

| ELECTRICAL DRAWING / REVISION LOG |  | DATE:  | DATE:      |        |      |
|-----------------------------------|--|--------|------------|--------|------|
| NUMBER                            | NAME   | ISSUE: | DD         | MM     | YY   |
|                                   |  | ●      | 01/08/2021 |        |      |
|                                   |  | ○      | 02/02/2021 |        |      |
|                                   |  |        | DD         | MM     | YY   |
|                                   |  |        | 80%        | PERMIT | 100% |
| E-001                             | ELECTRICAL COVER SHEET                                 | ●      |            |        |      |
| E-101                             | ELECTRICAL FIRST FLOOR CONSTRUCTION PLAN               | ●      |            |        |      |
| E-102                             | ELECTRICAL SECOND FLOOR CONSTRUCTION PLAN              | ●      |            |        |      |
| E-103                             | ELECTRICAL ROOF CONSTRUCTION PLAN                      | ●      |            |        |      |
| E-201                             | ELECTRICAL FIRST FLOOR REFLECTED CEILING PLAN          | ●      |            |        |      |
| E-202                             | ELECTRICAL SECOND FLOOR REFLECTED CEILING PLAN         | ●      |            |        |      |
| E-301                             | ELECTRICAL SPECIFICATIONS                              | ●      |            |        |      |
| E-401                             | ELECTRICAL DETAILS (SHEET 1 OF 2)                      | ●      |            |        |      |
| E-402                             | ELECTRICAL DETAILS (SHEET 2 OF 2)                      | ●      |            |        |      |
| E-501                             | ELECTRICAL ONE LINE & TELECOMMUNICATION RISER DIAGRAMS | ●      |            |        |      |
| E-502                             | FIRE ALARM RISER AND EMERGENCY COMMUNICATION DIAGRAMS  | ●      |            |        |      |
| E-601                             | ELECTRICAL PANEL SCHEDULES                             | ●      |            |        |      |

| ELECTRICAL SYMBOLS LEGEND |   |
|---------------------------|---|
| Ⓜ                         | JUNCTION BOX  |
| Ⓜ                         | SINGLE POLE, 120/277V LIGHT SWITCH: COMMERCIAL GRADE 'g' REPRESENTS CONTROL DESIGNATION.                                |
| Ⓜ                         | SINGLE POLE, 120/277V 3-WAY LIGHT SWITCH: COMMERCIAL GRADE 'g' REPRESENTS CONTROL DESIGNATION.                          |
| Ⓜ                         | OCCUPANCY (AUTO ON/AUTO OFF) SENSOR SWITCH. WATTSTOPPER #DW-100. (VS INDICATES VACANCY MODE (MANUAL ON/AUTO OFF))       |
| Ⓜ                         | VACANCY SENSOR SWITCH (MANUAL ON/AUTO OFF) WITH DUAL RELAYS. WATTSTOPPER #DW-200. SEE INSTRUCTIONS FOR VACANCY MODE     |
| Ⓜ                         | LOW VOLTAGE MOMENTARY SWITCH (WATTSTOPPER DCC2 OR APPROVED EQUAL). 'g' REPRESENTS CONTROL DESIGNATION.                  |
| Ⓜ                         | OCCUPANCY (AUTO ON/AUTO OFF) SENSOR DIMMER SWITCH. WATTSTOPPER #PW-311 (VS INDICATES VACANCY MODE (MANUAL ON/AUTO OFF)) |
| Ⓜ                         | 120V 20A GFI DUPLEX RECEPTACLE COMMERCIAL GRADE. MOUNTED @ 42" A.F.F. (U.O.N.)  |
| Ⓜ                         | 120V 20A DUPLEX RECEPTACLE COMMERCIAL SPECIFICATION GRADE.  |
| Ⓜ                         | 120V 20A QUAD RECEPTACLE COMMERCIAL SPECIFICATION GRADE.  |
| Ⓜ                         | DEDICATED RECEPTACLE - REFER TO PLAN FOR RATING AND TYPE (COMMERCIAL GRADE)   |
| Ⓜ                         | THERMAL DISCONNECT SWITCH. SIZE AS REQUIRED.  |
| Ⓜ                         | DOUBLE POLE, THERMAL DISCONNECT SWITCH. SIZE AS REQUIRED.   |
| Ⓜ                         | UNFUSED DISCONNECT SWITCH. 'A'=NEMA RATING, 'B'=SWITCH RATING, 'C'=NUMBER OF POLES.                                     |
| Ⓜ                         | FUSED DISCONNECT SWITCH. 'A'=NEMA RATING, 'B'=SWITCH RATING, 'C'=FUSE SIZE, 'D'= NUMBER OF POLES.                       |
| Ⓜ                         | COMBINATION TELEPHONE/DATA OUTLET. PROVIDE BACKBOX & 1" EC STUBBED AND BUSHED ABOVE CEILING.                            |
| Ⓜ                         | CABLE OUTLET. PROVIDE BACKBOX & 1" EC STUBBED AND BUSHED ABOVE CEILING.   |
| Ⓜ                         | 14" MEDIA PANEL   |
| Ⓜ                         | FLUSH MOUNTED ELECTRICAL PANELBOARD. IN APT. UNITS TOP MOST BREAKER IN PANEL SHALL NOT BE MORE THAN 48" HIGH.           |
| Ⓜ                         | SURFACE MOUNTED ELECTRICAL PANELBOARD.  |
| Ⓜ                         | WATTSTOPPER LCB LIGHTING CONTROL PANEL  |
| Ⓜ                         | EMERGENCY CALL BOX RATH COMMUNICATIONS - MODEL# 2100-984LR (OR APPROVED EQUAL)  |
| Ⓜ                         | BASE STATION RATH COMMUNICATIONS - MODEL# 2500-205D (OR APPROVED EQUAL)   |
| Ⓜ                         | POWER SUPPLY RATH COMMUNICATIONS - MODEL# 2500-PWR24 (OR APPROVED EQUAL)  |

| GENERAL ELECTRICAL NOTES |  |
|--------------------------|--|
| 1.                       | ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE NATIONAL ELECTRIC CODE, STATE LAWS, AND ALL OTHER REGULATIONS GOVERNING WORK OF THIS NATURE.   |
| 2.                       | THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIAL, AND LABOR TO SATISFY A COMPLETE AND WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.   |
| 3.                       | THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES AS REQUIRED.  |
| 4.                       | CONTRACTOR TO CONFIRM EXACT LOCATION OF EXISTING AND NEW EQUIPMENT WITH OWNERS AGENTS.   |
| 5.                       | CONDUIT RUNS ARE DIAGRAMMATICALLY SHOWN ON THE DRAWINGS. FINAL ROUTING OF THE CONDUITS SHALL BE DETERMINED BY THE ELECTRICAL CONTRACTOR.   |
| 6.                       | FIELD MOUNTED DEVICES SUCH AS SWITCHES, MOTOR STARTERS, RECEPTACLES, ETC., ARE SHOWN IN THEIR APPROXIMATE LOCATION. SWITCH MOUNTING HEIGHT SHALL BE 48" ABOVE FINISHED FLOOR AND RECEPTACLE MOUNTING HEIGHT SHALL BE 18" ABOVE FINISHED FLOOR.   |
| 7.                       | POWER WIRING SHALL BE COPPER CONDUCTOR WITH "THHN OR THWN" INSULATION RATED 600 VOLTS. MINIMUM WIRE SIZE OF POWER WIRING SHALL BE #12 AWG. LIGHTING AND RECEPTACLE BRANCH CIRCUIT WIRING SHALL BE #12 AWG UNLESS OTHERWISE NOTED ON DRAWINGS OR SCHEDULES.   |
| 8.                       | 20 AMP HOME RUN CIRCUITS MORE THAN 75 FEET FROM THE PANEL- BOARD SHALL BE MADE WITH #10 AWG OR LARGER AS REQUIRED TO LIMIT VOLTAGE DROP TO 2% MAXIMUM.   |
| 9.                       | THE TYPE OF CONDUIT SHALL BE AS FOLLOWS FOR ALL FEEDERS AND DISTRIBUTION CIRCUITS, UNLESS OTHERWISE SPECIFIED.   |
|                          | APPLICATION TYPE OF CONDUIT  |
|                          | BURIED IN CONCRETE OR MASONRY, OR OUTDOORS PVC   |
|                          | SERVICE ENTRANCE PVC   |
|                          | SUPPLY TO DISTRIBUTION PANELS AND HVAC EQUIPMENT EMT   |
|                          | BRANCH CIRCUITS EMT OR MC  |
| 10.                      | THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SYSTEMS (AS REQUIRED) IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRIC CODE.   |
| 11.                      | ALL RECEPTACLES SHALL BE GROUNDING TYPE.   |
| 12.                      | ALL RECEPTACLES INSTALLED IN BATHROOMS AND KITCHENS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION AS REQUIRED BY THE NATIONAL ELECTRIC CODE.  |
| 13.                      | ALL ELECTRIC MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. OR EQUALLY APPROVED.  |
| 14.                      | CONTRACTOR TO CONFIRM EXACT LOCATION OF METERS WITH ELECTRIC UTILITY.  |
| 15.                      | SUBMIT TO THE OWNER CERTIFICATES OF INSPECTIONS IN DUPLICATE FROM AN APPROVED INSPECTION AGENCY UPON COMPLETION.   |
| 16.                      | PERFORMANCE AND WITNESSING OF TESTS  |
| A.                       | THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS AND QUALIFIED PERSONNEL OR FIRM TO PERFORM ALL REQUIRED TESTS.  |
| B.                       | ALL NEW AND RECONNECTED ELECTRICAL CIRCUIT SHALL BE TESTED TO INSURE CIRCUIT CONTINUITY, INSULATION RESISTANCE, PROPER SPLICING AND GROUNDING IN ACCORDANCE WITH THE LATEST STANDARDS AS STATED ABOVE. BEFORE CONNECTING POWER CABLES TO MOTORS, THE INSULATION RESISTANCE OF ALL MOTOR WINDINGS SHALL BE TESTED IN ACCORDANCE WITH THE ABOVE STANDARDS. |
| C.                       | ANY CONTRACTOR FURNISHED AND/OR INSTALLED SPLICE, RECOMMENDED VOLTAGE AND INSULATION RESISTANCE TESTS, SHALL BE CONNECTED OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE.  |
| D.                       | NO EQUIPMENT SHALL BE ENERGIZED UNTIL ALL TESTS AND ADJUSTMENTS HAVE BEEN MADE.  |
| E.                       | THREE COPIES OF ALL TEST RESULTS SHALL BE DELIVERED TO THE OWNER.  |
| 17.                      | ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE MECHANICAL WORK AS CALLED FOR IN MECHANICAL SPECIFICATIONS.  |
| 18.                      | ALL CIRCUIT BREAKERS SERVING MECHANICAL EQUIPMENT SHALL BE HACR TYPE.  |

| ABBREVIATIONS |   |
|---------------|---|
| A             | AMPERE                                  |
| A/C           | AIR CONDITIONING                        |
| A.F.F.        | ABOVE FINISH FLOOR                      |
| A.R.          | AS REQUIRED                             |
| ARCH          | ARCHITECT                               |
| B.B.          | BASE BUILDING                           |
| BLDG          | BUILDING                                |
| C, CDT        | CONDUIT                                 |
| C/B           | CIRCUIT BREAKER                         |
| CCTV          | CLOSED CIRCUIT TELEVISION               |
| CLG           | CEILING                                 |
| CRAC          | COMPUTER ROOM AIR CONDITIONER           |
| D             | DEMOLISH                                |
| DEPT.         | DEPARTMENT                              |
| DJ            | DOOR JAM                                |
| DN            | DOWN                                    |
| DP            | DISTRIBUTION PANEL                      |
| DWG           | DRAWING                                 |
| E, EX         | EXISTING                                |
| EC            | EMPTY CONDUIT                           |
| EM            | EMERGENCY                               |
| EQUIP         | EQUIPMENT                               |
| ER            | EXISTING TO BE RELOCATED                |
| ETR           | EXISTING TO REMAIN                      |
| FIXT          | FIXTURE                                 |
| FL            | FLOOR                                   |
| FLUOR         | FLUORESCENT                             |
| G, GND        | GROUND                                  |
| GALV          | GALVANIZED                              |
| GFI           | GROUND FAULT INTERRUPTER                |
| HVAC          | HEATING, VENTILATING & AIR CONDITIONING |
| IG            | ISOLATED GROUND                         |
| LP            | LIGHTING PANEL                          |
| KW            | KILOWATT                                |
| LS            | LIFE SAFETY                             |
| MANF          | MANUFACTURER                            |
| MAX           | MAXIMUM                                 |
| MECH          | MECHANICAL                              |
| MIN           | MINIMUM                                 |
| M.O.A.        | MULTI-OUTLET ASSEMBLY                   |
| MTD           | MOUNTED                                 |
| N             | NEW                                     |
| NL            | NIGHT LIGHT                             |
| N.I.C         | NOT IN CONTRACT                         |
| No., #        | NUMBER                                  |
| N.T.S.        | NOT TO SCALE                            |
| O.C.          | ON CENTER                               |
| POTS          | PLAIN OLD TELEPHONE SERVICE             |
| R, RE         | RELOCATED EXISTING EQUIPMENT            |
| REQ'D         | REQUIRED                                |
| RGS           | RIGID GALVANIZED STEEL                  |
| SPEC          | SPECIFICATION                           |
| SW            | SWITCH                                  |
| TC            | TIME CLOCK                              |
| TEL           | TELEPHONE                               |
| TRAC          | TECHNOLOGY ROOM AIR CONDITIONER         |
| T/F, XFMR     | TRANSFORMER                             |
| TYP.          | TYPICAL                                 |
| U.O.N         | UNLESS OTHERWISE NOTED                  |
| UP            | UTILITY PANEL                           |
| V             | VOLT                                    |
| W/            | WITH                                    |
| WP            | WEATHER PROOF WHILE IN USE              |

| PROPOSED LIGHTING FIXTURE SCHEDULE |      |  |                           |  |           |                 |          |       |          |  |
|------------------------------------|------|--|---------------------------|--|-----------|-----------------|----------|-------|----------|--|
| SYMBOL                             | TAG  | DESCRIPTION  | MANF.                     | MODEL  | LAMPS NO. | LAMP TYPE       | VOLTS    | WATTS | MOUNTING | REMARKS  |
| □                                  | V-1  | 2'X2' LED LIGHT FIXTURE  | METALUX                   | 22FP3235C  | N/A       | LED             | 120V     | 29.2W | SURFACE  | PROVIDE SURFACE MOUNT KIT AS NECESSARY, MODEL#: FFSURF22   |
| □                                  | V-2  | 2'X4' LED LIGHT FIXTURE  | METALUX                   | 24FP4735C  | N/A       | LED             | 120V     | 41.4W | SURFACE  | PROVIDE SURFACE MOUNT KIT AS NECESSARY, MODEL#: FFSURF24   |
| ○                                  | V-3  | 4" ROUND SURFACE MOUNT LED DOWNLIGHT   | HALO                      | SMD4R-6-9S-WH  | N/A       | LED             | 120V     | 9W    | SURFACE  |  |
| —                                  | V-4  | 4' MULTI-PURPOSE LINEAR FIXTURE  | COLUMBIA LIGHTING         | MPS4-40MW-CW-EU-ELL14                                    | 1         | LED             | 120-277V | 30.4W | SURFACE  | PROVIDE 90-MINUTE BATTERY BACK-UP  |
| □                                  | V-5A | EXTERIOR WALL MOUNTED SQUARE CYLINDER LED DOWNLIGHT W/ EMERGENCY BATTERY BACK-UP | LUCIFER LIGHTING COMPANY  | SW2-DF-2-BK-BK-80C19A-35-RP1                             | -         | LED             | 120V     | 17W   | WALL     | PROVIDE 90-MINUTE EMERGENCY BATTERY INVERTER, EMB-S-100-120-LEDX. INVERTER TO BE INSTALLED IN ACCESSIBLE CEILING |
| □                                  | V-6  | EXTERIOR ARCHITECTURAL FLOOD LUMINAIRE - FLAG SPOTLIGHT                          | INVUE                     | VFS-K-B40-5-LED-D1                                       | -         | LED             | 120V     | 67W   | WALL     | CONFIRM BEAM SPREAD WITH ARCHITECT   |
| ⊞                                  | V-7  | WALL MOUNTED HOISTWAY/ROOFTOP VAPOR TIGHT FIXTURE                                | HUBBELL                   | VWGL-1   | 1         | LED             | 120V     | 11W   | WALL     | SEE ELECTRICAL CONSTRUCTION PLAN FOR ROOFTOP APPLICATIONS  |
| ⊞                                  | em   | AUX SERIES EXIT SIGN (SINGLE FACE) WITH NICKEL CADMIUM BATTERY                   | ATLITE                    | AUXS-SD-6  | N/A       | LED             | DUAL     | 1W    | CEILING  | ARROWS DENOTE DIRECTIONAL FIXTURE AS NEEDED. PROVIDE 90-MINUTE BATTERY BACK-UP                                   |
| ⊞                                  | em   | EMERGENCY LIGHTING UNIT  | DUAL-LITE                 | LZ-2-I-03L   | 2         | LED             | DUAL     | 3W    | SURFACE  | PROVIDE 90-MINUTE BACK-UP  |
| ○                                  | LT-1 | 11" LARGE CEILING MOUNTED LED LIGHT FIXTURE - BEDROOM/BATHROOM                   | TECH LIGHTING             | 700CQ-L-Z-LED  | N/A       | LED             | 120V     | 22W   | CEILING  | SUITABLE FOR WET LOCATIONS   |
| ○                                  | LT-2 | 6" SMALL CEILING MOUNTED LED LIGHT FIXTURE - GENERAL PURPOSE                     | TECH LIGHTING             | 700CQ-S-Z-LED  | N/A       | LED             | 120V     | 12W   | CEILING  | SUITABLE FOR WET LOCATIONS   |
| ⊞                                  | LT-3 | 48" CEILING FAN WITH LED LIGHT - DINING ROOM                                     | HUNTER FAN COMPANY        | AVA BRUSHED NICKEL 48-INCH LED CEILING FAN               | 2         | LED             | 120V     | 18W   | CEILING  |  |
| ○                                  | LT-4 | 4" RECESSED LED DOWNLIGHT  | HALO COMMERCIAL           | MOUNTING FRAME: PR4-FS24-D010 LED MODULE: PR4M-24-MD-BFS | N/A       | LED             | 120V     | 27W   | CEILING  |  |
| ○                                  | LT-5 | 4" ADJUSTABLE SLOPE CEILING LED DOWNLIGHT  | PORTFOLIO COOPER LIGHTING | LD44A-18-8-30-D010TE                                     | N/A       | LED             | 120V     | 29W   | CEILING  |  |
| □                                  | LT-6 | BATHROOM BRONZE WALL SCONCE  | KICHLER LIGHTING          | 45495 - CROSBY   | 1         | A19 MEDIUM BASE | 120V     | 100W  | CEILING  | DAMP RATED   |
| □                                  | LT-7 | BATHROOM EXHAUST FAN/LED LIGHT   | PANASONIC                 | FV-0511VKS2L   | 1         | LED             | 120V     | 10W   | CEILING  | EXHAUST FAN CONTROLLED BY INTEGRAL OCCUPANCY SENSOR FURNISHED BY MC, LED LIGHT WIRED SEPARATELY TO WALL SWITCH.  |

**LIGHTING FIXTURE SCHEDULE NOTES:**  
1. REFER TO ARCHITECTURAL DRAWINGS FOR FINAL LIGHTING FIXTURE SCHEDULES AND EXACT FIXTURE LOCATIONS.  
2. FIXTURES RATED FOR A HIGHER MAXIMUM WATTAGE SHALL BE FURNISHED WITH A CUSTOM MAXIMUM WATTAGE LABEL FROM THE MANUFACTURER. THE LABEL SHALL LIST THE MAXIMUM WATTAGE SHOWN IN THIS FIXTURE SCHEDULE.  
3. ALL COLORS, TRIMS, AND FINISHES SHALL BE APPROVED BY ARCHITECT.

| FIRE ALARM DEVICE LEGEND |   |
|--------------------------|---|
| ▶                        | FIRE ALARM 75 CD VISUAL NOTIFICATION DEVICE   |
| Ⓜ                        | MANUAL FIRE ALARM PULL STATION  |
| Ⓜ                        | FUTURE AUDIO/VISUAL NOTIFICATION DEVICE. PROVIDE IN ALL DWELLING UNITS. (WIRED FOR LOW FREQUENCY 520 HZ, BUT WITHOUT DEVICE, INSTALL BLANK RED COVER) |
| ▶                        | FIRE ALARM 75 CD AUDIO/VISUAL NOTIFICATION DEVICE (U.O.N.). PROVIDE LOW FREQUENCY 520 HZ DEVICE IN ALL DWELLING UNITS.                                |
| Ⓜ                        | RELAY   |
| Ⓜ                        | ANSUL HOOD FIRE SUPPRESSION SYSTEM  |
| Ⓜ                        | INTERFACEABLE ADDRESSABLE MODULE  |
| Ⓜ                        | IAM WITH RELAY  |
| Ⓜ                        | TEST/RESET KEY SWITCH W/ LED  |
| Ⓜ                        | SMOKE DETECTOR (120V HARD-WIRED WITH BATTERY BACKUP TYPE IN DWELLING UNITS)   |
| Ⓜ                        | COMBINATION CO & SMOKE DETECTOR WITH TEMPORAL 4 SOUNDER BASE (120V HARD-WIRED WITH BATTERY BACKUP TYPE IN DWELLING UNITS)                             |
| Ⓜ                        | ELEVATOR LOBBY SMOKE DETECTOR - COMPLIES WITH ASME 17.1 AND NFPA 72   |
| Ⓜ                        | HEAT DETECTOR   |
| Ⓜ                        | DUCT SMOKE DETECTOR   |
| Ⓜ                        | FIRE SMOKE DAMPER IAM W/ RELAY (ACTIVATED BY DEDICATED DUCT SMOKE DETECTOR WITHIN 5FT.)   |
| Ⓜ                        | MONITOR MODULE FOR WATER FLOW   |
| Ⓜ                        | MONITOR MODULE FOR TAMPER SWITCH  |
| Ⓜ                        | MONITOR MODULE WITH 120V RATED RELAY FOR DOOR RELEASE.  |
| Ⓜ                        | FIRE ALARM CONTROL PANEL  |
| Ⓜ                        | FIRE ALARM REMOTE ANNUNCIATOR PANEL   |

| TYPICAL DEVICE MOUNTING HEIGHTS (U.O.N.) |                           |
|--|---------------------------|
| RECEPTACLES (UON)                        | 18" AFF                   |
| RECEPTACLES (COUNTER)                    | 44" AFF                   |
| LIGHT SWITCHES                           | 48" AFF TO TOP OF DEVICE  |
| DISCONNECT SWITCHES                      | NEC 404.8(A)              |
| TELEPHONE OUTLETS                        | 18" AFF                   |
| FIRE ALARM PULL STATION                  | 42" AFF MIN./44" AFF MAX. |
| FIRE ALARM AUDIO/VISUAL ALARM            | 80" AFF MIN./96" AFF MAX. |
| EXIT LIGHTS (WALL MTD)                   | 1" ABOVE DOOR             |
| EMERGENCY LIGHTS(WALL MTD)               | 7'-6" AFF                 |
| TV OUTLETS                               | 18" AFF                   |
| AUDIO/VIDEO OUTLETS                      | 18" AFF                   |

NOTE: DIMENSIONS ARE TO DEVICE CENTERLINE UNLESS OTHERWISE NOTED



PROJECT NAME  
  
**135 SUMMER STREET  
PASSAIC, NJ**

CHEN O'NEIL ARCHITECTS, PLLC  
  
29 GANUNG DRIVE  
OSSINING, NY 10562  
646-812-5566



|   |                 |           |
|---|-----------------|-----------|
| 2 | 100% PERMIT SET | 2/02/2021 |
| 1 | 80% DD SET      | 1/08/2021 |

| ISSUE/REVISION | DATE |
|----------------|------|
|                |      |

| DRAWING TITLE                 |  |
|-------------------------------|--|
| <b>ELECTRICAL COVER SHEET</b> |  |

| DRAWING NO.  |  |
|--------------|--|
| <b>E-001</b> |  |

| DATE:  | 12/01/20 |
|--------|----------|
| SCALE: | AS NOTED |

| STAMP & SIGNATURE |  |
|-------------------|--|
|                   |  |



Paterson Habitat For Humanity  
146 North 1st Street  
Paterson, NJ 07522

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KEAO  
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Engineering Excellence since 1984  
186 WOOD AVE. SOUTH - 1ST FLOOR  
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2 100% PERMIT SET 2/02/2021

1 80% DD SET 1/08/2021

ISSUE/REVISION DATE

DRAWING TITLE

ELECTRICAL  
FIRST FLOOR  
CONSTRUCTION PLAN

DRAWING NO.

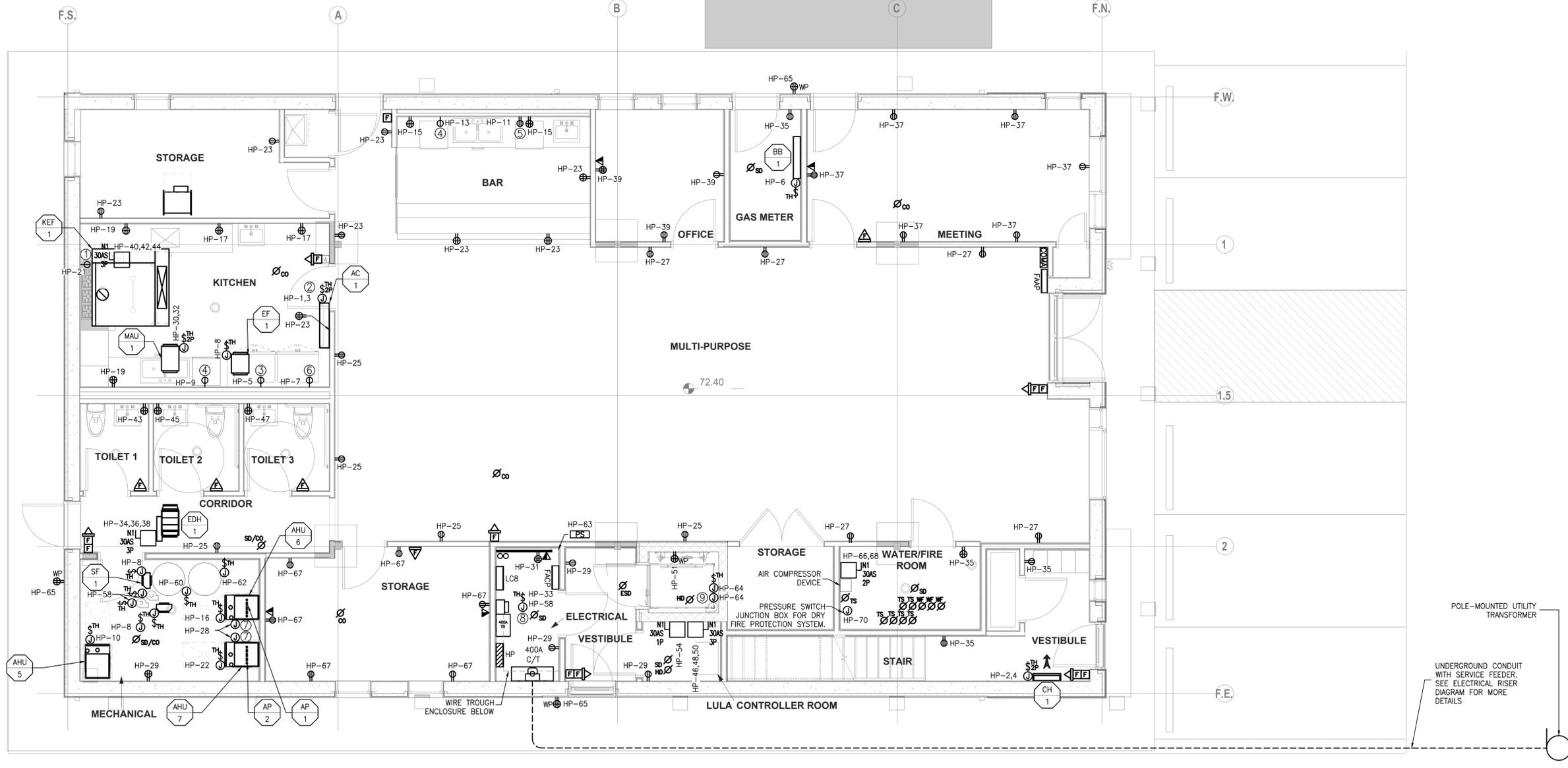
E-101

DATE: 12/01/20

SCALE: AS NOTED

STAMP & SIGNATURE

ARMEN KHACHATRIAN, P.E. - NJ LICENSE #23285  
NJ CERTIFICATE OF AUTHORIZATION #246A28034700



**ELECTRICAL FIRST FLOOR CONSTRUCTION PLAN**

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

THE SPACE ABOVE THE CEILING IS BEING USED AS A PLENUM RETURN. ALL CONDUIT AND EQUIPMENT ABOVE THE CEILING AND IN INHABITABLE AIR HANDLING ROOMS SHALL BE METALLIC OR A PLENUM RATED MATERIAL.

**ELECTRICAL GENERAL NOTES:**

- ALL WIRING/CABLING AND OTHER TELCO/DATA DEVICES SHALL BE PROVIDED BY TELCO/DATA CONTRACTOR. GENERAL CONTRACTOR SHALL VERIFY LOCATIONS OF DEVICES AND PROVIDE NECESSARY ROUGH-INS.
- APPROXIMATE LOCATION AND CIRCUITING INTENT FOR MECHANICAL EQUIPMENT, PLUMBING EQUIPMENT AND SPRINKLER EQUIPMENT AS SHOWN ON THESE DRAWINGS. COORDINATE EXACT LOCATION AND CONTROLS WITH MECHANICAL AND PLUMBING PLANS.
- ALL RECEPTACLE LOCATIONS/TYPES/ELEVATIONS IN AMENITY/Common AREAS TO BE COORDINATE WITH G.C. & ARCHITECT PRIOR TO INSTALLATION.
- EC TO PROVIDE CONDUIT EXPANSION FITTINGS WHEN CROSSING EXPANSION JOINTS.
- COORDINATE EXACT LOCATION AND QUANTITY OF TAMPER/WATERFLOW SWITCHES WITH SPRINKLER DRAWINGS.
- ALL 120V RECEPTACLES, 50A OR LESS AS WELL AS THREE PHASE RECEPTACLES, 100A OR LESS INSTALLED IN BATHROOMS, KITCHENS AND ROOF TOPS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION AS REQUIRED BY THE NATIONAL ELECTRIC CODE.

**ELECTRICAL KEY NOTES:**

1. POWER FOR GAS RANGE/COOKTOP. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
2. INDOOR A/C UNIT, AC-1, POWERED FROM OUTDOOR CONDENSING UNIT, CU-1. PROVIDE DISCONNECT SWITCH AT INDOOR UNIT.
3. PROVIDE DEDICATED RECEPTACLE FOR REFRIGERATOR. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
4. POWER FOR DISHWASHER. EC TO COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER PRIOR TO BID AND INSTALLATION.
5. PROVIDE DEDICATED RECEPTACLE FOR UNDERCOUNTER REFRIGERATOR. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
6. PROVIDE DEDICATED RECEPTACLE FOR FREEZER. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
7. PROVIDE UNIT MOUNTED JUNCTION BOX FOR AIR PURIFICATION DEVICE. COORDINATE WITH MECHANICAL CONTRACTOR FOR FINAL LOCATION.
8. PROVIDE DISCONNECT SWITCH FOR DRIP PAN CONDENSATE PUMP. COORDINATE FINAL LOCATION WITH MECHANICAL CONTRACTOR.
9. JUNCTION BOX FOR SLUMP PUMP ALARM CONTROL PANEL POWER. COORDINATE FINAL LOCATION WITH EQUIPMENT CUTSHEET PRIOR TO INSTALLATION.



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135 SUMMER STREET  
PASSAIC, NJ

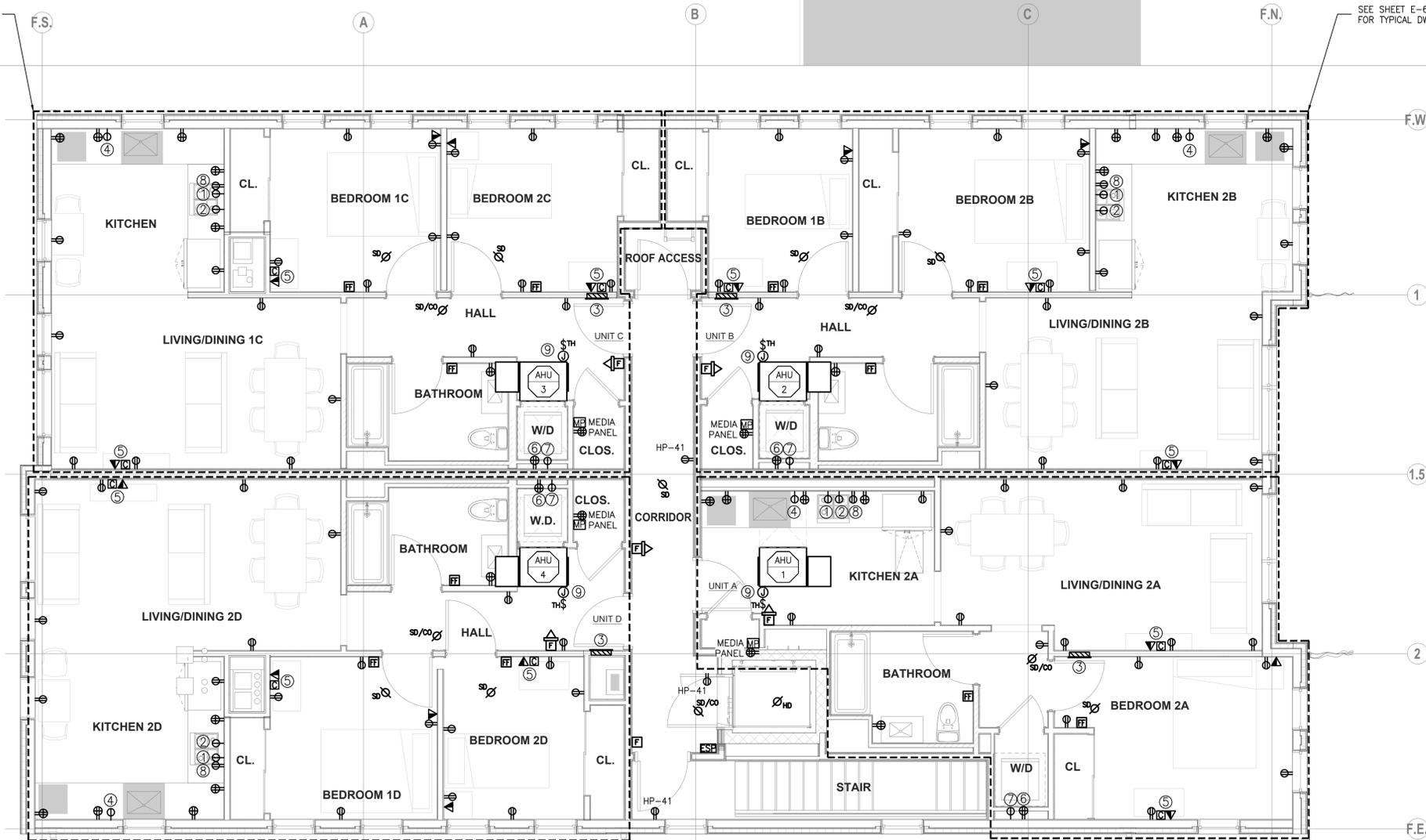
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SEE SHEET E-601 ELECTRICAL PANEL SCHEDULES FOR TYPICAL DWELLING UNIT CIRCUIT DESIGNATION.



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2 100% PERMIT SET 2/02/2021

1 80% DD SET 1/08/2021

ISSUE/REVISION DATE

DRAWING TITLE

ELECTRICAL  
SECOND FLOOR  
CONSTRUCTION PLAN

DRAWING NO.

E-102

DATE: 12/01/20

SCALE: AS NOTED

STAMP & SIGNATURE

ARMEN KHACHATRIAN, P.E. - NJ LICENSE #21285  
NJ CERTIFICATE OF AUTHORIZATION #246428034700

**ELECTRICAL GENERAL NOTES:**

- ALL WIRING/CABLING AND OTHER TELCO/DATA DEVICES SHALL BE PROVIDED BY TELCO/DATA CONTRACTOR. GENERAL CONTRACTOR SHALL VERIFY LOCATIONS OF DEVICES AND PROVIDE NECESSARY ROUGH-INS.
- APPROXIMATE LOCATION AND CIRCUITING INTENT FOR MECHANICAL EQUIPMENT, PLUMBING EQUIPMENT AND SPRINKLER EQUIPMENT AS SHOWN ON THESE DRAWINGS. COORDINATE EXACT LOCATION AND CONTROLS WITH MECHANICAL AND PLUMBING PLANS.
- ALL DEVICES SHALL BE CIRCUITED TO THE LOCAL TENANT PANEL (U.O.N.).
- PANEL SHALL BE INSTALLED SO THAT THE NO BREAKER IS HIGHER THAN 48" A.F.F.
- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUN ROOMS, RECREATION ROOMS, HALLWAYS CLOSET, AND SIMILAR AREAS.
- ALL OUTLETS LOCATIONS SHOWN ARE DIAGRAMMATIC. ALL WALL PENETRATIONS BETWEEN DEMISING/FIRE RATED WALLS INCLUDING (BUT NOT LIMITED TO) ELECTRICAL AND TEL/DATA OUTLETS SHALL BE STAGGERED SO THAT A MINIMUM OF 24" IS BETWEEN TWO OUTLETS. OFFSET BOXES MINIMUM (1) STUD SPACE AND SEAL OPENINGS THRU THE PARTITIONS AND FLOORS.
- ALL RECEPTACLES IN DWELLING UNITS SHALL BE TAMPER PROOF.
- ALL SWITCHES CONTROLLING LIGHTING LOADS MUST ADHERE TO 2017 NATIONAL ELECTRICAL CODE ARTICLE 404.2.
- COORDINATE EXACT LOCATION OF MECHANICAL/PLUMBING/SPRINKLER EQUIPMENT WITH RESPECTIVE ELECTRICAL DRAWINGS.
- ALL 120V RECEPTACLES, 50A OR LESS AS WELL AS THREE PHASE RECEPTACLES, 100A OR LESS INSTALLED IN BATHROOMS, KITCHENS AND ROOF TOPS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION AS REQUIRED BY THE NATIONAL ELECTRIC CODE.

**ELECTRICAL KEY NOTES:**

- POWER FOR GAS RANGE/COOKTOP. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
- MICROWAVE RECEPTACLE IN CABINERY. VERIFY EXACT MOUNTING HEIGHT WITH CABINET SUPPLIER PRIOR TO INSTALLATION.
- PROPOSED LOCATION OF APARTMENT UNIT PANEL MOUNTED PER ADA GUIDELINES. COORDINATE FINAL LOCATION WITH OWNER PRIOR TO INSTALLATION.
- POWER FOR DISHWASHER. EC TO COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER PRIOR TO BID AND INSTALLATION.
- DATA LOCATION SHALL CONSIST OF (2) QUAD BOXES WITH CONDUIT STUBBED UP ABOVE CEILING FOR CABLE, TELCO, DATA AND SPEAKER CONNECTIONS.
- GFI TYPE RECEPTACLES FOR WASHER IN UNIT. COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER PRIOR TO BID AND INSTALLATION.
- POWER FOR GAS DRYER. COORDINATE EXACT POWER AND CONTROL REQUIREMENTS WITH MANUFACTURER PRIOR TO BID AND INSTALLATION.
- POWER FOR HOOD/FAN. COORDINATE FINAL LOCATION AND RECEPTACLE TYPE WITH APPLIANCE CUTSHEET PRIOR TO BID AND INSTALLATION.
- PROVIDE DISCONNECT SWITCH FOR FURNACE AIR HANDLING UNIT. SPLIT CONDENSING UNIT LOCATED ON ROOF. SEE ELECTRICAL ROOF PLANS FOR LOCATIONS. CONDENSING UNIT TO BE POWERED FROM DWELLING UNIT THAT IT SERVES.

**ELECTRICAL SECOND FLOOR CONSTRUCTION PLAN**

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

THE SPACE ABOVE THE CEILING IS BEING USED AS A PLENUM RETURN. ALL CONDUIT AND EQUIPMENT ABOVE THE CEILING AND IN INHABITABLE AIR HANDLING ROOMS SHALL BE METALLIC OR A PLENUM RATED MATERIAL.



Paterson Habitat For Humanity  
146 North 1st Street  
Paterson, NJ 07522

PROJECT NAME

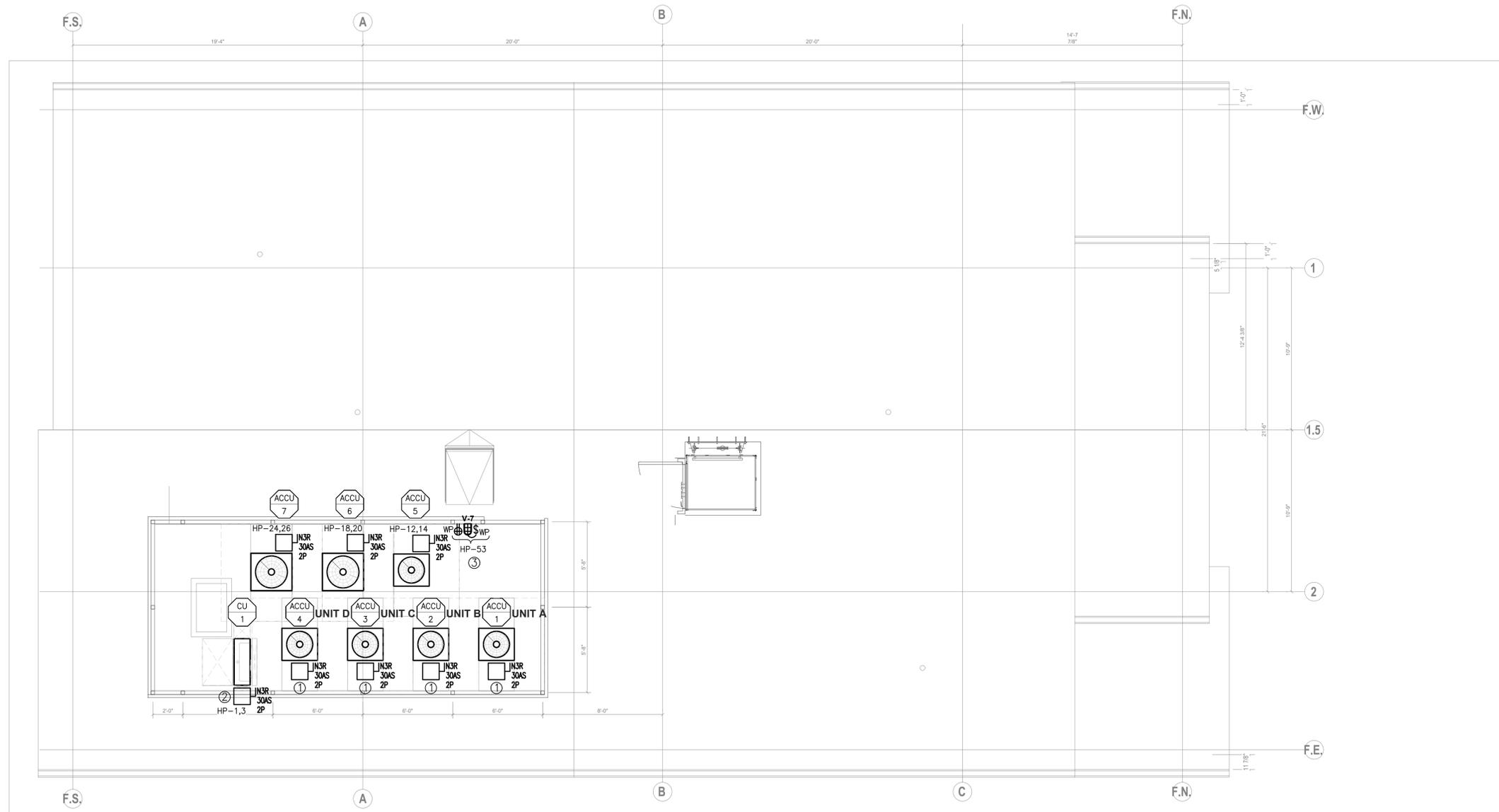
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CHEN O'NEIL ARCHITECTS, PLLC

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**ELECTRICAL ROOF CONSTRUCTION PLAN**  
SCALE: 1/4" = 1'-0"

**ELECTRICAL GENERAL NOTES:**

- ALL WIRING/CABLING AND OTHER TELCO/DATA DEVICES SHALL BE PROVIDED BY TELCO/DATA CONTRACTOR. GENERAL CONTRACTOR SHALL VERIFY LOCATIONS OF DEVICES AND PROVIDE NECESSARY ROUGH-INS.
- APPROXIMATE LOCATION AND CIRCUITING INTENT FOR MECHANICAL EQUIPMENT, PLUMBING EQUIPMENT AND SPRINKLER EQUIPMENT AS SHOWN ON THESE DRAWINGS. COORDINATE EXACT LOCATION AND CONTROLS WITH MECHANICAL AND PLUMBING PLANS.
- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUN ROOMS, RECREATION ROOMS, HALLWAYS CLOSET, AND SIMILAR AREAS.
- COORDINATE EXACT LOCATION OF MECHANICAL/PLUMBING/SPRINKLER EQUIPMENT WITH RESPECTIVE ELECTRICAL DRAWINGS.
- ALL 120V RECEPTACLES, 50A OR LESS AS WELL AS THREE PHASE RECEPTACLES, 100A OR LESS INSTALLED IN BATHROOMS, KITCHENS AND ROOF TOPS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION AS REQUIRED BY THE NATIONAL ELECTRIC CODE.

**ELECTRICAL KEY NOTES:**

1. PROVIDE OUTDOOR RATED DISCONNECT SWITCH FOR SPLIT CONDENSING UNIT. FURNANCE SECTION LOCATED IN DWELLING UNIT. SEE ELECTRICAL SECOND FLOOR CONSTRUCTION PLAN FOR LOCATIONS. CONDENSING UNIT TO BE POWERED FROM DWELLING UNIT THAT IT SERVES.
2. OUTDOOR CONDENSING UNIT, CU-1, POWERS INDOOR A/C UNIT, AC-1. PROVIDE DISCONNECT SWITCH AT OUTDOOR UNIT.
3. PROVIDE ROOF SERVICE LIGHT AND RECEPTACLE. FOR TYPICAL INSTALLATION, REFER TO TYPICAL ROOF MOUNTED RECEPTACLE IN ELECTRICAL DETAILS ON SHEET E-402.

2 100% PERMIT SET 2/02/2021

1 80% DD SET 1/08/2021

ISSUE/REVISION DATE

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**ELECTRICAL  
ROOF  
CONSTRUCTION PLAN**

DRAWING NO.

**E-103**

DATE: 12/01/20

SCALE: AS NOTED

STAMP & SIGNATURE





Paterson Habitat For Humanity  
146 North 1st Street  
Paterson, NJ 07522

PROJECT NAME

135 SUMMER STREET  
PASSAIC, NJ

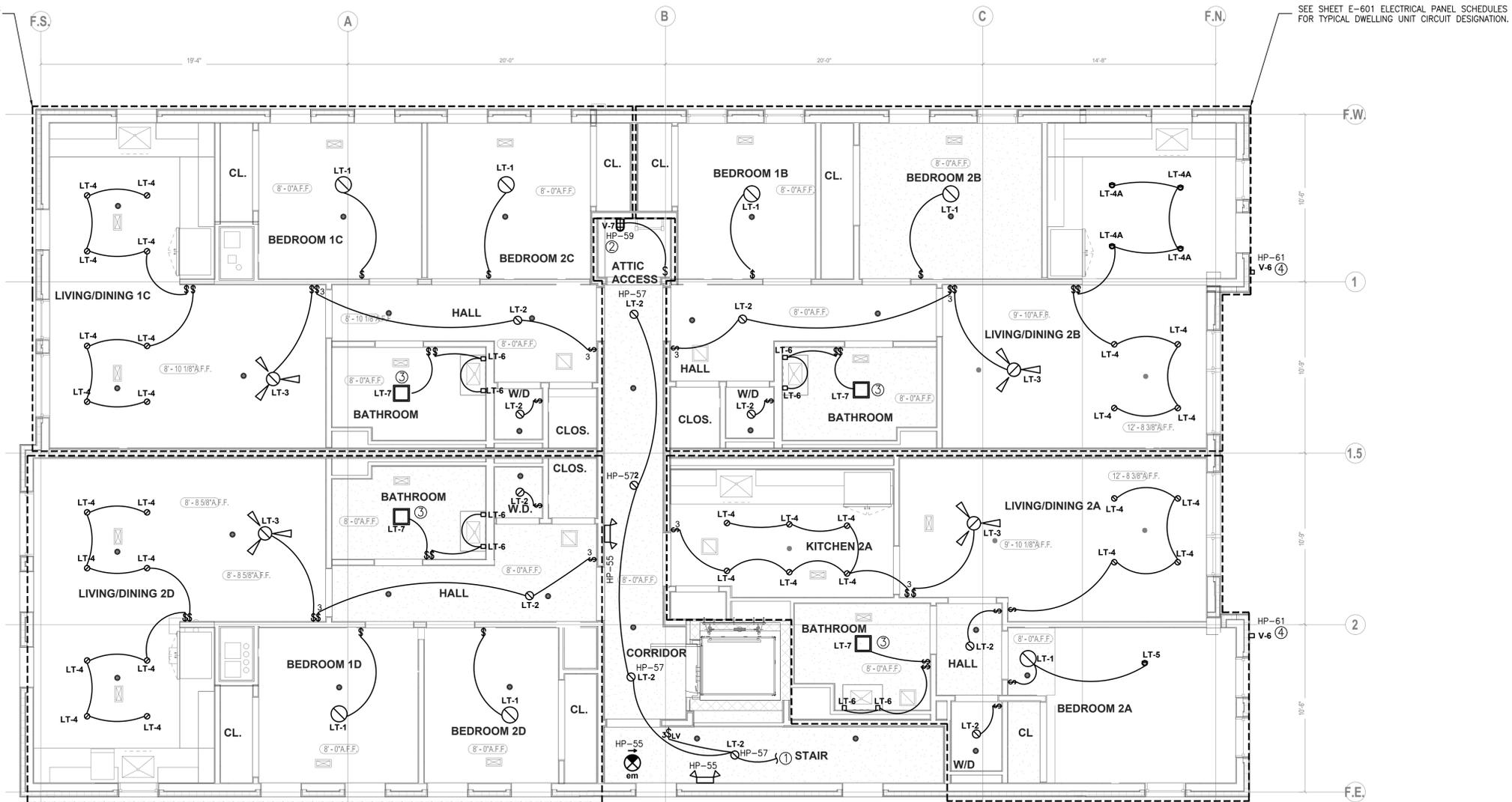
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**ELECTRICAL SECOND FLOOR REFLECTED CEILING PLAN**

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

**LIGHTING CONTROL NARRATIVE:**

- MULTI-PURPOSE ROOM/BAR/CORRIDORS/VESTIBULES/STAIRWAY: (TIME CONTROLLED)
- CONTROLLED VIA LOW VOLTAGE MOMENTARY SWITCHES AND LC8 LIGHTING CONTROL PANEL. COORDINATE SCHEDULE WITH OWNER.
  - MANUAL ON/SCHEDULED FULL OFF DURING PERIOD WHEN SPACE WILL BE UNOCCUPIED.
  - BI-LEVEL LIGHTING SHALL BE IMPLEMENTED WITH AT LEAST ONE INTERMEDIATE STEP SHALL BE 30% AND 70% (INCLUSIVE) OF FULL LIGHTING POWER IN SPACE.
  - LOCAL OVERRIDE SWITCH SHALL NOT TURN LIGHTING ON FOR MORE THAN 2 HOURS DURING THE SCHEDULED OFF PERIODS.
- ATTIC ACCESS CLOSET:
- CONTROLLED VIA MANUAL ON/OFF SWITCH.
- FUNCTIONAL TESTING:
- EC SHALL TEST ALL LIGHTING CONTROL SYSTEM TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- THE FOLLOWING SHALL BE PERFORMED FOR TESTING OF OCCUPANCY SENSORS, TIME CONTROL SYSTEMS, PHOTOSENSORS OR DAYLIGHTING SYSTEMS:
- CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANCY SENSORS YIELD ACCEPTABLE PERFORMANCE.
  - CONFIRM THAT THE TIMED CONTROL SYSTEMS ARE PROGRAMMED TO TURN THE LIGHTS OFF.
  - CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.

**ELECTRICAL GENERAL NOTES:**

- THESE DRAWINGS SHOW THE INTENT OF THE NEW CIRCUITING DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FOLLOW THIS INTENT WHILE ADAPTING TO THE EXISTING CONDITIONS FOUND IN THE FIELD.
- ALL DEVICES SHALL BE CIRCUITED TO THE LOCAL TENANT PANEL (U.O.N.).
- PANEL SHALL BE INSTALLED SO THAT THE NO BREAKER IS HIGHER THAN 48" A.F.F.
- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUN ROOMS, RECREATION ROOMS, HALLWAYS CLOSET, AND SIMILAR AREAS.
- ALL OUTLETS LOCATIONS SHOWN ARE DIAGRAMMATIC. ALL WALL PENETRATIONS BETWEEN DEMISING/FIRE RATED WALLS INCLUDING (BUT NOT LIMITED TO) ELECTRICAL AND TEL/DATA OUTLETS SHALL BE STAGGERED SO THAT A MINIMUM OF 24" IS BETWEEN TWO OUTLETS. OFFSET BOXES MINIMUM (1) STUD SPACE AND SEAL OPENINGS THRU THE PARTITIONS AND FLOORS.
- ALL RECEPTACLES IN DWELLING UNITS SHALL BE TAMPER PROOF.
- ALL SWITCHES CONTROLLING LIGHTING LOADS MUST ADHERE TO 2017 NATIONAL ELECTRICAL CODE ARTICLE 404.2.
- COORDINATE EXACT LOCATION OF MECHANICAL/PLUMBING/SPRINKLER EQUIPMENT WITH RESPECTIVE ELECTRICAL DRAWINGS.
- ALL 120V RECEPTACLES, 50A OR LESS AS WELL AS THREE PHASE RECEPTACLES, 100A OR LESS INSTALLED IN BATHROOMS, KITCHENS AND ROOF TOPS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION AS REQUIRED BY THE NATIONAL ELECTRIC CODE.
- PROVIDE AN UN-SWITCHED HOT LEG TO ALL NIGHT LIGHT AND EMERGENCY FIXTURES.

**ELECTRICAL KEY NOTES:**

- LIGHT FIXTURE AT TOP OF STAIRS CONNECTS TO LIGHT AT BOTTOM OF STAIRS IN VESTIBULE.
- LIGHT FIXTURE PROVIDED AT TOP AND BOTTOM OF CLOSET.
- EXHAUST FAN TO BE FURNISHED BY MECHANICAL CONTRACTOR. PROVIDE UN-SWITCHED POWER TO EXHAUST FAN COMPONENT. FAN TO BE CONTROLLED BY MANUFACTURER'S INTEGRAL OCCUPANCY SENSOR ONLY. PROVIDE WALL SWITCH FOR LED LIGHT COMPONENT, SEE WIRING DIAGRAM FOR LED LIGHT CONNECTIONS ON EQUIPMENT INSTALLATION INSTRUCTIONS.
- EXTERIOR FLAG SPOTLIGHT. COORDINATE MOUNTING HEIGHT INSTALLATION WITH ARCHITECTURAL DRAWINGS AND FLAG FINAL LOCATION. COORDINATE TIME SCHEDULING WITH ALL OTHER EXTERIOR LIGHTING FIXTURES AND OWNER.

THE SPACE ABOVE THE CEILING IS BEING USED AS A PLENUM RETURN. ALL CONDUIT AND EQUIPMENT ABOVE THE CEILING AND IN INHABITABLE AIR HANDLING ROOMS SHALL BE METALLIC OR A PLENUM RATED MATERIAL.

2 100% PERMIT SET 2/02/2021

1 80% DD SET 1/08/2021

ISSUE/REVISION DATE

DRAWING TITLE

**ELECTRICAL SECOND FLOOR REFLECTED CEILING PLAN**

DRAWING NO.

**E-202**

DATE: 12/01/20

SCALE: AS NOTED

STAMP & SIGNATURE

A. CONTRACT PERFORMANCE

- EXECUTE THE WORK IN THE BEST AND MOST THOROUGH MANNER & TO THE SATISFACTION OF THE CONSULTING ENGINEER, WHO WILL JOINTLY INTERPRET THE MEANING OF THE DRAWINGS AND SPECIFICATIONS AND SHALL HAVE THE POWER TO REJECT ANY WORK AND MATERIALS WHICH, IN THEIR JUDGMENT, ARE NOT IN FULL ACCORDANCE THEREWITH.
- EXCEPT FOR CHANGES AS MAY BE SPECIFICALLY APPROVED BY THE CONSULTING ENGINEERS, IN ACCORDANCE WITH ALTERNATES OF OPTIONS STATED HERINAFTER, ALL WORK MUST BE IN FULL ACCORDANCE WITH THE INTENT OF THE PLANS AND SPECIFICATIONS, COMPLETE IN EVERY WAY AND READY FOR SATISFACTORY AND EFFICIENT OPERATION WHEN DELIVERED TO THE OWNER.
- WHERE DISAGREEMENTS OCCUR BETWEEN THE PLANS AND THE SPECIFICATIONS, OR WITHIN EITHER DOCUMENT ITSELF, THE ITEM OR ARRANGEMENT OF BETTER QUALITY, GREATER QUANTITY OR HIGHER COST SHALL BE INCLUDED IN THE BIDDING.
- THE DRAWINGS SHOW THE VARIOUS CONDUIT AND PIPING SYSTEMS SCHEMATICALLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY JUNCTION BOXES, PULL BOXES, SUPPORT AND ACCESSORIES TO MEET APPLICABLE CODES, BUILDING STANDARDS AND FULFILL CONTRACT DOCUMENTS. NO ADDED COMPENSATION WILL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS.
- THE CONTRACTOR COVENANTS AND AGREES THAT HE AND HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE AND THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF AND THE CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.
- THE CONTRACTOR AND EACH SUBCONTRACTOR COVENANTS AND AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES PROPERLY TO DISCHARGE THE OBLIGATIONS ASSUMED BY HIM OR THEM IN THE PERFORMANCE OF THE WORK, INCLUDING ANY ACT OR OMISSION ALLEGEDLY RESULTING IN DEATH OR PERSONAL INJURY OR PROPERTY DAMAGE OR IMPROPER CONSTRUCTION, CONSTRUCTION TECHNIQUES OR THE USE OF IMPROPER OR INAPPROPRIATE MATERIAL OR TOOLS.
- THE CONTRACTOR AGREES THAT ANY CONTROVERSY OR DISPUTE TO WHICH THE CONTRACTOR, THE ARCHITECT, AND THE CONSULTING ENGINEERS ARE PARTIES SHALL BE SUBMITTED TO ARBITRATION FOR DECISION IN ACCORDANCE WITH THE RULES OF SUCH ASSOCIATION FOR CONSTRUCTION INDUSTRY DISPUTES. ALL SUBCONTRACTORS LIKEWISE AGREE TO SUBMIT TO SUCH ARBITRATION ANY DISPUTE BETWEEN OR AMONG THEM, THE CONTRACTOR, THE ARCHITECT AND THE CONSULTING ENGINEERS, AND THE CONTRACTOR AGREES TO MAKE AVAILABLE TO THE CONSULTING ENGINEERS ON DEMAND SIGNED COPIES OF THE CONTRACT BETWEEN THE OWNER AND THE CONTRACTOR AND BETWEEN THE CONTRACTOR AND HIS SUBCONTRACTORS. THE CONTRACTOR AND EACH SUBCONTRACTOR AGREE THAT BY SUBMITTING A BID WHICH IS ACCEPTED, THIS PARAGRAPH SHALL BE DEEMED A WRITTEN AGREEMENT TO SUBMIT ANY CONTROVERSY THEREAFTER ARISING ARBITRATION.
- ALL WORK SHALL BE DONE IN CONFORMANCE WITH ALL GOVERNING CODES, INCLUDING AMENDMENTS, BULLETINS, ETC., AS WELL AS STANDARDS OF INSTALLATION AND EQUIPMENT ESTABLISHED FOR THE BUILDINGS, AND REQUIREMENTS OF THE OWNER.
- OBTAIN ALL NECESSARY PERMITS AND APPROVAL FROM GOVERNING AUTHORITIES AND FILE ALL NECESSARY FORMS. PAY ALL INSPECTION FEES.
- COORDINATE SCHEDULING OF ALL WORK TO BE PERFORMED WITH OWNER AND/OR HIS AGENT AND INCLUDE ALL NECESSARY PREMIUM TIME REQUIRED FOR SHUTDOWNS, WORK IN OCCUPIED AREAS, ETC.
- ALL AREAS ASSOCIATED WITH WORK TO BE PERFORMED SHALL BE EXAMINED PRIOR TO BID SUBMISSION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR CONDITIONS FOUND DURING INSTALLATION.
- BEFORE COMMENCING WORK, EXAMINE ALL ADJOINING WORK ON WHICH THIS WORK IS IN ANY WAY DEPENDENT FOR PERFECT WORKMANSHIP ACCORDING TO THE INTENT OF THIS SPECIFICATION, AND REPORT TO THE CONSTRUCTION MANAGER ANY CONDITION WHICH PREVENTS PERFORMANCE OF FIRST-CLASS WORK. NO "WAIVER OF RESPONSIBILITY" FOR INCOMPLETE, INADEQUATE OR DEFECTIVE ADJOINING WORK WILL BE CONSIDERED UNLESS NOTICE HAS BEEN FILED BEFORE SUBMITTAL OF A PROPOSAL.
- COORDINATE ALL WORK WITH OTHER TRADES TO INSURE INSTALLATION IS MADE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- FURNISH ADEQUATE LIABILITY INSURANCE AND BONDING AS REQUIRED BY OWNER.
- INCLUDE ALL LABOR, MATERIALS, AND APPURTENANCES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK, COMPLETE AND MAKE READY FOR OPERATION IN A MANNER SATISFACTORY TO THE ARCHITECT AND CONSULTING ENGINEER, ALL WORK SHOWN ON DRAWINGS AND SPECIFIED HEREIN.
- ALL WORK SHALL BE GUARANTEED FOR TWO (2) FULL YEARS FROM THE DATE WHEN THE OWNER HAS ISSUED A "CERTIFICATE OF SUBSTANTIAL COMPLETION".

B. INSTALLATION PROCEDURE

- THIS CONTRACTOR'S WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: FURNISHING AND INSTALLATION OF ALL ELECTRICAL WORK, INCLUDING ELECTRICAL AND COMMUNICATIONS OUTLETS IN WALLS AND FLOOR, LIGHTING FIXTURES WITH LAMPS, SWITCHES, DIMMERS, EMERGENCY BATTERY UNITS, ETC., AND ASSOCIATED BRANCH CIRCUIT WIRING, DISCONNECT SWITCHES, SPECIAL RECEPTACLES, ETC. ALL SPECIAL EQUIPMENT, SUCH AS FANS, AIR CONDITIONING UNITS, COPEERS, ETC. WILL BE FURNISHED BY OTHERS (I.O.N.), WHERE EQUIPMENT REQUIRES PERMANENT CONNECTIONS, THESE CONNECTIONS SHALL BE PROVIDED WITH APPROPRIATE DISCONNECTING MEANS.
- ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON DRAWINGS WITH OTHER TRADES TO ASSURE THAT ALL SYSTEMS ARE COMPLETE AND OPERATIONAL. THIS CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS AND CONDUIT RUNS SUPPLIED AND/OR INSTALLED UNDER THIS SECTION TO AVOID CONFLICTS OR OBSTRUCTIONS TO OTHER TRADES. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY PULL BOXES, VERTICAL SUPPORT BOXES, AND CONDUIT OFFSETS REQUIRED TO ACCOMPLISH THE ABOVE NOTED COORDINATION AT NO ADDITIONAL COST TO THE OWNER, WHETHER OR NOT INDICATED ON PLANS. ALL VERTICAL SUPPORT BOXES, PULL BOXES, ETC. SHALL BE INSTALLED WHERE REQUIRED TO FACILITATE PULLS AND AT CODE REQUIRED INTERVALS, AT A MINIMUM.
- CONDUIT RUNS INDICATED ON PLAN ARE FOR REFERENCE ONLY. EXACT LOCATIONS AND ELEVATION SHALL BE DETERMINED AFTER COORDINATION WITH OTHER TRADES. THIS CONTRACTOR SHALL SUPPLY, AS PART OF THEIR SHOP DRAWING SUBMISSION, THE EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT AND CONDUIT RUNS, INCLUDING PROPOSED LOCATIONS AND MEANS OF SUPPORT AS WELL AS THE EXPECTED LOAD CONCENTRATION AT THE POINTS OF ATTACHMENT. THE ABOVE NOTED INFORMATION SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER BEFORE ANY WORK IS TO COMMENCE.

- FURNISH AND INSTALL ALL NECESSARY CABLE SUPPORT BOXES, PULL BOXES AND CONDUIT SUPPORTS, WHERE NOTED AND AS REQUIRED BY APPLICABLE CODES. ALL LOW TENSION (COMMUNICATIONS, SECURITY, A/V, ETC.) CONDUIT, FIRE ALARM CONDUIT, ETC., WHICH HAVE RUNS IN EXCESS OF 100 FEET IN LENGTH AND/OR CONTAINING BENDS IN EXCESS OF 180 DEGREES SHALL BE PROVIDED WITH A PULLBOX. ALL PULLBOXES SHALL BE LABELED FOR THEIR INTENDED USE. DECALS SHALL BE PROVIDED TO INDICATE VOLTAGE LEVEL. FIRE ALARM SYSTEM BOXES SHALL BE PAINTED RED, AND ALL WIRE AND CABLE PROVIDED UNDER THIS SECTION SHALL BE TAGGED (WITH FEEDER OR BRANCH CIRCUIT DESIGNATION) AT ALL BOXES. WHERE CONDUIT BENDS ARE REQUIRED IN COMMUNICATIONS RACEWAY SYSTEMS, THE RADIUS OF THE RACEWAY BEND SHALL NOT BE LESS THAN TEN TIMES THE DIAMETER OF THE RACEWAY. PULL BOXES FOR COMMUNICATION RACEWAYS WILL BE PROVIDED IN STRAIGHT PULLS ONLY. LABEL EACH RACEWAY (PER TECHNOLOGY DEPT. REQUIREMENTS) EVERY 50 FEET HORIZONTALLY AND ON EACH FLOOR VERTICALLY. SUBMIT LABELING SYSTEM FOR REVIEW.
- UNLESS SPECIFICALLY APPROVED, NO WIRES SHALL BE PULLED IN UNTIL THE CONDUIT SYSTEM IS COMPLETED. NO GREASE OR OIL SHALL BE USED TO FACILITATE THE PULLING OF WIRES; ONLY APPROVED PULLING COMPOUND SHALL BE USED. ALL WIRES SHALL BE CONTINUOUS BETWEEN OUTLET AND OUTLET, OR FROM PANELBOARD TO THE FIRST OUTLET. JOINTS THAT BECOME NECESSARY IN CIRCUIT WORK AT THE OUTLETS SHALL BE MADE WITH APPROVED PRESSURE CONNECTORS. ALL JOINTS SHALL BE COVERED WITH AN INSULATION EQUAL TO THAT ON THE CONDUCTORS. APPROVED PRESSURE CONNECTORS, IDEAL WINGNUTS, SCOTCH-LOCK, BUCHANAN, OR AS APPROVED, SHALL BE USED.
- EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES, SWITCHES, WALL OUTLETS, ETC., SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS.
- NO ELECTRICAL CONNECTIONS SHALL BE MADE TO, OR WORK PERFORMED ON, ENERGIZED EQUIPMENT.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE ACCORDING TO VENDOR APPROVED SHOP DRAWINGS.
- VERIFY ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT TO BE USED. ALL SPECIAL PURPOSE OUTLETS INDICATED ON PLAN SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION, TO ENSURE PROPER WIRING AND COMPATIBILITY WITH ATTACHMENT PLUGS OR JUNCTION BOXES THAT MAY BE FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT.
- COORDINATE ALL LOCATIONS AND HEIGHTS OF STUB-UPS AND OUTLETS IN FIELD WITH VENDORS AND/OR FURNITURE MANUFACTURERS' APPROVED SHOP DRAWINGS. ALL RECEPTACLES ARE TO BE ACCESSIBLE.
- ELECTRICAL CONTRACTOR SHALL ENSURE THAT CODE REQUIRED QUANTITY OF OUTLETS HAVE BEEN FURNISHED AND INSTALLED. PROVIDE DEDICATED CIRCUITS FOR OUTLETS AS REQUIRED BY CODE.
- ALL RECEPTACLES SHALL BE ACCESSIBLE BELOW COUNTERS OR BEHIND EQUIPMENT. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT RECEPTACLES WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE LOCAL INSPECTOR.
- ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTS FOR ALL EQUIPMENT PER CODE AND SHALL COORDINATE ALL DISCONNECT SWITCH REQUIREMENTS AND LOCATIONS WITH THE ELECTRICAL INSPECTOR, VENDORS APPROVED SHOP DRAWING AND FINAL EQUIPMENT LOCATIONS.
- ELECTRICAL CONTRACTOR SHALL VERIFY PHASE LOAD BALANCING ON ALL PANELS UPON COMPLETION OF THE ELECTRICAL INSTALLATION. INCLUDE RE-DISTRIBUTION OF CIRCUITS WITHIN PANELS TO BALANCE WITHIN A 10% WINDOW (+5%).
- ALL CONDUIT AND CABLE "HOMERUNS" SHALL CONSIST OF A SINGLE CIRCUIT PER CONDUIT FOR FEEDERS SERVED BY AN OVERCURRENT PROTECTIVE (OCP) DEVICE IN EXCESS OF 20 AMPERES, SINGLE POLE, WHERE WIRE AND CONDUIT BRANCH CIRCUITS SHARE A CONDUIT HOMERUN, (OCP LESS THAN OR EQUAL TO 20 AMPERES SINGLE POLE) THERE SHALL BE A MAXIMUM OF SIX CIRCUITS COMBINED IN A RACEWAY TO THE PANELBOARD, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE DERATED PER NATIONAL ELECTRICAL CODE (LATEST VERSION). COMBINING OF MULTIPLE HOMERUNS (MORE THAN SIX) IN A SINGLE CONDUIT SHALL NOT BE PERMITTED.
- ALL CONDUIT SHOWN FOR INDOOR WORK AS WELL AS FOR WEATHER PROTECTED GARAGE AREAS SHALL BE EMT (3/4" MINIMUM) WITH MALLEABLE SET-SCREW TYPE CONNECTORS AND COUPLINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE.
- ALL CONDUIT SHOWN FOR OUTDOOR WORK SHALL BE SCHEDULE 40 PVC (3/4" MINIMUM). ALL JOINTS SHALL BE CLEANED WITH AN APPROVED SOLVENT PRIOR TO GLUING TO ENSURE WATERIGHT CONNECTION. ANY CONDUITS FOUND WITH WATER IN THEM SHALL BE REPLACED AT THE SOLE EXPENSE OF THE CONTRACTOR.
- PROVIDE IMC CONDUIT WITH THREADED COUPLINGS WHERE REQUIRED BY CODE.
- TYPE MC CABLE SHALL BE UTILIZED FOR BRANCH LIGHTING AND RECEPTACLE CIRCUITRY.
- INCLUDE ALL LABOR, MATERIALS, AND APPLICATIONS REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, IN A MANNER SATISFACTORY TO THE ARCHITECT.
- ALL WORK AND/OR EQUIPMENT INSTALLED OUTDOORS SHALL BE APPROVED FOR USE IN NET LOCATIONS.
- WHERE CONDUITS, CABLE TRAY OR OTHER ELECTRICAL EQUIPMENT PENETRATE FIRE OR SMOKE RATED WALLS, PARTITIONS, FLOOR SLABS, ETC., THE SPACE BETWEEN THE SLEEVE OR CUTOOUT AND THE ELECTRICAL EQUIPMENT SHALL BE CAULKED WITH A UL LISTED, INTUMESCENT TYPE, APPROVED FIRESTOP SYSTEM. SPACE BETWEEN THE SLEEVE OR CUTOOUT AND THE ELECTRICAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR CONDUIT SIZE AND DAMPING MATERIAL THICKNESS FOR THE TYPE OF RATED CONSTRUCTION FOR WHICH THE SYSTEM IS TO BE USED. THE FIRESTOP SYSTEM SHALL BE AS MANUFACTURED BY 3M FIRE PROTECTION PRODUCTS OR AS APPROVED. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF WALLS AND FLOORS.
- WHERE WORK IS ONGOING IN ELECTRICAL PANELS THE COVERS ARE NOT TO BE LEFT OFF UNLESS WORK IS CURRENTLY BEING PERFORMED ON THE PANEL. COVERS SHALL BE REPLACED EACH NIGHT AT THE END OF SHIFT.
- TEMPORARY POWER AND LIGHTING SHALL BE PROVIDED THROUGHOUT CONSTRUCTION AREAS FROM TEMPORARY SERVICE(S) AND WEATHERPROOF PANEL(S). ALL RECEPTACLES SHALL BE GFCI TYPE AND HAVE PROTECTIVE COVERS. ALL TEMPORARY LIGHTS SHALL BE UL APPROVED WITH ONE 100 WATT ROUGH SERVICE INCANDESCENT LAMP EVERY 100 SQUARE FEET.

C. ARCHITECTS AND/OR ENGINEERS REVIEW

- SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASE OF ANY EQUIPMENT. ANY WORK OR EQUIPMENT INSTALLED PRIOR TO REVIEW OF SHOP DRAWINGS AND FOUND TO BE UNACCEPTABLE SHALL BE REMOVED AND MODIFIED AT THE CONTRACTOR'S SOLE EXPENSE INCLUDING ANY RESULTANT SCHEDULING DELAYS EXPERIENCED BY ANY TRADE.
- THE ARCHITECT AND/OR ENGINEER WILL REVIEW SHOP DRAWINGS AND SAMPLES FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES IS ONLY FOR THE CONVENIENCE OF THE OWNER IN FOLLOWING THE WORK AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OR COMPLIANCE WITH CODE. THE ARCHITECT'S

AND/OR ENGINEER'S REVIEW SHALL NOT BE CONSTRUED AS A COMPLETE OR DETAILED CHECK OF THE WORK SUBMITTED, NOR SHALL IT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS AND SAMPLES, OR FROM THE NECESSITY OF FURNISHING ANY WORK REQUIRED BY THE CONTRACT DOCUMENTS WHICH MAY HAVE BEEN OMITTED FROM SHOP DRAWING SUBMITTALS.

- THE REVIEW OF A SEPARATE ITEM SHALL NOT INDICATE REVIEW OF THE COMPLETE ASSEMBLY IN WHICH IT FUNCTIONS. NOTHING IN THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES SHALL BE CONSIDERED AS AUTHORIZING:

- A DEPARTURE FROM CONTRACT DOCUMENTS OR SPECIFICATIONS, OR,
- ADDITIONAL COST TO THE OWNER, OR,
- INCREASED TIME FOR COMPLETION OF THE WORK.

- NO PART OF THE WORK SHALL BE STARTED IN THE SHOP OR IN THE FIELD UNTIL THE ARCHITECT AND/OR ENGINEER HAS REVIEWED THE SHOP DRAWINGS AND SAMPLES FOR THAT PORTION OF THE WORK. THEREAFTER, THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE INDICATED STATUS OF THE REVIEWED SHOP DRAWING.

- SAMPLES SHALL BE SUBMITTED FOR REVIEW WHEN REQUESTED BY THE ARCHITECT AND/OR ENGINEER.

- EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES, SWITCHES, WALL OUTLETS, ETC., SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS.

- NO ELECTRICAL CONNECTIONS SHALL BE MADE TO, OR WORK PERFORMED ON, ENERGIZED EQUIPMENT.

- FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE ACCORDING TO VENDOR APPROVED SHOP DRAWINGS.

- VERIFY ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT TO BE USED. ALL SPECIAL PURPOSE OUTLETS INDICATED ON PLAN SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION, TO ENSURE PROPER WIRING AND COMPATIBILITY WITH ATTACHMENT PLUGS OR JUNCTION BOXES THAT MAY BE FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT.

- COORDINATE ALL LOCATIONS AND HEIGHTS OF STUB-UPS AND OUTLETS IN FIELD WITH VENDORS AND/OR FURNITURE MANUFACTURERS' APPROVED SHOP DRAWINGS. ALL RECEPTACLES ARE TO BE ACCESSIBLE.

- ELECTRICAL CONTRACTOR SHALL ENSURE THAT CODE REQUIRED QUANTITY OF OUTLETS HAVE BEEN FURNISHED AND INSTALLED. PROVIDE DEDICATED CIRCUITS FOR OUTLETS AS REQUIRED BY CODE.

- ALL RECEPTACLES SHALL BE ACCESSIBLE BELOW COUNTERS OR BEHIND EQUIPMENT. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT RECEPTACLES WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE LOCAL INSPECTOR.

- ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTS FOR ALL EQUIPMENT PER CODE AND SHALL COORDINATE ALL DISCONNECT SWITCH REQUIREMENTS AND LOCATIONS WITH THE ELECTRICAL INSPECTOR, VENDORS APPROVED SHOP DRAWING AND FINAL EQUIPMENT LOCATIONS.

- ELECTRICAL CONTRACTOR SHALL VERIFY PHASE LOAD BALANCING ON ALL PANELS UPON COMPLETION OF THE ELECTRICAL INSTALLATION. INCLUDE RE-DISTRIBUTION OF CIRCUITS WITHIN PANELS TO BALANCE WITHIN A 10% WINDOW (+5%).

- ALL CONDUIT AND CABLE "HOMERUNS" SHALL CONSIST OF A SINGLE CIRCUIT PER CONDUIT FOR FEEDERS SERVED BY AN OVERCURRENT PROTECTIVE (OCP) DEVICE IN EXCESS OF 20 AMPERES, SINGLE POLE, WHERE WIRE AND CONDUIT BRANCH CIRCUITS SHARE A CONDUIT HOMERUN, (OCP LESS THAN OR EQUAL TO 20 AMPERES SINGLE POLE) THERE SHALL BE A MAXIMUM OF SIX CIRCUITS COMBINED IN A RACEWAY TO THE PANELBOARD, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE DERATED PER NATIONAL ELECTRICAL CODE (LATEST VERSION). COMBINING OF MULTIPLE HOMERUNS (MORE THAN SIX) IN A SINGLE CONDUIT SHALL NOT BE PERMITTED.

- ALL CONDUIT SHOWN FOR INDOOR WORK AS WELL AS FOR WEATHER PROTECTED GARAGE AREAS SHALL BE EMT (3/4" MINIMUM) WITH MALLEABLE SET-SCREW TYPE CONNECTORS AND COUPLINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE.

- ALL CONDUIT SHOWN FOR OUTDOOR WORK SHALL BE SCHEDULE 40 PVC (3/4" MINIMUM). ALL JOINTS SHALL BE CLEANED WITH AN APPROVED SOLVENT PRIOR TO GLUING TO ENSURE WATERIGHT CONNECTION. ANY CONDUITS FOUND WITH WATER IN THEM SHALL BE REPLACED AT THE SOLE EXPENSE OF THE CONTRACTOR.

- PROVIDE IMC CONDUIT WITH THREADED COUPLINGS WHERE REQUIRED BY CODE.

- TYPE MC CABLE SHALL BE UTILIZED FOR BRANCH LIGHTING AND RECEPTACLE CIRCUITRY.

- INCLUDE ALL LABOR, MATERIALS, AND APPLICATIONS REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, IN A MANNER SATISFACTORY TO THE ARCHITECT.

- ALL WORK AND/OR EQUIPMENT INSTALLED OUTDOORS SHALL BE APPROVED FOR USE IN NET LOCATIONS.

- WHERE CONDUITS, CABLE TRAY OR OTHER ELECTRICAL EQUIPMENT PENETRATE FIRE OR SMOKE RATED WALLS, PARTITIONS, FLOOR SLABS, ETC., THE SPACE BETWEEN THE SLEEVE OR CUTOOUT AND THE ELECTRICAL EQUIPMENT SHALL BE CAULKED WITH A UL LISTED, INTUMESCENT TYPE, APPROVED FIRESTOP SYSTEM. SPACE BETWEEN THE SLEEVE OR CUTOOUT AND THE ELECTRICAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR CONDUIT SIZE AND DAMMING MATERIAL THICKNESS FOR THE TYPE OF RATED CONSTRUCTION FOR WHICH THE SYSTEM IS TO BE USED. THE FIRESTOP SYSTEM SHALL BE AS MANUFACTURED BY 3M FIRE PROTECTION PRODUCTS OR AS APPROVED. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF WALLS AND FLOORS.

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- ALL EXIST SIGNS SHALL BE PROVIDED WITH AN EMERGENCY BATTERY WITH 90 MINUTES (MIN.) OF BATTERY LIFE. BATTERY SHALL BE SPECIFIC TO EXIT SIGN MANUFACTURER.

- BRANCH CIRCUITS SHALL IN ALL CASES CONTAIN THE NECESSARY NUMBER OF WIRES TO AFFORD THE SWITCH CONTROL INDICATED. ALL LIGHTING CIRCUITS WHICH ARE CONTROLLED BY DIMMERS SHALL NOT SHARE A NEUTRAL WITH ANOTHER CIRCUIT, BUT SHALL HAVE A SEPARATE NEUTRAL CONDUCTOR TO THE PANEL, WHETHER OR NOT INDICATED ON PLAN. EACH DIMMER SHALL BE SEPARATELY GANGED (FULLY ENCLOSED).

- ALL LIGHT FIXTURES SHALL BE SPECIFIED ON THE ELECTRICAL AND/OR ARCHITECTURAL DOCUMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE EXACT FIXTURE SPECIFICATIONS FOR THE PROJECT PRIOR TO THE SUBMISSION OF BID. REGARDLESS OF WHERE THE FIXTURE, LAMPS AND BALLASTS ARE SPECIFIED, THIS CONTRACTOR SHALL INCLUDE HIGH POWER FACTOR/ENERGY EFFICIENT BALLASTS AND HIGH EFFICIENCY LAMPS WHICH MEET OR EXCEED THE REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE.

G. SLEEVES

- PROVIDE SLEEVES FOR ALL CONDUIT PASSING THROUGH FLOORS, WALLS, PARTITIONS AND ROOFS. SLEEVED ASSEMBLIES SHALL BE APPROVED FOR INTENDED USE FOR ALL WATERPROOF INSTALLATIONS (ROOF, FOUNDATION WALL, ETC.). PROVIDE O2 GEDNEY ASSEMBLIES, OR AS REVIEWED.

- PROVIDE SLEEVES WITH AN I.D. AT LEAST 1/2 INCH GREATER THAN OUTSIDE OF CONDUIT SERVED.

H. PANELBOARDS

- PANELBOARDS SHALL BE OF THE ENCLOSED TYPE, FLUSH OR SURFACE MOUNTED, AS REQUIRED, IN CODE GAUGE STEEL CABINETS, WITH STEEL TRIM, CONCEALED HINGES, DOORS AND FLUSH TYPE LOCKS, ALL KEYS ALIKE. PROVIDE FLUSH DOORS WHERE INDICATED ON DOCUMENTS.

- ALL BUSES, INCLUDING NEUTRAL, SHALL BE ELECTRICAL GRADE HARD- DRAWN COPPER AND SIZED IN CONFORMANCE WITH NEMA STANDARDS. BUSES SHALL BE ARRANGED FOR SEQUENCE PHASING AND LOADS SHALL BE BALANCED AS EQUALLY AS POSSIBLE AMONGST THE THREE PHASES.

- PANELBOARDS FOR COMMON AREAS AND SERVICE EQUIPMENT SHALL BE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK FUSED SWITCHES OR BOLT-ON MOLDED CASE CIRCUIT BREAKERS, OF VOLTAGE REQUIRED, AND OF SIZE AND NUMBER OF POLES INDICATED ON THE SCHEDULES.

- A TYPE WRITTEN DIRECTORY SHALL BE PROVIDED ON THE INSIDE OF THE DOOR OF EACH PANEL, INDICATING THE LOAD SERVED BY EACH CIRCUIT. UTILIZE ARCHITECTURAL DRAWINGS TO INDICATE ROOM NAMES AND NUMBERS OF ALL EQUIPMENT SERVED.

- POWER, LIGHTING AND UTILITY PANELS FOR 120/208 VOLT SHALL BE BOLT-ON CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. SINGLE POLE BRANCHES SHALL BE BOLT-ON TYPE OF AT LEAST 10,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY (OR AS INDICATED ON THE DRAWINGS). MULTIPLE POLE BREAKERS SHALL BE COMMON TRIP OF THE CAPACITY AND NUMBER OF POLES AS INDICATED IN SCHEDULES. PANELBOARDS SHALL BE EQUIPPED WITH SOLID NEUTRAL AND GROUND BARS AND CONTAIN THE NUMBER OF POLES, OVERCURRENT DEVICES AND BUSED SPACES AS SPECIFIED IN SCHEDULE.

- DURING CONSTRUCTION, KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED. THIS RECORD SET OF PRINTS SHALL BE KEPT AT JOB SITE FOR INSPECTION.

- UPON COMPLETION OF THE INSTALLATION, SUBMIT ONE SET OF BLACK AND WHITE PRINTS OF THESE "AS-BUILT" RECORD DRAWINGS TO THE CONSULTING ENGINEER FOR REVIEW. AFTER REVIEW BY THE CONSULTING ENGINEER, MAKE NECESSARY CHANGES TO THESE PRINTS AND THEN DELIVER THEM TO THE OWNER FOR RECORD. FINAL PAYMENT WILL BE WITHHELD UNTIL COMPLETION OF "AS-BUILT" DRAWINGS.

- AS-BUILT DRAWINGS SHALL CONTAIN EXACT ROUTING AND ELEVATIONS OF ALL CONDUIT BANKS, ACTUAL PANELBOARD CIRCUIT BREAKER POLE POSITIONS USED FOR EACH CIRCUIT, AND EXACT LOCATION OF ALL EQUIPMENT. ALL DIMENSIONS SHALL BE REFERENCED TO BUILDING STRUCTURE CENTERLINES.

- OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STAMPED STEEL, 4 INCH SQUARE BY 1-1/2 INCHES DEEP FOR POWER AND 4 INCHES SQUARE BY 2-1/2 INCHES DEEP FOR COMMUNICATION, FIRMLY ANCHORED IN PLACE. BOX VOLUME SHALL BE AS REQUIRED BY GOVERNING CODES WITH BLANK COVERS PROVIDED FOR ALL BOXES USED FOR JUNCTION PURPOSES. GEM BOXES SHALL ONLY BE USED WHERE DIMENSIONAL RESTRAINTS EXIST AND WHERE THE CONTRACTOR HAS OBTAINED PERMISSION FROM THE ENGINEER. MULTI-GANG BOXES SHALL BE PROVIDED WITH EXTENSION COLLARS MOUNTED WITHIN 1/8 INCH OF OUTER SURFACE. WHERE OUTLET BOXES ARE SHOWN FOR FLUSH MOUNTED DEVICES, A SINGLE GANG PLASTER RING SHALL BE PROVIDED, AND MOUNTED WITHIN 1/8 INCH OF OUTER SURFACE.

- DISCONNECT SWITCHES SHALL BE OMBR FUSIBLE OR NONFUSIBLE WITH CURRENT AND VOLTAGE RATINGS AS INDICATED ON PLANS. SWITCHES SHALL BE HORSEPOWER RATED, ENCLOSED TYPE, SUITABLE FOR PADLOCKING IN OPEN POSITION.

- HORSEPOWER RATED THERMAL SWITCHES (BRYANT OR AS APPROVED) SHALL BE USED FOR ALL MOTOR CIRCUITS. ELECTRICAL CONTRACTOR SHALL INSTALL WHERE APPLICABLE TOGGLE SWITCHES FOR USE AS DISCONNECT. THESE SWITCHES SHALL BE "T" RATED FOR RESISTANCE LOADS AND "M" RATED FOR MOTOR LOADS.

- STANDARD DUPLEX CONVENIENCE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE NEMA 5-15R, 5-20R, 2 POLE, 3 WIRE, GROUNDED, 15 OR 20 AMPERE RATED FOR DEVICES SHOWN ON A 15 OR 20 AMPERE CIRCUIT (RESPECTIVELY). PROVIDE DEVICES RATED TO THE EQUIVALENT CIRCUIT BREAKER SIZE UNLESS OTHERWISE NOTED. GROUND FAULT TYPE SHALL BE USED WHERE REQUIRED BY GOVERNING CODES INCLUDING ALL DEVICES SHOWN TO BE WITHIN SIX FEET OF A SINK/WATER.

- SWITCHES SHALL BE FLUSH, COMMERCIAL SPECIFICATION GRADE, QUIET TUMBLER TYPE, GROUNDED, BEHIND COMMON PLATE PLATE WITH BARRIERED BACK BOX WHERE REQUIRED BY CODE FOR MULTIPLE CIRCUITS GREATER THAN 250 VOLTS. SINGLE POLE SWITCHES SHALL BE 20 AMPERES, 120 VOLT.

- DEVICE TYPES, MANUFACTURERS AND COLORS SHALL BE SPECIFIED BY THE ARCHITECT. IF NO SPECIFICATION HAS BEEN PROVIDED, THIS CONTRACTOR SHALL OBTAIN ALL INFORMATION REGARDING THE ABOVE FROM THE ARCHITECT PRIOR TO THE SUBMISSION OF BID, OR SHALL INCLUDE THE ABILITY TO FURNISH ANY MANUFACTURER SELECTED BY THE ARCHITECT DURING THE SHOP DRAWING SUBMISSION PHASE.

- DEVICE PLATES SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS. COORDINATE EXACT COLOR WITH ARCHITECT.

- ALL CABLE SHALL BE COPPER WITH THIN OR THIN INSULATION, EMPLOYED AT THE 75% CODE RATED AMPACITY. NO SMALLER THAN NO.12 AWG SHALL BE USED UNLESS SPECIFICALLY NOTED ON PLANS. COLOR CODING SHALL CONFORM TO CODE REQUIREMENTS. DERATE ALL CABLES PER LATEST VERSION OF THE NATIONAL ELECTRICAL CODE.

- ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID CU CONDUCTORS. ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER.

- ALL SUPPLIED LUGS FOR EQUIPMENT REQUIRING HARD-WIRED CONNECTIONS, ETC. SHALL BE DOUBLE INDENT, 2 BOLT HOLE, LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B OR BURNDY OR AS REVIEWED). MECHANICAL LUGS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE LUG VENDOR.

- ALL SUPPLIED IN-LINE SPLICE CONNECTORS, "T" CONNECTORS, ETC., SHALL BE DOUBLE INDENT (PER CONDUCTOR), LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNDY OR AS REVIEWED). MECHANICAL CONNECTORS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE CONNECTOR VENDOR.

- PROVIDE LOCAL DISCONNECTS FOR ALL MOTORS AND HARD-WIRED ELECTRICAL EQUIPMENT, WHETHER OR NOT SHOWN ON PLAN. DISCONNECTS SHALL BE SIZED PER THE OVERCURRENT PROTECTION AND LOCATED PER THE ENGINEER AND ARCHITECT.

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- PROVIDE A 120 VOLT DEDICATED CIRCUIT FOR EACH CONDENSATE PUMP FOR ALL AC UNITS. COORDINATE WITH THE ENGINEER, THE PANEL AND BREAKER POSITION, PRIOR TO INSTALLATION.

- ALL EQUIPMENT MATERIALS SHALL BE NEW, UL LISTED AND SHALL CONFORM TO ANY ADDITIONAL LABELING, TESTING AND CONSTRUCTION REQUIREMENTS ESTABLISHED BY THE GOVERNING AUTHORITIES. SAME SHALL BE GUARANTEED FOR 1 YEAR SUBSEQUENT TO FINAL ACCEPTANCE.

- ALL EQUIPMENT (ELECTRICAL AND MECHANICAL) SHALL BE SPECIFIED TO HAVE VOLTAGE RATINGS COMPATIBLE WITH THE PROVISIONS OF ANSI C84.

- ALL FEEDERS TO ELECTRICAL PANELS/GEAR AND HVAC EQUIPMENT SHALL BE IN CONDUIT

- DISCONNECTS FOR INCOMING SERVICE SHALL BE SERVICE RATED.

- PANELBOARDS FOR COMMON AREAS AND SERVICE EQUIPMENT SHALL BE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK FUSED SWITCHES OR BOLT-ON MOLDED CASE CIRCUIT BREAKERS, OF VOLTAGE REQUIRED, AND OF SIZE AND NUMBER OF POLES INDICATED ON THE SCHEDULES.

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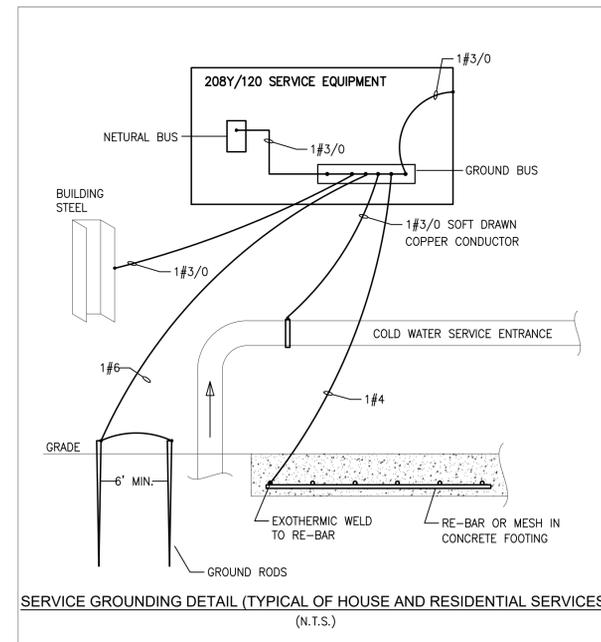
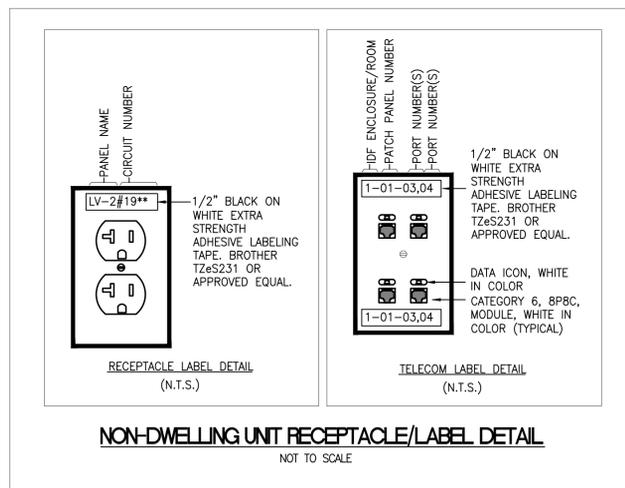
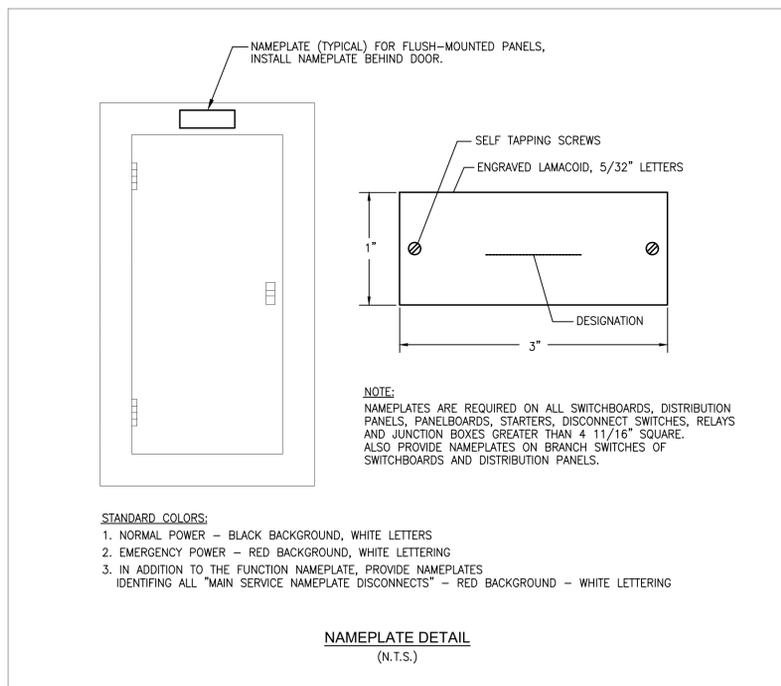
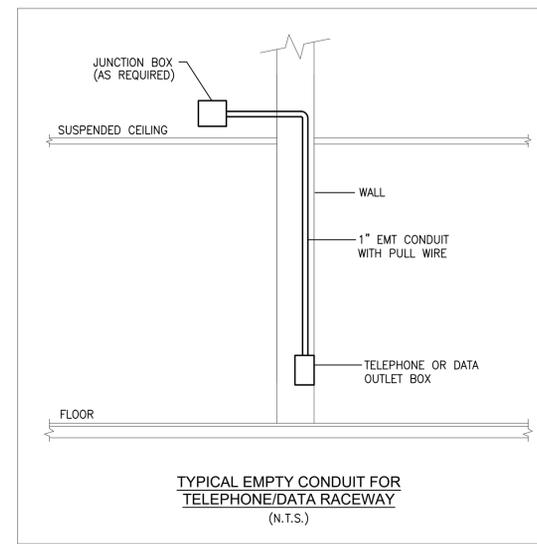
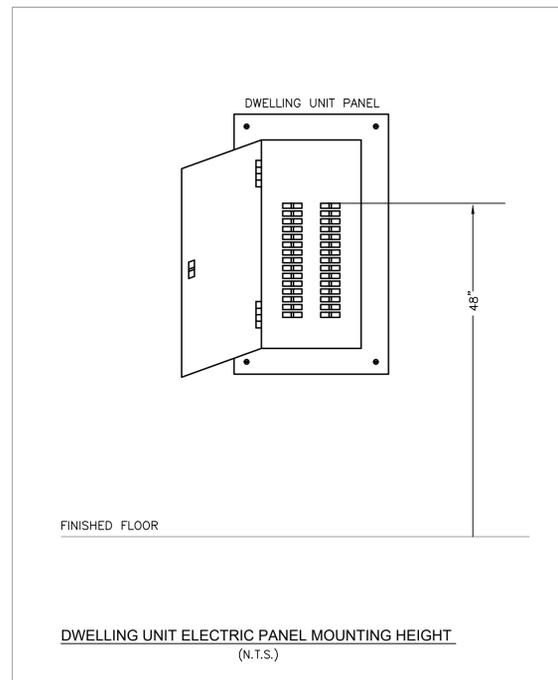
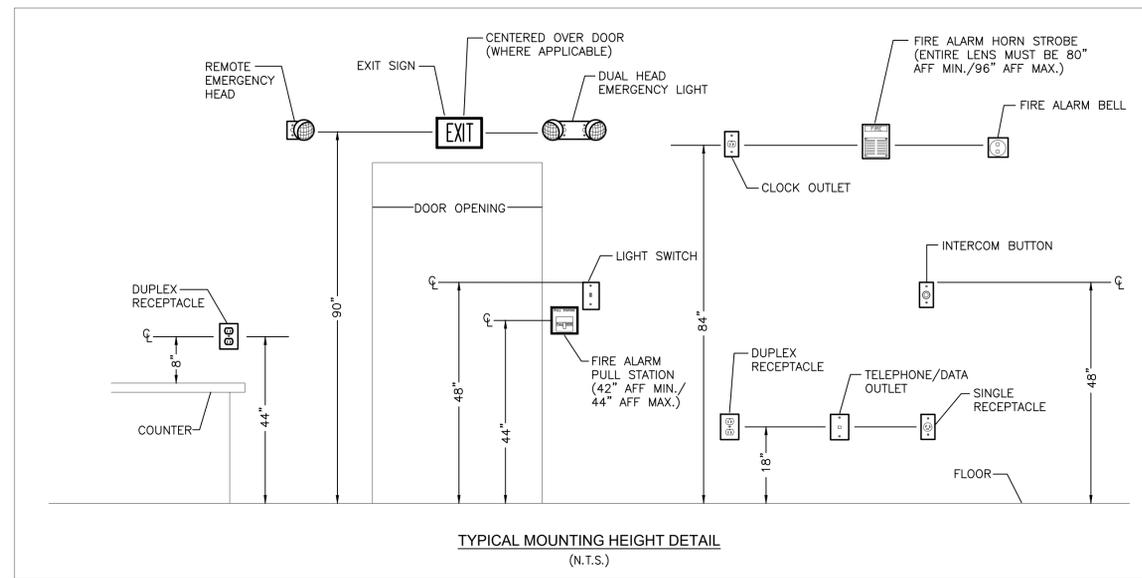
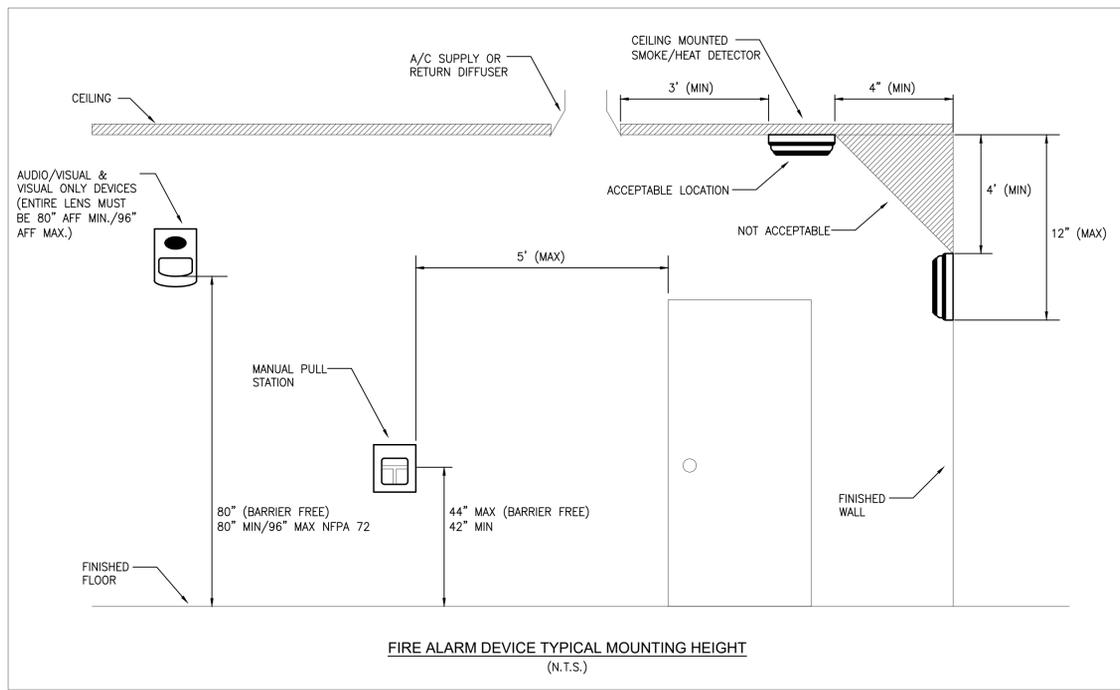
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Paterson Habitat For Humanity  
146 North 1st Street  
Paterson, NJ 07522

PROJECT NAME

135 SUMMER STREET  
PASSAIC, NJ

CHEN O'NEIL ARCHITECTS, PLLC

29 GANUNG DRIVE  
OSSINING, NY 10562  
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2 100% PERMIT SET 2/02/2021

1 80% DD SET 1/08/2021

ISSUE/REVISION DATE

DRAWING TITLE

**ELECTRICAL  
DETAILS  
(SHEET 1 OF 2)**

DRAWING NO.

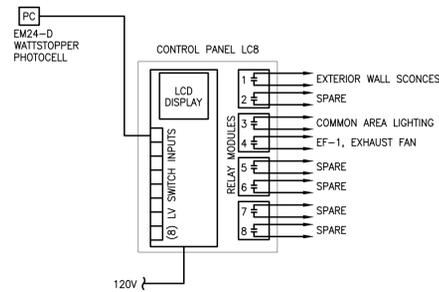
**E-401**

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| RELAY CONTROL SCHEDULE   |               |                    |                                 |                      |
|--------------------------|---------------|--------------------|---------------------------------|----------------------|
| CONTROL PANEL /CONTACTOR | RELAY DESIGN. | CIRCUIT CONTROLLED | CONTROL DESIGNATION             | OVERRIDE DESIGNATION |
| LC8                      | 1             | HP1-61             | EXTERIOR WALL SCONCES           | PC                   |
|                          | 2             | -                  | SPARE                           | -                    |
|                          | 3             | HP1-57             | COMMON AREA LIGHTING            | OV1                  |
|                          | 4             | HP1-8              | BATHROOM EXHAUST FAN, 1ST FLOOR | OV2                  |
|                          | 5             | -                  |                                 |                      |
|                          | 6             | -                  |                                 |                      |
|                          | 7             | -                  |                                 |                      |
|                          | 8             | -                  |                                 |                      |



**AUTOMATIC LIGHTING CONTROL DETAIL**  
(N.T.S.)

- NOTES:**
1. EC SHALL FURNISH AND INSTALL ALL EQUIPMENT SHOWN.
  2. PROVIDE WATTSTOPPER LC-8 LIGHTING CONTROL PANEL.
  3. TIME SCHEDULE TO BE COORDINATED WITH TENANT.
  4. PROVIDE (4) DOUBLE-POLE, SINGLE RELAY MODULES.
  5. ALL 120V LOCAL SWITCHES SHALL BE WIRED DOWNSTREAM OF RELAYS.
  6. COORDINATE EXACT LOCATION OF PHOTOCELL IN FIELD. EC TO LOCATE PHOTOCELL TO ENSURE OPTIMUM DAYLIGHTING CONTROL.

| COPPER BRANCH CIRCUIT WIRE SIZING TABLES - 208V - 3% VOLTAGE DROP |                   |                                   |                   |                                   |                   |                  |                   |
|---|-------------------|-----------------------------------|-------------------|-----------------------------------|-------------------|------------------|-------------------|
| C/B TRIP  |                   | 208V, 3P, 3W<br>120V/208V, 3P, 4W |                   | 208V, 2P, 2W<br>120V/208V, 2P, 3W |                   | 120V, 1P, 2W     |                   |
|   |                   | DISTANCE IN FEET                  | MINIMUM WIRE SIZE | DISTANCE IN FEET                  | MINIMUM WIRE SIZE | DISTANCE IN FEET | MINIMUM WIRE SIZE |
| 15  | DISTANCE IN FEET  | 177                               | 273               | 153                               | 236               | 88               | 136               |
|   | MINIMUM WIRE SIZE | 12                                | 10                | 12                                | 10                | 12               | 10                |
| 20  | DISTANCE IN FEET  | 132                               | 205               | 115                               | 177               | 66               | 102               |
|   | MINIMUM WIRE SIZE | 12                                | 10                | 12                                | 10                | 12               | 10                |
| 30  | DISTANCE IN FEET  | 136                               | 214               | 118                               | 186               | 68               | 107               |
|   | MINIMUM WIRE SIZE | 10                                | 8                 | 10                                | 8                 | 10               | 8                 |
| 40  | DISTANCE IN FEET  | 161                               | 250               | 139                               | 217               | 80               | 125               |
|   | MINIMUM WIRE SIZE | 8                                 | 6                 | 8                                 | 6                 | 8                | 6                 |
| 50  | DISTANCE IN FEET  | 129                               | 200               | 111                               | 173               | 64               | 100               |
|   | MINIMUM WIRE SIZE | 8                                 | 6                 | 8                                 | 6                 | 8                | 6                 |
| 60  | DISTANCE IN FEET  | 167                               | 250               | 144                               | 217               | 83               | 125               |
|   | MINIMUM WIRE SIZE | 6                                 | 4                 | 6                                 | 4                 | 6                | 4                 |
| 70  | DISTANCE IN FEET  | 214                               | 268               | 168                               | 232               | 107              | 134               |
|   | MINIMUM WIRE SIZE | 4                                 | 3                 | 4                                 | 3                 | 4                | 3                 |
| 80  | DISTANCE IN FEET  | 188                               | 235               | 163                               | 203               | 94               | 117               |
|   | MINIMUM WIRE SIZE | 4                                 | 3                 | 4                                 | 3                 | 4                | 3                 |
| 90  | DISTANCE IN FEET  | 208                               | 250               | 181                               | 217               | 104              | 125               |
|   | MINIMUM WIRE SIZE | 3                                 | 2                 | 3                                 | 2                 | 3                | 2                 |
| 100   | DISTANCE IN FEET  | 188                               | 225               | 163                               | 195               | 94               | 113               |
|   | MINIMUM WIRE SIZE | 3                                 | 2                 | 3                                 | 2                 | 3                | 2                 |

- NOTES:**
1. READ ACROSS TO THE RIGHT FROM C/B TRIP TO DESIRED VOLTAGE CHARACTERISTICS AND NEXT GREATER DISTANCE THAN CIRCUIT IN QUESTION.
  2. READ DOWN TO MINIMUM WIRE SIZE.
  3. DISTANCES ARE TO THE CENTER OF CONCENTRATED LOAD SUCH AS CLASSROOM LIGHTING OR THE MIDPOINT OF DISTRIBUTED LOAD SUCH AS CORRIDOR LIGHTING.
  4. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INCREASED IN SIZE PROPORTIONATELY PER NEC.

**RACEWAY SIZING**  
ALL RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE IN EFFECT AS A MINIMUM SIZE. THE MORE COMMON SIZES ARE INCLUDED HERE FOR THE CONTRACTOR'S CONVENIENCE.

| WIRE SIZE | NO. OF CONDUCTORS | MINIMUM CONDUIT SIZE | WIRE SIZE | NO. OF CONDUCTORS | MINIMUM CONDUIT SIZE |
|-----------|-------------------|----------------------|-----------|-------------------|----------------------|
| 12        | 3                 | 3/4"                 | 8         | 3                 | 3/4"                 |
| 12        | 4                 | 3/4"                 | 8         | 4                 | 3/4"                 |
| 12        | 5                 | 3/4"                 | 8         | 5                 | 3/4"                 |
| 12        | 6                 | 3/4"                 | 8         | 6                 | 1"                   |
| 12        | 7                 | 3/4"                 | 8         | 7                 | 1"                   |
| 12        | 8                 | 3/4"                 | 8         | 8                 | 1"                   |
| 10        | 3                 | 3/4"                 | 6         | 3                 | 3/4"                 |
| 10        | 4                 | 3/4"                 | 6         | 4                 | 3/4"                 |
| 10        | 5                 | 3/4"                 | 6         | 5                 | 1"                   |
| 10        | 6                 | 3/4"                 | 6         | 6                 | 1"                   |
| 10        | 7                 | 3/4"                 | 6         | 7                 | 1-1/4"               |
| 10        | 8                 | 3/4"                 | 6         | 8                 | 1-1/4"               |

**NOTES TO PANELBOARD SCHEDULES AND BRANCH CIRCUIT WIRE SIZING TABLES.**

**WIRE SIZING**  
UNLESS OTHERWISE INDICATED, MINIMUM WIRE AMPACITY SHALL BE GREATER THAN OR EQUAL TO THE BRANCH CIRCUIT TRIP BASED ON COPPER CONDUCTOR WITH 90-DEGREE C THIN INSULATION APPLIED AT ITS 75-DEGREE C AMPACITY.

REFER TO THE BRANCH CIRCUIT WIRE SIZING TABLES FOR DISTANCE LIMITATIONS FOR THE MINIMUM WIRE SIZE AND FOR SELECTING THE PROPER WIRE SIZE FOR THE DISTANCE AND VOLTAGE DROP INVOLVED.

**NUMBER OF CONDUCTORS**  
QUANTITIES OF WIRES SHALL BE BASED ON AN INDIVIDUAL HOMERUN FOR EACH CIRCUIT AS FOLLOWS.

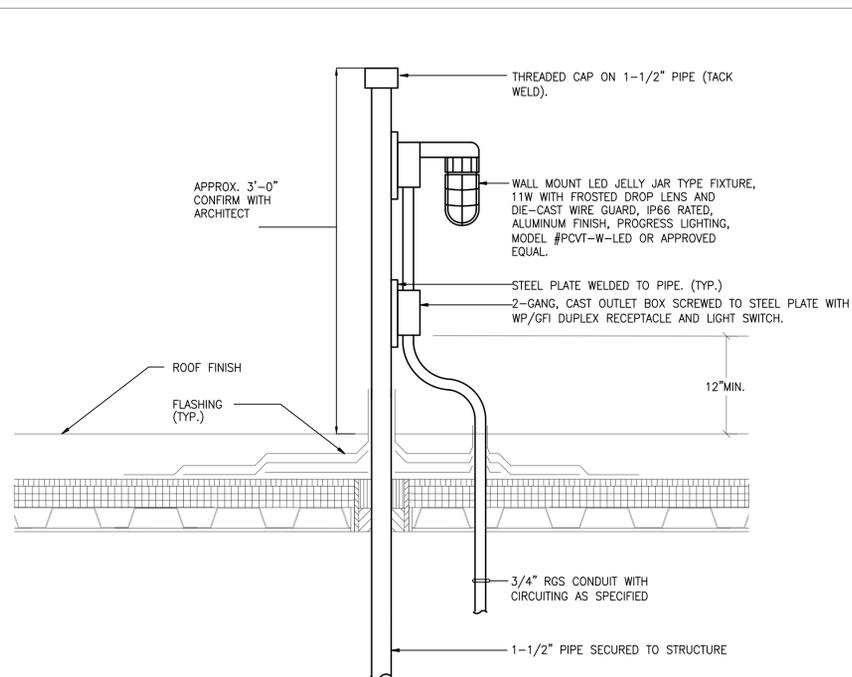
|                                | PHASE CONDUCTOR | FULL CIRCUIT SIZE NEUTRAL CONDUCTOR | FULL CIRCUIT SIZE EQUIPMENT GROUNDING CONDUCTOR | FULL CIRCUIT SIZE ISOLATED GROUND CONDUCTOR |
|--------------------------------|-----------------|-------------------------------------|---|---|
| 1 POLE CIRCUIT                 | 1               | 1                                   | 1   | 0   |
| 1 POLE DATA / COMPUTER CIRCUIT | 1               | 1                                   | 1   | 1   |
| 2 POLE CIRCUIT                 | 2               | 1                                   | 1   | 0   |
| 3 POLE CIRCUIT                 | 3               | 1                                   | 1   | 0   |
| 3 POLE MOTOR CIRCUIT           | 3               | 0                                   | 1   | 0   |

CONSECUTIVE INDIVIDUAL 20 AMP LINE TO NEUTRAL BRANCH CIRCUITS MAY NOT BE COMBINED INTO MULTIWIRE BRANCH CIRCUITS HAVING HOMERUNS WITH A COMMON NEUTRAL CONDUCTOR.

SINGLE PHASE, TWO POLE, TWO WIRE, LINE TO LINE, BRANCH CIRCUITS AND SINGLE PHASE, TWO POLE, THREE WIRE, LINE TO LINE PLUS NEUTRAL, BRANCH CIRCUITS SHALL HAVE INDIVIDUAL UNCOMBINED HOMERUNS.

COMBINED TWO AND THREE CIRCUIT HOMERUNS SHALL HAVE SEPARATE NEUTRALS FOR EACH BUT A COMMON EQUIPMENT GROUNDING CONDUCTOR AND A COMMON ISOLATED GROUNDING CONDUCTOR MAY BE USED.

|  | PHASE CONDUCTOR | FULL CIRCUIT SIZE NEUTRAL CONDUCTOR | FULL CIRCUIT SIZE EQUIPMENT GROUNDING CONDUCTOR | FULL CIRCUIT SIZE ISOLATED GROUND CONDUCTOR |
|--|-----------------|-------------------------------------|---|---|
| TWO 1 POLE HOMERUNS                      | 2               | 2                                   | 1   | 0   |
| TWO 1 POLE DATA/COMP. CIRCUIT HOMERUNS   | 2               | 2                                   | 1   | 1   |
| THREE 1 POLE HOMERUNS                    | 3               | 3                                   | 1   | 0   |
| THREE 1 POLE DATA/COMP. CIRCUIT HOMERUNS | 3               | 3                                   | 1   | 1   |



**NOTE:** 1 1/2" PIPE, CAP AND MOUNTING PLATE SHALL BE STEEL, PRE-FABRICATED AND HOT-DIP GALVANIZED AS A UNIT.

**TYPICAL ROOF MOUNTED RECEPTACLE**  
NOT TO SCALE



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ELECTRICAL  
DETAILS  
(SHEET 2 OF 2)

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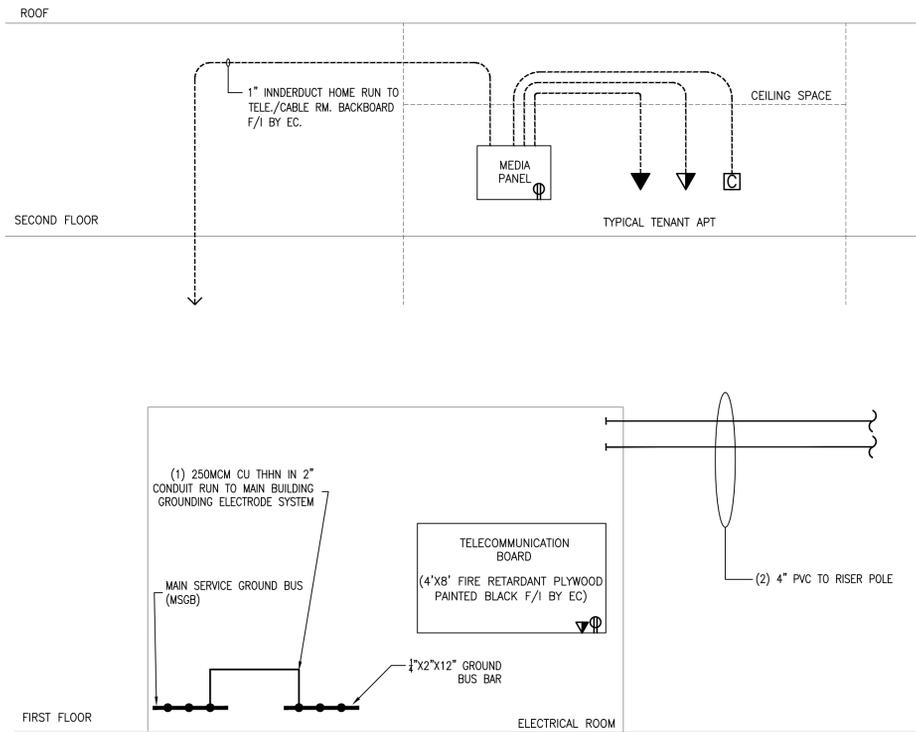
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| APARTMENT LOW VOLTAGE DEVICE SCHEDULE |  |
|---------------------------------------|--|
| ▽                                     | COMBINATION VOICE DATA JACK W/ BACKBOX (2) CAT6 6 PAIR HOME RUN TO MEDIA PANEL                   |
| ▽                                     | TELEPHONE JACKS EACH WITH CAT 6 6-PAIR HOME RUN TO MEDIA PANEL                                   |
| ⓐ                                     | CABLE JACK WITH RG6 COAX RUN TO CABLE BOX & (1) DATA JACK WITH CAT6 HOMERUN TO MEDIA PANEL       |
| □                                     | APTS: TEL/CABLE BOX: EC TO INSTALL AND FURNISH AND INSTALL INNERDUCT TO LOW VOLTAGE UTILITY ROOM |



TELECOMMUNICATION WIRING RISER DIAGRAM

(N.T.S.)

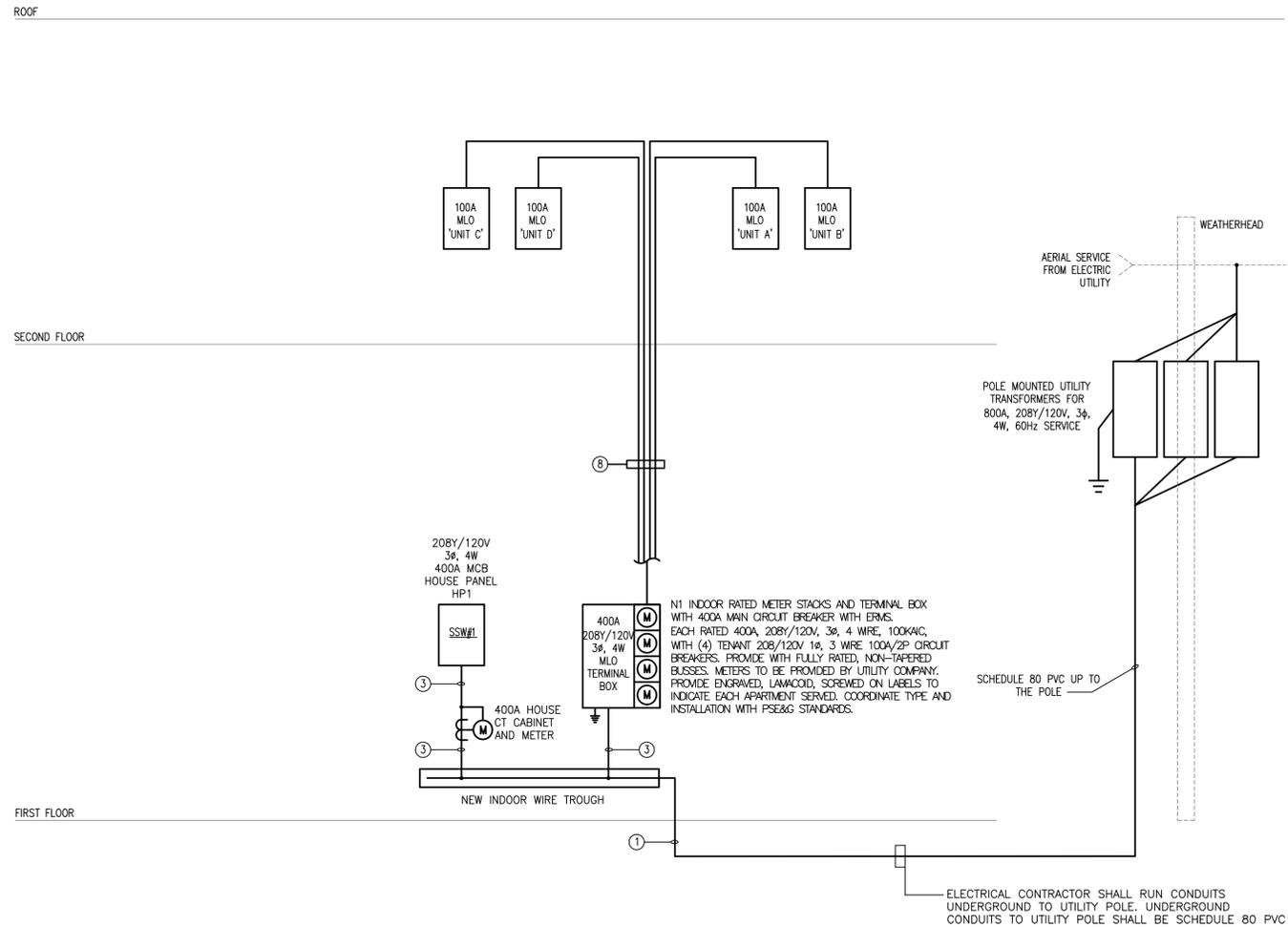
| CONDUIT & WIRE SCHEDULE |          |      |                         |              |                         |                   |                  |                    |                           |
|-------------------------|----------|------|-------------------------|--------------|-------------------------|-------------------|------------------|--------------------|---------------------------|
| No.                     | VOLTS    | AMPS | CONDUIT QUANTITY & TYPE | CONDUIT SIZE | PHASE WIRE SIZE (THREE) | NEUTRAL WIRE SIZE | GROUND WIRE SIZE | PLUS SPARE CONDUIT |                           |
| 1                       | 208Y/120 | 800  | 2 PVC                   | 4"           | 600 CU                  | 600 CU            |                  |                    | 4"                        |
| 2                       | 208Y/120 | 600  | 2 EMT                   | 3"           | 350 CU                  | 350 CU            | 1 CU             |                    |                           |
| 3                       | 208Y/120 | 400  | 1 EMT                   | 4"           | 500 CU                  | 500 CU            |                  |                    |                           |
| 4                       | 208Y/120 | 225  | 1 EMT                   | 2-1/2"       | 4/0 CU                  | 4/0 CU            | 4 CU             |                    |                           |
| 5                       | 208Y/120 | 200  | 1 EMT                   | 2-1/2"       | 3/0 CU                  | 3/0 CU            | 6 CU             |                    |                           |
| 6                       | 208Y/120 | 150  | 1 EMT                   | 2"           | 1/0 CU                  | 1/0 CU            | 6 CU             |                    |                           |
| 7                       | 208Y/120 | 125  | 1 EMT                   | 1-1/2"       | 1 CU                    | 1 CU              | 6 CU             |                    |                           |
| 8                       | 208Y/120 | 100  | (1) 3/4" & 1#66 AL MC   |              |                         |                   |                  |                    | (*SEE VOLTAGE DROP NOTES) |
| 9                       | 208Y/120 | 100  | 1 EMT                   | 1-1/4"       | 3 CU                    | 3 CU              | 8 CU             |                    |                           |
| 10                      | 208Y/120 | 80   | 1 EMT                   | 1"           | 4 CU                    | 4 CU              | 8 CU             |                    |                           |
| 11                      | 208Y/120 | 40   | 1 EMT                   | 1"           | 8 CU                    | 8 CU              | 10 CU            |                    |                           |
| 12                      | 208Y/120 | 30   | 1 EMT                   | 3/4"         | 10 CU                   | 10 CU             | 10 CU            |                    |                           |

ABBREVIATIONS:  
PVC - SCHEDULE 80 PVC CONDUIT  
EMT - ELECTRICAL METALLIC TUBING WITH SETSCREW FITTINGS.  
GFLD - GREENFIELD FLEXIBLE METAL CONDUIT WIRE  
THHN - COPPER U.O.N.  
MC - METAL CLAD CABLE  
CU - COPPER  
AL - ALUMINUM

\* VOLTAGE DROP NOTES FOR 125A FEEDERS  
ALL RUNS OVER 200' SHALL UTILIZE (1) 3/4" & 1#4 GND AL MC FEEDER  
ALL RUNS OVER 250' SHALL UTILIZE (1) 3/8" & 1#2 GND AL MC FEEDER  
ALL RUNS OVER 300' SHALL UTILIZE (1) 3/4" & 1#2 GND AL MC FEEDER  
ALL RUNS OVER 350' SHALL UTILIZE (1) 3/8" & 1#1 GND AL MC FEEDER  
ALL RUNS OVER 400' SHALL UTILIZE (1) 3/8" & 1#1/0 GND AL MC FEEDER

ADDITIONAL SCOPE NOTES  
ELECTRICAL CONTRACTOR SHALL CONFIRM THE AVAILABLE SHORT CIRCUIT CURRENT FROM THE ELECTRICAL UTILITY COMPANY WHEN CONTACT WITH UTILITY HAS BEEN MADE.

- ELECTRICAL RISER GENERAL NOTES:
- ELECTRICAL EQUIPMENT, AND MATERIAL SHALL BE LISTED, LABELED, AND INSTALLED PER RECOGNIZED ELECTRICAL TESTING LABORATORY.
  - PANELS AND SUB PANELS REQUIRE A LETTER ON LETTERHEAD FROM THE INSTALLER THAT THE TORQUE REQUIREMENTS HAVE BEEN MET TO THE MANUFACTURER'S INSTRUCTIONS.
  - TWO OR MORE CONDUCTORS THAT LAND ON A SINGLE LUG SHALL BE LISTED FOR THAT USE.
  - THE DESIGN TEMPERATURE OF THE CONDUCTORS AND THEIR TERMINATIONS SHALL BE 75°C.
  - PARALLEL FEEDER CONDUCTORS SHALL BE CUT TO EXACTLY THE SAME LENGTHS AND SHALL BE FROM THE SAME FACTORY RUN. ALL CONNECTIONS FOR SAME SHALL BE TORQUED TO IDENTICAL VALUES.
  - CONDUCTORS BELOW GRADE OR SUBJECT TO MOISTURE SHALL BE "XHHW-2".
  - PROVIDE FACTORY SERIES COORDINATION FOR ALL CIRCUIT BREAKERS (INCLUDING ALL BRANCH BREAKERS), RELATIVE TO "UPSTREAM" BREAKERS, SO THAT ONLY THE BREAKER CLOSEST IN THE CIRCUIT TO THE LOAD TRIPS UPON AN OVERLOAD OR FAULT CONDITION.
  - POWER DISTRIBUTION EQUIPMENT SUPPLIER SHALL PROVIDE EQUIPMENT APPROPRIATELY RATED AND BRACED TO ACCOMMODATE THE AVAILABLE FAULT CURRENT AT THE UTILITY COMPANY TRANSFORMER SECONDARIES. THIS SUPPLIER SHALL ACCORDINGLY PROVIDE ANY RELATED CALCULATIONS SO THAT THEIR EQUIPMENT IS PROPERLY COORDINATED FOR THE AVAILABLE FAULT CURRENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THIS SUPPLIER WITH COPIES OF THE ELECTRICAL DOCUMENTS AS REQUIRED SO THAT PROPERLY RATED/BRACED EQUIPMENT IS PROVIDED UNDER BASE BID.
  - WORKING CLEARANCES SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT (SWITCHBOARDS, PANEL-BOARDS, TRANSFORMERS, STARTERS, DISCONNECTS, ETC. AS APPLICABLE) IN STRICT COMPLIANCE WITH N.E.C. CHAPTER 1, PART B, SECTION 110-26(A). LOCATIONS SHOWN ON FLOOR PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE ABOVE N.E.C. REFERENCE. THIS REQUIREMENT APPLIES TO EQUIPMENT ON FLOOR PLANS AS WELL AS TO EQUIPMENT SHOWN ON RISER.
  - LOCATE ANY RELATED PULL-BOXES SO THAT THEY WILL BE FULLY ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. AS WITH ALL WORK, COORDINATE IN ADVANCE WITH ALL OTHER TRADES.
  - ALL INDOOR PANELS SHALL BE IN NEMA-1 ENCLOSURES AND ALL OUTDOOR PANELS SHALL BE NEMA-3R (U.O.N.).



ELECTRICAL ONE-LINE DIAGRAM

N.T.S.



Paterson Habitat For Humanity  
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PROJECT NAME  
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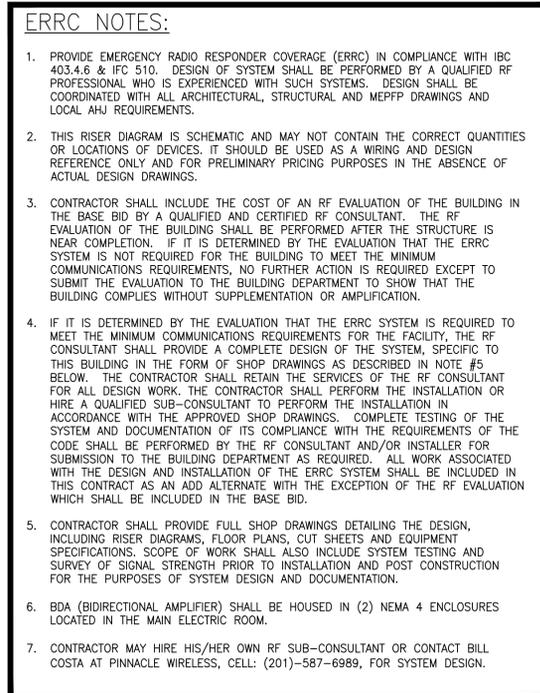
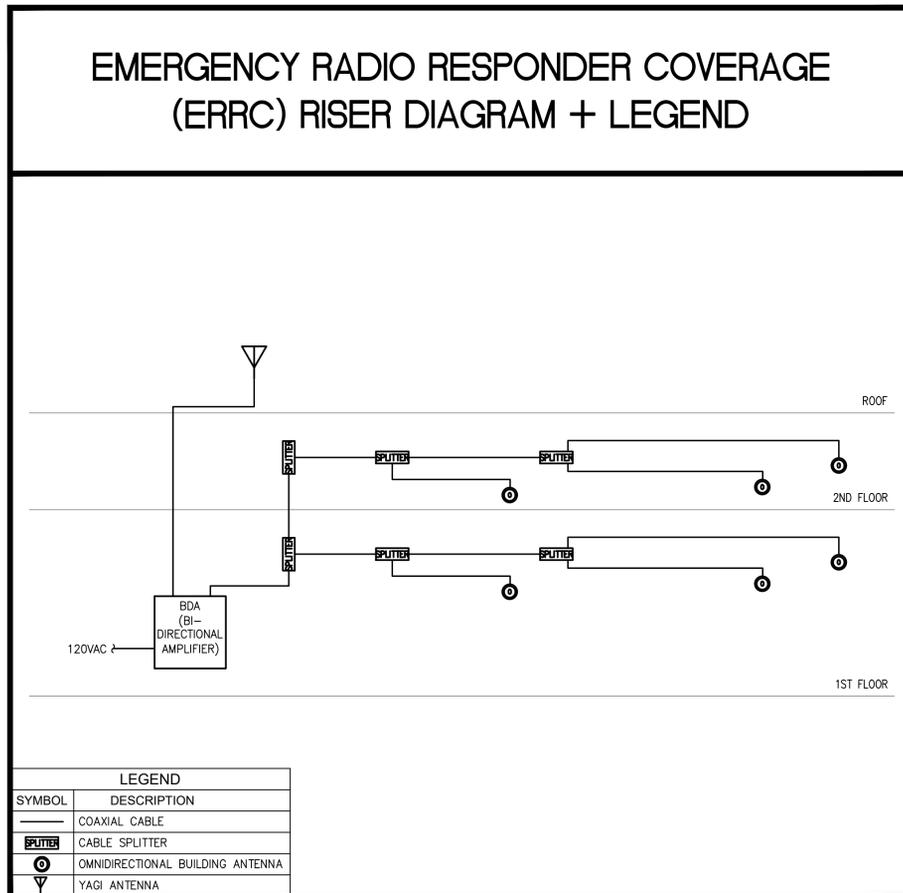
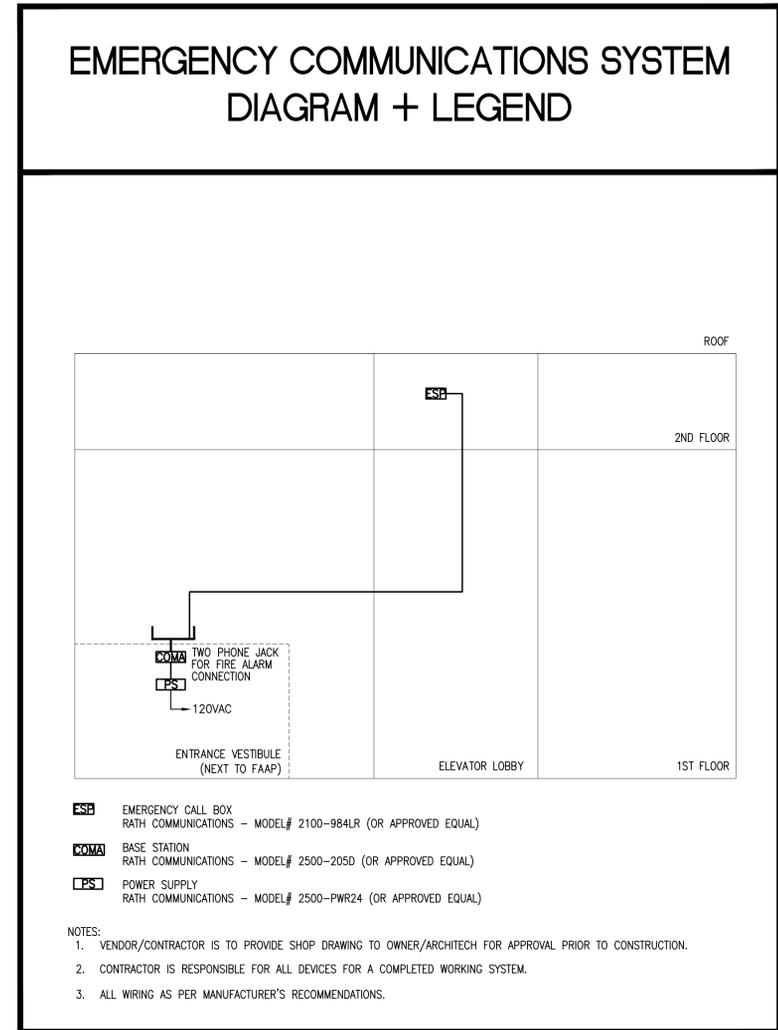
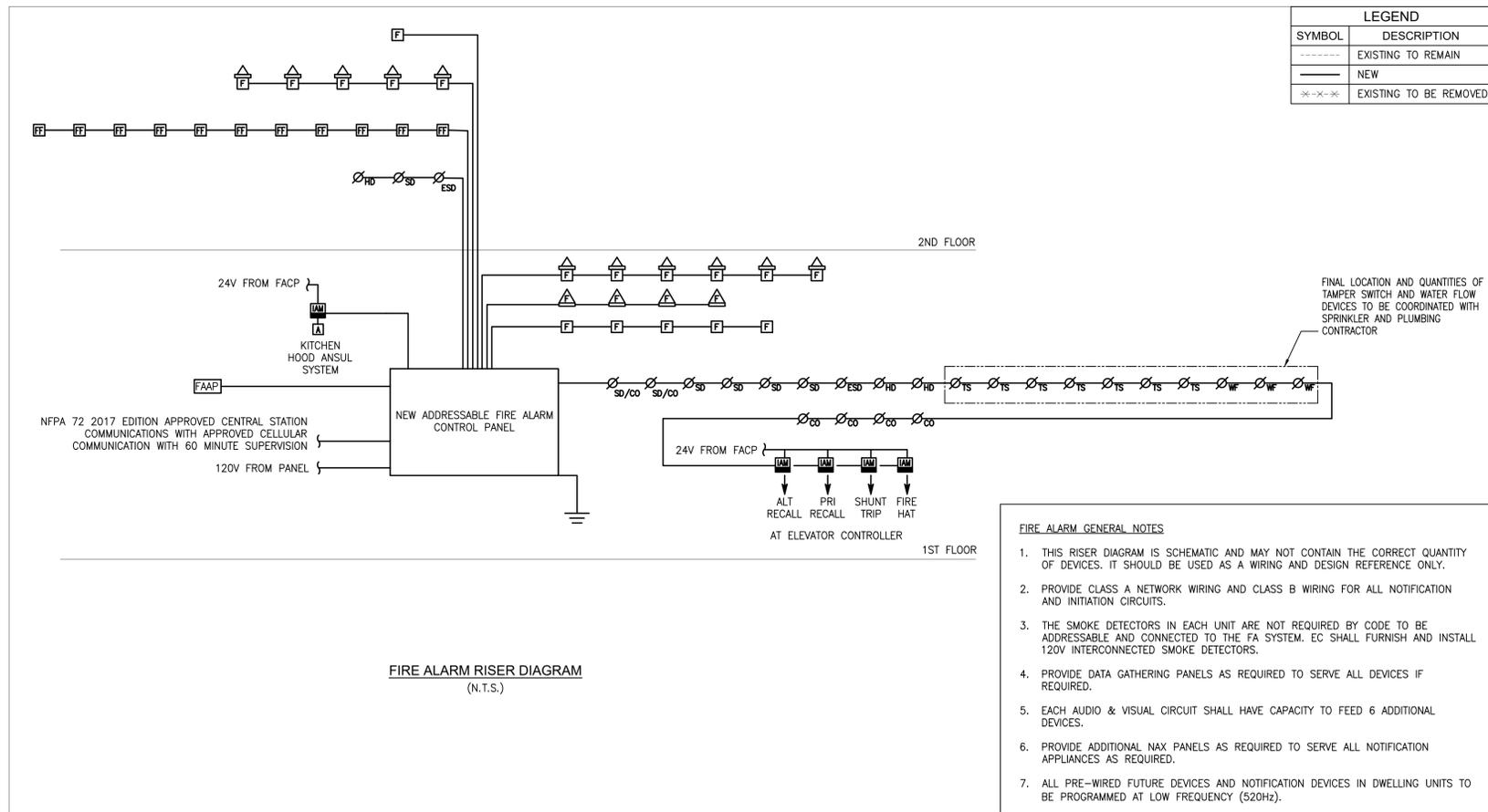
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**ELECTRICAL ONE-LINE & TELECOMMUNICATION RISER DIAGRAMS**

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| PANEL DESIGNATION HP |      |      |  |                                 |  |  |  |  |  | VOLTAGE   | PHASE | POLES | WIRES | AIC   |      |       |                                       |   |      |      |      |  |
|----------------------|------|------|--|---------------------------------|--|--|--|--|--|-----------|-------|-------|-------|-------|------|-------|---------------------------------------|---|------|------|------|--|
|                      |      |      |  |                                 |  |  |  |  |  | 208Y/120V | 3     | 84    | 4     | -     |      |       |                                       |   |      |      |      |  |
| G WIRE               | WIRE | WIRE | DESCRIPTION  |                                 |  |  |  |  |  | CB        | CB    | PH. A | PH. B | PH. C | CB   | CB    | DESCRIPTION                           | CKT#  | WIRE | WIRE |      |  |
| SIZE                 | SIZE | No.  |  |                                 |  |  |  |  |  | AMPS      | POLES | VA    | VA    | VA    | AMPS | POLES |                                       | No.   | SIZE | SIZE |      |  |
| 1#10                 | 2#10 | 1    | CU-1/AC-1, CONDENSING UNIT & AIR CONDITIONING UNIT, ROOF |                                 |  |  |  |  |  | 30        | 2     | 2039  | 1500  |       | 2    | 20    | CH-1, CABINET HEATER 1ST FL VESTIBULE | 2   | 2#12 | 1#12 |      |  |
| (C)                  | 1#12 | 2#12 | 5  | KITCHEN REFRIGERATOR            |  |  |  |  |  |           | 20    | 1     | 2039  | 1500  |      | 1     | 20                                    | BB-1, BASE BOARD HEATER                       | 6    | 2#12 | 1#12 |  |
| (C)                  | 1#12 | 2#12 | 7  | KITCHEN FREEZER                 |  |  |  |  |  |           | 20    | 1     | 1000  | 50    |      | 1     | 20                                    | EF-1, EXHAUST FAN                             | 8    | 2#12 | 1#12 |  |
| (G)                  | 1#12 | 2#12 | 9  | KITCHEN DISHWASHER              |  |  |  |  |  |           | 20    | 1     | 1000  | 1296  |      | 1     | 20                                    | AHU-5, FURNACE SECTION                        | 10   | 2#12 | 1#12 |  |
| (G)                  | 1#12 | 2#12 | 11   | BAR UC REFRIGERATOR             |  |  |  |  |  |           | 20    | 1     | 1000  | 1768  |      | 2     | 25                                    | ACCU-5, CONDENSING UNIT ROOF                  | 12   | 2#10 | 1#10 |  |
| (C)                  | 1#12 | 2#12 | 13   | BAR DISHWASHER                  |  |  |  |  |  |           | 20    | 1     | 1000  | 1768  |      | 1     | 20                                    | AHU-6, FURNACE SECTION                        | 16   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 15   | BAR COUNTER RECEPTACLES         |  |  |  |  |  |           | 20    | 1     | 360   | 1296  |      | 1     | 20                                    | ACCU-6, CONDENSING UNIT ROOF                  | 18   | 2#10 | 1#10 |  |
|                      | 1#12 | 2#12 | 17   | KITCHEN COUNTER RECEPTACLES     |  |  |  |  |  |           | 20    | 1     | 360   | 1872  |      | 2     | 25                                    | AHU-7, FURNACE SECTION                        | 22   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 19   | KITCHEN COUNTER RECEPTACLES     |  |  |  |  |  |           | 20    | 1     | 360   | 1872  |      | 1     | 20                                    | ACCU-7, CONDENSING UNIT ROOF                  | 24   | 2#10 | 1#10 |  |
| (C)                  | 1#12 | 2#12 | 21   | KITCHEN GAS STOVE POWER         |  |  |  |  |  |           | 20    | 1     | 50    | 1296  |      | 1     | 20                                    | AP-1/2 AIR PURIFICATION DEVICES               | 28   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 23   | STORAGE RECEPTACLES             |  |  |  |  |  |           | 20    | 1     | 1260  | 1872  |      | 2     | 25                                    | MAU-1, MAKE-UP AIR UNIT                       | 30   | 2#10 | 1#10 |  |
|                      | 1#12 | 2#12 | 25   | MULTI-PURPOSE RM RECEPTACLES    |  |  |  |  |  |           | 20    | 1     | 900   | 1872  |      | 1     | 20                                    | EDH-1, ELECTRIC DUCT HEATER                   | 36   | 3#8  | 1#10 |  |
|                      | 1#12 | 2#12 | 27   | MULTI-PURPOSE RM RECEPTACLES    |  |  |  |  |  |           | 20    | 1     | 900   | 24    |      | 1     | 20                                    | KEF-1, KITCHEN EXHAUST FAN                    | 42   | 3#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 29   | UTILITY ROOM RECEPTACLES        |  |  |  |  |  |           | 20    | 1     | 720   | 791   |      | 2     | 20                                    | LULIA ELEVATOR CONTROLLER                     | 48   | 4#3  | 1#8  |  |
|                      | 1#12 | 2#12 | 31   | TEL/DATA EQUIPMENT RECEPTACLES  |  |  |  |  |  |           | 20    | 1     | 360   | 791   |      | 2     | 20                                    | ELEVATOR SHUNT TRIP                           | 52   |      |      |  |
|                      | 1#12 | 2#12 | 33   | FIRE ALARM CONTROL PANEL        |  |  |  |  |  |           | 20    | 1     | 1000  | 4000  |      | 3     | 45                                    | LULIA ELEVATOR LIGHTS & AUX CONTROLS          | 54   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 35   | WATER ROOM RECEPTACLES          |  |  |  |  |  |           | 20    | 1     | 720   | 4000  |      | 3     | 45                                    | LCB LIGHTING PANEL                            | 56   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 37   | MEETING ROOM RECEPTACLES        |  |  |  |  |  |           | 20    | 1     | 1080  | 4000  |      | 3     | 45                                    | RECIRCULATION/CONDENSATE PUMPS                | 58   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 39   | OFFICE RECEPTACLES              |  |  |  |  |  |           | 20    | 1     | 720   | 289   |      | 3     | 20                                    | WH-1, GAS WATER HEATER                        | 60   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 41   | 2ND FL CORRIDOR RECEPTACLES     |  |  |  |  |  |           | 20    | 1     | 540   | 289   |      | 3     | 20                                    | WH-2, GAS WATER HEATER                        | 62   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 43   | BATHROOM 1                      |  |  |  |  |  |           | 20    | 1     | 210   | 289   |      | 3     | 30                                    | LIFT EJECTOR PUMP AND CONTROLS                | 64   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 45   | BATHROOM 2                      |  |  |  |  |  |           | 20    | 1     | 210   | 2906  |      | 3     | 30                                    | AIR COMPRESSOR FOR DRY FIRE PROTECTION SYSTEM | 66   | 2#10 | 1#10 |  |
|                      | 1#12 | 2#12 | 47   | BATHROOM 3                      |  |  |  |  |  |           | 20    | 1     | 210   | 2906  |      | 3     | 30                                    | PRESSURE SWITCH - DRY SYSTEM                  | 70   | 2#12 | 1#12 |  |
|                      | 1#12 | 2#12 | 49   | ELEVATOR PIT LIGHT              |  |  |  |  |  |           | 20    | 1     | 11    | 2906  |      | 1     | 20                                    | SPACE   | 72   |      |      |  |
|                      | 1#12 | 2#12 | 51   | ELEVATOR PIT RECEPTACLE         |  |  |  |  |  |           | 20    | 1     | 180   |       |      | 1     | 20                                    | SPACE   | 74   |      |      |  |
|                      | 1#12 | 2#12 | 53   | ROOF SERVICE RECEPTACLE & LIGHT |  |  |  |  |  |           | 20    | 1     | 200   | 500   |      | 1     | 20                                    | SPACE   | 76   |      |      |  |
|                      | 1#12 | 2#12 | 55   | EMERGENCY EGRESS LIGHTING       |  |  |  |  |  |           | 20    | 1     | 55    | 1000  |      | 1     | 20                                    | SPACE   | 78   |      |      |  |
|                      | 1#12 | 2#12 | 57   | MULTI-PURPOSE/BAR LIGHTS        |  |  |  |  |  |           | 20    | 1     | 1040  | 300   |      | 1     | 20                                    | SPACE   | 80   |      |      |  |
|                      | 1#12 | 2#12 | 59   | UTILITY RM/CORRIDOR LIGHTING    |  |  |  |  |  |           | 20    | 1     | 644   | 600   |      | 1     | 20                                    | SPACE   | 82   |      |      |  |
|                      | 1#12 | 2#12 | 61   | EXTERIOR LIGHTING               |  |  |  |  |  |           | 20    | 1     | 238   | 600   |      | 1     | 20                                    | SPACE   | 84   |      |      |  |
|                      | 1#12 | 2#12 | 63   | EM COMM POWER SUPPLY            |  |  |  |  |  |           | 20    | 1     | 200   | 1200  |      | 1     | 20                                    |   |      |      |      |  |
|                      | 1#12 | 2#12 | 65   | EXTERIOR RECEPTACLES            |  |  |  |  |  |           | 20    | 1     | 1080  | 1945  |      | 2     | 25                                    |   |      |      |      |  |
|                      | 1#12 | 2#12 | 67   | STORAGE ROOM RECEPTACLES        |  |  |  |  |  |           | 20    | 1     | 1080  | 1945  |      | 2     | 25                                    |   |      |      |      |  |
|                      |      |      | 69   | SPACE                           |  |  |  |  |  |           | 20    | 1     | 540   | 50    |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 71   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 73   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 75   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 77   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 79   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 81   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |
|                      |      |      | 83   | SPACE                           |  |  |  |  |  |           | 20    | 1     |       |       |      | 1     | 20                                    |   |      |      |      |  |

|  |   |   |  |         |  |
|--|---|---|--|---------|--|
| CONNECTED LOAD   |   | MAIN  |  | OPTIONS |  |
| KVA: 74.0  | BUS 400 AMPS                                  | <input type="checkbox"/> 200% NEUTRAL                                   |  |         |  |
| AMPS: 205.6  | BRKR 400 AMPS                                 | <input type="checkbox"/> GROUND BUS                                     |  |         |  |
| REMARKS  | <input type="checkbox"/> NEW PANEL            | <input type="checkbox"/> ISOLATED GROUND BUS                            |  |         |  |
| (C) FURNISH WITH GFCI BREAKER IF REFRIGERATOR OUTLET WITHIN 6' OF A SINK | <input type="checkbox"/> EXISTING PANEL       | <input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION                      |  |         |  |
| (*) PROVIDE MECHANICAL PROTECTION FOR FIRE ALARM CIRCUIT                 | <input type="checkbox"/> MAIN CIRCUIT BREAKER | <input type="checkbox"/> STAINLESS STEEL COVER                          |  |         |  |
|  | <input type="checkbox"/> MAIN LUGS ONLY       | <input type="checkbox"/> NEMA 3R PANEL                                  |  |         |  |
|  | <input type="checkbox"/> FLUSH MOUNTED        | <input type="checkbox"/> SUB-FEED MAIN C.B. (3P) QTY: _____ AMPS: _____ |  |         |  |
|  | <input type="checkbox"/> SURFACE MOUNTED      | <input type="checkbox"/> CONTACTOR AMPS: _____ CKT'S CONTROLLED: _____  |  |         |  |
|  | <input type="checkbox"/> BOTTOM FEED          | <input type="checkbox"/> OTHER: _____                                   |  |         |  |
|  | <input type="checkbox"/> TOP FEED             | <input type="checkbox"/> OTHER: _____                                   |  |         |  |

| PANEL DESIGNATION TYPICAL FOR 2-BEDROOM UNITS |      |      |                           |                          |  |  |  |  |  | VOLTAGE  | PHASE | POLES | WIRES | AIC   |      |       |                       |                               |      |      |      |
|---|------|------|---------------------------|--------------------------|--|--|--|--|--|----------|-------|-------|-------|-------|------|-------|-----------------------|-------------------------------|------|------|------|
|   |      |      |                           |                          |  |  |  |  |  | 120/208V | 1     | 24    | 3     | -     |      |       |                       |                               |      |      |      |
| G WIRE  | WIRE | WIRE | DESCRIPTION               |                          |  |  |  |  |  | CB       | CB    | PH. A | PH. B | PH. C | CB   | CB    | DESCRIPTION           | CKT#                          | WIRE | WIRE |      |
| SIZE  | SIZE | No.  |                           |                          |  |  |  |  |  | AMPS     | POLES | VA    | VA    | VA    | AMPS | POLES |                       | No.                           | SIZE | SIZE |      |
| 1#12  | 2#12 | 1    | COUNTERTOP GFCI OUTLETS 1 |                          |  |  |  |  |  | 20       | 1     |       |       |       | 1    | 15    | DINING AREA OUTLETS   | 2                             | 2#14 | 1#14 |      |
| 1#12  | 2#12 | 3    | COUNTERTOP GFCI OUTLETS 2 |                          |  |  |  |  |  | 20       | 1     |       |       |       | 1    | 15    | GENERAL LTG/OUTLETS 1 | 4                             | 2#14 | 1#14 |      |
| (A/G)   | 1#12 | 2#12 | 5                         | DISHWASHER               |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 15                    | GENERAL LTG/OUTLETS 2         | 6    | 2#14 | 1#14 |
| (G)   | 1#12 | 2#12 | 7                         | REFRIGERATOR             |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 15                    | GENERAL LTG/OUTLETS 3         | 8    | 2#14 | 1#14 |
|   | 1#12 | 2#12 | 9                         | GAS RANGE                |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | BATHROOM                      | 10   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 11                        | GAS DRYER                |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | ACCU, CONDENSING UNIT ON ROOF | 12   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 13                        | MICROWAVE                |  |  |  |  |  |          | 20    | 1     |       |       |      | 2     | 20                    | FURNACE SECTION               | 16   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 15                        | WASHER/LAUNDRY           |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                         | 18   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 17                        | MEDIA PANEL              |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                         | 20   |      |      |
| (A/G)   | 1#12 | 2#12 | 19                        | KITCHEN EXHAUST HOOD/FAN |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                         | 22   |      |      |
|   |      |      | 21                        | SPACE                    |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                         | 24   |      |      |
|   |      |      | 23                        | SPACE                    |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                         |      |      |      |

|  |  |   |
|--|--|---|
| REMARKS  | MAIN   | OPTIONS   |
| (A/G) FURNISH AFCI/GFCI BREAKER  | BUS 100 AMPS                                       | <input type="checkbox"/> 200% NEUTRAL                                   |
| (G) FURNISH WITH GFCI BREAKER IF REFRIGERATOR OUTLET WITHIN 6' OF A SINK | BRKR - AMPS  | <input checked="" type="checkbox"/> GROUND BUS                          |
|  |  | <input type="checkbox"/> ISOLATED GROUND BUS                            |
|  |  | <input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION                      |
|  | <input type="checkbox"/> MAIN C.B.                 | <input type="checkbox"/> STAINLESS STEEL COVER                          |
|  | <input type="checkbox"/> TOP FEED                  | <input type="checkbox"/> NEMA 3R PANEL                                  |
|  | <input type="checkbox"/> BOTTOM FEED               | <input type="checkbox"/> SUB-FEED MAIN C.B. (3P) QTY: _____ AMPS: _____ |
|  | <input checked="" type="checkbox"/> FLUSH MOUNTED  | <input type="checkbox"/> CONTACTOR AMPS: _____ CKT'S CONTROLLED: _____  |
|  | <input type="checkbox"/> SURFACE MOUNTED           | <input type="checkbox"/> OTHER: _____                                   |
|  | <input checked="" type="checkbox"/> MAIN LUGS ONLY |   |

- ELECTRICAL GENERAL NOTES:
- ALL PANELS FED WITH CONDUCTORS LESS THAN 20' SHALL BE 42 KAIC.  
ALL PANELS FED WITH CONDUCTORS LESS THAN 30' SHALL BE 35 KAIC.  
ALL PANELS FED WITH CONDUCTORS LESS THAN 50' SHALL BE 22 KAIC.
  - PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR CIRCUITS SERVING KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUN ROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, AND SIMILAR AREAS. 2017 NEC 210.12 (A)

| PANEL DESIGNATION TYPICAL FOR 1-BEDROOM UNITS |      |      |                           |                          |  |  |  |  |  | VOLTAGE  | PHASE | POLES | WIRES | AIC   |      |       |                       |                                 |      |      |      |
|---|------|------|---------------------------|--------------------------|--|--|--|--|--|----------|-------|-------|-------|-------|------|-------|-----------------------|---------------------------------|------|------|------|
|   |      |      |                           |                          |  |  |  |  |  | 120/208V | 1     | 24    | 3     | -     |      |       |                       |                                 |      |      |      |
| G WIRE  | WIRE | WIRE | DESCRIPTION               |                          |  |  |  |  |  | CB       | CB    | PH. A | PH. B | PH. C | CB   | CB    | DESCRIPTION           | CKT#                            | WIRE | WIRE |      |
| SIZE  | SIZE | No.  |                           |                          |  |  |  |  |  | AMPS     | POLES | VA    | VA    | VA    | AMPS | POLES |                       | No.                             | SIZE | SIZE |      |
| 1#12  | 2#12 | 1    | COUNTERTOP GFCI OUTLETS 1 |                          |  |  |  |  |  | 20       | 1     |       |       |       | 1    | 15    | DINING AREA OUTLETS   | 2                               | 2#14 | 1#14 |      |
| 1#12  | 2#12 | 3    | COUNTERTOP GFCI OUTLETS 2 |                          |  |  |  |  |  | 20       | 1     |       |       |       | 1    | 15    | GENERAL LTG/OUTLETS 1 | 4                               | 2#14 | 1#14 |      |
| (A/G)   | 1#12 | 2#12 | 5                         | DISHWASHER               |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 15                    | GENERAL LTG/OUTLETS 2           | 6    | 2#14 | 1#14 |
| *   | 1#12 | 2#12 | 7                         | REFRIGERATOR             |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 15                    | GENERAL LTG/OUTLETS 3           | 8    | 2#14 | 1#14 |
|   | 1#12 | 2#12 | 9                         | GAS RANGE                |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | BATHROOM                        | 10   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 11                        | GAS DRYER                |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | ACCU-1, CONDENSING UNIT ON ROOF | 12   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 13                        | MICROWAVE                |  |  |  |  |  |          | 20    | 1     |       |       |      | 2     | 20                    | FURNACE SECTION                 | 16   | 2#12 | 1#12 |
|   | 1#12 | 2#12 | 15                        | WASHER/LAUNDRY           |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                           | 18   |      |      |
|   | 1#12 | 2#12 | 17                        | MEDIA PANEL              |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                           | 20   |      |      |
| (A/G)   | 1#12 | 2#12 | 19                        | KITCHEN EXHAUST HOOD/FAN |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                           | 22   |      |      |
|   |      |      | 21                        | SPACE                    |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                           | 24   |      |      |
|   |      |      | 23                        | SPACE                    |  |  |  |  |  |          | 20    | 1     |       |       |      | 1     | 20                    | SPACE                           |      |      |      |

|  |                                    |  |
|--|------------------------------------|--|
| REMARKS  | MAIN                               | OPTIONS  |
| (A/G) FURNISH AFCI/GFCI BREAKER  | BUS 100 AMPS                       | <input type="checkbox"/> 200% NEUTRAL              |
| * FURNISH WITH GFCI BREAKER IF REFRIGERATOR OUTLET WITHIN 6' OF A SINK | BRKR - AMPS                        | <input checked="" type="checkbox"/> GROUND BUS     |
|  |                                    | <input type="checkbox"/> ISOLATED GROUND BUS       |
|  | <input type="checkbox"/> MAIN C.B. | <input type="checkbox"/> DOOR-IN-DOOR CONSTRUCTION |
|  | <input type="checkbox"/> TOP FEED  | <input type="checkbox"/> STAINLESS STEEL COVER     |
|  |                                    |  |