

SECTION 26.05.05
SELECTIVE DEMOLITION FOR ELECTRICAL

- PART 1 EXECUTION
1.01 EXAMINATION
A. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.
B. BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.
1.02 PREPARATION
A. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS TO BE REMOVED.
B. COORDINATE UTILITY SERVICE OUTAGES WITH UTILITY COMPANY.
C. REMOVE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.
D. EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE UNTIL NEW SYSTEM IS COMPLETE AND READY FOR SERVICE.
1.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK
A. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
B. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.
C. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS THAT REMAIN ACTIVE.

SECTION 26.05.19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- PART 1 PRODUCTS
1.01 CONDUIT AND CABLE APPLICATIONS
A. DO NOT USE CONDUCTORS AND CABLES FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
B. PROVIDE SINGLE CONDUCTOR BUILDING WIRE INSTALLED IN SUITABLE RACEWAY UNLESS OTHERWISE INDICATED, PERMITTED, OR REQUIRED.
C. METAL-CLAD CABLE IS PERMITTED ONLY AS FOLLOWS:
1. WHERE NOT OTHERWISE RESTRICTED, MAY BE USED:
a. WHERE CONCEALED ABOVE ACCESSIBLE CEILING FOR FINAL CONNECTIONS FROM JUNCTION BOXES TO LUMINAIRES.
b. WHERE CONCEALED IN HOLLOW STUD WALLS, ABOVE ACCESSIBLE CEILING, AND UNDER RAISED FLOORS FOR BRANCH CIRCUITS UP TO 20 A.
c. EXCEPTION: PROVIDE SINGLE CONDUCTOR BUILDING WIRE IN RACEWAY FOR CIRCUIT HOMERUN FROM FIRST OUTLET TO PANELBOARD.
1.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS
A. PROVIDE PRODUCTS THAT COMPLY WITH REQUIREMENTS OF NFPA 70.
B. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
C. UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED CONDUIT, BOXES, WIRING, CONNECTORS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM.
D. COMPLY WITH NEMA WC 70.
E. THERMOPLASTIC-INSULATED CONDUCTORS AND CABLES: LISTED AND LABELED AS COMPLYING WITH UL 83.
F. THERMOSET-INSULATED CONDUCTORS AND CABLES: LISTED AND LABELED AS COMPLYING WITH UL 44.
G. CONDUCTORS FOR GROUNDING AND BONDING: ALSO COMPLY WITH SECTION 26.05.26.
H. CONDUCTOR MATERIAL:
1. PROVIDE COPPER CONDUCTORS ONLY. ALUMINUM CONDUCTORS ARE NOT ACCEPTABLE FOR THIS PROJECT.
2. COPPER CONDUCTORS: SORT DRAIN ANNEAL, 99 PERCENT CONDUCTIVITY, UNCOATED COPPER CONDUCTORS COMPLYING WITH ASTM B3, ASTM B8, OR ASTM B787/B787M UNLESS OTHERWISE INDICATED.
3. TINNED COPPER CONDUCTORS: COMPLY WITH ASTM B33M.
I. CONDUCTOR COLOR CODING:
1. COLOR CODE CONDUCTORS AS INDICATED UNLESS OTHERWISE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. MAINTAIN COLOR CODING THROUGHOUT PROJECT.
2. COLOR CODING METHOD: INTEGRALLY COLORED INSULATION.
3. CONDUCTOR CODE:
a. EQUIPMENT GROUND, ALL SYSTEMS: GREEN.
b. FOR MODIFICATIONS OR ADDITIONS TO EXISTING WIRING SYSTEMS, COMPLY WITH EXISTING COLOR CODE WHEN EXISTING CODE COMPLIES WITH NFPA 70 AND IS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
1.03 SINGLE CONDUCTOR BUILDING WIRE
A. DESCRIPTION: SINGLE CONDUCTOR INSULATED WIRE.
B. CONDUCTOR STRANDING:
1. FEEDERS AND BRANCH CIRCUITS:
a. SIZE 10 AWG AND SMALLER: SOLID.
b. SIZE 8 AWG AND LARGER: STRANDED.
2. CONTROL CIRCUITS: STRANDED.
C. INSULATION VOLTAGE RATING: 600 V.
D. INSULATION:
1. COPPER BUILDING WIRE: TYPE THHN/THWN OR THHN/THWN-2, EXCEPT AS INDICATED BELOW.
a. SIZE 4 AWG AND LARGER: TYPE XHHW-2.
1.04 METAL-CLAD CABLE
A. DESCRIPTION: NFPA 70, TYPE MC CABLE LISTED AND LABELED AS COMPLYING WITH UL 1569, AND LISTED FOR USE IN CLASSIFIED FIRESTOP SYSTEMS TO BE USED.
B. CONDUCTOR STRANDING:
1. SIZE 10 AWG AND SMALLER: SOLID.
2. SIZE 8 AWG AND LARGER: STRANDED.
C. INSULATION VOLTAGE RATING: 600 V.
D. INSULATION: TYPE THHN, THHN/THWN, OR THHN/THWN-2.
E. GROUNDING: FULL-SIZE INTEGRAL EQUIPMENT GROUNDING CONDUCTOR.
F. ARMOR: STEEL, INTERLOCKED TAPE.
1.05 WIRING CONNECTORS
A. DESCRIPTION: WIRING CONNECTORS APPROPRIATE FOR THE APPLICATION, SUITABLE FOR USE WITH THE CONDUCTORS TO BE CONNECTED, AND LISTED AS COMPLYING WITH UL 486A-486B OR UL 486C AS APPLICABLE.
B. WIRING CONNECTORS FOR SPLICES AND TAPS:
1. COPPER CONDUCTORS SIZE 8 AWG AND SMALLER: USE TWIST-ON INSULATED SPRING CONNECTORS.
2. COPPER CONDUCTORS SIZE 6 AWG AND LARGER: USE MECHANICAL CONNECTORS OR COMPRESSION CONNECTORS.
C. TWIST-ON INSULATED SPRING CONNECTORS: RATED 600 V, 221 DEGREES F FOR STANDARD APPLICATIONS AND 302 DEGREES F FOR HIGH TEMPERATURE APPLICATIONS; PRE-FILLED WITH SEALANT AND LISTED AS COMPLYING WITH UL 486D FOR DAMP AND WET LOCATIONS.
D. MECHANICAL CONNECTORS: PROVIDE BOLTED TYPE OR SET-SCREW TYPE.
E. COMPRESSION CONNECTORS: PROVIDE CIRCUMFERENTIAL TYPE OR HEX TYPE CRIMP CONFIGURATION.
1.06 WIRING ACCESSORIES
A. ELECTRICAL TAPE: INTEGRALLY COLORED TO MATCH COLOR CODE.
B. INDICATED LISTED AS COMPLYING WITH UL 510, MINIMUM THICKNESS OF 7 MIL, RESISTANT TO ABRASION, CORROSION, AND SUNLIGHT; SUITABLE FOR CONTINUOUS TEMPERATURE ENVIRONMENT UP TO 221 DEGREES F.
C. VINYL INSULATING ELECTRICAL TAPE: COMPLYING WITH ASTM D3005 AND LISTED AS COMPLYING WITH UL 510; MINIMUM THICKNESS OF 7 MIL; RESISTANT TO ABRASION, CORROSION, AND SUNLIGHT; CONFORMABLE FOR APPLICATION DOWN TO 0 DEGREES F AND SUITABLE FOR CONTINUOUS TEMPERATURE ENVIRONMENT UP TO 221 DEGREES F.
D. WIRE PULLING LUBRICANT: LISTED; SUITABLE FOR USE WITH THE CONDUCTORS OR CABLES TO BE INSTALLED AND SUITABLE FOR USE AT THE INSTALLATION TEMPERATURE.
PART 2 EXECUTION
2.01 PREPARATION
A. CLEAN RACEWAYS THOROUGHLY TO REMOVE FOREIGN MATERIALS BEFORE INSTALLING CONDUCTORS AND CABLES.
2.02 INSTALLATION
A. CIRCUITING REQUIREMENTS:
1. UNLESS DIMENSIONED, CIRCUIT ROUTING INDICATED IS DIAGRAM.
2. COMMON NEUTRALS: UNLESS OTHERWISE INDICATED, SHARING OF NEUTRAL/GROUNDED CONDUCTORS AMONG UP TO THREE SINGLE PHASE BRANCH CIRCUITS OF DIFFERENT PHASES INSTALLED IN THE SAME RACEWAY IS NOT PERMITTED. PROVIDE DEDICATED NEUTRAL/GROUNDED CONDUCTOR FOR EACH INDIVIDUAL BRANCH CIRCUIT.
B. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
C. PERFORM WORK IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP).
D. INSTALL METAL-CLAD CABLE (TYPE MC) IN ACCORDANCE WITH NECA 120.
E. INSTALLATION IN RACEWAY:
1. TAPE ENDS OF CONDUCTORS AND CABLES TO PREVENT INFILTRATION OF MOISTURE AND OTHER CONTAMINANTS.
2. PULL ALL CONDUCTORS AND CABLES TOGETHER INTO RACEWAY AT SAME TIME.
3. DO NOT DAMAGE CONDUCTORS AND CABLES OR EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSION AND SIDEWALL PRESSURE.
4. USE SUITABLE WIRE PULLING LUBRICANT WHERE NECESSARY, EXCEPT WHEN LUBRICANT IS NOT RECOMMENDED BY THE MANUFACTURER.

- F. TERMINATE CABLES USING SUITABLE FITTINGS.
1. METAL-CLAD CABLE (TYPE MC):
a. USE LISTED FITTINGS.
b. CUT CABLE ARMOR ONLY USING SPECIALIZED TOOLS TO PREVENT DAMAGING CONDUCTORS OR INSULATION. DO NOT USE HACKSAW OR WIRE CUTTERS TO CUT AT EACH OUTLET.
G. INSTALL CONDUCTORS WITH A MINIMUM OF 12 INCHES OF SLACK AT EACH OUTLET.
H. NEATLY TRIM AND BUNDLE CONDUCTORS INSIDE BOXES, WIRECWAYS, PANELBOARDS AND OTHER EQUIPMENT ENCLOSURES. UNLESS OTHERWISE RESTRICTED, USE THE CONDUIT TYPES INDICATED FOR THE SPECIFIED APPLICATIONS. WHERE MORE THAN ONE LISTED APPLICATION APPLIES, COMPLY WITH THE MOST RESTRICTIVE REQUIREMENTS. WHERE CONDUIT TYPE FOR A PARTICULAR APPLICATION IS NOT SPECIFIED, USE GALVANIZED STEEL RIGID METAL CONDUIT.
I. CONDUIT WITHIN MASONRY WALLS: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
J. CONCEALED WITHIN HOLLOW STUD WALLS: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
K. CONCEALED ABOVE ACCESSIBLE CEILING: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
L. INTERIOR, DAMP OR WET LOCATIONS: USE GALVANIZED STEEL RIGID METAL CONDUIT.
M. EXPOSED, INTERIOR, SUBJECT TO PHYSICAL DAMAGE: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
N. EXPOSED, INTERIOR, SUBJECT TO PHYSICAL DAMAGE: USE GALVANIZED STEEL RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT (IMC).
1. LOCATIONS SUBJECT TO PHYSICAL DAMAGE INCLUDE, BUT ARE NOT LIMITED TO:
a. WHERE EXPOSED BELOW 8 FEET, EXCEPT WITHIN ELECTRICAL AND COMMUNICATION ROOMS OR CLOSETS.
b. WHERE EXPOSED BELOW 20 FEET IN WAREHOUSE AREAS.
L. EXPOSED, EXTERIOR: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT.
J. CONNECTIONS TO VIBRATING EQUIPMENT:
1. DRY LOCATIONS: USE FLEXIBLE METAL CONDUIT.
2. DAMP, WET, OR CORROSIVE LOCATIONS: USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
K. MAXIMUM LENGTH: 6 FEET UNLESS OTHERWISE INDICATED.
L. VIBRATING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO:
a. MOTORS.
K. FISHED IN EXISTING WALLS, WHERE NECESSARY: USE FLEXIBLE METAL CONDUIT.
1.02 CONDUIT REQUIREMENTS
A. EXISTING WORK WHERE EXISTING CONDUITS ARE INDICATED TO BE REUSED, THEY MAY BE REUSED ONLY WHERE THEY ARE FREE FROM CORROSION, INTEGRITY AND CONTINUITY ARE VERIFIED, AND WHERE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
B. DO NOT USE PRODUCTS FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
C. UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED COMPONENTS, CONDUCTORS, CONNECTORS, CONDUIT, BOXES, FITTINGS, SUPPORTS, ACCESSORIES, ETC. AS NECESSARY FOR A COMPLETE GROUNDING AND BONDING SYSTEM.
D. WHERE CONDUCTOR SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70 BUT NOT LESS THAN APPLICABLE MINIMUM SIZE REQUIREMENTS SPECIFIED.
1.02 GROUNDING AND BONDING COMPONENTS
A. GENERAL REQUIREMENTS
1. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
2. PROVIDE PRODUCTS LISTED AND LABELED AS COMPLYING WITH UL 467 WHERE APPLICABLE.
B. CONDUCTORS FOR GROUNDING AND BONDING, IN ADDITION TO REQUIREMENTS OF SECTION 26.05.26:
1. USE INSULATED COPPER CONDUCTORS UNLESS OTHERWISE INDICATED.
a. EXCEPTIONS:
1) USE BARE COPPER CONDUCTORS WHERE INSTALLED UNDERGROUND IN DIRECT CONTACT WITH EARTH.
2) USE BARE COPPER CONDUCTORS WHERE DIRECTLY ENCASED IN CONCRETE (NOT IN RACEWAY).
C. CONNECTORS FOR GROUNDING AND BONDING:
1. DESCRIPTION: CONNECTORS APPROPRIATE FOR THE APPLICATION AND SUITABLE FOR THE CONDUCTORS AND ITEMS TO BE CONNECTED; LISTED AND LABELED AS COMPLYING WITH UL 467.
2. UNLESS OTHERWISE INDICATED, USE EXOTHERMIC WELDED CONNECTIONS FOR UNDERGROUND, CONCEALED AND OTHER INACCESSIBLE CONNECTIONS.
3. UNLESS OTHERWISE INDICATED, USE MECHANICAL CONNECTORS, COMPRESSION CONNECTORS, OR EXOTHERMIC WELDED CONNECTIONS FOR ACCESSIBLE CONNECTIONS.

SECTION 26.05.26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

- PART 1 PRODUCTS
1.01 GROUNDING AND BONDING REQUIREMENTS
A. EXISTING WORK WHERE EXISTING GROUNDING AND BONDING SYSTEM COMPONENTS ARE INDICATED TO BE REUSED, THEY MAY BE REUSED ONLY WHERE THEY ARE FREE FROM CORROSION, INTEGRITY AND CONTINUITY ARE VERIFIED, AND WHERE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
B. DO NOT USE PRODUCTS FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
C. UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED COMPONENTS, CONDUCTORS, CONNECTORS, CONDUIT, BOXES, FITTINGS, SUPPORTS, ACCESSORIES, ETC. AS NECESSARY FOR A COMPLETE GROUNDING AND BONDING SYSTEM.
D. WHERE CONDUCTOR SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70 BUT NOT LESS THAN APPLICABLE MINIMUM SIZE REQUIREMENTS SPECIFIED.
1.02 GROUNDING AND BONDING COMPONENTS
A. GENERAL REQUIREMENTS
1. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
2. PROVIDE PRODUCTS LISTED AND LABELED AS COMPLYING WITH UL 467 WHERE APPLICABLE.
B. CONDUCTORS FOR GROUNDING AND BONDING, IN ADDITION TO REQUIREMENTS OF SECTION 26.05.26:
1. USE INSULATED COPPER CONDUCTORS UNLESS OTHERWISE INDICATED.
a. EXCEPTIONS:
1) USE BARE COPPER CONDUCTORS WHERE INSTALLED UNDERGROUND IN DIRECT CONTACT WITH EARTH.
2) USE BARE COPPER CONDUCTORS WHERE DIRECTLY ENCASED IN CONCRETE (NOT IN RACEWAY).
C. CONNECTORS FOR GROUNDING AND BONDING:
1. DESCRIPTION: CONNECTORS APPROPRIATE FOR THE APPLICATION AND SUITABLE FOR THE CONDUCTORS AND ITEMS TO BE CONNECTED; LISTED AND LABELED AS COMPLYING WITH UL 467.
2. UNLESS OTHERWISE INDICATED, USE EXOTHERMIC WELDED CONNECTIONS FOR UNDERGROUND, CONCEALED AND OTHER INACCESSIBLE CONNECTIONS.
3. UNLESS OTHERWISE INDICATED, USE MECHANICAL CONNECTORS, COMPRESSION CONNECTORS, OR EXOTHERMIC WELDED CONNECTIONS FOR ACCESSIBLE CONNECTIONS.
PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. PERFORM WORK IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP).
C. MAKE GROUNDING AND BONDING CONNECTIONS USING SPECIFIED CONNECTORS.
1. REMOVE APPROPRIATE AMOUNT OF CONDUCTOR INSULATION FOR MAKING CONNECTIONS WITHOUT CUTTING, NICKING OR DAMAGING CONDUCTORS. DO NOT REMOVE CONDUCTOR STRANDS TO FACILITATE INSERTION INTO CONNECTOR.
2. REMOVE NONCONDUCTIVE PAINT, ENAMEL, OR SIMILAR COATING AT THREADS, CONTACT POINTS, AND CONTACT SURFACES.
3. EXOTHERMIC WELDS: MAKE CONNECTIONS USING MOLDS AND WELD MATERIAL SUITABLE FOR THE ITEMS TO BE CONNECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. MECHANICAL CONNECTORS: SECURE CONNECTIONS ACCORDING TO MANUFACTURER'S RECOMMENDED TORQUE SETTINGS.
5. COMPRESSION CONNECTORS: SECURE CONNECTIONS USING MANUFACTURER'S RECOMMENDED TORQUE SETTINGS.

SECTION 26.05.29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- PART 1 PRODUCTS
1.01 SUPPORTS AND ATTACHMENT COMPONENTS
A. GENERAL REQUIREMENTS:
1. PROVIDE ALL REQUIRED HANGERS, SUPPORTS, ANCHORS, FASTENERS, FITTINGS, ACCESSORIES, AND HARDWARE AS NECESSARY FOR THE COMPLETE INSTALLATION OF ELECTRICAL WORK.
2. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED, WHERE APPLICABLE.
3. WHERE SUPPORT AND ATTACHMENT COMPONENT TYPES AND SIZES ARE NOT INDICATED, SELECT IN ACCORDANCE WITH MANUFACTURER'S APPLICATION CRITERIA AS REQUIRED FOR THE LOAD TO BE SUPPORTED. INCLUDE CONSIDERATION FOR VIBRATION, EQUIPMENT OPERATION, AND LOADS WHERE APPLICABLE.
4. DO NOT USE PRODUCTS FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
B. CONDUIT AND CABLE SUPPORTS: STRAPS, CLAMPS, ETC. SUITABLE FOR THE CONDUIT OR CABLE TO BE SUPPORTED.
1. CONDUIT STRAPS: ONE-HOLE OR TWO-HOLE TYPE; STEEL OR MALLEABLE IRON.
2. CONDUIT CLAMPS: BOLTED TYPE OR OTHER TYPE INDICATED.
C. OUTLET BOX SUPPORTS: HANGERS, BRACKETS, ETC. SUITABLE FOR THE BOXES TO BE SUPPORTED.
D. HANGER RODS: THREADED ZINC-PLATED STEEL UNLESS OTHERWISE INDICATED.
1. MINIMUM SIZE, UNLESS OTHERWISE INDICATED OR REQUIRED:
a. EQUIPMENT SUPPORTS: 1/2 INCH DIAMETER.
b. SINGLE CONDUIT UP TO 1 INCH (25.4 MM) TRADE SIZE: 1/4 INCH DIAMETER.
c. SINGLE CONDUIT LARGER THAN 1 INCH (25.4 MM) TRADE SIZE: 3/8 INCH DIAMETER.
d. OUTLET BOXES: 1/4 INCH DIAMETER.
e. HANGERS: 1/4 INCH DIAMETER.
E. ANCHORS AND FASTENERS:
1. UNLESS OTHERWISE INDICATED AND WHERE NOT OTHERWISE RESTRICTED, USE THE ANCHOR AND FASTENER TYPES INDICATED FOR THE SPECIFIED APPLICATIONS.
2. BELOW MASONRY: USE TOGGLE BOLTS.
3. STEEL: USE BEAM CLAMPS, MACHINED BOLTS, OR WELDED THREADED STUDS.
4. SHEET METAL: USE SHEET METAL SCREWS.
PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. PERFORM WORK IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP).
C. PROVIDE INDEPENDENT SUPPORT FROM BUILDING STRUCTURE. DO NOT PROVIDE SUPPORT FROM PIPING, DUCTWORK, OR OTHER SYSTEMS.
D. UNLESS SPECIFICALLY INDICATED OR APPROVED BY ARCHITECT, DO NOT PROVIDE SUPPORT FROM SUSPENDED CEILING SUPPORT SYSTEM OR CEILING GRID.
E. UNLESS SPECIFICALLY INDICATED OR APPROVED BY ARCHITECT, DO NOT PROVIDE SUPPORT FROM ROOF DECK.
F. DO NOT PENETRATE OR OTHERWISE NOTCH OR CUT STRUCTURAL MEMBERS WITHOUT APPROVAL OF STRUCTURAL ENGINEER.
G. EQUIPMENT SUPPORT AND ATTACHMENT:
1. USE METAL FABRICATED SUPPORTS OR SUPPORTS ASSEMBLED FROM METAL CHANNEL (STRU) TO SUPPORT EQUIPMENT AS REQUIRED.
2. USE METAL CHANNEL (STRU) SECURED TO STUDS TO SUPPORT EQUIPMENT SURFACE-MOUNTED ON HOLLOW STUD WALLS WHEN WALL STRENGTH IS NOT SUFFICIENT TO RESIST PULL-OUT.
3. USE METAL CHANNEL (STRU) TO SUPPORT SURFACE-MOUNTED EQUIPMENT IN WET OR DAMP LOCATIONS TO PROVIDE SPACE BETWEEN EQUIPMENT AND MOUNTING SURFACE.
4. SECURELY FASTEN FLOOR-MOUNTED EQUIPMENT. DO NOT INSTALL EQUIPMENT SUCH THAT IT RELIES ON ITS OWN WEIGHT FOR SUPPORT.
H. SECURE FASTENERS ACCORDING TO MANUFACTURER'S RECOMMENDED TORQUE SETTINGS.
I. REMOVE TEMPORARY SUPPORTS.

SECTION 26.05.33.13
CONDUIT FOR ELECTRICAL SYSTEMS

- PART 1 PRODUCTS
1.01 CONDUIT APPLICATIONS
A. DO NOT USE CONDUIT AND ASSOCIATED FITTINGS FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
B. EXCEPT OTHERWISE INDICATED AND WHERE NOT OTHERWISE RESTRICTED, USE THE CONDUIT TYPES INDICATED FOR THE SPECIFIED APPLICATIONS. WHERE MORE THAN ONE LISTED APPLICATION APPLIES, COMPLY WITH THE MOST RESTRICTIVE REQUIREMENTS. WHERE CONDUIT TYPE FOR A PARTICULAR APPLICATION IS NOT SPECIFIED, USE GALVANIZED STEEL RIGID METAL CONDUIT.
C. CONDUIT WITHIN MASONRY WALLS: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
D. CONCEALED WITHIN HOLLOW STUD WALLS: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
E. CONCEALED ABOVE ACCESSIBLE CEILING: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
F. INTERIOR, DAMP OR WET LOCATIONS: USE GALVANIZED STEEL RIGID METAL CONDUIT.
G. EXPOSED, INTERIOR, SUBJECT TO PHYSICAL DAMAGE: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR ELECTRICAL METALLIC TUBING (EMT).
H. EXPOSED, INTERIOR, SUBJECT TO PHYSICAL DAMAGE: USE GALVANIZED STEEL RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT (IMC).
1. LOCATIONS SUBJECT TO PHYSICAL DAMAGE INCLUDE, BUT ARE NOT LIMITED TO:
a. WHERE EXPOSED BELOW 8 FEET, EXCEPT WITHIN ELECTRICAL AND COMMUNICATION ROOMS OR CLOSETS.
b. WHERE EXPOSED BELOW 20 FEET IN WAREHOUSE AREAS.
L. EXPOSED, EXTERIOR: USE GALVANIZED STEEL RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT (IMC), OR PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT.
J. CONNECTIONS TO VIBRATING EQUIPMENT:
1. DRY LOCATIONS: USE FLEXIBLE METAL CONDUIT.
2. DAMP, WET, OR CORROSIVE LOCATIONS: USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
K. MAXIMUM LENGTH: 6 FEET UNLESS OTHERWISE INDICATED.
L. VIBRATING EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO:
a. MOTORS.
K. FISHED IN EXISTING WALLS, WHERE NECESSARY: USE FLEXIBLE METAL CONDUIT.
1.02 CONDUIT REQUIREMENTS
A. EXISTING WORK WHERE EXISTING CONDUITS ARE INDICATED TO BE REUSED, THEY MAY BE REUSED ONLY WHERE THEY ARE FREE FROM CORROSION, INTEGRITY AND CONTINUITY ARE VERIFIED BY PULLING A MANDEREL THROUGH THEM.
B. PROVIDE ALL CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES REQUIRED FOR A COMPLETE RACEWAY SYSTEM.
C. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
D. WHERE CONDUIT SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70 BUT NOT LESS THAN APPLICABLE MINIMUM SIZE REQUIREMENTS SPECIFIED.
1.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
A. DESCRIPTION: NFPA 70, TYPE RMC GALVANIZED STEEL RIGID METAL CONDUIT COMPLYING WITH ANSI C80.1 AND LISTED AND LABELED AS COMPLYING WITH UL 6.
B. FITTINGS:
1. NON-HAZARDOUS LOCATIONS: USE FITTINGS COMPLYING WITH NEMA FB 1 AND LISTED AND LABELED AS COMPLYING WITH UL 514B.
2. MATERIAL: USE STEEL OR MALLEABLE IRON.
3. CONNECTORS AND COUPLINGS: USE THREADED TYPE FITTINGS ONLY. THREADLESS SET SCREW AND COMPRESSION (GLAND) TYPE FITTINGS ARE NOT PERMITTED.
1.04 INTERMEDIATE METAL CONDUIT (IMC)
A. DESCRIPTION: NFPA 70, TYPE IMC GALVANIZED STEEL INTERMEDIATE METAL CONDUIT COMPLYING WITH ANSI C80.6 AND LISTED AND LABELED AS COMPLYING WITH UL 1242.
B. FITTINGS:
1. NON-HAZARDOUS LOCATIONS: USE FITTINGS COMPLYING WITH NEMA FB 1 AND LISTED AND LABELED AS COMPLYING WITH UL 514B.
2. MATERIAL: USE STEEL OR MALLEABLE IRON.
3. CONNECTORS AND COUPLINGS: USE THREADED TYPE FITTINGS ONLY. THREADLESS SET SCREW AND COMPRESSION (GLAND) TYPE FITTINGS ARE NOT PERMITTED.
1.05 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
A. DESCRIPTION: NFPA 70, TYPE RMC GALVANIZED STEEL RIGID METAL CONDUIT WITH EXTERNAL POLYVINYL CHLORIDE (PVC) COATING COMPLYING WITH NEMA RN 1, LISTED AND LABELED AS COMPLYING WITH UL 6.
B. EXTERIOR COATING: POLYVINYL CHLORIDE (PVC), NOMINAL THICKNESS OF 40 MIL.
C. PVC-COATED FITTINGS:
1. MANUFACTURER: SAME AS MANUFACTURER OF PVC-COATED CONDUIT TO BE INSTALLED.
2. NON-HAZARDOUS LOCATIONS: USE FITTINGS LISTED AND LABELED AS COMPLYING WITH UL 514B.
3. MATERIAL: USE STEEL OR MALLEABLE IRON.
4. EXTERIOR COATING: POLYVINYL CHLORIDE (PVC), MINIMUM THICKNESS OF 40 MIL.
5. PVC-COATED SUPPORTS: POLYVINYL CHLORIDE (PVC) WITH EXTERIOR COATING OF POLYVINYL CHLORIDE (PVC), MINIMUM THICKNESS OF 15 MIL.
1.06 FLEXIBLE METAL CONDUIT (FMC)
A. DESCRIPTION: NFPA 70, TYPE FMC STAINLESS STEEL FLEXIBLE METAL CONDUIT LISTED AND LABELED AS COMPLYING WITH UL 1, AND LISTED FOR USE IN CLASSIFIED FIRESTOP SYSTEMS TO BE USED.
B. FITTINGS:
1. DESCRIPTION: FITTINGS COMPLYING WITH NEMA FB 1 AND LISTED AND LABELED AS COMPLYING WITH UL 514B.
2. MATERIAL: USE STEEL OR MALLEABLE IRON.
3. CONNECTORS AND COUPLINGS: USE COMPRESSION (GLAND) OR SET-SCREW TYPE.
a. DO NOT USE INDENTER TYPE CONNECTORS AND COUPLINGS.
4. DAMP OR WET LOCATIONS (WHERE PERMITTED): USE FITTINGS LISTED FOR USE IN WET LOCATIONS.
1.09 ACCESSORIES
A. CONDUIT JOINT COMPOUND: CORROSION-RESISTANT, ELECTRICALLY CONDUCTIVE; SUITABLE FOR USE WITH THE CONDUIT TO BE INSTALLED.
B. PULL STRINGS: USE NYLON CORD WITH AVERAGE BREAKING STRENGTH OF NOT LESS THAN 200 POUND-FORCE.
C. SEALING COMPOUND FOR SEALING FITTINGS: LISTED FOR USE WITH THE PARTICULAR FITTINGS TO BE INSTALLED.
PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. PERFORM WORK IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP).
C. INSTALL GALVANIZED STEEL RIGID METAL CONDUIT (RMC) IN ACCORDANCE WITH NECA 101.
D. INSTALL INTERMEDIATE METAL CONDUIT (IMC) IN ACCORDANCE WITH NECA 101.
E. INSTALL PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC) USING ONLY TOOLS APPROVED BY THE MANUFACTURER.
F. CONDUIT SUPPORT:
1. SECURE AND SUPPORT CONDUITS IN ACCORDANCE WITH NFPA 70 AND SECTION 26.05.29 USING SUITABLE SUPPORTS AND METHODS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. PROVIDE INDEPENDENT SUPPORT FROM BUILDING STRUCTURE. DO NOT PROVIDE SUPPORT FROM PIPING, DUCTWORK, OR OTHER SYSTEMS.
G. CONNECTIONS AND TERMINATIONS:
1. USE APPROVED ZINC-RICH PAINT OR CONDUIT JOINT COMPOUND ON FIELD-CUT THREADS OF GALVANIZED STEEL CONDUITS PRIOR TO MAKING CONNECTIONS.
2. WHERE TWO THREADED CONDUITS MUST BE JOINED AND NEITHER CAN BE ROTATED, USE THREE-PIECE COUPLINGS OR SPLIT COUPLINGS. DO NOT USE RUNNING THREADS.
3. USE SUITABLE ADAPTERS WHERE REQUIRED TO TRANSITION FROM ONE TYPE OF CONDUIT TO ANOTHER.
4. PROVIDE DRIP LOOPS FOR LIQUIDTIGHT FLEXIBLE CONDUIT CONNECTIONS TO PREVENT DRAINAGE OF LIQUID INTO CONDUITS.
5. TERMINATE THREADED CONDUITS IN BOXES AND ENCLOSURES USING THREADED HUBS OR DOUBLE LOCK NUTS FOR DRY LOCATIONS AND RAINNIGHT HUBS FOR WET LOCATIONS.
6. PROVIDE INSULATING BUSHINGS OR INSULATED THROATS AT ALL CONDUIT TERMINATIONS TO PROTECT CONDUITS.
7. SECURE JOINTS AND CONNECTIONS TO PROVIDE MAXIMUM MECHANICAL STRENGTH AND ELECTRICAL CONTINUITY.

- H. PENETRATIONS:
1. DO NOT PENETRATE OR OTHERWISE NOTCH OR CUT STRUCTURAL MEMBERS, INCLUDING FOOTINGS AND GRADE BEAMS, WITHOUT APPROVAL OF STRUCTURAL ENGINEER.
2. MAKE PENETRATIONS PERPENDICULAR TO SURFACES UNLESS OTHERWISE INDICATED.
3. PROVIDE SLEEVES FOR PENETRATIONS AS INDICATED OR AS REQUIRED TO FACILITATE INSTALLATION. SET SLEEVES FLUSH WITH EXPOSED SURFACES UNLESS OTHERWISE INDICATED OR REQUIRED.
4. CONCEAL BENDS FOR CONDUITS RISERS ABOVE GROUND.
5. SEAL INTERIOR OF CONDUITS ENTERING THE BUILDING FROM UNDERGROUND AT FIRST ACCESSIBLE POINT TO PREVENT ENTRY OF MOISTURE AND GASES.
6. WHERE CONDUITS PENETRATE WATERPROOF MEMBRANE, SEAL AS REQUIRED TO MAINTAIN INTEGRITY OF MEMBRANE.
7. MAKE PENETRATIONS FOR ROOF-MOUNTED EQUIPMENT WITHIN ASSOCIATED EQUIPMENT OPENINGS AND CURBS WHERE POSSIBLE TO MINIMIZE ROOFING SYSTEM PENETRATIONS. WHERE PENETRATIONS ARE NECESSARY, SEAL AS INDICATED OR AS REQUIRED TO PRESERVE INTEGRITY OF ROOFING SYSTEM AND MAINTAIN ROOF WARRANTY. INCLUDE PROPOSED LOCATIONS OF PENETRATIONS AND METHODS FOR SEALING WITH SUBMITTALS.
8. INSTALL FIRESTOPPING TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING MATERIALS AND METHODS SPECIFIED IN SECTION 07.84.00.
I. CONDUIT MOVEMENT PROVISIONS: WHERE CONDUITS ARE SUBJECT TO MOVEMENT, PROVIDE EXPANSION AND EXPANSION/DEFLECTION FITTINGS TO PREVENT DAMAGE TO ENCLOSED CONDUCTORS OR CONNECTED EQUIPMENT. THIS INCLUDES, BUT IS NOT LIMITED TO:
1. WHERE CONDUITS CROSS STRUCTURAL JOINTS INTENDED FOR EXPANSION, CONTRACTION, OR DEFLECTION.
2. WHERE CONDUITS ARE SUBJECT TO EARTH MOVEMENT BY SETTLEMENT OR FROST.
J. CONDENSATION PREVENTION: WHERE CONDUITS CROSS BARRIERS BETWEEN AREAS OF POTENTIAL SUBSTANTIAL TEMPERATURE DIFFERENTIAL, PROVIDE SEALING FITTING OR APPROVED SEALING COMPOUND AT AN ACCESSIBLE POINT NEAR THE PENETRATION TO PREVENT CONDENSATION. THIS INCLUDES, BUT IS NOT LIMITED TO:
1. WHERE CONDUITS PASS FROM UNCONDITIONED INTERIOR SPACES.
2. WHERE CONDUITS PASS FROM UNCONDITIONED INTERIOR SPACES INTO CONDITIONED INTERIOR SPACES.
PART 1 PRODUCTS
1.01 BOXES
A. GENERAL REQUIREMENTS:
1. DO NOT USE BOXES AND ASSOCIATED ACCESSORIES FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
2. PROVIDE ALL BOXES, FITTINGS, SUPPORTS, AND ACCESSORIES REQUIRED FOR A COMPLETE RACEWAY SYSTEM AND TO ACCOMMODATE DEVICES AND EQUIPMENT TO BE INSTALLED.
3. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
4. WHERE BOX SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70 BUT NOT LESS THAN APPLICABLE MINIMUM SIZE REQUIREMENTS SPECIFIED.
5. PROVIDE GROUNDING TERMINALS WITHIN BOXES WHERE EQUIPMENT GROUNDING CONDUCTORS TERMINATE.
B. OUTLET AND DEVICE BOXES UP TO 100 CUBIC INCHES: INCLUDING THOSE USED AT JUNCTION AND PULL BOXES.
1. USE SHEET-STEEL BOXES FOR DRY LOCATIONS UNLESS OTHERWISE INDICATED OR REQUIRED.
2. USE CAST IRON BOXES OR CAST ALUMINUM BOXES FOR DAMP OR WET LOCATIONS UNLESS OTHERWISE INDICATED OR REQUIRED; FINISH WITH CORROSIVE RESISTANT WEATHERPROOF GASKETED COVERS.
3. USE SUITABLE ALUMINUM TYPE BOXES WHERE FINISH LOCATED IN MASONRY WALLS.
4. SHEET-STEEL BOXES: COMPLY WITH NEMA 1, AND LIST AND LABEL AS COMPLYING WITH UL 514A.
5. CAST METAL BOXES: COMPLY WITH NEMA FB 1, AND LIST AND LABEL AS COMPLYING WITH UL 514A; FURNISH WITH FINISHED SURFACES.
6. PROVIDE SUPPORTS, ANCHORS AND CEILING FANS: LISTED AS SUITABLE FOR THE TYPE AND WEIGHT OF LOAD TO BE SUPPORTED; FURNISHED WITH FIXTURE STUD TO ACCOMMODATE MOUNTING OF LIGHT FIXTURE WHERE REQUIRED.
7. BOXES FOR GANGED DEVICES: USE MULTIGANG BOXES OF SINGLE-PIECE CONSTRUCTION. DO NOT USE FIELD-CONNECTED GANGABLE BOXES UNLESS SPECIFICALLY INDICATED OR PERMITTED.
C. CONDUITS AND ENCLOSURES, INCLUDING JUNCTION AND PULL BOXES LARGER THAN 100 CUBIC INCHES:
1. COMPLY WITH NEMA 250, AND LIST AND LABEL AS COMPLYING WITH UL 50 AND UL 50E, OR UL 508A.
2. NEMA 250 ENVIRONMENT TYPE, UNLESS OTHERWISE INDICATED.
3. JUNCTION AND PULL BOXES LARGER THAN 100 CUBIC INCHES:
a. PROVIDE SCREW-COVER OR HINGED-COVER ENCLOSURES UNLESS OTHERWISE INDICATED.
PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL BOXES IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP) AND, WHERE APPLICABLE, NECA 130, INCLUDING MOUNTING HEIGHTS SPECIFIED IN THOSE STANDARDS WHERE MOUNTING HEIGHTS ARE NOT INDICATED.
C. ARRANGE EQUIPMENT TO PROVIDE MINIMUM CLEARANCES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NFPA 70.
D. BOX SUPPORTS:
1. SECURE AND SUPPORT BOXES IN ACCORDANCE WITH NFPA 70 AND SECTION 26 0529 USING SUITABLE SUPPORTS AND METHODS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. PROVIDE INDEPENDENT SUPPORT FROM BUILDING STRUCTURE EXCEPT FOR CAST METAL BOXES (OTHER THAN BOXES USED FOR FIXTURE SUPPORT) SUPPORTED BY THREADED CONDUIT CONNECTIONS IN ACCORDANCE WITH NFPA 70. DO NOT PROVIDE SUPPORT FROM PIPING, DUCTWORK, OR OTHER SYSTEMS.
E. INSTALL BOXES PLUMB AND LEVEL.
F. FLUSH-MOUNTED BOXES:
1. INSTALL BOXES IN NONCOMBUSTIBLE MATERIALS SUCH AS CONCRETE, TILE, GYPSUM PLASTER, ETC. SO THAT FRONT EDGE OF BOX OR ASSOCIATED RAISED COVER IS NOT SET BACK FROM FINISHED SURFACE MORE THAN 1/4 INCH OR DOES NOT PROJECT BEYOND FINISHED SURFACE.
2. INSTALL BOXES IN COMBUSTIBLE MATERIALS SUCH AS WOOD SO THAT FRONT EDGE OF BOX OR ASSOCIATED RAISED COVER IS FLUSH WITH FINISHED SURFACE.
3. REPAIR ROUGH OPENINGS AROUND BOXES IN NONCOMBUSTIBLE MATERIALS SUCH AS CONCRETE, TILE, GYPSUM PLASTER, ETC. SO THAT THERE ARE NO GAPS OR OPEN SPACES GREATER THAN 1/8 INCH AT THE EDGE OF THE BOX.
G. INSTALL BOXES AS REQUIRED TO PRESERVE INSULATION INTEGRITY.
H. INSTALL FIRESTOPPING TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING MATERIALS AND METHODS SPECIFIED IN SECTION 07.84.00.
I. CLOSE UNUSED BOX OPENINGS.
J. INSTALL BLANK WALL PLATES ON JUNCTION BOXES AND ON OUTLET BOXES WITH NO DEVICES OR EQUIPMENT INSTALLED OR DESIGNATED FOR FUTURE USE.
K. PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH SECTION 26.05.26.

SECTION 26.05.33.16
BOXES FOR ELECTRICAL SYSTEMS

- PART 1 PRODUCTS
1.01 BOXES
A. GENERAL REQUIREMENTS:
1. DO NOT USE BOXES AND ASSOCIATED ACCESSORIES FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING.
2. PROVIDE ALL BOXES, FITTINGS, SUPPORTS, AND ACCESSORIES REQUIRED FOR A COMPLETE RACEWAY SYSTEM AND TO ACCOMMODATE DEVICES AND EQUIPMENT TO BE INSTALLED.
3. PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
4. WHERE BOX SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70 BUT NOT LESS THAN APPLICABLE MINIMUM SIZE REQUIREMENTS SPECIFIED.
5. PROVIDE GROUNDING TERMINALS WITHIN BOXES WHERE EQUIPMENT GROUNDING CONDUCTORS TERMINATE.
B. OUTLET AND DEVICE BOXES UP TO 100 CUBIC INCHES: INCLUDING THOSE USED AT JUNCTION AND PULL BOXES.
1. USE SHEET-STEEL BOXES FOR DRY LOCATIONS UNLESS OTHERWISE INDICATED OR REQUIRED.
2. USE CAST IRON BOXES OR CAST ALUMINUM BOXES FOR DAMP OR WET LOCATIONS UNLESS OTHERWISE INDICATED OR REQUIRED; FINISH WITH CORROSIVE RESISTANT WEATHERPROOF GASKETED COVERS.
3. USE SUITABLE ALUMINUM TYPE BOXES WHERE FINISH LOCATED IN MASONRY WALLS.
4. SHEET-STEEL BOXES: COMPLY WITH NEMA 1, AND LIST AND LABEL AS COMPLYING WITH UL 514A.
5. CAST METAL BOXES: COMPLY WITH NEMA FB 1, AND LIST AND LABEL AS COMPLYING WITH UL 514A; FURNISH WITH FINISHED SURFACES.
6. PROVIDE SUPPORTS, ANCHORS AND CEILING FANS: LISTED AS SUITABLE FOR THE TYPE AND WEIGHT OF LOAD TO BE SUPPORTED; FURNISHED WITH FIXTURE STUD TO ACCOMMODATE MOUNTING OF LIGHT FIXTURE WHERE REQUIRED.
7. BOXES FOR GANGED DEVICES: USE MULTIGANG BOXES OF SINGLE-PIECE CONSTRUCTION. DO NOT USE FIELD-CONNECTED GANGABLE BOXES UNLESS SPECIFICALLY INDICATED OR PERMITTED.
C. CONDUITS AND ENCLOSURES, INCLUDING JUNCTION AND PULL BOXES LARGER THAN 100 CUBIC INCHES:
1. COMPLY WITH NEMA 250, AND LIST AND LABEL AS COMPLYING WITH UL 50 AND UL 50E, OR UL 508A.
2. NEMA 250 ENVIRONMENT TYPE, UNLESS OTHERWISE INDICATED.
3. JUNCTION AND PULL BOXES LARGER THAN 100 CUBIC INCHES:
a. PROVIDE SCREW-COVER OR HINGED-COVER ENCLOSURES UNLESS OTHERWISE INDICATED.
PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL IDENTIFICATION PRODUCTS TO BE PLAINLY VISIBLE FOR EXAMINATION, ADJUSTMENT, SERVICING, AND MAINTENANCE.
C. INSTALL IDENTIFICATION PRODUCTS SURFACES, LEVEL, AND PARALLEL WITH LINES OF ITEM BEING IDENTIFIED.
D. SECURE NAMEPLATES TO EXTERIOR SURFACES OF ENCLOSURES USING STAINLESS STEEL SCREWS AND TO INTERIOR SURFACES USING SELF-ADHESIVE BACKING OR EPOXY CEMENT.
E. INSTALL SELF-ADHESIVE LABELS AND MARKERS TO ACHIEVE MAXIMUM ADHESION, WITH NO BUBBLES OR WRINKLES AND EDGES PROPERLY SEALED.
F. SECURE RIGID SIGNS USING STAINLESS STEEL SCREWS.
G. MARK ALL HANDWRITTEN TEXT, WHERE PERMITTED, TO BE NEAT AND LEGIBLE.

- PART 2 EXECUTION
2.01 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL BOXES IN ACCORDANCE WITH NECA 1 (GENERAL WORKMANSHIP) AND, WHERE APPLICABLE, NECA 130, INCLUDING MOUNTING HEIGHTS SPECIFIED IN THOSE STANDARDS WHERE MOUNTING HEIGHTS ARE NOT INDICATED.
C. ARRANGE EQUIPMENT TO PROVIDE MINIMUM CLEARANCES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NFPA 70.
D. BOX SUPPORTS:
1. SECURE AND SUPPORT BOXES IN ACCORDANCE WITH NFPA 70 AND SECTION 26 0529 USING SUITABLE SUPPORTS AND METHODS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
2. PROVIDE INDEPENDENT SUPPORT FROM BUILDING STRUCTURE EXCEPT FOR CAST METAL BOXES (OTHER THAN BOXES USED FOR FIXTURE SUPPORT) SUPPORTED BY THREADED CONDUIT CONNECTIONS IN ACCORDANCE WITH NFPA 70. DO NOT PROVIDE SUPPORT FROM PIPING, DUCTWORK, OR OTHER SYSTEMS.
E. INSTALL BOXES PLUMB AND LEVEL.
F. FLUSH-MOUNTED BOXES:
1. INSTALL BOXES IN NONCOMBUSTIBLE MATERIALS SUCH AS CONCRETE, TILE, GYPSUM PLASTER, ETC. SO THAT FRONT EDGE OF BOX OR ASSOCIATED RAISED COVER IS NOT SET BACK FROM FINISHED SURFACE MORE THAN 1/4 INCH OR DOES NOT PROJECT BEYOND FINISHED SURFACE.
2. INSTALL BOXES IN COMBUSTIBLE MATERIALS SUCH AS WOOD SO THAT FRONT EDGE OF BOX OR ASSOCIATED RAISED COVER IS FLUSH WITH FINISHED SURFACE.
3. REPAIR ROUGH OPENINGS AROUND BOXES IN NONCOMBUSTIBLE MATERIALS SUCH AS CONCRETE, TILE, GYPSUM PLASTER, ETC. SO THAT THERE ARE NO GAPS OR OPEN SPACES GREATER THAN 1/8 INCH AT THE EDGE OF THE BOX.
G. INSTALL BOXES AS REQUIRED TO PRESERVE INSULATION INTEGRITY.
H. INSTALL FIRESTOPPING TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING MATERIALS AND METHODS SPECIFIED IN SECTION 07.84.00.
I. CLOSE UNUSED BOX OPENINGS.
J. INSTALL BLANK WALL PLATES ON JUNCTION BOXES AND ON OUTLET BOXES WITH NO DEVICES OR EQUIPMENT INSTALLED OR DESIGNATED FOR FUTURE USE.
K. PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH SECTION 26.05.26.

SECTION 26.05.53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

- PART 2 PRODUCTS
1.01 IDENTIFICATION REQUIREMENTS
A. IDENTIFICATION FOR EQUIPMENT:
1. USE IDENTIFICATION NAMEPLATE TO IDENTIFY EACH PIECE OF ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND ASSOCIATED SECTIONS, COMPARTMENTS, AND COMPONENTS.
a. PANELBOARDS:
1) IDENTIFY POWER SOURCE AND CIRCUIT NUMBER. INCLUDE LOCATION WHEN NOT WITHIN SIGHT OF EQUIPMENT.
2) USE TYPEWRITTEN CIRCUIT DIRECTORY TO IDENTIFY LOAD(S) SERVED FOR PANELBOARDS WITH A DOOR. IDENTIFY SPARES AND SPACES USING PENCIL.
b. ENCLOSED SWITCHES, CIRCUIT BREAKERS, AND MOTOR CONTROLLERS:
1) IDENTIFY POWER SOURCE AND CIRCUIT NUMBER. INCLUDE LOCATION WHEN NOT WITHIN SIGHT OF EQUIPMENT.
B. IDENTIFICATION FOR CONDUCTORS AND CABLES:
1. COLOR CODING FOR POWER CONDUCTORS 600 V AND LESS: COMPLY WITH SECTION 26.05.19.
2. USE IDENTIFICATION NAMEPLATE OR IDENTIFICATION LABEL TO IDENTIFY COLOR CODE FOR UNGROUNDING AND GROUNDING POWER CONDUCTORS INSIDE DOOR OR ENCLOSURE AT EACH PIECE OF FEEDER OR BRANCH-CIRCUIT DISTRIBUTION EQUIPMENT WHERE NECESSARY HAS FEEDERS OR BRANCH CIRCUITS SERVED BY MORE THAN ONE NOMINAL VOLTAGE SYSTEM.
1.02 IDENTIFICATION NAMEPLATES AND LABELS
A. IDENTIFICATION NAMEPLATES:
1. MATERIALS:
a. INDOOR CLEAN, DRY LOCATIONS: USE PLASTIC NAMEPLATES.
b. OUTDOOR LOCATIONS: USE PLASTIC, STAINLESS STEEL, ALUMINUM, OR METALS SUITABLE FOR EXTERIOR USE.
2. PLASTIC NAMEPLATES: TWO-LAYER OR THREE-LAYER LAMINATE OF ACRYLIC OR ELECTRICALLY NON-CONDUCTIVE PHENOLIC WITH BEVELLED EDGES; MINIMUM THICKNESS OF 1/16 INCH; ENGRAVED TEXT.
3. STAINLESS STEEL NAMEPLATES: MINIMUM THICKNESS OF 1/32 INCH; ENGRAVED OR LASER-ETCHED TEXT.
4. MOUNTING HOLES FOR MECHANICAL FASTENERS: TWO, CENTERED ON SIDES FOR SIZES UP TO 1 INCH BY 4 INCH, LOCATED 1/2 INCH FROM CORNERS FOR LARGER SIZES.
B. IDENTIFICATION LABELS:
1. MATERIALS: USE SELF-ADHESIVE LAMINATED PLASTIC LABELS; UV, CHEMICAL, WATER, HEAT, AND OIL RESISTANT.
2. TEXT: PREPARED BY PRE-PRINTED OR MACHINE-PRINTED OR LASER-PRINTED TEXT UNLESS OTHERWISE INDICATED.
1.03 WIRING SIGNS AND LABELS
A. COMPLY WITH ANSI Z535.2 OR ANSI Z535.4 AS APPLICABLE.
B. WIRING SIGNS:
a. INDOOR DRY, CLEAN LOCATIONS: USE FACTORY PRE-PRINTED RIGID PLASTIC OR SELF-ADHESIVE VINYL SIGNS.
b. OUTDOOR LOCATIONS: USE FACTORY PRE-PRINTED RIGID ALUMINUM SIGNS.
3. MINIMUM SIZE: 7 BY 10 INCHES UNLESS OTHERWISE INDICATED.
C. WARNING LABELS:
1.