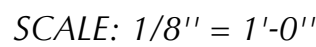
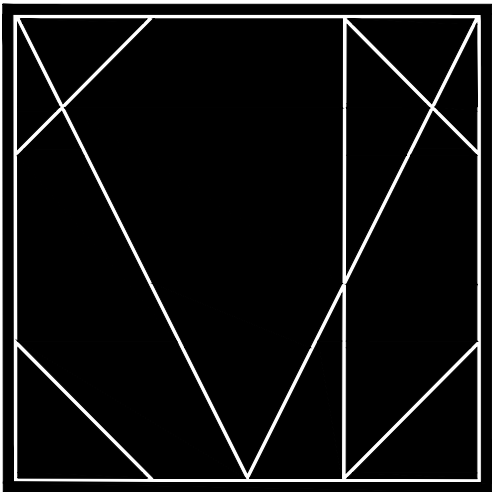


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ARCHITECTURE INTERIOR DESIGN
www.CVDstudio.com

CAMPBELL + VAN DUSEN Design Studio, LLC
255 South Orange Avenue Suite #1240
Orlando, Florida 32801
Phone: 407.930.6016
FL Lic. No. AA2600339

ARCHITECT OF RECORD
FRANK W. CAMPBELL AIA
FL LIC. NO. A00016053
COPY OF THIS PLAN IS NOT VALID UNLESS SIGNED,
SEALED AND DATED BY THE ENGINEER OF RECORD.
DATE: 02/01/2016

PROJECT DESCRIPTION:
HEATHROW CENTRE
BUILDING - 02
EMPTY SHELL BUILDING
1145 BUSINESS CENTER DRIVE
SUITE 1025 AND SUITE 1075
LAKE MARY, FLORIDA, 32746

CONSTRUCTION
DATE: 10.24.2025
REVISED:
NO. DESCRIPTION DATE

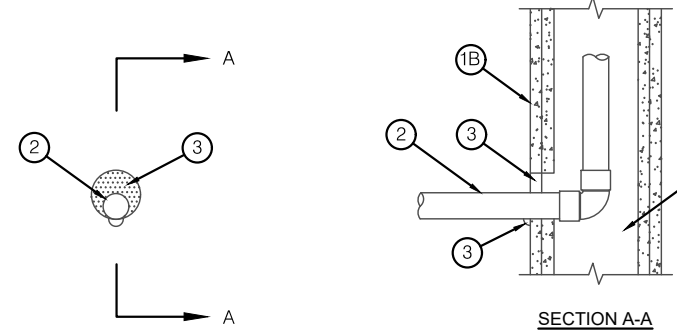
PROJECT TEAM
PREPARED BY: G. SIGLE
PROJECT MANAGER: Z. AMATUCCI

CLEAN NAME
Providence One Partners

PROJECT NUMBER
24-0919-01
SHEET TITLE
UL PENETRATION DETAILS

SHEET NUMBER
E501

| System No.W-L-1527 August 24, 2016 | |
|---|--|
| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Ratings — 1 and 2 Hr (See Item 1) | FT Ratings — 1 and 2 Hr (See Item 1) |
| L Rating At Ambient — Less Than 1 CFM/sq ft | FH Ratings — 1 and 2 Hr (See Item 1) |
| L Rating At 400 F — Less Than 1 CFM/sq ft | FTH Ratings — 1 and 2 Hr (See Item 1) |
| | L Rating At Ambient — Less Than 5.1 L/s/m2 |
| | L Rating At 400 F — Less Than 5.1 L/s/m2 |



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. Gypsum Board* - One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

The hourly F, T, FT, FH and FTH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Metallic Penetrant - One metallic pipe, conduit or tube to be installed either concentrically or eccentrically, penetrating wall assembly on one side of wall. The annular space between the pipe, conduit or tubing and the periphery of opening shall be min 0 in. (point contact) to max 7/8 in. (22 mm). Pipe, conduit or tubing shall be rigidly supported within the wall and on the penetrated side of the wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 3 in. (76 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. Iron Pipe - Nom 3 in. (76 mm) diam (or smaller) cast or ductile iron pipe.

C. Conduit - Nom 3 in. (76 mm) diam (or smaller) steel electrical metallic tubing (EMT), nom 3 in. (76 mm) diam steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.

D. Copper Tubing - Nom 1 in. (25 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe - Nom 1 in. (25 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material* - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with surface of wall assembly. At point contact location, min 3/8 in. (10 mm) diam bead of fill material to be applied at the penetrant/gypsum board interface.
SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2016-08-24

Design/System/Construction/Assembly Usage Disclaimer

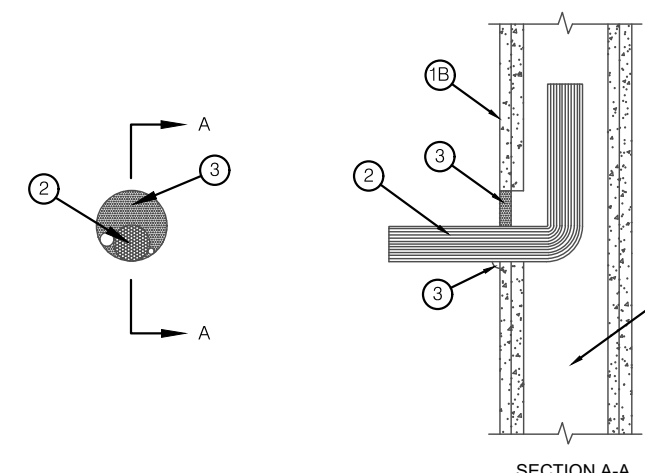
- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

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UL PENETRATION DETAILS

NOT TO SCALE

| System No. W-L-3427 August 24, 2016 | |
|--|--------------------------------------|
| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
| F Ratings — 1 and 2 Hr (See Item 1) | F Ratings — 1 and 2 Hr (See Item 1) |
| T Ratings — 1/4 Hr | FT Ratings — 1/4 Hr |
| | FH Ratings — 1 and 2 Hr (See Item 1) |
| | FTH Ratings — 1/4 Hr |



1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 5-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. Gypsum Board* - One or two layers of nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Cables - One or more individual cables or max 1-1/2 in. (38 mm) diam tight bundle of cables to be installed either concentrically or eccentrically, penetrating wall assembly on one side of wall. The annular space between the cables and the periphery of opening shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). Cables shall be rigidly supported within the wall and on the penetrated side of the wall assembly. Any combination of the following types and sizes of cables may be used:

Through-penetration Firestop Systems: XHEZ-W-L-3427 - UL Product Spec

A. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.

B. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.

C. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.

D. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.

E. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad or Armored-Clad cable.

3. Fill, Void or Cavity Material* - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with surface of wall assembly. At point contact location, min 3/8 in. (10 mm) diam bead of fill material to be applied at the penetrant/gypsum board interface.
SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

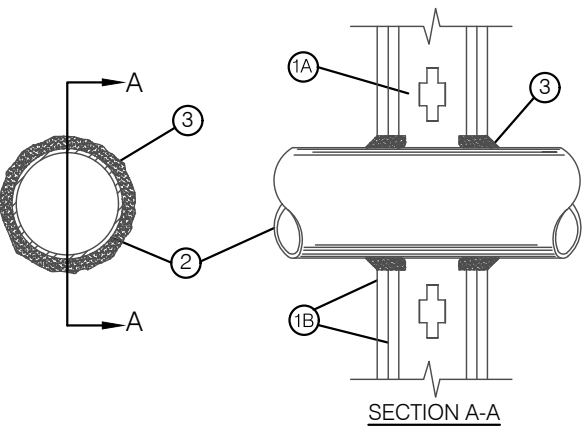
Last Updated on 2016-08-24

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

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| System No.W-L-1001 June 15, 2005 | |
|--|---|
| F Ratings - 1, 2, 3 and 4 Hr (See Items 2 and 3) | T Ratings - 0, 1, 2, 3, and 4 Hr (See Item 3) |
| L Rating At Ambient - less than 1 CFM/sq ft | L Rating At 400 F - less than 1 CFM/sq ft |



1. Wall Assembly - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs (max 2 hr fire rated assembly) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber and plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

2. Through Penetrant - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe - Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 30 (or heavier) ductile iron pressure pipe.

C. Conduit - Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Product* - Flexible Metal Piping - The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

TITELFLEX CORP

A. BUNNY CO

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

3. Fill, Void or Cavity Material* - Caulk or Sealant - Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum/plaster/penetrant interface at point contact location on both sides of wall.

The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table.

The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below.

| Max Pipe or Conduit Diam in. (mm) | F Rating | T Rating |
|--------------------------------------|----------|-------------|
| 1 (25) | 1 or 2 | 0 or 1 or 2 |
| 1 (25) | 2 or 4 | 2 or 4 |
| 4 (102) | 1 or 2 | 0 |
| 6 (152) | 3 or 4 | 0 |
| 12 (305) | 1 or 2 | 0 |

*When copper pipe is used, T Rating is 0 hr.

3M COMPANY - CP 25WB+ caulk or FB-3000 WT sealant.
*Bearing the UL Classification Marking

*** NOTE - THIS MATERIAL WAS EXTRACTED BY 3M FIRE PROTECTION PRODUCTS FROM THE 2004 EDITION OF THE UL FIRE RESISTANCE DIRECTORY.**

WALL OPENING PROTECTIVE MATERIALS (CLIV)
This category covers proprietary compositions which are used to maintain the hourly ratings of fire resistive walls and partitions containing flush mounted devices such as outlet boxes, electrical cabinets and mechanical cabinets. The individual Classifications include the specific applications and the method of installation for which the materials have been evaluated.

The basic standard used to investigate products in this category is ANSI/UL 263, "Fire Tests of Building Construction and Materials".

LOOK FOR CLASSIFICATION MARKING ON PRODUCT
The Classification Marking of Underwriters Laboratories Inc. (shown below) on the product or container is the only method provided by Underwriters Laboratories Inc. to identify Wall Opening Protective Materials produced under its Classification and Follow-Up Service.

UNDERWRITERS LABORATORIES INC.®
CLASSIFIED
WALL OPENING PROTECTIVE MATERIAL
FIRE RESISTANCE CLASSIFICATION
SEE PRODUCT CATEGORY
IN UL FIRE RESISTANCE DIRECTORY

MINNESOTA MINING & MFG CO R9700
3M CENTER, ST PAUL, MN 55144

Type MPP-4S+ moldable putty pads for use with max 4-11/16 by 4-11/16 in. flush device UL Listed **Metallic Outlet Boxes** in fire rated gypsum wallboard wall assemblies framed with min. 3-1/2 in. wide wood or steel studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the FCR Resistance Directory. Outlet boxes secured to wood studs by means of two mailing tabs in conjunction with nails supplied with the outlet box.

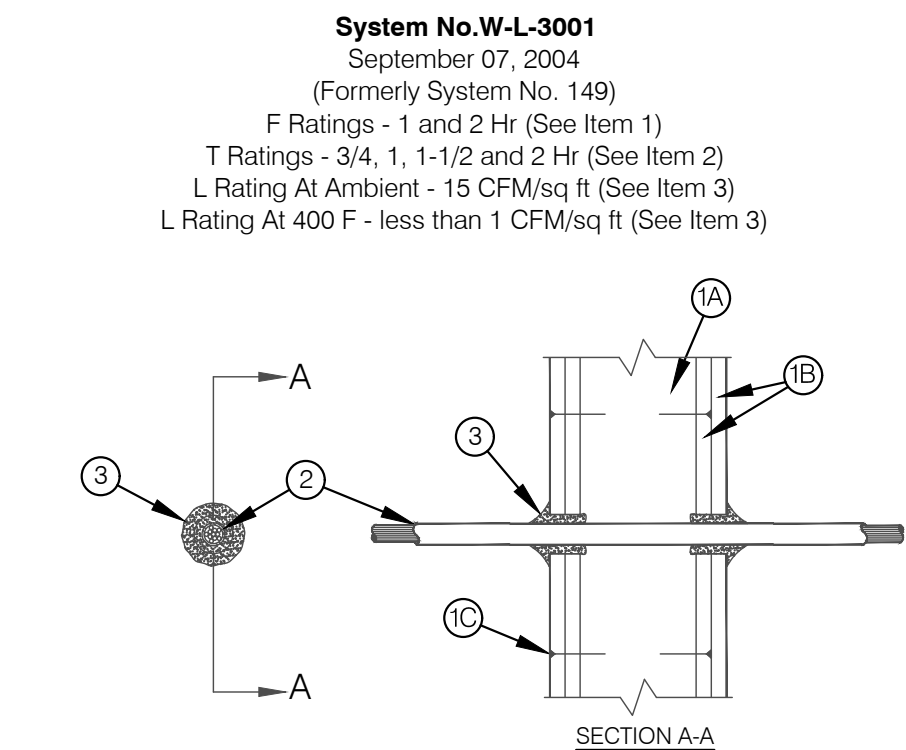
Type MPP-4S+ moldable putty pads for use with max 4 by 3-3/4 by 3 in. deep UL Listed **Nonmetallic Outlet Boxes** manufactured by Carlson Electrical Products, made of PVC and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. For use in fire rated gypsum wallboard wall assemblies framed with min 3-5/8 in. wide wood studs and constructed as specified in the individual U300 Series Wall and Partition Designs in the Fire Resistance Directory.

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 mailing tabs and completely seal against the stud within the stud cavity. An additional ball of the putty material used to plug the end of each electrical metallic tube or conduit at its connection to the box. A min 1/8 in. thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the 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 outlet boxes are not installed back to back.

WALL OPENING PROTECTIVE MATERIALS (CLIV) - "PUTTY PADS"
NOT TO SCALE

*** NOTE: 1. PUTTY PADS ARE NOT REQUIRED WHERE THE PROVISIONS OF FBC 714.3.2 EXCEPTIONS ARE SPECIFICALLY ADHERED TO.**

2. PROVIDE MULTI FIRESTOP BOX INSERTS WHERE ALLOWED AS AN ALTERNATE TO THE MOLDABLE PUTTY PADS.



1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber and plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. Gypsum Board* - Nom 1/2 or 5/8 in. thick, 41 wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall or Partition Design. Diam of circular through opening to be 3/8 in. to 5/8 in. larger than outside diam of cable or cable bundle.

C. Fasteners - When wood stud framing is employed gypsum wallboard layers attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type S self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Cables - Individual cable or max 1 in. diam cable bundle installed in through opening with an annular space of min 0 in. (point contact) to max 3/4 in. Cable to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:

A. Max 150 pair No. 24 AWG copper conductor telephone cable with polyvinyl chloride (PVC) insulation and jacket materials. When max 25 pair telephone cable is used.

T Rating is 2 hr When 50 to 150 pair telephone cable is used in 1 hr fire rated wall, T Rating is 3/4 hr When 50 to 150 pair telephone cable is used in 2 hr fire rated wall, T Rating is 1 hr.

B. Max No. 10 AWG multiple copper conductor Type NM (Romex) nonmetallic sheathed cable with PVC insulation and jacket materials.

When Type NM cable is used, max T Rating is 1-1/2 hr.

C. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in. **When fiber optic cable is used, max T Rating is 2 hr.**

D. Max 3/50 (multi-conductor) power/control cable with cross-linked polyethylene (XLPE) insulation and XLPE or PVC jacket materials.

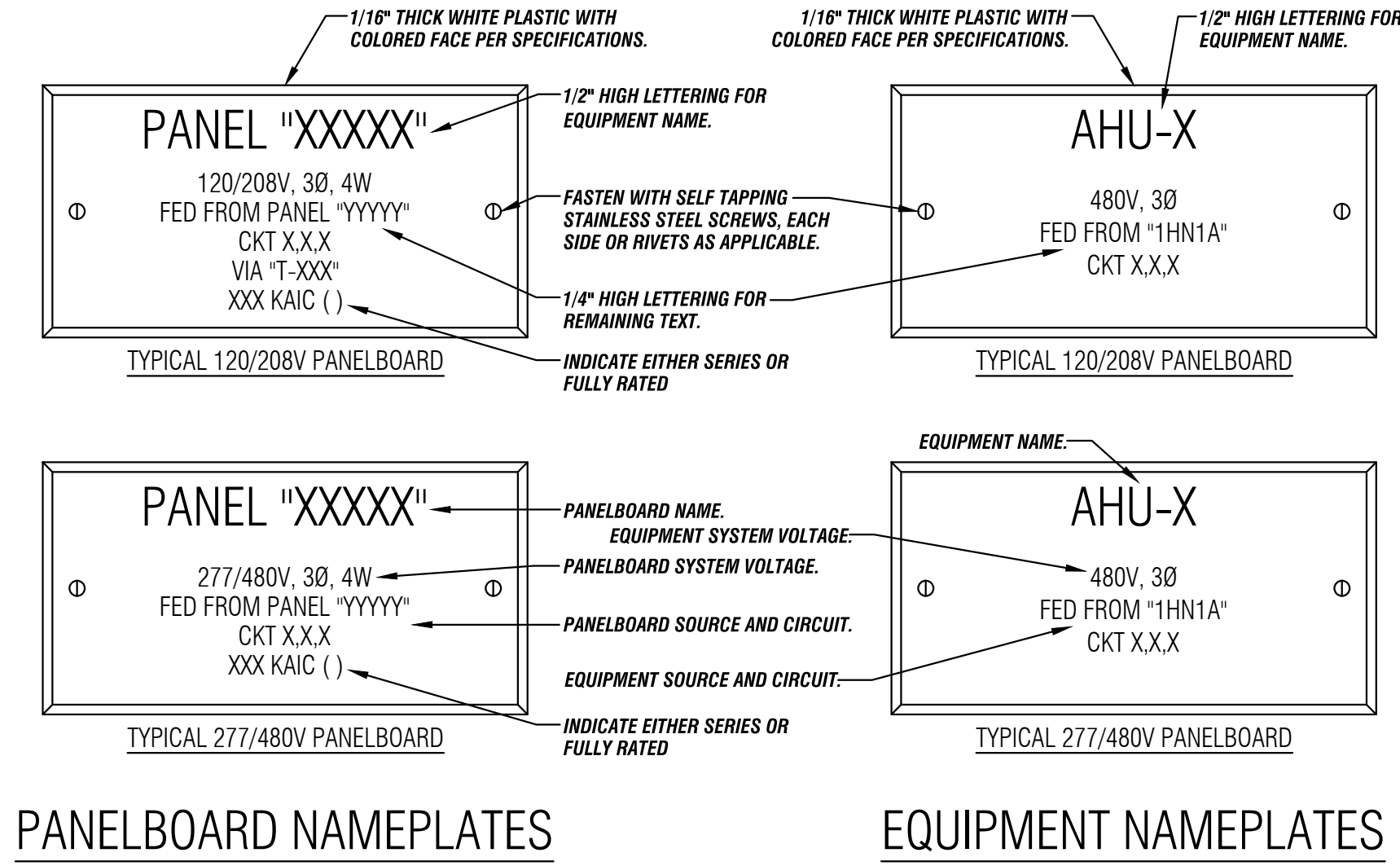
When multi-conductor power/control cable is used, max T Rating is 2 hr.

E. Max four conductor with ground No. 2 AWG (or smaller) aluminum SER cables with polyvinyl chloride insulation and jacket materials.

3. Fill Void or Cavity Materials* - Caulk, Sealant or Putty - Caulk or putty fill material installed to completely fill annular space between cable and gypsum wallboard on both sides of wall and with a min 1/4 in. diam bead of caulk or putty applied to perimeter of cable(s) at its ingress from each side of the wall.

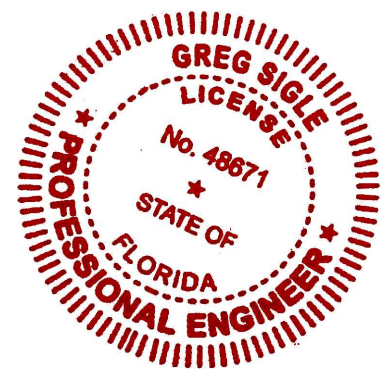
3M COMPANY - MP+ Sbk putty, CP 25WB+ caulk, FB-3000 WT sealant or Cable Whip putty (Note: L Ratings apply only when CP 25WB+ caulk or FB-3000 WT sealant is used.)

*Bearing the UL Classification Mark



TYPICAL NAMEPLATE DIAGRAM

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This item has been digitally signed and sealed by Greg Sigle on the date adjacent to the seal.

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2102-EDTL
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P.E. LICENSE # 48671
EBN # 9582

