

Project Particulars:

Project	County Cavan Rugby Football Club Peaceplus Community Regeneration & Transformation
Address	County Cavan Rugby Football Club, Swellan, Cavan.
Client	County Cavan Rugby Football Club.
Job Reference	No. 26-039



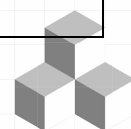
1.0. ARCHITECT'S SPECIFICATION

**Please note that this is a general specification and not all clauses apply to this project.
All works are covered in the contents and any queries are to be addressed to the architect
where discrepancies arise.**



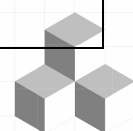


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ARCHITECT'S SPECIFICATION

1.0 PRELIMINARIES

1.1 Information issued

1.1.1 Drawings

Drawings, which form part of this tender, are to be used for tender purposes only. While deviations are not expected from these drawings, no materials shall be ordered until a full 'CONSTRUCTION ISSUE' of drawings is approved.

The Architect may issue additional drawings during the progress of the works to amplify the specification. Minor divergences from the tender drawings will not constitute a reason for variations in the rates which the Tenderer used to make up his tender.

1.1.2 Omissions, discrepancies, interpretations and addenda

Should a Tenderer find discrepancies in or omissions from the drawings or other Tender documents or be in doubt as to their meaning, a request for interpretation shall be made, in writing, addressed and forwarded to the Architect.

The Tenderer should note that all materials and products specified in this document and in the enclosed drawings are called up in order to establish a standard. Alternatives to a similar approved quality / finish will be considered for approval by the Architect. All such alternatives shall be listed and priced separately in a document to be enclosed with the returned tender form.

1.1.3 Figured Dimensions

Figure dimensions shall be taken in preference to measurements by scale and detail drawings in preference to those of a smaller scale.

1.1.4 Own Confirmation

The drawings and specification are believed to be completed and checked accurate but the contractor shall be deemed to have checked these and to have satisfied himself as to their accuracy and as to the nature of the site, the subsoil, dimensions, levels, existing premises and water supply and all the other things as regards any connection they may have with the works, the subject of this contract, and he shall generally obtain his own information on all matters and things which can in any way, influenced his tender.

1.1.5 Requirements of the Specification/Materials

Unless otherwise specified, all materials and workmanship shall be in accordance with the relevant Irish Standards and Codes of Practice and in every such case the latest issue or amended issue shall be complied with.

All materials to be incorporated into these works shall comply with the European Community (Construction Products) Regulations 1992.

CE Mark

All of proposed products specified or as detailed in guidelines to carry the CE Mark to show compliance with the harmonised European Standard BS EN 13165.

TGD D; Materials and Workmanship

All products to comply fully with TGD Part D 2013 Building Regulations.

1.1.6 Quality of Materials & Workmanship

All materials shall be the best of their respective kinds, and the best work of the specified shall be insisted upon throughout; all the horizontal lines and plane surfaces shall be worked quite true and the whole executed in a substantial and workmanlike manner.

Warranty

All products to have warranties in line with the specific period referred to in the specification or drawings. Where no performance period is mentioned the warranty shall be in line with Defects Liability Period or the manufacturers' stated warranty; whichever is the longer duration.

1.1.7 Measurement and payment

Payment terms will be as specified in the conditions of Contract.

1.1.8 Submittals

The contractor must create a works schedule for the entire construction detailing a schedule of submittals, set out in chronological order with target dates as required by the approved programme. The contractor has responsibility for this. The schedule to be reviewed by the contractor and updated monthly. The schedule shall allow adequate notice time for the



Design Team to review and consider the submittals. There shall also be provision in the programme for the DT to request additional information and or alternative submittals. The actual timeframe necessary for the DT to consider and approve/reject these submittals will vary and the DT will make all reasonable efforts to be cooperative in finalising each submittal. Therefore a timeframe is to be agreed at the prestart meeting for this period to be agreed. In the absence of agreement, the default is that the DT shall have 14 calendar days from receipt of final information to approve or reject submittals.

1.2 General obligations

1.2.1 Statutory Requirements

The Contractor shall conform to all Local Authority requirements with regard to regulations, inspections, etc. The contractor should also allow for Local Authority notifications.

The works shall be carried out in accordance with the provisions of the Building Regulations. If the contractor or any of his agents become aware of any aspect of the works included does not comply with the Building Regulations, it must be notified immediately to the Design Team.

Copies of the Planning consent, Fire Safety Certificate and DAC are included with the tender package and these will form part of the contract documents.

1.2.2 Supervisor

The Contractor shall assign full time to the project a competent supervisor who shall have sole responsibility for all operations on site.

1.2.3 Main Contractor

The successful Tenderer will operate as a Main Contractor direct to BoM and his tender must therefore allow for all attendance's, plant, scaffolding, welfare facilities, office accommodation, plant, storage, loading and unloading, crange, protection, light, electrical distribution and power, cleaning away rubbish and all other general items necessary to fully execute the contract, save those specifically referred to later on in the specification.

1.2.4 Extras Inadmissible

The Contractor shall be held to have satisfied himself by a careful examination of the plans and specifications and by inspecting the site as to the amount of work to be done to enable the works to function satisfactorily. This shall include all items reasonably and obviously inferred as necessary, through not described in the specification nor shown on the drawings. The contract is for completely finished work, fully adapted to the purpose and meaning of the drawings and specification and no extra payment beyond the contract price will be allowed in consequence of the Contractor having to properly acquaint himself with the site, drawings or specification.

1.2.5 Tender sum

Contractors shall submit their tenders for a gross specific sum which shall include all implements, plants, carriage, cartage, and all expenses incidental to the due performance of the several works set forth in this specification and shown on the drawings, to their true intent and meaning, and in accordance with any further instructions which may be given from time to time by the Architect, and the rendering up of same in a complete state by the date agreed upon.

1.2.6 Industrial Relations

The Contractor shall be responsible for ensuring a good industrial relations climate on the site. He shall not hire any labour directly at the site. Persons applying for a job on site must be referred to the nearest INTREO service office through which all new labour needed for the job shall be cleared, insofar as this is practicable.

In the event of a dispute arising, the Contractor shall take all precautions to avoid a strike situation and in the event of a strike taking place shall ensure so far as is possible that the Client is not picketed.

The Contractor in addition shall provide to the Architect, a minimum of 3 days before construction starts, a full list of all personnel to be employed on site. The Architect shall receive clearance from BoM and shall communicate back to the Contractor before the workforce appears on the site.

If at any time in the course of construction the Contractor wishes to change any of the site personnel or operatives, the replacement personnel must be cleared in a similar fashion. The successful Tenderer shall present to the Architect at the Pre-Commencement Meeting a full resume of the employment conditions of all members of his workforce. No appointment shall be made until these conditions of appointment are reviewed by the Architect and BoM.

1.2.7 Domestic sub contractors



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



The Tenderer shall supply upon request a list of all domestic Sub-Contractors which he intends to use on the project. No Sub-Contractor shall be employed unless the Sub-Contractor shall be approved by the Architect who will require the sub-contractor be of the highest quality and to be highly experienced in relation to the work in question.

1.2.8 Employer's Access to Site

Board of Management and the Employer's Representative (Architect) shall have, at all reasonable time, access to the site for inspection of works. This shall be subject to advance notice, period to be agreed between the parties at the prestart meeting.

1.3 Obligations relating to Works

1.3.1 Examination of the Site

Tenderers are required to examine and thoroughly familiarise themselves with the scope of the work from the standpoint of access and facilities for receiving and storage of materials and equipment.

The Contractor is recommended to visit the site and ascertain the facilities thereto, the supply of labour and materials the district will afford and a general convenience of working.

He shall be taken to have acquainted himself with the nature of the works and the character, dimensions, levels and any other features of the site, all existing buildings on or adjacent to the site and all other things that have any connection with or will affect the works.

All the above matters must be taken into account when tendering and any charge for extra labour or materials will not be allowed in consequence of the Contractor's failure to do so.

1.3.2 Existing Services

The location and arrangement of existing services, as appropriate, is indicated on the drawings. These drawings show to the best of our knowledge the extent of services. Contractor needs to carry out his own investigations to establish existing services and to satisfy himself of their locations, as there is no guarantee to the accuracy of the drawings.

1.3.3 Setting out

The Contractor shall be responsible for setting out all of the works shown on the drawings and referred to in the documents, and shall keep on site all instruments and tools required by the Architect in checking and setting out. This is understood to allow for fully setting / marking out the works to the extent and in the manner deemed necessary by the Architect.

The Contractor shall notify the Architect in writing when all lines or levels are set out and ready for checking.

1.3.4 Protection of the Works

Contractor is to provide for complete and ample protection of the works during the course of the contract; adjoining premises shall be carefully protected against all accidental damage from any other source arising directly or indirectly from the carrying out of the works. Provide all necessary screens, tarpaulins, etc. and any other protection deemed necessary by the Architect. Given that the works area is within a functioning hospital with potentially immuno-compromised patients, no dust whatsoever shall be allowed to escape from any part of the works nor shall there be any contamination of any description.

1.3.5 Examination of the Site

Filling in Holes

The Contractor shall from time to time as the work proceeds and again at the completion of same, clear away all rubbish that may have become superfluous, and the Contractor shall bear and pay all costs, charges, damage and expenses which may be incurred or sustained on account of or in consequence of any accident which may happen by means of holes and trenches being left unfenced or unprotected.

1.3.6 Clearing of the Completed works

The Contractor will clean the completed premises after the completion of the works and before hand over to the satisfaction of the Architect.

This work is understood to include cleaning the premises both internally and externally, removing all debris, waste and the like off site.

The premises will be cleaned internally and externally and left free from dust and soiling, with window glass clean both faces and the entire perfect upon completion. This condition will be strictly enforced.



1.3.7 Responsibility

The works from the commencement of the Contract until the completion of same shall be under the Contractor's charge and he shall be held responsible for and shall make good, to the satisfaction of the Architect, all injuries, damages, and repairs occasioned to or rendered necessary to the works and to adjoining premises by fire or by causes over which the Contractor shall have control, and he shall hold BoM indemnified from any neglect, misconduct or want of proper care on the part of persons in his employment during the course of the Contract. The Contractor shall provide for all necessary insurance to cover these risks.

The Contractor shall be responsible for all necessary security in respect of the site.

1.3.8 Damage to existing services

Notwithstanding the information provided on the drawings the contractor shall ascertain the position of all services and shall ensure that all such services are adequately protected during construction. He shall be responsible for all damage consequential or otherwise arising out of losses by any party due to damage of essential services. He shall also be responsible for all damage out by him to all roads / pavements / landscaping on site and for repairing such damage.

1.3.9 Adjoining Buildings

The works area forms part of an operational school campus. It will be the contractor's responsibility that no damage whatsoever is caused to the adjoining part of the building and or associated property.

1.3.10 Health and safety**1.3.10.1 Health & Safety & Welfare at Work**

These works will be subject to the Health, Safety and Welfare at Work (Construction) Regulations 2006 (SI 504) and subsequent amendments. The Tenderer should assume that he will act as the Project/Construction Supervisor and accordingly will produce the Health and Safety Plan for the project in addition to the Safety File. All costs related to same are understood to be included Contractor's Tender submitted for these works. The personnel to be assigned for these duties are required to be competent and experienced in the judgement of the Client, whose decision will be final in such matters.

The Contractor shall be appointed by the client under a Collateral Agreement to the Main Contract as Project Supervisor for the Construction Stage in respect of the project pursuant to the Safety, Health and Welfare at Work (Construction) Regulations 2006. The Contractor shall include all costs for the provision of the services of Project Supervisor for the Construction Stage.

1.3.10.2 Hot Work Permit

The Contractor will be required to instruct his employees and sub-contractor's staff in the operation of the requirements of "Hot Work Procedures" within the provision of agreed insurance procedures for the works; this will be an in house Contractor operation. This should allow for cooling down periods in the evenings. Firewatch shall be allowed for at all times where necessary on account of the tasks being undertaken.

1.4 Restrictions imposed by the Employer**1.4.1 Works Area**

The extent of the works area is defined on the site plan provided. The contractor is required to contain the works operation to the defined works area and to maintain all surrounding areas (outside of the works area) free for safe passage of other building users.

1.4.2 Access to Site

Access to the site will be by prior agreement with the BoM, has to be kept secure and restricted to construction personnel only. All works associated with the construction to be contained within the confines of the site. Extend of construction personnel parking and area for site deliveries has to be agreed with BoM prior to commencement of works.

1.4.3 Contractor's Works Compound

Car parking will be allowed for Contractor staff outside the confines of this site.

The Contractor will provide canteen, site office and other site facilities.

The Contractor to provide an area within the site for his on-site services co-ordination meetings.

A phone, fax and e-mail are required in the site office.

Toilet facilities to be made available by the Contractor, and to be kept in a good sanitised condition.

These must be suitable for not only contractor's personnel but also visitors to site including Client and DT members. These facilities should be in a suitable location and



condition to be used by visitors of all ages, abilities and physical condition and shall be monitored to comply with this on a weekly basis.

1.4.4 Noise

The school operates Mondays to Fridays 8:00 to 4pm. There are also existing, residential buildings in the proximity of the site, noise restrictions should not unduly restrict working hours, but the contractor should be aware of the area, its occupants and its sensitivity. Disruptive noise should be programmed to periods of the day causing least nuisance, namely from 8:00 am till 6:00 pm.

1.4.5 Working Hours

Notwithstanding the above, there will be no unreasonable restriction on the working hours of the contractor subject to agreed notices and procedures being followed with regard to our of hours working, with approval from BoM.

1.4.6 Substitutions

The Contractor may not make substitutions of any description or type unless the Architect approves same.

All materials referred to by name are for illustration purposes. Equal approved materials may be used subject to written request from the main contractor and confirmation that they are at least equal to or better than that mentioned in the specification. Substitution can only be allowed when authorised in writing by the architect.

1.5 Information Required

1.5.1 Safety File

The Contractor shall include for providing all necessary information as requested by the Project Supervisor for the Construction Stage to enable the preparation and completion of the Safety File excluding drawings and specifications which shall be provided by the appropriate members of the design team and relevant nominated duties of the Project Supervisor for the Construction Stage of the Project.

The Contractor shall include for providing assistance to the appropriate members of the design team (and to relevant nominated sub-contractors) in preparing "Construction" drawings for inclusion in the Safety File. The safety file shall be handed over to the employer within 2 working weeks of completion, or a time agreeable to the employer. Additional Clauses may be required for individual projects to take account of particular risks.

1.5.2 Method Statement

The contractor is required to submit with his tender a method statement outlining the site management and construction procedure which the contractor intends to employ for the purposes of these works, if successful in his tender for same.

1.5.3 Record Photographs

Digital photographs required in JPEG format. Image size suitable for reproduction in documentation (not presentation ie, c 500k) to be provided digitally and to record site activity regularly, ie daily. Full set to be provided to the architect at the completion of the project.

1.5.4 Samples

If requested by the Architect, samples of all materials proposed to be used for the works shall be submitted to him, together with the name and address of the supplier and such information, instructions and directions as the supplier has issued. Samples shall then be subject to the Architects approval prior to the delivery of materials to the site. All materials delivered to and used upon the works must be at least equal in quality to the samples, and the Contractor shall ensure that he complied with all manufacturer's instructions and recommendations. Any materials condemned by the Architect as unfit for use in the works shall be immediately removed from the site at the Contractor's expense. The sample size generally shall be 1 m x 1 m panels.

1.5.5 Manufacturers Certificates

Where proprietary products or systems are specified to comply with manufacturer's recommendations and/or specifications, the Contractor is required to arrange for a representative of the manufacturing organisation to visit the site, to inspect the works in progress and/or at completion and to certify, in a form to be agreed, that the installation has been installed in accordance with the requirements of the said manufacturer, as current at the time of completion.

1.5.6 Submittals

The contractor must create a works schedule for the entire construction detailing a schedule of submittals, set out in chronological order with target dates as required by the approved programme. The contractor has responsibility for this. The schedule to be reviewed by the



contractor and updated monthly. The schedule shall allow adequate notice time for the Design Team to review and consider the submittals. There shall also be provision in the programme for the DT to request additional information and or alternative submittals. The actual timeframe necessary for the DT to consider and approve/reject these submittals will vary and the DT will make all reasonable efforts to be cooperative in finalising each submittal. Therefore a timeframe is to be agreed at the prestart meeting for this period to be agreed. In the absence of agreement, the default is that the DT shall have 14 calendar days from receipt of final information to approve or reject submittals.

1.5.6 Communications

All communications regarding submittals to be made electronically with the exception of physical samples which are to be presented on site or at the Architect's offices by mutual agreement.

2.0 SITE WORKS

2.1 General

The nature and extent of all of the various site works is indicated on the Architects and Engineer's drawings. The Contractor will clear the site, excavate for the building & complete all the relevant site works.

2.2 Demolition

Demolish structures in accordance with BS 6187.

All personnel to be appropriately skilled and experienced for the type of work and experienced in the assessment of risks involved and methods of demolition to be used.

2.3 Dust control

Reduce airborne dust by periodically spraying demolition works with wetting agent. Maintain all public roadways and footpaths clear of mud and debris. All students and staff in the adjoining school building, site operatives and general public are to be fully protected from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

2.4 Excavation

2.4.1 Removal of trees/shrubs

Clearly identify trees to be removed for approval by the Architect on site.

Cut down small trees, shrubs and hedges, grub up and dispose of roots without unnecessary disturbance of soil and adjacent areas. Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.

2.4.2 Removal of large trees

Where the tree to be removed has a girth exceeding 600 mm, the following must be carried out.

Clearly identify trees to be removed for approval by the Architect on site.

Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.

Obtain approval before removing stumps and remove mechanically to a minimum depth of 250mm below ground level.

2.4.3 Reducing Levels

Prior to excavation or filling, strip topsoil from areas where indicated on the drawings. Reduce to an average depth of 300 mm.

Allowable Tolerances from formation levels

Under mass concrete foundations: ± 25 mm.

Under ground bearing slabs and r.c. foundations: ± 15 mm. Embankments and cuttings: ± 50 mm.

Ground abutting external walls: ± 50 mm, but ensure that finished level is not less than 150 mm below dpc.

Allowable tolerances linear dimensions generally: ± 3 mm.

Inspection. Give advance arrangements for inspection of formations for foundations and filling formations. - Notice (minimum): 5 working days.

2.5 Radon and other ground borne gasses

Supply and fit venting layer and membrane equal to Monarflex RMB 400 loose laid polyethylene gas retardant & damp proof membrane in strict accordance with the



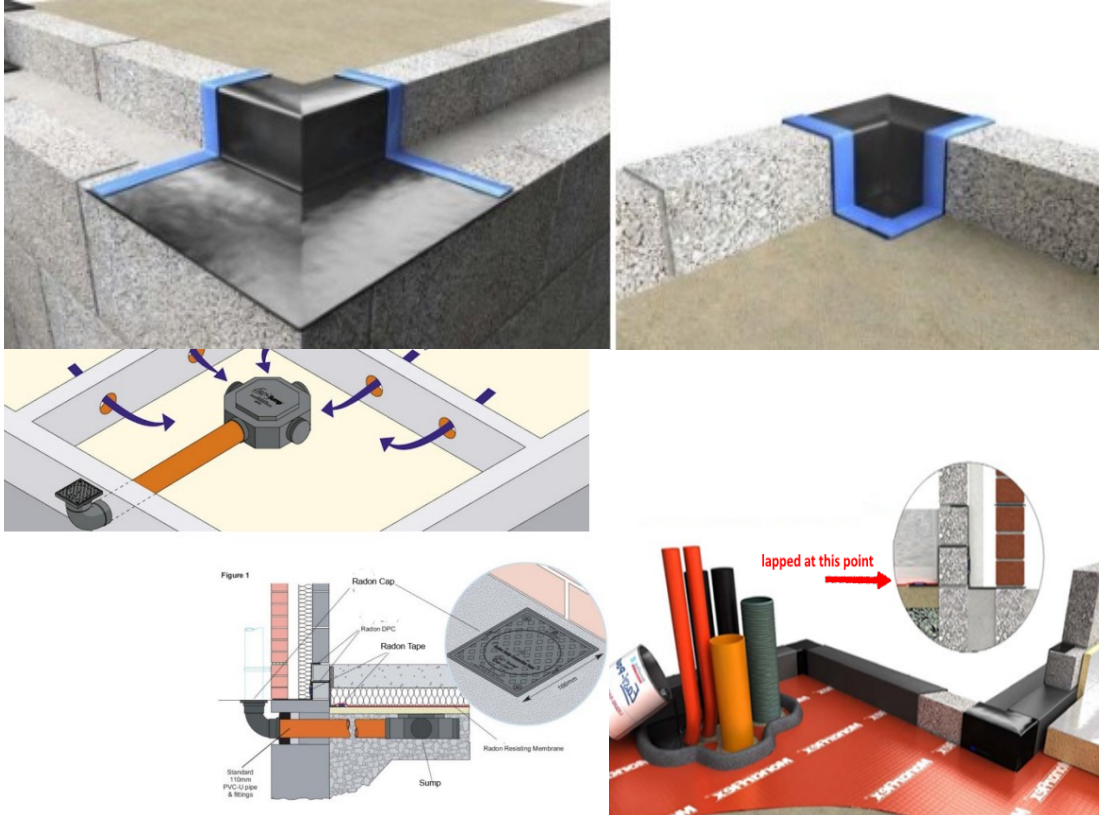
Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



manufacturer's instructions. Also radon sump size 900 x 900 x 215mm connected to pipe work venting through wall vent outlets and capped. Venting system must conform to BR 211, BR 212 and Building Regulations. Gas measurements at any location throughout the works area up to 5 m above ground level should not exceed 200 Bq/m³. Allow min radon sump per 200sqm floor area or as set out on the drawings. The maximum number shall apply.

Radon gas barrier with Double Fold Detail at all wall junctions. Consisting of Robust reinforced membrane incorporating 4 layers with High resistance to radon as and can handle moderate to heavy foot traffic – both outer layers made from blown LDPE blend which gives excellent resistance to abrasion. Integrated Radon DPC. Liquid Radon Seal at all service penetrations. Prefabricated Proprietary corner angles Internal and external angles with flat base at corner. All jointing tapes and 150mm laps as per manufacturers detail and recommendation. 100mm square opes to be formed in all internal rising walls at 1 m centres to allow for the gas distribution within the hardcore. All opes to be formed at the level of the radon sump. The hardcore layer in the floor construction of the building should be clean, dry, well-compacted, and gas permeable (following the compaction process), i.e. suitable material (preferably of single size) should be used which is greater than 10mm and less than 50mm, with no fines.



2.6 Damp Proof Course

DPC shall be to BS 6515 and installed in accordance with the manufacturer's instructions. DPC shall be placed in continuous lengths, with 100 mm laps at joints and full laps at angles at least the full width of leaf unless otherwise specified. Edges of DPC must be not covered with mortar or project into cavity. Provide continuous Joint with damp proof membrane and or Radon barrier continuous and effectively sealed. Form tray around cills in one piece and turned up at back of cill and around edges. Provide vertical DPC at all reveals. Provide cavity trays where illustrated on the drawings (refer also to 3.4.2.1 Weep Holes). Equal to Visqueen Zedex CPT High Performance Damp Proof Course (DPC) black, flexible 0.8mm co-polymer thermoplastic (CPT) damp proof course and cavity tray system. All in accordance with (BBA 94/3059); NHBC Amber 1 applications. Conforms to the specification requirements of BR 211:2015. CE Mark EN 14909 Quality Management System ISO 9001:2015. Occupational Health and Safety System ISO 45001:2018. Environmental Management System ISO 14001:2015.

Lift tanking

This shall comprise a self adhesive waterproofing system designed to prevent the ingress of water and associated water borne alkalis present in certain mortar and concrete materials. The system shall also incorporate a primer that will work in conjunction with the membrane. The material shall consist of polyethylene, 1.5 millimetres thick, smooth topside and a paper finish on the underside. The primer shall be a bituminous paint-on solution designed for application in conjunction with the membrane described above. All to be used in conjunction with a high performance Damp Proof Course (DPC) comprising a black, flexible 0.8mm co-polymer thermoplastic (CPT) damp proof course and cavity tray system. This shall comply with (BBA 94/3059) and conform to the specification requirements of NHBC Amber 1 applications. Conforms to the specification requirements of BR 211:2015 CE Mark EN 14909 Quality Management System ISO 9001:2015 Occupational Health and Safety System ISO 45001:2018 Environmental Management System ISO 14001:2015.

The associated DPM to consist of a smooth finish, co-polymer thermoplastic material with tensile strength of 15N/mm²; tear resistance of 333N and 400% elongation to break point. Water vapour resistance of 2100MNs/g and an F Class fire performance rating. Overall thickness to be 0.5mm and water tightness at 2kPa to BS EN 1928, Pass. All to have recycled content of min. 50%.

All interfaces connected using an approved adhesive tape, which shall be part of the integrated, certified system. Tape shall be a double sided butyl based compound with an oversized release film on the adhesive side. It shall comply to the following standards. Conforms to the specification requirements of BS 8485:2015 + A1:2019 Quality Management System ISO 9001:2015 Occupational Health and Safety System ISO 18001:2007 Environmental Management System ISO 14001:2015.

2.7 Drainage

Refer to the specification and drawings prepared by the Engineers for all details with regard to this element of work.

2.8 Standard Paving

Ground Granite Aggregate Concrete Flag Paving with ground surface finish using premium granite aggregate. Laid in stack bond or stretcher bond to be confirmed by architect on site. To be available in at least 3 standard colours to be selected by the architect. All edges to be chamfered. Notional sizes to be 400x400x80/50mm Silver Granite, Black Granite, Buff Granite or 600x400x80/50mm. Colour: Silver Granite, Black Granite, Buff. Tiles 50mm thick to be used for: external landings, steps, ramps and other pedestrian only access areas, 80mm thick: for areas where vehicle (including emergency vehicles) access may be required.

Product to be Concrete Flag Paving. Product standard to EN 1339:2003. Manufacturing Method to be Hydraulically pressed semi dry concrete. Finish to be Slip/Skid Resistance Ground granite aggregate finish; baled, strapped on their side and plastic cover with ropes in between. Strength Typically USRV/PTV >60 Compliant to EN 1339:2003

Application & Trafficking; Installation to BS 7533-4:2006, Please refer to the relevant part of BS 7533 for the correct sub-base design and the most suitable product size. Available from www.bsigroup.com Product suitable for pedestrian and light vehicular use only.

Jointing; Shelbourne Flag Paving have a 1.5mm approx. internal spacer nib which will give a resulting standard joint width of approx. 2mm when laid. Joints should be filled with kiln dried sand. Note that silver granite kiln dried sand must be used for the silver and buff colour option to reduce potential staining. Broom. To be A rated in accordance with Green Guide Specification Edition 4, 2009. A+ rated when used in conjunction with a prepared recycled sub-base.

Tactile Paving

Corduroy Hazard Warning tactile flags to be used to denote a hazard as shown on the drawings; ie; the top and bottom of a flight of steps, level crossings. The flat top rods are laid parallel to the edge of the hazard at a distance of 400mm away.

Product Type; Concrete Flag Paving.

Product Standard; Strength BS EN 1339:2003, BS7997 BS:2003, DDCEN-TS15209:2008.

Manufacturing Method; Hydraulically pressed semi dry concrete Corduroy pattern.

Finish Packaging Information; Baled, strapped and plastic cover.

Slip/Skid Resistance; Low potential Typically class 1 compliant to BS EN 1339:2003.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
info@gcal.ie
 IE 3415637RH



Application & Trafficking; Installation to BS 7533-4:2006, Please refer to the relevant part of BS 7533 for the correct sub-base design and the most suitable product size for application. Available from www.bsigroup.com Product suitable for pedestrian and light vehicular use only.

Joint; Corduroy Tactile Paving has a narrow finished joint of 1mm approx. This product has no integral spacer nib and no chamfer. Great care and attention must be paid when handling and installing to avoid chipping and damage to edges. Joints should be filled with Kiln dried jointing sand or if laid on a motor bedding then a mortar joint should be used - see page 112 for further details on jointing.

BREEAM; "A" rated in accordance with the Green Guide Specification Edition 4, 2009 'A+' rated when used in conjunction with a prepared recycled sub-case.

3.0 CONCRETOR and STRUCTURAL STEEL

3.1 General

Refer to the specification and drawings prepared by the Engineers for all details with regard to this element of work and all other structural works.

3.1.1 Cement

The cement shall be ordinary Portland cement to comply with IS 1:1963 (amended 1971). It shall be stored in a dry weather-proof shed with a raised wooden floor or in a silo and shall be delivered in quantities sufficient to ensure that there is no suspension or interruption of the work of concreting at any time.

3.1.2 Sand

Sand shall be clean river or pit sand well graded to pass through a mesh 4.75 mm square.

3.1.3 Aggregates

All in aggregates shall consist of naturally occurring material complying with US. 5: 1974 well graded from the nominal maximum size shall be kept free from contact with deleterious material.

3.1.4 Coarse Aggregate

Coarse aggregate shall consist of natural gravel, crushed gravel or stone complying with IS. 5: 1974 well graded from the nominal maximum sizes specified. All aggregates brought upon the site shall be kept free from contact with deleterious material.

3.1.5 Admixtures

No admixtures or additives shall be used in the concrete unless permission is first sought in writing from the Architect.

3.1.6 Water

Use only water which is clean and free from harmful matter, drawn from the main or stored tanks. Use only sufficient water to achieve a good workable mixture.

3.2 Concrete Quality

3.2.1 Mixes

Use only the following concrete mixes:

		Maximum Aggregate Size	Concrete Grade	Minimum Cement Content	Maximum Water To Cement Ratio
a.	Reinforced Concrete	20mm	35	300kg/ 0.6 m ³	
b.	Structural Screeds	10mm	35	300kg/ 0.6 m ³	
c.	Blinding Concrete	20mm	20	220kg/ 0.8 m ³	
d.	Lean Concrete Filling	20mm	10	150kg/ 0.8 m ³	

3.2.2 Placing

Concrete shall be transported from the site mixer or mixer truck as rapidly as possible by methods which shall prevent segregation loss of any of the ingredients.



Vibrate all reinforced concrete with vibrators working at a frequency of not less than 5000 cycles per minute, taking care to avoid contact with shuttering and reinforcement. Vibrate continuously to expel all air but without promoting segregation.

Care shall be taken to avoid displacement to reinforcement and damage to formwork.

A competent steel-fixer shall be in attendance to correct any reinforcement displaced by the concreting operation.

Water shall be removed from excavations and formwork prior to placing of concrete.

3.2.3 Curing

Cover concrete with a layer of sacking or similar absorbent material and keep damp for 7 days after placing. Allow curing time not less than that recommended in Table 6.5 of B.S.8110 Part 1.

3.2.4 Concreting in Cold Weather

Do not concrete when air temperature falls below 2 degrees Celsius.

Follow provisions of Clause G.11.7 of C.P.110.

3.2.5 Self-Leveling compound

EVO-STIK floor leveling compound or other approved shall be used to all concrete floors. Allow for 6mm thickness, strictly with manufacturer's instructions. Application Temperature +5°C to +25°C Service Temperature -15°C to +70°C.

Self-leveling compound to comply with: BS EN 13813:2015, Wear resistance: NPD EN 13892-5, Compressive strength: C35 EN 13892-2, Flexural strength: F7 EN 13892-2.

All phases of installation must comply with the latest editions of: BS CP102, BS 5325, BS 8203, BS 8204-3.

Depths of more than 6mm will require an alternative "thick-bed" levelling compound from the Evo-Stik Technik range (Latex screeding compound powder together with Latex screeding compound liquid) or equal approved.

Technik Primer 918 or equivalent primer shall be used where floor condition requires.

3.3 Mortar

3.3.1 General

A cement, hydrated lime, sand mortar in the proportions 1: 2: 9 shall be used for internal work, rendered exterior walls and other locations of moderate exposure.

A stronger cement, hydrated lime, sand mortar is to be used for masonry facings, or work below DPC level or other exposed locations. Cement Mortar shall comprise 1 part cement, 3 parts sand.

Lime Mortar shall comprise 1 part hydrated lime, 6 parts sand.

Gauged Mortar shall comprise 10 parts lime mortar to 1 part cement.

Strong Gauged Mortar shall comprise 5 parts lime mortar to 1 part cement.

Mortar shall be mixed on a proper boarded platform, turned twice dry and twice wet, or by means of an approved mixer. Ingredients shall be properly measured in gauge boxes in quantities sufficient for one days use. No knocking up the following day will be allowed.

3.3.2 Pointing

Where indicated, external brickwork and facing blockwork generally and internal fine textured finished blockwork shall be pointed with a half-round or "bucket handle" joint. Pointing should be carried out as work proceeds or alternatively the joints shall be raked out to a depth of 10mm and pointed with gauged lime mortar. Internal blockwork for plastering shall have a recessed, raked out joint. See also detail drawings for particular details.

Brick pointing shall be approved by sample prior to commencement.

Coloured mortar

Masonry Mortars to be provided to all external brickwork produced in an ISO 9001 quality-controlled environment to the requirements of a general purpose masonry mortar as set out in EN 998-2. Equal or approved to Kilsaran coloured masonry mortars which are M4 or designation (iii) mortars as standard.

Colour to be selected on the basis of 3 samples to be constructed for approval by the architect.

Movement Joints

Movement joints are to be located as shown on the DFCE drawings. Joints are to be filled with 18mm closed cell polythene foam (Texell 3 low resistance joint filler, for use in brick and blockwork. It fully meets the specification of BS5628 Pt 3: 2001 Section 5.4.3 – Code of Practice for use of masonry), and sealed with a two part polysulphide sealant Sika Polysulphide GG or other approved (25mm of the external edge), of similar colour to the facing. Substrate



moisture content: dry joint with sound concrete edges, for joints under wet conditions, Sika®-Primer-PS to be used.

3.4 Blockwork

3.4.1 General

Blocks shall conform to BS EN 771-3.

Sizes (length x width x height): 440x100x215 mm. All joints to be flush and stretcher bond. Manufacturer requires to comply with the following: I.S. EN ISO 001:2000 quality management system. I.S. EN 771-3:2011 Specification for Masonry Units – Part 3: Aggregate Concrete Masonry Units using an NSAI, System 2+ Certificate of factory production control. Configuration: Group 1 Cavity. Compressive strength: to I.S. EN772-1 fm dry Mean value: Compressive strength to be 15N/mm sq unless stated otherwise refer to Engineers Detail and design. Density > 1900 kg/m³ (>1950 kg/m³ for facing blocks). Category: Close textured paint grade block with excellent flatness of surface. Freeze/ Thaw resistance: Frost resistant. Typical Air Leakage 215mm Cavity Block: 0.265 M³ / h / M² @ 50 Pascals. Sound Insulation: Blocks to be independently tested to ISO 140-3:1995 and to achieve the following: 215mm Cavity Block 46dB M 4. Thermal properties: Thermal resistance “U” value of 215mm Cavity Block 0.9-1.0 W/m²K (λ10, Dry Mat). Moisture Movement: Measured under IS EN 772 pt 14 moisture movement, of block has a shrinkage value < 0.6mm/m.

Allowable tolerances:

Position in plan of any point in relation to the specified building reference line and/ or point at the same level ± 07 mm.

Straightness in any 5 m length ± 3 mm.

Vertical alignment up to 3 m height ± 7 mm.

Vertical alignment up to 7 m height ± 10 mm.

Overall thickness of walls ± 10 mm.

Level of bed joints up to 5 m (brick masonry) ± 09 mm.

Level of bed joints up to 5 m ± 10 mm.

3.4.2 Concrete Brickwork

Bricks shall be to BS EN 771-3. Finish of bricks to match existing and to be approved by providing samples prior to commencement.

Nominal size to be 215 x 103 x 65 mm and compressive strength of 15 N/mm sq.

Allow weep holes every fifth perpend.

3.4.2.1 Weep holes

Supply and install proprietary weep hole as per the drawings. To be installed through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings. Also 75 mm above top of cavity fill at base of cavity. All to be at not greater than 1000 mm centres and not less than two over each opening. Proprietary System to be unobtrusive cavity weep hole duct with near invisibility, showing only a small aperture. Complete with lug to protect the outlet from blockage during rendering. Contractor to provide sample of proposed type.

3.4.2.2 Clay brick

To be in accordance with current European/Irish Standard for clay masonry units that applies at the time of construction, currently, EN 771-1:2011-05 – Specification for masonry units – Part 1: Clay masonry units External brick leaf to comprise:

Ibstock Kingscote Grey Multi 65mm Brick, <https://www.buildbase.co.uk/building-materials/bricks/facing-bricks/browngrey-bricks/ibstock-kingscote-grey-multi-65mm-brick-100010353-2837288>.

Stock brick (65mm), grey in colour with a sandfaced texture.

Specifications:

Standard Compressive Strength 25 N/mm2

Durability F2

Suction Rate 0.9 Kg/m2/min

Thermal Conductivity 0.8 W/mK

Water Absorption 12 %

Uniclass Code Pr_20_93_52

Uniclass Name Masonry walling units

Voids 7 %





Density 1530 Kg/m³
 Height 65 mm Length 215 mm Width 102 mm
 Colour Grey Finish(es) Sandfaced
 Manufacturing Method Stock

Technical Specifications	
Height (mm)	65
AX Part Number	GM000082987
Type	Facing
Colour	Brown
Style	Stock
Brick Texture	Sandfaced
Brick Colour Type	Brown Multi
Material	Clay
Manufacturer Part Number	A0750A
EAN Barcode	5036335194782

Or products of equal colour, appearance, dimensions, composition, specification, durability classification and strength and as approved by the architect based on physical sample.

3.4.3 Internal blockwork

Internal fair faced block for painting: Internal Walls masonry facing blocks Concrete Blocks manufactured to an approved standard of dimensional accuracy and consistency of colour and texture. The blocks are intended for use in situations where the visual appearance of the wall is of primary concern. The blocks are to be available in a range of colours, textures. Note: Inner-leaf Block work of external walls and internal block work shall be from the one supplier and range with particular emphasis on uniformity of finish texture and quality. Where indicated internal block work for painting, is to be "fair-faced" concrete block work. Fair-faced block work is deemed to mean selected "fine textured" concrete block work as supplied by Roadstone Masonry Ltd. or equal approved, not dense concrete masonry. Common blocks will only be allowed in partitions and walls which are to be plaster finished or in plant areas.

3.4.3.1 Thermal Block/lightweight block

Where lightweight block work walling is called for, use only approved blocks by Mannok Concrete or equal approved. Where such block work is called to remain un-plastered but decorated, such block work must be "fair-faced" or "fine-textured" quality. Thermal conductivity (λ) values 0.19 W/mK, using a special mix which includes light weight aggregates. Test data to show use with Acceptable Construction Details (ACDs), achieves Psi values equal to or better than the standards set out in TGD Part L 2011. Thermal Modelling of block work to demonstrate compliance fully with Psi value requirements outlined in TGD L 2011- Appendix D. Product to be unique in colour to enable traceability on site. I.S. EN ISO 9001:2000 quality management system I.S. EN 771-3:2011 Specification for Masonry Units – Part 3: Aggregate Concrete Masonry Units using an NSAI, System 2+ Certificate of factory production control. Regular shaped solid masonry unit. • Category 1 masonry unit as per EN 771-4. EC certificate of Factory Production Control – 0050-CPR-0971 • Environmental Management system to ISO 14001:2004 – certificate no: EMS 552208

Gross Dry Density: 800 kg/m³, Mean compressive strength: 10.4 N/mm², if other is not specified by the Engineer. Thermal conductivity: 0.19 W/mK. Dimensional tolerance in GPLM: D1. Dimensional stability/moisture movement (mm/m): <0.4. Work sizes (length x width x height): 440x215x100 mm. 215x100x75 mm. Mannok thermal blocks provide excellent fire protection in both load bearing and non load bearing applications. They are classed as non combustible



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



and have a Class 0 resistance to surface spread of flame and category A1 in accordance with BS EN 13501-1.

The blocks are resistant to freeze/thaw conditions likely to occur below the dpc and are therefore suitable for use in situations up to and including MX3.2 as defined in EN 1996-2 : 2006, Annex A, Table A1 and Annex B Table B.1 (ie where there is a high risk of saturation with freezing). The blocks are suitable for use in classes DS1, DS2 and DS3 of soil or groundwater as defined in BRE Special Digest 1 : 2005. In unusual soil and/or groundwater conditions, eg soils contaminated by industrial waste or highly acid soils, expert advice should be obtained.

MORTARS: The Mannok Aircrete Thermal Blocks may be built using both sand/cement mortar and thin joint mortar. Below DPC 1:4 cement/sand + plasticiser Above DPC 1:6 cement/sand + mortar mix (To manufacturer's instructions).

INTERNAL PLASTERING The blocks should be dampened with a fine water spray to control the suction.

3.4.4 Wall ties

Supply and fit stainless steel cavity wall ties at 450mm cs vertically and 450mmcs horizontally. Allow 1 every course with side of reveals. Wall ties to be appropriate for the cavity width. Wall ties must comply with BS EN 845-1 and be embedded in the mortar of each leaf of blockwork by a minimum 50mm. Additional wall ties will be required around openings. Please, see DFCE's drawings for details.

3.4.5 Wall vents

Supply and fit proprietary vent covers to match external finish, to be approved by the architect. To be in accordance with the following standards.

I.S. EN 13141-1:2004.

I.S. EN 13141-1:2004 Ventilation for buildings. Performance testing of components/products for residential ventilation. Externally and internally mounted air transfer devices.

I.S. EN 13141-4:2011 Ventilation for buildings. Performance testing of components/products for residential ventilation. Fans used in residential ventilation systems.

I.S. EN 13141-5:2004 Ventilation for buildings. Performance testing of components/products for residential ventilation. Part 5: Cowls and roof outlet terminal devices.

I.S. EN 13141-6:2014 Ventilation for buildings. Performance testing of components/products for residential ventilation. Exhaust ventilation system packages used in a single dwelling.

I.S. EN 13141-7:2011 Ventilation for buildings. Performance testing of components/products for residential ventilation. Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings

3.4.6 Cavity Closers

Supply and install proprietary cavity closers to comply in full with TGD B Diagram 17. Contractor to provide submittals for same. For example, PVC-U Cavity Closers, 150 manufactured in 3 metre lengths for use with corresponding nominal cavity widths of 150 mm. These sizes to be supported by independent accredited test results and by Agrément certification. The cavity closer profiles are hollow PVC-U extrusions filled with rockfibre insulation or other approved non combustible material. They incorporate a ribbed fixing flange and multiple continuous projections providing rigidity, and a key for the plaster.

3.5 Heads and cills (refer to the C&S Engineer's drawings and specification)

3.5.1 General

Supply and install concrete heads to BS EN 845-2. Place on mortar bed to match adjacent work. Prop heads at not more than 1.2 m centres to prevent displacement during construction. Retain props in position for not less than 14 days or until mortar has matured, whichever is longer. All to comply with manufacturer's instructions.

Allow for the supply and installation of 0.8mm thick stainless steel heavy duty pre-galvanized angle brackets, size to be agreed on site to support windows in cavities.

3.5.2 Steel lintels

Steel lintels to comply with BS EN 845-2. All to comply with manufacturers instructions.

3.5.3 Metal Cills

Pressed polyester powder coated aluminium cills to be Alupressltd or equal approved by the architect.

All aluminium alloys used conform to BS EN 485-2, BS EN 573-3:1995 and BS EN 1396:1997.



Finish: Pre-coated aluminium with a PVF2, PVDF or polyester powder coated finish provide a tough, fade resistant, formable finish offering a competitive, quick and efficient alternative to standard powder coated aluminium. Preliminary colour – dark grey. Colour to be agreed with the architect during the Construction stage.

Thickness - 1.6mm.

3.6 Formwork

The contractor shall submit dimensioned drawings of the systems of falsework which he proposes to adopt for the various sections of the work. This falsework shall be suitably proportioned and braced to withstand the weight of the freshly placed concrete, together with the weight of the workmen and materials. Where supported on the ground the sole piece carrying the vertical supports shall be bedded on a solid base and shall have an area sufficiently large to ensure that there shall be no settlement under full load. Adjustable screws or hardwood folding wedges shall be used for adjusting and striking the vertical supports. All shuttering shall be removed without shock or vibration. Before the shuttering is stripped, the concrete shall be exposed in order to ascertain that the concrete has sufficiently hardened. Shuttering to vertical surfaces may be removed whenever the concrete will not be damaged by so doing. Shuttering and supports under slabs, beams, girders, arches and structures or parts of structures carrying the loads shall not be removed without the C&S Engineer's approval. The striking of the horsing shall be carried out in an approved sequence of operations so that no undue shock or other damage is caused to the permanent work. The contractor shall be responsible for any injury to work and any consequential damage caused or arising from the removal of striking of formwork, centering and supports, and any advice, permission or approval given relative to their removal shall not relieve the contractor from the responsibility here defined.

The formwork should be designed taking into account the surface finish required for the concrete. The formwork should be rigid and tight to prevent loss of grout. All joints between sheets shall be fitted with loose hardwood tongues and all joints between sides and soffit shall be either tongued or sealed with foam strip or other approved material to prevent loss of grout. The formwork and supports shall be sufficiently rigid to resist without distortion all dead loads and incidental loads resulting from placing, vibration etc.

Removal of Formwork

The contractor shall give the architect not less than 24 hours notice of his attention to strike any formwork. The time at which formwork is struck shall be the contractor's responsibility but the minimum periods between concreting and the removal of forms unless otherwise approved shall be as stated in the C&S Engineer's specification. Days during which the average temperature is below 2 deg. C. shall be disregarded in calculating the minimum time which shall elapse before forms are removed.

Mould & Releasing Oil

All formwork shall be treated with approved mould oil or grease before use and shall be carefully cleaned down and further oiled or greased before re-use. The type of mould oil or grease and its methods of application to be used for shuttering for exposed surfaces shall be as recommended by the manufacturer for this kind of work and shall be subject to the architect's approval. The use of specially faced boards of plywood shall not be permitted except with the approval of the architect or C&S engineer.

Holes & Chases in Concrete

Holes, chases and other openings required for the passage of pipes, conduits, etc., shall be formed by inserting suitable sleeves, cores and sinkings before placing the concrete. The sub-contractors shall be required to furnish full information in regard to the position of such holes and chases, and the position of bolts, clips, holes or other openings in the finished work shall not be permitted without the sanction of the engineer. Such holes and chases shall be made only in approved locations and shall be cut with approved tools.

Compaction

Thoroughly compact all concrete using a method appropriate to the workability of the concrete and nature of the work. Loose hardwood tongues shall be used between all plywood sheets and foam sealing strips fully compressed between formwork and concrete shall be used at all construction joints. Formwork shall be effectively watertight. Formwork ties shall be arranged in a uniform pattern as directed by the engineer and shall be provided with rubber cones against the formwork so that a neat recess about 50mm dia. x 40mm deep is left at the tie after



stripping. The recess shall be treated as a minor surface blemish. The concrete surface shall be smooth, free from honeycombing, lipping and grout loss, shall have true clean arises and shall be of uniform colour and texture. Only very minor surface blemishes shall be permitted. While the concrete is still green all surface blemishes shall be filled with a fresh, specially prepared paste of cement and fine aggregate to match the colour of the concrete. After curing the blemished and surface where necessary shall be rubbed down with a fine carborundum stone to produce a smooth even surface as required by the surface finish to be achieved. For ribbed or waffled slabs exposed to view an approved G.R.P. or polypropylene mould shall be temporarily supported by an approved system compatible with the mould. Joints between adjacent moulds shall be featured in the manner indicated on the engineer's drawings and the contractor shall prepare a detailed scheme, for approval, by which this feature may be achieved. Removal of moulds shall be achieved by the use of compressed air carried out strictly in accordance with the manufacturer's recommendations.

Concrete Finishes

All concrete surfaces which are to be covered up, non-exposed or are to receive further finishing shall be formed to achieve a Type A finish. All exposed concrete shall be finished to achieve a Type B finish as defined in BS8110, S 6.2.7.3. In areas where a higher quality finish is required, a Type C shall be obtained. Such areas will be as specified on the drawings. Where type B or C finishes are required, the contractor shall produce sample panels, min 1m x 1m in size and include a joint in the formwork, for approval by the architect and engineer prior to commencement of works. The quality of finish as achieved in the approved sample panel will be that adopted for the finish of the various elements.

3.7 DPC's

Refer to section 2.6 above. On uneven ground, install dpcs not less than 150 mm above adjoining finished ground level. At all window cills, provide DPC in one piece turned up at back when sill is in contact with inner leaf. All vertical DPCs at jambs to be one single piece, no overlaps or joints, projecting 5mm from the face of the reveal.

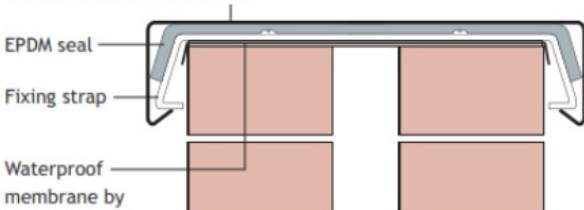
3.8 Metal Coping

Supply and install proprietary metal capping to close cavity at the top of the parapet wall. The supplier shall design and manufacture the system in accordance with BS EN ISO 9001 and hold Professional Indemnity Insurance to cover their design activities. The Design of the system, including components, support structure, fixings and sealant, shall accommodate typical loadings/stresses in accordance with relevant British Standards. Use aluminium sheet to BS EN 485/515/573: Grade 1050 AH14, supplied by BS EN ISO 9002 size/gauge dependent on width minimum 10 gauge (3.0mm), or equal approved in powder coated 0.7mm powder coated steel. Fixing straps are to be pressed 3mm aluminium with 2 No rows of extruded EPDM seals bonded to the top surface. No Top or exposed fixings permitted. All fabricated fittings (90° corners, irregular corners, stop end closed ends, upstands, 90° tee junctions) are mitred, welded and have a smooth finish on the front and top face. A 4mm continuous waterproof membrane will be required beneath the coping. Polyester Powder coated to BS 6496, coated only by Syntha Pulvin approved and BS EN IOS 9002 registered applicators. Colour: RAL colour subject to approval. Fixings: Fixings recommended for the purpose and supplied by the manufacture. Joints to be secret fixed and assembled centrally over brackets and "snapped" into place and in accordance with project specific drawings and installation instructions provided by manufacturer.



Manufacturer:

- Manufacturer/ Supplier: Submit proposals.
- Product reference: Submit proposals.
- The supplier shall design and manufacture the system in accordance with BS EN ISO 9001 and hold Professional Indemnity Insurance to cover their design activities. The Design of the system, including components, support structure, fixings and sealant, shall accommodate typical loadings/stresses in accordance with relevant British Standards
- **Material:** Aluminium Sheet to BS EN 485/515/573: Grade 1050 AH14, supplied by BS EN ISO 9002 registered stockist to ensure traceability.
- **Size/Gauge: Dependent on width Minimum 10 gauge (3.0mm)**
- Fixing straps are to be pressed 3mm aluminium with 2 No rows of extruded EPDM seals bonded to the top surface. No Top or exposed fixings permitted
- All fabricated fittings (90° corners, irregular corners, stop end closed ends, upstands, 90° tee junctions) are mitred, welded and have a smooth finish on the front and top face
- **A 4mm continuous waterproof membrane will be required beneath the Coping to provide an effective seal**

4.0 PLASTERER

4.1 Cement & Sand

The cement shall comply with I.S. 1:1963 and the sand shall comply with B.S. 1198:1955. All sand shall be delivered to the site washed and free from all impurities.

4.2 Concrete Surfaces

Joints of concrete work shall be well raked out and in all cases adequate key shall be formed for the plaster and all concrete surfaces about to receive plastering shall be wetted and well scudded with cement and sand 1 to 1.

4.3 Gypsum Plaster

The gypsum plaster shall comply with I.S. 27: 1975, and strictly with the manufacturer's instructions and recommendations for use.

Hardcoat

Where indicated on the drawings, Gypsum Hardcoat or equal approved to be used. Shall comply with EN 13279-1 types B4/20/2 and C3/20, and be manufactured under a quality system independently audited and certified as conforming with ISO 9001: 2000.

https://www.gyproc.ie/sites/default/files/Gyproc%20Hard%20Coat%20Product%20Data%20Sheet_2017.pdf

Performance Fire Protection; Plaster to be non-combustible when tested in accordance with relevant EN and BS standards, achieving Euroclass A1 and satisfying the requirements for Class 0 surfaces in the National Building Regulations. Plaster shall provide good fire protection due to the unique behaviour of gypsum in fire. When gypsum-protected building elements are exposed to fire, dehydration by heat (calcination) occurs at the exposed surface and proceeds gradually through the gypsum layer. Calcined gypsum on the exposed face adheres tenaciously to uncalcined material, retarding further calcination which slows as the thickness of calcined material increases. Once the gypsum layer is fully calcined, the residue acts as an insulating layer while it remains intact.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Air-tightness: The application of a system such as or equal to 11mm Gyproc Hard Coat + 2mm Gyproc Skimcoat finish plaster over 100mm Irish manufactured concrete blocks, laid on edge, shall offer an air permeability performance of 0.03m³/h.m² (50pa) Thermal resistance 11mm Gyproc Hard Coat with a final coat of 2mm Gyproc finish plaster (total thickness 13mm) has a thermal resistance(R) of 0.04m²K/W.

Skimcoat

Where indicated on the drawings, Gypsum skimcoat or equal approved to be used. Plasters shall comply with EN 13279-1 type B1/20/2, and be manufactured under a quality system independently audited and certified as conforming with ISO 9001: 2008. Plaster to be non-combustible when tested in accordance with relevant EN and BS standards, achieving Euroclass A1 and satisfying the requirements for Class 0 surfaces in the National Building Regulations.

Plasters are not suitable for plastering onto frozen backgrounds but may be used under frosty conditions provided that, after plastering, the surfaces are adequately protected from freezing. During the application of gypsum plasters in hot and/or dry conditions, care should be taken to ensure that rapid loss of water is avoided. Gypsum plasters require a proportion of the mixing water in order to set and achieve full strength. If the water is dried off too rapidly, the strength of the plaster will be impaired. Effect of condensation and other moisture should be protected from continuous exposure to moisture. Prolonged or repeated exposure to moisture may cause a loss of strength and/or adhesion.

4.4 Plaster Boards

Plaster boards shall comply with I.S. 41:1975 and strictly with the manufacturer's instructions and recommendations for use. Note that the fixing of plasterboards has been taken from the Carpenter and Joiner Section for convenience.

4.5 Mixing

All mixing to be done on a clean platform or in a clean mixing box or in a mechanical mixer. Only clean water to be added. No other admixture is permissible except where otherwise specified.

4.6 Thickness

4.6.1 External render

3-5 mm scud coat- sand and cement

8-12 mm first under coat – sand and cement and plasticiser

6-8 mm second coat – plain finish

4.6.2 Internal plaster

3-5 mm scud coat- sand and cement

10-16 mm scratch coat – sand and cement

2mm gypsum skim finish

5.0 ZINC WALL CLADDING

Zinc material to be specific weight 7.2 g/cm³ and building material class A1 (non-combustible). Thickness 0.7mm; Titanium zinc according to DIN EN 988 Certified according to QUALITY ZINC, TÜV Rheinland. Composition: Zinc: 99.995%; Copper: 0.10%; Titanium 0.06% and Aluminium: trace. Quality Management Certified to ISO9001. Energy Management certified to ISO 50001.

Equal or approved to the following. Rheinzink Standing Seam Wall Cladding, vertical orientation. Standing seam panel (width ≤ 430 mm (coil width 500 mm)); Metal thickness 0.8 mm; Limited panel length max. 6 m; Optimum max. panel length 4 m.

Appropriate RHEINZINK brackets Fixings at 250 mm ctrs securely fixed to the wall in addition to Covering building profile (RHEINZINK building profile, 0.7mm) for brick wall. Connection height - 100mm flush mounted in wall joint.

6.0 CARPENTER/JOINER

6.1 General

Timber (including timber for wood derived components): All to be sourced from well managed



forests/plantations in accordance with the laws governing forest management in the producer country or countries. Also all international accords such as the Convention on International Trade in Endangered species of wild fauna and flora (CITES).

Provide documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or evidence that suppliers have adopted and are implementing a formal environmental sourcing policy for timber and wood based products.

6.2 Materials

6.2.1 Timber

Timber to be graded to meet the following:

BS 4978, BS EN 14081-1, or other national equivalent and so marked. Strength class to BS EN 338: C22.

Treatment: Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.

Design life expectancy: 40 years.

Fire retardant treatment: Fire retardant impregnation to NBS section Z12 and Wood Protection Association Commodity Specification FR3, Type LR.

All timber used for carpentry work, joists, rafters, trimmers etc., shall be timber of the best of its available type and quality and shall be to IS 444 (old SR 11).

The timber for carpentry work shall be best white deal. The timber for joinery shall be best red deal and best Ash internally where shown. Dowels, tongues, buttons, etc., shall be of oak, or timber to be as specified for individual items.

6.2.2 Plywood

All plywood for internal use will be grade I -2BR and conform in all respects with BS 1455 1972, and bonding between veneers will be as defined in BS 1203 1963. All plywood for external use will be Grade 1 -2WBR.

6.2.3 Chipboard

All resin bonded wood chipboard will conform in all respects with B.S. 2604 and supplied by Munster Chipboard or other equal or approved manufacturer.

6.2.4 Medium Density Fibreboard (MDF)

MDF shall be supplied by Medite Ireland Ltd., or other equal manufacturer. MDF shall comply in all respects with B.S. 1105 : M81. Amended 1985.

Sheet quality shall be plain grade, exterior grade or fire resistant grade as set out on the detail drawings. Medite Premier, as described below or equal approved to be used throughout.

MEDITE PREMIER is suitable for use in internal dry conditions as defined in EN 622 parts 1 and 5 and conforms to EN13986. Boards of this type are suitable for use in Hazard Class 1 of EN 335-3. APPEARANCE MEDITE PREMIER retains the light tan colour of the wood fibre from which it is manufactured. MACHINING/FINISHING Cut or profiled edges of MEDITE PREMIER should first be sanded with 150-240 grit, prior to painting. The recommended coating system for the edges is to seal, prime and topcoat with de-nibbing in between coats to produce a smooth finish. The desired finish on the face can be achieved by application of a base-coat and top-coat. If water-based coatings are used, it is important that forced drying or quick-drying systems be applied in order to maintain the quality of surface. CONDITIONING The moisture content of MEDITE PREMIER is in the range of 5-9% at the time of manufacture. Changes in dimensions of wood and wood-based sheet materials occur due to changes in relative humidity. For this reason, MEDITE PREMIER panels should be conditioned to the final environment for two to three days before cutting and fixing.

6.3 Moisture Content

The Contractor is responsible for ensuring that the moisture content of the timber for carpenter's work and joinery is appropriate to the condition of which the material is to be employed.

The moisture content of structural timber shall be not more than 16% +1- 2% at the time of fabrication and erection and shall be maintained until completion within 5% of the expected equilibrium moisture content of the building in use.

All to conform to B.S. 1186 Part 1: 1971, & EN 942 note in respect to moisture content.

6.4 Free from defect



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Timber for carpentry and joinery shall be entirely free from decay and insect attack and comply in all respects with the requirements of B.S. 1186 Part 1 & EN 942.

Any timber splitting or opening to the extent of 1mm width within the contract maintenance period shall be replaced.

6.5 Jointing & Notching

The joinery shall be put together with all necessary tenoning, morticing, grooving, tongueing, rebating, housing and all other labours necessary for carrying out the work in a proper and workmanlike manner, including for the construction of all linings and framings and their fixings into the building.

The joiner shall supply all plates, screws, nails and other items required for the proper execution of the work.

All notching or cutting away of joists or other structural timbers shall be agreed with the Architect before any work is put in hand.

The word "framed" as applied to woodwork shall be understood as inclusive of all the best known methods of joining woodwork together, i.e., by mortice or tenon, dovetail or other methods.

6.6 Preservation

All structural timber shall be pressure impregnated.

This treatment will comprise protimising or tanalising or vac-vac treatment.

Cut-ends to be thoroughly treated before fixing with like material, brush applied.

A certificate to this effect will be sought from the contractor by the Architect.

No creosote shall be allowed.

6.7 Finishes

The selected hardwoods (solid and veneers) for use in the works are as follows:

Doors and Frames: Ash or as otherwise approved by the architect.

Interior Fixtures: Ash, oak or as otherwise approved by the architect.

The door joinery fixtures are to be finished by staining with selected non-fade ground stain and coating with 3 no. coats clear satin finish lacquers, Sadolin Holdex or equal approved.

7.0 ROOFER

7.1 General

Roof System to include 25-year Insurance backed Warranty. Sample to be provided.

Upon the completion of the works, the Contractor will furnish a warranty for the works for both the material installation and workmanship. This warranty will be a full and unconditional warranty (except for routine wear and tear) for the completed roofing installation.

The warranty shall be in two parts, the first supplied by the manufacturer of the roofing material against their failure and the second part shall be provided by the Roofing Contractor himself, which shall warranty his installation works and workmanship against defects.

The warranty in respect of the workmanship will be in a form to be approved by the Architects for a similar duration to above.

Proposed warranty form should be included with completed Forms of Tender.

The roof system must support all the necessary loads as indicated on Engineers drawings, and act as the external and internal walling elements to provide an integrated structure.

The roof is to be constructed in accordance with the Engineers drawings and the manufacturer's specification and recommendations. The specialist roofer shall be fully competent and licensed to both carry out the works and to ascertain whatever additional works are necessary over and above those indicated on the drawings to successfully construct the roof. All roofs are to be finished with proprietary roofing finishes except as noted elsewhere. The installation is to be carried out and completed in strict accordance with the manufacturer's recommendations.

The contractor shall include for all trims, flashings, upstands and ancillary items to fully



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



complete the roof as indicated on the drawings and as supplied by the manufacturing for the specified locations and uses. All such items are to be included in the contractors tender.

7.2 Roof system to comprise of an EPDM polyester reinforced fleece, fully bonded

Equal or approved to the following. ClassicBond PRO Polyester Fleece Reinforced membranes are manufactured using a patented hot melt adhesive technology to bond a polyester fleece backing to the EPDM sheet membrane. Once the EPDM membrane is reinforced and enhanced with fleece the total thickness is 3.00 mm, creating an extremely tough, durable and versatile sheet that is ideal for re-roofing, overlayment and new build projects. Manufactured with 75mm Pre-Applied Seam Tape (PST) to ensure consistent seam strength & quality with the added benefit of increased installation speed.

INSTALLATION* Adhered Roofing System - Apply appropriate ClassicBond PRO Decking Adhesive to the suitable substrate. For ClassicBond WBA deck adhesive lay membrane into adhesive when still wet, for PU Deck Adhesive allow adhesive to foam (adhesive will lighten in colour), using a rubber bladed squeegee press/smooth the membrane into the adhesive to ensure full embedment. Splices are sealed with Pre-Applied Seam Tape (PST), end laps are sealed with ClassicBond EPDM Cover Strip.

SPLICING 1 The entire surface where the membrane splice will be applied must be clean and dry. The adhesive on the PST will not adhere to wet and/ or dirty surfaces. Any residual contamination will be detrimental to the bond strength of the adhesive. 2 Remove any dirt or excess dust from the splice by wiping with a clean rag. If needed, clean the splice area thoroughly with Weathered Membrane Cleaner. This is essential for membrane that has been exposed for a number of weeks. 3 Application of ClassicBond EPDM Primer: Brush or roller (short pile roller) apply the primer to the splice area of the bottom membrane. The properly primed area will be free of streaks, globules or puddles. Allow the ClassicBond EPDM Primer to dry until it does not transfer to a dry finger. 4 Allow the taped edge of the top sheet to fall freely onto the primed sheet below. 5 Pull the poly backing from the PST beneath the top sheet and allow the sheet to fall freely onto the exposed primed surface. 6 Press top sheet on to the bottom sheet using firm, even hand pressure across the splice towards the edge of the seam. 7 Immediately roll the ClassicBond PRO seam with a 50mm wide roller using positive pressure rolling across the seam not along it. 8 For cold weather splicing when job site temperatures fall below 5°C, these steps must be followed: a) Heat the primed area of the membrane with a hot air gun as the top sheet with PST is applied and pressed into place. b) Prior to rolling the splice area with a 50mm hand roller, apply heat to the top side of the membrane with a hot air gun. The heated surface should be hot to touch, be careful not to bum or blister the membrane. 9 Install ClassicBond 228 or 304mm PS Uncured Elastoform Flashing over all field splice intersections.



PRECAUTIONS

- 1 Use proper stacking and storage procedures to ensure safe and suitable storage of materials.
- 2 Exercise caution when walking on wet membrane, EPDM membranes can become slippery when wet.
- 3 ClassicBond PRO rolls must be protected from water prior to installation. If the fleece gets wet ensure the fleece has dried before installation.
- 4 In warm sunny weather, shade the taped end of the rolls until ready to use.
- 5 Do not allow waste products (petroleum, grease, oils, solvents, vegetable or mineral oil, animal fats, etc.) to come into contact with the ClassicBond PRO EPDM Membrane.

All the information in this data sheet is based on practical experience and is published in good faith. However, because we have no control over the manner or conditions in which our products are used, or over work undertaken or end product manufactured by the purchaser, we cannot accept liability for results. Responsibility for ascertaining the suitability of products for their purposes rests with the purchaser. All conditions, representations, statements, warranties or guarantees whatsoever, whether express, implied or statutory, in respect of any goods manufactured, sold or supplied by us are hereby expressly excluded and we accept no liability in respect of any claim for damage or consequential loss caused to any property arising directly or indirectly out of the use of our products or goods.

VERS.1 08/2020

CLASSICBOND PRO EPDM TEST RESULTS

Physical Property	Test Method	SPEC. (Pass)	ClassicBond PRO
Tolerance on Nominal Thickness, 0%	ASTM D751	=/-10	=/-10
Thickness over Fleece, min. 2.54mm	ASTM D4637 Annex	0.762mm	2.54mm
Weight, kg/m ² 2.54mm			1.4
Breaking Strength, min. N 2.54mm	ASTM D751 Grab Method	400	890
Elongation, Ultimate min. %	ASTM D412	300**	480**
Tearing Strength, min. N	ASTM D751 B Tongue Tear	45	200
Puncture Resistance, Joules 2.54mm	ASTM D5635		15
Puncture Resistance, lbs 2.54mm	FTM 101C Method 2031		328
Puncture Resistance, lbs 2.54mm	ASTM D120		18
Hail Resistance 2.54mm	UL2218 Over Iso	Class 4 Rating	Pass
Brittleness point, max. °C	ASTM D2137	-45	-55
Resistance to Heat Aging* Properties after 4 weeks at 116 °C for ClassicBond PRO	ASTM D573		
Breaking Strength, min. N	ASTM D751	355	890
Elongation, Ultimate, min. %	ASTM D412	200**	225**
Linear Dimension Change, max. %	ASTM D1024	+/- 1.0	-0.7
Ozone Resistance* Condition after exposure to 100pphm Ozone in air for 168 hours @ 40°C Specimen wrapped around 7.5cm mandrel	ASTM D1149	No Cracks	No Cracks
Resistance to Water Absorption* After 7 days immersion @ 70°C Change in mass, max. %	ASTM D471	+8, -2**	+2.0**
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc 17.640kJ/m ² (Black) and total radiant exposure at 0.70W/m ² irradiance, 80°C	ASTM G155 ASTM D4637	No Cracks No Cracks	No Cracks No Cracks

*Not a quality control test due to the time required for the test or the complexity of the test. However all tests are run on a statistical basis to ensure overall long term performance of the sheeting.

**Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.

All systems

Roof Outlets are to be metal, proprietary flat roof outlets designed and installed as part of an approved roofing system. For example install "Harmer by Moy Materials" anti vortex vertical spigot roof outlet complete with metal clamping ring and leaf grate 100 /150mm diam. X 300mm (Flange must be recessed in membrane or insulation). Refer to flat roof calculation sheets.

7.3 Zinc Roof

Zinc roof to be provided over entrance areas as indicated on the drawings. Zinc roof to be from an approved supplier who designs, supplies and warranties the system.

Zinc material to be specific weight 7.2 g/cm³ and building material class A1 (non-combustible). Thickness 0.7mm; Titanium zinc according to DIN EN 988 Certified according to QUALITY ZINC, TÜV Rheinland. Composition: Zinc: 99.995%; Copper: 0.10%; Titanium 0.06% and Aluminium: trace. Quality Management Certified to ISO9001. Energy Management certified to ISO 50001.

Include for a galvanized brackets to secure the system which shall be double standing seam with continuous ventilation strip, 25mm along the upper edge profile.

Refer to **Appendix C** for example of acceptable technical submittal for equal or approved.

Zinc roof to be RHEINZINK-Double Standing Seam or equal approved. Physical and chemical properties: density (spec. weight): 7.2 g/cm³, melting point: approx. 420 °C, recrystallization limit: > 300 °C, coefficient of expansion: in longitudinal rolling direction: 2.2 mm/m x 100 K in transverse rolling direction: 1.7 mm/m x 100 K, elasticity modulus: ≥ 80,000 N/mm², thermal



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



conductivity: 110 W/m · K, electrical conductivity: 17 m/Ω mm², non-magnetic, building material class A1 non-flammable. Mechanical-technical properties according to DIN EN 988. RHEINZINK is certified according to ISO 9001.

Course Width / Metal Thickness

- Standard course width approx. 530mm (band with 600mm)
- Possible course width 400mm to 700mm
- Metal thickness 0.7mm / 0.8mm

The course width of approx. 530mm (band width 600mm) is the international standard for dual standing seam roofs, with metal thickness of 0.7mm.

The general standard maximum course length is 10.00 m.

In special cases, courses of up to 16.00 m long can be installed. In this case, the fixing and connection details for the course must be adapted to the increased length. Roof surface fixed clip area is between 1.0 m and 3.0 m.

Mainly flat headed nail or roofing felt nails. In Europe, flat headed nails and roofing felt nails have become the accepted fixing media. Fixing RHEINZINK® roofing is primarily dependent on the type and design of the base construction. Construction requirements taking account of snow and wind loads, as well as course width and metal thickness must be considered when selecting fixing media.

With roof pitch 3°:

Ventilated space, minimum height – 80mm,

Intake and exhaust vent openings, min. net width – 40mm,

Gross cross-section of RHEINZINK-Diamond Mesh Sheet with 63 % free ventilation shaft – approx. 65mm

Gross cross-section of perforated sheet with approx. 45 % free ventilation shaft – approx. 90mm.

7.4 Slate Roof

7.4.1 Nail holes

The slate nail shall be located close to the edge of the slate, about 20 mm to 25 mm in. This may not be possible with some thicker slates, where the holing distance from the edge of the slate may be increased to 30 mm. The nail hole shall be made from the bed (underside) of the slate to the face. This leaves a slight sinking in the surface of the slate to take the slate nail. Holing may be made by hand using either a slater's axe or a holing machine. Slates may also be holed by boring or drilling. Some natural slates can only be holed by boring or drilling, due to the characteristics of the rock. The holing gauge is the distance between the tail of the slate and the nail hole. It is expressed as follows:

Holing Gauge = Batten gauge + Head lap + 10mm to 15 mm clearance.

7.4.2 Grading Natural Slates

Either before or while the slates are being holed, it is essential that they be graded into three separate thicknesses. The thickest slates are for use at the bottom section of the roof, the medium size for the middle section and the thinnest for the top section. While being graded, slates shall be tapped for sound; this will detect any possible flaws prior to fixing. Broken slates may be dressed or cut and used where short lengths of slates are required: for example, at under-eaves, as ridge slates or as half-slates.

7.4.3 Slate Fixing

Lay with an even appearance, with slightly open butt joints and tails of slates aligned. Use slates of consistent thickness in any one course, laid with thicker end at tail. Lay each course with tails aligned to a half-lap bond with not more than 5mm gaps between slates. Use extra-wide slates as necessary at ends of courses to maintain bond and ensure that cut slates are as large as possible. Do not use slates that are less than 150 mm wide. Fix slates with two copper nails and one copper crampion. Fix slates wider than slate-and-a-third with three nails and two crampions. Make all additional holes on site before fixing. Copper nails shall comply with IS 105 or BS 1202 : Part 2, be 30 mm long and have a shank diameter of 2.65 mm. Copper crampions; the stem shall be 19mm long and have a diameter of 2 mm; the base shall be 0.5 mm thick and have a diameter of 19mm.

7.4.4 Underlay Felt



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Handle carefully to prevent tears and punctures, repairing any which do occur with adhesive tape and cover with underlay patch tucked under horizontal lap above. Lay horizontally across the roof, maintaining consistent tautness. Vertical laps shall be not less than 100mm wide, coinciding with supports. Fix with galvanized steel, copper or aluminium extra- large-head felt nails. Where pipes and other components penetrate the underlay, use proprietary underlay seals or cut the underlay accurately to form an 'X' or 'star' shape and turn flanges up to give a tight, water shedding fit.

7.4.5 **Slating Battens**

Sawn softwood, species to ICP2. Permissible characteristics and defects must not exceed the limits given in ICP2. Moisture content: Not more than 22% at time of fixing. Preservative treatment where specified) CCA vacuum pressure or organic solvent double- vacuum to British Wood Preserving and Damp- proofing Association Commodity Specification C8. Additional information on preservative treatment is given in BS 5268 : Part 5.

7.4.6 **Batten Fixing**

In straight horizontal lines, aligned on adjacent areas, with no batten less than 1200mm long. Joints to be square-cut, butted centrally on supports and should not occur more than once in any group of four battens on any one support. Provide an additional batten where an unsecured lap in the underlay occurs between battens. Fix each batten to each support, with splay fixing at joints.

7.4.7 **Mortar Bedding for Ridge**

Mortar: 1:3 Lime : sand. Plasticizing admixtures permitted.

Do not use in wet or frosty weather or when those conditions are imminent. Slates and accessories to be bedded or pointed must have relevant surfaces coated with a suitable bonding agent.

Clay tile accessories to be bedded must be wetted and surface-water allowed to drain before fixing. Finish neatly as work proceeds and remove any residue.

7.4.8 **Lead Flashings**

In the case of lead sheet flashings, patination oil shall be applied immediately prior so final positioning, to both or all surfaces of the metal to reduce the risk of possible staining of the slates.

7.4.9 **Lead**

Lead generally to be rolled, 2 to 2.24mm thick, (Code 5), Pre-treated by applying chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing. Lay lead generally on substrate of 19mm WBP plywood to BS636 on battens at 450mm c/c On underlay 220 g/m² needle punched polyester geotextile. All joints to be in the direction of fall and made up on a wood cored roll with spacing on the centre line of gutter. All outlets to be lead welded flashing to internal rainwater pipe.

7.4.10 **Lead Valley**

Ensure that valley boards and tilting fillets provide full support for metal valley Underlay: Geotextiles as approved by Lead Sheet Association. Type of lead Code 5 in lengths not exceeding 1500 mm and with laps of not less than 200 mm. Fixing: Dress lead sheet over, and beyond, tilting fillers and melt edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter. Cut underlay to rake and dress over tilting fillets to lap onto metal valley. Ensure that the roof underlay is not laid under metal. Cut extra-wide slates neatly and fix with a minimum gap 125 mm wide centred on valley.

7.4.11 **Soffit vents**

When using a timber fillet, fix a strip of IS 36, Type felt or comparable durable underlay as eaves reinforcement to underlap first full course of roof underlay. Dress roof underlay and eaves reinforcement down into gutter. Fix eaves slates with tails projecting 50 mm over the gutter or to the centre of the gutter, whichever dimension is the lesser. The first under eaves slate course to be equal in length to the batten gauge. The second under eaves slate course to be equal in length to the batten gauge plus the slate head lap.

7.4.12 **Side Abutment**

Turn underlay not less than 100 mm up abutment. Cut slates as necessary and interleave with metal soakers. Fix soakers by turning down over the head of each batten. Each soaker to be equal in length to the gauge plus the slate head lap plus 25 mm. Fix slates close to abutment to enable a weather tight junction to be formed by metal cover flashing.

7.4.13 **Top Edge Abutment**



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Turn underlay not less than 100 mm up abutment. Finish slating with a head-nailed short course to maintain gauge. Fix slates close to abutment to enable a weather tight junction to be formed by metal apron flashing.

7.4.14 Roof Vents

Roof vents to be equal or equivalent to Ubbink's UB11 (380mm x 285mm) is an in-line unit with a multipurpose base which will provide inconspicuous ventilation in natural and manmade slate roofs. Can be installed with either 500mm x 250mm or 600mm x 300mm slate vents. Ubbink's Vepac (382mm x 398mm) is an in-line unit which should not need trimming when installing with 600mm x 300mm slates. Vepac vents are suitable for high or low level ventilation in roofs of 25° and over. Each vent has a slotted inhibitor to keep out large insects and vermin and provides a free vent area of 10,750mm².

UB11 Vepac Slate Vent



Product features and benefits

- In-line design
- Soil/Vent and mechanical extract adaptor available

Application

- High or low level roof void ventilation
- Mechanical extraction when used with the Vepac Connector and Lower pipe
- Minimum pitch of 25°

Material

- UV Stabilised High Impact Polystyrene

Dimensions

- 380mm x 285mm suitable for 500mm x 250mm and 600mm x 300mm slates (UB11)
- 382mm x 398mm suitable for 600mm x 300mm slates only (Vepac)

Weight

- UB11 0.5kg per unit
- UB11 3.0kg per box
- Vepac 0.62kg per unit
- Vepac 3.72kg per box

Packaging

- 6 per box - UB11
- 8 per box - Vepac

Performance

- Provides 10,750 mm² free vent area



Colours

- Anthracite

Product Code

- UB11 — 294620
- Vepac Slate Vent — 100000294660

NB: To convert to a terminal please add the Vepac Connector & Lower Pipe 100140294605

Spacing	5mm	10mm	25mm
M Centres	2.15	1.075	0.430

7.4.15 Rainwater Goods, Gutters & Downpipes. Fitting Downpipes

The distance between the gutter and the wall is bridged by an offset.

This consists of two 67.5° (112°) Offset bends and an appropriate off cut of downpipe cut to size, (with 65mm square downpipe, a ready-made 50mm offset is available). The offset bends can be push-fit or solvent-weld; if push-fit, ensure a pipe clip is fitted under the socket on the pipe immediately below the offset.

When using solvent cement, follow the safety instructions on the tube. To keep the cut square, wrap a piece of plain paper round the downpipe at the place to be cut, and use this as a guide for a hacksaw.

Clean up the cut edges with a file.

Fit the first length of downpipe with its socket uppermost, securing it to the wall with a socket pipe clip at the top and one-piece barrel clips (where available) for holding the pipe to the wall.

For masonry walls, use an electric drill fitted with an appropriate bit to make holes to take rawlplugs for the securing wall screws. The maximum spacing of pipe clips is 1.8m (6ft). Continue to fit the remainder of the pipe in the same way, fitting the open end of one pipe into the socket of the pipe below, allowing a 10mm gap between the end of the pipe and the bottom of the socket for expansion in warm weather.

Some downpipes are fitted with a hopper head to receive waste from another pipe. Secure the hopper head to the wall.

Adaptors are available for square downpipes. If necessary, the downpipe can be run at an angle across the wall, using pairs of 45°, 67.5° or 87.5° bends. On angled or near-horizontal runs, fit pipe clips every 1m (3ft).

Where the downpipe from a second gutter (around a bay, for example) joins the main downpipe, use a 67.5° branch pipe. If you need to cut both ends of a pipe, fit a loose pipe socket (available with wall-fixing lugs for 65mm square pipe) to the end of the pipe. With downpipe,

you can fit an access branch into the downpipe. This makes future downpipe cleaning easier. At the bottom of the downpipe, fit a downpipe shoe if the water is to discharge onto a flat surface or into an open gully. Downpipe shoes on round pipe need supporting with pipe clips.

For direct connection to the underground drainage, ensure that you have the correct connector (or adaptor); to connect to a back inlet gully, remove the old mortar and replace with fresh mortar with the pipe in place.

100mm half-round RHEINZINK gutters and downpipes to be supplied unless other specified, with all necessary fixtures and fixings, half-round plug-in gutter outlet, half-round machine-welded downpipe, high-frequency welded, Europ. patent 0284141, standpipe DN 110 and 125, welded.

Material thickness for standard sizes ≤ 333 mm = min. 0.7 mm

Material thickness for standard sizes ≥ 400 mm = min. 0.8 mm

Standard sizes: 200 mm, 250 mm, 280 mm (only for half-round gutters), 333 mm, 400 mm, 500 mm

Standard length: 3 m. Fasten with suitable gutter brackets: RHEINZINK covered or galvanized. Fasten with proven snap-lock bracket system made of aluminum die casting. Clearance of gutter bracket/snaplock bracket or bracket retainer: ≥ 50 cm ≤ 90 cm. Soft solder profile joint

Downpipe according to DIN EN 612. Material thickness for standard sizes $\geq 100/120/150$ mm = 0.7 mm. All pipe sizes are high frequency welded. Standard length: 2 m or 3 m. Fasten with RHEINZINK-Downpipe Bracket or RHEINZINK-Universal-Downpipe Bracket.

7.5Roof windows / AOV

Supply and install architectural (fire / Smoke) ventilation window system designed for installation in a window opening. It is an opening light incorporating a base and window frame profile with a concealed control in the base. The control is concealed when in the closed position. The unit is to be a slim line construction with concealed control. Submit proposals on system proposed, Standard to be to BS 4873. Window System to be a thermally broken framed unit with high u value thermal resisting glass and manufactured from high-quality aluminium alloys in accordance with the EN 12101-2. All to have a thermal break core in frame. All window Components to be suitable for Heavy / Severe Duty.



Performance requirements And Standards that Must be fully complied with by the selected product Note These are Minimum requirements	
	Minimum Performance requirements
U-value Whole product Value:	1.6 W/m ² K whole product
System Must accommodate Glazing From 17 to 43 mm in thickness	Critical Requirement
Glazing	6 - 18 Argon Filled – 6 Inner and outer panes laminated Minimum Requirement Total 28mm Where safety glazing is required the supplier shall submit calculations to show an overall U-value of 1.1 W/m ² K.
Centre pane u Value	1.1 W/m ² K
Hinge Location	Bottom Hung Critical Requirement
Number of Hinges	4 Minimum subject to test weight data
Sound Insulation (BS EN 4109) BS EN ISO 140 Acoustic Performance	The Rw sound reduction index for the Glazing should not be less than 39 dB
Air Permeability Air Infiltration (BS EN 12207: 2000)	Class 4 at 600Pa.
Water tightness (BS EN 12208: 2000)	Test Class 9A at 600Pa. or better. absolute minimum acceptable performance E650
Resistance to varying load	EN 12211: 600 Pa (=P2), strength 1800 Pa, EN 12210: class 3
IS EN 12211: 2000 Wind Resistance	P1= 1600Pa., P2 = 800Pa., P3 = 2400Pa.
Operation Performance:	
Mechanical Strength: Tested to BS 6375-2:2009	Class 3 to BS EN 1191:2000
Unit to be provided with aluminium sill	
Operation	24Vdc supply + emergency supply batteries + fire switch interlinked with dedicated smoke detector control
Push Pull Force	2 x 500N
Motors with gas springs	2 No
Opening angle	60 Deg or to achieve a certified Ventilation equivalent to 1m ²
Opening speed	8.5 s/100mm
Protection class	IP 32
Equipment	Full Controls with separate Fire man operation switch Control Box Linked to local smoke detectors
Ancillary	Wind and Rain Sensor with Fire activation By pass
Wiring	Concealed wiring with frame
BS 8200 Design of non-loadbearing external vertical	
Dual Colour Option	Required to all windows
EN12206-1 2004	Polyester Powder coating Interpon D or Syntapulvin applied by Qualicoat approved applicator using a standard RAL colour in matt finish. 2-layer coating of 120µm To match colour of façade window units Guarantee Minimum 10 Year

7.6 Roof windows with 30/60 min fire rating

Lamilux roof windows or equal approved. Water tightness under driving rain to DIN EN 1027 = E (1950). Optimised soundproofing and minimised rain noise. Permeability to air in line with DIN EN 1026 = Class 4. Life-cycle assessment made easy: There is a comprehensive [Environmental Product Declaration](#) for the Glass Skylight FE in accordance to ISO EN 15804. Fall-proof according to DIN EN 18008-6. Flat Roof Window with general building inspection approval in "Structural Glazing" construction method - certified by the German Institute for Construction Technology in Berlin (DIBt). Smoke exhaust opening. Resistance against wind load in line with DIN EN 12211 = C5. Resistance to external fire exposure from flying sparks and radiant heat with classification B,roof(t1) according to DIN EN 13501-5.

Glass Roof Fire Resistance F30/REI30, REI60 according to the European standard EN 13501-2:

- Fire resistance with the functional integrity of the complete system certified to 30 minutes / 60 minutes



- General Technical Approval (abZ) according to DIN 4102-13 and classification according to EN13501-2

- As a self-supporting construction, no costly supporting elements are required
- Aesthetic appearance due to no optical compromises
- Tested on real conditions under load up to extreme weather events
- Resistance to external fire exposure from flying sparks and radiating heat with classification

B, roof (t1) as per DIN EN 13501-5

Optimised sealing and drainage system Active energy management:

- Efficient ventilation of glazing rebates and controlled drainage of water and condensate
- Overlapping, multi-layered sealing system, designed without direct joints and a secondary drainage system in the inner sealing layer
- Joint-free, continuous drainage level on the mullion/transom
- Increase and improvement of the surface temperature on the glass edge and subsequent reduction in risk of condensation.

Glass Roof Fire Resistance F30 / REI30

- Testing and classification of the fire resistance with the complete system remaining functional for 30 minutes
- DVS seal of approval and certification according to DIN EN 1090-3
- Sturdy supporting structure made of torsion-resistant aluminium (REI30)
- Sun protection glazing

Double insulation glazing:

Ug-value	Light transmission T-value	Total energy permeability g-value
1,1-1,2 W/(m ² K)	up to 76%	up to 59%

Glass Roof Fire Resistance REI60

- Testing and classification of the fire resistance with the complete system remaining functional for 60 minutes
- ZDH seal of approval and is certified according to DIN EN 1090-2
- Sturdy supporting structure made of torsion-resistant steel (REI60)
- Sun protection glazing

Double insulation glazing:

Ug-value	Light transmission T-value	Total energy permeability g-value
1,1-1,2 W/(m ² K)	up to 74 %	up to 58 %

Profile system – Energy efficiency and safety with freedom of design

- Controlled water and condensate drainage through overlapping EPDM secondary drainage system
- Defined glazing clamping system with insulating spacer webs
- Elastic bedding of glass pane
- Visible elements of the supporting structure with RAL coatings

Safety on the roof with CE approved quality in accordance with EN 13830

- Watertightness against driving rain: Class RE 1950 (according to EN 12154)



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 Navan Office:
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 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
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- Airtightness: Class AE 3000 (according to EN 12152)
- Resistance to wind load: (EN 13116/ 2000 PA permissible load and 3000 Pa increased load)

Proven energy efficiency

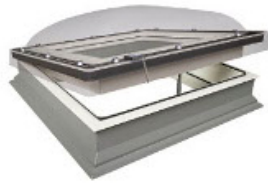
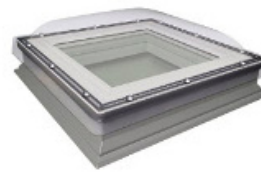
- Heat transfer coefficient of the mullions and transoms
- (Um/t) from 1.5 to 1.75 W/(m²K)
- Depending on the variant, the glass thickness and the support system
- Surface temperature factor fRSi up to 0.75

7.7 Roof windows

Flat roof window DEC-C, DXC-C where specified on the drawings:

Window Structure: the type C flat roof window is equipped with a double glazed unit with laminated internal glass which is anti-burglary P2A class as standard. Should the pane crack, shards of glass do not pose a danger but remain on the laminate film. The P2 glazing unit has an innovative and patent-pending dome installation system which increases its anti-burglary resistance. The dome is made of durable polycarbonate. It is characterised by high resistance to impacts and adverse weather conditions such as rain or hail. Special coatings on the outer and inner surface of the dome protect it against UV radiation.

Glazing Units: The heat transmittance co-efficient for the whole window is $U=1.2 \text{ W/m}^2\text{K}$ (to EN 12567-2) which is as much as 14% better result than compared with other manufacturer's windows of a similar size. The product range also includes a quadruple U8 glazing unit. Heat transmittance co-efficient for the whole D_C U8 window is $U=0.72 \text{ W/m}^2\text{K}$ (to EN 12567-2) ($U=0.55 \text{ W/m}^2\text{K}$ to EN 1873) and makes the window suitable for energy-efficient and passive buildings.

**DEC****DXC**

DEC P2	DXC P2
LUX	LUX
window class	window class
1,2 W/m²K	1,2 W/m²K
window U-value	window U-value
1,1 W/m²K	1,1 W/m²K
glazing U-value	glazing U-value
35 dB	35 dB
acoustic insulation Rw	acoustic insulation Rw
4H-14-33.2T	4H - 14 - 33.2T
glazing unit	glazing unit
argon	argon
inert gas filled panes	inert gas filled panes
+	+
external glass toughened	external glass toughened
+	+
internal glass laminated, anti-burglary glass class P2A	internal glass laminated, anti-burglary glass class P2A
electrically opened with wireless Z-Wave system	non-opening

7.8 Flat Roof, Smoke Ventilation

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 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Flat roof smoke ventilation DSF DU6, where specified on the drawings:

- $U_w=0,79$ [W/m²K] wg EN 14351-1
- smoke ventilation flat roof window without dome
- the upper part of the window comes with an innovative flat glazing unit DU6 $U_g=0.5$ W/m²K

7.9 Flat Access Roof Light

Flat access roof lights DSF DU6, where specified on the drawings. **DRC** – flat access roof light with the dome equipped with P2 glazing unit featuring excellent insulation parameters. The dome to be transparent D_C-C.

The frame of the flat roof window is manufactured from multi-chamber PVC profiles filled inside with insulation material. With specially designed shape of the profiles, flat roof windows feature up to 16% greater glazed area when compared to solutions of the competition.

- The type C flat access roof light is intended for roofs with pitches between 0° and 15°,
- Windows can be set in an additional 15cm high XRD/W base which allows raising the window, hence makes it suitable for mounting in different roofs such as green ones. It is possible to connect up to three XRD/W bases (please, see TR 23 Rev E for the details).
- very good insulation performance with a U_w value of 1.00 W/m²K.
- the sash can be easily opened up to 65°.



DRC P2

LUX
window class
0,93 W/m ² K
window U-value
1,1 W/m ² K
glazing U-value
4 H -14 -33. 2T
glazing unit
argon
inert gas filled panes
+
external glass toughened
+
internal glass laminated (safe)
three
seals
flat access roof light with the dome equipped with P2 glazing unit featuring excellent insulation parameters.

7.10 Wireless opening for flat roof windows

All proposed openable sections to be furnished with Z-Wave system by Fakro.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
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 info@gcal.ie
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The operating principle of this system consists in “mapping out a route” for a signal. For radio waves sent from a controlling device (e.g. remote control) there is set route that ensures all commands reach the right device and it performs the correct action.

This is achieved through the confirmation of command request which has been sent out by a device, which in this case is a remote control. If there is an obstacle in the way of the radio waves and signal cannot reach the device to which the command was directed, the Z-Wave system searches for “a new route” to a given device.

The new route leads through other devices in the Z-Wave network. It is this feature which ensures high system reliability. This means that the Z-Wave protocol can have a virtually unlimited range as when you send a command with a remote control, it uses other devices in the network, thus contributing to a reduction in energy consumption as well.

The whole Z-Wave protocol is contained in a single small chip.

8.0 INSULATION

Refer to technical calculations included in the folder marked insulation and repeated below. Technical data from an example of an approved system are enclosed. All insulation products offer technical performance based on the adherence to individual manufacturers’ guidance. Therefore the contractor must familiarise themselves with the chosen system and comply in full with all the requirements that attach to that product system. The detailed drawings indicate the varying thicknesses of insulation required to meet the necessary standard. Adhere to the thicknesses set out in the drawings. The general information relating to the specification for the appropriate specification/materials required are set out below.

8.1 General

U-values will be required to be calculated in accordance with the 1075 Guide Book A of the Institution of Heating and Ventilating Engineers.

8.2 Floor slab

90mm rigid floor insulation, Poly iso cyanurate, PIR Xtratherm, XT-UF or Kooltherm K3 Floorboard or equal approved

Thermal conductivity (insulant thickness) 0.021 w/m.k (25–44 mm)
0.020 w/m.k (≥ 45 mm)

Compressive strength at 10% compression- 120 kpa

Facings - composite foil.

Water collecting at the base of the insulation boards must be drained away by filter drains located around the perimeter of the wall. Filter drain to consist of, a perforated / porous drainage pipe positioned at foundation level surrounded by a free draining aggregate e.g. course gravel. A geotextile membrane must be placed around the gravel to prevent fines blocking the drain. Depending upon ground conditions, drains may be connected to surface drainage systems or soakaways.

Core - Premium performance rigid thermoset modified resin insulant manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

8.3 External walls

8.3.1 Cavity

150mm full fill PIR Xtratherm Cavity Therm or Kingspan Kooltherm K106 Cavity Board fibre-free rigid thermoset phenolic core rigid thermoset insulation material with a thermal conductivity of 0.018 W/mK across all thicknesses.

Manufactured with a blowing agent that has zero ODP and low GWP, for cavity walls with a 10 mm residual cavity.

8.3.2 Insulated plasterboard, where shown.

50mm insulant thickness+12.5mm plasterboard

Kingspan Kooltherm K118 insulated plasterboard with a fibre-free rigid thermoset phenolic core.



The 12.5mm plasterboard bonded to insulation board's front surface and a composite foil based facing on its reverse surface. Suitable for mechanically fixed or plaster dab / adhesive bonded dry-lining.

8.3.3 External Stonewool Insulation

Xtratherm's range of non-combustible, Euroclass 'A1' stonewool insulation SW/RS. Stonewool Rainscreen insulation is suitable for use in ventilated facade, rainscreen and framing applications and closed systems such as curtain walling.

The rainscreen insulation shall be Xtratherm Stonewool 100mm manufactured to BS EN 13162:2012+A1:2015.

Breather membranes if specified within the system, will provide additional protection.

8.4 Roof

Xtratherm FR/MG - a high performance Polyisocyanurate with mineral coated glass facers suitable for use below single ply fully adhered roof membranes, single ply waterproofing systems and partially bonded built-up felt.

The flat roof insulation shall be Xtratherm Thin-R FR-MG 60mm & 70mm, 150mm thick manufactured to EN 13165 by Xtratherm comprising a rigid Polyisocyanurate (PIR) core between mineral glass facings with a Agrément declared Lambda value as low as 0.024 W/mK. The flat roof insulation shall be installed in accordance with instructions issued by Xtratherm. Standard BS EN 13165

Certification: BBA Certification No. 11/4878. Issue date: 15 August 2015 BS EN ISO 9001 Quality Management System BS EN ISO 14001 Environmental Management System.

Vapour Control Layer should be used below the insulation. For mechanically fixed boards, a minimum vapour control layer of a 1000 gauge polythene layer lapped and sealed with double-sided tape should be used below the insulation. At vertical upstands and penetrations, the VCL should be turned up and sealed to encapsulate the insulation layer prior to the roof finish being completed.

Bonding boards to the vapour control layer: the minimum vapour control layer should consist of a 3B type felt to BS747 Reinforced bitumen sheets for roofing. Specification or BS8747. Reinforced bitumen membranes (RBMs) for roofing. Other proprietary systems may be used subject to approval. Where the vapour control layer is to be bonded separately, sufficient adhesion to the substrate should be made to ensure correct resistance to wind uplift. Contact the system manufacturer for details.

Fire Performance: the fire rating when tested to EN 13501-5 and BS 476 Part 3 'External Fire Exposure Roof Test' will be dependent upon waterproofing system specified.

Roof Design Consideration should be given to the recommendations of BS 4841: Part 3 and those of the Single Ply Roofing Association.

Laying (Concrete Deck): Decks should be dry and clean of debris, and laid to correct fall. The boards can be secured using approved mechanical fixings and washers, with boards laid with a break-bonded pattern. Joints should be closely butted. Alternatively the boards can be adhered to the decking with approved adhesive systems.

BS 6399 Part 2 should always be consulted. During the construction process, the insulation should be protected from rain penetration during breaks in the process.

Typical Physical Characteristics:

- Property Units Density (Foam Core)
- Compressive Strength Thermal Conductivity* 32kg/m3 >150kPa @ 10% Compression.
- U-value: as per the insulation calculation sheet.

8.5 Soffit

The soffit insulation shall be Xtratherm Safe-R SR/ST 100mm manufactured to EN 13166 by Xtratherm, comprising a rigid Phenolic core between low emissivity foil facings. To be installed in accordance with instructions issued by Xtratherm.

Insulation Phenolic Rigid Foam. Standard BS EN 13166. Certification BS EN ISO 9001 Quality Management System BS EN ISO 14001 Environmental Management System.

Safe-R Soffit board provides effective thermal and fire performance solutions in structural ceiling applications in commercial and residential buildings. High performance phenolic insulation board is faced with low emissivity foil facings

Superior Performance Phenolic Insulation Fire classification B-s1, d0 Foil Faced Finish.



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 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
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 info@gcal.ie
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Safe-R Soffit is finished with a foil facer which can be taped using a proprietary foil tape. The product achieves a thermal conductivity as low as 0.020 W/mK and has a Euroclass B fire classification.

Typical Physical Characteristics:

- Property & Units Thermal Conductivity 0.020 - 0.021 (W/mK)
- Compressive Strength >120 (kPa)
- Reaction to Fire Euroclass B-s1, d0.

Fixing Directly to Concrete

- Where applicable, ensure cavity wall insulation has continued past the soffit insulation to reduce Thermal Bridging.
- Install Safe-R Soffit onto the soffit ensuring all joints are supported. Ensure joints are tightly butted. Any gaps or service penetrations should be addressed with propriety fillers and components in accordance with fire engineers specifications.
- Fix Safe-R Soffit to soffit with app roved fixings*, ensuring the fixings penetrate the substrate by a minimum of 40mm. Generally 12 fixings (min shank diameter of 5.2mm) per board are required. Fixings should have a head diameter of at least 35mm. Distribute fixings evenly across the board, at max 600mm across and 800mm along, at a minimum of 50mm from the board edge and a maximum of 150mm. Refer to fixing patterns below for indicative purposes.
- Boards joints can be cove red with a suitable cover strip.

Fixing to Timber Battens/ Proprietary Systems

- Treated timber battens may be used to provide an even surface when direct fixing to the soffit is not possible. Battens should be treated timber.
- The battens, measuring minimum 50mm x 40mm, should be mechanically fastened at minimum 600mm centres.
- Fix Safe-R Soffit to the timber battens with approved fixings*, ensuring the fixings penetrate the substrate by a minimum of 40mm. Ensure joints are tightly butted and fill any gaps with expanding foam. Generally 12 fixings (min shank diameter of 5.2mm) per board are required. Fixings should have a head diameter of at least 35mm. Distribute fixings evenly across the board, at max 600mm across and 800mm along, at a minimum of 50mm from the board edge and a maximum of 150mm. Refer to fixing patterns above for indicative purposes.
- When using proprietary metal grid systems, refer to manufacturer for fixing instructions. Board joints can be covered with a suitable cover strip. * Fixing type and specification should be verified by the fixing manufacturers' design, to take account of topographical and fire considerations. Account should be taken of any Thermal Bridging through the fixings as should the effect of any supporting beams.

8.6 Other

450mm mineral wool insulation of thermal conductivity 0.034 W/mK ISOVER Metac Roll or similar approved.

8.7 Airtightness

As per the test methods prescribed under Building Regulations TGD-L the new building is to achieve an airtightness provision under a pressure test result of no worse than 5m3/(h.m2)@50Pa. Method & responsibly for design & Installation of air tightness rests with the main contractor.

Provide proprietary tape seal at all windows junction of plaster to achieve air tightness. At Floor Level install select tape as per detail. Tape for sealing to be Isover Vario or Pro Clima Similar or similar approved product installed in strict compliance with manufacturers' instruction. The recommendations contained with the Guide to Acceptable Construction Details (ACDs) Limiting Thermal Bridging and Air Infiltration as published by the The Department of the Environment, Heritage and Local Government to be fully complied with in respect of the Construction in order to achieve the required air tightness result.

Air Tightness Test: Contractor to undertake a complete air tightness test of the entire building by approved and certified UKAS-accredited and BINDT registered member of the Air Tightness Testing and Measurement Association (ATTMA), Testing is conducted based upon ATTMA Technical Standard 1 CIBSE TM23 or EN 13829. The test shall be deemed complete when the standards required at the beginning of this paragraph have been met.





Insulation calculation sheets

Thermal Transmittance (U-value) Calculation Report

Calculation performed by Uvalueate,
Produced on 03-Nov-21

Customer	Gaffney & Cullivan Architects
Reference	AM11215067 - St Patrick's Classical School Navan
Site	St Patrick's Classical School Navan
Assessed by	Alessandro Martinis, Xtratherm Ltd
Comment	All measurements to be verified on site. Calculations based on details provided by client.

Element details

Note: For bridged layers, the 'Layers' table(s) below give the thickness and conductivity of the main material, and the lower resistance.

Solid Ground floor - Xtratherm XT/UF

Comment: **Calculated in accordance with EN ISO 13370:2017**
Used in conjunction with Xtratherm Pre-formed Perimeter Strips

Element type	Ground floor, slab-on-ground
Area [m2]	1129
Perimeter [m]	200.26
U-value [W/m2 K]	0.15

On-ground insulating layers

Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m2 K/W]
Screed	100	0.410	0.244
Separating layer	0	1.000	0.000
Xtratherm XT/UF	75	0.022	3.409
Concrete	175	1.400	0.125
DPM	0	1.000	0.000

Additional ground floor details

Internal surface resistance [m2 K/W]	0.17
External surface resistance [m2 K/W]	0.04
Thickness of external walls [m]	0.3
Thermal conductivity of the ground [W/m K]	2



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Telephone number:
e mail:
vat number:

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0469058173
info@gcal.ie
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FF Cavity Wall - Xtratherm CavityTherm CT/PIR Brick & PlasterComment: **Calculated in accordance with EN ISO 6946:2017****Xtratherm Pre-formed Corner Panels also available to reduce Thermal Bridging.**

Element type	Exposed element		
Area [m ²]	1		
U-value [W/m² K]	0.13		
Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m ² K/W]
Internal surface resistance			0.130
Plaster skim	3	0.180	0.017
Hard coat	11	0.180	0.061
Dense Concrete Block inner leaf	215	1.130	0.190
Xtratherm CavityTherm CT/PIR	145	0.021	6.905
Cavity unventilated	5		0.109
Clay brickwork outer leaf	103	0.770	0.133
External surface resistance			0.040
Upper/lower resistance	7.585 / 7.585 W/m ² K		
Correction for air gaps / mechanical fasteners	0.000 W/m ² K		

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Xtratherm CavityTherm CT/PIR

Is there repeating thermal bridging?	No
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Wall ties between masonry leaves
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	2.5
Cross-sectional area of one fastener [mm ²]	13

FF Cavity Wall - Xtratherm CavityTherm CT/PIR Dense Block & PlasterComment: **Calculated in accordance with EN ISO 6946:2017****Xtratherm Pre-formed Corner Panels also available to reduce Thermal Bridging.**

Element type	Exposed element		
Area [m ²]	1		
U-value [W/m² K]	0.13		
Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m ² K/W]
Internal surface resistance			0.130
Plaster skim	3	0.180	0.017
Hard coat	11	0.180	0.061
Dense Concrete Block inner leaf	215	1.130	0.190
Xtratherm CavityTherm CT/PIR	145	0.021	6.905
Cavity unventilated	5		0.109
Dense Concrete Block outer leaf	100	1.130	0.088
External rendering (cement/sand)	20	1.000	0.020
External surface resistance			0.040
Upper/lower resistance	7.560 / 7.560 W/m ² K		
Correction for air gaps / mechanical fasteners	0.000 W/m ² K		

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Xtratherm CavityTherm CT/PIR

Is there repeating thermal bridging?	No
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Wall ties between masonry leaves
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	2.5
Cross-sectional area of one fastener [mm ²]	13

PF Cavity Wall - Xtratherm Xtrowall Plus 110 Dense Block & PlasterComment: **Calculated in accordance with EN ISO 6946:2017****Xtratherm Xtrowall Plus supplied with engineered jointing and is available with Pre-formed Corner Panels**

Element type	Exposed element		
Area [m ²]	1		
U-value [W/m² K]	0.15		
Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m ² K/W]
Internal surface resistance			0.130
Plaster skim	3	0.180	0.017
Hard coat	11	0.180	0.061
Dense Concrete Block inner leaf	215	1.130	0.190
Xtratherm Xtrowall Plus 110	110	0.020	5.500
Cavity unventilated Low E	40		0.713
Dense Concrete Block outer leaf	100	1.130	0.088
External rendering (cement/sand)	20	1.000	0.020
External surface resistance			0.040
Upper/lower resistance	6.760 / 6.760 W/m² K		
Correction for air gaps / mechanical fasteners	0.000 W/m ² K		

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Xtratherm Xtrowall Plus 110

Is there repeating thermal bridging?	No
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Wall ties between masonry leaves
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	2.5
Cross-sectional area of one fastener [mm ²]	13

PF Cavity Wall - Xtratherm Xtrowall Plus 110 Brick & PlasterComment: **Calculated in accordance with EN ISO 6946:2017****Xtratherm Xtrowall Plus supplied with engineered jointing and is available with Pre-formed Corner Panels**

Element type	Exposed element		
Area [m ²]	1		
U-value [W/m² K]	0.15		
Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m ² K/W]
Internal surface resistance			0.130
Plaster skim	3	0.180	0.017
Hard coat	11	0.180	0.061
Dense Concrete Block inner leaf	215	1.130	0.190
Xtratherm Xtrowall Plus 110	110	0.020	5.500
Cavity unventilated Low E	40		0.713
Clay brickwork outer leaf	103	0.770	0.133
External surface resistance			0.040
Upper/lower resistance	6.784 / 6.784 W/m² K		
Correction for air gaps / mechanical fasteners	0.000 W/m ² K		

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Xtratherm Xtrowall Plus 110

Is there repeating thermal bridging?	No
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Wall ties between masonry leaves
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	2.5
Cross-sectional area of one fastener [mm ²]	13

Warm Flat Roof Concrete Deck - Xtratherm FR-MGComment: **Calculated in accordance with EN ISO 6946:2017**

Element type	Exposed element		
Area [m ²]	1		
U-value [W/m² K]	0.17		
Layers	Thickness [mm]	Conduct'y [W/m K]	Resistance [m ² K/W]
External surface resistance			0.040
Roofing Finish	2	0.150	0.010
Perlite/Hunting board (By others)	6	0.050	0.120
Xtratherm FR-MG (Mechanically fixed)	130	0.024	5.417
Vapour Control Layer	0		0.000
Screed to falls	50	0.410	0.122
Concrete hollowcore deck	250		0.200
Internal surface resistance			0.100
Upper/lower resistance	6.009 / 6.009 W/m² K		
Correction for air gaps / mechanical fasteners	0.006 W/m ² K		

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Xtratherm FR-MG (Mechanically fixed)

Is there repeating thermal bridging?	No
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Roof fixings
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	4
Cross-sectional area of one fastener [mm ²]	18

Disclaimer: Calculations are based on information provided. Details, practices, principals should be verified as to the accuracy and suitability for the purpose of use. Xtratherm shall not be liable for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use of this report.

9.0 EXTERNAL FINISHES**9.1 Sand and cement render**

Substrate: Concrete block work, refer to section 3.4.

Preparation: Bonding agent. Cement: sand mortar: Type: Ready-to-use mortar render. Pigment: White Sand / Cement render. Mix (cement: sand): First and second coats to comprise scud and scratch coat respectively mix 1:4–4.5. Cement to IS1 and BS EN 197-1.

Thickness (excluding dubbing out and keys):

3-5 mm scud coat- sand and cement

8-12 mm first under coat – sand and cement and plasticiser

6-8 mm second coat – plain finish

Other requirements: Screen sand through 3 mm mesh sieve. Thickness: 7–8 mm. Finish: Finish with a dry wood float as soon as wet sheen has disappeared.

Deviation of render surface: Measure from underside of a 2 m straight edge placed anywhere on surface. Permissible deviation (maximum): 2 mm.

Accessories: Supply and install stainless plaster stop steel beads to all internal, external corners and edges of plaster where it meets exposed masonry/brick. Stainless steel to BS EN 10088-1, grade 1.4301. Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate. Beads/ stops for external render: Fix mechanically. After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

Standard render is 1: 4 Cement : Sand. Standard mortar is 1: 5-6 Cement: Sand I.S. EN 998 series- Specification for Rendering and Plastering Mortar and SR 325 is the current guidance document for Structural Use of Unreinforced Masonry EN 13914 – 1 is the current guidance document for applying Renders / Plasters.



All external plaster shall be subject to approval based on sample a panels to be presented to the architect.

No work to take place when the ambient temperature is below 4C and when the temperature is 6C but falling.

9.1.1 External paint finish

Refer to section 16 for paint coatings.

10.0 WINDOWS AND EXTERNAL DOORS

10.1 General

Supply and fit new windows, external doors and curtain walling in accordance with the window/external door schedule, architects drawings and specification as below:

- **Windows** to be used are Batimet TA 35 S or equal approved, composite aluminium and timber system achieving heat transfer coefficient of glass – 1.0 W/m²K

Norms and Values CE: EN 14351-1:

DIN EN 12207 Air Impermeability Class 4
 DIN EN 12208 Driving Rain Resistance Class E1200
 DIN EN 12210 Wind Load Resistance Class C4
 DIN EN ISO 10077-2 $U_w \geq 0,69 \text{ W/(m}^2\text{K)}$
 DIN EN ISO 717-1 Noise Control: $R_w (C; C_{tr}) = 48 (-2; -6) \text{ dB}$
 DIN EN 1627 Burglary Resistance: RC1N, RC2N, RC2, RC3N
 DIN 18008-4 TRAV Anti Drop Device: Category A, B, C

- **External doors** – Batimet or equal approved, composite aluminium and timber system achieving heat transfer coefficient of glass – 1.0 W/m²K

Norms and Values CE: EN 14351-1 (TA35 DSE TNA):

DIN EN 12207 Air Impermeability Class 4
 DIN EN 12208 Driving Rain Resistance Class 9A
 DIN EN 12210 Wind Load Resistance Class C4
 DIN EN ISO 10077-2 $U_w \geq 0,83 \text{ W/(m}^2\text{K)}$
 DIN EN ISO 717-1 Noise Control: $R_w (C; C_{tr}) = 40 (-2; -6) \text{ dB}$
 DIN EN 1627 Burglary Resistance: RC1N, RC2N, RC2
 DIN 18008-4 TRAV Anti Drop Device: Category A, B, C

Norms and Values CE: EN 14351-1 (TNA35 DSE TNI):

DIN EN 12207 Air Impermeability Class 4
 DIN EN 12208 Driving Rain Resistance Class 8A
 DIN EN 12210 Wind Load Resistance Class C4
 DIN EN ISO 10077-2 $U_w \geq 0,83 \text{ W/(m}^2\text{K)}$
 DIN EN ISO 717-1 Noise Control: $R_w (C; C_{tr}) = 40 (-2; -6) \text{ dB}$
 DIN EN 1627 Burglary Resistance: RC1N, RC2N, RC2
 DIN 18008-4 TRAV Anti Drop Device: Category A, B, C

- **Curtain Walling** – Batimet TM50 SE or equal approved, composite aluminium and timber system achieving heat transfer coefficient of glass – 1.0 W/m²K

Norms and Values CE EN 13830:2015+A12020:

DIN EN 12152 Air Impermeability Class AE
 DIN EN 12154 Driving Rain Resistance Class RE2250
 DIN EN 13116 Wind Load Resistance 2,0 kN/m²
 DIN EN ISO 10077-2 $U_w \geq 0,62 \text{ W/(m}^2\text{K)}$
 Passive House Certified, PHI Darmstadt
 DIN EN ISO 717-1 Noise Control: $R_w (C; C_{tr}) = 48 (-2; -6) \text{ dB}$
 DIN EN 1627 Burglary Resistance: RC1N, RC2N, RC2, RC3
 DIN EN 13049 TRAV Anti Drop Device: Category A, Class 5
 DIN EN 12179 Impact Resistance Class I5/E5
 System General Technical Approval DIBt. Z-14.4-669
 System Connector Curtain Wall ETA Denmark - ETA-18/0033
 DIN EN 1364-1 Fire Resistance: EI30 DIN EN 13501-2



10.2 Design and performance

10.2.1 General

Windows, curtain walling, metal panels, entrance screens, doors, cills, flashings etc. shall exclude wind and rain from the building interior and shall assist in maintaining the desired internal environment. All components are to be manufactured and installed to the general requirements of the tender documents. The tenderer is responsible for the detail sectional design and performance of the completed component and in particular for their resistance to weather to be expected from the above location. Relevant data can be obtained from the Meteorological Services. The system must include all additional profiles to carry out the complete range of solutions required.

24mm/64mm low "E" argon filled (90%) glazing units. Safety glass to be min 6.8mm laminated to BS 6262 & BS 6201- Glass in Buildings. All glazing must be installed in accordance with BS 6262 and the double glazed unit manufacturer's and system supplier's instructions;

10.2.2 Performance Criteria

Windows Batimet TA35 SL (or equal approved).

Doors Batimet TA35 DSE TNA (outward opening) and TA35 DSE TNI (inward opening) (or equal approved).

Curtain walling Batimet TM50 SE (or equal approved).

Formal Requirements for Construction

The windows in this package are to comprise wood-aluminium windows covered on the outside with metal profiles. They shall have a material composition of wood and metal. The room-side profiles shall be in laminated wood. The wood profiles shall take up the forces of horizontal loads, wind loads, infills, fittings and transfer these throughout the building structure. The metal profiles shall prevent direct weather influences on the wood. The aluminium frame shall be fixed to the wooden frame by means of interchangeable rotary and rotary-clip holding brackets in high quality, temperature resistant, plastic materials. This shall enable tension-free expansion of various different materials. The metal profiles shall be provided with a through-going ventilation and drainage system.

Wood Construction

Timber shall be pressure treated laminated pine stained to achieve pine colour and factory finished with translucent coating. Solid panels internally to be pine colour as above or approved equivalent selected and processed in accordance with B.S. 1186 Part 1 of Class 2 grading. Selected for clear finishing from Selects and No. 1 Common or equivalent grading free from knots, stains, discoloration, checks, splits, wane, shakes, compression wood, sapwood, pith, brittle heart, evidence of insect or fungal decay and with straight grain of consistent character, grain slope not exceeding 1:8 and well seasoned by kiln to 15% moisture content.

The wood construction shall be carried out in conformity with the requirements of DIN 68121. The sashes must be provided with milled glazing strips and the fixed glazings with screwed-in glass strip respectively. The insulation glass edge seal shall be taken up on two sides into the wood rebate. Slots in the wooden profiles to take up the aluminium profiles are not permitted.

Aluminium Frame

The frame profile shall conceal the sash profile insofar that there shall be an even elevation of the frame between fixed glazing and opening elements. The shape of the system construction shall be defined by a slim frame elevation of 50 mm. Between glass and sash profile there shall be a rebate of 12mm depth. The construction is defined as an integral sash. The sash profile can be wider in the case of certain static requirements. Drainage of the rebate area shall be by means of concealed punch holes in the bottom profile crosspiece of the frame. Optionally, there can be visible drainage with a cover cap. The corner joints of the aluminium frames shall be welded.

Seals

The blind frame shall have an all-round factory made seal in high quality TPE or EPDM between the wood frame and wood sash. Where greater driving rain can be expected, an additional seal shall be mounted at the bottom between aluminium frame and aluminium sash.

Glazing on the outside shall be carried out with an all-round outside APTK or EPDM glazing seal. Wedge seals shall be used as external glazing seals in special fixed glazing models. Internally, dry glazing shall be used with APTK or EPDM seals in graduated sealing thicknesses. The system shall be in the form of wet glazing either outside or inside.

Surface Coating Aluminium



Coating shall be carried out in conformity with the valid quality guidelines of the coating of building parts in aluminium of GSB-International GSB AL 631, or QUALICOAT regulations. RAL or DB colour is to be used according to the wishes of the Architect. For anodised surfaces, the corner joints of the aluminium frames are carried out mechanically.

Syntha Pulvin Finish

All aluminium to be finished in Syntha Pulvin to the selected colour in accordance with B.S. 6496. Generally apply a film thickness in the region of 60-100 microns with a minimum of 60 microns in all locations.

With steel components that are coated with zinc or aluminum welding, finishing or dressing back of the coating should be avoided if possible. The metallic coating and the exposed steel may require different pretreatments. Where it is necessary to finish welds, and aluminium pressings, it is recommended that 320 grit is used as the final material.

Surface Coating Wood

Surface treatment of the wooden parts shall be carried out according to the type of wood used, the chosen coating system, and the expected stress to the surface. If no dry layer thicknesses are specified, then the minimum dry layer thicknesses are those of German regulations as follows:

- > 30 µm on surfaces to which there is no access and on primed windows
- > 50 µm in the area of the building structure connection
- > 80 µm for varnish coatings
- > 100 µm for cover coatings

This also applies to all surfaces beneath metal profiles and sheets which according to the design are not made as water-transfer planes. All other surfaces require full layer thickness for the final treatment. Suitability of other coating systems and layer thicknesses which are based on a reduced climate-related stress factor on wood-metal windows must be documented.

Requirements for the Construction

The following properties and classifications are required as prescribed by the product norms for windows DIN EN 14351-1:

Profile system: batimet TA35 SL, TM50 SE, TA35 DSE TNA, TA35 DSE TNI or equal approved.

Wood types laminated: pine.

DIN EN 12207 Air permeability Class 4

DIN EN 12208 Driving rain resistance Class E900

DIN EN 12210 Resistance at wind force Class C4

Sash Width: 280 – 1.600mm

Sash Height: 280 – 3.000mm

Sash Weight: up to 200 kg as tilt & turn, up to 300 kg as only turn in-out sashes

DIN 18008-4 Anti Drop Device according to TRAV Category A

DIN EN ISO 10077-2 Thermal Transmittance Value: 1.2 W/m²K

DIN EN ISO 140-3 Noise Control: 35-40 dB

DIN EN 1627 Burglar Resistance: n/a

Components shall be durable and perform their function for the life of the building which will be in excess of 50 years. Planned maintenance will comprise cleaning the internal and external coated surfaces at intervals to be recommended by the sub-contractor and if found to be necessary, replacement of the external silicone seals after a period of not less than 20 years. All components must comply with the codes and standards listed below. Proof of compliance with the following test criteria will be required as a minimum:

10.2.3 Test Certificates

Valid test certificates from recognized institutes may be requested for the window system proposed and the successful tenderer must allow for having one of each type from the production run tested, also for compliance by the Institute of Industrial Research and Standards.

10.2.4 Tolerances

Adequate allowances shall be made for all relevant construction tolerances associated with the building structure. All curtain walling and window fixing brackets shall be designed to provide adequate three-way adjustment which does not rely on the use of packing shims. The degree of adjustment in each direction shall be sufficient not only to accommodate the construction tolerances, but also to ensure that the wall and window elements can be adjusted in level and aligned at the installation stage to produce plumb corners, true horizontal and vertical lines and flat planes free from steps and ridges. Adjustment shall be accommodated by the use of



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



slotted holes combined with serrated faces and locking plates to ensure that slippage does not occur.

10.3 Shop Drawings

Prepare and submit to the architect for approval three copies of shop drawings, two weeks after acceptance of tender.

- Elevation, plans and full size sections.
- Proposed methods of fixing.
- Proposed methods of forming joints.
- Any proposals for fabricating large components in more than one piece.

Note: It should be noted that the method of supporting and fixing the installation as shown on the Architects' drawings is for guidance purposes and as such, must not be assumed to have been designed to provide structural integrity of the system and fixings.

10.4 Standards

Comply with the following codes and standards:

DIN 1055	Design Loads	B.S. 8233	Code of Practice for sound insulation and noise reduction in buildings.
DIN 18055	Air and Rain permeability	B.S.952: Part1 :1978 BS EN 572-1 BS EN 572-2	Glass for Glazing.
DIN 18056	Walls and windows	BS 592 Parts 1,2	Glass
DIN 18202	Dimensional Tolerances	BS 4255, BS 6213	Gaskets + Sealants
DIN 7863	Sealing profiles.	CP 3, Ch 5 Part 2	Wind Loading
DIN 4108	Thermal insulation	BS 6399: part 3	Snow Loading
DIN 4109	Sound insulation	BS 6180	Barriers in and about buildings
B.S.588:Part 1 IS 513 & 1S515: 1981	Performance of Windows Classification for weather tightness.	BS 7543	Durability
(EM 42 1975) IS 588: 1982	Methods of testing windows. Air permeability test.	BS 6037	Suspended Access Equipment
(EM 86 1980)	Methods of testing windows. Water-tightness test under static pressure.	BS 6651	Lightning Protection
IS 514 1981 (EM 77 1977)	Methods of testing windows. Wind resisting test.	BS 5368: Part 1,4 BS 5821 Part 3,	Testing Windows
IS EN 410 1998	Determination of Luminous & Solar Characteristics of Glazing.	BS EN ISO 140-3	Sound Insulation
B.S. 5516	Code of Practice for design and installation of sloping and vertical patent glazing.	B.S. 1527 (1998)	Building hardware for sliding/folding doors.

B.S. 6375 Part 1 & 2	Performance of windows.	Part 1 : 1969	Cleaning and Safety.
B.S. 8213 Part 1 & 4	Windows, doors and roof lights.	Part 2 : 1970	Durability and Maintenance.
B.S. 5713	Specification for hermetically sealed flat double glazed units.	Part 3 : 1972	Sound Insulation.
B.S. 6262	Code of practice for glazing of buildings.	Part 4 : 1972	Fire Hazards Associated with Glazing in Buildings.
B.S. 6262 Part 4	Code of Practice for Glazing of Buildings Safety related to human impact.	B.S. 8200 : 1985	Code of Practice for Design of non-load bearing external vertical enclosures to buildings.
B.S. 8000 Part 7	Code of Practice for glazing.	B.S. 152:1972 B.S.152:1972	Glazing and fixing of glazing for buildings.
B.S. 1207	Hollow Glass Block	DOE/BRS Digest 140 1972	Double glazing and double windows.
BS/EN 12051:200 0	Building Hardware - door and window bolts-requirements and test methods	BRE Digest 119	Assessment of wind loads
Insulation Glazing Association (UK) : 1968	Glazing requirements and procedure for double glazing units.	CP 153 Part 1:1969	Windows and rooflights, cleaning safety

B.S.C.P. 151 :1957	Wooden Doors.	B.S. 644	Wood Windows.
B.S. 459	Doors 1951 to 1965 Door and Parts 1 - 4 Inclusive.	Part 1 : 1951	Wood Casement Windows.
B.S. 4787	Internal and External Doorsets, Door Leaves and frames.	Part 2 : 1958	Wood Double Hung Sash Windows.
		Part 3 : 1951	Wood double hung sash and casement windows.
		B.S. 1186 Part 1 :	Quality of Timber.
		Part 2 :	(Fabrication and Jointing).

Note: Tenderers should indicate if their system has conformed to other standards.

Note: All materials shall comply with the relevant British/Irish and European Standards as appropriate and the latest published amendments made to the above listed standards at the time of fabrication. The standards shall apply whether or not they are listed.

10.5 Specialist Firms

The work described in this section shall be carried out by competent persons, employed by specialist firms, skilled in the fabrication and erection to the standards and codes referred to herein.

10.6 Workmanship

- 10.6.1** Aluminium-timber doors, windows and curtain walling to be designed and manufactured to a standard which renders them appropriate for use in an environment DD4 exposure rated 'Moderate' as defined in B.S. Draft for Development 4 : 1971 Recommendations for the grading of windows with reference to B.S. 4315 : 1968 Tests of the equivalent grading classification defined in B.S. 6375 : Part 1 Classification for Weather tightness with reference to B.S. 5368 Parts 1 to 5 inclusive.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



10.6.2 External timber to be designed and manufactured to a standard which renders them appropriate for use in an environment rated 'Moderate' as for 12.5.2 (c) above and equivalent to strength graded 1 as defined in BRE Paper 31/78 : The performance of timber doors.

10.6.3 External aluminium-timber doors to be manufactured from components cut to length from kiln-dried timber, machined to section and jointed. Frame head, jamb and sill shall be scribed together with either mortice and tenon joints or combed joints. Frame transoms scribed and framed with M and T joints. Horns to be left projecting at frame head and sill. Pieces to be cramped together to the square and flat. Temporary brace and stretcher fitted to frames for stability in transit and erection. Surfaces shall be smooth, true and clean. Door rails to be morticed and tenoned; door munitions, intermediate rails and glazing bars can be stub tenoned. Dowelled joints not to be used without prior approval. Glazing beads to be located internally only. Assembly and gluing shall be carried out in jigs. Nails, staples and screws to be non-corrosive, counter sunk and holes putty filled.

10.6.4 Windows, doors and curtain walling to be manufactured with components of dimensions suitable to their application, exposure rating, strength grade and glazing requirements. Finished outside dimensions of timber components not to be less than the following unless otherwise approved:

Doors:

Elevations Standard Sash 100 mm
 Elevations Standard Frame 100 mm
 Depths Standard Wood Profile 78 mm

Windows:

Elevations Standard Sash 11 mm
 Elevations Standard Frame 50 mm
 Depths Standard Wood Profile 78 mm

Curtain Walling:

Elevation Standard 50 mm
 Elevation Wood Cover Cap Profile 50 mm
 Profile Height Standard Cover Cap 17 mm
 Profile Height Cover Cap Special to 250 mm
 Depths of Standard Wood Profile Determined after Structural Dimensioning 60-600 mm.

10.6.5 Windows, doors and curtain walling to be fitted with condensation channels and weep holes, throats, waterbars, drip mouldings, weathering, bedding grooves and draught sealant strips as appropriate.

10.6.6 Window, door and curtain walling frames to be fixed to the sides of masonry jamb screwed to wall surface or by fixing with steel cramps. All fixings and cramps to be high strength non-corrosive. Joint between timber frames and masonry to be sealed with mastic. As set out in IS 196 Parts 1 – 6 as appropriate.

10.7 Joints and Fixing at Walls

Stainless steel metal fixing straps can be used to fix the frames to block walls. Examination of the wall sections proposed must be considered. When shims and packing etc. are required, all materials used should be of aluminium or rust-proof material and all screw fixings must be to the inner leaf.

The window sub-contractor is responsible for ensuring that the builders d.p.c. which is to be left protruding from the jamb engages in the side of the window frame to give continuity and is compatible with the window manufacturer's mastic.

Because this continuity is so important for the successful weathering of the opes the window Sub-contractor will be held responsible for reporting to the Architect or the Clerk of Works any deficiencies or omissions in the d.p.c.'s at jamb and sill and should not install windows where the d.p.c.'s are defective.

Wall anchor or plug centres shall not exceed 600mm and shall not be more than 2000mm from the corner of the window.

Low modulus silicone sealant is required to be provided as part of this sub-contract to the joints as shown on drawings.

The Sub-contractor shall include all fixings, cleats, grounds, etc. necessary to complete the installation. Packers and fixing cleats to be in stainless steel or plastic. Fixing to be by means of stainless steel/aluminium cleats fixed by blockwork before plastering. No exposed screw heads will be allowed.



10.8 Ironmongery and Accessories

Doors, windows and curtain walling are to be fitted with hinges, locks, receivers, handles and other devices as scheduled. All ironmongery to be fixed securely with reinforced plates where necessary. All ironmongery to be of robust quality of a type appropriate to its position in the works. Fittings of tried and tested commercial manufacture and design shall be fitted and all alloy components, handles, etc., shall be ground, brushed, anodized and provided with surface protection. All steel components such as rods etc. shall be stainless steel. Adequate screw fixings for all window furniture components shall be ensured, in particular load bearing screws shall be taken through two aluminium walls.

Opening windows shall be fitted with the following as a minimum:

- Two friction wedge type locking mechanisms (per opening sash), operated via a handle,
- Pull Handles with night vent position
- Sliding friction stays hinges restricted to the limit(s) specified in the above codes
- Centrally operated espagnolette multipoint locking system on all doors
- Fold open hold open devices
- Push Plates
- Door closers
- Panic Bolts
- Flush Bolts
- 5 Lever Deadlocks
- Chrome finish

10.9 Rainwater Run-off and Resistance to Staining

The detailed design of the curtain walling and panelled systems entrance screens, doors, cills, closers, casings, copings etc. shall be such as to reduce the risk of non-uniform weathering and localised staining of the external faces of the building.

10.10 Pressings/Flashings

The Sub-contractor shall include for the supply, fixing and sealing of all pressings/flashings described on the drawings in aluminium. Pressings to be finished in Syntha Pulvin as described above. All flashings shall incorporate two positive lines of defence against the passage of rainwater to the interior. The space between the two joints shall be drained to the exterior.

All flashings/pressings shall be fabricated and installed to eliminate the risk of ponding on the upper surfaces and shall be manufactured from minimum 1.6mm thick aluminium or laminated composite panels.

10.11 Other Requirements

10.11.1 Part M compliant aluminium threshold, door to be approved for use on Secured By Design projects, door sets to be part M compliant.

10.11.2 Handles to be at the height of 800-1000mm above the floor level as indicated on the drawings.

10.11.3 Glazed sections to be at 400mm above the floor level as indicated on the drawings.

10.11.4 Quality to comply with BS644 and BS7950

10.11.5 Safety glazing on all doors.

10.11.6 The rapid and background ventilation characteristics of the openable windows and permavents for background ventilation shall match the requirements of the 1997 Building Regulations Part F.

10.11.7 Window automation system – Window Master WMX 804 chain actuator to be used with all window types to be used together with $\pm 24V$ control units or control units with MotorLink® can be used together with espagnolette WMB external safety edge can be connected directly to the actuator (actuator version 'E') available with and without UL certification. On large windows up to four actuators can be mounted on the same window – with no need for an external synchronization module. The risk of entrapment is reduced as the actuators are programmed to reverse if they encounter obstacles when closing. The set points determining when the actuators are to reverse are individually adjustable.

Technical specifications Locking force 3000N Permitted short pressure load when chain has run to end stop 100N Short pressure capacity on motor Max. 150N (e.g. at the beginning of opening: sticky gasket, ice, wind speed).



Chain opening 50 - 250mm in increments of 10mm, maximum opening depends on the window construction Opening speed 7mm/s (programmable from 3mm/s to 9.5mm/s).

Sound pressure level ≤ 33 dBA (operational speed: 3 mm/s), ≤ 43 dBA (operational speed: 9.5 mm/s).

Window types Window types and sizes must be agreed with the window supplier and WindowMaster.

Window width Min. 365mm, maximum width depends on the window construction and the number of window actuators.

Window height Min. 300 / 400mm (see installation suggestions 1 and 3), maximum height depends on the window construction and the number of window actuators.

Nominal voltage 24 VDC (max. 10% ripple) Voltage 20 - 36 VDC Max. open-circuit voltage Max. 36.

VDC Current consumption WMX 504 / 504 UL: max. 0.5A WMX 804 / 804 UL: max. 1.0A.

Operating condition -5°C - $+74^{\circ}\text{C}$, max. 90% relative humidity (not condensing) Switch-on-duration ED 40% (max. 4min. per 10min).

Material Lacquered zinc housing with 10mm zinc cromate passivated steel chain and a 1.9m 3-core 0.34mm² cable with fast-in/fast-on connectors for connection to the extension cable WLL WMX 504: 1.9m grey silicone cable in grey (grey and white actuator) WMX 804: 1.9m grey silicone cable in grey (grey actuator) WMX 504 UL / 804 UL: 1.9m UL listed/recognized cable in grey (grey actuator). Colour Aluminium (RAL 9006).

Weight 1.0kg IP rating IP20 – when surface mounted / IP32 – when concealed Certification Actuators with “U” in the article no. are UL certified accordingly to UL 325 and CAN/CSA-22.2 No. 247-14 and is supplied with UL approved cables UL STYLE 2464 SHE test WMX 504 / 504 UL / 804 UL: not SHE tested WMX 804*: tested in accordance with DIN 18232-3, section 3.6 (30 minutes at 300°C).

*The construction of the actuator is identical with WMX 802, which has passed the SHE test Life span Tested with 10,000 opening and closing movements Delivery includes Actuator with 1.9m cable with fast in/fast out connector for WLL cable To be ordered separately Brackets and WLL extension cable Note We reserve the right to make technical changes.

- 10.11.8** Door automation system – Geze Powerturn IS Electromechanical swing door drive system for double leaf doors with closing sequence control. Smart swing function for easy manual door opening. Closing force of EN4-7 with variable adjustment. Opening and closing speed can be individually adjusted. Mechanical latching action when operated without current, and electrical latching action in regular operation, which accelerates the door shortly before the closed position. Mechanical and electrical closing sequence control holds the active leaf in the waiting position until the passive leaf is closed. Low-energy function opens and closes the door with reduced speed, fulfilling the highest safety demands. Right and left double leaf single-action doors. Single-action doors up to 3200 mm hinge clearance, 1600 mm leaf width and 600 kg weight. Minimum hinge clearance 1600 mm. Interior and exterior doors with high access frequency. Transom installation hinge and opposite hinge side.

11.0 GLASS

11.1 Materials and Workmanship Generally

All glass shall be of the best quality of approved manufacture, cut true to size, without splintered edges, free from all defects. Glass which is splintered, scratched or otherwise imperfect will not be accepted and any such shall be renewed at the Contractor's expense, together with all consequential costs.

11.2 Standards

The installation shall be designed and installed to comply in all respects with all relevant national and international standards and codes of practice, in particular the following:

B.S. 952	Glass for glazing. Part 1 Certification. Part 2 Terminology for work on glass.
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B.S.5051	Security glazing.
BS EN 12150	Safety glass.
BS EN 1279	Glazing.
B.S.5357	Code of practice for the installation of security glazing.
B.S.5544	Specification for anti-bandit glazing.
B.S.5713	Specification for hermetically sealed flat double glazing units.
B.S.6180	Code of practice for security barriers in or about buildings.
B.S.6206	Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings.
B.S.6262	Code of practice for glazing in buildings.
C.P. 153	Windows and roof lights. Part 1 Cleaning and safety. Part 2 Durability and maintenance. Part 4 Fire hazards associated with glazing in buildings.

11.3 Thickness

All glass thickness to be calculated to accord with Pilkington's publication, "Glass and Wind Loading" to latest issue.

Glass generally to be 6mm float glass throughout.

Glass size (sq m)	(Float) Glass Thickness
Up to 0.5	3mm
Up to 1.5	4mm
Above 1.55	6mm
Panels less than 0.6m from F.F.C	6mm toughened

11.4 Fire resistant Glass

Where fire resistant glazed screens are called for the Contractor shall allow for using Pyran or other equal fire resistant clear glazing material in an intumescent patent glazing channel such that the completed assemblies will be in compliance with B.S. 476 to latest revision.

11.5 Double Glazed Units

11.5.1 General

Double glazed units shall be supplied by a manufacturer who manufactures to the above mentioned British Standards and is entitled to employ British Standard Kitemark and/or Agreement Certificate.

11.5.2 Glass Type

Glass used shall be soft coat low emissivity glass toughened type to outer pane with annealed glass employed on inner face only. Glass used shall be tinted.

11.5.3 Air space

All double glazed units are to be hermetically sealed units incorporating 12.5 mm (if other not specified by window supplier) airspace filled with Argon.

11.5.4 Fixing

Glass to be fitted with warm edge spacer bar, dual sealing gasket and secured with clip-on glazing beads to match the window frames.

11.6 Manifestation

Window Glazing Manifestations are to be provided in accordance with TGD M.

Supplier to prepare Shop Drawings and samples of proposed manifestations providing sample on each glass type.

Manifestations to be provided to all internal & external entrance doors including all glazed panels adjoining doors and independent internal glazed panels. All glazing to be clearly defined with glass manifestation on the glass at two levels; between 850– 1000 mm and between 1400–1600 mm above the floor, contrasting visually with the background seen through the glass (both inside and out) in all lighting conditions. Manifestation to take the form of logo or sign at least



150 mm high (repeated if on a glazed screen), or a decorative feature such as broken lines or continuous bands, at least 50 mm high. Supplier to use 3M crystal edge frosted translucent cast and polymeric films similar equal or approved. Products including glass and manifestations to be designed and installed in compliance with BS 6262-4:2018 Glazing for buildings. Code of practice for safety related to human impact.

Flammability: Surface burning characteristics product to be fully compliant with BS 476 -6 and -7, Class 0 – Surface Spread of Flame and Ignitability. Provide third party test reports indicating compliance with the test values. All products specified in this section will be supplied by a single supplier/manufacturer with a minimum of 5 years track record. Sample, provide a mock-up for evaluation of surface preparation techniques and application workmanship.

Preparation: Clean surfaces thoroughly prior to installation. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Refer to Manufacturer's installation instructions for methods of preparation film attachment system. Install in accordance with manufacturer's instructions. Cut film edges neatly and square at a uniform distance of 3 mm to 1.5 mm of window sealant. Use new blade tips after 3 to 4 cuts. Spray the slip solution, composed of one capful of a soapy solution to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film. Apply film to glass and lightly spray film with slip solution. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time. Allow film to dry flat with no moisture dimples when viewed under normal viewing conditions. Repair / replace damaged products before Substantial Completion.



Cavan Office:
Navan Office:
Telephone number:
e mail:
vat number:

1 Farnham St, Cavan, Co Cavan.
7 Clonard House, Market Square, Navan, Co Meath.
0469058173
info@gcal.ie
IE 3415637RH

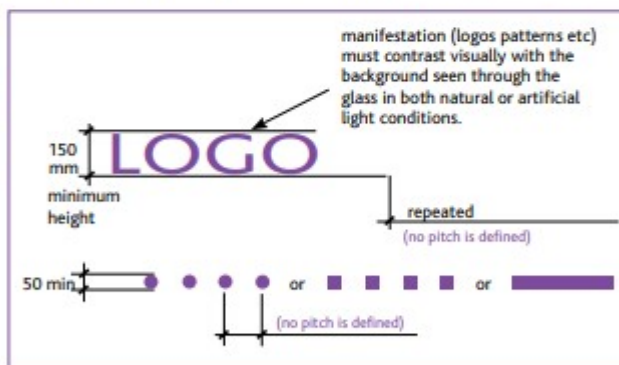
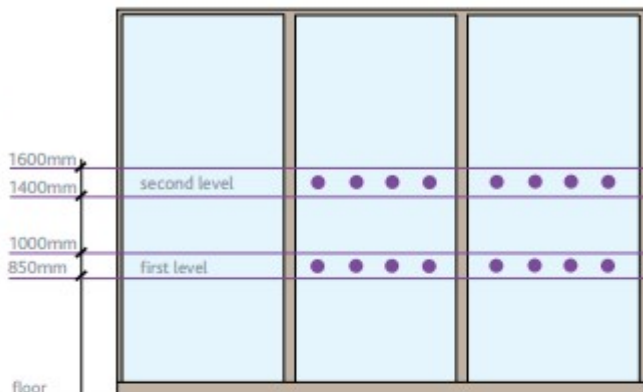




An opaque or coloured film must be applied to glazed screens and glass doors to comply with Building Regulations Part N and Part M. The manifestation can be a major part of the interior design concept and not just installed where blinds are not fitted.

Design Considerations

1. People with visual impairment should be in no doubt as to the location of glass doors especially when they are within a glazed screen. The choice of different style of manifestation for the door and the glazed screen can help to differentiate between them.
2. Glass doors and glazed screens will satisfy Requirement M1 or M2 if:
3. They are clearly defined with manifestation on the glass at two levels, 850 to 1000mm and 1400 to 1600mm, contrasting visually with the background seen through the glass (both from inside and outside) in all lighting conditions
4. Manifestation takes the form of a logo or sign at least 150mm high (repeated if on a glazed screen), or a decorative feature such as broken lines or continuous bands, at least 50mm high.
5. Corridors and passageways will satisfy the Requirement of M1 and M2 if:
6. Any glazed screens alongside a corridor are clearly defined with manifestation on the glass at two levels, 850mm to 1000mm and 1400mm to 1600mm, contrasting visually with the background seen through the glass in all lighting conditions (see illustrations above for details of manifestation).



Definitions - Contrast Visually

When used to indicate the visual perception of one element of the building, or fitting within the building, against another means that the difference in light reflectance value between the two surfaces is greater than 30 points.

12.0 INTERNAL DOORS (WINDOWS) AND FRAMES

12.1 General

Flush panel, internal doors to I.S. 48: 1985 decorated as specified, to sizes shown on Door Schedule.

All internal door frames and linings are to be secured with 3 no. sheradised steel fixing cramps to each reveal at intervals of 675 mm maximum vertically.

Flush door to generally be solid core ash.

In all cases, door frames shall match door leaves in terms of material. Finish – as indicated on the drawing.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



The doors are to be supplied complete with matching frames and ironmongery as 'door sets'. The supplier shall be responsible for the detail design of such door-sets and to ensure that the required standards are adhered to and met. Where joinery details are furnished, these are intended for external appearance and general arrangement only. Such general arrangement detailing may be altered, which includes overall sizing, vision panel details and door set configuration.

12.2 Vision Panels

Patent glazing channels or glazing frames to be used as required in the construction of vision panels.

Size to be sufficient to allow for ease of viewing by disabled persons as per Doc M.

Glass panels for doors generally to be **Pilkington Optiphon™ 12,8mm (according with Pilkington's publication, "Glass and Wind Loading" to latest issue) laminated glass**. To achieve acoustic rating of 40 db. Allow for frame in hardwood as per the door schedule drawings. All voids to be filled with acoustic paste.

12.3 Internal Fire Doors

12.3.1 General

Fire door-sets are to be of 30 minute, 60 minute or 120 minute fire resistance as noted on the drawings and schedules.

Performance requirement for fire-door sets over-rides particular details where indicated.

12.3.2 Standards/Certificates

The fire door sets to be test proven to BS476 Pt22 or BS EN 1634-1.

A Test Certificate for the fire doors to B.S. 476 Part 22 is to be furnished.

The doors shall comply with B.S. 8214 : 1990 Code of Practice for Fire Doors with non-metallic leaves.

12.3.3 Fire proofing

All fire doors are to be fitted with approved smoke and heat seals by Sealmaster N30S Fire & Smoke Seal or equal approved. Intumescent Fire and Smoke Seals have been tested and approved by Certifire to conform to BS476 part 22.

Note the requirement for intumescent plugs at hinges as necessary.

12.3.4 Required markings

The door sets are to be identified with an engraved metal plate stating:

- Period of Resistance
- Manufacturer
- Year of Manufacture

All fire doors shall comply with the provisions of Appendix B of Technical guidance Document 9TGD) B of the Building Regulations.

Note requirement for identification tag / plate on doors and certification of same. All signage to comply with BS 5499-10:2014.

12.3.5 Door Furniture

The following signs are required to be provided to fire doors.

These will generally be 80 mm. Dia. 2 mm thickness aluminium plates to B.S. 5499 Part 1:1990.

Particular signs to be as follows:

- Internal fire doors: engraved aluminium sign fixed on each face with the script: 'FIRE DOOR –KEEP CLOSED'.
- Internal automatic fire doors: engraved aluminium sign fixed on each face with the script: 'FIRE DOOR – KEEP CLOSED'
- Internal duct access fire doors: engraved aluminium sign fixed on each face with the script: 'FIRE DOOR – KEEP CLOSED'
- External fire doors: printed plastic sign fixed on the inside face with the script: 'FIRE DOOR – PUSH BAR TO OPEN' and on the outside face: 'FIRE DOOR -KEEP CLOSED'

12.3.6 Vision Panels

Vision panels to fire doors: sets are to be to same standard as door leaves with certification required as before.

Patent glazing channels or glazing frames to be used as required in the construction of vision panels.



Size of vision panels to be sufficient to allow for ease of viewing by disabled persons as per Doc M.

12.3.7 Internal Door Ironmongery

12.3.7.1 General

In the event that an ironmongery schedule is prepared and included elsewhere with the tender pack it shall supersede this paragraph.

12.3.7.2 Closers

One stainless steel overhead door closer, satin finish complete with all fixings. See Ironmongery Schedule. All fire doors are to be fitted with approved automatic self closer suitable for fire door application.

12.3.7.3 Hinges

One and a half pair of stainless steel butt hinges per door leaf of satin finish, with square corners complete with all fixings. See Ironmongery Schedule.

12.3.7.4 Finish

The finish shall be satin stainless steel unless otherwise stated. See Ironmongery Schedule.

12.3.7.5 Locks

The alternate leaf in each pair of doors shall be provided with two locks (per leaf); the lock type shall be a narrow stile hook bolt type. Provide two keys per lock. Locks to all doors to be cylinder operated to a master suite, master keys will be required for each master suite.

The doors which comprise a pair of leaves (equal or unequal) shall have one leaf of each pair provided with one pair of aluminium flush bolts, slide type, 200mm long.

Employer to confirm number of suites /master key extent.

12.3.7.6 Handles

One pair of stainless steel D line 19mm return to door handles per leaf or pull handles (for more details, please, see relevant drawings and specification provided by KCC), satin finish, complete with M8 countersunk back fixing bolt.

12.3.7.7 Plates

One stainless kick plate per face, square corners 750x150mm, satin finish, complete with all countersunk fixings.

12.3.7.8 Signage

Allow for the supply and installation of 2 no. aluminium signs to each face of every new door. Allow for 400x200mm milled aluminium signs. Each sign to be fixed to the door face with 8 number counter sunk anodized aluminium screws with allen key head. Allow for different text to all signs. Allow for 2 colours to be used in the sign writing on each and every sign. Allow for the use of 65mm tall Arial text along with graphics. All to B.S. 5499 Part 1:1990.

*Refer to detailed technical submittal in **Appendix A** and the schedule in **Appendix B** which set out the specification scope of ironmongery to be employed on this project. Equal or approved will be subject to agreement with the architect.*

12.4 Internal Windows

Where internal windows to be fire rated: glazing – **Pyrostop® Line 30-604OW 22mm thick laminated glass** or equivalent to meet TGD K, and impact resistance in accordance with EN12600. To achieve acoustic rating of **40db** (acc. to EN 13501-2 classification EI). Allow for frame in hardwood as per the door schedule drawings. All voids to be filled with 10mm fire resistant, acoustic paste. Fixed to walls and floors using approved anchor bolts, nominally M6 @ 450mm centres. Provide fire retardant mastic at all interfaces with floors and/or walls. Provide intumescent seal between glazing and frame to achieve fire rating called up in the schedule. Patent glazing channels or glazing frames to be used as required in the construction of internal windows.

Where internal windows to be not fire rated and openable:

Glass panels for internal windows to be **Pilkington Optiwhite™ 8mm (according with Pilkington's publication, "Glass and Wind Loading" to latest issue) laminated glass**. Allow for hidden aluminium frame as per the internal window schedule drawings. All voids to be filled with acoustic paste.

Patent glazing channels or glazing frames to be used as required in the construction of vision panels. Aluminium frame to comply with quality standards of BS EN ISO 9001, accredited to BS EN 1527 with achieving of min 10 years guaranty.



13.0 STUD PARTITIONS

13.1 General

Internal partitions shall be a complete system and must be sourced from a recognized supplier. In all cases, the contractor is required to verify the partition construction accords with the requirements of B.S.476 and will be required to furnish a certificate in an appropriate form to confirm same. The whole partition system must be certified by the provider.

Partitions must run full height to provide sound reduction between all rooms as indicated in SDG 02-05-03. Airborne sound insulation must satisfy the following: Laboratory measurement of complete partition assembly - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Not less than 58 R_w dB (site tested). Stud partitions must provide the fire rating requirements as indicated on the drawings.

All internal walls to be designed to provide all necessary supports and must be capable of withstanding severe impact. This can be provided with 1 layer of 15 mm thick approx. plaster board (Fire Line for fire rated partitions, Sound Block – for offices and staff rooms, Sound Block MR1 – for toilets, for areas with direct water contact such as splashbacks around sinks or areas that require tiling, Glasroc H tilebacker should be used) to both sides with 70mm thick SOVER Acoustic Roll insulation (Fire Classification - A1, Applicable CE marking standard - EN 13162:2012 + A1:2015, Insulation Material - Glasswool) packed between studs.

Testing

Testing should be carried out at the end of the project on behalf of the main contractor by a Specialist Acoustic Consultant in accordance with the testing and reporting procedures described in the Association of Noise Consultants publication 'Good Practice Guide – Acoustic Testing of Schools' Version 1.2, July 2011. The updated version will be published jointly by the Association of Noise Consultants (ANC) and Institute of acoustics (IOA), as Acoustics of schools: a design guide.

13.2 Metal Partitions

In all cases metal framing to partitions shall be by Gypsum Industries or equal approved, supplied and fixed in accordance with the recommendations and specifications prepared by Gypsum Industries, to latest revision. Use all accessories, clips, brackets, sealant, joint filler, control joint strip etc., to meet this requirement. Refer to separate specification for metal stud partitions (not fire-rated) for general requirements and fixing.

For not fire rated stud walls following should be used:

Gyproc or equal approved galvanised metal studs ref. 70S50 "C" should be used. Stud centres: 600mm Gypframe channel reference: Gypframe 72C50 Floor & Ceiling Channel, acoustical sealant: Gyproc Sealant applied around perimeter to both sides of partition framework. Partition laboratory sound resistance (BS EN 717): 47 R_{wdB} , partition duty rating (BS 5234): Heavy, maximum recommended partition height: **3800mm** (Based on limiting deflection of $L/240@200Pa$), partition nominal thickness (excluding finishes): 102mm. Plasterboard components (offices/staff rooms): 1 layer of 15.0mm Gyproc SoundBloc to each side.

Plasterboard components (toilets): 1 layer of 15.0mm Gyproc SoundBloc MR to each side. For areas with direct water contact such as splashbacks, around sinks or areas that require tiling, Insulation specification required in stud cavity: 70mm Isover Acoustic Roll.

13.3 Fire rated partitions

Fire rated partitions metal framed – see Architects Drawings for details. All partition systems and especially fire rated partitions are to be constructed strictly in accordance with the tests under which they are certified. This shall include the type, location and configuration of the fixings and support straps etc. Include for all measures to manage and facilitate building services, including for example all "letter box" details necessary to maintain the integrity of the fire rated divisions.

Fire rated stud partitions, load-bearing and non-load bearing, will be finished on both sides as set out below:

13.3.1 Half-hour resistance



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Gyproc or equal approved galvanised metal ref. 70S50 Gypframe 'C' Studs. Stud centres: 600mm Gypframe channel reference: Gypframe 72C50 Floor & Ceiling Channel in accordance with Gypsum Industries specification with 15mm Gyproc Fireline board or equal approved with one 2mm coat of Gyproc Veneer Finish plaster or equal approved (total plaster thickness 17mm each face). For metal stud framed partitions, the maximum height of this specification is **3800mm**. Partition laboratory sound resistance (BS EN 717): 44 RwdB, partition duty rating (BS 5234): Heavy, maximum recommended partition height: 3800mm (based on limiting deflection of L/240@200Pa), partition nominal thickness (excluding finishes): 102mm. Insulation specification required in stud cavity: 70mm Isover Acoustic Roll.

13.3.2 One hour resistance

Gyproc or equal approved galvanised metal studs ref. 70S50 Gypframe 'C' Studs. Stud centres: 600mm Gypframe channel reference: Gypframe 72C50 Floor & Ceiling Channel (for partitions up to 4199mm) in accordance with Gypsum Industries specification with two layers 12.5mm Gyproc Fireline board or equal approved on each face with one 2mm coat of Gyproc Veneer Finish plaster or equal approved (total plaster thickness 27mm each face). For metal stud framed partitions, the maximum height of this specification is **4200mm**. Partition laboratory sound resistance (BS EN 717): 49 RwdB, partition duty rating (BS 5234): Severe, maximum recommended partition height: 4600mm (Based on limiting deflection of L/240@200Pa), partition nominal thickness (excluding finishes): 122mm. Insulation specification required in stud cavity: 70mm Isover Acoustic Roll.

14.0 FIRE PROTECTION

14.1 General

Fire protection and fire stopping where required shall be to 30, 60 or 90 minutes of fire resistance measured in accordance with B.S. 476.

60 minutes of fire resistance is required generally, refer to Refer to Fire Certificate Drawings/ Architects drawings for extent of fire walls. All aspects of the Fire Safety Certificate Report are to be adhered to.

14.2 Structural Fire Protection

The requirements for protection to elements of structure should be as follows:

14.2.1 Encasement

Encasement to stanchions, columns generally and to any element of support except roof. Framing in all cases will comprise galvanised steel framing sections (M5 and M6A by Gypsum Industries in particular) fixed to manufacturer's specification.

Refer to the detail drawings and installation/fixing guidelines from Gypsum Industries for particular details, to suit steel section size factor hP/A for chosen steel profiles/sections.

Where structural steel supports, are indicated to be encased to achieve a fire resistance, the encasement construction shall be plaster-based, in accordance with the recommendations of Gypsum Industries pictures, to one of the following specifications:

14.2.1.1 Half-hour resistance

One layer 15mm Gyproc Fireline board, with one 2mm coat of Gyproc Veneer Finish plaster (total plaster thickness 17mm). Allow for partition sizes shown on drawings.

14.2.1.2 One hour resistance

Two layers 12.5mm Gyproc Fireline board, with one 2mm coat of Gyproc Veneer Finish plaster (total plaster thickness 27mm.). For particular given steel sections, one layer 15mm Gyproc Fireline board may suffice and such will be as indicated on the detail drawings. Allow for partition sizes shown on drawings.

Where specified on the drawings **Glasroc F Firecase** to be used (at least to layers of 12.5mm board, to achieve minimum 60 min of fire resistance. Installation and detailing to be strict to manufacturer's recommendations). Glasroc F firecase consists of gypsum incorporating a tissue of glass fibre immediately below the surface of the board. The core is reinforced with glass fibre rovings and paper pulp. Plasterboard to have certification to BES 6001 achieving a rating of 'Very Good'. To achieve standards: BS 476: Part 4: 1970 (1984) Noncombustibility test for materials - Non-combustible, BS 476: Part 6: 1989 Method of test for fire propagation for products. Index of performance (I) not exceeding 12 and a sub-index (i1) not exceeding 6, BS 476: Part 7: 1997 Surface spread of flame tests for materials. Class 1, EN 15283-1. A1.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Other product standards: EN standard EN 15283-1 Gypsum boards with fibrous reinforcement - Definitions, requirements and test methods - Part 1: Gypsum boards with mat reinforcement. Type GM: Gypsum boards with mat reinforcement. Type H1: Gypsum board with mat reinforcement with reduced water absorption rate. Type F: Gypsum boards with mat reinforcement with improved core cohesion at high temperatures. Glasroc F firecase is covered by BBA certificate No. 93/2935.

Thermal conductivity λ Glasroc F firecase - 0.30W/mK.

Glasroc F firecase not to be used in areas subject to continuously damp or humid conditions and must not be used to isolate dampness

14.2.1.3 Two hour resistance

Gyproc Fireline board to accord with Gypsum Industries requirements for 2 hour resistance in accordance with steel section size factor hP/A or to other arrangement and details indicated on assembly/detail drawings, where provided. Allow for partition sizes shown on drawings.

14.2.2 Lightweight protection with gypsum baseboarding (Fireline or equal approved and greyboard as specified elsewhere) and wet plaster finishes to stanchions and horizontal structural steelwork at all floors except roof, once the structural member is not being relied on for supporting walls. Refer to section 4.0.

14.2.3 Intumescent paint-based systems. Refer to section 17.11 for alternative intumescent paint-based systems where these are allowed.

14.3 Fire Stopping (incorporating acoustic performance)

14.3.1 General

Overall fire resistance:

Elements of Structure to BS 476-21, 60/60/60 minutes stability/ integrity/ insulation. Provide full Test reports, assessments: Include details of performance related to the particular elements of construction. Contractor is to ensure that all walls partitions etc including acoustically rated partition walls continue to the underside of the floor slab above or to the underside of the roof. This requirement relates to all classroom walls all enclosing walls to toilets, all individual room / accommodation walls where the wall terminates at the underside of the slab or roof, the gap between the wall and underside must be made airtight; sealed using acoustic and fire rated expandable foam or mastic.

Waste Pipes:

Where waste pipes penetrate from a classroom or any other accommodation into an adjoining space and or cross through a ceiling of the floor beneath the contractor shall ensure that these are wrapped in 25mm of acoustic lagging.

All penetrations through fire resistant construction to be fire sealed and fire stopped using a proprietary and tested system with independent party accreditation installed by a responsible accredited operatives. A complete written and photographed record with location index to be provided for all passive fire stopping and fire resisting construction. All products to be tested to minimum standard of test to BS476 Part 20, where applicable. Products to demonstrate compliance with the dedicated fire resistance standard for penetration seals - EN 1366-3. All penetrations to be treated so as to ensure the correct fire resistance for the element of structure is achieved while not reducing the required acoustic performance of the element so as to ensure that Weighted Sound reduction Index (rw) of 55db is achieved and maintained. All products to have third party approval by the Loss Prevention Consul board Certification for performance and quality.

14.3.2 Fire Collars & Intumescent Wraps

All Pyropanel fire collars are tested to comply with AS1530.4-1997 and AS4072.1-1992

Pyropanel fire collars prevent the passage of flames and hot gases by crushing and sealing off the plastic pipe. The intumescent material contained in all the collars and wraps is unaffected by water or atmospheric influences and industrial environments. It is also resistant to dilute acids, alkalis, paints and conventional construction materials, including binding agents such as gypsum, lime, cement and adhesives.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH





Pyrosleeve "Cast-In" Fire Collars - For use in cast-in applications. - Integral moisture, grout and smoke seal. 250mm height of collar covers wide range of floor thickness. 2 collar sizes service pipe sizes 32 - 100mm (nom) - Base of collar has ability to accommodate pipe fittings 2 hour performance in concrete floors	
Pyrosleeve "TITAN" Fire Collar - For use in cast-in applications - Robust metal canister - can take the knocks on site - Nominal diameter pipes from 40 to 150mm - Up to four hour performance with all types of plastic pipes	
Pyrosleeve "RF" Fire Collar (Retrofit) - Surface mounted collar for existing pipe work - Robust metal canister - Narrow collar provides increased clearance - Two sizes cover nominal pipe diameters 32 to 100mm - Two hour plus performance	
Pyrosleeve "GV" Fire Collar - For use in masonry and drywall applications - Two hour plus performance in many specialist applications	
Pyrorap - The Intumescent Wrap for Plastic Pipe Systems - For use in concrete floors and walls - Nominal diameter pipes from 20 to 100mm - Up to four hour performance in floors with all types of plastic pipes - Two hour plus performance in walls	
Pyrosleeve "RS 20" Fire Collar - For use in concrete floors and walls - Nominal diameter pipes from 225 to 300mm - Up to 4 hr performance for plastic pipes - Able to be retro-fitted - Simple installation	

14.3.3 Design:

Complete the design of the fire stopping system for approval based on the proposed M&E installation. Proposals: Contractor to submit drawings, technical information, calculations and manufacturers' literature, with reference to the required fire resistance for different elements of construction. All products to meet BS 476-20 and -22, 60 minutes integrity and insulation. Reaction to fire: In accordance with Building Regulations, Class 0. Smoke resistance: Sealed Air leakage rate (maximum): 3 m³/m².hr.

Effective design life to be min. 25 years.

Penetration seal/ Gap filler: Fire stopping systems are to be flush with or contained within the wall or floor thickness with the exception of non visible pipe collars which may be surface fixed; In limited cases due to the requirement for some fire dampers fitted in ducts the fire protection system may need to project from the face of the wall or floor to maintain integrity with the damper location. Fire dampers are specified by the M&E package. Fire resistance: to be in



accordance with the fire safety certificate included with the package. Board barrier: Thickness: Generally 50mm. Manufacturer dependent; number of layers: Two. Framing where required to be shaft wall. Weighted Sound reduction Index (rw) of 55db to be achieved and maintained.

Intumescent foam, submit manufacturer data sheet for approval.

Intumescent mastic, submit manufacturer data sheet for approval.

Intumescent pillows, submit manufacturer data sheet for approval. Eg; sealed polyethylene bags containing graphite and vermiculite granules treated with fire activated chemicals.

Fire rated mineral wool batt: to BS EN 13162. Mineral wool products to be manufactured from high melting point mineral fibres. They are to be supplied as rigid batts, with a density range of 150– 250 kg/m³, all to be faced with an aluminium foil, which renders them particularly useful in fire stopping curtain walling units or for linking to vapour barriers. Fire rated pipe collars are to be surface mounted below the floor and may where visible be installed to fit within the floor or wall, all to BS EN ISO 11600, class F20LM.

Acoustic Intumescent sealant is to be a single-part alkoxy-based fire resistant, elastomeric, neutral cure silicone sealant. which can provide up to 5 hours fire protection at internal and external building gaps and movement joints. It must allow for up to 50% movement. It must be suitable to provide fire protection around service penetrations. In addition, this product must ensure that the acoustic performance of the substrate is maintained or exceeded. Product to have been fully tested to comply with the air leakage requirement of 'Approved Document L. The sealant is extruded from a loaded cartridge and installed in strict compliance with the manufacturers recommendations. The depth of the joint will depend on the gap to be filled and the fire rating required. All surfaces must be thoroughly clean and free of bond breaking contaminants prior to application of the sealant. The sealant should not be applied if the ambient temperature is below 5°C as adhesion may be impaired. Performance tested in accordance with BS EN 1366-4. Up to 5 hours fire resistance Classification EN 13501 Acoustic performance to be tested in accordance with EN ISO 140-3. Air permeability performance to be tested in accordance with EN 1026. Fire Batt to demonstrate compliance with the dedicated fire resistance standard for penetration seals - EN 1366-3; in addition to previous requirements in respect of compliance with BS 476: Parts 20 and 22. The product to consist of a Double Layer of Ablative Coated Batt which can demonstrate and act as an airtight barrier and reinstate the fire resistance and acoustic performances of concrete floor, masonry walls and dry wall systems when voids have been created for the passage of services. The product requires to be suitable for the installation of pipes made of plain or stainless steel, cast iron, copper, polypropylene (PP), high density polythene (HDPE), PVC and ABS along with all sheathed cables up to 80mm and supported cable bundles up to 100mm. The contractor shall be required to build the main structural element up to the underside of the slab or roof forming as small a gap as possible between the wall and the structure over. The extensive use of fire batt will not be acceptable. The gap if present will be sealed with a double layer of Ablative Coated Batts installed in strict compliance with manufacturer's instructions. Coated Batts to achieve a Weighted Sound reduction Index (rw) of minimum of 48db when calculated with the associated type and nature of the service penetrations. Note additional acoustic wrapping of service will be required dependant on the type and nature of the service in order to achieve the required performance of the structural element. Batts are cut and a bead of Acoustic Intumescent Sealant applied around the external edges. They are then friction fitted between the services and the wall or floor edges to completely seal the void. Where butt joints are required between cut sections of adjacent batts, Acoustic Intumescent Sealant to be applied to both mating edges in order to form a fire tight bond between individual pieces of insulation. All joints, including those around the perimeter of the Batt, are to be pointed with Acoustic Intumescent Sealant to complete the seal. Plastic pipes (PVC, ABS and HDPE etc) must be sleeved with Insulated Fire Sleeves at the point at which they pass through the Ablative Coated Batt. Similarly, to achieve fire resistance insulation (I) with metal pipes such as steel or copper, the pipes must be lagged with a 1m length of Fire resistant Fire Tube or Pipe Section (minimum 40mm wall thickness) protruding equal distances from both faces of the Ablative Coated Batt. The joint between the Ablative Coated Batt and the pipe insulation must be pointed with the acoustic fire rated Sealant. The joint between the Batt and Fire Sleeve or Fire Tube must be pointed with a suitable Acoustic Intumescent Sealant. Note all pipe lagging within the building shall be thermally lagged with a non-combustible insulation.

Firestop Compound is to be a specially formulated gypsum based compound, which is mixed with water to be trowelled or poured around service penetrations with supporting structure as



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



required. Fire Resisting Performance 60/60/60 minutes stability/ integrity/ insulation. Acoustic and Fire Resisting Compound to achieve a Weighted Sound reduction Index (rw) of minimum of 51db within the floor when calculated with the associated type and nature of the service penetrations. General Thickness to achieve required performance 150mm, opening above 700 x 700 mm to be reinforced with steel angles or as recommended by the structural engineer. Installation in floors, a permanent shuttering made from 50mm robust insulated slab (minimum density 140kg/m³) is to be cut and friction fitted between services and the edges of the floor slab. Firestop Compound is to be trowelled over the shutter to a depth of 25mm thick. This shall be allowed to cure. Further Firestop Compound to be mixed to a pouring grade and tops the seal up to the required depth of 150mm. • Set the shuttering into the opening ensuring a tight fit so that once the required depth of Compound is installed it finishes flush with the floor slab/screed unless otherwise specified • Reinforcement: Reinforcing of the compound requires either 12mm diameter bars or 40mm (high)x 60mm steel angle fixed across the short span of the aperture. The bars to be installed at 200mm centres across the aperture and require to be installed such that they are recessed into the surrounding structure by minimum 50mm on both sides or supported on a steel angle securely fixed to the structure. Steel angle reinforcement shall be installed at 250mm centres and shall be bolted back to supporting angle, which is fixed back to the structure. The support angle for rod or angle reinforcement shall be 50mm x 50mm x 1.6mm and shall be securely fixed back to the structure with nominally 8mm steel anchor bolts at a maximum of 200mm centres. In all instances the reinforcement shall be positioned approximately 30mm above the bottom surface of the compound to ensure adequate fire protection from below. Pipe Collars to consist of a corrosion resistant powder coated steel sleeve, containing a flexible graphite based intumescent liner manufactured to suit the pipework to be fire stopped. Note the use of intumescent pipe wraps within the floor or wall structure will generally not be approved except in limited specific circumstances subject to written approval. Minimum Performance 60/60 minutes integrity/ insulation. Product should exceed this requirement by 100% as standard Pipe Collars to provide a simple and effective method of fire stopping plastic pipework where it passes through fire resistant walls and floors.

Any gaps of up to 25mm wide around the pipework shall be filled with approved acoustic Intumescent Sealant. For gaps greater than 25mm wide Firestop Compound shall be used. All collars to be installed in strict compliance and in accordance with manufacturer's instructions. Air tightness / smoke tightness acoustic performance and water tightness for pipe penetrations of a plastic pipe fire stopped with Firestop Collar shall be achieved when the annular gap is sealed with Firestop Acrylic acoustic Sealant (20 mm thickness or as shown by the manufacturer).

Cavity barriers to be polyethylene-sleeved Rockwool strip of a size to suit cavity width and location, spaced horizontally and vertically at all opening in the cavity and to top of cavity walls and junction of compartment walls and fixed through the flanges to the cavity lining at not greater than 150mm centres. Note Horizontal DPC to be provided above all cavity barriers. Note: All joints and intersections of cavity barriers to be closely butted and the installation to be carried out in accordance with the manufacturer's recommendations. • Gap width or height (nominal): As small as possible Fixing Stainless Steel Fixings at 150mm centres to door and window jambs, the horizontal barrier should overlap the vertical barrier to ensure a close butted joint is maintained between both barriers.

Cavity barriers to be provided where compliance with Diagram 17 has not been achieved as required by Part B of Building Regulations.

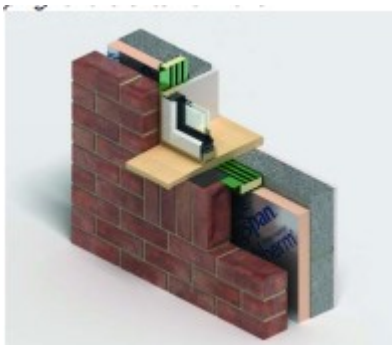
External cavity wall closer to be integrated into jamb fire stopping for the external walls in accordance with Diagram 17 of Part B. Fire resistance: As drawing and report generally 60 minutes Stainless steel 0.5mm plate to be provided where cavity closer cannot achieve certified fire performance Product :Cavity closer to be Premium performance rigid thermoset modified resin insulant manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and a low Global Warming Potential of a size to suit cavity width and location, Install in accordance with Agreement Certificate Stainless steel 0.5mm plate to be provided where cavity closer cannot achieve certified fire performance. Note Vertical DPC to be provided in front of cavity barriers and closer. Note: All joints and intersections of cavity barriers to be closely butted and the installation to be carried out in accordance with the manufacturer's recommendations. Gap width or height (nominal): As small as possible Thermal conductivity: 0.022 W/m/K.



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 e mail:
 vat number:

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 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
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All installation to comply with Technical Guidance Document SDG 02-05-03 Acoustic Performance in New Primary and Post Primary School Buildings DoES.

Fire & Acoustic Internal Socket Box Cover/ Insert Location: All Internal Sockets Data and Light switches indicated within M&E drawings and documentation where located within fire resisting and acoustic rated walls construction.

Single and Double Box sizes all to be tested to BS EN 1366-1 | 13664-2 for up to 120 mins. All to provide an effective acoustic barrier to both impact and airborne sounds. Installed to maintain the fire protection performance of the wall- preventing or delaying the spread of fire. Air leakage to be tested to BS EN 1026:2000 over a pressure range of 2- 50 Pa. Fire tested to BS EN 1366-1 | 13664-2 for up to 120 mins. Acoustic tested BS EN ISO 140-3:1995 and BS EN ISO 717-1:1997 40-3:1995 and BS EN ISO 717:1977 Acoustic Rating up to 67 dB. Air leakage tested to BS EN 1026:2000 over a pressure range of 2-50 Pa. Product Selected to be either to suit construction Standard Depth - 35mm deep or Extra Deep - 47mm deep. Socket Box Inserts are required to restore the fire rating of a wall otherwise compromised by apertures and gaps following the fitting of socket boxes. The unit restores the acoustic and thermal performance of the wall and its air-tightness.

14.3.4 Information

The Contractor shall include for providing all necessary information as requested by the Project Supervisor for the Construction Stage to enable the preparation and completion of the Safety File excluding drawings and specifications which shall be provided by the appropriate members of the design team and relevant nominated duties of the Project Supervisor for the Construction Stage of the Project. The Contractor shall include for providing assistance to the appropriate members of the design team (and to relevant nominated sub-contractors) in preparing "Construction" drawings for inclusion in the Safety File. The safety file shall be handed over to the employer within 2 working weeks of completion, or a time agreeable to the employer. Additional Clauses may be required for individual projects to take account of particular risks.

14.3.5 Certificate

A certificate to confirm compliance with specified standards will be required to be produced upon completion of the fire-stopping works. This certificate shall be in a form to be approved by the Architect.

14.3.6 Fire Curtain

Supply and install fire curtain as per drawings to hatch at front entrance. Colt FM1 or equal or approved to the following standard.

Testing Fire resistance test according to EN 1634-1 Continuous performance test (10,000 cycles) in accordance with DIN 4102-18 Performance classes Classified to EN 13501-2. Fire resistance + integrity: E60-C E120-C E180-C Limitation of heat radiation: EW30-C Self-closing feature: C2 Fabric 1000°C glass fibre fabric with a fire retardant aluminium-filled polyurethane coating. 1200°C stainless steel-reinforced glass fibre fabric with a fire-retardant aluminium-filled polyurethane coating. Curtains achieve class: A2-s1,d0. Design - Stable headbox - Invisible once installed - Variable headbox sizes and versions - Alternative roller and rod guide systems - Side guide roller system ensures that the curtain will close under air pressures - ID bottom bar with fabric loop closure to ensure a tight seal with the floor - U angle section bottom bar - UK sprung bottom bar to accommodate any unevenness in the soffit Controls - Easy to use controls - 48 V DC gravity fall motor - Intelligent electronics - Speed of descent limited to 0.15 m/s - Option of an emergency opening button for personnel leaving an area - Option of a fireman's override button - Option of a safety bottom bar to retract curtain if there is an obstruction - Option for

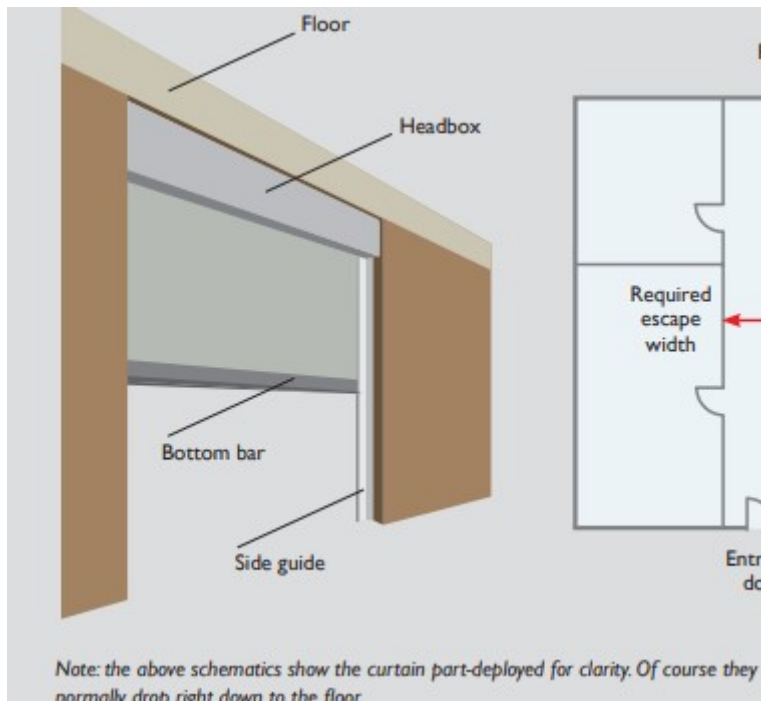


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 0469058173
 info@gcal.ie
 IE 3415637RH



intermediate stop - Option for multi-tone siren and strobe light Manufactured to ISO 9001:2008 by Colt.



15.0 FLOORING

15.1 General

Supply and fit flooring as indicated on the Finishes Schedule.

Refer to room finishes schedule for the thicknesses to be used in each case.

Linoleum sheet flooring Specification:

Linoleum shall be to BS EN ISO 24011

Heavy-duty two-layer, cork free Marmoleum homogenous flooring made from linseed oil, rosin, wood flour, limestone and non heavy metal pigments on jute backing, with no cork flour used in the production process.

The system must have independently verified CO2 Carbon Neutral Environmental Product Declaration (EPD) cradle to grave.

Residual indentation actual value of 0.08mm to EN ISO 24343-1 for 2.5mm linoleum - not merely a best achieved value of a 'once off' result basis.

The system to be available in 2.5mm, 3.2mm, 3.5mm & 4.0mm thickness to allow the architect discretion to adjust the specification.

At least five marbled structure variations available, with a total of 90 colours to be available for the architect to select from.

The linoleum must have up to 98% natural raw materials, of which 72% are rapidly renewable within 10 years and a recycled content of at least 43% and has proven independently tested & proven bacteriostatic properties.

The linoleum must not contain any phalates, plasticisers, mineral oil and has been measured against all of the important sustainable global eco labels and has the following awards –

TVOC to EN 16516 <0.05mg/m³, Nature Plus (Germany), BRE Listed, Cradle to Grave Certificate, The Nordic Swan Label (Scandinavia), Austrian Environmental Label, the Dutch Milieukeur label, Sustainable Materials Rating Technology - SMART (USA), Good Environmental Choice (Australia), Ecolabelling Trust (New Zealand), The Environmental Quality Mark, (The Netherlands) and the British Allergy Foundation seal of approval.

Authentic* sub-collection available – for which colour continuity is available to year 2030.

The linoleum must have a moisture tolerance of up to 3.5% on a CM Meter installed using Eurocol 414 adhesive as per the manufacturer's recommendation.

The linoleum must have a Scientific and independent test report against The 'Norovirus Surrogate Virus' and an independent report against the growth of MRSA. The matching welding bead may be multicoloured.

The factory finish must be Topshield Pro environmentally friendly water based (not A PU finish), two coat, UV applications that does not require any further sealing after installation and prevents staining, scuffing and scratching for lasting appearance retention and provides for easy cleaning and reduced maintenance costs.

It shall be suitable for use in association with under-floor heating with a surface temperature of up to 27°.

Roll width: 2000 mm. Thickness: as specified on the Finishes Schedules.

Base Preparation:

The subfloor to be smooth, clean, free from grease and dirt and in accordance with BS 8203 or DIN 18 365.

Smoothing underlayment compound:

Where necessary apply a smoothing and levelling compound as per clause 3.2.5.

Flooring roll: Marmoleum sheet 5305 2m wide sheet or equal approved with 2 layer water based top shield pro factory applied protective finish. Must have up to 98% natural raw materials, to be 72% rapidly renewable, with minimum 43% recycled content, no cork flour and with independently published LCA test results. Linoleum must have independently proven natural bacteriostatic properties that prove MRSA does not grow and must have the British Allergy Foundations seal of approval that shows indoor allergens cannot breed.

Linoleum installed with 414 adhesive.

BS EN 685 class 23 / 34 / 42 – 2.5mm (thickness as per the Finishes Schedules) Marmoleum Marbled.

Width: 2000 mm

Thickness: 2.5mm - thickness as per the Finishes Schedules

Colour/pattern: As per schedule

Adhesive (and primer if recommended by manufacturer):

Forbofix 414 **or equal approved.**

Seam welding: Multi colour marmoweld.

Acoustic Underlay

Corkment underlay to be 2mm thick, pure cork acoustic system certified from an approved suppliers. The cork covering to be laid onto the concrete slab. To achieve impact sound reduction in accordance with EN ISO 717-2 equal to Forbo acoustic test results between 14 to 19 dB.

Non Slip vinyl floor finish.

Supply and install Slip Resistant Vinyl Flooring, 2mm, EN 649/EN13845.

Eternal or Surestep (refer to finishes schedule) Original or equal approved slip resistant vinyl flooring R10, with 100% clear PUR flexible pearl embossing and a 0.7mm pvc wear layer coloured quartz and carborundum particles including step crystals, with a glass fibre reinforcement carrier for dimensional stability and with a roughened backing including 60% recycled pvc designed for use in wet areas such as classrooms, canteens, toilets and laboratories. Vinyl backing must have a minimum of 60% recycled content.

PTV> 36 wet & surface roughness > 20 microns.

Vinyl to be phthalate free and include up to 60% recycled backing.

Colour to be chosen from a colour range of 33 colours.

Base. Preparation:

The subfloor to be smooth, clean, free from grease and dirt and in accordance with BS 8203 or DIN 18 365.

Adhesive (and primer if recommended by manufacturer):

Forbo 540 acrylic adhesive.

Seam welding: Stepweld cable.

Seams should be hot seam welded using matching or contrasting Stepweld cable.



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 e mail:
 vat number:

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 7 Clonard House, Market Square, Navan, Co Meath.
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Accessories:

Self-coved skirtings former.

Sit-on PVC skirtings, edgings, nosings, coverstrips.

Carpet.

Carpet: Flotex electrostatically Flocked carpet or equal approved manufactured to EN 1307:2005.

Wear Class 33 from 100% nylon 6.6 pile with a Resilient Waterproof backing.

The 2000mm wide x 4.3mm thick carpet is available in a range of 90 standard colours.

Flocked carpet must have the UK Allergy certificate of approval.

Flocked carpet must have at least 70m nylon 6.6 fibres per m² for enhanced durability, slip resistance & cleanability.

Backing of flocked carpet must contain at least 20% of recycled content.

Type: Flocked Carpet

Level of use class: 4 Heavy Contract

Width: 2000 mm

Colour/pattern: As per Architects colour schedule.

Adhesive (and primer if recommended by manufacturer) carpet must be fully adhered to the subfloor with a permanent bonding adhesive 540 acrylic.

Stair surface finish

Stair floor finish system.

Sarlom Complete Step system, 3.35mm thick equal or approved vinyl tread and riser system with integrated nosing all in one system.

This is to be applied on the flights. Refer to finishes schedule.

Range to be available in 13 colours, with maximum 0.08 mm residual indentation & 17dB impact sound reduction with a 0.85mm pure mother of pearl embossed wear layer, in a colour chosen from a 13 colour range with a TVOC of <100ug/m³ and a biostatic treatment with a non woven glass fibre carrier..

The stair-nosing to be a coloured strip with thin and close grooves. The tread to have wide and spaced out grooves.

The stair-nosing should have a minimum 12 cm radius rounded form. It should not have an overhanging lipping (bird's beak). The rounded form should be completely straight and regular.

The steps should be level and the treads horizontally aligned.

Within the roll width, it shall be possible to make two regular steps.

As the treads are opposite, the roll width to cover with the same cutting:

- till 32 cm deep fliers,

- from 0 to 55 cm deep balanced steps.

The minimal temperature of the premises and subfloor to be at least 10°C.

A heavy duty 3.35mm thick sheet vinyl to be available in 13 colours class 34/42 with a dimensional stability of <.10%. It must be a low maintenance vinyl flooring with a PUR Pearl textured surface and 0.11mm residual indentation result. 100% PVC 0.85mm wear layer for durability and slip resistance that meets R9 - DIN 51130. Print must be an environmentally friendly water-based ink. Backing must be a double compact layer with non woven glass fibre carrier giving excellent stability and resistance to indentation.

The **in room** impact noise must be class A according to NF S 31-074.

The foam backing must be bacteriostatically treated with biostatic and have an impact sound reduction of 17db and maximum 0.08 mm residual indentation according to EN ISO 24343-1.

TVOC at 28 days must be < 100ug/m³ according to NF EN ISO 16000.Total weight must be 2900g/m² according to EN 430.

The landings are to be provided with 2.6mm 15db Sarlom, refer to finishes schedule.

Base Preparation:

The subfloor to be smooth, clean, free from grease and dirt and in accordance with BS 8203 or DIN 18 365.

Smoothing underlayment compound: Where necessary apply a smoothing and levelling compound.



Moisture suppressing DPM, please, see 15.8.

Flooring roll: Low Maintenance R9 heterogeneous saron Vinyl Flooring complete step, tread with integrated nosing in contrasting colour

All off cuts must be returned by back to the floor scheme to manufacturer

BS EN 685 class: 34 / 42

Width: 1.01m

Thickness: 3.35 mm

Colour/pattern: As per schedule

Adhesive (and primer if recommended by manufacturer):

Eurocol 540 adhesive or equal approved.

Stair nosings

Gradus XT or equal approved to meet BS 8300-2:2018. Sample specification as follows.

SVXT1R stair edging (nosing) comprises an aluminium channel with a choice of insert material that extends around the leading edge of the profile to ensure that foot contact is always made with the slip-resistant element of the stair edging. It features a new unique mechanical locking mechanism that secures the insert in place making it ideal for use in areas that are subject to more intensive cleaning e.g. healthcare and education environments. It is a square, single channel profile with a 70mm tread and a 40mm riser. It incorporates a notched ramp back that has been designed to overlay 2mm vinyl floorcovering. This provides a neat finish, protects the edge of the vinyl from lifting and ensures a safe transition. Supplied in mill finish aluminium. Can also be supplied anodised. UK patent GB2433437B. UK/EU Registered Design no 9/000465950.

Side Trim

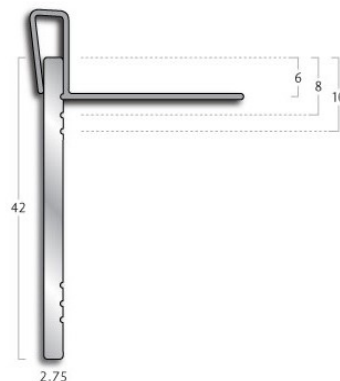
To all stair edges TA42/TAXT42 aluminium side trim or equal approved to be used. Side trim to be with a flexible gauge of 6, 8 & 10mm. It is used in conjunction with stair edgings to form a neat and attractive edge around the open end of a step by concealing the edge of the floor-covering and stair edging.

It is fixed using PVC-u TC1 fixing clips that are removed once the adhesive used in installation has cured.

The TC1 clip is adjustable to allow the profile to be positioned to provide an upstand of 6mm, 8mm or 10mm on the tread or riser.

TA42 can be supplied as pre-welded corners or in lengths of 2.75m.

Type:	Side Trim/Welded Corner
Environment:	Interior
Material:	Aluminium
Gauge:	6-8-10mm
Height:	42mm
Fixing:	TC1 PVC-u Clips
Pre-welded Corners:	83° & 90° Universal, 78-90° left/right handed
Stock Length:	2.75m
Site Join:	Butt
Available as:	TAXT42 welded corners for use with the XT range of stair edgings



Installation Plan



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 e mail:
 vat number:

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Note: that Manufacturers' recommendations refer to *international standards for laying resilient sheet flooring* and these shall be adhered to in this case. This includes testing the floor surface in advance of laying any sheet material. The flooring contractor must satisfy themselves that the floor is ready to receive the sheet material. By way of example, this should include multiple tests in each room and space for moisture levels. Each floor system will require a different moisture level but for the purposes of this tender, a level of 6% when tested at 4.0m centres in all directions in each space would be a typical standard. These test results to be tabulated and provided to the architect for record purposes.

Before starting, make an installation plan. Allow the materials and the area where the floor is to be installed to acclimatise for at least one night at a room temperature of at least 17°C (63° F). Pay extra attention to the first sheet, ensuring it is carefully lined up for optimal positioning of the seams. Sheet flooring shrinks in the length and expands in the width during installation. For this reason allow 10mm extra for each running metre of the material.

15.2 Adhesion

Good adhesion is the basis for a perfectly installed floor. Use approved adhesives for bonding sheet flooring to the subfloor or equal approved.

Lay the sheet into the wet adhesive bed and press it firmly into place, the sheet end in particular. Roll the surface, first width wise, then lengthwise. Remove any excess adhesive. The seams shall be made to fit.

After installation, make sure that the room is well ventilated. A freshly installed floor should not be used until the adhesive has thoroughly set. (Under normal conditions this takes two days).

15.3 Welding

Once the adhesive has partially set, usually on the next day, the floor can be welded if desired using our patented system.

15.4 Tools

Manufacturers of linoleum and other sheet floors such as Forbo, for example have designed a number of tools for installing Marmoleum. Both the Forbo Marmocar and the Forbo Carry-set make handling the rolls easier. The Carry-set can also be used for unrolling the floor covering. The Forbo Trimmer is designed for cutting seams and strips. The Forbo Groover is our manual grooving tool. The Forbo Thermo Groover is a grooving tool that is designed to be used in combination with the quick welding nozzle and hot-air welding gun.

15.5 Cleaning after installation

After installation, the linoleum with Topshield should need only cleaning. Applying a polish is not necessary. Sweep the floor to remove any loose off-cuts and dirt.

15.6 Drying Room Yellowing

In the final production phase, a yellowish film known in the trade as drying room yellowing may be visible, particularly on the lighter shades of linoleum. Once exposed to light this film will naturally disappear.

15.7 Entrance matt

Entrance matt to comprise a 12mm deep matting system with contrasting colour wiper sections. Module construction: Aluminium base with pvc bridging strips; flexible pvc hinges Construction to be closed Aluminium Base: Mill finish (interior or exterior) with pvc bridging strips. Wiper material to be Tufted cut pile - ECONYL® Regenerated SDN, Pvc, non-woven primary backing. Aluminium height to be 12mm. Pvc hinge colour to be grey (please, see Finishes Schedule drawing).

Classification: Tested to BSEN 1307

Fire rating: BSEN 13501-1 Class Cfl-s1

Fixing: recessed in matwell – as per manufacturers instructions.

The sample technical specification below is an acceptable system.

Gradus Esplanade 6000 Primary Barrier Matting Construction: Closed, Double wipers, 12mm height Linking Strip Material.

Aluminium - Silver anodised mill finish.



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
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Wiper colour: Rubber Black.

Fixing: recessed in matwell – as per manufacturers instructions.

Gradus Detailed Specification Manufacturer: Gradus Accessories, Park Green, Macclesfield, Cheshire, SK11 7LZ. Tel: 01625 428922 Fax: 01625 433939 Website: www.gradus.com Email: sales@gradus.com Reference: Esplanade 6000 Primary Barrier Matting Construction: Closed (12mm), Double wipers, 12mm height Linking Strip Material, Aluminium - silver anodised with pvc bridging strips. Wiper colour: Rubber – Grey. Total height: 12mm. Fire Rating: BSEN 13501-1 Class Cfl-s2 Fixing: recessed in matwell – as per manufacturers instructions Installation accessories available UMFA12: 12mm aluminium **matwell frame** FRB026: 20mm brass matwell frame T Bar 12: 12mm aluminium divider bars ESP8512ES: 12mm pvc edging strip.

Esplanade 6000 is constructed from either ECONYL® regenerated solution dyed nylon wipers from the Boulevard 6000 range or black pvc scraper wipers. These are supported with an aluminium base with pvc bridging strips that provide additional strength and are combined with pvc linking strips (Grey). The aluminium base is available in a choice of mill finish or a choice of three bronze anodised finishes. The ECONYL® regenerated solution dyed nylon wipers provide excellent soil and moisture retention and are available in a choice of eight colours.

Esplanade 6000 primary barrier mat is 12mm thick and features a closed construction with Boulevard 6000 wipers for interior applications.

This can be removed by regular cleaning in addition to periodic deep cleaning of the mat itself.

Esplanade 6000 closed construction is ideal for use in large hospitals, offices, schools and department stores. The mill finish aluminium option is suitable for heavy foot and wheeled traffic applications and is tested to withstand a weight of 150kg per wheel (600kg over 4 wheels) to a minimum of 30,000 passes (*Note - open construction is suitable for medium wheeled traffic areas only*).

Esplanade 6000 has also been tested for flammability (BSEN 13501-1 Class Cfl-s1) and slip-resistance (HSL ramp test - low risk of slip).

Esplanade 6000 can be manufactured to most shapes subject to approval of a template and has a 10 year warranty in mill finish.

15.8 Moisture suppressing

With rising or residual moisture apply a 2 coats epoxy primer DPM **Eurocol** 021 EUROBLOCK RENO LE two-component damp proof coating to be used or equal approved. Application: for blocking non-pressing residual moisture in cement screed and concrete without limitation of residual moisture. Very low emission certified EMICODE EC1 Plus.

15.9 Coved Skirting

Where coved skirting is specified it is to consist of Coving former by Gradus – CCF100 1 or equal approved (a one-piece profile that combines a capping seal with a cove former in order to provide a quick, neat installation. It is designed for use with 5mm carpet or resilient flooring to allow the floorcoverings to be coved up the wall with an integrated capping seal for a neat finish to protect the exposed edge). Material: Co-extruded PVC-u with pvc capping, allow for selection of four colours to fit floor finish: Almond, Dove, Glacier, Snowdrift, Fixing: Adhesive fix – as per manufacturers instructions. Capping Seals: a one piece PVC-u cove former combining a PVC capping seal. The profile allows the floorcovering to be continued up the wall whilst the capping seal protects the exposed edge.

Type:	Combined cove former & capping seal
Environment:	Interior
Material:	Pvc
Gauge:	5mm
Height:	100mm
Used with:	Resilient Floorcovering
Length:	2m

15.10 Floor Trims

Where indicated on the Finishes Schedules, where change of floor finish or change in levels occurs, floor trims to be provided. Floor trims to be supplied by Gradus or equal approved.

TA6 Gradus edge trim or equal approved to be supplied to the bottom of the stairs (please, see the relevant drawing). TA6 is an aluminium trimming strip used to form a central run of



resilient floorcovering on stairs and landings. TA6 protects the edges of the floorcoverings whilst creating a neat finish. Note: cannot be curved. Fixing: Mechanical (screw) and adhesive fix – as per manufacturers instructions.

Type:	Edge Trim
Environment:	Interior
Material:	Aluminium
Width:	20mm
Height:	5mm
Gauge:	3.5mm
Used with:	Carpet, carpet tile & resilient flooring
Length:	2.75m

ACS441 Gradus cover strip or equal approved to be supplied as indicated on the drawings. It is a 40mm wide, aluminium cover strip designed to provide a bridge to cover joints between floorcoverings of the same or slightly differing heights e.g. resilient flooring, wood, concrete and ceramic. It ensures that joints are neat and safe as well as protecting the exposed edges of the floorcoverings. Cover strips are typically used at door thresholds. Finish to be a polished (ACS441F3) aluminium. ACS441 is supplied pre-drilled (centrally) and countersunk.

Type:	Cover Strip
Environment:	Interior
Material:	Aluminium
Width:	40mm
Thickness:	2mm
Length:	2.70m
Supplied:	Centrally drilled & countersunk
Finishes	
ACS441F3:	Polished

ACS441 Gradus ramp edge or equal approved to be supplied as indicated on the drawings. RT264 is an anodised aluminium ramp edge trim designed to provide a neat, safe join where floorcoverings different heights meet. The design of RT264 allows the raw edges of the floorcoverings to be neatly hidden, protecting the edges and providing a safe transition between the floorcoverings. RT264 can be installed to accommodate floorcoverings of between 2.5mm and 5mm where they meet floorcoverings of a lower height e.g. stone, concrete or resilient flooring. When installed to join resilient floorcoverings at the lower height, the ramp should be fitted on top of the floorcovering. When used with carpet, the compressed thickness of the carpet should be a tight fit to the internal gauge of the profile.

RT264 is supplied pre-drilled and countersunk for screw fixing. Cartridge adhesive should also be used to create a secure finish.

Type:	Ramp Edge
Environment:	Interior
Material:	Anodised Aluminium
Width:	28mm
Gauge:	2.5mm - 5mm
Used with:	Carpet & resilient flooring
Length:	2.70m
Supplied:	Pre-drilled & countersunk
Finishes	
RT264F3:	Polished

EJC50 Gradus construction joint covers (please, see engineer's drawing for details and locatinos) - EJC50 50mm wide, pvc, granite - unless other specified by the engineer.

EJC50 is a flexible pvc construction joint cover used to provide a cover for construction joints. This provides a neat solution that allows for minor movement that occurs. EJC50 is



suitable for use with 2mm resilient floorcoverings. EJC profiles should be installed using contact adhesive applied to the rigid outer sections only. Note: EJC profiles are not suitable for use over structural expansion joints.

Type:	Construction Joint Cover
Environment:	Interior
Material:	Flexible pvc
Width:	50mm
Gauge:	2mm
Used with:	Resilient flooring
Length:	15m Coil

16.0 SUSPENDED CEILINGS

16.1 General

The ceiling system shall be as set out in the general arrangement drawings and must safely support loads including M&E services.

16.2 Tiled Suspended Ceiling

The suspension system shall be as recommended by the tile manufacturer to complete the ceiling system and achieve specified performance. It shall include all edge trims, tiles supports, suspension cables, brackets and hangers necessary to support the system in accordance with the European standard, DIN EN 13964 - Suspended ceilings.

16.3 Ecophon Ceiling System

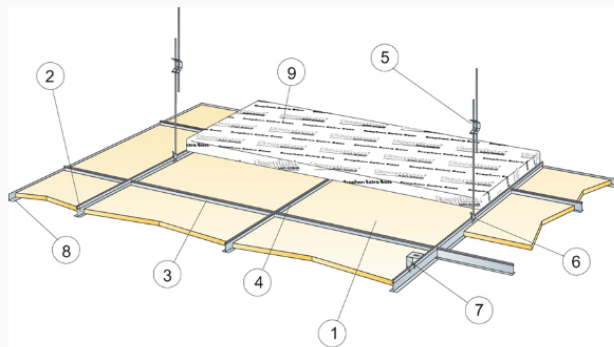
Ecophon ceiling systems to be CE marked according to the European harmonized standard EN13964:2014. Supply and install fully integrated ceiling system, comprising:

Ecophon Focus A, or equal approved.

In the areas illustrated on the drawings, supply and install a system Ecophon Focus A or equal approved. An exposed grid system with easily demountable tiles. Ceiling finish comprising a glass wool core with tiles tested and classified as non-combustible according to EN ISO 1182. Europe test to EN 13501-1 standard, class, A2-s1,d0. Humidity Resistance to be Class C, relative humidity 95% and 30°C, according to EN 13964:2014. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85% light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning. Weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system (including suspension grid) should be approximately 3 kg/m². Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following; Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption. Installation method – M399 - Suspended ceiling. Mechanical properties of the system – 50 N (max live load), 160 N (Min load bearing capacity).

Combining tile sizes: 600x600x20(h) mm with grid size – T24.



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



1. Focus A - 2,8/m²; 2. Connect T24 Main runner black, installed at 1200 mm centres (max. distance from wall 600 mm, can be extended up to 1200 mm if no live load between Main runner and wall) - 0,9m/m²; 3. Connect T24 Cross tee black, L=1200 mm, installed at 600 mm centres 1,7m/m²; 4. Connect T24 Cross tee black, L=600 mm - 0,9m/m²; 5. Connect Adjustable Hanger, installed at 1200 mm centres (max. distance from wall 600 mm) 0,7/m²; 6. Connect Hanger Clip - 0,7/m²; 7. - ; 8. Connect Angle trim black, (fixed at 300 mm centres); 9. Extra Bass (1200x600x50 mm) 0,7/m²; Δ Min. overall depth of system: Focus A/with Extra bass: 100 mm. δ Min. demounting depth: Focus A/with Extra bass: 170 mm.

Ecophon Focus E, or equal approved.

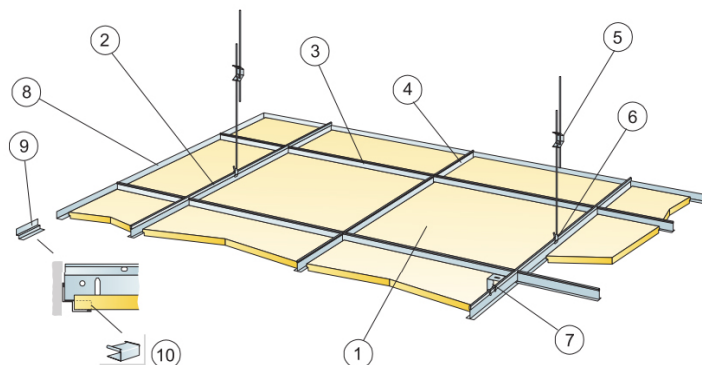
In the areas illustrated on the drawings, supply and install a system Ecophon Focus E or equal approved. Ecophon Focus™ E has a recessed visible grid and a tegular edge, creating a ceiling with a shadow effect that accentuates each tile and partially conceals the grid. Ceiling finish comprising a glass wool core with tiles tested and classified as non-combustible according to EN ISO 1182. Europe test to EN 13501-1 standard, class, A2-s1,d0. Humidity Resistance to be Class C, relative humidity 95% and 30°C, according to EN 13964:2014. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85% light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning. Weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system (including suspension grid) should be approximately 3 kg/m². Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following;

Installation method – M12 Suspended ceiling. Mechanical properties of the system – 50 N (max live load), 160 N (Min load bearing capacity).

Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption.

Combining tile sizes: 600x1200x20(h) mm with grid size – T15.



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:

1. Focus E T15 - 1,4/m²; 2. Connect T15 Main runner, installed at 1200 mm centres (max. distance from wall 600 mm, can be extended up to 1200 mm if no live load between Main runner and wall) - 0,9m/m²; 3. Connect T15 Cross tee, L=1200 mm - 1,7m/m²; 4. - ; 5. Connect Adjustable Hanger, installed at 1200 mm centres (max. distance from wall 600 mm) 0,7/m²; 6. Connect Hanger Clip (not to be used in swimming hall environments) 0,7/m²; 7. For direct installation: Connect Direct Bracket, installed at 1200 mm centres 0,7/m²; 8. - ; 9. Connect Shadow-line trim, fixed at 300 mm centres; 10. Connect E-plug (for Shadow-line trim). Δ Min. overall depth of system, with adjustable hanger: 110 mm; δ Min. demounting depth: 120 mm.

Ecophon Focus DG or equal approved.

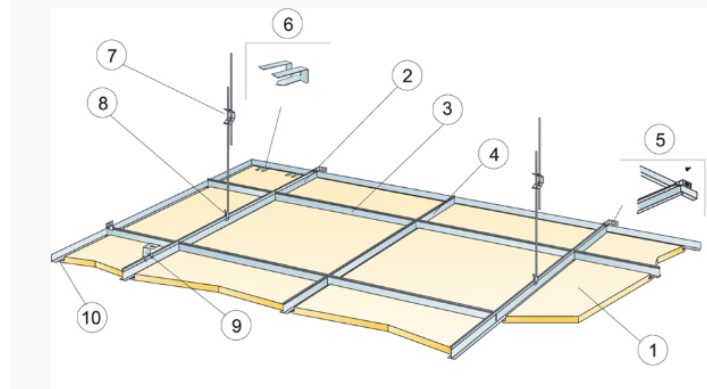
In the areas illustrated on the drawings, supply and install a system Ecophon Focus Dg or equal approved. Ceiling finish comprising a glass wool core with tiles tested and classified as non-combustible according to EN ISO 1182. Europe test to EN 13501-1 standard, class, A2-s1,d0. Humidity Resistance to be Class C, relative humidity 95% and 30°C, according to EN 13964:2014. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85%

light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning. Weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system (including suspension grid) should be approximately 3-4 kg/m².

Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption. Installation method – M202 - Suspended ceiling. Mechanical properties of the system – 50 N (max live load), 160 N (Min load bearing capacity).

Combining tile sizes: 1200x600x20(h) mm with grid size – T24.



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:

1. Focus Dg - 1,4/m²; **2.** Connect T24 Main runner HD, installed at 1200 mm centres (max. distance from wall 600 mm, can be extended up to 1200 mm if no live load between Main runner and wall). 0,9m/m²; **3.** Connect T24 Cross tee, L=1200 mm, installed at 600 mm centres 1,7m/m²; **4.** - ; **5.** Connect Wall Bracket for T-profiles 1/suspended row of Main runner; **6.** Connect Support clip Dg20 1/300-400mm on any cut edge; **7.** Connect Adjustable Hanger, installed at 1200 mm centres (max. distance from wall 600 mm) - 0,7/m²; **8.** Connect Hanger Clip - 0,7/m²; **9.** - ; **10.** Connect Angle trim, fixed at 300 mm centres; Δ Min. overall depth of system, with Adjustable hanger: 115 mm; δ Min. demounting depth: 30 mm; For luminaire integration in panels use Connect Bridging.

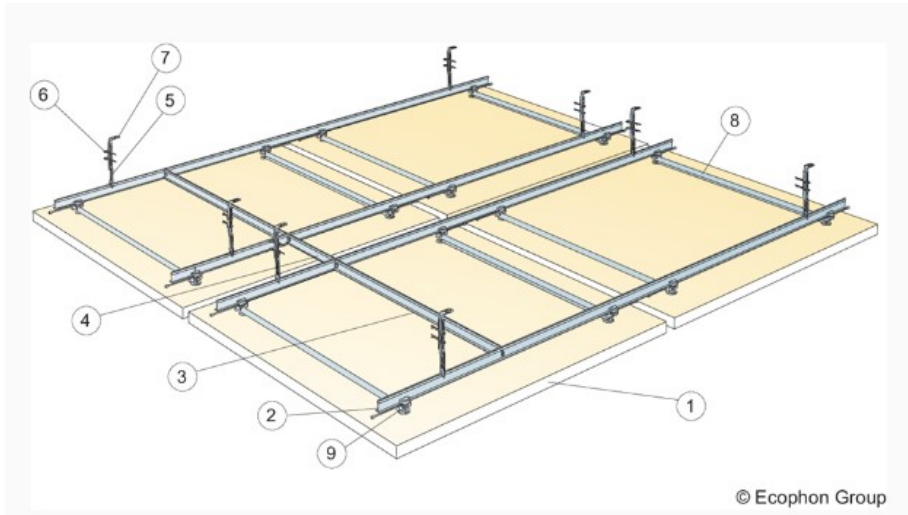
Ecophon Solo Matrix or equal to be approved:

In the areas illustrated on the drawings, supply and install a system Ecophon Solo matrix or equal approved, the system provides quick and easy installation with highest accuracy and a vast range of design possibilities. Each panel has a built in hatch function, and can easily be demounted, Straight, painted edge. Comprising, glass wool core tiles tested and classified as non-combustible according to EN ISO 1182. Standard EN 13501-1 and Class A2-s1,d0. Humidity Resistance to EN 13964:2014. Product to Standard Class C, RH 95% and 30°C. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85% light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning. Weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system can take small loads with largest aperture diameter of 100 mm. The load is restricted to maximum 250g between two Panel cross bars. For heavier loads see Installation guide provided by the supplier.

Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption. Installation method – M501 - Suspended ceiling. Mechanical properties of the system – 5 N (max live load), 160 N (Min load bearing capacity).

Combining tile sizes: 1200x600x40(h)mm, 1200x1200x40(h)mm.



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following;

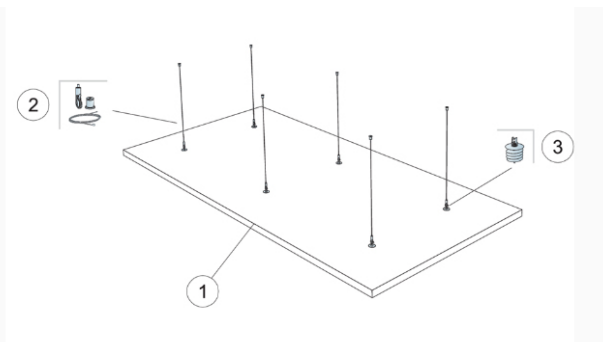
1. Solo Matrix - 0,72m²/tile, 1,44m²/tile; **2.** Connect T24 Main runner, installed with spacing 900 mm and 300 mm - 1,67m/m²; **3.** Connect T24 Cross tee, L=900 mm, installed with spacing 1800 mm - 0,42m/m²; **4.** Connect T24 Cross tee, L=300 mm, installed with spacing 2400 mm - 0,11m/m²; **5.** Connect Nonius Hanger Lower, installed with spacing 1800 mm - 0,95/m²; **6.** Connect Split pin (2/hanger) - 1,9/m²; **7.** Connect Nonius hanger upper, installed with spacing 1800 mm - 0,95/m²; **8.** Connect Panel cross bar - 2/panel; **9.** Connect Panel connector - 4/panel; Δ Min. overall depth of system: 305 mm; Quantity specification based on 40 mm gap between all panels.

Ecophon Solo Rectangle or equal to be approved:

In the areas illustrated on the drawings, supply and install a system Ecophon Rectangle or equal approved, Solo Rectangle is a free hanging unit, offering high level design possibilities, Straight, painted edge. Comprising, glass wool core tiles tested and classified as non-combustible according to EN ISO 1182. Standard EN 13501-1 and Class A2-s1,d0. Humidity Resistance to EN 13964:2014. Product to Standard Class C, RH 95% and 30°C. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85% light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning, weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid, provided by the supplier.

The weight of the system Approximately 6,5-17,5 kg.

Installation method – M506 - Suspended ceiling. Combining tile sizes: 1200x2400x40(h)mm and 1800x1200x40(h)mm.

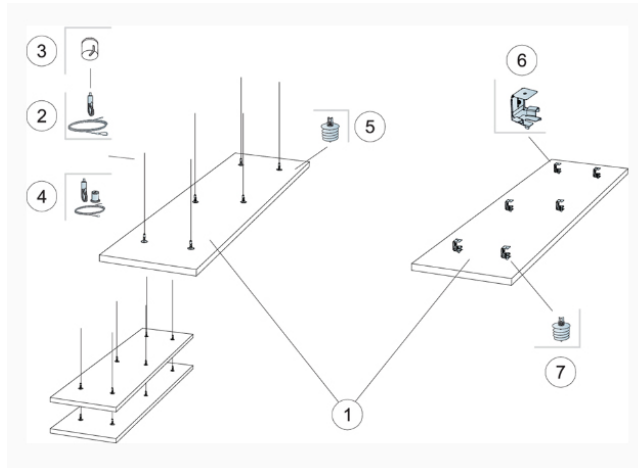


Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:

1. 1800x1200x40(h)mm - 2,16m²/panel, 2400x1200x40(h)mm - 2,88m²/panel; **2.** Connect Adjustable wire kit 1500mm (included); **3.** Connect Absorber anchor (included); Δ Min. overall depth of system: Δ 140 mm; To install Connect Absorber Anchor, use Connect Absorber Anchor Bit.

Installation method – M405 - Suspended ceiling. Combining tile sizes: 600x2400x40(h)mm.





Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:

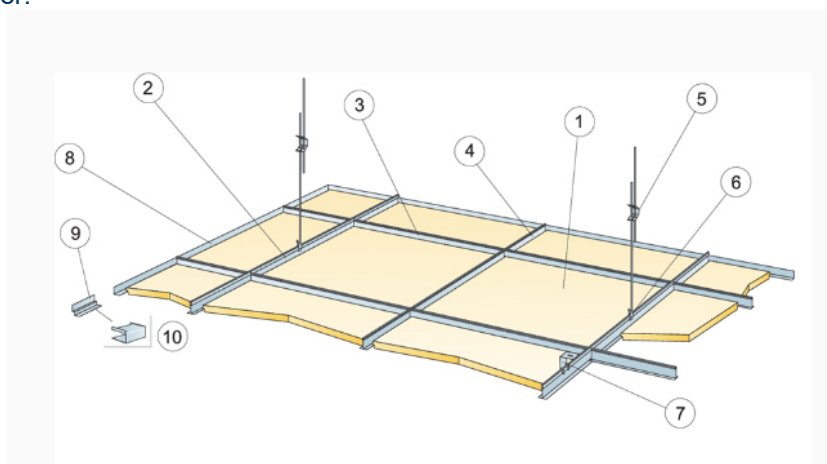
1. Solo Rectangle 1,44m²/panel; **2.** Connect Adjustable wire hanger (Alt 1) 6/panel; **3.** Connect Covering cup (Alt 1, Optional) 6/panel; **4.** Connect Adjustable wire kit (Alt 1, Optional) 6/panel; **5.** Connect Absorber anchor (Alt 1) 6/panel; **6.** Connect Absorber bracket (Alt 2) 6/panel; **7.** Connect Absorber anchor (Alt 2) 6/panel; Δ Min. overall depth of system: Δ1 140 mm / Δ2 90 mm.

Ecophon Hygiene Clinic E

In the areas illustrated on the drawings, supply and install a system Ecophon Hygiene Clinic E or equal approved. Ecophon Hygiene Clinic™ E has a recessed visible grid and a tegular edge design, suitable for dry areas, resistant to mould and bacteria growth and withstand HPV cleaning. Comprising glass wool core tiles tested and classified as non-combustible according to EN ISO 1182. Standard EN 13501-1 and Class A2-s1,d0. Humidity Resistance to EN 13964:2014. Product to Standard Class C, RH 95% and 30°C. Visual appearance, White 500, nearest NCS colour sample S 0500-N, 84% light reflectance. Cleanability to allow for Daily dusting and vacuum cleaning and weekly wet wiping. Advanced Cleanability to withstand use of hydrogen peroxide vapour. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system (including suspension grid) should be approximately 2.5 kg/m². Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption. Installation method – M339 - Suspended ceiling. Mechanical properties of the system – 50 N (max live load), 160 N (Min load bearing capacity).

Combining tile sizes: 1200x600x15(h) mm with grid size – T24. Akutex™ T coating and painted edges. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH

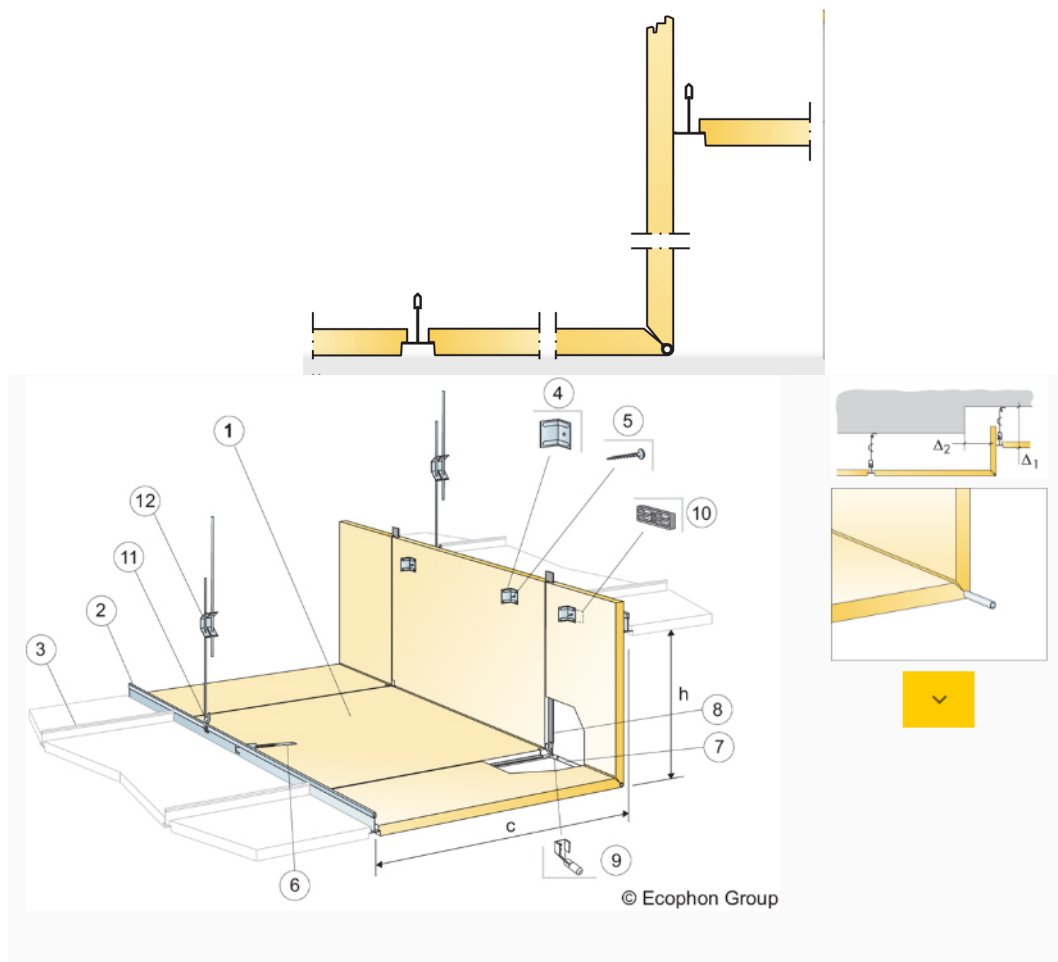


1. Hygiene Clinic E - 1,4/m²; 2. Connect T24 Main Runner, installed at 1200 mm centres (max distance from wall 300 mm) - 0,9m/m²; 3. Connect T24 Cross Tee, L=1200 mm, installed at 600 mm centres - 1,7m/m²; 4. - ; 5. Connect Adjustable Hanger, installed at 1200 mm centres (max. distance from wall 600 mm) 0,7/m²; 6. Connect Hanger Clip (not to be used in swimming hall environments) 0,7/m²; 7. For direct installation: Connect Direct Bracket, installed at 1200 mm centres 0,7/m²; 8. - ; 9. Connect Shadow-line Trim, fixed at 300 mm centres; 10. Connect E-plug (for Connect Shadow-line Trim) as required as required. Δ Min. overall depth of system, with adjustable hanger: 110 mm; δ Min. demounting depth: T24: 90 mm.

Ecophon Focus Fixiform E

In the areas illustrated on the drawings, supply and install a system Ecophon Focus Fixiform E or equal approved, Ecophon Focus™ Fixiform E creates distinct transitions between different levels of ceiling to accommodate various ceiling service installations to form a light well around the roof light. Tiles are delivered flat and folded to 90 degrees on site before installation, absorption class A, painted edges, foldable tiles for level change on site. Comprising, glass wool core tiles tested and classified as non-combustible according to EN ISO 1182. Standard EN 13501-1 and Class A2-s1,d0. Humidity Resistance to EN 13964:2014. Product to Standard Class C, RH 95% and 30°C. Visual appearance to be White Frost, nearest NCS colour sample S 0500-N, 85% light reflectance. Gloss < 1. Cleanability to allow for daily dusting and vacuum cleaning, weekly wet wiping. Installed according to installation diagrams, installation guides and drawing aid provided by the supplier.

The weight of the system (including suspension grid) should be approximately 2.5 kg/m². Acoustic classification according to EN ISO 11654 to achieve Class A sound absorption. Installation method – M276 – 90 degree level change hanging system or equal approved. Mechanical properties of the system – 0 N (max live load) - additional live load has to be fixed to the soffit., 160 N (Min load bearing capacity).



Include for metal support system in either light gauge steel or aluminium; equal or approved when compared to the following:

1. Focus Fixiform E (kit) as required; 2. Connect T24 Main runner 1,8m/m²; 3. Connect T24 Cross tee (adjacent ceiling) as required; 4. Angle Bracket Fixiform (included in Fixiform kit); 5. Absorber screw metal 50 (included in Fixiform kit); 6. Connect Hook (included in Fixiform kit); 7. Reinforcement rod (included in Fixiform kit); 8. Connect F Spline (included in Fixiform kit); 9. Plug for reinforcement rod (included in Fixiform kit); 10. Distance (included in Fixiform kit); 11. Connect Hanger clip 1pcs/hanger; 12. Connect Adjustable hanger, installed at 600 mm centres at the level change 1,4/m²; Δ Min. overall depth of system: Δ1=160 mm and Δ2=80 mm from upper level; δ Min. demounting depth: Individual ceiling tiles are non-demountable - Dimension: c=600 mm, h.

16.4 Acoustic wall panels

Acoustic wall panels to be provided as set out on the drawings, and to be manufactured from high-density glass wool. The visible surface to have a glass fibre fabric (Texona) or an impact-resistant glass fibre fabric (Super G), and available with a painted surface (Akutex™ FT). The back of the panel to be covered with glass tissue. Profiles to be galvanized steel (Connect Channel trim) or aluminium (Connect WP Profile and Connect Thinline). Panels: high-density glass wool with natural square edge, or rebated and chamfered edges, Akusto Wall System A: 2700 x 1200 mm (l x w), 40 mm thickness; Akusto Wall System C: 2700 x 600 mm (l x w), 40 mm thickness. Min recycled content 57%.

16.5 MF Ceiling System

This is to comprise a certified and tested system complete with all fixings, frames, trims and ancillary items to create a monolithic plaster slab ceiling. Notionally to comprise (or equal approved) GypCeiling MF suspended ceiling framework of Gypframe MF7 at 600mm centres and Gypframe MF5 at 400mm centres fixed to structure and lined with a single layer of moisture resistant 12.5mm Hydro board or Acoustic board (refer to drawings) with 150mm stone mineral wool roll (22kg/m³) laid over Gypframe MF5 Ceiling sections.

Standard to be equal to the following;

The screw should be Phosphate coated steel, the thickness of the board plus a minimum 10mm penetration into Gypframe metal. Please refer to the White Book online for more information about ins EN 14566:2008+A1:2009.

Steel angle/frame: Cold-roll steel formed using the patented UltraSTEEL® process to meet EN 14195:2005.

Plasterboard to be Type H1, Boards which have additives to reduce the water absorption rate. They may be suitable for special applications in which reduced water absorption properties are required to improve the performance of the board. For the purposes of identification, these boards are designated Type H1, H2 and H3, with different water absorption performance. EN 520:2004+A1:2009, Gypsum plasterboards.

For **Acoustic Boards** Gyproc Sound Block to be used or equal approved to have BES 6001 certification, reaction to fire performance - BS 476: Part 7: 1997 Surface spread of flame tests for materials - Class 1 (both sides), EN 520: 2004, A1:2009 - Classified without further testing as A2-s1, d0. Thermal conductivity λ Gyproc SoundBloc - 0.25W/mK. Product standards - EN520: 2004, A1:2009 Gypsum Plasterboards, definitions, requirements and test methods.

17.0 DECORATOR

17.1 General specification for finishes

Refer to Finishes schedule drawings:

Paint.

Paint colours have not been selected.

For tendering purposes allow for:

10 different colours of ceiling paints;

10 different colours of metalwork and woodwork

and 20 colours of wall paints.

These are to be divided equally by the overall quantity in each case.



17.2 Ceilings

All **ceilings** comprised of **plasterboard** to be treated as follows:
 Two coats of Dulux trade Drywall Primer Sealer.

Product Description

Dulux Trade Drywall Primer Sealer is a high quality, water-based wall paint primer sealer developed to help even out surface porosity on drywall and promote a good finish and high opacity. It is suitable for all interior drywall and ceiling surfaces and binds and seals powdery surfaces.

Application Description

Application: Brush, roller or spray. STIR THOROUGHLY BEFORE USE. Use Dulux Trade Drywall Primer Sealer on new or bare surfaces. The normal finishing process is 2 coats of a recommended Dulux Trade emulsion. Allow 2-4 hours between coats. A guide to the practical coverage which can be achieved under normal conditions is up to 15m² per litre.

followed by two coats of Dulux Trade Diamond Matt, Light & Space Ceiling Paint.

Product Description

Dulux Trade Diamond Matt Light & Space uses revolutionary Lumitec technology that helps to reflect up to twice as much light around the room making even the smallest rooms look and feel more spacious compared to our conventional emulsion paints with similar hue (colour family) and chroma (intensity of colour). By using Diamond Technology from Dulux Trade it is 10 times tougher than Dulux Trade Vinyl Silk and Dulux Trade Vinyl Matt. Ideal for high traffic areas such as stairwells and hallways, it also offers superior stain resistance through it's unique Stain Repellent Technology and will repeatedly wipe clean without polishing up.*The light resistance value is always greater than our conventional emulsion paints but may not reflect twice as much light in every case, depending on the colour chosen.*

Application Description

STIR THOROUGHLY BEFORE USE. Seal new or bare surfaces with a thinned first coat of Dulux Trade Diamond Matt Light & Space (up to 1 part clean water to 10 parts paint). The normal finishing process is 2 full coats of Dulux Trade Diamond Matt Light & Space

All **ceilings** comprising **precast concrete** units whether exposed or to be enclosed with MF ceilings are to be treated as follows:

Two coats Dulux Trade Block Filler.

Product Description

Dulux Trade Blockfiller Plus is a water-based product, which is suitable for interior use on concrete walls and ceilings. Designed to fill surface imperfections in concrete block and poured concrete, to improve the appearance of the substrate. It can act as a finish or a primer for subsequent Dulux Trade finishes. Ideal where minimum downtime and efficiency is required.

Application Description

Application: Apply a generous coat by airless spray followed immediately by tipping off with a medium pile roller. For airless spray application, we recommend a minimum working pressure of 140 kg/cm² (2000 lb/sq in) with a spray tip size of 19 thou and a fan of 12 inches. May also be applied by brush, roller or conventional spray. When applying by spray, work into all pores and voids with the first pass, then finish with a full coat. If applying by brush, remove brush marks with a partially loaded roller while the filler is still wet. Do not apply if the surface temperature is below 10°C. STIR THOROUGHLY BEFORE USE. Do not thin. Concrete Block and Poured Concrete: After surface preparation, apply one coat of Dulux Trade Blockfiller Plus, which can be left untopcoated or finished with an appropriate Dulux Trade paint system. Previously Painted Surfaces: Not suitable for application to previously painted surfaces, unless the surface contains voids and pores large enough to allow application of this filler without excessive surface build.

Caution: This product is designed only for the purpose of filling voids and pores within the surface of the concrete. Topcoats applied over excessive build-up of the Dulux Trade Blockfiller Plus can cause delamination of the filler, resulting in peeling of the topcoat.

followed by two coats of Dulux Trade Diamond Matt, Light & Space Ceiling Paint.

Product Description

Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Dulux Trade Diamond Matt Light & Space uses revolutionary Lumitec technology that helps to reflect up to twice as much light around the room making even the smallest rooms look and feel more spacious compared to our conventional emulsion paints with similar hue (colour family) and chroma (intensity of colour). By using Diamond Technology from Dulux Trade it is 10 times tougher than Dulux Trade Vinyl Silk and Dulux Trade Vinyl Matt. Ideal for high traffic areas such as stairwells and hallways, it also offers superior stain resistance through it's unique Stain Repellent Technology and will repeatedly wipe clean without polishing up.*The light resistance value is always greater than our conventional emulsion paints but may not reflect twice as much light in every case, depending on the colour chosen.*

Application Description

STIR THOROUGHLY BEFORE USE. Seal new or bare surfaces with a thinned first coat of Dulux Trade Diamond Matt Light & Space (up to 1 part clean water to 10 parts paint). The normal finishing process is 2 full coats of Dulux Trade Diamond Matt Light & Space

17.3 Walls

All **walls** comprising **exposed block work** to be treated as follows:

Two coats Dulux Trade Block Filler.

Product Description

Dulux Trade Blockfiller Plus is a water-based product, which is suitable for interior use on concrete walls and ceilings. Designed to fill surface imperfections in concrete block and poured concrete, to improve the appearance of the substrate. It can act as a finish or a primer for subsequent Dulux Trade finishes. Ideal where minimum downtime and efficiency is required.

Application Description

Application: Apply a generous coat by airless spray followed immediately by tipping off with a medium pile roller. For airless spray application, we recommend a minimum working pressure of 140 kg/cm² (2000 lb/sq in) with a spray tip size of 19 thou and a fan of 12 inches. May also be applied by brush, roller or conventional spray. When applying by spray, work into all pores and voids with the first pass, then finish with a full coat. If applying by brush, remove brush marks with a partially loaded roller while the filler is still wet. Do not apply if the surface temperature is below 10°C. **STIR THOROUGHLY BEFORE USE.** Do not thin. Concrete Block and Poured Concrete: After surface preparation, apply one coat of Dulux Trade Blockfiller Plus, which can be left untopcoated or finished with an appropriate Dulux Trade paint system. Previously Painted Surfaces: Not suitable for application to previously painted surfaces, unless the surface contains voids and pores large enough to allow application of this filler without excessive surface build.

Caution: This product is designed only for the purpose of filling voids and pores within the surface of the concrete. Topcoats applied over excessive build-up of the Dulux Trade Blockfiller Plus can cause delamination of the filler, resulting in peeling of the topcoat.

followed by three coats of Dulux Trade Scuffshield Matt emulsion.

Product Description

Dulux Trade Scuffshield Matt is a tough, water-based Matt emulsion paint that contains ultimate scuff resistant technology. It is designed to protect walls against scuff marks being left behind from items such as shoes and bags, to help keep walls looking good for longer. It is also cleanable and offers good stain resistance. Dulux Trade Scuffshield Matt is perfect for use in high traffic areas such as corridors, stairwells and hallways, and busy commercial spaces.

Application Description

Application: Brush, roller or spray.

STIR THOROUGHLY BEFORE USE. Seal new or bare surfaces with a coat of Dulux Trade Dry Wall Primer Sealer (whites and light colours) or a thinned first coat of Dulux Trade Vinyl Matt (up to 1 part clean water to 5 parts paint). The normal finishing process is 2 coats of Dulux Trade Scuff Shield Matt, however for significant colour change additional coats may be required.

For best colour consistency, purchase sufficient tinted paint for each job including touch-in from the same source.

All **plastered walls** to be treated as follows (or equal system approved):

Seal the surface with a thinned first coat of Dulux Trade Vinyl Matt (up to 1 part clean water to 5 parts paint) strictly with manufacturer's recommendations. Alternatively 1 coat of Dulux



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Sealer for Plaster can be used. Follow by three coats of Dulux Trade Scuffshield Matt emulsion.

17.4 Walls comprising plasterboard

All **walls** comprising **plasterboard** to be treated as follows:

Two coats of Dulux trade Drywall Primer Sealer.

Product Description

Dulux Trade Drywall Primer Sealer is a high quality, water-based wall paint primer sealer developed to help even out surface porosity on drywall and promote a good finish and high opacity. It is suitable for all interior drywall and ceiling surfaces and binds and seals powdery surfaces.

Application Description

Application: Brush, roller or spray. STIR THOROUGHLY BEFORE USE. Use Dulux Trade Drywall Primer Sealer on new or bare surfaces. The normal finishing process is 2 coats of a recommended Dulux Trade emulsion. Allow 2-4 hours between coats. A guide to the practical coverage which can be achieved under normal conditions is up to 15m² per litre.

followed by three coats of Dulux Trade Scuffshield Matt emulsion.

Product Description

Dulux Trade Scuffshield Matt is a tough, water-based Matt emulsion paint that contains ultimate scuff resistant technology. It is designed to protect walls against scuff marks being left behind from items such as shoes and bags, to help keep walls looking good for longer. It is also cleanable and offers good stain resistance. Dulux Trade Scuffshield Matt is perfect for use in high traffic areas such as corridors, stairwells and hallways, and busy commercial spaces.

Application Description

Application: Brush, roller or spray.

STIR THOROUGHLY BEFORE USE. Seal new or bare surfaces with a coat of Dulux Trade Dry Wall Primer Sealer (whites and light colours) or a thinned first coat of Dulux Trade Vinyl Matt (up to 1 part clean water to 5 parts paint). The normal finishing process is 2 coats of Dulux Trade Scuff Shield Matt, however for significant colour change additional coats may be required.

For best colour consistency, purchase sufficient tinted paint for each job including touch-in from the same source.

17.5 Floors

All **floors** comprising **exposed concrete work** to be treated as follows:

Two coats of Dulux Trade high performance floor paint.

Product Description

Dulux Trade High Performance Floor Paint is a water-based two-pack epoxy floor paint, suitable for high traffic areas. It's hard wearing properties make it suitable for both interior and exterior use. It offers excellent abrasion resistance on concrete and metal floors, drying to a highly durable mid-sheen finish.

Application Description

Application: Brush or roller only, do not spray. Mixing Ratio: Supplied in correct proportions. Add all of this Base to the Activator container and mix thoroughly for at least 5 minutes using a jiffy paddle in an electric drill, until the product is smooth and even. Do not mix part units. Badly activated or incorrectly mixed materials will affect performance and may cause early failure or discolouration. The mixed product should be allowed to stand for 5 minutes before application commences. Once started, application should continue without a break, cutting in where necessary as the application proceeds. Pot Life: Up to 1 hour at 15°C. Up to 45 minutes at 23°C. Poor adhesion will result if product is thinned and used after pot life times.

17.6 Internal Joinery



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



All **Internal Joinery**, to be treated as follows:

Two coats of Dulux Trade Quick Drying Wood Primer Undercoat.

Product Description

Dulux Trade Quick Drying Wood Primer Undercoat is a water-based, high opacity, dual purpose primer undercoat for interior and exterior woodwork, which is recoatable in 2-4 hours. It is ideal for use as a primer for softwoods, hardwoods, chipboard and fibre board (except fire retardant-treated types). Dulux Trade Quick Dry Wood Primer Undercoat can also be used as an undercoat for woodwork that has been previously primed or painted with either solvent- or water-based paint.

Application Description

Application: Brush, roller or spray. STIR THOROUGHLY BEFORE USE. Treat any knots in wood with an appropriate knotting solution. New or bare surfaces: 2 coats of Dulux Trade Quick Dry Wood Primer Undercoat. Previously painted surfaces: 1 coat of Dulux Trade Quick Dry Wood Primer Undercoat. Allow to dry for a minimum of 2 hours between coats, then apply an appropriate Dulux Trade paint system.

followed by two coats of Dulux Trade High Gloss.

Product Description

Dulux Trade High Gloss is a solvent-based formulation which offers excellent flow, giving surfaces a tough, durable high gloss finish. Suitable for use on interior and exterior wood and metal surfaces.

Application Description

Application : Brush or roller only. For health and safety reasons related to all solvent based paints, spray application is not recommended. STIR THOROUGHLY BEFORE USE.

Apply 1 coat of the appropriate coloured Dulux Trade Undercoat, followed by 1 or 2 coats of Dulux Trade High Gloss. When a fast drying system is required for new work, Dulux Trade Quick Dry Wood Primer Undercoat (available in white only) can be used as an alternative. Allow a minimum of 6 hours for the undercoat to dry before applying the gloss finish. Where a second coat of Dulux Trade High Gloss is required, allow a minimum of 16 hours between coats.

17.7 External Plaster

All **external plaster** to be treated as follows:

Alkali Resistant Primer

Supply and install alkali resistant primer to all walls x 1 coat.

Composition to be as follows, or equal approved:

Pigment: Titanium Dioxide,

Binder: Acrylic Copolymer.

Solvent: White Spirit.

Volume Solids 44% (nominal).

Surface Preparation.

Ensure surfaces to be painted are sound, clean and dry (new surfaces particularly must be fully dry) and free from all defective or poorly adhering material such as efflorescence, dirt, grease or wax. Where necessary, surfaces should be rubbed down using a suitable abrasive paper and then dusted off. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful lead.

Stir all paint products thoroughly before use. After suitable surface preparation, apply 1 coat of Alkali Resisting Primer to bare or stained surfaces. Finish with an appropriate paint system (see below).

Apply with Brush only. As with all solvent based paints (according to British Standard BS 6150), do not use in temperatures below 5°C.



For Health and Safety reasons related to all solvent-based paints, spray application is not recommended.

Drying Times: Single coat at standard thickness: Touch Dry: 6-10 hours. Recoat: 16-24 hours. Cleaning Up After use, remove as much paint as possible from brushes before cleaning with brush cleaner. When this paint container is empty please ask your stockist about recycling. If you have leftover paint, please dispose of it responsibly and consider donating it to Community RePaint.

Transportation & Storage Do not use or store in extremes of temperature and protect from frost. To prevent spillage, please store and transport upright.

VOC EU limit value for this to be (cat : A/h): 750g/l (2010). Product to contain max. 475g/l VOC. VOC Content: High (25-50%).

Exterior Masonry Paint

External plastered surfaces are to be coated with a smooth masonry paint. It shall be a flexible, smooth, solvent-based masonry paint ideal for use all-year round on exterior walls. It shall be designed as part of a system intended to give up to 15 years lasting protection. It shall be designed for the Irish market and prevailing climate. It shall be classified as "quick drying" with minimal recoat times, even in very cold conditions. It shall be able to withstand rainfall within 15 minutes of application. It shall be easy to apply, with high opacity, and contain a fungicide to inhibit mould growth on the paint film and be resistant to yellowing. It shall be resistant to mild atmospheric fume attack and to the salts in new mortar, rendering and similar surfaces. It shall be resistant to the levels of atmospheric humidity normally experienced in exterior environments in Navan.

Composition to be as follows, or equal approved:

Pigments: Lightfast Pigments.

Binder: Acrylic copolymer plus Alkyd with Fungicide/algicide.

Solvent: White Spirit.

Volume Solids White: 55% (nominal). Other colours will vary.

Ensure surfaces to be painted are sound, clean and dry (new surfaces particularly must be fully dry). Remove all loose or defective paint or powdery residues by thorough brushing and scraping, using a stiff fibre brush. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful lead. Treat any areas affected by mould, lichens, algae and moss with an approved Fungicidal Wash. Make good minor defects with an appropriate Polycell Trade filler. Use a sand and cement mix for larger holes and cracks. Allow to dry. Surfaces that remain powdery, friable or chalky after thorough preparation should be sealed with a coat of Stabilising Primer (see above).

Apply with brush or roller only. For Health & Safety reasons relating to all solvent-based paints, spray application is not recommended. Note: Do not use in extremes of temperature (below 5°C) or during rain, fog or relative humidity above 80%. Drying Times Single coat at standard thickness, Normally touch dry after 30 minutes. Recoat: 1-2 hours, although drying time will vary according to temperature and humidity (drying times quoted will be significantly longer in cold, damp conditions).

VOC EU limit value for this product shall be (cat.: A/c): 430g/l (2010). This product shall contain max. 430g/l VOC. VOC content: High (25-50%).

Allow for 3 coats.

Fungicidal Wash

~~Proprietary solution with active ingredient Benzalkonium Chloride in aqueous solution. To be applied in strict accordance with the manufacturer's recommendations.~~

17.8 External Timber/ Internal Timber

All **external timber** to be treated as follows:

Coat any non treated wood with two liberal coats of Sadolin Wood Preserver. For a clear finish apply 3 coats of Sadolin Extra Durable Clearcoat For a coloured base apply 1 coat of Sadolin Classic followed by 3 coats of Sadolin Extra Durable Clearcoat. Where possible, the basecoat, Sadolin Extra Durable Clearcoat, should be applied, all round, prior to fixing. All products should be applied in accordance with the manufacturer's instructions, BS EN 927-1, BS 6150: 2006 and



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



BS 8000: Part 1: 1989. Sadolin or equal approved woodfillers or equal approved should be used for making good any minor surface defects, imperfections and open joints etc. General or All Purpose fillers are not suitable.

Any **non preservative treated softwood timber** should be treated with two liberal coats of Sadolin Wood Preserver and overcoated with Sadolin Extra Durable Clearcoat. Where possible, the Clearcoat should be applied all round prior to fixing.

Where **Iroko (or other resinous timber)** are used, the contractor will allow for washing down the timber with a cellulose thinner before the application of any Sadolins or equal approved coating.

For **internal joinery**, where varnish is specified shall allow for the application for a clear finish apply 3 coats of Sadolin Polyurethane Extra Durable Varnish For a coloured base apply 1 coat of Sadolin Classic, allow to fully dry for 72 hours, followed by 3 coats of Sadolin Polyurethane Extra Durable Varnish. All products should be applied in accordance with the manufacturer's instructions, BS 6150: 2006 and BS 8000: Part 1: 1989. Sadolin or equal approved woodfillers or equal approved should be used for making good any minor surface defects, imperfections and open joints etc. General or All Purpose fillers are not suitable.

17.9 Metal Work

External metal work to be treated as follows where referred to on the drawings:

Powder coating

External metal work where not otherwise finished shall be powder coated. This shall be carried out to the AAMA 2605 standard. It shall comprise a powdered polyester paint that is dry-sprayed to the surface of the metal component in an electrically charged environment. It shall then be baked to the temperature specified by the paint supplier and in any event to a standard that will provide a 10 year warranty.

17.10 Standards

Materials shall comply with the following standards:

Hard Gloss Enamel Paints	:I.S. 32 :1963 (Amended 1965)
Oil-based Paints	:I.S. 115 :1963
Emulsion Paints	:I.S. 129 :1964
Knotting	:I.S. 16 :1958
White Spirits	:I.S. 11 and B.S. 245 :1958
Linseed Oil	:I.S. 14, 93, 94 :1958
Oil-based Priming Paint	:I.S. 18 :1963

17.11 Intumescent Coatings

Steelwork to be coated shall be fully cleaned down, removing any flaking or loose paint, rust, grease and other surface contaminants to prepare steelwork to receive new coatings.

Apply new intumescent coatings in accordance with manufacturer's instructions. Refer to Engineer's Schedule of Works or finishes as relevant. Note manufacturer's requirements for numbers of coats and coat thicknesses.

Timber screens to be treated with intumescent fire protection coating EENVIROGRAF or equal approved:

- Allows existing wood to be upgraded to comply with both UK and European Fire Regulations;
- Coatings can be applied over most paints and varnishes, eliminating the need for stripping;
- These systems are applied in the same way as regular paints and varnishes;
- Environmentally friendly;
- Class 0 and 1 Classifications and SBI: B/s1/d0 have been achieved on bamboo, hardwood, softwood, veneer, MDF and melamine boards;
- 30-60 min ratings can be achieved timber panelling and joists.

ES/VFR System (Product 92) to be used or equal approved:

This system offers a clear coating suitable for upgrading wood (or wood related surfaces) to a Class 0 or Class 1 spread of flame rating or the European Class equivalent.

The ES/VFR System Tests

BS476: Part 6&7 — Class 0 & 1 Classification

EN 13501—1:2002 — B/s1,d0



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



EN 13823:2002 'Single Burn Item'

SBI:B/s1/d0

EN 11925—2:2002 'Ignitability'

SBI:B/s1/d0

ES/VFR/PRIMER Water-based

A clear water based primer to apply over existing varnish surfaces before applying coatings.

Coating rate 1 coat**Planned wood** 10-12m² per litre**ES/VFR/CLEAR Water-based**

Fire retardant clear coating for wood, wood boards, MDF, melamine and veneered boards, and wood-related products. Tested to BS476 Parts 6&7, Class 0 & Class 1 (1987) spread of flame. SBI:B/s1/d0.

Two coats are required for BS476 Parts 6 & 7, Class 0 & Class 1 (1987) spread of flame. First coat coverage could vary according to wood type/ density. Apply first coat and allow 1-2 hours to dry. Ensure each coat is dry before applying next coat. Apply second coat and allow 1-2 hours to dry.

Coating rate 2 coats 12-15m² per litre per coat.**ES/VFR/HARDWEARING Water-based**

A clear water based, flexible and robust hardwearing coating. This coating offers good durability for areas that require standard varnish protection.

Coating rate 1 coat (internal)**Planned wood** 10-12m² per litre per coat**Finish** SatinOne coat of **HWAP/APS** primer to be used before ES/VFR at 12-16m sq.

When it is applied over existing paints and varnishes it to be applied strictly as per the manufacturer's specification. When using over pre-varnished timber, ensure the surface is clean and sanded appropriately.

17.12 Road Marking Paint

Where shown on the drawings provide road marking paint to delineate pedestrian crossings, and special parking spaces. Finish to be matt, fine texture. Single pack, water based acrylic, wet film thickness to be 200microns drying to 140 microns. Performance tested to ISO CE Mark EN 1504-2. Equal to or approved to the sample below:

TECHNICAL DATA SHEET

watco

TEST RESULTS

Abrasion Resistance
ISO 5470-1

Taber test method expresses results in mg on a scale between 0mg (highest resistance) and 3000mg (lowest). A reading below 3000mg is a CE mark pass.

3000mg → 0mg
Lowest → Highest

Wolff-Wilborn
Hardness Test

Also known as the 'pencil test', a 9H reading is the measure of a hardest coating. HB is the softest.

HB → 9H
Least Hard → Hardest

Impact Resistance
ISO 6272

Impact is expressed as Newton metres. Greater than 4 Nm is a CE mark pass.

Class 1 >4Nm
Class 2 >10Nm
Class 3 >20Nm

Flexibility
ISO 1519

Flexibility is measured using a Mandrel Flex Tester, 2mm is the most flexible, 36mm the least.

36mm → 2mm
Lowest → Highest

Scratch Resistance
ISO 4586-2

Scratch resistance is measured using a Sclerometer and the resistance is measured in Newtons. 1N is the lowest resistance, 20N the highest.

1N → 20N
Lowest → Highest

Gloss Value

Rating is a 'Gloss Unit' measured on an Optical Glossometer.

Matt 0-10%,
Low Sheen 10-25%,
Eggshell 26-40%,
Semi-Gloss 41-69%, Gloss
70-85%, High Gloss +85%

Adhesion Test
ISO 2409

Cross-Cut Test method. Class 0 is highest adhesion, Class 5 is lowest.

Class:
5 → 4 → 3 → 2 → 1 → 0
Lowest → Highest

Water Permeability
EN 1062-3

To achieve a CE mark the measurement must be less than 0.1 kg/m²(24 h)^{0.5}

CE Marking
Critical Value:
< 0.1kg/m²/(24 h)^{0.5}
W₁ → W₂ → W₃
Lowest → Highest

Adhesion Test
EN 1542

Adhesion is expressed in MegaPascals (MPa) or Newton millimetres squared (N/mm²). Greater than 2 MPa is a CE mark pass.

>2MPa (N/mm²)
= test pass

Slip Resistance
BS7976-2

The Pendulum Test Value (PTV) is measured in wet conditions. A number above 36 indicates a 'low slip potential'.

High: 0-24 PTV
Moderate: 25-35 PTV
Low: 36+ PTV



STANDARD COMPLIANCE



EN 1504-2
This mark indicates that a coating has passed all the tests required to carry a CE mark.



BREEAM COMPLIANT



VOC LEVEL



ISO 16000
The 'Lai Grenelle' measurement of the effect of a product's VOC level within a building. A+ is the top safety rating.



REACH COMPLIANT

SURFACE PREPARATION:

New asphalt & tarmac – should be sound and at least 3 months old. If any residual oils remain, the surface should be washed using Watco Concroff.

Existing bare asphalt & tarmac – remove any grease or oil deposits using Watco Concroff.

Painted surfaces – abrade to remove any weak or loose paint. Check remaining paint is well bonded. Very smooth, glossy paint should be lightly abraded to provide a key. Watco Bio D can be used to remove grease and oil from painted surfaces.

Bare concrete – remove surface laitance, dust and any light dirt or grease deposits using Watco Etch & Clean. Watco Etch & Clean also etches smooth, bare concrete surfaces to provide a key. Flush with clean water and allow surface to dry. For the removal of heavier deposits of oil and grease we recommend Watco Concroff, again, flush with clean water and allow the surface to dry.

New concrete – as a guide, new concrete should be left for four weeks to dry in the summer and six in the winter. The surface should then be prepared using Watco Etch & Clean and thoroughly rinsed away and left to dry prior to applying this coating.

Damp surfaces – this coating can be applied to residual damp which may remain after cleaning.

Priming – one coat is generally sufficient. On very porous or open textured surfaces, two coats may be required. The first coat will act as a 'priming coat' and may be diluted with up to 10% water to assist with application.

APPLICATION: To watch our online video, please go to www.watco.co.uk

Stir the paint thoroughly and do not thin, however in very hot weather, (25°C+), up to 10% water may be added to make application easier. Apply by roller and work well into the surface. It can be applied by brush but this may result in reduced coverage. Avoid applying the paint too thickly as this encourages water to puddle on the surface and as such may become slippery. If a second coat is required, apply it as soon as the first coat is dry (generally 6 hours), and within 5 days of applying the first coat. If more than 5 days elapse, the first coat should be lightly abraded before the second coat is applied. Avoid washing the surface for 7 days.

SAFETY: Material Safety Data Sheets are available.

ORDERING: Available direct from Watco UK Limited and through agents worldwide. All Watco products are sold subject to the Company's Standard Conditions of Sale. The Company and its representatives are often asked to comment on potential uses of Watco products which differ from those described in the Company's data sheets. Whilst in such cases the Company and its representatives will always try to offer helpful and constructive advice, the Company cannot be held responsible for the results of such uses unless they are specifically confirmed in writing by Watco.

Allow for multiple colour applications in line with site layout drawings (as shown on DFCE's drawing).

17.13 Protection

Where decorations are to be carried out on external parts of a property, allow for fully protecting, against splashing or spillage, all adjoining properties and passing pedestrians and vehicular traffic by means of ample and well secured screens, tarpaulins etc.

17.14 Making Good

Make good interior decorations as necessary following any alterations or repairs.

17.15 Leave Clean

The whole of the work shall be cleaned out, surplus materials removed, glass cleaned and floors scrubbed on completion.

17.16 Ceramic Wall Tiles

Ceramic non porous high gloss wall tiles 250x150x10mm thick, bedded in 4mm BAL white star adhesive or equal approved, with 3mm joints in BAL white star or equivalent grout. Allow for brushed aluminium square edge trims and end trims throughout.

Trims to be DIAL 10MM STRAIGHT ALUMINIUM TILE TRIM CHROME 2.5M (336GR).

17.17 MDF

Where paint for MDF is specified to be treated as followed:

1 coat of Dulux Quick Dry MDF Primer Undercoat system or equal approved, applied in accordance with manufacturer's recommendations. Spot prime all nail heads and metal fixings with 1 coat of an appropriate Dulux Trade metal primer. Any surface defects should be filled with the appropriate Polycell Trade Polyfilla.

Followed by three coats of **Dulux Trade Scuffshield Matt emulsion**, for the details, please, see 17.4 Walls comprising plasterboard, p.70 of this document.

18.0 BUILT IN FURNITURE

18.1 Built-in Fittings

Provide where indicated on the drawings joinery fittings in accordance with the detail drawings. Joinery fittings, counters, cupboards, shelving, etc are to be supplied, fitted, finished and delivered up in a complete and finished manner free from all blemishes and defects. The finishes, material and design as per drawings and as specified.

The built in furniture is to be on compliance with the DoES standard drawings and specifications except as varied by the drawings attached.



Cavan Office:
Navan Office:
Telephone number:
e mail:
vat number:

1 Farnham St, Cavan, Co Cavan.
7 Clonard House, Market Square, Navan, Co Meath.
0469058173
info@gcal.ie
IE 3415637RH



The workmanship, finish, etc., must in all cases be equal to the standard of the prototypes, samples or details accepted by the contracting authority. All materials and workmanship throughout must be of the highest quality. All items and components shall be soundly constructed in accordance with the best manufacturing process and practice. All the dimensions, details, fixings etc shown on drawings must be strictly observed. All proprietary materials must be used strictly in accordance with the manufacturer's instructions or recommendations. All veneered panels to have all edges hardwood lipped prior to veneering and the selected veneers are to be applied over lippings. All metal and timber shall be neatly bored and countersunk to take the required screws. Materials Timber To I.S. EN 942. Manufacturer to demonstrate that timber derived from well managed sources. Softwood shall be Scots Pine *Pinus sylvestris* (or Red Deal), to Class J2 of I.S. EN 942. Average density to be more than 500 kg/m² and to be suitable for internal joinery – see I.S. EN 942. Average moisture content of timber on delivery: 9 % to 13 %. Adhesive: to I.S. EN 204 Particle board: Dry Fibre Board (MDF) to I.S. EN 622-5, tested to I.S. EN 120 to have less than 1 mg/100 g free formaldehyde (ethanal) content. Moisture resistant board to I.S. EN 622-5 MDF.H, class E1 formaldehyde content. Lacquer: Lacquer to BS 6250/ FIRA 6250 severe rating: to all work surfaces. Lacquer to BS 6250/ FIRA general rating: to all other surfaces, factory applied. Plastic Laminate Materials In accordance with BS 4965 and I.S. EN 438 grade HGS/HGP. Balancing laminate to be used in all cases (including vertical panels). VGS allowed for balancing laminate on underside of worktops or tables only. All laminated panels to have either solid colour laminate or PVC edges to seal all lippings, with the lipping fitted after laminating. All edges to be finished flush and smooth with the black core of the laminate concealed behind the lipping. Worktops used in kitchens and home economics rooms to be heat-resistant to 180°C. Ironmongery Assemble and fix carefully and accurately using fastenings with matching finish supplied by ironmongery manufacturer. Locks and Master keying: Locks to be provided to all storage units – high level and base units. Locks to all units in teachers desks to be keyed alike. Locks to all other student units to be master keyed. Locks to all office storage units to be mastered. In admin office main filing units to be keyed alike. Principal's office all units to be keyed alike. Handles should either be D-shape stainless steel with reverse fixing through back of door or recessed stainless steel – as specified on drawings. Hinges should be high quality stainless steel, 180 degree type. Metalwork Quality of Work: Fabricate metalwork carefully and accurately to ensure compliance with design and performance requirements using types and grades of metal appropriate for the purpose. Finished work must be free from distortion and cracks. Use proprietary products to manufacturer's instructions. Welding/ Brazing Generally: 1. Thoroughly clean surfaces to be welded. 2. Ensure accurate fit using clamps and jigs where practicable. 3. Make joints with parent and filler metal fully bonded throughout. 4. Completely remove all traces of flue residue and slag. Butt Welds: Where visible in completed works, butt welds to be finished smooth flush with adjacent surfaces. Welding: Metal welding to I.S. EN 1011-1 and I.S. EN 1011-2 or other method subject to approval. Cleaning: Remove all burns and sharp arises, which would be visible after fixing or a hazard to the user. Worktops: Worktops shall be fitted so as to allow for shrinkage movement etc. and also to facilitate easy replacement. Joints in Worktops: Where worktops are not continuous between adjacent units, joints shall be sealed with a cover strip or other approved method. Metal Coating: Epoxy powder coated to selected RAL colour to BS 6496/I.S. EN 13438. Metal Fastenings: Unless otherwise specified fastenings to be of the same metals the item being fixed, with matching coating or finish. Metal components to be constructed in accordance with the British and Irish Standard Specification quoted above. All metal parts shall be finished with epoxy powder coated. Upholstery: Upholstery Foam must be of the quality recommended by the manufacturer for its location and be in compliance with the Code of Practice for Fire Safety of Furnishings and Fittings in Places of Assembly 1989 (The Stationery Office, Dublin).

Alternatives Where manufacturers are in a position to offer alternative methods of construction, materials, fittings, etc., they should submit tenders for each. Tenderers should include sufficient supporting documentation (test certificates, catalogues, photographs, drawings, etc.) to assist in evaluating the quality etc., of the items offered

In general, warranty requirements are 6 years on student tables and chairs and 10 years on all other items, subject to normal wear and tear in school usage.

All furniture to comply with following standards:



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



All furniture shall comply with:

- I.S. EN 1729 Part 1 and 2 Education Furniture
- BS 6396 1990 – Specifications for electrical systems on office furniture and office screens.
- I.S. EN 1032 – 1:12003. Building Bulletin 88 Fume Cupboards in Schools: Department for Education and Employment, London
- I.S. EN ISO 9421 Ergonomics of design of visual display terminals (VDT's).
- BS 3044 1990 Ergonomic principles in the design and selection of office furniture
- I.S. EN 527 Office Furniture
- BS 5459-2 Specification for performance requirements and tests for office furniture
- I.S. EN 1335 Part 1, 2 and 3
- I.S. EN 622 Dry Process Fibreboard (MDF) (including furniture) for use in dry conditions
- I.S. EN 438 Decorative High Pressure Laminates Sheets based on thermosetting resins FIRA standard 6250 – Lacquer application
- I.S. 12720, 12721 and 12722 – Methods of test for finishes of wooden furniture
- BS 1186 Part 2 Timber for and workmanship in joinery
- I.S. EN 942 Timber in joinery – General classification of timber quality

It is essential that Furniture for School Use shall:

- i) Comply fully with the specifications and be durable and safe for School Use.
- ii) Comply fully with the standards as detailed and shall comply fully with current European (EN) Standards and future revisions, both established, developing and new standards replacing existing Standards.
- iii) Be accompanied by documentation of sufficient detail for full evaluation.
- iv) Include the completed and signed certificate of compliance.

All materials and workmanship throughout must be of the highest quality. Any inferior materials or practice will not be accepted. All items and components shall be soundly constructed in accordance with the best manufacturing process and practice. All the dimensions, details, fixings etc shown on drawings must be strictly observed. All proprietary materials must be used strictly in accordance with the manufacturers instructions or recommendations.

Performance criteria

Alternative materials of equal or higher specification and performance to the typical furniture components and materials listed in Section 4 may be used. Worktops/carcasses - stability to comply with I.S. EN 1729 and other relevant standards. Finish to be robust and resistant to impact, scratching, staining and water penetration, with edge finish to prevent chipping of worktop surface.

Science room surfaces finish to be robust and resistant to impact, scratching, staining, water penetration, heat and of chemicals.

Home Economics room surfaces finish to be robust and resistant to impact, scratching, staining, water penetration and heat.

Core Materials for laminated worktops and components

High density chipboard to IS EN 312-3 type P3, class E1 formaldehyde content. Moisture resistant board to EN 312-5 type P5, class E1 formaldehyde content. Dry Fibre Board (MDF) to IS EN 622-5 Class E1 formaldehyde content. Moisture resistant board to IS EN 622-5 MDF.H, class E1 formaldehyde content Plywood to conform with I.S. EN 1072, I.S. EN 314 and I.S. EN 636. All the above fibre board products to be tested to EN120 to have less than 8mg/100g free formaldehyde content (Class E1)

Plastic laminates should comply with BS 4965 and I.S. /EN 438, grade HGS/HGP (including vertical panels). Balancing laminate to be used in all cases. Grade VGS allowed only for balancing laminate to underside of worktops or tables.

Hardwood timber worktops

To IS EN 942, Class J2

Softwood timber worktops

Softwood for worktops shall be Scots Pine *Pinus sylvestris* (or Red Deal), to Class J10 of I.S. EN 942. Average density to be more than 500 kg/m³ and to be suitable for internal joinery – see I.S. EN 942. Average moisture content of timber on delivery: 9 % to 13 %. Adhesive: to I.S. EN 204





Metal worktop support frames and height adjustable frames to comply with IS En 1729. Metal arc welding to I.S. EN 1011-1 and I.S. EN 1011-2, or other methods subject to approval. Painted finishes are generally not accepted, except where noted on drawings.

Fabrication

Standard: BS 1186-2 and I.S. EN 1313-1 and I.S. EN 1313-2

Height adjustable frames

Height adjustable frames for Home Economics and Science rooms are to be provided for one workstation. The frame should comply with I.S. 140 and I.S. 170 in terms of stability. The height adjusting mechanism should operate safely and evenly. Details of proposed system to be supplied prior to manufacture.

18.2 IPS Panels

IPS panels to be in accordance with the layout drawings and to comprise a system that is tested and accredited to a IS standard or equal approved. eg, P300 APS (Advanced Metal Framed Wall Lining System).

Panels and gaps: 12mm thick panels manufactured in solid compact grade laminate.

Edge treatment: Radiused and burred.

Panel fixing method: (supplier to provide shop drawings for approval; architect can select whichever system is preferred):

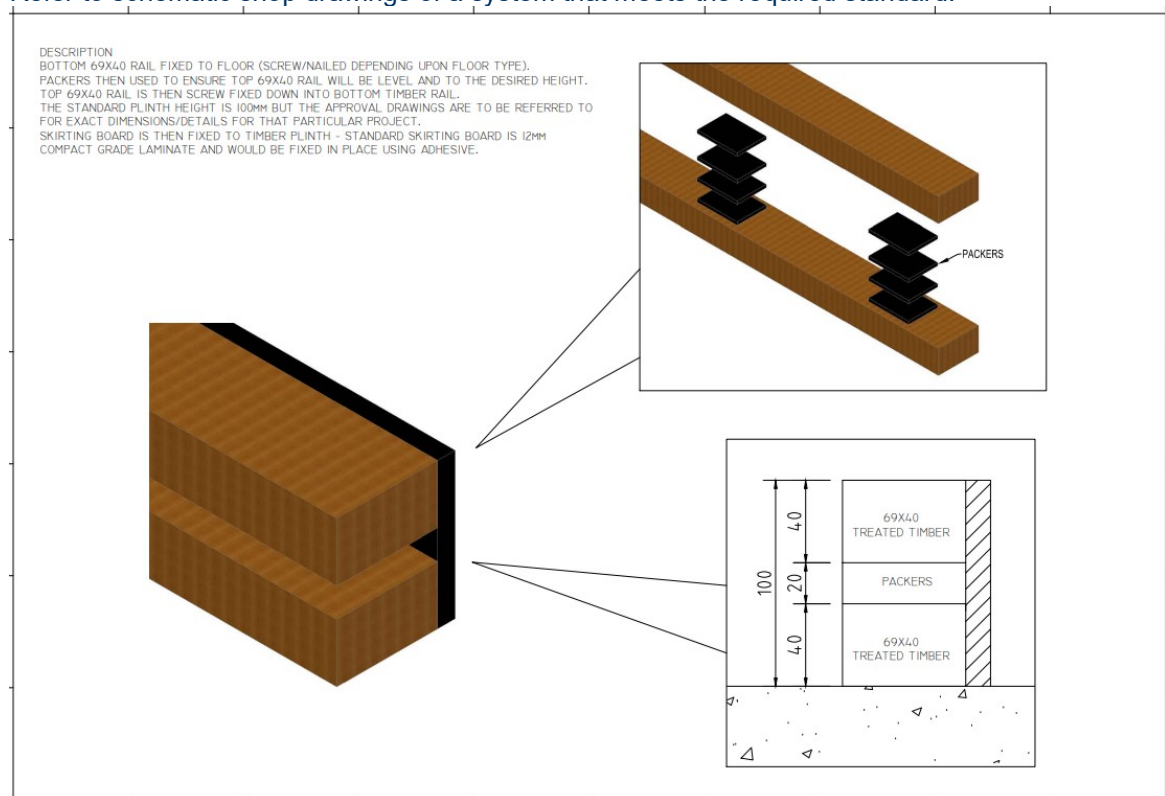
- a) Lift off panel sections fitted to subframe with concealed BZP mild steel joggle clips with the butt joints fitted with steel locating clips.
- b) Pull on-off panel sections fitted with KeKu Push clips used in conjunction with smaller panel access such with urinal configurations.
- c) Hinged Panel (H): panel section fitted with 2nr vertical adjustment lift up hinge arms with automatic safety catch to lock in position along with safety steel locking pin on chain.

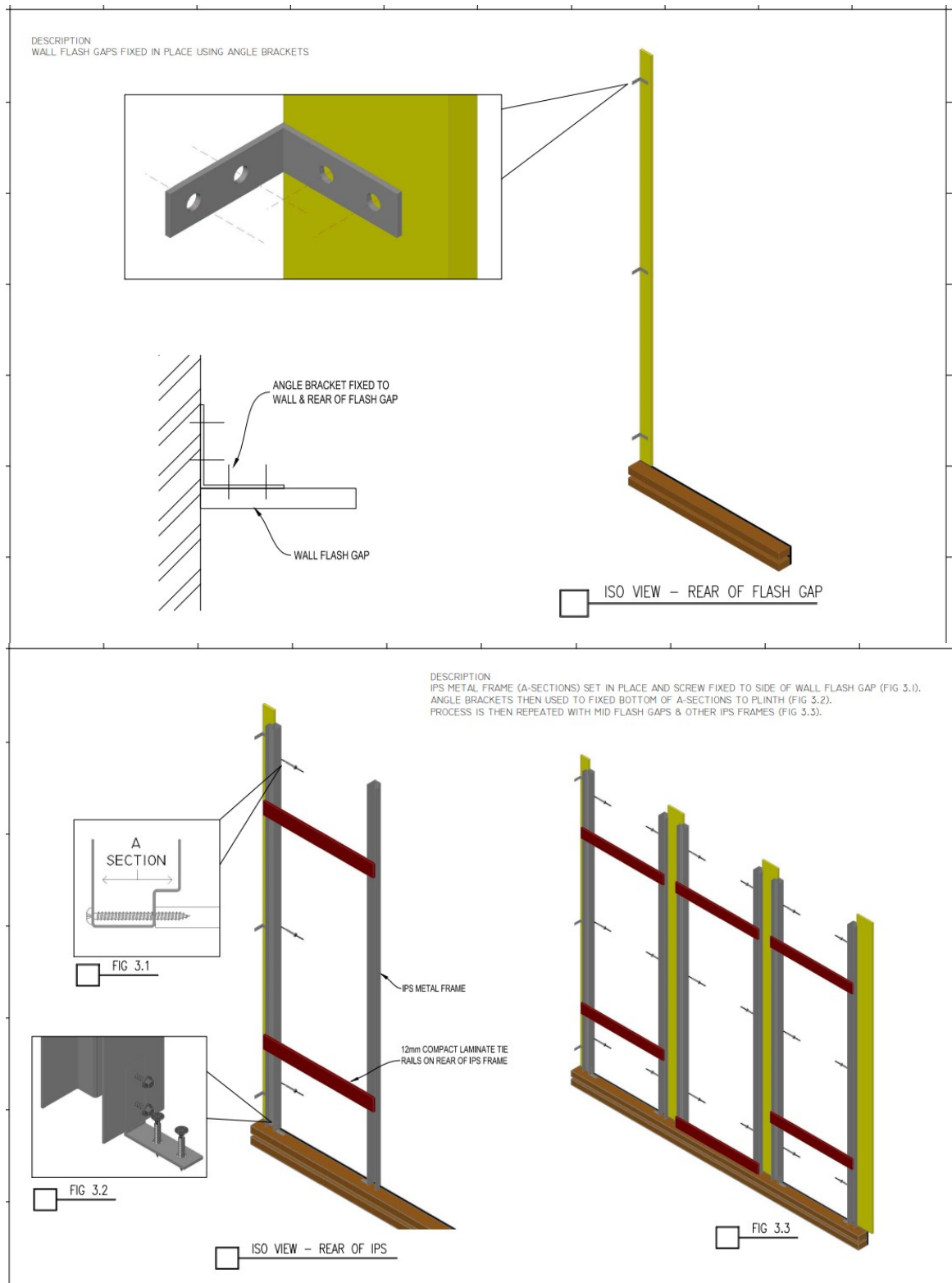
Subframe: 1.5mm DX51 Cold rolled galvanised steel sections, braced with compact laminate board. Site framing: Baserail – Treated timber battens 69 x 40 faced with 12mm compact or vinyl/tiling by others – Please refer to Appendix I.

Colour/Finish – to be selected from RAL range of colours, colours to be selected at later stage, allow for 5 different colours of IPS panels.

Accreditations should include: ISO 9001:2015, ISO 14001:2015, ISO 45001:2018.

Refer to schematic shop drawings of a system that meets the required standard.





19.0 FITTINGS

19.1 Coat hooks



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



Supply and fit good quality 12 gang stainless steel coat hooks in 10 no locations to be selected by the Architect and fixed on 20 x 100 x 400 mm planed cherrywood block finished with clear acrylic lacquer and securely fixed to walls.

19.2 Sanitary ware

A full schedule of sanitary ware is attached in the tender package. It is based on the Ideal Standard product range. Specialist sanitary ware that is not included into the Specification provided by Ideal Spec is specified on the TR 87 Sanitary Ware Schedule. Equal approved sanitary ware and fitting will be accepted subject to approval by the architect.

The space allowance and installation of all sanitary appliances should fully comply with the requirements of BS 6465-2, and DoHPLG Building Regulations Technical Guidance Document Part M.

The sanitary ware and fixings must comply with the following standards and any other relevant standards that apply to fixtures, fittings and components that are not necessarily listed hereunder. Vitreous china to BS EN 3402 BS EN 8300 compliant. WC cistern/suite, to EN997; Sinks to EN13310; Urinals to EN13407; SS troughs to EN14296; shower screens/enclosures to EN14428; whbs to EN14688. Thermostatic mixing valves to meet the requirements of the NHS Model Engineering Specification-D08 Valves and BS EN 1111 & BS EN 1287. All taps and accessories to meet WRAS minimum standards. Grab/hand rails should be contrasted in colour against walls, floors and doors (refer to BS 8300 Annex B).

In addition to the Specification provided by Ideal Spec (quantities as indicated in Ideal Spec specification):

- **Technology Room:** Multi System Washbasin Mounting – No 2 washbasins to include S0641 Care Plus washbasin mounting bracket, manually operated, vertical adjustment; S2252 Portman 21 washbasin 50cm, 1 taphole, no overflow or chainstay hole, material - Vitreous China; S0649 Care Plus flexible 70cm feed and 70cm waste system for vertical adjustment only; A6698 Contour 21+ 1 hole thermostatic basin mixer, single sequential lever with flexible tails, material - Chrome Plated Brass, flow rates A6698 3.9 Litres per minute @ 3 bar pressure. Supplied with service valves which include isolators, strainers, check valves, flow regulators and 15mm compression connections. Factory fitted 3.8 litre per minute flow regulator in an anti-vandal housing. 1.9 litre per minute eco spray outlet also supplied. Both require 1 bar minimum pressure. Product to be certified to NSF TMV3.

- **Home Economics Room:** Sandringham 1000mm stainless steel (stainless steel sheet to BS EN 10088:Part 2:2014) kitchen sink pack & drainer with single lever kitchen mixer, includes basket strainer waste. Tempo Single Lever Kitchen Mixer B0766 (Ideal Spec), Material: Chrome Plated, Finish: Chrome (AA), Flow rates: 5 Litres per minute @ 3 bar pressure.

- **Accessible WC:** Vitreous china to BS 3402 BS8300 compliant, HTM code: WC H. Contour 21+ raised height back-to-wall rimless toilet bowl with raised horizontal outlet and anti-microbial glaze, material – Vitreous China. Conceala 2 4.5 litre cistern, single flush syphon, side supply, internal overflow, plastic flushbend and long CP lever, material - plastic. Spatula cistern lever for Conceala cistern, close coupled, material - Chrome Plated Metal, HTM compliant. Contour 21 toilet seat only, top fixing hinges and retaining buffers, material – Plastic (seat to BS 1254), Contour 21 back support rail, Doc M, with clips for 75cm projection WC, 40 x 22 x 35mm diameter tube, material – aluminium, colour -Red: Ral=3020, LRV=12 and Cushion for back support with clips, new design, colour - white. Contour 21 37cm x 30cm handrinse washbasin, right handed, taphole, no overflow or chainstay hole, bottom outlet, short projection, wall mounted. Appropriate for Doc M, material - Vitreous China, washbasin to BS EN 14688 and BS EN 31. Hangers Concealed Steel, material – metal, a pop up waste cannot be fitted when using S9145 centre bracket. 1 1/4in x75mm Seal Plastic Bottle Trap, multi-purpose outlet, material – plastic. 1 1/4in Plastic Strainer Waste, dished pattern 80mm unslotted tail. (TP6) Contour 21+ 1 hole thermostatic basin mixer, single sequential lever with copper tails, material - Chrome Plated Brass, flow rates - 3.9 Litres per minute @ 3 bar pressure, Single sequential lever for on/off operation and temperature control. Supplied with service valves which include isolators, strainers, check valves, flow regulators and 15mm compression connections. Temperature factory set to 40±1°C. Product will work on low pressure providing the flow regulatoris removed and replaced using a flow guide (A960191NU). Factory fitted 3.8 litre per minute flow regulator in an anti-vandal housing. 1.9 litre per minute eco spray outlet also supplied. Both require 1 bar minimum pressure. Clamoring ring with three fixing screws for a secure fix to the basin which



will not come loose if installed correctly. Toilet Roll Holder For Contour 21 Hinged Support Arm, material – aluminium, finish option - (GQ) Red, Ral=3020, LRV=12. Contour 21 hinged support rail, 80 x 35mm diameter, Doc M Compliant, material – aluminium. Grab rails: Contour 21 Grab Rail, S6454, Straight, 60cm Long x35mm Diameter x 4 for room set, material – aluminium, colour -Red: Ral=3020, LRV=12. 450mm grab rail S6452, Contour 21 Grab Rail, straight, 45cm Long x35mm Diameter, material – aluminium, for back of door, colour -Red: Ral=3020, LRV=12.

- **Student's Toilet:** (quantities, excluding washbasins, as per the specification supplied by Ideal Spec), standards: WC bowl to BS EN 997 & BS EN 33, material – Viterous China, Sandringham 21 wall hung toilet bowl with horizontal outlet, Conceala Conceala 2 concealed cistern universal height, side inlet cistern - pneumatic dual flush valve - no flushplate - 6/4 litre flush, material – plastic. Uni toilet seat and cover, material – plastic, slow close, metal hinges. Oleas M2 mechanical dual flushplate Armitage Shanks - chrome, material – mixed material, colour - white. ProSys 1150mm height, mechanical wall hung WC frame, 120 depth, front actuation, Water saving smart valve (delay fill), material – mixed.

Contour HygenIQ 67cm waterless urinal bowl, concealed waste with Aquanil technology, material – Viterous China, Urinal concealed hangers, Steel, Toggle bolts to suit maximum 25mm panel thickness.

Sandringham 21 50cm semi-countertop washbasin – **8 washbasins to be supplied of this type fo student's toilet**, 1 taphole with overflow no chainstay hole, material – vitreous china, width – 500mm, depth – 440mm, capacity – 3.7 litres. Washbasin fixed to countertop with securing clips provided. Joint sealed with waterproof sealant (not supplied). Trap 1¼" plastic resealing bottle, 75mm seal, multi-purpose outlet. Waste 1¼" brass strainer waste, 80mm slotted tail. Avon 21 1 hole washbasin mixer, self closing push button, variable temperature with copper tube inlets. Flow regulated to 4.7 litres per minute maximum @ 3 bar pressure, material – chrome plated brass. Run time is adjustable from 5-20 seconds.

Portman 21 washbasin 50cm - **1 washbasin to be supplied of this type fo student's toilet**, 1 taphole with overflow, no chainstay hole, material – vitreous china, width – 500mm, depth – 420mm, wall fixing set. Senior/adult use fixing height - please, see room data sheets for the details. Washbasin wall mounted using E015767 wall fixing set. Waste 1¼" brass strainer waste, 80mm slotted tail, material - chrome plated metal. Trap 1¼" plastic resealing bottle, 75mm seal, multi-purpose outlet, material – plastic. Contour 21+ 1 hole thermostatic basin mixer, single sequential lever with copper tails, Fitted with 15mm copper tails. Factory fitted with a 3.8 litre per minute laminar flow regulator with anti-vandal housing. 2 litre per minute eco spray outlet also supplied loose in the box, material – chrome plated brass. HTM code TP6, flow rate - 3.9 Litres per minute @ 3 bar pressure. Single sequential lever for on/off operation and temperature control. Supplied with service valves which include isolators, strainers, check valves, flow regulators and 15mm compression connections. Temperature factory set to 40±1°C. Product will work on low pressure providing the flow regulator is removed and replaced using a flow guide (A960191NU). Factory fitted 3.8 litre per minute flow regulator in an anti-vandal housing. 1.9 litre per minute eco spray outlet also supplied. Both require 1 bar minimum pressure. Clamping ring with three fixing screws for a secure fix to the basin which will not come loose if installed correctly.

Grab Rails: Contour 21 grab rail straight 90cm long x 35mm diameter, concealed fixing, material – aluminium, colour – white x 2. S6454, Straight, 60cm long x35mm diameter, concealed fixing, material – aluminium, colour – white x 10. S6452, Contour 21 Grab Rail, straight, 45cm long x35mm diameter, material – aluminium, colour – white x 2.

Staff WC (male): (quantities, excluding washbasins, as per the specification supplied by Ideal Spec) standards: WC bowl to BS EN 997 & BS EN 33, material – Viterous China, Sandringham 21 wall hung toilet bowl with horizontal outlet. Conceala Conceala 2 concealed cistern universal height, side inlet cistern - pneumatic dual flush valve - no flushplate - 6/4 litre flush, material – plastic. Uni toilet seat and cover, material – plastic, slow close, metal hinges. ProSys 1150mm height, mechanical wall hung WC frame, 120 depth, front actuation, Water saving smart valve (delay fill), material – mixed. Oleas M2 mechanical dual flushplate Armitage Shanks - chrome, material – mixed material, colour - white.

Contour HygenIQ 67cm waterless urinal bowl, concealed waste with Aquanil technology, material – Viterous China, Urinal concealed hangers, Steel, Toggle bolts to suit maximum 25mm panel thickness.



Sandringham 21 50cm semi-countertop washbasin, 1 taphole with overflow no chainstay hole, material – vitreous china, width – 500mm, depth – 4400mm, capacity – 3.7 litres. Washbasin fixed to countertop with securing clips provided. Joint sealed with waterproof sealant (not supplied). Trap 1¼" plastic resealing bottle, 75mm seal, multi-purpose outlet. Waste 1¼" brass strainer waste, 80mm slotted tail. Avon 21 1 hole washbasin mixer, self closing push button, variable temperature with copper tube inlets. Flow regulated to 4.7 litres per minute maximum @ 3 bar pressure, material – chrome pleated brass. Run time is adjustable from 5-20 seconds.

Grab Rails: S6452, Contour 21 Grab Rail, straight, 45cm long x35mm diameter, material – aluminium, colour – white x 1. S6454, Straight, 60cm long x35mm diameter, concealed fixing, material – aluminium, colour – white x 6.

Staff WC (female): (quantities, excluding washbasins, as per the specification supplied by Ideal Spec) standards: WC bowl to BS EN 997 & BS EN 33, material – Vitreous China, Sandringham 21 wall hung toilet bowl with horizontal outlet. Conceala Conceala 2 concealed cistern universal height, side inlet cistern - pneumatic dual flush valve - no flushplate - 6/4 litre flush, material – plastic. Uni toilet seat and cover, material – plastic, slow close, metal hinges. ProSys 1150mm height, mechanical wall hung WC frame, 120 depth, front actuation, Water saving smart valve (delay fill), material – mixed. Oleas M2 mechanical dual flushplate Armitage Shanks - chrome, material – mixed material, colour - white.

Sandringham 21 50cm semi-countertop washbasin, 1 taphole with overflow no chainstay hole, material – vitreous china, width – 500mm, depth – 4400mm, capacity – 3.7 litres. Washbasin fixed to countertop with securing clips provided. Joint sealed with waterproof sealant (not supplied). Trap 1¼" plastic resealing bottle, 75mm seal, multi-purpose outlet. Waste 1¼" brass strainer waste, 80mm slotted tail. Avon 21 1 hole washbasin mixer, self closing push button, variable temperature with copper tube inlets. Flow regulated to 4.7 litres per minute maximum @ 3 bar pressure, material – chrome pleated brass. Run time is adjustable from 5-20 seconds.

Grab Rails: S6452, Contour 21 Grab Rail, straight, 45cm long x35mm diameter, material – aluminium, colour – white x 1. S6454, Straight, 60cm long x35mm diameter, concealed fixing, material – aluminium, colour – white x 4.

19.3 Window blinds

All external windows and internal windows where indicated to be fitted with screen blinds to satisfy the highest technical and aesthetic standards. Supply and install electrically operated roller blinds to the following specification:

- Hardware: 45mm Triple slotted aluminium roller;
- Fabric: 3% Screen polyester/vinyl fabric (colour TBC);
- Bottom bar: exposed aluminium tear drop bottom bar to match fabric selected;
- Motor: 230v AC radio controlled motor with internal radio receiver;
- Control: Remote programmable wall switch. Each switch will be programmed to have the same number of channels as the number of blinds in that particular room and an over-ride channel to operate all blinds in the room together.

Roof blinds to be 24vDC motorised translucent cellular blinds with radio receivers and remote wall switches. To be fitted to Waiting Area and Meeting Room's roof lights.

All blinds to have minimum 5 years guarantee; to comply with EN13120:2009+A1:2014 Internal blinds - Performance requirements including safety and Code of Practice for Fire Safety of Furnishings and Fittings in Places of Assembly; material used in the manufacture of blinds should meet the designation of "flameproof" when assessed in accordance with BS 3120:1959, a test certificate as in Appendix "C" should be obtained for each specified item;

20.0 SPECIALIST EQUIPMENT

20.1 Fume cupboard.

To be supplied, installed and commissioned by specialists in compliance with BS/EN 14175 including all connections and services, I.S. EN 1032 – 1:12003. Building Bulletin 88 Fume Cupboards in Schools: Department for Education and Employment, London



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH

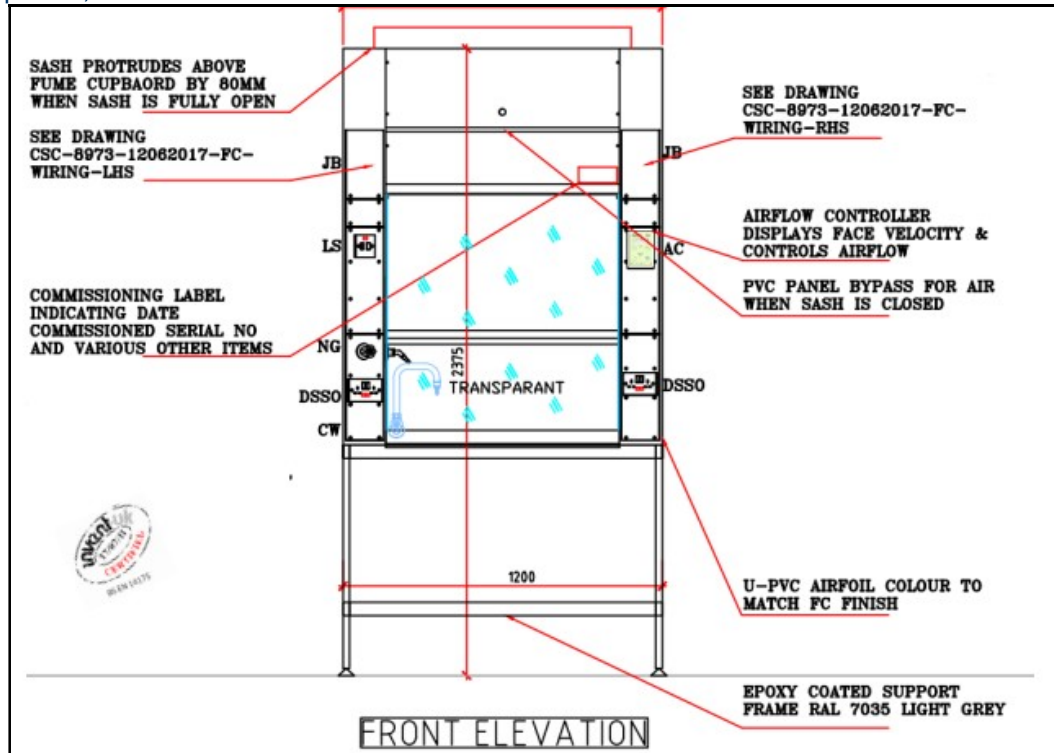




To be 1500x750x2375mm

6mm pvc outer skin; Compact laminate lining; 400/500 lux lighting; 220v 50Hz mains power; Epoxy resin worktop; CSC Modbus 2200 airflow monitor; 6mm toughened glass sash; Sash opening width of 500mm; MDF cupboard mainframe; Exhaust outlet and volume 200mm diameter and 0.295cum/sec; Vulcathene drip cup; Twin Electrical sockets; Gas and Water supply. All equal or approved to the layout below.

Also, please, see TR 88



20.2 Flagpoles

Hinged Base Flagpoles manufactured in white fiberglass with a hard outer gel coating to protect against weather. Complete with internal halyard ie lockable access cover, Anti Vandal.

Construction to be fiberglass or glassfibre; 7.0m Pole length; 120mm base diameter; 65mm top diameter.

Approx. weight 11kg; 180mmx180mm square baseplate dimension;

All secured to base plate sleeve 600x110mm set into foundation in accordance with structural engineers specification. In the absence of an engineers specification, allow for a 35N concrete cube 1.0x1.0x1.0m for each base.

Complete with internal halyard and pulley mechanism with access hatch at 1500mm over GL.

21.0 AIRTIGHTNESS TESTING

It is the main contractor's responsibility for achieving the required building air tightness by constructing in accordance with the architect's drawing and specification paying particular attention to junction details and wall finishes. An Airtightness Contractor may be employed to help ensure the building airtightness requirements are met.

The airtightness specification for all new schools and extensions is to be less than 3.0m³/hr/m² of measured envelope area at a test pressure of 50 Pascals.

The requirement to test the building at a suitable point in the programme by a competent specialist should be the responsibility of the contractor and included within the works requirements. The specialist shall be fully accredited by INAB (Irish National Accreditation Board) or UKAS (United Kingdom Accreditation Service) Accredited calibration laboratory to ISO 17025 for airtightness testing of commercial buildings in accordance with



Cavan Office:
 Navan Office:
 Telephone number:
 e mail:
 vat number:

1 Farnham St, Cavan, Co Cavan.
 7 Clonard House, Market Square, Navan, Co Meath.
 0469058173
 info@gcal.ie
 IE 3415637RH



CIBSE TM23: 2000 'Testing buildings for air leakage',
BS EN 13829:2001 'Determination of air permeability of buildings, fan pressurisation method'
ATTMA TS1 'Measuring air permeability of building.

Their appointment will be approved by the architect/design team.

The specialist company must demonstrate prior experience of works on projects of similar size and complexity. The design team and main contractor are to ensure that a copy of certification as per Appendix 1 of TGD-33 is submitted to the employer's representative for approval before the airtightness specialist is appointed.

Contractor to provide Detailed envelope area and red-line drawings of measured area for agreement no less than three weeks before the date of air testing. Contractor to provide an estimate of measured area and the capacity of the proposed test rig for review by employer's representative no less than one week before the date of air testing. The contractor shall advise the Design Team of the proposed test date one month prior to the test date.

The test must be programmed for a weekday and should be carried out at least three weeks prior to the planned completion date to allow remedial works and re-testing to be completed before handover if necessary. Sufficient notice must be provided to allow witnessing of the test by the Design Team and Employer's Representative.

The airtightness testing specialist must not have any involvement with the supply and/or installation of any specialist products or involved commercially or financially with any of the specialist products installed on any school buildings.

The test and recording equipment including the fan test rig and manometers must have a valid calibration certificate that is less than 12 months old on date of test.

The contractor shall liaise with the local fire brigade to ensure that they are aware of the smoke tests and to avoid unnecessary call outs. Call out costs shall be the responsibility of the contractor if incurred and this shall be stated in the works requirements.

The airtightness testing specialist shall designate a single person to supervise all aspects of measurements. The designated person shall liaise with employer's representative and the school authority until the results are provided to the employer's representative. The supervisor shall inspect the school and ensure that all necessary provisions are made for temporary sealing up of openings where permitted by the standard.

Airtightness test requirements and specification in Schools to be commenced strictly in accordance with IS EN ISO 9972 2017, Appendix 1 of TGD-033.

For further details, please, see specification document provided by mechanical & electrical engineer.

END OF SPECIFICATION