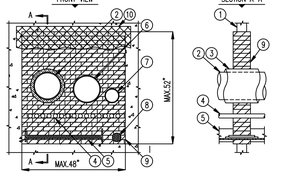
U.L. SYSTEM NO. WJ8007

MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR OR WALL

F RATING = 4-HR.
T RATING = 0-HR.



1. CONCRETE FLOOR OR WALL ASSEMBLY (MINIMUM 4-1/2" THICK).
2. MAXIMUM 12" DIAMETER STEEL PIPE OR MAXIMUM 6" DIAMETER COPPER PIPE.
3. MAXIMUM 1-1/2" THICK CLASS-FIBER PIPE INSULATION.
4. 1-1/2" DIAMETER STEEL CONDUIT (MAXIMUM QUANTITY = 15).
5. STEEL OR ALUMINUM CABLE TRAY (MAXIMUM SIZE : 36" x 6") WITH ANY OF THE FOLLOWING TYPES OF CABLE MAY BE USED WITH MAXIMUM 30% FILL OF CABLE TRAY :
   A. MAXIMUM 500 KCMIL SINGLE CONDUCTOR POWER CABLE.
   B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CABLE.
   C. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLES.
6. MAXIMUM 30" DIAMETER STEEL PIPE (12" DIAMETER PIPE SHOWN).
7. 6" DIAMETER STEEL PIPE.
8. MAXIMUM 4" DIAMETER CABLE BUNDLE TO INCLUDE ANY OF THE FOLLOWING :
   A. FIBER-OPTIC CABLE (MAX. 1/2" DIA).
   B. ROMEX (2/C NO. 10 +GROUND).
   C. 25 PAIR NO. 24 AWG TELEPHONE CABLES.
   D. 7/C NO. 12 AWG COPPER CONDUCTOR.
   E. RG 62A COAXIAL CABLES.
   F. METAL CLAD CABLE (MAX. 3/4" DIA.).
9. HILTI FS 657 INTUMESCENT FIRESTOP BLOCK (2" TALL x 5" WIDE x 8" DEEP, REF: FRONT VIEW).
10. SEE NOTE NO. 4 BELOW.

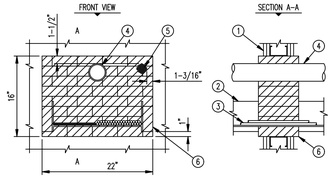
NOTES : 1. ANNULAR SPACING FOR CABLE TRAY = MINIMUM 1-1/2".
2. ANNULAR SPACING FOR PIPE AND CABLE PENETRATIONS = MINIMUM 1".
3. INSTALL HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT IN ANY VOID THAT MAY EXIST (AROUND CABLE TRAY, CABLES, OR PIPE PENETRATIONS).
4. IF THE ANNULAR SPACE IS GREATER THAN 1", PROVIDE A STEEL WIRE MESH (NOMINAL 2" SQUARES, NO. 16 SWG), INSTALL ON EACH SIDE OF WALL ASSEMBLY.
5. MAXIMUM AREA OF OPENING = 2406 SQUARE INCHES.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL8013

MULTIPLE PENETRATIONS THROUGH 1-HR. OR 2-HR. GYPSUM WALL

F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = 5 CFM/SQ. FT.
T RATING = 0-HR. L RATING AT 400°F = 2 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. STEEL OR ALUMINUM CABLE TRAY (MAXIMUM SIZE : 18" x 6").
3. ANY OF THE FOLLOWING TYPES OF CABLE MAY BE USED WITH MAX. 30% FILL ON CABLE TRAY :
   A. 500 KCMIL SINGLE CONDUCTOR POWER CABLE.
   B. 7/C NO. 12 AWG COPPER CONDUCTOR CABLE.
   C. 300 PAIR NO. 24 AWG TELEPHONE CABLE.
4. MAXIMUM 3" DIAMETER PVC PLASTIC PIPE (SCHEDULE 40)(CLOSED OR VENTED PIPING SYSTEM).
5. CABLE BUNDLE (MAX. 2" DIA.) TO CONSIST OF ANY OF THE FOLLOWING:
   A. FIBER-OPTIC CABLE.
   B. RG 59 COAXIAL CABLE.
   C. 25 PAIR NO. 24 AWG TELEPHONE CABLE.
   D. 7/C NO. 12 AWG COPPER CONDUCTOR.
6. HILTI FS 657 FIRESTOP BLOCKS (2" x 5" x 8" DEEP, REF: FRONT VIEW).

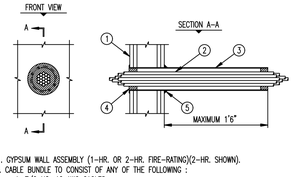
NOTES : 1. NOT SHOWN: PENETRATING ITEMS MAY ALSO INCLUDE A MAX. 4" DIA. STEEL OR COPPER PIPE, EMT, OR STEEL CONDUIT WITH A MAX. 1-1/2" GLASS-FIBER PIPE INSULATION OR NON-INSULATED MAX. 4" STEEL PIPE, EMT, OR CONDUIT.
2. ANNULAR SPACE = MINIMUM 1".
3. INSTALL HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT IN ANY VOID THAT MAY EXIST (AROUND PENETRATING ITEMS, OR BETWEEN BLOCKS).

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL3065

CABLE BUNDLE THROUGH 1-HR. OR 2-HR. FIRE-RATED GYPSUM WALL

F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = 5 CFM/SQ. FT.
T RATING = 0-HR. L RATING AT 400°F = 2 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING :
   A. 7/C NO. 12 AWG CAGLES.
   B. 12 PAIR 24 AWG PHONE CABLES.
   C. 25 PAIR 24 AWG PHONE CABLES.
   D. RG 59 COAXIAL CABLES.
   E. 2/C (+GND) NO. 14 AWG METAL-CLAD CABLES.
   F. 2/C NO. 8 AWG METAL-CLAD CABLES.
   G. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLES.
3. OPTIONAL : MAX. 4" NOM. DIA. STEEL PIPE SLEEVE (SCH. 40 OR THINNER)(SEE NOTE NO. 4).
4. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
5. SEE NOTE NO. 4 BELOW.

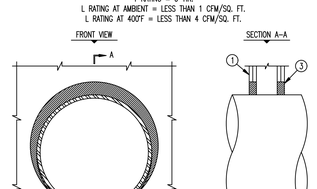
NOTES : 1. MAXIMUM DIAMETER OF OPENING = 4-1/2".
2. CABLES TO FILL MAXIMUM 33% OF AREA OF OPENING.
3. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".
4. STEEL SLEEVE MAY BE FLUSH WITH WALL SURFACE OR EXTEND UP TO 18" BEYOND WALL SURFACE IN ANY COMBINATION. WHEN SLEEVE IS FLUSH WITH WALL, APPLY HILTI FS-ONE FIRESTOP SEALANT ONTO WALL SURFACE. WHEN SLEEVE IS EXTENDED BEYOND ONE OR BOTH SIDES OF WALL, APPLY 1/2" CROWN HILTI FS-ONE FIRESTOP SEALANT TO WALL/SLEEVE INTERFACE.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL1054

METAL PIPE THROUGH GYPSUM WALL ASSEMBLY

F RATING = 1-HR. OR 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = LESS THAN 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 30" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 6" DIAMETER COPPER PIPE.
   C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" DIAMETER STEEL EMT.
3. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
4. MINIMUM 1/2" BEAD HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

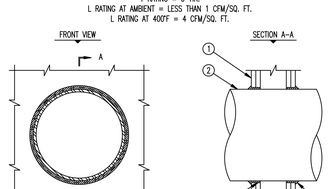
NOTES : 1. MAXIMUM DIAMETER OF OPENING = 32-1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2-1/4".

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL1085

EMT THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY

F RATING = 1-HR. AND 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 12" DIAMETER STEEL PIPE (SCHEDULE 20 OR HEAVIER).
   B. MAXIMUM 12" DIAMETER CAST IRON PIPE.
   C. MAXIMUM 6" DIAMETER COPPER PIPE.
   D. MAXIMUM 6" DIAMETER EMT.
   E. MAXIMUM 6" DIAMETER STEEL CONDUIT.
3. HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT FORCED INTO ANNULAR SPACE TO MAXIMUM EXTENT.
4. MINIMUM 1/2" BEAD HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT PIPE/GYPSUM WALLBOARD INTERFACE.

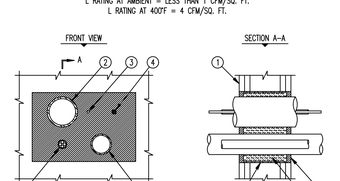
NOTE : ANNULAR SPACE = MINIMUM 0", MAXIMUM 1/4".

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

U.L. SYSTEM NO. WL8004

MULTIPLE METAL PIPE AND CABLE THROUGH 2-HR. GYPSUM WALL

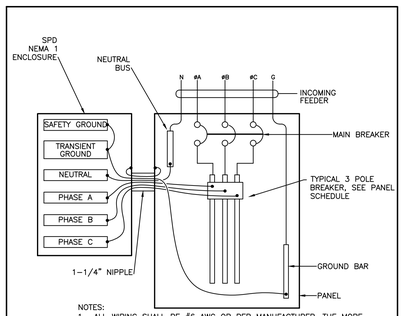
F RATING = 2-HR.
T RATING = 1/4-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (2-HR. FIRE-RATING).
2. MAXIMUM 3" DIAMETER ELECTRICAL METALLIC TUBING (EMT).
3. MAXIMUM 25 PAIR NO. 24 AWG (OR SMALLER) TELEPHONE CABLES.
4. MAXIMUM 3/C NO. 10 AWG NM (WITH GROUND) POWER CABLE WITH PVC INSULATION.
5. MAXIMUM 300 KCMIL (OR SMALLER) POWER CABLE WITH PVC INSULATION & NYLON JACKET.
6. MAXIMUM 2" DIAMETER STEEL PIPE, COPPER PIPE, EMT, OR STEEL CONDUIT.
7. NO. 8 STEEL WIRE MESH, 4-3/4" LONG (OR STANDARD METAL DRYWALL TRACK SCREWED SECURELY IN PLACE) CENTERED IN OPENING.
8. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
9. MIN. 1/2" DEPTH HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT.

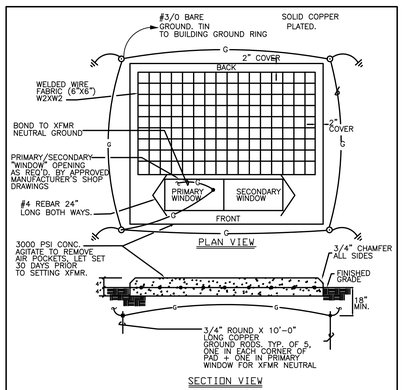
NOTES : 1. MAXIMUM AREA OF OPENING = 96 SQUARE INCHES WITH A MAX. DIM. OF 12".
2. DISTANCE BETWEEN ITEMS = MINIMUM 1-3/4", MAXIMUM 7".
3. DISTANCE FROM EDGE OF OPENING = MINIMUM 1/2", MAXIMUM 7". (EXCEPTION: 300 KCMIL POWER CABLE MUST BE MINIMUM 1-1/2" FROM EDGE OF OPENING.

SEE HILTI FIRESTOP INSTALLATION MANUAL FOR ADDITIONAL INSTRUCTIONS
HILTI, INC. TULSA, OK 1-800-879-8000

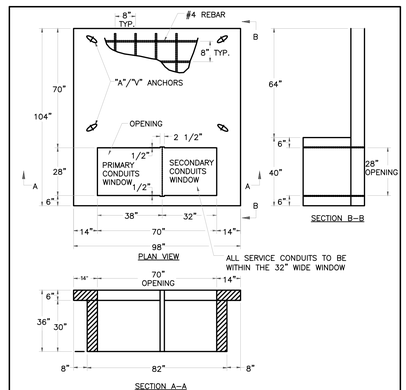


NOTES:
1. ALL WIRING SHALL BE #6 AWG OR PER MANUFACTURER, THE MORE STRINGENT SHALL APPLY.
2. AVOID SHARP BENDS IN WIRES. ALL WIRE LENGTHS SHALL NOT EXCEED 18" (WHERE POSSIBLE).
3. SEE SPD SPECIFICATION FOR EXACT TYPE (H1,H2,L1,L2) FOR LOCATION AS INDICATED ON THE POWER RISER DIAGRAM.
4. COORDINATE SURGE PROTECTION DEVICE TYPE WITH LIGHTNING PROTECTION ENGINEER PRIOR TO ORDERING.
5. NORMAL MODE ONLY.

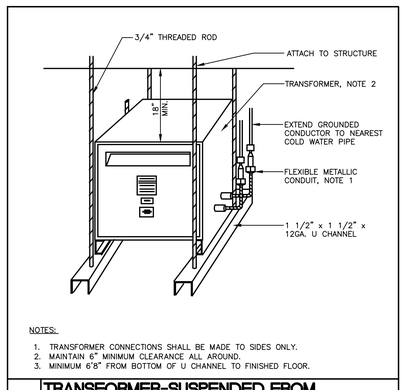
1 SPD CONNECTION - DETAIL
NO SCALE



2 TRANSFORMER PAD GROUNDING DETAIL
NO SCALE

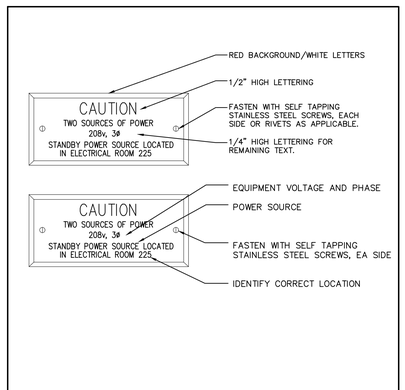


3 TRANSFORMER PAD DETAIL
NO SCALE

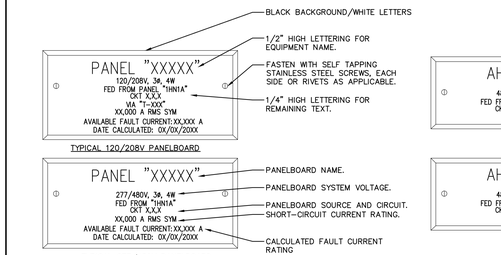


NOTES:
1. TRANSFORMER CONNECTIONS SHALL BE MADE TO SIDES ONLY.
2. MAINTAIN 6" MINIMUM CLEARANCE ALL AROUND.
3. MINIMUM 6'8" FROM BOTTOM OF U CHANNEL TO FINISHED FLOOR.

4 TRANSFORMER-SUSPENDED FROM STRUCTURE
NO SCALE

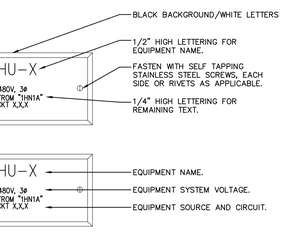


5 EMERGENCY POWER NAMEPLATE
NO SCALE



NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, COLORS, ETC.
2. PROVIDE SHORT-CIRCUIT CURRENT RATING AND AVAILABLE FAULT CURRENT ON EACH NON-DWELLING SERVICE EQUIPMENT NAMEPLATE.

6 TYPICAL NAMEPLATE DIAGRAM
NO SCALE



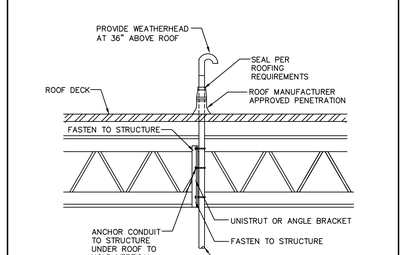
ROOF SUPPORT SPECIFICATIONS

PROVIDE PIPE SUPPORT OR APPROVED EQUAL.
CONDUIT DIAMETERS 2" TO 5" : 10' SPACING MAXIMUM
CONDUIT DIAMETERS 1 1/2" : 8' SPACING MAXIMUM
CONDUIT DIAMETERS SMALLER THAN 1 1/2" : 6' SPACING MAXIMUM

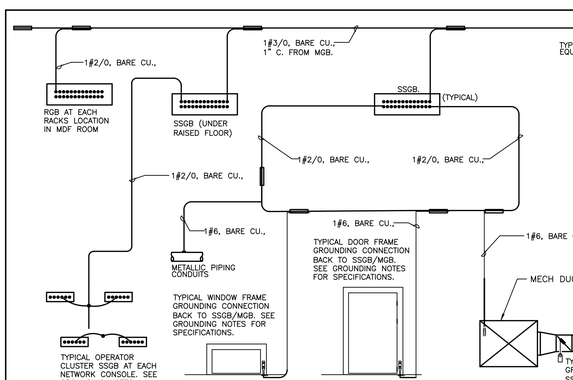
ALL UNIONS SHALL BE PROVIDED WITH AN ADDITIONAL SUPPORT.

NOTE: TYPICAL FOR ALL ROOF MOUNTED HVAC EQUIPMENT.

7 ROOFTOP RECEPTACLE DETAIL
NO SCALE



8 ROOF PENETRATION DIAGRAM
NO SCALE



9 SYSTEM GROUND DETAILS
NO SCALE

MOTOROLA R56 GROUNDING NOTES

1. 'MGB' SHALL BE 48"LONG x 4"HIGH X 1/4"THICK TIN-PLATED COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
2. 'PGB' SHALL BE 24"LONG x 4"HIGH x 1/4"THICK TIN-PLATED COPPER GROUND BUS WITH MOUNTING BRACKET, SUPPORT AND MOUNTING ISOLATORS. COMPLETELY PRE-DRILL 3/8" DIAMETER, 2-HOLE LUG PATTERN ALONG LENGTH OF BUS.
3. THE MGB GROUNDING CONDUCTOR SHALL BE BONDED TO EXTERNAL GROUNDING ELECTRODE SYSTEM WITH AN EXOTHERMIC WELD OR LISTED IRREVERSIBLE COMPRESSION DEVICE. NO REVERSIBLE CRIMPS SHALL BE USED ON EXTERIOR BELOW GRADE CONNECTIONS.
4. MGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS. NO REVERSIBLE CRIMPS SHALL BE USED ON EXTERIOR BELOW GRADE CONNECTION.
5. SSGB GROUNDING CONDUCTOR SHALL BE INSULATED FROM ITS SUPPORT STRUCTURE. A MINIMUM OF 2" SEPARATION FROM THE SUPPORTING SURFACE IS ALLOW TO ACCESS TO THE REAR OF THE BUS BAR.
6. THE SSGB GROUNDING CONDUCTOR SHALL BE SECURED TO THE SSGB BY EXOTHERMIC WELDING, LISTED COMPRESSION TWO-HOLE LUG, OR IRREVERSIBLE COMPRESSION-TYP CONNECTION DEVICE.
4. SSGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS.
5. SSGB GROUNDING ELECTRODE CONDUCTOR LOCATED IN AREAS WITH THE POTENTIAL FOR PHYSICAL DAMAGE SHALL BE PROTECTED AND THE CONDUCTOR OR ITS ENCLOSURE SHALL BE SECURELY FASTENED TO THE SURFACE ON WHICH IT IS CARRIED.
6. THE SSGB GROUNDING ELECTRODE CONDUCTOR SHALL BE RUN TO THE GROUNDING ELECTRODE SYSTEM IN A DIRECT MANNER WITH NO SHARP BEND OR NARROW LOOPS. THE GROUNDING CONDUCTOR BEND ANGLES SHALL NOT BE LESS THAN 90 DEGREE NOR HAVE A BENDING RADIUS OF LESS THAN 8".
7. WHEN ROUTING THE SSGB GROUNDING CONDUCTOR THROUGH A PERIMETER WALL TO THE EXTERNAL GROUNDING ELECTRODE SYSTEM, THE GROUNDING CONDUCTOR SHOULD BE ROUTED THROUGH THE WALL IN A PVC OR FLEXIBLE NON-METALLIC CONDUIT SLEEVE AT AT 45 DEGREE ANGLE TOWARD THE GROUNDING ELECTRODE SYSTEM.
8. THE SSGB GROUNDING CONDUCTOR SHOULD NOT BE PLACED IN FERROUS METALLIC CONDUIT.
9. THE RGB GROUNDING CONDUCTOR SHALL BE MADE OF COPPER AND MAY BE INSULATED.
10. THE RGB GROUNDING CONDUCTOR SHALL BE A MINIMUM OF 2 AWG.
11. THE RGB GROUNDING CONDUCTOR SHOULD BE SECURED BY THE RGB BY LISTED TWO-HOLE COMPRESSION LUG.
12. UNLESS BOTH ENDS OF THE GROUNDING CONDUCTOR ARE CLEARLY VISIBLE, THE CONDUCTOR SHALL BE CLEARLY LABELED ON BOTH ENDS.
13. RGB GROUNDING CONDUCTOR SHOULD NOT BE SPLICED. SHOULD A SPLICE IN THE GROUNDING ELECTRODE CONDUCTOR IS NEEDED, SPLICING SHALL BE PERMITTED ONLY BY LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTORS OR BY EXOTHERMIC WELDING PROCESS.
14. CONDUCTORS SHALL BE SECURED OR ATTACHED TO SURFACES AS REQUIRED TO ENSURE THEY DO NOT BECOME DAMAGED OR DISCONNECTED. CONDUCTOR SHALL BE SECURED IN A MANNER THAT PERMITS ASSOCIATED EQUIPMENT TO BE EASILY SERVICED. CONDUCTORS SHALL BE SECURE AT NO GREATER THAN 3 FT INTERVALS.
15. CONDUCTOR INSTALLED IN AREAS WHERE THEY MAY BE SUBJECTED TO DAMAGE SHALL BE SLEEVED IN ELECTRICAL NON-METALLIC TUBING, OR OTHER CONDUIT, THAT IS SECURELY ATTACHED TO THE SURFACE OVER WHICH IS ROUTED.
16. WHEN GROUND CONDUCTOR TAP JOINTS ARE USED, THEY SHALL BE PROPERLY INSULATED AS TO PREVENT THE BARE CONDUCTOR OR CONNECTION DEVICE FROM MAKING INCIDENTAL CONTACT WITH METALLIC SURFACES.
17. GROUND BUS CONDUCTORS OF ALL SIZES SHALL MAINTAIN A MINIMUM BENDING RADIUS OF 8 IN. THE ANGLE OF ANY BEND SHALL NOT BE LESS THAN 90 DEGREES.
18. ALL GROUND CONDUCTORS SHALL BE SEPARATED A MINIMUM OF 2 IN. FROM CONDUCTORS OF OTHER CABLE GROUP.
19. ALL METALLIC CONDUITS SHALL BE BONDED AT EACH END.
20. ALL MECHANICAL AND COMPRESSION-TYPE CONNECTION DEVICES SHALL BE UL 486A LISTED AND OF THE PROPER SIZE FOR THE APPLICATION. THESE CONNECTION DEVICES SHALL BE TIN-PLATED WHEN CONNECTED WITH STEEL, GALVANIZED STEEL OR ALUMINUM SURFACES.
21. ALL CLAMPS AND COMPRESSION-TYPE CONNECTION DEVICES SHALL BE UL 486A LISTED AND SHALL MAINTAIN A MINIMUM 88% CONDUCTIVITY RATING.
22. NO MORE THAN ONE CLAMP, FITTING OR LUG MAY BE ATTACHED BY THE SAME BOLT OR BOLTS. AN EXCEPTION TO THIS IS WHEN A JUMPER FROM A TERMINAL STRIP OR OTHER INTERNAL CONNECTION POINT OF THE SAME EQUIPMENT MUST BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
23. SOLID CONDUCTORS SHALL BE ATTACHED TO LUGS AND TO OTHER CONDUCTORS BY IRREVERSIBLE HIGH COMPRESSION CRIMPING PROCESS. ONLY LISTED IRREVERSIBLE COMPRESSION TYPE LUGS AND CONNECTION DEVICES SHALL BE USED.
24. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS PART OF THE ATTACHMENT DEVICE. ONLY ATTACHMENT DEVICES LISTED AND APPROVED FOR USE WITH THE SPECIFIC DISSIMILAR METALS MAYBE USED FOR THIS PURPOSE.
25. ALL TWO-HOLE LUGS SHALL HAVE BOLTS IN BOTH HOLES WITH LOCK WASHERS PLACED ON THE NUT SIDE OF THE BONDING SURFACE.
26. ALL SECURING HARDWARE FOR MECHANICALLY BOLTED CLAMPS AND SLUGS SHALL BE STAINLESS STEEL OR APPROVED FOR THE APPLICATION.
27. CRIMP CONNECTIONS SHALL NOT BE USED ON SOLID CONDUCTORS UNLESS THEY ARE LISTED AND APPROVED FOR THE APPLICATION. 300 SERIES SS.
28. MECHANICAL LUGS AND CLAMPS SHALL NOT BE USED ON SOLID CONDUCTOR.
29. CONDUCTOR SHALL NOT EXTEND THROUGH OR BEYOND THE CLAMP. FITTING OR LUG UNLESS THE DEVICE IS DESIGNED AND LISTED TO PERMIT THIS CONDUCTOR EXTENSION.
30. BRAIDED CONDUCTORS SHALL NOT BE USED AS A GROUND BUS OR EQUIPMENT GROUNDING CONDUCTOR AT ANY LOCATION
31. CONNECTION OF A GROUNDING CONDUCTOR, GROUNDING ELECTRODE CONDUCTOR, COMMUNICATION BONDING BACKBONE CONDUCTOR AND GROUND BUS CONDUCTOR TO THE MGB OR SSGB SHALL UTILIZE EXOTHERMIC WELDING, LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTION OR LISTED COMPRESSION TWO-HOLE LUG AND SECURING HARDWARE OF THE PROPER SIZE FOR THE APPLICATION.
32. ALL SET-SCREW TYPE CONNECTOR AND COUPLINGS SHALL BE BRIDGED WITH BONDING JUMPER.
31. CONNECTION OF A GROUNDING CONDUCTOR, GROUNDING ELECTRODE CONDUCTOR, COMMUNICATION BONDING BACKBONE CONDUCTOR AND GROUND BUS CONDUCTOR TO THE RGB SHALL UTILIZE EXOTHERMIC WELDING, LISTED IRREVERSIBLE COMPRESSION-TYPE CONNECTION OR LISTED COMPRESSION TWO-HOLE LUG AND SECURING HARDWARE OF THE PROPER SIZE FOR THE APPLICATION.
32. ALL INTERIOR GROUNDING AND BONDING CONDUCTORS SHALL BE INSULATED STRANDED COPPER CONDUCTORS. THE JACKET SHALL BE GREEN, GREEN WITH A YELLOW STRIPE OR PROPERLY MARKED WITH A DISTINCTIVE GREEN COLORING, GREEN TAPE OR GREEN ADHESIVE LABEL (NFPA 70).
33. ALL GROUND CONDUCTORS IN CONTACT WITH THE EARTH SHALL BE TINNED COPPER.
34. ALL EXTERIOR GROUND AND BONDING CONDUCTORS SHALL BE TIN-PLATED COPPER.
35. ALL CONNECT TO GROUND BARS SHALL USE 2-HOLE LUGS WITH LONG SHANKS DOUBLE CRIMPED.
36. REFERENCE TELECOMMUNICATIONS GROUNDING DETAILS ON DWG. TCD02 FOR ADDITIONAL GROUNDING REQUIREMENTS FOR 'MGB' AND 'SSGB'.

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