Slide-door Vault

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This vault is suitable for protecting stand-alone electrical control panels, such as is used for example in cathodic protection of pipelines. For other vaults and other anti-vandalism products in our range see www.concretedoorsandvaults.com which variously protect valves, pumps, boreholes, instruments, control panels, transformers, etc. All products have robust locking mechanisms, and can be made to any size, all from heavily reinforced 60MPa concrete.

Background: When a sewerage collection pit (fig 1) fills up (fig 2) raw sewerage will flow into the nearest watercourse resulting in unacceptable pollution of streams, rivers and dams. In 2010 the control panel (green in fig 3) together with the corresponding submersible pumps were stolen – see fig 4, and within a few hours effluent was flowing into the stream. The short term solution was to hire a pump & control panel, with 24 hour security, at a cost of R50 000 per month x 6 months, according to the municipal official. The long term solution was to install a 'slide-door vault' – see fig 5 and fig 6, where in both instances the vault is shown in its closed and locked configuration. The walls and roof-slab are 150/200mm thick and made of heavily reinforced 60MPa concrete.

Opening sequence:

Fig 7: The padlocks are unlocked and the 'locking channel' removed. (This channel is optional).

Fig 8: The stainless steel 'plug' is pulled out of the 'access tube' using the magnet at the tip of the 'opening tool'.

Fig 9: With the plug removed, the opening tool is inserted into the access tube.

Fig 10: The 'pinion' near the front end of the opening tool passes through a matching 'spline plate' and on to engage the 'rack-bar'. The pinion and spline plate are customizable, and numerous combinations are possible by varying the number of teeth, as well as their angle and length. In addition, both the pinion and spline plate are easily changeable in the event of a tool getting into the wrong hands.

Fig 11: When the handle of the opening tool is turned, the rack-bar lifts out of the 'anchor hole-plate'. Now the door is opened by pulling on the tool's handle. It slides open easily, owing to three steel wheels, positioned one at each corner of the L-door. The wheels run on 'rails' that are imbedded into the concrete base, see fig 6.

Fig 12: The door in its fully open position, seen from the back. The rack-bar is in the up position.

Fig 13: The vault in its fully open configuration seen from the front. The control panel may be bolted to two angle iron supports, or simply rest on them loosely (as in this instance).

Fig 14: Additionally it is possible to fit a 'plug' that requires a telemetric signal from a control room for it to unlock. With this system the time of locking and unlocking is logged, so that a full history is available of when the vault was opened/closed.

Fig 15: The door may also take the shape of a U, which is useful for control panels that have switches on both sides.