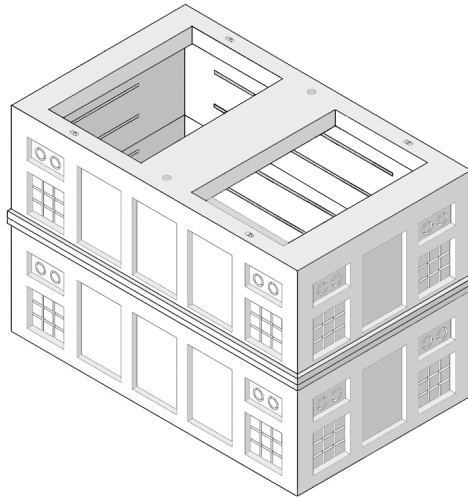


## 712 Electric Vault, Primary Service



### 1. Table of Contents

2. Scope .....	1
3. Application .....	2
4. General Requirements .....	4
5. Vault Base Requirements .....	4
6. Top Section Requirements .....	5
7. Covers, Risers and Hatches .....	7
8. Vault Assembly and Packaging .....	8
9. Issuance .....	13
10. Approved Manufacturers .....	13
11. References .....	13

### 2. Scope

This standard covers the requirements for the 712 electrical vault components (vault base and top sections) and the assembled 712 electric vaults.

The 712 vault is considered a ring vault by Seattle City Light (SCL) crews.

Most of the basic components can be ordered separately or they can be ordered as assembled vaults with covers.

This standard applies to the SCL stock numbers listed in Section 10.

Standard Coordinator  
Laura Vanderpool

Standards Engineering Supervisor  
John Shipek

Division Director  
Tamara Jenkins

### 3. Application

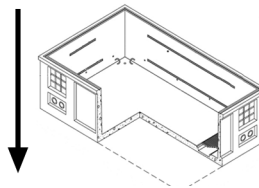
712 vaults are intended for use in the construction of underground electric systems. The precast concrete structure may be used to house medium-sized transformers up to 300 kVA (3 -100 kVA), three-phase load break junction boxes, or service connections and splices for the distribution system.

The standard 712-vault assembly consists of the 712 base [A], a 712 top with two 78-inch by 50-inch block-outs [B1], various risers to bring access opening to grade, a cover with two 3- by 3-foot non-slip, solid hatches and a 42-inch entry access.

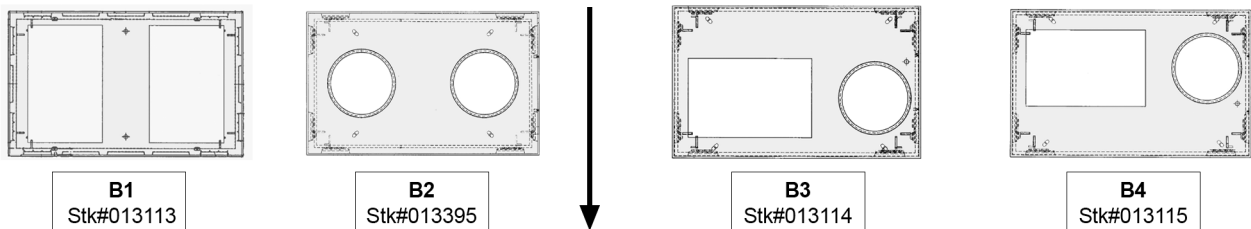
Due to different applications, the vault may need to be customized with different block-out configurations; various risers and access openings (see Figure 3).

#### Figure 3. Steps for selecting the proper vault assembly for your application:

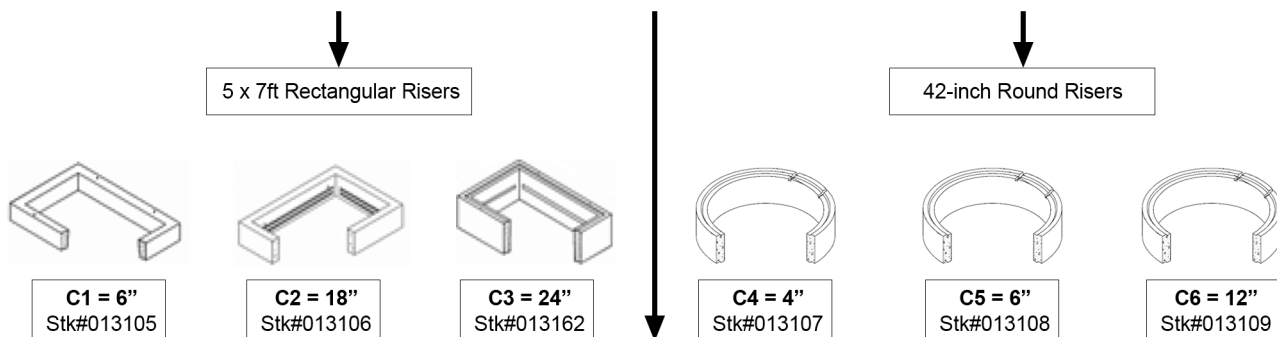
**Step 1.** Select standard 712-vault base, [A] (Stock Number 013112, see section 5).



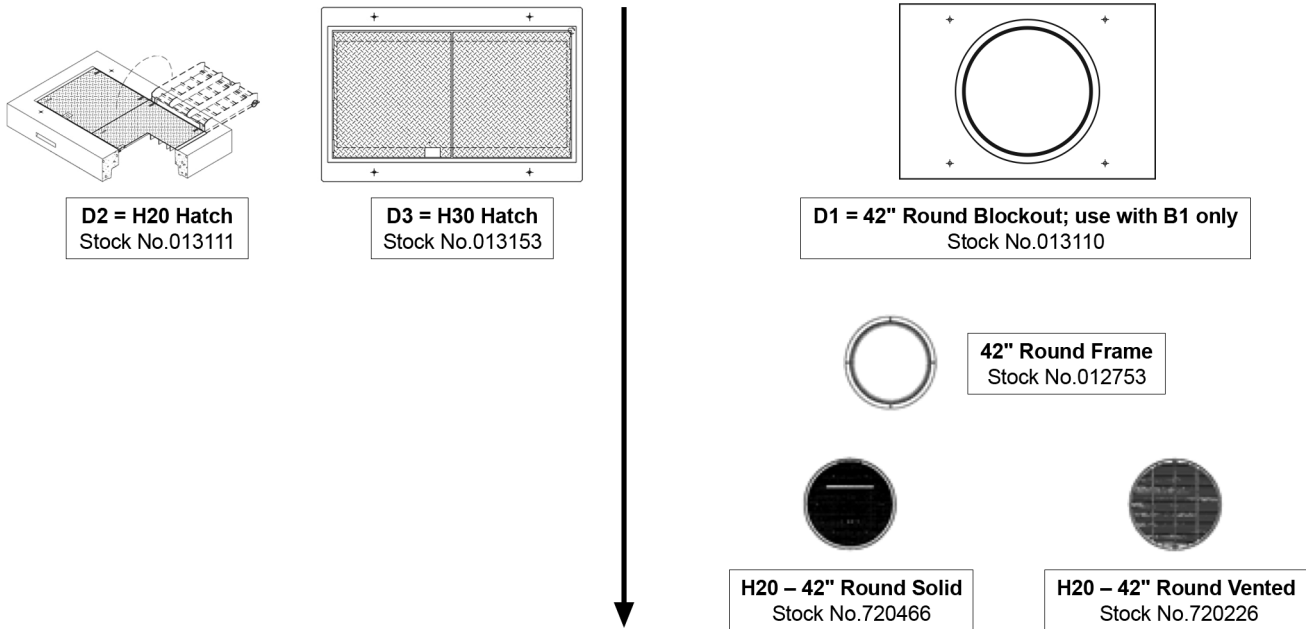
**Step 2.** Determine and select the type of blockout configuration needed for the vault top section [B#]. There are 4 possible options for the 712 top sections; each allowing a different set of access openings. (Stock Numbers 013113, 013114, 013395, or 013115, see section 6).



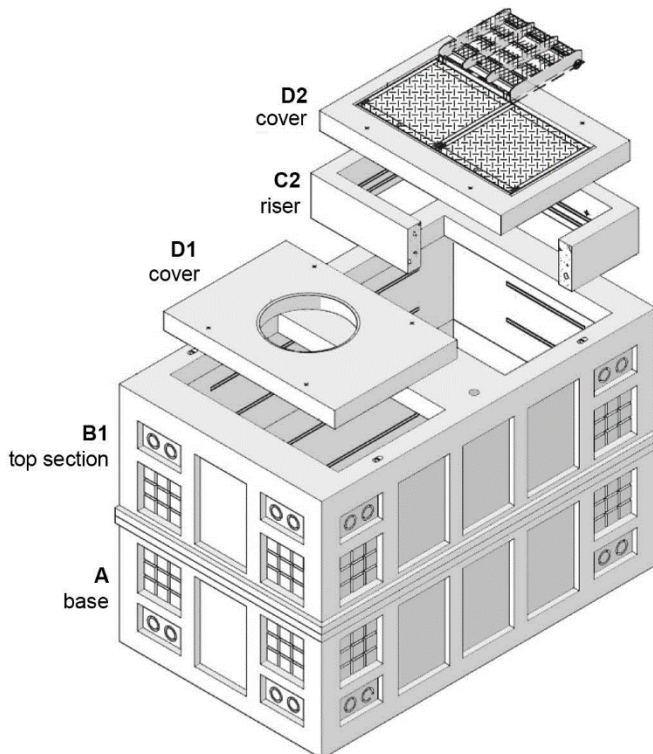
**Step 3.** Select appropriate risers [C#] to bring access opening up to grade. Each riser section for the 712 covers half of the top section. (Stock numbers 013105, 013106, 013162, 013107, 013108, and 013109)



**Step 4. Determine the appropriate type of covers and lids or hatches [D#]**



**Step 5.** Check the assembled vault configurations in section 8 for vaults that can be ordered configured with base, top section, and cover. Assembled option will still require choices for risers and hatches or lids.



**4. General Requirements**

This detailed standard is to be used in conjunction with SCL Material Standard 7203.21, "Precast Reinforced Concrete Structures – General".

Vault grounding shall conform to SCL Material Standard 7203.21, Section 9, Grounding.

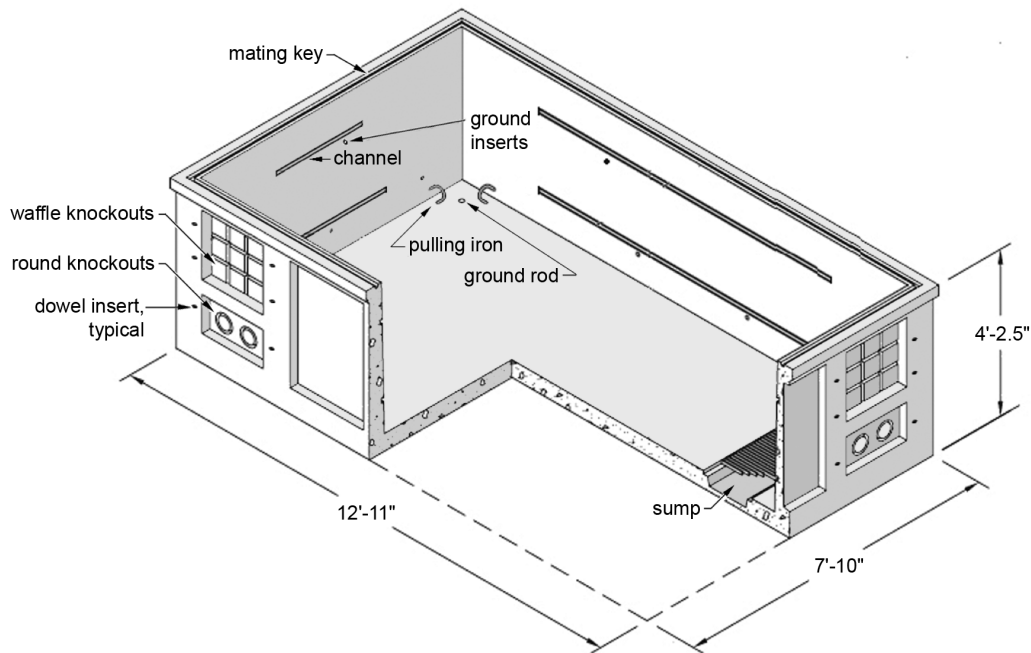
**5. Vault Base Requirements [A]**

All 712 vault bases shall conform to the dimensions cited in Table 5a and Figure 5.

**Table 5a. Nominal Base Dimensions**

Stock No.	Outside (ft-in)		Inside (ft-in)		Height (ft-in)		Figure No.
	Length	Width	Length	Width	Outside	Inside	
013112	12-11	7-10	12-3	7-2	4-2.5	3-9	5

**Figure 5. Standard 712 vault base [A]**



**Table 5b. Vault Base Attributes**

All standard 712 vault bases shall have the following features:

	Size, Nominal (in)	Location	Per Location	Total Number
<b>Knockouts</b>				
Round	4-3/4 dia	All 4 walls, on bottom corners of wall	4 ea side	16
Waffle, 9 - 6 in squares	18 x 18	All 4 walls, above round knockouts	2 ea side	8
Ground rod	2 dia	4 corners of floor	1 ea	4
<b>Channels</b>				
Galvanized "C" channel, horizontal, embedded in walls	36 length	End walls, 9 inches above floor, between knockouts, 22.5 inches on center between channels.	2 ea side	4
	96 length	Side walls, 9 inches above floor between knockouts, 22.5 inches on center between channel	2 ea side	4
Sump with galvanized grate	12 x 60	Floor, about 1 foot from and parallel to short wall	1	1
Pulling irons	7/8 dia	2 each corner of floor (typical)	2 ea corner	8
Ground inserts, bronze	1/2 dia	Side walls, 4 inches below top channel, internal and external	2 ea side	4
Dowel Inserts	1/2 dia	12 inches on center; around the perimeter of duct knockout		
Ladder		Not required		

**6. Top Section Requirements [B1, B2, B3, B4]**

All 712 top sections shall conform to the dimensions cited in Table 6a and Figure 6a.

**Table 6a. Nominal Top Section Dimensions**

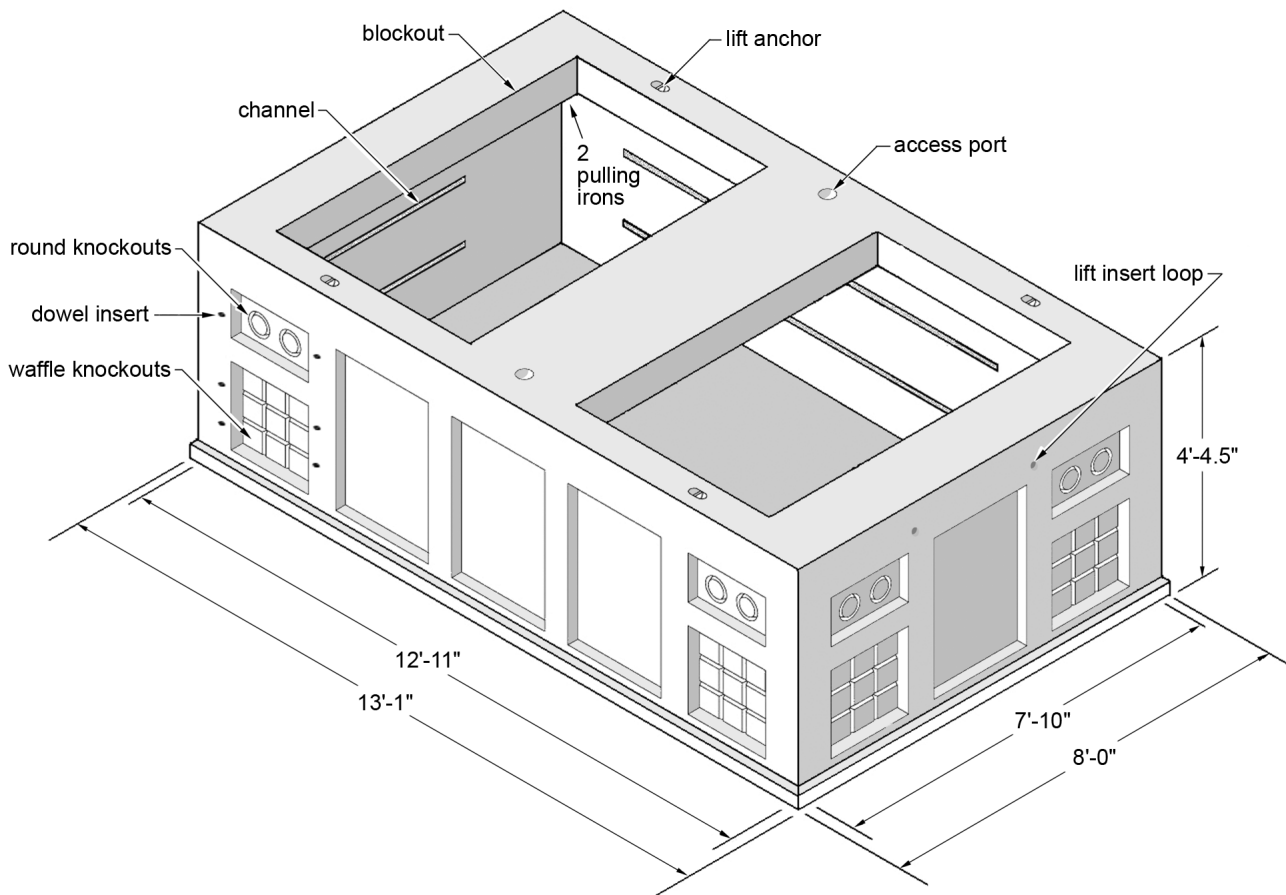
Stock No.	Outside (ft-in)		Inside (ft-in)		Height (ft-in)		Blockout Configurations	Figure
	Length	Width	Length	Width	Outside	Inside		
013113	12-11	7-10	12-3	7-2	4-4.5	3-9	two 78-in by 50-in blockouts	6b, [B1]
013395	12-11	7-10	12-3	7-2	4-4.5	3-9	two 42-in round blockouts	6b, [B2]
013114	12-11	7-10	12-3	7-2	4-4.5	3-9	one 78-in by 50-in blockout and one 42-in round blockout, offset to left (Type 1) [B3]	6b, [B3]
013115	12-11	7-10	12-3	7-2	4-4.5	3-9	one 78-in by 50-in blockout and one 42-in round blockout, offset to right (Type 2) [B4]	6b, [B4]

Notes:

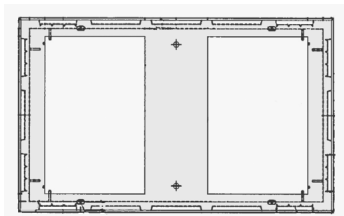
**Type 1** refers to a left-offset rectangular blockout from point-of-view of round blockout end.

**Type 2** refers to a right-offset rectangular blockout from point-of-view of round blockout end.

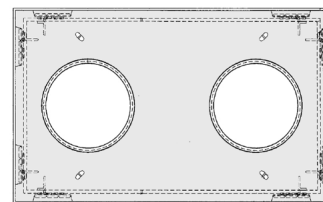
**Figure 6a. Vault top section [B1]**



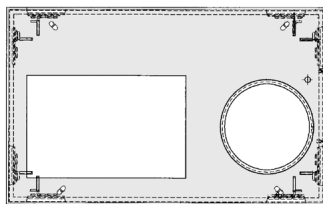
**Figure 6b. Vault top section blockout options (top view)**



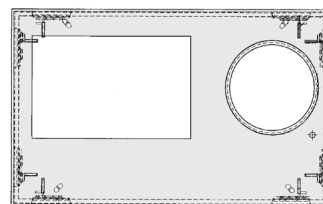
**B1**  
 Stock No. 013113



**B2**  
 Stock No. 013395  
 (not available on separate order)



**B3**  
 Stock No. 013114



**B4**  
 Stock No. 013115

**Table 6b. Top Section Attributes Required**

	Size, Nominal (in)	Location	Per Location	Total Number
<b>Knockouts</b>				
round	4-3/4 dia	all 4 walls, on top corners of wall	4 ea side	16
waffle, 9 - 6 in squares	18 x 18	all 4 walls, below round knockouts	2 ea side	8 waffles
<b>Channels</b>				
galvanized "C" channel, horizontal, embedded in walls	36 length	end walls, 11.25-inches from ceiling, between knockouts, 22.5-inches on center between channels.	2 ea side	4
	96 length	side walls, 11.25-inches from ceiling, between knockouts, 22.5-inches on center between channels	2 ea side	4
<b>Access Port</b>				
<b>[B1]</b>	3 dia	1 each side on top, centered along length of top	1 ea side	2
<b>[B2]</b>	3 dia	1 each side on top, centered along length of top	1 ea side	2
<b>[B3]</b>	3 dia	1, right of 42-inch blockout	1 side	1
<b>[B4]</b>	3 dia	1, left of 42-inch blockout	1 side	1
Pulling irons	7/8 dia	2 ea corner of ceiling (typical)	2 ea corner	8
Lift anchor	6-1/4	4-ton anchor, 1 each corner on top	1 ea corner	4
Lift insert loop	3/4 dia	2 each on outside of one end wall, above knockouts	2, one side	2
Ground inserts, bronze	1/2 dia	side walls, 4 inches below top channel, internal and external	2 ea side	4
Dowel Inserts	1/2 dia	12-Inch on center; around the perimeter of duct knockout		

**7. Covers, Risers and Hatches**

For detailed material standard of covers and risers used with the 712 vault, refer to the latest version of SCL Material Standard 7204.15, "Covers and Risers for Electric Vaults."

All hinged hatches shall open 180 degrees, or flat.

For detailed material standard of 42-inch round cover and frames, refer to the latest version of SCL Material Standard 7204.70, "Frame and Covers, 42-Inch Round, Iron."

**Table 7. Covers, Risers and Hatches**

<b>Stock No.</b>	<b>Description</b>	<b>Mtl. Std.</b>	<b>References to Figure 3</b>
013105	5- by 7-foot by 6-inch riser without galvanized "C" channel	7204.15	<b>C1</b>
013106	5- by 7-foot by 18-inch riser with galvanized "C" channels	7204.15	<b>C2</b>
013362	5- by 7-foot by 24-inch riser with galvanized "C" channels	7204.15	<b>C3</b>
013107	42-inch diameter by 4-inch high round riser	7204.15	<b>C4</b>
013108	42-inch diameter by 6-inch high round riser	7204.15	<b>C5</b>
013109	42-inch diameter by 12-inch high round riser	7204.15	<b>C6</b>
013110	5- by 7-foot cover with one 42-inch round access opening	7204.15	<b>D1</b>
013111	5- by 7-foot adjustable cover with two 3- by 3-foot non-slip solid hatches	7204.15	<b>D2</b>
012753 and 720466	42-inch frame with 42-inch solid cover	7204.70	
012753 and 720226	42-inch frame with 42-inch grated vent cover	7204.70	

**8. Vault Assembly and Packaging**

The vault base and the vault top section shall have keyways for proper assembly.

Vault assemblies shall be delivered fully assembled, unless otherwise requested in purchase order.

Vaults shall be delivered to the job site, unless otherwise requested in purchase order.

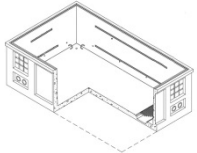
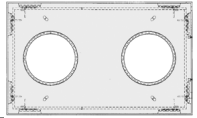
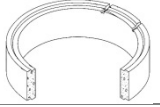
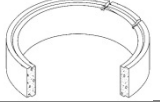
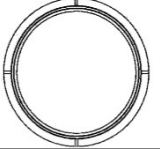

Refer to Tables 8a, 8b, 8c and 8d for the various components included in each vault assembly.



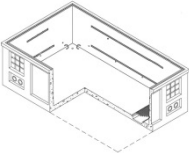

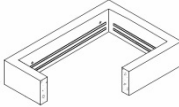
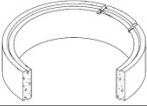
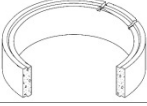
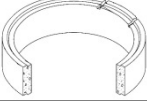
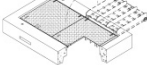
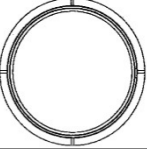

**Table 8a. 712 Vault Assembly 013116: With 1 Equip. (72 in x 36 in) and 1 Personnel (42-in Round Hatch) [A-B1]**

Component	Description	Label	Stock No.	Quantity	Figure
Base		A	013112	1	
Top Section	712 with 2 rectangular blockout	B1	013113	1	
Rectangular Riser	18 in	C2	013106		
42-in Round Riser	4 in	C4	013197	1	
42-in Round Riser	12 in	C6	013109	1	
42-in Round Blockout		D1	013110	1	
Cover with H20 Hatch		D2	013111		
42-in H25 8-Lug Frame			012753	1	
42-in Solid			720466	1	

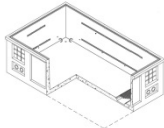

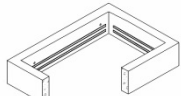
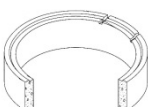
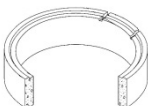

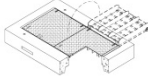
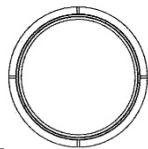

**Table 8b. 712 Vault Assembly 013117, With 2 Personnel (42-in Round Hatch) [A-B2]**

Component	Description	Label	Stock No.	Quantity	Figure
Base		A	013112	1	
Top Section	712 with 2 42-in round blockout	B2	013395	1	
42-in Round Riser	4 in	C4	013107	2	
42-in Round Riser	12 in	C6	013109	2	
42-in H25 8-Lug Frame			012753	2	
42-in Solid			720466	2	

**Table 8c. 712 Vault Assembly 013118, With 1 Equip. (72 in by 36 in) and 1 Personnel (42-in Round) Hatch, Offset Left (Type 1); [A-B3]**

Component	Description	Label	Stock No.	Quantity	Figure
Base		A	013112	1	
Top section	712 with rectangular and 42-inch round blockout	B3	013114	1	
Rectangular Riser	18 in	C2	013106	1	
42-in Round Riser	4 in	C4	013107	1	
42-in Round Riser	6 in	C5	013108	1	
42-in Round Riser	12 in	C6	013109	1	
Cover with H20 Hatch		D2	013111	1	
42-in H25 8-Lug Frame			012753	2	
42-in Solid			720466	2	

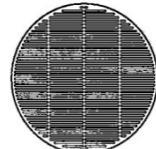
**Table 8d. 712 Vault Assembly with 1 Equip. (72 in by 36 in) and 1 Personnel (42-in Round) Hatch, Offset Right (Type 2); [A-B4]**

Component	Description	Label	Stock No.	Quantity	Figure
Base		A	013112	1	
Top Section	712 with rectangular and 42-in blackout	B4	013115	1	
Rectangular Riser	18 in	C2	013106	1	
42-in Round Riser	4 in	C4	013107	1	
42-in Round Riser	6 in	C5	013108	1	
42-in Round Riser	12 in	C6	013109	1	
Cover with H20 Hatch		D2	013111	1	
42-in H25 8-Lug Frame			012753	2	
42-in Solid			720466	2	

Notes:

Re: Stock No. 013117, if having the flexibility to convert the access cover from equipment to personnel is desirable, use top section Stock No. 013113 with 2 each of Stock No. 013110 instead of top section Stock No. 013395.

Re: Stock No 720226, if vault contains more than 75 kVA of transformer capacity, a vented (grate) cover is required, per below:

Stock No.	Description	Figure
720226	42-in H20 vented cover	

## 9. Issuance

Stock Unit: EA

## 10. Approved Manufacturers

Stock No.	Components	Label	Catalog Number
			Old Castle/Utility Vault
013116	712 vault with one 72-inch by 36-inch and one 42-inch round entry access	<b>[A-B1]</b>	712 CLX Vault Assembly
013117	712 vault with two 42-inch round entry access	<b>[A-B2]</b>	712 TEE CLX Assembly w/ (2) 57-CLX-42C covers
013118	712 vault with one 72-inch by 36-inch and one 42-inch round entry access, offset to left (Type 1)	<b>[A-B3]</b>	712-CLX Type 1 Vault Assembly
013119	712 vault with one 72-inch by 36-inch and one 42-inch round entry access, offset to right (Type 2)	<b>[A-B4]</b>	712-CLX Type 2 Vault Assembly
013112	712 vault base	<b>[A]</b>	712 Vault Base
013113	712 top with two 78-inch by 50-inch blockouts	<b>[B1]</b>	712-TEE-CLX
013395	712 top with two 42-inch blockouts	<b>[B2]</b>	712-TL-42EE
013114	712 top with one 78-inch by 50-inch blockout and one 42-inch round blockout, offset to left (Type 1)	<b>[B3]</b>	712 TEE CLX Top – Type 1
013115	712 top with one 78-inch by 50-inch blockout and one 42-inch round blockout, offset to right (Type 2)	<b>[B4]</b>	712 TEE CLX Top – Type 2

## 11. References

**SCL Material Standard 7203.21**; “Precast Reinforced Concrete Structure, General”

**SCL Material Standard 7204.15**; “Covers and Risers for Electric Vaults”

**SCL Material Standard 7204.70**; “Frames and Covers, 42-Inch Round, Iron”

**Detter, Chris**; SCL Distribution Engineer and subject matter expert for 7203.46

**Ng, Sharon**; SCL Civil Engineer and subject matter expert for 7203.46

**Wang, Quan**; SCL Standards Engineer, subject matter expert and originator of 7203.46