



ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN  
 CERTIFICATE OF AUTHORIZATION  
**RITENBURG & ASSOCIATES LTD.**  
 NUMBER 52  
 PERMISSION TO CONSULT HELD BY:  
 DISCIPLINE: ELECTRICAL SASK. REG. No. 9273 SIGNATURE: *[Signature]*

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0	ISSUED FOR TENDER	16/01/13
Revision/Édition	Description/Description	Date/Date

Project title/Titre du projet  
**REGINA, SASKATCHEWAN**  
**RTM TRANSPORT STAFF BUILDING RENOVATION PACKAGE**

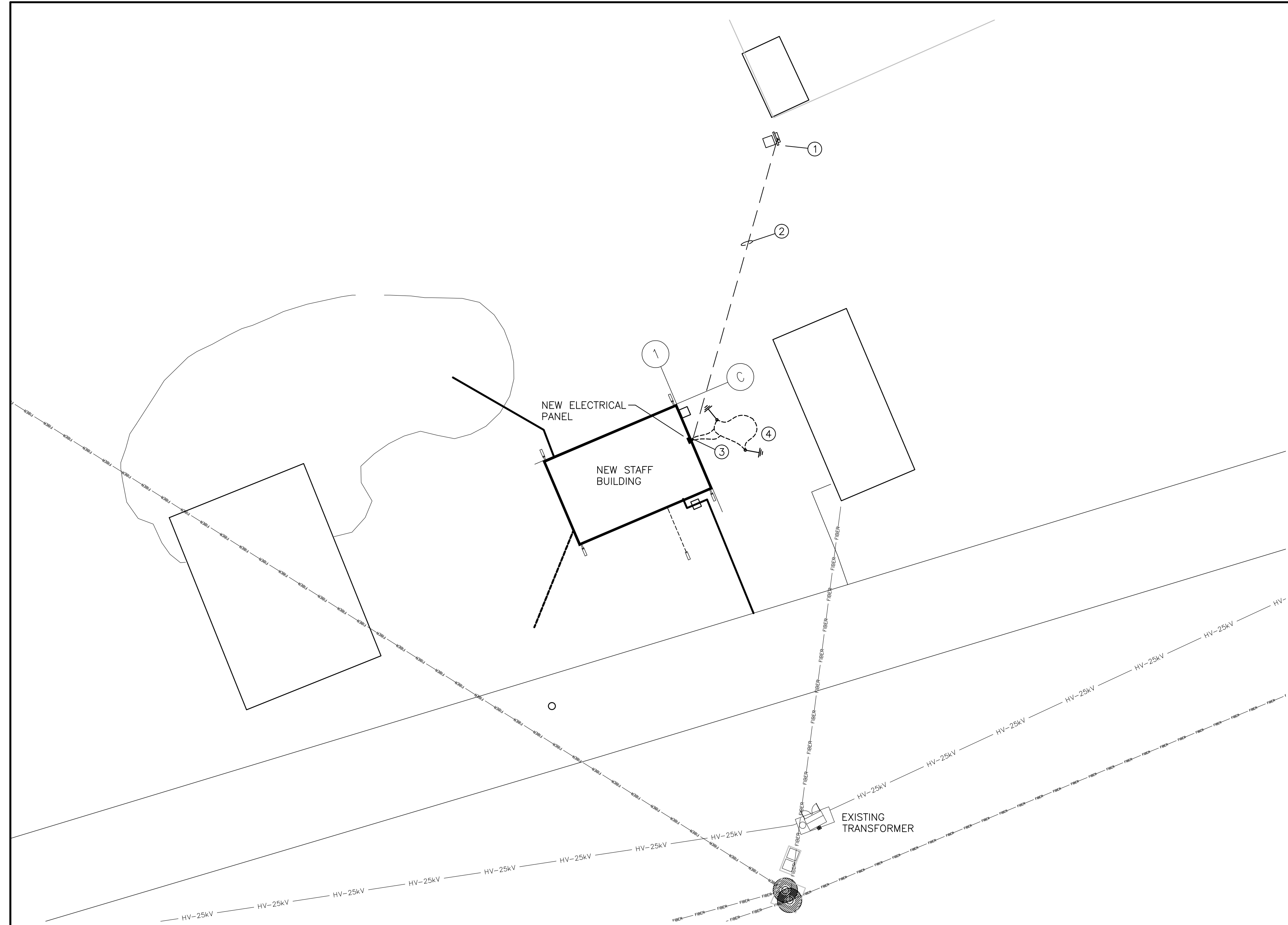
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 Project Manager/Administrateur de Projets  
 Architectural and Engineering Resources Manager/ Ressources Architecturales et de Directeur d'Ingénierie  
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Drawing title/Titre du dessin  
**ELECTRICAL SITE PLAN**  
 Project No./No. du projet: 25/2015  
 Sheet/Feuille: E0  
 Revision no./La Révision no.: 0

**SYMBOL SCHEDULE**

- ⊕ JUNCTION BOX/OUTLET BOX.
- ☉ CEILING/WALL SURFACE MOUNTED INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE.
- ☉ RECESSED CEILING MOUNTED FIXTURE
- ☉ FLUORESCENT FIXTURE, SURFACE MOUNTED OR SUSPENDED.
- ☉ FIXTURE SHOWN SHADED AND WITH THE SUFFIX 'NON-SW' INDICATE UNIT IS NON-SWITCHED.
- ☉ ELECTRICAL DISTRIBUTION PANEL, SURFACE/RECESSED.
- Ⓜ MOTOR CONNECTION. COORDINATE FINAL LOCATION ON SITE.
- ☉ MOLDED CASE TYPE CIRCUIT BREAKER, 15 AMP UNLESS OTHERWISE NOTED.
- ☉ MOLDED CASE TYPE CIRCUIT BREAKER, GROUND FAULT INTERRUPTER, 15 AMP UNLESS OTHERWISE NOTED.
- ☉ MOTOR DISCONNECT SWITCH, SUFFIX 'WP' INDICATES WEATHERPROOF.
- ☉ S.P.S.T. SWITCH MOUNTED UP 1200mm. SUFFIX INDICATE FIXTURE SWITCHING AND QUANTITY OF SWITCHES, 'S' INDICATES ONE S.P.S.T. SWITCH CONTROLLING FIXTURES WITH CORRESPONDING SUFFIX 'a'.
- ☉ THREE-WAY SWITCH MOUNTED UP 1200mm.
- ☉ FOUR-WAY SWITCH MOUNTED UP 1200mm.
- ☉ WALL OR CEILING MOUNTED OCCUPANCY/VACANCY SENSOR UP 1200mm AS DESCRIBED ON DRAWINGS AND SPECIFICATIONS.
- ☉ EMERGENCY LIGHTING UNIT. SEE EMERGENCY LIGHTING SPECIFICATIONS FOR DETAILS.
- ☉ DUPLEX GROUNDED RECEPTACLE OUTLETS WITH NO SUFFIX SHALL BE MOUNTED UP 450mm. WHERE SUFFIXED, MOUNT AS FOLLOWS: 'a' - 250mm ABOVE COUNTER; 'b' - UP 900mm.; 'f' FRIDGE RECEPTACLE UP 450mm; 'hk' 20A RECEPTACLE UP 450mm FOR HOUSE KEEPING; 'm' MICROWAVE RECEPTACLE UP 250mm ABOVE MICROWAVE SHELF. COORDINATE WITH ARCHITECTURE MILLWORK FOR EXACT LOCATION.
- ☉ FOURPLEX GROUNDED RECEPTACLE OUTLETS.
- WP ☉ DUPLEX GROUNDED RECEPTACLE C/W 'WHILE IN USE' COVER MOUNTED UP 900mm. UNLESS NOTED OTHERWISE.
- ☉ DUPLEX GROUNDED RECEPTACLE, 20 AMP 5-20R RECEPTACLE MOUNTED UP 450mm.
- ☉ DUPLEX GROUND FAULT CURRENT INTERRUPTER RECEPTACLE MOUNTED UP 450mm OR AS NOTED.
- 1D/1V ▼ DATA/VOICE OUTLET MOUNTED UP 450 mm. 100 mm. SQUARE BOX C/W SINGLE GANG EXTENSION AND 27 mm CONDUIT. SUFFIX '1D' INDICATES ONE DATA JACK, '1V' INDICATES ONE VOICE JACK. CABLE TYPE SHALL BE TERMINATED AT THE DATA PATCH PANEL AND OUTLET BOX. VOICE CABLE TYPE SHALL BE TERMINATED AT THE OUTLET BOX AND BIX BLOCK. NOT MORE THAN TWO WORK STATIONS PER 15 AMP CIRCUIT.
- ☉ 120V PHOTOCCELL FOR EXTERIOR BUILDING LIGHTS.
- ☉ BUILDING DOOR CONTACT
- ☉ DENOTES DEVICE TO BE REMOVED AND BLANKED OFF.

NOTE: SUBSCRIPT 'E' DENOTES DEVICE IS EXISTING;  
 SUBSCRIPT 'CLG' DENOTES DEVICE IS CEILING MOUNTED.



**SITE PLAN KEYNOTES**

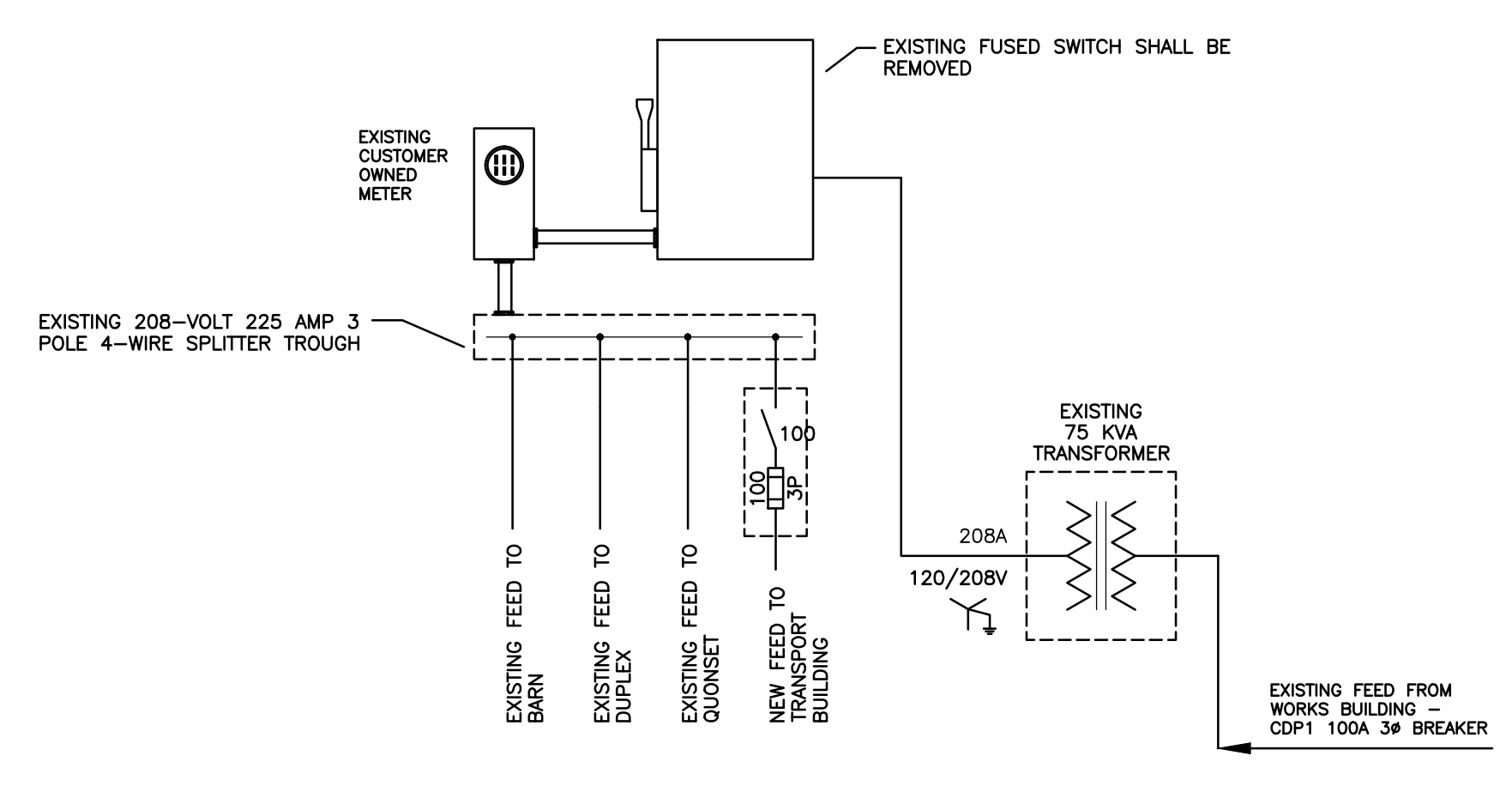
1. EXISTING EXTERIOR TRANSFORMER/ELECTRICAL DISTRIBUTION. ELECTRICAL DISTRIBUTION MOUNTED TO PLYWOOD BACKBOARD LOCATED DIRECTLY BEHIND TRANSFORMER.
2. PROVIDE NEW FEEDER FROM NEW SWITCH/FUSE INSTALLED IN EXTERIOR ELECTRICAL DISTRIBUTION TO NEW ELECTRICAL PANEL IN TRANSPORT BUILDING. FEEDER SHALL BE 4C #3 AWG Cu. TECK90 COMPLETE WITH Cu. INTEGRAL BOND. FEED SHALL BE BURIED AT MINIMUM 900mm BELOW FINISHED GRADE RUN IN PATH AROUND RTM BUILDING FOOTPRINT.
3. AT LOCATION INCOMING FEEDER TRANSITIONS FROM UNDERGROUND TO ABOVE GRADE, PROVIDE CONDUIT SLEEVE 600mm LENGTH, 25mm LARGER DIAMETER THAN SERVICE FEEDER CONDUIT, EXTENDING 150mm ABOVE GRADE.
4. PROVIDE NEW GROUND GRID FOR BUILDING'S ELECTRICAL SERVICE. GROUND GRID SHALL CONTAIN (2) 3048mm X 20mm COPPER CLAD GROUND RODS SPACED MINIMUM 3000mm APART, CONNECTED BY #1 AWG BARE COPPER. PROVIDE 2 #1 AWG BARE COPPER CONNECTIONS FROM NEW ELECTRICAL PANEL GROUND BUS TO GROUND GRID. PROVIDE #6 AWG Cu. BOND TO MAIN WATER SERVICE AND #6 AWG Cu. BOND TO NATURAL GAS SERVICE.

**SITE PLAN GENERAL NOTES**

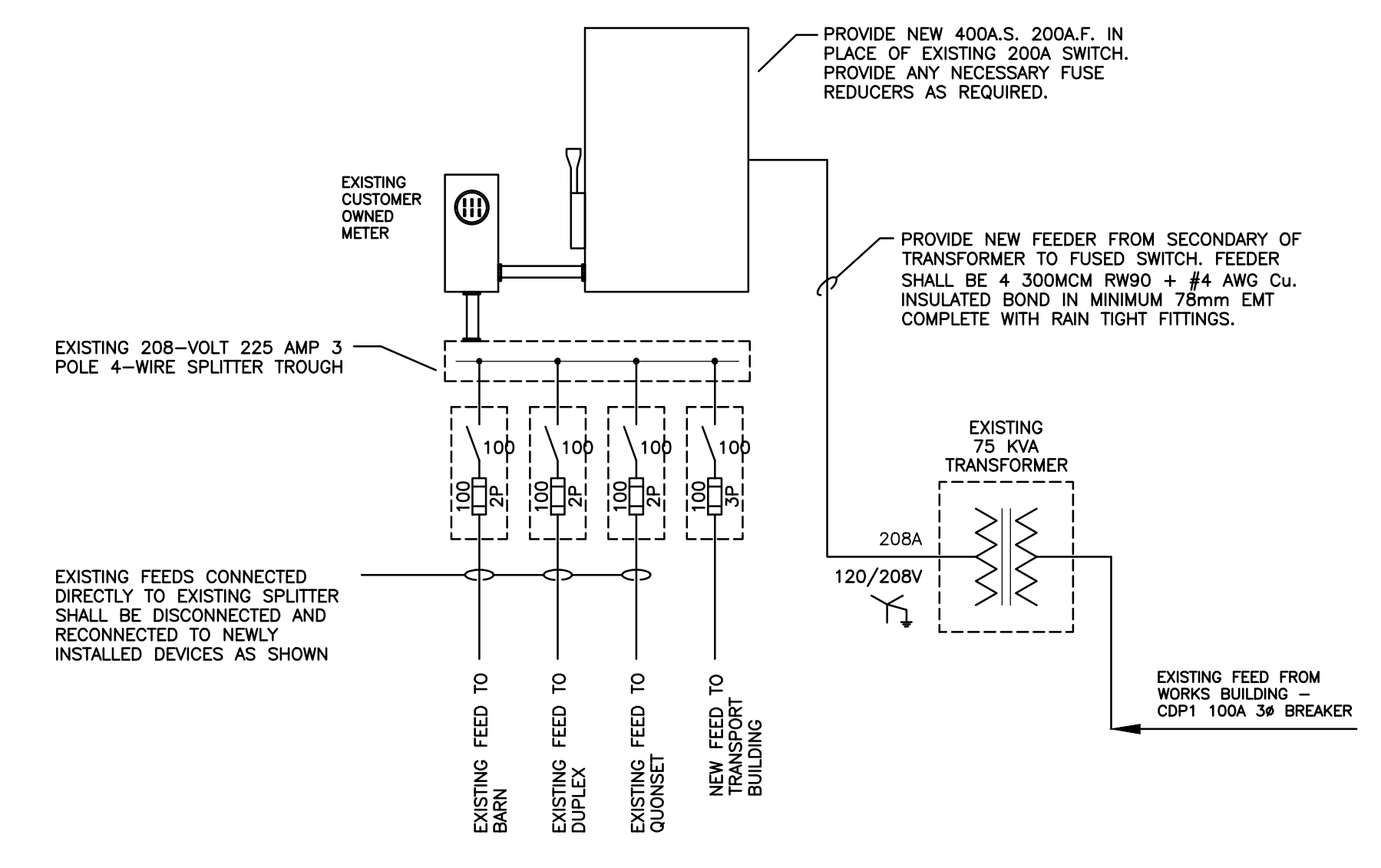
1. EXISTING UNDERGROUND SERVICES ARE SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS AND IDENTIFY ALL CONFLICTS AND THAT MAY AFFECT THE INSTALLATION OF THIS DESIGN. COORDINATE WITH CONSTRUCTION MANAGER.



1 ELECTRICAL SITE PLAN  
 E0 1:250

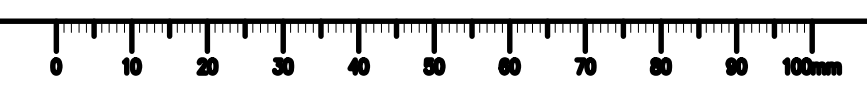


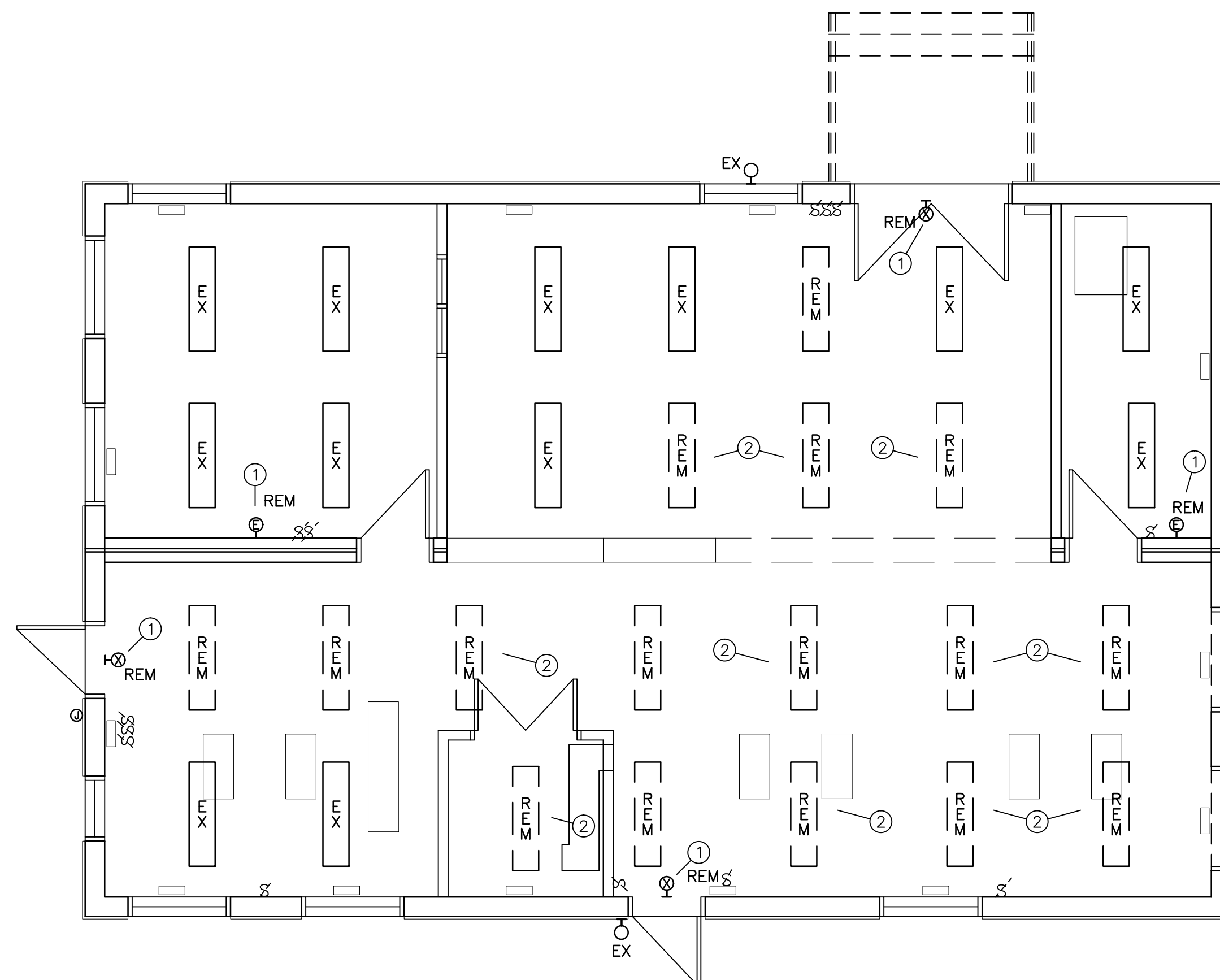
2 EXISTING EXTERIOR TRANSFORMER/DISTRIBUTION DETAIL  
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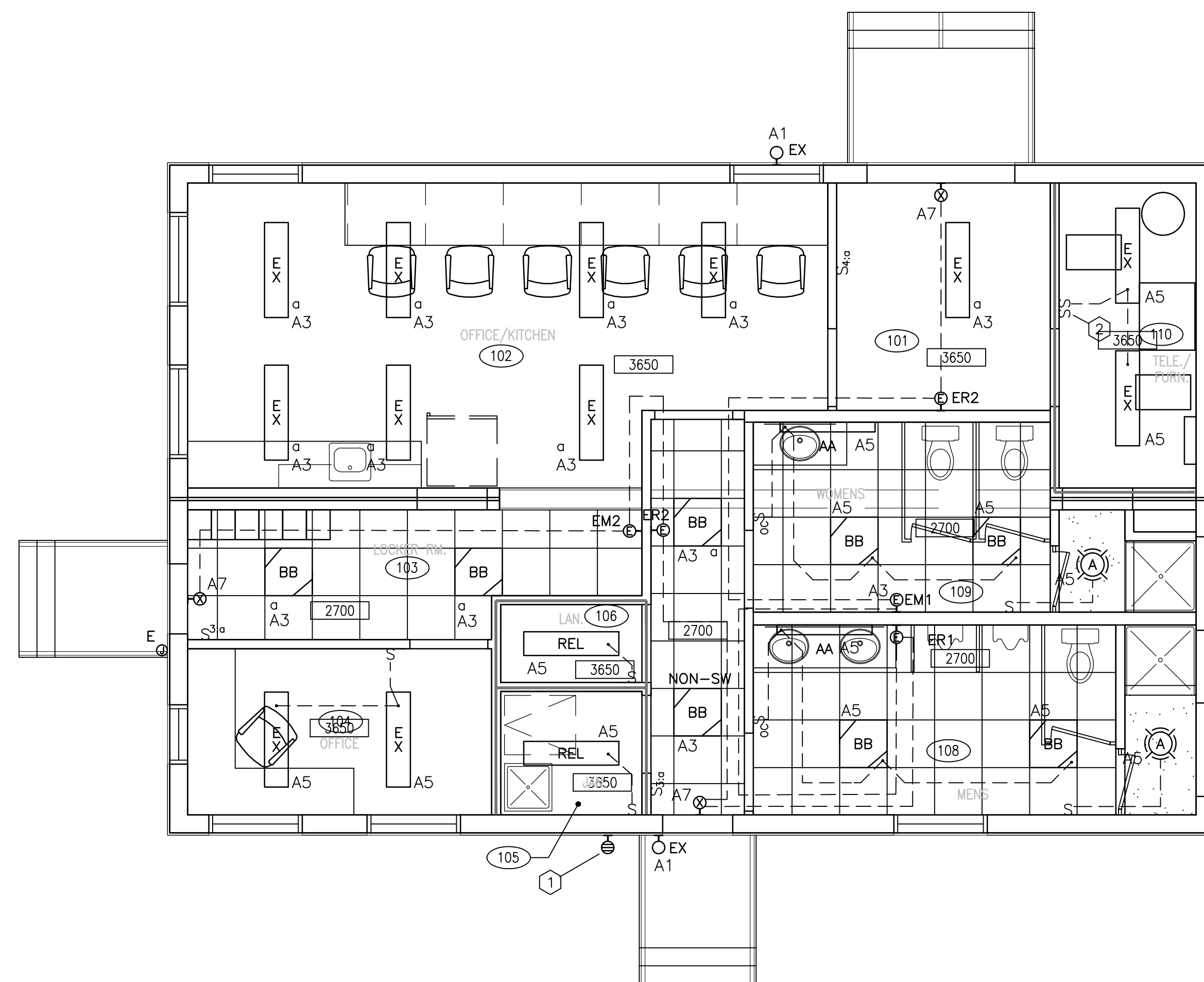
3 NEW EXTERIOR TRANSFORMER/DISTRIBUTION DETAIL  
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1 LIGHTING DEMOLITION PLAN  
E1 1:50  
NORTH



2 LIGHTING REVISED PLAN  
E1 1:50  
NORTH

LIGHTING DEMOLITION PLAN GENERAL NOTES:

1. ALL SALVAGED MATERIAL SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STOCKPILED AS INSTRUCTED BY THE OWNER.
2. ALL ABANDONED ELECTRICAL WIRING AND CONDUIT RUNS SHALL BE REMOVED BACK TO THE SOURCE UNLESS OTHERWISE NOTED.

LIGHTING DEMOLITION KEYNOTES:

1. REMOVE EXISTING EMERGENCY LIGHTS AND EXIT SIGNS AND REPLACE WITH NEW AS PER PROJECT'S SPECIFICATIONS. REFER TO LIGHTING PLAN.
2. EXISTING FIXTURE SHALL BE REMOVED AND THEN RELOCATED, REFER TO DRAWING E1.1, REVISED LIGHTING PLAN. ALL ASSOCIATED JUNCTION BOXES AND WIRING SHALL BE REMOVED BACK TO THE SOURCE. PATCH CEILING.

LIGHTING REVISED PLAN GENERAL NOTES:

1. ALL NEW LIGHTING FEEDS SHALL BE NMD FROM PANEL TO AREA JUNCTION BOX, AC90 FROM AREA JUNCTION BOX TO LIGHT FIXTURE.

LIGHTING REVISED PLAN DRAWING KEY NOTES:

1. MOUNT PHOTOCELL 2700mm ABOVE FINISHED GRADE.
2. PROVIDE OVERRIDE-OFF SWITCH FOR EXTERIOR BUILDING LIGHTS. REFER TO PANEL SCHEMATICS FOR WIRING DETAIL, DRAWING E4.1.



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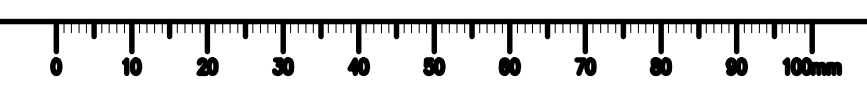
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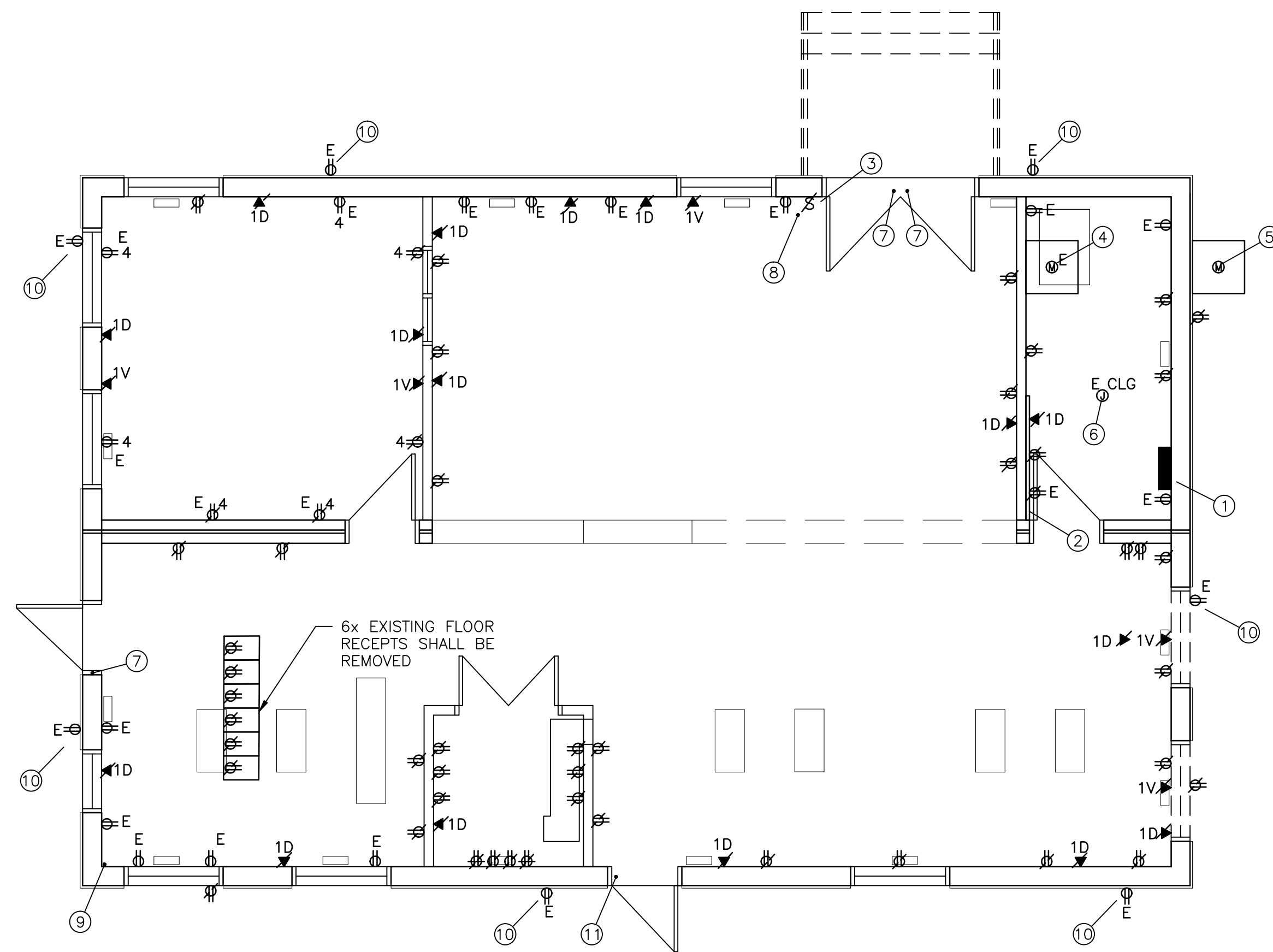
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**RTM TRANSPORT STAFF BUILDING RENOVATION PACKAGE**

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**LIGHTING DEMOLITION PLAN & LIGHTING REVISED PLAN**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
25/2015	E1	0





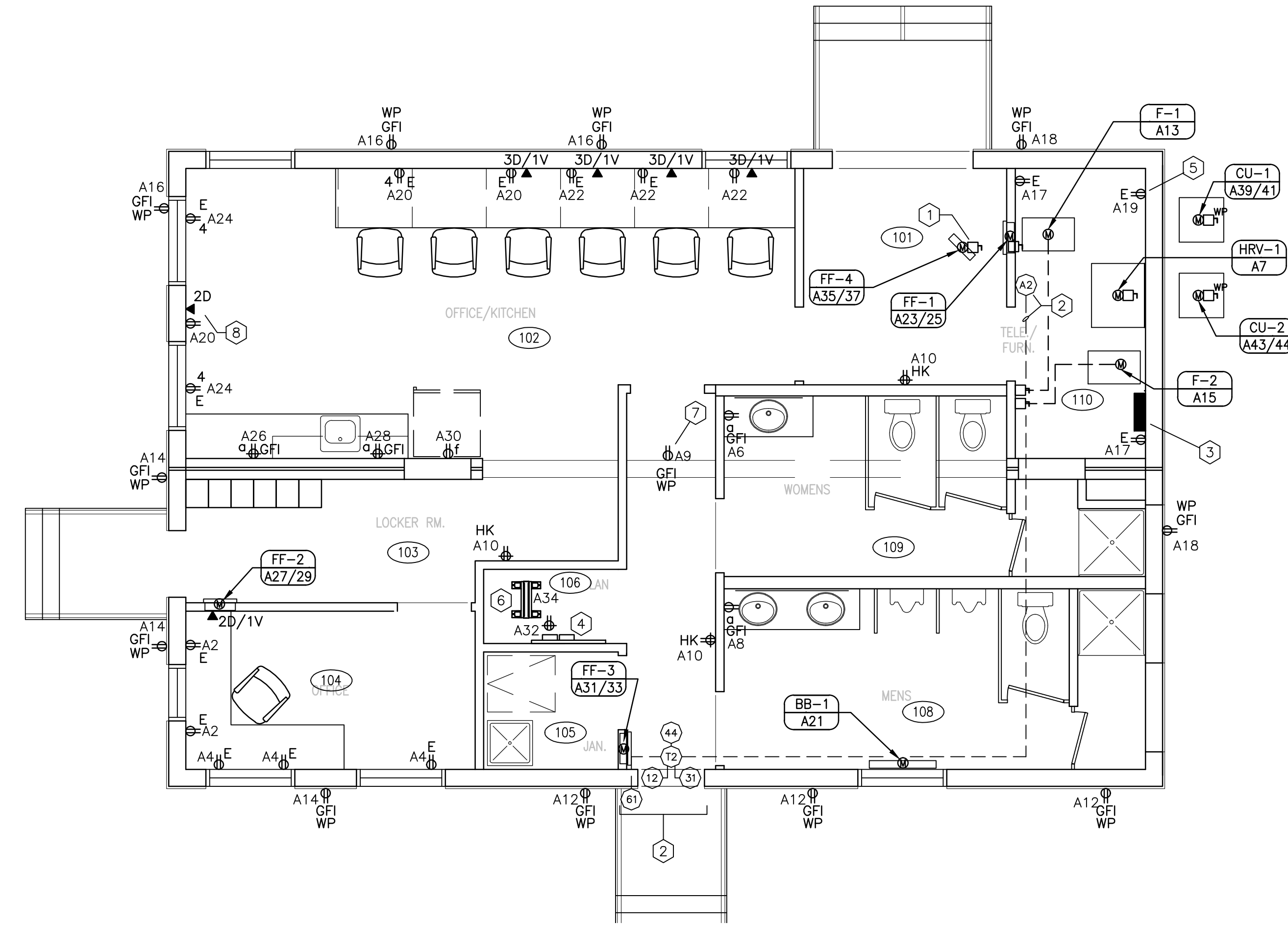
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E2  
1:50  
POWER AND SYSTEMS DEMOLITION PLAN

**POWER & SYSTEMS DEMOLITION PLAN KEYNOTES:**

- ① CONTRACTOR SHALL REMOVE EXISTING 120/240V, 1Ø, 3W, SURFACE MOUNTED PANEL. EXISTING CIRCUITS SHALL BE CONNECTED TO NEW PANEL IN SAME LOCATION AS PER NEW ELECTRICAL FLOORPLAN AND PANEL SCHEMATICS.
- ② EXISTING DATA PLYWOOD SHALL BE REMOVED.
- ③ EXISTING FURNACE SWITCH SHALL BE REMOVED.
- ④ EXISTING FURNACE SHALL BE DISCONNECTED. REMOVE ALL ASSOCIATED WIRING AND CONDUIT-RUNS BACK TO THE FURNACE SWITCH LOCATED BY THE BUILDING'S NORTH ENTRANCE.
- ⑤ EXISTING A/C UNIT SHALL BE DISCONNECTED, REMOVE ALL ASSOCIATED WIRING AND CONDUIT-RUNS BACK TO THE SOURCE.
- ⑥ PROVIDE NEW STAINLESS STEEL COVER FOR EXISTING JUNCTION BOX.
- ⑦ PROVIDE NEW RETROFIT BOX ABOVE EXISTING DOOR FRAME. EXISTING CABLE ROUGH-IN FOR SECURITY DOOR CONTACT SHALL BE COILED IN RETROFIT BOX FOR FUTURE USE.
- ⑧ PROVIDE NEW RETROFIT BOX FOR EXISTING CABLE ROUGH-IN FOR SECURITY KEYPAD. COIL CABLE IN RETROFIT BOX FOR FUTURE USE.
- ⑨ PROVIDE NEW RETROFIT BOX FOR EXISTING CABLE ROUGH-IN FOR SECURITY MOTION DETECTOR. COIL CABLE IN RETROFIT BOX FOR FUTURE USE.
- ⑩ EXISTING EXTERIOR RECEPTACLE SHALL BE REPLACED WITH NEW WHILE-IN-USE DEVICE.
- ⑪ EXISTING CABLE ROUGH-IN FOR DOOR CONTACTS SHALL BE PULLED INTO NEW JUNCTION BOX (T2 CABINET) INSTALLED ABOVE DOOR FOR ACCESS CONTROL SYSTEM AS PER ELECTRICAL DETAILS AND SHALL REMAIN AS SPARE.

**POWER & SYSTEMS DEMOLITION PLAN GENERAL NOTES:**

1. ALL EXISTING JUNCTION BOXES THAT ARE MISSING COVERPLATES SHALL HAVE NEW BLANK COVERS INSTALLED.
2. ALL ABANDONED ELECTRICAL CONDUIT RUNS, CABLES, WIRING AND DATA CABLES SHALL BE REMOVED BACK TO THE SOURCE PANEL UNLESS OTHERWISE NOTED.
3. PROVIDE STAINLESS STEEL BLANK COVERPLATE FOR REMOVED RECEPTACLES AND DATA OUTLET.



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E2  
1:50  
POWER & SYSTEMS REVISED PLAN

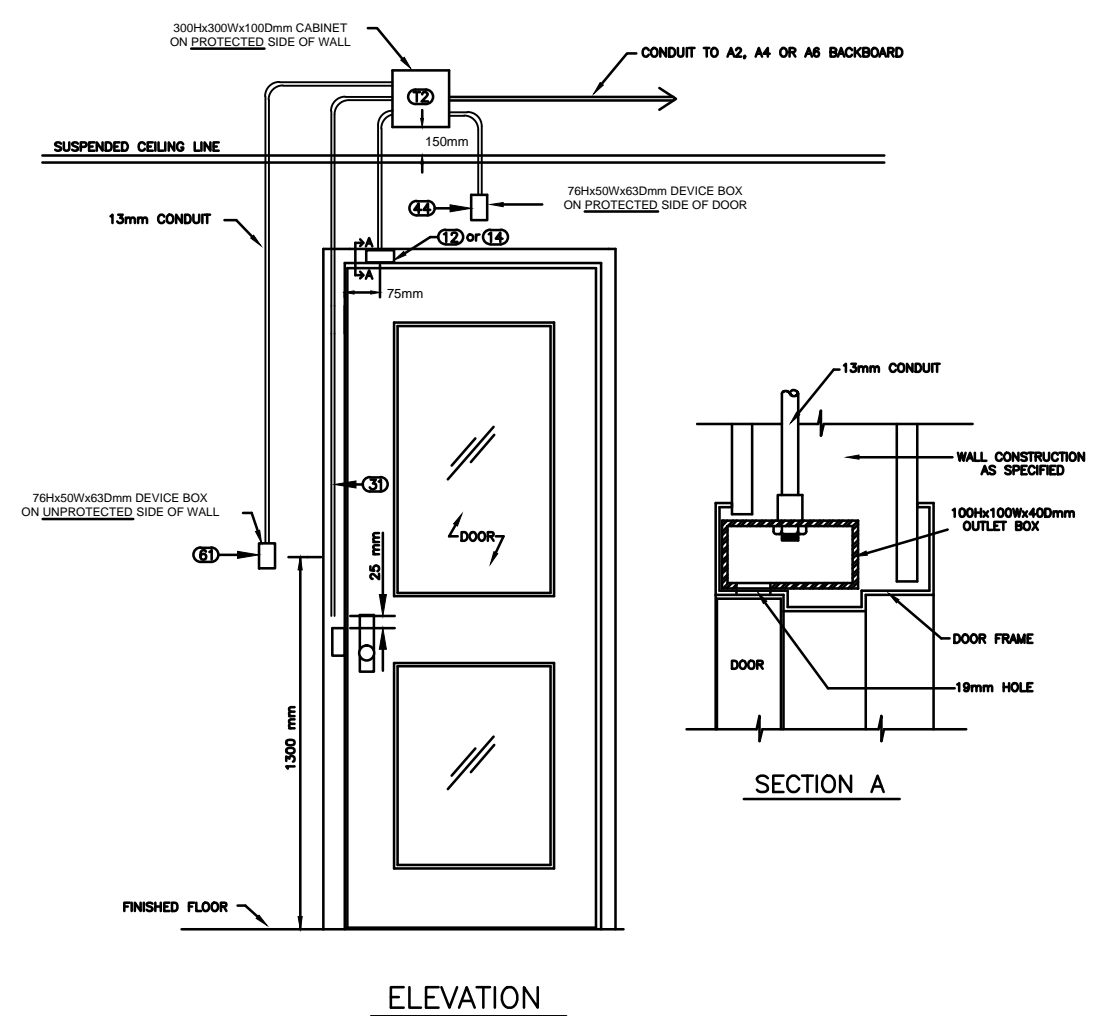
**NEW POWER & SYSTEMS PLAN KEYNOTES:**

- ① ELECTRIC FORCE FLOW FF-4 LOCATED IN CRAWLSPACE.
- ② PROVIDE DOOR ACCESS CONTROL INSTALLATION AS PER DETAIL 3. REFER TO SPECIFICATIONS FOR CABLING REQUIREMENTS.
- ③ NEW 120/208V, 3Ø, 4W, 225A SURFACE MOUNTED PANEL COMPLETE WITH INTEGRAL MAIN SERVICE RATED BREAKER. CONNECT EXISTING CIRCUITS TO NEW PANEL AS REQUIRED FOR NEW CIRCUITS AS SHOWN ON PLANS.
- ④ NEW WALL MOUNTED DATA EQUIPMENT MOUNTED TO NEW TELCO PLYWOOD. REFER TO DRAWING E3, INCOMING TELCO PLYWOOD DETAIL.
- ⑤ RECEPTACLE DESIGNATED FOR NEW ELECTRICAL WATER HEATER, DWH-1.
- ⑥ PROVIDE NEW 2-POST FREE STANDING DATA RACK. SEE DRAWING E3 FOR FURTHER INFORMATION.
- ⑦ RECEPTACLE, LOCATED IN CRAWLSPACE, DESIGNATED FOR NEW SUMP PUMP SP-1 AND FOR NEW SUMP PUMP ALARM.
- ⑧ DATA/POWER INSTALLED FOR TV LOCATION. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT ON SITE.

**NEW POWER & SYSTEMS PLAN GENERAL NOTES:**

1. ALL NEW RECEPTACLES SHALL BE FED WITH NMD90 WIRING, MINIMUM #12 AWG. EXISTING CIRCUITRY CAN BE RE-USED WHERE APPLICABLE.

Detail Drawing  
ACCESS CONTROL - ELEVATION OF SINGLE DOOR WITH DOOR CONTACT, WALL MOUNTED READER AND ELECTRIC STRIKE



NOTES:  
CONDUIT CONNECTOR TO BE MOUNTED AND FASTENED TO OUTLET BOX BY DOOR FRAME FABRICATOR.  
OUTLET BOX TO BE SPOT WELDED IN PLACE BY DOOR FRAME FABRICATOR.  
DRILL A 19MM HOLE AT 75MM (CENTER POINT) FROM THE EDGE OF THE DOOR CASING TO ALLOW FOR DOOR SWITCH INSTALLATION AND ACCESS TO WIRING.

3  
E2  
N.T.S.  
DOOR ACCESS DETAIL



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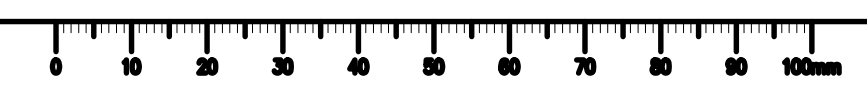
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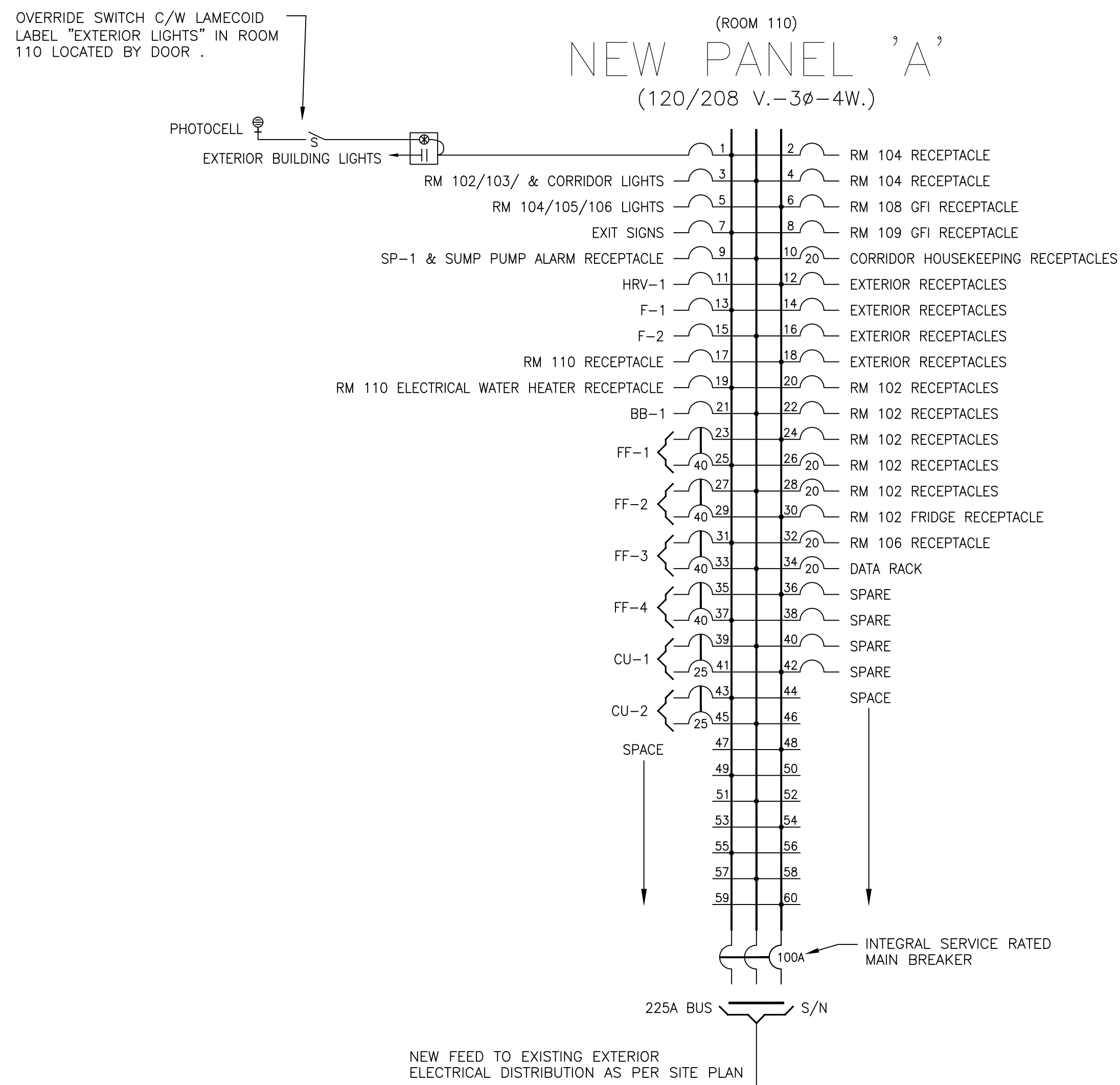
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**POWER AND SYSTEMS PLANS**

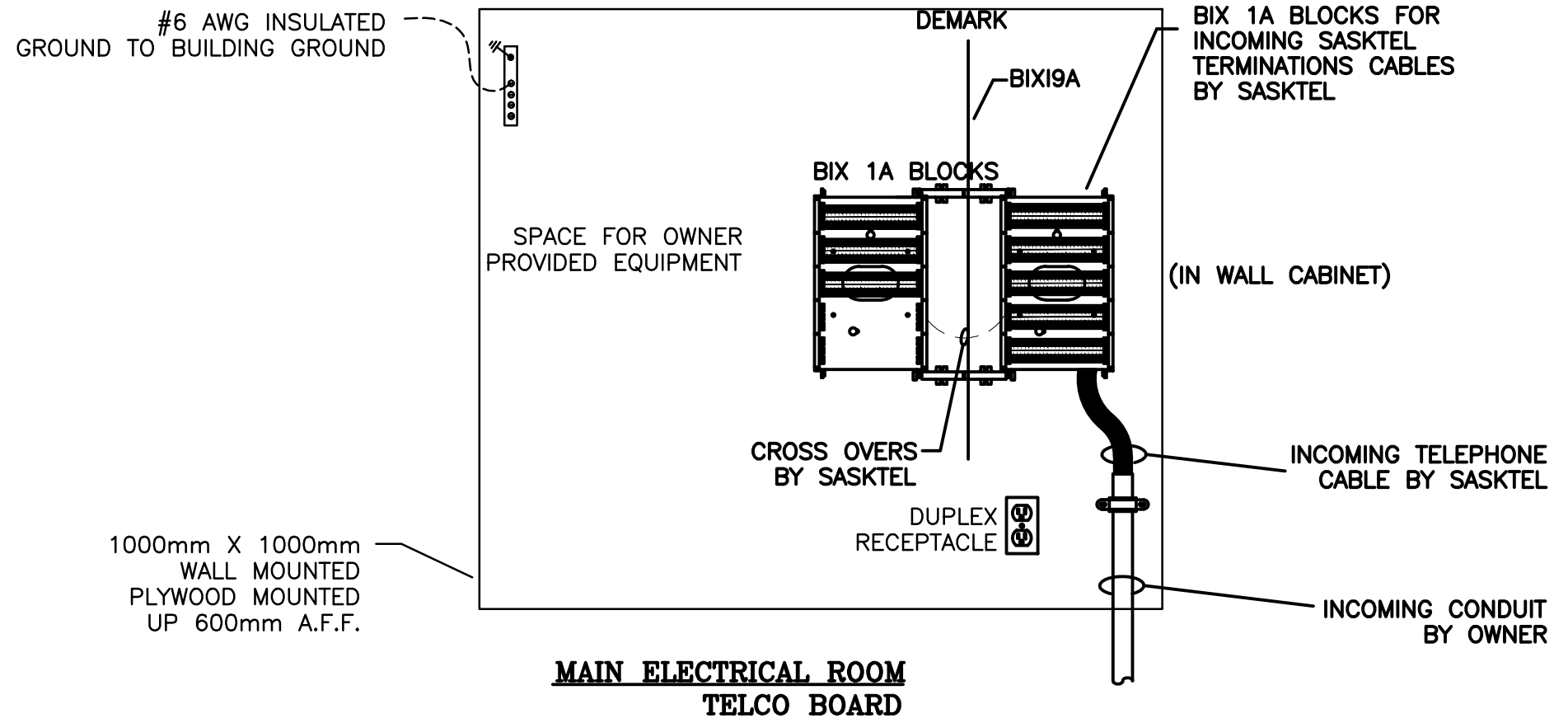
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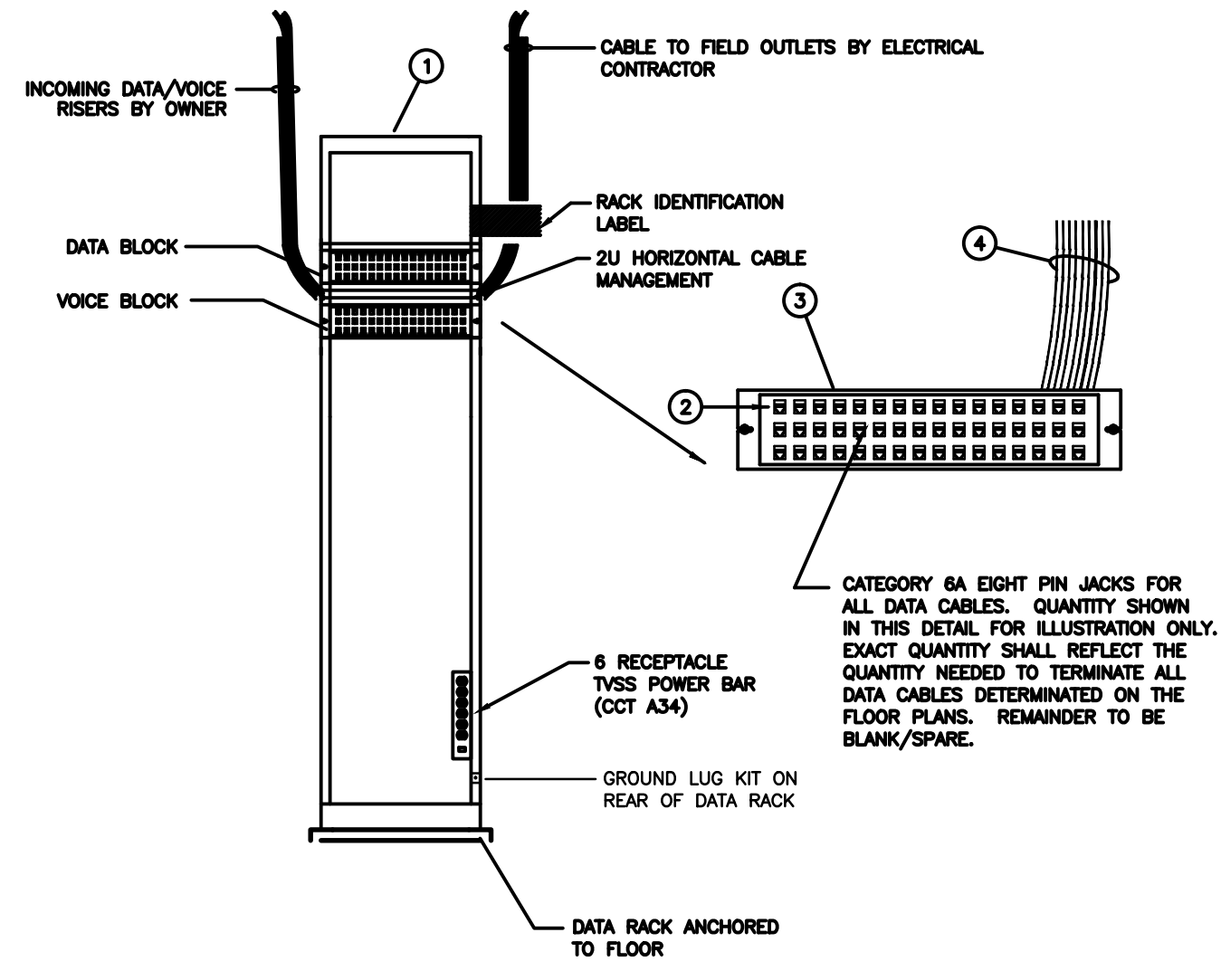




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E3  
PANEL SCHEMATIC  
N.T.S.



2  
E3  
MAIN ELECTRICAL ROOM  
TELCO BOARD  
INCOMING TELCO PLYWOOD DETAIL  
N.T.S.



3  
E3  
DATA RACK DETAIL  
N.T.S.

- 1 DATA RACK: 2 POST STYLE FREE STANDING WITH FLOOR MOUNTING KIT, MINIMUM 3BU RACK UNITS, BLACK FINISH AND SUPPORT SHELF FOR OWNER'S MISCELLANEOUS EQUIPMENT. FRAME TO BE C/W ANTI-TIP PLATES ANCHORED TO FLOOR. MANUFACTURED BY MID ATLANTIC OR APPROVED EQUAL. PROVIDE MINIMUM #6 AWG INSULATED GROUND WIRE CONNECTED TO BUILDING GROUND BUS WITHIN THE DATA CLOSET.
- 2 MINIMUM (1) 24-PORT UNLOADED DATA PATCH PANEL. PATCH PANEL SHALL ACCEPT SAME INSERTS AS WALL PLATE OUTLET JACK INSERTS, REFER TO SPECIFICATIONS. THE INITIAL DATA PATCH PANEL SHALL BE MOUNTED JUST BELOW THE FIBRE TERMINATION TRAY NEAR THE TOP OF DATA EQUIPMENT RACK AS SHOWN WITH THE REMAINDER OF THE PATCH PANELS MOUNTED BELOW.
- 3 TYPICAL DATA CABLE SUPPORT BRACKETS MOUNTED IN REAR OF EACH DATA PATCH PANEL. CABLES SHALL BE STRAPPED TO THE SUPPORT BRACKETS TO REDUCE STRAIN ON THE INCOMING CABLES.
- 4 FIELD OUTLET CABLES TO DATA/VOICE WALL OUTLETS AND WORKSTATIONS. ALL DATA/VOICE CABLES SHALL BE CATEGORY 6A.

MOTOR & EQUIPMENT SCHEDULE

Item	Description	kW	H.P.	VoIt	Ø	F.L.A.	M.C.A.	Fuse	Brkr	Feeder	NOTES
DWH-1	DOMESTIC HOT WATER HEATER	-	-	120	1	-	-	-	-	-	4
SP-1	SUMP PUMP - MOTOR	0.248	-	120	1	-	-	-	-	-	4
	SUMP PUMP - ALARM	-	-	120	1	-	-	-	-	-	4
F-1	FURNACE	0.373	1/2	120	1	7.7	-	-	15A-1P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	1
F-2	FURNACE	0.373	1/2	120	1	7.7	-	-	15A-1P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	1
CU-1	CONDENSING UNIT	-	-	208	1	-	21.9	-	25A-2P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	3
CU-2	CONDENSING UNIT	-	-	208	1	-	21.9	-	25A-2P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	3
HRV-1	HEAT RECOVERY VENTILATOR	-	1/4	120	1	-	11.3	-	15A-1P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	2
BB-1	ELECTRICAL BASEBOARD	0.75	-	120	1	-	-	-	15A-1P	2 #12 AWG AC90 + #12 AWG INTEGRAL BOND	2
FF-1	ELECTRIC FAN FORCED HEATER	-	-	208	1	-	-	-	40A-2P	2 #8 AWG AC90 + #10 AWG INTEGRAL BOND	2
FF-2	ELECTRIC FAN FORCED HEATER	-	-	208	1	-	-	-	40A-2P	2 #8 AWG AC90 + #10 AWG INTEGRAL BOND	2
FF-3	ELECTRIC FAN FORCED HEATER	-	-	208	1	-	-	-	40A-2P	2 #8 AWG AC90 + #10 AWG INTEGRAL BOND	2
FF-4	ELECTRIC FAN FORCED HEATER	-	-	208	1	-	-	-	40A-2P	2 #8 AWG AC90 + #10 AWG INTEGRAL BOND	2

- MECHANICAL EQUIPMENT SCHEDULE NOTES
1. PROVIDE THERMAL DISCONNECT SWITCH ADJACENT TO MECHANICAL UNIT.
  2. PROVIDE LOCAL DISCONNECT ADJACENT TO THE MECHANICAL UNIT.
  3. PROVIDE LOCAL WEATHERPROOF DISCONNECT ADJACENT TO THE MECHANICAL UNIT.
  4. PLUG IN CONNECTION.

- MECHANICAL EQUIPMENT GENERAL NOTES
- ALL LOCATIONS FOR MECHANICAL EQUIPMENT ARE APPROXIMATE LOCATIONS ONLY. ELECTRICAL CONTRACTOR SHALL CONFIRM EXACT LOCATION ON SITE WITH MECHANICAL CONTRACTOR.
  - ALL EXTERIOR EQUIPMENT SHALL HAVE ELECTRICAL PROVISIONS SUITABLE FOR OUTDOOR APPLICATIONS AND SHALL BE WEATHERPROOF.



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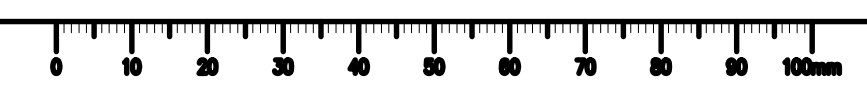
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PANEL SCHEMATICS

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
25/2015	E3	0

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**SPECIFICATIONS (continued)**

- THE TYPE SPECIFICALLY MANUFACTURED FOR COMMUNICATION CABLE AND INSTALLED WITH A MINIMUM SPACING OF 1200MM OC.
- ALL COPPER COMMUNICATION CABLES SHALL BE SUPPORTED WITH VELCRO STRAPS. CABLE TIES ARE UNACCEPTABLE.
  - CABLES SHALL NOT BE TIED TO MECHANICAL DUCTWORK, PIPING, STRUCTURAL MEMBERS OR ELECTRIC CONDUIT.
  - THE DATA CABLING CHANNEL SHALL NOT EXCEED FOUR (4) CONNECTIONS AND SHALL NOT EXCEED 90M.
  - DATA AND VOICE CONDUITS SHALL BE 27MM MINIMUM. DATA AND VOICE CONDUITS SHALL BE FILLED TO A MAXIMUM OF 40%.
  - CABLES SHALL BE INSTALLED IN SLEEVES WHERE THEY PASS THROUGH WALLS.
  - ALL RACEWAYS SHALL BE BONDED TO GROUND. CABLE SLEEVES 1.5 METRES IN LENGTH, OR LONGER, SHALL BE BONDED TO GROUND.
  - ALL CONDUITS AND SLEEVES SHALL HAVE SUITABLE BUSHINGS TO PROTECT CONDUCTORS OR CABLE FROM ABRASION.
  - DATA AND VOICE CABLING SHALL BE INSTALLED IN A COMMON BOX. OUTLET BOXES SHALL BE 100MM SQUARE BOXES. MULTIPLE BOXES SHALL NOT BE GANGED UNLESS NOTED OTHERWISE.
  - IN ALL WALL OUTLET BOXES, THE CONTRACTOR SHALL LEAVE 400MM LENGTH OF CABLE IN EACH BOX.
  - IN ALL WALL OR PAC POLE / WORKSTATION DROPS, LEAVE 300MM OF CABLE SLACK BEFORE ENTERING WALL OR WORKSTATION IN SUSPENDED CEILING.
  - ALL CABLE SHALL BE PULLED USING PROPER WIRE GRIPS. PULLING FORCE AND BEND RADIUS SHALL NOT EXCEED MANUFACTURER'S SPECIFICATIONS
  - WALL PLATES SHALL BE MANUFACTURED BY APPROVED MANUFACTURER AND SHALL BE COMBINATION OUTLETS FOR DATA AND VOICE. WALL PLATES SHALL HAVE INTEGRAL SELF-LABELING. THE WALL PLATES MUST SUPPORT UP TO FOUR (4) NETWORK DROPS. PROVIDE BLANK FILLER PLATES FOR UNUSED DROPS
  - SIX BLOCKS, PATCH PANELS, AND WALL PLATES SHALL HAVE INTEGRAL LABELING. SELF-ADHESIVE LABELS WILL NOT BE ACCEPTABLE. WALL PLATES SHALL HAVE SELF-ADHESIVE ICONS ADJACENT TO EACH JACK OF EITHER A TELEPHONE OR WORKSTATION TO ILLUSTRATE TYPE OF JACK.
  - CABLING SHALL BE LABELED WITH A LOGICAL NUMBERING SYSTEM WITH THE DROP ID NUMBER AT BOTH TERMINATION POINTS. LABELING SHALL BE NEATLY TYPED AND BE IN ACCORDANCE WITH TIA 600. CONFIRM IF OWNER HAS SPECIAL LABELING SYSTEM PRIOR TO INSTALLATION. IF OWNER HAS NO SET LABELING SYSTEM, CONFIRM CONTRACTOR SUGGESTED LABELING WITH OWNER OR CONSULTANT PRIOR TO ANY INSTALLATION. THE OWNER OR CONSULTANT MUST SIGN OFF ON LABELING PRIOR TO INSTALLATION; THIS SIGN-OFF SHALL BE INCLUDED IN THE MAINTENANCE MANUALS.
  - CABLE LABELS SHALL BE SELF-LAMINATING LABELS AS MANUFACTURED BY BURNDY OR PANDUIT.
  - FOR EACH NETWORK AND VOICE DROP INSTALLED, THE FOLLOWING DOCUMENTATION SHALL BE PROVIDED IN A THREE RING BINDER TO BE SUBMITTED WITH THE MAINTENANCE MANUALS. THIS INFORMATION MUST ALSO BE SUPPLIED IN ELECTRONIC FORMAT (MICROSOFT WORD OR MICROSOFT EXCEL)
    - ROOM NUMBER OF INSTALLATION
    - FLOOR NUMBER
    - WALL PLATE ID
    - TEST RESULTS WITH AN IDENTIFICATION OF TYPE OF TEST USED AND WHETHER THE RESULT WAS PASS OR FAIL
    - TYPE OF DROP, THAT IS, VOICE OR DATA
  - PROVIDE WITH MAINTENANCE MANUALS, A MARKED SET OF PRINTS ILLUSTRATING THE NETWORK DROP NAME FOR EACH DROP LOCATION. NO OTHER AS-BUILT INFORMATION SHALL BE PROVIDED ON THESE PRINTS UNLESS IT RELATES TO THE DATA OR VOICE NETWORK.

**ACCESS CONTROL**

**PART 1 GENERAL**

- GENERAL REQUIREMENTS
  - WHEREVER PRACTICAL AND REASONABLE, ALL CABINETS AND ELECTRICAL BOXES SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE ATTACHED FLOOR PLANS.
  - DRAWINGS SHOW CONDUIT CONNECTION REQUIREMENTS. ACTUAL CONDUIT RUNS SHALL RUN PARALLEL TO BUILDING LINES.
  - UNLESS SPECIFIED OTHERWISE, ALL CONDUITS SHALL BE SIZED ACCORDING TO THE NUMBER OF CABLES IN THE RUN. MAXIMUM CONDUIT FILL IS 50%.
  - UNLESS SPECIFIED OTHERWISE, ALL JUNCTION BOXES (J1, J2, J3, ETC.) SHALL BE STEEL AND SIZED ACCORDING TO THE NUMBER OF CONDUITS THEY MUST ACCOMMODATE.
  - UNLESS NOTED OTHERWISE, ALL CABLES PULLED TO AN A1, A2, A3, A4, A5 OR A6 BACKBOARD SHALL HAVE NO LESS THAN 6000MM OF CABLE SLACK IN THE SPLITTER TROUGH.
  - UNLESS NOTED OTHERWISE, ALL CABLES TERMINATING IN A DEVICE OR OUTLET BOX SHALL HAVE NO LESS THAN 600MM OF CABLE SLACK AT THE DEVICE/OUTLET BOX.
  - ALL CABLES TERMINATING IN A CABINET, A SPLITTER TROUGH, A DEVICE BOX, A UTILITY BOX OR AN OUTLET BOX SHALL BE LABELLED.
  - THE CONTRACTOR SHALL TEST ALL CABLES INSTALLED AS PART OF THIS CONTRACT FOR OPENS, GROUNDS AND SHORTS. THE CONTRACTOR SHALL REPLACE ANY CABLES FOUND TO BE DEFECTIVE BY THE OWNER.

**PART 2 MATERIALS & PRODUCTS**

- CONDUIT
  - UNLESS SPECIFIED OTHERWISE, ALL CONDUITS SHALL BE EMT.
- JUNCTION, OUTLET AND PULL BOXES
  - UNLESS SPECIFIED OTHERWISE, ALL OUTLET, DEVICE AND PULL BOXES SHALL BE STEEL.
- SPLITTER TROUGHS
  - SHEET METAL ENCLOSURE, WELDED CORNERS AND FORMED HINGED COVER SUITABLE FOR LOCKING IN CLOSED POSITION.
- GROUND BAR
  - HOFFMAN ASGB
- CABLE
  - ALL TELEPHONE TYPE (CAT3) CABLES SHALL BE NORDX D-INSIDE CABLE, 24 AWG, CMR, CATEGORY 3 SOLID COPPER WITH A GREY JACKET (OR EQUIVALENT).
  - ALL CATEGORY 5E (CAT5E) CABLES SHALL BE PROVO 24104L5E (OR EQUIVALENT).
  - ALL CATEGORY 6 (CAT6) CABLES SHALL BE PROVO 24104L6 (OR EQUIVALENT).
  - ALL LVT CABLES SHALL BE FOUR (4) CONDUCTOR #18 SOLID AWG STANDARD CONTROL LVT CABLE.
  - ALL R559 COAXIAL CABLE SHALL BE PROVO 5911 (OR EQUIVALENT).
  - ALL SIAMESE CABLE SHALL BE PROVO 5934A (OR EQUIVALENT).
  - ALL SINGLE PAIR SHIELDED CABLE SHALL BE PROVO 7722 CABLE (OR EQUIVALENT).

- CABLE (OR EQUIVALENT).
- ALL TWO PAIR SHIELDED CABLE SHALL BE PROVO 5402 (OR EQUIVALENT).
- PULL CORD/TAPE
    - POLYPROPYLENE TYPE, 200 LB TENSILE STRENGTH MINIMUM.
- PART 3 EXECUTION**
- (A2) SPLITTER TROUGH
- SUPPLY AND INSTALL ONE HOFFMAN AST383R 914W X 152H X 1140MM SPLITTER TROUGH CENTERED 2300MM A.F.F.
  - INSTALL A DUPLEX 120VAC RECEPTACLE 150MM TO THE RIGHT OF THE SPLITTER TROUGH:
    - DO NOT RUN 120VAC INSIDE THE SPLITTER TROUGH.
    - THIS DUPLEX RECEPTACLE SHALL BE WIRED TO A SEPARATE 120VAC CIRCUIT, ON ITS OWN BREAKER, WHICH IS CONNECTED TO EMERGENCY BACKUP POWER (WHEN AVAILABLE).
  - SUPPLY AND INSTALL TWO STRUCTURED WIRING/DATA OUTLETS MOUNTED 50MM BELOW THE SPLITTER TROUGH.
  - PROVIDE STRUCTURED CABLING FROM THE WIRING/DATA OUTLETS AND TERMINATE ON A PATCH PANEL IN THE BUILDING'S SERVER/ROUTER RACK.
  - PROVIDE PATCH CORDS AND CROSS CONNECT FROM PATCH PANEL TO AVAILABLE PORTS ON A DATA SWITCH.

- T2 \*T\* CABINET (300H X 300W X 100D)
- SUPPLY AND INSTALL ONE 300H X 300W X 100DMM TYPE 1 TELEPHONE CABINET WITH WOOD BACK (BEL PRODUCTS TCFK012124WB OR EQUIVALENT) MOUNTED 150MM ABOVE THE SUSPENDED CEILING ON THE PROTECTED SIDE OF THE WALL. IF THE CEILING IS FINISHED, THE CABINET SHOULD BE MOUNTED 225MM ABOVE THE STRIKE SIDE OF THE FRAME ON THE PROTECTED SIDE OF THE WALL. SEE ATTACHED DETAIL DRAWINGS FOR ACCESS CONTROLLED DOORS.
  - CABINET MUST BE ACCESSIBLE AND SERVICEABLE.
  - SUPPLY AND INSTALL CONDUIT, SIZED TO FIT CABLES, FROM THIS CABINET TO THE A2 SPLITTER TROUGH (AS PER FLOOR PLANS).
  - SUPPLY, INSTALL AND LABEL ONE PROVO 6708 CABLE (OR EQUIVALENT) AND ONE 4 CONDUCTOR 18 AWG SOLID COPPER LVT CABLE IN THE CONDUIT FROM THE T2 CABINET TO THE A2 SPLITTER TROUGH.

- NOTE:**
- SUPPLY NO LESS THAN 6000MM OF CABLE SLACK AT THE A2 SPLITTER TROUGH.

- (12) SQUARE OUTLET BOX
- SUPPLY AND HAVE DOOR-FRAME FABRICATOR SPOT WELD ONE 100H X 100W X 40DMM SQUARE OUTLET BOX ON TOP OF THE DOOR FRAME AS PER ATTACHED DETAIL DRAWING(S) FOR ACCESS CONTROLLED DOORS.
  - DRILL A 19MM HOLE 75MM (CENTER POINT) FROM THE EDGE OF THE DOOR CASING TO ALLOW FOR DOOR SWITCH INSTALLATION AND ACCESS TO FRAME MOUNTED OUTLET BOX.
  - SUPPLY AND INSTALL CONDUIT FROM THE OUTLET BOX IN THE DOOR FRAME TO A T2 CABINET IN THE AREA (AS PER FLOOR PLAN).
  - SUPPLY, INSTALL AND LABEL ONE 4 PAIR TELEPHONE (CAT3) CABLE IN THE CONDUIT FROM THE OUTLET BOX IN THE DOOR FRAME TO THE T2 CABINET.
  - THE CABLE SLACK AT THE OUTLET BOX IN THE DOOR FRAME SHALL BE TUCKED INTO THE OUTLET BOX TO PROTECT THE CABLE FROM DAMAGE.

- (31) CONDUIT TO ELECTRIC STRIKE
- SUPPLY AND INSTALL CONDUIT FROM A POINT 25MM ABOVE THE STRIKE PLATE INSIDE THE DOOR FRAME TO A T2 CABINET IN THE AREA (AS PER FLOOR PLANS).
  - SUPPLY, INSTALL AND LABEL ONE 4 PAIR TELEPHONE (CAT3) CABLE IN THE CONDUIT FROM THE DOOR FRAME TO THE T2 CABINET. LEAVE 600MM OF SLACK INSIDE THE DOOR FRAME.

- NOTE:**
- FOR MORE INFORMATION, SEE ATTACHED DETAIL DRAWING(S) FOR ACCESS CONTROLLED DOORS.

- (44) DEVICE BOX
- SUPPLY AND INSTALL ONE RECESSED 76H X 50W X 63DMM SINGLE GANG DEVICE BOX C/W BLANK COVER PLATE CENTERED 100MM ABOVE THE TOP OF THE DOOR FRAME ON THE PROTECTED SIDE OF THE WALL AS PER ATTACHED DETAIL DRAWING(S) FOR ACCESS CONTROLLED DOORS.
  - SUPPLY AND INSTALL CONDUIT FROM THIS DEVICE BOX TO A T2 CABINET IN THE AREA (AS PER FLOOR PLANS).
  - SUPPLY, INSTALL AND LABEL ONE 4 PAIR TELEPHONE (CAT3) CABLE IN THE CONDUIT FROM THIS DEVICE BOX TO THE T2 CABINET.

- (61) DEVICE BOX
- SUPPLY AND INSTALL ONE RECESSED 76H X 50W X 63DMM SINGLE GANG DEVICE BOX C/W BLANK COVER PLATE CENTERED 1300MM A.F.F.
  - SUPPLY AND INSTALL CONDUIT FROM THIS DEVICE BOX TO A T2 CABINET IN THE AREA (AS PER FLOOR PLANS).
  - SUPPLY, INSTALL AND LABEL ONE PROVO 6708 CABLE (OR EQUIVALENT) IN THE CONDUIT FROM THIS DEVICE BOX TO THE T2 CABINET.

- NOTE:**
- FOR MORE INFORMATION, SEE ATTACHED DETAIL DRAWING(S) FOR ACCESS CONTROL ON DOORS WITH WALL MOUNTED READERS.

**LIGHTING SCHEDULE**

FIXTURE TYPE 'AA'  
 LUMINAIRE: FLUORESCENT WALL MOUNT, 1219MM LENGTH, FIXTURE FRAME IN WHITE FINISH, SMOOTH OPALESCENT ACRYLIC DIFFUSER. MOUNT UP 150MM ABOVE VANITY MIRROR.  
 LAMPS: 1 X F28 WATT T5 LAMP  
 BALLAST: PROGRAM START ELECTRONIC BALLAST, 120-VOLT.  
 MANUFACTURER:  
 COOPER METALUX #BC SERIES  
 LITHONIA #WC SERIES  
 PHILIPS DAY-BRITE #CSW SERIES  
 COLUMBIA LIGHTING #W SERIES  
 OR APPROVED EQUAL.

FIXTURE TYPE 'BB'  
 LUMINAIRE: RECESSED FLUORESCENT FIXTURE SUITABLE FOR INVERTED CEILING, 610 X 610MM, HINGED EXTRUDED STEEL FLAT FRAME, K12 ACRYLIC DIFFUSER (0.125" NOMINAL).  
 LAMPS: 3 X 14 WATT T5 LAMPS  
 BALLAST: INSTANT START ELECTRONIC BALLAST, 120-VOLT.  
 MANUFACTURER:  
 STANPRO # F3T5B SERIES  
 OR APPROVED EQUAL.

FIXTURE TYPE 'A'  
 LUMINAIRE: RECESSED LED FIXTURE SUITABLE FOR WET LOCATION, FULLY GASKETED WITH LENS, 150MM DIAMETER APERTURE, ALUMINUM REFLECTOR WITH WHITE TRIM.  
 LAMP: 20 WATT, 1100 LUMEN LED MODULE WITH REMOTE PHOSPHOR TECHNOLOGY, 4100K, 80 CR1, 50000 HOURS AT 70% LUMEN MAINTENANCE, DRIVER: OVER-VOLTAGE, OVER-CURRENT AND SHORT-CIRCUIT PROTECTED, 120 VOLT, < 20% THD, DIMMABLE.  
 MANUFACTURERS:  
 PRESCOLITE "LF6LED" SERIES  
 CONVENTRY "6VLED" SERIES  
 MAXILUME "HV6 LED" SERIES  
 OR APPROVED EQUAL.

TYPE 'EX' - EXISTING FIXTURE TO REMAIN.  
 TYPE 'REM' - EXISTING FIXTURE TO BE REMOVED.  
 TYPE 'REL' - RELOCATED FIXTURE.

**EXIT LIGHTING:**

TYPE 'X' - EXIT SIGN FIXTURES SHALL BE LED (LIGHTING EMITTING DIODES), SOLID STATE DESIGN WITH HIGH OUTPUT LED'S PER FACE FOR A MAXIMUM 2 WATTS PER SIGN, 120 VOLT. PROVIDE AN EMERGENCY 12 VOLT DC SOCKET FED FROM TYPE "EM2" OR "EM1" EMERGENCY BATTERY UNITS. ALUMINUM HOUSING IN WHITE FINISH, ACRYLIC BARRIER, THREE GREEN "RUNNING MAN" PICTOGRAMS FOR DIRECTION SELECTION (STRAIGHT, LEFT AND RIGHT), UNIVERSAL MOUNTING, AND SHALL HAVE A MINIMUM FIVE YEAR WARRANTY. EXIT SIGNS SHALL BE LISTED BY CSA TO COMPLY WITH STANDARD CSA C860.

EXIT SIGN MANUFACTURERS:  
 READY-LITE 'RA' SERIES, BEGHELLI 'QUADRA' RM SERIES, EMERGI-LITE EA SERIES

**EMERGENCY LIGHTING UNITS LIGHTING:**

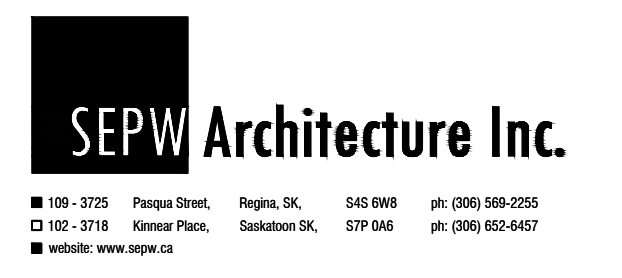
THE FOLLOWING SPECIFICATION SHALL APPLY TO THE EMERGENCY LIGHTING UNITS.

LIGHTING SHALL BE SURFACE WALL MOUNTED UP AS HIGH AS POSSIBLE UNLESS OTHERWISE NOTED. EMERGENCY LIGHTING UNIT SHALL BE BATTERY CONTAINED MASTER UNITS WITH A COMBINATION OF HEADS CONNECTED AS INDICATED ON DRAWINGS. ALL EMERGENCY LIGHTING UNITS SHALL BE ADJUSTED ON SITE TO PROVIDE OPTIMUM LIGHTING WITHIN THE AREA WITH AN EMPHASIS DIRECTED AT ILLUMINATING THE MEANS OF EGRESS TOWARDS THE EXIT. CONNECT INTO LOCAL AREA LIGHTING CIRCUIT.

FIXTURE TYPE 'EM1' - EMERGENCY LIGHTING UNIT, 1 X 6 WATT 12 VOLT MR16 LED LAMPS, 108 WATT CAPACITY FOR 60 MINUTES MINIMUM UNDER FULL LOAD, SEALED LONG LIFE BATTERY WITH 10 YEAR LIFE EXPECTANCY, SOLID STATE CHARGER AND BATTERY PROTECTION CIRCUIT. HOUSING IN WHITE FINISH.  
 EMERGE-LITE ESL SERIES  
 READY-LITE LDX SERIES  
 BEGHELLI NOVA  
 OR APPROVED EQUAL

FIXTURE TYPE "ER1" - EMERGENCY LIGHTING REMOTE UNIT POWERED FROM FIXTURE TYPE "EM2" OR "EM1" AS INDICATED, 1 x 6 WATT, 12 VOLT LED LAMPS MOUNTED IN A SINGLE LUMINAIRE WITH FROSTED POLYCARBONATE UNITS TO MATCH MASTER UNIT.

FIXTURE TYPE "ER2" - EMERGENCY LIGHTING REMOTE UNIT POWERED FROM FIXTURE TYPE "EM2" OR "EM1" AS INDICATED, 2 x 6 WATT, 12 VOLT LED LAMPS MOUNTED IN A DOUBLE LUMINAIRE WITH FROSTED POLYCARBONATE UNITS TO MATCH MASTER UNIT.



ASSOCIATION OF PROFESSIONAL ENGINEERS  
 OF SASKATCHEWAN  
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 RITENBURG & ASSOCIATES LTD.  
 NUMBER 52  
 PERMISSION TO CONSULT HELD BY:  
 DISCIPLINE: ELECTRICAL SASK. REG. No. 9273 SIGNATURE: [Signature]

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Revision/Édition	Description/Description	Date/Date
Client/client		

Project title/Titre du projet  
**REGINA, SASKATCHEWAN**  
**RTM TRANSPORT STAFF BUILDING RENOVATION PACKAGE**

Approved by/Approve par  
 Designated by/Concept par  
 BDK/SBK  
 Drawn by/Dessiné par  
 BDK  
 Project Manager/Administrateur de Projets

Architectural and Engineering Resources Manager/  
 Ressources Architecturales et de l'ingénieur

Client/client

Drawing title/Titre du dessin  
**SPECIFICATIONS**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
25/2015	E4.2	0



DRAWING PLOTTED: 2016-01-14 10:00 AM  
 FILE NAME: T:\2015\EA1-E4.2\_specs.dwg  
 DRAWING: EA2

