



Utility Vault

Installation Guide



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1. General

Shaw Utility Vaults are high quality, low maintenance, pre-cast structures that can be used in a variety of applications such as:

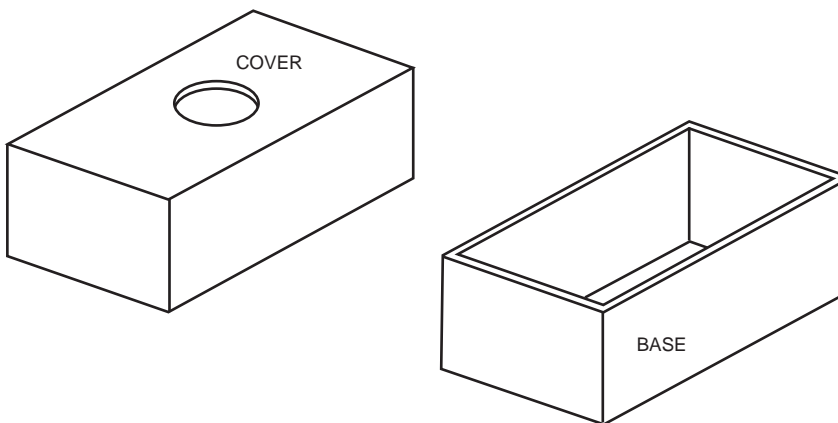
- Utility meter chambers.
- Telecommunications / electrical duct manholes.
- Pull pits.
- Air / pressure relief chambers.
- Valve chamber.
- Storage / holding tanks.
- Pump chambers.
- Etc.

Shaw Pipe has three standard sizes available for utility structures:

- 1500mm wide x 2700 mm long x 2100 mm high
- 1800mm wide x 3600 mm long x 2000 mm high
- 3000mm wide x 3600 mm long x 2100 mm high

Standard units are designed following ASTM C857-95 "Minimum Structural Design Loading for Underground Precast Concrete Utility Structures", for 600mm of soil cover and CL-625 Live Loading unless otherwise specified on the shop drawings.

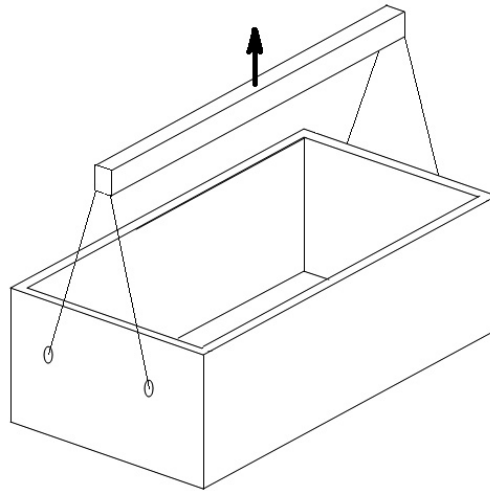
Each Utility Vault consists of a Base and a Cover that are assembled on site with joint material between them to create a complete unit.



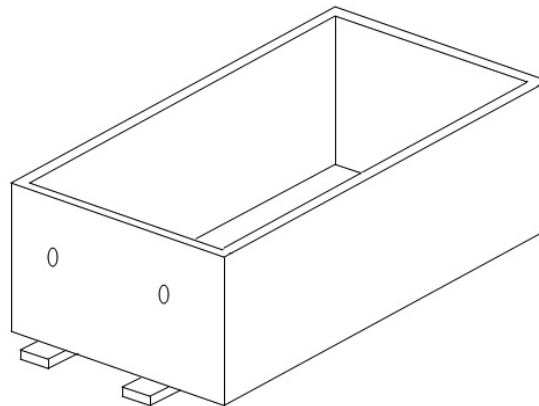
2. Handling and Transportation

Care must be exercised when handling and moving Utility Vaults. Utility Vaults are designed to be lifted, stored and transported as they would be installed on site.

Spreader Beams are to be used for stripping from the Form, handling in the yard and loading onto the truck. The use of a spreader beam will prevent unwanted lateral forces applied to the units. All Utility Vaults are to be only lifted by the cast-in lifting anchors that are shown on the shop drawings, any other method of lifting may be unsafe or damage the product.

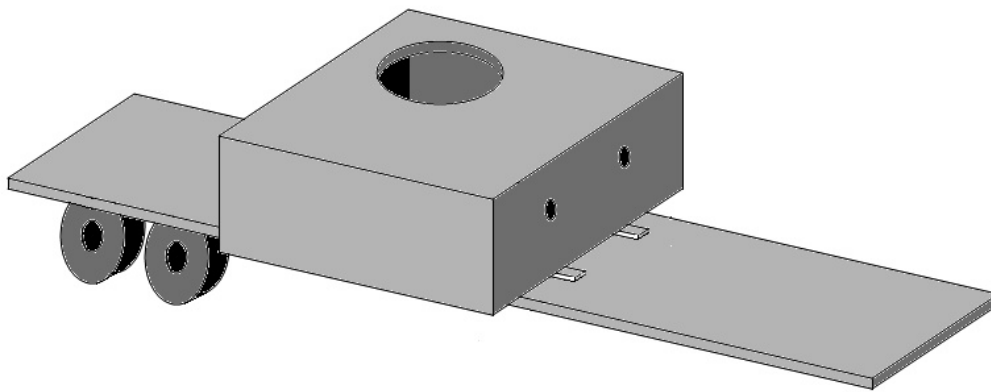


Storage of Utility Vaults shall occur on solid ground that will not settle under the unit's weight. The unit's shall be supported by wood dunnage directly below each lift anchor (as a minimum) and shall maintain a minimum of 100mm between the bottom of the structure and the ground. If the ground can resist the structure's weight, a Base Section unit may be stacked on top of a Cover Section providing that 50mm separation between each structure is maintained and the dunnage is located directly below the lift anchors (as a minimum).



Utility Vault elements are **not** to be shipped until the full 28 day concrete design strength has been obtained.

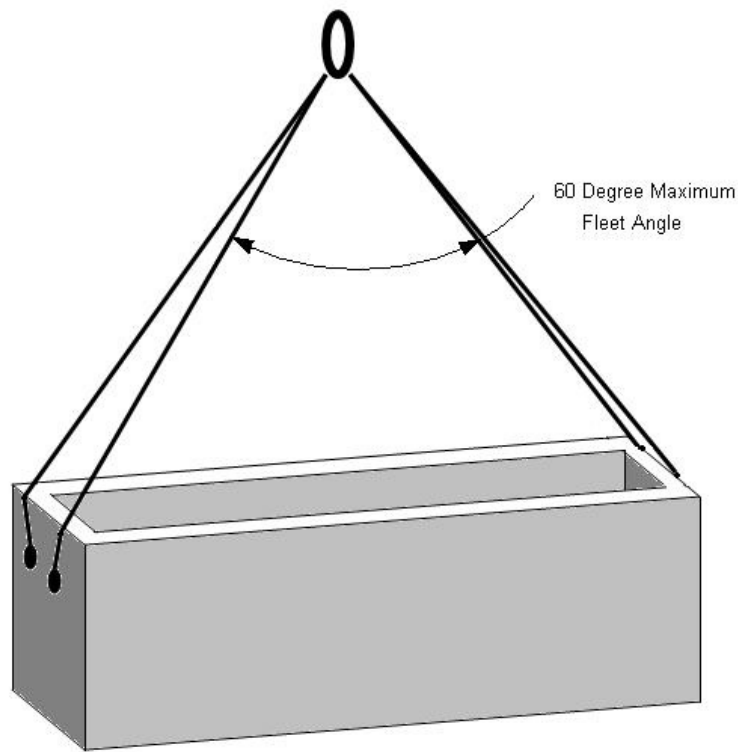
Utility Vaults shall always be shipped with their long direction parallel to the truck trailer with the unit's centre of gravity in line with the vehicles (see project specific shop drawings). Dunnage shall be placed between the trailer deck and the Utility Vault to prevent damage to the unit. At a minimum, dunnage will be located under each lift anchor point and any other location that a tie-down strap is used. At no time shall the Utility Vault be allowed to deform when being tied down, the unit must be shimmed with the appropriate size piece of material to prevent deflection.



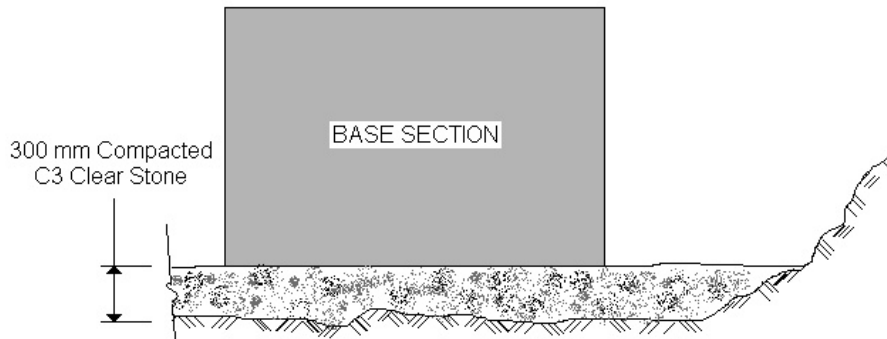
3. Construction and Installation

The installation/excavation of the Utility Vault shall be in accordance with all provincial safety legislation regarding the use of trench cages and/or appropriate back-slopes

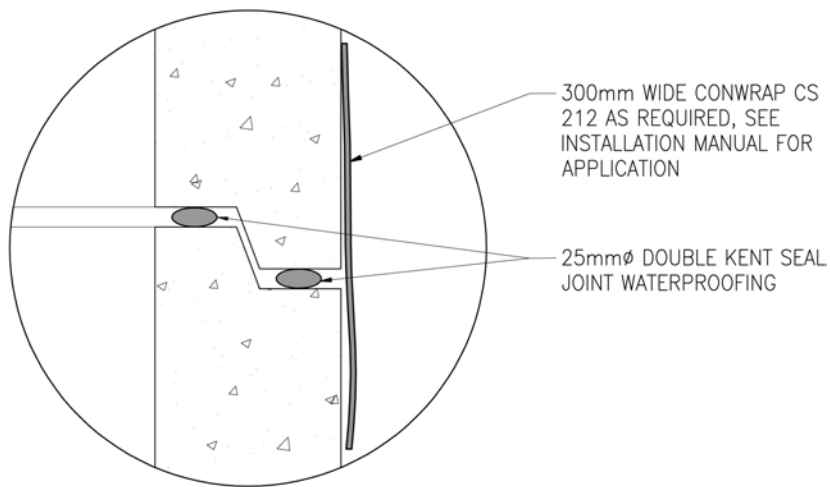
To install the Utility Vaults, equipment rated for the correct capacity shall be used in conjunction with two 2-Leg Bridle Hitches at a maximum fleet angle of 60° or a spreader beam. This is to minimize lateral load on the Utility Vault. At no time shall the Utility Vaults be lifted by any other means than by the lift anchors provided.



Install Base Section on 300mm of C3 Clear Stone to attain the required bearing capacity noted on the accompanying shop drawings.

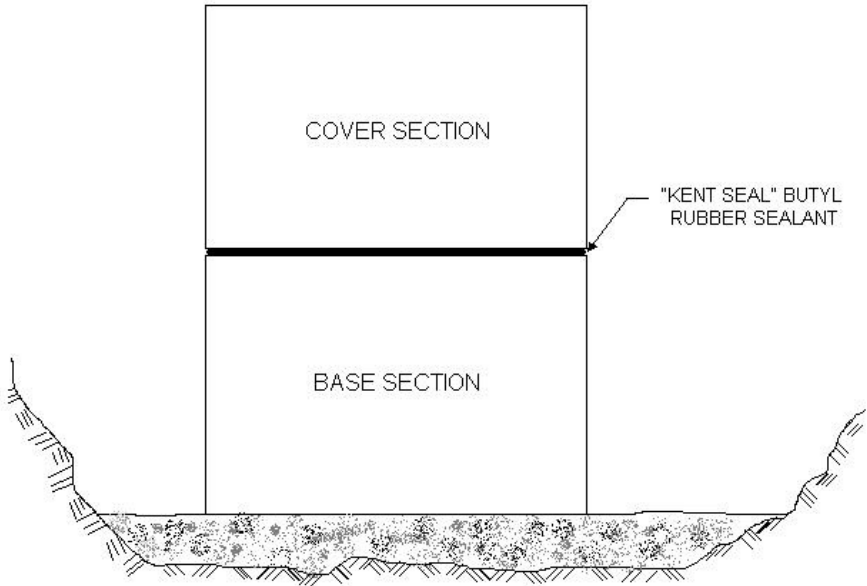


Install two 25mm Hamilton Kent "Kent Seal Butyl Rubber Sealant" on the exterior shoulder and interior spigot of the Base Section, following the manufacture's installation instructions. After the Top Section has been installed, apply a 300mm wide strip of "Conwrap CS 212" on all four sides of the structure, following the manufacture's installation instructions.



JOINT WATERPROOFING DETAIL

Install Cover onto Base Section ensuring sealant is in contact with both the Cover and Base Section around the perimeter of the joint.



Apply 300mm wide ConWrap CS 212 membrane around the joint. This task consists of the application of primer and membrane following manufacturer's directions. See pictures below of the same membrane being applied to a ShawSpan structure.



4. Specifications for Backfilling

Structural Backfill used in the Utility Vault sides shall be of crushed and screened gravel or rock having the following Gradation Requirements when following ASTM C117 and C136 test methods:

<i>Sieve Size</i>	<i>Per cent Passing</i>
112 000	100
40 000	60 - 85
5 000	25 - 50
315	5 - 15
80	2 - 7

Backfill against the structure shall be completed in layers no greater in depth than 300 mm and compacted to 95 % Standard Proctor. The backfill envelope around the structure should extend a minimum of 600 mm around the Utility Vault's perimeter. This operation is continued until the fill zone is at an elevation equal to the concrete deck of the Utility Vault.

