Standard Construction Details (SCDs) – Series 2400

TII Publications contains Standard Construction Details (SCDs) for use on National Road schemes in Ireland. This composite document brings together all the Series 2400 SCDs from TII Publications current at the date of this document’s publication, into a single location for convenience.

Every effort has been made to keep this composite document updated and available from the TII Publications website (http://www.tiipublications.ie/). Please note that the SCD drawings available from the TII Publications website (individually linked below) are the controlled versions for all SCDs.

The SCDs contained in this document are as follows:

### Series 2400 Walls

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<th>Description</th>
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<tbody>
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<td>Walls - Typical Blockwork Wall</td>
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<td>CC-SCD-02402</td>
<td>Walls - Typical Dense Concrete Masonry Blockwork Wall</td>
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<tr>
<td>CC-SCD-02403</td>
<td>Walls - Typical Masonry Faced Blockwork Wall</td>
</tr>
<tr>
<td>CC-SCD-02404</td>
<td>Walls - Typical Stonework Wall</td>
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<td>CC-SCD-02405</td>
<td>Walls - Typical Railing on Low Stonework Wall</td>
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<td>CC-SCD-02406</td>
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<td>CC-SCD-02407</td>
<td>Walls - Principles of Stonemasonry</td>
</tr>
</tbody>
</table>
ELEVATION

PLAN

TABLE 1

<table>
<thead>
<tr>
<th>WALL HT. (H) (mm)</th>
<th>X (mm)</th>
<th>Y (mm)</th>
<th>PIER CTRS. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO 1200</td>
<td>700</td>
<td>225</td>
<td>NO PIER</td>
</tr>
<tr>
<td>1200 TO 1800</td>
<td>700</td>
<td>225</td>
<td>2700</td>
</tr>
<tr>
<td>1800 TO 2500</td>
<td>800</td>
<td>250</td>
<td>2700</td>
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</tbody>
</table>

TABLE 2

<table>
<thead>
<tr>
<th>FINISH TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FAIRFACED</td>
</tr>
<tr>
<td>2. ROUGHCAST</td>
</tr>
<tr>
<td>3. NAPPED PLASTER</td>
</tr>
<tr>
<td>4. TYROLENE</td>
</tr>
</tbody>
</table>

NOTES:
1. THIS RCD IS ONLY TO BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN CARRIED OUT FOR THE WALLS ON A PROJECT IN ACCORDANCE WITH RELEVANT DESIGN CODES FOR BLOCKWORK, MASONRY AND LOADING.
2. BLOCKS TO COMPLY WITH I.S. E.N. 771-3.
3. MORTAR TO COMPLY WITH I.S. E.N. 998.
4. FULL ADHESION OF BLOCKWORK TO MORTAR AT ALL INTERFACES.
5. RENDERED FINISHES TO BE IN ACCORDANCE WITH BS 5262 CODE OF PRACTICE FOR EXTERNAL RENDERINGS.
6. PIER CTS AT ENDS AND CHANGES OF DIRECTION.
7. ENDS OF WALLS TO RETURN BY H/3.
8. MINIMUM ALLOWABLE BEARING CAPACITY OF FORMATION IS 25 kN/m² (UNIFORMLY DISTRIBUTED) OR 50 kN/m² (TRIANGULARLY DISTRIBUTED).

TII PUBLICATION NUMBER: CC-SCD-02401

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
WALLS
TYPICAL BLOCKWORK WALL

DRAWING NO. RCD/2400/1

P2 11/10
P1 03/00
ISSUE DATE
ELEVATION

PLAN

<table>
<thead>
<tr>
<th>WALL HT. (H) (mm)</th>
<th>X (mm)</th>
<th>Y (mm)</th>
<th>PIER SIZE (mm)</th>
<th>PIER CTRS. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP TO 1200</td>
<td>800</td>
<td>225</td>
<td>NO PIERS</td>
<td>N/A</td>
</tr>
<tr>
<td>1200 TO 2000</td>
<td>800</td>
<td>225</td>
<td>440x450</td>
<td>2700</td>
</tr>
<tr>
<td>2000 TO 2500</td>
<td>900</td>
<td>250</td>
<td>440x550</td>
<td>2700</td>
</tr>
</tbody>
</table>

SECTION

NOTES:
1. THIS RCD IS ONLY TO BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN CARRIED OUT FOR THE WALLS ON A PROJECT IN ACCORDANCE WITH RELEVANT DESIGN CODES FOR BLOCKWORK, MASONRY AND LOADING.
2. ALTERNATIVELY MODULAR BLOCKS OF CO-ORDINATING SIZE 400mm x 200mm MAY BE USED.
3. BLOCKS TO COMPRESS WITH LS. E.N. 771-3 MORTAR TO COMPRESS WITH LS. E.N. 998
   FULL ADHESION OF BLOCKWORK TO MORTAR AT ALL INTERFACES.
   MASONRY TO COMPRESS WITH LS. E.N. 1990
4. BLOCK TEXTURE, BLOCK COLOUR AND MORTAR COLOUR AS SPECIFIED IN APPENDIX 24/1.
5. MINIMUM ALLOWABLE BEARING CAPACITY OF FORMATION IS 25 KN/m² (UNIFORMLY DISTRIBUTED)
   OR 50 KN/m² (TRIANGULARLY DISTRIBUTED)
6. PIERS AT ENDS AND CHANGES OF DIRECTION.
   ENDS OF WALLS TO RETURN BY 1/3.

TYPICAL DENSE CONCRETE MASONRY BLOCKWORK WALL

TIII PUBLICATION NUMBER: CC-SCD-02402

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
WALLS

Drawing No.
RCD/2400/2
ELEVATION

SECTION A-A

NOTES:

STAINLESS STEEL WALL TIES AT 600mm HORIZONTALLY AND 600mm VERTICALLY.

FULL ADHESION OF BLOCKWORK AND STONEWORK TO MORTAR AT ALL INTERFACES.

3. EXPANSION JOINTS AT 5850mm CENTRES (12mm COMPRESSIBLE FILLER, 12mm POLYSULPHIDE SEAL).

4. MINIMUM ALLOWABLE BEARING CAPACITY OF FORMATION IS 25 kN/m (UNIFORMLY DISTRIBUTED) OR 50 kN/m (TRIANGULARLY DISTRIBUTED).

5. THIS RCD IS ONLY TO BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN CARRIED OUT FOR THE WALLS ON A PROJECT IN ACCORDANCE WITH RELEVANT DESIGN CODES FOR BLOCKWORK, MASONRY AND LOADING.

6. MASONRY FACINGS TO I.S. E.N. 1996. BLOCKS TO COMPLY WITH I.S. E.N. 771-3.
ELEVATION

SECTION A-A

TABLE 1

<table>
<thead>
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<th>WALL HT, (H) (mm)</th>
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<td>800</td>
</tr>
<tr>
<td>1200 TO 2000</td>
<td>1000</td>
</tr>
<tr>
<td>2000 TO 2500</td>
<td>1200</td>
</tr>
</tbody>
</table>

NOTES

1. THIS RCD IS ONLY TO BE USED IN ASSOCIATION WITH A UNIQUE STRUCTURAL DESIGN CARRIED OUT FOR THE WALKS ON A PROJECT IN ACCORDANCE WITH RELEVANT DESIGN CODES FOR BLOCKWORK, MASONRY AND LOADING.

2. MASONRY WALLS TO LS E.N. 1996 FULL ADHESION OF STONEWORK TO MORTAR AT ALL INTERFACES.

3. MINIMUM ALLOWABLE BEARING CAPACITY OF FORMATION IS 25 kN/m² (UNIFORMLY DISTRIBUTED) OR 50 kN/m² (TRIANGULARLY DISTRIBUTED).

4. MOVEMENT JOINTS AT 10M CENTRES (12mm COMPRESSIBLE FILLER AND 12mm POLYSULPHIDE SEAL).
450mm Stanework Wall. Refer to NRA Road Construction Detail RCD/2400/4.

Solid Concrete Blockwork in Designation (II) Mortar in Rising Wall

IN-SITU Concrete Foundation Class C25/30

High Yield Steel Reinforcement A393 SQUARE MESH FABRIC to BS 4483

Grade S14 Concrete

50mm ST2 Concrete Blinding to underside of Base

Grout 20mm Dia. Bar in Pocket

Sand/Cement Coping

NOTES:
- All intersecting points between vertical bars and horizontal straps to be welded on all faces.
- All components to be mild steel.
- All components to be galvanised after manufacture to I.S. E.N. I.S.0. 1461

M10 bolt

ELEV. OF POSTS (80x40x5 RHS)

PLAN OF POSTS

DETAIL 1

TII PUBLICATION NUMBER: CC-SCD-02405

TYPICAL RAILING ON LOW STONEWORK WALL

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

WALLS

Drawing No. RCD/2400/5

P2 11/10

P1 03/00

Issue Date

See Detail 1 below for connection of rails to posts

20mm Blunt Top Verticals at 125mm c/c

50mm x 10mm horizontals 3 Supports per panel
70x3.5mm CORRUGATED PALES 
AT 150 CENTRES WELDED TO 50x50x5mm 
ANGLE RAILS FIXED TO 100x55x8mm 
RSJ POSTS AT 2.75M CENTRES. 
ALL FIXINGS TO BE VANDAL PROOF.

2.5000

SECTION A-A

SOLID CONCRETE
BLOCK WALL
440x215x100
IN DESIGNATION
(ii) MORTAR

GRADE C25/30
CONCRETE

600x200 WALL FOUNDATION TO BE CAST AND WALL 
BUILT BEFORE THE PALISADE FENCE PANELS HAVE BEEN 
ERECTED. WALL TO BE BUILT FROM D.C.M. 
BLOCKS AND FAIR-FACED WITH RAKED 
JOINTS AND WITH PRECAST CONCRETE 
CAPPING.

500mm ST2 
CONCRETE 
BLINDING.

SECTION B-B

NOTES:

1. THIS RCD IS ONLY TO BE USED 
IN ASSOCIATION WITH A UNIQUE 
STRUCTURAL DESIGN CARRIED OUT 
FOR THE WALLS ON A PROJECT 
IN ACCORDANCE WITH RELEVANT 
DESIGN CODES FOR BLOCKWORK, 
MASONRY AND LOADING.

2. STEEL PALISADE FENCES SHALL 
COMPLY WITH THIS DETAIL AND 
THE ADDITIONAL REQUIREMENTS 
OF BS 1722 PART 12.

3. ALL MATERIAL SHALL BE 
GALVANISED TO I.S. E.N. I.S.O. 1461.

4. PALE HEADS SHALL BE DOME 
TRIAD HEADS ONLY SUITABLE 
FOR HEIGHTS GREATER THAN 
2.4m ABOVE G.L.

5. PALES SHALL BE SECURED TO 
RAILS AT EVERY INTERSECTION 
BY MEANS OF WELDING. 
WELDING SHALL CONSIST OF 
3mm FILLET WELDS AT LEAST 
30mm LONG ON EACH SIDE 
OF THE PALE.

6. ALL DIMENSIONS ARE 
IN MILLIMETRES.

TII PUBLICATION NUMBER: CC-SCD-02406

DRAWING NO.:
RCD/ 2400/6
MASONRY WALL DETAIL

Through Stones at 900mm centres horizontally and at 450mm vertically

Face Stones - Lengths laid into wall

Heating - Stone and Lime Mortar Only

Natural Bedding and Lengths Laid Into Wall - Correct

Edge Bedded (Copings only)

Face Bedding - Wrong

The bed is always greater than the height

One-on-one and Two-on-one

2But not 3 - Acceptable

3Forming Vertical Joint - Wrong

Best

ELEVATION

Sneaks

1/4, 60mm Lap

Pinnings

Quoin Stones

Face Stones

Rubble Stone - Irregular shapes and sizes of stone with Sneak and Pinnings

ELEVATION

Large squared Ashlar Type stone with minimum joint sizes best near water

ELEVATION

Running Collar Joint

Face Voussoirs Laid Wrong - Insufficient penetration of Arch Barrel

TII PUBLICATION NUMBER: CC-SCD-02407

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

WALLS

PRINCIPLES OF STONEMASONRY

Drawing No. RCD/2400/7

TII PUBLICATION NUMBER: CC-SCD-02407

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

WALLS

PRINCIPLES OF STONEMASONRY

Drawing No. RCD/2400/7