



TECHNICAL SPECIFICATIONS

Grade Level Box BULK ④ Series



Now with  Covers

FEATURES

- Upgradeable
- Lightweight/Strong (TIER 22)
- Patented Anti-Slip Technology
- Anti-Seize Bolt Technology
- Industry Leader in Anti-Trip Hazard Prevention
- Superior Fatigue Resistance (EST)[™]
- Vertical and Horizontal Rib Design
- Embedded Vertical Racking
- Reduced Installation Cost
- Highest Load Rating to Weight Ratio in the Industry

TESTING CRITERIA

Covers meet or exceed:

- EST[™] 3 Million Cycles
- Telcordia GR-902-CORE
- Western Underground Committee Guide 3.6
- ANSI/SCTE 77 2013-TIER 22
- EN124 Class A15/B125

Bodies meet or exceed:

- Telcordia GR-902-CORE
- Western Underground Committee Guide 3.6
- ANSI/SCTE 77 2013-TIER 22
- EN124 Class A15/B125/C250
- ASTM-457
- AASHTO M-306 (H-20/25)
- AS3996-Class B/C



CHANNELL

channell.com

PRODUCT SUMMARY

With over 90 years experience in global (OSP) infrastructure, Channell has developed the most advanced pit and chamber technology in the world! Channell's BULK and SHIELD patented designs with the complement of SUPER BULK for roadway applications offer global users, consumer, and craft installers safety benefits never before contemplated, but critical when considering new global health and safety standards.

BULK's lightweight design increases installation efficiencies while improving overall body weight carrying load capacities versus concrete, polymer concrete, and many other body materials. Reduction of BULK's body weight protects the safety of installers while shortening installation times. Additionally, with BULK bodies, cutting ducts in the field produces no harmful dust contaminants which could lead to installer respiratory issues.

All SHIELD covers meet or exceed 33,750 pound-force or 150 kilonewtons in strength. They never break and offer a lid weight reduction over concrete and polymer concrete of 50%, and over 70% when compared to cast iron. SHIELD's lighter weight design cover reduces craft injuries while improving health and safety specifications.

Consumers also benefit from SHIELD's patented anti-slip design and anti-trip features. SHIELD's cover tread design raises global industry standards by offering 20% greater slip resistance when compared to concrete, polymer concrete, steel or cast iron covers. SHIELD meets and exceeds Australia AS4586 skid specification, the highest global standard in the world!

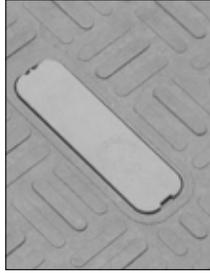
Overall, BULK's strength in combination with Channell's SHIELD covers offers a universal solution to meet and exceed every company's needs. Safety always comes first, and that's why BULK and SHIELD are tested to the highest standards available in the global market and Channell is proud to have pioneered Endurance Stress Testing (EST™) which analyzes cover fatigue in the field. EST™ provides essential data on the life expectancy of a SHIELD lid in the field and confirms its potential life expectancy. Product design, product innovation, safety attributes, and new manufacturing technology is why global customers are specifying Channell's BULK and SHIELD products for their new OSP infrastructure requirements.



STANDARD FEATURES



Anti-Slip Tread Design



Anti-Trip Cover



Recessed Lifting Pin
with Cover



Non-Seizing Bolt System
Allows Field Replacement



Flush Mounted Sidewall Racks
Increase Usable Space



Mounting Studs



Logo Puck
(Custom Options Available)



Winterized Cable
Drop Slide

OPTIONAL FEATURES



L-Bolt Security System
(SHIELD Cover Shown)



Marker Locator Device



Swing-Arm with Butterfly
Mounting Plate



Cable Hook
Bracket



Step Bracket
with Wedge

Design and specifications may vary.

THE NEW SOLUTION

3 covers

Composite Ring
Optional

1 body




HDPE Plastic Cover
Light Duty 3,000 lbf (13.5 kN)



Composite Cover
33,750 lbf (150kN)



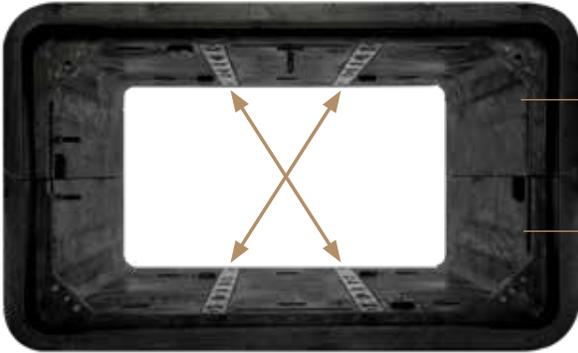
Ductile Iron Cover and Ring
56,200 lbf (250 kN)



BULK Vault Body
60,000 lbf (267 kN)

SPECIFICATION	PROOF LOAD	PRODUCTS
AMERICAS	STANDARDS	
Pedestrian/Light Duty	3,000 lbf (13.5 kN)	 
ANSI/SCTE 77 TIER 22	33,750 lbf (150 kN)	 
AASHTO M-306-10 H 20	40,000 lbf (178 kN)	
AASHTO M-306-10 H 25	50,000 lbf (222.4 kN)	
ASTM-457	46,000 lbf (205 kN)	
EMEA	STANDARDS	
Pedestrian/Light Duty	2,250 lbf (10 kN)	 
EN 124 Class B125	28,100 lbf (125 kN)	 
EN 125 Class C125	56,200 lbf (250 kN)	
APAC	STANDARDS	
Pedestrian/Light Duty	3,370 lbf (15 kN)	 
AS3996-Class B	18,000 lbf (80 kN)	 
AS3996-Class C	33,750 lbf (150 kN)*	 

BODY DESIGN



Straight wall design improves lid load strength.

Flush mounted racks enhance sidewall and vertical strength of pit while increasing usable space.

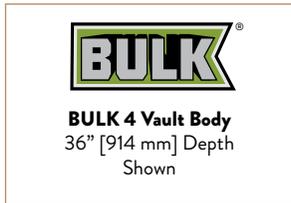
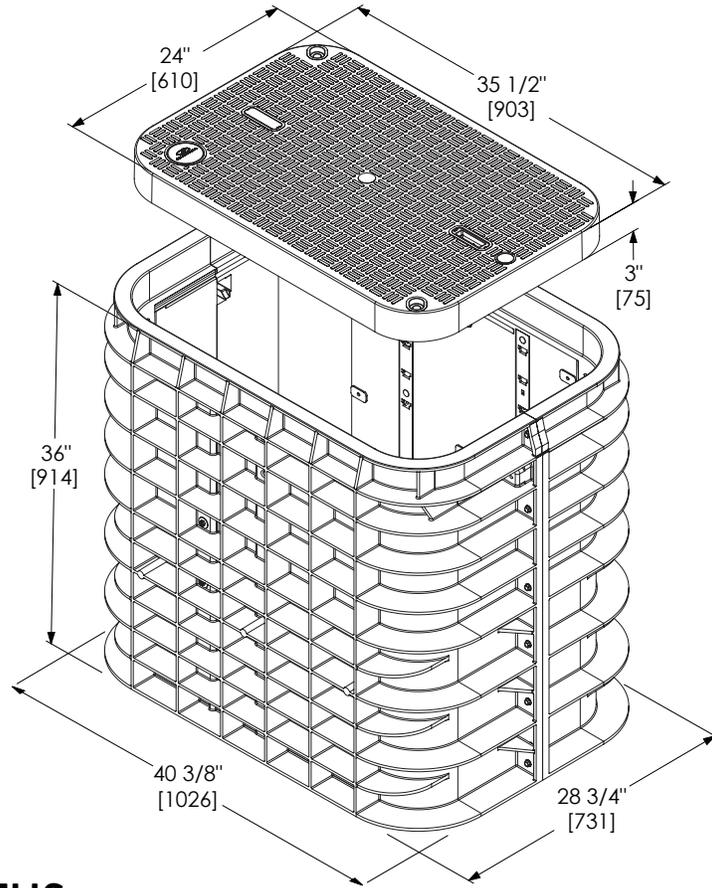
Ribbed sidewall design secures body into backfill soil and eliminates sidewall deflection.



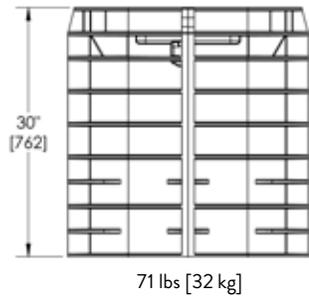
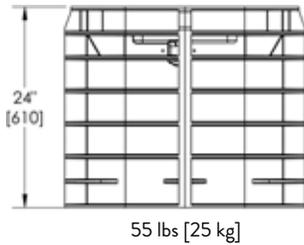
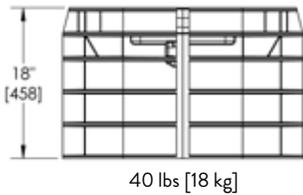
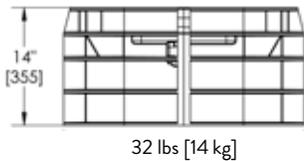
HDPE bodies provide easy field alteration while eliminating water absorption and material degradation while maintaining structural integrity, and eliminating toxic fiberglass dust.

BODY SPECIFICATIONS

Cover Weight	50 lbs	[23 kg]
Pit Weight	82 lbs	[37 kg]
Assembled Weight	132 lbs	[60 kg]



ADDITIONAL BODY DEPTHS



UNITED STATES
214.304.7800

CANADA
905.565.1700

EUROPE, MIDDLE EAST, AFRICA
44.1322.312590

AUSTRALIA, ASIA, PACIFIC RIM
61.2.8884.4111

www.channell.com



INSTALLATION INSTRUCTION

Install Channell BULK Vaults

Date: 5/12/15

Installation Considerations

This Installation Instruction provides general information useful for installing the Channell BULK line of below-grade handhole vaults. This guide cannot anticipate all situations that could be encountered in the field and thus represents information applicable to common installation conditions. Please consult local company practice for proper product configuration for each application.

Site Preparation

1. Ensure that all local, state, federal, OSHA and company-specific regulations are met prior to beginning and throughout the installation process.
2. Plan the excavation approximately 12 to 16 inches in length and width larger than the actual dimensions of the handhole to be installed. **(See Figure 1)**
3. Excavate the hole 6 to 8 inches in depth more than the overall height dimension of the handhole with the cover in place. Tamp the floor of excavated pit using either a hand tamp tool and/or a mechanical tamper. (Remember: if the handhole is to be set in concrete, the polymer ring must be included in this dimension.)
4. Place 5 to 6 inches of 3/4" crushed rock over the entire floor. The rock should be free of soil and other organic matter. This important step prevents subsistence of the vault over time, aids in drainage, and provides a solid foundation for the handhole. **(See Figure 2)**
 - a. As an alternative, a dry mix of cement and crushed rock in a 1:10 ratio may be used to form a higher strength foundation.
 - b. NOTE: Do not use "pea gravel" or other "round stone" for this step.
5.
 - a. Place the handhole body into the pit. **(See Figure 3)**
 - b. Center the handhole body in the excavated pit parallel to the sidewalk and/or curb if applicable.
 - c. Level and adjust the height of the handhole body to grade, as required, by adding more crushed rock.

FOR THE PURPOSE OF THIS ILLUSTRATION, THIS HANDHOLE IS BEING PLACED AT A SITE THAT WILL HAVE A FUTURE SIDEWALK; THEREFORE, THE COMPOSITE RING IS REQUIRED. THE RING IS ONLY REQUIRED AT SITES WHERE THE HANDHOLE IS BEING PLACED IN AND SURROUNDED BY CONCRETE.

6. Place the cover on the handhole body to prevent the backfill dirt from entering the inside of the handhole. The cover should be level with the ground. Bolting of the cover is recommended but is not a requirement for this step; however, the cover must always be bolted down prior to departure of the site. **(See Figure 4)**
7. The excess soil removed from the excavated pit shall be used during the backfill of the pit. The backfill shall be tamped continuously during the filling process to prevent settling around the sides of the handhole. **(See Figure 5)**

During the filling process of the soil around the handhole, stones that are 3" and larger shall be removed from the soil and not used.

8. The final backfill shall be tamped with a slope away from the handhole. All excess backfill material shall be removed from the installation site. **(See Figure 6)**

Figure 1



Figure 2



Figure 3



Figure 4

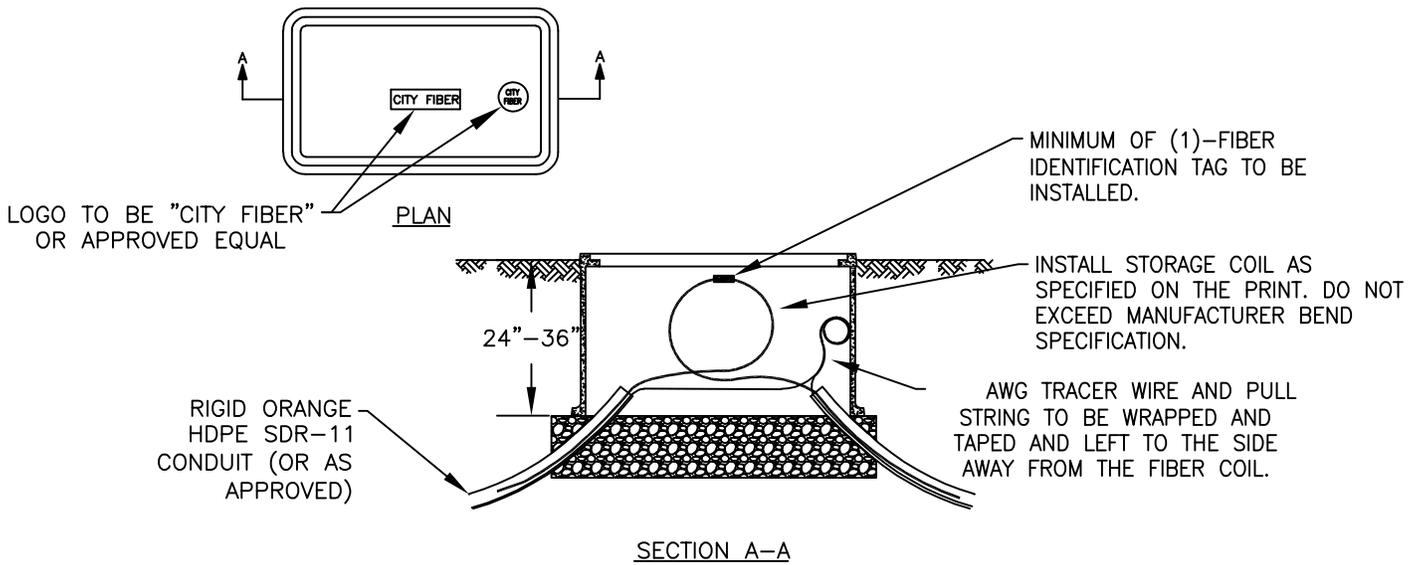


Figure 5



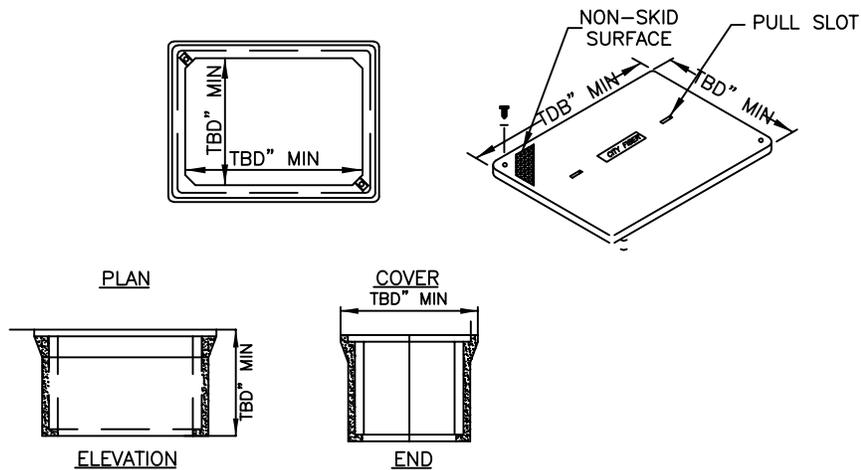
Figure 6





INSTALLATION NOTES:

1. CONDUIT SHALL SWEEP INTO JUNCTION BOX FROM BENEATH OR AS APPROVED.
2. CONDUIT ENDS SHALL BE SWEEP UP A MIN. OF 5" AND CAPPED, COVERED, OR, SEALED TO PREVENT DEBRIS FROM ENTERING.
3. JUNCTION BOX SHALL BE INSTALLED ON 6" MIN. LAYER OF COMPACTED 3/4"-0 CRUSHED AGGREGATE.
4. JUNCTION BOX SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO ADJACENT CONCRETE STRUCTURES UNLESS OTHERWISE APPROVED.
5. JUNCTION BOXES SHALL BE SET TO CURRENT OR PROPOSED GRADE.
6. MULE TAPE AND AWG TRACER WIRE TO BE INSTALLED WITH THE FIBER.
7. FIBER COILS TO BE TAPED AND PLACED LAYING AGAINST THE SIDE WALL.
8. FIBER COILS ARE TO BE SPECIFIED ON THE PRINTS. GENERAL RULE OF THUMB, LEAVE ENOUGH STORAGE FOR THE FIBER TO REACH THE CENTERLINE OF THE ROAD.



BOX NOTES:

1. JUNCTION BOXES SHALL BE INSTALLED PER THE DESIGN. TYPICAL CHANNEL BOXES FOR NEW CONSTRUCTION.
 - 24" X 36" X 36" or 30" X 48" X 36" (open floor) (actual dimensions on drawing)
 - BULK VAULT - SHIELD X COVER- Tier 22 Load Rated (ANSI/SCTE 77: 2013)
 - (2) Cover locking Auger bolts, Hex (9/16") or Penta (7/8") head with washer
 - (2) Non-Seizing Fastening System, Field Replaceable
 - (4) Embedded Composite Rack Support
 - (2) Lifting slot equipped with stainless steel pin (slot is approximately 2 3/4" x 3/4")
 - (2) Winterized Cable Drop slide (1 1/4" X 1 1/4")
 - (1) Logo Disk

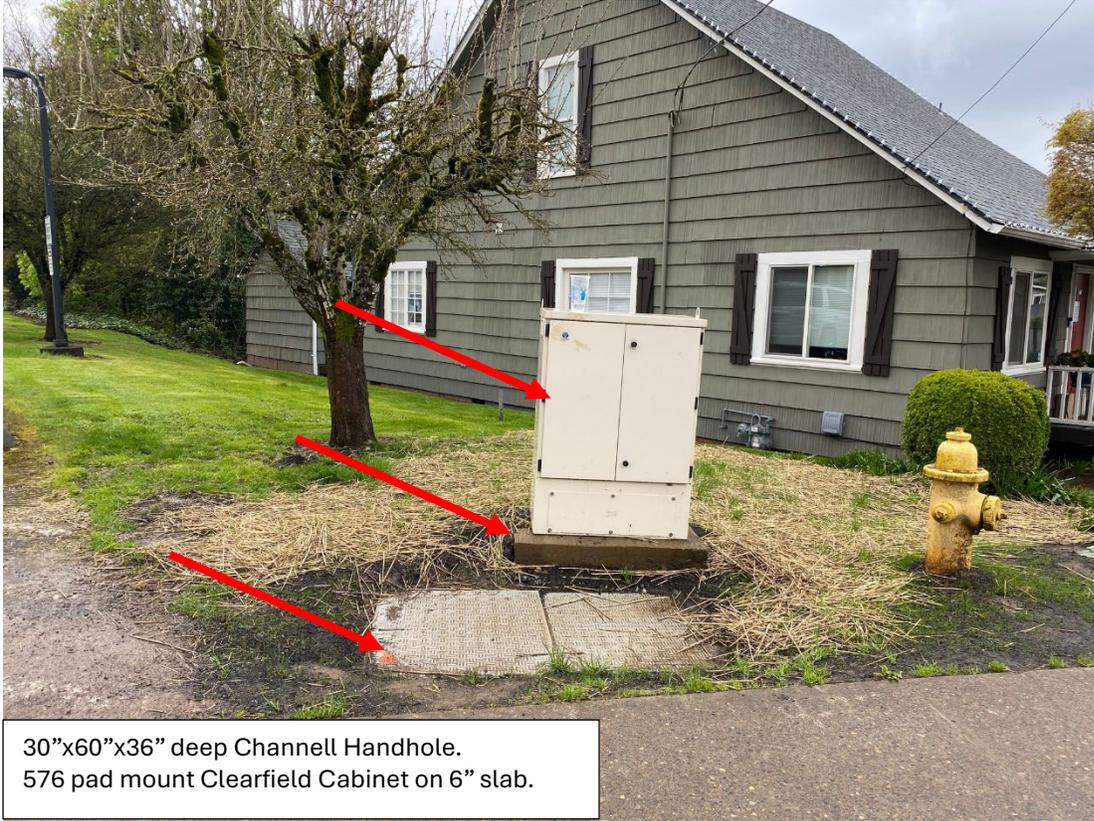
	STANDARD DRAWING TITLE		DRAWING NUMBER	
	CITY FIBER JUNCTION BOX		FO-3	
	Any alteration of this drawing may not be associated in any way with the City of Sherwood Standard Drawings.	SCALE		DATE
		N.T.S.		11.08.23



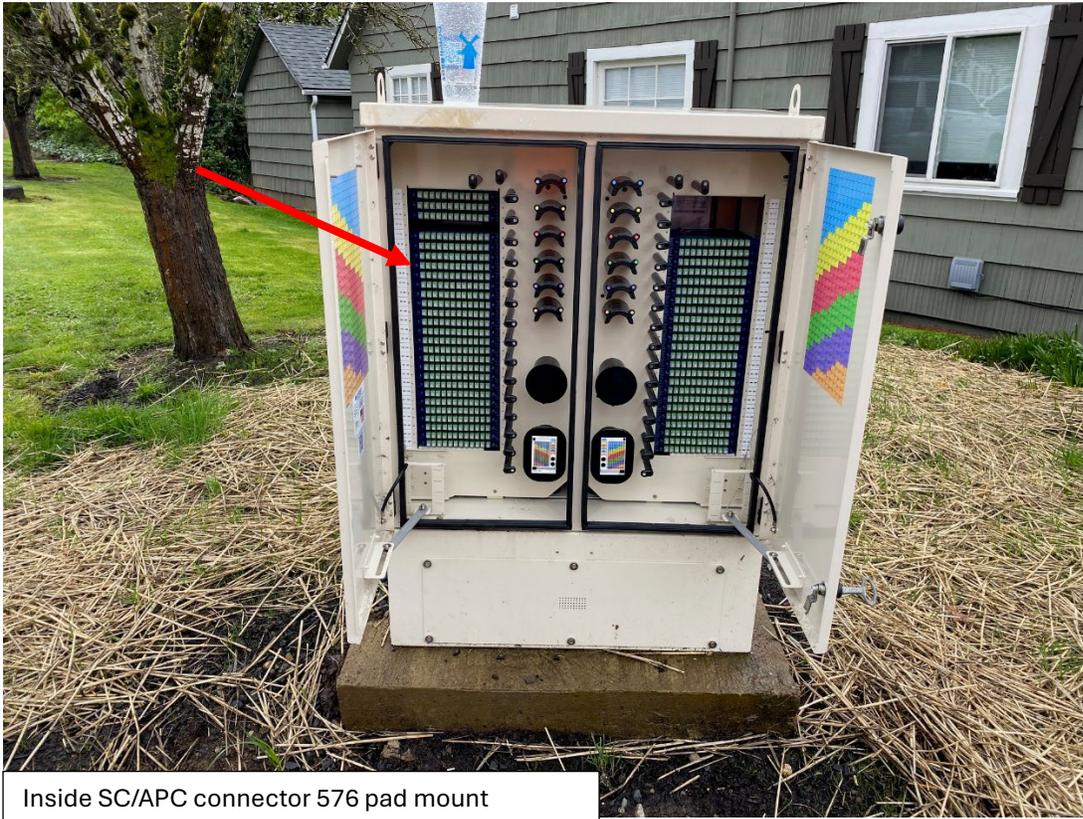
All "FP" Flower Pots must have "City Fiber" logo.



All "FP" Handholes must have "City Fiber" logo.



30"x60"x36" deep Channell Handhole.
576 pad mount Clearfield Cabinet on 6" slab.



Inside SC/APC connector 576 pad mount
Clearfield Cabinet on 6" slab.



Spare conduit stubbed and capped at base of pole. Blue sticker on riser placed streetside



#12 tracer wire terminated in terminal block.



#12 tracer wire terminated neatly stapled to pole and down to terminal block

Every pole attachment must have both a red flat tag and a tan SBB tag that can be seen from ground level. All handholes will have one red tag visible to locators.





All transitions from aerial to UG shall have an aerial ~150'-200' maintenance storage before transitioning down the riser. Maintenance storage shall be placed every ~1500' to ~2000' along the run between splice cases or if a splice case does not exist.

NEC 830.47 Underground Network-Powered Broadband Communications Cables Entering Buildings

Underground network-powered broadband communications cables entering buildings shall comply with 830.47(A) and (B).

(A) Protection From Physical Damage

Direct-buried cable, conduit, or other raceways shall be installed to meet the minimum cover requirements of Table 830.47(A). In addition, direct-buried cables emerging from the ground shall be protected by enclosures, raceways, or other approved means extending from the minimum cover distance required by Table 830.47(A) below grade to a point at least 2.5 m (8 ft) above finished grade. In no case shall the protection be required to exceed 450 mm (18 in.) below finished grade. Types BMU and BLU direct-buried cables emerging from the ground shall be installed in rigid metal conduit (RMC), intermediate metal conduit (IMC), rigid nonmetallic conduit, or other approved means extending from the minimum cover distance required by Table 830.47(A) below grade to the point of entrance.

Exception: Protection from physical damage shall not be required if a low-power network-powered broadband communications circuit is equipped with a listed fault protection device that is located on the network side of the network-powered broadband cable being protected and the device is appropriate to the network-powered broadband communications cable used.

Table 830.47(A) Network-Powered Broadband Communications Systems Minimum Cover Requirements

Location of Wiring Method or Circuit	Direct Burial Cables		Rigid Metal Conduit (RMC) or Intermediate Metal Conduit (IMC)		Nonmetallic Raceways Listed for Direct Burial; Without Concrete Encasement or Other Approved Raceways	
	mm	in.	mm	in.	mm	in.
All locations not specified below	450	18	150	6	300	12
In trench below 50 mm (2 in.) thick concrete or equivalent	300	12	150	6	150	6
Under a building (in raceway only)	0	0	0	0	0	0
Under minimum of 100 mm (4 in.) thick concrete exterior slab with no vehicular traffic and the slab extending not less than 150 mm (6 in.) beyond the underground installation	300	12	100	4	100	4
One- and two-family dwelling driveways and outdoor parking areas and used only for dwelling-related purposes	300	12	300	12	300	12

Notes:

NEC 830.47 Underground Network-Powered Broadband Communications Cables Entering Buildings

1. Cover is the shortest distance measured between a point on the top surface of any direct-buried cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.
2. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 50 mm (2 in.) thick.
3. Lesser depths shall be permitted where cables rise for terminations or splices or where access is otherwise required.
4. Where solid rock is encountered, all wiring shall be installed in metal or nonmetallic raceway permitted for direct burial.

The raceways shall be covered by a minimum of 50 mm (2 in.) of concrete extending down to rock.



Picture 1 - Pull cord left for future. All cases



Picture 2 - Pull cord taped. All cases



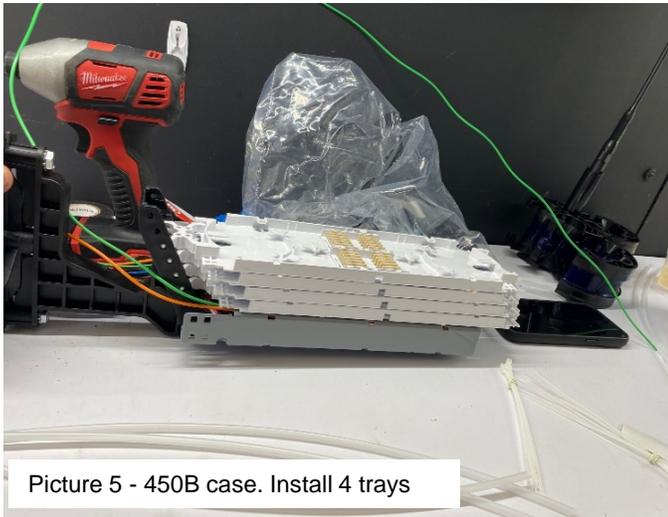
Picture 3 - Blue tape on input from CO. All cases. The fiber will have blue tape as well as fiber tags. See sheet 5 final tagging



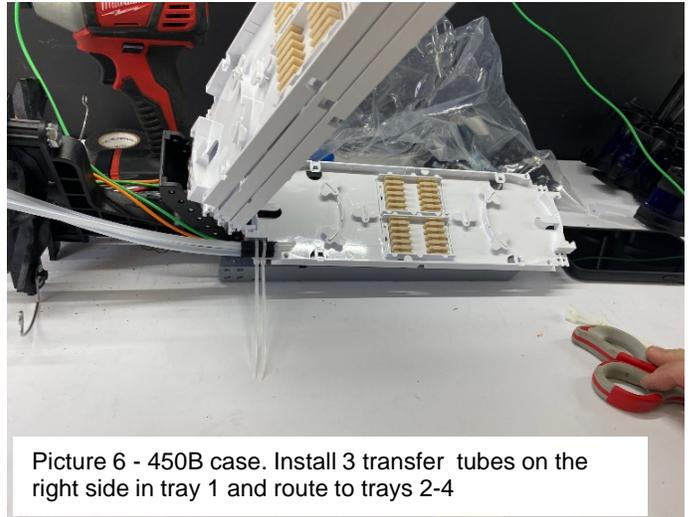
Picture 4 - CO side must be installed in the left side. All cases must have a loop in the basket. No "slamming" trays unless given permission by SBB. All cases

This document references how to build a Commscope 450B distribution case for 6-12 homes or businesses passed. The Commscope 450C case follows a lot of the same procedure, except there will not be multiple trays and transfer tubes. If you are unsure of procedures involving the assembly of a case, you must call the SBB Network Engineer.

Note - Contractors will be required to provide pictures of the cable information, installed splice case stickers, tagging, and each tray built with landed fibers.



Picture 5 - 450B case. Install 4 trays



Picture 6 - 450B case. Install 3 transfer tubes on the right side in tray 1 and route to trays 2-4



Picture 7 - 450B case. Tray 2



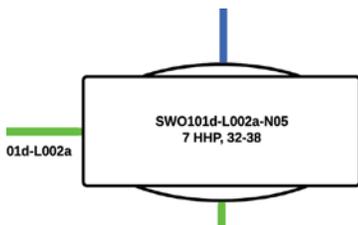
Picture 8 - 450B case. Tray 3

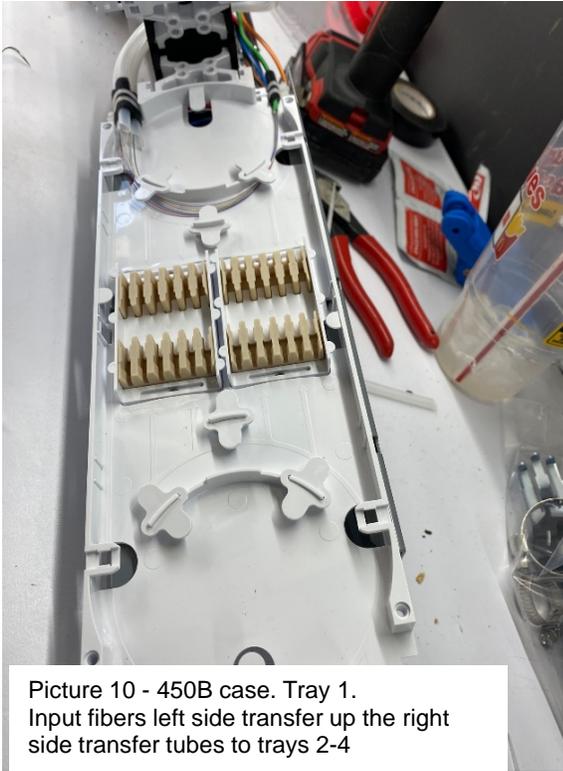


Picture 9 - 450B case. Tray 3

Note - The 450C and 450D cases do not require additional trays if the case was designed for typical distribution with 1 mainline in and out.

Special Note - Sometimes the 450B, 450C, and 450D cases are designed with a 3rd mainline lateral as well as for distribution. this is called a "Hybrid Case". The 3rd mainline must be the bottom tray. The next 1-5 trays depending on the case, will be for distribution. Please see symbology below.

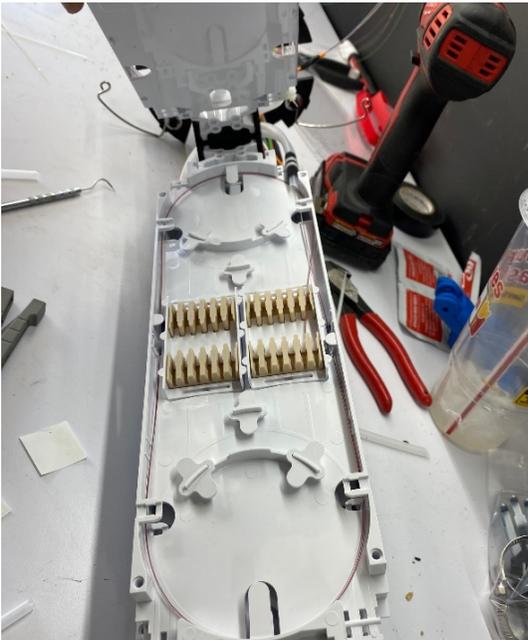




Picture 10 - 450B case. Tray 1.
Input fibers left side transfer up the right side transfer tubes to trays 2-4



Picture 11 - 450B case. Tray 2 leave fibers 1 - 4. 1 Loop, trimmed, and left in the chip for splicing

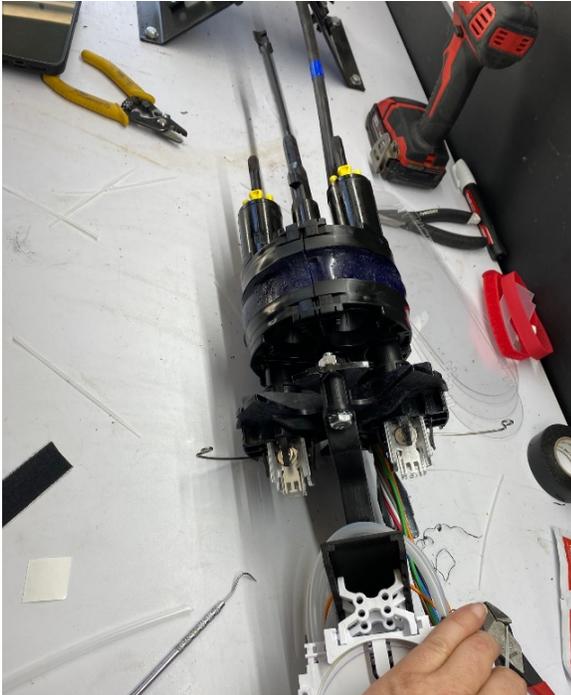


Picture 12 - 450B case. Tray 3 leave fibers 5 - 8. 1 Loop, trimmed, and left in the chip for splicing



Picture 13 - 450B case. Tray 4 leave fibers 9 - 12. 1 Loop, trimmed, and left in the chip for splicing

Note - The 450C and 450D cases will follow the same loop and fibers left in the chip. Only difference is there will only be 1 single tray.



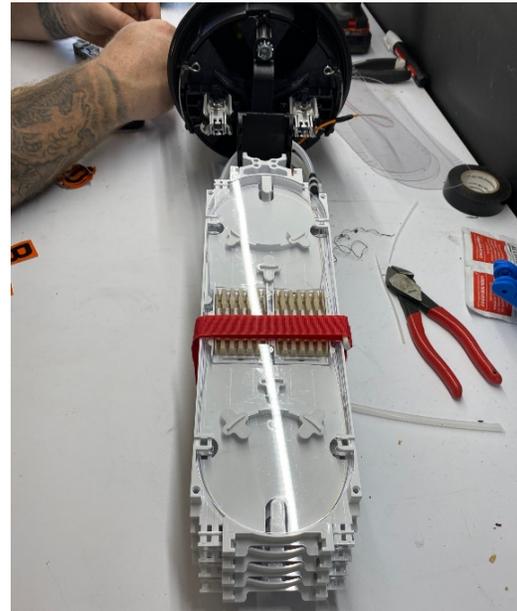
Picture 14 - All Distribution case. Install (2) - 4 port gel seals in the 3 and 9 o'clock positions



Picture 15 - All case. Install (2)- 4 port gel seals in the 3 and 9 o'clock positions. Install yellow plugs in all unused ports



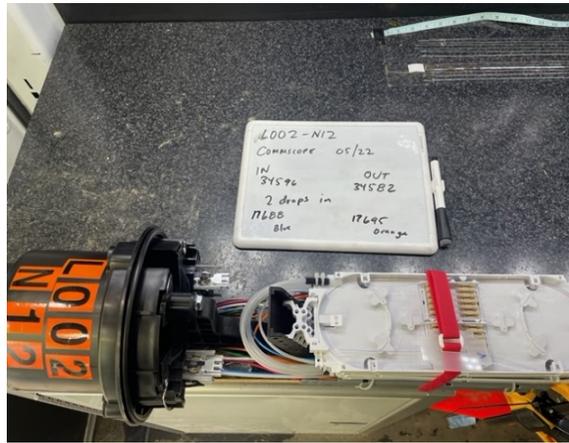
Picture 16 - All case built or accessed. Install stickers. Numbers will be provided by Network Engineer



Picture 17 - All case. Install velcro strap and plastic tray holder

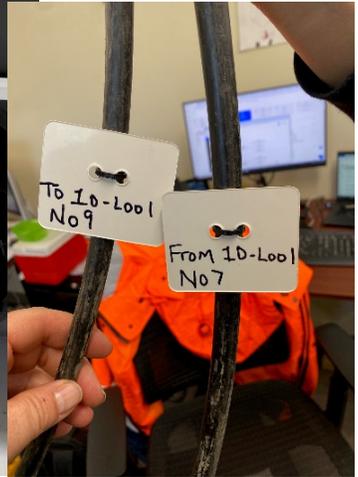
Note - All additional case parts including felt and zip ties must be given to the network engineer upon the completion of the case build.

SHEET 4 OF 5

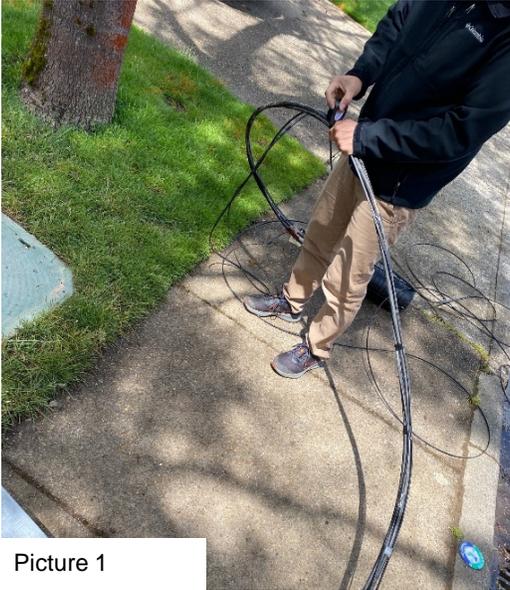


Picture 18A - Final documentation for every case built or accessed. Provide case name, Cable info, and sequential numbers. Text or email to the assigned Network Engineer

Picture 18B



Pictures 19 - Final tagging. The Network Engineer will provide red Sherwood Broadband cable tags. The splicer will be responsible for referencing the direction or the "from" and "to" splice case on white tags. The tags will be zip tied with black UV rated zip ties to the case near to the case. All cases will be built watertight and gel seals compressed with tightening screws. Black tape will be wrapped around all cables and the gel pack tightening rod.



Picture 1

All fibers must be "dressed" to the case. Adjust loops at the conduit to ensure the fiber will not kink during the case installation.



Picture 2

All fibers will have an address tag on it. Please ensure the tag does not get removed during the installation of the fiber drop and case build. If not present, call the SBB Network Engineer immediately.



Picture 3

All address tags should be moved to near to the case as shown in the picture.



Picture 4

When installing the fiber drops in to the 4 port gel seal, start with the inside position first. See Picture. Then bottom, then top, then the outside position.

This document references adding a 2F service drop into the designated splice case. As well as the typical splice plan issued for each home.

Most splice plans will follow a similar format.

******NOTE FOR CONTRACTORS**** All drops must have redlight verified from the cabinet to the side of the house.**



Picture 5

1. Handwrite and/or label the individual drop as shown in the picture.
2. Install flag tag on buffer tube with address number.
3. Coil the Orange fiber #2 in a small loop approximately 3 fingers wide and leave in the tray upper or lower area. The Orange fiber should be coiled and be able to be easily moved out of the tray.

TYPICAL DROP SPLICE PLAN

EMAIL SUBJECT LINE -

****IN-HOUSE SPLICING**** 20623 SW SUNDROP PL - (LAST NAME) Residential

OR

****CONTRACT SPLICING**** 20623 SW SUNDROP PL - (LAST NAME) Residential

BODY OF THE EMAIL -

1A-L006 WILDFLOWER VILLAGE PORT 99

450B CASE

EOL

12 HOMES PASSED

3RD DROP ADD

CASE MAY REQUIRE A TABLE

SPLICE –

96F BLUE TUBE / GREEN FIBER #3 TO 2F #1

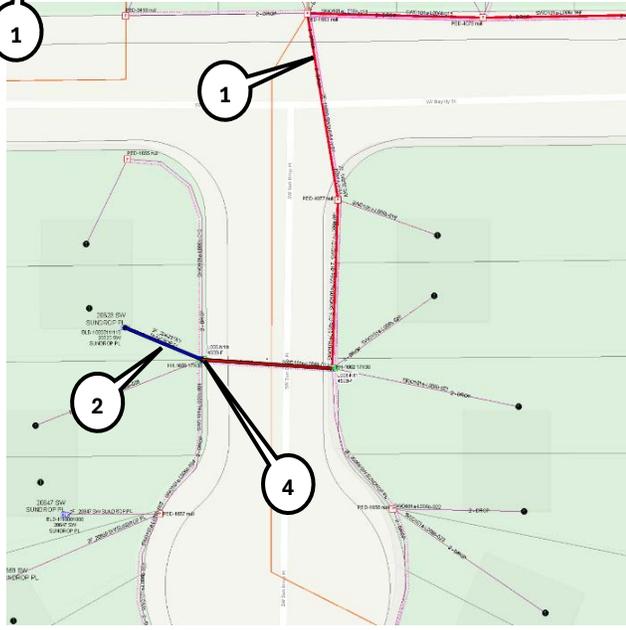


Structure/Splice
Splice:L006-N10 450B-F(5090)

FIBERCABLE SWO101a-L006b 96F(18792)	FIBERCABLE 2F_20623 SW SUNDROP PL(14527)	FIBERCABLE
Sequentials (ft) 8176	Sequentials (ft)	Sequentials (ft)

Detailed	Existing	Signal Trace	Connection Notes	Complements
FIBER Range 3	(1)	FIBER Range 1	(1)	

From Buffer	From Fiber	To Feature	Splice Type	Tray #	To Buffer	To Fiber
Buffer: FIBER 1 (1 items)						
1	3	FiberCable: 2F_20623 SW SUNDROP PL(14527)	Fusion	2	1	1



1. Red line indicates the span. The redline indicates that this is a 96F with sequential 8176. As well as Blue buffer and Green fiber. Fiber Range #3
 2. Blue line indicates the 2F Flat drop. The fiber cable is named with the address that will match the white tag at the case or in the hole. See name 2F_20623 SW Sundrop Pl. Blue Buffer tube and Blue fiber. Fiber Range #1.
 3. Structure/Splice L006-N10 will match the sticker name on the case you will be splicing in.
 4. Where the Red line and Blue line meet, is where the splice case is located.
- Note - most maps are larger and easy to read. This one has been shrank down to fit this page.
5. Cabinet port to shoot Red light from the cabinet to the house after splicing. Also, the name of the cabinet.
 6. Designated tray to find the strands of fiber. This example is Tray 2.