

Sub.: Standard specification – manhole covers.

Keywords: Manhole covers, CC covers, FRP covers

1. By and large CC covers are being eliminated. In their place FRP covers are to be used.
2. CC covers may be used during construction when work is temporary in nature. They may be replaced with FRP covers on a later date.
3. Sizes mentioned below are clear opening sizes. The size of the cover is likely to be 25 to 50mm larger than the clear opening. The frame size is likely to be larger by 50 to 150mm than the clear opening size.
4. In case the cover is being placed on top of an RCC structure then the opening of the RCC structure must be exactly equal to the size of the clear opening. Separate designs for manhole covers installation is given in standard drawings.
5. The strength of the RCC or FRP cover is determined by its class or load bearing capacity. The thumb rule guideline on the load bearing capacity is as under:
 - a. For pedestrian areas or inaccessible areas the load bearing capacity should be about 2.5 tons (1 to 3 tons range).
 - b. For driveways accessible to light motor vehicles and tractors the load bearing capacity should be around 10 tons (6 to 15 tons range).
 - c. For main roads and driveways which have been designed for movement of heavy trucks the load bearing capacity must be around 40 tons. This is also applicable for movement of fire engines.
 - d. Only in select cases load bearing capacity should be 20 or 25 tons on roads or driveways.
6. Standard sizes.
 - a. Manhole should be round in place of square as the strength of a round manhole is more than the strength of a square manhole. Besides, cost of round manhole is lesser than square manhole.
 - b. Wherever possible manhole covers should be of size 530mm (21”) near opening – round type. This is the standard size of most manholes.
7. Avoid use of Supreme FRP covers for manholes of ecodrain pipes. Order FRP/RCC covers separately. Supreme FRP covers are very expensive compared to other brands/makes.
8. Catalogue of FRP manhole covers is uploaded on M-codex (scan id no. 99282). Pricelist is uploaded as scan id no. 133010, discount is about 42% and GST of 18% is extra. Engineers may take prior permission for ordering other types of covers from Soham or from an other make in case it is not as per the above guidelines.
9. For manholes larger than the manhole cover opening, RCC slab must be casted over the manhole and cutout of manhole opening size should be maintained. RCC slab must be as follows:
 - a. For main roads -150mm thick, M20CC, tor steel of 16mm in a grid of 150 x 150mm.
 - b. For driveways -100mm thick, M20CC, tor steel of 12mm in a grid of 150 x 150mm.
 - c. For other areas -100mm thick, M20CC, tor steel of 8mm in a grid of 150 x 150mm.

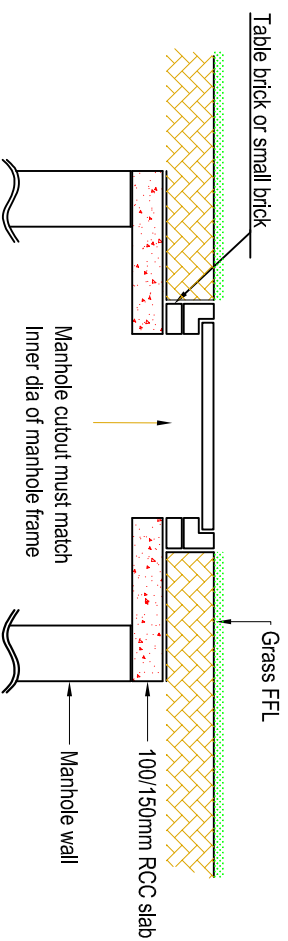
10. Size of manhole:

- a. For borewells – inner-inner 900mm – depth 900 to 1200mm.
- b. For junction at footpath corners for electrical and water supply conduits – inner-inner 900/1200mm – depth 900 to 1200mm. Extra depth below lowest pipe of 300mm must be provided.
- c. Manhole for drainage - inner-inner 600mm – depth as required. Extra depth below lowest sewage pipe of 300mm must be provided.
- d. Earthing pits - inner-inner 300mm – depth 300 to 450mm.
- e. Manholes for electrical and water supply conduits – inner-inner 600/900mm – depth 600 to 900mm. Extra depth below lowest sewage pipe of 300mm must be provided.
- f. Wall thickness must be as follows:
 - i. 400mm on main roads with 2 RCC 100mm beds at middle and top level with 2 nos 8mm tor steel rods.
 - ii. 200mm on driveways with 2 CC 75mm beds at middle and top level.
 - iii. 150mm in other areas with 1CC 50mm bed at middle level.
 - iv. Avoid 100mm blocks.

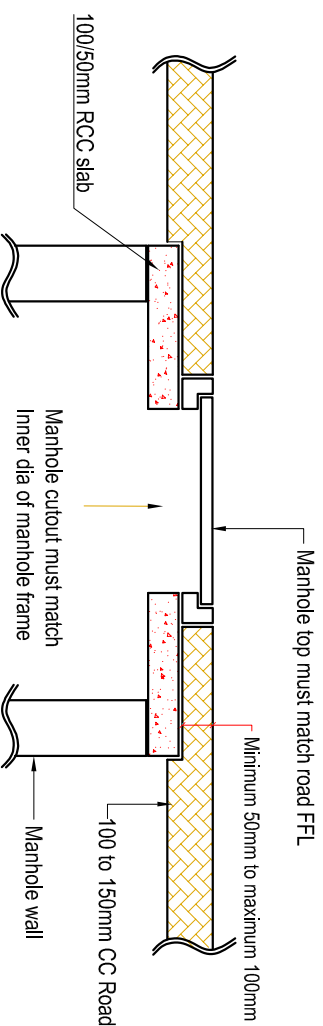
Sl. No.	Usage	Type	Clear opening size	Load bearing capacity
1	Main roads and driveways with movement of heavy trucks and fire engines. For sumps, drainage	Round. RCC during construction phase. FRP after major construction is completed.	530mm	40 tons
2	Main roads and driveways with movement of heavy trucks and fire engines. For borewells	Round. RCC during construction phase. FRP after major construction is completed.	600mm	40 tons
3	Driveways with movement of light vehicles and tractors For sumps, drainage	Round. RCC during construction phase. FRP after major construction is completed.	530mm	10 tons
4	Driveways with movement of light vehicles and tractors For borewells	Round. RCC during construction phase. FRP after major construction is completed.	600mm	10 tons
5	Pedestrian areas or inaccessible areas For sumps, drainage	Round. RCC during construction phase. FRP after major construction is completed.	530mm	2.5 tons
6	Pedestrian areas or inaccessible areas For borewells	Round. RCC during construction phase. FRP after major construction is completed.	600mm	2.5 tons
7	Electrical and water supply manholes in front of each villa on footpath	Square. FRP	450mm	2.5 tons

8	Earth pits	Square. FRP	300mm	25 tons for main roads. 10 tons for driveways. 2.5 tons for other areas.
9	OHT cover	PVC Square	600mm	NA
10	Manhole openings on footpaths for underground conducting related water/ electric power supply	FRP Round or square	900mm	2.5 tons
11	Manhole covers for ecodrain pipes and chambers – villa projects. Do not use FRP covers.	PVC	As per manhole size	NA
12	Rainwater harvesting pits.	FRP Square Water gulli cover with frame	450mm in most places. 600mm only in special cases.	25 tons for main roads. 10 tons for driveways. 2.5 tons for other areas.

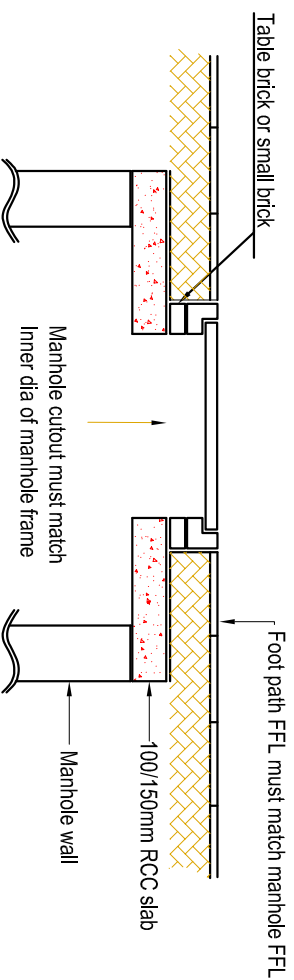
Soham Modi.



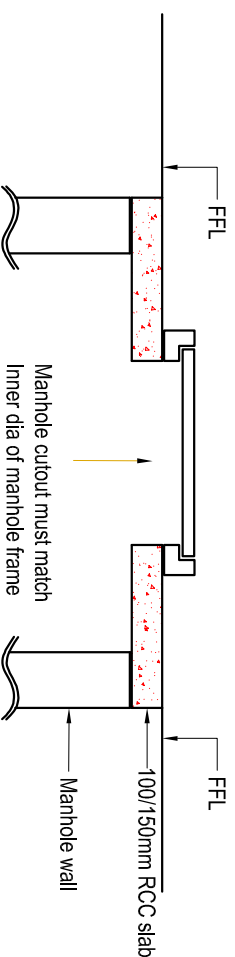
1. Lawn / Landscape area



3. Road -CC



2. Foot path area



4. Other area - not under use

Description	Direction	Date :		Promoted by	
STANDARD DRAWING FOR MANHOLE COVER PLACEMENT FIG.NO.51		Prepared By :	28.02.23	Modi Properties & Investments Pvt. Ltd. Phone: +91-40-66335551	
		Approved By :			
		Scale :			