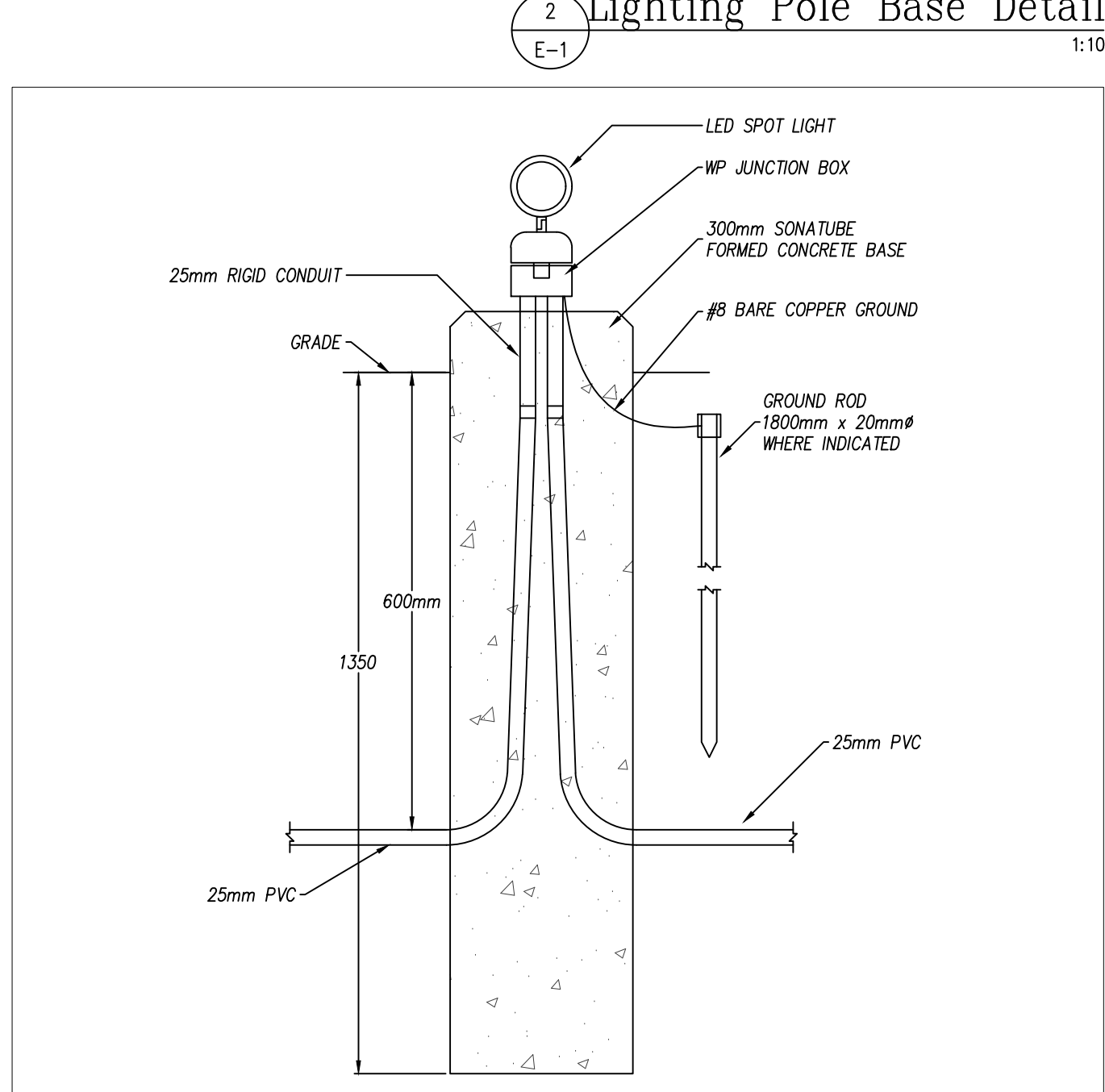
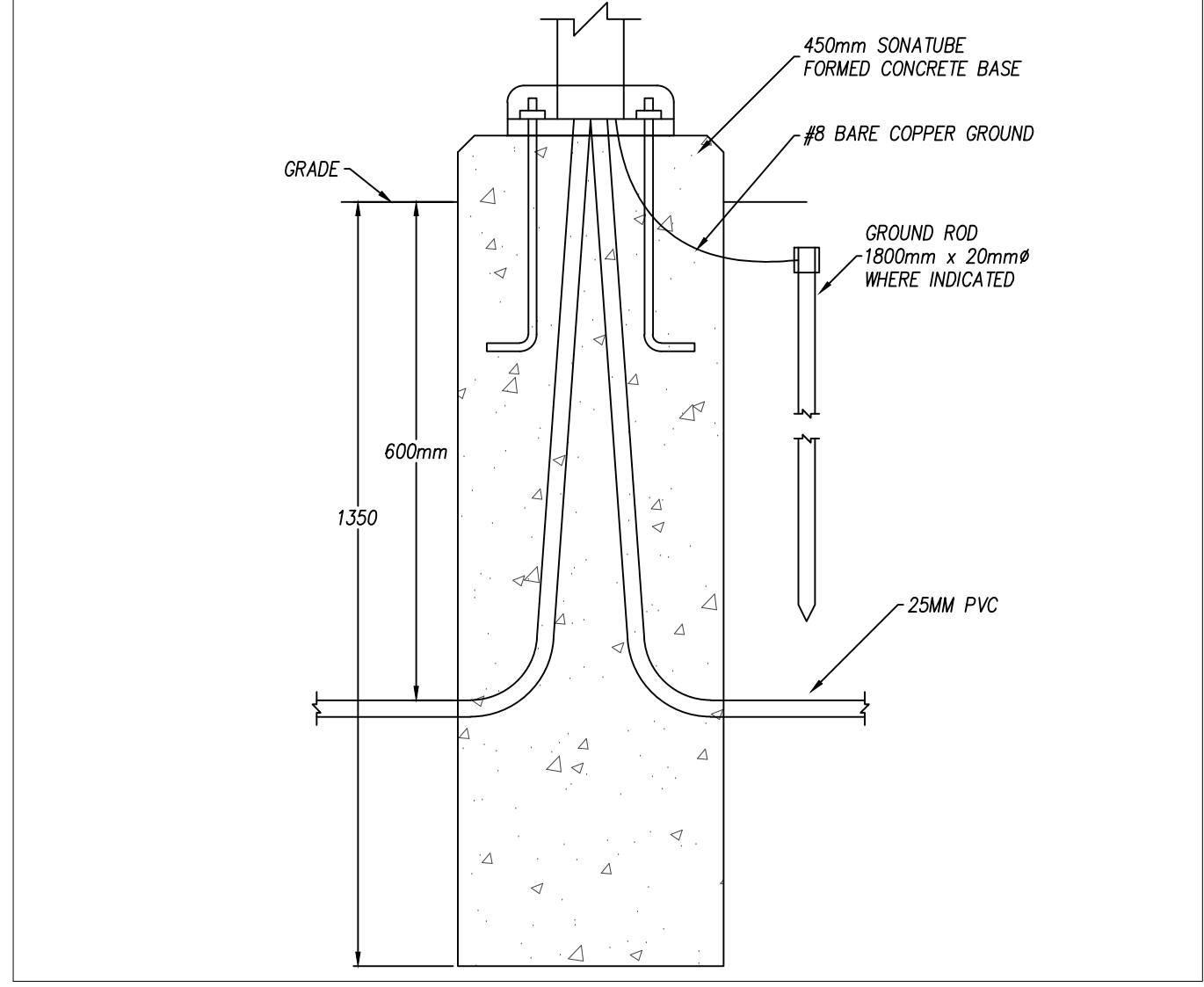


### LEGEND

|   |  |
|---|--|
| 200mm fluorescent strip                                     | Fire alarm - Bypass  |
| Recessed LED downlight                                      | Fire alarm - Station   |
| Surface LED   | Fire alarm - Signal  |
| Junction box  | Fire alarm - Signal w/ silencer  |
| Duplex receptacle   | Fire alarm - Smoke detector  |
| Duplex receptacle - Over Counter                            | Fire alarm - Heat detector   |
| Split switched duplex receptacle                            | Fire alarm - Duct mounted smoke detector   |
| NEMA 15-15R Receptacle                                      | Combination smoke / CO alarm with silencing device and internal battery backup - capacity 7 days standby plus 4 minutes alarm (IBC 2012 - 3.2.4.2.2) |
| NEMA 3-30R Receptacle                                       | Smoke alarm with silencing device and internal battery backup - capacity 7 days standby plus 4 minutes alarm (IBC 2012 - 3.2.4.2.2)                  |
| Direct connection   | CO alarm with internal battery backup  |
| Disconnect switch   | Supervised valve   |
| Combination magnetic motor starter                          | Flow switch  |
| Manual motor starter  | Dry-type transformer   |
| Motor connection  | Existing to remain   |
| Automatic door opener actuator                              | Existing to be removed   |
| Force flow heater - Ceiling mounted                         | Existing to be relocated/Relocated existing  |
| Force flow heater - Wall mounted                            | Weather Proof  |
| Panelboard - Surface mounted                                | Ground fault interrupted receptacle  |
| Panelboard - Recessed                                       | Lighting Control   |
| Telephone outlet  | Contactor  |
| Data outlet   | Timeclock  |
| Duplex (e)/data outlet                                      | Photocontrol   |
| TV outlet   | Light Switch   |
| Emergency lighting battery pack                             | Ceiling mounted occupancy sensor - Low voltage, extended range   |
| Emergency lighting remote heads - wall                      | Wall mounted occupancy sensing lighting control station  |
| Emergency lighting remote heads - ceiling                   | Line voltage 1-pole dual technology - Auto ON, Manual or Auto OFF  |
| Emergency lighting remote head - single                     | Line voltage 2-pole dual technology - A/B - Auto On A, Manual On B, Manual or Auto OFF   |
| Exit light - Wall mount with directional arrows as shown    | Line voltage 1-pole dual technology - Manual or Auto OFF   |
| Exit light - Ceiling mount with directional arrows as shown | Wall mounted low voltage lighting control station  |
| Resident call - Panel - Recessed                            | 2-channel - A/B - Auto ON A, Manual ON B, Manual or Auto OFF A and B   |
| Emergency call - Station                                    |  |
| Fire alarm - Panel  |  |
| Fire alarm - Annunciator Panel - Recessed                   |  |

### Exterior Lighting Fixture Schedule

| Type | Description   | Remarks |
|------|---|---------|
| LP-1 | Outdoor LED area light mounted at 4200mm high on square post. Single piece die-cast aluminum housing with integral heat sink. Finish to be thermostat powdercoat. Lamp: 35W 4000K LED with min 70CRI and Type II short distribution. Pole: 100x100mm, 4200mm straight square steel pole for drill mounted luminaires. Base: For anchor bolt mounting with cover to match pole, provide ground lug. Standard of acceptance: Lithonia Lighting DSXO luminaire on Lithonia Lighting SSS pole.        |         |
| LP-2 | Outdoor LED area light mounted at 4870mm high on square post. Single piece die-cast aluminum housing with integral heat sink. Finish to be thermostat powdercoat. Lamp: 35W 4000K LED with min 70CRI and forward throw medium distribution. Pole: 100x100mm, 4870mm straight square steel pole for drill mounted luminaires. Base: For anchor bolt mounting with cover to match pole, provide ground lug. Standard of acceptance: Lithonia Lighting DSXO luminaire on Lithonia Lighting SSS pole. |         |
| EL-1 | Outdoor wall mounted LED area light. Single piece die-cast aluminum housing with integral heat sink. Finish to be thermostat powdercoat. Lamp: 35W 4000K LED with min 70CRI and forward throw medium distribution. Standard of acceptance: Lithonia Lighting DSXO luminaire.  |         |
| EL-2 | Outdoor wall mounted LED spot light. Die-cast aluminum housing with integral heat sink. Finish to be thermostat powdercoat. Lamp: 11W 5000K LED with min 86 CRI. Standard of acceptance: Lithonia Lighting OLSB.  |         |



### Initial Lighting Intensities

| Area          | Average | Maximum  | Minimum |
|---------------|---------|----------|---------|
| Laneway       | 9.7 lux | 18.5 lux | 1.4 lux |
| Property Line | 0.5 lux | 6.0 lux  | 0.0 lux |
| Roundabout    | 9.6 lux | 13.4 lux | 5.9 lux |

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 11. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 10. | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
| 9.  | ISSUED FOR SERVICE CHANGE TO 600V & STANDBY POWER SYSTEM ADDITION | Jan 23, 2016  |
| 8.  | ISSUED FOR CONSTRUCTION   | Nov 20, 2015  |
| 7.  | ISSUED FOR BASEMENT CONSTRUCTION                                  | Nov 06, 2015  |
| 6.  | RE-ISSUED FOR PERMIT  | Aug 21, 2015  |
| 5.  | ISSUED FOR PRICING, NOT CONSTRUCTION                              | May 08, 2015  |
| 4.  | ISSUED FOR PERMIT, NEW BUILDING                                   | Dec 18, 2014  |
| 3.  | ISSUED FOR CLIENT REVIEW  | Dec 15, 2014  |
| 2.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
| 1.  | ISSUED FOR SITE PLAN PERMIT                                       | 27-Oct-14     |

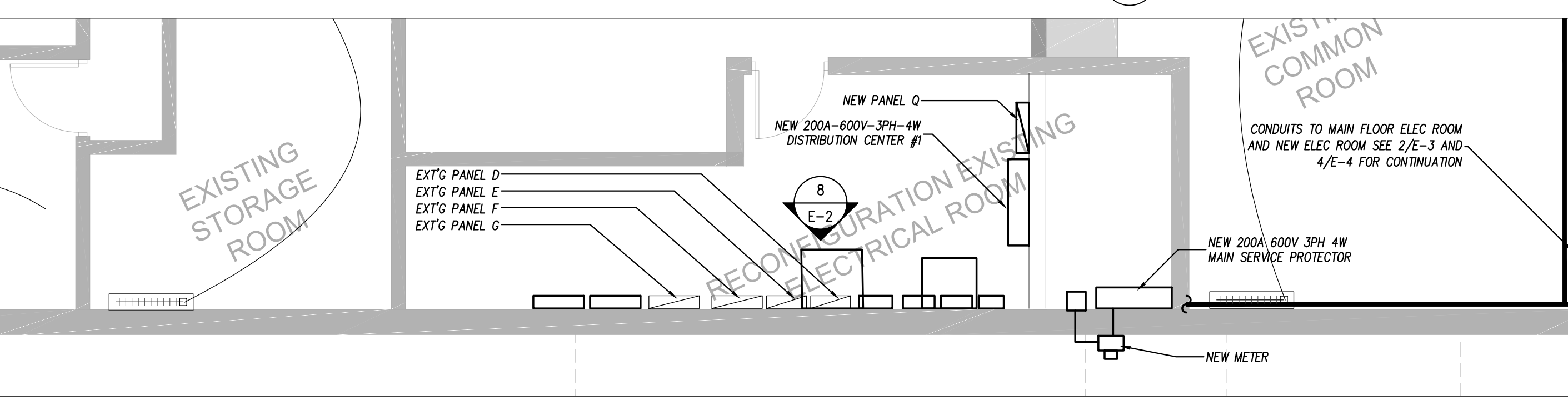
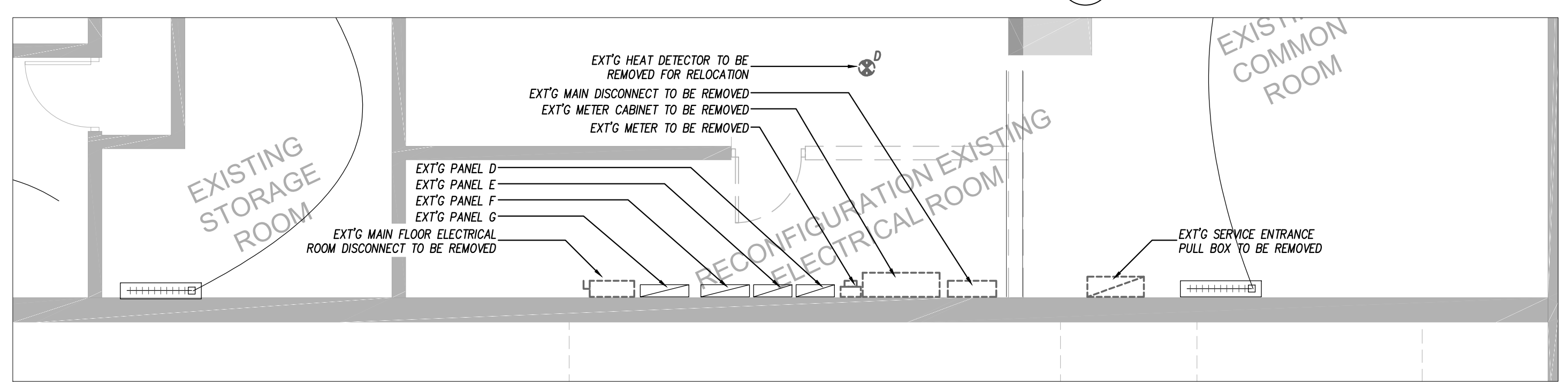
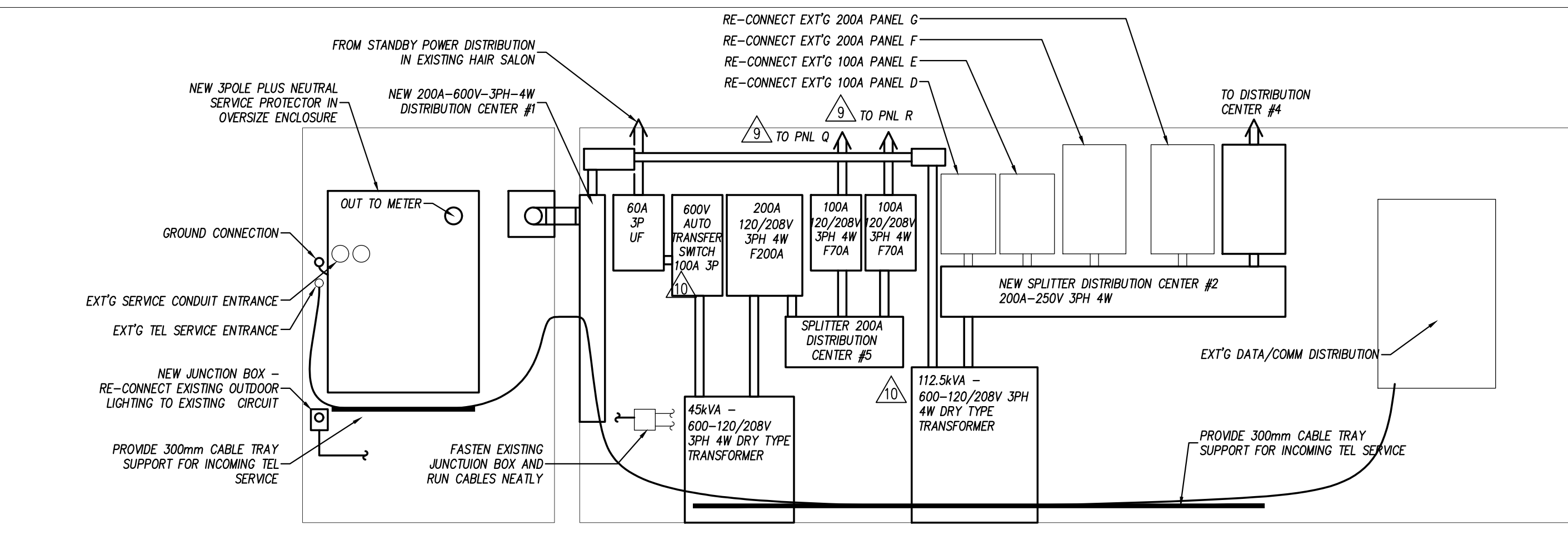
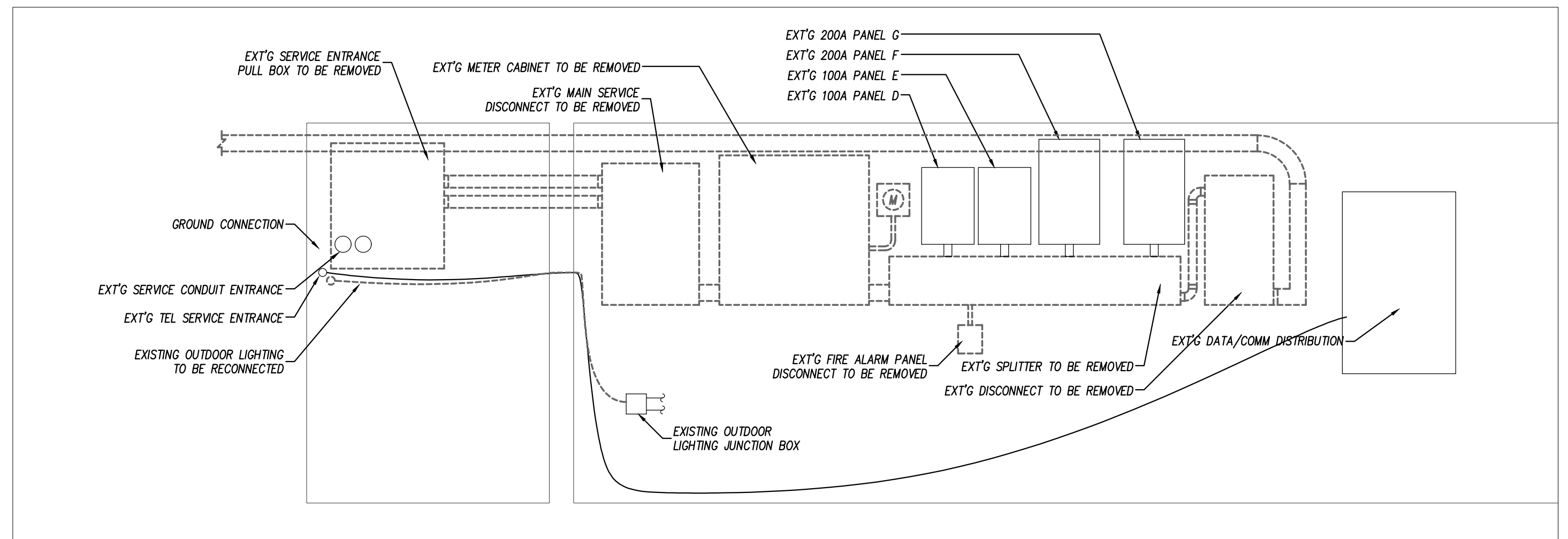
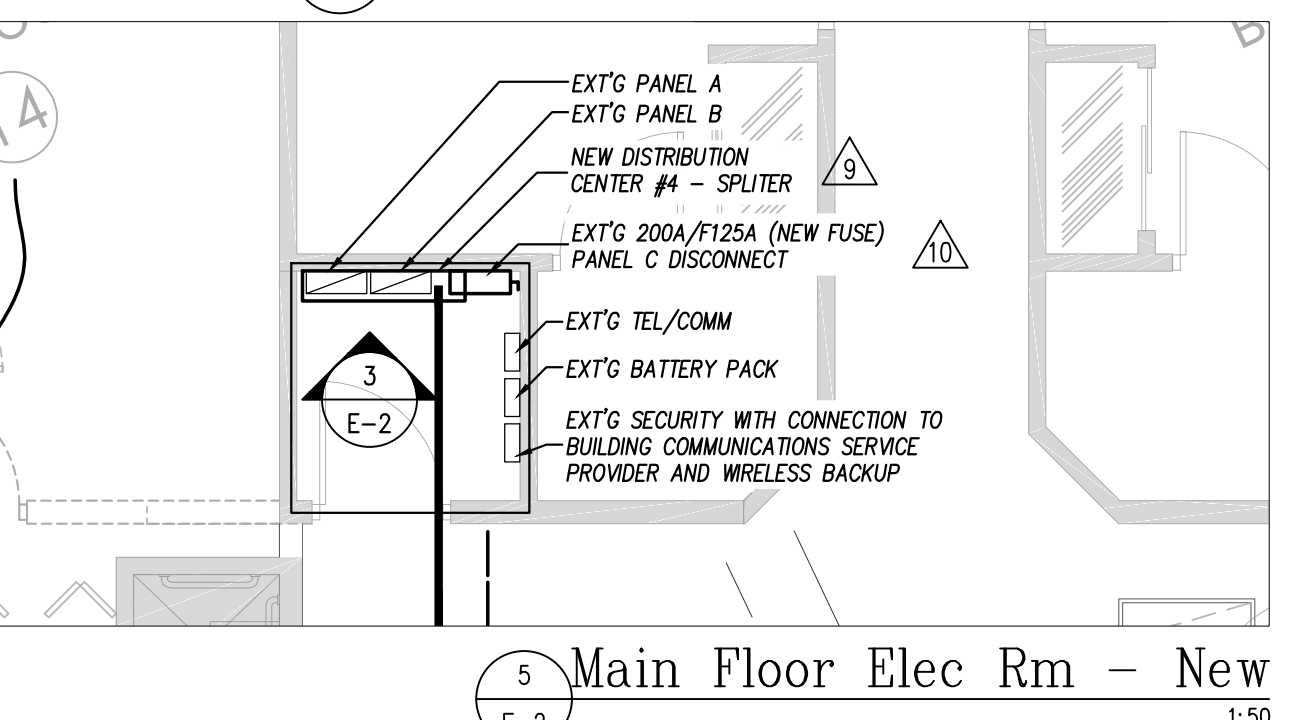
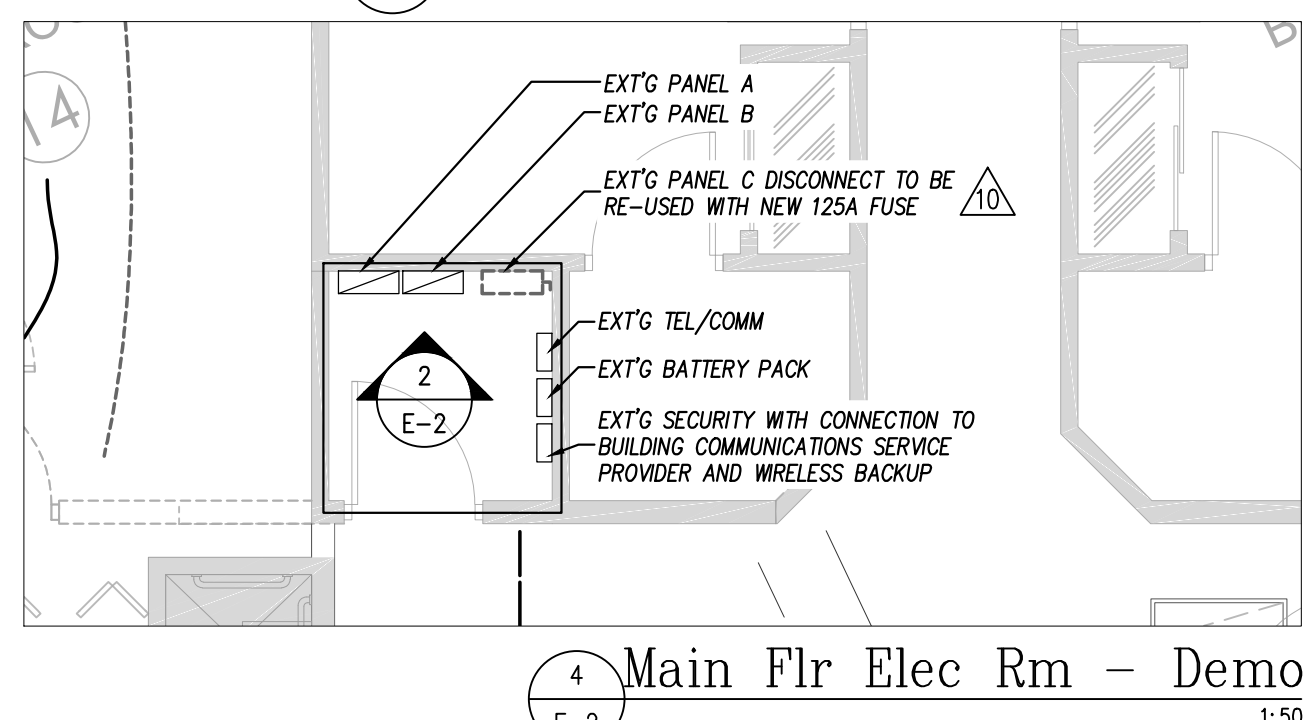
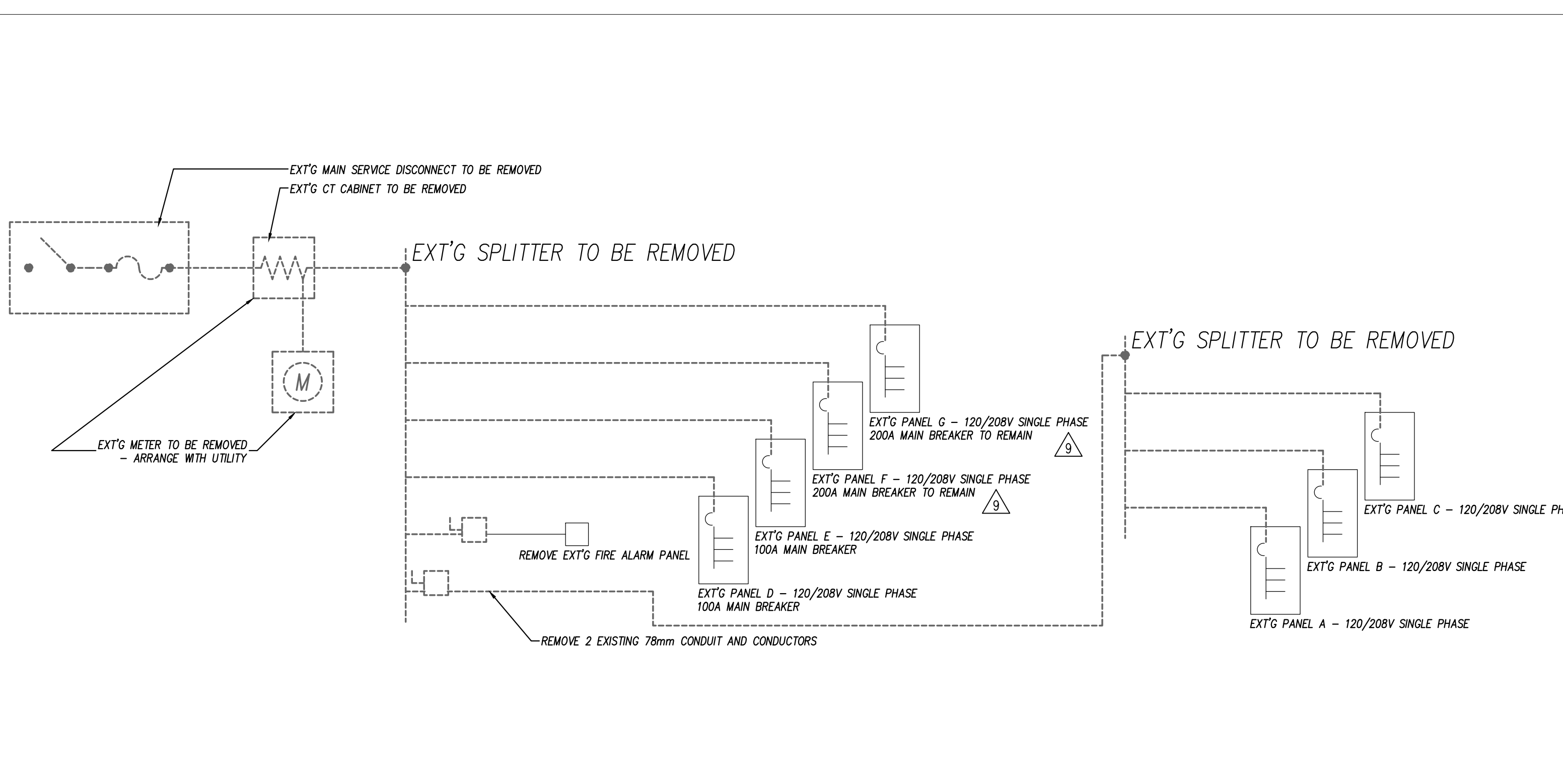
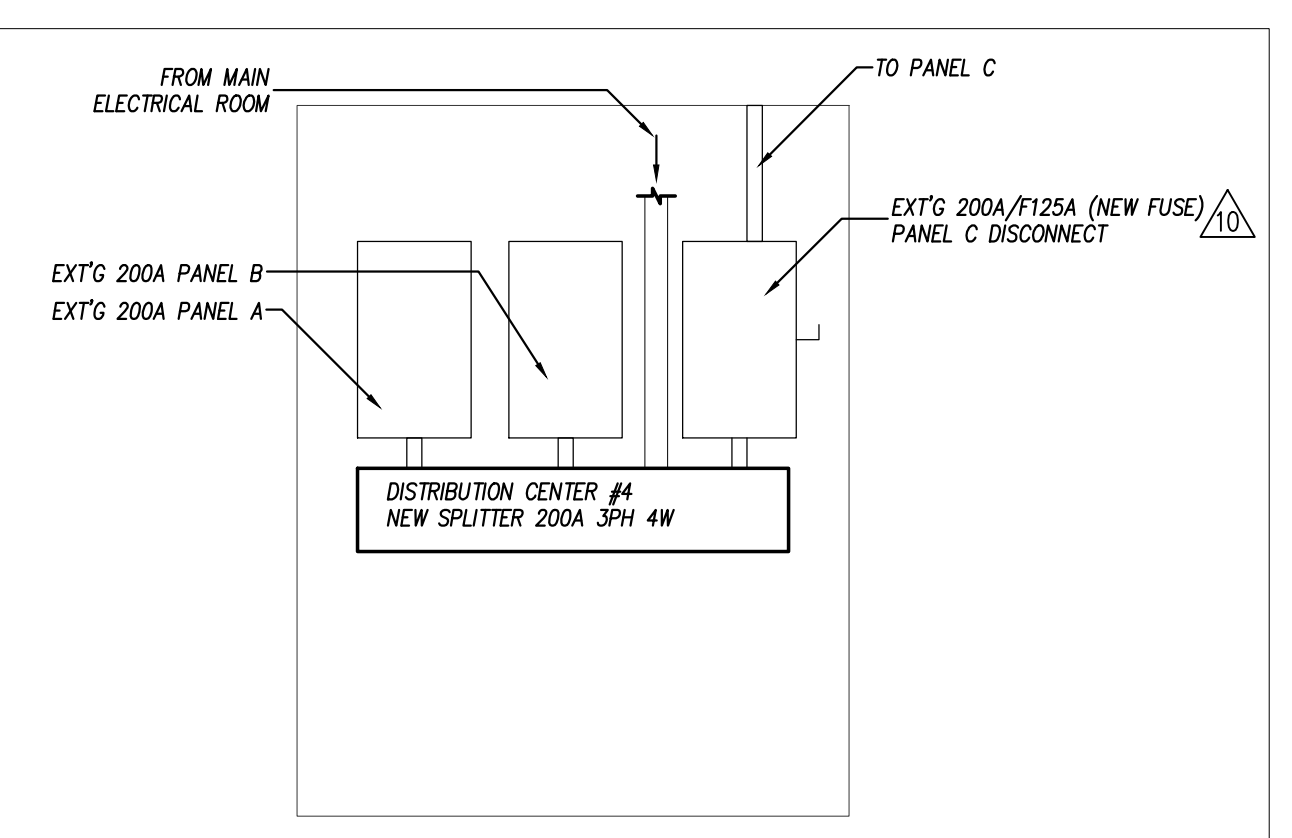
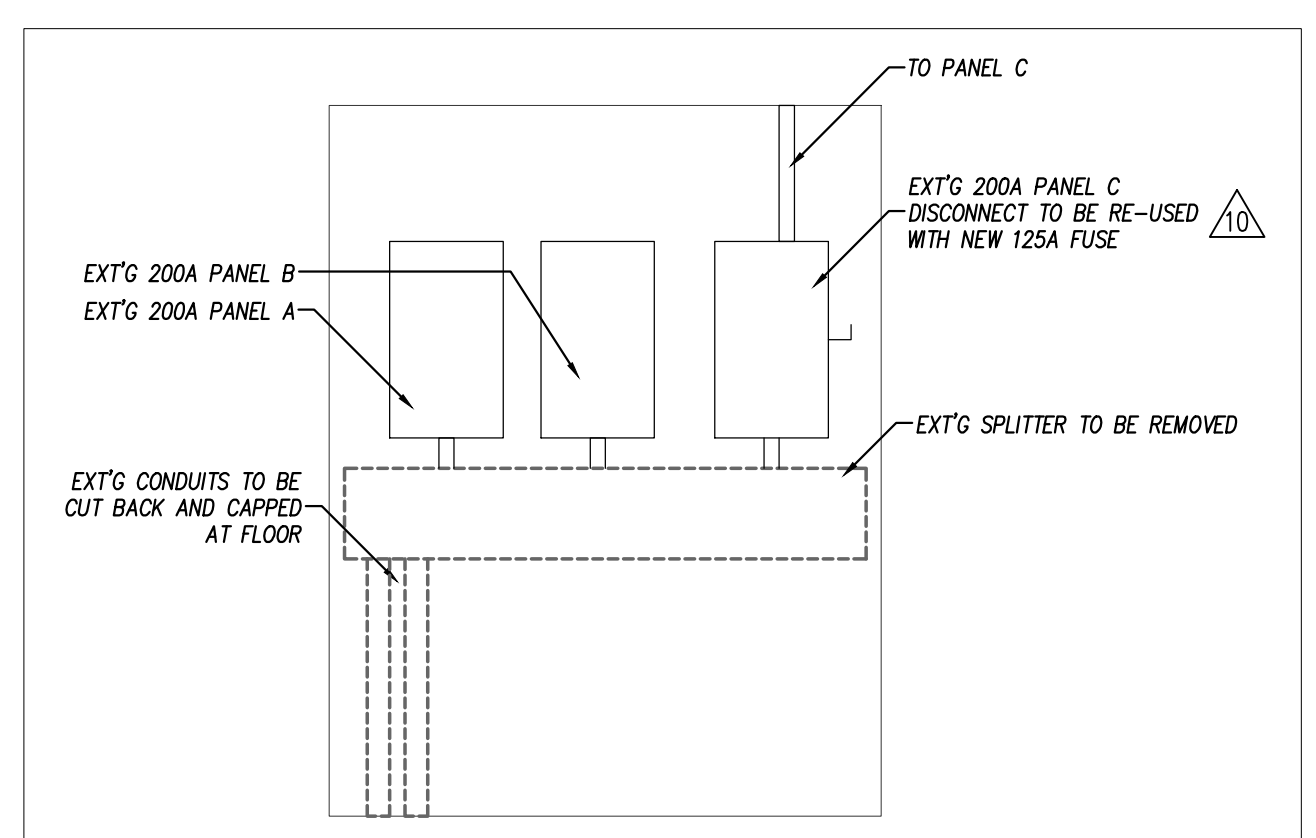
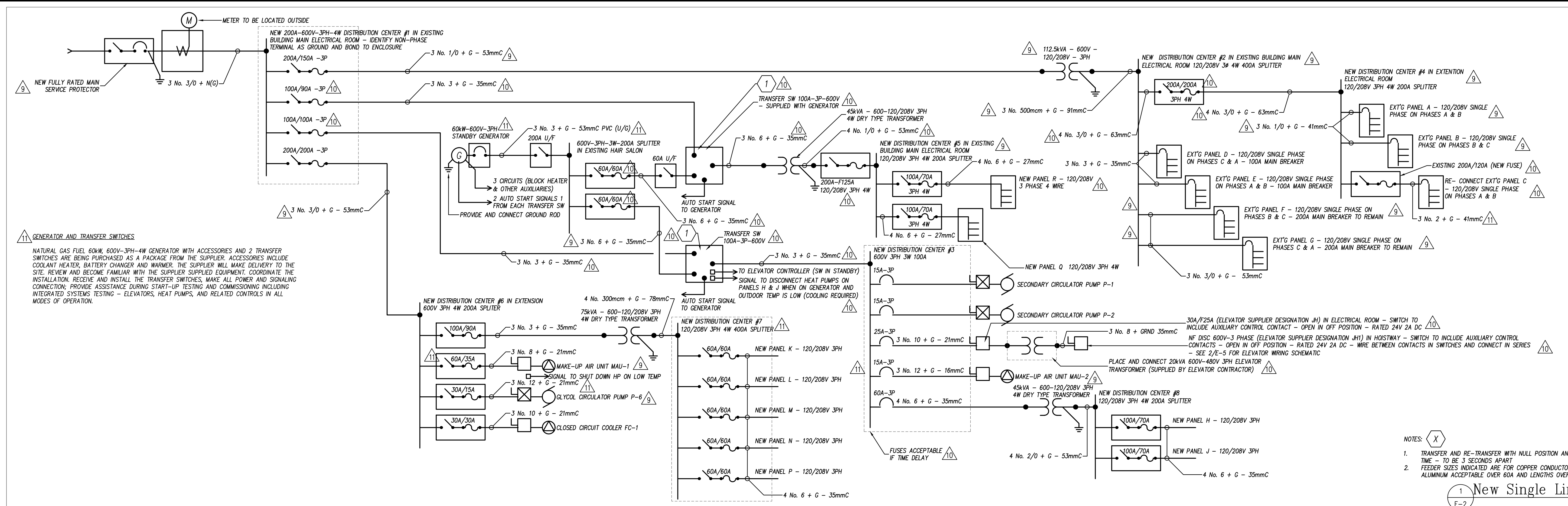
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 1750 COURTWOOD CRESCENT, OTTAWA, ONTARIO, CANADA K3C 2B5  
 TEL: 613 228 9650 - FAX: 613 228 9648 - mail@woodmanarchitect.com

**BEKOLY & Associates Ltd.**  
 Consulting Engineers  
 27-Apr-16

PROJECT: Long Sault Villa  
 53 Long Sault Dr. Long Sault, On  
 Site Plan

**C. L. WOOD**  
 PROFESSIONAL ENGINEER  
 PROVINCE OF ONTARIO  
 DATE: 27-Apr-16 SCALE: AS SHOWN  
 DRAWN BY: EHK DESIGNED BY: CLW  
 JOB NO.: 2014-03 CHECKED BY: CLW  
 DRAWING NO.: E-1 of 12



| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 9.  | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
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| 4.  | ISSUED FOR PRICING, NOT CONSTRUCTION                              | May 08, 2015  |
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| 2.  | ISSUED FOR CLIENT REVIEW  | Dec 15, 2014  |
| 1.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
|     | ----  |               |

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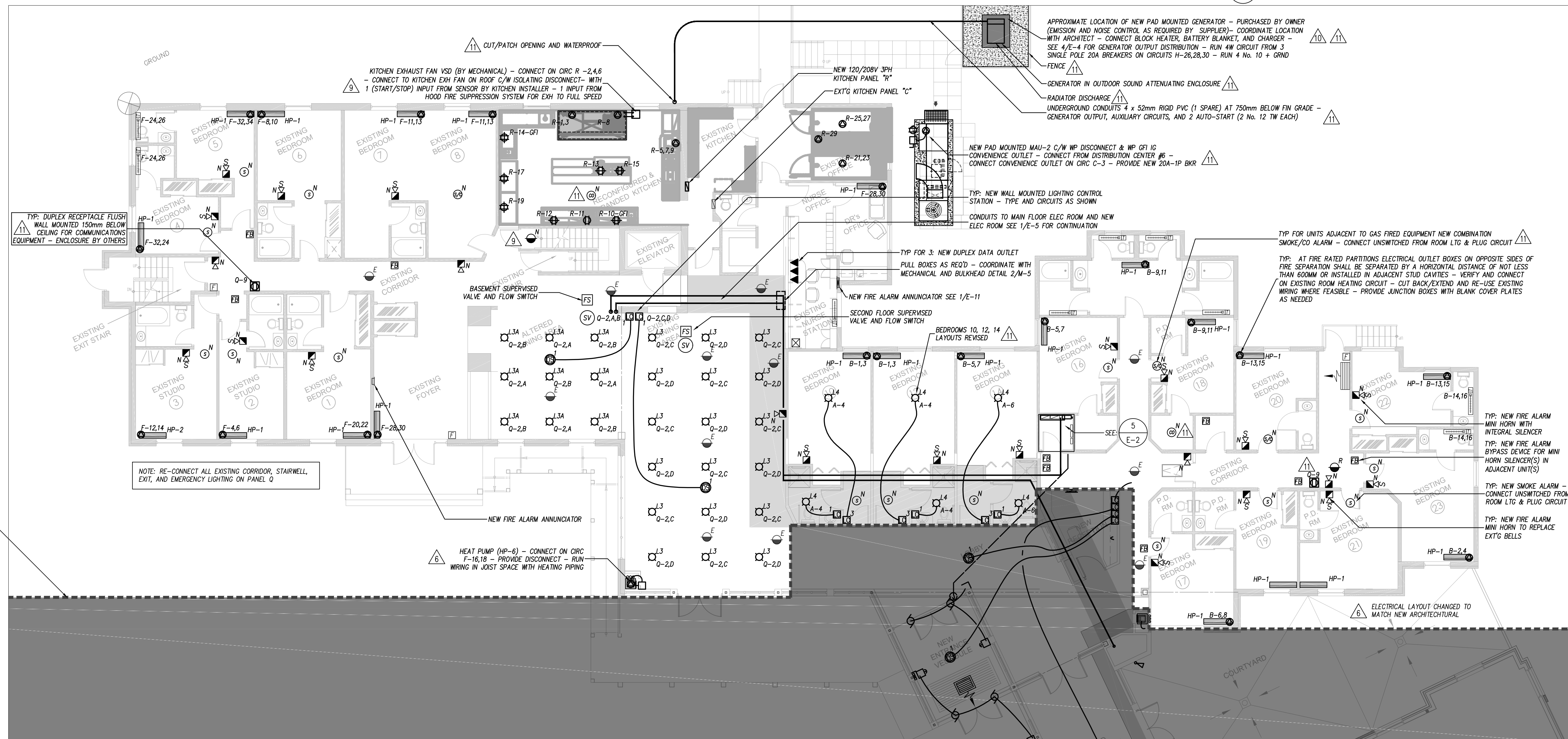
**BEKOLAY & Associates Ltd.**  
 Consulting Engineers  
 385 WEST HOCKWOLD DR., OTTAWA  
 ON K2H 8S4  
 TEL: 613 234 4444 FAX: 613 234 4444  
 email: info@bekolay.com

PROJECT: Long Sault Villa  
 53 Long Sault Dr. Long Sault, On  
 DRAWING: Distribution And Electrical Room Details

DATE: 27-Apr-16 SCALE: AS SHOWN  
 DESIGNED BY: EHK DESIGNED BY: CLW  
 JOB NO.: 2014-03 CHECKED BY: CLW  
 DRAWING NO.:  
 C. L. WOOD  
 27-Apr-16  
 PROVINCE OF ONTARIO  
 E-2 of 12



1 Existing Ground Floor - Existing & Demo  
E-3  
1:100



2 Existing Ground Floor - New  
E-3  
1:100

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
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| 12. |   |               |
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| 1.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
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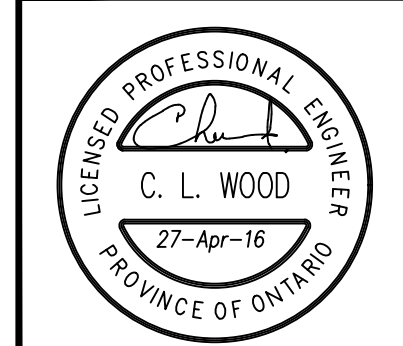
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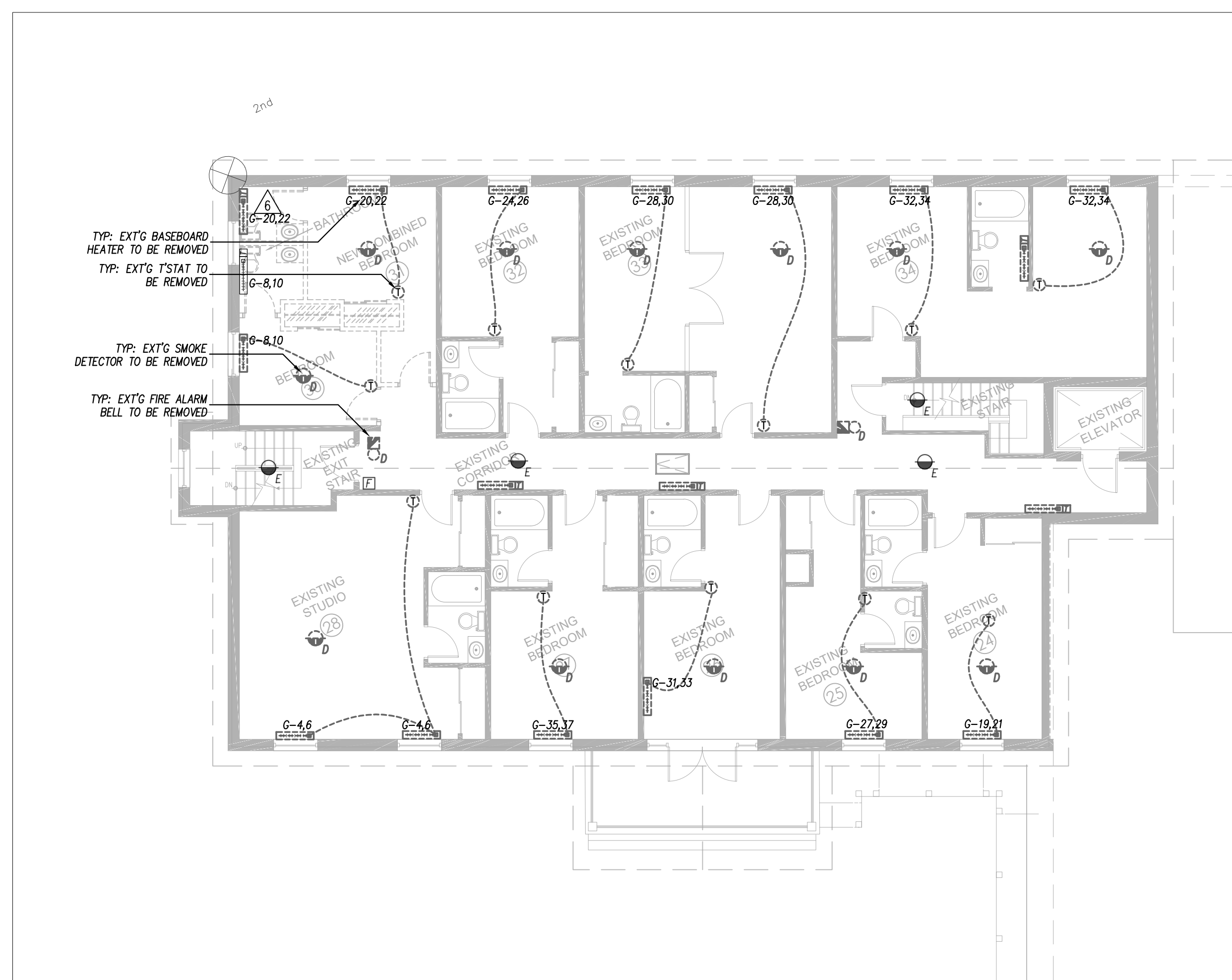
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**BEKOLAY & Associates Ltd.**  
Consulting Engineers  
365 WEST HOCWOOD DR., OTTAWA  
ON K1S 2S4  
TEL: 613 736 6888  
EMAIL: jbe@bekolay.com

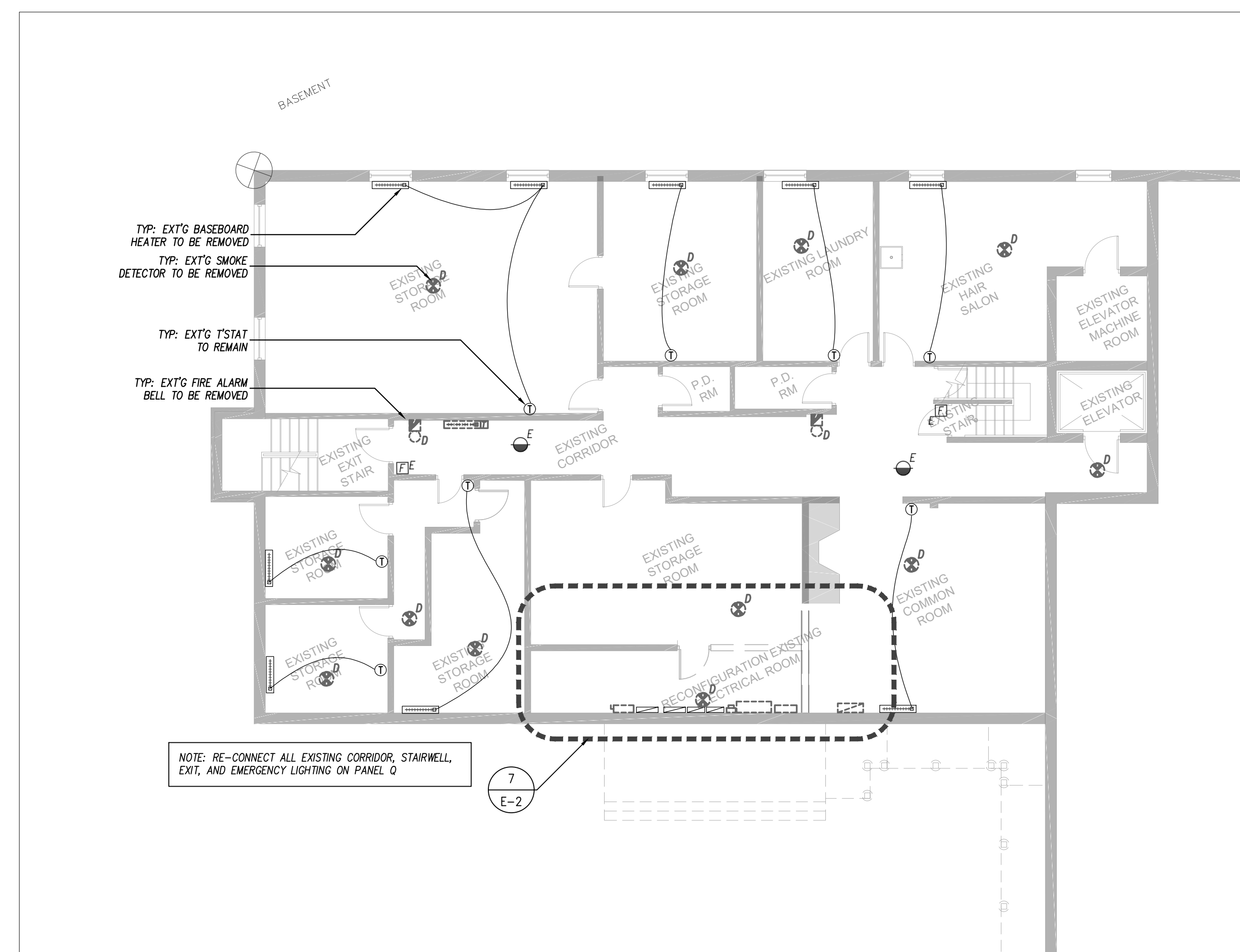
PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On  
DRAWING: Existing Building  
Ground Floor

DATE: 27-Apr-16  
SCALE: AS SHOWN  
DRAWN BY: EHK  
DESIGNED BY: CLW  
JOB NO.: 2014-03  
CHECKED BY: CLW  
DRAWING NO.:  
E-3 of 12

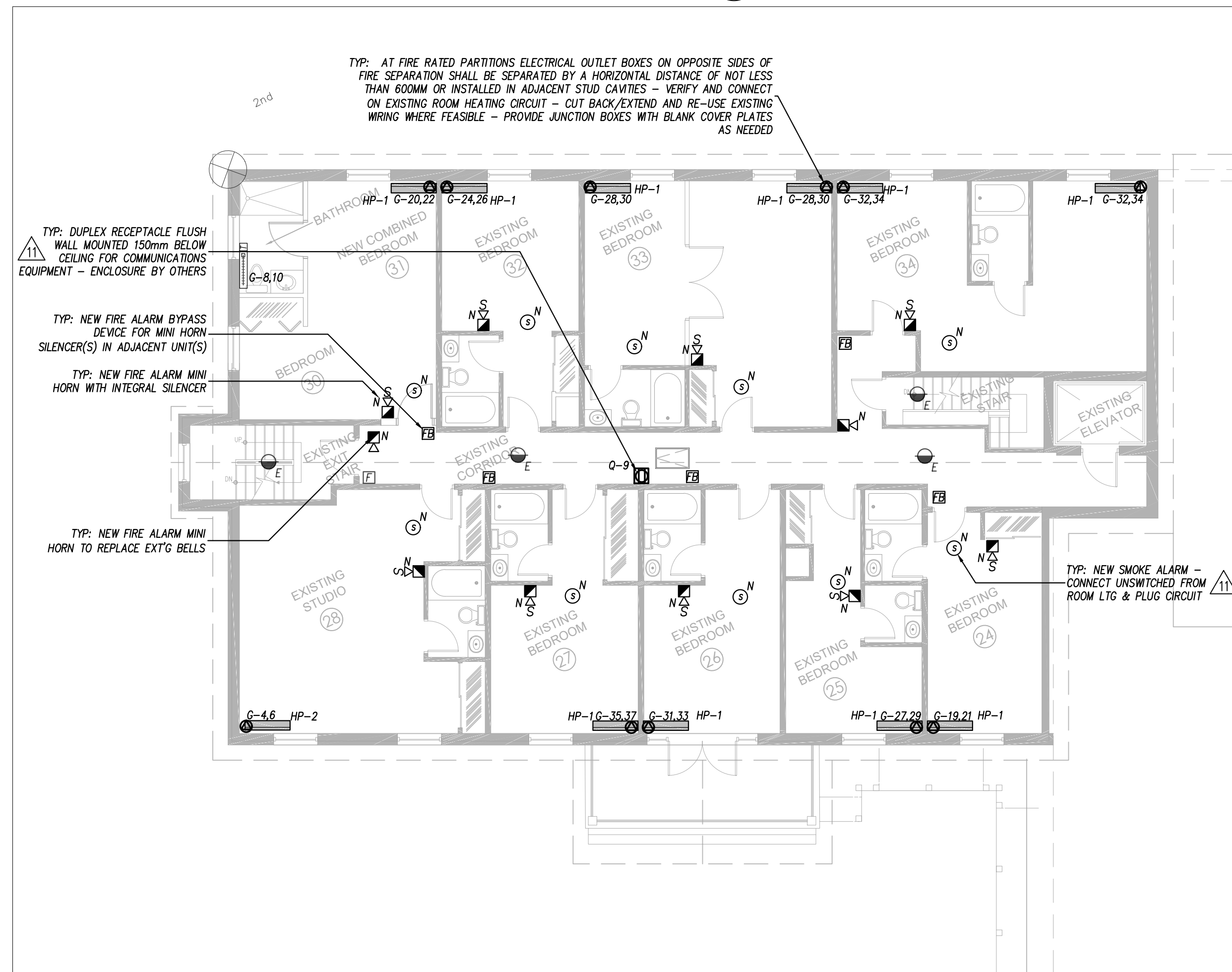




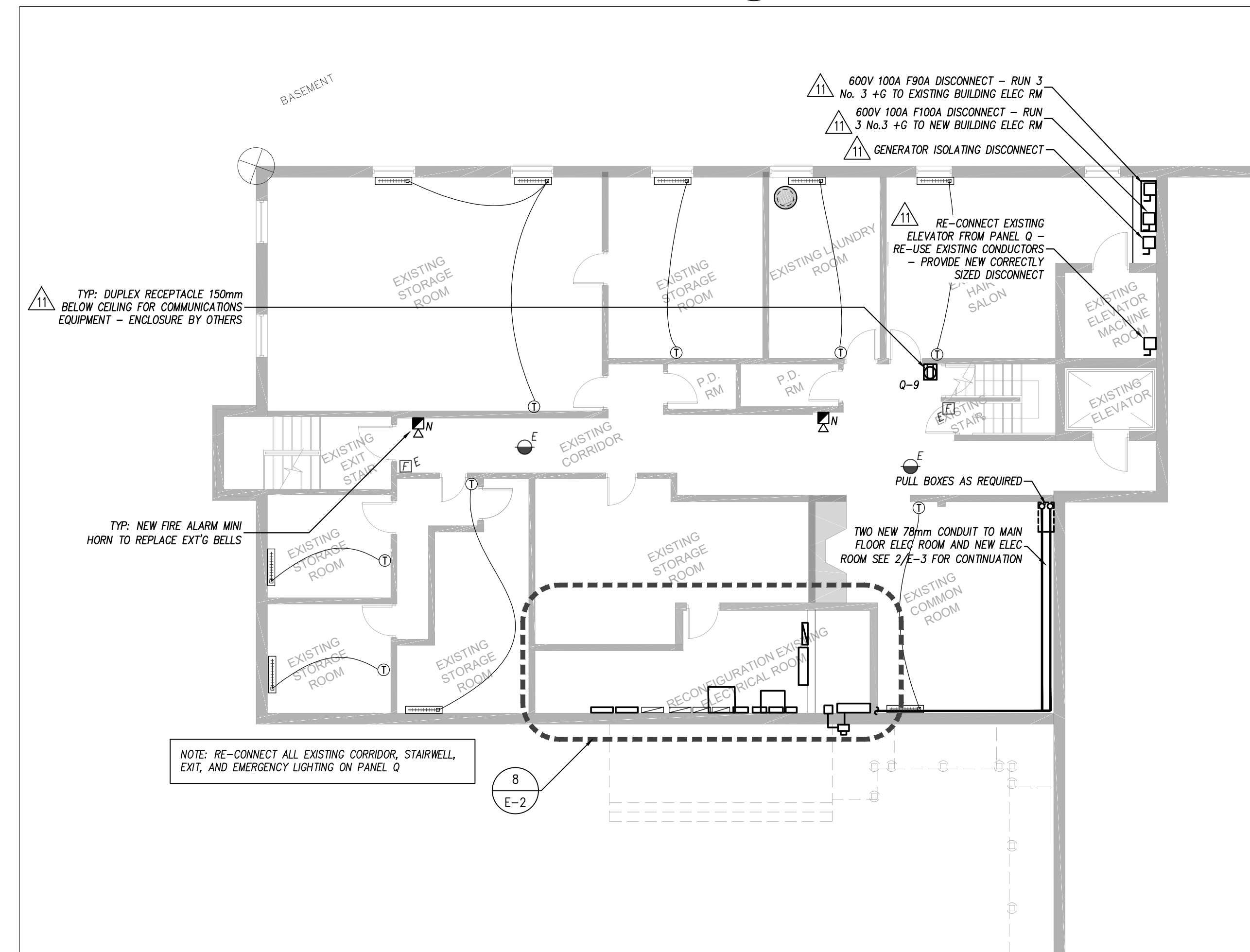
1 Existing 2nd Floor - Existing & Demo  
E-4 1:100



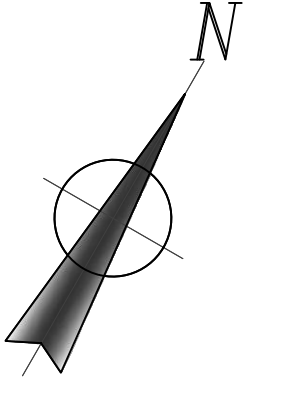
2 Existing Basement - Existing & Demo  
E-4 1:100



3 Existing 2nd Floor - New  
E-4 1:100



4 Existing Basement - New  
E-4 1:100



| NO. | REVISIONS   | DATE          |
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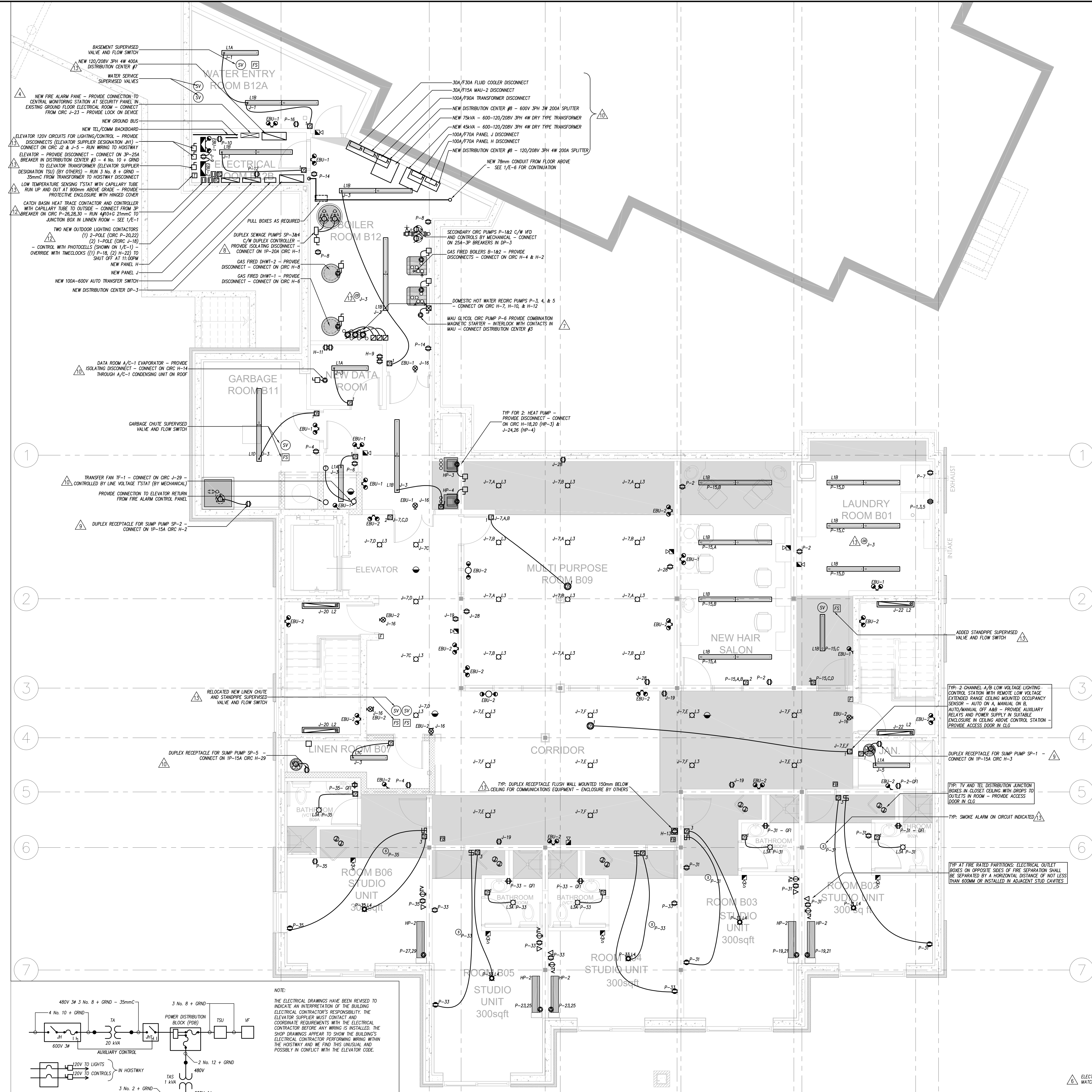
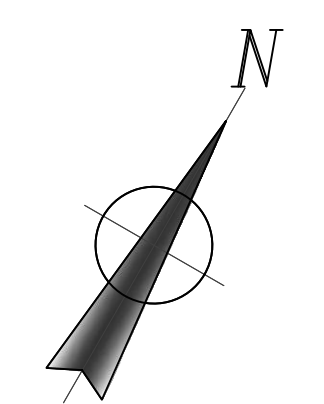
**BEKOLAY & Associates Ltd.**  
Consulting Engineers

PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On

DRAWN: Existing Building  
Basement And Second Floor

DATE: 27-Apr-16 SCALE: AS SHOWN  
DESIGNED BY: EHK DESIGNED BY: CLW  
JOB NO.: 2014-03 CHECKED BY: CLW  
DRAWING NO.: E-4 of 12

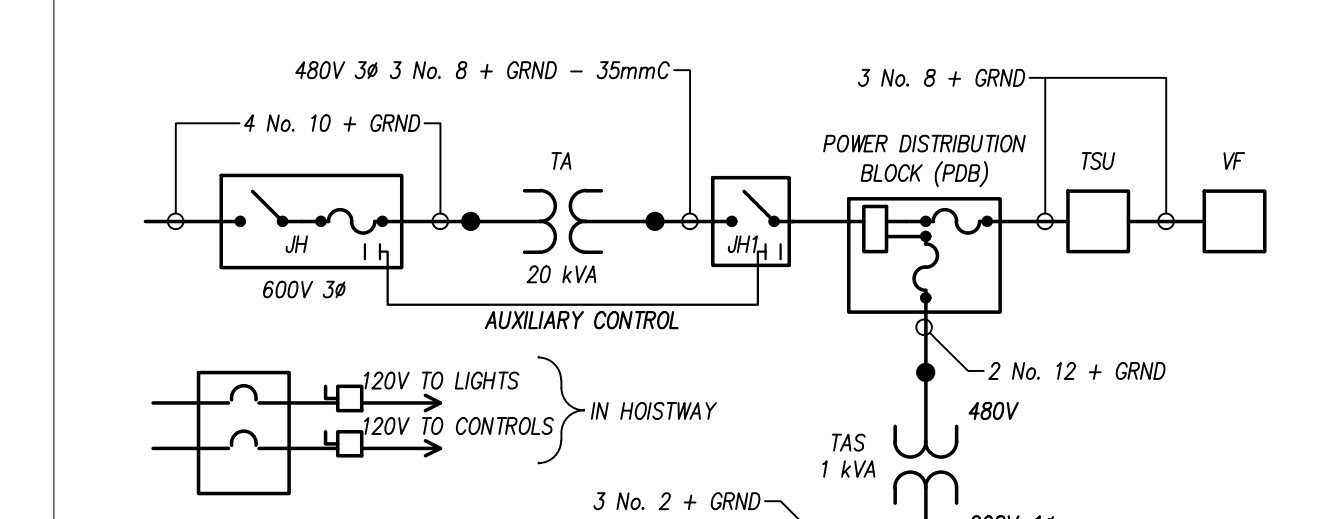




BASMENT SUPERVISED VALVE AND FLOW SWITCH  
NEW 120/208V 3PH 4W 400A DISTRIBUTION CENTER #7  
WATER SERVICE SUPERVISED VALVES  
NEW FIRE ALARM PANE - PROVIDE CONNECTION TO CENTRAL MONITORING STATION AT SECURITY PANEL IN EXISTING GROUND FLOOR ELECTRICAL ROOM - CONNECT FROM CIRC J-23 - PROVIDE LOCK ON DEVICE  
NEW GROUND BUS  
NEW TEL/COMM BACKBOARD  
ELEVATOR 120V CIRCUITS FOR LIGHTING/CONTROL - PROVIDE DISCONNECTS (ELEVATOR SUPPLIER DESIGNATION #H) - CONNECT ON CIRC J-2 & J-3 - RUN IN WIRING TO HOSTWAY  
ELEVATOR - PROVIDE DISCONNECT - CONNECT ON 3P-25A BREAKER IN DISTRIBUTION CENTER #3 - 4 No. 10 + GRND TO ELEVATOR TRANSFORMER (ELEVATOR SUPPLIER DESIGNATION TSU) (BY OTHERS) - RUN 3 No. 8 + GRND - 35mmc FROM TRANSFORMER TO HOSTWAY DISCONNECT  
LOW TEMPERATURE SENSING TSTAT WITH CAPILLARY TUBE - RUN UP AND OUT AT 900mm ABOVE GRADE - PROVIDE PROTECTIVE ENCLOSURE WITH HINGED COVER  
CATCH BASIN HEAT TRACE CONTACTOR AND CONTROLLER WITH CAPILLARY TUBE TO OUTSIDE - CONNECT FROM SP BREAKER ON CIRC P-26,28,30 - RUN #10+G 21mmc TO JUNCTION BOX IN LINEN ROOM - SEE 1/E-1  
TWO NEW OUTDOOR LIGHTING CONTACTORS (1) 2-POLE (CIRC P-20,22) (2) 1-POLE (CIRC J-18) - CONTROL WITH PHOTOCELLS (SHOWN ON 1/E-1) TO OVERRIDE WITH TIMELOCKS (1) P-18 (2) H-20 TO SHUT OFF AT 11:00PM  
NEW PANEL H  
NEW 100A-600V AUTO TRANSFER SWITCH  
NEW DISTRIBUTION CENTER DP-3

DATA ROOM A/C-1 EVAPORATOR - PROVIDE ISOLATING DISCONNECT - CONNECT ON CIRC H-14 THROUGH A/C-1 CONDENSING UNIT ON ROOF  
GARbage CHUTE SUPERVISED VALVE AND FLOW SWITCH  
TRANSFER FAN TF-1 - CONNECT ON CIRC J-29 - CONTROLLED BY LINE VOLTAGE TSTAT (BY MECHANICAL) - PROVIDE CONNECTION TO ELEVATOR RETURN FROM FIRE ALARM CONTROL PANEL  
DUPLX RECEPTACLE FOR SUMP PUMP SP-2 - CONNECT ON 1P-15A CIRC H-2

RELOCATED NEW LINEN CHUTE AND STANDPIPE SUPERVISED VALVE AND FLOW SWITCH  
DUPLX RECEPTACLE FOR SUMP PUMP SP-5 - CONNECT ON 1P-15A CIRC H-29



2 Elevator Wiring Schematic  
E-5

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 12. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar. 02, 2016 |
| 11. | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb. 10, 2016 |
| 10. | ISSUED FOR SERVICE CHANGE TO 600V & STANDBY POWER SYSTEM ADDITION | Jan. 23, 2016 |
| 9.  | SUMP PUMP REVISION (ECON-01)                                      | Dec. 10, 2015 |
| 8.  | SEWAGE PUMP ADDITION (ECON-01)                                    | Dec. 10, 2015 |
| 7.  | ISSUED FOR CONSTRUCTION   | Nov. 20, 2015 |
| 6.  | ISSUED FOR BASEMENT CONSTRUCTION                                  | Nov. 06, 2015 |
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TEL: 613 228 9650 - FAX: 613 228 9648 - mailto:woodmanarchitect.com

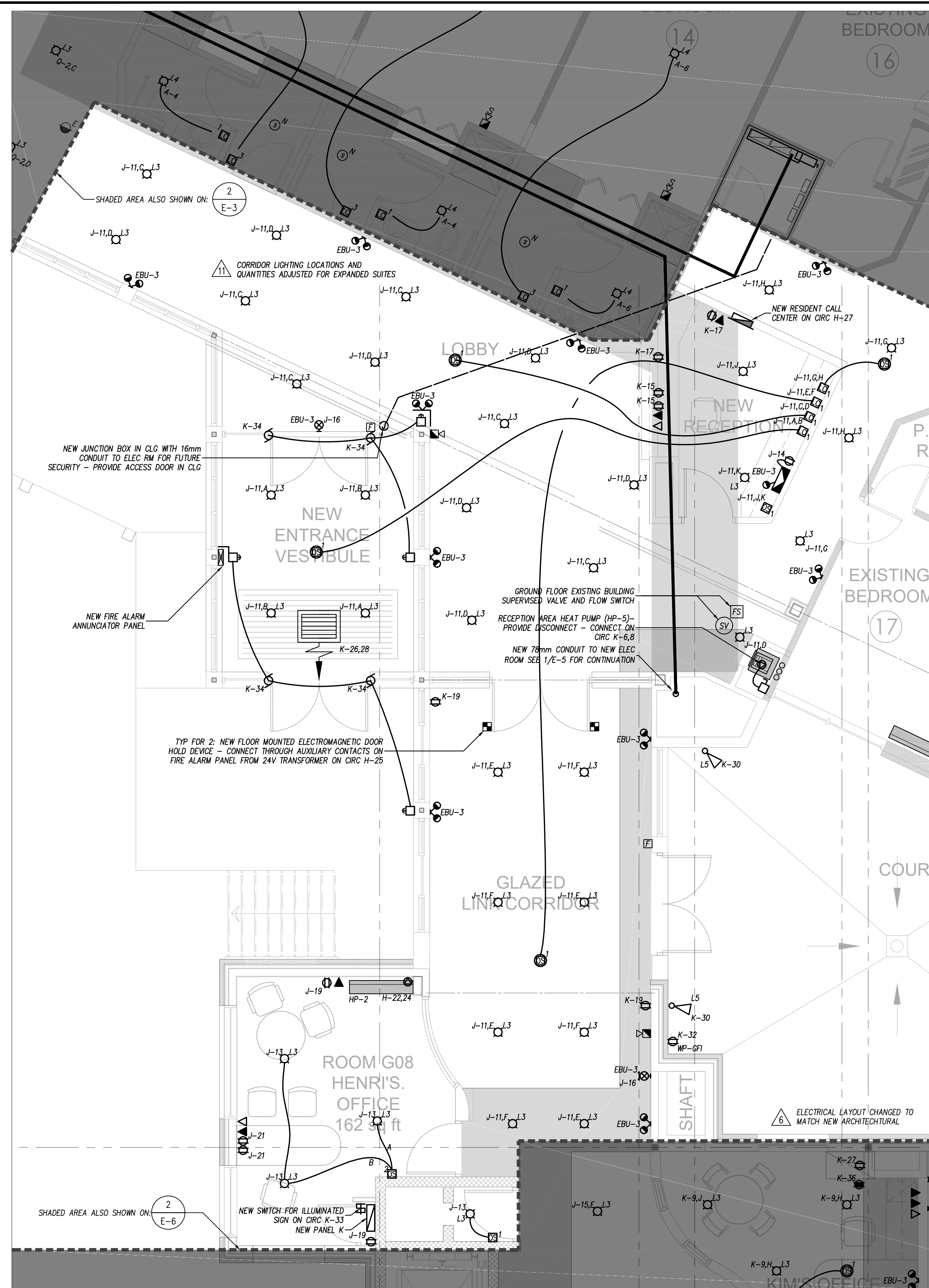
**BEKOLAY & Associates Ltd.**  
Consulting Engineers  
360 WEST HOCKWOLD DR., OTTAWA, ON K2H 8S4  
TEL: 613 234 4444 FAX: 613 234 4444  
email: beko@beko.com  
27-Apr-16

PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On  
DRAWING: Extension  
Basement

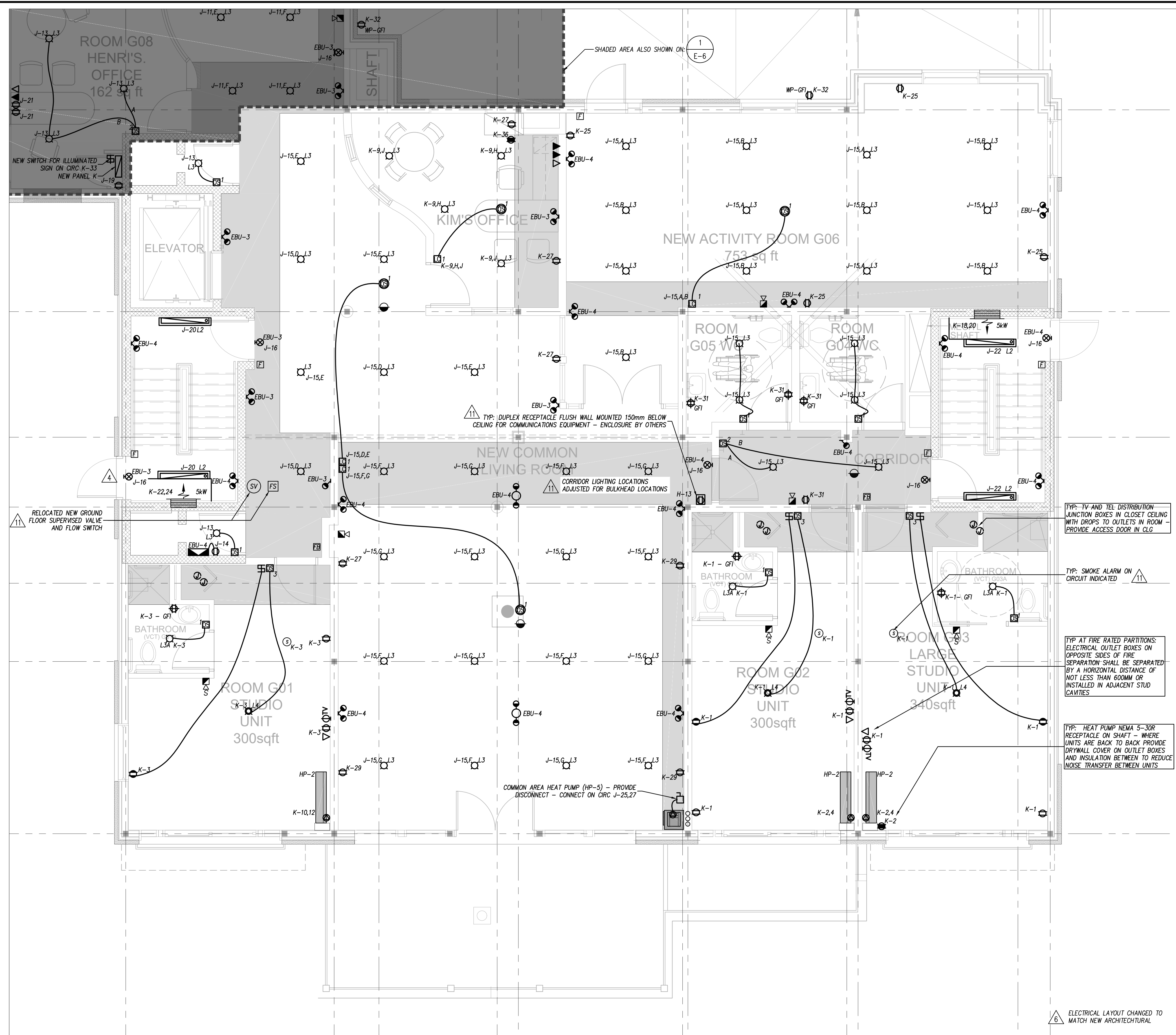
| DATE        | SCALE     | AS SHOWN |
|-------------|-----------|----------|
| 27-Apr-16   | AS SHOWN  | AS SHOWN |
| DESIGNED BY | EHK       | CLW      |
| CHECKED BY  | 2014-03   | CLW      |
| DRAWING NO. | 27-Apr-16 |          |

E-5 of 12

1 Basement Extension  
E-5



1 Ground Floor Link  
E-6  
1:50



2 Ground Floor Extension  
E-6  
1:50

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
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| 12. |   |               |
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| 4.  | ISSUED FOR PRICING, NOT CONSTRUCTION                              | May 08, 2015  |
| 3.  | ISSUED FOR PERMIT, NEW BUILDING                                   | Dec 18, 2014  |
| 2.  | ISSUED FOR CLIENT REVIEW  | Dec 15, 2014  |
| 1.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
|     | ----  |               |

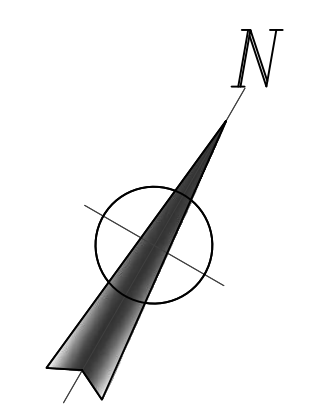
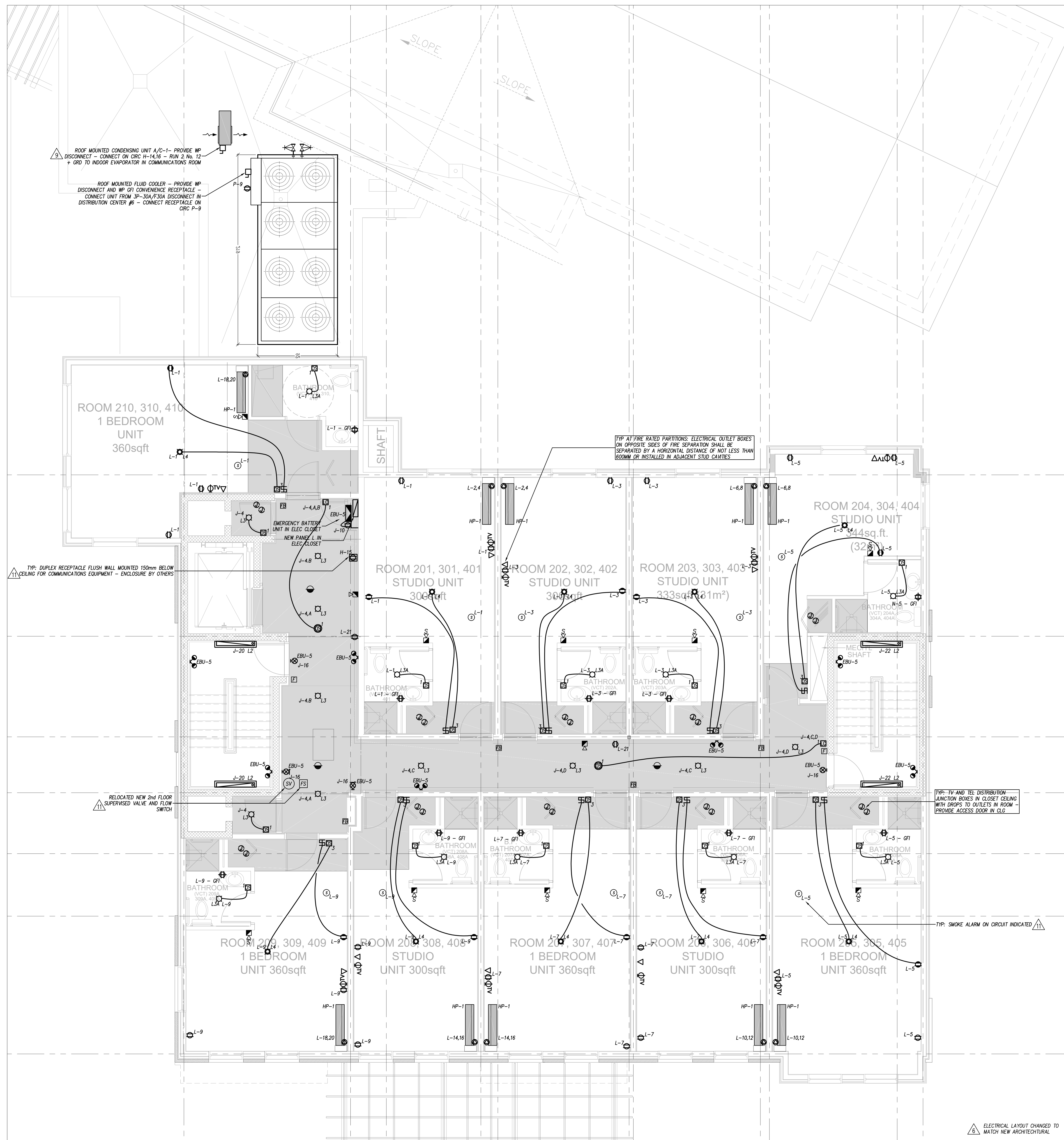
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1750 COURTWOOD CRESCENT, OTTAWA, ONTARIO, CANADA K2C 2B5  
TEL: 613 228 9650 • FAX: 613 228 9648 • mail@woodmanarchitect.com

**BEKOLAY & Associates Ltd.**  
Consulting Engineers  
200 1057 HOCKWORTH DR., OTTAWA, ON K1V 4Y4  
TEL: 613 234 4444 FAX: 613 234 4444  
email: jbe@bekolay.com

PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On  
DRAWING: Extension And Link  
Ground Floor

|              |             |              |
|--------------|-------------|--------------|
|              | DATE:       | SCALE:       |
|              | 27-Apr-16   | AS SHOWN     |
|              | DRAWN BY:   | DESIGNED BY: |
|              | EHK         | CLW          |
| JOB NO.:     | CHECKED BY: |              |
| 2014-03      | CLW         |              |
| DRAWING NO.: |             |              |
|              |             | E-6 of 12    |



ROOF MOUNTED CONDENSING UNIT A/C-1- PROVIDE WP DISCONNECT - CONNECT ON ORG 4-14,15 - RUN 2 No. 12 + GRD TO INDOOR EVAPORATOR IN COMMUNICATIONS ROOM

ROOF MOUNTED FLUID COOLER - PROVIDE WP DISCONNECT AND WP GFI CONVENIENCE RECEPTACLE - CONNECT UNIT FROM 3P-30A/FSOA DISCONNECT IN DISTRIBUTION CENTER #6 - CONNECT RECEPTACLE ON ORG P-9

TYP: AT FIRE RATED PARTITIONS ELECTRICAL OUTLET BOXES ON OPPOSITE SIDES OF FIRE SEPARATION SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 600MM OR INSTALLED IN ADJACENT STUD CAVITIES

TYP: DUPLEX RECEPTACLE FLUSH WALL MOUNTED 150mm BELOW CEILING FOR COMMUNICATIONS EQUIPMENT - ENCLOSURE BY OTHERS

RELOCATED NEW 2nd FLOOR SUPERIMPOSED VALVE AND FLOW SWITCH

TYP: TV AND TEL DISTRIBUTION FUNCTION BOXES IN CLOSET/CEILING WITH DROPS TO OUTLETS IN ROOM - PROVIDE ACCESS DOOR IN CLG

TYP: SMOKE ALARM ON CIRCUIT INDICATED

ELECTRICAL LAYOUT CHANGED TO MATCH NEW ARCHITECTURAL

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 9.  | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
| 8.  | ISSUED FOR SERVICE CHANGE TO 600V & STANDBY POWER SYSTEM ADDITION | Jan 23, 2016  |
| 7.  | ISSUED FOR CONSTRUCTION   | Nov 20, 2015  |
| 6.  | ISSUED FOR BASEMENT CONSTRUCTION                                  | Nov 06, 2015  |
| 5.  | RE-ISSUED FOR PERMIT  | Aug 21, 2015  |
| 4.  | ISSUED FOR PRICING, NOT CONSTRUCTION                              | May 08, 2015  |
| 3.  | ISSUED FOR PERMIT, NEW BUILDING                                   | Dec 18, 2014  |
| 2.  | ISSUED FOR CLIENT REVIEW  | Dec 15, 2014  |
| 1.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
|     | ----  |               |

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1790 COURTWOOD CRESCENT, OTTAWA, ONTARIO, CANADA K3C 2B5  
TEL: 613 228 9650 - FAX: 613 228 9648 - mail@woodmanarchitect.com

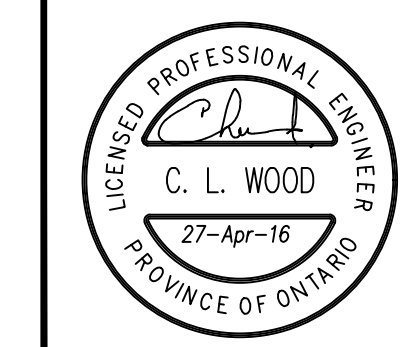
**BEKOLAY & Associates Ltd.**  
Consulting Engineers

27-Apr-16

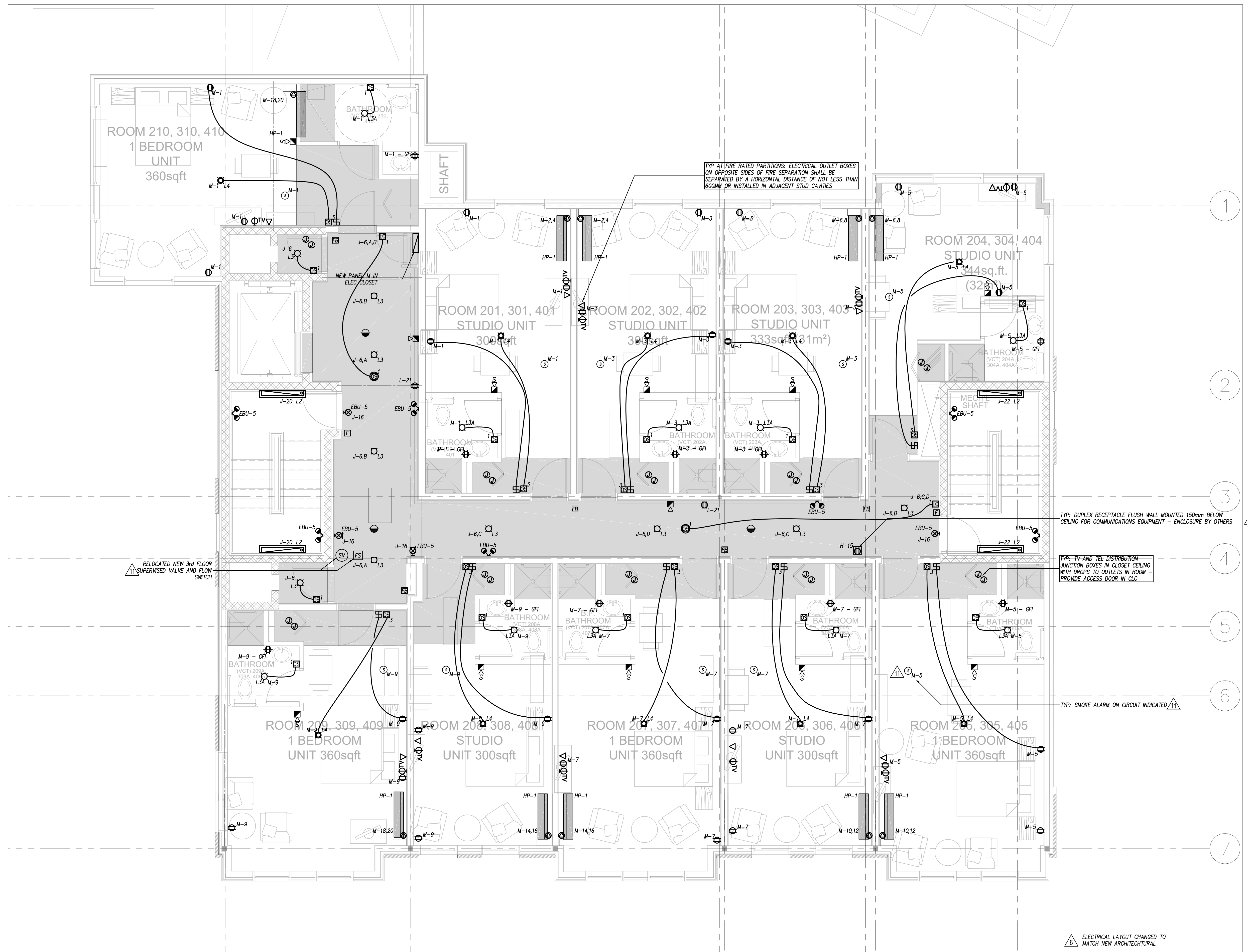
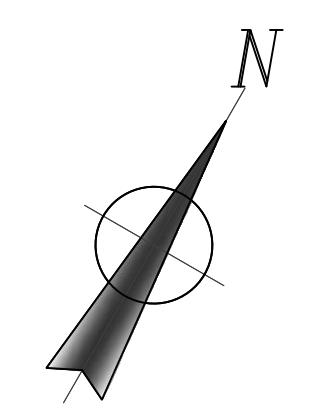
PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On

DRAWING: Extension  
Second Floor

| DATE            | SCALE            |
|-----------------|------------------|
| 27-Apr-16       | AS SHOWN         |
| DRAWN BY: EHK   | DESIGNED BY: CLW |
| CHECKED BY: CLW | CHECKED BY: CLW  |
| 2014-03         |                  |
| JOB NO. 2014-03 |                  |
| DRAWING NO. E-7 |                  |



2nd Floor Extension  
E-7



TYP: AT FIRE RATED PARTITIONS ELECTRICAL OUTLET BOXES ON OPPOSITE SIDES OF FIRE SEPARATION SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 300MM OR INSTALLED IN ADJACENT STU. CAVITIES

TYP: DUPLEX RECEPTACLE FLUSH WALL MOUNTED 150mm BELOW CEILING FOR COMMUNICATIONS EQUIPMENT - ENCLOSURE BY OTHERS

TYP: TV AND TEL DISTRIBUTION JUNCTION BOXES IN CLOSET CEILING WITH DROPS TO OUTLETS IN ROOM - PROVIDE ACCESS DOOR IN CLG

TYP: SMOKE ALARM ON CIRCUIT INDICATED

RELOCATED NEW 3rd FLOOR SUPERVISED VALVE AND FLOW SWITCH

ELECTRICAL LAYOUT CHANGED TO MATCH NEW ARCHITECTURAL

3rd Floor Extension  
E-8

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 9.  | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
| 8.  | ISSUED FOR SERVICE CHANGE TO 600V & STANDBY POWER SYSTEM ADDITION | Jan 23, 2016  |
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|     | ----  |               |

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TEL: 613 228 9650 - FAX: 613 228 9648 - mail@woodmanarchitect.com

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Consulting Engineers

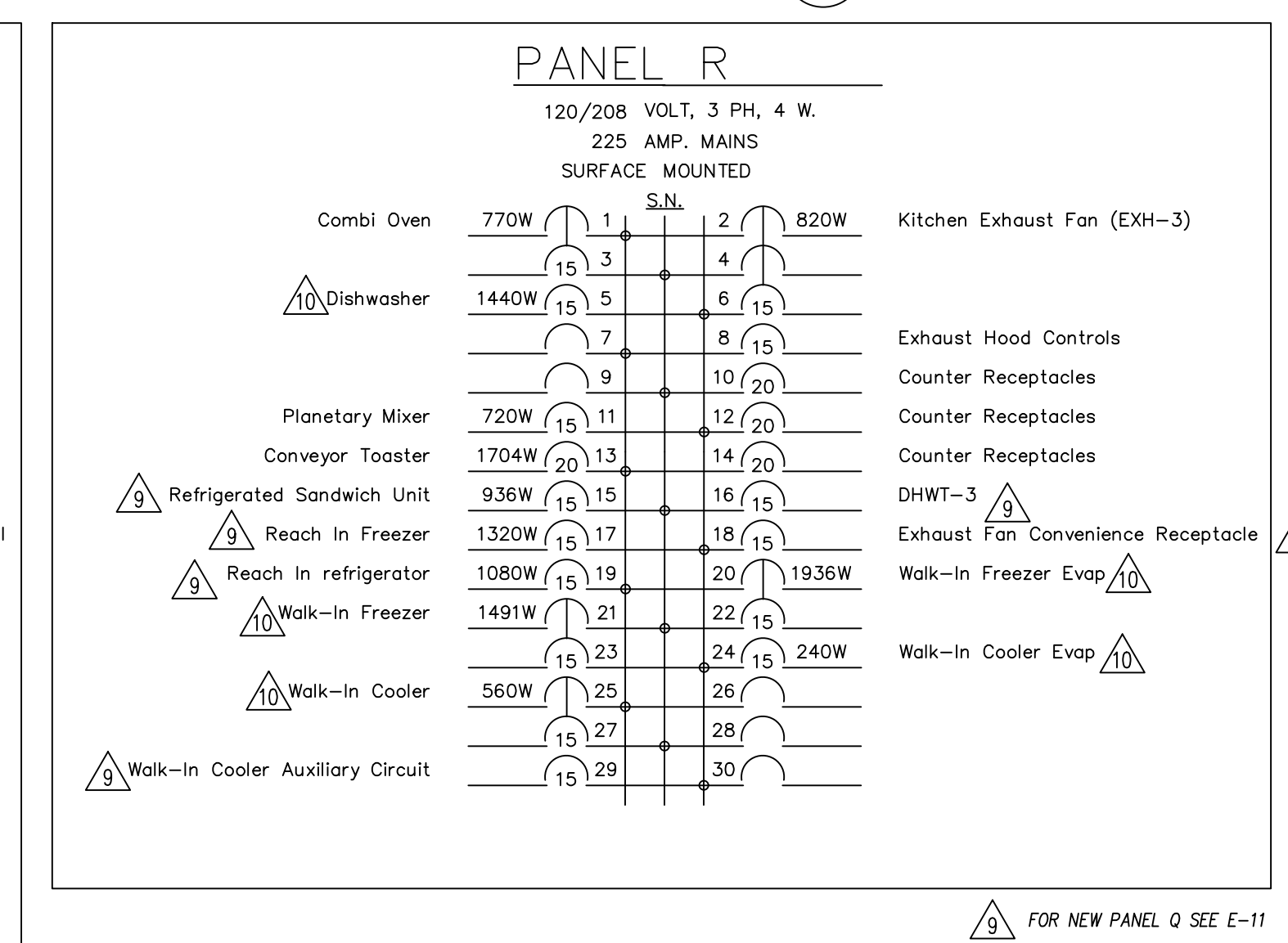
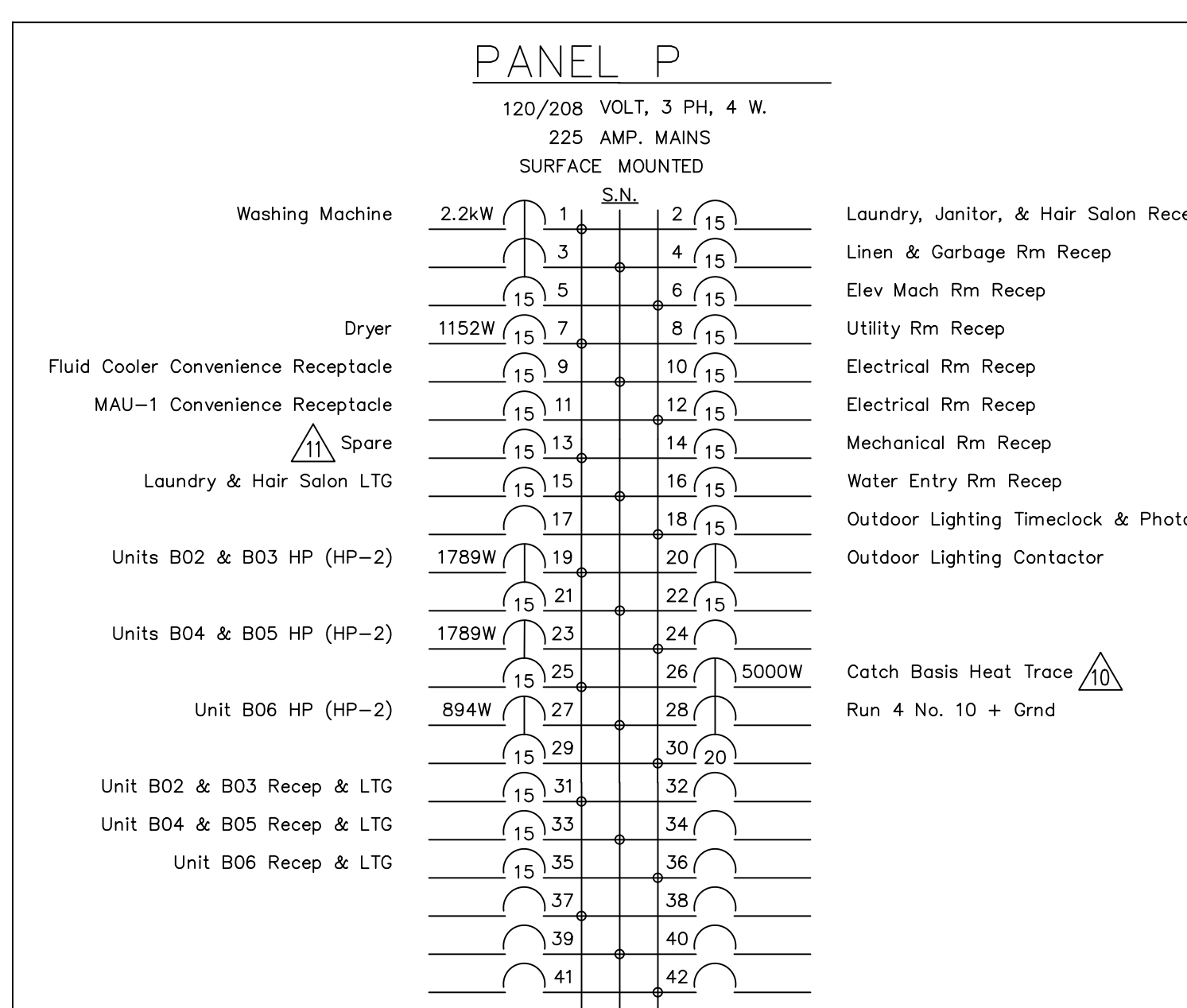
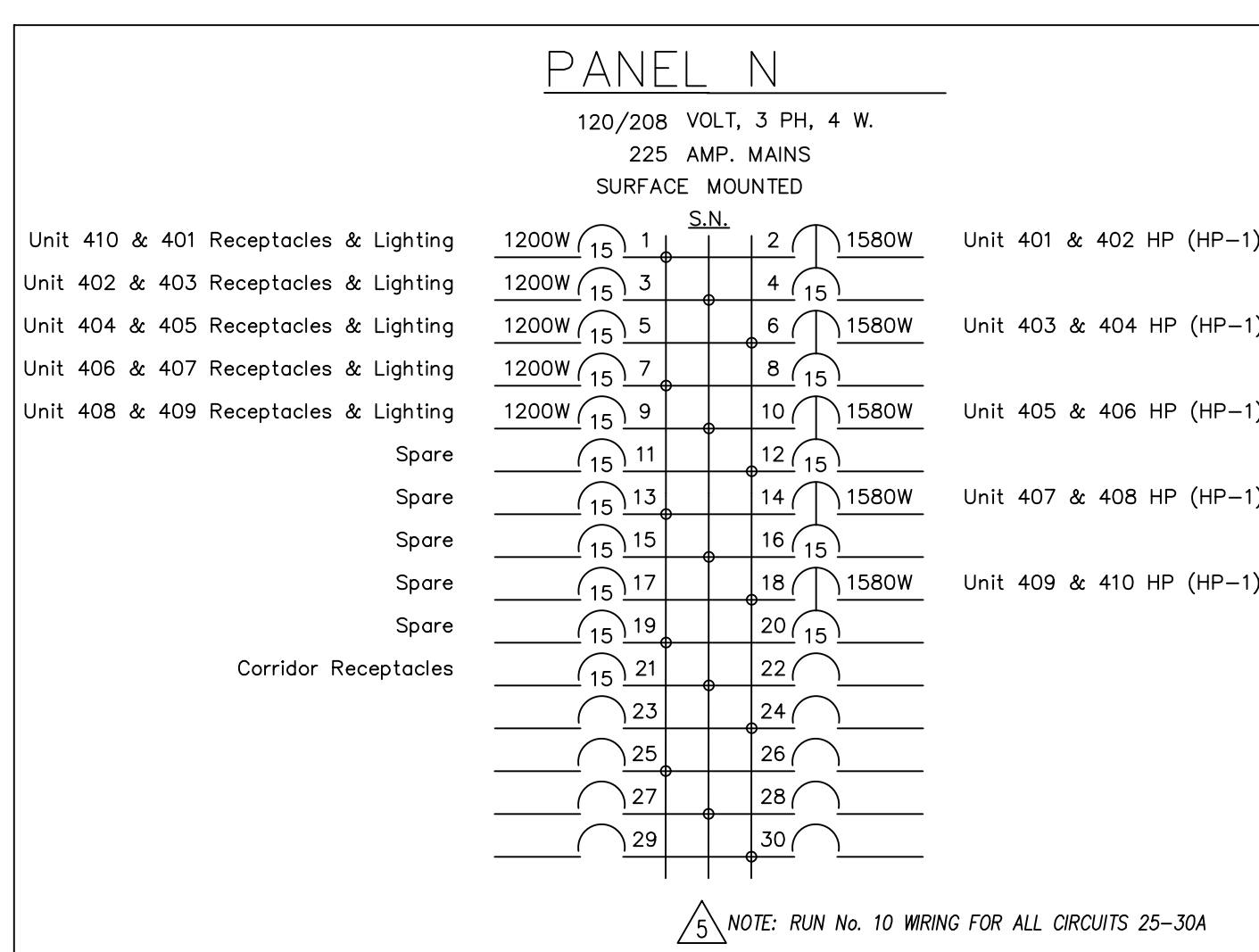
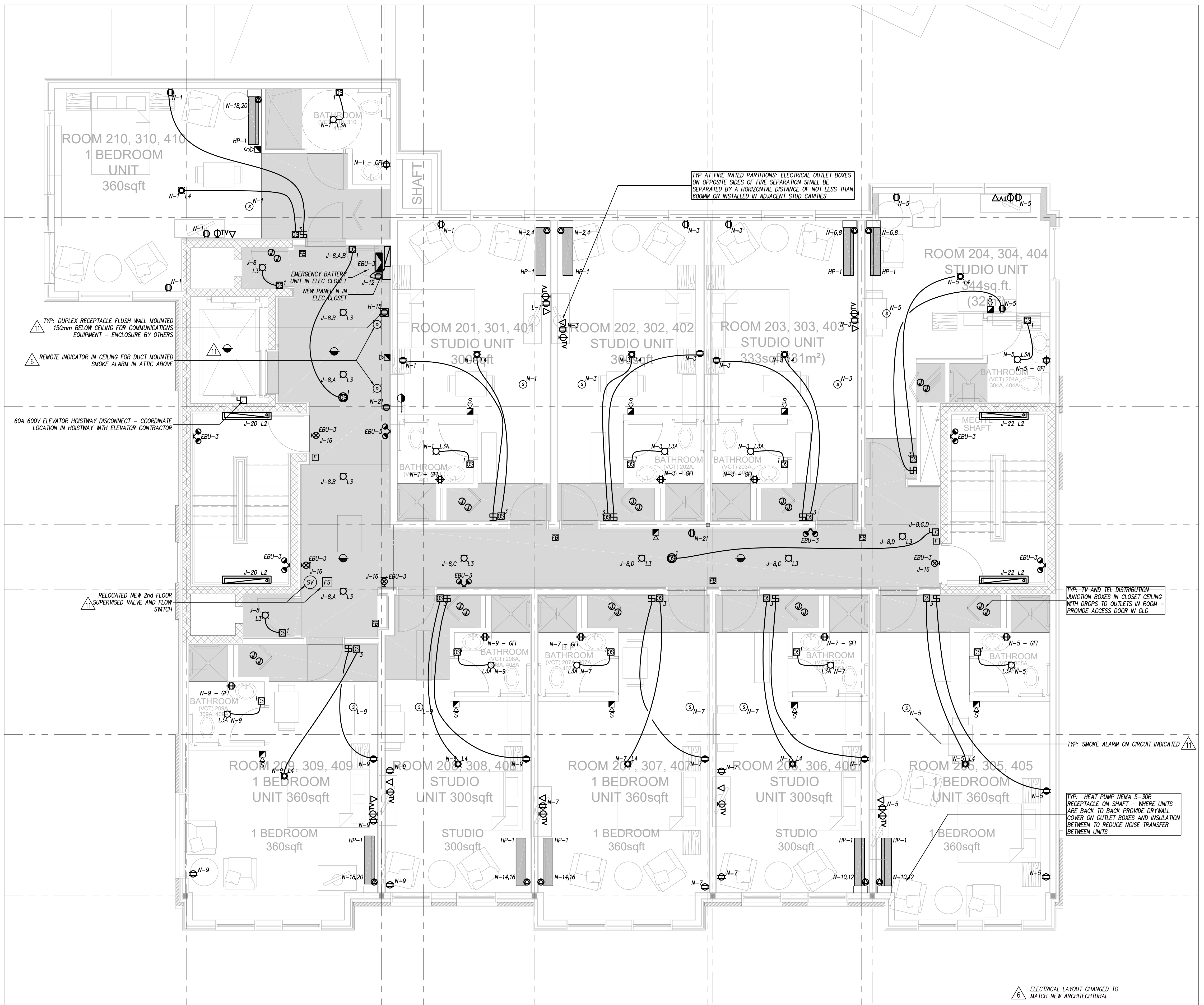
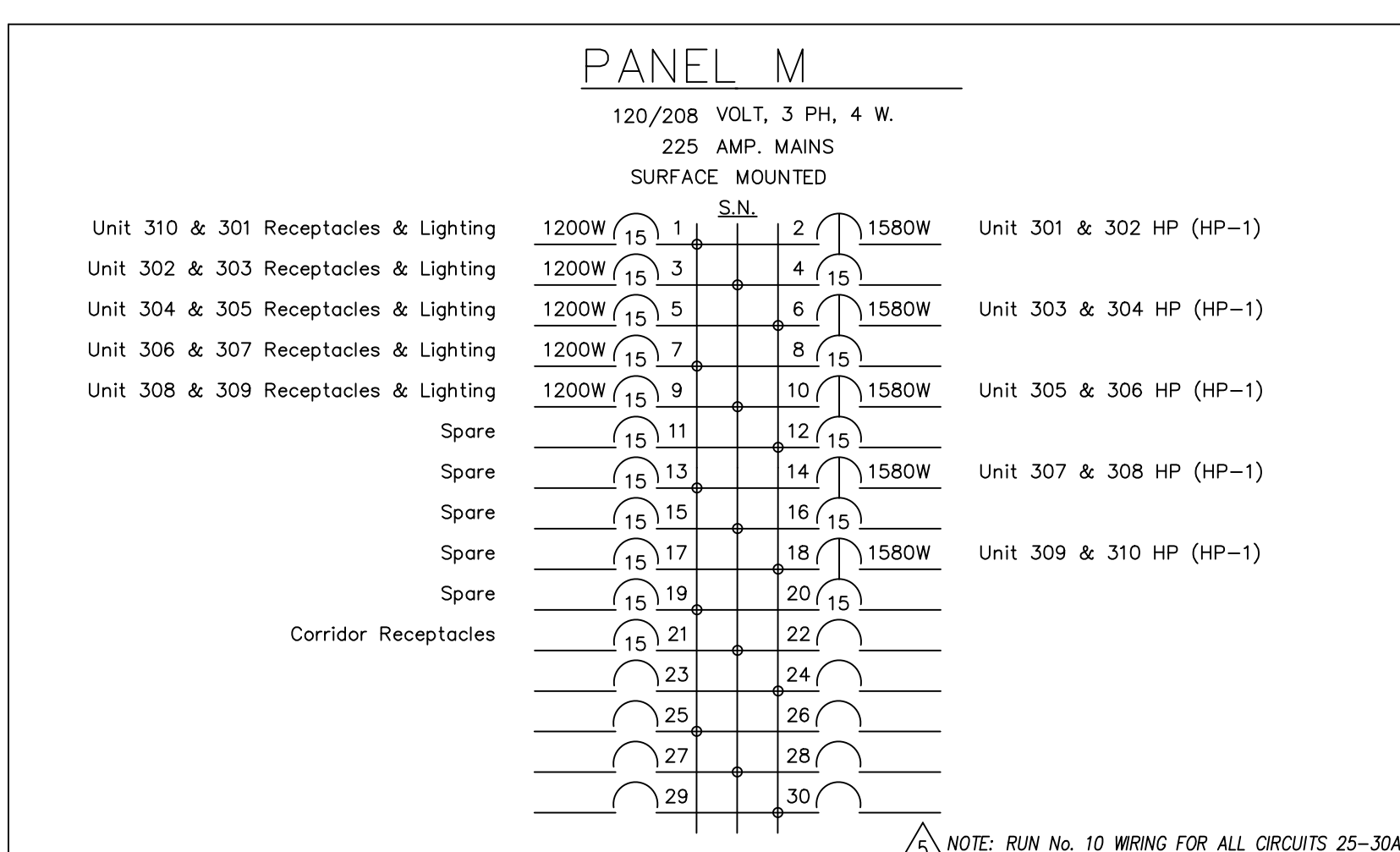
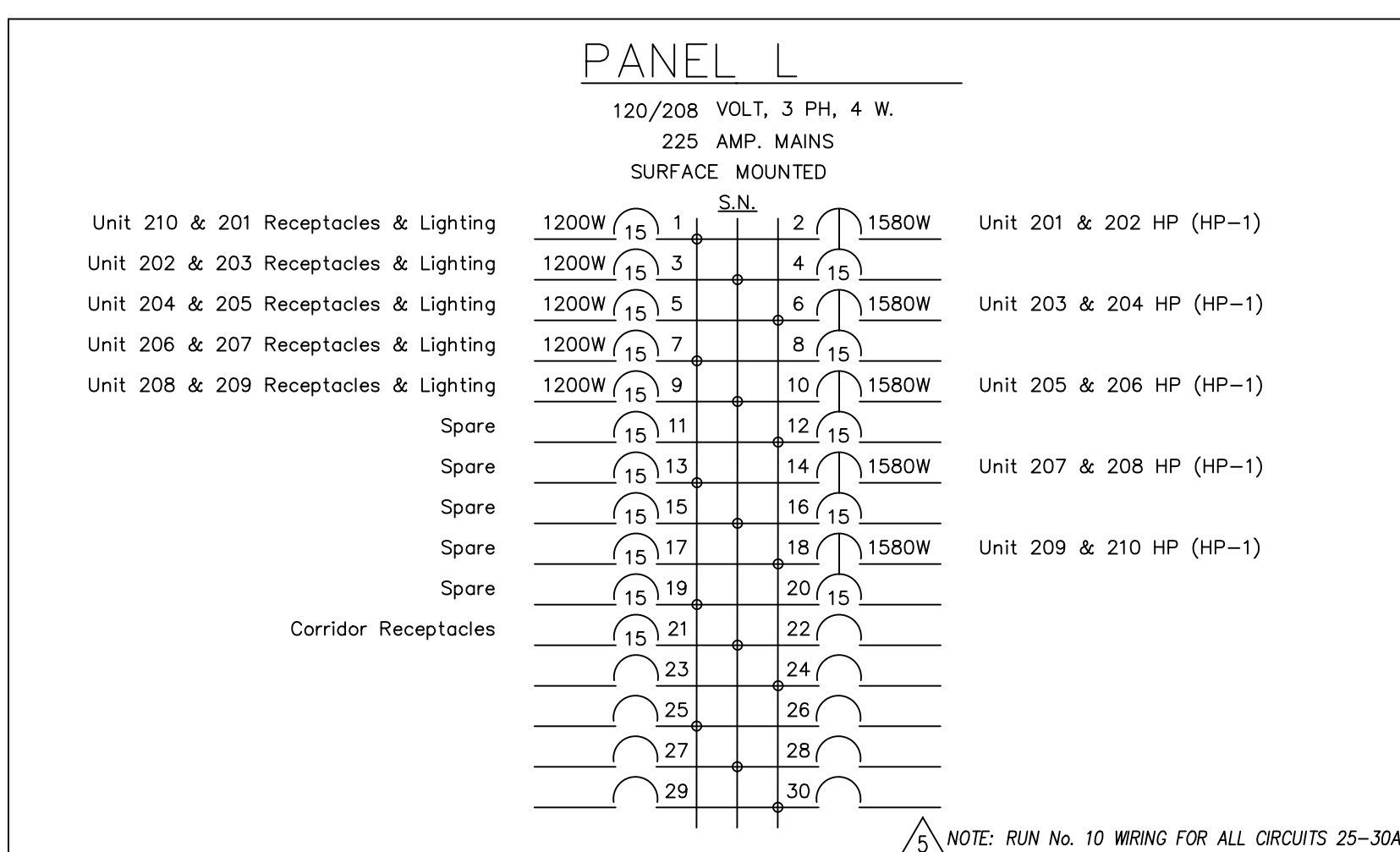
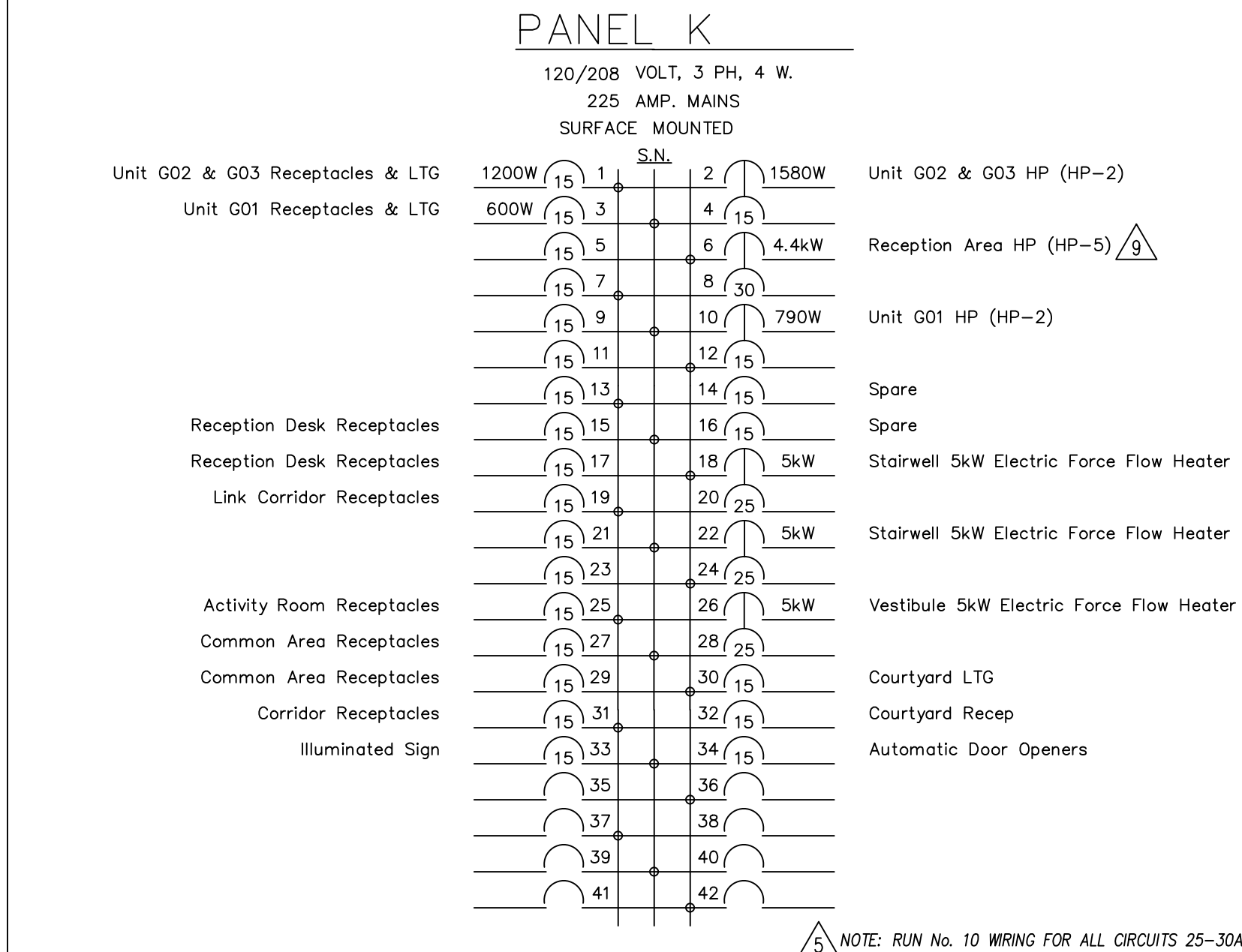
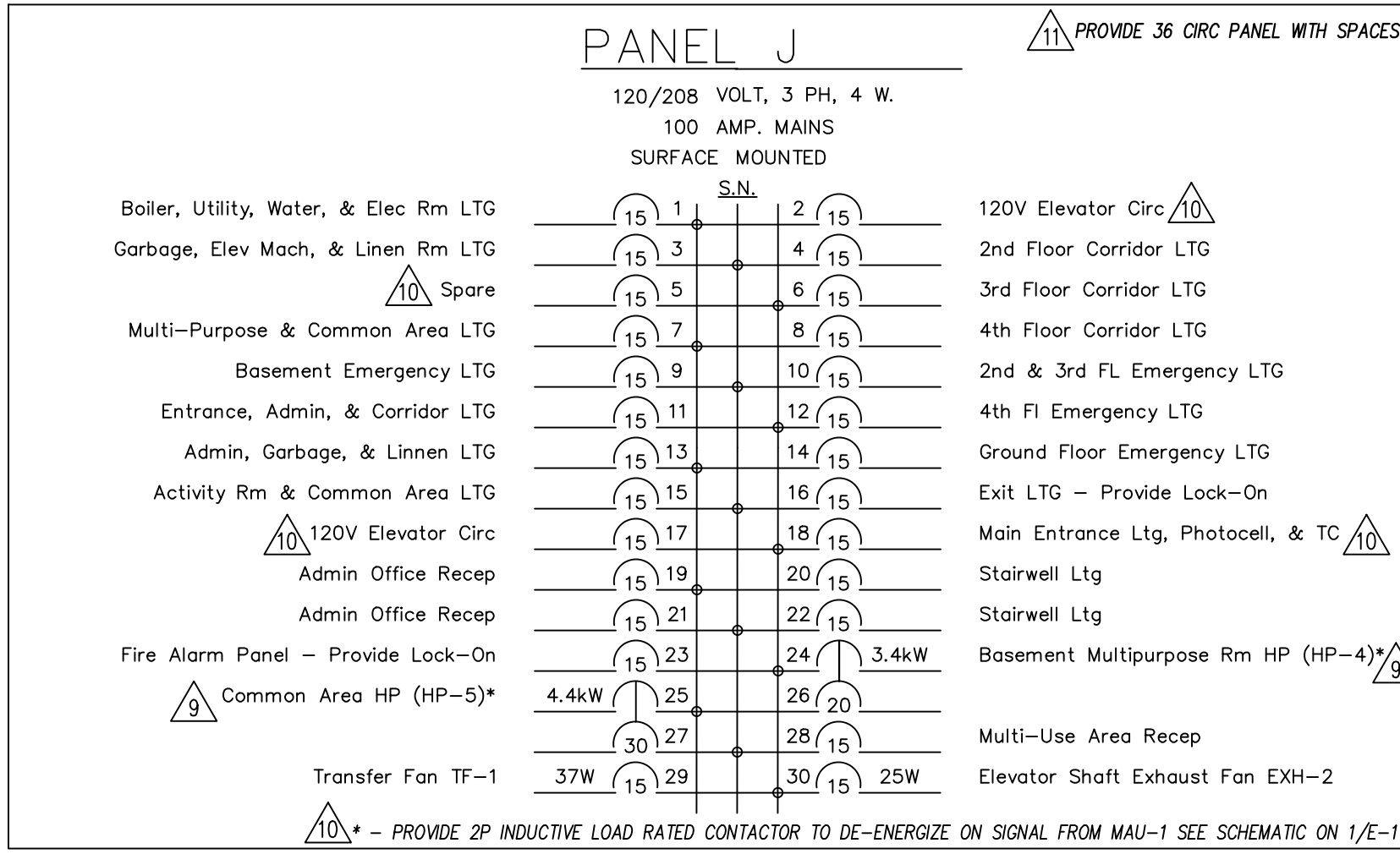
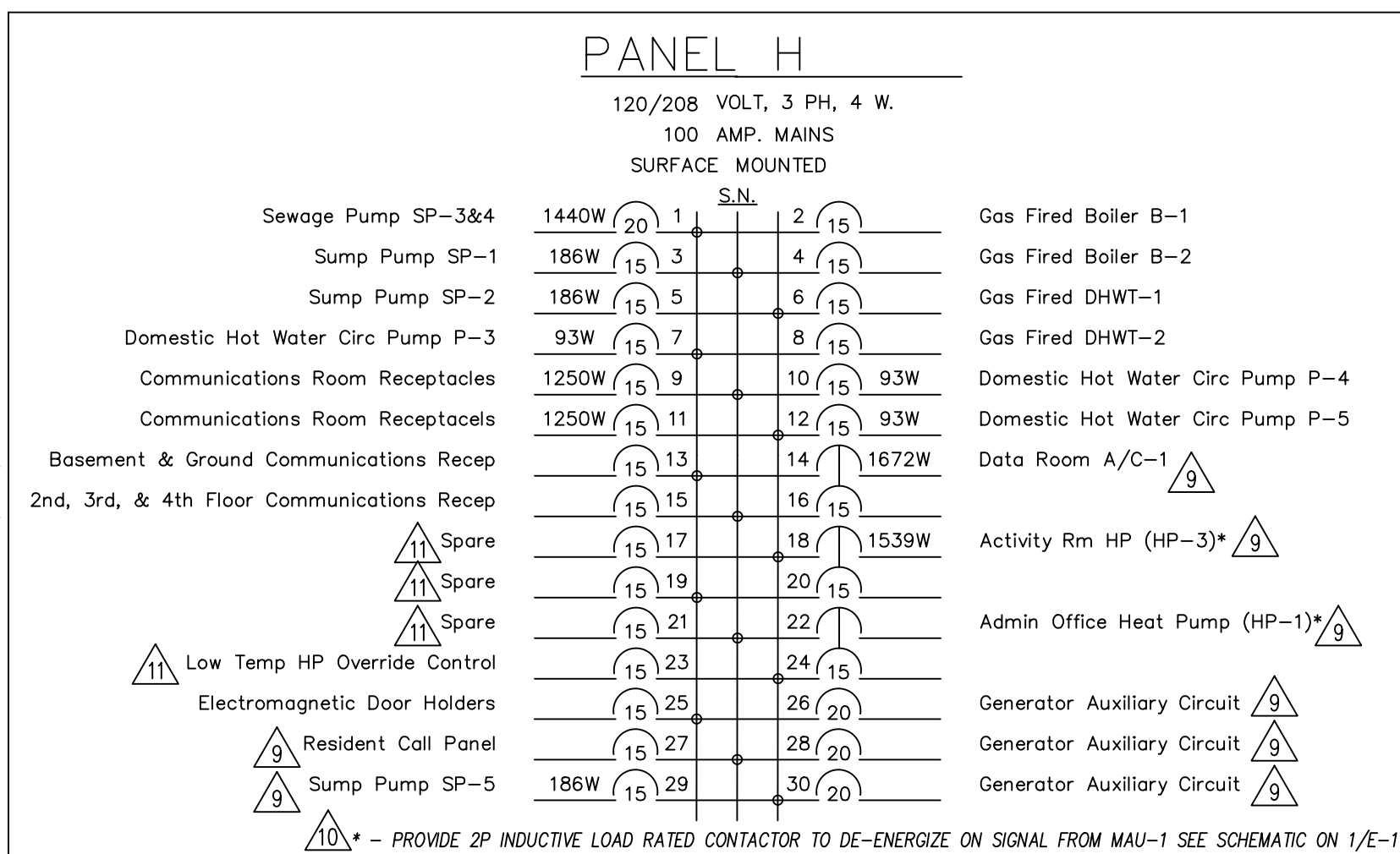
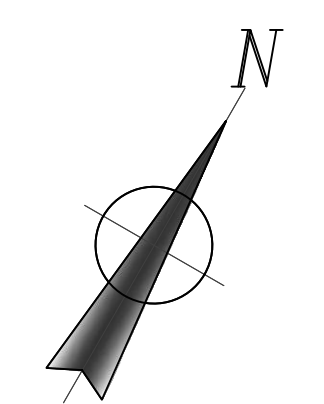
27-Apr-16

PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On

DRAWN: Extension  
Third Floor

| DATE            | SCALE            |
|-----------------|------------------|
| 27-Apr-16       | AS SHOWN         |
| DRAWN BY: EHK   | DESIGNED BY: CLW |
| CHECKED BY: CLW | CHECKED BY: CLW  |
| 2014-03         |                  |
| DRAWING NO.     |                  |





| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 9.  | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
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| 6.  | ISSUED FOR BASEMENT CONSTRUCTION                                  | Nov 06, 2015  |
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| 3.  | ISSUED FOR PERMIT, NEW BUILDING                                   | Dec 18, 2014  |
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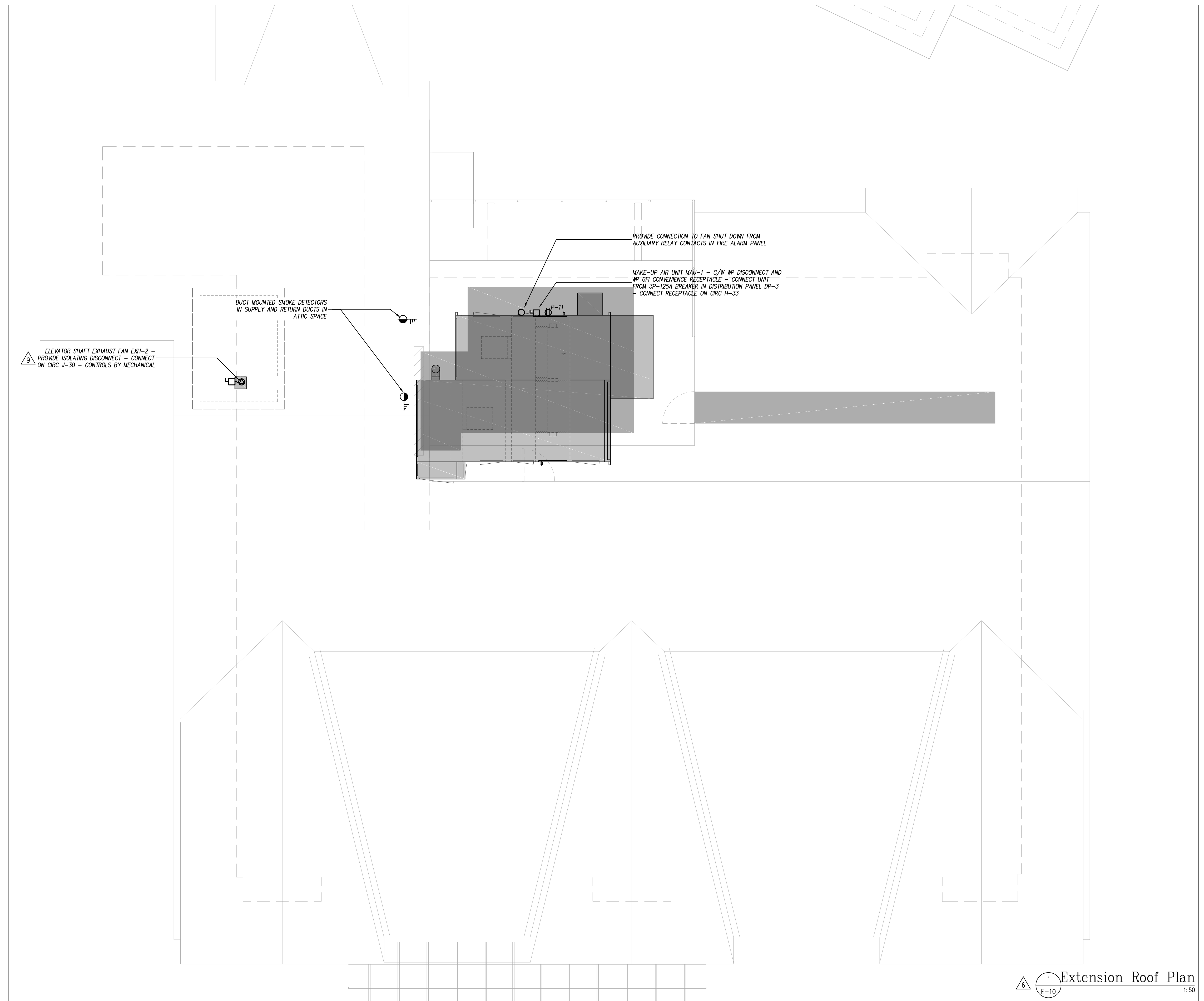
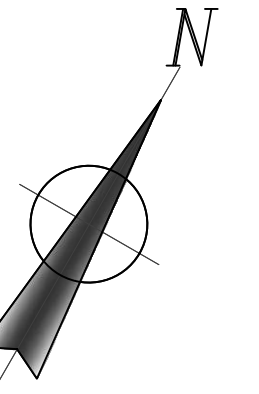
**WOODMAN ARCHITECT ASSOCIATES LTD.**  
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TEL: 613 226 9650 - FAX: 613 226 9648 - mail@woodmanarchitect.com

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Consulting Engineers  
200 1077 MCCOWAN DR., OTTAWA, ON N6C 2S6  
TEL: 613 234 4444 FAX: 613 234 4444  
email: info@bekolay.com

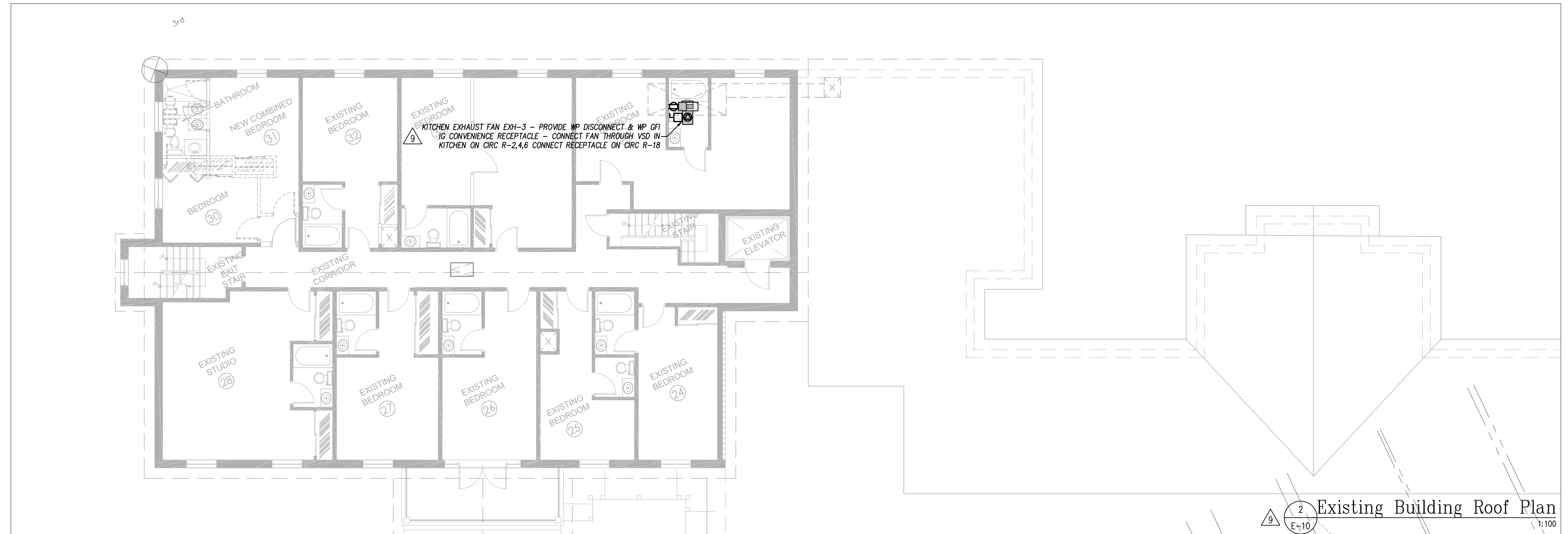
PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On  
DRAWN: Extension  
Fourth Floor And New Panels

**C. L. WOOD**  
LICENSED PROFESSIONAL ENGINEER  
PROVINCE OF ONTARIO

|             |             |
|-------------|-------------|
| DATE        | SCALE       |
| 27-Apr-16   | AS SHOWN    |
| DRAWN BY    | DESIGNED BY |
| EHK         | CLW         |
| CHECKED BY  | CHECKED BY  |
| 2014-03     | CLW         |
| DRAWING NO. |             |
| E-9         | of 12       |



1 Extension Roof Plan  
1:50



2 Existing Building Roof Plan  
1:100

| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
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| 4.  | ISSUED FOR PRICING. NOT CONSTRUCTION                              | May 08, 2015  |
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| 2.  | ISSUED FOR CLIENT REVIEW  | Dec 15, 2014  |
| 1.  | ISSUED FOR COORDINATION   | Dec 12, 2014  |
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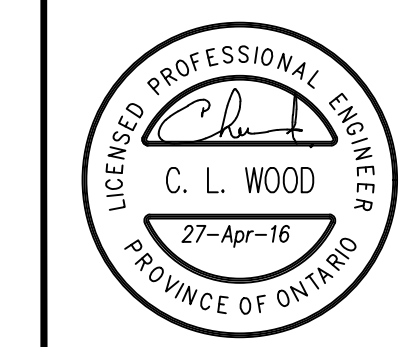
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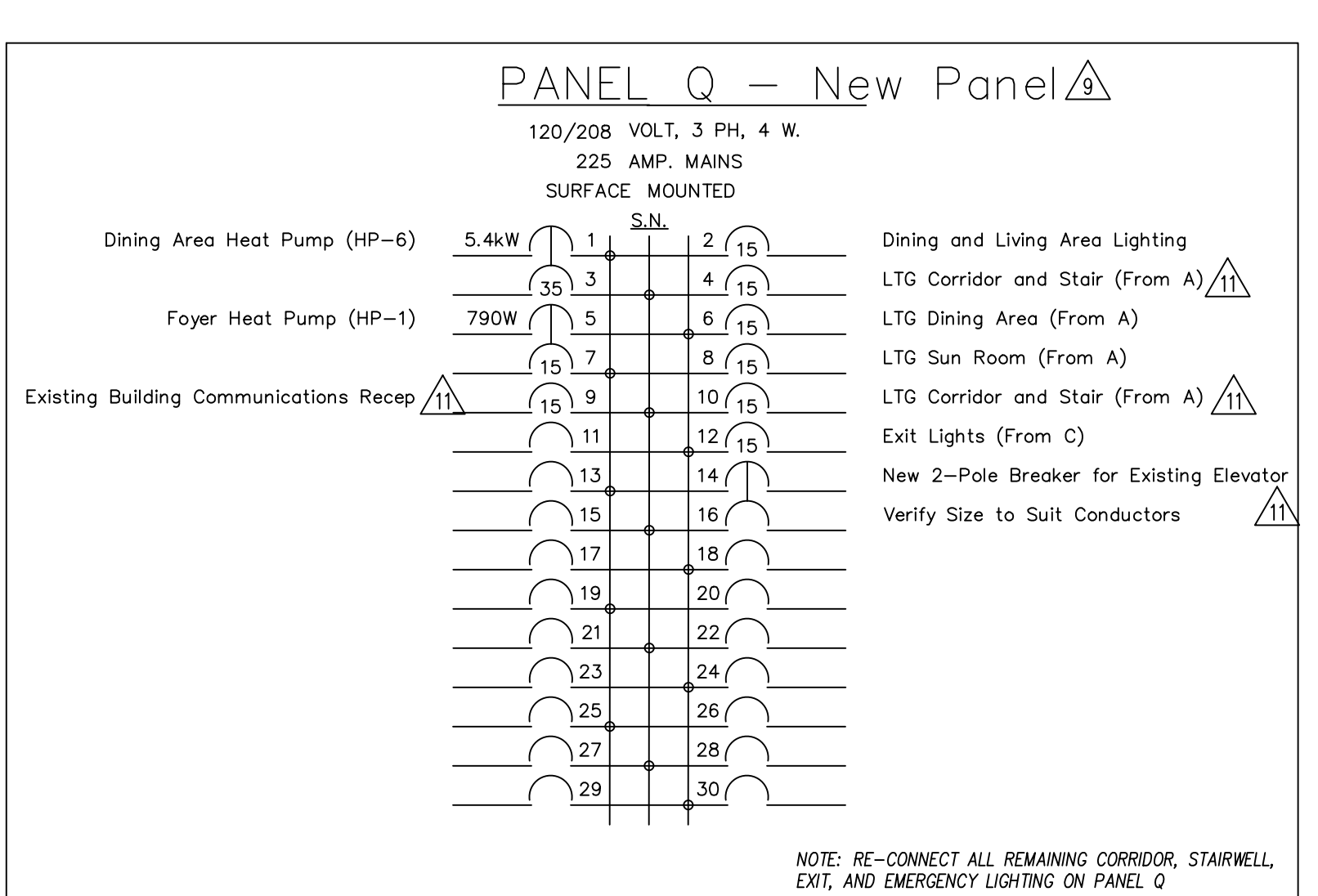
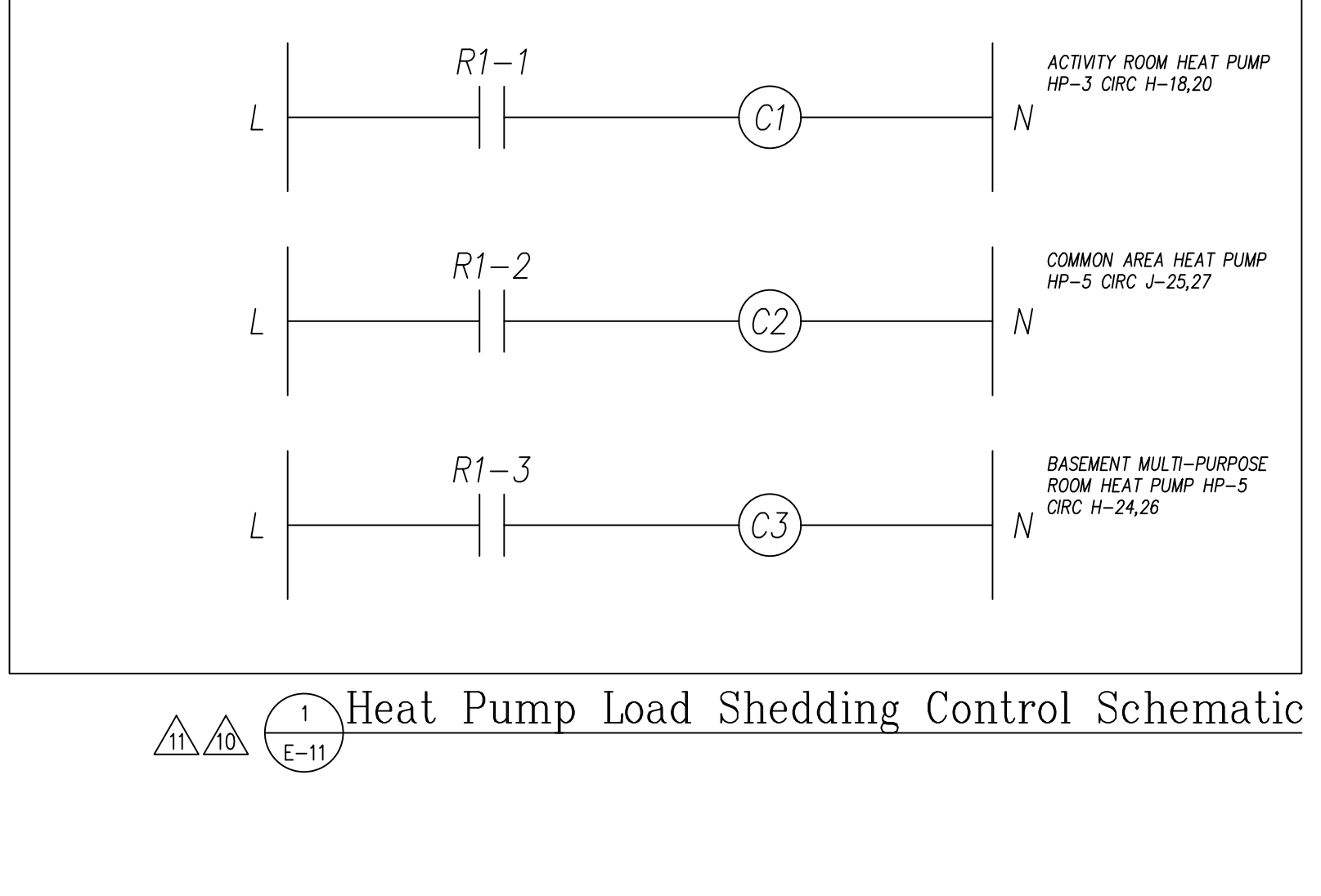
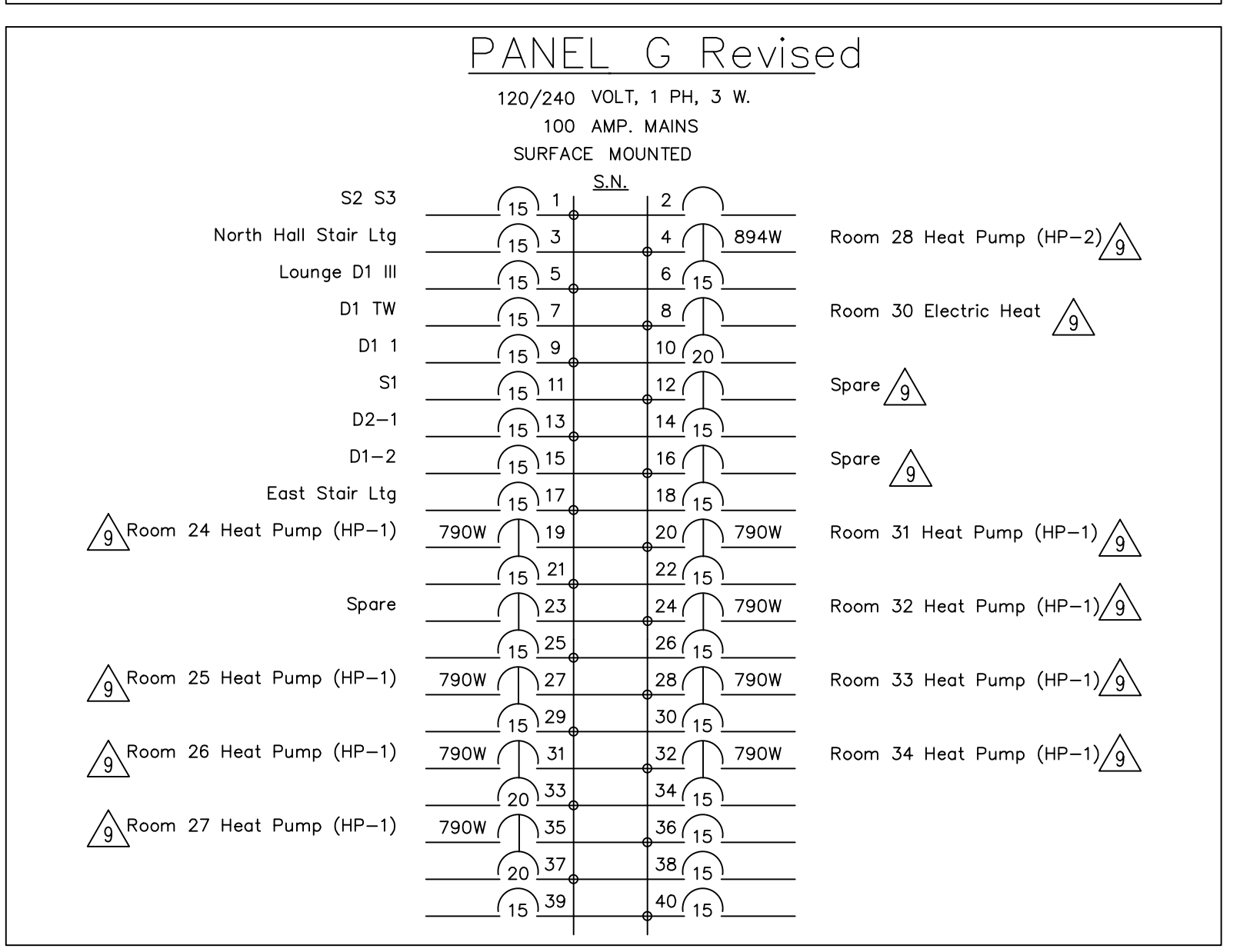
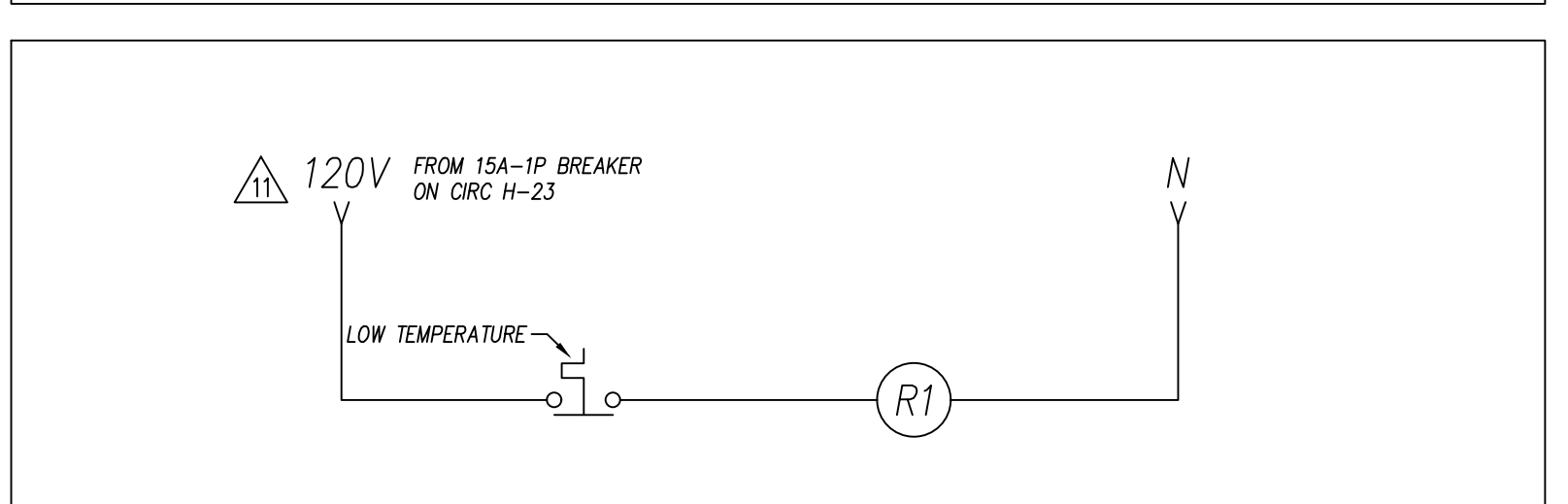
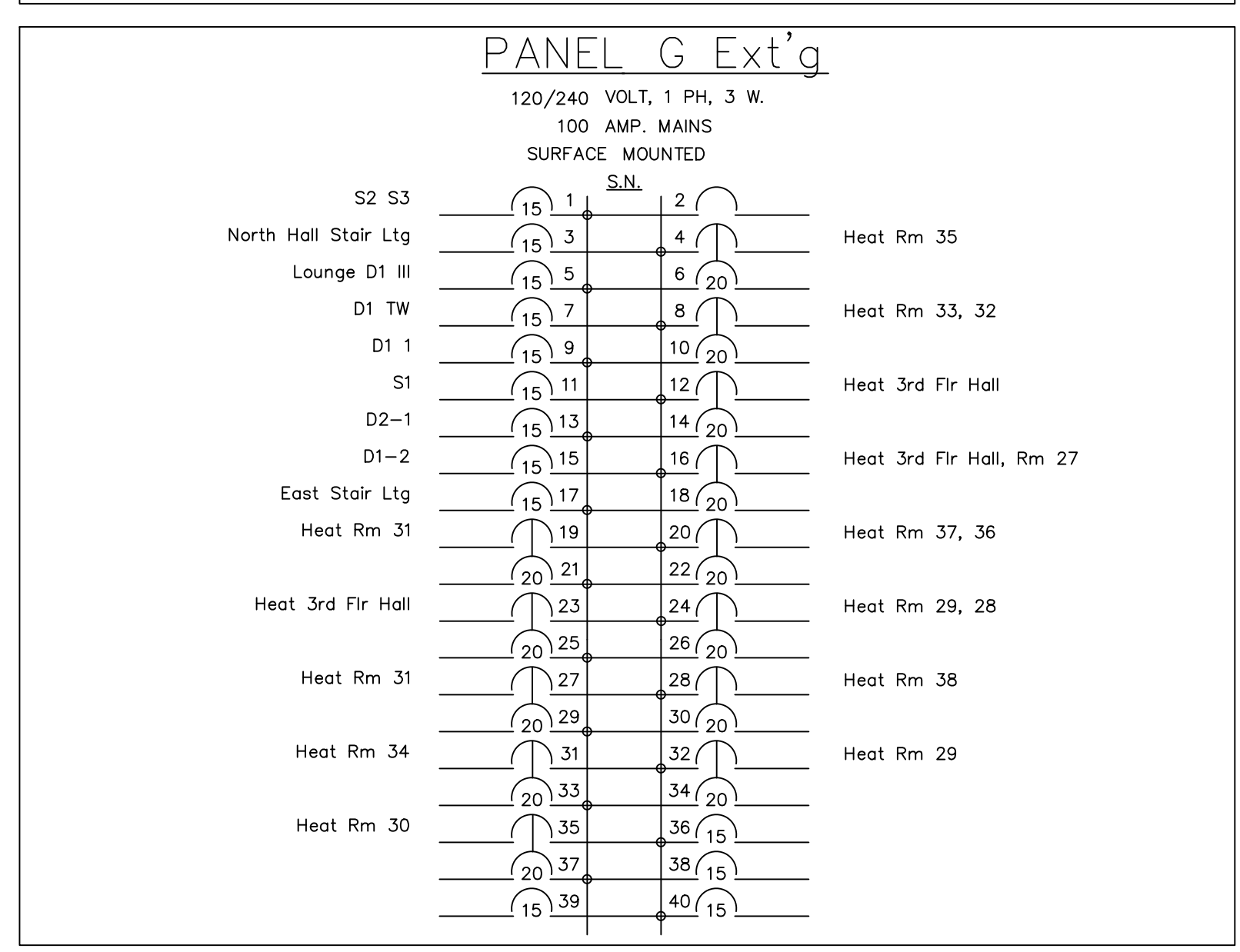
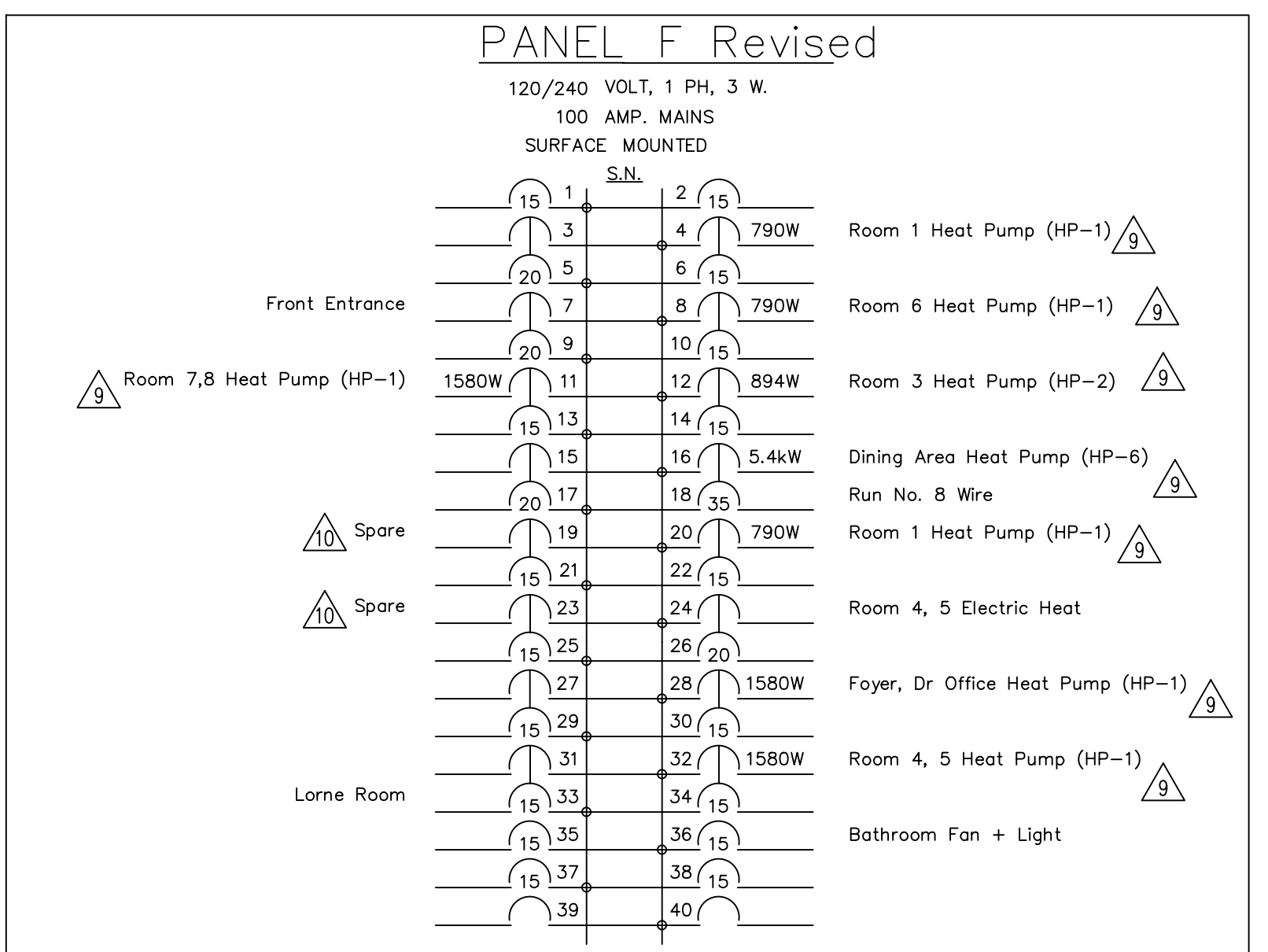
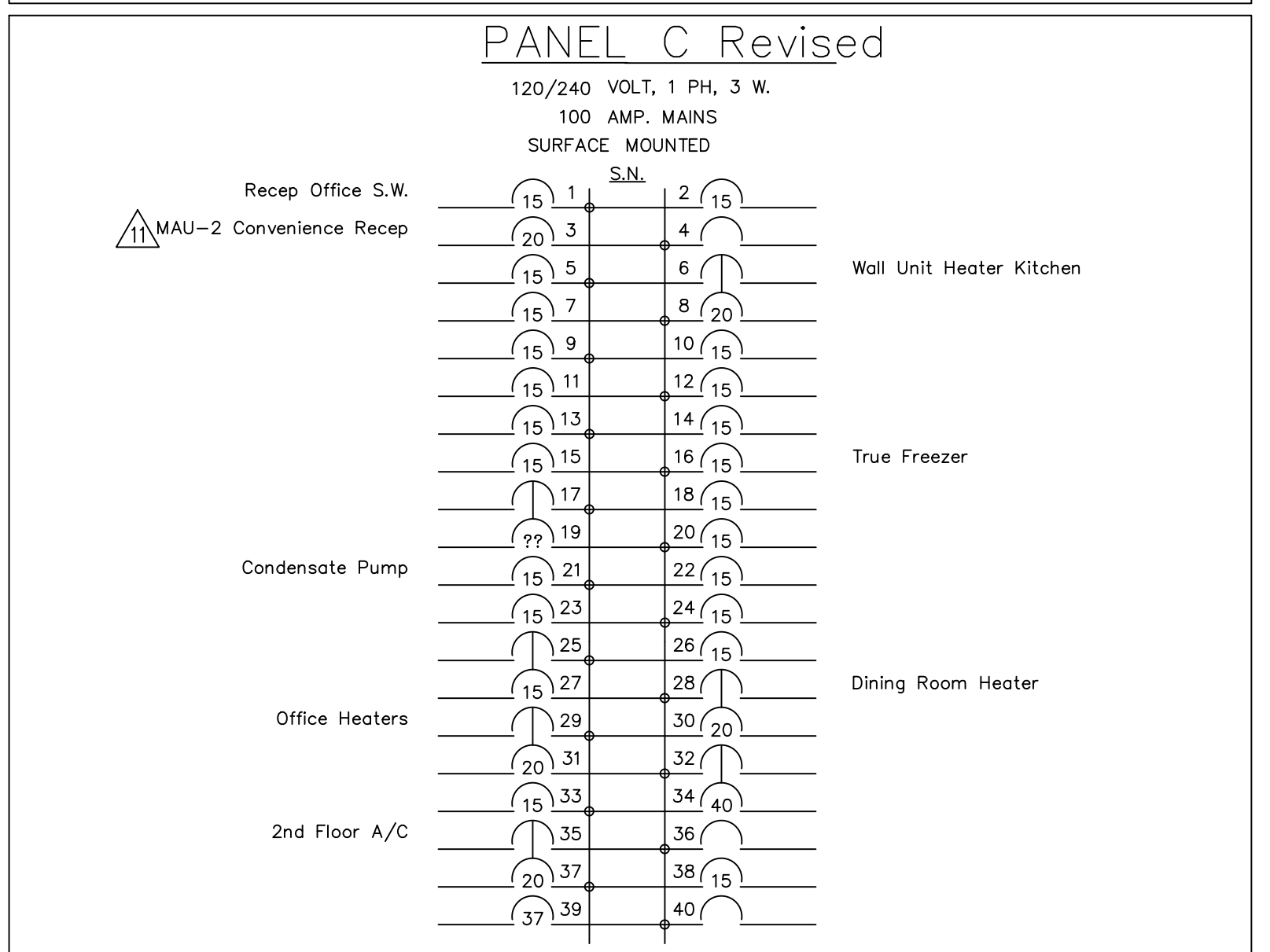
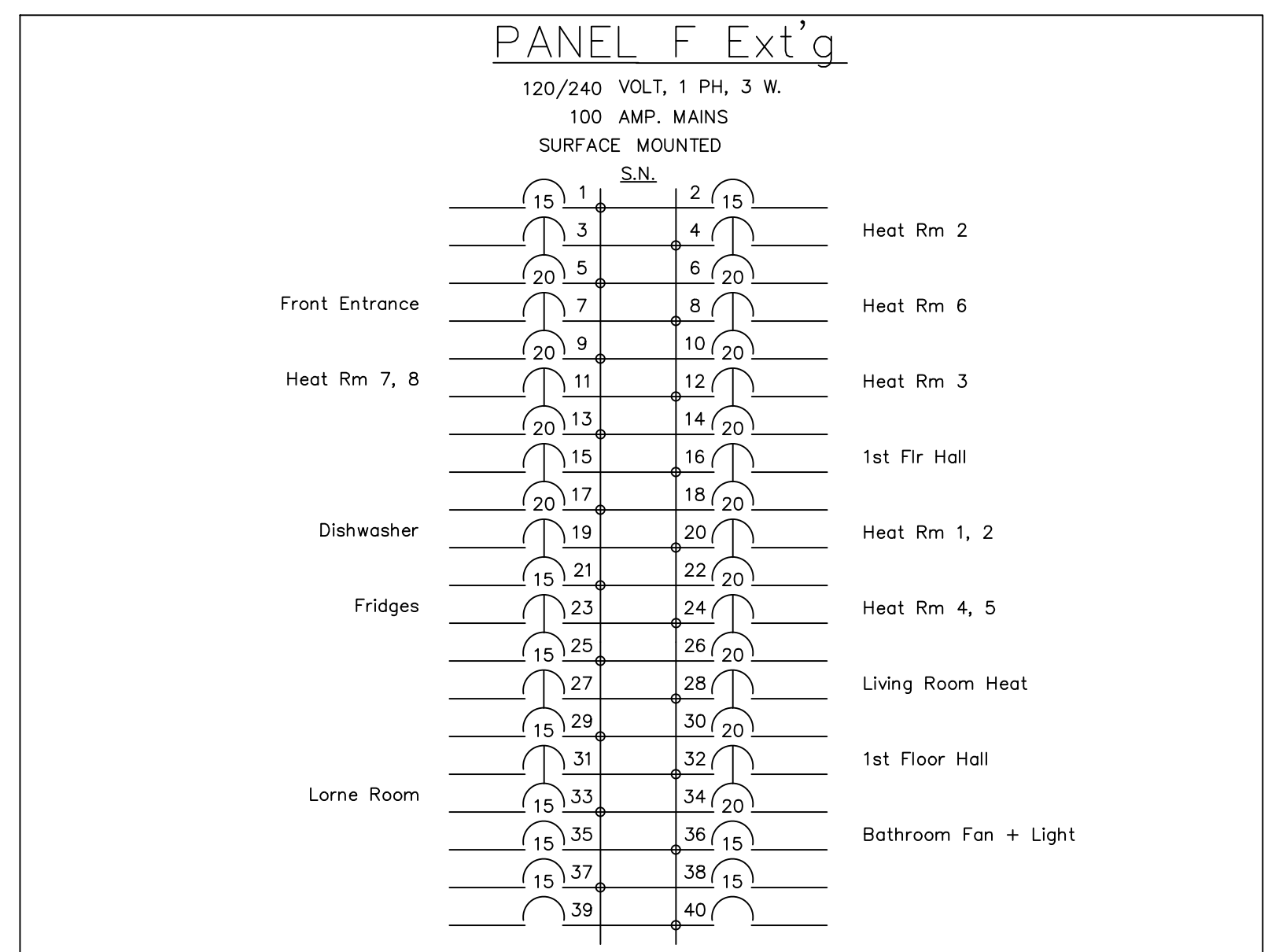
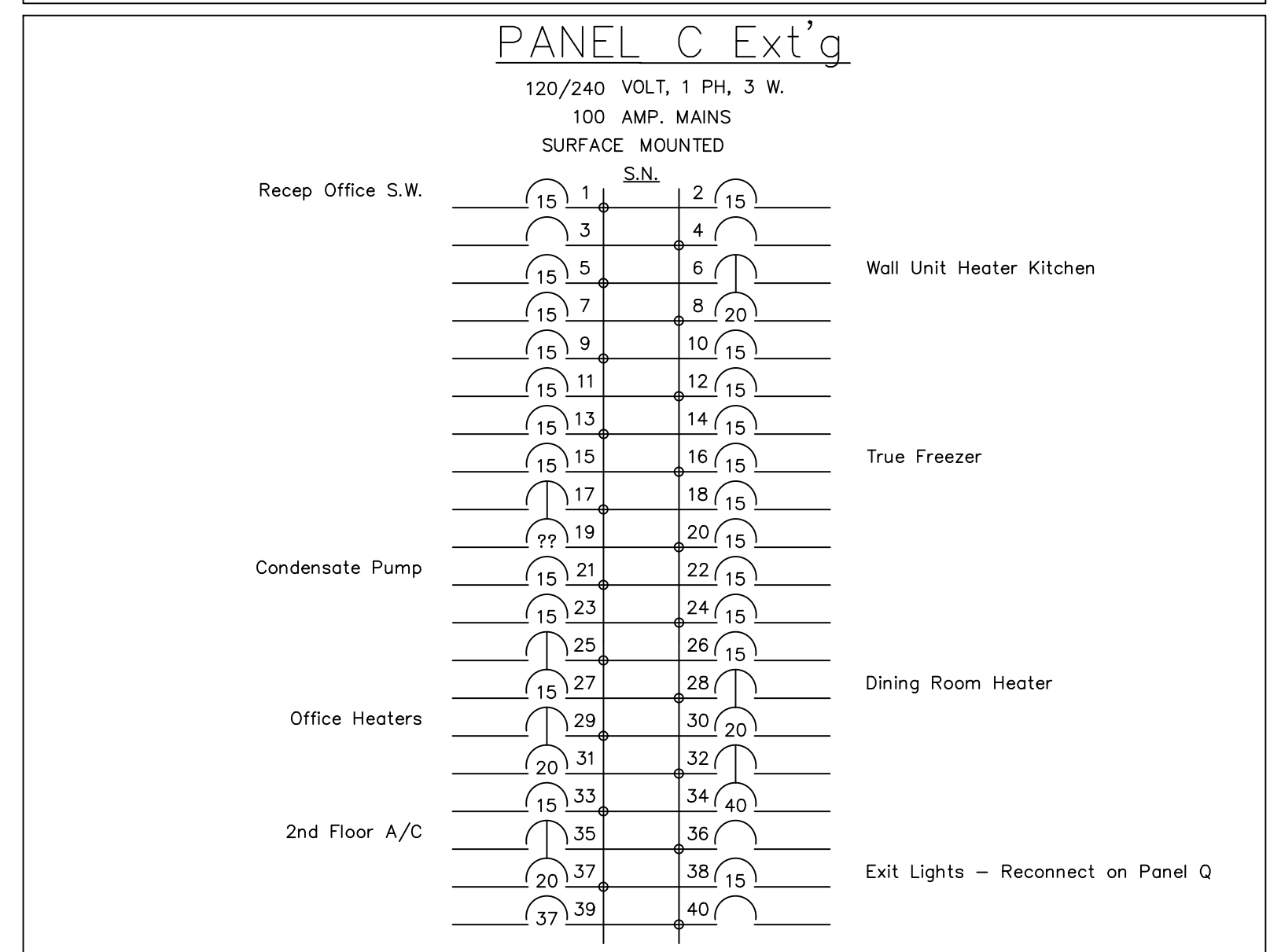
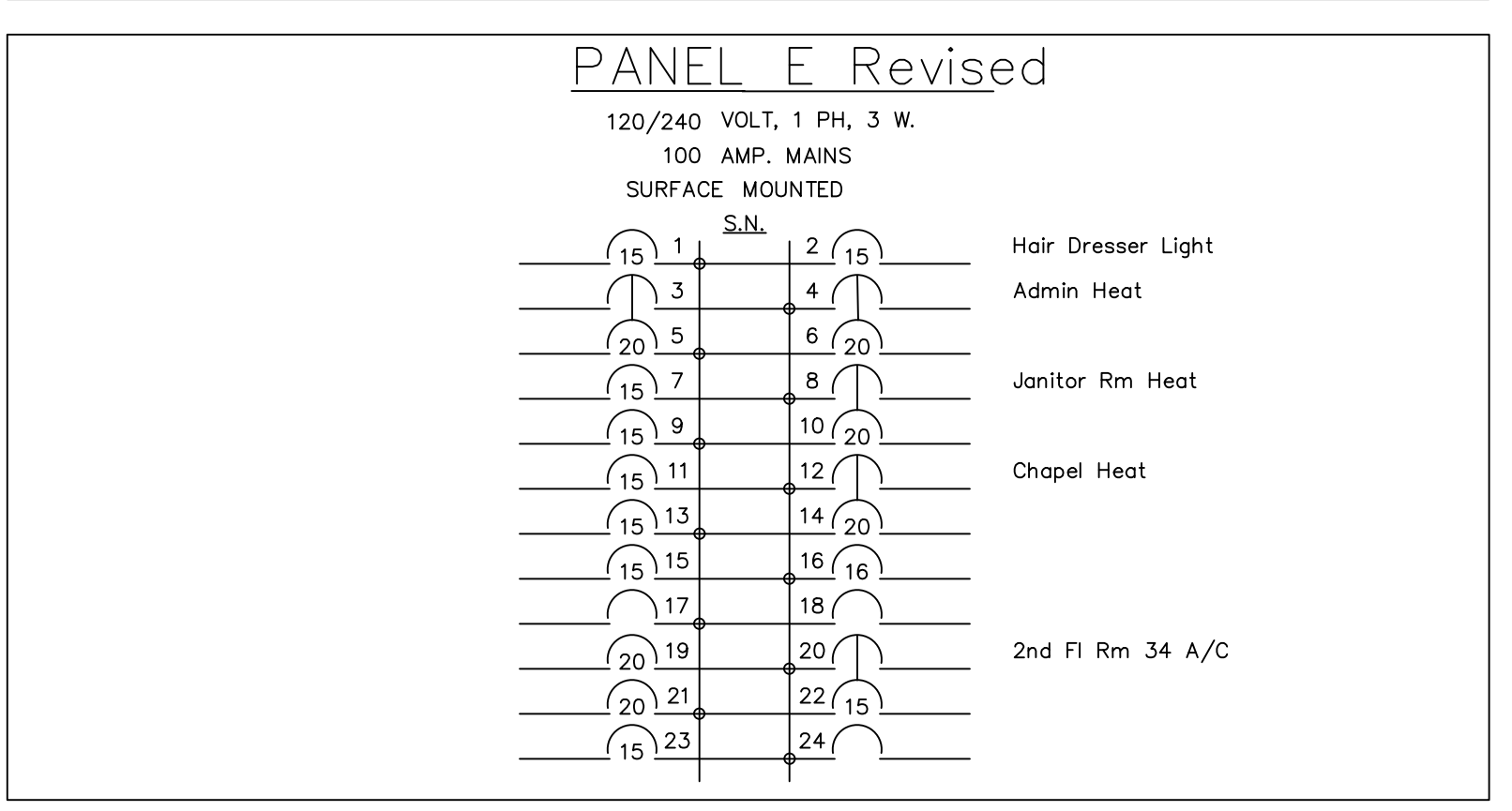
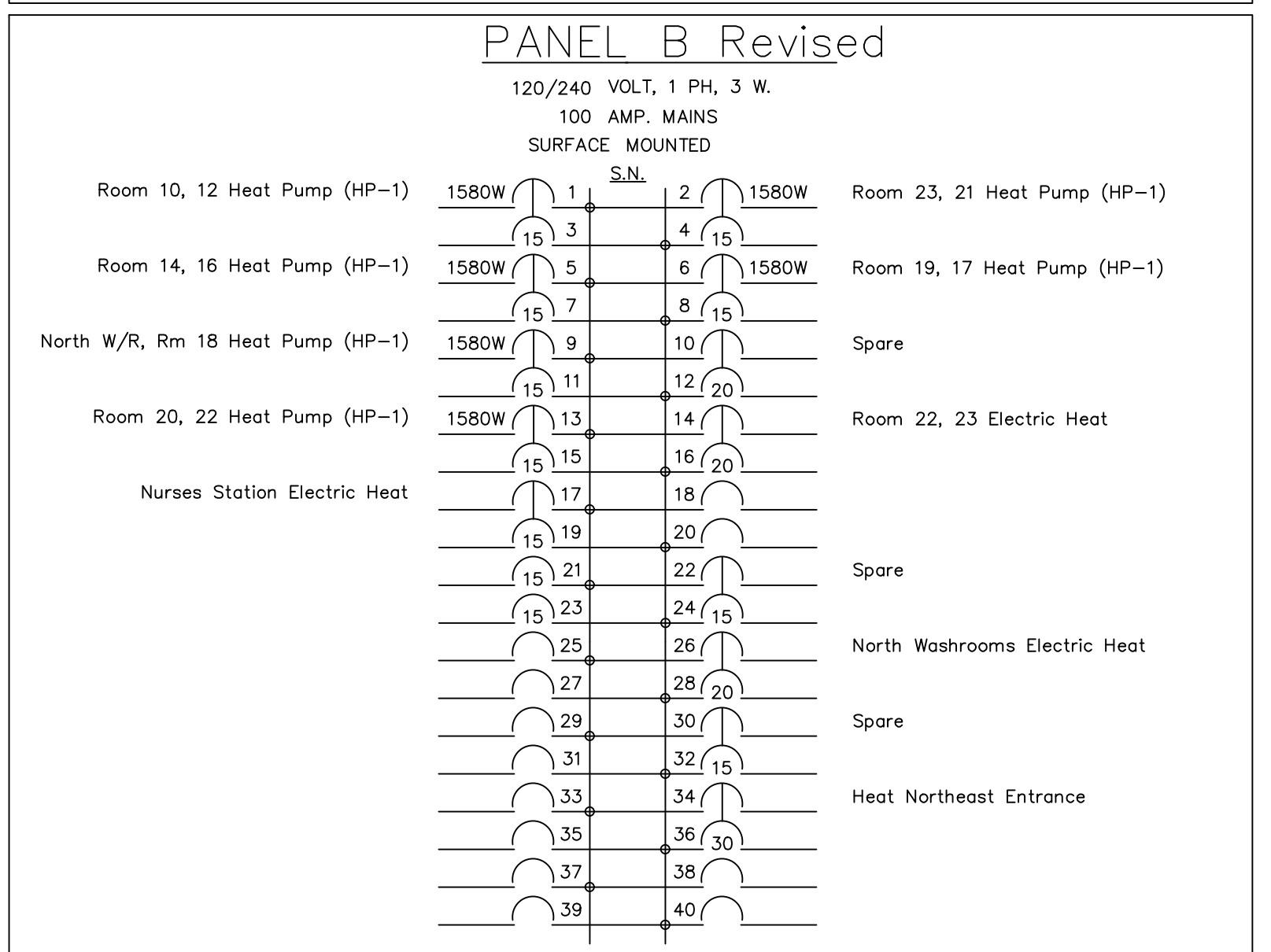
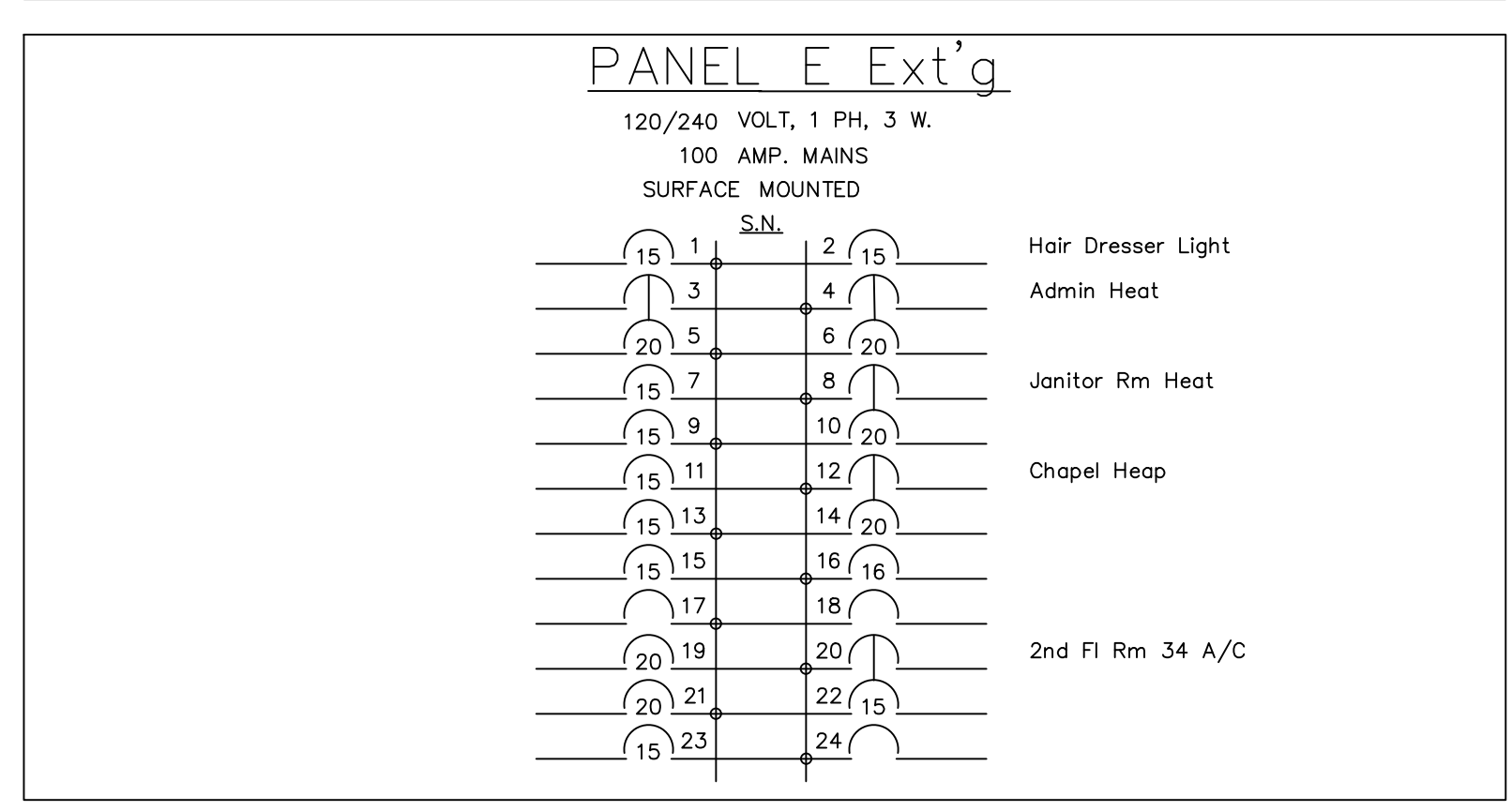
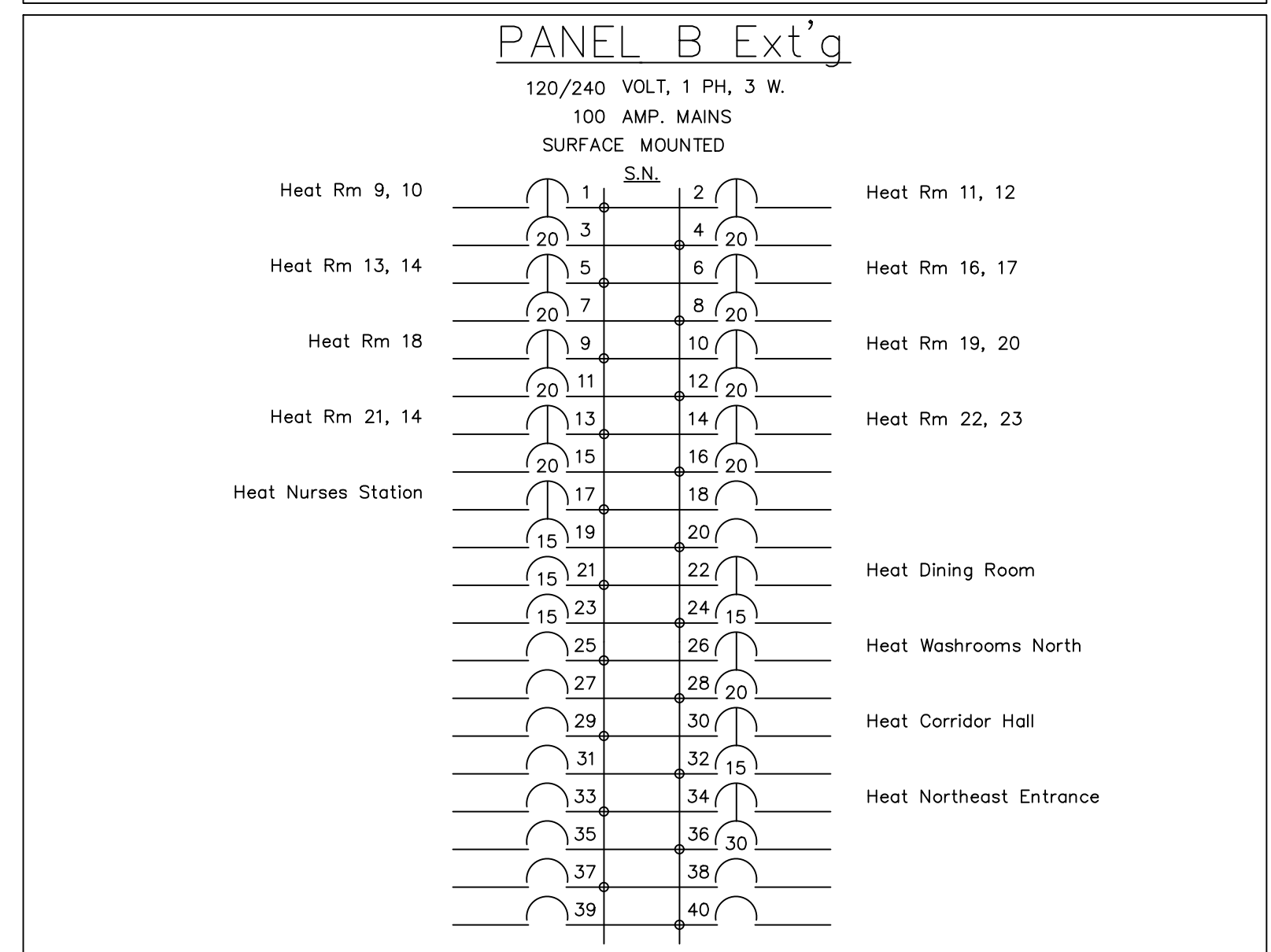
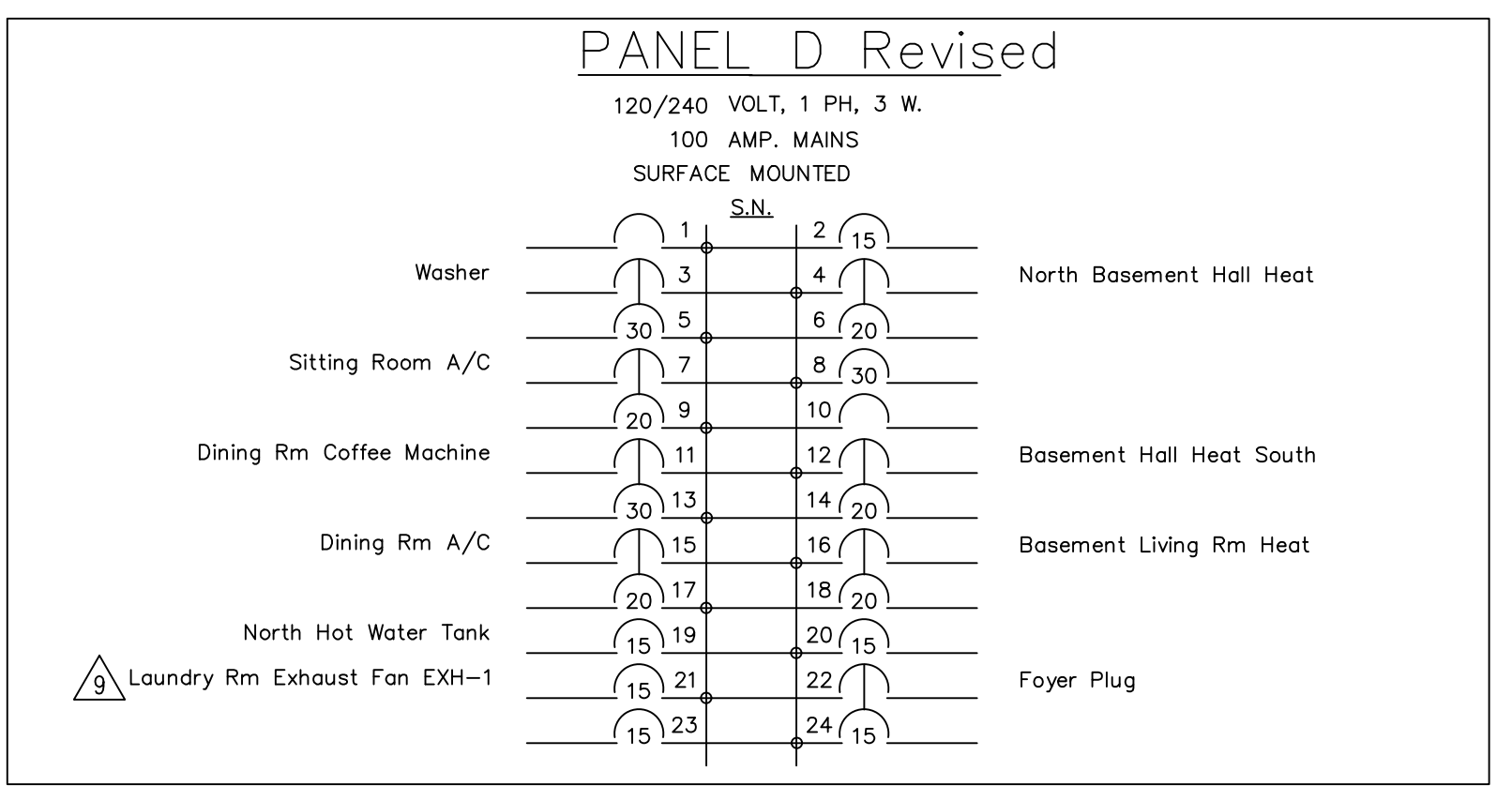
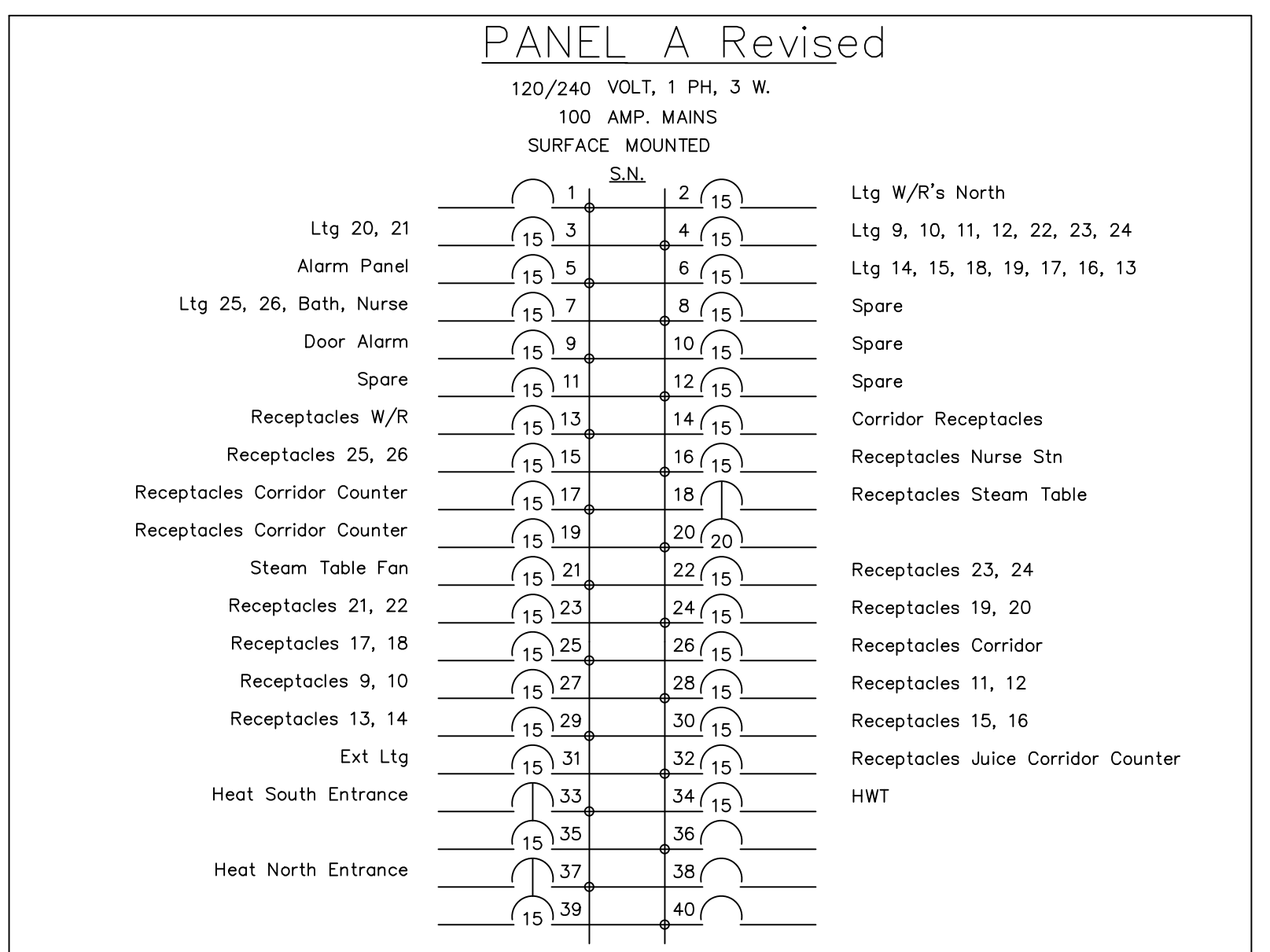
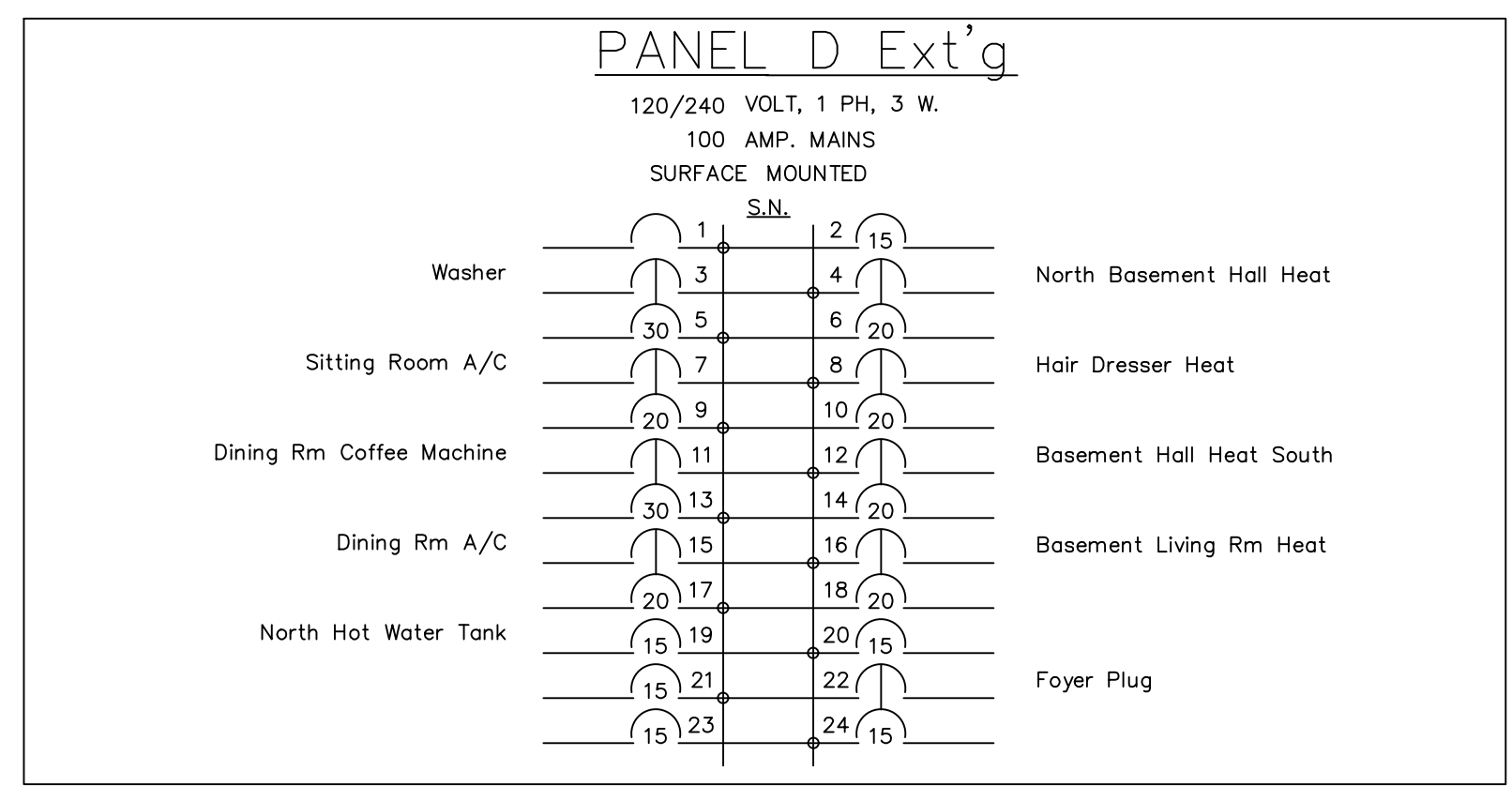
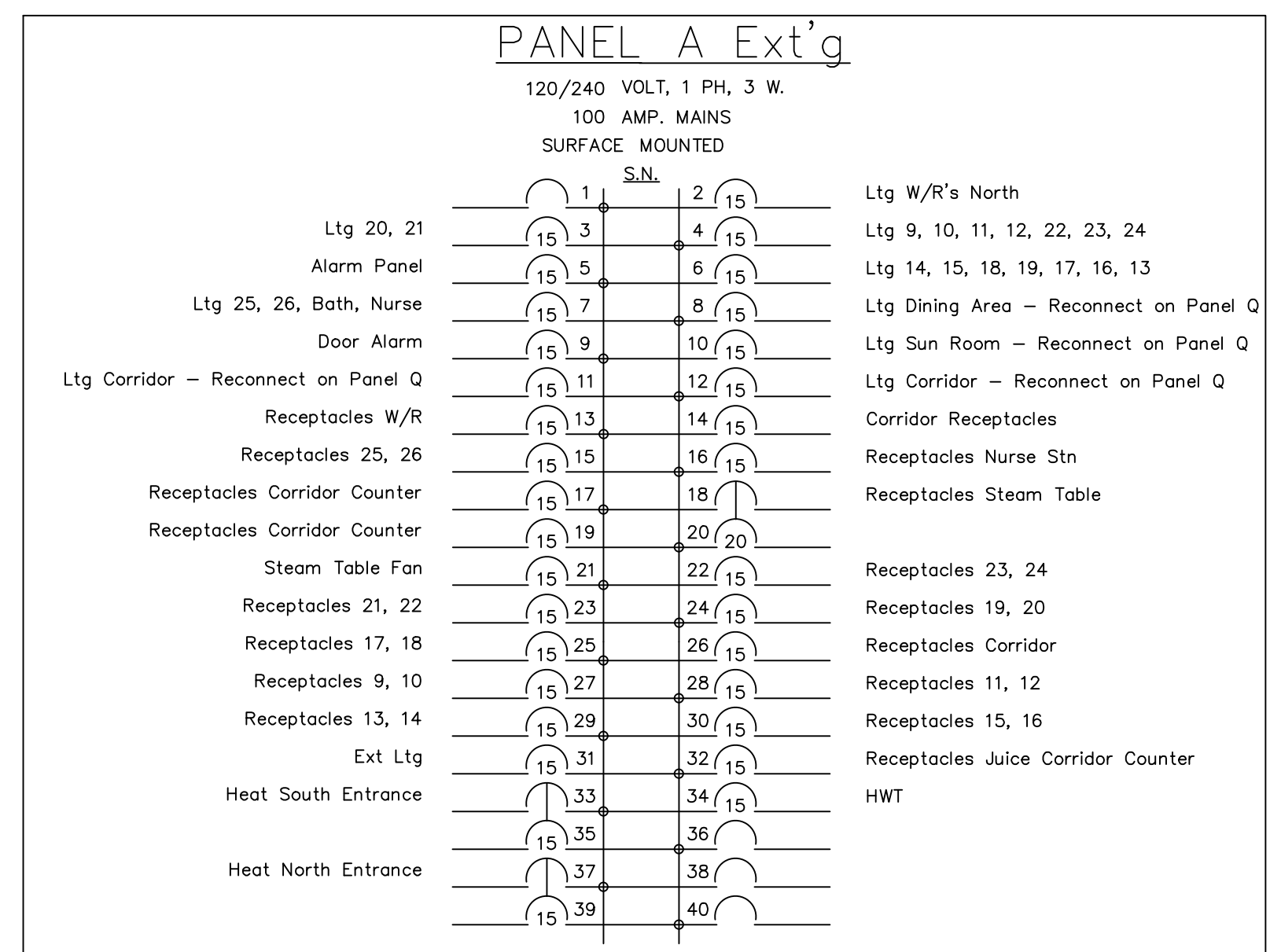
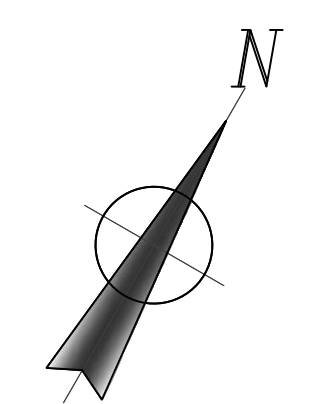
**WOODMAN ARCHITECT & ASSOCIATES LTD.**  
 1750 COURTWOOD CRESCENT, OTTAWA, ONTARIO, CANADA K3C 2B5  
 TEL: 613 228 9650 - FAX: 613 228 9648 - mail@woodmanarchitect.com

BEKOLAY & Associates Ltd.  
 Consulting Engineers  
 285-107 MCCOWAN DR., OTTAWA, ONT. K1V 6Y4  
 TEL: 613-736-9444 FAX: 613-736-9445  
 email: jbeke@bekolay.ca

PROJECT: Long Sault Villa  
 53 Long Sault Dr. Long Sault, On  
 DRAWING: Extension Roof Power & Fire

| DATE              | SCALE            |
|-------------------|------------------|
| 27-Apr-16         | AS SHOWN         |
| DRAWN BY: EHK     | DESIGNED BY: CLW |
| CHECKED BY: CLW   |                  |
| JOB NO.: 2014-03  |                  |
| DRAWING NO.: E-10 |                  |





| NO. | REVISIONS   | DATE          |
|-----|---|---------------|
| 13. |   |               |
| 12. |   |               |
| 11. | ISSUED FOR REVISIONS NOTED  | Apr. 27, 2016 |
| 10. | UPDATE FOR STANDBY GEN CONNECTION REV                             | Mar 02, 2016  |
| 9.  | RE-ISSUED FOR PRICING & CONSTRUCTION                              | Feb 10, 2016  |
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**BEKOLAY & ASSOCIATES Ltd.**  
Consulting Engineers  
200 1077 MCCOWAN DR., OTTAWA, ON N1G 2S4  
TEL: 613 234 4444 FAX: 613 234 4444  
email: jbe@bekolay.com

PROJECT: Long Sault Villa  
53 Long Sault Dr. Long Sault, On  
DRAWING: Existing/Updated Panel Schedules

DATE: 27-Apr-16  
SCALE: AS SHOWN  
DESIGNED BY: EHK  
CHECKED BY: CLW  
2014-03  
DRAWING NO.: E-11 of 12

- General Instructions:
- Repair and make good all walls, ceilings, etc. cut under this division.
  - Protect existing work and equipment during construction.
  - Test all system components for proper operation and safety.
- General Demolition Notes:
- Removals include but are not limited to: devices, recepts, outlets, boxes, branch wiring and all associated conduit and wire. All associated removals such as wiring, boxes, etc. to be removed back to source.
  - Unless otherwise indicated, all equipment and material removed becomes the property of the contractor and shall be removed from site.
  - Maintain, retain, and make good all equipment and existing branch wiring, feeders, etc. which pass through the renovation and demolition areas.
- Specification Notes:
- General
    - Do complete installation in accordance with the following: Ontario building code, Ontario Electrical Code, amendments and applicable local regulations c/w inspection certificate.
    - Prior to tender, confirm site conditions and location of existing services.
    - Review all construction documents and be familiar with general construction methods. Make provisions in the form of noted enclosures to maintain all fire separations.
    - Drawings indicate general location, quantity and type of outlets for all fire services only. Do not scale.
    - Review mechanical shop drawings, confirm voltage, current, and connection requirements prior to wiring installation.
    - Submit all plans required by the inspection authority for approval. Furnish inspection certificate, prior to final payment, to show installed work conforms with specification and regulations. Pay all fees and permit costs.
    - Submit 6 copies of shop drawings to the engineer for approval. Provide shop drawings of all equipment and devices.
    - Upon completion of work provide mark-up prints describing any build conditions and 3 copies of operating and maintenance instruction manuals.
    - Allow for relocation of outlets up to 3000mm prior to installation at no extra cost.
    - All wiring devices to be specification grade.
    - All electrical equipment enclosures to include sprinkler protection provisions.
    - Install electrical equipment at the following heights unless otherwise indicated or directed otherwise or indicated by design drawings:
      - Local switches, dimmer switches, wall mounted occupancy sensors, and low voltage lighting control stations: 1200mm
      - General receptacles: 400mm
      - Receptacles above counter: 170mm above backsplash
      - Panobreakers: 1800mm from the top of panobreaker to floor – or as detailed
      - Control and cable TV outlets: 400mm
    - As required by OBC Division B Article 4.1.18, Elements of Structures, Non-Structural Components and Equipment, include seismic restraints for all electrical equipment and components, installed under this Contract, where not directly and rigidly attached to the structure. Provide seismic restraints for electrical systems and where necessary and required by the Authority Having Jurisdiction, retain and pay for the services of a Professional Structural Engineer (registered in Ontario), to design, sign, and seal seismic restraints.
    - Provide single line electrical drawings in glazed frames – one in the main electrical room and one in each of the 2 satellite electrical rooms.
    - Provide access doors in ceiling and walls where required, access doors to be steel complete with flush trim, concealed hinges, finished to match surrounding surfaces, and meet all fire resistance ratings as per fire code requirements.
    - Measure and balance phase currents of all switchboards and panobreakers. Adjust connections of the panel to achieve a balance such that any phase or line current is within 10% of the average. Take measurements under full operating load conditions.
    - Prior to final inspection and occupancy test and confirm settings and operation of all systems and equipment are correct in accordance with this specification and manufacturer's instructions; submit test reports.
    - Prior to final inspection and occupancy instruct the owner's operating staff in the operation and maintenance of all systems and components.
  - Wiring Methods
    - Unless otherwise indicated on the drawings, or in this specification, wiring methods shall be:
      - Conductors in EMT for feeders for power distribution, motor distribution, connections and home runs for 120V/208V wiring to lighting outlets consisting of 2 or more circuits whichever surface or concealed. Home runs shall be to a ceiling or wall accessible junction box.
      - Final connections to equipment and single circuits to lighting and devices shall be conductors in flexible conduit or armored cable, run in ceiling or partition wall cavities.
      - Final connections (750mm) to motors shall be conductors in liquid tight flexible steel conduit.
      - Connections to panobreakers to be liquid tight.
      - For areas built with combustible construction methods, non armored PVC jacketed multi-conductor cable type NMD is acceptable where permitted by code(s) for or concealed branch wiring in panobreakers.
    - Provide full wiring in all empty conduit.
    - Conductor material:
      - Approved commercial grade, 98% conductivity, copper.
      - No.14 to No.10 awg – solid, No.8 and larger – stranded.
      - 600V R90, unless otherwise noted.
      - Smallest conductor size allowed No.12 AWG over 50 Volts.
      - In finished areas run wiring concealed.
    - Run insulated grounding conductor in all conduits with current carrying conductors.
  - Lighting Control System
    - Lighting controls for all new lighting to be in accordance with Ontario Building Code 50-10.0212 and the relevant mandatory provisions of ASHRAE 90.1 2010 – Part 9 – Section 9.4
    - Wall mounted occupancy sensors and dimmer controls to be decorative type, ganged together, and installed at the local switch height specified.
    - In suites and areas requiring single level occupancy controls the sensors shall be passive infrared and ultrasonic, single pole, with manual push buttons.
    - In enclosed rooms requiring 2-level A/B control, the occupancy sensors shall be passive infrared, 2-pole with manual control push button and relay for the 2nd (B) level.
    - In common areas requiring 2-level A/B control, the occupancy sensors shall be ceiling mounted low voltage passive infrared and ultrasonic, complete with power supply adapter in suitable enclosure in ceiling above control station, auxiliary relays, and wall mounted control station for manual operation of both levels (A and B).
    - Refer to rough in for installation, consult with the manufacturer's qualified technical representative and determine the placement, sensitivity and time out requirements for the devices selected for compliance with these specifications in the areas where they are shown. Following consultation on the lighting control installation, retain and pay for the services of the manufacturer's qualified technical representative who shall test and confirm the correct functional performance for each device. The technical representative shall prepare and submit a report confirming that each device meets the control requirement, include copies in the instruction and maintenance manuals.
  - Exit Signs
    - Exit signs to OBC 3.4.5.1(2). Every exit sign shall:
      - Be quick-make, quick-break action.
      - Be on-off switch position indication on switch enclosure cover.
      - Install disconnect switches complete with fuses as indicated.
  - Fuses
    - Plug and cartridge fuses to CSA C22.2 No. 581-M1987
  - Panobreakers
    - Breaker type panobreaker to CSA C22.2 no. 29 with the following features:
      - 200V distribution panels designated DP-1, DP-2 etc. bus and breakers rated for symmetrical interrupting capacity as indicated.
      - Other 200V branch panels, bus and breakers rated for 10,000 RMS symmetrical interrupting capacity.
      - Main breaker, mains, number of circuits, and number and size of branch circuit breakers as indicated.
      - Trim-potable copper bus with full size neutral.
      - Equipment ground bus to match neutral bus. Bolted directly to panobreaker enclosure.
      - Means suitable for bolt-on breakers.
      - Finish: trim and door – baked grey enamel.
      - Installation/mounting: flush or surface trim as indicated.
      - Mount panobreakers to 1980mm (6'-6") to top – or as detailed.
      - Connect loads to circuits as indicated.
      - Connect neutral conductors to common neutral bus with respective circuit(s) identifier.
    - Sanitized protected enclosures.
    - Panobreaker with switchboard features – see designation DP-1
    - With switchboard features as indicated on the drawing
    - Standard of acceptance: Eaton, GE, Siemens, Schneider
  - Moulded Case Circuit Breakers
    - Provide moulded case circuit breakers to CSA 22.2 No. 5.1, with the following features:
      - Provide automatic moulded case circuit breakers in panobreakers as indicated. Breaker sizes and trips as scheduled, or indicated on the one-line diagram.
      - Use bolt-on moulded case circuit breakers, quick-make, quick-break type for manual and automatic operation with temperature compensation for 40°C (104°F) ambient.
      - Breakers shall be common trips with single handle for multi-pole application.
      - In panobreakers, moulded case circuit breakers to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping under overload conditions, and instantaneous magnetic tripping for circuit protection.
      - Magnetic instantaneous trip elements to operate only when the value of current reaches 10 to 12 times the breaker trip setting.
      - Motor control combination magnetic starters where motor circuit protection is indicated shall be provided with motor circuit interrupter breakers – 250V, 3-pole, 10KA interrupting capacity, magnetic trip only, adjustable (8 connections) with locking pin.
    - Standard of acceptance: CSA approved for panobreaker.
  - Motor protection and control
    - Manual motor starters – single phase or 3 phase manual motor starters of size, type, rating and enclosure type as indicated, with components as follows:
      - Selecting mechanism, quick-make and break.
      - Overload heater in each line, manual reset, trip indicating handle.
      - Heavy-duty toggle switch, labeled as indicated.
      - Indicator lights – heavy-duty, type and colour as indicated.
    - Magnetic and combination magnetic starters of size, type, rating and enclosure type as indicated with components as follows:
      - Contactor solved operated rapid action type.
      - Motor overload protective device in each phase manually reset from outside enclosure.
      - Power and control terminals.
      - Identify each wire and terminal for external enclosures, with starter, with permanent number marking identical to diagram.
    - Control transformer.
      - Combination type starters to include motor circuit interrupter or disconnect with operating lever on outside circuit interrupter and provision for:
        - Locking in "off" position with up to three (3) padlocks.
        - Locking in "on" position.
        - Independent locking of enclosure door.
        - Provision for preventing switching to "on" position while enclosure door open.
      - Accessories:
        - Selector switches hand-off-auto, heavy duty labeled as indicated.
        - Lead indicating lights: on-light type red for run.
        - 2-1/2"V and 2-1/4"V spare auxiliary contacts unless otherwise indicated.
        - Check sequence controls, interlocking with other separate related starters, equipment, control devices, to ensure operation as required.
        - Provide identified terminals and connect into control circuit for field control wiring by HVAC controls contractor.
        - Standard of acceptance Eaton/Cutler Hammer, Allen Bradley, SUD/Schneider.
    - Automatic Transfer Switch
      - 200V – 100A minimum – 3 Pole + Neutral
      - With power fail sensor, auto start – 70% after 5 second delay (adjustable).
      - Shut down – (cool down) – 15 minutes after transfer (adjustable)
      - Additional features as indicated on single line diagram
      - Provided with generator protection by owner.
    - Dry Type Transformers
      - Low voltage distribution type ANSI with 600V – three phase delta primary, and 120/208V three phase 4W secondary.
      - Primary and secondary windings – copper
      - Standards: 1800mm high – 24" x 12" wide above and below normal
      - Insulation – 100C type
      - 10KV BIL
      - Efficiency – The higher of CSA standard CB02.2 or the efficiencies shown below
      - Impedance – Minimum Value 2%
      - Sound level – to CSA standard
  - Wiring Devices
    - Manually operated general purpose switches to CSA C22.2 No. 111 – Decorator style – CSA C22.2 No. 55-M1988 (R2003).
    - Switches to CSA C22.2 No. 55-M1988 (R2003).
    - Receptacles, plugs and similar devices to CSA C22.2 No. 42-99 (R2004).
    - Coverplates to CSA C22.2 No. 42-1-00 (R2004).
    - Efficiency – The higher of CSA standard CB02.2 or the efficiencies shown below
    - Impedance – Minimum Value 2%
    - Sound level – to CSA standard
  - Lighting Fixtures
    - Fixture types:
      - Refer to fixture schedule.
      - Fluorescent lamps to be cool white with minimum 85CRI
      - Use fluorescent linear 1200mm (48 inch) lamps shall be 78.25 watt, minimum lumens 2500 initial; 2350 mean, rated life 30,000 hours (minimum) – 3 hrs/start
      - Use ballasts for T8 lamp shall be electronic instant start, high efficiency, for 25 watt T8 lamps.
    - LED lamps shall be 4100K; efficacy (Lumens/Watt) as indicated for the fixture, drivers (power supplies) to match LED types. Rated life (80K hours) for LED and driver systems minimum 50,000 Hours.
    - Wiring mounted fixtures to be supported from the structure by auxiliary chain hangers.
  - Lighting Control System
    - Lighting controls for all new lighting to be in accordance with Ontario Building Code 50-10.0212 and the relevant mandatory provisions of ASHRAE 90.1 2010 – Part 9 – Section 9.4
    - Wall mounted occupancy sensors and dimmer controls to be decorative type, ganged together, and installed at the local switch height specified.
    - In suites and areas requiring single level occupancy controls the sensors shall be passive infrared and ultrasonic, single pole, with manual push buttons.
    - In enclosed rooms requiring 2-level A/B control, the occupancy sensors shall be passive infrared, 2-pole with manual control push button and relay for the 2nd (B) level.
    - In common areas requiring 2-level A/B control, the occupancy sensors shall be ceiling mounted low voltage passive infrared and ultrasonic, complete with power supply adapter in suitable enclosure in ceiling above control station, auxiliary relays, and wall mounted control station for manual operation of both levels (A and B).
    - Refer to rough in for installation, consult with the manufacturer's qualified technical representative and determine the placement, sensitivity and time out requirements for the devices selected for compliance with these specifications in the areas where they are shown. Following consultation on the lighting control installation, retain and pay for the services of the manufacturer's qualified technical representative who shall test and confirm the correct functional performance for each device. The technical representative shall prepare and submit a report confirming that each device meets the control requirement, include copies in the instruction and maintenance manuals.
  - Exit Signs
    - Exit signs to OBC 3.4.5.1(2). Every exit sign shall:
      - Be quick-make, quick-break action.
      - Be on-off switch position indication on switch enclosure cover.
      - Install disconnect switches complete with fuses as indicated.
  - Fuses
    - Plug and cartridge fuses to CSA C22.2 No. 581-M1987
  - Panobreakers
    - Breaker type panobreaker to CSA C22.2 no. 29 with the following features:
      - 200V distribution panels designated DP-1, DP-2 etc. bus and breakers rated for symmetrical interrupting capacity as indicated.
      - Other 200V branch panels, bus and breakers rated for 10,000 RMS symmetrical interrupting capacity.
      - Main breaker, mains, number of circuits, and number and size of branch circuit breakers as indicated.
      - Trim-potable copper bus with full size neutral.
      - Equipment ground bus to match neutral bus. Bolted directly to panobreaker enclosure.
      - Means suitable for bolt-on breakers.
      - Finish: trim and door – baked grey enamel.
      - Installation/mounting: flush or surface trim as indicated.
      - Mount panobreakers to 1980mm (6'-6") to top – or as detailed.
      - Connect loads to circuits as indicated.
      - Connect neutral conductors to common neutral bus with respective circuit(s) identifier.
    - Sanitized protected enclosures.
    - Panobreaker with switchboard features – see designation DP-1
    - With switchboard features as indicated on the drawing
    - Standard of acceptance: Eaton, GE, Siemens, Schneider
  - Moulded Case Circuit Breakers
    - Provide moulded case circuit breakers to CSA 22.2 No. 5.1, with the following features:
      - Provide automatic moulded case circuit breakers in panobreakers as indicated. Breaker sizes and trips as scheduled, or indicated on the one-line diagram.
      - Use bolt-on moulded case circuit breakers, quick-make, quick-break type for manual and automatic operation with temperature compensation for 40°C (104°F) ambient.
      - Breakers shall be common trips with single handle for multi-pole application.
      - In panobreakers, moulded case circuit breakers to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping under overload conditions, and instantaneous magnetic tripping for circuit protection.
      - Magnetic instantaneous trip elements to operate only when the value of current reaches 10 to 12 times the breaker trip setting.
      - Motor control combination magnetic starters where motor circuit protection is indicated shall be provided with motor circuit interrupter breakers – 250V, 3-pole, 10KA interrupting capacity, magnetic trip only, adjustable (8 connections) with locking pin.
    - Standard of acceptance: CSA approved for panobreaker.
  - Communications Systems General
    - Arrange and coordinate with the owners communications supplier/installer for installation of the equipment and wiring to suit construction progress. Systems to be the communications supplier/installer include:
      - Telecom wired system.
      - Telecom wireless system.
      - WiFi network for data communication
      - Resident call system.
      - Camera network.
      - Sound system for background music.
      - Provide mounting devices and coverplates for all outlets – Coverplates to match building standard specified for switch and receptacles for style type and colour.
      - Arrange and co-ordinate with the cable television service provider for installation of their cabling to suit construction progress.
    - Telecom
      - Telecom distribution will be pre-wired in ceilings and walls by owner's communications supplier/installer.
    - Distribution
      - TV distribution cabling will be pre-wired in ceilings and walls by owners communications contractor or the cablevision service provider.
    - Electric Heating
      - Force flow
      - Wall or ceiling mounted 208V single phase flush mounted with integral fan, thermostat, and control circuit – tempproof control in vestibule.
      - Colour: white
      - Standard of acceptance: Stepro CF5002T for ceiling, Stepro WF408T for wall
    - Contractors:
      - Contractors complete with the following characteristics:
        - Contractors to EMAC No. 1C3-1970, CSA C22.2 #14; electronically held controlled by pilot devices as indicated and rated for the type of load controlled (half-size contactors not accepted); complete with 2 normally open and 2 normally closed auxiliary contacts unless indicated otherwise; red indicating lamp; hand-off-auto selector switch.
      - Equipment identification:
        - Nameplate indicating name of load controlled. Provide equipment identification in accordance with section 4.
        - Standard of acceptance: Siemens, Westinghouse, Schneider
    - Fire Alarm System General:
      - The fire alarm system shall be a fully electrically supervised, zoned, non coded, single stage conventional or distributed control type. The complete installation shall conform to CAN/ULC S537 Standard for installation of Fire Alarm Systems, and all related reference standards, and the Ontario Electrical Code including Section 92.
      - Control Panel:
        - The fire alarm control panel shall be microprocessor based – minimum of 36 Class B initiating zones, 20 class B signal circuits, 20 class B supervisory circuits, 6 auxiliary output relays with double throw normally open; normally closed contacts rated to 1 Amp minimum.
        - Automatic fire detection smoke type detector zones shall be capable of monitoring self-diagnostics "violet" net type.
        - Alarm, signal and supervisory relays shall be class B. Provide end of line resistors for new circuits, group together in a cabinet installed in the electrical distribution room or closet on each floor where the circuits are installed. Identify closed box or outlet box in wall.
        - The control panel shall include a central station connection output.
        - The control panel shall connect from a 120V single phase power circuit 15 Amp rated. It shall operate at 24V DC. Backup power to support the system shall be with an approved battery system mounted externally or internal to the panel.
        - audible signals (outputs) for steady, or vibrating bells.
        - Configurable signal silence, one person walk test.
        - Alarm, signal and supervisory relays shall be class B. Provide end of line resistors for new circuits, group together in a cabinet installed in the electrical distribution room or closet on each floor where the circuits are installed. Identify closed box or outlet box in wall.
        - Initial signal silencing switches in suites flush mounted in single gang box at 1000mm above finished floor to center. Identify clearly.
        - Any rated, it shall operate at 24V DC. Backup power to support the system shall be with an approved battery system mounted externally or internal to the panel.
        - audible signals (outputs) for steady, or vibrating bells.
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