

ELECTRICAL SPECIFICATIONS

BASIC ELECTRICAL REQUIREMENTS

A. Basic electrical Requirements, in addition to NFPA 70.

LAYOUT OF THE WORK

- A. Examine the site and all the drawings before proceeding with the layout and installation of this work. Conduit, boxes, etc., essentially as shown on the drawings but in exact layout determined on the job to suit actual conditions.
- B. Complete all cutting and patching.
- C. Arrange exposed work as closely as practicable to structures or surfaces in an accurate alignment.

INTERFERENCES

A. Notify Owner and the Engineer to resolve such interference or discrepancy. The Contractor, when directed by owner/engineer, shall make such changes or off-sets as required so that the work shall be properly located. Failure to comply with the foregoing will not relieve contractor's responsibility of making such changes. Such changes shall be completed at no additional cost to the Owner.

WORKMANSHIP

A. All work shall be performed in a professional manner, the contractor shall be considered Owners point of contact for daily communications.

REFERENCES

A. Conform to requirements of NFPA 70, 2017 Michigan Electric Code, 2015 Michigan Building Code, and Local Codes.

REGULATORY REQUIREMENTS

- A. Conform to applicable Building Code.
- B. Conform to requirements of NFPA 70, 2017 Michigan Electric Code, 2015 Michigan Building Code, and Local Codes.
- C. Equipment: U.L. tested and approved for its purpose.

PROJECT/SITE CONDITIONS

A. Install Work in locations shown on drawings.

RECORD DRAWINGS

A. Furnish as-built drawings as part of project close-out. As-built plans shall include a marked up drawing set, returned to the engineer.

BUILDING WIRE (NEW WORK)

- A. Description: Single conductor insulated wire.
- B. Conductor: Copper.
- C. Insulation Voltage Rating: 600 volts.
- D. Insulation: Type THHN/THWN 75°C.

WIRE/CABLE INSTALLATION

- A. Neatly train and lace wiring inside boxes.
- B. All wiring shall be installed in conduit unless noted otherwise.

INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable at surface end and load.

FIELD QUALITY CONTROL

- A. Perform field inspection and testing.
- B. Inspect wire and cable for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.
- D. Verify continuity of each branch circuit conductor.

SUPPORTING DEVICES

- A. Conduit and equipment supports.
- B. Anchors and fasteners.

PRODUCT REQUIREMENTS

- A. Materials and Finishes: Provide adequate corrosion resistance.
- B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit. Consider weight of wire in conduit when selecting products.
- C. Anchors and Fasteners:
 1. Concrete Structural Elements: Use expansion anchors.
 2. Steel Structural Elements: Use beam clamps
 3. Concrete Surfaces: Use self-drilling anchors and expansion anchors.
 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
 5. Solid Masonry Walls: Use expansion anchors.
 6. Sheet Metal: Use sheet metal screws.
 7. Wood Elements: Use wood screws.

INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
 - B. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.
 - C. Do not use spring steel clips and clamps.
 - D. Do not use powder-actuated anchors.
- Do not drill or cut structural members.

ELECTRICAL IDENTIFICATION

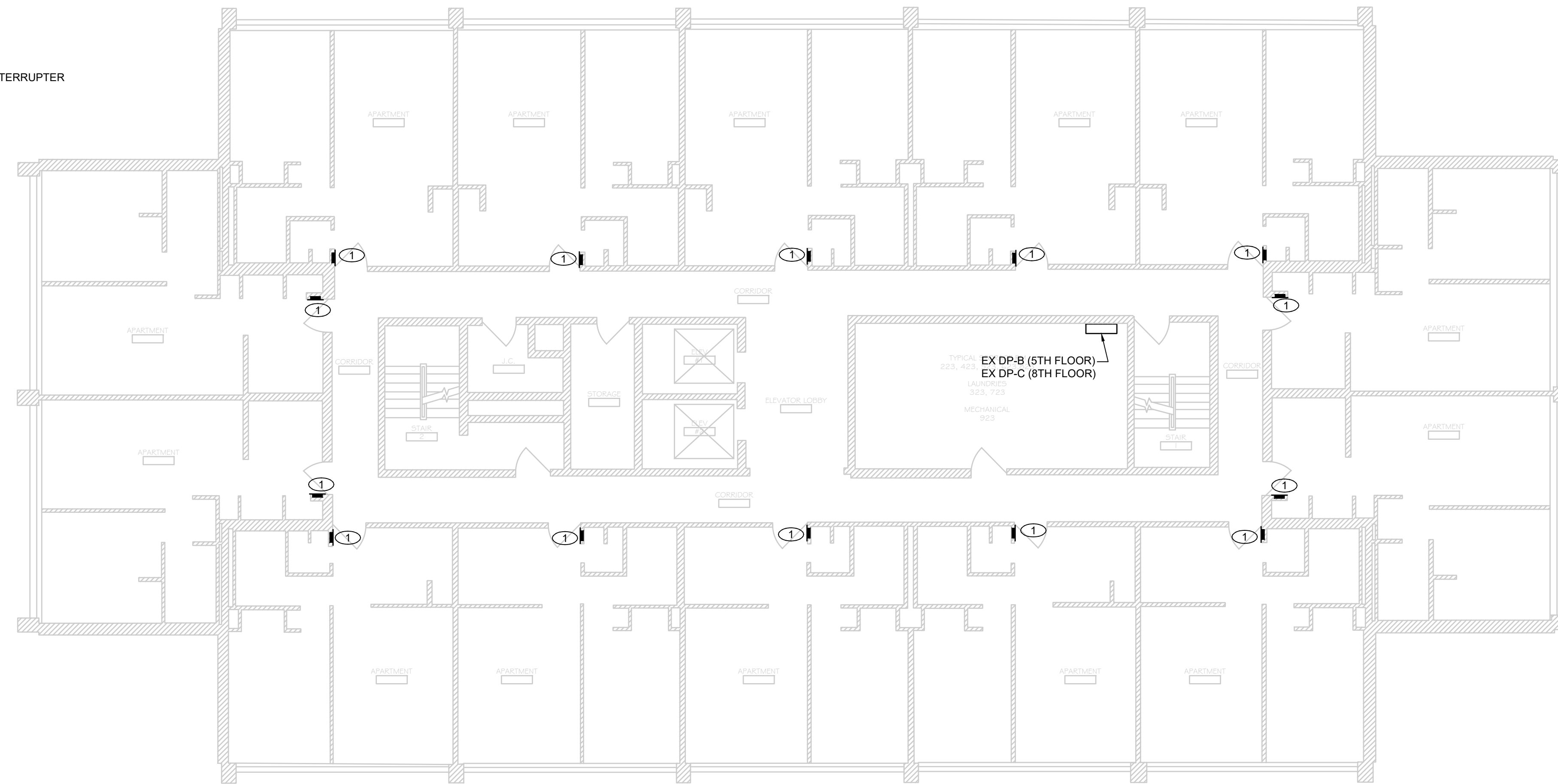
A. Update panel schedules with new type circuit directory.

WIRE MARKERS

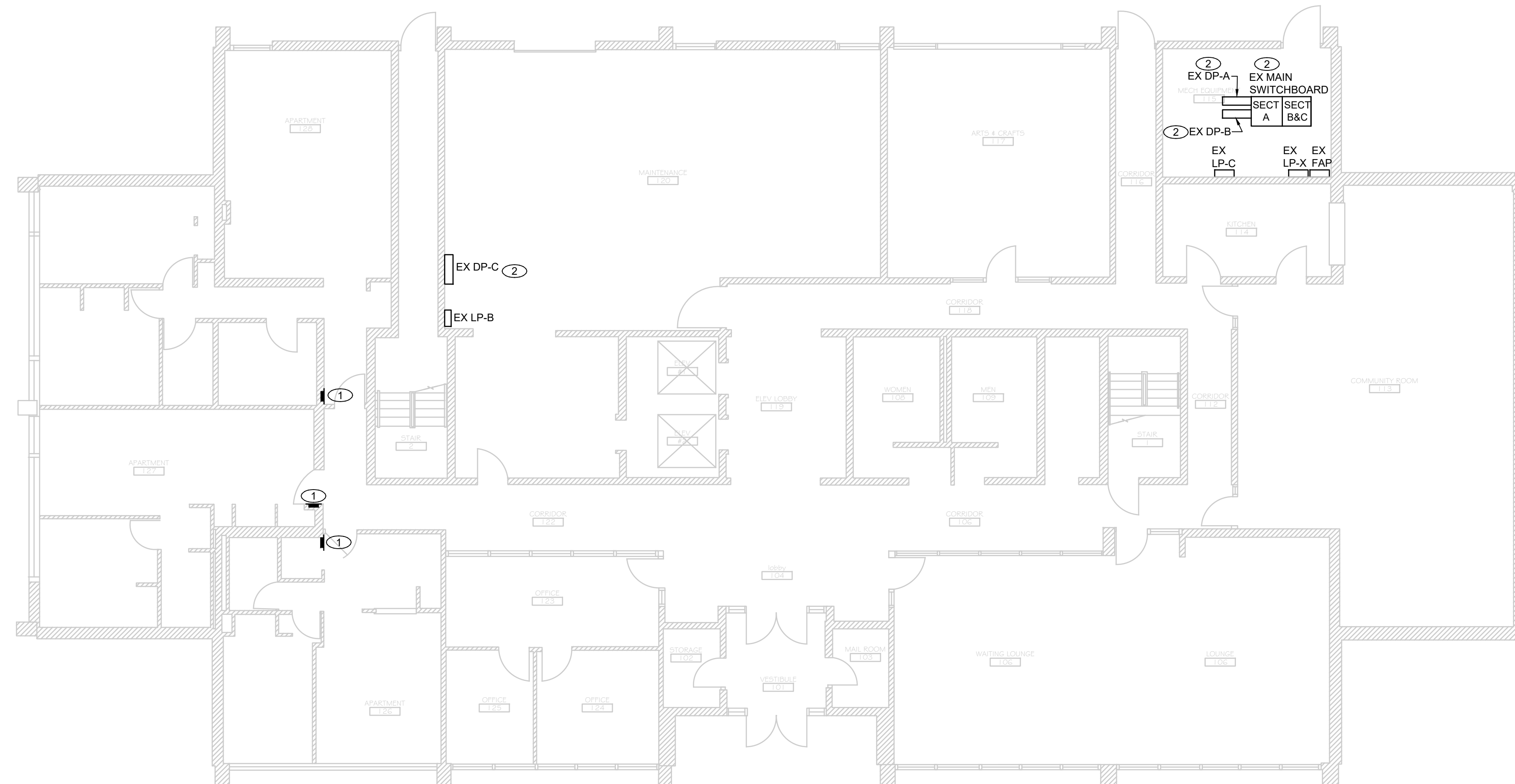
- A. Manufacturers:
 1. Brady, Cable Line, 3M.
- B. Description: Tape or tubing type wire markers.

ELECTRICAL SYMBOLS

- PANELBOARD
- MAIN DISTRIBUTION PANEL
- EX EXISTING
- GFI GROUND FAULT CIRCUIT INTERRUPTER



TYPICAL FLOOR PLAN LEVELS 1-9 - DEMOLITION
1/8"=1'-0"

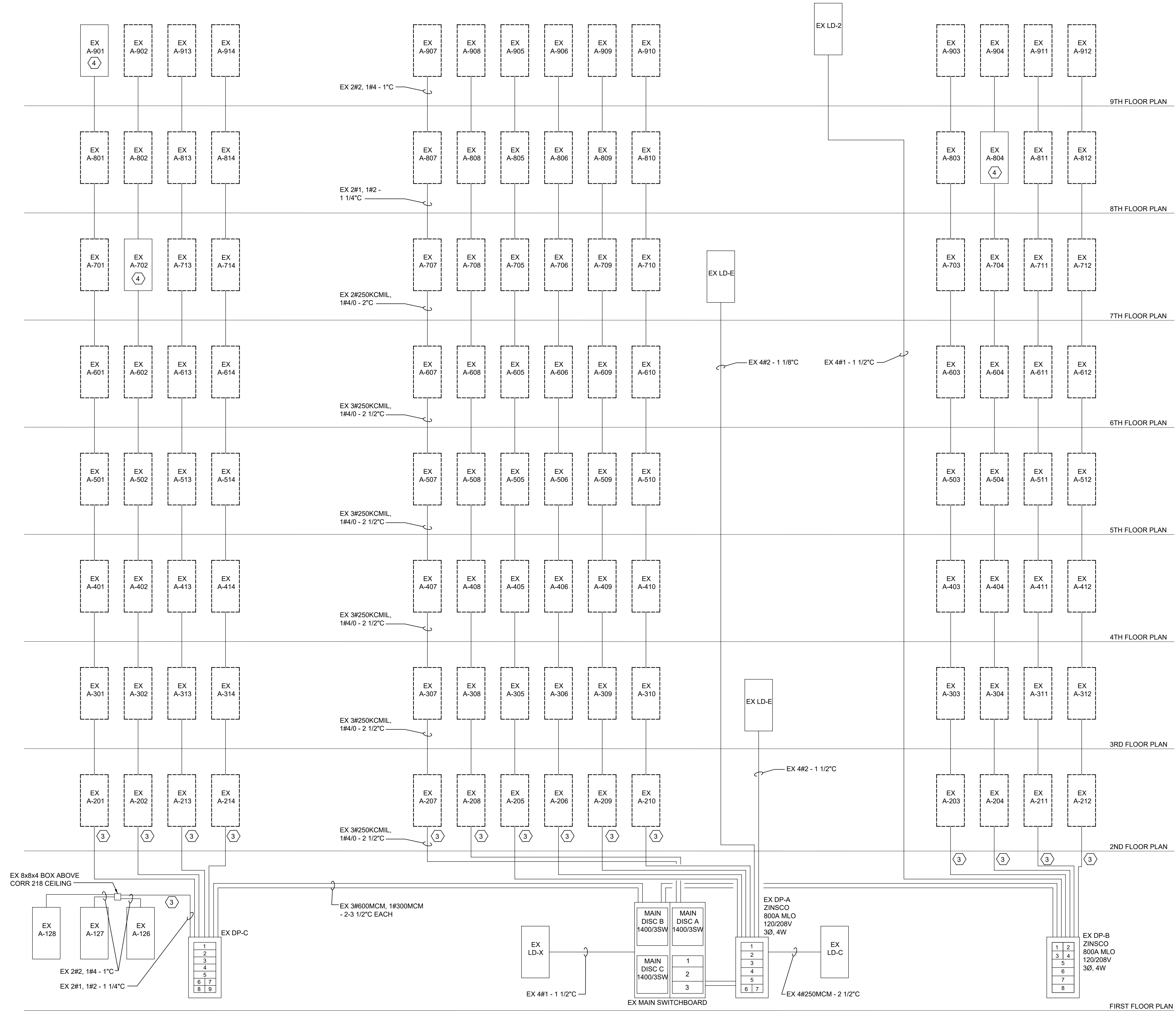


FIRST FLOOR PLAN - DEMOLITION
1/8"=1'-0"

KEYED NOTES - DEMOLITION

- ① EC SHALL REPLACE THIS PANEL AS A ONE FOR ONE MAINTENANCE REPLACEMENT. MODIFY WALL OPENING AS REQUIRED. PATCH AND PAINT WALL TO MATCH EXISTING. RECONNECT ALL FEEDERS AND BRANCH CIRCUITS. REFER TO RISER SHEET FOR MORE DETAILS.
- ② EXISTING DISTRIBUTION PANEL POWERS THE APARTMENT PANELS. SHOWN AS REFERENCE.

ISSUED FOR BIDS	10/22/2020
REV	DESCRIPTION BY DATE
PINE TOWER APARTMENTS ELECTRICAL PANEL REPLACEMENTS ELECTRICAL FLOOR PLANS - DEMOLITION	
MacMILLAN ASSOCIATES CONSULTING ENGINEERS 714 EAST MIDLAND STREET • BAY CITY, MICHIGAN 48706 (989) 894-4300 • FACSIMILE (989) 894-9930 www.macmillanassociates.com	
APPROVED BY EAB	DATE 08/27/20
CHECKED BY JF	JOB No. 2020-0111
DRAWN BY RLM	DWG. No.
SHEET No. E1 OF	



	1000	15A	1	2	70A	MAIN
GARBAGE DISPOSAL	1200	15A	3	4	2P	MAIN
AIR CONDITIONER	900	15A	5	6		
BEDROOM RECEPTACLES/ LIVING RM LIGHTS	400	20A	7	8		
BATHROOM LIGHTS/ RECEPTACLES	360	20A	9	10		
KITCHEN RECEPTACLES	360	20A	11	12		
RANGE	6500	40A	13	14		
RANGE		2P	15	16		

TCL= 10.72 Kw @ 208v 1P= 51.6 AMPS

UNI-TAP CONNECTOR SCHEDULE

DUAL ENTRY, 2 PORT DESIGN SUITABLE FROM #6-250KCMIL 600 VOLT RATED, 90 DEG C. RATED FOR COPPER OR ALUMINUM, TRANSPARENT COVERING FOR INSPECTABILITY, PRE FILLED WITH DE-OX ILSCO # ECTD-2-250

PANELBOARD SCHEDULE

FLOORS 2-8 125 AMP RATED PANEL WITH A CONVERTIBLE 70 AMP BRANCH MOUNTED MAIN CIRCUIT BREAKER, 16 SPACE PANEL, 120/240 VOLT, SINGLE PHASE, 3 WIRE, RISER RATED WITH OFFSET BUS FOR INCREASED GUTTER SPACE, GRAY FLAT DOOR COVER, SIEMENS #R1632L1125CU OR EQUAL BY SQUARE D.

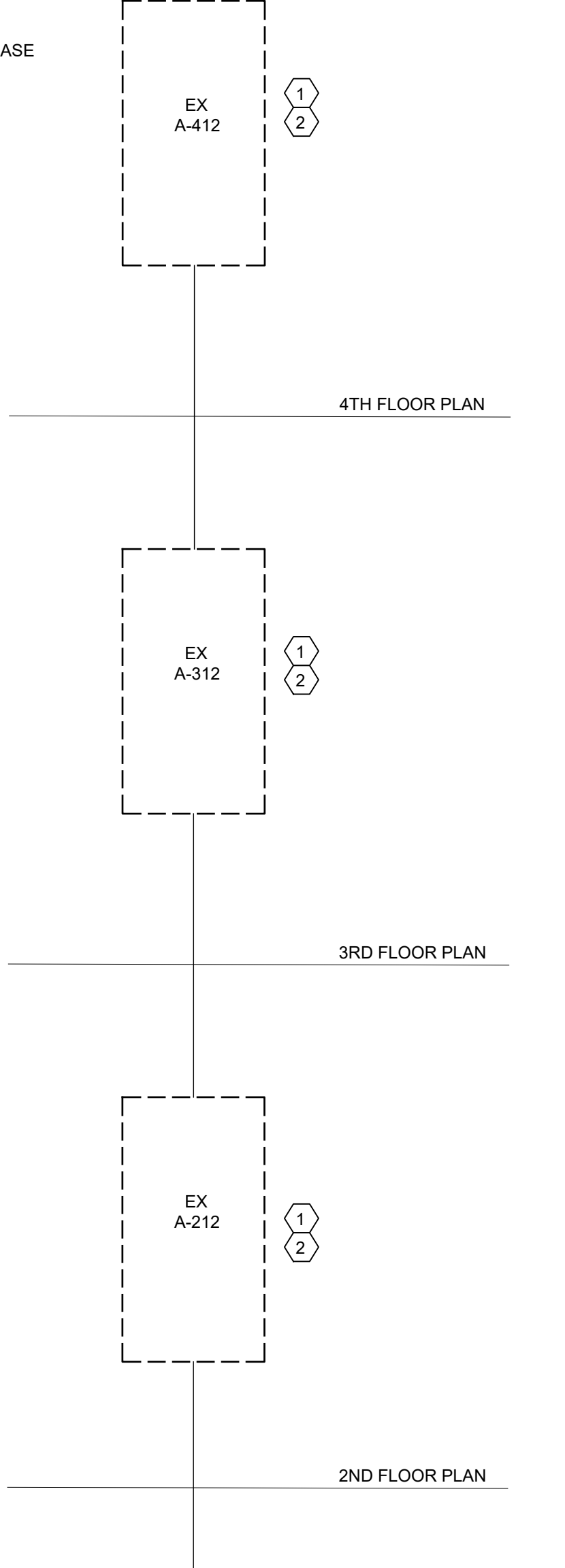
FLOORS 1 AND 9 SAME AS FLOORS 2-8 EXCEPT RISER RATED WITH INCREASE GUTTER SPACE IS NOT REQUIRED.

KEYED NOTES

- EC SHALL DISCONNECT AND REMOVE THE EXISTING FLUSH MOUNTED APARTMENT PANELBOARD, MODIFY WALL OPENINGS AS REQUIRED TO THEN INSTALL A NEW PANELBOARD. RECONNECT ALL EXISTING BRANCH CIRCUITS. FIELD VERIFY ALL EXISTING CIRCUITS AND PROVIDE A NEW UPDATED TYPED PANEL SCHEDULE.
- EC SHALL FURNISH AND INSTALL A DUAL ENTRY UNI-TAP CONNECTOR FOR EACH PANEL FEEDER CONDUCTORS. INSTALL A NEW COPPER TAP CONDUCTORS FROM THIS TAP TO THE NEW PANELS MAIN BREAKER. TAP CONDUCTOR SHALL BE #4 AWG.
- EACH VERTICAL STACK OF PANELS ARE FEED FROM A 3 PHASE SOURCE AND THE PHASES ARE ALTERNATED TO BALANCE THE LOAD EVENLY. INSTALL A UNI-TAP CONNECTOR FOR THIS CONDUCTOR AT EACH APARTMENT PANEL TO ALLOW THE REMOVAL/INSTALL OF THE PANEL ENCLOSURE.
- THIS PANEL HAS ALREADY BEEN PLACED AND SHALL REMAIN.

GENERAL NOTES

- ALL EXISTING APARTMENT BRANCH CIRCUITS ARE INSTALLED IN EMT CONDUIT.



TYPICAL PANEL WIRING DETAIL
(FLOORS 2-8)

EXISTING DP-C

1. MAIN LIGHTING PANEL	200/3SW
2. APARTMENTS 202-902	200/3SW 200AF
3. APARTMENTS 213-913	200/3SW 200AF
4. APARTMENTS 214-914	200/3SW 200AF
5. APARTMENTS 201-901	200/3SW 200AF
6. MANAGERS APARTMENT	100/2SW
7. APARTMENTS 126,127 & 128	100/2SW
8. COMPACTOR	30/3SW
9. AHU-1	30/3SW

EXISTING MAIN SWITCHBOARD

1. FIRE PUMP	200/3SW
2. APARTMENTS 207-907	200/3SW 200AF
3. APARTMENTS 208-908	200/3SW 200AF

EXISTING DP-A

1. LIGHTING PANEL C	200/3SW
2. APARTMENTS 203-903	200/3SW 200AF
3. APARTMENTS 206-906	200/3SW 200AF
4. APARTMENTS 205-905	200/3SW 200AF
5. APARTMENTS 209-909	200/3SW 200AF
6. SPARE	60/2SW
7. SPARE	60/2SW

EXISTING DP-B

1. SPARE	100/3SW
2. AC UNIT	100/3SW
3. 7TH FLOOR PANEL G	100/3SW
4. LAUNDRY RM PANEL E	100/3SW
5. APARTMENTS 204-904	200/3SW 200AF
6. APARTMENTS 210-910	200/3SW 200AF
7. APARTMENTS 211-911	200/3SW 200AF
8. APARTMENTS 212-912	200/3SW 200AF

POWER RISER DIAGRAM

ISSUED FOR BIDS	10/22/2020		
REV	DESCRIPTION	BY	DATE
PINE TOWER APARTMENTS ELECTRICAL PANEL REPLACEMENTS			
EXISTING RISER DIAGRAM			
MacMILLAN ASSOCIATES CONSULTING ENGINEERS			
714 EAST MIDLAND STREET • BAY CITY, MICHIGAN 48706 (989) 894-4300 • FACSIMILE (989) 894-9930 www.macmillanassociates.com			
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E2
OF