

## Pretium™ Wallmount Splice Housing

### Revision History

Issue	Date	Reason for Change
1	01/2007	Initial release

### Related Literature

SRP 003-724	Pretium™ Wallmount Housing (PWH-02P, -04P, and -06P)
SRP 003-728	Pretium™ Wallmount Housing (PWH-12P)

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## Admonishments

The precautionary terms used by Corning Cable Systems in its standard recommended procedures conform to the guidelines expressed in the American National Standards Institute document (ANSI Z535) for hazard alert messages. Alerts are included in this instruction based on the following:



**DANGER:** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING:** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION:** indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

## 1. GENERAL

This document describes the recommended procedure for installing a Pretium™ Wallmount Splice Housing (WSH) manufactured by Corning Cable Systems. The housing will accept up to sixteen Type 2 splice trays or eleven Type 4 splice trays.

The splice housing can be used in conjunction with the Pretium™ Wallmount housings for termination. Follow instructions provided with the wallmount housings.

Before proceeding with the cable installation, determine how the cable will be routed in the WSH unit. Cable entry location is dependent upon the type of cable being installed and the location of the housing on the wall. In the case of midspan access, determine the number of fibers to be spliced and the number of fibers to be expressed through the housing.

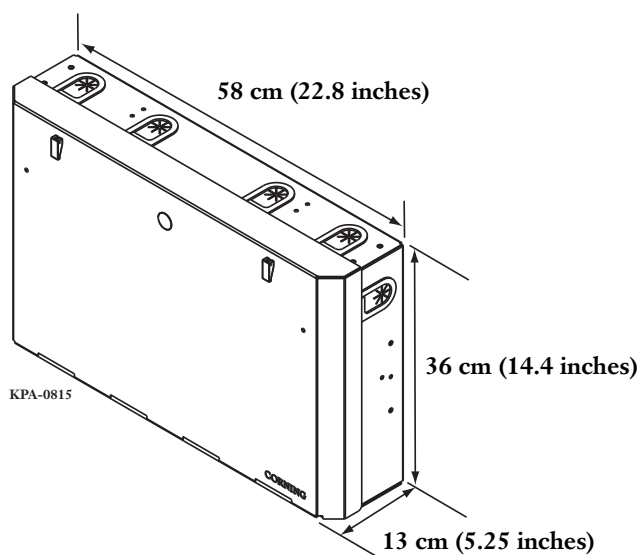


Figure 1 — PWH-WSH Dimensions

## 2. CARTON CONTENTS

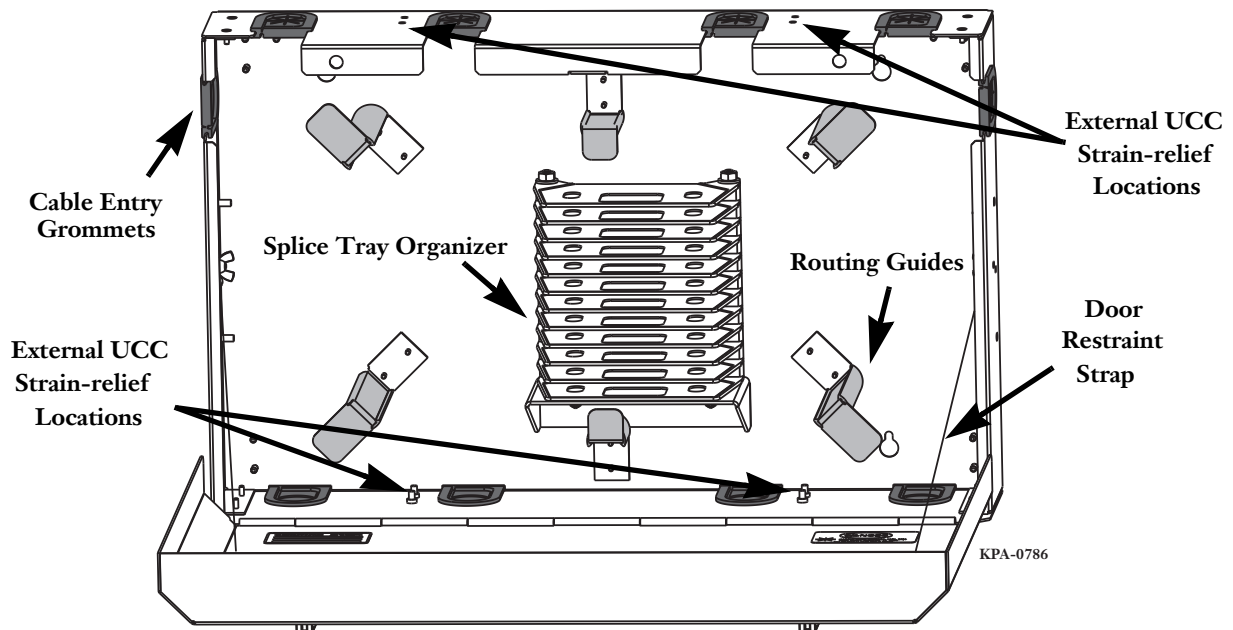


Figure 2 — PWH-SSH Components

- Splice housing
- Hardware kit containing:
  - (4) #6-32 x .25 Phillips-head screws
  - (4) 10-32 x .3125 Phillips-head screws
  - 6 feet of Spiral wrap
  - (12) Cable ties
  - (2) Strain-relief plates
  - (2) Strain-relief brackets
  - (4) #6-32 Locknuts
- Central member strain-relief kit containing:
  - (4) M6 washers
  - (2) Splice shelf clamps
  - (2) #8-32 Locknuts

## 3. TOOLS AND MATERIALS REQUIRED

### 3.1 Tools

- Phillips-head screwdriver
- 216B tool (can wrench) or  $\frac{3}{8}$ -inch nutdriver
- $\frac{5}{16}$ -inch nutdriver
- Needle-nosed pliers
- Cable knife
- Pen or pencil

### 3.2 Materials

- Splice trays
- If using armored cable, p/n GROUND-KIT-2 is required.
- Heatshrink fusion splice protectors (p/n 2806032-01, package of 50, 40 mm long)
- Optical Fiber Access Tool (p/n OFT-000) to split buffer tubes and access individual fibers in ALTOS® cable
- Ideal™ Buffer Tube splitter (p/n 100107-01) to split endspan buffer tubes

## 4. INSTALLATION

### 4.1 Mounting

**Step 1:** Lift up on the swell latches on the door. Loosen the wing nut holding the door restraint strap in its stored location and move them to the top stud inside the left interior wall of the housing. Tighten the wing nut on the stud to secure the door restraint strap.

**Step 2:** Using the housing as a template (Figure 3), ensure the unit is square and mark the locations for the mounting hardware. Install appropriate anchors (not provided) to the surface to which the housing will be attached. Use shims (not provided) on uneven surfaces to ensure the housing is square and to prevent warpage.

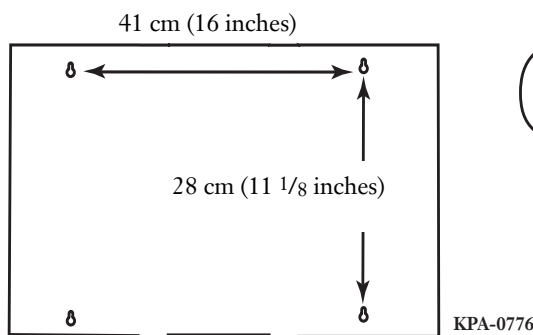
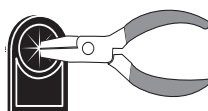


Figure 3 — Mounting Hole Locations

**Step 3:** Install mounting bolts or screws leaving a 1/8-inch gap between the mounting surface and screw or bolt head.

**Step 4:** Slide the housing onto the wall-mounting screws and tighten.

**Step 5:** Determine cable entry location into the housing and pierce the appropriate entry grommet as illustrated in (Figure 4).



Use a pair of needle-nosed pliers or sharp pencil to pierce the grommet. Do not use a knife or cutters. The grommets must fit tightly to prevent the intrusion of foreign particles.

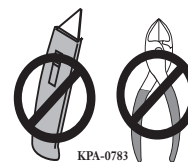


Figure 4 — Pierce Entry Grommet

## 4.2 Prepare Cable

**NOTE:** Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. **Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink.** Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.



**CAUTION:** Wear safety glasses to protect your eyes from accidental injury when handling chemicals and cutting fiber. Pieces of glass fiber are very sharp and can damage the eye easily.

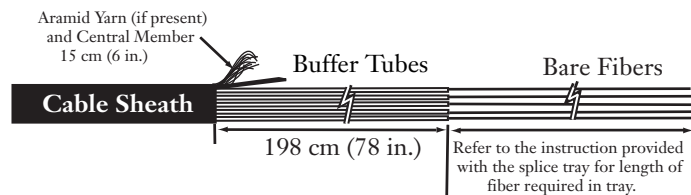


**WARNING:** Cleaved glass fibers are very sharp and can pierce the skin easily. Do not let cut pieces of fiber stick to your clothing or drop in the work area where they can cause injury later. Use tweezers to pick up cut or broken pieces of the glass fibers and place them on a loop of tape kept for that purpose alone. **Good housekeeping is very important.**

**IMPORTANT:** Typical lengths are illustrated. Since the actual application may vary, it is recommended to route the buffer tubes as they will lie in the housing to determine actual strip lengths before cutting fiber. Do not expose the bare fiber until you are ready to splice.

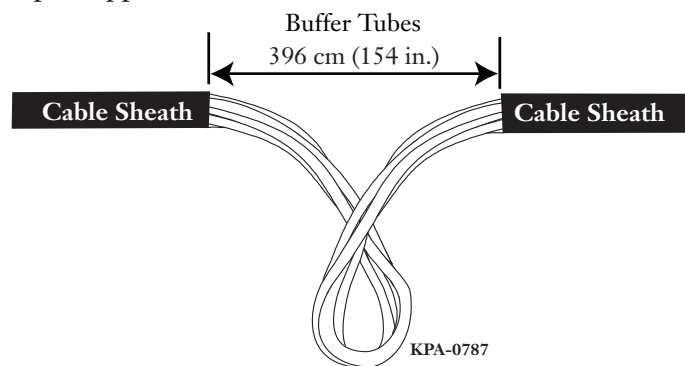
**Step 1:** Remove the cable sheath as described in the sheath removal instructions for the cable you are using or as indicated in Figure 5.

### Endspan Application



**Step 2:** Cut the central member to 15 cm (approximately 6 inches) from the end of the cable sheath using side cutters.

### Midspan Application



**Step 3:** If aramid yarn is present, leave approximately 15 cm (6 inches) of yarn for additional strain-relieving.

Figure 5 — Strip Lengths

### 4.3 Install Grounding Hardware to Armored Cable

If installing armored cable, it should be grounded to a primary ground. Ground armored cable using p/n GROUND-KIT-2 (purchased separately) as shown in Figure 6.

- Step 1:** Cut a slit into opposite sides of the outer cable sheath and armor about 2.5 cm (1 inch). To do this, score the armor with a cable knife (being careful not to damage the inner sheath, if present) and split the sheath by flexing it.
- Step 2:** Position the grounding clamp base plate under the armor. The stops of the clamp should just touch the outside of the armor and sheath. Tap the sheath above the ground clamp base to drive the teeth on the plate into the cable sheath.
- Step 3:** Position the top plate and locknut on the outer sheath over the base plate. Tighten with a  $\frac{3}{8}$ -inch can wrench so that the teeth on the upper plate are driven into the sheath.
- Step 4:** Wrap the grounding plate and split portion of the cable sheath with vinyl tape.
- Step 5:** Place the eyelet on the ground wire over the stud on the base plate. Add a second locknut and tighten with a  $\frac{3}{8}$ -inch can wrench.

**IMPORTANT:** *Ground lead will be attached to ground bar in a later step.*

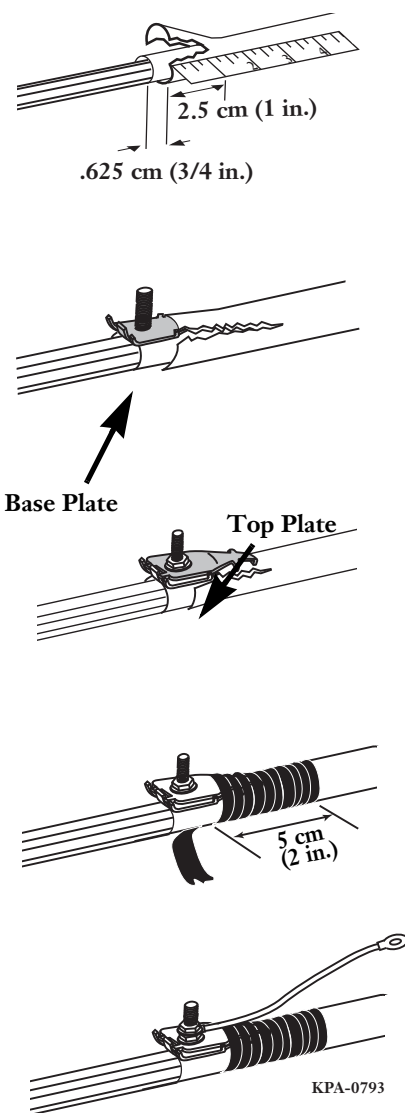


Figure 6 — Install Ground Hardware

### 4.4 Strain-relieve the Cable

There are a variety of strain-relief locations and options in the WSH unit. Section 4.4.1 describes strain-relief using the hardware provided with the unit. Section 4.4.2 describes strain-relief using the optional Universal Cable Clamp (p/n PWH-STRNRLF-KIT, purchased separately). Choose the strain-relief configuration that best fits your application.

**IMPORTANT:** *If you are installing outside plant cable or temperatures fluctuate widely along any part of the cable, the central member must be strain-relieved. Failure to do so may result in damage to the cable as temperatures vary. If the entire length of cable is located in a controlled environment where temperature fluctuation is minimal, it is not necessary to secure the central members. The cable can be strain-relieved by sheath retention alone using the UCC kit.*

#### 4.4.1 Using Cable Ties and Central Member Restraint

- Step 1:** Attach the strain-relief plate to the strain-relief bracket using two screws per bracket (Figure 7).
- Step 2:** Attach the bracket assembly to the housing using two #6-32 locknuts.
- Step 3:** Strip 15 cm (approximately 6 inches) of the cable sheath to expose the central member and yarn, if present. Secure the cable sheath to the bracket assembly using two cable ties.
- Step 4:** Wrap the yarn, if present, in a clockwise direction around the stud on the bracket. Install the U-shaped washer over the stud on the bracket.
- Step 5:** Position the central member over the U-shaped washer.
- Step 6:** Place the round washers on the stud over the central member.
- Step 7:** Attach the #8-32 locknut and tighten to secure the central member and yarn. Cut excess central member and yarn.

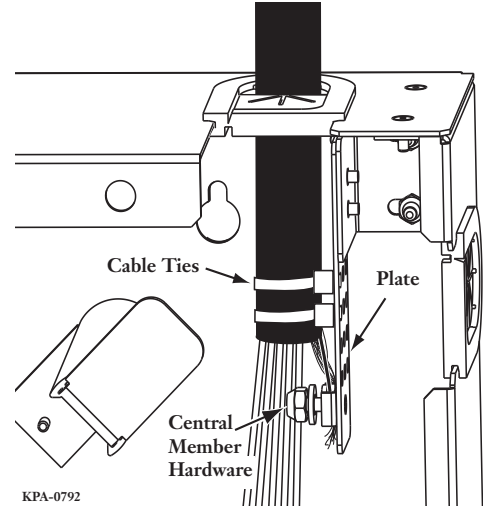


Figure 7 — Secure Central Member

#### 4.4.2 Using the Universal Cable Clamp (UCC)

- Step 1:** Attach the Universal Cable Clamp to the mounting bracket according to the instructions provided with the UCC kit. Attach the bracket to the outside of the housing in the cable entry location.
- Step 2:** The UCC must be installed inside the housing unless the cable enters the housing in the center entry locations. Use the provided strain-relief bracket to secure the UCC to the housing (Figure 8).
- Step 3:** Cut the central member and yarn, if present, flush with the end of the cable sheath.

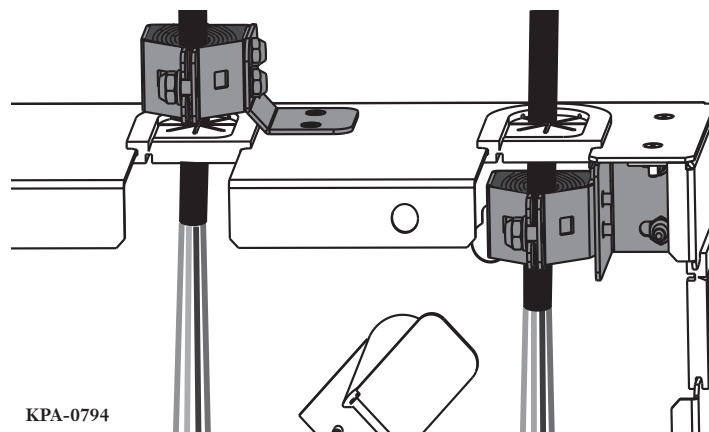


Figure 8 — UCC Strain-relief

#### 4.5 Ground Armored Cable

If using armored cable, use p/n GROUND-KIT-2 (purchased separately) to ground the housing per standard practices and local codes (Figure 9).

- Step 1:** Attach the ground bar to the inside wall of the housing using two 10-32 locknuts.
- Step 2:** Install a nut on the ground stud and tighten.
- Step 3:** Attach the end of the ground wire to the ground stud.
- Step 4:** Install another nut over the ground wire on the stud and tighten.

When the cable has a metallic strength member, place the U-shaped washer over the stud on the strain-relief bracket and lay the strength member on top of it. Place the eyelet of a second ground wire on top of the metallic strength member. Add flat washers and a nut and tighten the nut (Figure 10). The ground cable must make contact with the metallic strength member. Attach the other end of the ground wire to the ground bar as described above.

#### 4.6 Splice the Cable

Splice trays are purchased separately. Follow instructions provided with the splice tray and splicing equipment you are using.

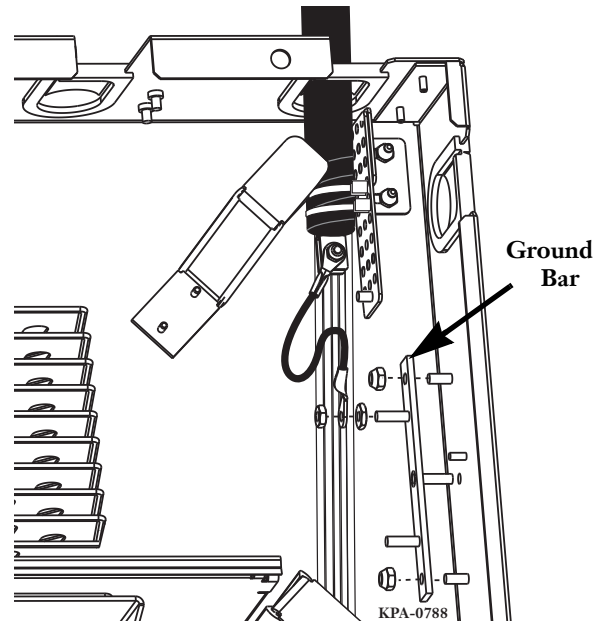


Figure 9 — Ground Armored Cable

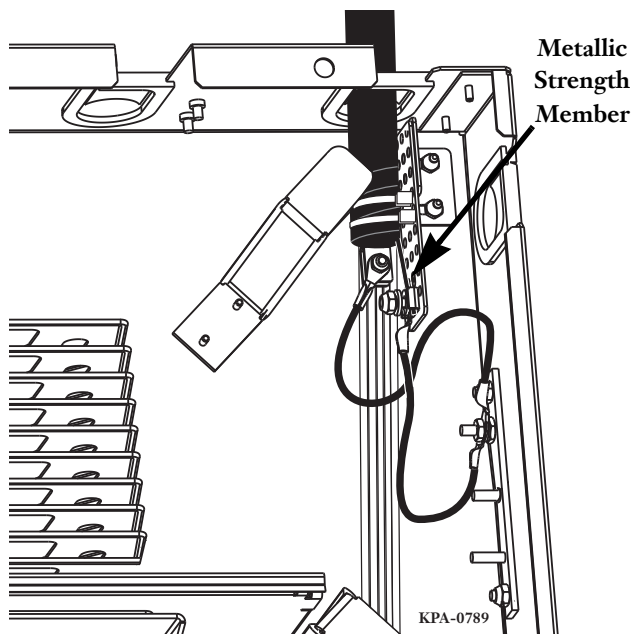


Figure 10 — Ground Metallic Strength Member



## 4.7 Route the Cable

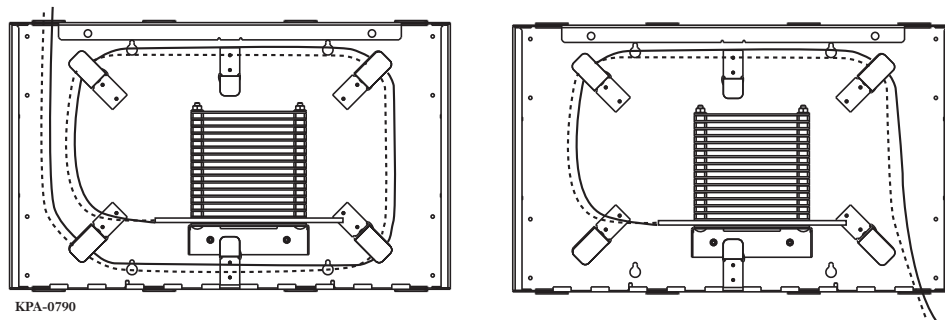


Figure 11 — Route Cable

Cable routing is dependent upon the location of cable entry into the housing (Figure 11). Choose the routing configuration that best fits your application. If desired, cut small sections of spiral wrap and place around the buffer tubes to keep them organized.

In midspan applications, route the buffer tubes as shown in (Figure 12).

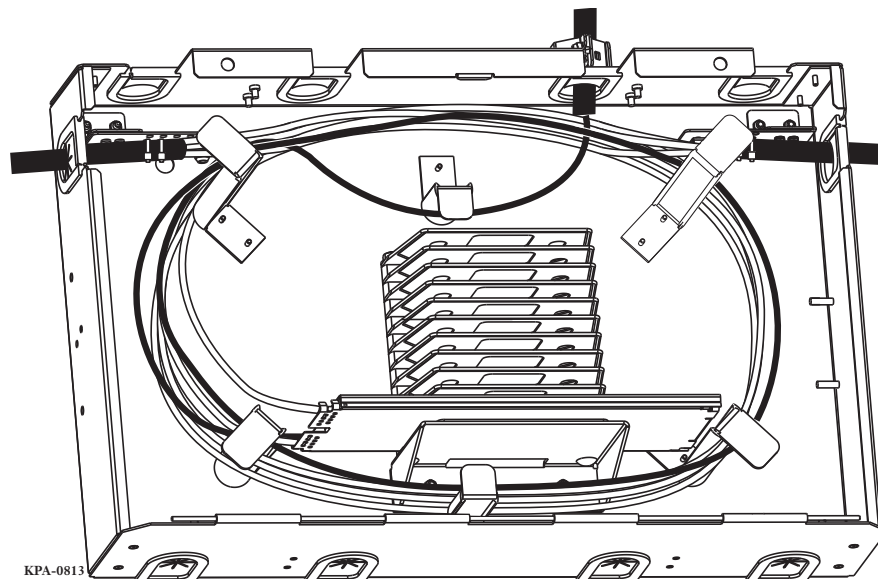


Figure 12 — Midspan Cable Routing

- Step 1:** After the fibers have been spliced and stored in the splice tray, place the splice tray in the bottom position of the tray organizer.
- Step 2:** Route incoming buffer tubes (shown with dashed lines in Figure 11) around the routing guides.
- Step 3:** Route the drop fibers (shown with solid lines in Figure 11) from the splice tray around the routing guides.

**Step 4:** Repeat previous steps for all splice trays. Once all splicing is complete, secure the splice trays in the organizer using the hook-and-loop strap.

When the splice housing is used in conjunction with a wallmount housing, install the wallmount housing directly above or below the splice housing. Route the drop cables from the splice housing to the housing as shown by the solid lines in Figure 13.

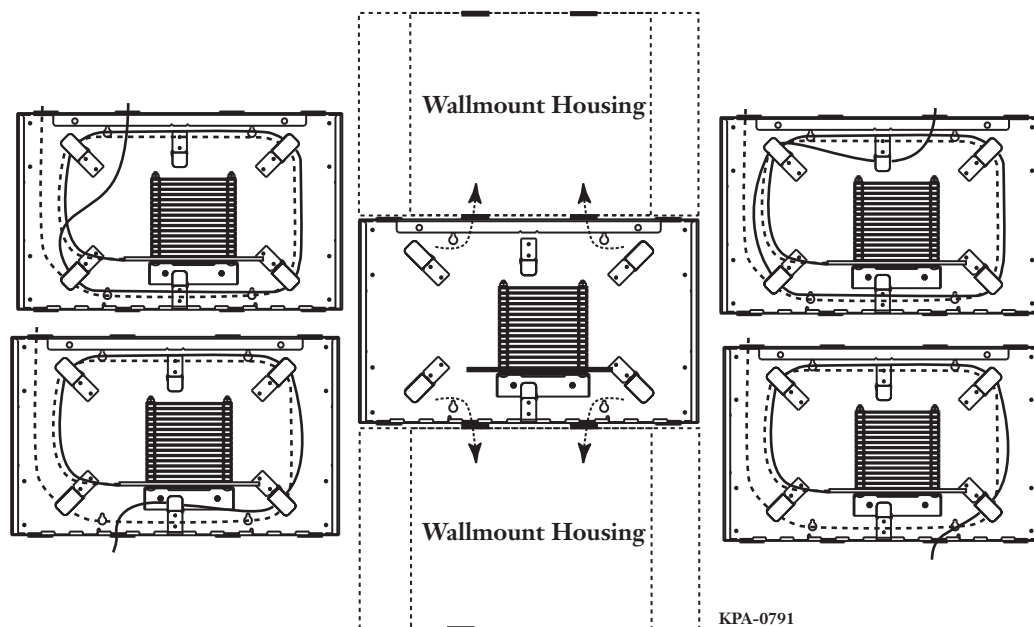


Figure 13 — Routing Cable to Wallmount Housings

## 4.8 Documentation

Record fiber identification information on the label on the inside of the front door. Accurate recordkeeping is imperative to an organized installation.

## 5. TESTING

### 5.1 Provisioning Tests

Equipment should be tested from the source (or central office) to receiver at the time of provisioning to verify signal continuity and acceptable loss limits. Use an optical power meter to verify signal continuity and determine loss measurements are within specified local standards.

### 5.2 Troubleshooting Tests

An optical power meter can be used to perform the first step in troubleshooting. A power meter designed for measuring only dBm power levels is suitable for maintenance purposes.

For high attenuation:

- Remove connector and reclean connector and adapter.
- Verify cable ties are not too tight.
- Maintain appropriate fiber bend radius. Make sure there are no sharp bends.

Once a fault is isolated to the installed cable link, an OTDR (Optical Time Domain Reflectometer) is needed. An OTDR can locate fiber events and measure the losses attributable to cable, connectors, splices, and/or other components. The graphical display of loss over a cable's entire length provides the most revealing analysis and documentation available on a cable link, commonly referred to as its signature trace. Corning Cable Systems recommends performing an OTDR analysis to document the integrity of the cable system, locate and measure each event or component, and uncover faults throughout the cable. Follow the instructions provided with the OTDR tester you are using.

## 6. MAINTENANCE

The unit requires very little maintenance to ensure fibers and parts remain in good condition.

- External components may be cleaned occasionally with a damp, nonabrasive cloth.
- Check nuts, bolts, and screws; tighten as needed.
- Check fiber optic cable to make sure bends do not exceed the minimum bend radius.
- Check cables for unnecessary strain, for crimping or crushing at entries and exits, and for damage.
- Check unit record labels to make sure all are clear and accurate.

## 7. GROWTH

To increase the capacity of the splice housing, install additional cable and splice trays until the splice capacity of the housing is reached.

### Acronyms

ANSI	American National Standards Institute
OTDR	Optical Time Domain Reflectometer
UCC	Universal Cable Clamp
WSH	Wallmount Splice Housing

### Glossary

#### *Aramid Yarn*

Strength elements that provide cable tensile strength, support and additional protection of the fiber bundles. Kevlar® is a brand of aramid yarn.

#### *Armor*

An additional protective element beneath the cable outer jacket used to provide protection against severe outdoor environments and gnawing rodents. Usually made of plastic-coated steel, it may be corrugated for flexibility.

#### *Buffer Tube*

Extruded cylindrical tubes within a cable assembly used for protection and segregation of colored optical fibers.

***Central Strength Member***

Any component of a communication cable, metallic or optical, the function of which is to protect the transport medium, i.e., conductor or fiber, from excessive tensile and bending stresses during installation and while in service.

***Drop Cables***

Individual cables used to connect each subscriber.

***Express Cables***

Fibers in a cable or tube that pass through a terminal without being cut for access purposes.

***Fiber Bend Radius***

Radius a fiber can bend before the risk of breakage or increase in attenuation.

***Splice Tray***

A container used to secure, organize, and protect spliced fibers.