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ELECTRICAL SPECIFICATIONS

1. THE WORK SUBJECT TO THESE SPECIFICATIONS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. THE INSTALLATION SHALL ALSO COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF LOCAL AND STATE LAWS AND ORDINANCES.
2. ALL ELECTRICAL EQUIPMENT SHALL BE SPECIFICATION GRADE AND SHALL HAVE THE PROPER UL LABEL.
3. POWER DISTRIBUTION HOUSE PANELBOARD PROVIDE DEAD-FRONT, SAFETY-TYPE POWER DISTRIBUTION PANELBOARDS AS INDICATED WITH SWITCHING AND PROTECTIVE DEVICES IN QUANTITIES, RATINGS, TYPES, AND WITH ARRANGEMENT SHOWN. INCLUDE ANTI-TURN, SOLDERLESS PRESSURE TYPE MAIN LUG CONNECTORS APPROVED FOR USE WITH COPPER CONDUCTORS.
4. HOUSE PANELBOARD IS EXISTING AND IS EQUAL TO SQUARE D TYPE "NQOD". VOLTAGE SHALL BE AS INDICATED. ACCEPTABLE MANUFACTURERS INCLUDE GENERAL ELECTRIC, SIEMENS AND CUTLER-HAMMER
5. TENANT PANELBOARDS PROVIDE DEAD-FRONT SAFETY TYPE LIGHTING AND BRANCH CIRCUIT PANELBOARDS AS INDICATED WITH SWITCHING AND PROTECTIVE DEVICES IN QUANTITIES, RATINGS, TYPES AND ARRANGEMENTS SHOWN. INCLUDE ANTI-TURN, SOLDERLESS PRESSURE TYPE LUG CONNECTORS APPROVED FOR USE WITH COPPER CONDUCTORS.
6. TENANT PANELBOARDS SHALL BE SQUARE D TYPE "QO". PANELBOARD BOXES SHALL BE FIVE AND THREE-FOURTHS INCHES (5-3/4") DEEP. VOLTAGE SHALL BE AS INDICATED.
7. ALL PANELBOARDS SHALL BE CONNECTED, DISTRIBUTED PHASE, WITH CIRCUIT NUMBERING AS INDICATED ON THE DRAWINGS. PANELBOARDS SHALL BE NUMBERED WITH ODD NUMBERS ON THE LEFT SIDE OF THE PANEL AND EVEN NUMBERS ON THE RIGHT SIDE OF THE PANEL.
8. UNLESS OTHERWISE INDICATED, PROTECTIVE DEVICES SHALL BE MOUNTED WITH TOP OF CABINET OR ENCLOSURE 6'-6" ABOVE FINISHED FLOOR, SHALL BE PROPERLY ALIGNED, AND SHALL BE ADEQUATELY SUPPORTED INDEPENDENTLY OF THE CONNECTING RACEWAYS. ANY AND ALL STEEL FRAMING, SHAPES, ETC., NECESSARY FOR THE SUPPORT OF THE EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WHERE THE BUILDING STRUCTURE IS NOT SUITABLE FOR MOUNTING THE EQUIPMENT DIRECTLY THEREON. UNLESS OTHERWISE INDICATED, ALL BRANCH CIRCUIT PROTECTIVE DEVICE ENCLOSURES SHALL BE NEMA TYPE 1, GENERAL PURPOSE TYPE. CIRCUIT PROTECTIVE DEVICES INSTALLED OUTDOORS OR EXPOSED TO THE WEATHER SHALL HAVE WEATHERPROOF ENCLOSURES, NEMA TYPE "3R" OR TYPE "4".
9. ALL SAFETY SWITCHES SHALL BE GENERAL DUTY TYPE. SWITCH MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK. COVERS SHALL BE INTERLOCKED WITH MECHANISM TO PREVENT OPENING UNLESS SWITCH IS IN THE "OFF" POSITION. ALL ENCLOSURES SHALL BE PRIMED AND FINISHED TO RESIST RUSTING AND CORROSION. SWITCHES SHALL BE SQUARE-D, SIEMENS, GENERAL ELECTRIC OR CUTLER-HAMMER.
10. CIRCUIT BREAKERS FOR MOUNTING IN HOUSE PANELBOARD SHALL BE BOLT-ON TYPE, MOLDED PLASTIC CASE, AIR CIRCUIT BREAKER TYPE. BREAKERS SHALL HAVE THERMAL MAGNETIC TRIP UNITS AND MULTI-POLE BREAKERS SHALL HAVE A COMMON TRIP BAR SO THAT THE TRIPPING OF ONE POLE WILL AUTOMATICALLY TRIP ALL POLES OF THE BREAKER. BREAKERS SHALL BE TRIP FREE AND TRIP INDICATING AND SHALL HAVE QUICK-MAKE, QUICK-BREAK CONTACTS.
11. UPON COMPLETION OF WORK CORRECT ALL PANELBOARD CIRCUIT DIRECTORY CARDS TO REFLECT AS-BUILT CONDITIONS. PANELBOARD DIRECTORIES SHALL BE UPDATED WITH TYPEWRITTEN ACCURATE AND CURRENT INFORMATION BY THE CONTRACTOR AT THE END OF CONSTRUCTION. DIRECTORIES SHALL REFLECT RECORD CONDITIONS AND INCLUDE CIRCUIT NUMBER, TYPE AND LOCATION OF LOAD. A SET OF AS-BUILT DRAWINGS SHALL ALSO BE PREPARED AND TURNED OVER TO THE OWNER
12. UNLESS SPECIFICALLY NOTED ON DRAWINGS, RACEWAYS SHALL COMPLY WITH THE FOLLOWING

    RACEWAYS EXPOSED TO THE WEATHER OR IN DAMP LOCATIONS SHALL BE GALVANIZED RIGID STEEL WITH THREADED CONNECTIONS.

    RACEWAYS SHALL BE SIZED FOR THE CONDUCTORS INSTALLED BUT A MINIMUM 1/2". FULL SIZE MC CABLE IS ACCEPTABLE IN DRY LOCATIONS. HOMERUNS TO PANELS SHALL BE IN CONDUIT.

13. RACEWAYS RUN BELOW GRADE SHALL BE RIGID STEEL CONDUIT WITH A REDUNDANT GROUND PATH INCLUDED. RACEWAYS RUN EXPOSED ON BUILDING EXTERIOR SHALL BE RIGID STEEL CONDUIT.
14. ALL METALLIC RACEWAYS SHALL BE MECHANICALLY AND ELECTRICALLY SECURE AT ALL JOINTS AND AT ALL BOXES, CABINETS, FITTINGS, AND EQUIPMENT.
15. ALL RACEWAYS SHALL BE SECURELY SUPPORTED FROM THE BUILDING STRUCTURE.
16. ALL RACEWAYS SHALL BE PROVIDED WITH AN EQUIPMENT GROUND CONDUCTOR.
17. ALL BOXES SHALL BE RIGIDLY MOUNTED AND SHALL BE EQUIPPED WITH SUITABLE SCREW FASTENED COVERS. OPEN KNOCK-OUTS OR HOLES IN BOXES SHALL BE PLUGGED WITH A SUITABLE BLANKING DEVICE.
18. OUTLET BOXES FOR EXPOSED WALL MOUNTING AND OUTDOOR INSTALLATION SHALL BE CAST METAL TYPE "FS" OR "FD" BOXES WITH SUITABLE GALVANIZED SHEET STEEL COVERS, OR CAST METAL WEATHERPROOF OR VAPOR TIGHT COVERS WHEN NOTED ON THE DRAWINGS.
19. UNLESS OTHERWISE INDICATED, ALL CONDUCTORS SHALL BE COPPER NO. 12 AWG. MINIMUM OR SIZE AS SHOWN ON DRAWINGS. CONDUCTORS SHALL HAVE TYPE "THHN/THWN" INSULATION.
20. SPLICES, TAPS AND ATTACHMENT FITTINGS AND LUGS SHALL BE ELECTRICALLY AND MECHANICALLY SECURE AND SOLDERLESS FOR CONDUCTORS SIZES NO. 8 AWG AND LARGER. THERE SHALL BE PLENTY OF SLACK CABLE IN BOXES, OUTLETS AND CABINETS TO INSURE THAT THERE IS NO BINDING AT THE BUSHINGS. ALL LUGS SHALL BE OF THE CORRECT SIZE FOR THE CONDUCTORS INSTALLED AND IN NO CASE SHALL STRANDS BE CUT FROM A CONDUCTOR IN ORDER TO FIT THE CONDUCTOR INTO A LUG. TAPING OF JOINTS SHALL BE WITH VINYL PLASTIC ELECTRICAL TAPE TO INSURE INSULATION STRENGTH EQUAL TO THAT OF THE CONDUCTORS JOINED.
21. THE INTERIOR ELECTRICAL SYSTEMS SHALL BE COMPLETELY AND EFFECTIVELY GROUNDED AS REQUIRED BY THE NEC AND AS SPECIFIED HEREINAFTER.
22. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS.
23. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS WITH THE OWNER PRIOR TO INSTALLATION. THEY SHALL NOT BE CHARGED FOR MINOR LOCATION CHANGES PRIOR TO INSTALLATIONS. LOCATIONS ARE APPROXIMATE. (DO NOT SCALE DRAWINGS).
24. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL ELECTRICAL LAYOUTS FOR BIDDING PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE DETAILED SHOP DRAWINGS AND CONFIRM SPACE ALLOCATIONS.
25. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL DISCIPLINES FOR ELECTRICAL CONDUIT ROUTING AND EQUIPMENT PLACEMENT. AVOID INTERFERENCE WITH ARCHITECTURAL AND STRUCTURAL FEATURES SUCH AN BEAMS, FOOTINGS, WINDOWS, ETC. NOTIFY ARCHITECT IMMEDIATELY OF ANY CONFLICTS.
26. THE ELECTRICAL CONTRACTOR, THE HVAC FOREMAN AND THE GENERAL CONTRACTOR PROJECT MANAGER SHALL INSPECT AND REVIEW THE CONDITIONS, AND SHALL COORDINATE THEIR WORK SO AS TO PROVIDE ADEQUATE SPACE ALLOWANCE ABOVE CEILING FOR ALL TRADES.
27. THE PLANS SHOW THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO DEPICT THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP. THEY ARE NOT INTENDED TO SHOW IN MINUTE DETAIL EVERY AND ALL ACCESSORY INTENDED FOR THE PURPOSE OF EXECUTION OF THE WORK, BUT SHALL BE UNDERSTOOD THAT SUCH DETAILS WILL BE PART OF THIS WORK.
28. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM INCLUDING CONTROLS AND CONNECTIONS TO NEW SERVICES, SUPPORTS, AND HARDWARE REQUIRED FOR THE SATISFACTORY OPERATION OF THE SYSTEM, WHETHER SPECIFICALLY SHOWN OR NOT ON THE DRAWINGS.
29. ALL CONDUCTORS SHALL BE THHN/THWN COPPER #12 MIN. AND INSTALLED IN A COMPLETELY ENCLOSED RACEWAY SYSTEM.
30. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO BRING SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
	1'x4' FLOURESCENT FIXTURE	SEE FIXTURE SCHEDULE
	2'x4' FLOURESCENT FIXTURE	SEE FIXTURE SCHEDULE
	SHADED FIXTURES CONTAIN BATTERY PACK	SEE FIXTURE SCHEDULE
	FLUORESCENT STRIP FIXTURE	SEE FIXTURE SCHEDULE
	LIGHT FIXTURE, WALL BRACKET LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
	LIGHT FIXTURE, CEILING TYPE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
	EXIT FIXTURE, SHADING INDICATES SINGLE OR DOUBLE FACE	SEE FIXTURE SCHEDULE
	EXIT LIGHT WITH EMERGENCY LIGHTS	SEE FIXTURE SCHEDULE
	EMERGENCY BATTERY UNIT	SEE FIXTURE SCHEDULE
S	SWITCH, SINGLE POLE-LETTER INDICATES LIGHTS CONTROLLED	48" AFF TO CL OR AS NOTED
S3	SWITCH, THREE WAY	48" AFF TO CL OR AS NOTED
	DIGITAL SWITCH OR AS NOTED	+48" AFF OR AS NOTED
	WALL-MOUNTED OCCUPANCY SENSOR	+48" AFF OR AS NOTED
	CEILING MOUNTED OCCUPANCY SENSOR	SURFACE MOUNT TO CEILING
LR	LIGHTING RELAY	INSTALL CONCEALED IN AN ACCESSIBLE AREA ABOVE CEILING
PP	POWER PACK	INSTALL CONCEALED IN AN ACCESSIBLE AREA ABOVE CEILING
PC	PHOTOCELL	SURFACE MOUNT TO CEILING
IG	DUPLEX RECEPTACLE, 125V, 20A WITH ISOLATED GROUND	18" AFF TO CL OR AS NOTED
	DUPLEX RECEPTACLE, 125V, 15A	18" AFF OR AS NOTED
	DUPLEX RECEPTACLE, 125V, 15A	44" AFF OR 6" ABOVE COUNTER
GFI	DUPLEX RECEPTACLE, 125V, 15A GROUND FAULT	18" AFF OR AS NOTED
GFI	DUPLEX RECEPTACLE, 125V, 15A	44" AFF OR 6" ABOVE COUNTER
	DUPLEX RECEPTACLE, 125V, 15A	FLUSH IN FLOOR
	QUADRAPLEX RECEPTACLE, 125V, 15A	18" AFF OR AS NOTED
	QUADRAPLEX RECEPTACLE, 125V, 15A	44" AFF OR 6" ABOVE COUNTER
	TELEPHONE/DATA OUTLET. SEE PLANS FOR WIRING CONFIGURATION	18" AFF OR AS NOTED
	TELEVISION OUTLET	18" AFF OR AS NOTED
	PANELBOARD 120/208V OR 120/240V	SEE PANEL SCHEDULE
Sm	MOTOR STARTER SWITCH WITH OVERLOAD RELAYS AS REQUIRED	AS NOTED
	MOTOR	AS NOTED
60/40 3	DISCONNECT SWITCH SIZE/ FUSE/ # OF POLES	TOP 60" AFF OR AS NOTED
	CONDUIT CONCEALED IN CEILING SPACE OR WALL	NUMBER OF WIRES INDICATED AS FOLLOWS
	CONDUIT IN FLOOR SLAB, CEILING SLAB OR UNDERGROUND	TWO WIRES / THREE WIRES
	HOME RUN TO PANEL (HASH MARKS INDICATE NUMBER OF WIRES)	FOUR WIRES
	CONDUIT RUN EXPOSED	
	WIREMOLD	AS NOTED
	TEMPERATURE SENSOR	AS NOTED ON MECHANICAL PLANS
	JUNCTION BOX	AS NOTED
	FIRE ALARM MANUAL PULL STATION	48" AFF OR AS NOTED
	FIRE ALARM CHIME/FLASHING LIGHT COMBINATION SIGNAL	80" AFF OR SEE NOTE BELOW
	FIRE ALARM FLASHING LIGHT SIGNAL	80" AFF OR SEE NOTE BELOW
	FIRE ALARM SMOKE DETECTOR	ON CEILING OR AS NOTED
	WALL MOUNTED SMOKE DETECTOR	6" BELOW THE CEILING TO THE TOP OF THE DETECTOR
R	RELAY	AS NOTED
FACP	FIRE ALARM CONTROL PANEL "FAA" - FIRE ALARM ANNUNCIATOR	60" AFF TO TOP OR AS NOTED
3 3 3 3 3	REFER TO LIKE NUMBERED NOTES	
ALL MOUNTING HEIGHTS SHOWN ARE TO THE CENTERLINE OF THE DEVICE UNLESS NOTED OTHERWISE		

NOTE - THE DEVICE SHALL BE PLACED 80 INCHES ABOVE THE HIGHEST FLOOR LEVEL WITHIN THE SPACE OR 6 INCHES BELOW THE CEILING, WHICHEVER IS LOWER.

GENERAL NOTES:

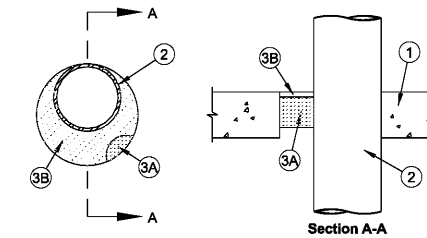
1. ALL WORK TO COMPLY TO ALL STATE, LOCAL, NEC, & NFPA CODES.
2. ELECTRICAL CONTRACTOR TO VISIT THE SITE PRIOR TO SUBMITTING A BID & INCLUDE IN THEIR BID ANY ITEM ANY ITEMS NECESSARY FOR A COMPLETE & OPERATIONAL SYSTEM.
3. DRAWINGS ARE SCHEMATIC IN NATURE. ELECTRICAL CONTRACTOR IS TO ADD ANY ITEMS THAT ARE REQUIRED FOR A COMPLETE & OPERATIONAL SYSTEM IN THEIR PROPOSAL.
4. ELECTRICAL CONTRACTOR IS TO COORDINATE THEIR INSTALLATION WITH THE OTHER TRADES. IF A CONFLICT OCCURS AND IT IS DUE TO THE ELECTRICAL CONTRACTOR'S LACK OF COORDINATION, ALL WORK INVOLVED IN RESOLVING THE CONFLICT WILL BE AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.

ABBREVIATIONS

(A)	EXISTING TO BE ABANDONED
(D)	EXISTING TO BE DEMOLISHED
(E)	EXISTING TO REMAIN
(F)	FUTURE
(R)	EXISTING TO BE RELOCATED
A	AMPERE
AC	ALTERNATING CURRENT OR AIR CONDITIONER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CAPACITY
ANNC	ANNUNCIATOR
AWG	AMERICAN WIRE GAUGE
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CM	CONSTRUCTION MANAGER
DC	DIRECT CURRENT
DP	DISTRIBUTION PANELBOARD
DTT	DOUBLE TWIN TUBE
EB	ELECTRONIC BALLAST
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
EMT	ELECTRICAL METAL TUBING
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FLA	FULL LOAD AMPS
G	GROUND
GC	GENERAL TRADES CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GEN	GENERATOR
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPC	HIGH PRESSURE CONTACT SWITCH
HZ	HERTZ
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INCD	INCANDESCENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
LTG	LIGHTING OR LIGHT
LRA	LOCKED ROTOR AMPS
MCA	MAXIMUM CURRENT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSB	MAIN SWITCHBOARD
MH	METAL HALIDE
MTS	MANUAL TRANSFER SWITCH
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NF	NON-FUSED
OCC	OCCUPANCY
PA	PUBLIC ADDRESS
PB	PULL BOX OR PUSH BUTTON
PVC	POLYVINYL CHLORIDE (PLASTIC PIPE)
PWR	POWER
RECPT	RECEPTACLE
STP	SHIELDED, TWISTED PAIR
TC	TIME CLOCK
TRT	TRIPLE TUBE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
W	WATT
WAP	WIRELESS ACCESS POINT
WH	WATTHOUR
WP	WEATHERPROOF, NEMA 3R UNO
XFMR	TRANSFORMER
Z	IMPEDANCE
Φ	PHASE

System No. C-AJ-1079

F Ratings - 3 and 4 Hr (See Item 3C)
T Ratings - 0, 1/4, 1/2 and 3/4 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft



Section A-A

1. **Floor or Wall Assembly -** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Floor may also be constructed of any min 6 in. thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks*** . Max diam of opening is 28 in. Max diam of opening in floor constructed of hollow-core precast concrete units Is 7 In.
   See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. **Through Penetrants -** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tubing and the periphery of the opening shall be min 0 in. (point contact) to a max 4 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe -** Nom 24 in diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 24 in. diam (or smaller) cast or ductile iron pipe.
   C. **Conduit -** Nom 4 in. diam (or smaller) electrical metallic tubing or nom 6 in. diam (or smaller) steel conduit or nom 1 in. diam (or smaller) flexible steel conduit.
   D. **Copper Tubing** - Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe -** Nom 6 in. diam (or smaller) Regular or heavier copper pipe.

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Type of Metallic Penetrant	Max Diam of Metallic Penetrant in.	T Rating Hr
Steel or Iron Pipe, Conduit	24	0
Copper Pipe or Tube	6	0
Steel or Iron Pipe, Conduit or EMT	4	1/4
Steel or Iron Pipe, Conduit or EMT	2	1/2
Steel or Iron Pipe, Conduit or EMT	1	3/4

3. **Firestop System -** The firestop system shall consist of the following:
   A. **Packing Material -** Min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material. When floor is constructed of hollow-core precast concrete units, packing material is to be recessed from both surfaces of floor to accommodate the required thickness of fill material.
   The thickness of the packing material is dependent upon the type and diam of the through penetrant (Item 2) as tabulated below:

Thought Penetrant	Max Throught-Penetrant Diam In.	Min Mineral Wool Insulation Thkns In.
Steel Pipe, Conduit Or Iron Pipe	6	1-1/2++
Steel Pipe, Conduit Or Iron Pipe	24	3
Copper Tube Or Copper Pipe	6	3

   ++When annular space exceeds 2 in., packing material thickness to be min 3 in.
   B. **Fill, Void or Cavity Material* - Caulk -** Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. When floor is constructed of hollow-core precast concrete units, fill material is to be installed symmetrically on both sides of floor, flush with both surfaces. At the point contact location between penetrating item and concrete, a min 3/8 in. thick bead of fill material shall be applied at the concrete penetrating item interface on top surface of floor and both surfaces of wall or hollow-core precast concrete floor.
   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
   C. **Steel Cover Plate -** (Not Shown) - Min 0.014 in. (No. 28 gauge) galv steel cut to fit the contour of the through-penetrant (Item 2) with a min 2 in. lap on the top surface of floor and both surfaces of wall assembly around the perimeter of the through-opening. Seams of steel cover plate shall overlap a min 1/2 in. Steel cover plate secured to top surface of floor and both surfaces of wall assembly by means of 1/4 in. diam by 1-3/4 in. long steel concrete anchors in conjunction with 1/4 in. by 1-1/4 in. diam steel fender washers spaced a max 6 in. OC.
   The hourly F Rating of the firestop system is dependent upon the use of the steel cover plate. If the steel cover plate is used , the F Rating of the firestop system is 4 hr. If the steel cover plate is omitted, the F Rating of the firestop system is 3 hr.

*Bearing the UL Classification Mark

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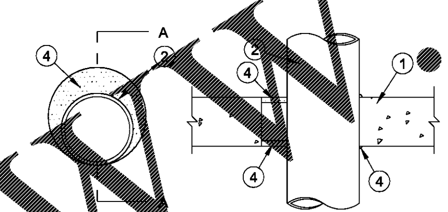
System No. C-AJ-1259

F Rating - 3 Hr
T Rating - 0 Hr



Section A-A

1. **Floor or Wall Assembly -** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Floor may also be constructed of any min 6 in. thick UL Classified hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 7 in.
   See **Concrete Blocks** (CAZT) and **Precast Concrete Units** (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. **Through Penetrants -** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tubing and the periphery of the opening shall be a min of 0 in. (point contact) to a max of 3 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduit or tubing may be used:
   A. **Steel Pipe -** Nom 6 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 6 in. diam (or smaller) cast or ductile iron pipe.
   C. **Conduit -** Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
   D. **Copper Tube -** Nom 4 in. diam (or smaller) Type L (or heavier) copper tube.
3. **Forming Material -** (Optional, Not Shown) - Mineral wool batt packing material or polyurethane backer rod friction fitted into opening and recessed from floor or wall surfaces as required to accommodate required thickness of fill material.
4. **Fill, Void or Cavity Material* - Sealant -** Min 1/2 in. thickness of fill material applied within the annulus, flush with both surfaces of floor or wall. At the point contact location between penetrating item and concrete, a min 1/4 in. thick bead of fill material shall be applied at the concrete/penetrating item interface on both sides of floor or wall.
   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

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Wall Opening Protective Materials

SPECIFIED TECHNOLOGIES INC R14288 SUITE 2 200 EVANS WAY SOMERVILLE, NJ 08876 USA

SpecSeal Putty Pads , for use with max 4-11/16 by 4-11/16 in. flush device UL Listed metallic outlet boxes installed with steel cover plates in 1 and 2 h fire rated gypsum board wall assemblies framed with min 3-1/2 in. deep wood or steel studs and constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory. Installation to comply with the National Electrical Code (NFPA 70). Min 3/16 in. thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and completely seal against the stud within the stud cavity. An additional 3/16 in. thickness of putty to be formed around the connector securing the end of each electrical metallic tube or conduit to the box. When used with metallic outlet boxes larger than 4 by 4 in., a ball of putty is to be installed to plug the open end of each electrical metallic tube or conduit within the outlet box. When max 4 by 4 in. metallic outlet boxes are used, the ball of putty in the open end of each electrical metallic tube or conduit within the outlet box is optional. When moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on the opposite sides of the wall may be less than 24 in. provided that the boxes are not installed back-to-back.

SpecSeal Putty Pads for use with max 4 by 3-3/4 by 3 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Carlon Electrical Products and made from polyvinyl chloride, max 4 by 3-3/4 by 3 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Allied Moulded Products Inc. and made from fiber-reinforced thermosetting plastic or max 4-1/16 by 3-5/8 by 3-1/8 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Thomas & Betts Corp. and made from fiber-reinforced thermosetting plastic. Boxes shall also bear a 2 h rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Installation to comply with the National Electrical Code (NFPA 70). Boxes installed with steel or plastic cover plates. Putty pads and boxes for use in 1 and 2 h fire rated gypsum board/wood stud wall assemblies constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the Fire Resistance Directory. Outlet box secured to wood stud by means of two nailing tabs in conjunction with nails supplied with the outlet box. Min 3/16 in. thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) including nailing tabs and completely seal against the stud within the stud cavity. An additional 3/16 in. thickness of putty to be formed around the end of each nonmetallic sheathed cable at its connection to the box and to extend a minimum of 1 in. from the box onto the nonmetallic sheathed cable within the stud cavity. When moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. provided that the boxes are not installed back-to-back.

FIRE PENETRATION DETAILS METALLIC BOXES

NOT TO SCALE

GENERAL PROJECT AND DEMOLITION NOTES

1. BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF THE WORK. THE SUBMISSION OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD AN EXAMINATION BEEN MADE, WILL NOT BE ALLOWED.
2. ALL EXISTING CIRCUITS TO REMAIN SHALL BE RECONNECTED WHETHER INDICATED OR NOT ON PROJECT DOCUMENTS.
3. NEW AND EXISTING CIRCUIT DESIGNATIONS MAY NOT REPRESENT ACTUAL FIELD CONDITIONS. FIELD VERIFY WHERE REQUIRED AND INDICATE ACTUAL CIRCUIT USED ON THE AS-BUILT DRAWINGS.
4. COORDINATE WITH OTHER TRADES FOR ITEMS IN THEIR SCOPE OF WORK WHICH WOULD REQUIRE ELECTRICAL WORK DISCONNECTION, RECONNECTION, ETC. AND ARE NOT INDICATED ON THE ELECTRICAL PLANS.
5. WHERE EXISTING PARTITIONS OR WALLS ARE SHOWN TO BE REMOVED, CONTRACTOR SHALL REMOVE DEVICES TO THE NEAREST SOURCE JUNCTION BOX AND SHALL MAINTAIN SERVICE TO REMAINING DOWNSTREAM ELECTRICAL OUTLETS. COORDINATE THE DEMOLITION OF THE EXISTING WALLS WITH ARCHITECTURAL DRAWINGS.
6. PROTECT EXISTING ELECTRICAL EQUIPMENT AND INSTALLATIONS NECESSARY TO REMAIN. IF EXISTING EQUIPMENT IS DAMAGED OR DISTURBED IN THE COURSE OF THE WORK, REMOVE DAMAGED PORTIONS AND INSTALL NEW PRODUCTS OF EQUAL CAPACITY, QUALITY, AND FUNCTIONALITY.
7. REMOVE ELECTRICAL EQUIPMENT AND INSTALLATIONS INDICATED TO BE DEMOLISHED IN THEIR ENTIRETY. WHERE THE EXISTING EQUIPMENT INDICATED TO BE DEMOLISHED CONTAINS BRANCH CIRCUITRY SERVING OUTLETS THAT ARE EXISTING TO REMAIN, RELOCATE THE BRANCH CIRCUIT TO AN ALTERNATE PANEL AND INDICATE THE CHANGE ON THE AS-BUILT DRAWINGS.
8. ABANDONED WORK. CUT OR REMOVE RACEWAY SLEEVES AND WIRING INDICATED TO BE ABANDONED IN PLACE BELOW THE SURFACE OF ADJACENT CONSTRUCTION. CAP RACEWAYS AND PATCH SURFACE TO MATCH EXISTING FINISH.
9. COMPLETELY REMOVE ALL EXISTING FLOOR BOX BRANCH CIRCUITS BACK TO PANEL. REMOVE FLOOR DATA WIRING COMPLETELY BACK TO SOURCE. REMOVE FLOOR BOX COVERS AND FLANGES AND GRIND FLOOR BOX TO BELOW FINISHED SLAB TO PREPARE FOR CONCRETE FINISH WORK. COORDINATE WITH GENERAL CONTRACTOR.
10. THE CONTRACTOR SHALL INCLUDE WITHIN THE BID ALL REQUIRED OFF HOUR, OVERTIME, AND NON-BUSINESS HOUR WORK AS REQUIRED TO PERFORM THE DEMOLITION WITHOUT DISRUPTING THE BUILDING TENANTS NORMAL BUSINESS OPERATIONS.
11. REMOVE ALL DATA WIRING AND EQUIPMENT RACKS THAT WILL NOT BE RE-USED. RELOCATE TELEPHONE DEMARC CONDUIT TO NEW LOCATION AS REQUIRED.
12. ALL DEMOLISHED EQUIPMENT AND WIRING SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF OR TURNED OVER TO THE OWNER AT THE OWNER'S SOLE OPTION.

1 **ELECTRICAL SPECIFICATIONS**
SCALE: NOT TO SCALE

REVISIONS	BY

OLIVERI ARCHITECTS
AA-0002921
Member of the American Institute of Architects
32707 US Hwy. 19 • Palm Harbor, FL 34684
Phone 727 . 781 . 7525 • Fax 727 . 781 . 6623
• www.oliveriarchitects.com •

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Michael P. Spychala P.E.
Fla PE# 31533
Fla COA# 3967

New Building for
ARBY'S
Store #8149
1058 Dunlawton Ave.
Port Orange, Florida

Date: 08. 24. 18
Scale: AS NOTED
Project Mgr: MPS
Drawn: MPS
Job: 18-082
Sheet
E5