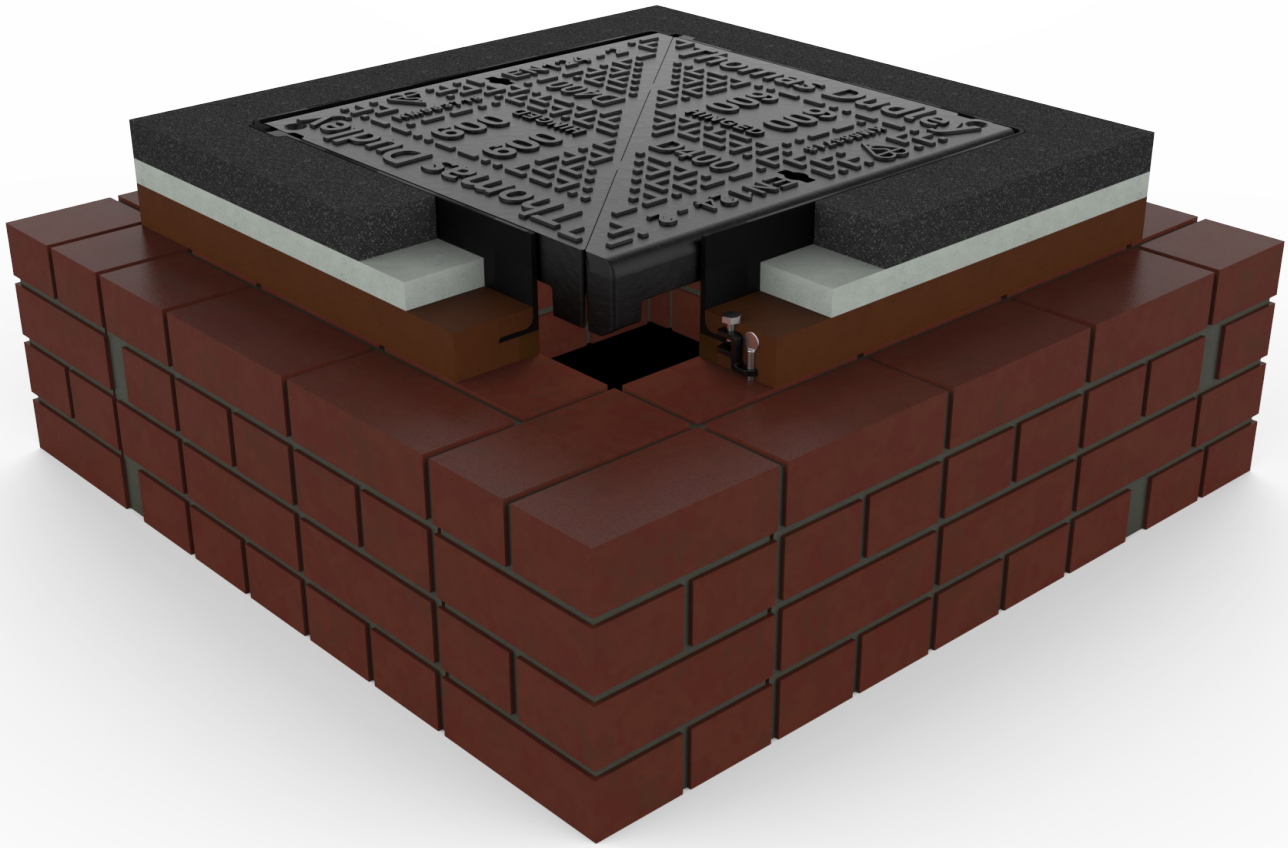
UTILITY PRODUCTS

SPECIFICATION & INSTALLATION GUIDE FOR ACCESS COVERS, GRATINGS AND FRAMES

Thomas Dudley Utility Products have partnered with Meon, the technical experts in surfacing repair and reinstatement, to provide the optimum ironwork installation solution.



MEON
DELIVERING GREAT SURFACES

THOMAS DUDLEY

SPECIFICATION OF COVERS & GRATES

BS EN 124 – STANDARD CLASSIFICATION

- Access covers and gully grates installed in the UK should meet the requirements of the European Standard BS EN 124.
- This applies to all situations, on and off-road and to all materials.
- Products designed to BS EN 124 are grouped and classified depending on their place of installation.
- It is the responsibility of the engineer to ensure that the correct product is specified.
- The appropriate class of manhole top or gully top to be used depends upon the place of installation.
- The selection of the appropriate class is the responsibility of the designer.
- Where there is any doubt the stronger class should be selected.
- The standard divides access covers and gully grates into a number of classes by static test load.



- **Group 1 – minimum Class A15 –** Access covers and gratings capable of withstanding a 15kN test load. For use in areas which can only be used by pedestrians and pedal cycles.



- **Group 2 – minimum Class B125 –** Access covers and gratings capable of withstanding a 125kN test load. For use in car parks and pedestrian areas where only occasional vehicular access is likely.



- **Group 3 – minimum Class C250 –** Access covers and gratings capable of withstanding a 250kN test load. For use in the area of kerbside channels of roads which when measured from the kerb edge, extends a maximum of up to 500mm into the carriageway and up to 200mm into pedestrian areas.



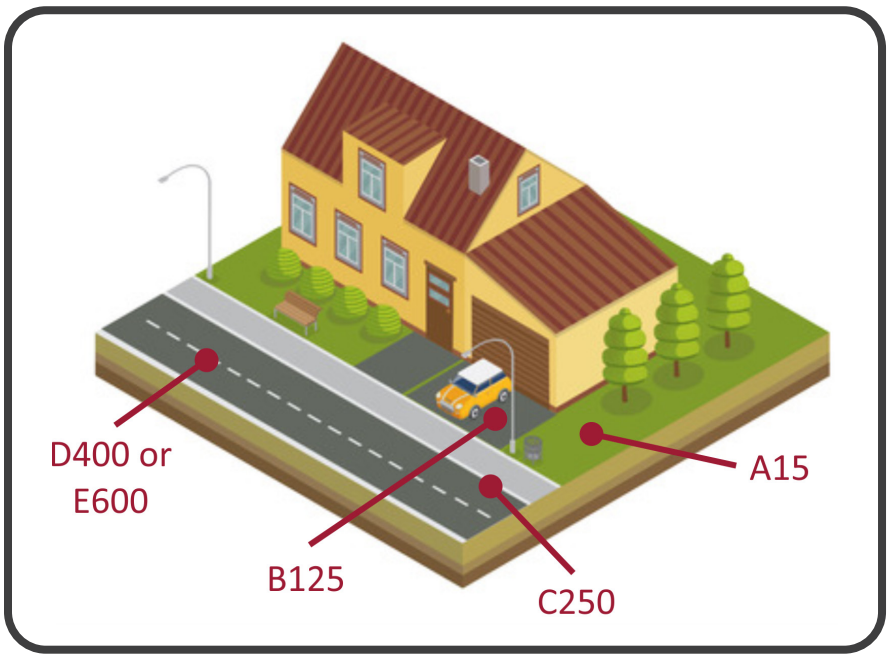
- **Group 4 – minimum Class D400 –** Access covers and gratings capable of withstanding a 400kN test load. For use in areas where all types of road vehicles have access, including carriageways, hard shoulders and parking areas.



- **Group 5 – minimum Class E600 –** Access covers and gratings capable of withstanding a 600kN test load. For use in areas where high wheel loads are imposed such as loading areas, docks or aircraft pavements.



- **Group 6 – minimum Class F900 –** Access covers and gratings capable of withstanding a 900kN test load. For use in areas where particularly high wheel loads are imposed such as aircraft pavements.

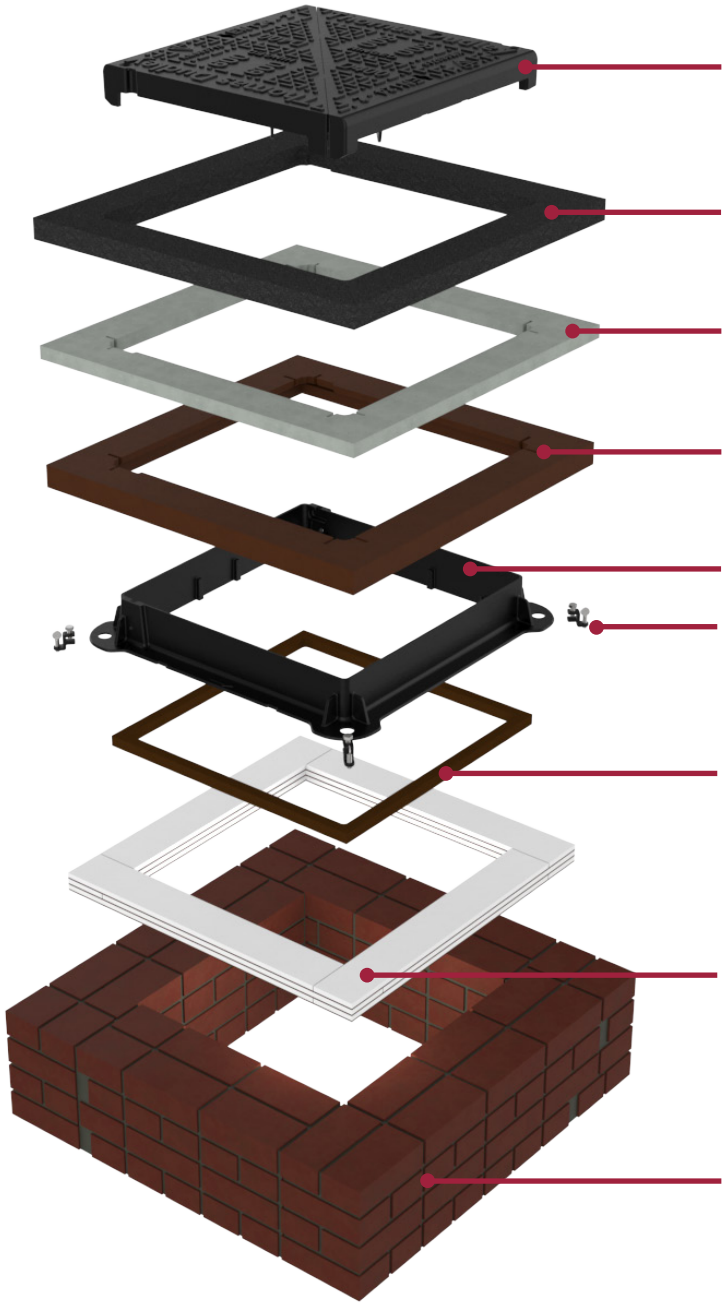




TYPICAL INSTALLATION GUIDE

DUCTILE IRON MANHOLE COVER & GULLY GRATE INSTALLATION GUIDELINES

Supporting Standards: CD534 Chamber tops and gully tops for road drainage and services. Specification for the Reinstatement of Openings in Highways Fourth edition Ironworks to meet BS EN 124-1:2015 through to BS EN 124-6:2-15, BS EN7903:2020



Cover or Grate

Surface Course & Edge Sealant
- Asphalt or Concrete

Backfill Material

Flowable Bedding Mortar - To suit load class

Frame

TD Levelling System (optional)
- Ensures ironwork is set at the right height and parallel to the road surface

Damming Bedding Mortar - To suit load class

Shim Raising Planks (optional)
- Ensures ironwork is set at the right height
- Should be installed with bedding mortar

Brick or Pre-cast Concrete Chamber
- Brick chambers to be 4 layers maximum, Class 2 engineering bricks English bond.

IMPORTANT INFORMATION FOR MANHOLE COVER & GULLY GRATE INSTALLATION

1. Before commencing works, ensure that the correct product has been chosen in terms of:

    a. Clear-Opening size.

    b. Depth.

    c. Load class

2. Manhole cover and gully grate replacement/installation should only be attempted by qualified and experienced contractors.

3. Manhole covers and gully grates should not be placed directly onto brickwork or a concrete 'biscuit' (i.e. without bedding mortar).

4. Exposed or raised ironworks are vulnerable to damage by vehicles so should be protected at all times and not trafficked until the final road course has been laid and fully cured.

5. TD Foundry use a water based matt rust inhibitor coating. Once trafficked the coating will wear off and natural oxidization of the product will occur. This process has no detrimental effect to the product in situ.

6. To ensure a sound installation it is imperative that the correct mixing quantities and cure times are observed for all materials prior to the installation being subjected to any loads.

7. Ensure the general work area is as clean as possible and free from debris.

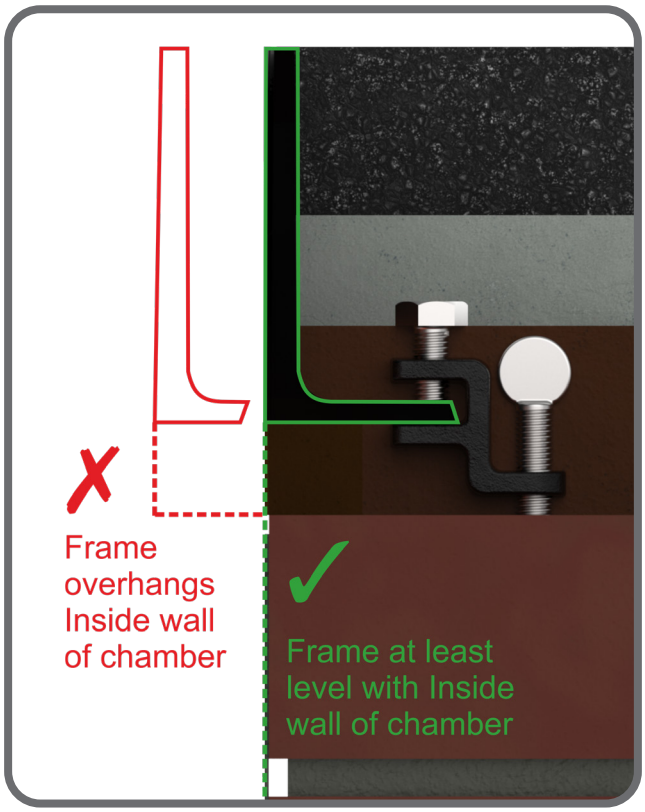
8. In all cases mixing should be carried out mechanically to ensure a thorough and consistent mix, and it is highly recommended that mixed batches of mortar are no greater than can be used in the time before the material starts to set.

9.Always follow the manufacturer's instructions when mixing mortar, taking note of any PPE required when handling (gloves, goggles, etc.). Please note that the performance of such bedding materials is severely affected if the mating surfaces are not clean and dry.

10. Take care to ensure that the top edge of the frame is level with the intended final road surface, as failure to do so will result in excessive noise in service and/or potentially early failure of the manhole cover/gully grate.

11. Ensure that bedding material is not obstructing the cover seatings, cleaning off excess material where needed. Clean up any exposed areas of bedding material on the inside of the frame by pointing to a smooth finish.

12. Ensure that the inside of the frame is at least level with the inside of the chamber. This allows the frame to disperse stress through the frame flange and the bricks. If the frame overhangs the chamber any force could cause the installation to crack & fail.



Instructions For New Installations:

1. Chamber - The chamber construction should be made up of 2-4 courses of class 2 engineering bricks laid English bond **or** from pre-cast concrete seating rings.

2. Materials -

Installation Materials	Groups 1 & 2, A15 & B125 (Pedestrian areas and occasional vehicle use)	Groups 3 & 4, C250 & D400 - Type 2, 3 & 4 Roads (Kerbside installation and standard use roads)	Type 1 Roads, CD534 and Groups 5 & 6, E600 & F900 (High use carriageways, trunk roads & motorways, high wheel load areas and aircraft pavements)
Damming/Bedding Mortar			
20N/mm² in 120min Compressive Strength Meon Recommended Material - Hardmaster W690	✔		
20N/mm² in 60min Compressive Strength Meon Recommended Material - Hardmaster W668		✔	
40N/mm² in 180min Compressive Strength Meon Recommended Material - Hardmaster W620			✔
Flowable Bedding Mortar			
20N/mm² in 120min Compressive Strength Meon Recommended Material - Hardmaster W615	✔		
20N/mm² in 60min Compressive Strength Meon Recommended Material - Hardmaster W615		✔	
40N/mm² in 180min Compressive Strength Meon Recommended Material - Hardmaster W621			✔
Backfill Material			
20N/mm² in 120min Compressive Strength Meon Recommended Material - Hardmaster W910	✔		
20N/mm² in 120min Compressive Strength Meon Recommended Material - Hardmaster W615		✔	✔
Surface Course			
Asphalt Meon Recommended Material - Patchmaster H575	✔		
Asphalt Meon Recommended Material - Permafyx L273	✔	✔	✔
Concrete Meon Recommended Material - Hardmaster W672	✔	✔	✔
Edge Seal (Optional) Meon Recommended Material - Bituseal H561		✔	✔

3. Bedding - If possible remove the covers or grates from the frame prior to installation. Bedding should be achieved using one of the following 3 methods using the materials stated in the table above -

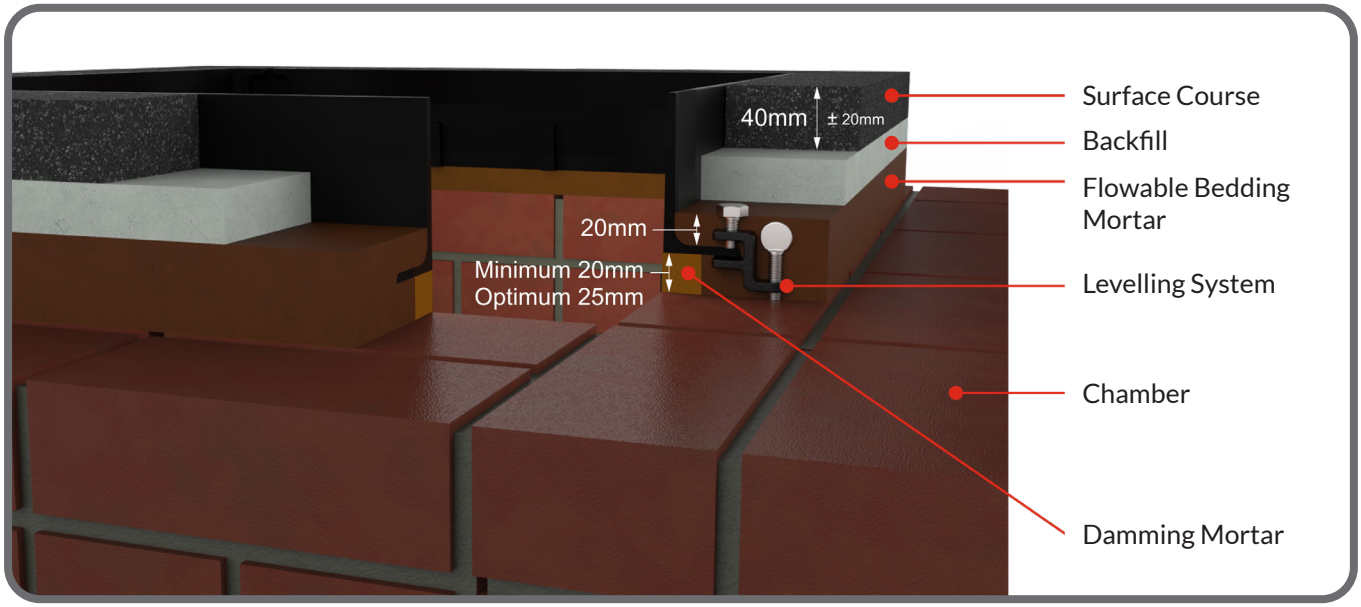
a - TD Levelling System (Recommended method, use with flowable mortars only) -

Use the levelling system to set the frame height to match the road surface level, leaving a gap for bedding mortar (minimum 20mm). Assemble a leveller to each corner of the frame, position the frame onto the chamber and adjust each leveller with the thumb screw to ensure the top of the frame is parallel to and level with the road surface.

Dam the inside of the frame using a suitable bedding mortar, refer to the materials table.

The top surface of the mortar should be smooth and even, with no deep trowel marks.

Complete the bedding layer with a flowable bedding mortar of equivalent strength, to a level approx. 20mm above the flange of the frame in order to encapsulate the frame and fill any gaps in the bedding layer.



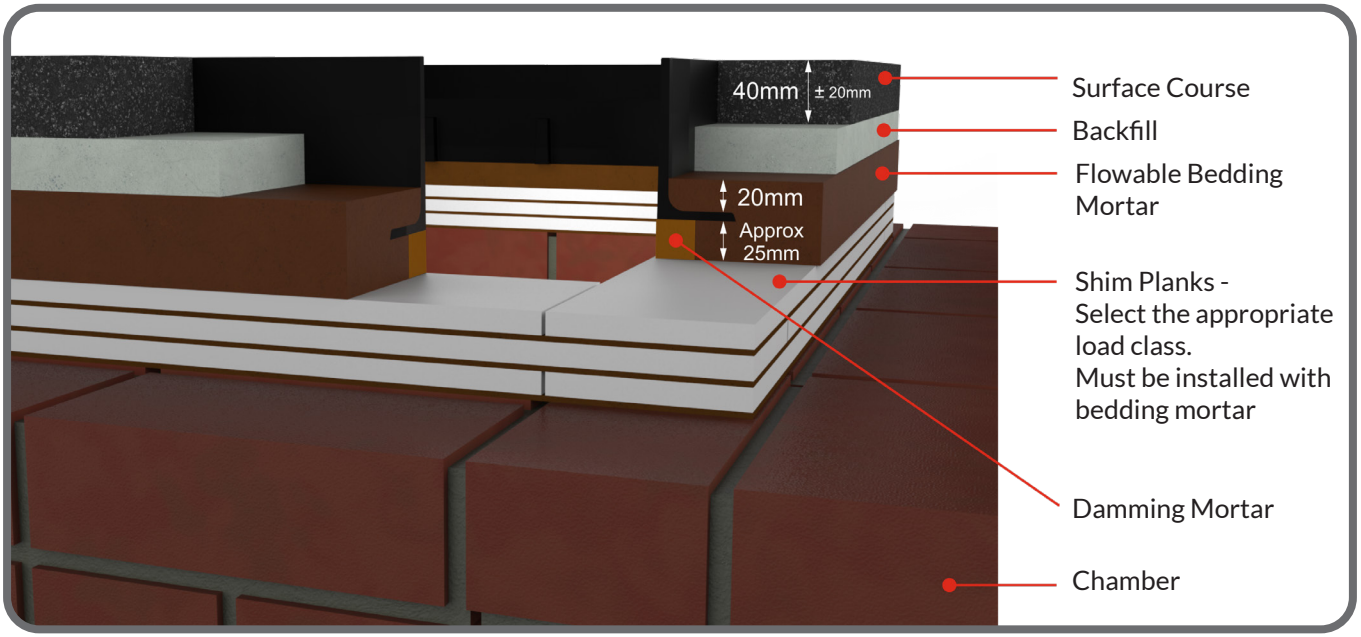
b - Shim Raising Planks -

Shim planks should be installed to the manufacturers guidelines. Select the appropriate load class, ensuring the frame flange is fully supported and frame installed to the correct height, including an approx 25mm gap for bedding mortar.

Bed in the shim planks in layers using a suitable bedding mortar, refer to the materials table.

Position the frame on a layer of bedding mortar, using the same specification mortar as above, ensuring a finished level of approx 25mm and that the frame is installed to the correct height. The top surface of the mortar should be smooth and even, with no deep trowel marks.

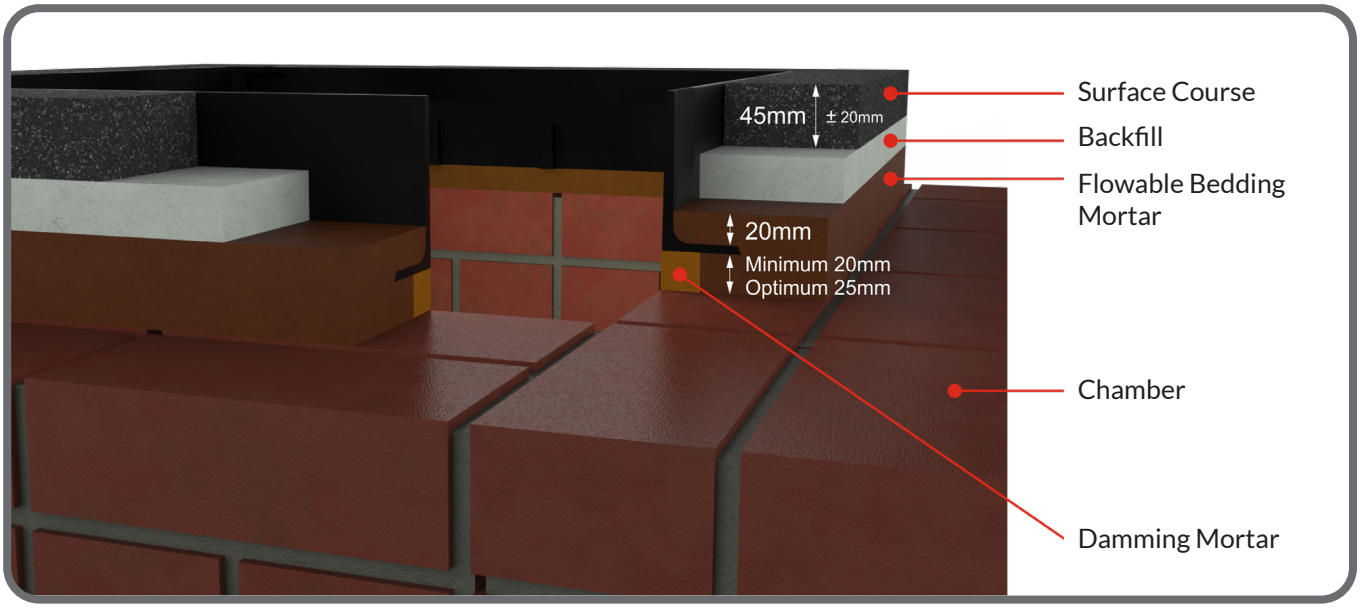
Complete the bedding layer with a flowable bedding mortar of equivalent strength to a level approx. 20mm above the flange of the frame in order to encapsulate the frame and fill any gaps in the bedding layer.



c - Mortar -

If no adjustment system is used, position the frame on a layer of suitable bedding mortar, refer to the materials table. Ensure a finished level of at least 20mm and that the frame is installed to the correct height. The top surface of the mortar should be smooth and even, with no deep trowel marks.

Complete the bedding layer with a flowable bedding mortar of equivalent strength, to a level approx. 20mm above the flange of the frame in order to encapsulate the frame and fill any gaps in the bedding layer.



4. Backfill - Once the bedding mortar has reached initial set, a trowelable or flowable backfill material (refer to the materials table) should then be used up to approximately 40mm ± 20mm to the top of the frame.

5. Surface Course - Once the backfill material has achieved **full cure**, replace the cover/grate into the frame, use mechanical lifting aids where appropriate. The final surface course can then be laid. An edge sealant can be used if required. Refer to the materials table.

Important - Do not allow the product to be trafficked in any way until the final road course is laid and fully cured. Failure to follow this advice could result in damage to the installation.

For Reinstatements:

1. Removal - Remove the existing re-instatement from around the ironwork leaving enough room to allow the flange of the frame to be removed. Take out the existing ironwork.

2. Chamber - Ensure the top of the chamber structure is clean, free from debris and that there are no structural defects in the concrete or brickwork by tapping the surface with a hammer.

3. Chamber Repair - Remove any damaged brickwork and replace with class 2 engineering bricks laid English bond with a rapid set mortar or replace the brickwork with a rapid-setting concrete. The chamber will need to be re-built if any defects are unrepairable.

4. Installation - For installation of the new ironwork follow steps 2 - 5 of the instructions for new installations.

MEON
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mail@meonuk.com
https://meonuk.com/

UK (HEAD OFFICE)
Railside, Northarbour Spur,
Portsmouth
Hampshire
PO6 3TU

T: 0808 503 7214

IRELAND
Carrick House,
48 Bridge Road,
Warrenpoint,
BT34 3QT
NI: 028 3085 0049
ROI: 01 840 7647

ENQUIRIES

Please call 0121 521 2503 or email foundrysales@thomasdudley.co.uk

TD THOMAS DUDLEY

UTILITY PRODUCTS TD

295 Birmingham New Road,
Dudley, West Midlands, DY1 4SJ

0121 521 2503 @ foundrysales@thomasdudley.co.uk

www.tdfoundry.co.uk

Thomas Dudley Utility Products

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