

Section G – BRICKWORK AND BLOCKWORK

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G.0 Compliance with Materials and Workmanship with the Building Regulations

In order to demonstrate conformity with the Building Regulations (Part D; Materials and Workmanship), and with the Construction Products Regulation (Regulation (EU) No.305/2011) as set out in national rules for Ireland (S.I. no.225 of 2013), the contractor shall provide proof (a Declaration of Performance (DoP0) and (where applicable) a CE marking for all building products to be placed in the works.

The Contractor shall ensure that the product to be incorporated in the works, while complying with CPR, is fit for the use for which it is intended, the Contractor may be required to demonstrate this by means of manufacturer's confirmation, or independent testing certificate.

GENERALLY

G.1 Samples

Samples (up to 6 No. of each type) of facing bricks and concrete blocks, including specials, shall be submitted to the Architect for his approval before any of these materials are delivered to the site.

G.2 Testing

The Contractor shall as and when required by the Architect submit and deliver materials for testing by the Employer as Clauses A33/220 and A33/560.

G.3
to
G.4

Nil

G.5 Bricks and Blocks Generally

Bricks and blocks shall be as described. Bricks and blocks shall be clean, hard and sound with well defined arrises.

The use of chipped bricks or blocks will not be permitted in facework.

Unless otherwise described shapes and dimensions of special bricks shall comply with BS 4729:2005.

G.6 Nil

G.7 Clay Bricks

Clay bricks shall be of first quality to selected colours and shall comply with IS EN 771-1:2011.

G.8 Concrete Bricks

Concrete bricks shall be of first quality to selected colours and shall comply with IS EN 771-3: 2011.

G.9 Nil

G.10 Concrete Blocks

Concrete blocks shall be made with natural aggregates and shall comply with IS EN 771-3: 2011.

Aggregates shall be free from pyrite or other impurity. Contractors may be required to obtain and provide proof of testing of aggregates for pyrite content.

Unless otherwise specified solid and hollow blocks shall be category I or II with a declared compressive strength of 10 N/mm².

The blocks shall be in a dry and properly cured state when delivered to site.

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G.11 Cement

Cement for mortar shall be in accordance with Clause F.5 or Section F: Concrete Work.

G.12 Colouring Agents

Colouring agents for coloured mortar shall comply with IS EN 12878:2005 used in accordance with the manufacturer's instructions.

G.13 Water

Water shall be from the mains in accordance with Clause F7 and kept free from any impurities.

G.14 Limes

Hydrated limes for cement/lime mortars shall comply with IS EN 459-1:2010. The lime is to be mixed in strict accordance with the manufacturer's written instructions.

Lime to be delivered onto the site in suitable containers with the weight and manufacturer's name or brand name clearly marked thereon. A certificate indicating compliance with the Irish Standard Specification must be supplied by the manufacturer with each consignment.

The hydrated lime shall be stored in a suitable weather tight building and in such a manner as to permit access for the proper sampling and identification of each consignment.

G.15 Sand

Sand for mortar shall comply with the requirements of IS EN 998-2:2010 (+NA:2010).

G.16 Mortar Plasticisers

Mortar plasticizers shall not be used without prior written approval of the Architect.

G.17 Ready-mixed lime : sand for Mortar

Ready-mixed lime:sand for mortar shall be generally in accordance with IS EN 998-2:2010 (+NA:2010), and shall be obtained from an approved manufacturer.

G.18 Trowel Ready Mortar

Trowel ready mortar may be used with the prior written permission of the Architect.

The mortar shall be of approved manufacture and shall be used in accordance with the manufacturer's recommendations and comply with IS EN 998-2:2010 (+NA:2010).

The Contractor when ordering shall ensure that the manufacture is given details of the mortar mixes required in accordance with Clause G.40.

G.19 Damp-Proof Courses

Bitumen damp-proof courses shall comply with IS 57-1:1987. Polyethylene damp-proof courses shall comply with IS 57-2:1987.

Damp-proof courses at ground floor level shall be hessian based bitumen; grooved polythene may be used in all other locations both horizontally and vertically.

G.20 Damp-Proof Membranes

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Polythene for damp-proof membranes to ground floor slabs shall be 300 microns (1200 gauge) thick blue tinted polythene sheet of approved manufacture.

All Damp-proof membranes shall comply with IS EN 13967:2012.

G.21 Cold Applied Bitumen Damp-Proofing Compound

Cold applied bitumen damp-proofing compound shall be approved bitumen compound or bitumen solution used in accordance with the manufacturer's instructions.

G.22 Nil

G.23 Wall Ties

Wall ties shall be manufactured from austenitic stainless steel and comply with IS EN 845-1:2013 (+NA:2013). The use of galvanized steel or plastics will not be permitted. All ties shall be of sufficient length and design to allow for a minimum 55mm embedment into each leaf of brick or blockwork.

Where used in conjunction with cavity insulation the ties shall be fabricated with an integral stainless steel retaining pin or similar device which shall meet the requirements of the insulation manufacturer. Samples of all types of ties and retaining clips shall be submitted to the Architect for his approval before commencement of brick and blockwork.

G.24 Nil

G.25 Sealant for Movement Control Joints

Sealant for movement control joints shall be gun applied polysulphide or polyurethane based low modulus sealants complying with IS EN ISO 11600:2003(+A1:2011) Type F and Clause G.29.

Colour to be to Architects choice and approval.

G.26 Joint Sealant for Pointing

Joint sealant for pointing around frames shall be a one part gun applied silicone sealant complying with IS EN ISO 11600:2003(+A1:2011) Type F and Clause G.29.

Colour to be to Architect's choice and approval and the sealant shall be suitable for over-painting.

G.27 Bedding Mastic

Mastic for bedding of frames shall be gun applied synthetic rubber mastic with gap filling properties of approved manufacture and shall be compatible with the pointing sealant (Clause G.26).

G.28 Backing to Movement Joints and Pointing Sealants

Joint fillers, performed back-up slips and bond breaker tapes or strips shall be as recommended by the sealant manufacturer complying with the requirements of BS 6093:2006 (+A1:2013) and approved by the Architect.

G.29 Sealants Generally

All sealants shall be suitable for the purpose and location and shall be compatible with adjoining substrates and surface finishes shall be in accordance with BS 6213:2000 (+A1:2010) and be in compliance with BS 6093:2006 (+A1:2013).

Where necessary provide sealant manufacturers recommended primer.

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The Contractor shall, before using any joint sealant or mastic, provide samples of all types to be used together with the manufacturer's written documentation stating compliance with the standards and requirements of this specification.

G.30 **Proprietary Fire Barrier Systems to Party Walls (If applicable)**

Proprietary fire barrier systems to party walls at roofs shall be of approved design and manufacture and shall carry an appropriate Agrément Certificate or a Certificate issued by the Fire Research Establishment (U.K.).

The system shall include for all junctions with chimneys gutters, parapets etc. and shall be suitable for use in all locations shown on the drawings.

G.31
to
G.33

Nil.

WORKMANSHIP

G.34 **Storage of Material**

- (i) Bricks shall be properly stacked on level and hard standing and be adequately protected from inclement weather.
- (ii) Cements and limes shall be stored separately, kept dry and used in rotation of deliveries.
- (iii) Sands shall be stored in separate pens according to type and uses, on clean, hard, dry standings and protected from contamination.
- (iv) Sands for pointing shall be stored separately, away from all other sands and shall be obtained in sufficient quantity at one time to enable material of the approved colour to be used for the whole of the work.
- (v) Concrete blocks shall be stacked on a firm, dry level surface and protected from rain, snow and rising damp.

G.35 **Finished Facework to be kept clean**

Faced work shall be kept perfectly clean at all times. Scaffold boards next to the facework must be turned back at nights or during heavy rain and inclement weather. Rubbing to remove stains will not be permitted. Protect freshly laid work during interruption through rain and at completion of each day's work.

G.36 **Work in Cold Weather**

No brickwork or blockwork shall be carried out when the temperature is at or below 3 °C unless the permission of the Architect has been obtained that the work should be continued with agreed precautions being taken. Using an on-site thermometer, investigation on whether the air temperature is below 4 °C or Prior knowledge of forecast indicates a drop in temperature during the works and for a time after the works, the following measures should be taken a listed below.

- Notification to the Architect must be given and current work must stop immediately with no additional brickwork or blockwork to commence until the air temperature has risen and maintains and above 4 °C.
- Setting brickwork and block shall be protected appropriately from cold weather damage in order to allow mortar to set.
- The use in the mortar of anti-freeze compounds or any admixture containing calcium chloride will not be permitted.

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- Any work damaged by frost shall be taken down and made good at the Contractors expense.

G.37 **Sample Panel of Finished Facework**

Sample panels of finished facework in brickwork and/or blockwork, 1200 x 1200 mm, shall be constructed to the satisfaction of the Architect, in an agreed location until the completion of this work on site when it shall be removed. This shall become the "approved" sample for all finished facework on site and is to be completed at least 7 working days before this work is programmed to commence on site.

All work shall be carried out in accordance with IS EN 1996-1-1:2005(+A1:2012) and IS EN 1996-2:2006 (+COR:2009).

Brickwork and blockwork shall be built uniform, plumb, true and level, with perpends vertical and in line, and unless otherwise specified vertical and horizontal joints shall be 10 mm.

The brickwork and blockwork shall be built to the bond indicated on the drawings. Where no bond is indicated, the units shall be laid in stretcher bond. Where possible the coursing shall be arranged to allow a full block to be positioned directly beneath a lintel bearing. Leave toothing to provide for the bonding of future work. Where shown on the drawings, form toothing in existing work to provide adequate bond for new work. When bonding brickwork or blockwork to existing the work shall be thoroughly wetted.

Bricks and blocks shall be laid on even beds of mortar and all joints shall be well filled. The maximum height of brickwork or blockwork built in any one day shall not exceed 1.5 m and where it is raked back no part shall rise more than 1.2 m above ground level.

Bricks and blocks shall be wetted as necessary during hot or dry weather.

No bats shall be used except where required for bonding and no cut blocks shall be less than half blocks. Cutting of brickwork and blockwork against concrete soffits and timber joists shall include for cutting to give normal joint and complete filling thereof with mortar.

Bricks shall be taken and mixed from at least three bales during laying to avoid contrast between adjoining lifts, in accordance with manufacturers instructions.

G.38 **Nil**

G.39 **Mortar Mixing and Batching**

All materials shall be accurately gauged by gauge boxes and mechanically mixed. Under no circumstances shall the materials be proportioned by shovel.

Re-tempering of mortar will not be permitted. Gauge boxes and mixers shall be kept clean. Water shall be from the mains and kept free of any impurities.

The mortar shall be mixed in small quantities and used within 2 hours of mixing of the cement and water.

G.40 **Mortar Mixes**

Mortars shall comply with IS EN 998-2:2010 (+NA:2010) and unless otherwise specified (see Clause G18) mortar mixes shall be as follows:-

Cement/Sand = one part Portland cement to three parts clean sharp sand (1:3)

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Cement/Lime/Sand = one part Portland cement to one part hydrated lime to six parts clean sharp sand (1:1:6).

G.41 Coloured Mortar (Factory Mixed) for Bedding/Joining

Coloured mortar for bedding and joining brick walls with joints finished as the work proceeds shall be factory mixed lime and sand, as Clause G17, and shall be of selected tint, gauged on site with Portland cement in accordance with the manufacturer's recommendations to obtain the required proportions in accordance with Clause G.40.

G.42 Mortar for Pointing

Ordinary mortar for pointing shall be cement/lime/sand (1:1:6).

Coloured mortar for pointing shall be as above but gauged with colouring agent of selected tint as Clause G.12.

White pointing mortar shall be composed of 1 part white Portland cement, 3 parts fine silver sand.

G.43 Raking out, jointing and painting

Internal brickwork and blockwork built fair face shall be flush jointed as the work proceeds. Facework generally shall be jointed as the work proceeds and unless to match existing or otherwise specified joints shall be finished with a bucket handle (keyed) joint, formed with a curved edge jointing tool to form a semi-circular groove the same width as the joint, flush with the brick face.

All damaged bricks shall be cut out and replaced and all putlog holes filled.

G.44 Chases, Ducts, Opening Etc.

Form or leave all chases or grooves for flashings or conduits etc. Chases shall be first formed along each edge, and to be the correct depth of the chase, with a saw cut before removing the excess material with an approved chasing tool. Vertical chases shall not exceed 1/3 the thickness of the wall and shall not be placed back to back. Where permitted horizontal or diagonal chases shall not exceed 1/6 the thickness of the wall unless otherwise directed. Chases shall not be placed back-to-back and shall not be formed in party walls. Form all ducts, openings etc. as the work proceeds and make good.

G.45 Blockwork below Ground

All blockwork below ground/dpc level shall be laid in (1:3) cement/sand mortar. Cavities to cavity walls below ground level shall be filled up to finished ground level with (1:10) cement/sand mortar.

G.46 Cavity Walls

External cavity walls to be constructed with two skins having a 150mm cavity between unless otherwise specified.

The inner and outer skins shall be bonded together with approved stainless steel wall ties as Clause G23. Spacing of ties shall be as the following table and staggered in each both directions.

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Size of Concrete Block (mm)	Spacing of Ties (mm)		Vertical Spacing at Openings (mm)
	Horizontally	Vertically	
450 x 225 x 100	900	450	225

Ties at openings and at movement joints to be spaced vertically as 225mm centres and within 225mm of jambs.

The inner and outer skins of cavity walls shall be built up together and no portion of the wall shall rise more than 1200 above the other.

Unless otherwise detailed the cavity at eaves shall be closed with a course of slates lapped and bedded in (1:3) cement/sand mortar.

Cavities shall be kept clear of mortar droppings and all rubbish, by moveable boards or other means, and shall be cleaned daily; leave cleaning openings at the base of cavities for this purpose. At completion, the openings to be built up uniform with surrounding work

G.47 **Building-in of cavity wall insulation**

External cavity walls to have cavity wall insulation slab as specified in Clause E.8, as shown on drawings or elsewhere, fixed against inner skin of blockwork with special stainless steel wall ties as Clause G.23. The insulation slabs shall be laid broken joint with a minimum of 4 No. wall ties per slab.

Provide for forming insulation slabs around heads, jambs and cills of openings in external wall and other locations shown on the drawings. All insulation shall be fixed true and vertical.

Cavity wall slabs shall be installed in accordance with the Architects details and manufacturers printed instructions. Where forming part of the insulation slab horizontal grooves shall face downwards and all tongue and grooves shall be fully engaged.

G.48 **Forming openings, blocking up, making good and building in**

Bricks/blocks shall be as described. Mortar shall be cement/line/sand (1:1:6) for work above dpc and cement/sand (1:3) for work below dpc unless otherwise stated.

Work shall be neatly toothed in or blockbonded and tightly pinned up below existing work, plumb, level and to same plane and coursing as existing.

Reveals, jambs and corners shall be neatly raised and quoined up. Jambs of openings formed in cavity walls shall be returned to close the cavity where appropriate with closer blocks as Clause G46, and with dpc at interfaces of inner and outer leaves, and insulation as required.

Items built into facings shall have bricks neatly cut around and pointed.

Arches shall be accurately formed with cleanly shaped bricks and include provision of all necessary centering.

Jointing and pointing shall be as described. Mortar for making good chases in non-faced work shall be cement/lime/sharp sand (1:1:6).

Lintols to have a minimum 150 mm bedding at each end.

G.49
to
G.50

Nil

G.51 **Laying of Damp-Proof Courses**

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Damp proof courses shall be laid in mortar, with 150mm laps at junctions and in length. Unless otherwise specified the dpc shall be the full width of the wall or in the case of cavity walls the width of each leaf.

Vertical d.p.c.'s shall be continuous for their whole length.

Damp proof courses to jambs of all door and window openings shall be tacked or stapled to frames prior to building-in and unless otherwise specified shall be minimum 150mm wide.

Damp proof courses under cills shall be turned up the back and around the ends of the cill for its full height.

Damp proof courses to concrete and steel lintols, in external cavity walls, are to be placed as detailed on drawings. Ensure that they extend at least 150mm beyond each side of lintol and that they are fully supported across width.

G.52 Laying of Damp Proof Membranes

Bitumen rubber compound membrane shall be spread on clean and dust free surfaces in accordance with the manufacturer's recommendations.

Polythene sheet membrane shall be laid over hardcore well blinded with soft sand. Joints shall be double welted or lapped and bonded as recommended by the manufacturer to suit the site conditions. Double welted joints shall be formed with a 300 mm upstand, double folded and temporarily weighted to maintain the fold in position prior to concreting. Lapped and bonded joints shall have a minimum 150 mm overlap, bonded between the laps with a continuous 25 mm x 1 mm double-sided mastic tape and the upper sheet edge sealed with 75 mm wide polythene self-adhesive jointing tape. Where possible the damp proof membrane shall be of the appropriate width for each location so as to avoid joints. In all cases the damp proof membrane shall be turned up to floor level and lap over dpcs to external walls and extend over internal partition or party walls.

All damp proof membranes are to be inspected and passed by the Clerk of Works before covering up.

G.53 Cavity Trays

Build in all cavity trays and flashings as specified under Q.21 or Section Q: Metalwork.

G.54 Nil

G.55 Storing and Handling of Sealants

- (i) Sealants to be stored in accordance with the manufacturer's recommendations.
- (ii) Where sealant materials contain toxic compounds comply with the manufacturer's recommendations regarding handling precautions.
- (iii) The Contractor shall arrange for adequate ventilation when working in confined spaces with sealants.

Collect and dispose of used containers and cartridges in a manner which does not allow them to become a health hazard on or off the site.

Provide material datasheets to the Clerk of work for use in the PSDP Safety File.

G.56 Preparation of Joints for Sealants

Ensure that dimensions and shape of joint are accurate and that joint surfaces are dry, clean and free from dust, dirt and loose material. Where required prime joint surfaces in accordance with the

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sealant manufacturer's recommendations. Install all joint fillers, back up strips and bond breakers as required.

G.57 **Application of Gun-Applied Sealants**

All sealants shall be applied in accordance with the manufacturer's instructions. Application shall be by cartridge or sachet loaded guns, trigger-operated by hand or air-pressure, fitted with a nozzle appropriate to the joint to be sealed.

The sealant shall be extended firmly and evenly into the joint ensuring proper adhesion with components to be jointed, and tooled with a concave finish.

Sealants shall not be applied when the temperature is below 5°C unless otherwise recommended by the manufacturer.

G.58
to
G.59

Nil

G.60 **Building-in fire stopping in cavity walls at party walls (Where applicable)**

For fire-stopping to external cavity walls 225mm rock fibre insulation batts/slabs as Clause E.5 shall be built into the cavity as the work proceeds, one above the other without gaps or voids, to the extent shown on the drawings and commencing at the bottom of the cavity. Before batts/slabs are placed in position against the built leaf, mortar joints shall be trimmed off flush. All edges of batts/slabs shall be kept free from mortar droppings.

G.61 **Building-in Fire-Stopping over Party Wall at Roof (Where applicable)**

The top of party walls to be shuttered up and filled with (1:3) cement/sand mortar to finish smooth 25 mm below top line of roof truss rafter member. Lay first layer of 300 x 50 mm rock fibre insulation (as clause E.5) compressed to 25 mm, for entire length of wall and carried down over eaves.

Lay felt and battens as specified under "Roofing" (Section M) and carefully saw cut halfway through tiling battens on either side of party wall.

Lay 300 wide x 100 mm rock fibre batts, compressed to profile roof tiles, over sarking felt and trimmed neatly between battens. Battens to be stapled to battens or otherwise mechanically fixed in position until roof tiles are laid.

Ensure all insulation is correctly centered over party wall.

Form fire-stopping at eaves as detailed on drawings.

G.62 **Propriety Insulated Cavity Closers/Barriers**

Propriety insulated cavity closers shall be constructed from fire resisting materials and comply with BS 476-20:1987 and must achieve a minimum of 1 hour fire resistance before failure.

All Insulated cavity closers/barriers shall allow for the complete closing of cavity wall voids at areas shown on the general detail drawings, leaving no passage for fire and smoke to travel past.

Cutting and storage of all insulated cavity closers/barriers shall be to the manufacturer's recommendations.

G.63 **Installation of Proprietary Fire Barrier Systems over Party Walls at roof (Where applicable)**

Proprietary fire barrier systems as Clause G.30 shall be installed strictly in accordance with the manufacturer's drawings and instructions.

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Installation shall include for all works, including leveling of walls, as may be required by the manufacturer for correct functioning of the system.

RADON PROTECTION MEASURES

G.64 **Generally**

The radon protection measures shall be provided in accordance with the current Building Regulations.

G.65 **Specialist Installer**

Installation of all radon protection measures shall be carried out by a competent specialist installer. The Contractor shall furnish the Architect with proof of the installer's competence before work is commenced.

MATERIALS

G.66 **Certification**

All materials used for Radon protection measures shall have a European or Irish Agrément Certificate and comply with the current Building Regulations. All L.D.P.E barriers should be tested to comply with table 3 of TGD Part C (Site preparation and resistance to moisture) and test certificates shall be provided to the Architect.

Where indicated radon resisting membranes shall be a continuous membrane designed to resist the passage of radon soil gas into a building ('Monarflex RMB 400' or equivalent).

G.67 **Storage and Handling**

Radon Barriers should be stored rolled up in a dry area until they are to be used. Keep away from sharp objects and chemical solvents that may damage the barrier.

Do not place heavy items on top of Radon Sumps and other fittings.

G.68 **Radon resisting membranes**

Radon membranes (FILL-IN-INFORMATION)

G.69 **Radon Sumps**

Radon Sumps shall be a proprietary rigid polythene unit complete with blank spigots for connection to the sub floor network ('Radon Control Systems Easi-Sump' or equivalent).

G.70 **External Vent Cap**

External vent caps to sub floor networks shall be u-PVC units designed to finish flush with the external ground level and suitable for future connection to a future vent stack (Radon Control Systems Easi-Sump Cap Link or equivalent).

G.71 **Sub Floor Network Pipes**

Sub floor network pipes shall be 110mm u-PVC as Clause W.9.

G.72 to **Nil**

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G.73

INSTALLATION

G.74 Membranes

Blind the hardcore with a layer of sand to provide an even bed for the Radon Barrier. Lay the Radon Barrier neatly, tuck well into angles to prevent bridging and creasing.

Install membrane with folds to all upstands to provide for potential future settlement.

Ensure the barrier is not punctured as building work continues. Any damage must be repaired using jointing tape and membrane material before laying the floor slab in accordance with the manufacturers instructions.

Radon resisting membrane must bridge cavities in walls forming a cavity tray. All designed cavities must be properly closed to interior spaces.

Cover the barrier with the permanent overlying construction as soon as possible.

The entire installation to be in accordance with the Agreement certificate and manufacturers recommendations.

G.75 Jointing

Form gas tight joints using jointing material as supplied by the radon membrane's manufacturer and in accordance with their recommendations.

Ensure the areas to be joined are clean and dry and provide an overlap of at least 150mm.

Seal around all service pipes and cable penetrations in accordance with the manufacturer's recommendations.

G.76 Sumps

Prepare a suitable sized hole in the hardcore and set the sump onto a firm level base, connect the outer pipes and backfill and surround with hardcore all in accordance with the Agrément certificate and manufacturer's recommendations.

G.77 External Vent Cap

External vent caps to sub floor networks shall installed so as to finish flush with the external ground level. It shall be located to facilitate the use of standard pipe clips with any future vent stack. All in accordance with the Agrément certificate and manufacturer's recommendations.

G.78 Sub Floor Network Pipes

Sub floor network pipes shall be laid to 1:100 fall to open-ended sump to avoid water accumulating in pipework.

FIREPLACES AND FLUES FOR SOLID FUEL

MATERIALS

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- G.79
to
G.81 **Nil**
- G.82 **Tiled Hearths to Solid Fuel Cookers**
Tiled hearths solid fuel cookers shall be constructed from 150 mm x 150 mm glazed, buff clay fireplace tiles, of selected colour, having round edge tiles to external edges.
- G.83 **Firebacks to Fireplace**
Firebacks shall be either Refractory Concrete with a temperature rating of 1520°C having a crack inducer and marked with the manufacturer's Trade Name to the face or manufactured from Fireclay and complying with BS 1251:1987.

The firebacks to be finished with corrugated paper on the back to ensure an expansion gap between the fireback and the filling.
- G.84 **Tiled Surround and hearth to Fireplace**
Provide glazed tiled surround and hearth, to fireplaces, of approved design to the sizes indicated on the drawings. The surround and hearth to be manufactured and installed by an approved firm.
- G.85 **Firebaskets and Frets**
All firebacks to be supplied complete with appropriate cast iron basket and black vitreous enamelled fret and to be suitable for use with smokeless fuels.
- G.86
to
G.87 **Nil**
- G.88 **Flue gathering units, lintols and chimney cappings**
Precast flue gathering units, lintols to fire openings and chimney capping shall be as specified under Section F "Concrete Work" and as shown on the drawings or as otherwise detailed.
- G.89 **Flue linings and flue terminals**
Clay flue linings shall comply with IS EN 1457-1:2012 and IS EN 1457-2:2012, Class A1 N1 and shall be spigot and socket type have an internal diameter of 200mm minimum.

Chimney terminals/pots shall comply with IS EN 13502:2002 and have an internal diameter of 200mm minimum. Terminals shall be 300mm long with a beaded rim and pots shall be of the type and length shown.
- G.90 **Metal Damp Proof Course to Chimneys**
Damp proof course to chimneys at roof intersection shall consist of a metal tray complete with integrated apron flashing as shown on the detailed drawings. The metal tray shall be fabricated from lead, stainless steel or zinc alloy all as specified under Section M "Roofing" (Section M). Where manufactured from stainless steel trays shall have expanded stainless steel mesh welded to all surfaces in contact with masonry.
- G.91 **Fibre Lagging Rope**
Fibre lagging rope for packing shall be woven continuous filament glass yarn rope. Asbestos shall not be used.
- G.92 **Register Plate and soot door to cookers**

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Provide a purpose made stainless steel register plate complete with soot door and cast iron sealing ring, as shown on detailed drawings, to cookers as Clause G.97, where cast iron flue connects to masonry flue.

G.93
to
G.96

Nil

WORKMANSHIP

G.97 **Installation of solid fuel cookers**

Solid fuel cookers shall be installed in accordance with the manufacturers instructions, BS 8303-1:1994, BS 8303-2:1994, BS 8303-3:1994 and the detailed drawings.

G.98 **Storage of Firebacks**

All firebacks and flue sets shall be kept dry at all times by storing them under cover on dry ground.

G.99 **Installation of Firebacks**

Firebacks shall be installed in accordance with BS 8303-1:1994, BS 8303-2:1994, BS 8303-3:1994 and the detailed drawings and as follows:

Place fireback in opening and line up flush with face of blockwork, keeping it at hearth height level.

Backfill with damp vermiculite and cement mix (8:1) and tamp down well.

Cap off with sand and cement mix (3:1).

Seal between lips of fireback and fire surround with fibre lagging rope and point with fire cement.

G.100 **Installation of hearths**

Tiled hearths shall be bedded evenly over the entire area in Cement/Lime/Sand (1:1:8) mortar or as otherwise indicated on the manufacturers instructions.

The back hearth in fire openings are to consist of cement/sand (1:3) with steel troweled finish, level with front hearth.

G.101 **Installation of tiled surround**

Tiled surrounds shall be evenly bedded at base and edges with Cement/Lime/Sand (1:1:8) mortar then plugged and screwed to wall at fixing clips with 4 No. 14 gauge x 38 mm zinc plated mild steel wood screws. Pack any voids between surround and chimney breast with rock fibre wool before pointing between mantle shelf and chimney breast with 1:1:8 mortar.

G.102
to
G.108

Nil

G.109 **Chimney breasts and stacks generally**

Workmanship generally shall be as for Section G "Brickwork and Blockwork" and flues shall be constructed in accordance with IS EN 15287-1:2007(+A1:2010).

Chimney breasts and stacks below roof line (D.P.C.) shall be built in solid concrete blocks bedded in (1:1:6) Cement/Lime/Sand mortar. Chimney stacks above roof line (D.P.C.) shall be built in solid concrete blocks or 225mm brickwork "English" bond both bedded in (1:3) Cement/Sand mortar.

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Build-in flue gathering units and lintols to fire openings as work proceeds ensuring that all joints are fully filled and pointed.

The all surfaces of chimney breasts and stacks, including areas within floor and ceiling zones and in the roof space shall be rendered in (1:1:6) Cement/Lime/Sand mortar plaster.

G.110 Installation of flue linings

Flue linings shall be placed in true alignment centrally within the flue and shall be built in with the female ends facing upwards as the work proceeds. The linings shall be jointed in (1:½:6) Cement/Lime/ Sand mortar and the flues shall be coved, at intermediate stages with a coving sack drawn up from the base as the work proceeds.

Purpose made bends must be used for changes in direction and mitreing will not be allowed.

Parging, which shall be carried out as the work proceeds, around the flue linings to consist of 1 part cement/6 parts 3mm crushed LECA/ 1 part water. On no account shall the cement/water ratio be exceeded.

G.111 Chimney cappings and terminals

Chimney stacks shall be capped with a precast concrete capping, as Clause G.88, bedded in (1:1:6) Cement/Lime/Sand mortar or capped in corbelled brick or special bricks as indicated on detailed drawings.

Flues shall be finished with a purpose made terminal or chimney pot as Clause G.89 haunched in (1:3) cement/sand mortar.

G.112 Damp Proof Course

Provide damp proof course as Clause G.19, neatly holed for passage of flue liners, under precast chimney cappings and to brick cappings in position shown on drawings.

Build-in metal tray as specified. Clause G.90 to form damp proof course where chimney stack first cuts roof all as shown on detailed drawings. Flashings are to be as specified under Section M "Roofing".

G.113
to
G.118

Nil

G.119 Testing of flues

The Contractor shall be held responsible for all flues drawing smoke satisfactorily and he shall be required to establish that every flue is free from obstruction.

Flues shall be tested by both coring ball and smoke before handover of dwellings in the following manner and sequence and in accordance with IS EN 15287-1:2007(+A1:2010).

- (a) A 185mm metal alloy coring ball shall be lowered gently by rope from the top of chimney pot at roof level to the hearth opening and withdrawn again. Providing no obstruction is encountered once should be sufficient.
- (b) Two smoke pellets designed for the purpose shall be placed in the fire basket and ignited. When smoke starts to form in the heating chamber the door of the heating appliance shall be closed and the smoke allowed to drift upwards towards the top of the flue. If there is no sealed heating appliance but an open type fire then a piece of board should be placed over the fire surround opening and sealed around edges.

When smoke is observed rising above top of chimney pots a polythene bag should be placed over the pot and sealed around the edges to form an airtight seal. The bag **should not** be squeezed as this would induce additional air pressure which is not required for the test.

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The smoke test shall continue for five minutes.

The chimney breast and surrounding walls would be observed at ground floor, first floor and at roof space to check for smoke leakage. Where a flue abuts a party wall simultaneous observations shall also be made in adjoining dwellings at ground floor, first floor and roof space to check for smoke leakage. Particular attention should be taken to barge overhangs to end of terrace dwellings and at eaves for leakage from cavities.

Before commencing the smoke test the chimney flue should be preheated by gas blow lamp or other similar means to induce the smoke to rise easily.

- (c) On completion of the above tests a Certificate of Satisfaction, as provided shall be signed by the Contractor and endorsed by the Clerk-of-Works. Dwellings will not be accepted for handover unless the Architect is in possession of the Certificate of Satisfaction.
- (d) The above tests will also be made by the Contractor, six months after the handover of dwellings and a second Certificate of Satisfaction completed and endorsed.

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FINGAL COUNTY COUNCIL - ARCHITECTS DEPARTMENT			
FLUE TEST CERTIFICATE			
CONTRACT:			
CONTRACTOR:			
ADDRESS:			
LOCATION:	LIVING ROOM	☐	KITCHEN ☐
SMOKE TEST: DATE.....			
CORE TEST: DATE.....			
I hereby certify that the tests as set out in the Fingal County Council Standard Housing Specification have been completed and that the above flue is in compliance with these tests.			
.....			
Signed:	Contractor	Endorsed:	Clerk of Works.
RE-TESTING DUE			

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Item No.	Clause	Reference	Comment
1.	G.5	BS 4729:2005	Clay and calcium silicate bricks of special shapes and sizes, recommendations.
2.	G.7	IS EN 771-1:2011	Specification for masonry units – Part 1: Clay masonry units.
3.	G.8	IS EN 771-3:2011	Specification for masonry units – Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates)
4.	G.12	IS EN 12878:2005	Pigments for the colouring of building materials based on cement and/or lime – Specifications and methods of test.
5.	G.14	IS EN 459-1:2010	Building lime – Part 1: Definitions, Specifications and conformity criteria.
6.	G.15	IS EN 998-2:2010 (+NA:2010)	Specification for mortar for masonry – Part 2: Masonry mortars. (including Irish National Annex)
7.	G.19	IS 57-1:1987 IS 57-2:1987	Damp-proof courses – Part 1: Bitumen damp proof courses. Damp-proof courses – Part 2: Polyethylene damp-proof courses.
8.	G.20	IS EN 13967:2012	Flexible sheets for waterproofing – Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet – Definitions and characteristics.
9.	G.23	IS EN 845-1:2013 (+NA:2013)	Specification for ancillary components for masonry – Part 1: Wall ties, tension straps, hangers and brackets (including Irish National Annex)
10.	G.25	IS EN ISO 11600:2003 (+A1:2011)	Building construction – Jointing products – classification and requirements for sealants.
11.	G.28	BS 6093:2006 (+A1:2013)	Design of joints and jointing in building construction – Guide.
12.	G.29	BS 6213:2000 (+A1:2010)	Selection of construction sealants – Guide.

APPENDIX A: LIST OF REFERENCES AND STANDARDS. (Part 2)

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Item No.	Clause	Reference	Comment
13	G.37	IS EN 1996-1-1:2005 (+A1:2012) IS EN 1996-2:2006 (+COR:2009)	Eurocode 6 – Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures. (to replace IS 325-1:1996 and IS 325-2:1995) Eurocode 6 – Design of masonry structures – Part 2: Design, considerations, selection of materials and execution of masonry (including Irish National Annex) (to replace BS 5628-2:2005 and BS 5628-3:2005)
14.	G.62	BS 476-20:1987	Proprietary Insulated Cavity Closers/Barrier.
15.	G.83	BS 1251:1987	Specification for open-Fireplace components.
16.	G.89	IS EN 1457-1:2012 IS EN 1457-2:2012	Chimneys – Clay/Ceramic – Part 1: Flue liners operating under dry conditions – requirements and test methods. (to replace IS EN 1457-1:2006) Chimneys – Clay/Ceramic flue liners – Part 2: Flue operating under wet conditions – requirements and test methods. (New Standard to be added)
17.	G.89	IS EN 13502:2002	Chimneys – Requirements and test methods for clay/ceramic flue terminals.
18.	G.97	BS 8303-1:1994 BS 8303-2:1994 BS 8303-3:1994	Installation of domestic heating and cooking appliance burning solid mineral fuels – Part 1: Specification for the design of installations. Installation of domestic heating and cooking appliances burning solid fuels – Part 2: Specification for installing and commissioning on site. Installation of domestic heating and cooking appliances burning solid mineral fuels – Part 3: Recommendations for design and on site installation.
19.	G.109	IS EN 15287-1:2007 (+A1:2010)	Chimneys – Design, installation and commissioning of chimneys – Part 1: Chimneys for non-roomsealed heating appliances.

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Appendix B: Amendments List	
Date of Amendments	Amendments
1/05/2014	This section was amended by Barry Sheils and approved by David Byrne, Senior Architect, Fingal County Council.
24/06/2012	Clause G10 – Aggregates for concrete masonry to be free from pyrite. Contractors may be asked for confirmation. David Byrne, Senior Architect.