

Electrical Level 3



Commercial Electrical Services 26308-14



Objectives

When trainees have completed this lesson, they should be able to do the following:

1. Describe various types of electric services for commercial and industrial installations.
2. Read electrical diagrams describing service installations.
3. Select service-entrance equipment for various applications.
4. Explain the role of the *National Electrical Code*® in service installations.
5. Install main disconnect switches, panelboards, and overcurrent protection devices.
6. Identify the *National Electrical Code*® requirements and purposes of service grounding.
7. Describe single-phase service connections.
8. Describe both wye- and delta-connected three-phase services.

This is a knowledge-based module; there are no Performance Tasks.



1.0.0 – 3.0.0

Next Session... Drawings and Specifications; General Installation Requirements

- Service equipment consists of conduit and conductors, the panelboard, and the overcurrent protective devices.
- All distribution equipment is labeled with the maximum voltage and current ratings.

Service Components



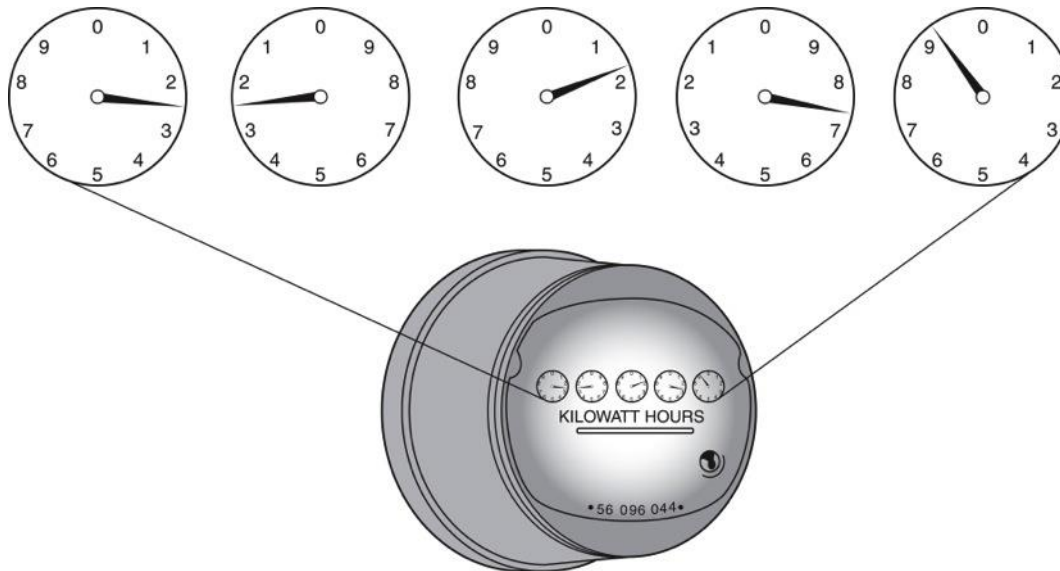
26308-14_F01.EPS



4.0.0 – 4.7.0

Service Components

- Electricians normally install the meter enclosure and the meter itself is installed by the utility company.
- Most modern meters are digital. Older dial-type meters are read from left to right.



26308-14_F02.EPS



4.0.0 – 4.7.0

Clamp-On Ammeters Operate on the Same Principle as Doughnut-Type Current Transformers

- Services rated 400A and above typically use a group of current transformers, one for each ungrounded conductor or set of conductors.
- There are two basic types of current transformer: the busbar type and the doughnut type. The doughnut type operates much in the same way as a clamp-on ammeter.

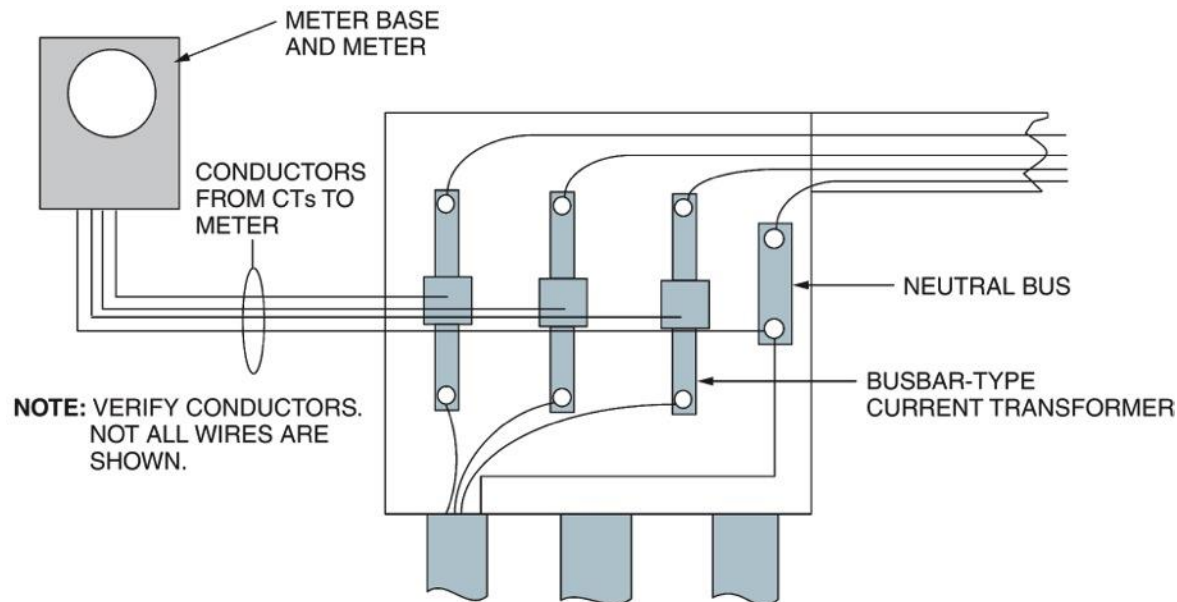


26308-14_F03.EPS

4.0.0 – 4.7.0

Typical CT Cabinet Arrangement

- Current transformers may be mounted on overhead conductors but are normally enclosed in a CT cabinet.
- Utility companies have specifications for the location and wiring of CTs and CT cabinets.



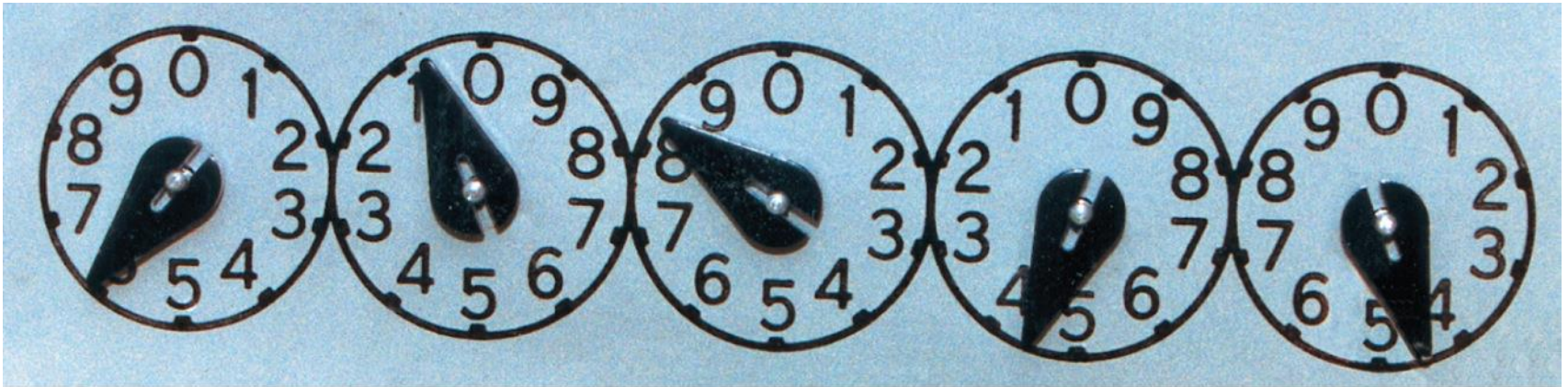
26308-14_F04.EPS



4.0.0 – 4.7.0

Think About It – Reading a Watt-Hour Meter

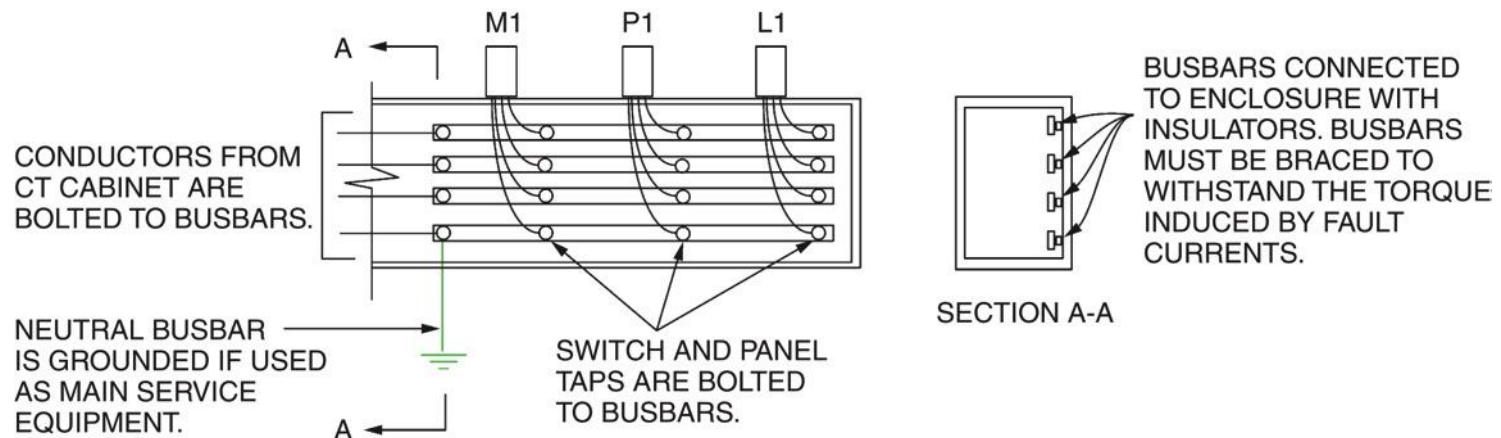
What is the reading on this meter?



26308-14_SA02.EPS

Three-Phase Busway

- A busway is a grounded metal enclosure containing factory-mounted bare or insulated conductors, which are usually copper or aluminum bars, rods, and tubes.
- Busways are one of the most common wiring methods for multi-switch service installations. **NEC Article 368** lists the installation requirements for bussted gutters.



4.0.0 – 4.7.0

Next Session... Typical Busbar Bracing

- Fault currents can induce tremendous torque in conductors carrying the fault. Busbars must be braced to withstand fault currents likely to be imposed.
- Larger available fault currents require more substantial bracing at closer intervals.

NEC® Requirements



26308-14_F06.EPS

5.0.0 – 5.4.0

NEC[®] Requirements

- **NEC Article 230** lists the requirements for service installations.
- **NEC Article 250** covers the requirements for grounding and bonding of electrical services. The required grounding electrode conductor sizes for various service-entrance conductors are shown here.

| Size of Largest Service-Entrance Conductor or Equivalent for Parallel Conductors | | Size of Grounding Electrode Conductor | |
|---|--------------------------------------|---------------------------------------|--------------------------------------|
| Copper | Aluminum or Copper- Clad Aluminum | Copper | Aluminum or Copper- Clad Aluminum |
| 2 or smaller | 1/0 or smaller | 8 | 6 |
| 1 or 1/0 | 2/0 or 3/0 | 6 | 4 |
| 2/0 or 3/0 | 4/0 or 250 kcmil | 4 | 2 |
| Over 3/0 through 350 kcrhi | Over 250 kcmil through 500 kcrhi | 2 | 1/0 |
| Over 350 kcmil through 600 kcrhi | Over 500 kcmil through 900 kcrhi | 1/0 | 3/0 |
| Over 600 kcmil through 1,100 kcrhi | Over 900 kcmil through 1,750 kcrhi | 2/0 | 4/0 |
| Over 1,100 kcmil | Over 1,750 kcmil | 3/0 | 250 kcmil |

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6.0.0 – 6.5.0

Typical Installations

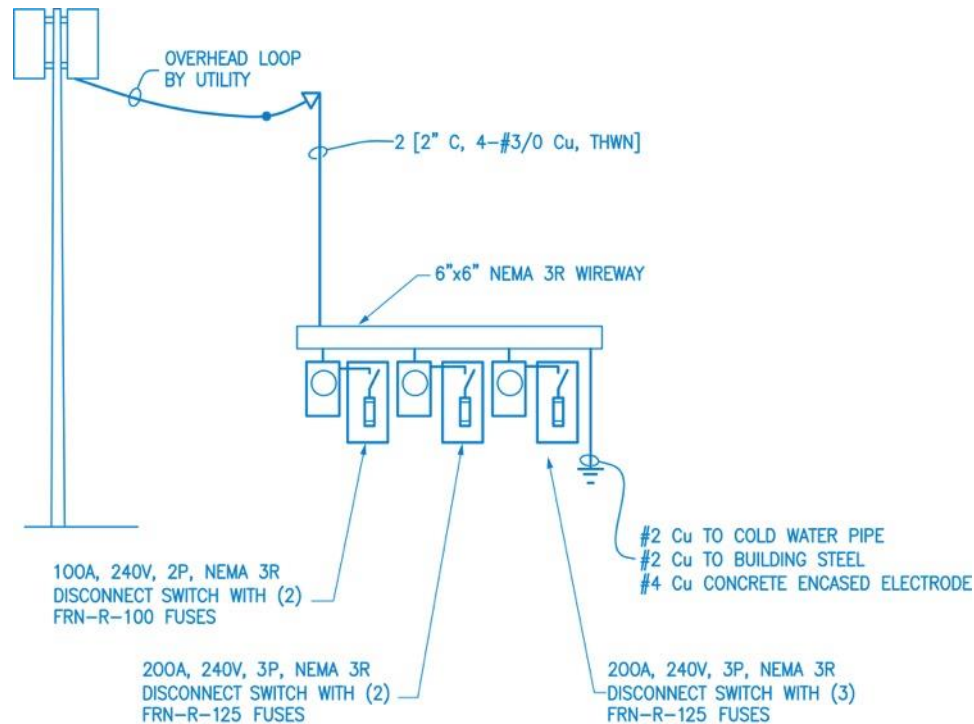
- This is an overhead 208Y/120V service rated at 400A with two parallel conductors that terminate in a wireway.
- Note that drips loops have been installed per **NEC Section 230.54(F)**.



26308-14_F07.EPS

6.0.0 – 6.5.0

One-Line Diagram for Overhead Service



ONE-LINE DIAGRAM

208Y/120V 3Ø, 4W SERVICE USING A WIREWAY AND FUSED DISCONNECT SWITCHES. NOTE THAT SINGLE-PHASE AND THREE-PHASE TENANTS ARE CONNECTED TO THE SAME SERVICE EQUIPMENT.

26308-14_F08.EPS



6.0.0 – 6.5.0

Underground Wireway Service

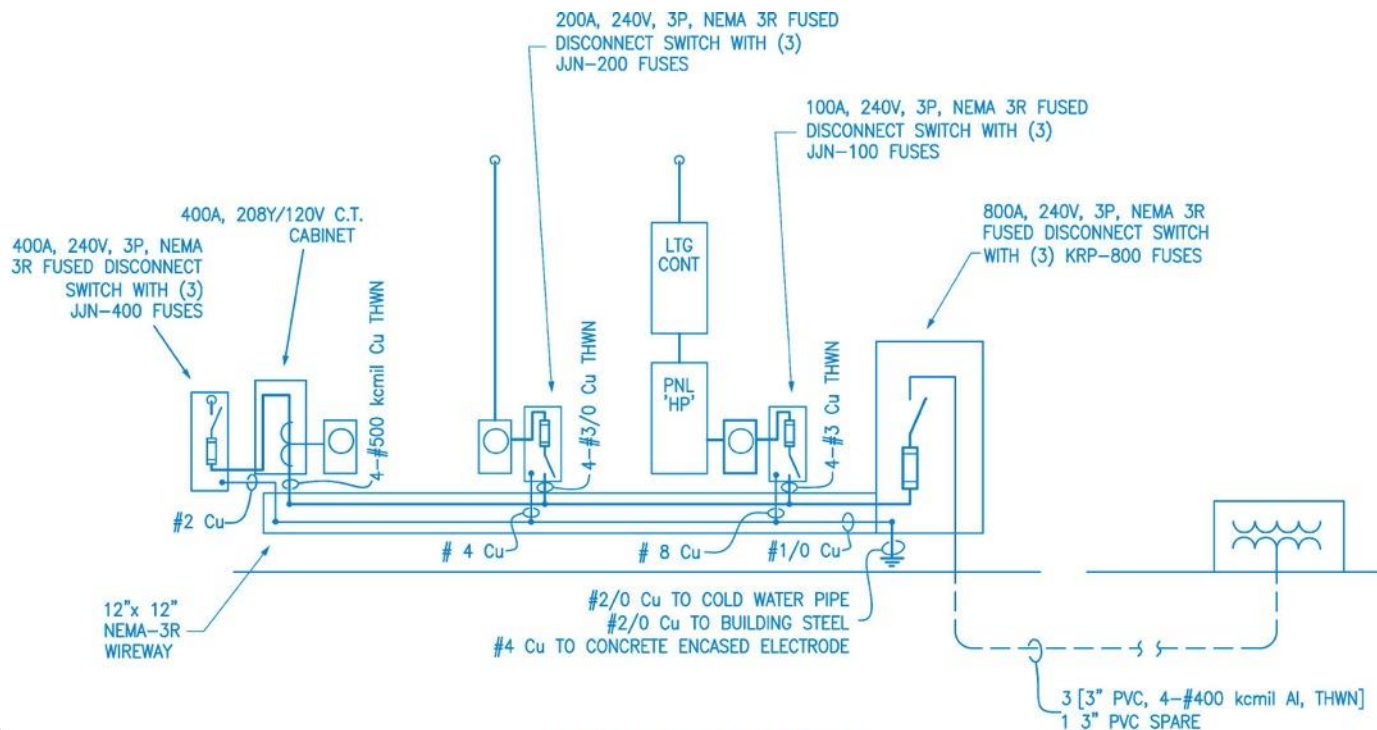
- This is a 208Y/120V service rated at 800A with three parallel four-wire cables run in underground conduit.
- The conductors terminate in a main service disconnect, with tenant service disconnects connected to the wireway using EMT conduit and Myers-type hubs.



26308-14_F09.EPS

6.0.0 – 6.5.0

One-Line Diagram for an Underground Wireway Service



ONE-LINE DIAGRAM

208Y/120V 3Ø, 4W SERVICE USING A WIREWAY AND FUSED DISCONNECT SWITCHES.

26308-14_F101EFS



6.0.0 – 6.5.0

Underground Bussed Gutter Service

- This is a 208Y/120V three-phase service rated at 800A with two parallel three-wire cables terminating in a busse gutter.
- The service disconnects are connected to the busse gutter with RGS nipples and the conductors are terminated using mechanical lugs.



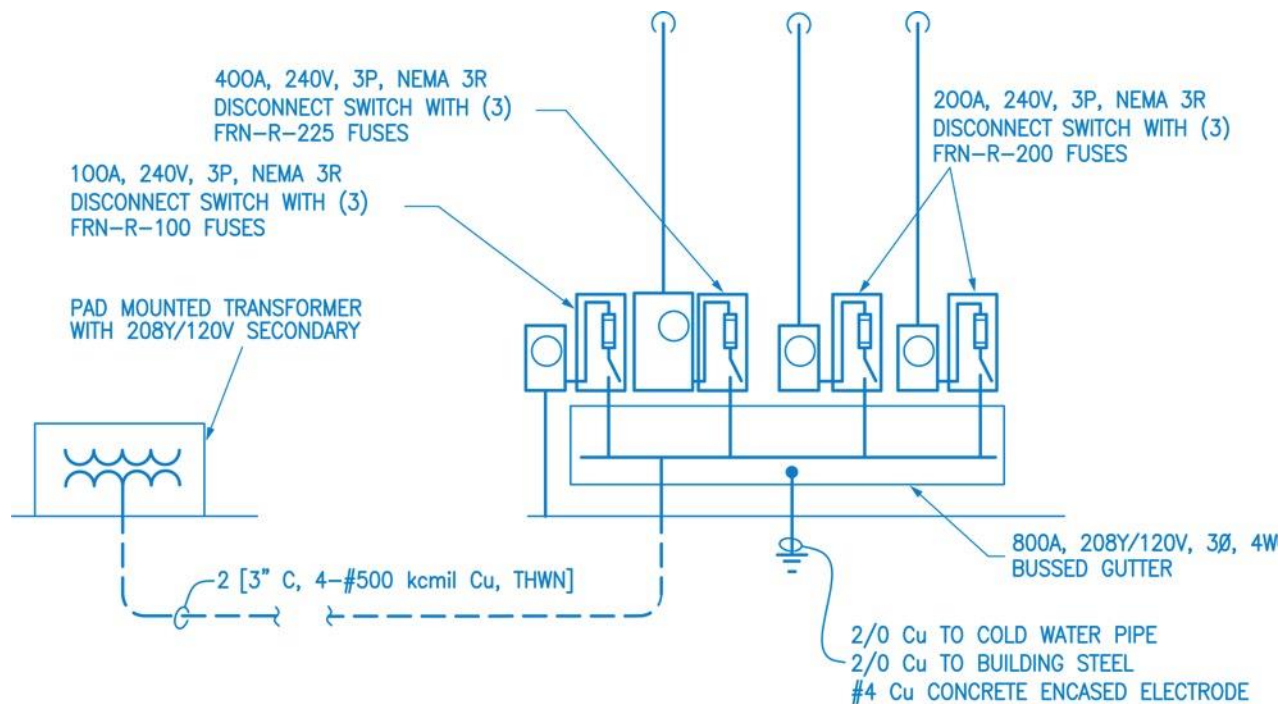
26308-14_F11A.EPS



26308-14_F11B.EPS

6.0.0 – 6.5.0

One-Line Diagram for an Underground Bussed Gutter Service



ONE-LINE DIAGRAM

208Y/120V 3Ø, 4W SERVICE USING A
BUSSED GUTTER AND FUSED
DISCONNECT SWITCHES

26308-14_F12.EPS



6.0.0 – 6.5.0

MSB and SSB Switchgear Service

- This is a 480Y/277V service rated at 2,000A with seven parallel four-wire cables run in underground conduit to switchgear.
- The service-entrance conductors enter underground and are terminated in a CT metering section that is part of the panel main switchboard (MSB).



26308-14_F13.EPS



6.0.0 – 6.5.0

Panelboards

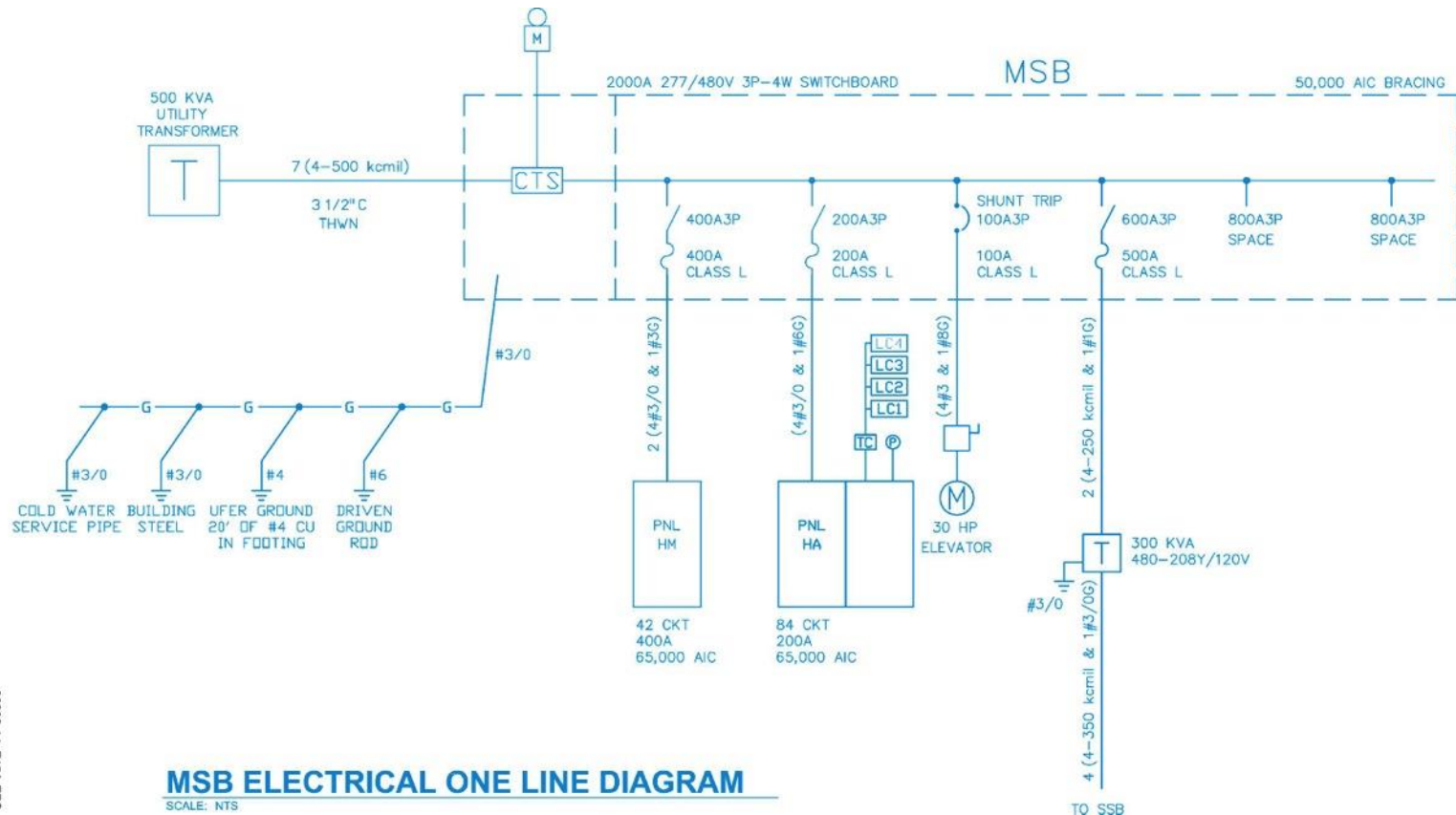
- The bus carries current through the switchgear to fusible disconnects supplying power to panelboards serving mechanical equipment loads, a lighting panelboard, a transformer, and a shunt-trip circuit breaker supplying an elevator.
- All of the equipment is rated for indoor use.



26308-14_F14.EPS

6.0.0 – 6.5.0

One-Line Diagram for MSB and SSB Switchgear Service



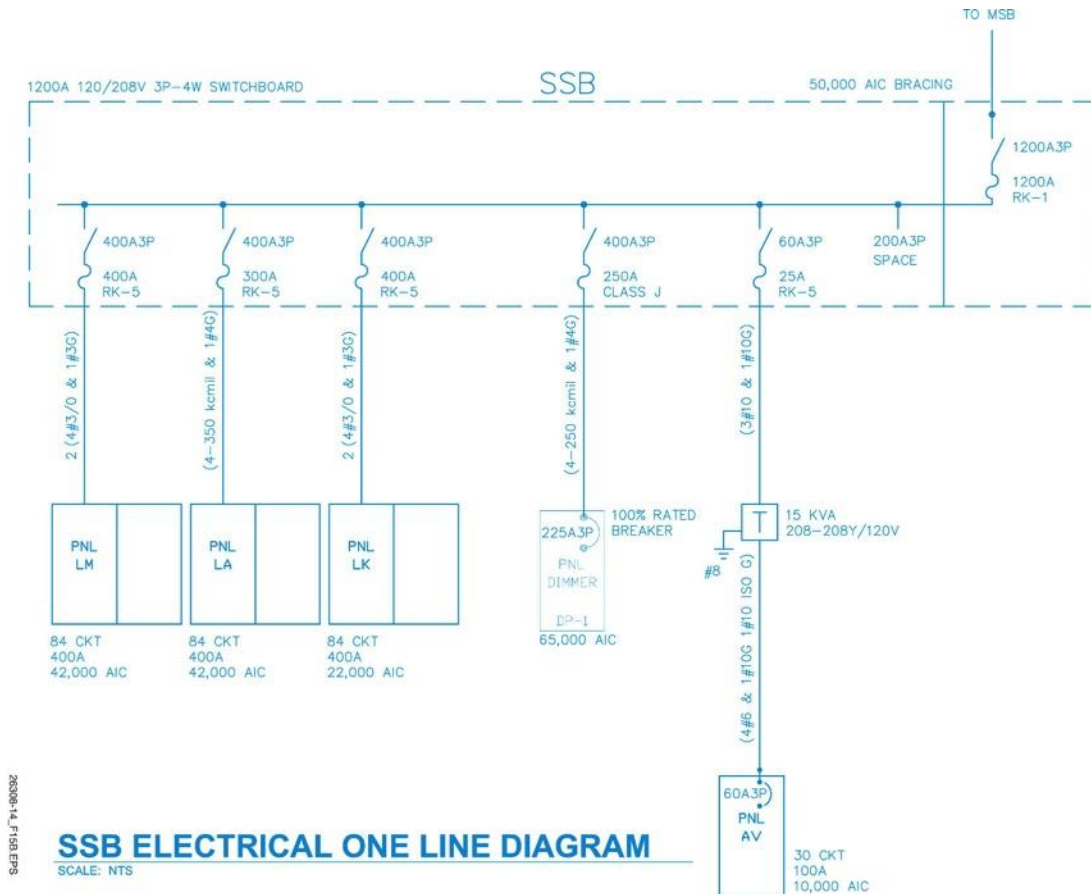
26308-14_F15A.EPS

MSB ELECTRICAL ONE LINE DIAGRAM
SCALE: NTS



6.0.0 – 6.5.0

One-Line Diagram for MSB and SSB Switchgear Service



6.0.0 – 6.5.0

Panel Schedules for a 480Y/277V Panelboard and a 208Y/120V Panelboard

| PANEL SCHEDULE | | | | | | | | | | | | | | | | | | | |
|-------------------------------|------|------|-----------|-----------|---------------------------------|--------------------------|---------|-------|---------|----------------------|------------------|-----------|-----------|------|--------|------|--|--|--|
| PANEL NAME | | | | | | | | | | HA | | | | | | | | | |
| PROJECT: CROSSROADS CHURCH | | | | | VOLTAGE L-L (V): 480 | | | | | | | | | | | | | | |
| JOB NO.: M-1994 | | | | | VOLTAGE L-N (V): 277 | | | | | | | | | | | | | | |
| LOCATION: ELECTRICAL ROOM | | | | | TYPE: 3P 4W | | | | | | | | | | | | | | |
| MINIMUM BUS CAPACITY (A): 200 | | | | | SHORT CIRCUIT RATING (A): 65000 | | | | | | | | | | | | | | |
| MAIN O.C. DEVICE (A): MLO | | | | | MOUNTING: SURFACE | | | | | | | | | | | | | | |
| DESIGN CAPACITY (A): 200 | | | | | COMMENT: | | | | | | | | | | | | | | |
| DEVICE | AMPS | POLE | LTNG (VA) | RCPT (VA) | M/L/M/E/A/S (VA) | DESCRIPTION | CKT NO. | PHASE | CKT NO. | DESCRIPTION | M/L/M/E/A/S (VA) | RCPT (VA) | LTNG (VA) | POLE | DEVICE | AMPS | | | |
| 20 | 1 | 1200 | | | | SE MONUMENT SIGN | 1 | A | 2 | N DRIVE SITE LTG | | | 2530 | 2 | 20 | | | | |
| 20 | 1 | 1200 | | | | E MONUMENT SIGN | 3 | B | 4 | / | | | 2530 | / | / | | | | |
| 20 | 1 | 1200 | | | | E MONUMENT SIGN | 5 | C | 6 | SE DRIVE SITE LTG | | | 1610 | 2 | 20 | | | | |
| 20 | 1 | 1032 | | | | BLOG ACCENT LTG | 7 | A | 8 | / | | | 1610 | / | / | | | | |
| 20 | 1 | 100 | | | | TREE ACCENT LTG | 9 | B | 10 | W PARKING LOT LTG | | | 3220 | 2 | 20 | | | | |
| 20 | 1 | 683 | | | | ARCADE DOWN LTG | 11 | C | 12 | / | | | 3220 | / | / | | | | |
| 20 | 1 | 394 | | | | ARCADE ACCENT LTG | 13 | A | 14 | SPARE | | | | 2 | 20 | | | | |
| 20 | 1 | 200 | | | | ENTRY LTG | 15 | B | 16 | / | | | | / | / | | | | |
| 20 | 1 | 3795 | | | | CLASSRM #139-#147 LTG | 17 | C | 18 | SPARE | | | | 2 | 20 | | | | |
| 20 | 1 | 3566 | | | | CORRSTORRR/CSRM LTG | 19 | A | 20 | / | | | | / | / | | | | |
| 20 | 1 | 4094 | | | | 1ST FLR NE LTG | 21 | B | 22 | EXTER WALLMNT LTG | | | 72 | 1 | 20 | | | | |
| 20 | 1 | 2800 | | | | NARTH EX LTG | 23 | C | 24 | EXTER WALLMNT LTG | | | 459 | 1 | 20 | | | | |
| 20 | 1 | 3108 | | | | 1ST FLR NW LTG | 25 | A | 26 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | 3670 | | | | 1ST FLR N LTG | 27 | B | 28 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 29 | C | 30 | MULTI RM LTG STEP1 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 31 | A | 32 | MULTI RM LTG STEP2 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 33 | B | 34 | MULTI RM LTG STEP3 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 35 | C | 36 | MULTI RM LTG STEP 4 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | 2975 | | | | 2ND FLR BEV/STAR/CORR LT | 37 | A | 38 | MULTI RM LTG STEP1 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | 2607 | | | | 2ND FLR S LTG | 39 | B | 40 | MULTI RM LTG STEP2 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | 2935 | | | | 2ND FLR S LTG | 41 | C | 42 | MULTI RM LTG STEP3 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | 2614 | | | | 2ND FLR NE LTG | 43 | A | 44 | MULTI RM LTG STEP 4 | | | 1680 | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 45 | B | 46 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 47 | C | 48 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 49 | A | 50 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 51 | B | 52 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 53 | C | 54 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 55 | A | 56 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 57 | B | 58 | SPARE | | | | 1 | 20 | | | | |
| 20 | 1 | | | | | SPARE | 59 | C | 60 | SPARE | | | | 1 | 20 | | | | |
| CONNECTED VA PHASE A: | | | | | 24069 | | | | | DEMANDED VA PHASE A: | | | | | 30086 | | | | |
| CONNECTED VA PHASE B: | | | | | 21053 | | | | | DEMANDED VA PHASE B: | | | | | 26316 | | | | |
| CONNECTED VA PHASE C: | | | | | 21742 | | | | | DEMANDED VA PHASE C: | | | | | 27178 | | | | |
| LIGHTING LOAD: | | | | | CONNECTED | | | | | D.F. | | | | | DEMAND | | | | |
| RECEPTACLE (FIRST 10 KVA) | | | | | 66864 | | | | | 1.25 | | | | | 83580 | | | | |
| RECEPTACLE (REMAINDER) | | | | | 0 | | | | | 1.00 | | | | | 0 | | | | |
| LARGEST MOTOR: | | | | | 0 | | | | | 0.50 | | | | | 0 | | | | |
| REMAINING MOTORS: | | | | | 0 | | | | | 1.25 | | | | | 0 | | | | |
| APPLIANCES: | | | | | 0 | | | | | 1.00 | | | | | 0 | | | | |
| EQUIPMENT: | | | | | 0 | | | | | 0.65 | | | | | 0 | | | | |
| SUB FED PANEL: | | | | | 0 | | | | | 1.00 | | | | | 0 | | | | |
| SUB FED PANEL: | | | | | 0 | | | | | 1.00 | | | | | 0 | | | | |
| TOTAL: | | | | | 66864 | | | | | | | | | | 83580 | | | | |
| LOAD (AMPS): | | | | | 80.4 | | | | | | | | | | 100.5 | | | | |
| M = MOTOR | | | | | E = EQUIPMENT | | | | | S = SUB FED PANEL | | | | | | | | | |
| LM = LARGEST MOTOR | | | | | A = APPLIANCE | | | | | | | | | | | | | | |
| NOTES: | | | | | | | | | | | | | | | | | | | |
| 1 CONTROL VIA CONTACTOR | | | | | | | | | | | | | | | | | | | |

26308-14_F16A.EPS



6.0.0 – 6.5.0

Panel Schedules for a 480Y/277V Panelboard and a 208Y/120V Panelboard

| PANEL SCHEDULE | | | | | | | | | | | | | | | | | | | |
|------------------------------|-----|------|------|-------------|---------------------------------|-----|------|---------------------|-------------|----------------------|------|--------|----|--|--------|--|--|--|--|
| PANEL NAME | | | | | LA | | | | | | | | | | | | | | |
| PROJECT: CROSSROADS CHURCH | | | | | VOLTAGE L-L (V): 208 | | | | | | | | | | | | | | |
| JOB NO.: M-1904 | | | | | VOLTAGE L-N (V): 120 | | | | | | | | | | | | | | |
| LOCATION: ELECTRICAL ROOM | | | | | TYPE: 3P 4W | | | | | | | | | | | | | | |
| WIRING BUS CAPACITY (A): 400 | | | | | SHORT CIRCUIT RATING (A): 42000 | | | | | | | | | | | | | | |
| MAIN O.C. DEVICE (A): MLO | | | | | MOUNTING: SURFACE | | | | | | | | | | | | | | |
| DESIGN CAPACITY (A): 300 | | | | | COMMENTS: | | | | | | | | | | | | | | |
| DEVICE | AMP | LYNG | RCPT | M/L/M/E/A/S | DESCRIPTION | CKT | CKT | DESCRIPTION | M/L/M/E/A/S | RCPT | LYNG | DEVICE | | | | | | | |
| | | | | (VA) | (VA) | NO. | NO. | (VA) | (VA) | (VA) | | AMPS | | | | | | | |
| 20 | 1 | | | 720 | CLASSRM #140 | 3 | A 2 | TOILET #145 | M 244 | 180 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 900 | CLASSRM #140 | 3 | B 4 | BWC-1B | | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | CLASSRM #143 | 5 | C 6 | TOILET #133 | | 180 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | CLASSRM #146 | 7 | A 8 | RESTROOMS #149/150 | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | CLASSRM #147 | 9 | B 10 | STORAGE #151 | | 540 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | YOOK BUS #15 | 11 | C 12 | CORRIDOR #125/129 | | 1440 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | NURSERY #131 | 13 | A 14 | MAINT WORKSH | | 720 | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 1582 | WASHER | 15 | B 16 | MAINT WORKSH | | 900 | 1 | 20 | | | | | | | |
| 50 | 2 | | | E 4800 | DRYER | 17 | C 18 | STORVEEC RM | | 720 | 1 | 20 | | | | | | | |
| 7 | 7 | | | E 4800 | | 19 | A 20 | YOUTH RM #124, #121 | | 1440 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | EXTERIOR RCPT | 21 | B 22 | SPARE | | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 720 | RESTROOM #119/120 | 23 | C 24 | WEL COME NARYTHX | | 1680 | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 244 | BWC-1A | 25 | A 26 | MULTI PURPOSE RM | | 900 | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 244 | BWC-1C | 27 | B 28 | MULTI PURPOSE RM | | 540 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | LOCKER/STOR/JAN | 29 | C 30 | STORAGE | | 900 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 555 | COFFEE BAR LYG | 31 | A 32 | PA SYSTEM | E 200 | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 740 | ENTRY LYG | 33 | B 34 | PA SYSTEM | E 200 | | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 1090 | ENTRY DOORS | 35 | C 36 | FIRE SMOKE DAMPERS | E 400 | | 1 | 20 | | | | | | | |
| 20 | 1 | | | LM 1656 | MOTORIZED HOOP | 37 | A 38 | SPARE | | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | YOUTH #224 / STORAGE | 39 | B 40 | SPARE | | | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 1656 | MOTORIZED HOOP | 41 | C 42 | SPARE | | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | CLASSRM #206 | 43 | A 44 | CONF RM #213 | | 540 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | CLASSRM #207 | 45 | B 46 | RECEP #214 | | 720 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1260 | CLASSRM #209 | 47 | C 48 | KITCHENETTE #211 | E 1000 | 180 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 900 | OFFICE #210A | 49 | A 50 | KITCHENETTE #211 | | 180 | 1 | 20 | | | | | | | |
| 20 | 1 | | | | SPARE | 51 | B 52 | WORK ROOM #212 | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | OFFICE #215/216 | 53 | C 54 | COPIER | E 1000 | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 900 | CLASSRM #204 | 55 | A 56 | TELECOMP RM #205 | | 1080 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 900 | CLASSRM #203 | 57 | B 58 | STAIRCORRIDOR | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 900 | STORAGE/EMERX RM | 59 | C 60 | RESTROOMS | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | YOUTH #225 | 61 | A 62 | BEV AREA | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 1080 | YOUTH #224 | 63 | B 64 | BEV AREA | | 540 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 72 | BEV AREA LYG | 65 | C 66 | CORRIDOR/BEV AREA | | 900 | 1 | 20 | | | | | | | |
| 20 | 1 | | | M 244 | BWC-1D | 67 | A 68 | SPARE | | 360 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 180 | PA SYSTEM | 69 | B 70 | SECURITY GRILL | M 1175 | | 1 | 20 | | | | | | | |
| 20 | 1 | | | 180 | PA SYSTEM | 71 | C 72 | YOUTH TRACK | | | 1600 | 1 | 20 | | | | | | |
| 20 | 1 | | | E 900 | BEV AREA REFRIG | 73 | A 74 | YOUTH TRACK | | | 1600 | 1 | 20 | | | | | | |
| 20 | 1 | | | | SPARE | 75 | B 76 | YOUTH TRACK | | | 1600 | 1 | 20 | | | | | | |
| 20 | 1 | | | | SPARE | 77 | C 78 | YOUTH TRACK | | | 1600 | 1 | 20 | | | | | | |
| 20 | 1 | | | | SPARE | 79 | A 80 | YOUTH STAGE | | 900 | 1 | 20 | | | | | | | |
| 20 | 1 | | | E 600 | CONTACTOR COILS | 81 | B 82 | ROOFTOP RCPT | | 720 | 1 | 20 | | | | | | | |
| 20 | 1 | | | 540 | EXTERIOR RCPT | 83 | C 84 | ROOFTOP RCPT | | 540 | 1 | 20 | | | | | | | |
| CONNECTED VA PHASE A: | | | | | 24419 | | | | | DEMANDED VA PHASE A: | | | | | 20573 | | | | |
| CONNECTED VA PHASE B: | | | | | 18625 | | | | | DEMANDED VA PHASE B: | | | | | 14187 | | | | |
| CONNECTED VA PHASE C: | | | | | 27768 | | | | | DEMANDED VA PHASE C: | | | | | 23663 | | | | |
| LIGHTING LOAD: | | | | | CONNECTED | | | | | D.F. | | | | | DEMAND | | | | |
| RECEPTACLE (FIRST 10 KW): | | | | | 8667 | | | | | 1.25 | | | | | 10834 | | | | |
| RECEPTACLE (REMAINDER): | | | | | 30140 | | | | | 0.50 | | | | | 15070 | | | | |
| LARGEST MOTOR: | | | | | 1656 | | | | | 1.25 | | | | | 2070 | | | | |
| REMAINING MOTORS: | | | | | 6389 | | | | | 1.00 | | | | | 6389 | | | | |
| APPLIANCES: | | | | | 0 | | | | | 0.65 | | | | | 0 | | | | |
| EQUIPMENT: | | | | | 13900 | | | | | 1.00 | | | | | 13900 | | | | |
| SUB FEED PANEL: | | | | | 0 | | | | | 1.00 | | | | | 0 | | | | |
| TOTAL: | | | | | 70752 | | | | | | | | | | 58263 | | | | |
| LOAD (AMPS): | | | | | 196.4 | | | | | | | | | | 161.7 | | | | |
| M = MOTOR | | | | | E = EQUIPMENT | | | | | S = SUB FEED PANEL | | | | | | | | | |
| LM = LARGEST MOTOR | | | | | A = APPLIANCE | | | | | | | | | | | | | | |
| NOTES: | | | | | | | | | | | | | | | | | | | |

26308-14_F16B.EPS



6.0.0 – 6.5.0

Multi-Family Service

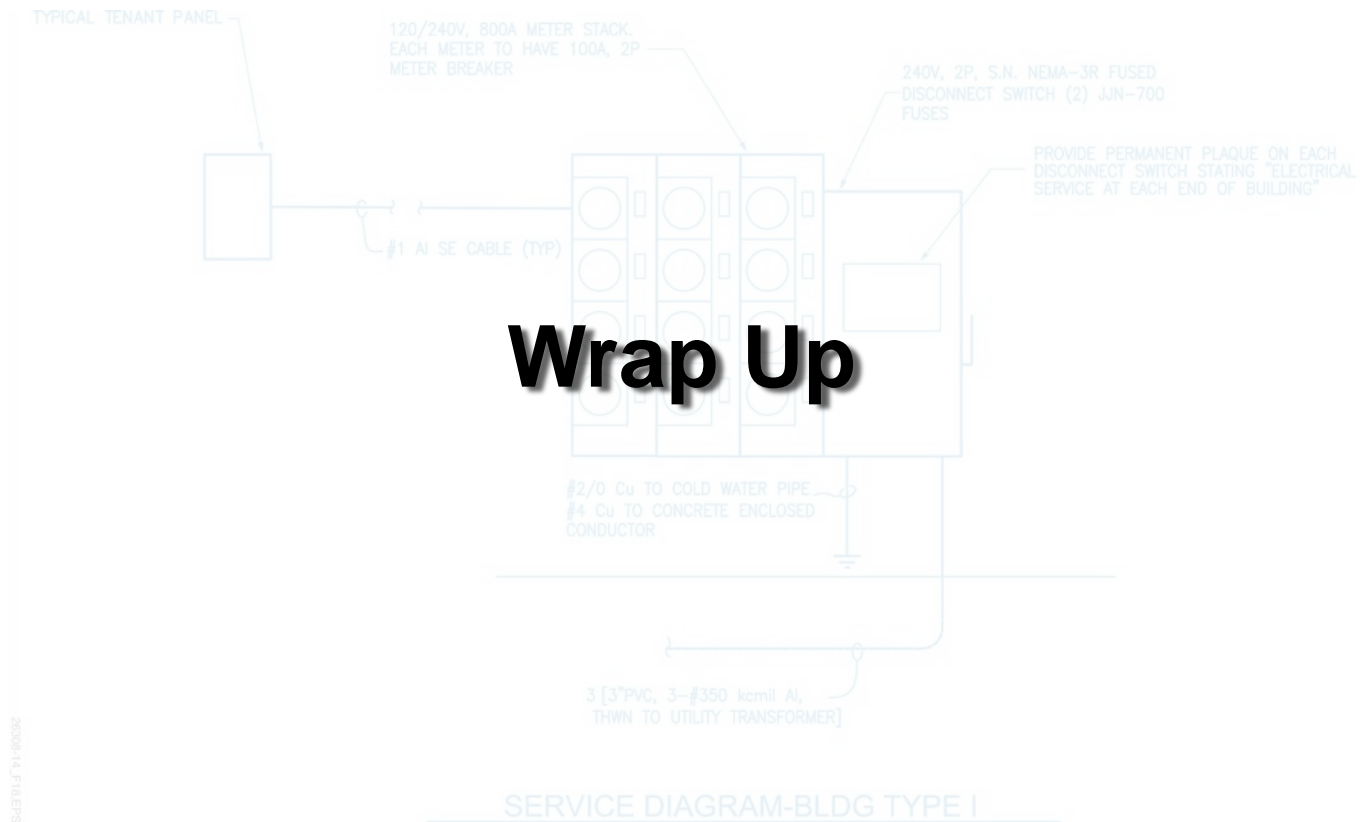
- This is an underground 240/120V single-phase service for a multi-family apartment building with individual tenant meters located on each end of the building.
- This service contains three sets of three-conductor cables run in parallel in PVC conduit.



26308-14_F17.EPS

6.0.0 – 6.5.0

Next Session... Line Diagram for a Multi-Family Service



Wrap Up

3-2-1

- 3 – Write 3 important things learned during class
- 2 – Write 2 questions you have about the material
- 1 – Write 1 thought you had about the material



Next Session...

MODULE EXAM

Review the complete module to prepare for the module exam. Complete the Module Review as a study aid.

