

## Introduction to Cable Enclosures

A cable enclosure is designed to protect its contents (cables, connectors, equipment etc.) against external influences. The structure also needs to act as a shield to prevent its potentially live contents from causing damage or injury to passersby.

Cable pits are positioned on cable routes to provide branching or bending points and/or to allow access for jointing and maintenance. Common cables routed through cable pits include data/communication fibre-optic cables and low-voltage electrical wiring (higher voltage cables typically go overhead or extremely deep underground).

In contrast, surface cable ducting systems become the cable route and allow low voltage cables and other utilities to be laid directly along a trafficable pavement. They can be continually accessed through removable covers. The structure enclosing the services is typically continuous.



## Common Uses of Cable Pits

### 1. Direction Change

Cable pits are commonly positioned where the cable run is required to **change direction**. This is because bends in underground conduits are undesirable.



### 2. Drawing

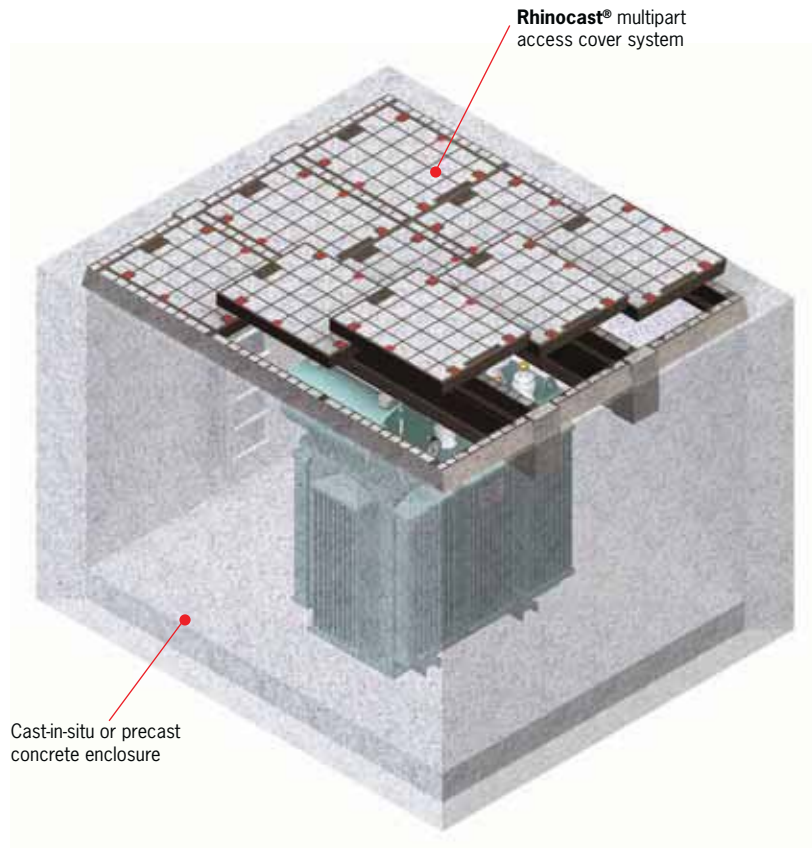
Cable pits, used for drawing (or hauling) cables, also called pulling boxes, are used for pulling cable into the enclosure (using pulling equipment) and looping/feeding it into the next enclosure along the length of the pit. In each **drawing pit**, conduits are generally aligned on opposite walls at the same elevation. AS/NZS 3084 stipulates strict requirements for cable pulling so that cables aren't damaged during these operations.

### 3. Jointing

**Jointing pits**, also called splice boxes, are intended for enclosing a spliced cable connection. These pits contain waterproof cable joints and are generally placed along straight sections of a cable route. These cable pits must be correctly sized to accommodate the size of the connector and cables running through it.

## Larger Enclosures

Maintenance (or access) holes and cable trunking runs are enclosed with access covers arranged in a multipart or trench run configuration. These enclosures are large reinforced concrete structures, sized according to the cable arrangement and may also be used to cater for the co-existence of other services/utilities or house equipment.



## Codes Governing Use of Cable Enclosures

There are various codes governing the use of cable enclosures relevant to both the electrical and communications industries. Dependent on the application, it is ACO's recommendation that all designers and installers reference these documents and/or seek further advice from relevant legislative authorities and consulting engineers.

### Electrical

For electrical installations, certain cable types are drawn into pits. AS/NZS 3000 chiefly defines these cables as Category A underground wiring systems and dependent on the cable type, they are housed in a cable route (between pits) inside light flexible to heavy duty orange conduits.

### Communications

In the communications industry, cables (typically to transmit video, data and/or voice) are generally housed in white conduits and are drawn along cable routes into cable pits. These routes are specifically termed pathways in a cable management system. Enclosures in the communications industry are also known as spaces or handholes and are all classified as cabling products governed by the requirements set out in AS/ACIF S008 for the customer side of the boundary. AS/NZS 3084 reviews the typical pit sizes for communications installations. Additionally, many telecommunications carriers also have their own specific criteria and these are generally documented.

### Larger Enclosures

Maintenance (or access) holes and trunking runs are subject to the wiring rules set out in AS/ACIF S009. AS/NZS 3084 also offers some basic guidelines.