UNIVERSITY of MARYLAND BALTIMORE

ADMINISTRATION & FINANCE
DESIGN AND CONSTRUCTION
OFFICE OF FACILITIES MANAGEMENT
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BALTIMORE, MARYLAND 21201
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BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

655 W. BALTIMORE STREET
BALTIMORE, MD 21201
CITY OF BALTIMORE
UMB Project No.: 18055.01
A/E Project No.: 18055.01

List of Drawings

State of Maryland
Board of Public Works

Lawrence J. Hogan, Jr. — Governor
Peter Franchot — Comptroller
Nancy K. Kopp — State Treasurer

Maryland General Assembly

William C. Ferguson — Senate President
Adrienne A. Jones — House Speaker

Consultants

ARCHITECT
MCA ARCHITECTURE
2031 Clipper Park Rd., Suite 100
Baltimore, MD 21211
(410) 532-3131

M/E/P
WFT ENGINEERING, INC.
1801 Research Blvd., Suite 100
Rockville, MD 20850
(301) 230-0811

STRUCTURAL ENGINEERING
CARROLL ENGINEERING, INC.
215 Schilling Circle, Suite 102
Hunt Valley, Maryland 21031
(410) 785-7423

CONSTRUCTION DOCUMENTS

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KEY PLAN

A/E CONSULTANTS
MCA | ARCHITECTURE
Architecture | Interior Design | Planning
Marshall Craft Associates, Inc.
2031 Clipper Park Road, Suite 105
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410.532.3131 | www.mca.design

Civil and Structural Engineering
CARROLL ENGINEERING, INC.
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Hunt Valley, Maryland 21031
(410) 785-7423

Mechanical Electrical Engineering
WFT ENGINEERING, INC.
1801 Research Blvd., Suite 100
Rockville, MD 20850
(301) 230-0811

PROFESSIONAL CERTIFICATION. I HERE BY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No.: 20078
EXPIRATION DATE: 9/15/2020.

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO. :	0833
UMB Project NO. :	18055.01
A/E PROJECT NO. :	18015.01
CAD FILE NO. :	1801501
DATE :	12/18/2020

DRAWING TITLE :
COVER SHEET

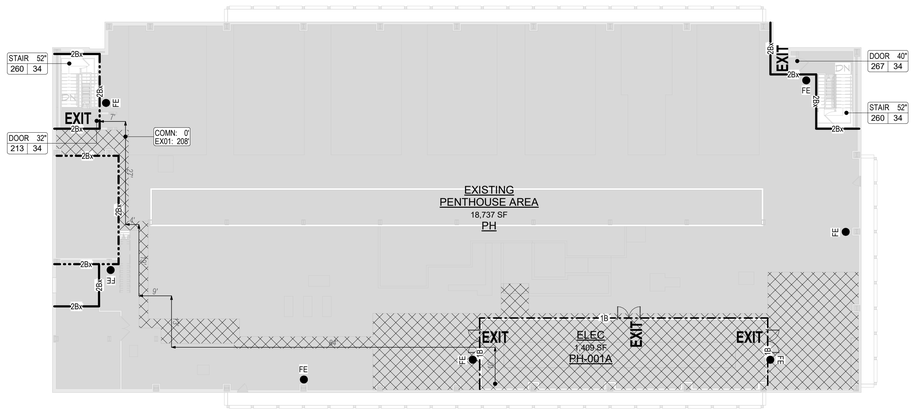
CONSTRUCTION DOCUMENTS

REVISIONS

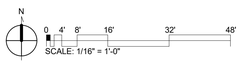
No.	Description	Date

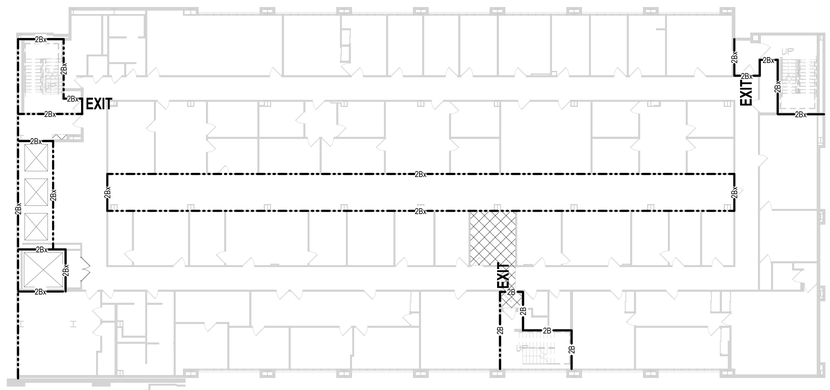
12/17/2020 3:31:10 PM

DWG. NO.
G000

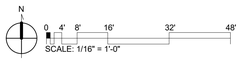


1 A001 **PENTHOUSE LIFE SAFETY PLAN**
SCALE: 1/16" = 1'-0"





2 A001 **14TH FLOOR LIFE SAFETY PLAN**
SCALE: 1/16" = 1'-0"



LEGEND - LIFE SAFETY / CODE COMPLIANCE

NOTE: "X" INDICATES EXISTING ITEM TO REMAIN, UON

- 1B — 1-HOUR FIRE BARRIER
- 2B — 2-HOUR FIRE BARRIER
- 16' — PATH OF EXIT ACCESS TRAVEL
- MEANS OF EGRESS IDENTIFIER: TYPE OF EGRESS COMPONENT; DOOR 34" — CLEAR EGRESS WIDTH; 227 160 — ACTUAL EGRESS LOAD / ALLOWABLE EGRESS LOAD
- EGRESS TRAVEL DISTANCE IDENTIFIER: COMN: 20' — COMMON PATH OF TRAVEL; EXO1: 200' — DISTANCE TO EXIT(S); EXO2: 250' — LOCATION ID OF EXIT(S)
- EXIT — EXIT STAIR / ACCESS CORRIDOR
- FE — FIRE EXTINGUISHER
- ACCESSORY STORAGE AND EQUIPMENT
- AREA OF WORK, VIF

RISK CATEGORY & RELATED REQUIREMENTS

RISK CATEGORY: II, BUILDINGS AND OTHER STRUCTURES EXCEPT THOSE LISTED IN RISK CATEGORIES I, III AND IV (IBC TABLE 1604.5)

RISK CATEGORY III ULTIMATE DESIGN WIND SPEED (VULT) (FIGURE 1609.3(3)): 130 MPH.

FIRE-RESISTANT PENETRATION & JOINTS (IBC SECTION 1705.17)

SPECIAL INSPECTIONS BY AN APPROVED AGENCY ARE REQUIRED FOR THROUGH PENETRATIONS, MEMBRANE PENETRATION FIRESTOPS, FIRE-RESISTANT JOINTS SYSTEMS AND PERIMETER FIRE BARRIER SYSTEMS.

EXISTING BUILDING CODE NOTES: (IEBC)

1. MODIFICATIONS TO THE EXISTING FIRE ALARM AND AUTOMATIC SPRINKLER SYSTEMS SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE CODES. BUILDING HAS AN EXISTING APPROVED FIRE ALARM SYSTEM AND AN APPROVED AUTOMATIC SPRINKLER SYSTEM.
2. FIRE ALARM DEVICES NEWLY INSTALLED OR MODIFIED DUE TO THE SCOPE OF WORK SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE CODES. PORTIONS OF EXISTING SYSTEM, INCLUDING EXISTING DEVICES WITHIN THE WORK AREA BUT NOT PART OF THE SCOPE OF WORK, WILL NOT BE MODIFIED UNLESS OTHERWISE NOTED.
3. EXISTING SPRINKLER SYSTEM SHALL BE MAINTAINED. PORTIONS OF THE SYSTEM THAT ARE NEWLY INSTALLED OR MODIFIED DUE TO THE SCOPE OF WORK SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE CODES. PORTIONS OF EXISTING SYSTEM, INCLUDING SYSTEM COMPONENTS WITHIN THE WORK AREA BUT NOT PART OF THE SCOPE OF WORK, WILL NOT BE MODIFIED UNLESS OTHERWISE NOTED.
4. UNLESS OTHERWISE NOTED, ALL ALTERATIONS SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE CODES FOR FIRE PROTECTION, MEANS OF EGRESS, LIFE SAFETY, AND ADA ACCESSIBILITY.

FIRE SUPPRESSION SYSTEM

FIRE SUPPRESSION: PORTABLE EXTINGUISHERS TO BE PROVIDED PER IBC 906: IN GROUP A, B, & S OCCUPANCIES (906.1.1) NEAR HAZARDOUS LOCATIONS (NFPA 33.3.3.5.7) NFPA 13 AUTOMATIC SPRINKLER SYSTEM IS REQUIRED AND IS EXISTING AND SHALL BE MODIFIED IN ACCORDANCE WITH CURRENT CODES ONLY WITHIN WORK AREA (903.2)

FIRE ALARM & DETECTION: EXISTING SYSTEMS SHALL BE MODIFIED IN ACCORDANCE WITH CURRENT CODES ONLY WITHIN WORK AREA

CODE COMPLIANCE GENERAL NOTES

A. IDENTIFY NEW FIRE RATED WALLS WITH SIGNS STATING THE REQUIRED RATING, SUCH AS: "X-HOUR FIRE WALL DO NOT PENETRATE", WHERE "X" IS THE ACTUAL RATING AND "WALL" IS REPLACED WITH "WALL", "BARRIER," OR "PARTITION" AS SHOWN ON LIFE SAFETY PLANS. WHERE THE FIRE RATED ASSEMBLY IS ALSO SMOKE-RATED, INDICATE "FIRE/SMOKE" IN PLACE OF "FIRE". FOR AESTHETIC REASONS, THIS REQUIREMENT DOES NOT APPLY TO WALLS INSIDE STAIRWELLS OR PUBLIC AREAS SUCH AS OFFICES, LOBBIES, CORRIDORS, ETC THAT DO NOT HAVE DROP-IN CEILINGS. IN AREAS WITH DROP CEILINGS, PAINT NOTIFICATION ON THE WALL ABOVE THE DROP/FINISH CEILING. IN MECHANICAL, ELECTRICAL, AND OTHER SIMILAR ROOMS, PLACE SIGNS AT 5'-0" ABOVE FINISH FLOOR LEVEL. SPACE SIGNS AT A MAXIMUM OF 10'-0" INTERVALS AT NO LESS THAN (1) PER ROOM. APPLY SIGNS USING FLUORESCENT RED OR ORANGE PAINT OVER STENCILS. LETTERS MUST BE A MINIMUM OF 4" IN HEIGHT. METAL, PLASTIC, OR PAPER DECAL SIGNS ARE NOT ACCEPTABLE. TAKE CARE WHEN APPLYING SIGNAGE TO PREVENT OVER-SPRAY ONTO ADJACENT FINISHES.
B. INDICATED FIRE RATINGS REFLECT CURRENT CODE REQUIREMENTS. EXISTING CONSTRUCTION MAY NOT MEET ALL SPECIFIED CONSTRUCTION REQUIREMENTS. ALL NEW CONSTRUCTION IS TO MEET ALL CODE INDICATED FIRE CONSTRUCTION REQUIREMENTS
C. NUISANCE/ODORS: REVIEW PRODUCT AND MATERIAL SAFETY DATA SHEETS (MSDS). PROHIBIT FINISH MATERIAL NUISANCE/ODOR ENTRAINMENT TO ADJACENT OCCUPIED AREAS OF BUILDING. COORDINATE PLACEMENT OF MATERIALS, NOTIFICATION OF OCCUPANTS AND TEMPORARY BLOCKAGE OR OUTAGE OF HVAC SYSTEM(S) WITH OWNER, PER SMACNA IAQ GUIDELINES. COMAR 26.11.06.08

ROOF REQUIREMENTS

RAINFALL INTENSITY AT THIS LOCATION PER IBC= 3.25"/ 60 MINUTES/ 100 YEAR FREQUENCY

ROOF SYSTEMS HAVE BEEN DESIGNED TO WITHSTAND WIND PRESSURES IN ACCORDANCE WITH ASCE 7 PER 1609.5, REFERENCE IBC 2015: 120 MPH.

AREA SCHEDULE

ROOM #	ROOM NAMES	AREA	FUNCTION OF SPACE	OCC LOAD FACTOR	OCC LOAD
PH	EXISTING PENTHOUSE AREA	18,737 SF	ACCESSORY STORAGE AND EQUIPMENT	300 SF	63
PH-001A	ELEC	1,409 SF	ACCESSORY STORAGE AND EQUIPMENT	300 SF	5
PENTHOUSE		20,146 SF			68
		20,146 SF			68

TOTAL FLOOR AREA: 20,148 SF
AREA BEING RENOVATED: 2,433 SF
% FLOOR AREA ALTERATION: 12.1% = LEVEL 2 ALTERATION

BUILDING CODE STUDY DATA

DESIGN PHASE: __ SD _ _ DD _X_ CD DATE: 10/08/2020

1) **PROJECT: Penthouse Substations 4-7 Renewal**
PROJECT NO. 19-312

FACILITY: Bressler Research Building

2) **APPLICABLE CODES:**

A)	Existing Building Code:	IEBC – 2018
B)	Fire Code:	NFPA – 2018
C)	International Mechanical Code:	IMC – 2018
D)	National Standard Plumbing Code:	NSPC – 2018
E)	National Electric Code:	NEC – 2017
F)	ASHRAE:	Latest
G)	Elevator and Escalator Safety Code:	ASME A17.1.2000 (with addenda)
H)	Maryland Accessibility Code Guidelines for Buildings and Facilities (COMAR 05.02.02)	
I)	International Energy Conservation Code 2018 IECC	
J)	Building Code:	IBC – 2018
K)	MOSHA – latest requirements	
L)	Green Building Code:	IgCC 2012

3) **BUILDING USE, CONSTRUCTION CLASSIFICATIONS AND HEIGHT**

	IBC	NFPA
Use Group (Section 305) _____:	B A-3 (Unseparated)	Business Assembly
Special Use and Occupancy__ ____ (Chapter 4):	N/A	
Incidental Use Areas _____ (Table 509):	N/A	
Proposed Type of Construction __ (Table 601):	1A	I
Building Height Allowance _____ (Table 504.3):	UL	
Actual Building Height _____:	215'-7" (Existing)	
Number of Stories Allowed_____ (Table 504.4):	UL	
Actual Building Stories _____:	15 (Existing)	

4) **BUILDING AREAS:**

BUILDING ACTUAL GROSS AREAS:

Penthouse Level: 20,148 square feet

OCCUPANCY LOADS:

USE:	IBC (Table 1004.1.5):	Life Safety (Table 7.3.1.2):
Business	1:100	1:100
Assembly (Table/Chairs)	1:15 Net	1:15 Net
Mechanical/Electrical	1:300	1:300

EGRESS WIDTH:

	IBC (1005.3):	Life Safety (Table 7.3.3.1):
Egress Width at Stairs:	.2"/occupant	.3"/occupant
Egress Width at Doors:	.15"/occupant	.2"/occupant
Egress Width at Corridors:	.15"/occupant	.2"/occupant

OCCUPANCY LOADS AND EGRESS REQUIREMENTS:

Location (Spaces)	: Mechanical Penthouse
Area in Sq. Feet	: 20,146
Maximum Floor Area	: Unlimited
Allowance per Occupant	(1004.1.5): see above
Egress Width Required	(1020.2) : 44.0" Min. 36" (7.3.4.1(2))
with occupant load of less than 50	: 36.0" Min.
Egress Width Provided	(In Inches): 52.0" Min.
Number Exits Required	(1006.2) : 2
Number Exits Provided	: 2

FIRE PROTECTION SYSTEM REQUIREMENTS:

	IBC	System Reqd. (Yes/No)	IBC -2018 Reference	NFPA 101-2018
Automatic Sprinkler	(Sec 903):	Yes	903	
Fire Extinguishers	(Sec 906):	Yes	906.1	39.3.5
Standpipe System	(Sec 905):	Yes	905.3	
Portable Fire Extinguishers	(Sec 906):	Yes	906.1	
Fire Alarm System	(Sec 907):	Yes	907.2	39.3.4.3
Emergency Alarm System	(Sec 908):	No	908.1	
Smoke Control System	(Sec 909):	No	909.1	
Smoke and Heat Vents	(Sec 910):	No	910.2	
Fire Command Center	(Sec 911):	Yes	911.1	
Fire Dept. Connection	(Sec 912):	Yes	912.1	

MAXIMUM DEAD END/DISTANCE:

Use Group : Business
IBC – 2018 (1020.4) : 50'
NFPA – 2018 : 50'

9) **INTERIOR FINISH REQUIREMENTS:**

	Class	Flame Spread	Smoke Development
IBC – 2018 (Table – 803.11):	B @ Exits	0-25, 26-75	0-450
	C @ corridor	76-200	0-450
	C @ rooms	76-200	0-450
NFPA – 2018 (Chapter 39):			
A or B @ Exits and Corridors (39.3.3.2.1)		0-25, 26-75	0-450
A, B or C other spaces (39.3.3.2.2)		0-25, 26-75 or 76-200	0-450

10) **MAXIMUM TRAVEL DISTANCE TO EXIT:**

	IBC - 2018 (Table – 1017.2)	NFPA - 2018
Allowable:	300'	300'
Common Path of Travel Allowable:	100'	100'

11) **MINIMUM CORRIDOR WIDTH REQUIREMENTS:**

Location	Width	IBC Reference (1020.2)	NFPA-39.2.3.2
		44"	44"

12) **PANIC HARDWARE:**

Location	Required	IBC Reference (1010.1.10)
Egress Doors	No	

13) **STAIR DATA: (Section 1011)**

Stair Width : 1011.2 44"
Capacity : 240/ stair
Rated Enclosure: 2 hour

14) **BUILDING FIRE RATINGS:**

Based on original building construction and current IBC requirements

STRUCTURAL FRAME Including Columns, Girders, Trusses	:	3
EXTERIOR BEARING WALL	:	3
EXTERIOR NON-BEARING WALL	:	3
INTERIOR BEARING WALL	:	3
FLOOR CONSTRUCTION Including Support Beams and Joist	:	2
ROOF CONSTRUCTION Including Support Beams and Joist	:	1-1/2
FIRE WALLS – USE GROUP Protective Opening Rating (Section 706 & 716.5)	:	3
VERTICAL EXIT ENCLOSURE Protective Opening Rating (Section 713.4)	:	2
SHAFTS AND ELEVATOR HOIST WAYS: Protective Opening Rating (Section 713.4)		2
EXIT ACCESS CORRIDORS Protective Opening Rating (Section 1020.1)	:	0
SMOKE BARRIER Protective Opening Rating (Section 716)	:	1

18) **ENERGY CODE:**
BUILDING ENVELOPE REQUIREMENT

	Required 'R' Value	Provided 'R' Value
Roofs		
Insulation entirely above deck	R-33	R-33
Attic Insulation	R-41.8	N/A
Metal Building	R-20.9+ 12.1	N/A
Walls		
Mass	R-10.5ci	R10.5ci
Metal Framed	R-14.3 +8.25ci	R-14.3 +8.25ci
Metal Building	R-14.3+14.3 ci	N/A
Wood Framed	R-14.3 + R-4.2	N/A
Floors		
Joist Framing (steel or wood)	R-30	N/A
Doors		
Entrance	U-0.69	ETR
Windows		
Fenestration fixed	U 0.38	U 0.34
Fenestration Operable	U 0.45	U 0.40

19) **FIRE-RATED CONSTRUCTION AROUND SWITCHGEAR ROOM:**

NEC – 2017

110.33, A, 3
Where there are personnel doors intended for entrance to and egress from the working space less than 7.6m (25ft) from the nearest edge of the working space, the doors shall open in the direction of egress and be equipped with listed panic hardware or listed fire exit hardware.

450.21
Over 112 ½ kVA. Individual dry-type transformers of more than 112 ½ kVA rating shall be installed in a transformer room of fire-resistant construction. Unless specified otherwise in this article, the term fire resistant means a construction having a minimum fire rating of 1 hour.

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PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
CODE COMPLIANCE AND LIFE SAFETY PLAN

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

12/17/2020 3:52:08 PM

DWG. NO.
A001

UL Product iQ™

BXUV.U419 -

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

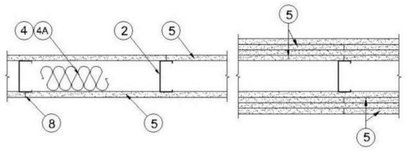
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

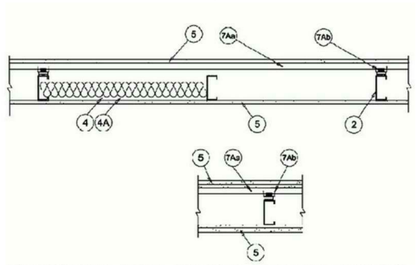
Design No. U419

September 13, 2019

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5K)

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





1. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2 — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™ Track

CRACO MFG INC — SmartTrack25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

FUSION BUILDING PRODUCTS — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1B. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

FUSION BUILDING PRODUCTS — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — In lieu of Item 1 — Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1D. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. **Framing Members* — Floor and Ceiling Runners —** (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1F. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
SUPER STUD BUILDING PRODUCTS — The Edge

1G. **Framing Members* — Floor and Ceiling Runner —** For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.
STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

FUSION BUILDING PRODUCTS — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members* — Floor and Ceiling Runners —** (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1J. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
TELLING INDUSTRIES L L C — Viper25™ Track

1K. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
TELLING INDUSTRIES L L C — Viper20™ Track

1L. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
STEEL INVESTMENT GROUP L L C — AlphaTRAK

1M. **Framing Members* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 — For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Wall Track

1N. **Framing Members* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 — For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Track

1O. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track

2. **Steel Studs —** Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Steel Studs —** (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J and 5K) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. **Framing Members* - Steel Studs —** (As an alternate to Item 2, For use with Items 5C, 5I or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper25™

CRACO MFG INC — SmartStud25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

FUSION BUILDING PRODUCTS — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2C. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

FUSION BUILDING PRODUCTS — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2D. **Framing Members* — Steel Studs —** In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2E. **Framing Members* — Steel Studs —** (Not Shown, As an alternate to Item 2) — For use with Items 5F or 5G or 5I or 5K only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2F. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.
SUPER STUD BUILDING PRODUCTS — The Edge

2G. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.
STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs —** (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2I. **Framing Members* — Steel Studs —** (As an alternate to Item 2, For use with Items 5C or 5L or 5K) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
TELLING INDUSTRIES L L C — Viper25™

2J. **Framing Members* — Metal Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights
TELLING INDUSTRIES L L C — Viper20™

2K. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
EB METAL INC — NITROSTUD

2L. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
OLMAR SUPPLY INC — PRIMESTUD

2M. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2N. **Framing Members*— Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min depth 3-1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in length than assembly height.
STEEL INVESTMENT GROUP L L C — AlphaSTUD

2O. **Framing Members* — Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud

2P. **Framing Members* — Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Stud

2Q. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1O, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X

3. **Wood Structural Panel Sheathing —** (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets* —** (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets* —** (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Batts and Blankets* —** For use with Item 5K. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4C. **Fiber, Sprayed* —** (Optional) and as an alternate to Batts and Blankets (Item 4B) where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2, 2C, 2D, 2F, 2G, 2O	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4)
1	3-1/2	1 layer, 5/8 in. thick	Optional
1	2-1/2	1 layer, 1/2 in. thick	1-1/2 in.
1	1-5/8	1 layer, 3/4 in. thick	Optional
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
2	3-1/2	1 layer, 3/4 in. thick	3 in.
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	2 layers, 3/4 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional
4	2-1/2	2 layers, 3/4 in. thick	2 in.

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, **Steel Framing Members***, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.
CGC INC — Type SHX.

UNITED STATES GYPSUM CO — Type FRX-G, SHX.

USG MEXICO S A DE C V — Type SHX.

UNIVERSITY of MARYLAND
ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
Design & Construction Division
The Lexington Building
620 Lexington Street
Baltimore, Maryland 21201
410 706 0113 | 410 706 8547 FAX

KEY PLAN

A/E CONSULTANTS
MCA|ARCHITECTURE.
Architecture | Interior Design | Planning
Marshall Craft Associates, Inc.
2031 Clipper Park Road, Suite 105
Baltimore, Maryland 21211
410.532.3131 | www.mca.design

STRUCTURAL ENGINEER
Carroll Engineering, Inc
215 Schilling Circle, Suite 102
Hunt Valley, MD 21031
410.785.7423

MEP ENGINEER
WFT Engineering, Inc
1801 Research Blvd, Suite 100
Rockville, MD 20850
301.230.0811

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 20078,
EXPIRATION DATE: 9/15/2021.

REGISTRATION / STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
FIRE RATED ASSEMBLY U419

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

12/17/2020 3:31:04 PM

DWG. NO.
A002

5B. **Gypsum Board* —** (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board* —** (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
CGC INC — Type SCX.

UNITED STATES GYPSUM CO — Type SCX, SGX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5B. **Gypsum Board* —** (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board* —** (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
CGC INC — Type SCX.

UNITED STATES GYPSUM CO — Type SCX, SGX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified. For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5I. **Gypsum Board* —** (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.
CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

5J. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5K. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) need not be staggered. The number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2 through 2O	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4B)
1	3-5/8	1 layer, 5/8 in. thick	3-1/2 in.
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional

UNITED STATES GYPSUM CO — 5/8 in. thick Type ULIX

6. **Fasteners —** (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer.**Three-layer systems:** First layer- 1 in. long for 1/2

in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels —** (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A.

7A. **Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. **Framing Members* —** (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

7C. **Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

7D. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of

No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

7E. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Eb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7F. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Fa) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7G. **Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. or 1-1/2 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ga) to studs (Item 2). Clips spaced max. 48 in. OC. Clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

8. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

9. **Siding, Brick or Stucco —** (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Caulking and Sealants* —** (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS

11. **Lead Batten Strips —** (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

11A. **Lead Batten Strips —** (Not Shown, For Use With Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

12. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs —** (Not Shown, for use with Item 5H) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

13. **Lead Batten Strips —** (Not Shown, For Use With Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs —** (Not Shown, For Use With Item 5E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

15. **Barrier Mesh —** (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.
CLARKDIETRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2019-09-13

UNIVERSITY of MARYLAND

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KEY PLAN

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Baltimore, Maryland 21211
410.532.3131 | www.mca.design

STRUCTURAL ENGINEER
Carroll Engineering, Inc
215 Schilling Circle, Suite 102
Hunt Valley, MD 21031
410.785.7423

MEP ENGINEER
WFT Engineering, Inc
1801 Research Blvd, Suite 100
Rockville, MD 20850
301.230.0811

PROFESSIONAL CERTIFICATION. I HERE BY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE No. 20078,
EXPIRATION DATE: 9/15/2021.

REGISTRATION/STAMP

PROJECT TITLE :

BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :

FIRE RATED ASSEMBLIES U419 CONT

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

12/17/2020 3:31:05 PM

DWG. NO.

A003

UL Product iQ™

BXUV.I501 -

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

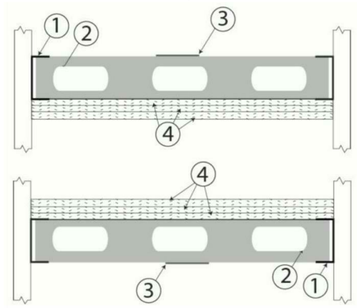
Design No. I501

September 19, 2017

Unrestrained Assembly Rating - 1 Hr

Load Restriction - Limited to the Dead Weight of the Assembly.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Perimeter Channels —** Used to support steel studs at both ends of wall structure. Min. 6 in. deep with min. 2 in. legs and formed from min. No. 20 MSG galv. steel (0.0329 in. thick bare metal thickness). Perimeter channels attached to wall structure with fasteners spaced not greater than 24 in. O.C. at both the top and bottom of the vertical leg. Maximum clear span from vertical leg to vertical leg of the perimeter channels is 8 ft., 2-1/4 in.

2. **Steel Studs —** Min. 6 in. wide with min. 1-5/8 in. legs containing folded back flanges and formed from min. No. 20 MSG galv. steel (0.0329 in. thick bare metal thickness). Studs to be cut 1/2 in. to 3/4 in. less than the clear span between the vertical legs of the perimeter channels. Studs spaced a max. 16 in. O.C. At each end of the stud, the un-faced side shall be secured to the perimeter channel with one 1/2 in. long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels (Item1).

3. **Steel Strap —** Min 4 in. wide formed from min. No. 20 MSG galv. Steel (0.0329 in. thick bare metal thickness). Secured perpendicular to the studs at the centerline of the span using two 1/2 in. long pan-head steel screws. Strips to overlap one full stud bay at splice locations. As an alternate to the steel strap, Perimeter Channels (Item 1) may be substituted and installed in the same manner as the steel straps. If a continuous piece is not used, the abutted legs are installed on each side of the centerline of the span and overlap one full stud bay.

4. **Gypsum Board* —** Three layers of nom. 5/8 in. thick, 46 to 54 in. wide, gypsum board installed with long dimension perpendicular to the steel studs. Base layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to studs and perimeter channels with 1-1/4 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 1-5/8 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer joints staggered a min. 16 in. from base layer joints Face layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 2-1/4 in. long Type S steel screws spaced max. 12 in. O.C. Face layer joints staggered a min. 16 in. from middle layer joints.
AMERICAN GYPSUM CO — Types AGX-1, AG-C, LightRoc.

5. **Joint Tape and Compound —** Not Shown - (Optional- Not Required On Joints. Required On Screw Heads). - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, nom. 2 in. wide, embedded in first layer of compound over all joints.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2017-09-19

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KEY PLAN

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410.785.7423

MEP ENGINEER
WFT Engineering, Inc
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Rockville, MD 20850
301.230.0811

PROFESSIONAL CERTIFICATION. I HERE BY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
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UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
FIRE RATED ASSEMBLIES I501

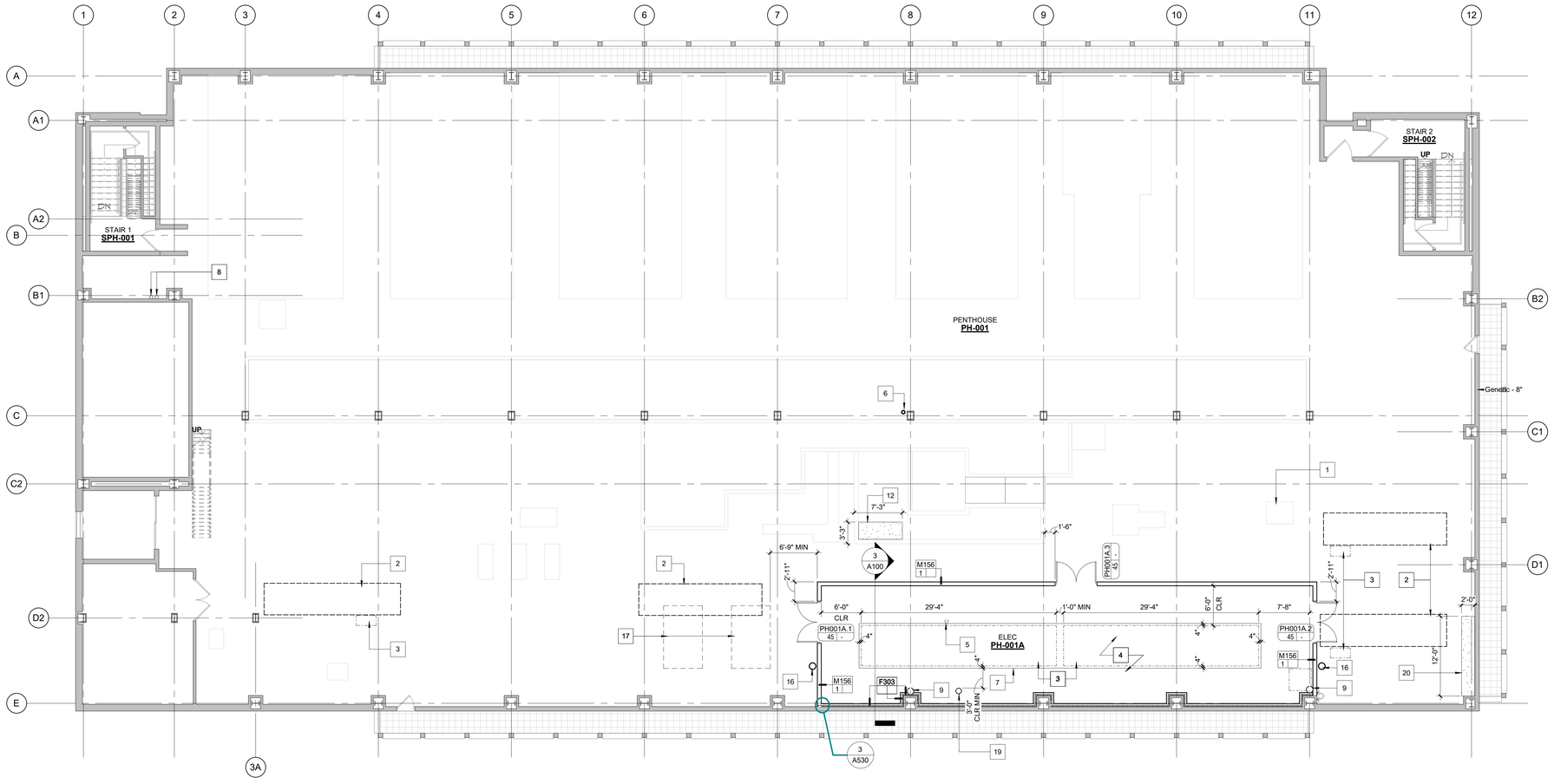
CONSTRUCTION DOCUMENTS

REVISIONS

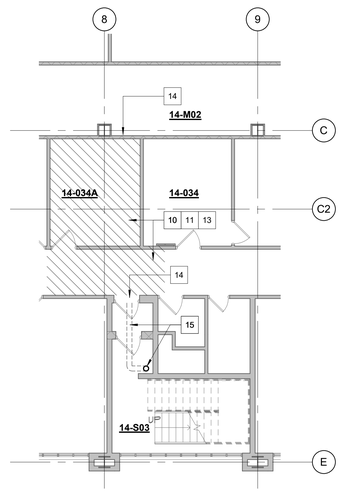
No.	Date	Description

12/17/2020 3:31:05 PM

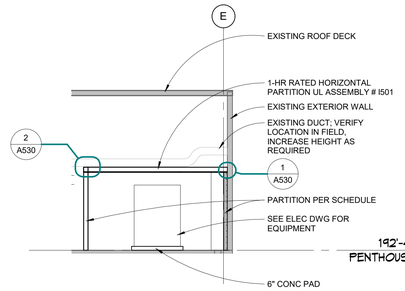
DWG. NO.
A004



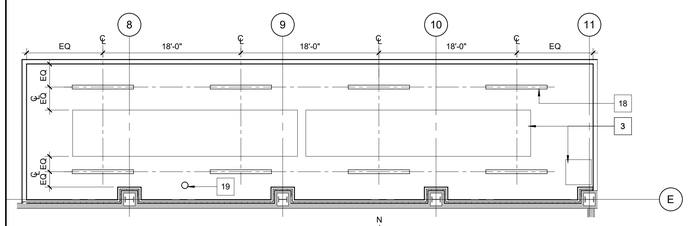
1 A100 **PENTHOUSE PLAN**
SCALE: 1/8" = 1'-0"



2 A100 **14TH FLOOR PARTIAL PLAN**
SCALE: 1/8" = 1'-0"



3 A100 **PH-001A SECTION**
SCALE: 1/8" = 1'-0"



5 A100 **PARTIAL PENTHOUSE RCP**
SCALE: 1/8" = 1'-0"

GENERAL NOTES - CONSTRUCTION

1. DO NOT SCALE DRAWINGS.
2. REFER TO SPECIFICATION SECTION 010100 SUMMARY FOR PROPOSED PHASING.
3. CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE PRIOR TO STARTING THE WORK. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR POTENTIAL CONFLICTS PRIOR TO STARTING THE WORK.
4. DIMENSIONS INDICATED BETWEEN EXISTING COLUMN GRID LINES ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER. CONTRACTOR SHALL VERIFY THESE DIMENSIONS IN THE FIELD AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO STARTING THE WORK.
5. DIMENSIONS INDICATED ARE FROM FACE OF EXPOSED FINISH, UON.
6. DIMENSIONS IDENTIFIED WITH +/- REQUIRE FIELD VERIFICATION. DIMENSIONS NOT SO NOTED ARE INTENDED TO BE HELD. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR INSTALLATION OF BUILDING COMPONENTS.
7. SEE INTERIOR ELEVATIONS, ARCHITECTURAL WOODWORK SCHEDULE, AND/OR EQUIPMENT MOUNTING SCHEDULE FOR RELATED DIMENSIONS NOT SHOWN.
8. WHERE DISCREPANCIES OCCUR BETWEEN VARIOUS DRAWINGS OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
9. ROOM NAMES AND NUMBERS INDICATED ARE FOR CONSTRUCTION PURPOSES ONLY. COORDINATE PERMANENT ROOM/ FACILITY IDENTIFICATION WITH WAYFINDING / SIGN DRAWINGS IF PROVIDED OR WITH THE OWNER.
10. EXISTING SURFACES DISTURBED BY DEMOLITION OR CONSTRUCTION SHALL BE PATCHED FLUSH AND SUITABLE FOR REFINISHING WITH ADJACENT SURFACES. FINISHED SURFACES SHALL BE LEVEL AND PLUMB TO WITHIN 1/8 INCH IN 10 FEET, NON-CUMULATIVE, UON.
11. PROVIDE SPECIFIED CONCEALED BLOCKING AT ALL WALL MOUNTED ARCHITECTURAL WOODWORK, CASEWORK, FURNISHINGS, EQUIPMENT, ACCESSORIES, AND STANDARDS.
12. WHERE SPECIFIC DETAILING IS NOT SHOWN, EXECUTE WORK IN A SOUND WORKMANLIKE MANNER CONSISTENT WITH OTHER DETAILING SHOWN.
13. COORDINATE DEMOLITION, PATCHING, AND FINISHING WITH MECHANICAL, ELECTRICAL, AND PLUMBING REQUIREMENTS ON ALL FLOORS WHERE WORK IS PERFORMED.
14. WHERE EXISTING FIRE PROOFING IS DISTURBED OR OTHERWISE MISSING, PATCH FIRE PROOFING IN A SOUND WORKMANLIKE MANNER CONSISTENT WITH ADJACENT SURFACES AND/ OR OTHER DETAILING SHOWN TO MEET THE REQUIRED FIRE RATING.
15. WHERE EXISTING FLOOR-MOUNTED EQUIPMENT IS DEMOLISHED AND WHERE EXISTING FLOOR FINISH IS DAMAGED BY NEW CONSTRUCTION, PATCH AND REPAIR FLOOR SUBSTRATE AS NEEDED. PAINT REPAIRED FLOOR TO MATCH ADJACENT EXISTING FLOOR FINISH.
16. BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. PROTECT ADJACENT AREAS AND MAINTAIN CLEAR CORRIDORS TO EGRESS. COORDINATE TEMPORARY CONSTRUCTION BARRIER LOCATIONS AND EXTENT WITH OWNER.
17. COORDINATE THE SCHEDULING OF DISRUPTIVE AND NOISY ACTIVITIES WITH OWNER TO MINIMIZE DISTURBANCE TO BUILDING OCCUPANTS.
18. COORDINATE INTERRUPTION TO BUILDING UTILITIES AND SERVICES WITH OWNER. NOTIFY OWNER 72 HOURS MINIMUM IN ADVANCE OF PLANNED INTERRUPTIONS.
19. IT IS ANTICIPATED THAT EQUIPMENT, INCLUDING BUT MAY NOT BE LIMITED TO, EXISTING AND NEW TRANSFORMERS WILL HAVE TO BE REMOVED AND DELIVERED THROUGH THE ROOF HATCH. COORDINATE STREET CLOSURE, BUILDING ACCESS, SIDEWALK PROTECTION, ETC... WITH AHJ AND OWNER.
20. PAINT ALL SURFACES OF CONCRETE PADS TO MATCH FLOOR; SEE STRUCTURAL DRAWINGS FOR DETAILS.

KEYNOTE LEGEND

1. CONCRETE PAD TO REMAIN
2. REMOVE EQUIPMENT; SEE MEP DRAWINGS
3. NEW EQUIPMENT, SEE MEP DRAWINGS
4. PAINT CONCRETE FLOOR THIS ROOM; MATCH COLOR TO EXISTING CONCRETE FLOOR FINISH
5. DEMOLISH PIPE, SEE MEP DRAWINGS. PATCH FLOOR AND PAINT
6. NEW FIRE PROTECTION PIPE, SEE MEP DRAWINGS. PROVIDE FIRE STOP AT PENETRATION.
7. NEW 6" CONC PAD, PAINT TO MATCH FLOOR
8. NEW CONDUIT, SEE MEP DRAWINGS. CORE DRILL FLOOR.
9. REMOVE FIRE EXTINGUISHER AND ASSOCIATED MOUNTING AND ATTACHMENT; SALVAGE FOR REUSE
10. CAREFULLY REMOVE ACP CEILING, GRID AND FIXTURES IN HATCHED AREA TO ALLOW FOR INSTALLATION OF UTILITIES. SEE M/E/P DRAWINGS. REINSTALL ACP, GRID AND FIXTURES. REPLACE ALL DAMAGED OR DETERIORATED ACP AND GRID. COORDINATE EXTENT OF AREA WITH M/E/P AND IN FIELD.
11. PROTECT FLOORING IN HATCHED AREA DURING CONSTRUCTION. COORDINATE EXTENT WITH M/E/P DRAWINGS AND IN FIELD. PROVIDE FINAL CLEAN. REPLACE FLOORING DAMAGED DURING CONSTRUCTION.
12. CONCRETE PAD, VERIFY DIMENSIONS WITH FP EQUIPMENT; ALIGN TOP OF PAD WITH ADJACENT EXISTING CURB
13. REMOVE PLASTER CEILING ABOVE ACP CEILING AS NEEDED TO FACILITATE INSTALLATION OF FIRE PROTECTION PIPING
14. EXISTING TWO-HOUR RATED CONSTRUCTION; MAINTAIN INTEGRITY OF FIRE RATING IF DISTURBED
15. PAINT STAND PIPE TO MATCH EXISTING COLOR AND FINISH
16. INSTALL SALVAGED BRACKET MOUNTED FIRE EXTINGUISHER, PAINT WALL IN RED, APPROX 40" X 32" (MATCH COLOR, LOCATION, AND EXTENT TO EXISTING SIMILAR CONDITION IN SAME AREA)
17. SUSPENDED GRATE PLATFORM, SEE STRUCTURAL DRAWINGS
18. LIGHT FIXTURE, TYPICAL- SEE ELECTRICAL PLANS
19. EXISTING VENT PIPE TO REMAIN
20. 5" THICK CONCRETE PAD, VERIFY DIMENSIONS WITH EQUIPMENT

LEGEND - CONSTRUCTION & DIMENSION

- PARTITION TO REMAIN
- PARTITION AS SCHEDULED
- SURFACES TO ALIGN
- NEW EQUIPMENT (SEE MEP DRAWINGS)
- EXISTING EQUIPMENT TO BE DEMOLISHED (SEE MEP DRAWINGS)
- EXISTING DOOR TO REMAIN
- DOOR

0 1' 4' 8' 16' 24'
SCALE: 1/8" = 1'-0"

0 2" 4" 8" 12" 2'
SCALE: 1-1/2" = 1'-0"

ABBREVIATIONS

A	MEDICAL GAS - AIR
AC	ACOUSTICAL
ACP	ACOUSTICAL CEILING PANEL
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AHU	AIR-HANDLING UNIT
AII	AIRBORNE INFECTION ISOLATION
ALUM	ALUMINUM
BLDG	BUILDING
BMS	BEAMS
BO	BOTTOM OF
BOD	BOTTOM OF DECK
BUR	BUILT-UP ROOFING
C	CHANNEL
CB	CERAMIC BASE
CG	CORNER GUARD
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CRS	COURSE
CT	CERAMIC TILE
CTG	COATING
D	DEEP
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EP	ELECTRICAL PANELBOARD
EQ	EQUAL
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER WITH BRACKET
FEC	FE CABINET WITH FE
FIN	FINISH
FLR	FLOOR
FNV	FEMININE NAPKIN/TAMPON VENDOR
FO	FACE OF
FRT	FIRE RETARDANT TREATED
GA	GAUGE
GALV	GALVANIZED
GEN	GENERAL
GOV'T	GOVERNMENT
GP	GLAZED PARTITION
GWB	GYPSUM WALLBOARD
H	HIGH
HB	HOSE BIB
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HT, HGT	HEIGHT
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JAN	JANITOR
JST	JOIST
JT	JOINT
MACH	MACHINE
MAS	MASONRY
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MOUNTING HEIGHT
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
NCS	NURSE CALL STATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE HAND
OX	MEDICAL GAS - OXYGEN
PE	PROTECTIVE ENVIRONMENT
PL	PLATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PNT	PAINT(ED)
PR	PAIR
PSF	POUNDS PER SQUARE FOOT
PT	PRESERVATIVE TREATED
PTD	PAPER TOWEL DISPENSER
R	RISER
RB	RUBBER BASE
REINF	REINFORCED
REQ'D	REQUIRED
RM	ROOM
RO	ROUGH OPENING
S	SLIDE
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION(S)
SQ IN	SQUARE INCH
SS	STAINLESS STEEL
SSM	SOLID SURFACE MATERIAL
ST	STREET
STD	STANDARD
STL	STEEL
STN	STAIN
STR	STRUCTURAL
SUSP	SUSPENDED
T	TREAD
TBD	TO BE DETERMINED
TC	TOP OF CURB
TEL	TELEPHONE
THOLD	THRESHOLD
TOS	TOP OF SLAB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TTD	TOILET TISSUE DISPENSER
TWC	TEXTILE WALL COVERING
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
V	MEDICAL GAS - VACUUM
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
W	WIDE
w/	WITH
WB	WOOD BASE
WD	WOOD
WF	WIDE FLANGE
WR	WATER RESISTANT
WWF	WELDED WIRE FABRIC

MATERIALS & SYMBOLS

- INSULATION (LOOSE OR BATT)
- CONCRETE
- PLASTER, GYPSUM OR MORTAR
- CONCRETE MASONRY UNIT (CMU)
- DETAIL, PLAN OR SECTION (1 / A101, SIM)
- INTERIOR ELEVATION (X)
- BUILDING ELEVATION OR SECTION (1 / A101, SIM)
- COLUMN DESIGNATION (1B)
- ROOM NAME 101, 150 SF
- X # # # SHEET NUMBER
- BUILDING LEVEL / FLOOR OR DRAWING NUMBER; DRAWING SUB-TYPE; DRAWING TYPE; SHEET DISCIPLINE
- RIGID INSULATION
- ROUGH WOOD
- PLYWOOD
- METAL
- Name / Elevation — EXISTING ELEVATION / LEVEL
- Name / Elevation — CONTROL ELEVATION / LEVEL
- A000A / 120 | 32 — DOOR TYPE SEE SHEET A-600
- M3-1 / 1 | 40 — PARTITION TYPE SEE SHEET A-600
- 1t — WINDOW OR LOUVER TYPE
- 1 — DRAWING NOTE
- 14 — REVISION NUMBER

ROOM TAG: ROOM NAME, NUMBER, AREA

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KEY PLAN

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REGISTRATION / STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
PLANS, ABBREVIATIONS, MATERIALS AND SYMBOL LEGEND

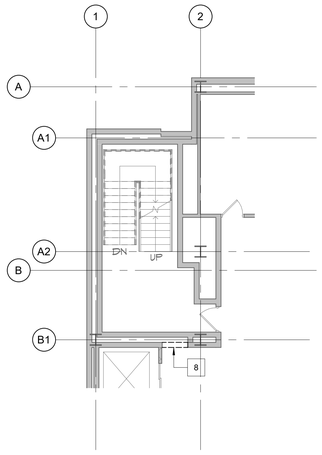
CONSTRUCTION DOCUMENTS

REVISIONS

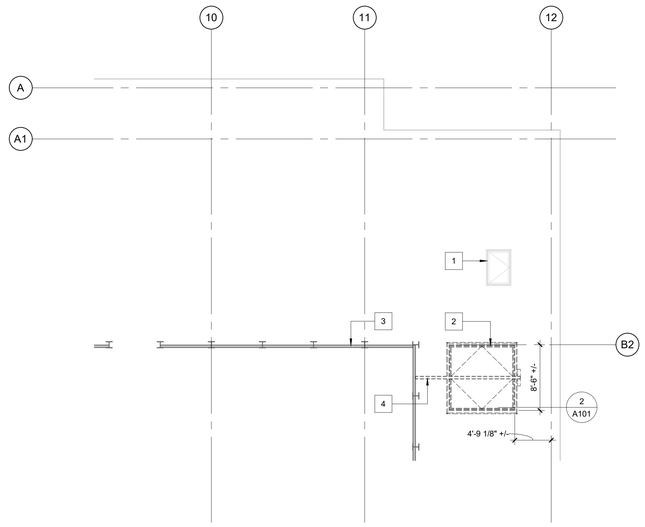
No.	Date	Description

DWG. NO.
A100

12/17/2020 3:31:08 PM



4 A101 **MEZZANINE PARTIAL PLAN**
SCALE: 1/8" = 1'-0"



3 A101 **ROOF DEMO PARTIAL PLAN**
SCALE: 1/8" = 1'-0"

GENERAL NOTES - ROOF DEMOLITION

A THE BUILDING WILL BE OCCUPIED DURING THE CONSTRUCTION PERIOD. OPERATIONS INVOLVING VIBRATION, DUST AND OPEN FLAME ARE SUBJECT TO OWNER REVIEW AND APPROVAL. DEMOLITION AND CONSTRUCTION ACTIVITIES ARE TO BE COORDINATED WITH THE OWNER TO MINIMIZE DISRUPTION OF THE OWNER'S ACTIVITIES.

B SEE STRUCTURAL / MECHANICAL / ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION WORK

C MAINTAIN BUILDING IN WEATHER-TIGHT CONDITION AT ALL TIMES. DO NOT REMOVE MORE ROOFING THAN CAN BE COVERED AND SEALED BEFORE THE END OF THE WORK DAY OR THE ONSET OF INCLEMENT WEATHER.

D EXISTING WORK IS TO BE ACCURATELY CUT AND CAREFULLY REMOVED. ADJACENT SURFACES ARE TO BE LEFT UNDAMAGED. PROTECT ADJACENT REMAINING CONSTRUCTION FOR THE DURATION OF THE WORK. RESTORE ALL ITEMS DAMAGED DURING CONSTRUCTION TO MATCH ADJACENT UNDAMAGED SURFACES.

E PATCH ALL HOLES CREATED FROM THE REMOVAL OF EQUIPMENT, SUPPORTS, DRAINS, VENTS, CONDUITS AND PIPES

F REMOVE EXISTING ROOFING MEMBRANES AND INSULATION BOARD IN THEIR ENTIRETY. REMOVE ALL FLASHINGS, CURBS AND WOOD BLOCKING UNLESS OTHERWISE NOTED.

G REMOVE, MARK, PROTECT AND STORE ROOF TOP ACCESSORIES FOR REINSTALLATION WHERE INDICATED.

H CONTRACTOR SHALL FIELD VERIFY LOCATION AND EXTENT OF VENT PIPING, CURBS, SUPPORTS OPENINGS, ETC. THAT WILL REQUIRE EXTENSION, CURBS OR INFILL UNDER NEW WORK REQUIREMENTS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR DEVIATIONS FROM THE DRAWINGS.

J HAZARDOUS MATERIALS MAY BE PRESENT WITHIN THE PROJECT AREA. HAZARDOUS MATERIAL ABATEMENT SHALL BE BY OWNER.

K EXISTING COMPONENTS TO REMAIN SHALL BE PROTECTED AT ALL TIMES. DAMAGED FINISHES SHALL BE REPAIRED BEFORE COMPLETION OF WORK.

LEGEND - DEMOLITION

PARTITION TO REMAIN

PARTITION TO BE REMOVED

DOOR TO REMAIN

DOOR TO BE REMOVED

KEYNOTE LEGEND

1 EXISTING ROOF HATCH TO REMAIN

2 EXISTING 8'X8' ROOF HATCH TO BE REMOVED; ENLARGE OPENING TO ACCOMMODATE NEW HATCH; SALVAGE SAFETY GUARD RAILS AND GATES FOR REUSE; SALVAGE REMOVED STRUCTURAL STEEL FOR REUSE

3 EXISTING ARCHITECTURAL SCREEN TO REMAIN

4 DEMOLISH WENCH, HOIST BEAM, POST AND ATTACHMENT CHANNEL AT ROOF LEVEL

5 NEW 8'X9' ROOF HATCH; INSTALL SALVAGED SAFETY GUARD RAILS AND GATES; PROVIDE ADDITIONAL SECTIONS OF GUARD RAIL TO MATCH EXISTING AS NEEDED; PATCH AND REPAIR EXISTING ROOFING AS NEEDED WITH MATERIALS COMPATIBLE WITH EXISTING ROOF SYSTEM; CONFIRM DIMENSIONS OF HATCH WILL ALLOW LARGEST PIECE OF EQUIPMENT IN PROJECT SCOPE TO PASS THROUGH

6 REPLACE EXISTING HOIST BEAM, POST, WENCH AND CHAIN IN KIND CENTERED ON HATCH OPENING; PAINT BEAMS AND POST; SUBMIT PRODUCT INFORMATION AND SHOP DRAWINGS OF ALL COMPONENTS FOR REVIEW

7 PROVIDE WORK PAD. COORDINATE EXTENT WITH DUNNAGE. WORK PAD TO BE FROM SAME MANUFACTURER AS ROOFING

8 REMOVE CMU AS NEEDED TO PERFORM ELECTRICAL CONDUIT INSTALLATION. REMOVE BASE TRIM IF REQUIRED AND SALVAGE FOR REUSE. PATCH AND PROVIDE PLASTER FINISH MATCH ADJACENT EXISTING WALL SURFACE TEXTURE. PAINT FROM CORNER TO CORNER, FLOOR TO CEILING TO MATCH ADJACENT EXISTING WALL SURFACE. INSTALL SALVAGED BASE TRIM IF REQUIRED. PROVIDE SHORING AS NEEDED. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

GENERAL NOTES - ROOF CONSTRUCTION

A DO NOT SCALE DRAWINGS.

B DIMENSIONS REQUIRING VERIFICATION ARE IDENTIFIED WITH "+/-". DIMENSIONS NOT SO NOTED ARE TO BE HELD. ALL DIMENSIONS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION OR INSTALLATION.

C ROOFING WORK PERFORMED WITHIN ROOF WORKMANSHIP WARRANTY PERIOD MUST BE PROVIDED BY SUBCONTRACTOR THAT INSTALLED ORIGINAL ROOF.

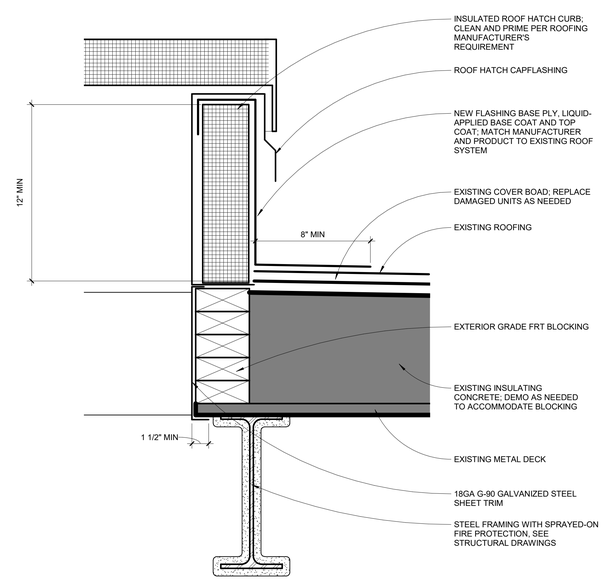
D FINISH ROOF ELEVATIONS SHOWN ARE TO THE TOP OF INSULATION. ELEVATION ZERO INCHES IS ASSIMED TO BE AT THE TOP OF THE STRUCTURAL DECK. FIELD VERIFY SPOT ELEVATIONS PRIOR TO INSULATION FABRICATION.

E PROVIDE RIGID INSULATION CRICKETS, TAPERED INSULATION AND TAPERED EDGE STRIPS TO ACHIEVE ROOF SLOPES SHOWN. SLOPES SHOWN INDICATE A FINISHED MINIMUM SLOPE TO BE ACHIEVED AND DO NOT NECESSARILY INDICATE THE TAPER REQUIRED TO ACHIEVE THAT SLOPE.

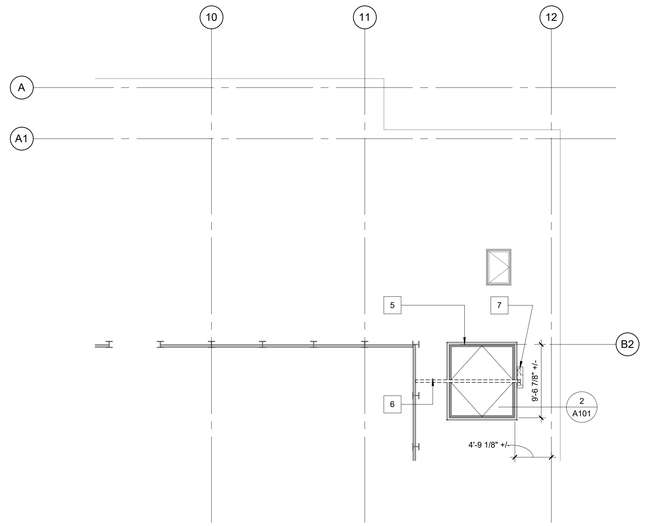
F ALL CANTS AND WOOD BLOCKING SHALL BE OF SOLID TREATED WOOD CONSTRUCTION.

G ALL EXPOSED FASTENERS SHALL BE STAINLESS STEEL, HEX HEAD WITH INTEGRAL STAINLESS STEEL AND NEOPRENE WASHERS.

H PROVIDE SPRAYED-ON FIRE PROTECTION ON STRUCTURAL MEMBERS TO MAINTAIN ROOF ASSEMBLY FIRE RATING. SEE DRAWING A001 AND STRUCTURAL DRAWINGS.



2 A101 **ROOF HATCH DETAIL**
SCALE: 3" = 1'-0"



1 A101 **ROOF PARTIAL PLAN**
SCALE: 1/8" = 1'-0"

0 1' 4' 8' 16' 24'
SCALE: 1/8" = 1'-0"

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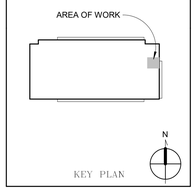

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LICENSE No. 20078,
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REGISTRATION / STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
MEZZANINE AND ROOF NEW WORK AND DEMO PARTIAL PLANS

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

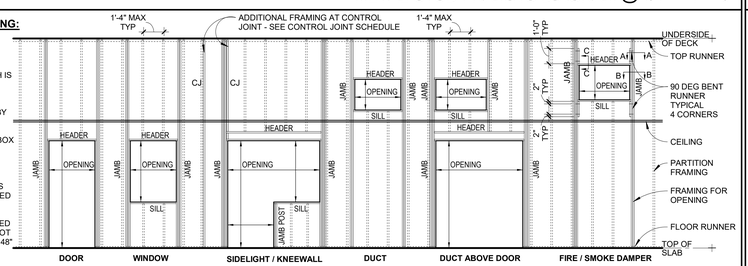
12/17/2020 3:31:09 PM

DWG. NO.
A101

METAL STUD FRAMING DIAGRAM @ 1/4" = 1" - 0"

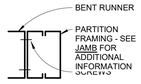
NOTES FOR DESIGNING FRAMING:

1. ANY OPENING GREATER THAN 6'-0" SHALL BE DESIGNED BY THE LIGHT GAUGE DESIGNER
2. THE 6'-0" MAXIMUM OPENING WIDTH IS BASED ON A TYPICAL 6'-0" DOOR OPENING
3. PROVIDE HEADERS AS REQUIRED BY LIGHT GAUGE DESIGNER, BUT NOT LESS THAN 6" BOX HEADERS AT OPENINGS 48" TO 72" WIDE AND 8" BOX HEADERS AT OPENINGS 72" TO 88" WIDE
4. HEADERS INDICATED ASSUME NO ADDITIONAL SUPERIMPOSED LOADS ABOVE THE HEADER (WALL MOUNTED EQUIPMENT, SHELVING, ETC).
5. PROVIDE SILL FRAMING AS REQUIRED BY LIGHT GAUGE DESIGNER, BUT NOT LESS A BOXED STUD AT OPENINGS 48" TO 72" WIDE. SEE HM FRAME INSTALLATION DETAILS.
6. PROVIDE MULTIPLE JAMB MEMBERS AS REQUIRED BY LIGHT GAUGE DESIGNER, BUT NO LESS THAN HALF THE VERTICAL MEMBERS INTERRUPTED BY THE OPENING

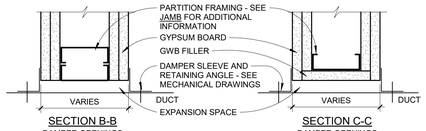


NOTES FOR MODIFYING EXISTING FRAMING:

1. REMOVE AND REPLACE EXISTING GWB TO ACCESS FRAMING.
2. ALL WALL COMPONENTS AND FIRE RATING TO MATCH EXIST UON.
3. WHERE CEILINGS ARE SCHEDULED TO REMAIN, RETAIN CEILING IN PLACE OR REMOVE AND REPLACE TO MATCH EXISTING.



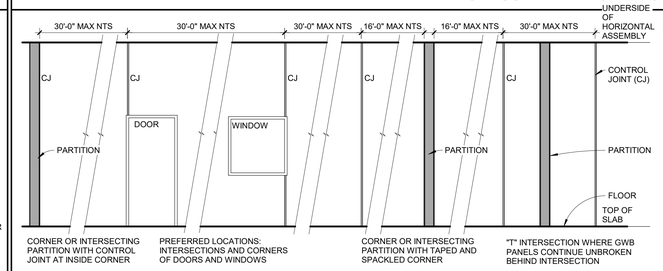
SECTION A-A
DAMPER OPENINGS



SECTION B-B
DAMPER OPENINGS

SECTION C-C
DAMPER OPENINGS

GYPSUM WALLBOARD CONTROL JOINT DIAGRAM @ 1/4" = 1'-0"



CORNER OR INTERSECTING PARTITION WITH CONTROL JOINT AT INSIDE CORNER

PREFERRED LOCATIONS: INTERSECTIONS AND CORNERS OF DOORS AND WINDOWS

CORNER OR INTERSECTING PARTITION WITH TAPED AND SPACKLED CORNER

"T" INTERSECTION WHERE GWB PANELS CONTINUE UNBROKEN BEHIND INTERSECTION

NOTES

1. AVOID CONTROL JOINTS RUNNING LENGTH OF WALL IF POSSIBLE. PROVIDE CONTROL JOINTS WHERE FRAMING CHANGES DIRECTION AND WHERE SUBSTRATE IN FURRED WALLS HAVE CONTROL JOINTS.
2. LEAVE A 1/2" CONTINUOUS OPENING BETWEEN STUD FRAMING AND GYPSUM BOARDS FOR INSERTION OF SURFACE-MOUNTED JOINT.
3. PROVIDE SEPARATE SUPPORTS FOR EACH CONTROL JOINT FLANGE.
4. PROVIDE AN ADEQUATE SEAL OR SAFING INSULATION BEHIND CONTROL JOINTS WHERE FIRE AND/OR ACOUSTIC (STC) RATINGS ARE PRIME CONSIDERATIONS. AT STC WALLS INSTALL PER GWB MANUFACTURERS REQUIREMENTS.
5. AT TILE WALLS EXPOSED TO DIRECT SUNLIGHT AND/OR MOISTURE PROVIDE A 1/4" MINIMUM CONTROL JOINT 12'-0" MAXIMUM IN EACH DIRECTION, AND AT ALL INSIDE CORNERS AS NOTED ABOVE.

INTERIOR PARTITION LEGEND

PARTITION TAG NOMENCLATURE:

PARTITION SCHEDULE LEGEND:

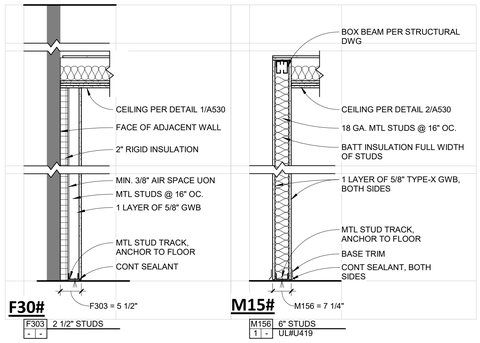
CORE MATERIAL:

M = NON-STRUCTURAL METAL FRAMING S = COLD-FORMED STEEL FRAMING

PARTITION NOTES:

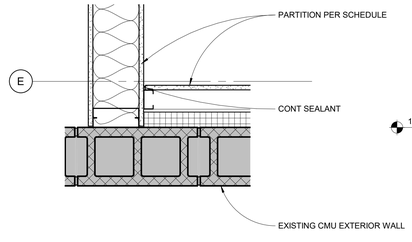
1. PROVIDE GALVANIZED SHEET METAL STRAPPING IN ALL STUD WALLS OR FURRED WALLS TO SUPPORT FIXTURES, MILLWORK, CASEWORK, ACCESSORIES, GRAB BARS, HANDRAILS, GUARDRAILS, ETC.
2. ALL OPENINGS IN MASONRY AND LOAD-BEARING WALLS AND PARTITIONS SHALL BE PROVIDED WITH LINTELS (INCLUDING, BUT NOT LIMITED TO: DOORS, WINDOWS, DUCTWORK, AND CASED OPENINGS).
3. FIRESTOP ALL RATED WALLS, BARRIERS, AND PARTITIONS WITH APPROVED ASSEMBLIES AND MATERIALS AS SPECIFIED, INCLUDING EXISTING & NEW WORK.
4. LABEL SMOKE AND FIRE-RATED PARTITIONS, BARRIERS, AND WALLS WITH THE APPLICABLE SMOKE OR FIRE-RATING DESIGNATION. EXAMPLE: "2 HR FIRE BARRIER". LABELS SHALL BE LOCATED ON THE PARTITION JUST ABOVE THE CEILING, WITHIN 15 FEET OF THE END OF EACH WALL, AND AT INTERVALS NOT GREATER THAN 30 FEET. CONSULT ARCHITECT FOR LOCATIONS WITHOUT DROP/FINISH CEILINGS. SEE SPECIFICATIONS FOR MORE INFORMATION.
5. STC RATINGS INDICATED ON METAL STUD PARTITIONS ARE BASED ON 20 GAUGE OR LIGHTER STUDS PER PARTITION ASSEMBLY, UNLESS OTHERWISE NOTED. HEAVIER GAUGE STUDS MAY PROVIDE LOWER STC RATINGS - VERIFY WITH ARCHITECT WHERE REQUIRED.
6. SEE RATED ASSEMBLIES, CODE SHEET(S), AND SPECIFICATIONS FOR SPECIAL FIRESTOP REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THIRD-PARTY FIRESTOP INSPECTIONS.

INTERIOR PARTITION TYPES @ 3/4" = 1' - 0"

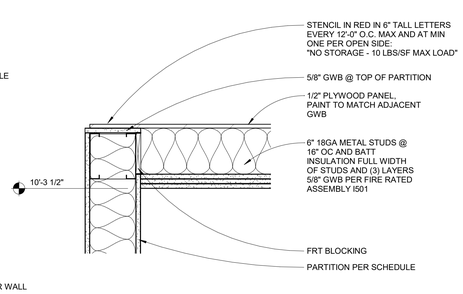


F30# — F303 | 2 1/2" STUDS | - | -

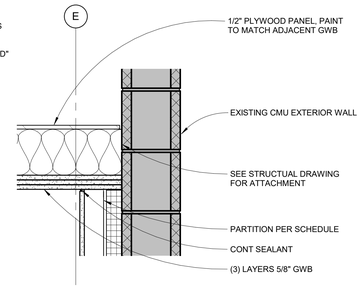
M15# — M156 | 6" STUDS | 1 | - | ULRU419



3 / A530 **WALL AT EXTERIOR WALL DETAIL**
SCALE: 1 1/2" = 1'-0"



2 / A530 **WALL-CEILING CONNECTION DETAIL**
SCALE: 1 1/2" = 1'-0"



1 / A530 **CEILING AT EXTERIOR WALL DETAIL**
SCALE: 1 1/2" = 1'-0"

DOOR SCHEDULE

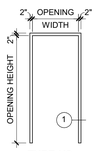
DOOR NUMBER	TO ROOM NUMBER	TO ROOM NAME	FROM ROOM NUMBER	FROM ROOM NAME	OPENING WIDTH	OPENING HEIGHT	PANEL THICKNESS	FRAME TYPE	FRAME MATERIAL	PANEL TYPE	PANEL MATERIAL	INSTALLATION DETAILS HEAD	INSTALLATION DETAILS JAMB	FIRE RATING	STC RATING	HARDWARE SET	COMMENTS
PENTHOUSE																	
PH001A.1	PH-001A	ELEC	PH-001	PENTHOUSE	6'-0"	7'-0"	1 3/4"	H2	HM	2F	HM	K	J	45	-	1	
PH001A.2	PH-001A	ELEC	PH-001	PENTHOUSE	6'-0"	7'-0"	1 3/4"	H2	HM	2F	HM	K	J	45	-	1	
PH001A.3	PH-001A	ELEC	PH-001	PENTHOUSE	6'-0"	7'-0"	1 3/4"	H2	HM	2F	HM	K	J	45	-	1	

FINISH LEGEND

1. PAINT ALL GWB EXPOSED TO VIEW, COLOR TBD.
2. PAINT ALL DOORS AND FRAMES TO MATCH EXISTING DOORS AND FRAMES ON SAME FLOOR.

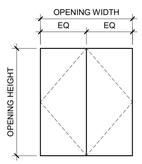
H1* HOLLOW METAL FRAME NUMBER

HOLLOW METAL FRAME SCHEDULE @ 1/4" = 1'-0"



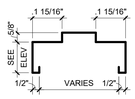
TYPE H2

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



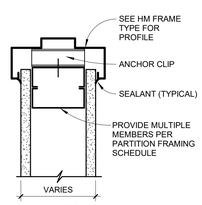
TYPE 2F
DOUBLE FLUSH

HOLLOW METAL FRAME PROFILES @ 3" = 1'-0"

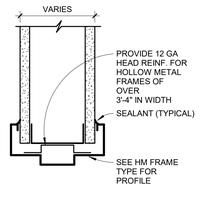


1 **JAMB (HEAD SIMILAR)**

TYPICAL HOLLOW METAL FRAME INSTALLATION DETAILS @ 3" = 1'-0"



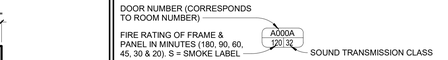
J **JAMB**
STUD, TYP



K **HEAD**
STUD
OPENINGS < 48"

DOOR AND FRAME LEGEND AND NOTES

DOOR TAG NOMENCLATURE:



DOOR SCHEDULE LEGEND:

FRAME:

FRAME TYPE DESIGNATIONS:
H? = HOLLOW METAL FRAME

PANEL:

PANEL TYPE DESIGNATIONS:
SEE DOOR PANEL SCHEDULE

FRAME AND PANEL MATERIALS:
HM = HOLLOW METAL

INSTALLATION DETAILS:
LETTER ONLY - SEE "TYPICAL HOLLOW METAL FRAME INSTALLATION DETAILS"
?/A-### - SEE DETAIL ? ON SHEET A-###

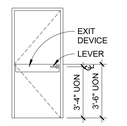
FIRE RATING:
LISTED FIRE RATING OF FRAME AND PANEL IN MINUTES
S = SMOKE LABEL

STC RATING: SOUND TRANSMISSION CLASS

HARDWARE SET: SEE HARDWARE SCHEDULE

FRAME SCHEDULE LEGEND:

1 INDICATES FRAME PROFILE - SEE FRAME PROFILES. SEE DOOR SCHEDULE FOR APPLICABLE INSTALLATION DETAILS, TYPICAL



DOOR HARDWARE DIMENSION GUIDE

DOOR & FRAME NOTES:

1. ALL DOOR FRAMES SHALL BE 4" FROM FACE OF ADJOINING PERPENDICULAR WALL TO OUTSIDE EDGE OF JAMB, UON.
2. PROVIDE 12 GAUGE HEAD REINFORCEMENT FOR FRAMES OVER 3'-4" IN WIDTH.
3. WHERE FLAT HEADED METAL SCREWS ARE USED, DIMPLE THE FRAME. PAINTING CONTRACTOR TO FILL FLUSH BEFORE PAINTING.
4. ALL EXTERIOR DOORS ARE TO HAVE WEATHER SEALS.
5. ALL HOLLOW METAL DOORS & FRAMES SHALL BE SHOP PRIME & FIELD FINISH PAINTED.
6. ALL DOOR LIGHTS & SIDELIGHT GLAZING TO COMPLY WITH LOCAL, STATE, & FEDERAL SAFETY GLAZING REQUIREMENTS. WIRED GLASS IS NOT PERMITTED UNLESS OTHERWISE NOTED.

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410.785.7423

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LICENSE No. 20078,
EXPIRATION DATE: 9/15/2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	18055.01
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
INTERIOR PARTITION AND OPENING SCHEDULES

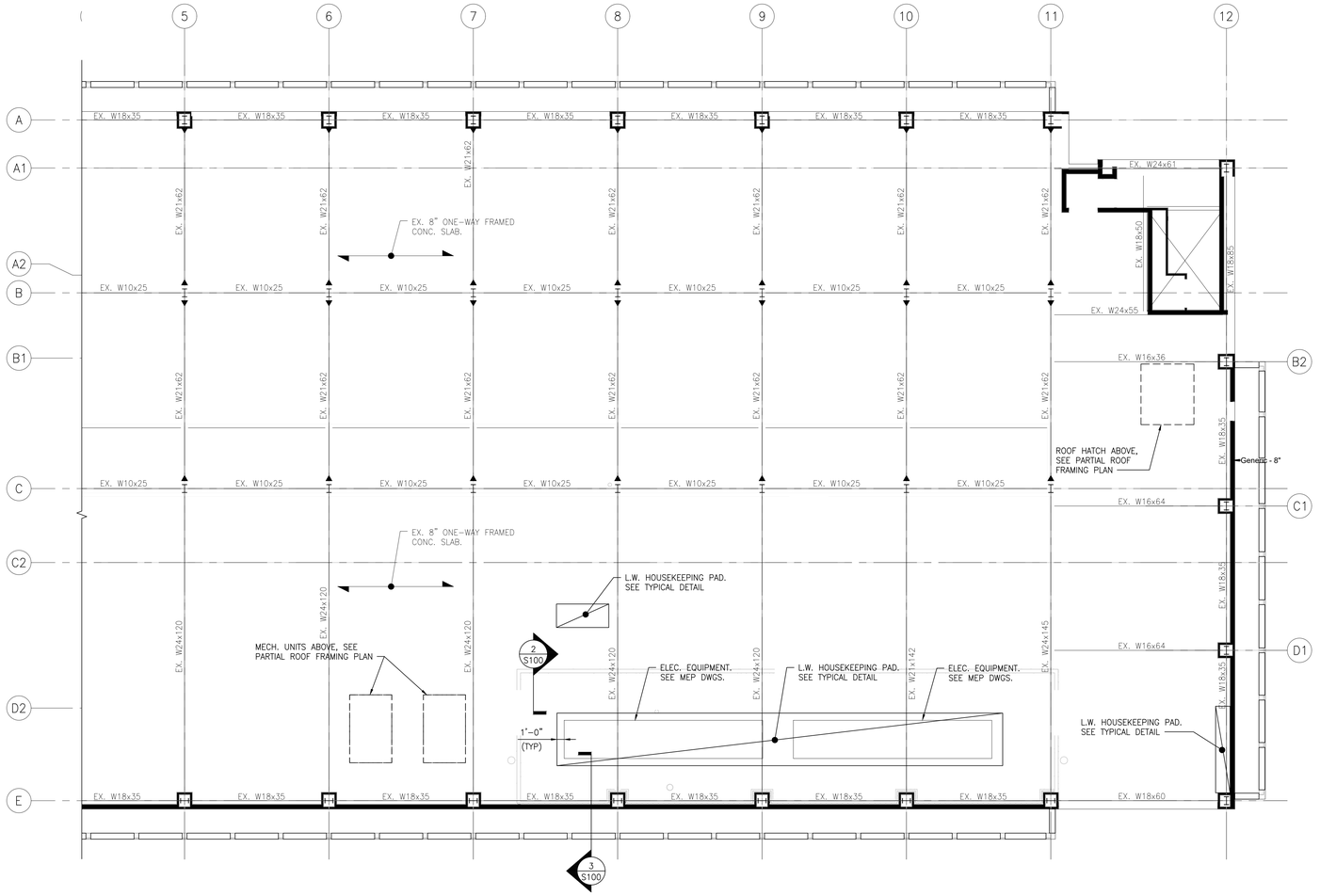
CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

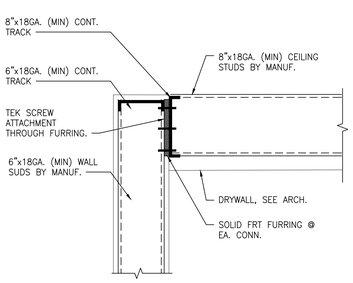
12/17/2020 3:31:10 PM

DWG. NO.
A530



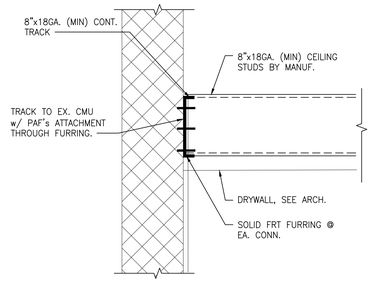
PENTHOUSE FLOOR FRAMING PLAN 1/S100

1/8" = 1'-0"



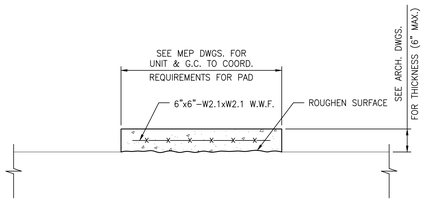
SECTION 2/S100

3/4" = 1'-0"



SECTION 3/S100

3/4" = 1'-0"



EQUIPMENT HOUSEKEEPING PAD 4/S100

SCALE: 3/4" = 1'-0"

NOTE:
1. SEE MEP DRAWINGS FOR LOCATION.

LIGHT GAUGE STEEL FRAMING (STRUCTURAL FRAMING ONLY):

1. LIGHT GAUGE STEEL FRAMING SHALL CONFORM TO THE AISI (AMERICAN IRON AND STEEL INSTITUTE) NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS AND CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING.
2. SUBMIT TO THE ARCHITECT/ENGINEER FOR REVIEW, PRIOR TO FABRICATION, COMPLETE SHOP DRAWINGS AND CALCULATIONS OF ALL LIGHT GAUGE FRAMING ELEMENTS. SHOP DRAWINGS SHALL INCLUDE COMPLETE SECTION PROPERTIES OF MEMBERS, CONNECTION DETAILS, BRIDGING SIZE AND LOCATION AND ERECTION PLANS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT.
3. PROVIDE A CONTINUOUS STEEL TRACK AT THE TOP AND BOTTOM OF ALL STUD WALLS AND HORIZONTAL BRIDGING AT MID HEIGHT OF ALL WALLS UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS. CONNECT BRIDGING TO EACH FLANGE OF EACH STUD. DETAILS SHALL BE INCLUDED ON SHOP DRAWINGS.
4. ALL LIGHT GAUGE FRAMING SHALL BE STRUCTURAL GRADE AT A MINIMUM OF 20 GAUGE, UNO, AND SHALL BE GALVANIZED TO A MINIMUM OF A G60 FINISH. SEE PLAN AND SECTIONS FOR DEPTH AND SPACING OF LIGHT GAUGE FRAMING.
5. AS A MINIMUM, SCREW ALL CONNECTIONS OF STUD TO STUD, STUD TO TRACK AND STUD TO FRAME USING (2) TWO NO. 8 SELF TAPPING METAL SCREWS AT EACH CONNECTION.
6. PROVIDE DOUBLE JAMB AT EACH END OF LINTEL, UNO.
7. CONNECT STUD FLANGES TO TRACK UNLESS A SLIP CONDITION IS REQUIRED. STUDS SHALL HAVE FULL BEARING AGAINST INSIDE WEB OF TRACK. NO VOIDS WILL BE PERMITTED AT TOP OR BOTTOM OF STUD AT TRACK (TYPICAL).
8. LIGHT GAUGE FRAMING INSTALLATION SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ARCHITECT/ENGINEER AND PAID FOR BY THE OWNER.

CONCRETE:

1. ALL CONCRETE SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, (ACI 318-LATEST EDITION) AND ACI SPECIFICATIONS FOR STRUCTURAL CONCRETE IN BUILDINGS, (ACI 301-LATEST EDITION).
2. ALL FOUNDATION CONCRETE SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

STRUCTURAL ELEMENT	f'c@28 DAYS	DRY WEIGHT	MAX W/C	AGGREGATE SIZE	AIR CONTENT
A. HOUSEKEEPING PADS	4000 PSI	115 PCF	0.50	3/8" TO 1"	NA

3. NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN MIXES HAVE BEEN SUBMITTED FOR EACH CLASS OF CONCRETE NOTED ABOVE AND HAVE BEEN REVIEWED BY THE ARCHITECT/ENGINEER.
4. USE A WATER REDUCING ADMIXTURE IN ALL CONCRETE.
5. SLUMP AND MINIMUM CEMENTITIOUS MATERIALS CONTENT SHALL BE AS REQUIRED BY ACI 301-LATEST EDITION.
6. NO CALCIUM CHLORIDE IN ANY FORM WILL BE PERMITTED IN CONCRETE.
7. ALL STRUCTURAL MEMBERS SHALL BE POURED FOR THEIR FULL DEPTHS IN ONE OPERATION.
8. ALL SLABS SHALL HAVE THICKENINGS, DEPRESSIONS, OPENINGS, ETC. AS SHOWN OR AS REQUIRED BY VARIOUS TRADES.
9. REFER TO ARCHITECTURAL DRAWINGS AND/OR SPECIFICATION SECTIONS FOR CONCRETE FINISHES.
10. RETAIN THE SERVICES OF AN INDEPENDENT TESTING AGENCY APPROVED BY THE ARCHITECT/ENGINEER AND PAID FOR BY THE OWNER TO PERFORM TESTS OF CONCRETE. TAKE A MINIMUM OF 6 CYLINDER SAMPLES PER 50 CUBIC YARDS OF EACH CLASS OF CONCRETE POURED IN ANY ONE DAY. PERFORM SLUMP, AIR CONTENT, AND TEMPERATURE TESTING AT THE TIME OF EACH SAMPLING.

DESIGN CRITERIA:

1. DEAD, LIVE, SNOW, WIND, AND SEISMIC DESIGN LOADS ARE IN ACCORDANCE WITH THE BALTIMORE CITY BUILDING CODE WHICH INCORPORATES THE INTERNATIONAL BUILDING CODE – IBC 2018.
2. DESIGN DEAD LOADS HAVE BEEN ACCOUNTED FOR BASED UPON THE ACTUAL WEIGHT OF MATERIALS OF CONSTRUCTION INCORPORATED INTO THE BUILDING, INCLUDING BUT NOT LIMITED TO FLOORS, ROOFS, WALLS, CEILINGS, FINISHES, CLADDING, AND OTHER SIMILARLY INCORPORATED ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS. SEE THE APPROPRIATE DISCIPLINES PLANS AND SECTIONS FOR ADDITIONAL INFORMATION. DESIGN LIVE LOADS ARE AS FOLLOWS:

AREA	LIVE LOAD
MECH & ELEC ROOMS	150 PSF
CATWALKS	40 PSF
ROOFS	30 PSF

3. SNOW LOADING IS BASED ON THE FOLLOWING, INCLUDING PROVISIONS FOR DRIFTING SNOW:

GROUND SNOW LOAD	30 PSF
FLAT-ROOF SNOW LOAD	21 PSF
RISK CATEGORY	II
SURFACE ROUGHNESS CATEGORY	B
EXPOSURE CATEGORY	B
EXPOSURE FACTOR	1.00
IMPORTANCE FACTOR	1.00
THERMAL FACTOR	1.00

4. DESIGN REACTIONS AND SUPPORT DETAILS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT IS BASED UPON AVAILABLE MANUFACTURER INFORMATION. SUPPORT CONDITIONS MAY NEED TO BE REVISED BASED UPON ACTUAL SUPPLIED EQUIPMENT AND SUPPORT DETAILS. ANY MECHANICAL EQUIPMENT NOT SHOWN ON THE STRUCTURAL DRAWINGS AND HAVING A WEIGHT IN EXCESS OF 500

SUBMITTALS:

1. BEFORE SUBMISSION OF SHOP DRAWINGS, THE CONTRACTOR SHALL HAVE DETERMINED AND VERIFIED ALL QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR DATA AND SHALL HAVE COORDINATED EACH SHOP DRAWING WITH OTHER SHOP DRAWINGS AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. PRIOR TO SUBMISSIONS, THE CONTRACTOR SHALL STAMP OR PROVIDE A SIMILAR WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED THE SUBMISSION AND IS SATISFIED THE CONTENTS ARE IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.
3. REPRINTS OF THE CONTRACT DOCUMENTS WILL NOT BE ACCEPTED.
4. NO DIMENSIONAL INFORMATION MAY BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.
5. ELECTRONIC OR ADEQUATE NUMBER OF PAPER SETS SHALL BE SUBMITTED SO THAT THE ARCHITECT/ENGINEER CAN MAINTAIN ONE RECORD SET AT ALL TIMES.
6. ALL SUBMITTALS USED FOR CONSTRUCTION SHALL BEAR THE STAMP OF THE ARCHITECT/ENGINEER AND SHALL BE MARKED "APPROVED" OR "APPROVED AS NOTED".

EXISTING CONSTRUCTION:

1. ALL MEMBER SIZES, DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS ARE OBTAINED FROM AVAILABLE SOURCES, AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. THE CONTRACTOR SHALL VERIFY THESE MEMBER SIZES, DIMENSIONS AND ELEVATIONS BY ACTUAL FIELD MEASUREMENTS PRIOR TO FABRICATION OF ANY MATERIALS AND START OF WORK, AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER.
2. FOR ADDITIONAL INFORMATION ON THE EXISTING CONSTRUCTION, THE CONTRACTOR SHALL REFER TO DRAWINGS OF THE EXISTING STRUCTURES AND PROVIDE ADDITIONAL EXISTING BUILDING SURVEYS AS NECESSARY.
3. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SUPPORTS AND PERMANENT UNDERPINNING AS REQUIRED TO SUPPORT THE EXISTING STRUCTURES. THE CONTRACTOR SHALL EXAMINE THE EXISTING STRUCTURES TO DETERMINE THE EXTENT OF TEMPORARY SUPPORTS AND PERMANENT UNDERPINNING NECESSARY. THE CAPACITY AND METHOD USED FOR THE TEMPORARY SUPPORTS AND PERMANENT UNDERPINNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

DEMOLITION NOTES:

1. REMOVE EXISTING CONSTRUCTION AS SHOWN ON PLANS. SEE PLANS, SECTIONS, AND DETAILS FOR EXTENT OF STRUCTURE TO BE REMOVED.
2. EXISTING STRUCTURAL FRAMING SHALL REMAIN UNLESS SPECIFICALLY NOTED ON PLAN TO BE REMOVED.
3. IF FIELD CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, NOTIFY ARCHITECT/STRUCTURAL ENGINEER BEFORE PROCEEDING WITH DEMOLITION.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE EXISTING BUILDING DURING THE COURSE OF CONSTRUCTION AND IMMEDIATELY ADVISE THE ARCHITECT/ENGINEER OF ANY AREAS WHERE THE STRUCTURE EXHIBITS DISTRESS OR FAILURE.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY EXISTING SYSTEMS IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH SYSTEMS OCCUR THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.

REINFORCEMENT:

1. ALL DEVELOPMENT AND SPLICES OF REINFORCEMENT SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, (ACI 318-LATEST EDITION).
2. REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. WELDABLE DEFORMED BARS SHALL CONFORM TO ASTM A706. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.
3. WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A1064 AND BE SPLICED SO THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS 2 INCHES, UNO.
4. REINFORCING BAR SUPPORTS AND SPACERS SHALL CONFORM TO (ACI 315-LATEST EDITION) DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
5. MINIMUM REBAR COVER FOR CONCRETE SHALL BE AS SHOWN IN THE FOLLOWING TABLE, UNO:

EXPOSURE CONDITION	CONCRETE COVER	TOLERANCE (+/-)
A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"	3/8"
B. EXPOSED TO EARTH OR WEATHER		
#5 AND SMALLER BARS AND WWF	1-1/2"	3/8"
#6 AND LARGER BARS	2"	3/8"
C. NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND		
SLABS, WALLS, & JOISTS	3/4"	1/4"
BEAMS & COLUMNS	1-1/2"	3/8"

6. ALL OTHER REINFORCEMENT TOLERANCES SHALL CONFORM TO THE PROVISIONS OF ACI STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS, (ACI 117-LATEST EDITION).
7. SHEAR STUD RAIL ASSEMBLIES SHALL CONSIST OF HEADED STUDS WELDED TO A STEEL BASE RAIL IN ACCORDANCE WITH ACI 421.1R AND ASTM A1044. SHEAR STUD RAIL ASSEMBLIES SHALL BE OF SIZE, SPACING, AND ARRANGEMENT SHOWN ON THE DRAWINGS. SHEAR STUDS SHALL BE STUD WELDED TO THE RAILS IN COMPLIANCE WITH THE AMERICAN WELDING SOCIETY AWS D1.1 STRUCTURAL WELDING CODE.
8. SHOP DRAWINGS SHOWING ALL REINFORCING STEEL AND NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND COMMENT BEFORE FABRICATION OR PLACEMENT OF THE STEEL.

STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITIONS OF AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS, AND THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATIONS, UNO:

A. W & WT SHAPES	ASTM A992
B. M & S SHAPES	ASTM A36
C. CHANNELS & ANGLES	ASTM A36
D. SQUARE & RECTANGULAR HSS	ASTM A500, GRADE B, MIN Fy = 46 KSI
E. ROUND HSS	ASTM A500, GRADE B, MIN Fy = 42 KSI
F. ROUND PIPE	ASTM A53, GRADE B
PLATES & BARS	ASTM A36

3. STRUCTURAL FASTENERS SHALL CONFORM TO THE FOLLOWING DESIGNATIONS, UNO:

A. HIGH STRENGTH BOLTS	ASTM A325 OR A490
B. COMMON BOLTS	ASTM A307, GRADE A
C. THREADED RODS	ASTM A36
D. HEADED STUDS	ASTM A108
E. ANCHOR RODS	ASTM F1554, GRADE 36

4. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM, STANDARD HOLES, UNLESS NOTED OTHERWISE.
5. WELDING SHALL BE IN ACCORDANCE WITH AWS CODE FOR WELDING IN BUILDING CONSTRUCTION (AWS D1.1) AND SHALL BE PERFORMED BY CERTIFIED WELDERS. ALL WELDS SHALL BE MADE WITH AWS A5.1 E-70XX ELECTRODES.
6. STEEL STUD SHEAR CONNECTORS SHALL CONFORM TO ASTM A108, GRADES 1010 THROUGH 1020, AND SHALL CONFORM TO THE REQUIREMENTS OF STRUCTURAL WELDING CODE – STEEL, AWS D1.1. STUDS SHALL BE WELDED BY AUTOMATIC EQUIPMENT TO STRUCTURAL STEEL.
7. ALL SHOP CONNECTIONS SHALL BE HIGH STRENGTH BOLTED OR WELDED.
8. ALL FIELD CONNECTIONS SHALL BE HIGH STRENGTH BOLTED EXCEPT WHERE DETAILS INDICATE WELDING.
9. HIGH STRENGTH BOLTED CONNECTIONS SHALL BE SLIP-CRITICAL FOR OVERSIZED HOLES, SLOTTED HOLES WHERE THE FORCE IS ACTING IN THE SAME DIRECTION AS THE SLOT, KICKERS, BRACED FRAMES, MOMENT CONNECTIONS, BEAM SPLICES, HANGERS, AND ALL CONNECTIONS UNDER TENSION OR COMPRESSION, UNO.
10. CONNECTIONS TO COLUMNS SHALL HAVE A MAXIMUM ECCENTRICITY OF 3 INCHES. WITH RESPECT TO THE FLANGE OR WEB AS APPLICABLE, UNO.
11. NO PENETRATIONS ARE PERMITTED THROUGH STRUCTURAL STEEL MEMBERS UNLESS INDICATED ON STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
12. APPROVAL OF THE STRUCTURAL ENGINEER SHALL BE MANDATORY FOR THE USE OF CUTTING TORCH IN THE FIELD.
13. DURING ERECTION, STRUCTURAL STEEL FRAME SHALL BE ADEQUATELY BRACED IN ALL LINES, TWO WAYS, TO BRACE AND HOLD THE STEEL FRAME IN ALIGNMENT UNTIL ALL APPLICABLE SHEAR WALLS, BRACED FRAMES, MOMENT FRAMES, FLOOR AND ROOF DIAPHRAGMS, ETC. ARE IN PLACE. SUCH BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
14. ALL GROUT UNDER STEEL PLATES SHALL BE NON-SHRINK "PRE-MIX" TYPE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
15. FOR ALL MISCELLANEOUS STEEL CONSTRUCTION NOT SHOWN ON STRUCTURAL DRAWINGS, SEE THE ARCHITECTURAL AND MECHANICAL DRAWINGS.

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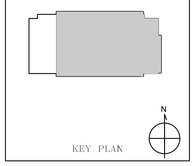

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LICENSE No.: 21154
EXPIRATION DATE: 03/13/2022

REGISTRATION/STAMP

PROJECT TITLE :

BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :

PENTHOUSE FRAMING PLAN, GENERAL NOTES. & DETAILS

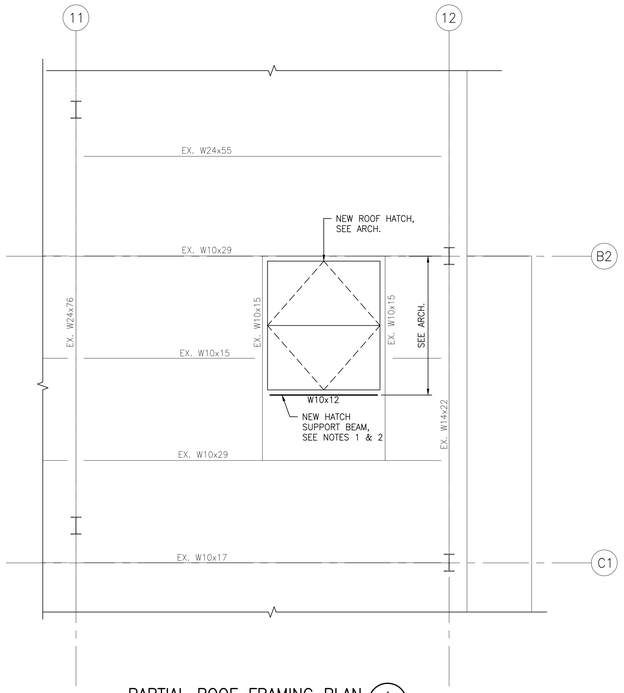
CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.

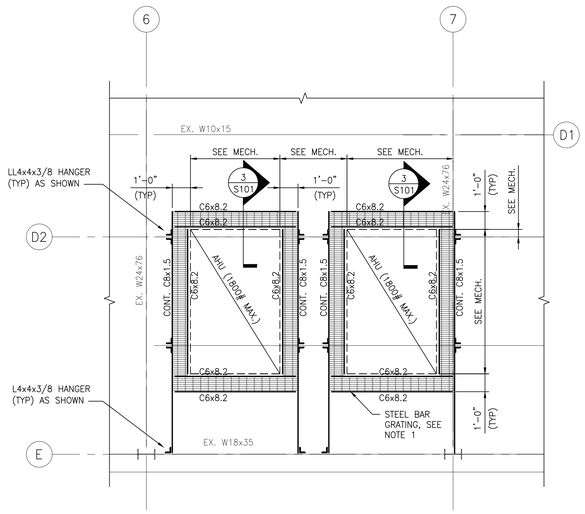
S100



PARTIAL ROOF FRAMING PLAN 1/S101
1/4" = 1'-0"

ROOF FRAMING NOTES:

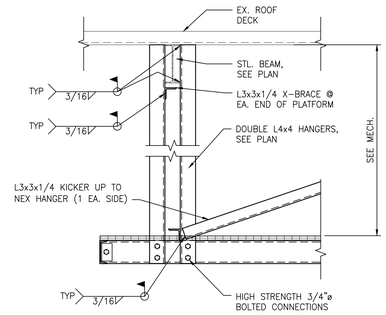
1. TOP OF NEW STEEL BEAM = BOTTOM OF EXISTING DECK ELEVATION. INSTALL NEW BEAM AT LOCATION SHOWN, AND CUT DECK TO LOCATION AS REQUIRED FOR INSTALLATION OF NEW ROOF HATCH.
2. APPLY SPRAY ON FIRE PROOFING TO NEW STEEL AND WHERE EXISTING FIRE PROOFING IS DAMAGED AS PART OF STRUCTURAL WORK. SPRAY ON FIRE PROOFING SHALL BE AT THICKNESS AS REQUIRED IN SPECIFICATIONS. CONTRACTOR TO CONFIRM THAT NEW SPRAY ON FIRE PROOFING IS COMPATIBLE WITH EXISTING FIRE PROOFING.



PARTIAL ROOF FRAMING PLAN 2/S101
1/4" = 1'-0"

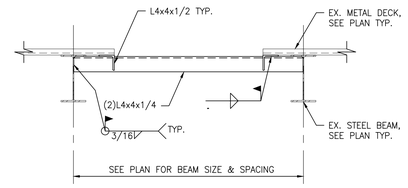
ROOF FRAMING NOTES:

1. BAR GRATING SHALL BE 3/4"x1/8" BAR GRATING @ 1 3/16" o.c w/ CROSSBARS @ 4" o/c BY McNICHOLS OR APPROVED EQUAL.
2. TOP OF STEEL ELEVATION FOR MECHANICAL UNIT PLATFORMS SHALL BE COORDINATED WITH THE MECHANICAL AND ARCHITECTURAL DRAWINGS.
3. COORDINATE EXACT DIMENSIONS OF SUIPMENT SUPPORT BEAMS WITH FINAL SELECTED UNIT SHOP DRAWINGS.



SECTION 3/S101
3/4" = 1'-0"

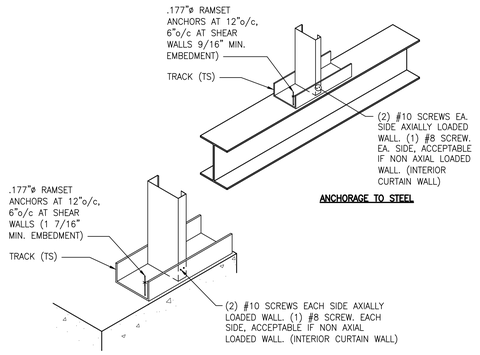
NOTE: THIS DETAIL SHALL APPLY FOR ALL OPENINGS GREATER THAN 12" SQUARE. IF ROOF OPENING IS 12" SQUARE OR LESS, PROVIDE 16 GA MATERIAL 1'-0" WIDE AROUND OPENING PERIMETER AND SCREWED TO DECK.



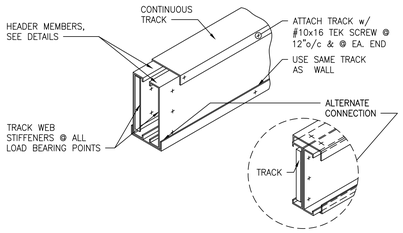
ROOF OPENING DETAIL – EXISTING CONSTRUCTION 4/S101
SCALE: 3/4" = 1'-0"

NOTES:

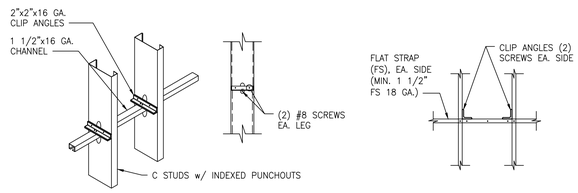
1. UNIT TO BE SHOP ASSEMBLED AND FIELD WELDED TO BEAM.
2. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF OPENINGS.



TYPICAL STUD TRACK ATTACHMENTS 5/S101
SCALE: NOT TO SCALE



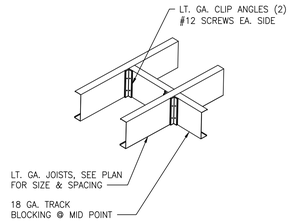
TYPICAL LT. GA. HEADER 6/S101
SCALE: 3/4" = 1'-0"



TYPICAL FLAT STRAP AND BLOCKING 7/S101
SCALE: NOT TO SCALE

NOTES:

1. HORIZONTAL BRIDGING MUST BE INSTALLED AT 5'-0" o/c OR AT 1/3 POINTS OF WALL HEIGHT, WHICHEVER IS MORE RESTRICTIVE.
2. REFER TO GENERAL NOTES FOR ADDITIONAL STUD WALL DESIGN REQUIREMENTS.



TYPICAL JOIST BLOCKING 8/S101
SCALE: NOT TO SCALE

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LICENSE No. 21150
EXPIRATION DATE: 03/13/2022

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

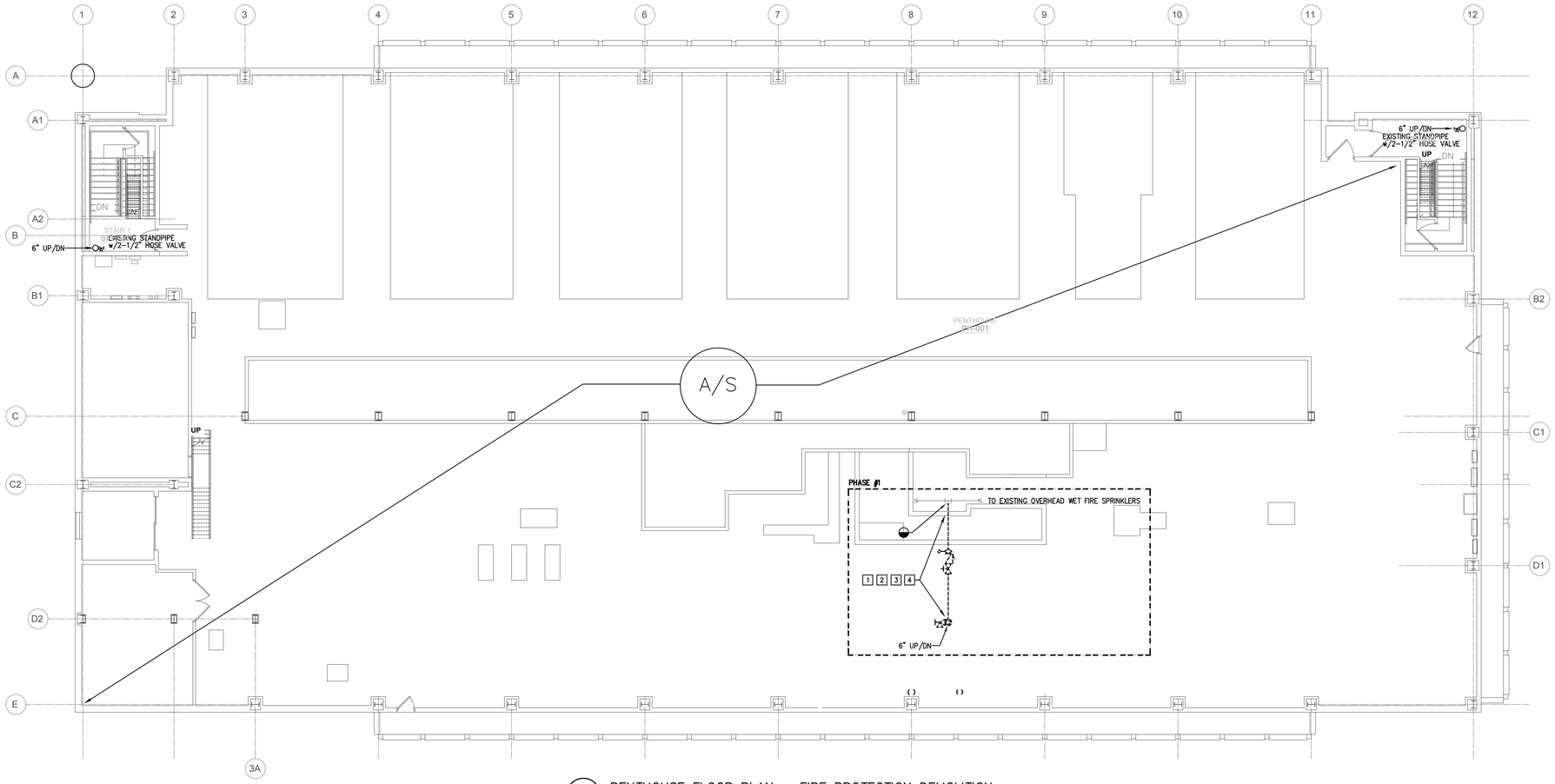
DRAWING TITLE :
ROOF FRAMING PLANS, SECTIONS, & DETAIL

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
S101



1 FPD100 PENTHOUSE FLOOR PLAN – FIRE PROTECTION DEMOLITION
SCALE: 1/8"=1'-0"

FIRE PROTECTION SYMBOLS

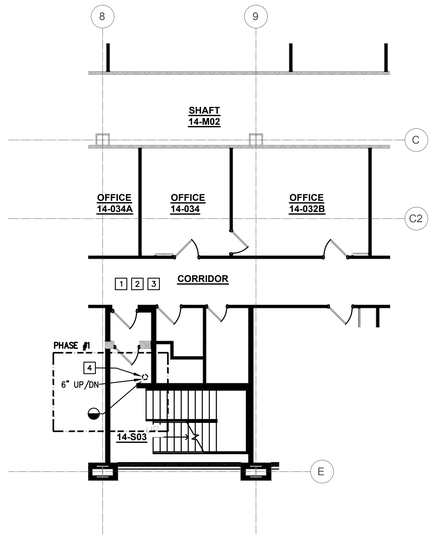
o	PIPE RISE
c	PIPE DROP
	ELECTRONICALLY MONITORED FLOW SWITCH
	CHECK VALVE
	POINT OF CONNECTION
	2-1/2" FIRE HOSE VALVE
	OS&Y VALVE
	POINT OF DISCONNECTION
S	PIPE CONTINUATION
PA	PRE-PACKAGED SINGLE INTERLOCK PREACTION CABINET WITH INTEGRAL RELEASING PANEL. BASIS-OF-DESIGN = FIREFLEX TOTAL PAC 3.
A/S	FULLY SPRINKLERED PER NFPA 13
EX	EXISTING
ETR	EXISTING TO REMAIN
	PIPE – EXISTING TO REMAIN
-----	PIPE – EXISTING TO BE DEMOLISHED
	PIPE – NEW
PHASE #X	WORK AREA / PHASE BOUNDARY
NG	NITROGEN GENERATOR MOUNTED ON FIELD FABRICATED STRUT RACK. BASIS-OF-DESIGN = ECS PGEN-3.

GENERAL NOTES

1. ALL WORK SHOWN BOLD AND DASHED SHALL BE CONSIDERED AS EXISTING TO BE REMOVED OR RELOCATED UNLESS NOTED OTHERWISE.
2. REFER TO UMB MASTER SPECIFICATION 210000 FOR GENERAL FIRE PROTECTION REQUIREMENTS.
3. INFORMATION ON THESE PLANS IS DIAGRAMMATIC ONLY. DELEGATED DESIGN CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT EQUIPMENT LOCATIONS, FINAL PIPE ROUTING, SPRINKLER HEAD LOCATIONS, AND HYDRAULICALLY CALCULATED PIPE SIZING.
4. WHERE NEW HEADS ARE REQUIRED OUTSIDE OF THE WORK AREA TO PROVIDE NFPA 13 COMPLIANT COVERAGE, THERMAL SENSITIVITY SHALL MATCH THE REMAINDER OF HEADS IN SAID COMPARTMENT.
5. CONTRACTOR SHALL COORDINATE WORK CLOSELY WITH ARCHITECT'S WORK SEQUENCE/ PHASING DESCRIPTION FOUND IN SPECIFICATION 010100.

DRAWING DEMOLITION NOTES

1. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MODIFICATIONS REQUIRED TO ACCOMPLISH SCOPE SHOWN WITHIN WORK AREA INCLUDING IMPACTS TO SPRINKLER HEAD LOCATIONS OUTSIDE OF THE WORK AREA.
2. CONTRACTOR SHALL MAKE-SAFE AREA OF WORK AS REQUIRED TO ACCOMPLISH FULL SCOPE OF PROJECT WHILE MAINTAINING ACTIVE PROTECTION IN ALL OTHER OCCUPIED AREAS OF THE BUILDING. CONTRACTOR RESPONSIBLE FOR PERFORMING FIRE WATCH WHEN FIRE PROTECTION SYSTEMS WILL BE IMPACTED FOR MORE THAN 8 HOURS IN A 24 HOUR PERIOD.
3. CONTRACTOR SHALL COORDINATE AND DEMOLISH/MODIFY/REPAIR EXISTING PIPING TO SUPPORT COMPLETION OF SCOPE INCLUDING ALL OTHER TRADES. REUSE EXISTING BRANCH LINES AND MAINS TO THE MAXIMUM EXTENT POSSIBLE.
4. DISCONNECT AND DISCARD SECTION OF STANDPIPE FROM 14TH FLOOR CEILING ABOVE 14TH FLOOR ZONE CONTROL INCLUDING 6" PENTHOUSE ZONE CONTROL AT PENTHOUSE CEILING.



2 FPD100 14TH FLOOR PARTIAL PLAN – FIRE PROTECTION DEMOLITION
SCALE: 1/8"=1'-0"

GRAPHIC SCALE
8 4 0 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

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LICENSE No. 20021
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

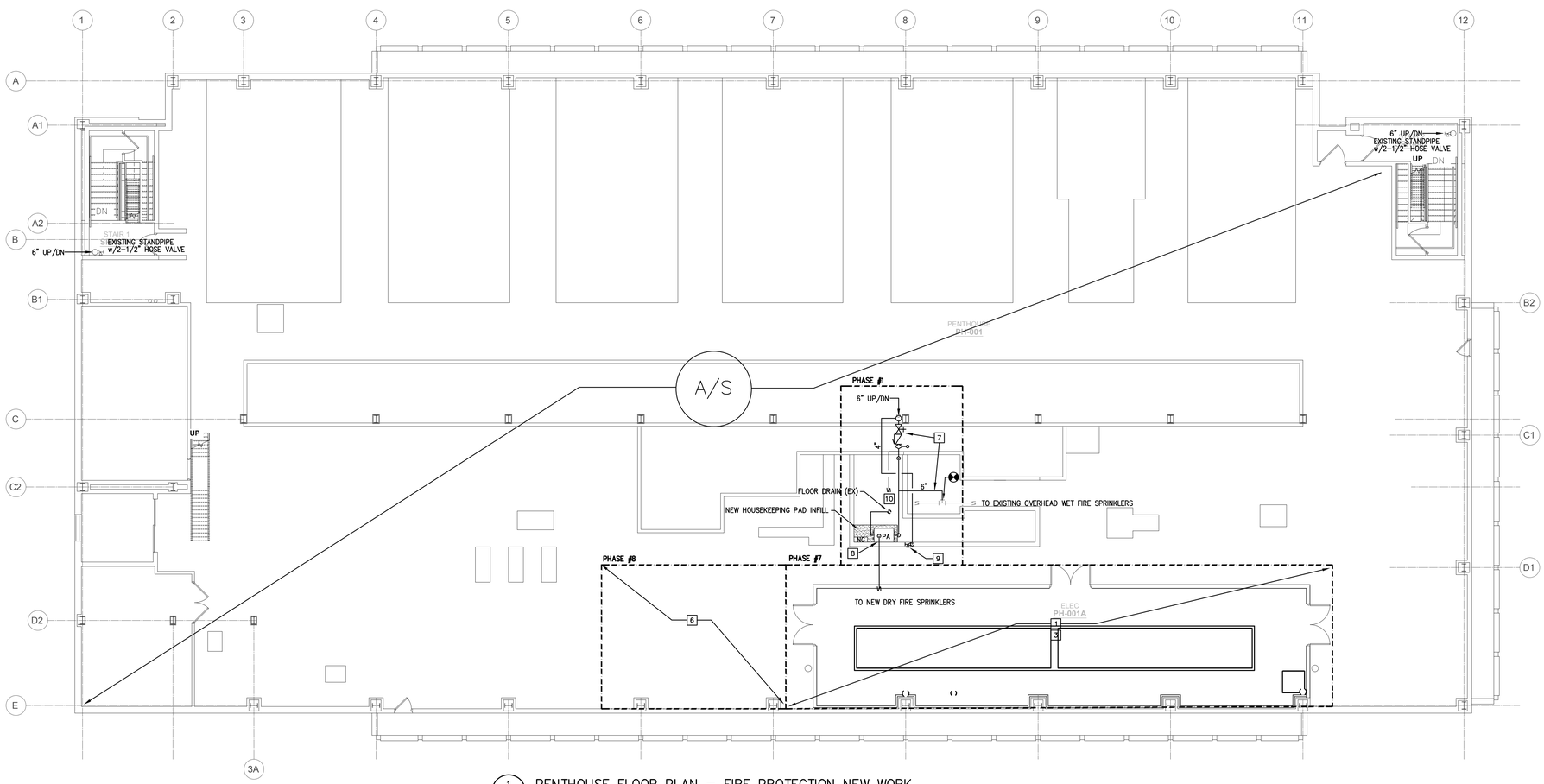
DRAWING TITLE :
PENTHOUSE PLAN FIRE PROTECTION DEMOLITION

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
FPD100



1 FP100 PENTHOUSE FLOOR PLAN – FIRE PROTECTION NEW WORK
SCALE: 1/8"=1'-0"

FIRE PROTECTION SYMBOLS

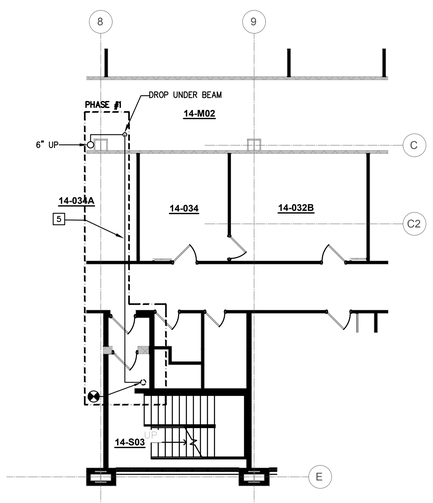
o	PIPE RISE
c	PIPE DROP
	ELECTRONICALLY MONITORED FLOW SWITCH
	CHECK VALVE
	POINT OF CONNECTION
	2-1/2" FIRE HOSE VALVE
	OS&Y VALVE
	POINT OF DISCONNECTION
S	PIPE CONTINUATION
PA	PRE-PACKAGED SINGLE INTERLOCK PREACTION CABINET WITH INTEGRAL RELEASING PANEL. BASIS-OF-DESIGN = FIREFLEX TOTAL PAC 3.
A/S	FULLY SPRINKLERED PER NFPA 13
EX	EXISTING
ETR	EXISTING TO REMAIN
	PIPE – EXISTING TO REMAIN
-----	PIPE – EXISTING TO BE DEMOLISHED
	PIPE – NEW
PHASE #X	WORK AREA / PHASE BOUNDARY
NG	NITROGEN GENERATOR MOUNTED ON FIELD FABRICATED STRUT RACK. BASIS-OF-DESIGN = ECS PGEN-3.

GENERAL NOTES

1. ALL WORK SHOWN BOLD AND DASHED SHALL BE CONSIDERED AS EXISTING TO BE REMOVED OR RELOCATED UNLESS NOTED OTHERWISE.
2. REFER TO UMB MASTER SPECIFICATION 210000 FOR GENERAL FIRE PROTECTION REQUIREMENTS.
3. INFORMATION ON THESE PLANS IS DIAGRAMMATIC ONLY. DELEGATED DESIGN CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT EQUIPMENT LOCATIONS, FINAL PIPE ROUTING, SPRINKLER HEAD LOCATIONS, AND HYDRAULICALLY CALCULATED PIPE SIZING.
4. WHERE NEW HEADS ARE REQUIRED OUTSIDE OF THE WORK AREA TO PROVIDE NFPA 13 COMPLIANT COVERAGE, THERMAL SENSITIVITY SHALL MATCH THE REMAINDER OF HEADS IN SAID COMPARTMENT.
5. CONTRACTOR SHALL COORDINATE WORK CLOSELY WITH ARCHITECT'S WORK SEQUENCE/ PHASING DESCRIPTION FOUND IN SPECIFICATION 010100.

DRAWING NOTES

1. CONTRACTOR SHALL PROTECT NEW SWITCHGEAR COMPARTMENT PER NFPA 13 ORDINARY HAZARD GROUP II CLASSIFICATION WITH HYDRAULICALLY CALCULATED SINGLE INTERLOCK PREACTION SYSTEM.
2. SEE SPECIFICATIONS FOR NEW SPRINKLER HEAD REQUIREMENTS. HEADS IN NEW SWITCHGEAR ROOM SHALL BE RECESSED WITH CONCEALED FLATPLATE ESCUTCHEONS.
3. NO HEADS OR PIPING DIRECTLY OVER NEW ELECTRICAL EQUIPMENT. HEAD LOCATIONS SHALL BE OVER ACCESS AISLE ONLY.
4. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING SPRINKLER HEAD LOCATIONS IF NEW WALL CONFIGURATIONS NEGATIVELY IMPACT EXISTING HEAD LOCATIONS OUTSIDE THE AREA OF WORK.
5. EXTEND 6"ø STANDPIPE FROM 14TH FLOOR STAIRWELL, HORIZONTALLY THROUGH 14TH FLOOR CEILING, UP THROUGH MECHANICAL CHASE, ACROSS PENTHOUSE CEILING.
6. PROVIDE PROTECTION UNDER NEW CEILING HUNG AHUS AND ASSOCIATED DUCTWORK PER NFPA 13 PIPED FROM EXISTING OVERHEAD WET FIRE SPRINKLER SYSTEM.
7. NEW 6" ZONE CONTROL INSTALLED 5FT MIN/ 7FT MAX AFF. RECONNECT TO EXISTING CROSS MAIN TEE. PIPE INSPECTORS TEST TO NEAREST FLOOR DRAIN. SEE NOTE #10.
8. NEW PREACTION CABINET AND NITROGEN GENERATOR FLOOR MOUNTED TO HOUSEKEEPING PAD.
9. NEW 2-1/2" FIRE HOSE OUTLET FOR NFPA 14 CLASS 1 STANDPIPE PIPE INDEPENDENTLY PIPE FROM 6" RISER.
10. GANG CABINET AND ZONE CONTROL EXPRESS DRAINS TOGETHER AND DISCHARGE TO NEAREST EXISTING FLOOR DRAIN. PROVIDE NEW SPLASH GUARD FUNNEL TO MITIGATE WATER SPILLAGE.



2 FP100 14TH FLOOR PARTIAL PLAN – FIRE PROTECTION NEW WORK
SCALE: 1/8"=1'-0"

GRAPHIC SCALE
0 4 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

LAST SAVED ON: December 16, 2020

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LICENSE No.: 30021
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
PENTHOUSE PLAN
FIRE PROTECTION
NEW WORK

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
FP100

FIRE PROTECTION SYMBOLS

o	PIPE RISE
c	PIPE DROP
	ELECTRONICALLY MONITORED FLOW SWITCH
	CHECK VALVE
	POINT OF CONNECTION
	2–1/2" FIRE HOSE VALVE
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	POINT OF DISCONNECTION
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PA	PRE–PACKAGED SINGLE INTERLOCK PREACTION CABINET WITH INTEGRAL RELEASING PANEL. BASIS–OF–DESIGN = FIREFLEX TOTAL PAC 3.
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PHASE #X	WORK AREA / PHASE BOUNDARY
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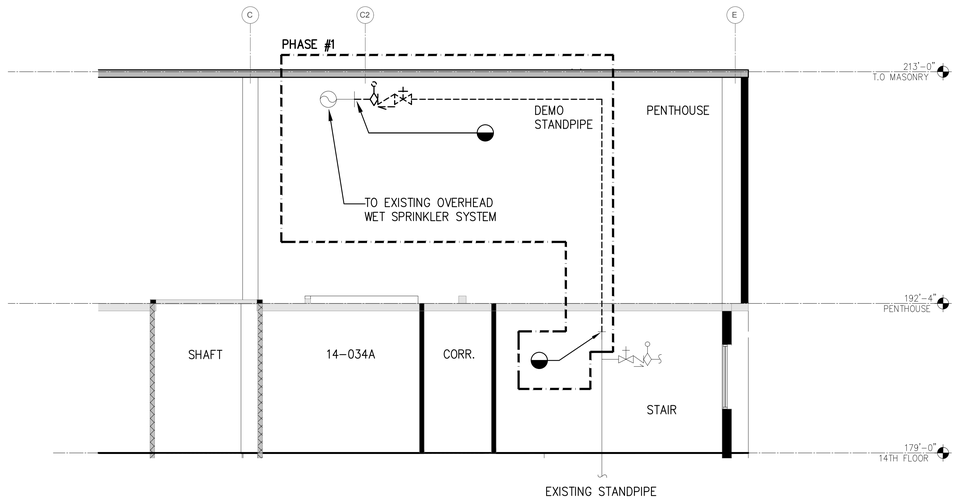
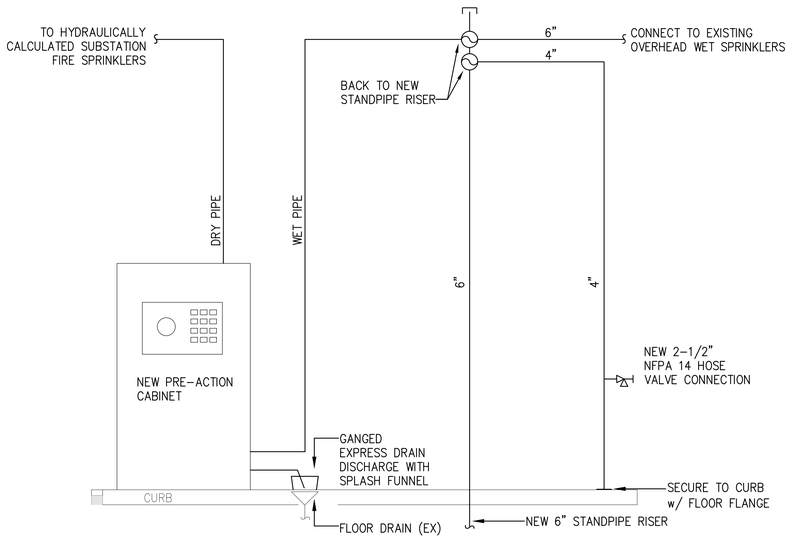
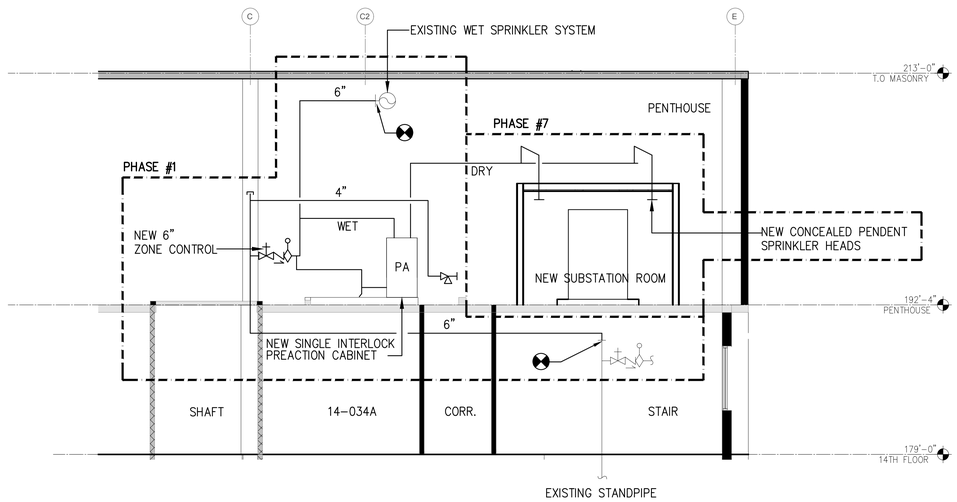


1 / FP400 SECTION – FIRE PROTECTION STANDPIPE DEMOLITION (PHASE #1)
NOT TO SCALE



3 / FP400 PRE–ACTION CABINET – DIAGRAM
N.T.S.



2 / FP400 SECTION – FIRE PROTECTION STANDPIPE NEW WORK
NOT TO SCALE

LAST SAVED ON: December 16, 2020

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A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
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DRAWING TITLE :
FIRE PROTECTION SECTIONS

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

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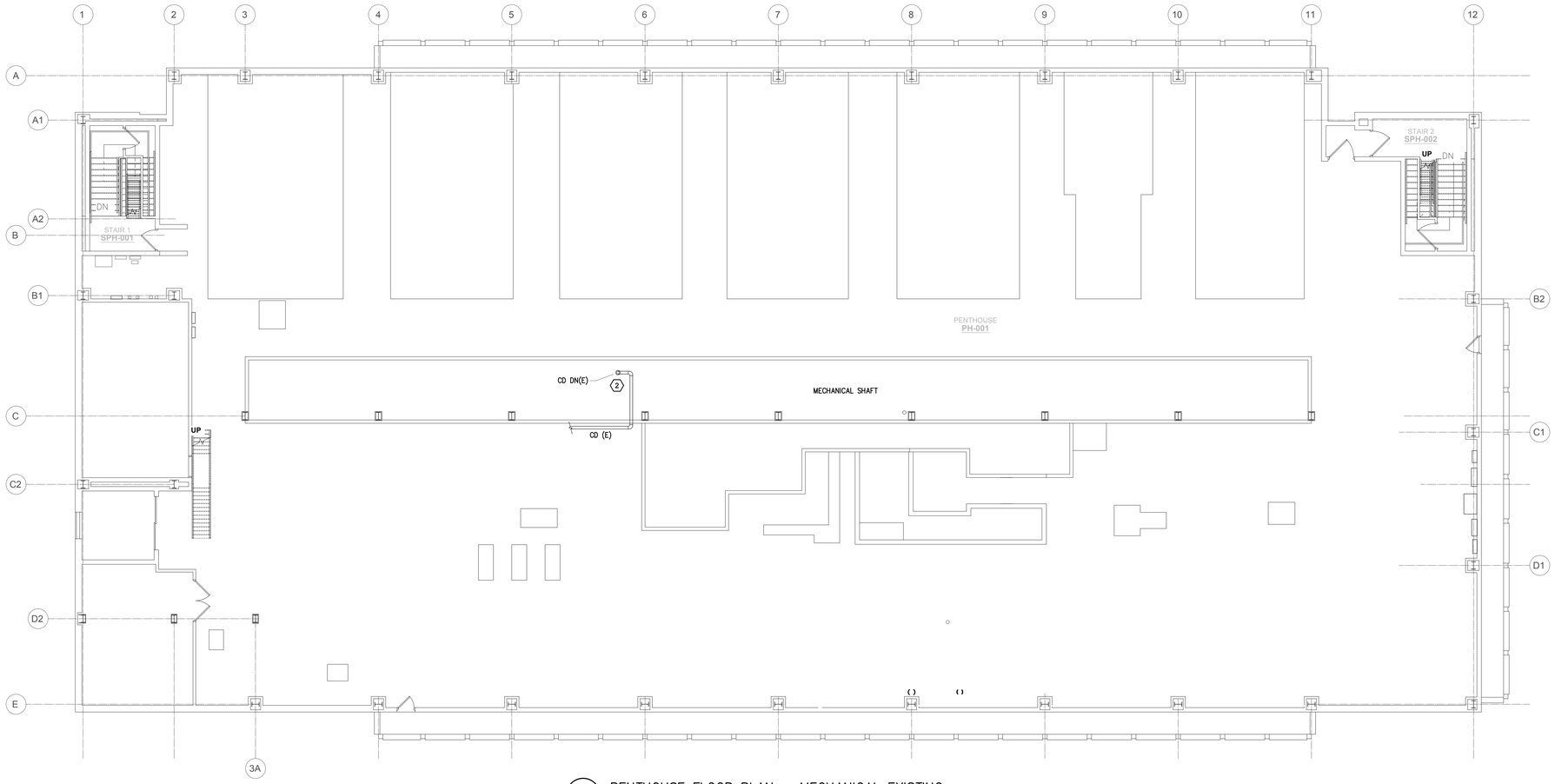
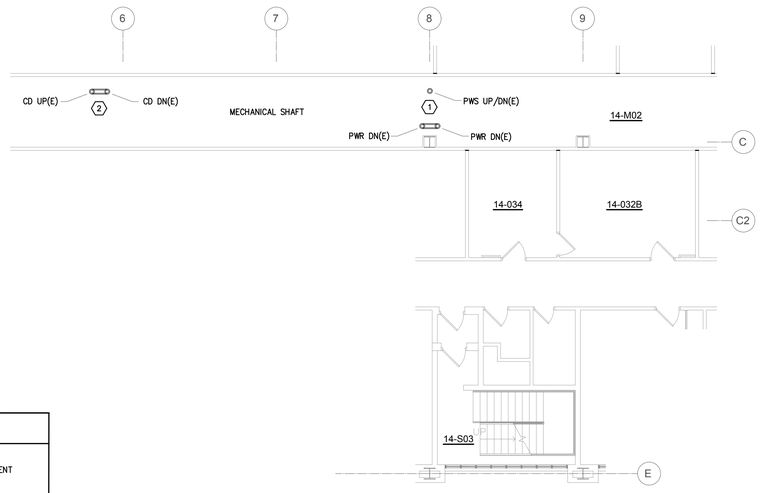
FP400



1 M001 PENTHOUSE FLOOR PLAN – MECHANICAL EXISTING
SCALE: 1/8"=1'-0"



2 M001 14TH FLOOR PLAN – MECHANICAL EXISTING
SCALE: 1/8"=1'-0"

MECHANICAL SYMBOLS & ABBREVIATIONS

BTU	BRITISH THERMAL UNIT		SUPPLY DUCT
CFM	CUBIC FEET PER MINUTE		RETURN DUCT
DB	DRY BULB		SUPPLY GRILLE
DN	DOWN		RETURN GRILLE
(E)	EXISTING TO REMAIN		VOLUME DAMPER (VD)
EAT	ENTERING AIR TEMPERATURE	M	MOTORIZED DAMPER (MD)
ESP	EXTERNAL STATIC PRESSURE	T	THERMOSTAT
EWT	ENTERING WATER TEMPERATURE		EXISTING PIPE
FT HD	FEET OF HEAD		NEW DUCT/PIPE
FT WG	FEET WATER GAUGE		SHUT OFF VALVE
GPM	GALLONS PER MINUTE		DRAIN VALVE
IN WG	INCH WATER GAUGE		ATC VALVE
LAT	LEAVING AIR TEMPERATURE	S	CONTINUATION SYMBOL
LWT	LEAVING WATER TEMPERATURE		CONNECTION POINT
MBH	1000 BRITISH THERMAL UNITS	-PWS-	PROCESS WATER SUPPLY
NC	NOISE CRITERIA	-PWR-	PROCESS WATER RETURN
PD	PRESSURE DROP	-CD-	CONDENSATE DRAIN
RA	RETURN AIR		
SA	SUPPLY AIR		
SMBH	SENSIBLE MBH		
TMBH	TOTAL MBH		
TSP	TOTAL STATIC PRESSURE		
TYP	TYPICAL		
UP	UP		
WB	WET BULB		
WCDXCU	WATER COOLED DIRECT EXPANSION CONDENSING UNIT		

EXISTING MECHANICAL NOTES

1. EXISTING PROCESS WATER SUPPLY AND REVERSE RETURN RISERS, WITH VENT CAPS THAT TERMINATE IN THE 14TH FLOOR MECHANICAL SHAFT.
2. EXISTING CONDENSATE RISER IN MECHANICAL SHAFT

GENERAL NOTES

1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE COMPLETE AND PROPERLY FUNCTIONING BUILDING SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL NECESSARY TO ACHIEVE SUCH ENDS.
2. THESE DRAWINGS ARE SCHEMATIC AND ARE INTENDED TO SHOW EQUIPMENT AND SYSTEMS AS ACCURATELY AS POSSIBLE. ALL CRITICAL LOCATIONS AND DIMENSIONS SHALL BE DETERMINED IN THE FIELD. IN CASE OF A CONFLICT BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY AS DETERMINED BY THE OWNER.
3. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, STANDARDS, ORDINANCES, RULES AND REGULATIONS OF ALL LOCAL AND STATE GOVERNMENTAL AUTHORITIES, THE RULES OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NPFA), THE NATIONAL ELECTRICAL CODE (NEC), THE AMERICANS WITH DISABILITIES ACT AND ASHRAE AS INTERPRETED BY THE AUTHORITY HAVING JURISDICTION OVER ANY OF THE SYSTEMS HEREIN SPECIFIED.
4. THE SITE, LOCATION AND ROUTING OF BUILDING SYSTEMS ARE SHOWN AS ACCURATELY AS POSSIBLE. THE CONTRACTOR SHALL ACKNOWLEDGE ACCEPTANCE OF THIS PLAN SET AS AN ADEQUATE DEFINITION OF THE SCOPE OF WORK AND EXTRA COST CLAIMS BASED ON INADEQUACY OF PLANS WILL NOT BE CONSIDERED. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR MISUNDERSTANDINGS OF THE CONTRACTUAL REQUIREMENTS.
5. WHERE SITE CONDITIONS REQUIRE MINOR DEVIATIONS FROM THE CONTRACT DOCUMENTS, MAKE SUCH DEVIATIONS WITHOUT COST TO THE OWNER. MAJOR DEVIATIONS SHALL NOT BE MADE WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE OWNER'S REPRESENTATIVE.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THIS SHALL INCLUDE PROVIDING CLEARANCES AS DEFINED IN THE INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ALL AUXILIARY ITEMS REQUIRED TO PERFORM FUNCTION INTENDED.
7. ALL EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN FULL PER THE SPECIFICATIONS.

GRAPHIC SCALE
0 4 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

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LICENSE No. 20021
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
14TH FLOOR & PENTHOUSE PLAN MECHANICAL EXISTING

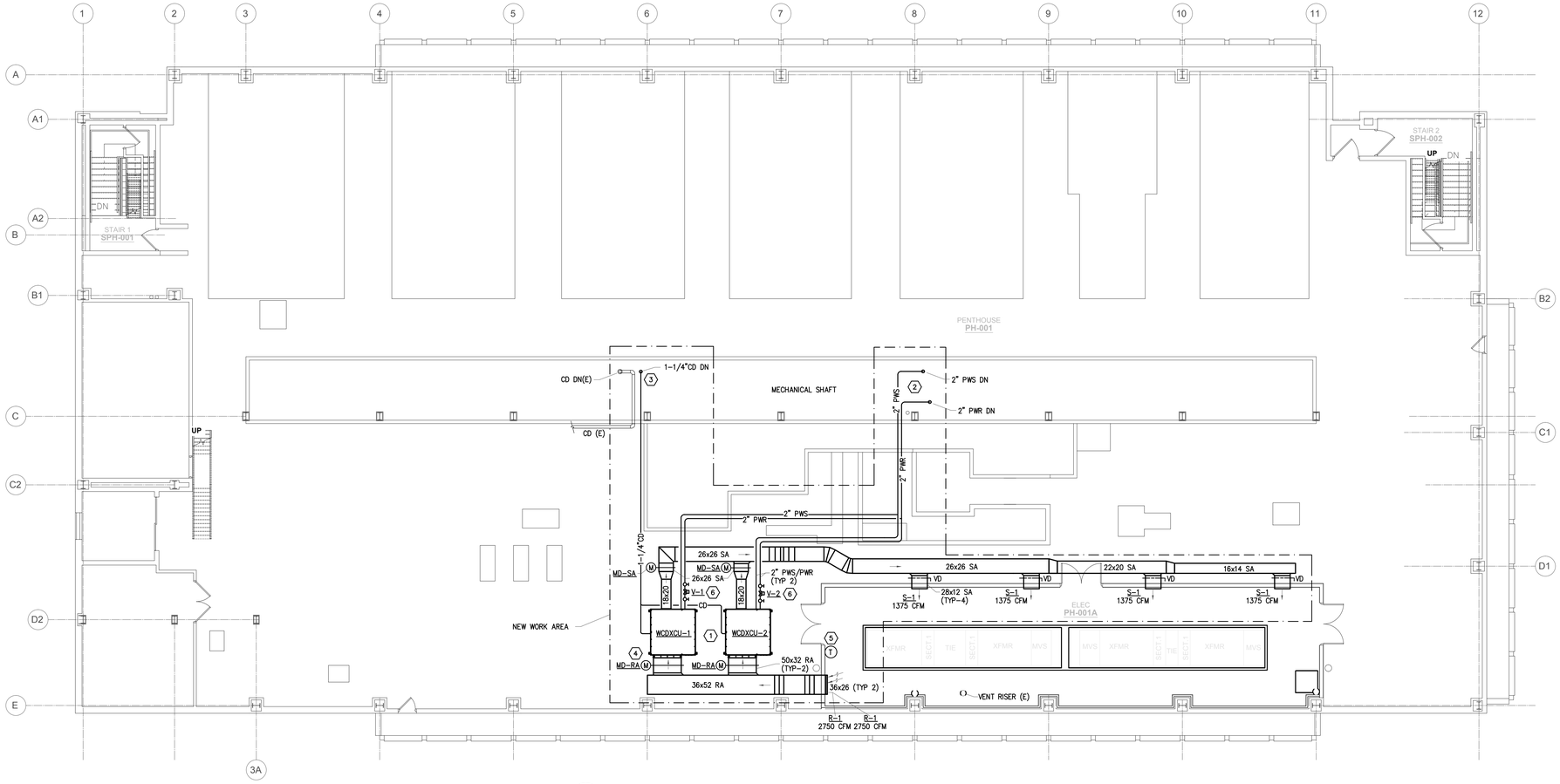
CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
M001

LAST SAVED ON: December 16, 2020



1 M100 PENTHOUSE FLOOR PLAN – MECHANICAL NEW WORK PHASE 7
SCALE: 1/8"=1'-0"

GENERAL NOTES MECHANICAL

1. ALL BOLD LINES ARE CONSIDERED NEW WORK, UNLESS STATED OTHERWISE.

KEY NOTES MECHANICAL ⟨7⟩

⟨1⟩ WATER SOURCE DX CONDENSING UNITS, HUNG FROM PENTHOUSE CEILING.

⟨2⟩ PROVIDE NEW 2" PROCESS WATER SUPPLY AND RETURN PIPING TO AND FROM EACH WCDX UNIT. ROUTE ACROSS PENTHOUSE CEILING, DOWN MECHANICAL SHAFT AND CONNECT TO PROCESS WATER SUPPLY AND RETURN RISERS IN 14TH FLOOR SHAFT. INSTALL NEW VENT CAPS AT TOP OF RISERS IN PENTHOUSE. INSTALL SHUT OFF AND DRAIN VALVES AT CONNECTION TO PROCESS RISERS IN 14TH FLOOR SHAFT. REFER TO SHEET 2/M400.

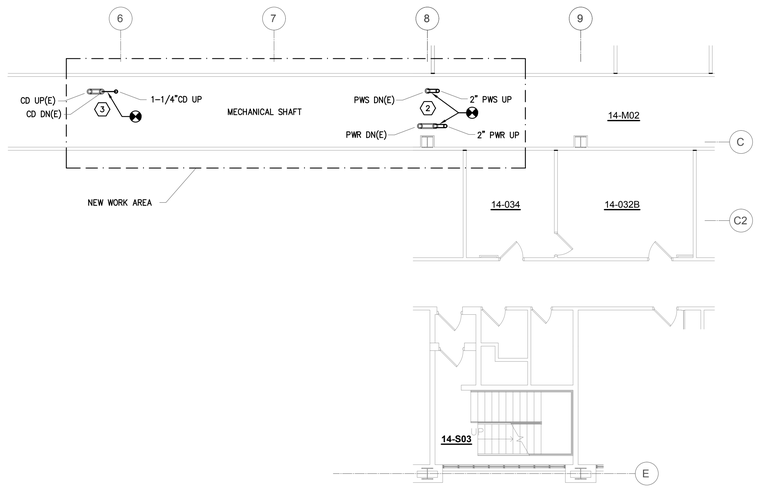
⟨3⟩ PROVIDE 1-1/4" CONDENSATE DRAIN LINES FROM DX UNITS. ROUTE ACROSS PENTHOUSE CEILING TO MECHANICAL SHAFT, AND CONNECT TO EXPRESS CONDENSATE RISER IN 14TH FLOOR SHAFT. PROVIDE AN ADDITIONAL AUXILIARY GALVANIZED DRAIN PAN UNDER EACH WCDXCU, AND DRAIN TO SAME CONDENSATE LINE.

⟨4⟩ PROVIDE MOTORIZED DAMPERS ON SUPPLY AND RETURN DUCT OF EACH WCDXCU. EACH MOTORIZED DAMPER SHALL OPEN WHEN ITS ASSOCIATED WCDXCU IS ENERGIZED, AND CLOSED WHEN ITS ASSOCIATED WCDXCU IS DE-ENERGIZED. MOTORIZED DAMPERS TO BE CONTROLLED BY BAS.

⟨5⟩ INSTALL WALL THERMOSTAT AT 72" ABOVE FINISHED FLOOR.

⟨6⟩ PROVIDE AN AUTOMATIC TEMPERATURE CONTROL VALVE WITH SHUTOFF VALVES ON THE PROCESS WATER RETURN PIPING AT EACH CONDENSING UNIT. EACH ATC VALVE (V-1, V-2) WILL OPEN WHEN IT'S CORRESPONDING UNIT OPERATES (WCDXCU-1,2) AND CLOSE WHEN IT'S CORRESPONDING UNIT SHUTS OFF. ATC VALVES TO BE CONTROLLED BY BAS.

⟨7⟩ RE-BALANCE PROCESS WATER SUPPLY AND RETURN PUMPS IN BASEMENT TO 163 GPM @ 52 FT HD. ARCHITECT OR MECHANICAL CONTRACTOR TO HIRE A TEST & BALANCE CONTRACTOR TO OBTAIN EXISTING PUMP READINGS (GPM, HEAD, MOTOR RPM, HP, AMPS, VOLTS, PUMP MANUF & MODEL), BEFORE START OF HVAC WORK.



2 M100 14TH FLOOR PLAN – MECHANICAL NEW WORK PHASE 7
SCALE: 1/8"=1'-0"

GRAPHIC SCALE
0 4 0 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

LAST SAVED ON: December 17, 2020

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KEY PLAN

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LICENSE No.: 30021
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

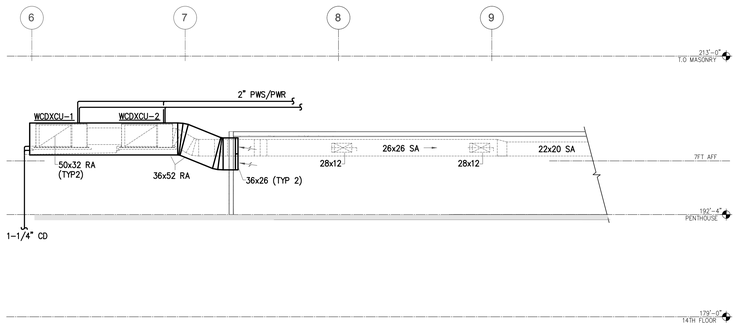
DRAWING TITLE :
14TH FLOOR & PENTHOUSE PLAN MECHANICAL NEW WORK

CONSTRUCTION DOCUMENTS

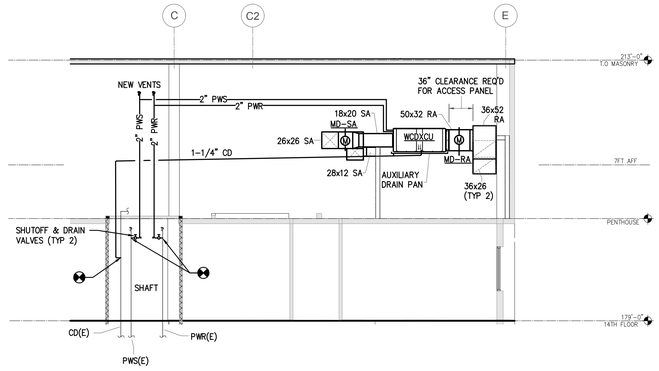
REVISIONS

No.	Date	Description

DWG. NO.
M100



1 M400 SECTION NORTH – MECHANICAL NEW WORK PHASE 7
SCALE: 1/8"=1'-0"



2 M400 SECTION EAST – MECHANICAL NEW WORK PHASE 7
SCALE: 1/8"=1'-0"

GENERAL NOTES MECHANICAL

1. ALL BOLD LINES ARE CONSIDERED NEW WORK, UNLESS STATED OTHERWISE.

GRAPHIC SCALE
0 4 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

LAST SAVED ON: December 16, 2020

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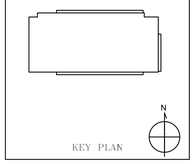

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LICENSE No.: 20024
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

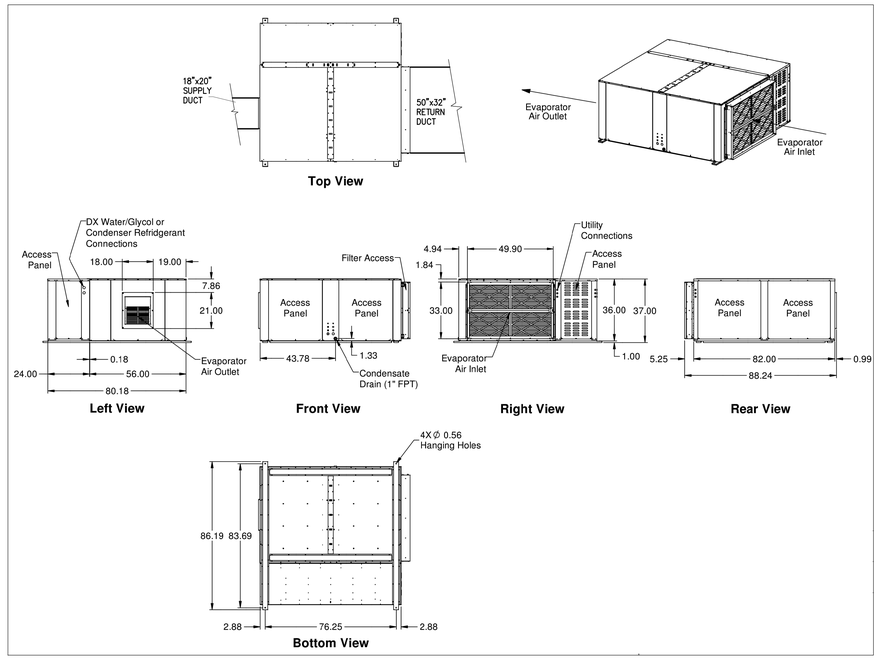
DRAWING TITLE :
MECHANICAL SECTIONS

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
M400



WATER COOLED DX CONDENSING UNIT – DIMENSIONS
M700 NOT TO SCALE

GRILLE SCHEDULE

BASIS OF DESIGN: TITUS

SYMBOL	CFM RANGE	NECK SIZE (INCH)			MODEL
S-1	1,375	28x12			300-RL
R-1	2,750	38x30			25RL

NOTES:
1. NC LEVEL FOR DIFFUSERS AND GRILLES SHALL NOT EXCEED 30.
2. ALL DIFFUSERS AND GRILLES SHALL BE SUITABLE WITH CEILING & WALL TYPE. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE OF CEILING.
3. PROVIDE SUPPLY DIFFUSERS WITH AIR PATTERN CONTROLLER.
4. PROVIDE SUPPLY DIFFUSER WITH PLASTER ADAPTER AS REQUIRED.

MOTORIZED DAMPER SCHEDULE

BASIS OF DESIGN: RUSKIN

SYMBOL	LOCATION	DUCT SIZE (INCH)			MODEL
MD-SA	SUPPLY DUCT	26x26			CD60
MD-RA	RETURN DUCT	50x32			CD60

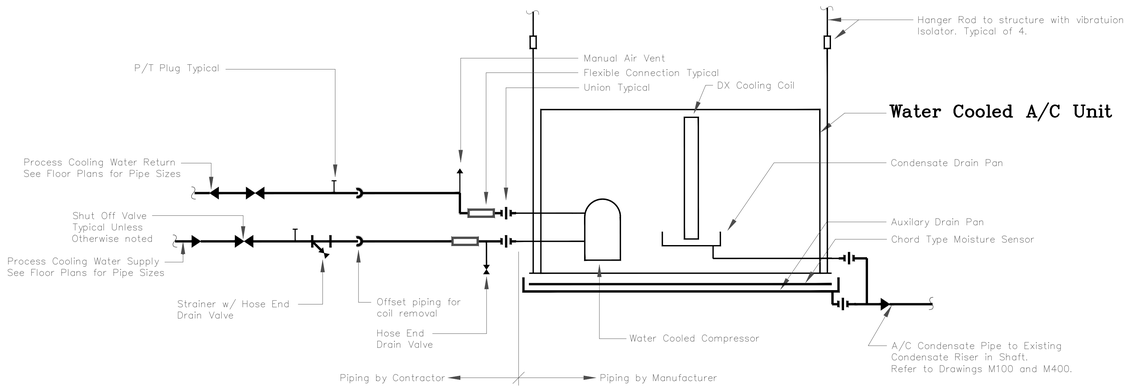
NOTES:
1. MOTORIZED DAMPERS TO BE CONTROLLED BY BAS.

AUTOMATIC TEMPERATURE CONTROL VALVE SCHEDULE

BASIS OF DESIGN: SIEMENS

SYMBOL	LOCATION	PIPE SIZE (INCH)			MODEL
V-1	WCDXCU-1	1			POWERMITE 599
V-2	WCDXCU-2	1			POWERMITE 599

NOTES:
1. ATC VLAVES TO BE CONTROLLED BY BAS.



TYPICAL HORIZONTAL WATER COOLED A/C UNIT PIPING DETAIL
2 M700 NO SCALE

WATER COOLED A/C UNIT SCHEDULE

Unit Tag	WCDXCU-1,2	BASIS OF DESIGN:
Evap Model	Qty (2) AWC-144D-4-000-D	ABOVE AIR TECHNOLOGIES
Cond Model	N/A	
Unit Type	12.0 Ton (Dual/Lead Digital) Nom. HK Packaged Air Handling Unit	

Electrical Data		**Condenser Data**	
Unit Power	460-480/3/60	Total Heat of Rej.	208.6 MBh
Unit Nameplate	28.3 FLA | 31.1 MCA | 40 MOP	EWT / LWT	70.0°F / 90.0°F
		Flow Rate @ PD*	20.9 gpm @ 5.7 ft w.g.
Design Ambient Conditions		Fluid Type	Water
Summer	95.0°F DB / 78.0°F WB	Coil Construction	Coaxial
Winter	0.0°F DB	Control Valve	2-Way, Modulating (150 psig)
		Control Valve Cv	0
Design Space/Return Conditions		**Heat Pump Data**	
Cooling	75.0°F DB / 62.5°F WB	Capacity	N/A
Heating	75.0°F DB	EAT / LAT	N/A
		EWT / LWT	N/A
Supply Air Fan Data		**Freecooling Coil Data**	
Total Airflow Rate	5,500 cfm	EAT / LAT	N/A
Outdoor Airflow Rate	00 cfm OA / 0.0%	EWT / LWT	N/A
ESP / TSP	1.00 in w.g. / 1.86 in w.g.	GPM @ Ft Hd	N/A
Fan Type	BI Direct Drive EC Impeller, Qty (1)	Fluid Type	N/A
Motor kW / FLA (Each)	4.5 kW / 5.9 FLA	Face Area / Rows / FPI	N/A
Fan Speed Control	Constant Speed	Construction	N/A
		Control Valve	N/A
Cooling Coil Data		Control Valve Cv	N/A
Gross Capacity	175.3 TMBh / 134.8 SMBh		
Net Capacity	166.2 TMBh / 125.7 SMBh	**Unit Mounted Heat Data**	
Mixed EAT	75.0°F DB / 62.5°F WB	Type	N/A
Coil LAT	52.5°F DB / 51.1°F WB	Capacity / FLA	N/A
Condensate Flow	39.5 lb/hr	Operation	N/A
Face Area / Rows / FPI	11.1 ft / 6 /12	EAT / LAT	N/A
Construction	Aluminum Finned, Copper Tube	EWT / LWT	N/A
		GPM @ Ft Hd	N/A
Hot Gas Reheat Coil Data		Fluid	N/A
Capacity	N/A	Face Area / Rows / FPI	N/A
LAT (@ Max Output)	N/A	Construction	N/A
Face Area / Rows / FPI	N/A	Control Valve	N/A
Construction	N/A	Control Valve Cv	N/A
Control	N/A		
		Humidification Data	
Compressor Data		Type	N/A
Comp 1 Type	Digital Scroll	Steam Capacity / FLA	N/A
Comp 1 LRA / RLA	75.0 LRA / 11.2 RLA	Operation	N/A
Comp 2 Type	Fixed Speed Scroll		
Comp 2 LRA / RLA	75.0 LRA / 11.2 RLA		
Location	Packaged Unit		
Refrigerant Type	R-410a		

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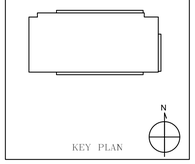

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LICENSE No. 20021
EXPIRATION DATE: 09-21-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
MECHANICAL SCHEDULES & DETAILS

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
M700

LAST SAVED ON: December 16, 2020

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION	MTG HEIGHT TO ℄ A.F.F. U.O.N.
	LINEAR LED LIGHT FIXTUREREFER TO LIGHTING FIXTURE SCHEDULE FOR MORE INFORMATION.	
	WALL MOUNTED EXIT LIGHT FIXTURE SINGLE FACE/DOUBLE FACE WITH ARROWS AS INDICATED. REFER TO LIGHTING FIXTURE SCHEDULE FOR MORE INFORMATION.	
$	SINGLE POLE SWITCH	
$3	THREE-WAY SWITCH	
	DUPLEX RECEPTACLE OUTLET POWER: 110V/20 A, U.O.N. DEVICE/PLATE COLOR: TO BE DETERMINED BY ARCHITECT.	
J P	JUNCTION/PULL BOX	
NF 30	DISCONNECT SWITCH: TOP NOTATION SHOWN IS FUSED SIZE. BOTTOM IS NOTATION IS DISCONNECT SIZE, NF=NON-FUSED.	
	PANELBOARD – 120/208V, 3PH, 4W	
	PANELBOARD – 277/480V, 3PH, 4W	
	HAND-OFF-AUTOMATIC (HOA) COMBINATION MOTOR STARTER WITH DISCONNECTING MEANS	
M	MOTOR, HP AS INDICATED	
	PULLBOX	
	LOW VOLTAGE DRAW-OUT CIRCUIT BREAKER	
	BUS TIE	
	FUSE – NUMERAL INDICATES FUSE AMPERAGE RATING	
	AUTOMATIC TRANSFER SWITCH (A.T.S.)	
	UTILITY CURRENT TRANSFORMER CABINET	
	MOLDED CASE CIRCUIT BREAKER	
T	TRANSFORMER – DRY TYPE	
	TRANSFORMER (ONE-LINE DIAGRAM)	
	GROUNDING ELECTRODE	
	3 PHASE DELTA CONNECTION	
	3 PHASE WYE CONNECTION WITH GROUNDED NEUTRAL	
	NORMALLY OPEN CONTACT	
	NORMALLY CLOSED CONTACT	
	CIRCUITRY TURNED UP	
	CIRCUITRY TURNED DOWN	
	GROUND BAR	
L8-4,5	HOMERUN TO PANELBOARD – NUMBER OF ARROWHEADS INDICATES NUMBER OF CIRCUITS. NUMERAL AND LETTERS ADJACENT TO ARROWHEADS INDICATE ASSIGNED PANEL AND CIRCUIT NUMBERS. TICK MARKS IN CIRCUITRY INDICATE QUANTITY OF No. 12 CONDUCTORS AND (∫) CHECK MARK IN CIRCUITRY INDICATES GROUND CONDUCTOR. CIRCUITRY WITH NO TICK MARKS INDICATES 2#12 CONDUCTORS. ALL CONDUCTORS ARE No. 12 UNLESS NOTED OTHERWISE.	
	CIRCUITRY CONCEALED IN WALLS OR ABOVE CEILING. No. OF TICKS INDICATE No. OF CONDUCTORS. NUMERALS ADJACENT TO TICKS INDICATE WIRE SIZE. RUNS WITHOUT TICKS OR NUMERALS INDICATE 2#12 + 1#12G IN 3/4" CONDUIT U.O.N.	

ABBREVIATIONS

A	AMPERE	N	NEW
AFF	ABOVE FINISHED FLOOR	No.	NUMBER
AIC	AMPERES INTERRUPTING CAPACITY	P	POLE
C	CONDUIT/EMT	PNL	PANEL
E or EX.	EXISTING	R	RELOCATED, TO NEW LOCATION SHOWN
EC	EMPTY CONDUIT/EMT	ø	PHASE
ER	EXISTING ITEM TO BE RELOCATED	UON	UNLESS OTHERWISE NOTED
G	GROUND	V	VOLT
HP	HORSEPOWER	W	WIRE
MCB	MAIN CIRCUIT BREAKER	X	REMOVE ITEM IN ITS ENTIRETY
MTD	MOUNTED		
MLO	MAIN LUGS ONLY		

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BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.	8050
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A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

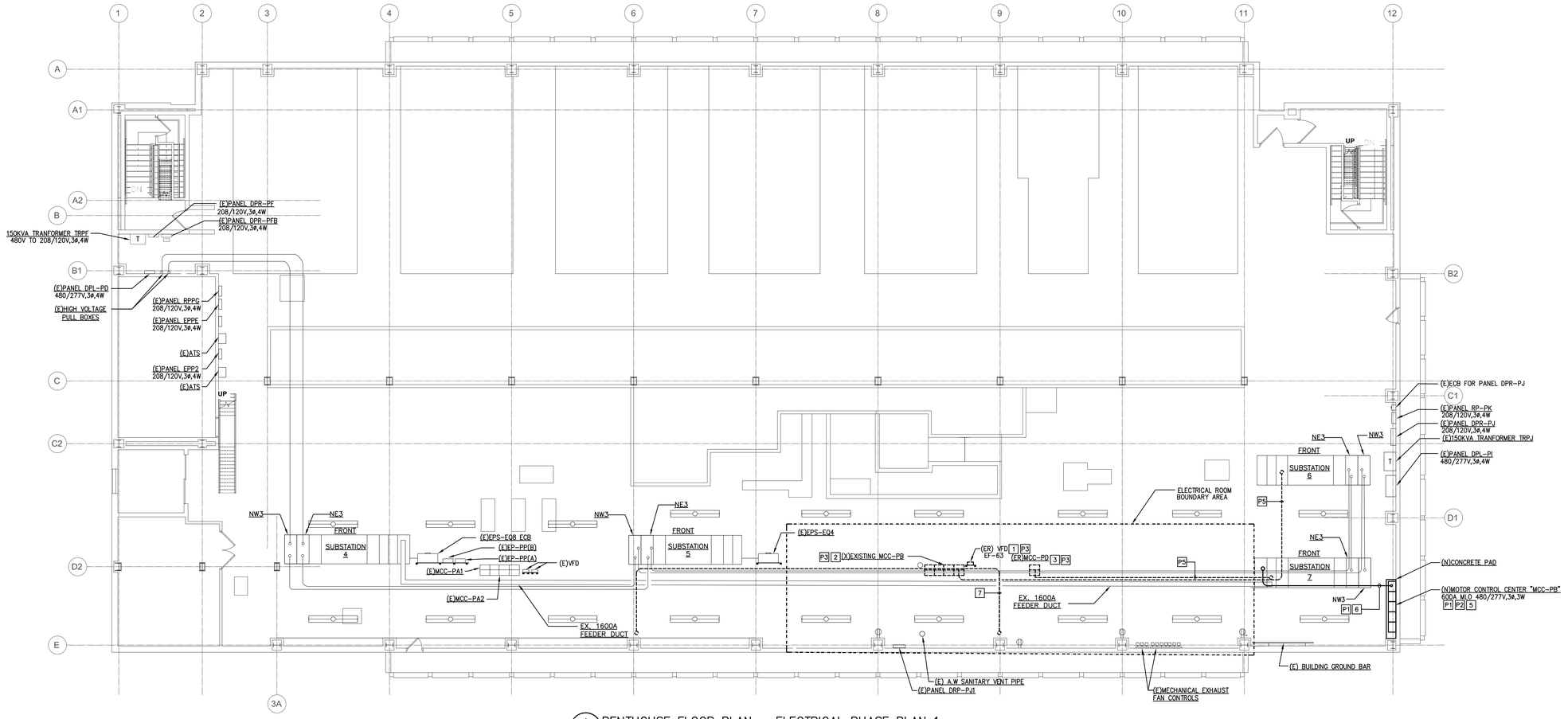
DRAWING TITLE :
ELECTRICAL SYMBOL AND ABBREVIATIONS

CONSTRUCTION DOCUMENTS

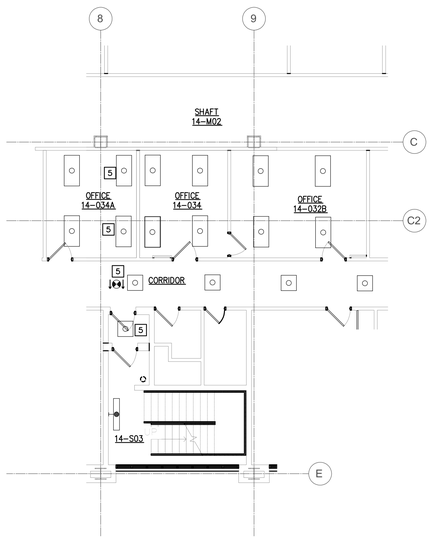
REVISIONS

No.	Date	Description

DWG. NO.
E001



1 / E100 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE PLAN 1
SCALE: 1/8"=1'-0"



3 / E100 14TH FLOOR PARTIAL PLAN – DEMOLITION WORK
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

PLAN PHASING NOTES

P1 INSTALL A NEW 600AMP, 480/277V MOTOR CONTROL CENTER "MCC-PB" ON SOUTHEAST WALL NEAR SUBSTATION 7. PROVIDE TEMPORARY INCOMING 3P, 600AMP POWER FEED TO COME FROM SPARE SWITCH IN EXISTING SUBSTATION 7.

P2 AFTER NEW POWER TO MCC-PB IS ACTIVE, PROVIDE NEW PULL BOX(ES) IN ACCESSIBLE CEILING SPACE OUTSIDE OF THE BOUNDARY AREA OF THE NEW ELECTRICAL ROOM CIRCUITS AND PROVIDE NEW CONDUIT AND CIRCUITS FROM NEW "MCC-PB" TO PULL BOX(ES). PULL BOX SIZED AS PER NEC 314.28 REQUIREMENTS.

P3 START TURNING OFF POWER AND DISCONNECT EACH EXISTING CIRCUIT AND REROUTING THEM FROM EXISTING MCC-PB, MCC-PD AND EF-63 VFD EQUIPMENT TO PULL BOXES AND SPLICE TO EXISTING CIRCUITS.

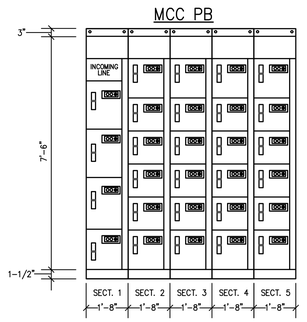
P4 RELOCATE EXISTING EF-63 VFD EQUIPMENT TO THE SOUTHEAST WALL NEAR SUBSTATION 7. PROVIDE NEW CONDUIT AND CIRCUITS FROM EF-63 VFD NEW LOCATION TO PULL BOX AND SLICE EXISTING CIRCUIT.

P5 TURN OFF EXISTING MCC-PB MAIN POWER SWITCH IN SUBSTATION 6, MCC-PD MAIN POWER SWITCH IN SUBSTATION 7 AND REMOVE EXISTING INCOMING ELECTRICAL FEEDERS AND CONDUITS IN ITS ENTIRETY. BOTH MCC-PB AND MCC-PD EQUIPMENT TO BE REMOVED AND DISCARDED.

**PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

REFERENCE DRAWING NOTES

1. RELOCATE EXISTING EF-63 VFD EQUIPMENT TO SOUTHEAST WALL LOCATION SHOWN ON DRAWING E101. REROUTE EXISTING CIRCUITS OUTSIDE THE ELECTRICAL ROOM BOUNDARY AREA TO A JUNCTION BOX IN AN ACCESSIBLE CEILING SPACE FOR SPLICING. PROVIDE NEW CONDUIT AND CIRCUIT(s) FROM JUNCTION BOX TO NEW VFD LOCATION. NEW INCOMING POWER FEED TO VFD WILL COME FROM MOTOR CONTROL CENTER "MCC-PB".
2. EXISTING MCC-PB POWER CIRCUITS AND CONTROL WIRING ALONG WITH ASSOCIATED CONDUITS TO BE REROUTED OUTSIDE OF THE NEW ELECTRICAL ROOM BOUNDARY AREA TO A JUNCTION BOX IN AN ACCESSIBLE CEILING SPACE FOR SPLICING. PROVIDE NEW CONDUIT AND CIRCUIT(s) FROM JUNCTION BOX TO NEW MOTOR CONTROL CENTER MCC-PB LOCATION. INCOMING FEEDERS AND MCC-PB SHALL BE REMOVED IN ITS ENTIRETY; EQUIPMENT SHALL BE DISCARDED.
3. EXISTING MCC-PD POWER CIRCUITS AND CONTROL WIRING ALONG WITH ASSOCIATED CONDUITS TO BE REROUTED OUTSIDE OF THE NEW ELECTRICAL ROOM BOUNDARY AREA TO A JUNCTION BOX IN AN ACCESSIBLE CEILING SPACE FOR SPLICING. PROVIDE NEW CONDUITS AND CIRCUIT(s) FROM JUNCTION BOX TO NEW MOTOR CONTROL CENTER MCC-PB LOCATION. INCOMING FEEDERS AND MCC-PD SHALL BE REMOVED IN ITS ENTIRETY; EQUIPMENT SHALL BE DISCARDED.
4. CAREFULLY RELOCATE EXISTING 2' X 4' LIGHTING FIXTURES IN THIS AREA TO ALLOW FOR INSTALLATION OF FIRE PROTECTION STANDPIPE RUN IN CEILING SPACE. SEE FP0100 AND FP1100 DRAWING FOR MORE DETAILS. REINSTALL LIGHTING FIXTURES AFTER STANDPIPE IS INSTALLED. FIELD COORDINATE EXTENT OF AREA WITH FIRE PROTECTION CONTRACTOR.
5. PROVIDE A NEW MOTOR CONTROL CENTER "MCC-PB" FOR EXISTING "MCC-PB" AND "MCC-PD" CIRCUITS.
6. PROVIDE A TEMPORARY INCOMING POWER FEEDERS AND CONDUIT FROM SUBSTATION 7 SPARE SWITCH TO NEW MOTOR CONTROL CENTER "MCC-PB".
7. REMOVE EXISTING CONDUIT IN ITS ENTIRETY ALONG WITH ASSOCIATE COMPONENTS.



2 / E100 NEW MOTOR CONTROL CENTER "MCC-PB" ELEVATION PLAN
NOT TO SCALE

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LICENSE No.: 29921
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

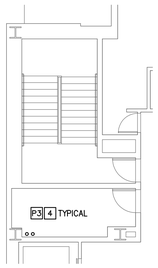
DRAWING TITLE :
PENTHOUSE PLAN-ELECTRICAL PHASE 1

CONSTRUCTION DOCUMENTS

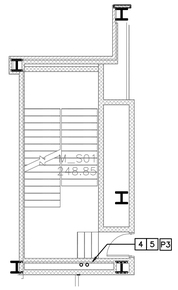
REVISIONS

No.	Date	Description

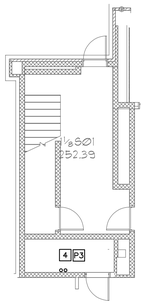
DWG. NO.
E100



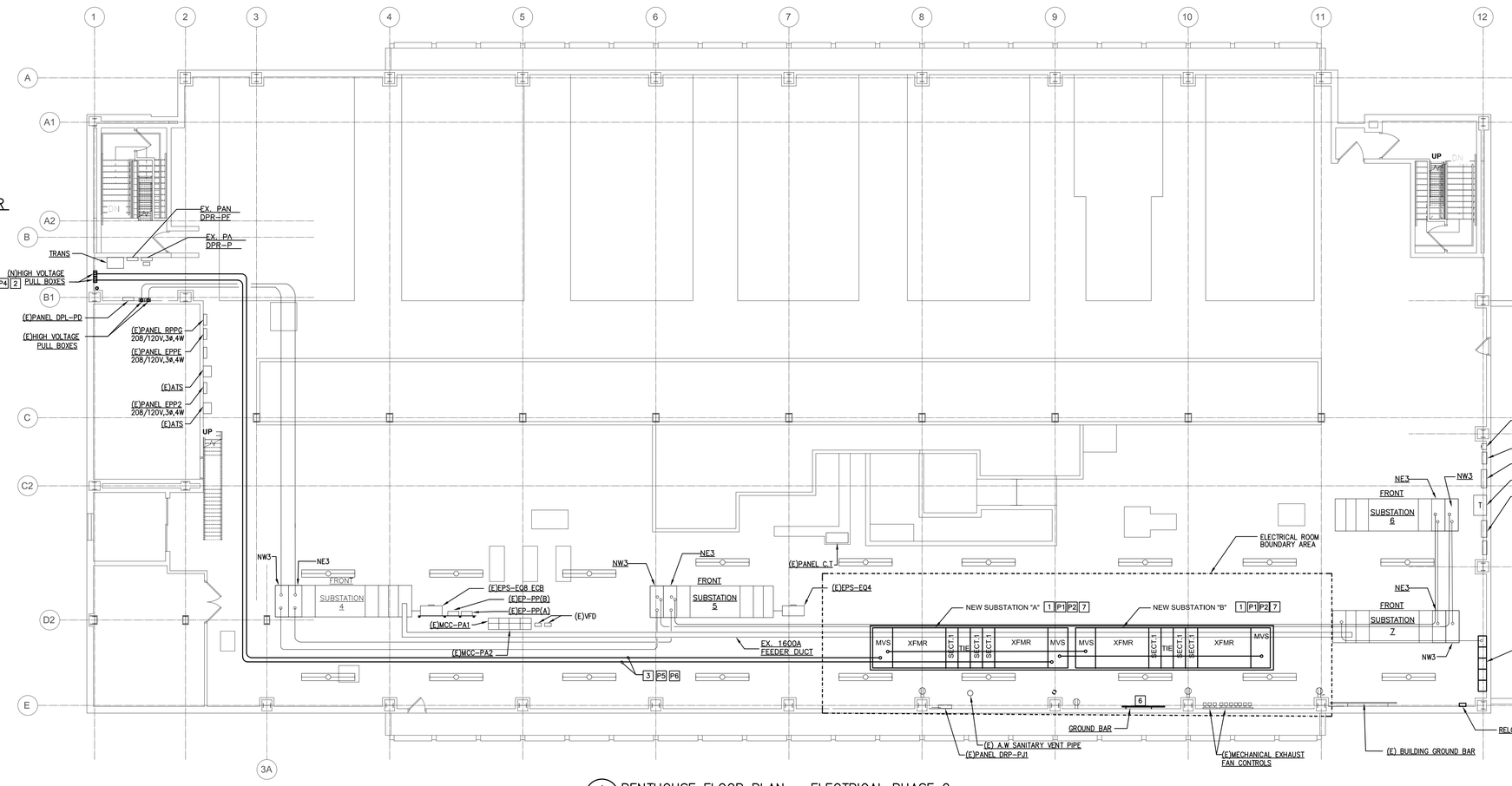
3 / E101 14TH FLOOR THRU 2ND FLOOR



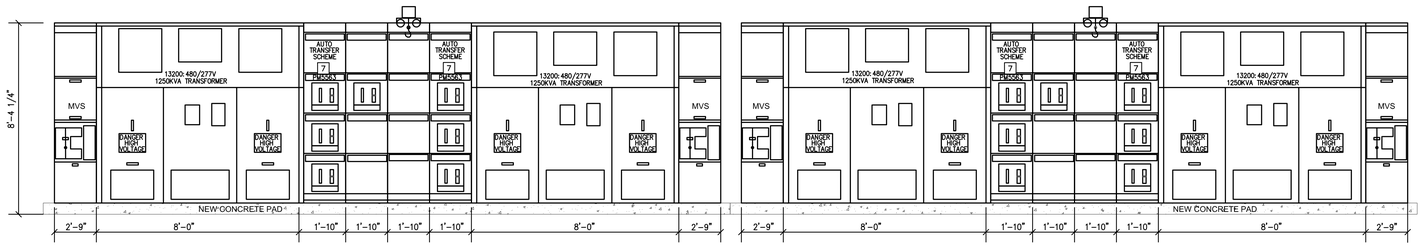
4 / E101 MEZZANINE FLOOR



5 / E101 FIRST FLOOR



1 / E101 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE 2
SCALE: 1/8"=1'-0"



2 / E101 **NEW SUBSTATIONS 'A' AND 'B' ELEVATION PLAN**
SCALE: 1/4" = 1'-0"

PHASING PLAN NOTES

- P1 INSTALL THE NEW CONCRETE PAD IN THE PROPOSED LOCATION OF NEW SUBSTATIONS "A" AND "B".
- P2 INSTALL THE NEW MOUNTED DOUBLE ENDED SUBSTATION 'A' AND 'B'. RUN A CAT6 CABLE TO EACH SWITCHBOARD (AND DAISY-CHAIN THE 2 METERS IN A DOUBLE-ENDED BOARD). RUN CAT 6 CABLE IN 1" FROM EACH METER TO BUILDING NETWORK SWITCH LOCATED IN THE PENTHOUSE.
- P3 INSTALL 2-3" CONDUIT FROM HV PULL BOX IN BASEMENT ELECTRICAL ROOM B027 STUBBED UP INTO PENTHOUSE.
- P4 INSTALL HV LINEAR PULL BOX ON PENTHOUSE WALL SPACE AND INTERCEPT THE 2-3" CONDUIT RISER.
- P5 INSTALL 2- 3" CONDUITS FROM NEW SUBSTATIONS A AND B TO HV PULL BOX IN PENTHOUSE.
- P6 INSTALL NEW FEEDERS FROM BASEMENT ELECTRICAL ROOM B027 TO NEW SUBSTATIONS "A" AND "B" IN PENTHOUSE.
- *** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

GENERAL PLAN NOTES

1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

REFERENCE DRAWING NOTES

1. PROVIDE AN NEW PAD MOUNTED 1250KVA, 13.2KV TO 480/277V,3ø,4W. DOUBLE ENDED SUBSTATION 'A' AND 'B'. BASIS OF DESIGN; MANUF. SQUARE D PZ4 SWITCHBOARD WITH DRAW-OUT BREAKERS AND CLOSED-TRANSITION, AUTO-TRANSFER. SEE ELEVATION DETAIL ON THIS SHEET.
2. PROVIDE (2) CORE DRILLS IN FLOOR FOR NEW 3" CONDUIT ELECTRICAL RISER DOWN TO BASEMENT FLOOR ELECTRICAL CLOSET. PROVIDE AN NEW HV PULL BOX IN ACCESSIBLE SPACE PRIOR TO ROUTING CONDUIT INTO FLOOR BELOW. SEE CONDUIT RISER PLANS ON THIS SHEET AND DRAWING E102 FOR CONTINUATION.
3. PROVIDE NEW FEEDERS AND CONDUIT FROM BASEMENT ELECTRICAL. SEE PLAN E102 FOR CONTINUATION.
4. EXTEND THE NEW 3" CONDUIT ELECTRICAL RISER IN EXISTING CORE DRILL LOCATION IN CLOSETS DOWN TO BASEMENT LEVEL CLOSET B027. SEE SECTION 012300-ALTERNATE DOCUMENT PRIOR BIDDING OF WORK.
5. EXISTING WALL PARTITION SHALL BE CUT OPEN TO REVIEW AND EXTEND CONDUIT RISERS TO THE BASEMENT AVOIDING ANY EXISTING STRUCTURAL BEAMS. REFER TO ARCHITECTURAL PLAN FOR ACCESS PANEL DETAILS.
6. PROVIDE AN NEW 2-1/4"GROUND BUS BAR ON 2" SPACERS. MOUNTING ON INSULATED SPACES TWO INCHES FROM WALL, 6 INCHES ABOVE FINISHED FLOOR. PROVIDE BARE COPPER WIRING BONDED TO SUBSTATIONS 'A' AND 'B' AND BUILDING GROUND IN PENTHOUSE.
7. PROVIDE CAT6 CABLE IN 3/4" EMT RUN FROM THE SQUARE D PM5563RD METER ON ONE OF THE SWITCHBOARD MAINS TO THE EXISTING, PENTHOUSE-LEVEL FACILITIES ETHERNET NETWORK SWITCH AND THEN DAISY-CHAIN A CAT6 CABLE RUN FROM THAT PM5563RD METER TO THE OTHER THREE (3) PM5563RD METERS ON THE OTHER SWITCHBOARD MAINS. CONTRACT SQUARE D TECHNICAL SERVICES FOR STARTUP, PROGRAMMING AND INTEGRATION OF THE NEW PM5563RD METERS WITH THE UNIVERSITY'S STRUXUREWARE POWER MONITORING SYSTEM.

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PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
PENTHOUSE PLAN - ELECTRICAL PHASE 2

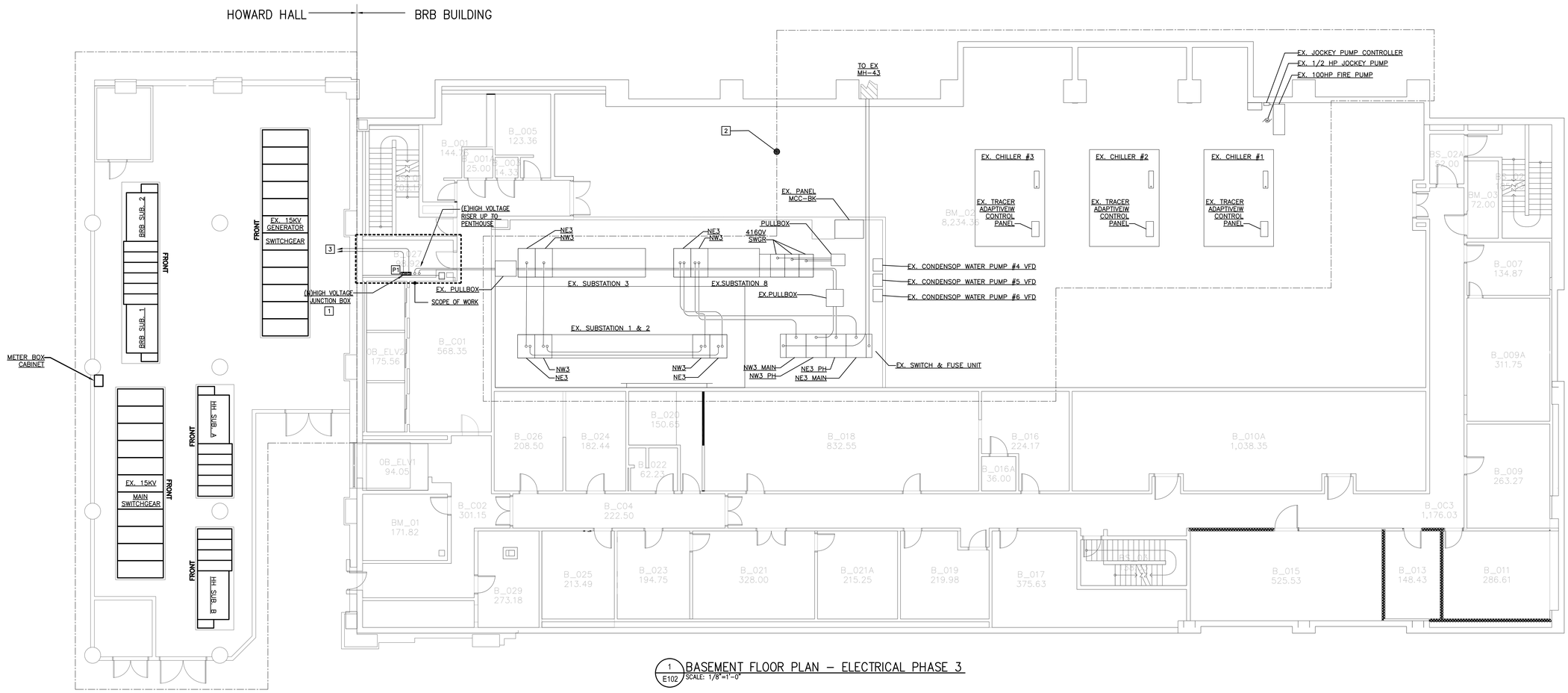
CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E101

LAST SAVED ON: December 17, 2020



1 / E102 BASEMENT FLOOR PLAN – ELECTRICAL PHASE 3
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

1. REQUIRED DEMOLITION WORK SHALL NOT BE LIMITED TO THAT PORTION SHOWN ON PLANS ALONE, BUT SHALL INCLUDE ALL NECESSARY WORK TO BE OBTAINED BY THIS CONTRACTOR AFTER VISITING THE SITE PRIOR TO BIDDING. CONTRACTOR SHALL GATHER ALL THE INFORMATION AND COORDINATE WITH THE NEW OR MODIFIED WORK AS INDICATED ON THE DRAWINGS. ANY MAJOR DISCREPANCIES FOUND ON THE DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION, IN WRITING, BEFORE SUBMITTING THE BIDS.
2. THE SCHEDULING OF DEMOLITION WORK SHALL BE COORDINATED BY THIS CONTRACTOR WITH THE OWNER'S REPRESENTATIVE PRIOR TO PERFORMING THE WORK.
3. CONTRACTOR SHALL VISIT JOB SITE TO ASCERTAIN CONDITIONS WHICH MAY AFFECT HIS BID AND WORK, AND HE SHALL BE RESPONSIBLE FOR THE INCLUSION OF ALL REQUIRED DEMOLITION IN AREAS UNDERGOING MODIFICATION WHETHER OR NOT SUCH WORK IS INDICATED ON PLANS OR NOTES.
4. CONTRACTOR SHALL CLEAN THE PROJECT SITE AT THE END OF EACH WORKING DAY. AFTER REMOVAL OF ALL DEVICES, CONTRACTOR SHALL TURN ALL DEVICES OVER TO OWNER'S REPRESENTATIVE FOR HIM TO INSPECT. AFTER INSPECTED BY THE OWNER'S REPRESENTATIVE CONTRACTOR SHALL REMOVE ALL UNNECESSARY DEVICES OR MATERIALS FROM THE SITE.
5. CONTRACTOR SHALL RESTORE ALL AREAS AND SYSTEMS AND ASSOCIATED DEVICES, COMPONENTS, ETC., DISTURBED BY HIS WORK TO THE SATISFACTION OF THE OWNER, ARCHITECT AND ENGINEERS.
6. THE CONTINUITY OF ALL EXISTING CIRCUITS WHICH ARE TO REMAIN OPERATIONAL SHALL BE MAINTAINED THROUGHOUT THE FACILITY. THE CONTRACTOR SHALL IDENTIFY ALL CIRCUITS THAT SUPPLY POWER TO AREAS TO REMAIN, MARK THESE CIRCUITS AND MAKE SURE THEIR POWER IS NOT INTERRUPTED DURING DEMOLITION AND CONSTRUCTION. ALL EXISTING CIRCUITS TO REMAIN SHALL BE RECONNECTED TO NEW OR EXISTING PANELS. PROVIDE NEW WIRING AND CIRCUIT BREAKERS OF RATING TO MATCH EXISTING AS REQUIRED.
7. THE CONTRACTOR SHALL MAKE A CAREFUL INSPECTION AT ALL OF THE EXISTING ELECTRICAL POWER AND SYSTEMS PRIOR TO THE MODIFICATION OF THE EXISTING SPACE. PHYSICALLY VERIFY ALL EXISTING BRACH CIRCUITS AND COORDINATE PANEL BOARD OVERCURRENT PROTECTION DEVICE, SIZE AND LOCATION.

REFERENCE DRAWING NOTES

1. INTERCEPT FEEDER CABLES AND ELECTRICAL RISERS CONDUITS ROUTED DOWN FROM PENTHOUSE IN JUNCTION BOXES. PREP CABLES WITH MODULAR SPLICE KIT FOR CONNECTION WITH INCOMING FEEDER CABLES.
2. ITEMS SHOWN WITHIN THIS BOUNDARY IS FOR REFERENCE ONLY. ITEMS TO REMOVED DURING INFRASTRUCTURE PROJECT. IF ITEM ARE REMOVE PRIOR TO THE BEGINNING OF THE CONSTRUCTION PHASE OF THE PROJECT. THEN THE EXISTING HIGH VOLTAGE CONNECTION UP TO THE PENTHOUSE WILL COME FROM HOWARD HALL WEST OF PLAN VIEW. SEE NOTE 3 FOR CONTINUATION.
3. EXISTING FEEDER CABLES FROM HOWARD HALL 15KV MAIN SWITCHGEAR SWITCHES B5 AND B6. SLICE ONTO NEW FEEDER CABLES IN JUNCTION BOX TO FEED PENTHOUSE NEW SWITCHGEAR "A" AND "B".

PHASING PLAN NOTES

P1 OPEN AND CLOSE SWITCHES NE3 AND NW3 IN THE EXISTING PENTHOUSE SUBSTATIONS 4,5,6 AND 7 SUCH THAT ALL SUBSTATIONS ARE BEING POWERED BY A SINGLE INCOMING FEEDER.

P2 WHILE THE SINGLE INCOMING FEEDER IS PROVIDING POWER THE EXISTING PENTHOUSE SUBSTATION. DISCONNECT POWER TO THE OTHER MAIN SWITCH AND SPLICE ONTO ON OF THE NEW FEEDER CABLES IN PULL BOX TO FEED POWER TO THE NEW SWITCHGEAR "A" AND "B" IN PENTHOUSE.

*** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

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LICENSE No. 29921
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

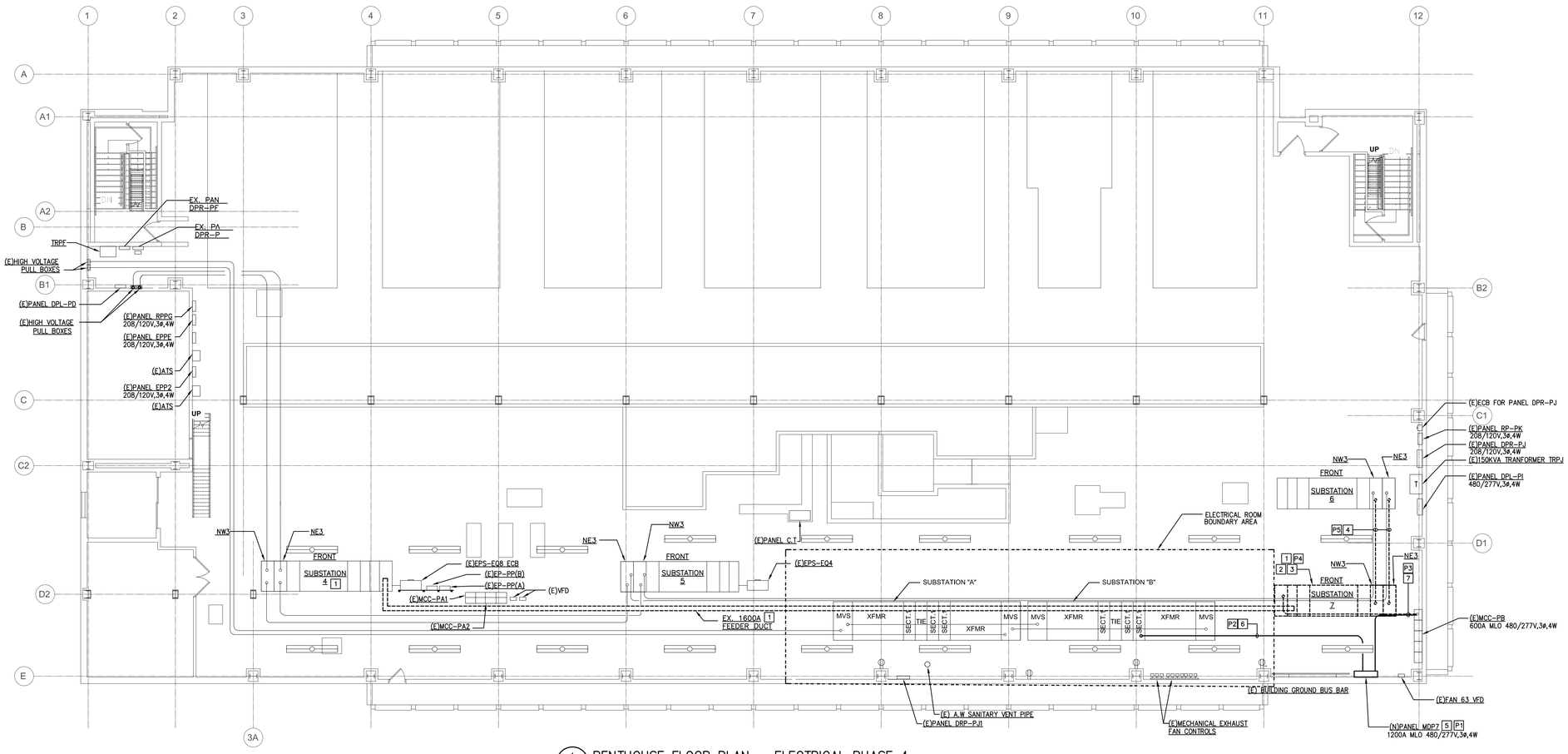
DRAWING TITLE :
BASEMENT PLAN - ELECTRICAL PHASE 3

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E102



1 / E103 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE 4
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

REFERENCE DRAWING NOTES

1. OPEN TIE BUSS DUCT CONNECTION SWITCH ON SUBSTATION 4 AND 7. REMOVE EXISTING BUSS DUCT CONNECTION IN ITS ENTIRETY ALONG WITH THE ASSOCIATED COMPONENTS.
2. OPEN INCOMING SWITCH AT SUBSTATION 6 THAT FEEDS SUBSTATION 7. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 7 AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUITS FROM NEW PANEL MDP7 TO PULL BOX AND SPLICE TO ALL EXISTING FEEDERS.
3. REMOVE EXISTING SUBSTATION 7 IN ITS ENTIRETY. COORDINATE SALVAGE DETAILS WITH THE UNIVERSITY PRIOR TO DEMOLITION.
4. REMOVE EXISTING CONDUIT AND FEEDERS IN ITS ENTIRETY ALONG WITH THE ASSOCIATED COMPONENTS.
5. PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL. CONNECT INCOMING FEEDER FROM SUBSTATION 'B'.
6. PROVIDE FEEDER AND CONDUIT FROM SUBSTATION "B" TO NEW PANEL MDP-7.
7. REROUTED TEMPORARY INCOMING FEED TO PANELBOARD "PB" FROM SUBSTATION 7 TO NEW PANEL MDP7.

PHASING PLAN NOTES

- P1 PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL MDP7.
- P2 PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "A" TO NEW PANEL MDP7.
- P3 AFTER PANEL MDP7 IS POWERED AND ACTIVE; REROUTED TEMPORARY INCOMING FEED TO MCC-PB FROM SUBSTATION 7 TO NEW PANEL MDP7.
- P4 PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND PROVIDE NEW CIRCUITS AND CONDUIT FROM NEW PANEL MDP7 TO PULL BOX. TURNING OFF POWER AND DISCONNECT EACH EXISTING CIRCUIT AND REROUTING THEM FROM EXISTING SUBSTATION 7 TO NEW PULL BOX AND SPLICE TO NEW CIRCUITS.
- P5 AFTER ALL EXISTING CIRCUIT HAVE BEEN ROUTED TO PANEL MDP7 AND ARE ACTIVE. OPEN INCOMING SWITCH AT SUBSTATION 6 THAT FEEDS SUBSTATION 7 AND REMOVE THE EXISTING FEEDER AND CONDUIT CONNECTION IN ITS ENTIRETY.
- P6 REMOVE EXISTING SUBSTATION 7 IN ITS ENTIRETY. EQUIPMENT SHALL BE DISCARDED.
- *** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

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BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
PENTHOUSE PLAN - ELECTRICAL PHASE 4

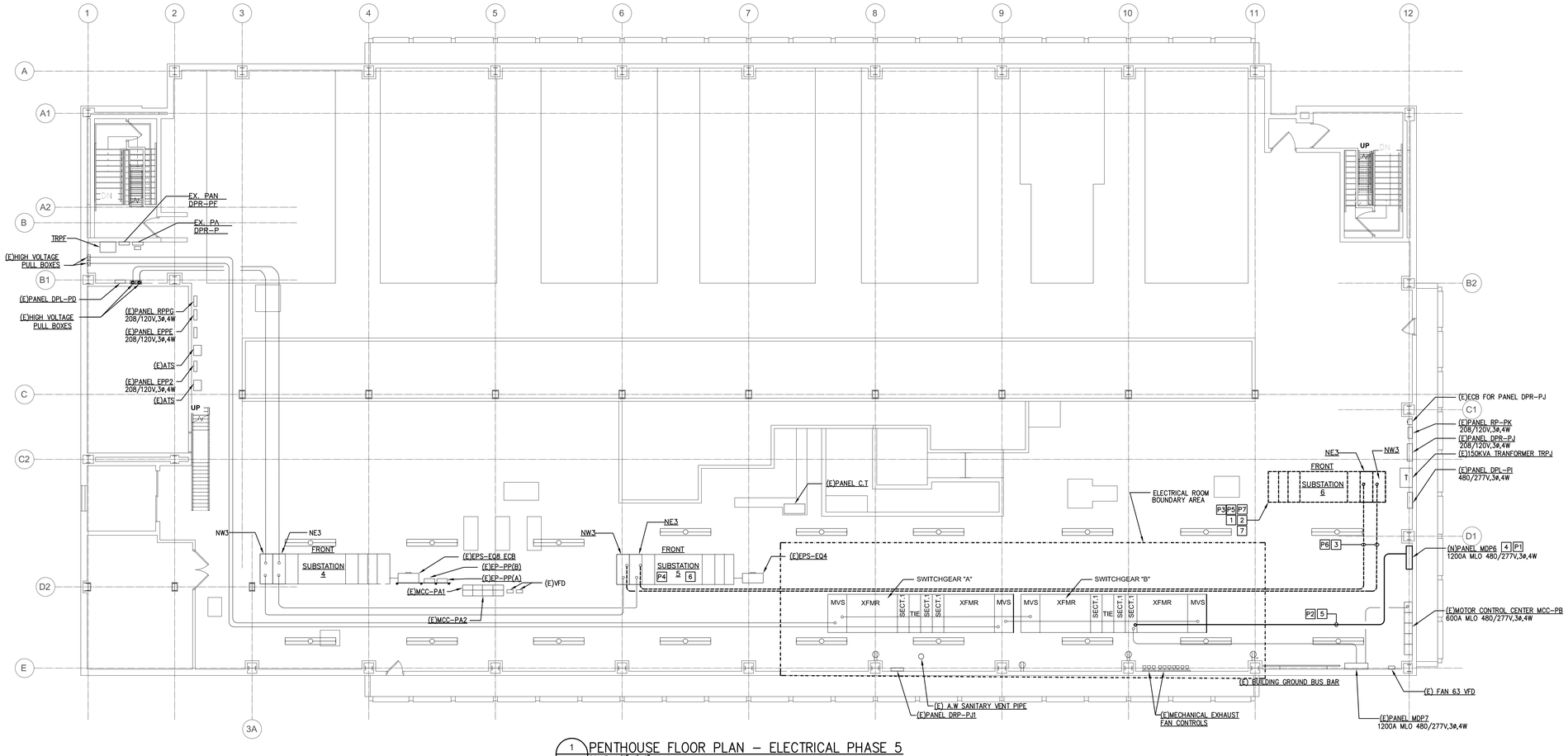
CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E103

LAST SAVED ON: December 16, 2020



1 / E104 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE 5
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

REFERENCE DRAWING NOTES

1. OPEN INCOMING SWITCH AT SUBSTATION 5 THAT FEEDS SUBSTATION 6. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 6 AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW CIRCUITS AND CONDUITS FROM NEW PANEL MDP6 TO PULL BOX AND SPLICE TO ALL EXISTING CIRCUITS. SEE NOTE
2. REMOVE EXISTING SUBSTATION 6 IN ITS ENTIRETY. COORDINATE SALVAGE DETAILS WITH THE UNIVERSITY PRIOR TO DEMOLITION.
3. REMOVE EXISTING CONDUIT AND FEEDERS IN ITS ENTIRETY ALONG WITH THE ASSOCIATED COMPONENTS.
4. PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL MDP6.
5. PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "B" TO NEW PANEL MDP6 LOCATION.
6. EXISTING CIRCUITS FOR AHU #1 AND AHU #3 TO BE REROUTED FROM EXISTING SUBSTATION 5 TO NEW PANEL MDP6. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE NEAR SUBSTATION 5 AND INTERCEPT EXISTING CIRCUITS FOR SPLICING. PROVIDE NEW CIRCUITS AND CONDUITS FROM NEW PANEL MDP6 TO PULL BOX AND SPLICE.
7. EXISTING CIRCUITS FOR AHU #5 AND AHU #6 TO BE REROUTED FROM EXISTING SUBSTATION 6 TO EXISTING SUBSTATION 5. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 6 AND INTERCEPT EXISTING CIRCUITS FOR SPLICING. PROVIDE NEW CIRCUITS AND CONDUITS FROM EXISTING SUBSTATION 5 TO PULL BOX AND SPLICE. UTILIZES EXISTING SWITCHES LOCATION IN SUBSTATION 5 THAT PREVIOUSLY FEED EXISTING AHU #1 AND AHU #3 FOR TEMPORARY POWER CONNECTION FOR AHU #5 AND AHU #6.

PHASING PLAN NOTES

- P1 PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL MDP6.
- P2 PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "A" TO NEW PANEL MDP6.
- P3 AFTER PANEL MDP6 IS ACTIVE; PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND PROVIDE NEW CIRCUITS AND CONDUIT FROM NEW PANEL MDP6 TO PULL BOX. TURN OFT POWER AND DISCONNECT EACH EXISTING CIRCUIT AND REROUTING THEM FROM EXISTING SUBSTATION 6 TO NEW PULL BOX AND SPLICE TO NEW CIRCUITS. (12-HOUR SHUTDOWN)
- P4 REROUTE EXISTING CIRCUITS FOR AHU #1 AND AHU #3 FROM EXISTING SUBSTATION 5 TO NEW PANEL MDP6. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE NEAR SUBSTATION 5 AND INTERCEPT EXISTING CIRCUITS FOR SPLICING. PROVIDE NEW CIRCUITS AND CONDUITS FROM NEW PANEL MDP6 TO PULL BOX AND SPLICE.
- P5 REROUTE EXISTING CIRCUITS FOR AHU #5 AND AHU #6 FROM EXISTING SUBSTATION 6 TO EXISTING SUBSTATION 5. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 6 AND INTERCEPT EXISTING CIRCUITS FOR SPLICING. PROVIDE NEW CIRCUITS AND CONDUITS FROM EXISTING SUBSTATION 5 TO PULL BOX AND SPLICE.
- P6 AFTER ALL EXISTING CIRCUIT HAVE BEEN ROUTED TO PANEL MDP6 AND ARE ACTIVE. OPEN INCOMING SWITCH AT SUBSTATION 5 THAT FEEDS SUBSTATION 6 AND REMOVE THE EXISTING FEEDER AND CONDUIT CONNECTION IN ITS ENTIRETY.
- P7 REMOVE EXISTING SUBSTATION 6 IN ITS ENTIRETY. EQUIPMENT SHALL BE DISCARDED.
- *** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

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301.230.0811

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LICENSE NO. 29921
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

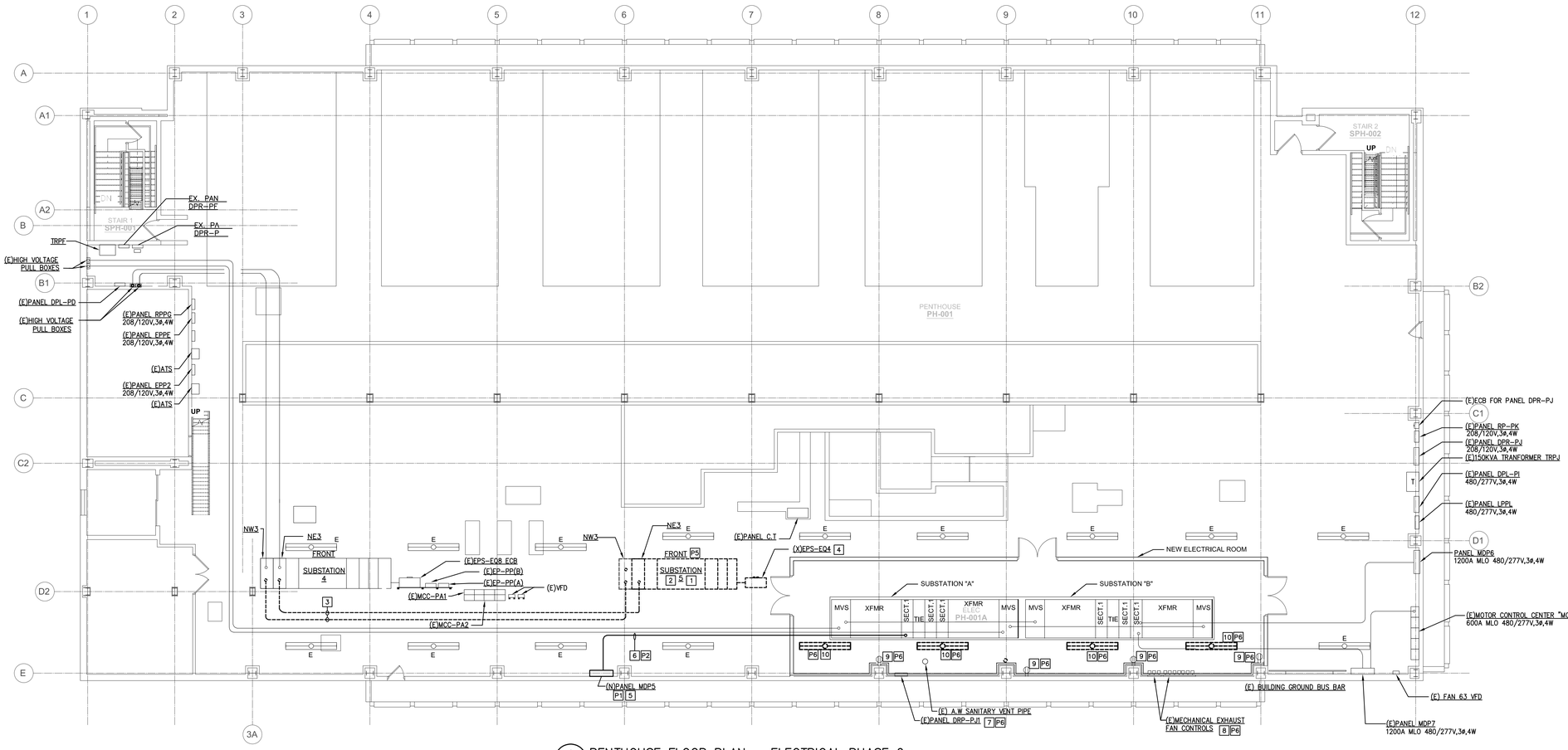
DRAWING TITLE :
PENTHOUSE PLAN - ELECTRICAL PHASE 5

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E104



1 E105 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE 6
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

REFERENCE DRAWING NOTES

1. OPEN INCOMING SWITCH AT SUBSTATION 4 THAT FEEDS SUBSTATION 5. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 5 AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUITS FROM NEW PANEL MDP5 TO PULL BOX AND SPLICE TO ALL EXISTING FEEDERS.
2. REMOVE EXISTING SUBSTATION 5 IN ITS ENTIRETY. COORDINATE SALVAGE DETAILS WITH THE UNIVERSITY PRIOR TO DEMOLITION.
3. REMOVE EXISTING CONDUIT AND FEEDERS IN ITS ENTIRETY ALONG WITH THE ASSOCIATED COMPONENTS.
4. EXISTING ENCLOSED BREAKER TO BE REMOVED IN ITS ENTIRETY. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUIT FROM NEW PANEL MDP5 TO PULL BOX AND SPLICE EXISTING FEEDERS.
5. PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL MDP5.
6. PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "A" TO NEW PANEL MDP5 LOCATION.
7. REMOVE AND RELOCATE EXISTING PANEL TO THE SURFACE OF THE FURRED OUT WALL FOR THE NEW ELECTRICAL ROOM. REFER TO THE ARCHITECT PLANS FOR MORE DETAILS.
8. EXTEND EXISTING RECEPTACLE BOX FLUSH MOUNTED TO FURRED OUT WALL FOR THE NEW ELECTRICAL ROOM. REFER TO THE ARCHITECT PLANS FOR MORE DETAILS.
9. REMOVE AND RELOCATE EXISTING MECHANICAL FAN CONTROLS ALONG WITH ASSOCIATED COMPONENTS TO THE SURFACE LOCATION OF THE FURRED OUT WALL FOR THE NEW ELECTRICAL ROOM. ASSOCIATED CONDUITS HORIZONTAL ROUTING SHALL BE ABOVE THE NEW ROOM CEILING STRUCTURE OF THE ROOM. REFER TO ARCHITECTURAL DRAWINGS FOR STRUCTURAL HEIGHTS.
10. REMOVE EXISTING 2' X 4' LIGHTING FIXTURES IN ITS ENTIRETY. REMOVE ASSOCIATED CIRCUIT AND CONDUITS BACK TO TERMINATION POINTS.

PHASING PLAN NOTES

- P1 PROVIDE AN NEW 1200A MLO,480/277V,3ø,4W MAIN DISTRIBUTION PANEL MDP5.
- P2 PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "A" TO NEW PANEL MDP5.
- P3 AFTER PANEL MDP5 IS POWERED AND ACTIVE; PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND INTERCEPT EXISTING CIRCUITS. PROVIDE NEW FEEDERS AND CONDUIT FROM NEW PANEL MDP5 TO PULL BOX. START TURNING OFF POWER AND DISCONNECT EACH EXISTING CIRCUITS AND CONNECTING THEM NEW FEEDERS FROM TO NEW PANEL MDP5 IN PULL BOX.
- P4 AFTER ALL EXISTING CIRCUIT HAVE BEEN ROUTED TO PANEL MDP5 AND ARE ACTIVE. OPEN INCOMING SWITCH AT SUBSTATION 4 THAT FEEDS SUBSTATION 5 AND REMOVE THE EXISTING FEEDER AND CONDUIT CONNECTION IN ITS ENTIRETY.
- P5 REMOVE EXISTING SUBSTATION 5 IN ITS ENTIRETY. EQUIPMENT SHALL BE DISCARDED.
- P6 REMOVE ALL THE EXISTING LIGHTING FIXTURES WITHIN THE NEW ELECTRICAL ROOM BOUNDARY. RELOCATED EXISTING PANEL DPL-PJ1, RECEPTACLE, MECHANICAL FAN CONTROLS TO FURRED OUT WALL FOR THE NEW ELECTRICAL ROOM. COORDINATE ESTIMATED TIME SCHEDULE OF WALL STRUCTURE WITH STRUCTURAL CONTRACTOR IN FIELD.
- *** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.

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LICENSE No.: 29221
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

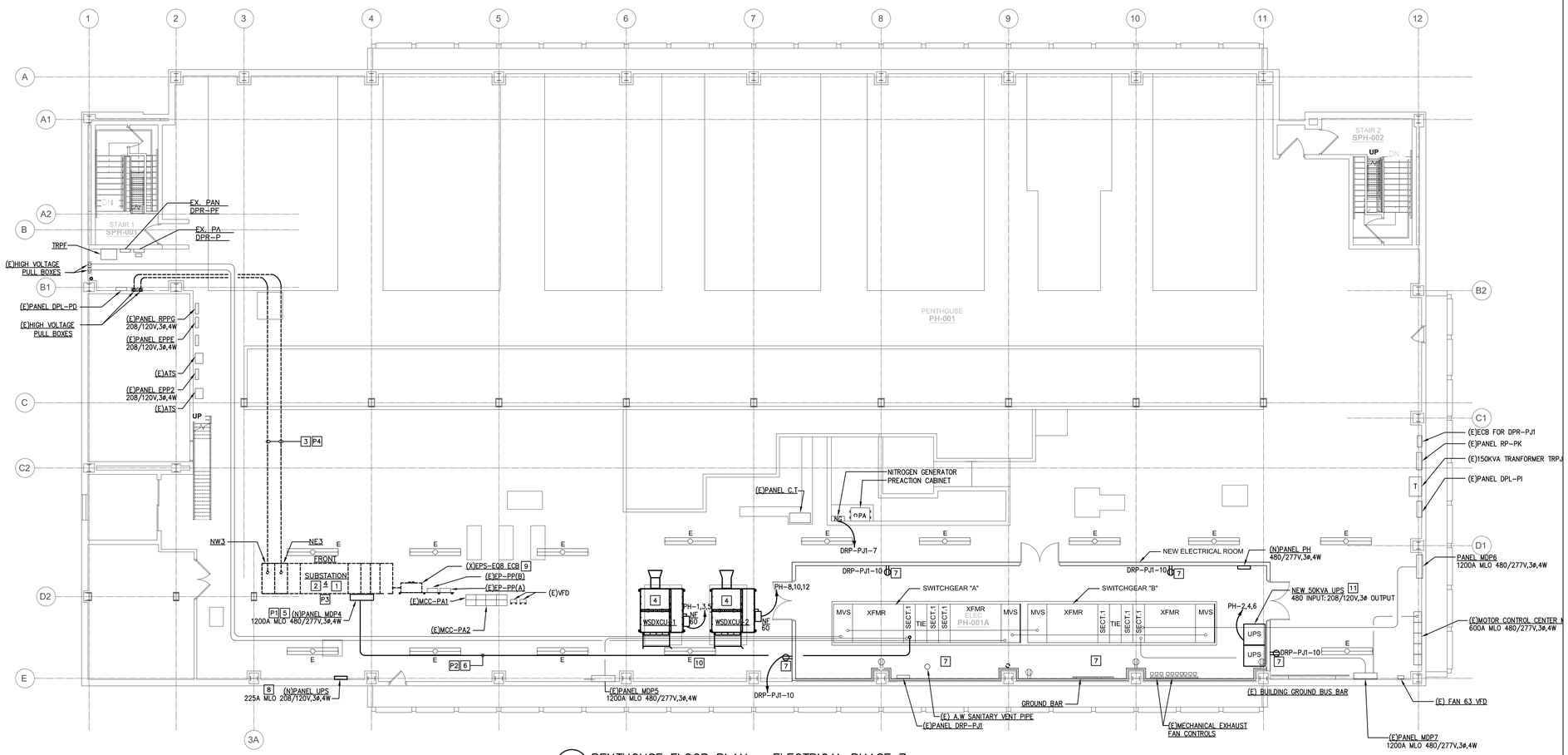
DRAWING TITLE :
PENTHOUSE PLAN - ELECTRICAL PHASE 6

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E105



1 E106 PENTHOUSE FLOOR PLAN – ELECTRICAL PHASE 7
SCALE: 1/8"=1'-0"

GENERAL PLAN NOTES

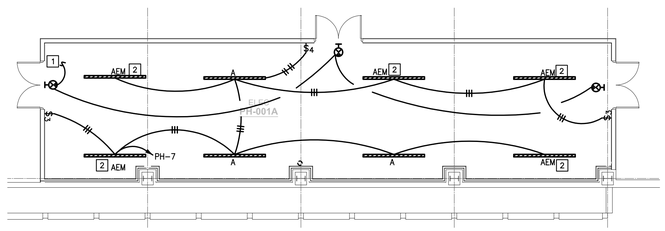
1. COORDINATE OUTAGE TO EXISTING SUBSTATION WITH THE UNIVERSITY.
2. LOCATIONS OF ALL JUNCTIONS/PULL BOXES SHALL BE LOCATED IN ACCESSIBLE CEILINGS ONLY. ANY JUNCTIONS/PULL BOXES THAT ARE REQUIRED TO BE INSTALL ABOVE DRY WALL CEILINGS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION.
3. EXISTING SQUARE D METERS TO BE REMOVED FROM THE DEMOLISHED SWITCHBOARDS AND TURNED OVER TO THE OWNER.

REFERENCE DRAWING NOTES – POWER

1. OPEN INCOMING SWITCH BASEMENT MAIN ELECTRICAL ROOM THAT FEEDS SUBSTATION 4. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE ABOVE SUBSTATION 4 AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUITS FROM NEW PANEL MDP4 TO PULL BOX AND SPLICE TO ALL EXISTING FEEDERS.
2. REMOVE EXISTING SUBSTATION 5 IN ITS ENTIRETY. COORDINATE SALVAGE DETAILS WITH THE UNIVERSITY PRIOR TO DEMOLITION.
3. REMOVE EXISTING CONDUIT AND FEEDERS IN ITS ENTIRETY ALONG WITH THE ASSOCIATED COMPONENTS.
4. COORDINATE FINAL LOCATION AND TERMINATION POINTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-INS. PROVIDE ADDITIONAL MATERIAL AS NECESSARY TO COMPLETE INSTALLATION.
5. PROVIDE AN NEW 1200A MLO,480/277V,3ϕ,4W MAIN DISTRIBUTION PANEL MDP4. CONNECT INCOMING FEEDER FROM SWITCHGEAR 'A'.
6. PROVIDE FEEDER AND CONDUIT FROM SUBSTATION "A" TO NEW PANEL MDP4.
7. ELECTRICAL ROOM TO BE 1 HOUR RATED ENCLOSURE. ALL ELECTRICAL DEVICE, COMPONENT, CONDUIT AND WIRING SHALL 1-HOUR RATED AND ALL CONDUIT PENETRATION SHALL BE FIRE STOPPED TO MAINTAIN THE ENCLOSURE RATING. PROVIDE PUTTY PAD ON ALL BOXES.
8. NEW SECONDARY DISTRIBUTION PANEL "UPS" FOR EXISTING SIEMENS' 120VAC CONTROL CIRCUITS ON THE 8TH FLOOR.
9. EXISTING ENCLOSED BREAKER TO BE REMOVED IN ITS ENTIRETY. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUIT FROM NEW PANEL MDP5 TO PULL BOX AND SPLICE EXISTING FEEDERS.
10. RELOCATE EXISTING LIGHTING FIXTURE UNDER NEW MECHANICAL EQUIPMENT AT LOCATION.
11. PROVIDE CAT6 CABLE IN 1" CONDUIT RUN FROM THE NEW UPS TO THE PENTHOUSE-LEVEL FACILITIES ETHERNET NETWORK SWITCH FOR REMOTE MONITORING OF UPS STATUS AND ALARMS.

PHASING PLAN NOTES

- P1 PROVIDE AN NEW 1200A MLO,480/277V,3ϕ,4W MAIN DISTRIBUTION PANEL MDP4 IN BACKSIDE AREA OF THE EXISTING SUBSTATION 4.
- P2 PROVIDE INCOMING FEEDERS AND CONDUITS FROM SUBSTATION "A" TO NEW PANEL MDP4.
- P3 AFTER PANEL MDP4 IS POWERED AND ACTIVE. PROVIDE A PULL BOX IN ACCESSIBLE CEILING SPACE AND INTERCEPT EXISTING CIRCUIT. PROVIDE NEW FEEDERS AND CONDUIT FROM NEW PANEL MDP5 TO PULL BOX AND SPLICE EXISTING FEEDERS. START TURNING OFF EACH EXISTING CIRCUIT AND REROUTING THEM FROM EXISTING SUBSTATION 5 TO NEW PANEL MDP5.
- P4 AFTER ALL EXISTING CIRCUIT HAVE BEEN ROUTED TO PANEL MDP4 AND ARE ACTIVE. OPEN INCOMING SWITCH IN BASEMENT MAIN ELECTRICAL ROOM THAT FEEDS SUBSTATION 4 AND REMOVE THE EXISTING FEEDER AND CONDUIT CONNECTION IN ITS ENTIRETY.
- *** PROVIDE THE UNIVERSITY AN ESTIMATED TIME SCHEDULE FOR THE WORK AND ANY PROPOSED EXTENDED POWER OUTAGES/DOWNTIME.



2 E106 PENTHOUSE FLOOR PLAN – ELECTRICAL LIGHTING
SCALE: 1/8"=1'-0"

REFERENCE DRAWING NOTE – LIGHTING

1. PROVIDE EMERGENCY EXIT SIGNAGECONNECT TO EXISTING PENTHOUSE EMERGENCY POWERED 277V LIGHTING CIRCUITRY. MODIFY EXISTING CIRCUITRY AS NECESSARY. RUN 2#12 IN 3/4" CONDUIT TO LIGHTS AS SHOWN. CONTRACTOR SHALL CONNECT NO MORE THAN 3800 WATTS PER 1P-20A-277V CIRCUIT BREAKER.
2. FIXTURE SHALL OPERATE DURING NORMAL SWITCH OPERATIONS. PROVIDE A EMERGENCY BATTERY UNIT FIXTURE SUCH THAT FIXTURE WILL ILLUMINATE DURING A POWER OUTAGE.

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	LIGHT FIXTURE DESCRIPTION/ MANUFACTURE-CAT NO.	LAMP	WATTAGE	VOLTAGE	MOUNTING	REMARKS
A	8' LINEAR LED STRIP FIXTURE/ LITHONIA LIGHTING-CLX-L96-SEF-RDL-WD-277-GZ10-35K-80CRI-WH-THCLX	LED	55	277	SURFACE	
AEM	SAME AS FIXTURE ABOVE WITH EMERGENCY BATTERY UNIT / LITHONIA LIGHTING-CLX- L96-SEF- RDL- WD-277-GZ10-35K-80CRI-WH-THCLX-PS1050	LED	55	277	SURFACE	
H	UNIVERSAL MOUNTED EMERGENCY EXIT SIGN/ LITHONIA EMR LED M6	LED	UNV./ 5W	120/277	UNV.	

LIGHT FIXTURE SCHEDULE NOTES:

1. REFER ARCHITECTURAL PLAN FOR FINAL FIXTURE TYPES AND LENGTHS.
2. ALL LIGHTING FIXTURES SHALL BE APPROVED BY THE UNIVERSITY/OR ARCHIRCTECT PRIOR TO ORDERING AND INSTALLATION.
3. LIGHTING CONTROLS PROVIDED TO BE COMPATIBLE WITH SPECIFIED LUMINARIES. CONTRACTOR TO VERIFY PRIOR TO INSTALLATION.
4. PROVIDE SINGLE AND DOUBLE FACE, DIRECTIONAL ARROWS AND MOUNTING AS INDICATED ON THE DRAWINGS.
5. ALL LAMPS SHALL MATCH EXISTING UNIVERSITY STANDARD LAMP COLOR TEMPERATURE.
6. LIGHTING FIXTURE NOTED IS THE BASES OF DESIGN. OTHER APPROVED LIGHTING FIXTURE MANUFACTURES ARE H.E.WILLIAMS AND COOPER LIGHTING . FINAL FIXTURE TYPES TO BE APPROVAL BY ARCHITECT/ OR THE UNIVERSITY PRIOR TO PURCHASE.

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LICENSE No. 20221
EXPIRATION DATE 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

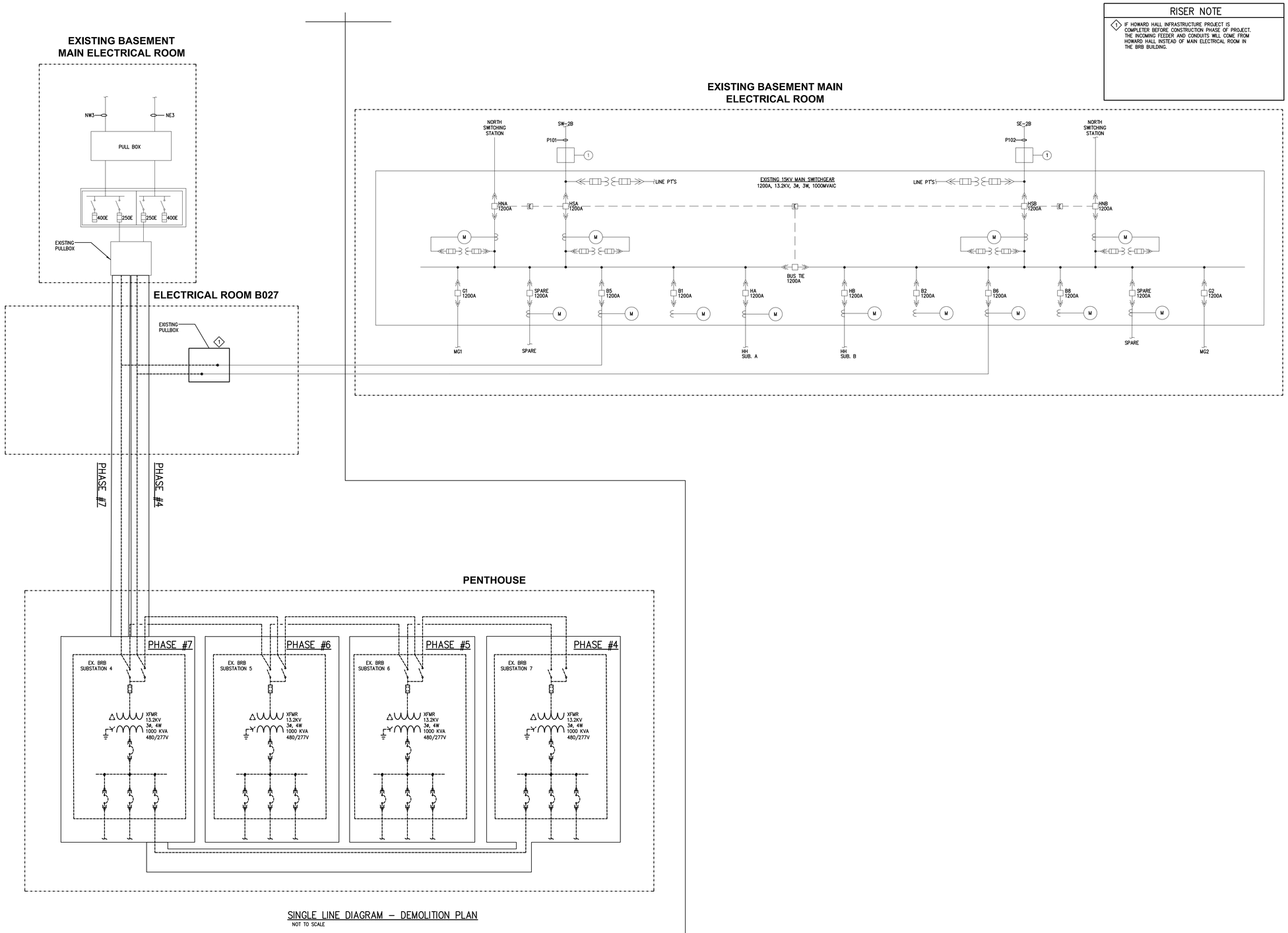
DRAWING TITLE :
PENTHOUSE FLOOR PLAN - ELECTRICAL PHASE 7

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E106



SINGLE LINE DIAGRAM – DEMOLITION PLAN
NOT TO SCALE

RISER NOTE

1. IF HOWARD HALL INFRASTRUCTURE PROJECT IS COMPLETER BEFORE CONSTRUCTION PHASE OF PROJECT. THE INCOMING FEEDER AND CONDUITS WILL COME FROM HOWARD HALL INSTEAD OF MAIN ELECTRICAL ROOM IN THE BRB BUILDING.

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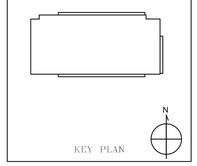

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PROJECT TITLE :

BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :

SINGLE LINE DIAGRAM - DEMOLITION PLAN

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.

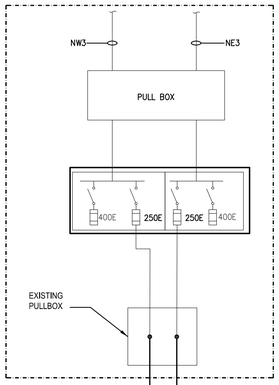
E600

BRB BUILDING — HOWARD HALL

RISER NOTES

1. IF HOWARD HALL INFRASTRUCTURE PROJECT IS COMPLETE; AN EXISTING PULL BOX WILL BE PROVIDED.
2. PROVIDE MODULAR SPLICE KITS FOR ALL TIE-INS CONNECTIONS.
3. PROVIDE IF HOWARD HALL INFRASTRUCTURE PROJECT IS NOT COMPLETE.

EXISTING BASEMENT MAIN ELECTRICAL ROOM

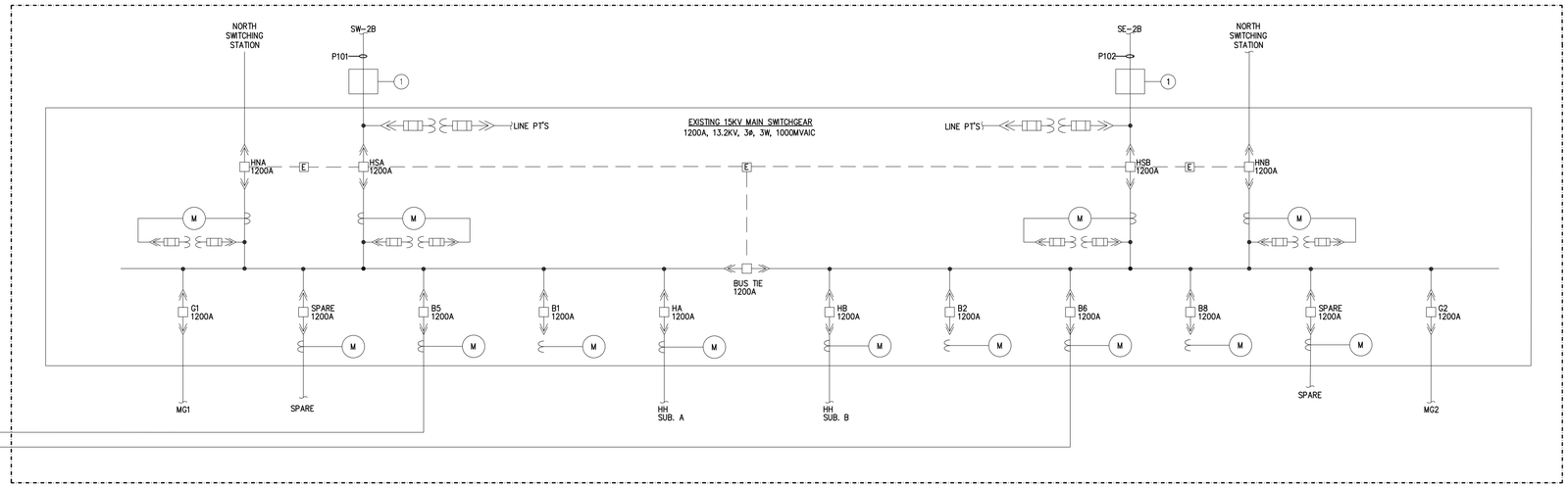


ELECTRICAL ROOM B027

3-/C, 2 AWG + #8 GROUND IN 3" CONDUIT (3)

NEW PULLBOX (1) (2)

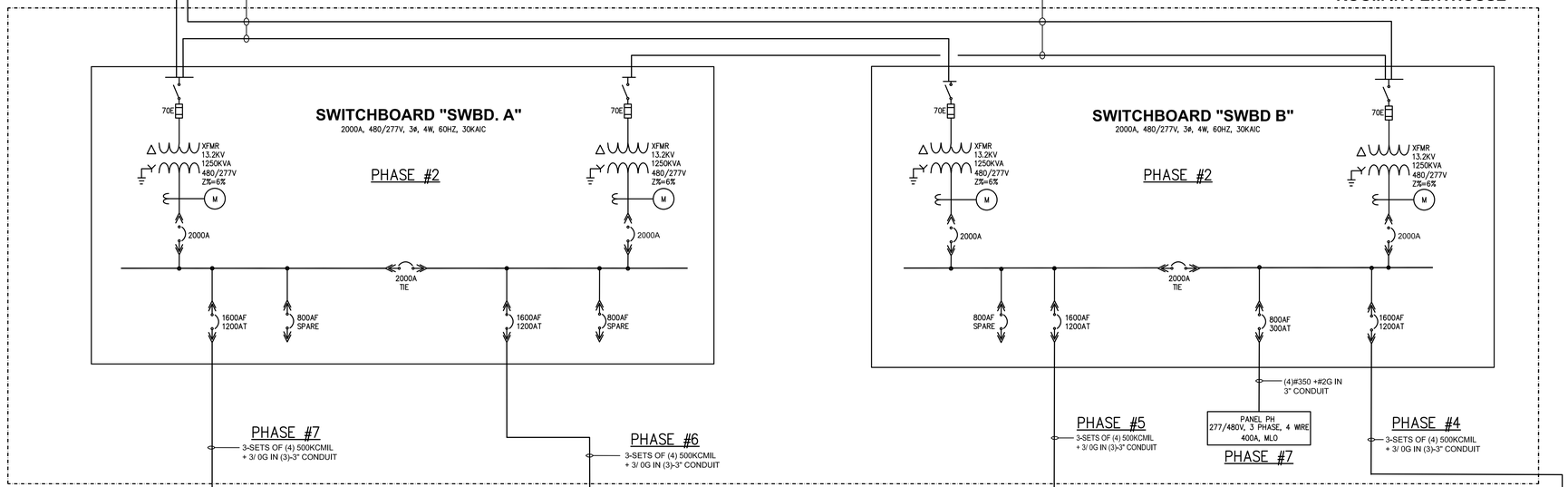
EXISTING BASEMENT MAIN ELECTRICAL ROOM

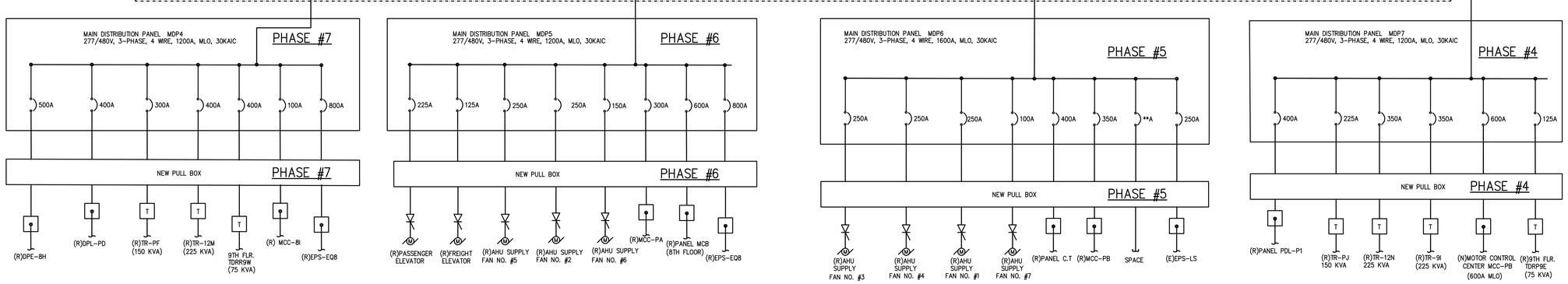


3-/C, 2 AWG + #8 GROUND IN 3" CONDUIT

3-/C, 2 AWG + #8 GROUND IN 3" CONDUIT

NEW ELECTRICAL ROOM IN PENTHOUSE





SINGLE LINE DIAGRAM – NEW WORK PLAN

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LICENSE No.: 29201
EXPIRATION DATE: 06/24/2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

DRAWING TITLE :
SINGLE LINE DIAGRAM - NEW WORK PLAN

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E601

SWITCHBOARD A

VOLTAGE: **277/480** PHASE: **3** WIRE: **4**
MAIN AMPS: **2000** MCB AMPS: **N/A** NEUTRAL: **100** %
INDIVIDUALLY MOUNTED MAIN (Y/N): **YES** INDIVIDUALLY MOUNTED BRANCH (Y/N): **NO** KAIC RATING: **30**

	LOAD DESCRIPTION	CIRCUIT BREAKER FRAME	POLE	SENSOR	TRIP	CONNECTED KVA A	B	C	DEMAND KVA	NOTE
1	PANEL MDP4	1600A	3	1200A	1200A	120	120	120	360	
2	SPARE	800A	3	-						
3	TIE BREAKER	2000A	3	2000A	2000A					
4	PANEL MDP5	1600A	3	1200A	1200A	150	150	150	450	
5	SPARE	800A	3	-	-					
6	SPACE	-	3	-	-					
7	SPACE	-	3	-	-					
8										
9										
10										
11										
12										
NOTES					TOTAL	270	270	270	810	

810 CONNECTED KVA TOTAL
976 CONNECTED AMPERES @ 480 VOLTS
976 DEMAND AMPERES
1220 DEMAND AMPERES @ 125%

SWITCHBOARD B

VOLTAGE: **277/480** PHASE: **3** WIRE: **4**
MAIN AMPS: **2000** MCB AMPS: **N/A** NEUTRAL: **100** %
INDIVIDUALLY MOUNTED MAIN (Y/N): **YES** INDIVIDUALLY MOUNTED BRANCH (Y/N): **NO** KAIC RATING: **30**

	LOAD DESCRIPTION	CIRCUIT BREAKER FRAME	POLE	SENSOR	TRIP	CONNECTED KVA A	B	C	DEMAND KVA	NOTE
1	SPARE	800A	3	-	-					
2	PANEL MDP6	1600A	3	1200A	1200A	222	222	222	665	
3	TIE BREAKER	2000A	3	2000A	2000A					
4	PANEL PH	800A	3	300A	300A	34	34	34	102	
5	PANEL MDP7	1600A	3	1200A	1200A	112	112	112	337	
6	SPACE	-	3	-	-					
7	SPACE	-	3	-	-					
8										
9										
10										
11										
12										
NOTES					TOTAL	368	368	368	1105	

1105 CONNECTED KVA TOTAL
1331 CONNECTED AMPERES @ 480 VOLTS
1331 DEMAND AMPERES
DEMAND AMPERES @ 125%

(E)DRP-PJ1 — EXISTING PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
208Y/120V	3	4	100%	10	100A	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1								1.10	A	0.90	1	20	1	E	E	(E) WATER CONDITIONER	R	2
3	R	(E)MILLI RO	E	E	1	20	3	1.10	B	0.70	1	20	1	E	E	(E)ULTRA VIOLET	R	4
5								1.10	C	0.35	1	20	1	E	E	(E)WATER CONDITIONER	R	6
7	O	F.A. NITROGEN GENERATOR	2#12 + 1#12G	3/4"	2	20	1	0.95	A	0.76	1	20	1	E	E	(E)CQ DEIONIZER CONTROLLER	R	8
9	R	(E)MILLI RO	E	E	1	20	2	1.00	B	0.72	1	20	2	3/4"	2#12 + 1#12G	RECEPTS. ELECT.RM.	R	10
11								1.00	C							(E)SPACE		12
13		(E)SPACE							A							(E)SPACE		14
15		(E)SPACE							B							(E)SPACE		16
17		(E)SPACE							C							(E)SPACE		18
19		(E)SPACE							A							(E)SPACE		20

NOTES:
1. EXISTING LOAD TO REMAIN.
2. PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE. MATCH EXISTING TYPE.
3 CIRCUIT BREAKER MADE SPARE DURING DEMO PHASE.

CONNECTED LOAD PER PHASE (KVA): PHASE A = 3.71; PHASE B = 3.52; PHASE C = 2.45; TOTAL = 9.68

LOAD TYPE	LOAD (KVA)	SEC2	SEC3	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	8.73	0.00	0.00									8.73	(-10KVA x50% +10KVA)	8.73
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	0.95	0.00	0.00									0.95	100%	0.95
											TOTAL CONNECTED LOAD (KVA)=	9.68	TOTAL DEMAND (KVA)=	9.68
													TOTAL DEMAND AMPS=	26.89

MDP4 — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
480Y/277V	3	4	100%	30K	1200A	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1									A									2
3	O	(R) DPE - 8H	6#250KCMIL + 1#2G	2 - 2 1/2"		500	3		B		3	400		3-1/2"	4#500KCMIL + 1#4G	(R) DPL - PD	O	4
5									C									6
7									A									8
9	O	(R) TR - PF 150 KVA	3#350KCMIL + 1#4G	3"		300	3		B		3	400		3-1/2"	3#600KCMIL + 1#3G	(R) TR - 12M 225KVA	O	10
11									C									12
13									A									14
15	O	(R) 9TH FLR. TDRR9W 75KVA XFMR	3#1 + 1#6G	1-1/2"		400	3		B		3	100		1-1/2"	4#1 + 1#8G	(R) MCC - 8I	O	16
17									C									18
19									A									20
21		(R) EPS-EQ8	6#350KCMIL + 1/0G	(2) 3"		800	3		B		3	-				SPACE		22
23									C									24
25									A									26
27		SPACE				-	3		B		3	-				SPACE		28
29									C									30
31									A									32
33		SPACE				-	3		B		3	-				SPACE		34
35									C									36
37		PANEL LOAD IS BASED						120.00	A									38
39		ON TWELVE MONTH						120.00	B									40
41		METERING						120.00	C									42

NOTES:

CONNECTED LOAD PER PHASE (KVA): PHASE A = 120.00; PHASE B = 120.00; PHASE C = 120.00; TOTAL = 360.00

LOAD TYPE	LOAD (KVA)	SEC2	SEC3	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	0.00	0.00	0.00									0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	360.00	0.00	0.00									360.00	125%	450.00
											TOTAL CONNECTED LOAD (KVA)=	360.00	TOTAL DEMAND (KVA)=	450.00
													TOTAL DEMAND AMPS=	541.52

MDP5 — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
480Y/277V	3	4	100%	30K	1200A	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1									A									2
3	O	(R) PASSENGER ELEVS	3#4/0 + 1#4G	2-1/2"		225	3		B		3	125		1-1/4"	3#1 + 1#6G	(R) FREIGHT ELEV.	O	4
5									C									6
7									A									8
9	O	(R) AHU SUPPLY FAN NO. 5	3#250KCMIL + 1#4G	2-1/2"		250	3		B		3	250		2-1/2"	3#250KCMIL + 1#4G	(R) AHU SUPPLY FAN NO. 2	O	10
11									C									12
13									A									14
15	O	(R) AHU SUPPLY FAN NO. 6	3# 1/0 + 1#6G	2"		150	3		B		3	300		3"	3#350KCMIL + 1#3G	(R) MCC - PA	O	16
17									C									18
19									A									20
21	O	(R)PANEL MCB (8TH FLOOR)	6#350KCMIL + 1/0G	(2)-3"		600	3		B		3	800		(2)-3-1/2"	6#600KCMIL + 1/0G	(R) EPS-EQ4	O	22
23									C									24
25									A									26
27		SPACE				-	3		B		3	-				SPACE		28
29									C									30
31									A									32
33		SPACE				-	3		B		3	-				SPACE		34
35									C									36
37		PANEL LOAD IS BASED						150.00	A									38
39		ON TWELVE MONTH						150.00	B									40
41		METERING						150.00	C									42

NOTES:

CONNECTED LOAD PER PHASE (KVA): PHASE A = 150.00; PHASE B = 150.00; PHASE C = 150.00; TOTAL = 450.00

LOAD TYPE	LOAD (KVA)	SEC2	SEC3	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	0.00	0.00	0.00									0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	450.00	0.00	0.00									450.00	125%	562.50
											TOTAL CONNECTED LOAD (KVA)=	450.00	TOTAL DEMAND (KVA)=	562.50
													TOTAL DEMAND AMPS=	676.90

PH — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
480Y/277V	3	4	100%	10K	400	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1	H							8.60	A	16.70							O	2
3	H	WSDXCU-1 E. ELEC.PH-001A	3#8 + 1#10G	3/4"		40	3	8.60	B	16.70	3	100		1-1/4"	4#1 + 1#8G	50KVA UPS ELEC. PH-001A	O	4
5	H							8.60	C	16.70							O	6
7	L	LIGHTNG ELEC. RM PH-001A	2 #12 + 1 #12G	3/4"		20	1	0.44	A	8.60							H	8
9		SPARE				20	1		B	8.60	3	40		3/4"	3#8 + 1#10G	WSDXCU-2 E. ELEC. PH-001A	H	10
11		SPARE				20	1		C	8.60							H	12
13		SPARE				20	1		A		1	20				SPARE		14
15		SPARE				20	1		B		1	20				SPARE		16
17		SPARE				20	1		C		1	20				SPARE		18
19		SPARE				20	1		A		1	20				SPARE		20
21		SPARE				20	1		B		1	20				SPARE		22
23		SPARE				20	1		C		1	20				SPARE		24
25		SPARE				20	1		A		1	20				SPARE		26
27		SPARE				20	1		B		1	20				SPARE		28
29		SPARE				20	1		C		1	20				SPARE		30
31		SPARE				20	1		A		1	20				SPARE		32
33		SPARE				20	1		B		1	20				SPARE		34
35		SPARE				20	1		C		1	20				SPARE		36
37		SPACE							A							SPACE		38
39		SPACE							B							SPACE		40
41		SPACE							C							SPACE		42

NOTES:
1. PROVIDE A TYPED CIRCUIT DIRECTORY IN PANE UPON COMPLETION OF PROJECT.

CONNECTED LOAD PER PHASE (KVA): PHASE A = 34.34; PHASE B = 33.90; PHASE C = 33.90; TOTAL = 102.14

LOAD TYPE	LOAD (KVA)	-	-	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.44											0.44	125%	0.55
(R) RECEPTACLES	0.00											0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00											0.00	0%	0.00
(H) HEAT ONLY	51.60											51.60	75%	38.70
(K) KITCHEN EQUIPMENT	0.00											0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00											0.00	125%	0.00
(O) OTHER	92.10											92.10	100%	92.10
											TOTAL CONNECTED LOAD (KVA)=	144.14	TOTAL DEMAND (KVA)=	131.35
													TOTAL DEMAND AMPS=	158.06

MDP6 — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
480Y/277V	3	4	100%	30K	1600A	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1									A									2
3	O	(R) AHU SUPPLY FAN NO. 1	3#250KCMIL + 1#2G	2-1/2"		250	3		B		3	250		2-1/2"	3#250KCMIL + 1#2G	(R) AHU SUPPLY FAN NO. 4	O	4
5									C									6
7									A									8
9	O	(R) AHU SUPPLY FAN NO. 3	3#250KCMIL + 1#2G	2-1/2"		250	3		B		3	100		1-1/4"	3#1AWG + 1#8G	(R) AHU SUPPLY FAN NO. 7	O	10
11									C									12
13									A									14
15	O	(R) PANEL C.T	4#600KCMIL + 1#3G	3-1/2"		400	3		B		3	250		2-1/2"	4#250KCMIL + 1#2G	(R) EPS-LS	O	16
17									C									18
19									A									20
21		SPACE			-	-	3		B		3					SPACE		22
23									C									24
25									A									26
27		SPACE			-	-	3		B		3	-	-			SPACE		28
29									C									30
31									A									32
33		SPACE			-	-	3		B		3	-	-			SPACE		34
35									C									36
37		PANEL LOAD IS BASED						221.67	A									38
39	O	ON TWELVE MONTH						221.67	B		3	-	-			SPACE		40
41		METERING						221.67	C									42

NOTES:
** WE WERE UNABLE TO FIELD VERIFY DURING DESIGN PHASE OF THE PROJECT. PROVIDE A BID ALTERNATE TO VERIFY IN FIELD AND PROVIDE.

CONNECTED LOAD PER PHASE (KVA): PHASE A = 221.67; PHASE B = 221.67; PHASE C = 221.67; TOTAL = 665.01

LOAD TYPE	LOAD (KVA)	SEC2	SEC3	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	0.00	0.00	0.00									0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	665.01	0.00	0.00									665.01	125%	831.26
											TOTAL CONNECTED LOAD (KVA)=	665.01	TOTAL DEMAND (KVA)=	831.26
													TOTAL DEMAND AMPS=	1000.32

MDP7 — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
480Y/277V	3	4	100%	30K	1200	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1									A									2
3		(R) PANEL PDL-PI	4#500KCMIL + 1#3G	3-1/2"		400	3		B		3	225		3"	3#250KCMIL + 1#4G	(R) TR - PJ 150 KVA		4
5									C									6
7									A									8
9		(R) TR - 12N 225 KVA	3#600KCMIL + 1#1G	3-1/2"		400	3		B		3	350		3-1/2"	3#600KCMIL + 1#1G	(R) TR - 9I 225 KVA		10
11									C									12
13									A									14
15		(N) MOTOR CONTROL CENTER MCC-PB PENTHOUSE	6#350KCMIL + 1#2/0G	2-3"		600	3		B		3	125		2"	3#1/0AWG + 1#6G	(R)9TH FLR. TDRP9E 75KVA		16
17									C									18
19									A									20
21		SPACE				-	3		B		3	-				SPACE		22
23									C									24
25									A									26
27		SPACE				-	3		B		3	-				SPACE		28
29									C									30
31									A									32
33		SPACE				-	3		B		3	-				SPACE		34
35									C									36
37		PANEL LOAD IS BASED						112.46	A									38
39		ON TWELVE MONTH						112.46	B		3	-				SPACE		40
41		METERING						112.46	C									42

NOTES:
1. RELOCATED LOADS
(N) = NEW LOADS

CONNECTED LOAD PER PHASE (KVA): PHASE A = 112.46; PHASE B = 112.46; PHASE C = 112.46; TOTAL = 337.38

LOAD TYPE	LOAD (KVA)	PH	PB	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	0.00	0.00	0.00									0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	250.00	0.00	87.39									337.39	125%	421.74
											TOTAL CONNECTED LOAD (KVA)=	337.39	TOTAL DEMAND (KVA)=	421.74
													TOTAL DEMAND AMPS=	507.51

NEW MOTOR CONTROL CENTER "PB" SCHEDULE

(FOR ADDTIONAL INNFORMATION REFER TO ELECTRICAL SPECIFICATIONS)

480 VOLTS 3 PHASE 3 WIRE AIC: 42000

MAIN BUS SIZE: 600AMPS GROUND BUS: FULL

ITEM	NAMEPLATE	HP	STARTER NEMA TYPE	PHASE	VOLTS	FUSE SWITCH AMPS	FUSE SWITCH FUSE	PILOT DEVICES: ON	OFF	ADD P/L	SS/PB	MOTOR CONTROLLER TYPE	AUX. CONTROLS	BRANCH CIRCUIT WIRING	NOTES
1	EXHAUST FAN #3	40	3	3	480	100	80							3-#4 + #10G IN 1-1/4"C	SEE NOTES 1,2,3
2	EXHAUST FAN #4	40	3	3	480	100	80							3-#4 + #10G IN 1-1/4"C	
3	EXHAUST FAN #5	40	3	3	480	100	80							3-#4 + #10G IN 1-1/4"C	
4	EXHAUST FAN #38	3/4	1	3	480	30	15	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#10 + #10G IN 3/4"C	
5	EXHAUST FAN #66	1-1/2	1	3	480	30	15	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#10 + #10G IN 3/4"C	
6	EXHAUST FAN #70	1												3-#10 + #10G IN 3/4"C	
7	EXHAUST FAN #72	1												3-#10 + #10G IN 3/4"C	
8	FUME HOOD ES1	–												3-#12 + #12G IN 3/4"C	
9	FUME HOOD 75	–												3-#10 + #10G IN 3/4"C	
10	FUME HOOD ES4	–												3-#12 + #12G IN 3/4"C	
11	FUME HOOD ES6	–												3-#12 + #12G IN 3/4"C	
12	FUME HOOD ES8	–												3-#12 + #12G IN 3/4"C	
13	FUME HOOD ES9	–												3-#12 + #12G IN 3/4"C	
14	FUME HOOD ES2	–												3-#10 + #10G IN 3/4"C	
15	EXHAUST FAN #63	3	–	3	480	30	15					REMOTE VFD		3-#12 + #12G IN 3/4"C	
16	DISTILLED H20 RECIR. PUMP	–	–	3	480	–	–	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#6 + #10G IN 1"C	
17	FUME HOOD 117	–	1	3	480	–	–	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#10 + #10G IN 3/4"C	
18	FUME HOOD 118	–	1	3	480	–	–	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#10 + #10G IN 3/4"C	
19	FUME HOOD 119	–	1	3	480	–	–	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#10 + #10G IN 3/4"C	
20	EXHAUST FAN #6	10	1	3	480	30	20	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	3-#12 + #12G IN 3/4"C	
21	GLYCOL PUMP	–	–	3	480	–	–	RED	GREEN	O/L TRIP YELLOW	HOA SS	FVNR	2	–	
22	SPACE														
23															
24															
25															
26															
27															
28															

UPS — NEW PANELBOARD SCHEDULE

VOLTAGE	PHASE	WIRE	NEUTRAL	AIC	MAIN		FEED THRU LUGS	MOUNTING	ENCLOSURE
208Y/120V	3	4	100%	22K	225A	MLO	NO	SURFACE	NEMA 1

CIR.#	TYPE	DESCRIPTION	WIRE SIZE	COND. SIZE	NOTE	C.B. AMP	P	LOAD (KVA)	PHASE	LOAD (KVA)	P	C.B. AMP	NOTE	COND. SIZE	WIRE SIZE	DESCRIPTION	TYPE	CIR.#
1		SPARE				20	1		A		1	20				SPARE		2
3		SPARE				20	1		B		1	20				SPARE		4
5		SPARE				20	1		C		1	20				SPARE		6
7		SPARE				20	1		A		1	20				SPARE		8
9		SPARE				20	1		B		1	20				SPARE		10
11		SPARE				20	1		C		1	20				SPARE		12
13		SPARE				20	1		A		1	20				SPARE		14
15		SPARE				20	1		B		1	20				SPARE		16
17		SPARE				20	1		C		1	20				SPARE		18
19		SPARE				20	1		A		1	20				SPARE		20
21		SPARE				20	1		B		1	20				SPARE		22
23		SPARE				20	1		C		1	20				SPARE		24
25		SPARE				20	1		A		1	20				SPARE		26
27		SPARE				20	1		B		1	20				SPARE		28
29		SPARE				20	1		C		1	20				SPARE		30
31		SPARE				20	1		A		1	20				SPARE		32
33		SPARE				20	1		B		1	20				SPARE		34
35		SPARE				20	1		C		1	20				SPARE		36
37		SPARE				20	1		A		1	20				SPARE		38
39		SPARE				20	1		B		1	20				SPARE		40
41		SPARE				20	1		C		1	20				SPARE		42

NOTES:
1. UTILIZES SPARE CIRCUIT BREAKERS FOR EXISTING SIEMENS CONTROLS CIRCUITS ON THE 8TH FLOOR

CONNECTED LOAD PER PHASE (KVA): PHASE A = 0.00; PHASE B = 0.00; PHASE C = 0.00; TOTAL = 0.00

LOAD TYPE	LOAD (KVA)	SEC2	SEC3	-	-	-	-	-	-	-	-	CONNECTED LOAD TOTALS (KVA)	DEMAND FACTORS	DEMAND LOAD (KVA)
(L) LIGHTING	0.00	0.00	0.00									0.00	125%	0.00
(R) RECEPTACLES	0.00	0.00	0.00									0.00	(-10KVA x50% +10KVA)	0.00
(A) A/C ONLY	0.00	0.00	0.00									0.00	100%	0.00
(H) HEAT ONLY	0.00	0.00	0.00									0.00	0%	0.00
(K) KITCHEN EQUIPMENT	0.00	0.00	0.00									0.00	#OF PIECES 1 100%	0.00
(C) CONTINUOUS	0.00	0.00	0.00									0.00	125%	0.00
(O) OTHER	0.00	0.00	0.00									0.00	100%	0.00
											TOTAL CONNECTED LOAD (KVA)=	0.00	TOTAL DEMAND (KVA)=	0.00
													TOTAL DEMAND AMPS=	0.00

PANEL SCHEDULE NOTES (TYPICAL)

1. ALL NEW CIRCUIT BREAKER SHALL MATCH EXISTING CIRCUIT BREAKER TYPES INCLUDING INTERRUPTING CAPACITY.

2. PANELBOARD CIRCUIT LABELING: CIRCUITS SHALL BE LABELED TO INDICATE AREAS SERVED.

3. PROVIDE AN UPDATED PANEL CIRCUIT DIRECTORY IN PANEL SHOWN UPON COMPLETION OF PROJECT.

4. CONTRACTOR SHALL UTILIZE THE EXISTING BREAKERS FOR NEW LOADS SHOWN. FIELD VERIFY LOCATIONS PRIOR TO ROUGH-INS.

5. REFER TO SPECIFICATION 262416; SECTION 2.1 FOR MORE INFORMATION.

6. ALL BREAKER SIZES SHOWN WERE BASED ON THE EXISTING DRAWINGS AND INFORMATION PROVIDED BY THE UNIVERSITY. BREAKER SIZE SHALL MATCH EXISTING SWITCHES FUSE SIZED BEING REPLACE AND WIRING SIZES SHALL MATCH CIRCUIT BEING RELOCATED; FIELD VERIFY AND PROVIDE.

MOTOR CONTROL CENTER NOTES:

* FIELD VERIFY ACTUAL STARTER TYPE WITH EXISTING EQUIPMENT INSTALLED AND PROVIDE.

1. FIELD VERIFY ACTUAL STARTER TYPE WITH EXISTING EQUIPMENT INSTALLED AND PROVIDE.

2. ALL DISCONNECT SWITCHES AND FUSE SIZES SHOWN WERE BASED ON THE EXISTING DRAWING PROVIDE. SWITCH AND FUSE SHALL MATCH EXISTING SWITCH SIZE AND FUSE BEING RELOCATED; FIELD VERIFY AND PROVIDE.

3. EXISTING ASSOCIATED CONTROL WIRING SHALL BE INTERCEPTED OUTSIDE THE BOUNDARY AREA OF THE NEW ELECTRICAL ROOM AND REROUTED TO THE NEW MOTOR CONTROL CENTER "PB" LOCATIONS.

3. PROVIDE A TYPE PANEL CIRCUIT DIRECTORY ON EQUIPMENT SHOWN UPON COMPLETION OF PROJECT.

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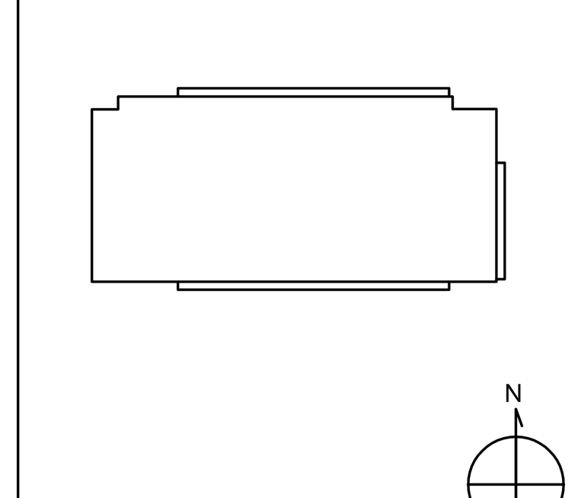

KEY PLAN

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PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE No. 20021
EXPIRATION DATE: 04-24-2021

REGISTRATION/STAMP

PROJECT TITLE :
BRB PENTHOUSE SUBSTATIONS 4-7 RENEWAL

UMB BUILDING NO.:	8050
UMB Project NO.:	19-312
A/E PROJECT NO.:	19-312
CAD FILE NO.:	1805501
DATE:	12/18/2020

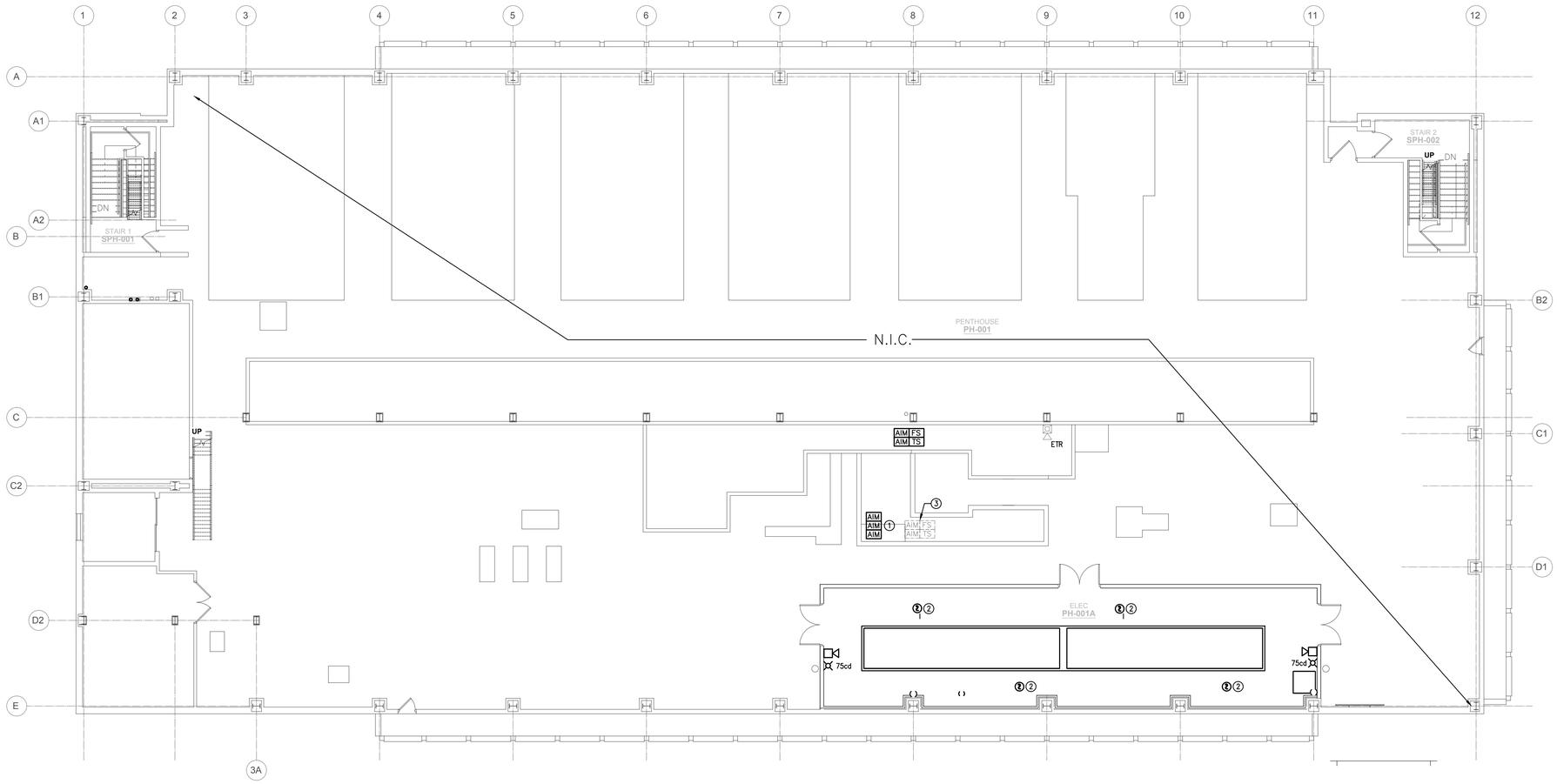
DRAWING TITLE :
ELECTRICAL PANEL SCHEDULES

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
E700



1 FA101 PENTHOUSE FLOOR PLAN – ELECTRICAL FIRE ALARM
SCALE: 1/8"=1'-0"

FIRE ALARM SYSTEM NOTES

1. GENERAL

A. THE CONTRACTOR SHALL CONFIRM THE SYSTEM HAS ADEQUATE CAPACITY PRIOR TO PERFORMING WORK AND PROVIDE THE NECESSARY POWER SUPPLIES OR PANEL MODULES AS NEEDED TO PROVIDE AN OPERATIONAL FIRE ALARM SYSTEM. ALL NEW POWER SUPPLIES, WHERE REQUIRED, SHALL BE MONITORED BY AND INTERCONNECTED WITH THE EXISTING FIRE ALARM SYSTEM IN ACCORDANCE WITH NFPA 72. REPORT SHALL BE INCLUDED WITH SHOP DRAWING SUBMITTAL. CONTRACTOR SHALL PROVIDE UNIT PRICING FOR POWER SUPPLIES) (THAT MAY BE REQUIRED) AT TIME OF PROJECT BID.

B. THE PLANS ARE INTENDED TO BE DIAGRAMMATIC. THEY ARE NOT INTENDED TO SHOW EVERY FIRE ALARM DEVICE OR MODULE OR SYSTEM CIRCUITING. LOCATIONS INDICATED ARE APPROXIMATE. FINAL DEVICE LOCATIONS, CIRCUITING AND SYSTEM MODULES SHALL BE DETERMINED BY THE CONTRACTOR.

C. ALL WORK SHALL BE PERFORMED OR SUPERVISED BY A NICET II, MINIMUM, FIRE ALARM TECHNICIAN. SUBMIT QUALIFICATION DATA FOR REVIEW.

D. FIRE ALARM SYSTEM, COMPONENTS, DEVICES AND INSTALLATION SHALL BE THE SAME MANUFACTURER AND MATCH EXISTING SYSTEM COMPONENTS MANUFACTURERS.

E. THE CONTRACTOR SHALL COORDINATE LOCATION OF ALL FIRE ALARM EQUIPMENT AND ELECTRICAL WIRING, BOXES AND RACEWAY WITH ALL OTHER TRADES.

F. EXISTING SEQUENCE OF OPERATIONS SHALL BE MODIFIED TO ACCOMMODATE NEW WORK.

G. ALL DEVICE ARE NEW UNLESS OTHERWISE NOTED. EXISTING DEVICES (NOT IN SCOPE) NOT INDICATED ON THESE PLANS ARE ASSUMED TO NE CODE COMPLIANT.

H. ANNUNCIATOR SHALL BE MODIFIED TO INCORPORATE PRE-ACTION SYSTEM SUPERVISION AND ASSOCIATED ARCHITECTURAL REVISIONS, IF REQUIRED.

2. SCOPE OF WORK

A. MODIFY EXISTING FIRE ALARM SYSTEM WITHIN AREA OF WORK AS INDICATED. WORK INCLUDES MODIFICATION AND EXTENSION OF AN EXISTING ADDRESSABLE FIRE ALARM SYSTEM. PROVIDE NEW NOTIFICATION APPLIANCES, INITIATING DEVICES AND ANY OTHER REQUIRED DEVICES TO PROVIDE A FULLY FUNCTIONAL SYSTEM, WIRING, RACEWAY, OUTLET BOXES AND SYSTEM PROGRAMMING AS NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. ALL WORK SHALL COMPLY WITH NFPA 72, NEC AND LOCAL ORDINANCES. ALL SYSTEM PROGRAMMING SHALL BE PERFORMED BY OWNER'S CONTRACTOR. CONTACT OWNER'S CONTRACTOR FOR FURTHER INFORMATION AND COORDINATION. IF APPLICABLE, GRAPHIC ANNUNCIATOR SHALL BE MODIFIED TO INCLUDE PRE-ACTION SYSTEM ADDITION.

FIRE ALARM SYMBOLS

SYMBOL	DESCRIPTION	MTG HEIGHT TO C A.F.F. U.O.N.
(I)	PHOTOELECTRIC SMOKE DETECTOR (PROVIDED BY OTHERS) SUBSCRIPT "I" DENOTES IONIZATION TYPE	
15cd	ROTATING BEACON (RED)	
	WALL MOUNTED INDUSTRIAL GRADE AUDIO (SPEAKER) FIRE ALARM SIGNALING DEVICE SHALL COMPLY WITH NFPA 72 (MATCH EXISTING BUILDING STANDARD-ADJACENT TO AREA OF WORK)	THE LOWER OF 80" OR 6" BELOW CLG
AIM	ADDRESSABLE MONITOR MODULE	
TS	TAMPER SWITCH (BY OTHERS)	
FS	FLOW SWITCH (BY OTHERS)	
	ETR – EXISTING TO BE REMAIN	

FIRE ALARM SHEET NOTES

(1) PROVIDE ADDRESSABLE MONITOR MODULES FOR PRE-ACTION SYSTEM SUPERVISION:
- ALARM
- TROUBLE
- SUPERVISION

(2) SMOKE DETECTORS TO BE PROVIDED BY PRE-ACTION SYSTEM PROVIDER. DETECTORS SHALL BE PROGRAMMED FOR CROSS-ZONED FUNCTIONALITY:
- 1ST DETECTOR (SUPERVISORY SIGNAL TO FA SYSTEM)
- 2ND DETECTOR (ALARM SIGNAL TO FA SYSTEM/FLOOD PIPE IN AREA OF WORK WITH WATER)

NOTE: INSTALLATION AND PROGRAMMING OF DETECTORS SHALL BE COORDINATED WITH SPRINKLER AND FIRE ALARM CONTRACTORS. SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION TESTING AND MAINTENANCE OF PRE-ACTION EQUIPMENT. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR INTERFACE/INTERCONNECTION DEVICES OF PRE-ACTION SYSTEM TO FIRE ALARM SYSTEM. DETECTORS SPACING SHALL BE: 250 SQFT (TO ACCOUNT FOR HIGH AIR FLOW – 30 AIR CHANGES) AS PER 17.7.6.3.3.2.

(3) EXISTING MONITOR MODULES SUPERVISING EXISTING TO BE DEMOLISHED ZONE CONTROL VALVE.

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DATE:	12/18/2020

DRAWING TITLE :
PENTHOUSE FLOOR PLAN - FIRE ALARM NEW WORK

CONSTRUCTION DOCUMENTS

REVISIONS

No.	Date	Description

DWG. NO.
FA101

LAST SAVED ON: December 16, 2020