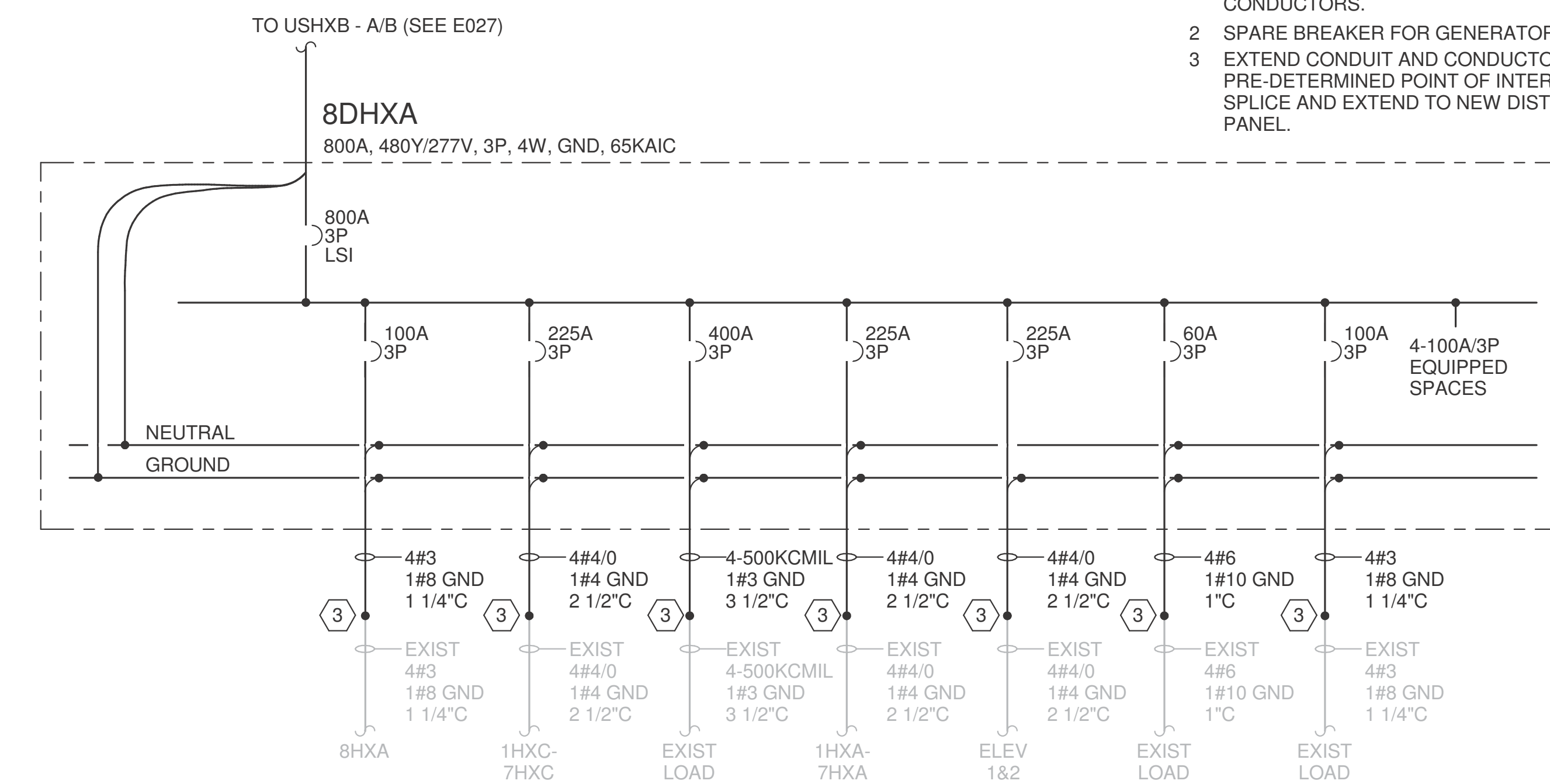
A NEW WORK SHOWN BOLD.

KEYED NOTES - E035

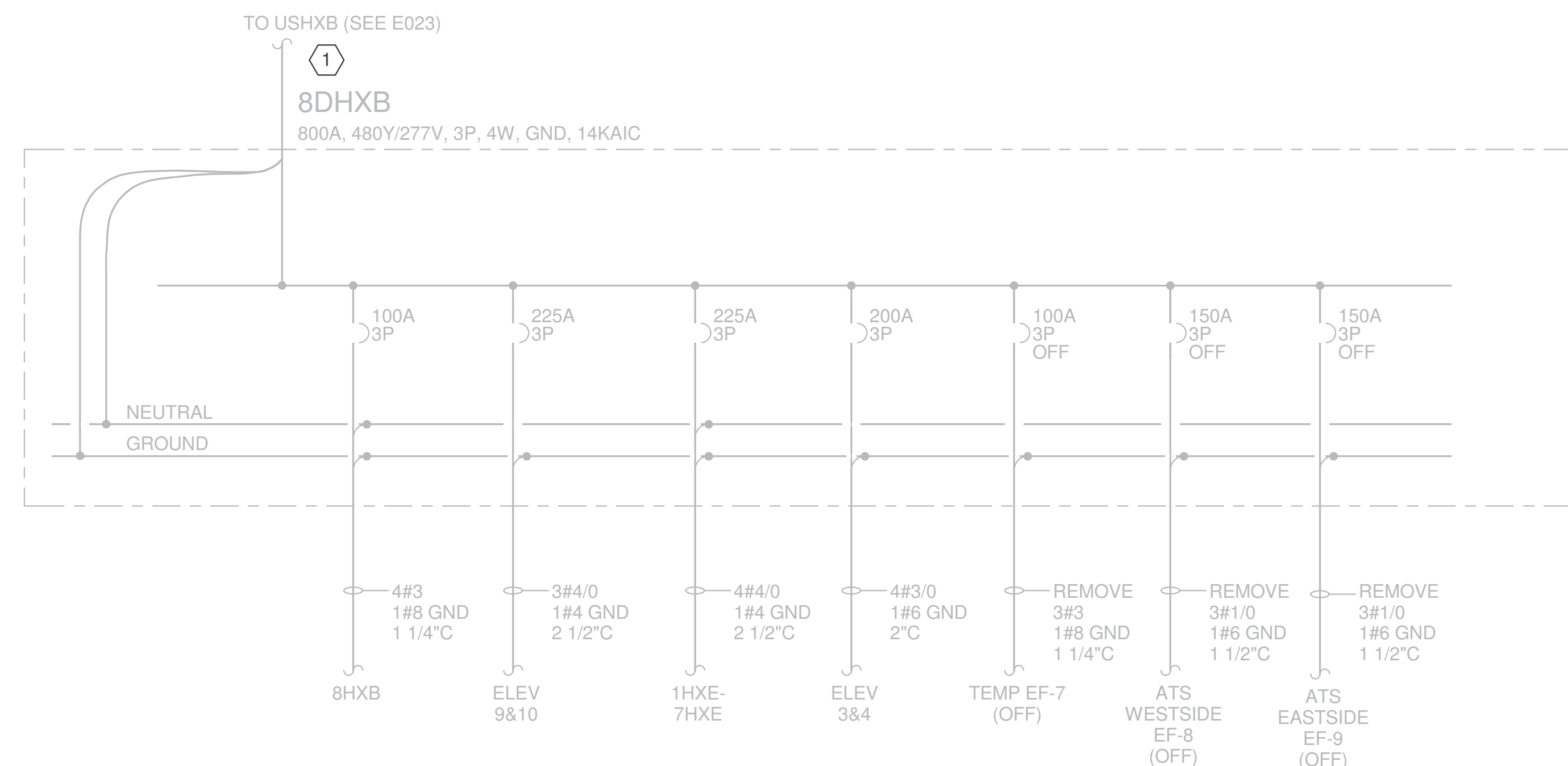
- 1 REMOVE PANELBOARD AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS.
- 2 SPARE BREAKER FOR GENERATOR 3 PROJECT.
- 3 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL.



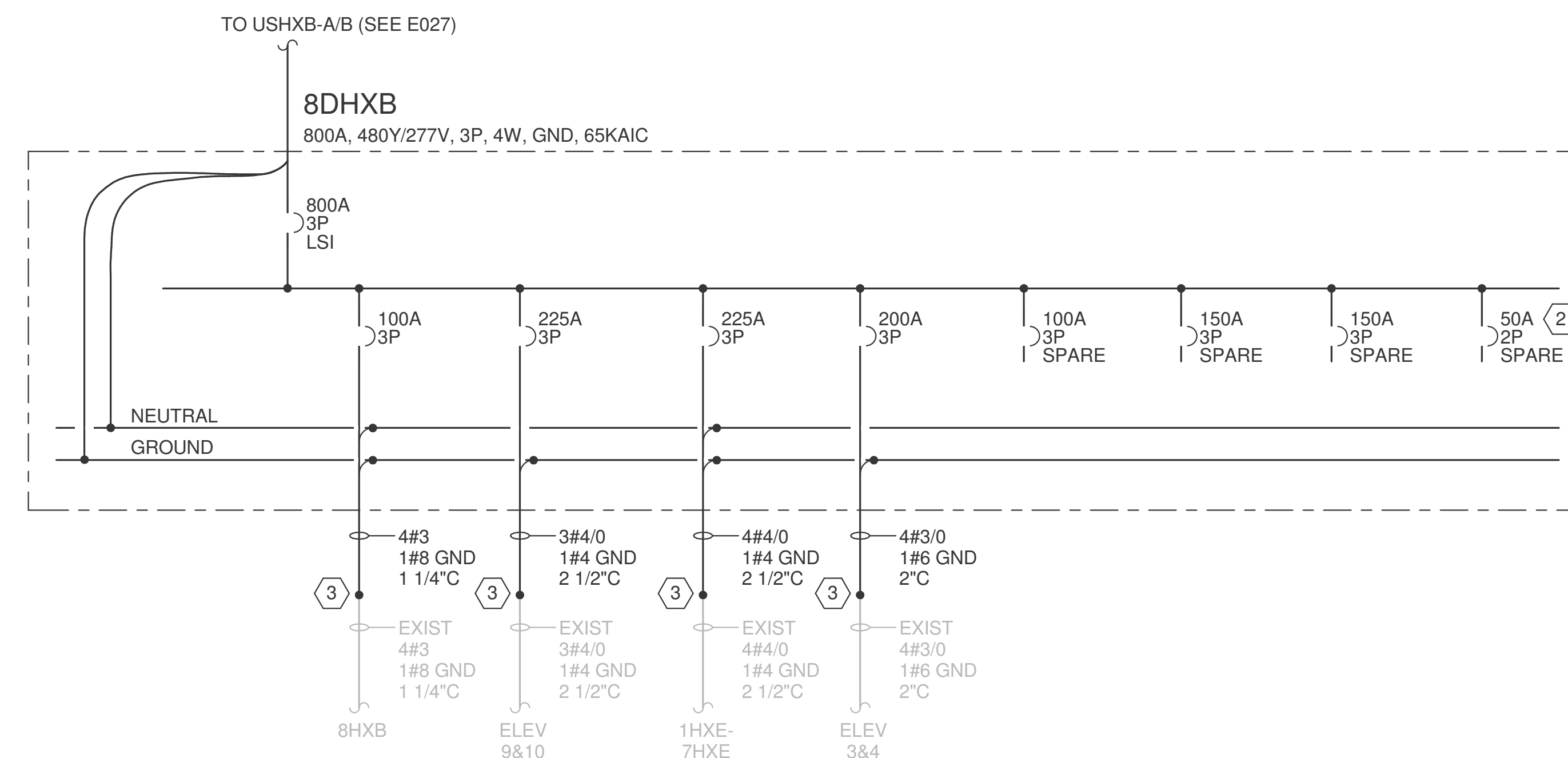
1 ONE LINE DIAGRAM - 8DHXA DEMOLITION
NOT TO SCALE



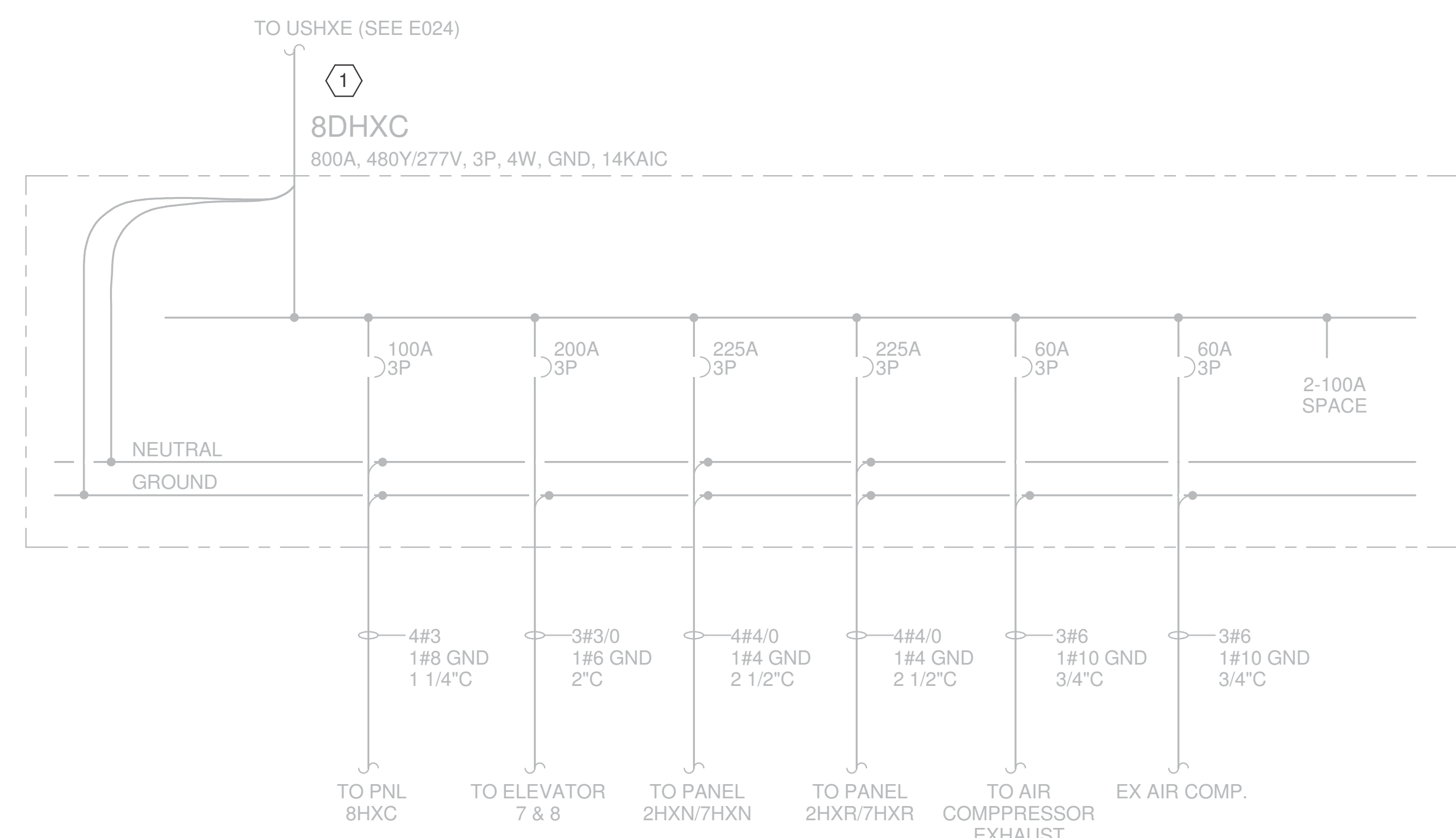
2 ONE LINE DIAGRAM - 8DHXA RENOVATION
NOT TO SCALE



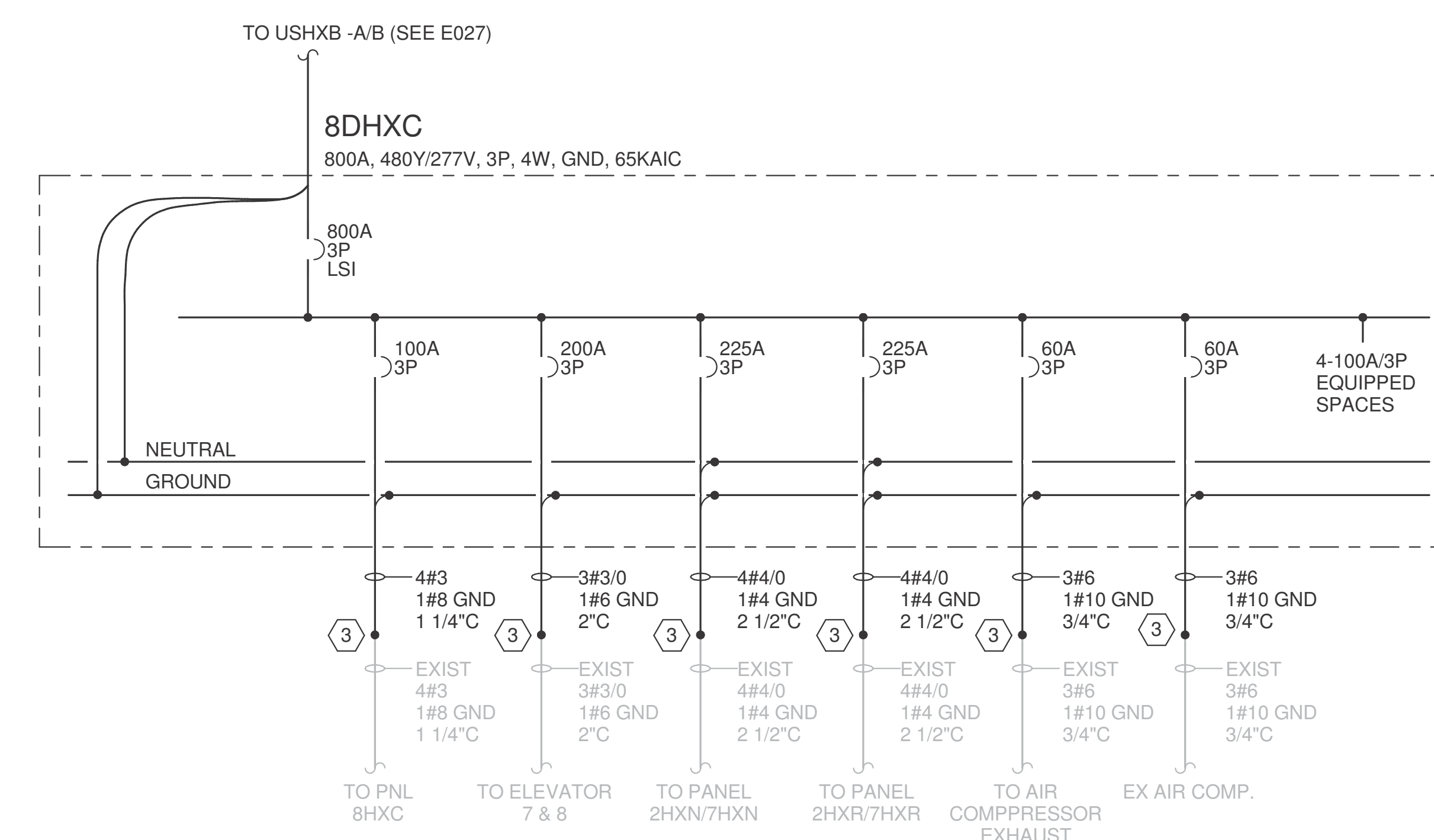
3 ONE LINE DIAGRAM - 8DHXB DEMOLITION
NOT TO SCALE



4 ONE LINE DIAGRAM - 8DHXB RENOVATION
NOT TO SCALE



5 ONE LINE DIAGRAM - 8DHXC DEMOLITION
NOT TO SCALE

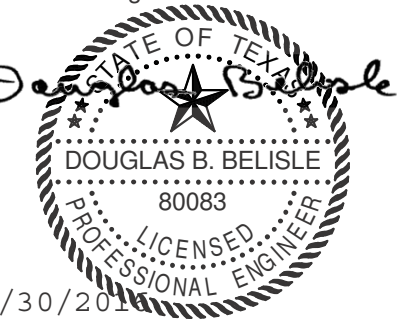


6 ONE LINE DIAGRAM - 8DHXC RENOVATION
NOT TO SCALE

4	ISSUED FOR CONSTRUCTION	09/30/2016
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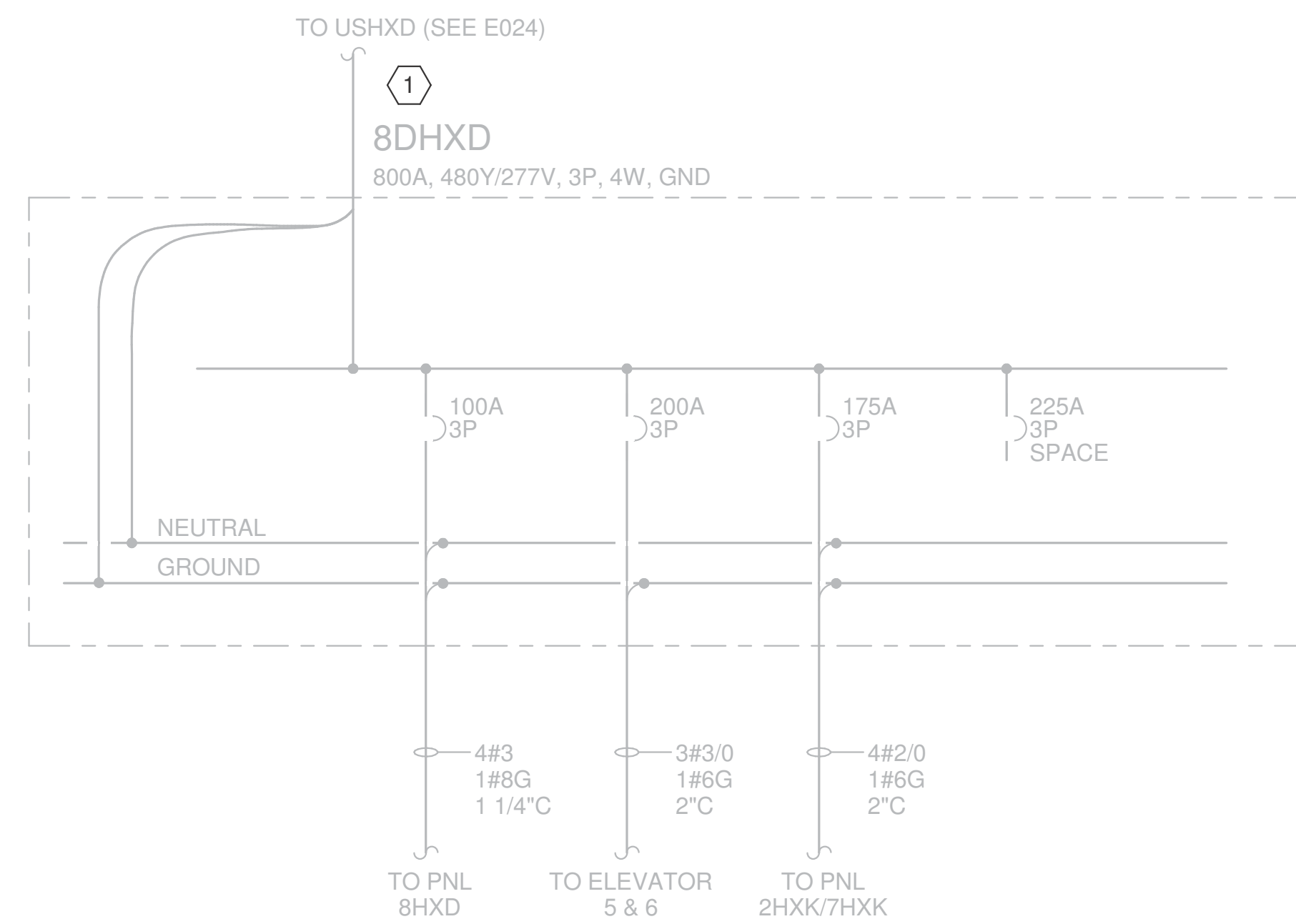
SSA Project Number	1095-023-02
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Drawing No.	

GENERAL NOTES - E036

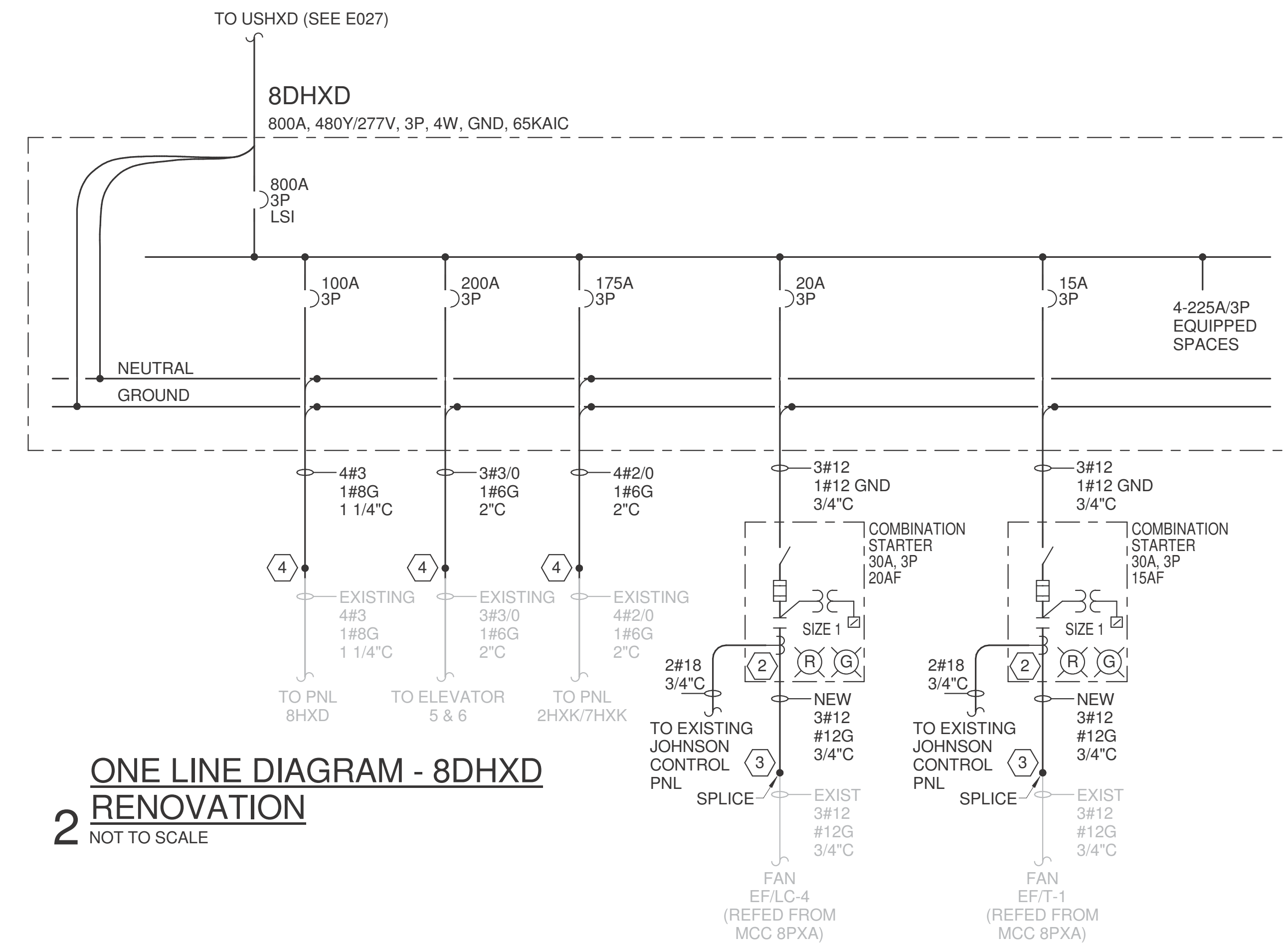
A NEW WORK SHOWN BOLD.

KEYED NOTES - E036

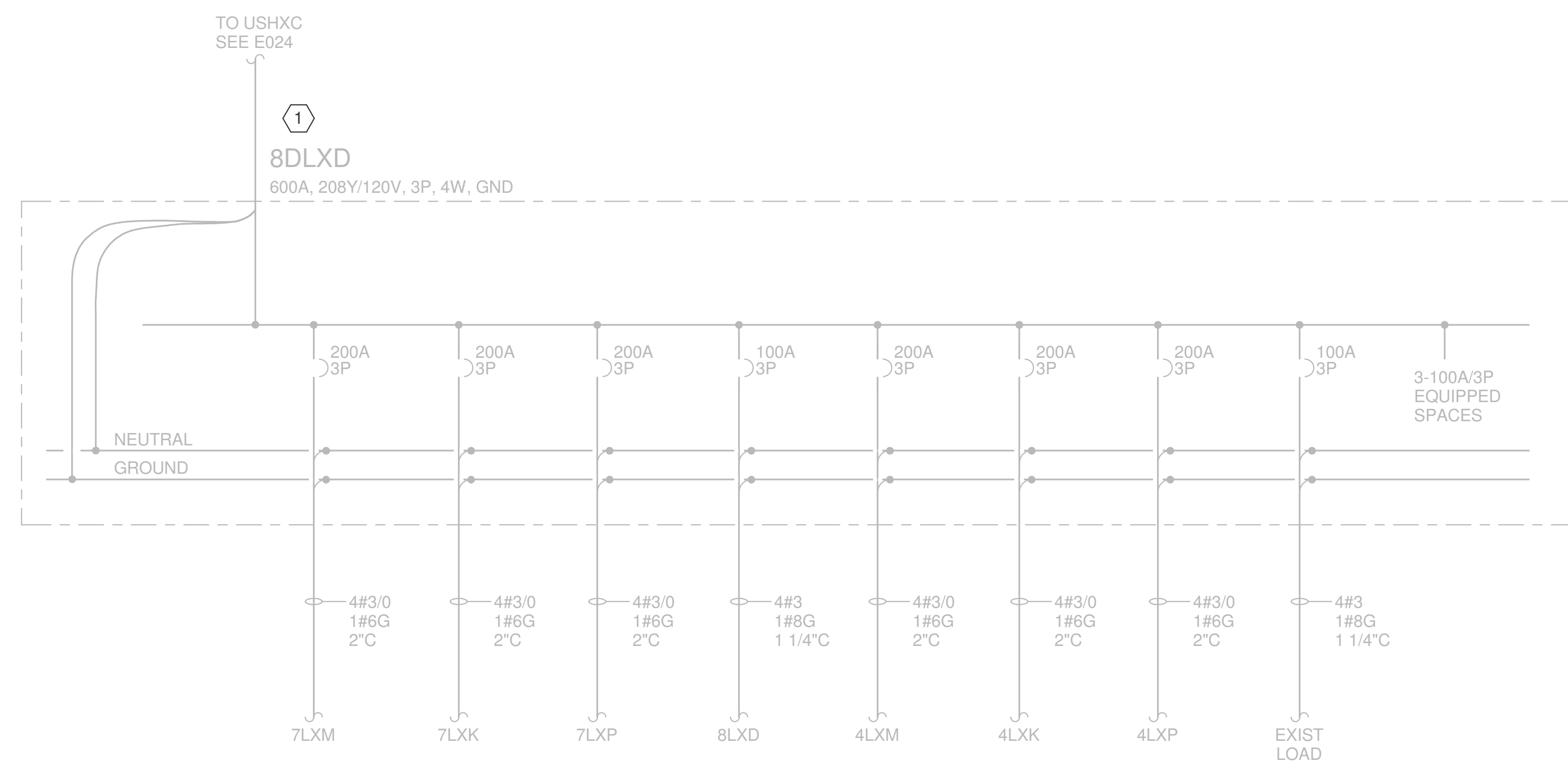
- 1 REMOVE PANELBOARD AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS.
- 2 SPLIT CORE CT FOR MOTOR STATUS. LOCATE AROUND "A" PHASE. WRAP CONDUCTORS THROUGH SERVING HOLE AS REQUIRED FOR CURRENT DETECTION. CONNECT TO EXISTING JOHNSON CONTROL PNL AS INDICATED. IN ADDITION, EXTEND START/STOP CONTROL WIRING FROM EXISTING MCC STARTER TO NEW STARTER AND INSTALL IN 3/4" C. SEE DETAIL 6/E501. COORDINATE EXACT LOCATION OF DDC PANEL WITH OWNER.
- 3 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION TO NEW DISTRIBUTION PANEL.
- 4 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL.



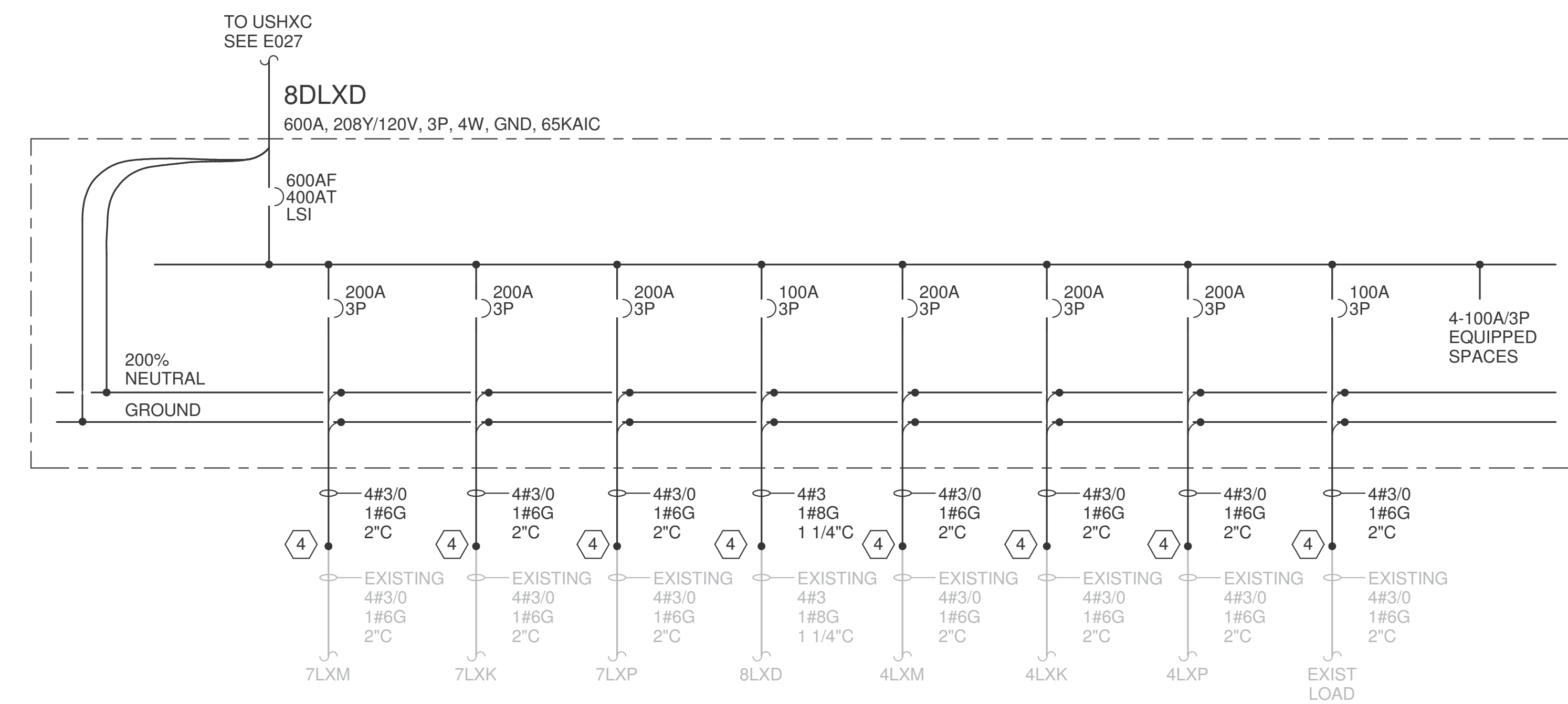
ONE LINE DIAGRAM - 8DHXD
1 DEMOLITION
NOT TO SCALE



ONE LINE DIAGRAM - 8DHXD
2 RENOVATION
NOT TO SCALE



ONE LINE DIAGRAM - 8DLXD
3 DEMOLITION
NOT TO SCALE



ONE LINE DIAGRAM - 8DLXD
4 RENOVATION
NOT TO SCALE

Philo Wilke

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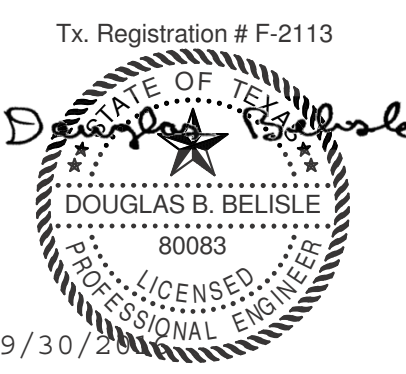
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**MSB SWITCHGEAR
REPLACEMENT**

ONE LINE DIAGRAM PANELS -
DEMO & RENO

SSA Project Number	1095-023-02
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Drawing No.	E036

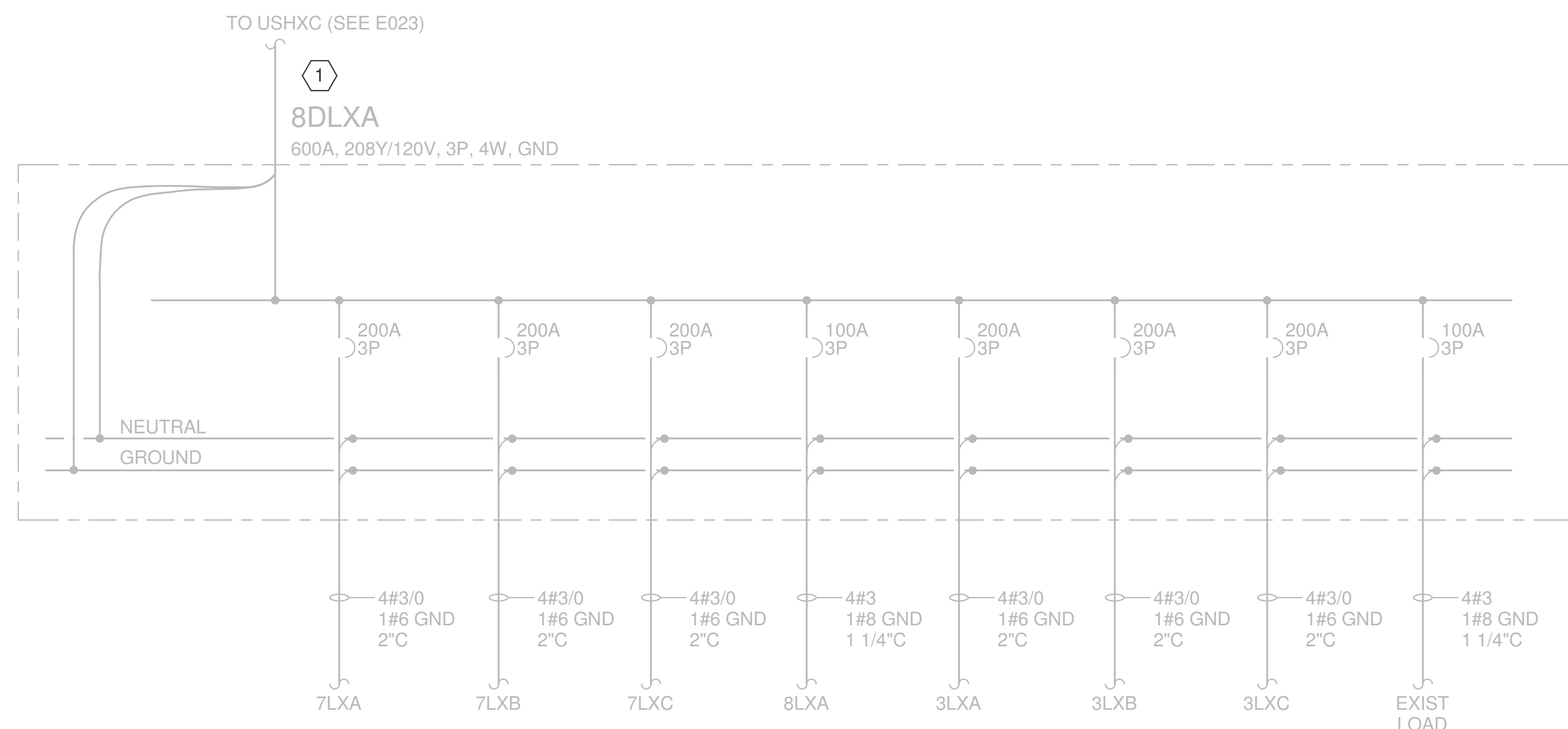
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GENERAL NOTES - E037

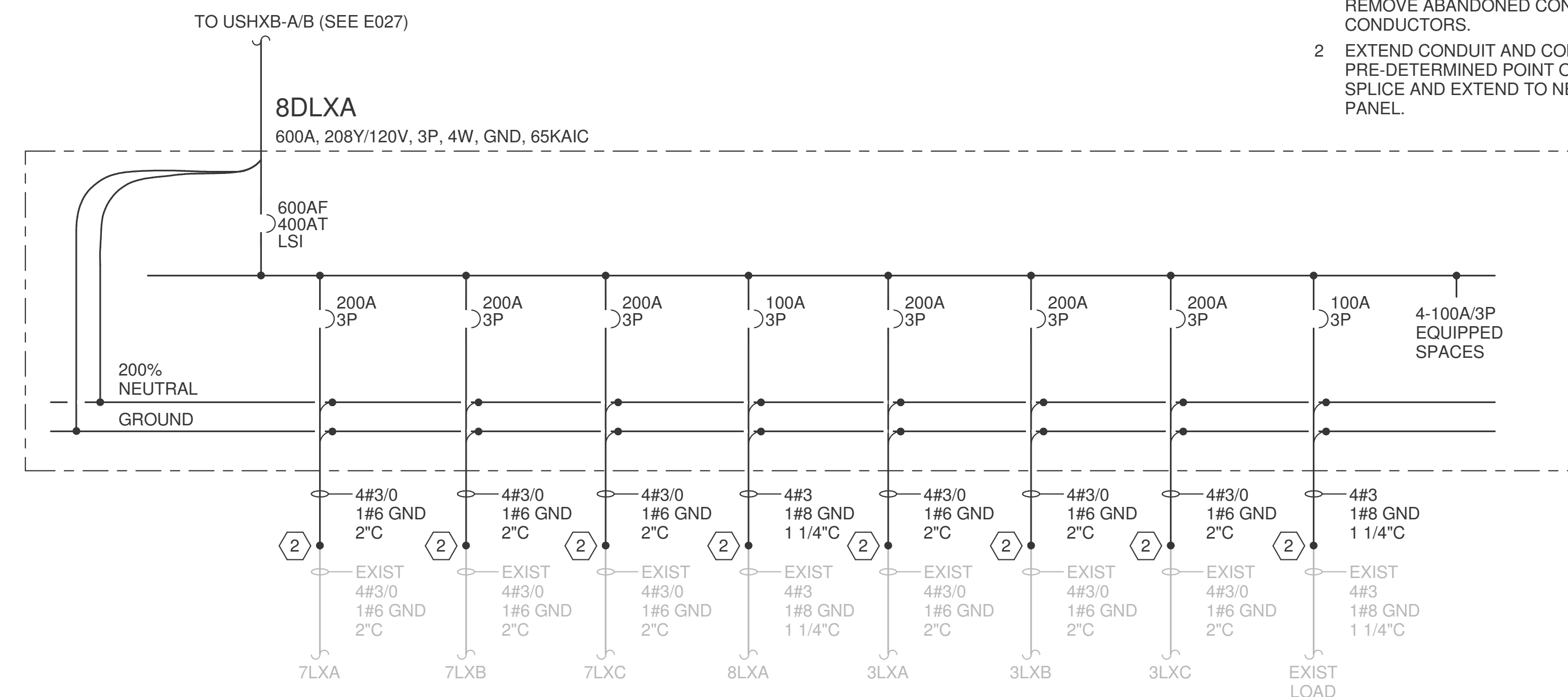
A NEW WORK SHOWN BOLD.

KEYED NOTES - E037

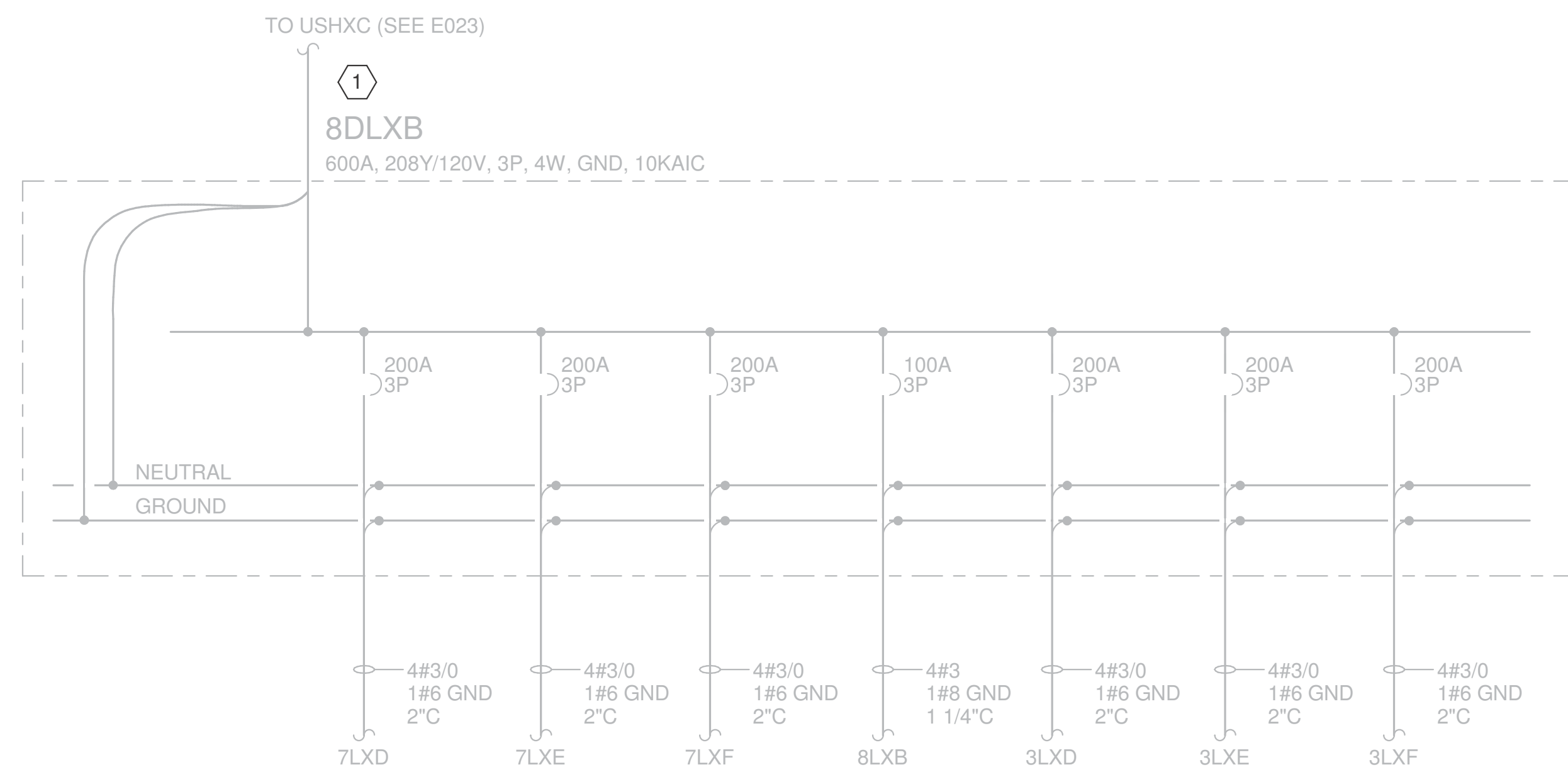
- 1 REMOVE PANELBOARD AND FEEDER CONDUIT AND CONDUCTORS. EXTEND BRANCH CIRCUIT CONDUIT AND CONDUCTORS TO NEW PANEL. REMOVE ABANDONED CONDUIT AND CONDUCTORS.
- 2 EXTEND CONDUIT AND CONDUCTORS FROM PRE-DETERMINED POINT OF INTERCEPTION, SPLICE AND EXTEND TO NEW DISTRIBUTION PANEL.



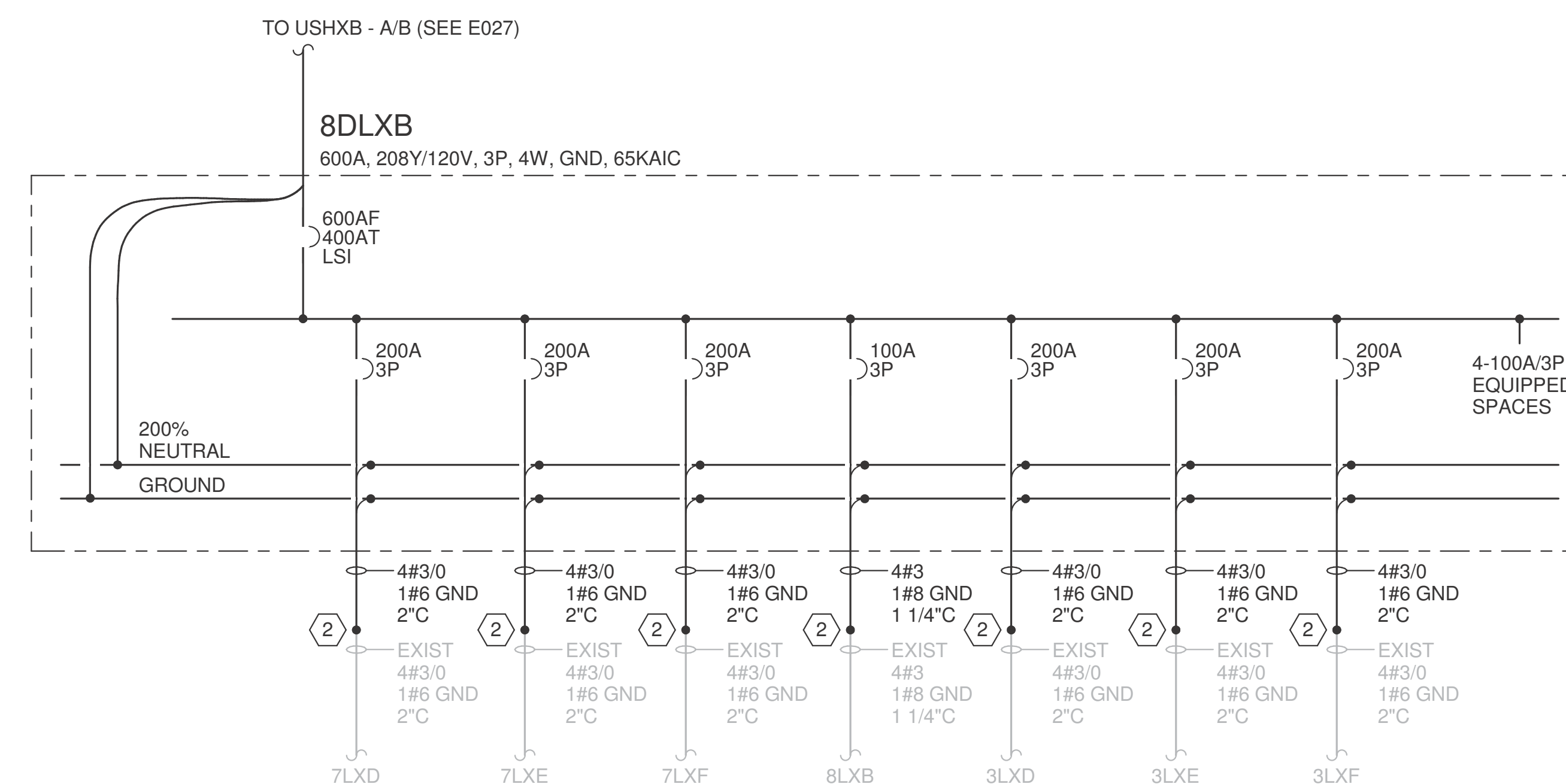
ONE LINE DIAGRAM - 8DLXA
3 DEMOLITION
NOT TO SCALE



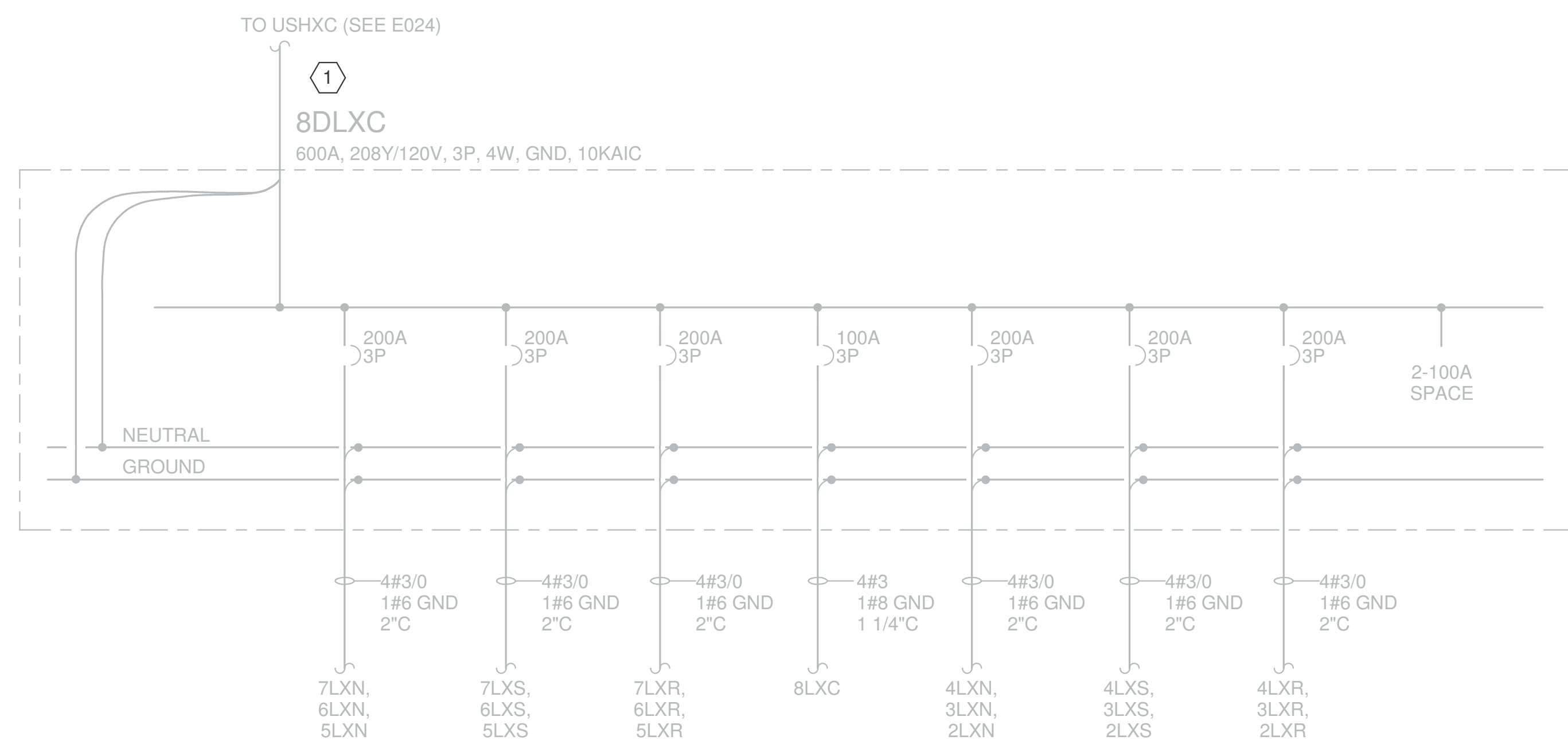
ONE LINE DIAGRAM - 8DLXA
4 RENOVATION
NOT TO SCALE



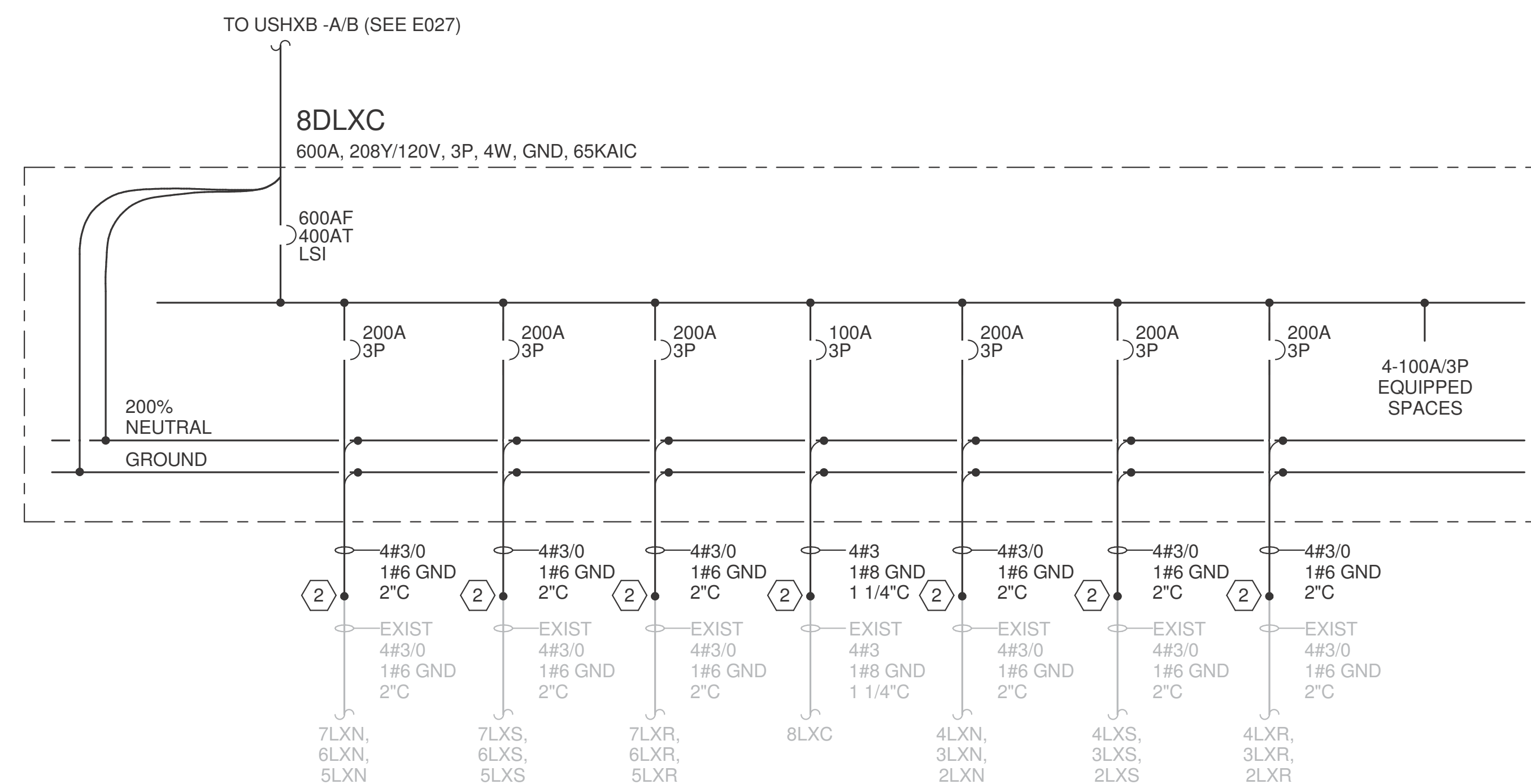
ONE LINE DIAGRAM - 8DLXB
6 DEMOLITION
NOT TO SCALE



ONE LINE DIAGRAM - 8DLXB
5 RENOVATION
NOT TO SCALE



ONE LINE DIAGRAM - 8DLXC
2 DEMOLITION
NOT TO SCALE



ONE LINE DIAGRAM - 8DLXC
1 RENOVATION
NOT TO SCALE

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**MSB SWITCHGEAR
REPLACEMENT**

**ONE LINE DIAGRAM PANELS -
DEMO & RENO**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	Designer
Checked By	Checker
Drawing No.	E037

Scale NOT TO SCALE

GENERAL NOTES - E101

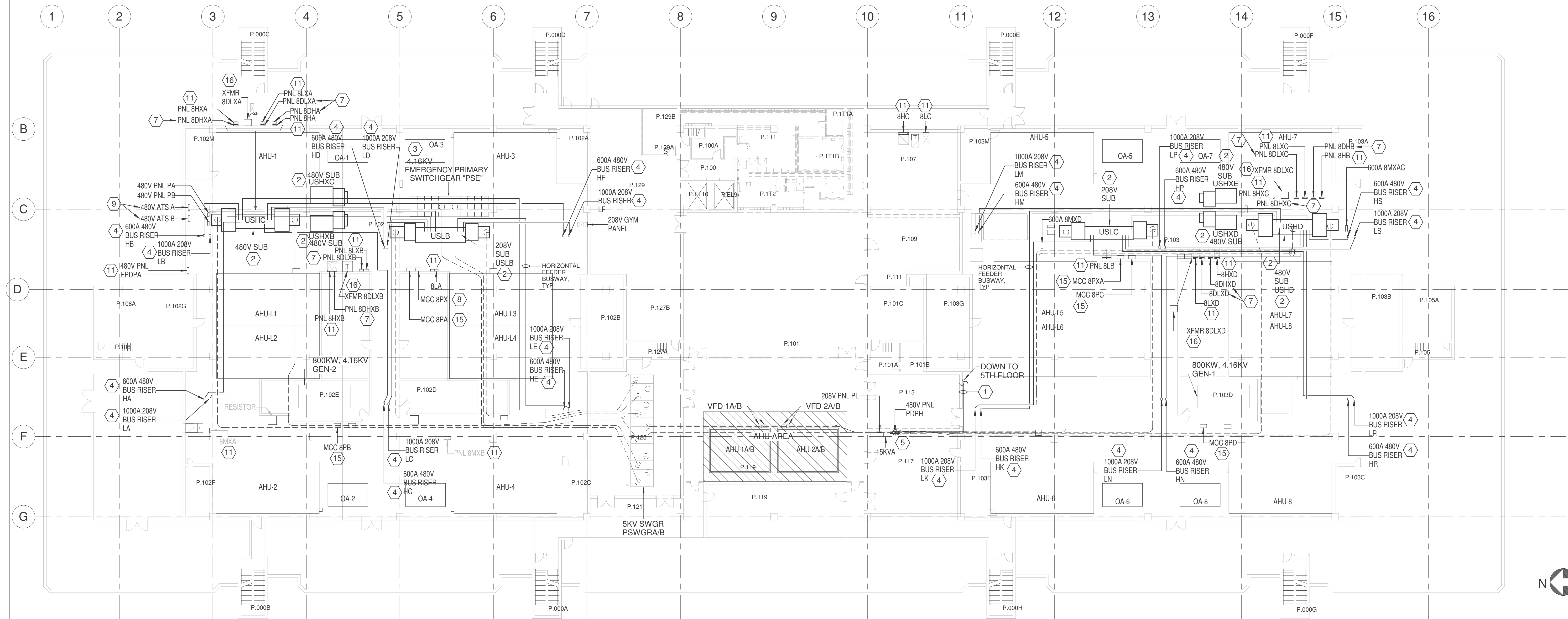
- A EXISTING SHOWN LIGHT. DEMO WORK SHOWN BOLD/NOTED.
- B REFER TO E201 FOR NEW WORK.
- C REFER TO ONE LINE DIAGRAMS IN ADDITION TO THIS SHEET FOR DEMOLITION WORK.

KEYED NOTES - E101 #

- 1 FEEDER FROM PDPH TO CT SCANNER ON 5TH FLOOR. SEE KEYED NOTE 1 AND 4 ON E017 FOR RE-ROUTING OF FEEDER. IN ADDITION TO THE CT FEEDER, THERE IS A 3/4" WITH A 120V CIRCUIT (3#12) THAT SERVES A PUMP. RE-ROUTE BRANCH CIRCUIT AROUND NEW DOOR.
- 2 REMOVE SUBSTATION, CONDUITS, CONDUCTORS, ETC. INCLUDING EQUIPMENT PAD. PADS FOR USLB/USLC TO REMAIN.
- 3 REMOVE PARALLELING SWITCHGEAR, CONDUITS, CONDUCTORS, BATTERIES, ETC. INCLUDING EQUIPMENT PAD.
- 4 REMOVE HORIZONTAL BUSWAY BUT LEAVE SHORT SECTION FOR CONNECTION TO NEW G.E. BUSWAY. SEE E204 AND E205 FOR NEW WORK.
- 5 REFER TO DETAIL 2/E101 FOR PANEL/ TRANSFORMER DEMOLITION.

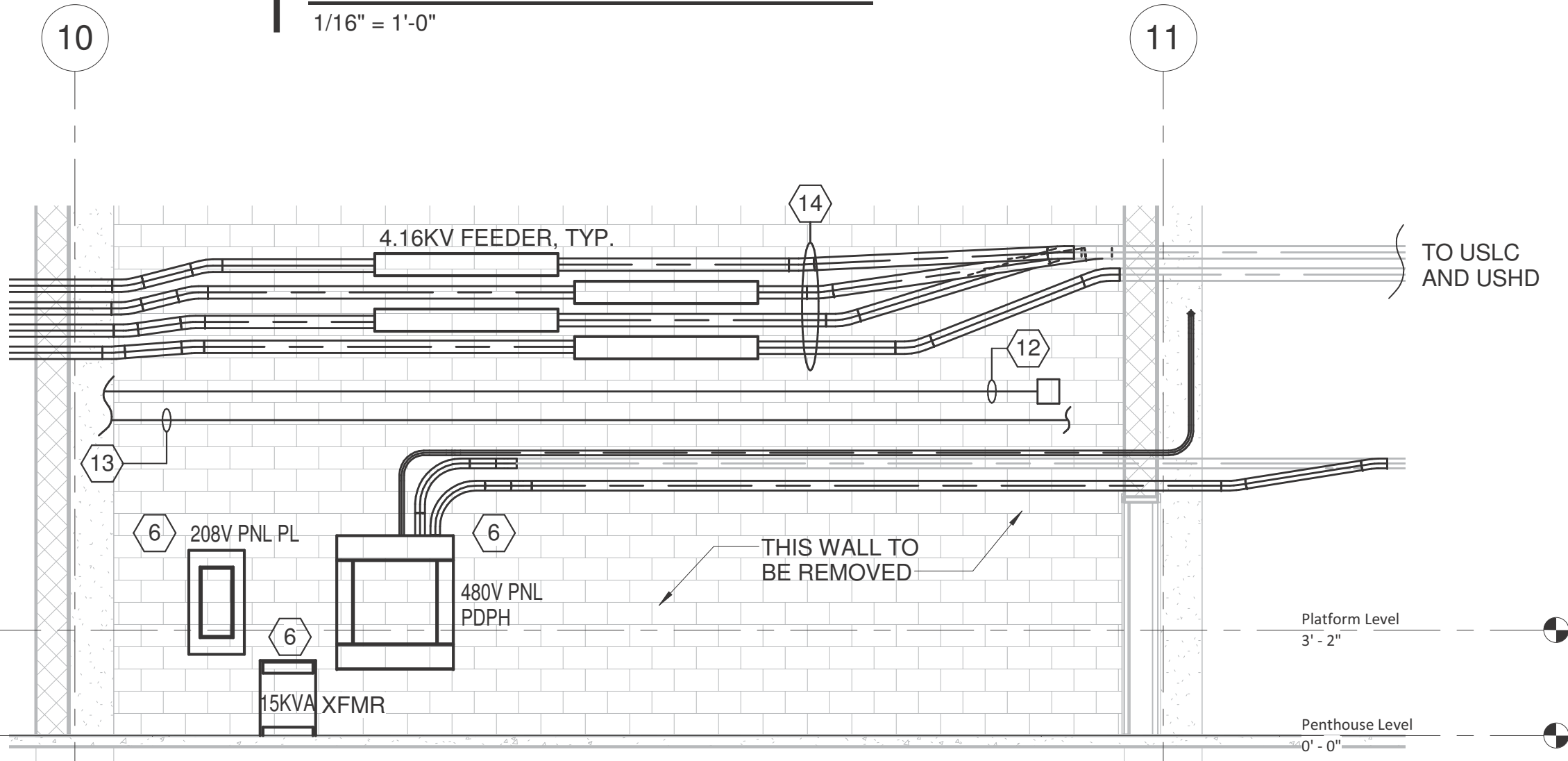
KEYED NOTES - E101

- 6 REMOVE PNL PDPH, PL AND ASSOCIATED TRANSFORMER. ALL BRANCH CIRCUIT OUTAGES SHALL BE COORDINATED WITH SWITCH OVER TO NEW PANEL PDPH, PL AND ASSOCIATED ELECTRICAL EQUIPMENT. SEE SHEET E201. REFER TO SHEET E017 FOR ONE LINE DIAGRAM.
- 7 REMOVE PANEL. NEW PANEL SHALL BE INSTALLED AT LOCATIONS SHOWN ON E201. REWORK FEEDER AND BRANCH CIRCUIT CONDUITS AS REQUIRED. REMOVE ANY ABANDONED CONDUITS.
- 8 REMOVE MCC AND ALL MCC FEEDERS AND CONDUITS. ALL LOADS ARE OUT OF SERVICE, SEE E030.
- 9 REMOVE ATS NORMAL FEEDERS AND CONDUIT. RECONNECT TO NEW SWITCHGEAR.
- 11 EXISTING TO REMAIN. RECONNECT TO NEW SWITCHGEAR, OR DISTRIBUTION PANEL. SEE ONE LINE DIAGRAMS.
- 12 REMOVE ABANDONED CONDUIT/BOX.
- 13 REMOVE CONDUIT/ DATA CABLING.
- 14 REMOVE 5KV CONDUITS AND CONDUCTORS.
- 15 REMOVE MCC. MCC SHALL BE REPLACED WITH A DISTRIBUTION PANEL AND COMBINATION STARTERS AS SHOWN ON ONE LINE DIAGRAM. EXTEND CONDUIT AND CONDUCTORS PER ONE LINES. SEE E031-E034. SEE E201 FOR PANEL LOCATION.
- 16 REMOVE TRANSFORMER AND PROVIDE NEW TRANSFORMER. SEE E201 FOR LOCATION.



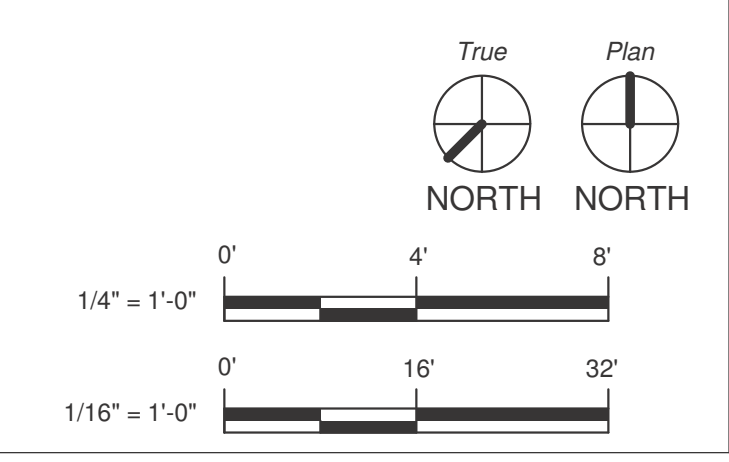
ELECTRICAL PENTHOUSE PLAN - EQUIPMENT DEMOLITION

1
1/16" = 1'-0"



2 NORTH ELEVATION - RM P.117

2
1/4" = 1'-0"



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2	90% PKG 1/2 REVIEW	05/13/2016
1	50% CD	02/10/2016

Keyplan

Tx. Registration # F-2113

 9/30/2016

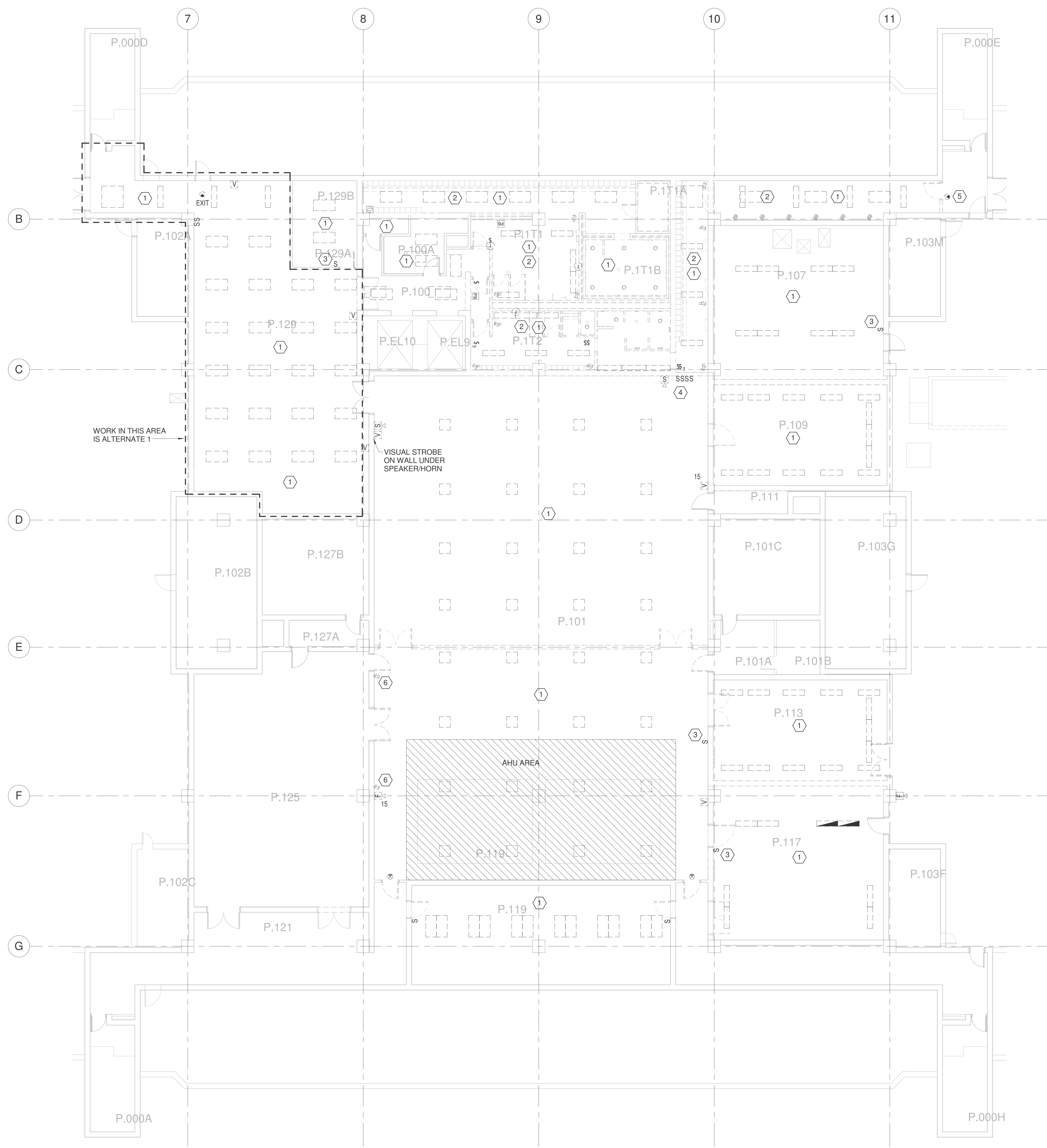
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MSB SWITCHGEAR REPLACEMENT

ELECTRICAL PENTHOUSE PLAN - EQUIPMENT DEMOLITION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E101

Scale As indicated



GENERAL NOTES - E102

A EXISTING TO REMAIN SHOWN LIGHT. DASHED SHALL BE REMOVED; UNO.

KEYED NOTES - E102 (#)

- 1 REMOVE ALL LIGHTING FIXTURES IN THIS AREA. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST J-BOX OR TO SOURCE.
- 2 REMOVE ALL RECEPTACLES IN THIS AREA. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST J-BOX OR TO SOURCE.
- 3 REMOVE SWITCH.
- 4 REMOVE SWITCHES AND FIRE ALARM SPEAKER.
- 5 REMOVE EXIT SIGN. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST CONNECTION POINT.
- 6 REMOVE RECEPTACLES. PROVIDE BLANK COVER PLATE ON BOX.

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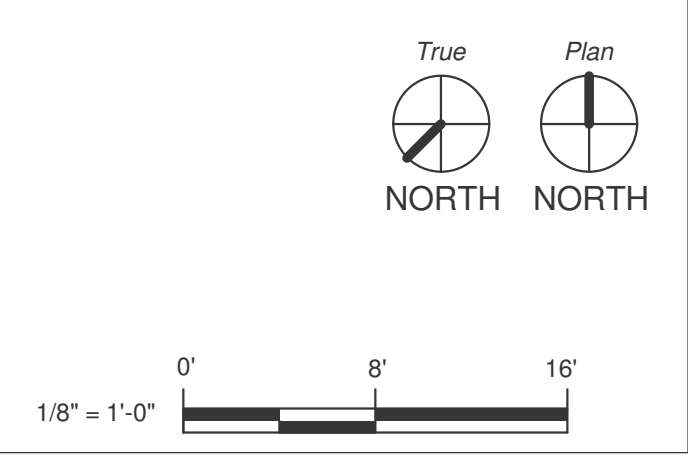
**MSB SWITCHGEAR
 REPLACEMENT**

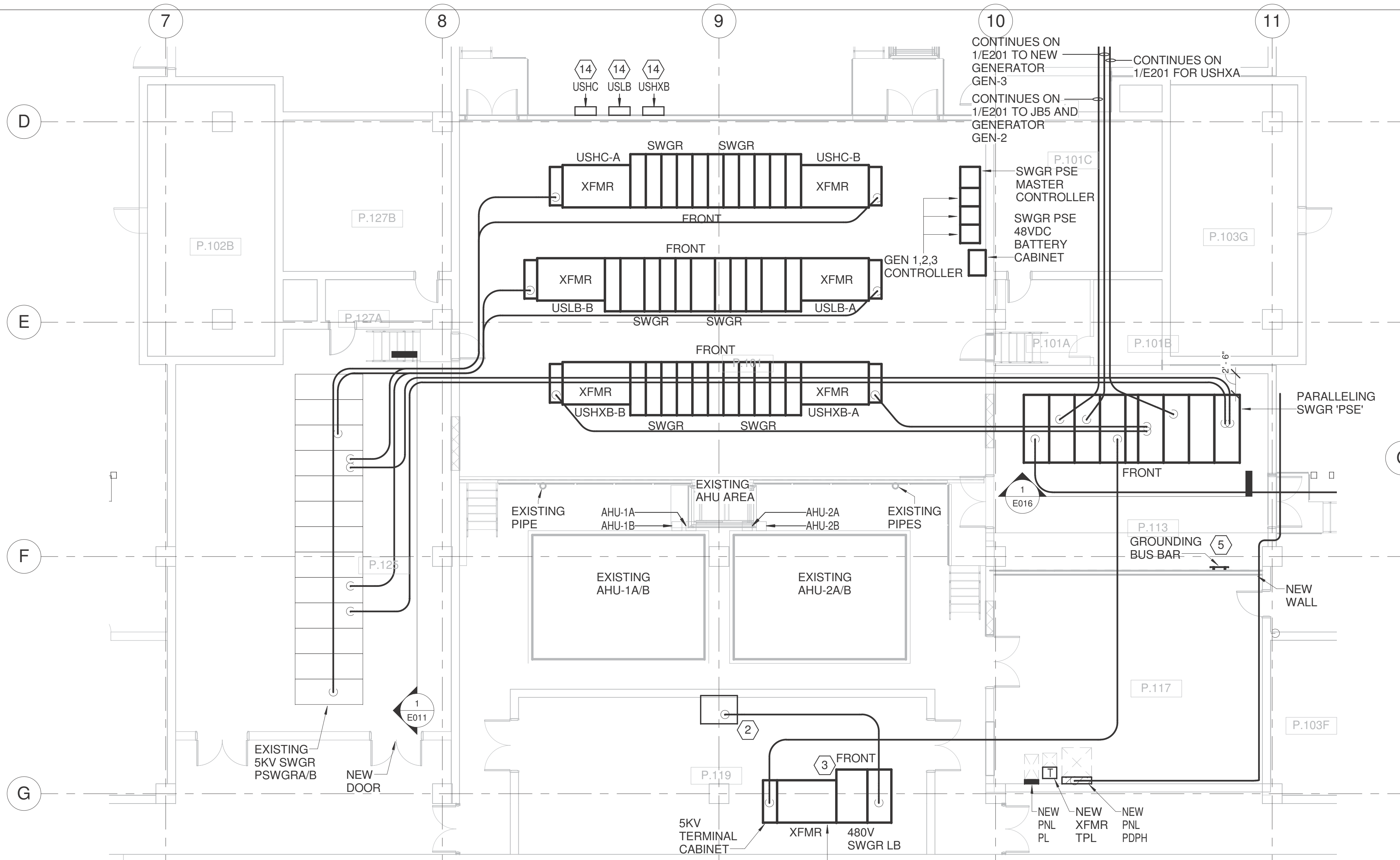
**PENTHOUSE LIGHTING AND
 SPECIAL SYSTEMS DEMOLITION**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E102

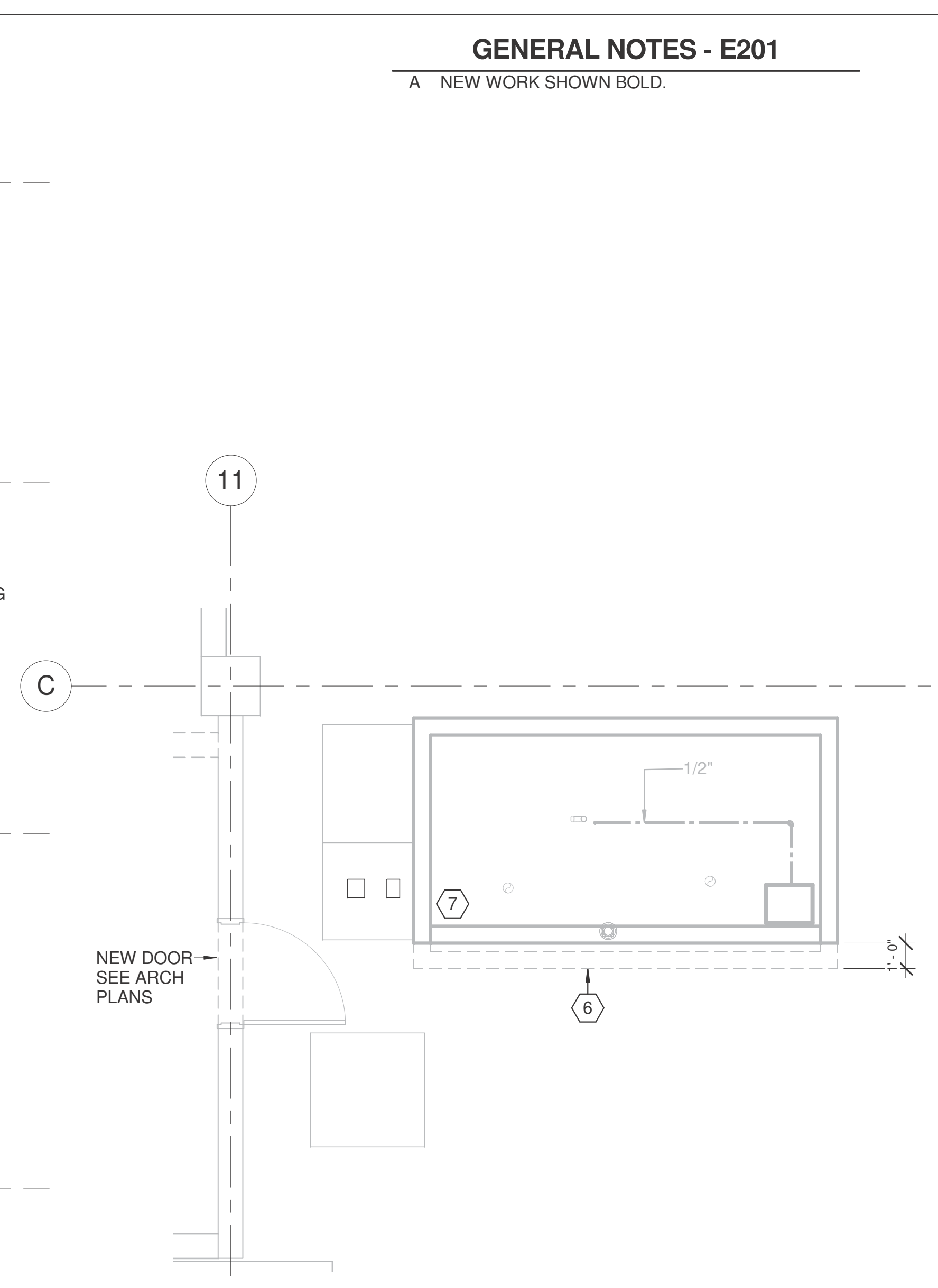
Scale 1/8" = 1'-0"

**ELECTRICAL PENTHOUSE LIGHTING AND
 FIRE ALARM PLAN DEMOLITION**
 1/8" = 1'-0"





ENLARGED ELECTRICAL PENTHOUSE PLAN RENOVATION
 2
 1/8" = 1'-0"



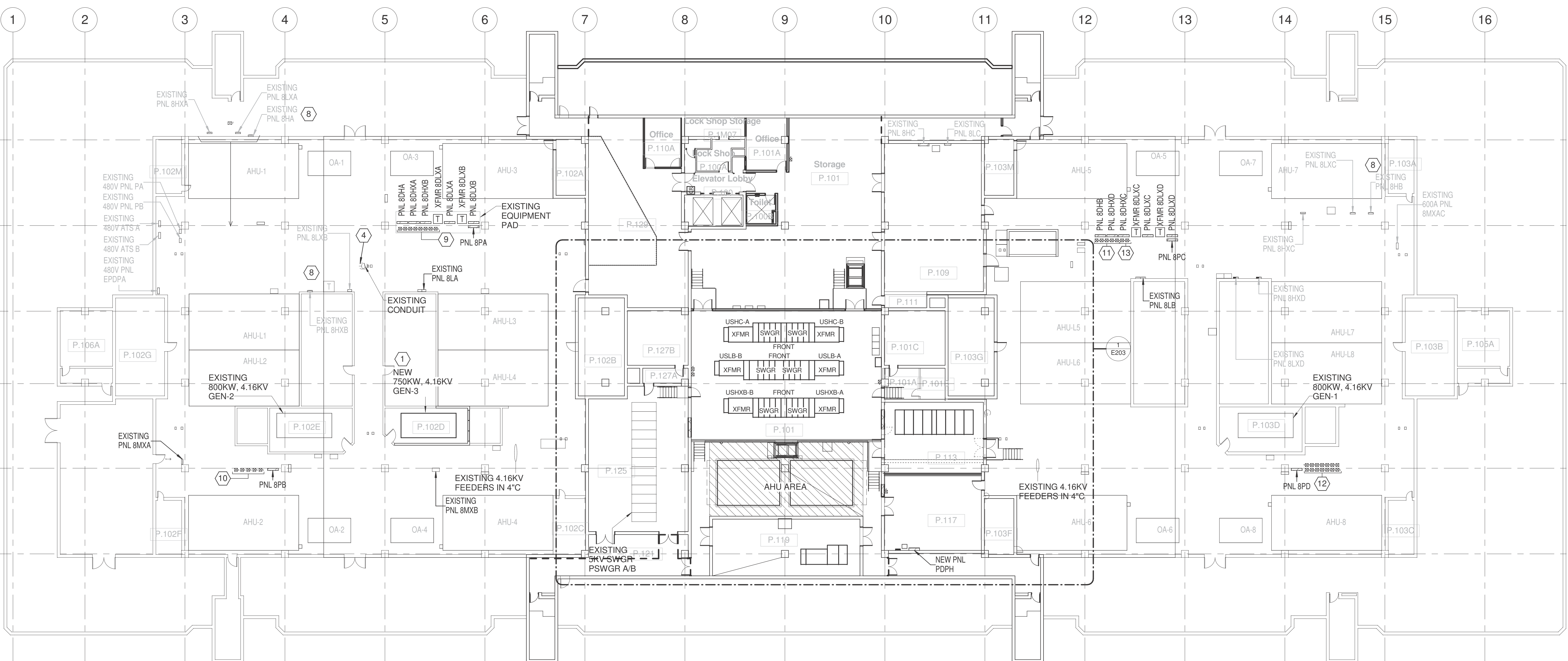
ENLARGED ELECTRICAL PENTHOUSE - CURB RENOVATION
 3
 1/4" = 1'-0"

GENERAL NOTES - E201

A NEW WORK SHOWN BOLD.

KEYED NOTES - E201

- 1 GENERATOR AND FEEDER PROVIDED UNDER GENERATOR REPLACEMENT PROJECT. SHOWN HERE FOR REFERENCE ONLY.
- 2 LOAD BANK ON ROOF ABOVE. REFER TO STRUCTURAL AND ARCHITECTURAL PLANS FOR MOUNTING DETAILS.
- 3 COORDINATE DISASSEMBLY OF TRANSFORMER TO CORE AND COIL ASSEMBLY WITH MANUFACTURER. COORDINATE REASSEMBLY OF TRANSFORMER WITH MANUFACTURER IN THIS ROOM. DISASSEMBLY ONLY REQUIRED IF TRANSFORMER CANNOT BE INSTALLED IN ROOM ASSEMBLED.
- 4 CONDUIT DOWN TO 7TH FLOOR CHASE FOR REFEED OF USHX. SEE CONTINUATION ON E206.
- 5 GROUND BAR MOUNTED 2' ABOVE METAL PLATFORM. CONNECT TO NEW PARALLELING SWITCHGEAR GROUND BUS, METAL PLATFORM. EXISTING SWITCHGEAR PSWGRA/B GROUND BUS, NEW LOAD BANK SUBSTATIONS, ETC. SEE DETAIL 5/E501 AND ONE LINE DIAGRAMS ON E013.
- 6 CURB TO BE MOVED 1'-0" PLAN NORTH. SEE ARCHITECTURAL PLANS.
- 7 EXISTING SINK TO BE RELOCATED. REFER TO PLUMBING PLANS FOR DETAILS.
- 8 SEE ONE LINES FOR CONNECTION OF EXISTING PANEL TO NEW EQUIPMENT, TYPICAL.
- 9 NEW COMBINATION STARTER SERVED FROM PANEL 8PA. SEE E031. MOUNT STARTERS AND PANELS ON A UNISTRUT RACK. PROVIDE A DRIP PAN 7" ABOVE PANELS/STARTERS. PAN SHALL BE CONTINUOUS AND EXTEND 1' BEYOND EQUIPMENT IN BOTH DIRECTIONS.
- 10 NEW COMBINATION STARTER SERVED FROM PANEL 8PB. SEE E032. MOUNT STARTERS AND PANELS ON A UNISTRUT RACK. PROVIDE A DRIP PAN 7" ABOVE PANELS/STARTERS. PAN SHALL BE CONTINUOUS AND EXTEND 1' BEYOND EQUIPMENT IN BOTH DIRECTIONS.
- 11 NEW COMBINATION STARTER SERVED FROM PANEL 8PC. SEE E033. MOUNT STARTERS AND PANELS ON A UNISTRUT RACK. PROVIDE A DRIP PAN 7" ABOVE PANELS/STARTERS. PAN SHALL BE CONTINUOUS AND EXTEND 1' BEYOND EQUIPMENT IN BOTH DIRECTIONS.
- 12 NEW COMBINATION STARTER SERVED FROM PANEL 8PD. SEE E034. MOUNT STARTERS AND PANELS ON A UNISTRUT RACK. PROVIDE A DRIP PAN 7" ABOVE PANELS/STARTERS. PAN SHALL BE CONTINUOUS AND EXTEND 1' BEYOND EQUIPMENT IN BOTH DIRECTIONS.
- 13 NEW COMBINATION STARTER SERVED FROM PANEL 8DHD. SEE E035. MOUNT STARTERS AND PANELS ON A UNISTRUT RACK. PROVIDE A DRIP PAN 7" ABOVE PANELS/STARTERS. PAN SHALL BE CONTINUOUS AND EXTEND 1' BEYOND EQUIPMENT IN BOTH DIRECTIONS.
- 14 REMOTE SELECTOR SWITCHES AND BREAKER POSITION INDICATING LIGHTS FOR SWITCHGEAR CIRCUIT BREAKERS. MOUNT IN A NEMA 1 LOCKABLE CABINET. SEE ONE LINE DIAGRAM ON E025 - E027.



ELECTRICAL PENTHOUSE PLAN RENOVATION
 1
 1/16" = 1'-0"

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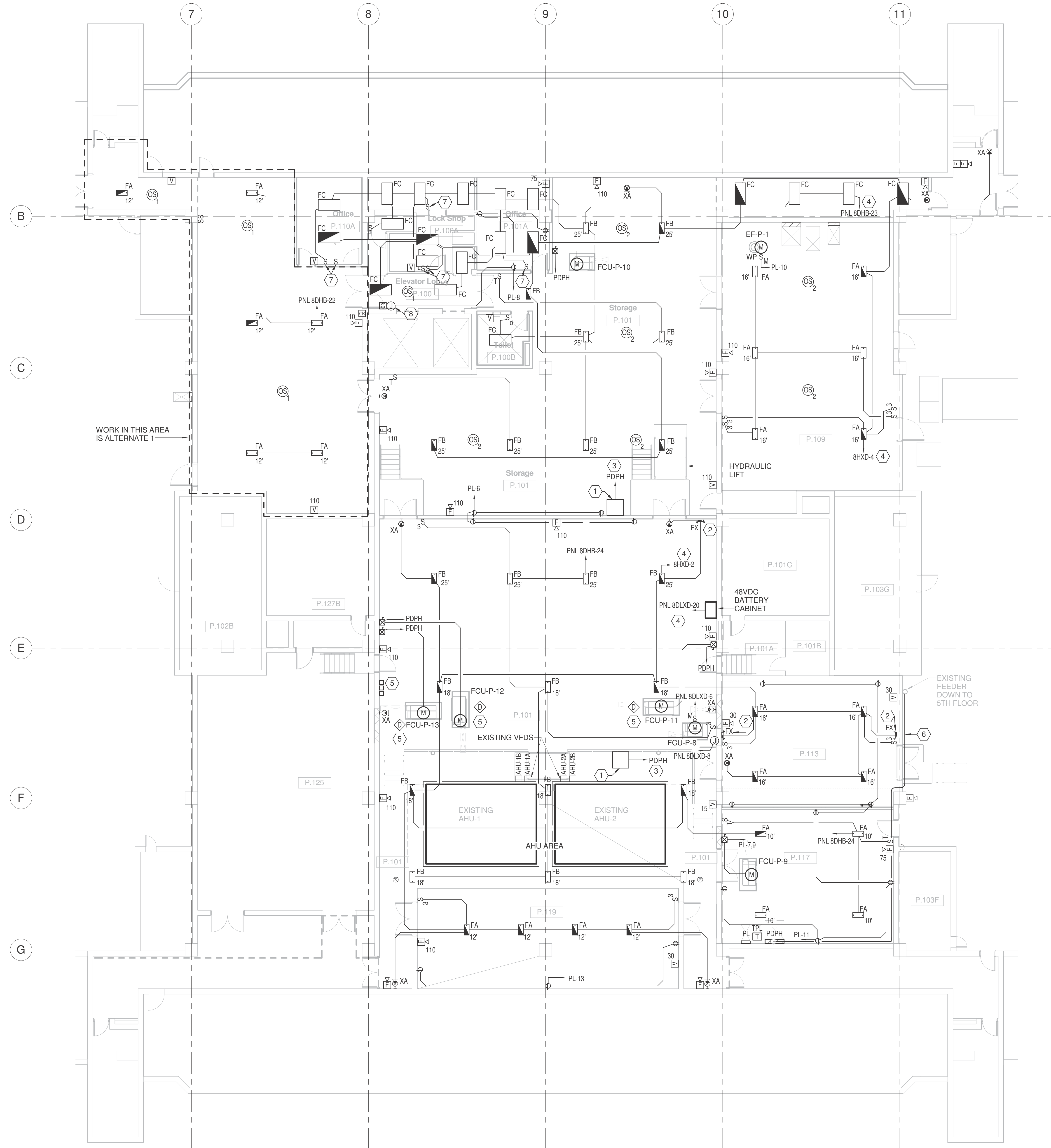
MSB SWITCHGEAR REPLACEMENT

PENTHOUSE PLAN RENOVATION EQUIPMENT

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E201

Scale As indicated

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WORK IN THIS AREA IS ALTERNATE 1

- GENERAL NOTES - E202**
- A NEW WORK IS SHOWN BOLD.
 - B SEE SHEET E201 FOR OVERALL PLAN SHOWING EXISTING PANEL LOCATIONS.
 - C CONNECT ALL EXIT LIGHTS TO UNSWITCHED CIRCUIT 8HXD-2.
 - D CONNECT ALL NEW FIRE ALARM SPEAKER/STROBES TO EXISTING FIRE ALARM SYSTEM. PROVIDE AN ADDITIONAL POWER SUPPLY IF NEEDED AND CONNECT TO NEAREST 120V PANEL. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN 3/4" MINIMUM EMT CONDUIT. THE INSTALLATION OF FIRE ALARM DEVICES SHALL MEET THE REQUIREMENTS OF NFPA 72 AND ALL LOCAL AND STATE CODES. EXISTING SYSTEM IS A SIMPLEX 4100.
 - F COORDINATE INSTALLATION OF ALL LIGHT FIXTURES WITH PIPING AND DUCTWORK.
 - G PROVIDE FA SYSTEM IN COMPLIANCE W/NFPA 72 FIRE ALARM CODE AND NFPA 101 LIFE SAFETY CODE AND SECTIONS 28 31 00.
 - H INSTALL FA NOTIFICATION DEVICES IAW NFPA 72 MOUNT VISUAL & COMBINATION NOTIFICATION DEVICES IN CEILING PREFERABLY OR WALL WITH ENTIRE LENS BETWEEN 80" & 96" AFF. SEE ELECTRICAL DETAILS.
 - I COORD DUCT DETECTOR LOCATIONS W/DIV 23 FOR HVAC DUCTWORK & FCU'S AS APPLICABLE. PLACE DUCT DETECTOR IN STRAIGHT DUCT DETECTORS IN UPSTREAM AIRFLOW SIDE OF FSD. SEE MECHANICAL SHEETS & DETAILS FOR HVAC DUCTWORK & EQUIPMENT LOCATIONS.
 - J COORD DETECTORS & DEVICE LOCATION IN FINISHED SPACES WITH ARCH REFLECTED CEILING PLAN (RCP). RELOCATE FA DETECTORS & DEVICES TO RESOLVE INTERFERENCE & CONFLICTS. FINAL LOCATION SHALL CONFORM TO NFPA 72 AND UL REQUIREMENTS.
 - K PROVIDE FIRE ALARM NOTIFICATION AND DETECTION DEVICES PER SPECIFICATION 28 31 00.

- KEYED NOTES - E202**
- 1 POWER UNIT FOR LIFT. COORDINATE EXACT LOCATION WITH INSTALLATION.
 - 2 EMERGENCY WALL FIXTURE WITH BATTERY BACKUP. CONNECT TO UNSWITCHED CIRCUIT.
 - 3 PROVIDE NEW 20A, 3P BREAKER IN CIRCUITS SHOWN. PROVIDE 3#12, #12G, 3/4"C FROM BREAKER TO LIFT.
 - 4 PROVIDE NEW 20A BREAKER IN CIRCUITS SHOWN. PROVIDE 2#12, #12G, 3/4"C FROM BREAKER TO FIXTURES.
 - 5 DUCT DETECTOR AT FCU DUCTWORK. LOCATE REMOTE TEST ON WALL.
 - 6 NEW FEEDER FROM NEW PNL PDPH TO CT SCANNER ON 5TH FLOOR VIA EXISTING CONDUIT.
 - 7 PROVIDE SMARTCAST WIRELESS DIMMER SWITCH #CWD-CWC-WH WITH MOUNTING PLATE #CFP-1-WH.
 - 8 JBOX FOR CONNECTION TO DOOR HARDWARE POWER SUPPLY.

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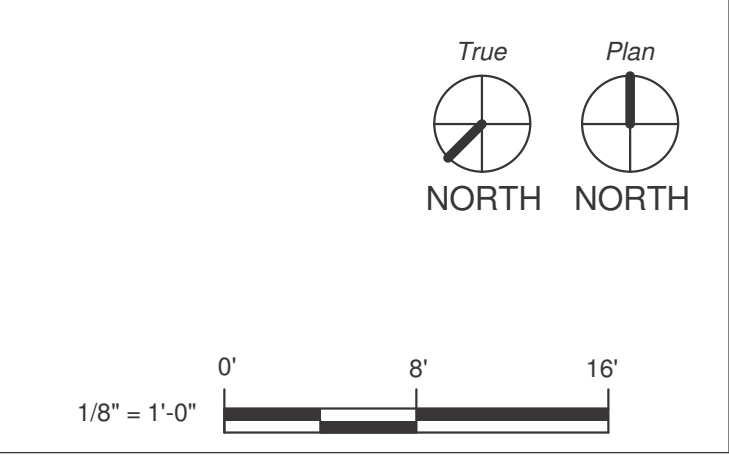
**MSB SWITCHGEAR
 REPLACEMENT**

PENTHOUSE LIGHTING, POWER
 AND SPECIAL SYSTEMS
 RENOVATION

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E202

Scale 1/8" = 1'-0"

**ELECTRICAL PENTHOUSE LIGHTING,
 POWER AND FIRE ALARM PLAN
 RENOVATION**
 1/8" = 1'-0"

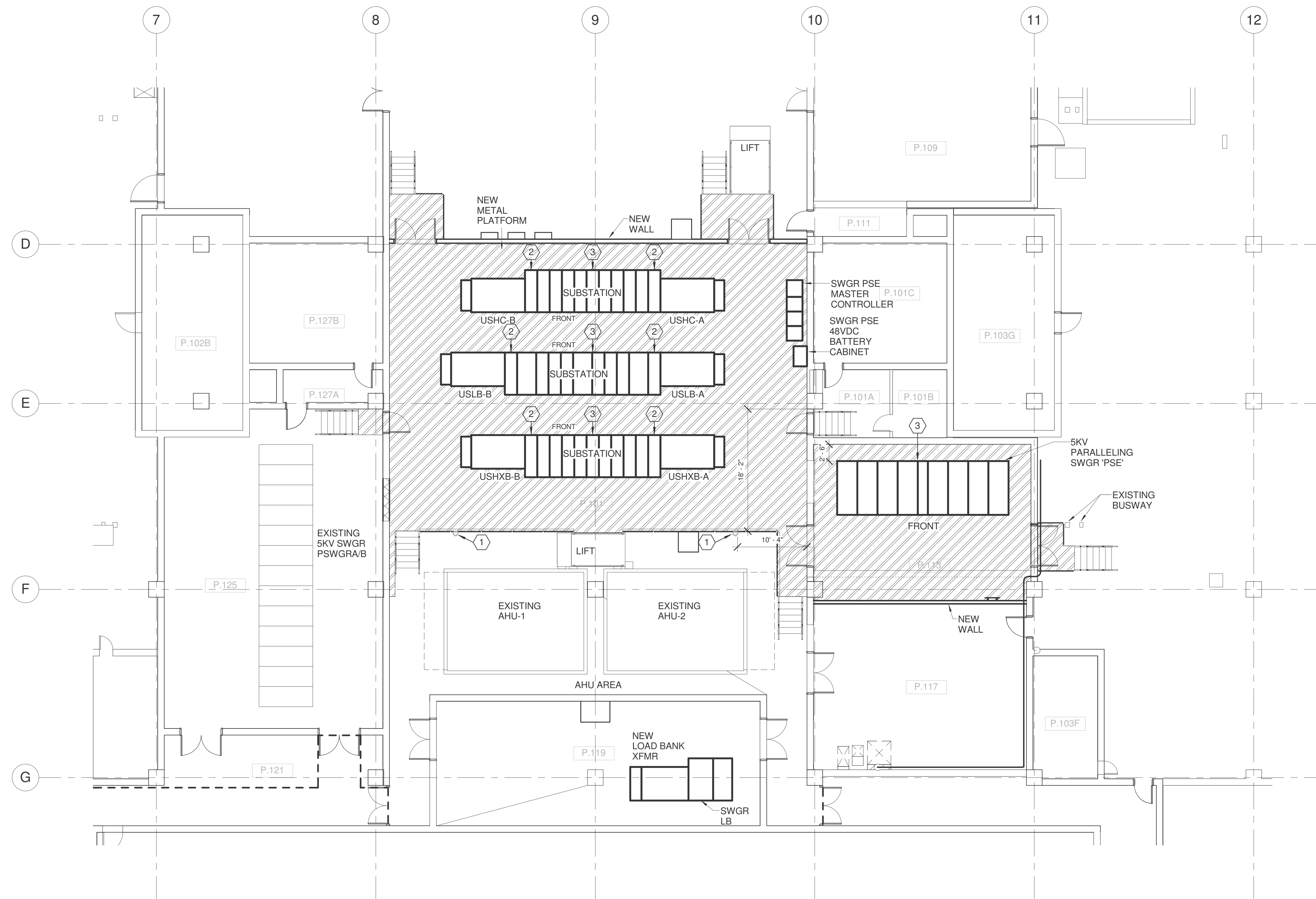


GENERAL NOTES - E203

- A REFER TO STRUCTURAL PLANS FOR NEW PLATFORM DETAILS. SHOWN HERE FOR REFERENCE ONLY.
- B REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL DETAILS.
- C NEW WORK SHOWN BOLD.

KEYED NOTES - E203

- 1 PIPE REPRESENTS FURTHERST POINT OF CLEARANCE REQUIRED PLAN NORTH OF AHU 1 AND 2. FIELD VERIFY EXACT LOCATION.
- 2 TRANSITION SECTIONS ARE SHOWN ONLY IF NEEDED TO ACCOMMODATE CURRENT TRANSFORMERS AT TRANSFORMER SECONDARY. IF THEY ARE NOT NEEDED, THEY SHALL BE OMITTED. SEE ONE LINE DIAGRAMS.
- 3 LOCATE EQUIPMENT LINEUP OVER STRUCTURAL BEAMS PER STRUCTURAL PLANS. LEVEL EQUIPMENT AS REQUIRED PER MANUFACTURER'S TOLERANCES.



**ENLARGED ELECTRICAL PENTHOUSE
 PLAN - PLATFORM LAYOUT**
 1
 1/8" = 1'-0"

1/8" = 1'-0" 0' 8' 16'

4	ISSUED FOR CONSTRUCTION	09/30/2016
3	100% CD REVIEW	06/24/2016
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1	50% CD	02/10/2016

No.	Description	Date
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**MSB SWITCHGEAR
 REPLACEMENT**

**PENTHOUSE PLATFORM
 LAYOUT**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E203

Scale 1/8" = 1'-0"

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GENERAL NOTES - E204

- A COORDINATE CONDUIT/BUSWAY ROUTE WITH EXISTING CONDITIONS. EXISTING PIPING, DUCTWORK, ETC. IS NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR INSTALLING CONDUIT BASED ON EXISTING FIELD CONDITIONS. FOR ANY BUSWAY INSTALLED UNDER WATER PIPING, A DRIP PAN SHALL BE INSTALLED AS REQUIRED.
- B NEW WORK SHOWN BOLD.

KEYED NOTES - E204

- 1 GENERATOR 3 EQUIPMENT IS PROVIDED AND INSTALLED IN A SEPARATE SCOPE OF WORK.
- 2 G.E. SPECTRA BUSWAY TAP BOX, COORDINATE LOCATION WITH EXISTING CONDITIONS. TRANSITION TO NEW SPECTRA BUSWAY.
- 3 CONNECT EXISTING HORIZONTAL G.E. ARMORCLAD BUSWAY TO NEW G.E. SPECTRA BUSWAY. THE EXISTING HORIZONTAL SECTION SHALL BE AS SHORT AS POSSIBLE BASED ON EXISTING CONDITIONS, FIELD VERIFY EXACT CONNECTION LOCATION.

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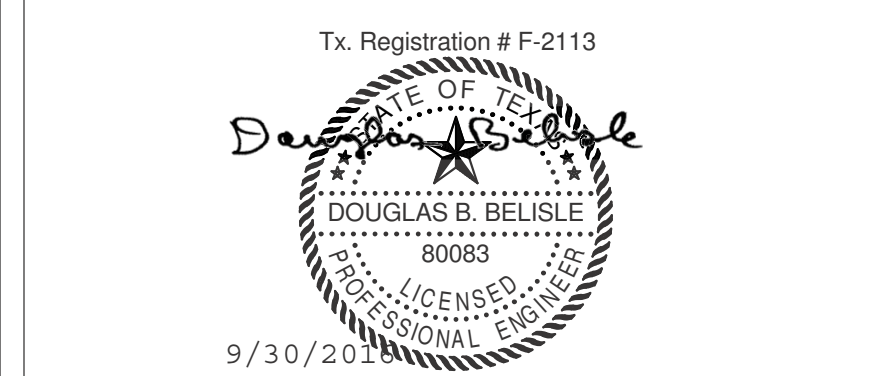
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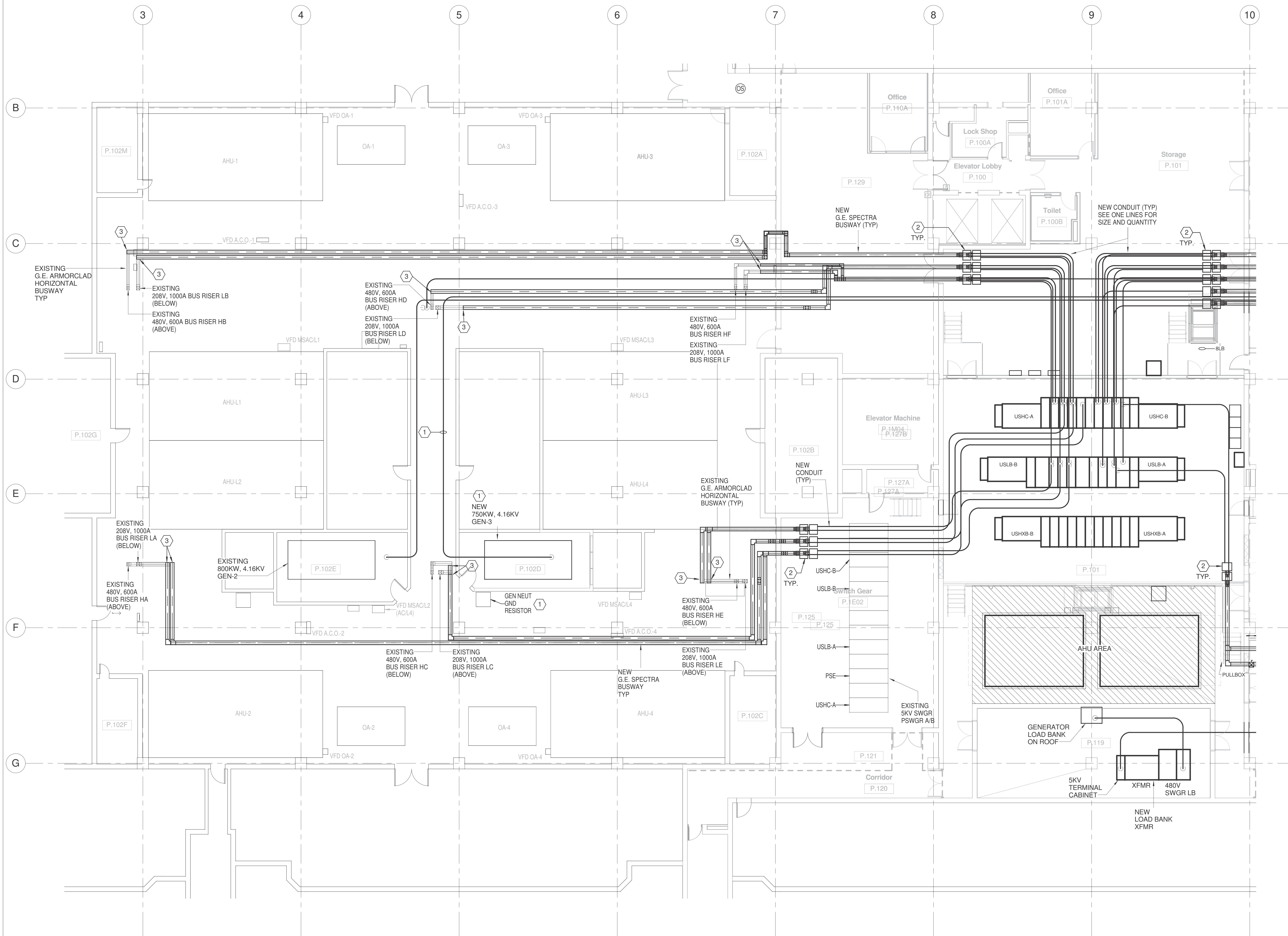
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**MSB SWITCHGEAR
 REPLACEMENT**

**ENLARGED PENTHOUSE PLAN
 RENOVATION EAST BUSWAY
 ROUTING**

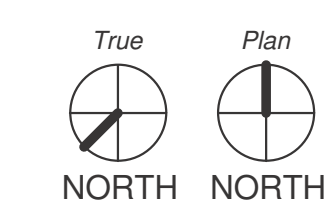
SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E204

Scale 1/8" = 1'-0"



**ENLARGED ELECTRICAL PENTHOUSE
 PLAN RENOVATION EAST**

1/8" = 1'-0"



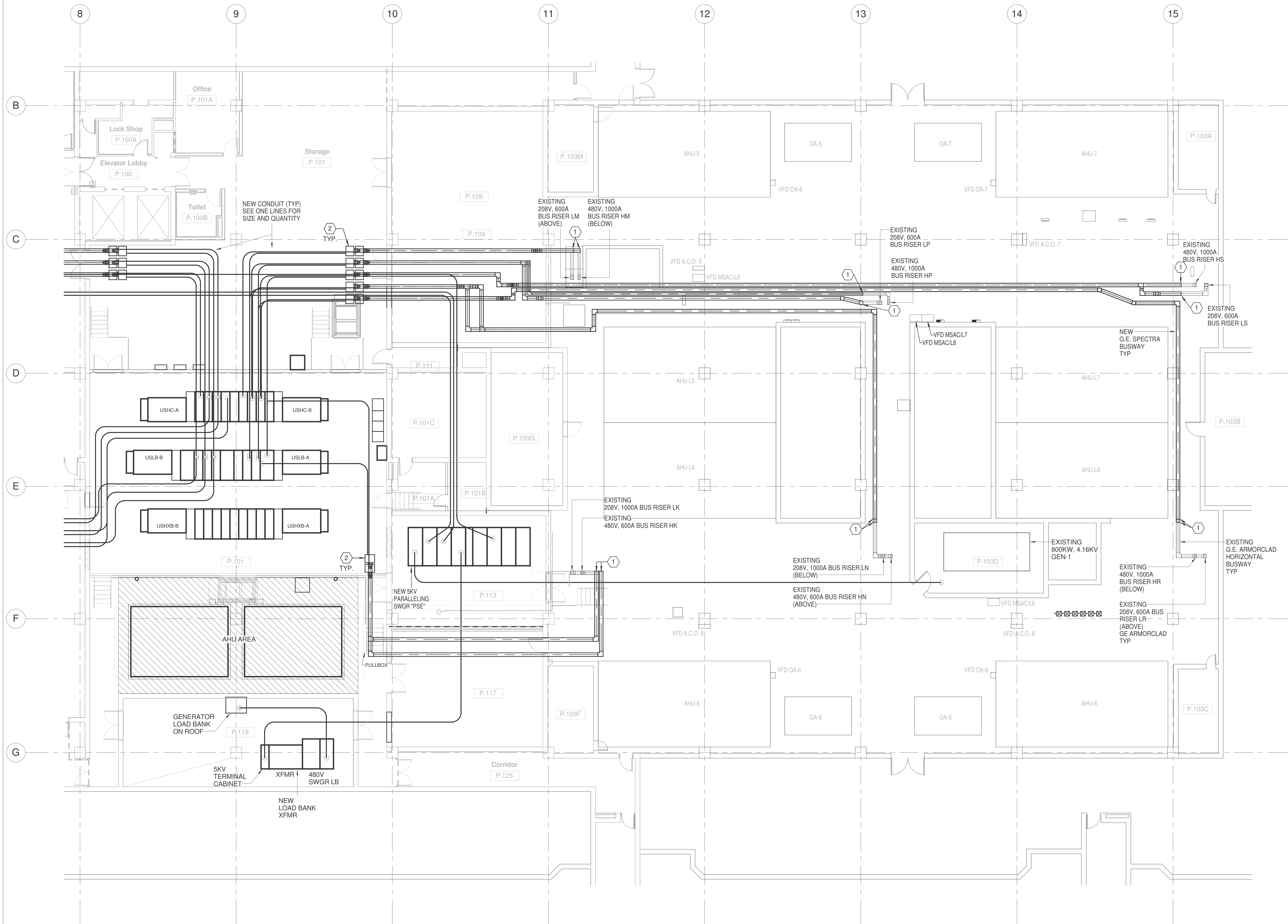
True Plan
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GENERAL NOTES - E205

- A COORDINATE CONDUIT/BUSWAY ROUTE WITH EXISTING CONDITIONS. EXISTING PIPING, DUCTWORK, ETC. IS NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR INSTALLING CONDUIT BASED ON EXISTING FIELD CONDITIONS. FOR ANY BUSWAY INSTALLED UNDER WATER PIPING, A DRIP PAN SHALL BE INSTALLED AS REQUIRED.
- B NEW WORK SHOWN BOLD.

KEYED NOTES - E205

- 1 CONNECT EXISTING HORIZONTAL G.E. ARMORCLAD BUSWAY TO NEW G.E. SPECTRA BUSWAY. THE EXISTING HORIZONTAL SECTION SHALL BE AS SHORT AS POSSIBLE BASED ON EXISTING CONDITIONS. FIELD VERIFY EXACT CONNECTION LOCATION.
- 2 G.E. SPECTRA BUSWAY TAP BOX. COORDINATE LOCATION WITH EXISTING CONDITIONS. TRANSITION TO NEW SPECTRA BUSWAY.



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No.	Description	Date

Keyplan



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**MSB SWITCHGEAR
 REPLACEMENT**

**ENLARGED PENTHOUSE PLAN
 RENOVATION WEST BUSWAY
 ROUTING**

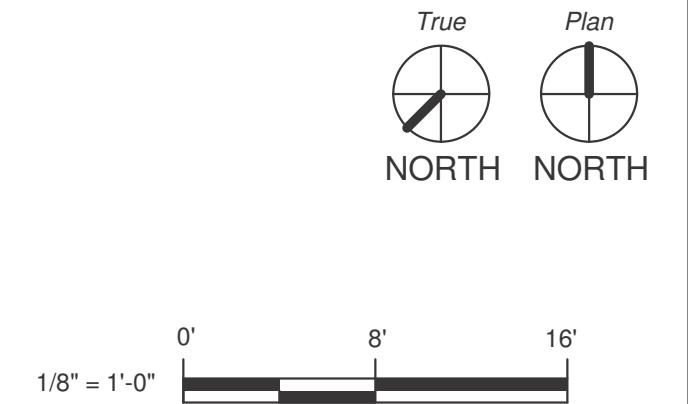
SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
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Drawing No.	

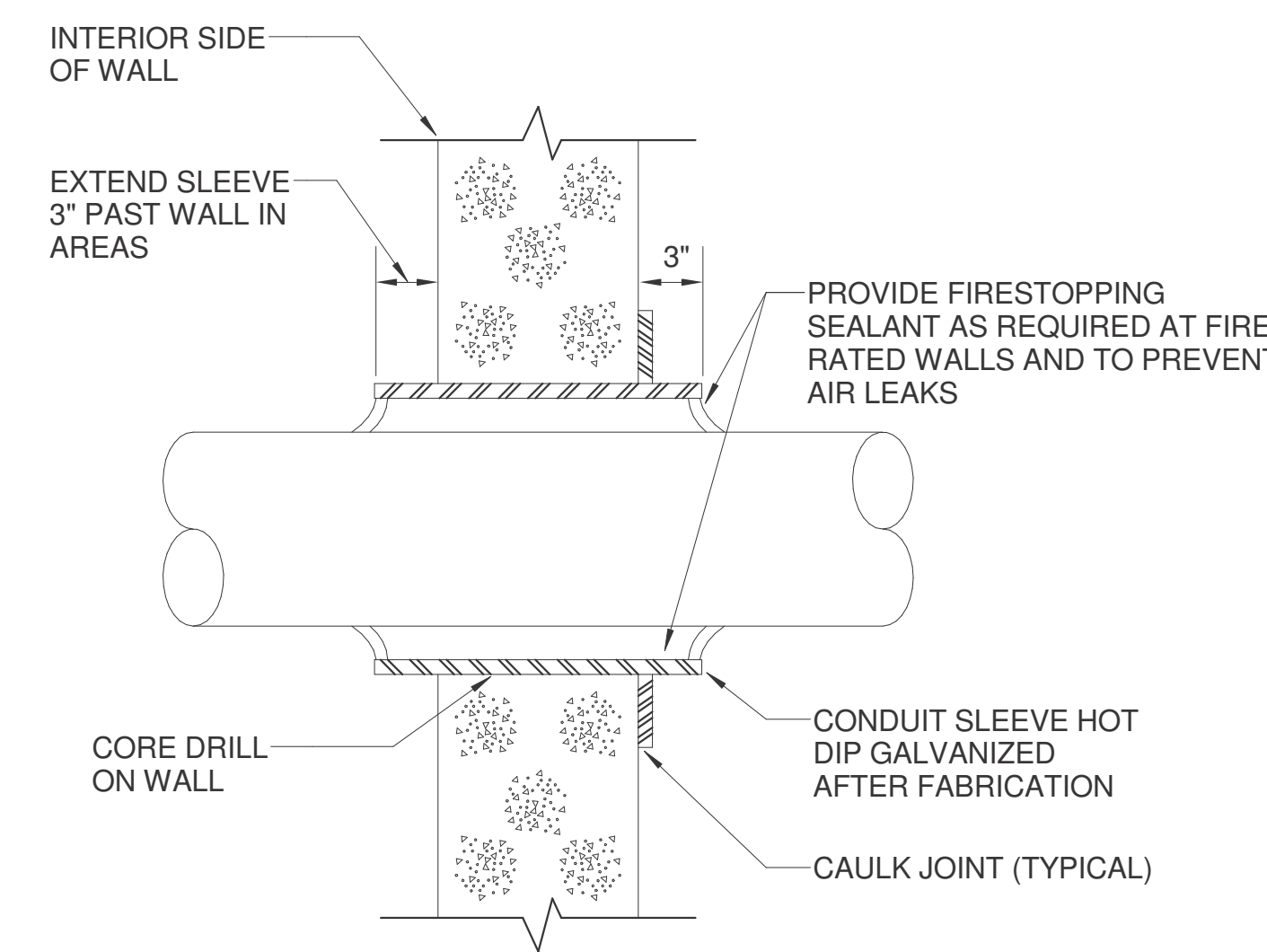
E205

Scale 1/8" = 1'-0"

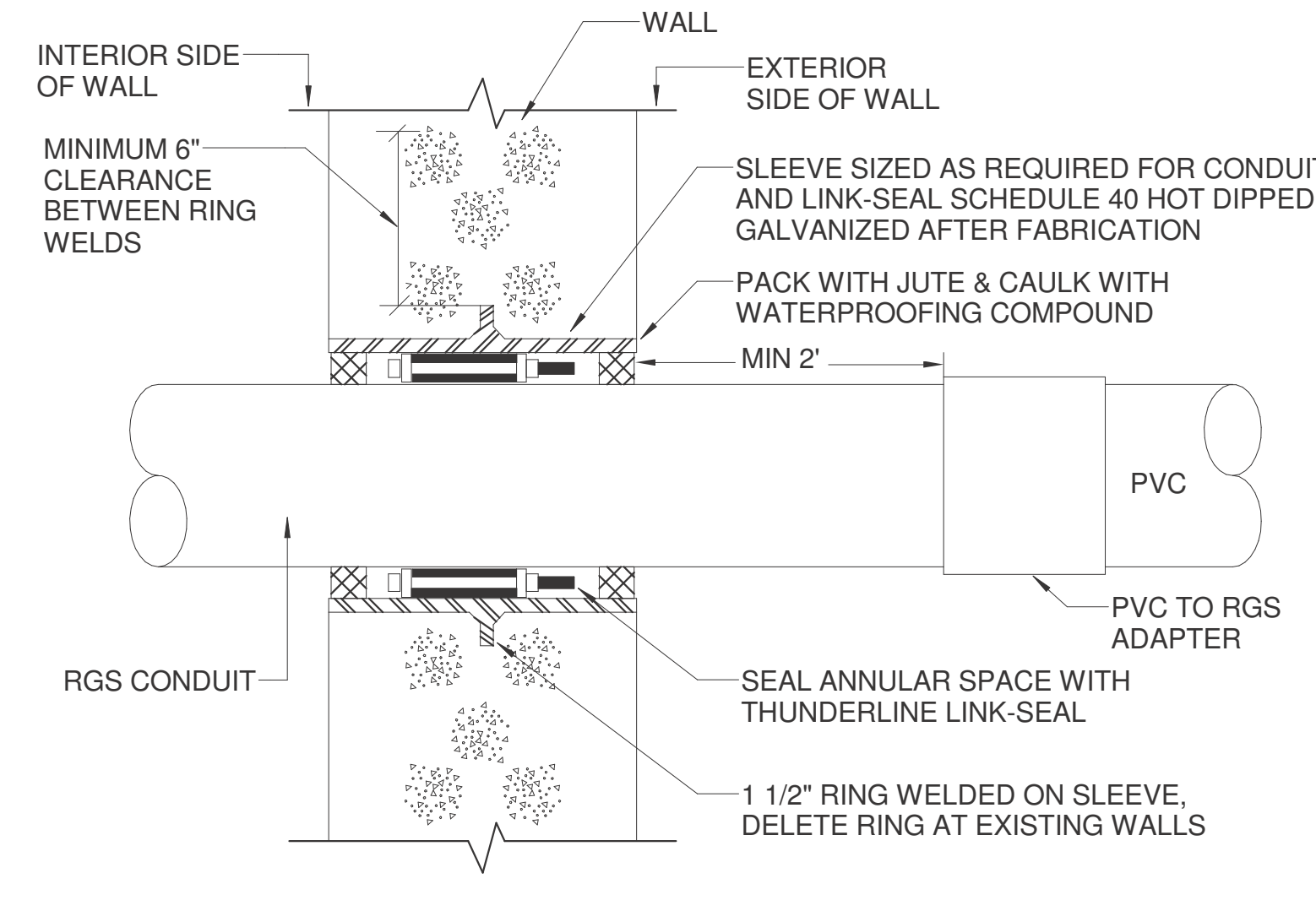
**ENLARGED ELECTRICAL PENTHOUSE
 PLAN RENOVATION WEST**

1 1/8" = 1'-0"

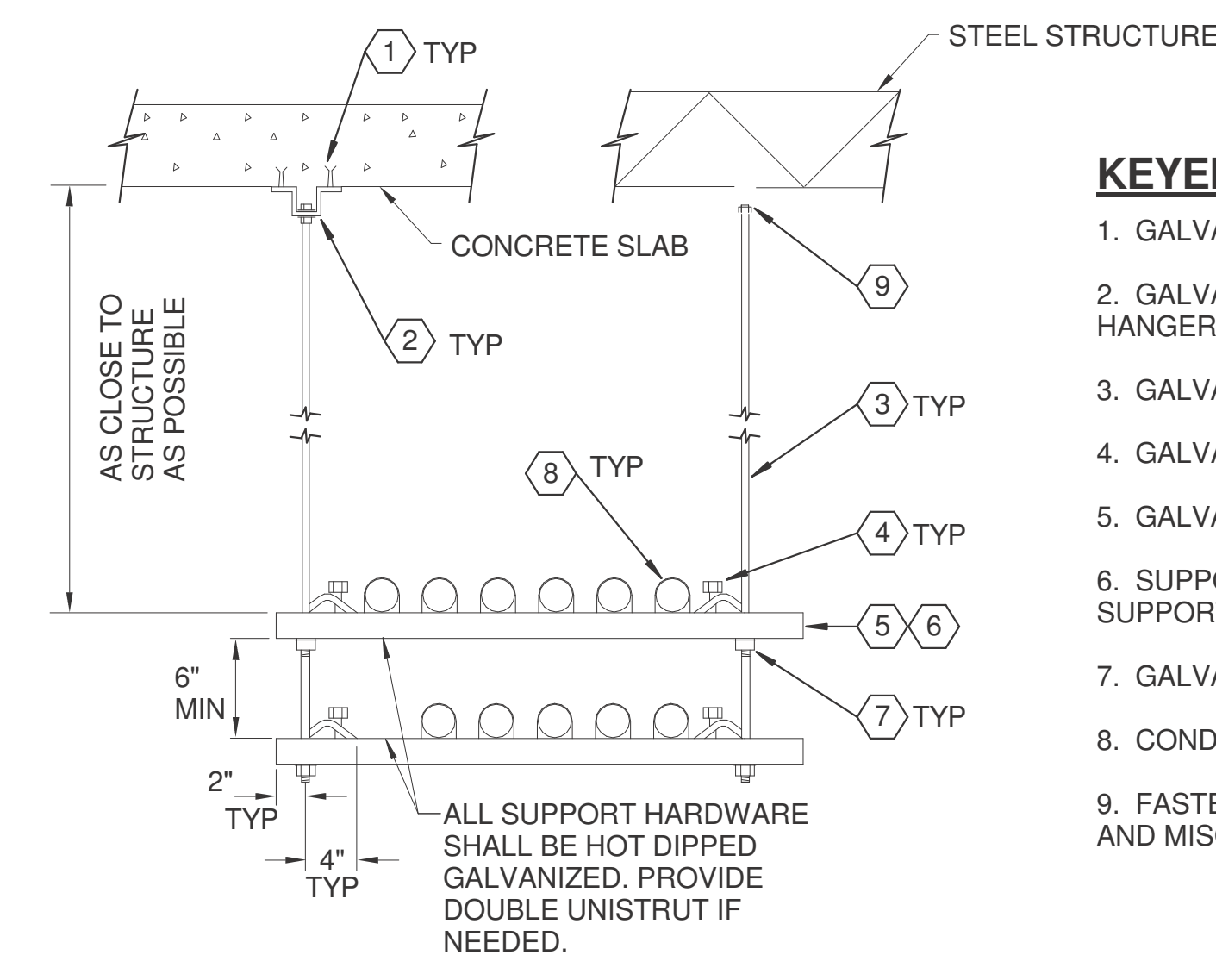




3 CONDUIT PENETRATION THRU INTERIOR WALL
NO SCALE



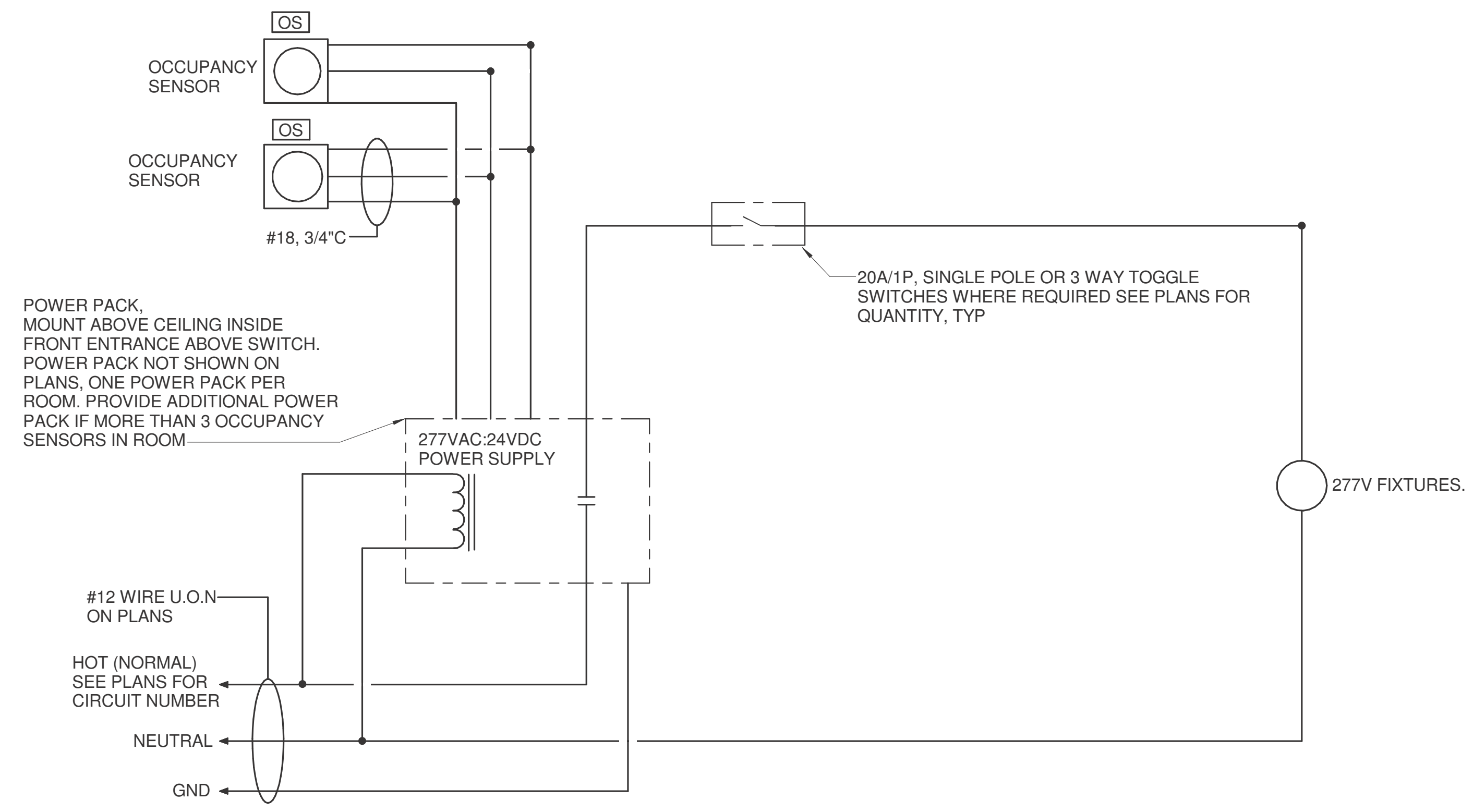
2 CONDUIT PENETRATION THRU EXTERIOR WALL
NO SCALE



4 CONDUIT SUPPORT DETAIL TRAPEZE
NO SCALE

- KEYED NOTES:**
1. GALVANIZED 3/8" x 2 1/2" LONG CONCRETE ANCHOR.
 2. GALVANIZED P2682 UNISTRUT BEAM CLAMP WITH HANGER CLEVIS OAS.
 3. GALVANIZED 1/2" DIAMETER ALL-THREAD ROD.
 4. GALVANIZED P1386 UNISTRUT BEAM CLAMP OAS.
 5. GALVANIZED P1000 UNISTRUT CHANNEL OAS.
 6. SUPPORT EMT AT 10'-0" MINIMUM SPACING. SUPPORT RGS PER NEC.
 7. GALVANIZED 3/8" HEX NUT AND LOCKWASHER.
 8. CONDUIT CLAMP.
 9. FASTEN TO STEEL STRUCTURE WITH BEAM CLAMPS AND MISC. STEEL, TYP.

KEYED NOTES - E501
1. EXTEND EXISTING START/STOP WIRING TO NEW STARTER.

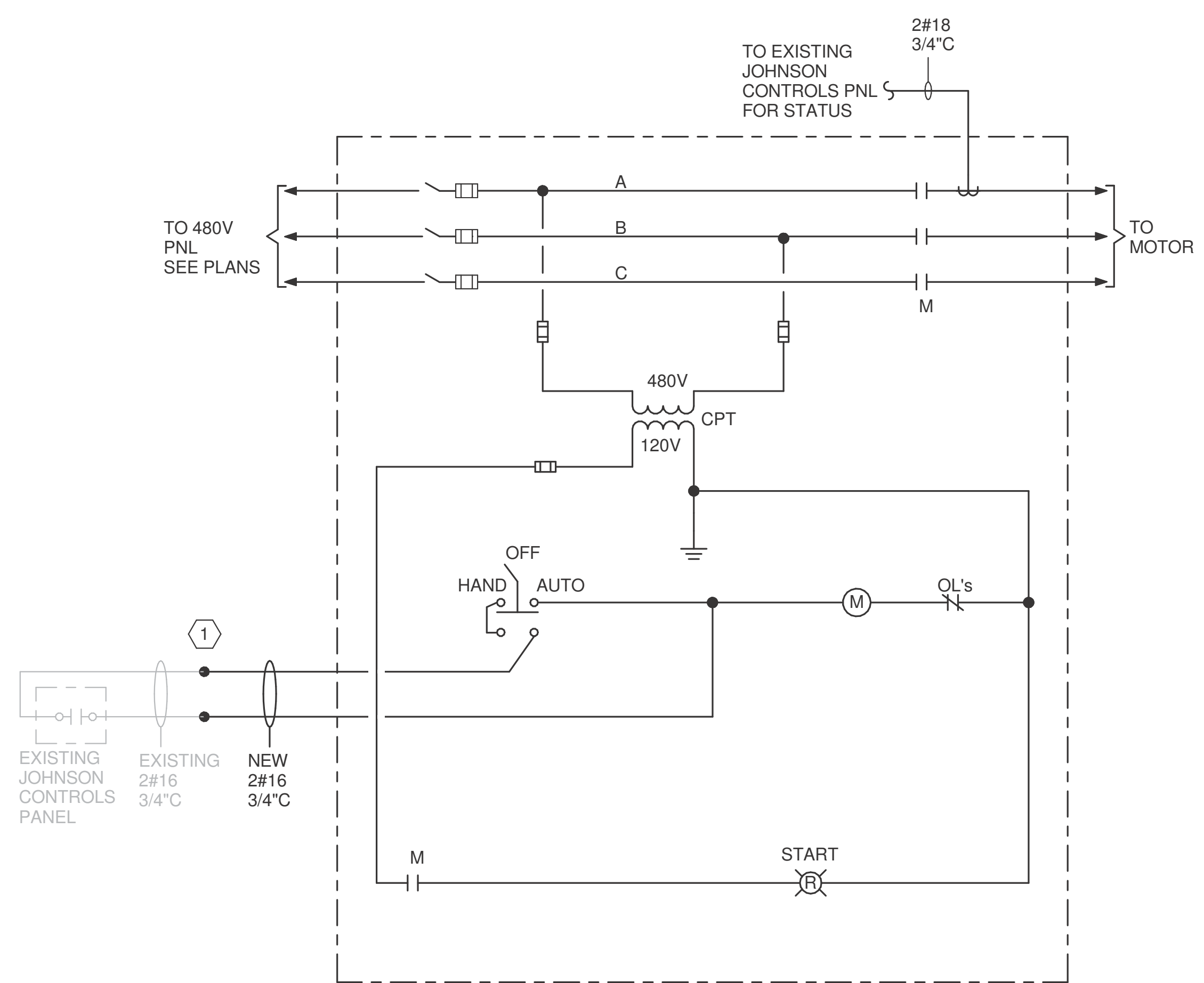


OCCUPANCY SENSOR SCHEDULE

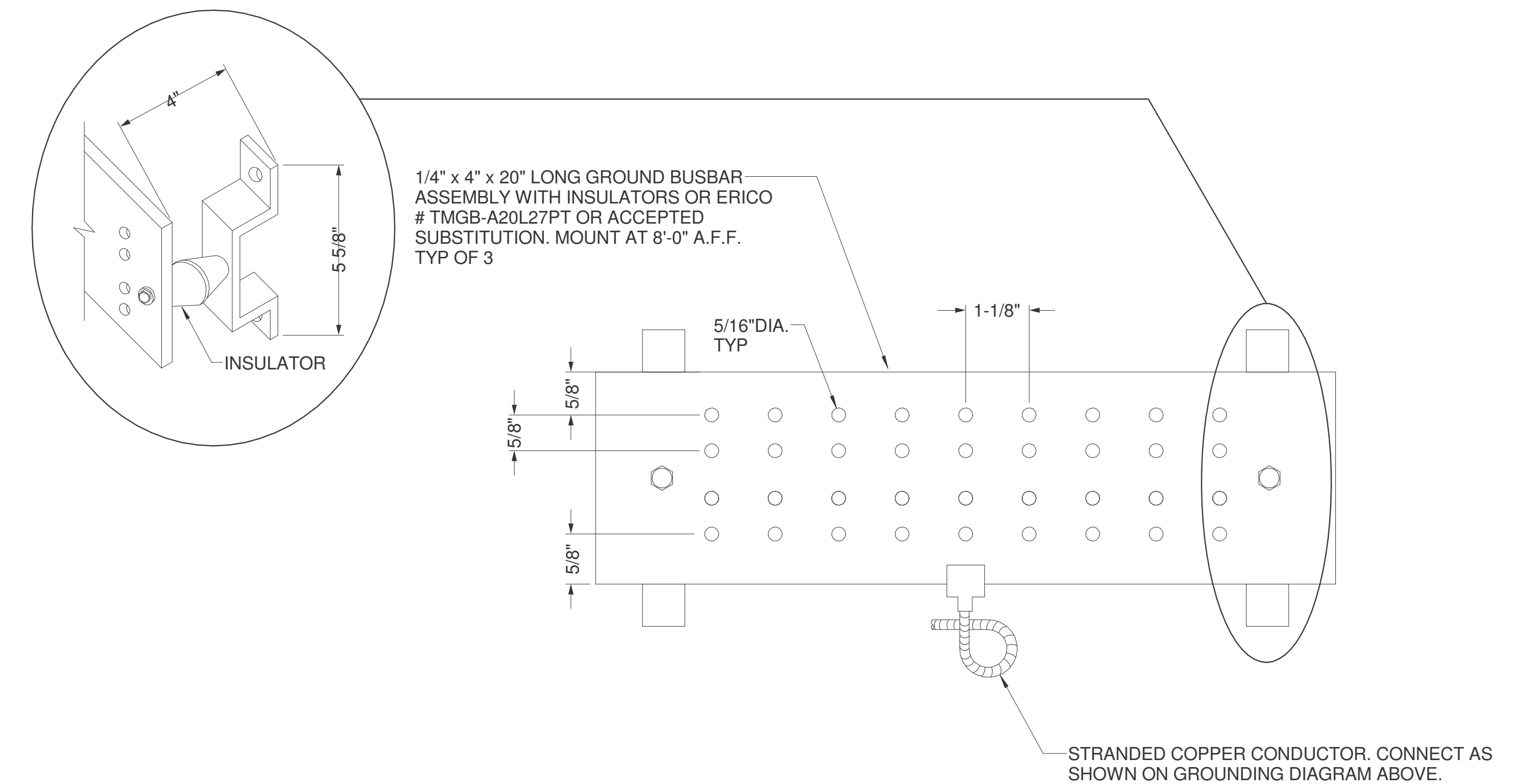
TYPE	LOCATION	MOUNTING	WATTSTOPPER MODEL NUMBER
ULTRASONIC AND PIR 500 SQUARE FOOT COVERAGE	SEE PLANS	CEILING	CI-200 OS ₁
HIGH BAY PIR WITH LENS	SEE PLANS	CEILING	HB350/HBL3 LENS OS ₂

PROVIDE A SUBMITTAL SHOWING ALL OCC SENSOR LAYOUTS ON 1/8" PLAN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT OCC SENSOR TO SUIT ROOM SQUARE FOOTAGE.

1 OCCUPANCY SENSOR CONTROLLED RECEPTACLES WITH SEPARATE POWER PACK
NO SCALE



6 CONTROL DIAGRAM
NO SCALE



5 GROUNDING BUSBAR DIAGRAM
NO SCALE

SHAH SMITH & ASSOCIATES, INC.
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UTHealth
The University of Texas
Health Science Center at Houston

No.	Description	Date
4	ISSUED FOR CONSTRUCTION	09/30/2016
3	100% CD REVIEW	06/24/2016
2	90% PKG 1/2 REVIEW	05/13/2016

Keyplan

Tx. Registration # F-2113
DOUGLAS B. BELISLE
LICENSED PROFESSIONAL ENGINEER
9/30/2016

The University of Texas
Health Science Center at
Houston

MSB SWITCHGEAR REPLACEMENT
ELECTRICAL DETAILS

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KTM
Checked By	DBB
Drawing No.	E501
Scale	NO SCALE

Branch...		PL										
Location:	P.117	Volts:	120/208 Wye	Bus Rating:	100A	Feed Through:	No					
Supply From:		Phases:	3	MCB:	100A	Neutral Rating:	100.00%					
Mounting:	Surface	A.I.C. Rating:	10,000	MLO:	No							
Enclosure:	NEMA 1											
Notes:												
Comments	Ckt No.	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Ckt No.	Comments
1	1	LIGHTS EXISTING LOAD	20 A	1	0 VA / 0 VA			1	20 A	CONDENSATE PANEL EXISTING LOAD	2	
1	3	LIGHTS EXISTING LOAD	20 A	1		0 VA / 0 VA		1	20 A	CONDENSATE PANEL EXISTING LOAD	4	
1	5	DDC CONTROL PANEL EXISTING LOAD	20 A	1			0 VA / 720 VA	1	20 A	RCPTS P.101, STOR	6	2#12, #12G, 3/4"C
2	7	FCU-P-9	25 A	2	1410 VA / 1040 VA			1	20 A	RCPTS OFFICE	8	2#12, #12G, 3/4"C
	9	--	--	--		1410 VA / 1944 VA		1	20 A	EF-P-1	10	2#12, #12G, 3/4"C
2	11	RCPTS P.113, P.117	20 A	1			1440 VA / 0 VA	--	--	SPACE	12	--
2	13	RCPTS P.119	20 A	1	540 VA / 0 VA			--	--	SPACE	14	--
	15	SPACE	--	--		0 VA / 0 VA		--	--	SPACE	16	--
	17	SPACE	--	--			0 VA / 0 VA	--	--	SPACE	18	--
	19	SPACE	--	--	0 VA / 0 VA			--	--	SPACE	20	--
	21	SPACE	--	--		0 VA / 0 VA		--	--	SPACE	22	--
	23	SPACE	--	--			0 VA / 0 VA	--	--	SPACE	24	--
	25	SPACE	--	--	0 VA / 0 VA			--	--	SPACE	26	--
	27	SPACE	--	--		0 VA / 0 VA		--	--	SPACE	28	--
	29	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	30	
	31	SPARE	20 A	1	0 VA / 0 VA			1	20 A	SPARE	32	
	33	SPARE	20 A	1		0 VA / 0 VA		1	20 A	SPARE	34	
	35	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	36	
	37	SPARE	20 A	1	0 VA / 0 VA			1	20 A	SPARE	38	
	39	SPARE	20 A	1		0 VA / 0 VA		1	20 A	SPARE	40	
	41	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	42	
	43	SPARE	20 A	1	0 VA / 0 VA			1	20 A	SPARE	44	
	45	SPARE	20 A	1		0 VA / 0 VA		1	20 A	SPARE	46	
	47	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	48	
	49	SPARE	20 A	1	0 VA / 0 VA			1	20 A	SPARE	50	
	51	SPARE	20 A	1		0 VA / 0 VA		1	20 A	SPARE	52	
	53	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	54	
	55	SPARE	20 A	1	0 VA / 0 VA			1	20 A	SPARE	56	
	57	SPARE	20 A	1		0 VA / 0 VA		1	20 A	SPARE	58	
	59	SPARE	20 A	1			0 VA / 0 VA	1	20 A	SPARE	60	
		Total Load:	2900 VA		3354 VA		2160 VA					
		Total Amps:	26 A		29 A		18 A					
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals								
Motor	1944 VA	100.00%	1944 VA									
RECEPTACLES	3740 VA	100.00%	3740 VA	Total Conn. Load: 5684 VA								
				Total Est. Demand: 5684 VA								
				Total Conn. Current: 16 A								
				Total Est. Demand Current: 16 A								
Notes:												
EXISTING PANEL IN RM P.117												

KEYED NOTES - E701

- CONNECT EXISTING LOAD TO PANEL. PROVIDE 2#12, #12G IN 3/4 CONDUIT FOR NEW FEED.
- NEW LOAD.

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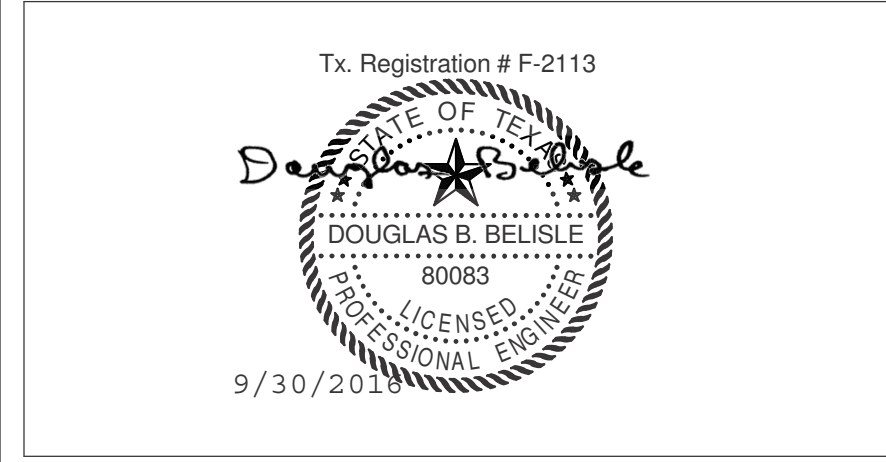
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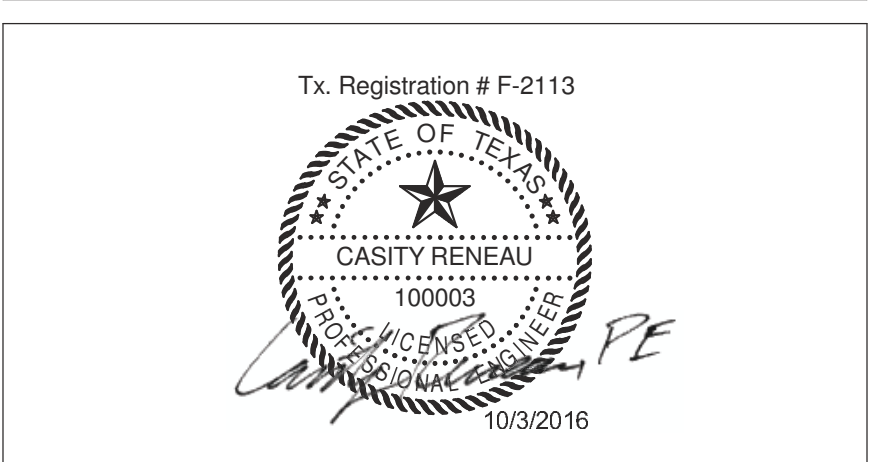
**MSB SWITCHGEAR
 REPLACEMENT**

ELECTRICAL PANEL
 SCHEDULES

SSA Project Number: 1095-023-02
 Date: 09/30/2016
 Designed By: KTM
 Checked By: DBB
 Drawing No. **E701**
 Scale

2	100% CD REVIEW	06/24/2016
1	100% CD REVIEW	3/22/2016
No.	Description	Date

Keyplan



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**MSB SWITCHGEAR
REPLACEMENT**

**PENTHOUSE FIRE PROTECTION
PLAN**

SSA Project Number	1095-023-02
Date	09/30/2016
Designed By	KI
Checked By	JLF
Drawing No.	

FP201

Scale As indicated

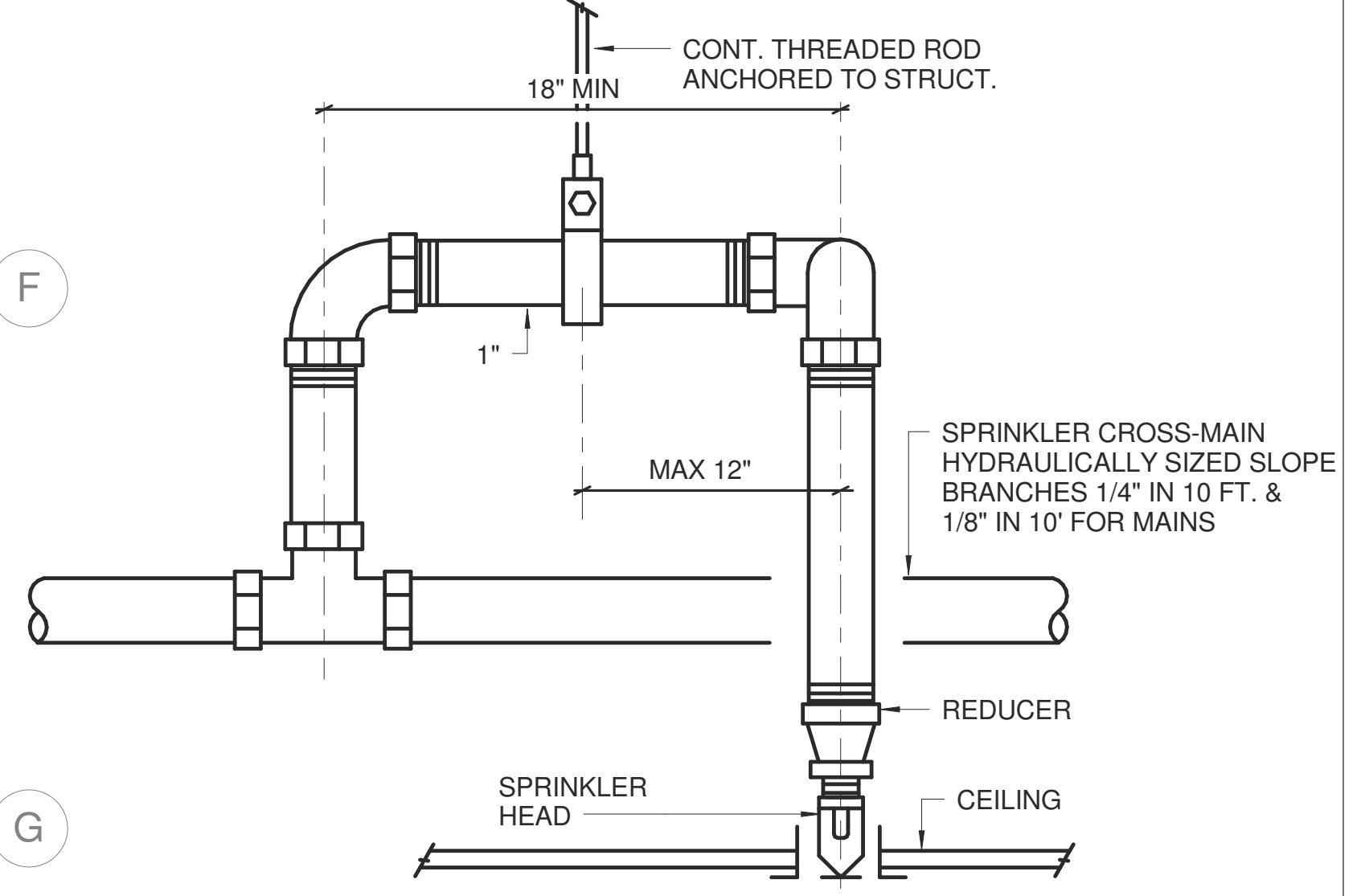


GENERAL NOTES

A. PROVIDE CAGES TO PROTECT SPRINKLER HEADS IN IDF & ELECTRICAL ROOMS.

KEYED NOTES - FP201

- 1 PROVIDE WET AUTOMATIC SPRINKLER SYSTEM TO PROVIDE 100% COVERAGE FOR ROOM/AREA FOR ORDINARY HAZARD GROUP 1 OCCUPANCY AS OUTLINED IN NFPA 13 & THE SPECIFICATIONS.
- 2 PROVIDE UPRIGHT PENDANT TYPE SPRINKLER HEADS.
- 3 REWORK EXISTING FIRE SPRINKLER LAYOUT IN THIS AREA TO PROVIDE 100% COVERAGE IN THIS AREA.
- 4 PROVIDED CONCEALED TYPE SPRINKLER HEADS.
- 5 PROVIDE WET AUTOMATIC SPRINKLER SYSTEM TO PROVIDE 100% COVERAGE FOR ROOM/ AREA FOR LIGHT HAZARD GROUP OCCUPANCY AS OUTLINED IN NFPA 13 AND THE SPECIFICATIONS.



NOTE:
INSTALL SPRINKLER HEADS IN EXACT CENTER OF LAY-IN CEILING TILES THIS DETAIL APPLIES IN ALL LOCATIONS WHERE SPRINKLER HEADS ARE LOCATED IN SUSPENDED CEILINGS. THIS DOES NOT APPLY TO PROCESS LAB 1.

2 SPRINKLER IN CEILING DETAIL
12" x 12"

