

1. **Wall Assembly** - Minimum 4-1/2 inch thick reinforced lightweight or normal weight (100-150 pcf) concrete wall. Wall may also be constructed of any UL Classified **Concrete blocks**. Max area of opening is 576 sq in with max dimensions of 24 inch.

2. **Cable Tray** - Max 18 inch wide by max 6 in. deep open ladder cable tray with channel-shaped side rails formed from 0.060 inch thick (No. 16 MSG) galv steel with nom 1 inch diam rungs spaced 9 inch OC or max 18 in. wide by max 6 in. deep open ladder cable tray with channel-shaped side rails formed from 0.060 inch thick aluminum with nom 1 inch diam rungs spaced 9 inch OC. Max two cable trays to be installed in the opening with a separation of 8 inch between cable trays. The annular space between the cable trays and periphery of the opening will be min 3 inch to max 16 inch. after installation of the mortar fill material (4B), annular space between the side rails of the cable tray and the mortar fill material will be a min of 0 inch (point contact) to a max of 4 inch. The annular space between the back or front of the cable trays and the mortar fill material shall range from a min 1-1/2 inch to a max of 3 inch. Cable trays to be rigidly supported on both sides of floor or wall assembly.

**Cables** - Aggregate cross-sectional area of cables in cable tray is dependent upon the nom depth of the cable tray. if the nom depth of the cable tray is equal to or less than 4 inch aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray based on a max 3-7/8 inch cable loading depth within the cable tray. if the nom depth of the cable tray is greater than 4 inch, aggregate cross-sectional area of cables in cable tray to be max 20 percent of the cross-sectional area of the cable tray based on a max 6 inch cable loading depth within the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:

- Max 1/C - 350 kcmil cable with polyvinyl chloride (PVC) insulation and jacket.
- Max 3/C - No. 2 AWG cable with PVC insulation and jacket.
- Max 7/C - No 12 AWG cable with PVC-nylon insulation and PVC jacket.
- Max 2/C - No. 16 AWG cable with PVC-nylon insulation and PVC jacket.

**Firestop system** - The Firestop system shall consist of the following:

**A. Forms (Not Shown)** - Used to prevent the leakage of the mortar fill material (item 4B) during the installation. Forms to be rigid sheet material, cut to fit the contour of the penetrating items and periphery of opening. Forms fastened to the underside of the floor or both sides of the wall. Forms to be removed after the fill material has cured.

**B. Fill, Void or Cavity Material - Mortar** - Min 4-1/2 inch thickness of fill material applied within the annulus between the cable tray and periphery of opening, flush with the top surface of the floor or with both surfaces of wall. Mortar to be mixed with water at a rate of 1.2 part dry mixture to 1.0 part water by weight in accordance with installation instructions supplied with the product.

**SPECIFIED TECHNOLOGIES INC** - SpecSeal Mortar

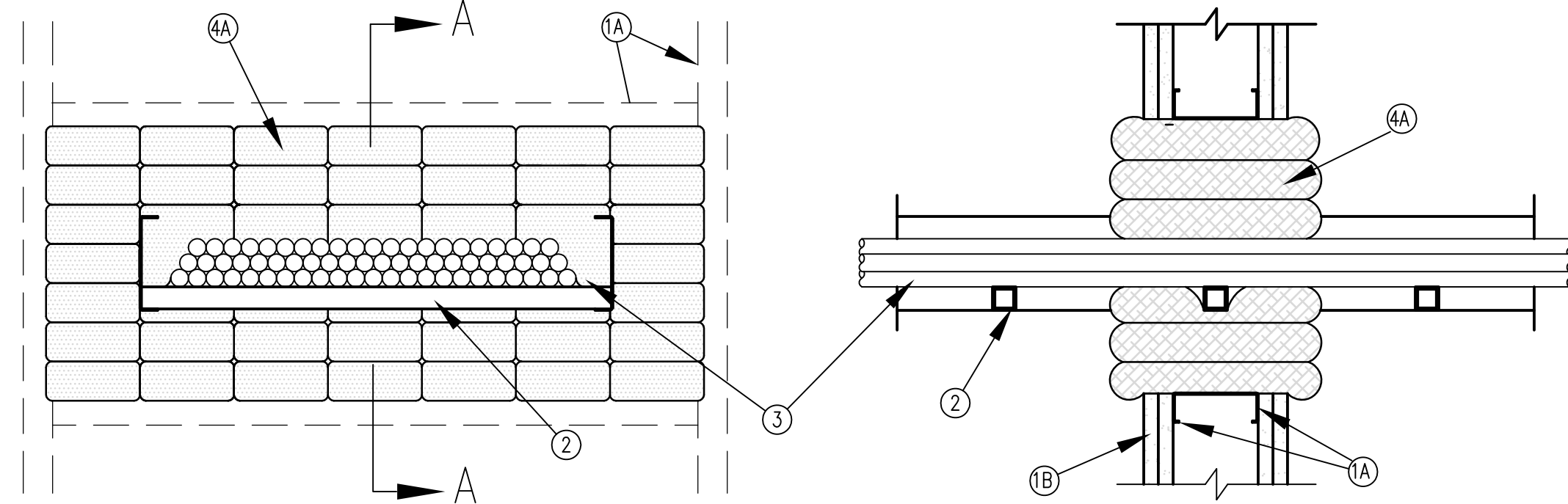
**C. Fill, Void or Cavity Material - Pillows** - Max 9 inch long by 6 inch wide by 3 inch thick plastic covered intumescent pillows. In floors, pillows to be installed lengthwise into the opening and positioned to extend a maximum of 2-1/2 inch below the bottom plane of the floor. In walls, pillows to be installed lengthwise through the opening and positioned to extend equally in both directions from the approximate center line of the wall. Pillows tightly packed into opening to fill the annular space between cables and mortar, between cable tray and mortar and between cable trays.

**SPECIFIED TECHNOLOGIES INC** - SpecSeal Firestop Pillows

**D. Fill, Void or Cavity Material - Putty** - (not Shown) - After installation of pillows (Item 4A), putty applied to seal any voids between cables, between the cables and the pillows and between the cable tray and the pillows on both sides of the floor or wall assembly.

**SPECIFIED TECHNOLOGIES INC** - SpecSeal Putty

**E. Wire Lath** - Nom 1 inch diamond shaped wire lath fabricated from min No. 20 AWG galv steel wire. Wire lath cut to fit the contour of the opening with a min 2 inch lap beyond the periphery of the opening on to the concrete floor or wall assembly to keep the pillows in place. Wire lath secured to both surfaces of floor or wall assembly with 1/4 inch diam by 1-3/4 in long concrete anchors inconjunction with 1/4 inch by 1-1/2 inch diam steel fender washers, spaced 4 inch OC. the joints within the wire lath shall overlap a min of 2 inch and be secured together by means of No. 20 AWG steel wire spaced 6 inch OC.



1. **Wall Assembly** - The 1 or 2 hour fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U200 or U400 Series Wall or 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 norm 2 by 4 inch lumber spaced 16 inch OC with norm 2 by 4 inch lumber end plates and cross braces. Steel studs to be min 3-5/8 inch wide and spaced max 24 inch OC. additional framing members to be installed in stud cavity containing the through-penetrating item to form a rectangular box around the penetrate.

**B. Gypsum board** - 5/8 inch thick, 4 foot wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U200 or U400 Series Design in the UL Fire Resistance Directory. Max area of opening is 273 sq inch with max dimensions of 22-3/4 inch max width of opening in wood stud walls is limited to 14-1/2 inch.

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

**Cable Tray** - Max 18 inch wide by max 5 in. deep open ladder cable tray with channel-shaped side rails formed from 0.060 inch thick (No. 16 MSG) galv steel with nom 1 inch diam rungs spaced 9 inch OC or max 18 in. wide by max 5 in. deep open ladder cable tray with channel-shaped side rails formed from 0.060 inch thick aluminum with nom 1 inch diam rungs spaced 9 inch OC. One cable tray to be centered in the opening. The annular space between the cable tray and each side of opening shall be a non 2-5/16 inch. The annular space between the cable tray and top and bottom of opening shall be a non 3-1/2 inch. Cable tray to be rigidly supported on both side of wall assembly.

**Cables** - Aggregate cross-sectional area of cables in cable tray to be max 30 percent of the cross-sectional area of the cable tray based on a max 3-7/8 inch cable loading depth within the cable tray. Any combination of the following types and sizes of copper conductor cables may be used:

- Max 200 pair No. 24 AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) and insulation.
- Max 1/C - 750 kcmil (or smaller) Copper Conductor cable with XPLE or PVC insulation and XPLE or PVC jacket.
- Max RG59/U (or smaller) coaxial cable with fluorinated ethylene insulation and jacketing.
- Max 3/C - No. 2 AWG cable with PVC insulation and jacket.
- Max 7/C - No 12 AWG cable with PVC-nylon insulation and PVC jacket.
- Max 62.5/125 micron fiber optic cable with PVC insulation and jacketing.
- Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar insulation and jacketing
- Max 4/C No. 10 AWG (or smaller) copper or aluminum conductor aluminum or steel Metal-Clad or Armored-Clad cable

**Firestop system** - The Firestop system shall consist of the following:

**A. Fill, Void or Cavity Material - Pillows** - Max 9 inch long by 6 inch wide by 3 inch thick plastic covered intumescent pillows. pillows to be installed lengthwise through the opening and positioned to extend equally in both directions from the approximate center line of the wall. Pillows tightly packed into opening to fill the annular space between cables periphery of opening.


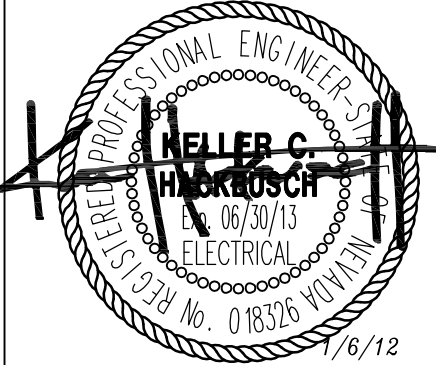



**SPECIFIED TECHNOLOGIES INC** - SpecSeal Firestop Pillows

**B. Fill, Void or Cavity Material - Putty** - (not Shown) - After installation of pillows (Item 4A), putty applied to seal any voids between cables, between the cables and the pillows and between the cable tray and the pillows on both sides of the wall assembly.

**SPECIFIED TECHNOLOGIES INC** - SpecSeal Putty

1  
E13  
CONCRETE FIRE WALL CABLE TRAY PENETRATION  
NO SCALE

2  
E13  
GYP-BOARD FIRE WALL CABLE TRAY PENETRATION  
NO SCALE

<div>Revisions</div> <div>Date</div>		<div>CONSULTANTS:</div> <div><div><div>DINTER</div><div>ENGINEERING CONFIDENCE</div><div>Airfield Electrical Mechanical</div><div>385 Gentry Way</div><div>Reno, NV 89502</div><div>Ph: 775.826.4044</div><div>Fax: 775.826.4190</div><div>www.dinter.com J-4217.6</div></div></div>	<div><div></div></div>	<div>ARCHITECT/ENGINEERS:</div> <div><div><div>vern martin design associates</div><div>(a Nevada Corporation)</div><div>Food Facilities Design</div><div>760 Robin St., Reno, Nevada 89509</div><div>P: (775) 240-2637 F: (775) 201-0066</div><div>E: vern@martinreno.com</div></div><div><div><div>VanWoert Bigotti</div><div>architects</div><div>1400 S. Virginia St. Suite C</div><div>Reno, Nevada 89502</div><div>P: 775.328.1010</div><div>F: 775.328.1020</div><div>info@vwarchitects.com</div></div></div></div>	<div>Drawing Title</div> <div>ELECTRICAL DETAIL</div> <div>FIREWALL PENETRATION</div> <div>Approved Project Director</div>	<div>Project Title</div> <div>VA SIERRA NEVADA HEALTH CARE</div> <div>SYSTEM - CANTEEN RELOCATION</div> <div>DESIGN - , RENO, NEVADA</div> <div>Location</div> <div>975 KIRMAN AVE, RENO, NEVADA 89502</div> <div>Date</div> <div>06 JAN, 2012</div> <div>Checked</div> <div>ERG</div> <div>Drawn</div> <div>RLB</div>	<div>Project Number</div> <div>654-11-227</div> <div>Building Number</div> <div>XXXX</div> <div>Drawing Number</div> <div>E 10.3</div> <div>Dwg. X of X</div>	<div>Office of</div> <div>Construction</div> <div>and Facilities</div> <div>Management</div> <div></div> <div>Department of</div> <div>Veterans Affairs</div>
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