

Hydro Building Systems Limited

Specification for Aluminium Curtain Walling & Sloped Glazing

Project: **Impulse Leisure Centre – Lancing Manor**

Issued to: **Chris Monaghan, Adur & Worthing Council**

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SPECIFICATION REFERENCE DOCUMENT FOR ALUMINIUM CURTAIN WALL

H11 CURTAIN WALLING

To be read with Preliminaries/General conditions and attached footnotes

The footnotes at the end of this Specification apply to the information contained herein and the reader's attention is drawn to them.

TENDERING

10 INFORMATION TO BE PROVIDED WITH TENDER

Submit the following curtain walling particulars:

- Typical plan, section and elevation drawings at suitable scales.
- Typical detailed drawings at large scales
- Technical information and certification demonstrating compliance with the specification of proposed incorporated products and finishes.
- Certification, reports and calculations demonstrating compliance with specification of proposed curtain walling.
- Proposals for connections to and support from the building structure and building components.
- Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.
- Schedule of builder's work, special provisions and special attendances by others.
- Examples of standard documentation from which project quality plan will be prepared.
- Preliminary fabrication and installation method statements and programme.
- Schedule of products and finishes with a design life expectancy less than that specified on Clause 440, with proposals for frequencies and methods of replacement.
- Proposals for replacing damaged or failed products.
- Areas of non-compliance with the specification.

TYPES OF CURTAIN WALL

110 CURTAIN WALLING

- Supporting structure: - To be confirmed by the Contract Administrator.
- Curtain walling & Sloped glazing system:
  - Manufacturer and reference: **Hydro Building Systems Ltd, Tewkesbury, Gloucestershire, GL20 8SF. Tel: 01684 853500**
  - Product Reference: **Technal E52ST Curtain Walling system**
  - Type: Pressure equalised Capped 52 mm wide 'Stick' system notched mullion/ transom connections.
  - To include all products, fixings and interfaces necessary to complete the fabrication and installation. Performance criteria to comply with Internal framing member:
  - Material: Aluminium alloy to BS EN 755-9: 2016, Specification 6060 T66. Tolerances in accordance with EN12020.

- **External cover cap:**
  Material: Aluminium alloy to BS EN 755-9: 2016, Specification 6060 T66.
  Tolerances in accordance with EN12020.
- **Finish:**
  - Aluminium sections to be polyester powder-coated in accordance with BS EN 12206-1:2004
  - Colour: RAL colour to be confirmed by Contracts Administrator

  - All finishing to be undertaken by Hydro Building Systems Limited prior to delivery to fabricator.

- Glazing:
  - Glazing to be hermetically sealed double-glazed 28mm units, comprising inner pane of 6.8 mm Laminated glass with a low emissivity "soft coat" and an outer pane of 6mm Cool-lite SKN 165II toughened float glass to give 0.33 g-value glass, with an argon filled cavity and Warm edge spacer bar. The sealed units are to have a centre pane U value no greater than 1.0W/m²k.

  - All glass within 800mm from FFL shall be toughened or laminated. (Below 1500mm if within a door or 300mm of a door).

  - **Correct glass thickness is always subject to calculation by the sub contractor.**

  - Manifestation design and location to be confirmed by the Contract Administrator.

  - All glass and glazing shall conform to:
    BS.952-1: 1999: Glass for Glazing
    BS.6262: Parts 1-6: 2005 Code of Practice for Glazing Buildings;
    BS EN12600: 2002 Glass in building. Pendulum test. Impact test method and classification for flat glass
    BS EN 1279: Glass in Buildings. Insulating Glass Units.
    - Part 1:2004 Generalities, dimensional tolerances and rules for the system description
    - Part 2:2002 Long term test method and requirements for moisture penetration
    - Part 3:2002 Long term test method and requirements for gas leakage rate and for gas concentration tolerances.
    - Part 4:2002 Methods of test for the physical attributes of edge seals
    - Part 5:2005+A2:2010 Evaluation of conformity
    - Part 6:2002 Factory production control and periodic tests

  - Recommendations of the Glass and Glazing Federation should be adhered to.

    Notes:
    Heatsoak Testing Procedure
    We recommend Heatsoak testing is carried out where required in accordance with European Standard BS EN 14179: Heat soaked thermally toughened soda lime silicate safety glass. The emphasis of this procedure is to ensure that the glass temperature is maintained at 290ºC ±10ºC during the holding phase of the process cycle.

The heat soak process cycle consists of a heating phase, a holding phase and a cooling phase. In summary, the procedure consists of controlled heating of a complete volume of toughened glass from ambient room temperature to a temperature of 290ºC ± 10ºC and then holding it at that temperature for a minimum period of 2 hours before then allowing it to cool naturally. The procedure is carried out at various locations in audited ovens to ensure that the glass temperature during the holding phase is maintained at 290ºC ± 10ºC.

Thermal Safety Check Requirement
As with all laminated on non heat-treated glass types we strongly recommend that a thermal safety check is carried out by via the Installer. This should be carried out where blinds, external brise soliel, ceiling trench or similar may trap warm air pockets close to the non heat-treated pane. It is to be noted that laminated or non heat-treated glass are not compatible in spandrel areas.

Full Height Barrier glazing must comply with; BS6180: 2011 Barriers in and about buildings. Code of practice.

Please note that if glazed areas form a full height barrier then the glass may need to comply with BS6180:2011 which means that the inner pane may be required to meetrelevant POINT, U.D.L and LINE LOADS. If this is the case then the inner pane of glass would have to be a class A non break – either minimum 8.8mm thick or 10mm toughened or greater depending upon acoustic, wind loading, size & dimension of DGU's.

135 DOORS

MANUFACTURER AND REFERENCE

- N/A

GENERAL REQUIREMENTS/ PREPARATORY WORK

210 DESIGN

- Complete the detailed design of the curtain walling and associated features shown on the general arrangement drawings to meet the requirements of this specification.
- Coordinate detailed design with that for all related works.

215 DESIGN PROPOSALS

- Submission of design proposals: The general arrangement drawings indicate design intent but do not preclude submission with tender of reasonable alternative proposals for consideration.

220 SPECIFICATION

- Compliance Standard: The Centre for Window and Cladding Technology 'Standard for Building Envelopes' (hereinafter abbreviated to CWCT Standard) unless specified otherwise in this section.

- Reference information: For the duration of the contract keep available at the design office, workshop and on site copies of:
  - The CWCT 'Standard for Building Envelopes'
  - Publications invoked by the CWCT 'Standard for Building Envelopes'

230 INFORMATION TO BE PROVIDED DURING DETAILED DESIGN STAGE

- After acceptance of tender submit the following curtain wall particulars;
  - A schedule of detailed drawings and dates for submission for comments
  - A schedule of loads that will be transmitted from the curtain walling o the structure
  - Proposed fixing anchor details relevant to the structural design and construction
  - A detailed fabrication and installation programme in compliance with the main contractor master programme
  - Proposals to support outstanding applications for Building Regulation consents or relaxations

232 QUALITY PLAN

- Submit during the detailed design stage the following in accordance with BS5750 and BS EN ISO 9001;
  - A quality plan in compliance with CWCT 'Guide to good practice for facades', Section 6.
  - List of product information with latest revisions
  - Sub-contractors involved in the work
  - Sub-contractors' quality plans
  - Storage, handling, transport and protection procedures
  - Procedure for registering and reporting non-compliances
  - Maintenance procedures and calibration records
  - Certification that completed work complies with specification
  - Check list register to ensure all items have been inspected and non-compliances discharged

235 INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT OF CURTAIN WALL WORK

- Submit the following curtain walling particulars;
  - Detailed drawings to fully describe fabrication and installation.
  - Detailed calculations to prove compliance with all design/performance requirements.
  - Project specific fabrication, handling and installation method statements.
  - Certification for all incorporated components manufactured by others confirming their suitability for all locations in the curtain walling.
  - Recommendations for spare parts for future repairs or replacements.
  - Recommendations for safe dismantling and recycling or disposal of all products.

270 FABRICATION SAMPLES

- To be confirmed by the Contract Administrator.

280 MOCK UP

- To be confirmed by the Contract Administrator.

DESIGN/ PERFORMANCE REQUIREMENTS

305 CWCT 'STANDARD FOR SYSTEMISED BUILDING ENVELOPES'

- General: Unless specified or agreed otherwise, comply with;
  - Part 2 Loads fixings and movement
  - Part 3 Air water and wind resistance
  - Part 4 Operable components, additional elements and means of access
  - Part 5 Thermal, moisture and acoustic performance
  - Part 7 Robustness, tolerances, durability and workmanship

311 INTEGRITY

The Requirement: The curtain wall must resist wind loads, dead loads and design live loads and accommodate deflections and movements without damage.

- Design Wind Pressure: The curtain walling must accommodate a positive and negative design wind pressure of X Pascals, to be confirmed by the Contract administrator and/or installer.
- Soft body impact loads in accordance with BS EN 14019:2016 and BS EN 12600:2002 Glass in building. Pendulum test. Impact test method and classification for flat glass
  - I5/ E5
- Permanent Imposed loads:
- Temporary Imposed loads:
- Any additional loads to the curtaining walling such as maintenance access to be confirmed by the Contract Administrator.

312 INTEGRITY

- The Requirement: The curtain wall must resist wind loads, dead loads and design live loads and accommodate deflections and movements without damage.
- Design Wind Pressure: Calculate in accordance with BS 6399-2: 1997 (standard method including internal and external pressure coefficients) or National Annex to BS EN 1991-1-4: 2005+A1:2010.
  - Basic wind speed (Vb): 21m/s. To be confirmed by the Contract administrator.
  - Altitude factor (Sa):

- Directional factor (Sd): Determine from BS 6399: Part 2, Table 3.
- Seasonal factor (Ss): 1
- Probability factor (Sp): 1
- Terrain and building factor (Sb): Determine from BS 6399: Part 2, Table 4.
- Size effect factor: Determine from BS 6399: Part 2, Figure 4.
- Internal pressure coefficient (Cpi):
- External pressure coefficient (Cpe):

- Soft body impact loads in accordance with BS EN 14019:2016 and BS EN 12600:2002 Glass in building. Pendulum test. Impact test method and classification for flat glass
  - I5/
- Permanent Imposed loads:
- Temporary Imposed loads:

320 DEFLECTION UNDER DEAD LOADS

- The requirement: Deflection of framing members parallel to the curtain walling plane must not:
  - Reduce glass bite to less than 75% of the design dimension.
  - Reduce edge clearance to less than 3 mm between members and immediately adjacent glazing units, panel/facing units or other fixed units.
  - Reduce clearance to less than 2 mm between members and movable components such as doors and windows.

325 DEFLECTION UNDER WIND LOADS

- The requirement: Deflection of the curtain wall members should be in accordance with CWCT ‘Standard for Systemised building envelopes’ clause 3.5 2 and any additional requirements:

- The curtain wall must accommodate anticipated building movement as follows;

332 APPEARANCE AND FIT

- Design the curtain wall system;
  - To ensure position and alignment of all parts and features as shown on the preliminary design drawings
  - To accommodate deviations in the primary support structure
- Primary support structure: Before commencing installation of the curtain wall system, carry out survey sufficient to verify that the required accuracy of erection can be achieved.
- Give notice if the structure will not allow the required accuracy or security of erection.
- Curtain wall tolerances should be in accordance with the CWCT ‘Standard for Systemised building envelopes’

335 THERMAL MOVEMENT - SURFACE TEMPERATURE RANGES

The curtain wall should be able to accommodate thermal expansions in accordance with the temperature deviations specified in CWCT 'Standard for Systemised building envelopes'

340 AIR PERMEABILITY

clause 2.7.2 table 2.2 External surface temperatures and table 2.3 Internal room temperatures.

- Air Permeability in accordance with EN 12152: 2004 to class

  A4 (according to CWCT test sequence B)

- Water tightness in accordance with EN 12154: 2004 to class
  R7 (according to CWCT test sequence B)

370 THERMAL PROPERTIES

- The average thermal transmittance (U-value) of the curtain walling, calculated using the elemental area method, must be not more than 1.6W/m²K.The thermal performance should be calculated by the fabricator installer in accordance with EN ISO 10077-1.

410 SOUND TRANSMITTANCE

- Minimum weighted sound reduction index (Rw) to BS EN ISO 717-1 between external and internal surfaces of the curtain wall to be 31db RW, to be Confirmed by the Contract Administrator.

430 OPENING LIGHTS (WINDOWS)

- **Manufacturer and reference:**
- N/A

450 SAFETY

- The finished surfaces of curtain walling in all accessible internal and external areas must not:
  - Have any irregularities capable of inflicting personal injury.
  - Release irritant or staining substances.

TESTING

510 COMPARISON/ TYPE TESTING

- Comply with harmonised EN testing and classification standards;
  - Air permeability: Classification standard EN 12152 and Test standard EN 12153

- Water tightness: Classification standard EN12154 and Test standard EN 12155
- Wind resistance (serviceability and safety): Classification standard EN 13116 and Test standard EN12179

- Test results and reports: Before commencement of curtain wall fabrication and installation submit proof of compliance with this specification.

540 TEST SPECIMEN

- To CWCT Standard, clause 3.8.2, Standard sequence B, as follows:
  - Air permeability/leakage as clause 340
  - Watertightness - static as clause 350
  - Wind resistance - serviceability as clause 325
  - Air permeability/leakage as clause 340
  - Watertightness - static as clause 350
  - Watertightness - dynamic as clause 350
  - Wind resistance - safety as clause 325
  - Dismantle, inspect and record.

PRODUCTS

710 ALUMINIUM ALLOY FRAMING SECTIONS

- Material: Aluminium alloy to BS EN 755-9: 2016, Specification 6060 T66. Tolerances in accordance with EN12020.

712 ALUMINIUM ALLOY SHEET

- Material to BS EN 485, BS EN 515 and BS EN 573 in an alloy
- Temper and thickness suitable for the application and specified finish.

715 CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

- Standards: To relevant parts of BS 7668, BS EN 10029, BS EN 10113, BS EN 10137, BS EN 10155 and BS EN 10210
- Thickness: Suitable for the application, and for galvanizing or other protective coating.

717 CARBON STEEL SHEET

- Standards: To BS 1449: Part 1, BS EN 10149 and BS EN 10209

Grade and thickness: Suitable for the application, and suitable for galvanizing or other protective coating.

720 STAINLESS STEEL SHEET

- Standards: To relevant parts BS EN 10029, BS EN 10048, BS EN 10051, BS EN 10095 and BS EN ISO9445
- Grade: To BS EN 10088-2 austenitic, grade 1.4301 (304) generally, 1.4401 (316) when used externally or in extremely corrosive environments.
- Thickness: Suitable for the application

730 MECHANICAL FIXINGS

- Stainless steel: To BS EN ISO 3506, grade A2 generally, grade A4 when used in severely corrosive environments
- Carbon steel: To BS 4190 and suitable for galvanising or other protective coating.
- Aluminium brackets, rivets and shear pi ns: To relevant parts of BS EN 755.

732 ADHESIVES

- Generally: Must not be degradable by moisture or water vapour.

735 FIXING ANCHORS

- Type and use: Reviewed and approved by fixing manufacturers. Submit confirmatory information on request.
- Dimensions: not less than recommended by their manufacturers.
- Adjustment capability: Sufficient in three-dimensional adjustment to accommodate building structure and curtain walling fabrication/installation tolerances.

737 GLASS GENERALLY

- Standards: To BS 952 and the relevant parts of;
  - BS EN 572 for basic soda lime silicate glass
  - BS EN 1096 for coated glass
  - BS EN 1748 for borosilicate glass
  - BS EN 1863 for heat strengthened soda lime silicate glass
  - BS EN 12150 for thermally toughened soda lime silicate glass
  - BS EN 13024 for thermally toughened borosilicate glass
  - BS EN ISO 12543 for laminated glass
- Glass quality: Free from scratches, bubbles, cracks, rippling, dimples and other defects.
- Glass edges: Generally undamaged. Shells and chips not more than 2mm deep and extending not more than 5mm across the pane are acceptable if ground out.

745 INSULATING GLASS UNITS

- Standard and labels for hermetically sealed units: To BS EN 1279
- Label: Each pane
- Perimeter taping: Not to be used.
- Perimeter seals:

- Resistant to UV light degradation on exposed edges
- Compatible with structural, weather and assembly sealants

760 GASKETS

- Material:
  - Non-cellular rubber to BS 4255: Part 1
  - Cellular rubber to ASTM-C509.
- Outer gaskets of single front sealed curtain walling systems and inner gaskets of drained and ventilated or pressure equalised curtain walling systems must have frame with sealed corner joints
- Durability: Resistant to ozone, oxidisation and UV degradation.

770 GENERAL SEALANTS

- Selection: In accordance with BS 6213 from:
  - Silicone
  - One part polysulfide
  - Two part polysulfide
  - One or two part polyurethane
- Classification and requirements: To BS EN ISO 11600
- Reaction to contact products and finishes: Stable and compatible

772 CURTAIN WALLING JOINT ASSEMBLY SEALANTS

- Material: One part low modulus silicone to BS 5889, type F or G, neutral curing where in contact with or close proximity to other products which may be adversely affected by acetoxy curing.
- Manufacturer and product reference: Refer to Elegance 52ST product manual.

FINISHES

810 PROTECTIVE COATING OF CARBON STEEL FRAMING SECTIONS/ REINFORCEMENTS

- Treatment: One of the following to all surfaces;
  - Hot dip galvanized to BS 729
  - An appropriate equivalent coating to BS 5493, BS EN ISO 12944 or BS EN ISO 14713

820 PROTECTIVE COATING OF CARBON STEEL MECHANICAL FIXINGS

- Treatment: One of the following to all surfaces;
  - Hot dip galvanized to BS 729
  - Sherardized to BS 4921, class 1 coating thickness and passivated

- Zinc plated to BS 1706, coating classification Fe/Zn 12 and chromate conversion class 2C or 2D.

830 POWDER COATING

- All profile finishing to be undertaken by Hydro Building Systems prior to delivery to the fabricator, excluding any pressings, flashings and other ancillary items.

FABRICATION AND INSTALLATION

- Requirement: As section Z31
- Requirement: As section Z33

910 GENERALLY

- Electrolytic corrosion: Prevent. Submit proposed methods.
- Fixings: Concealed unless indicated on detailed drawings. Where exposed they must match material and finish of the products fixed.
- Fabrication: Machine cut and drill products in workshop wherever possible.
- Identification of products: Mark or tag to facilitate identification during assembly, handling storage and installation. Do not mark surfaces which are visible in the completed installation.

912 METALWORK

- Requirement: As section Z11, unless specified otherwise in this section.

915 GLAZING

- Requirement: As section L40, unless specified otherwise in this section.
- Fix directional patterned/wired glass parallel to surround and align adjacent panes where seen together at close quarters.

917 FIXINGS/ ADHESIVES APPLICATION

- Requirement: As section Z20, unless specified otherwise in this section.

920 SEALANT APPLICATION

- Requirement: As section Z22, unless specified otherwise in this section.

930 ASSEMBLY

- Carry out as much assembly as possible in the workshop.
- Joints, other than movement joints, must be rigidly secured, reinforced where necessary and fixed with hairline abutments.

955 FIXING ANCHOR INSTALLATION

- Take precautions to prevent displacement of components in assembled units. Obtain approval for any reassembly on site.

- Site drilling or cutting into structure: Submit proposals for positions other than shown on detailed drawings.
- Concrete supporting structure:
  - Cast in inserts: Provide detailed locational information. Protect cavities in inserts from entry of concrete.
  - Fixing edge distances: Not less than recommended by fixing manufacturer
- Corrective fabrication: Minimise. Where necessary submit proposals

970 CURTAIN WALLING INSTALLATION

- Set out straight, parallel and truly aligned.
- Secure to fixing anchors through holes formed during fabrication only.
- Tighten all mechanical fixings to manufacturer's recommended torque figures. Do not over tighten fixings intended to permit differential movement.
- Remove protective coverings only where necessary to facilitate installation and from surfaces which will be inaccessible on completion.

975 WELDING

- In situ welding is not permitted

980 INTERFACES

- Ensure that flashings, closers, etc are located correctly and neatly overlap the curtain walling to form a weather tight junction.

982 IRONMONGERY

- Assembly and fixing: Accurately using fastenings with matching finish supplied by ironmongery manufacturer.
- Prevent damage to ironmongery and adjacent surfaces.
- At completion check, adjust and lubricate as necessary to ensure correct functioning.

985 MAINTENANCE

- Maintenance manual: Incorporate details within the building manual in accordance with CWCT 'Standard for systemised building envelopes', Section 7.6.1.
    - Material certification and test reports to be included.

The footnotes at the end of this Specification apply to the information contained herein and the reader's attention is drawn to them.

Footnotes for Specifiers only

Footnotes to be used on all specifications which includes NBS

Information is given on an advisory basis only and specifiers are particularly recommended to contact suppliers of non-Hydro Building Systems Limited products to ensure that such products are suitable.

Hydro Building Systems recommends that a pilot window be installed prior to the commencement of the works.

Footnotes Continued

Glazing
Hydro Building Systems Limited recommends that a glazing thermal safety check be carried out by the glass or sealed unit supplier/manufacturer.

Scope
The Specification and accompanying Schedule of window configurations have been designed to replicate the existing arrangements.

Any Window and Door Schedules are issued by Hydro Building Systems Limited for the principal purpose of defining the window and door sizes and configurations that this specification refers to. Hydro Building Systems Limited are not liable for the accuracy of any quantities shown on the Schedule, which should be re-assessed by the Specifier.

Calculation
Due to possible changes of design and usage after the compilation of this specification we recommend that the window fabricator/installer calculate framing requirements to comply with Approved Document K3 and BS6180 with regard to loading and barriers. Wind load calculations relating to framing and profile specifications have been carried out on a preliminary basis only using information available at the time, and a basic form of calculation to BS6399 Pt2 1995 or BS EN1991-1-4. The fabricator/installation contractor should provide detailed wind load calculations based on full and final information at the point of order, based on BS6399 Part 2 1997 or BS EN 1991-1-4.

Specifiers are advised to check as to whether solar control glass is required to comply with Approved Document L (April 2006/10 of the Building Regulations in respect of solar overheating, or if other methods of solar shading are necessary).

Fire Exit
In accordance with BS EN 1125, panic exit bars alone should be fitted to doors located at designated escape points. The Specifier should ensure that all such locations are identified as such prior to manufacture.

Fire Escape

Certain Window configurations may not meet the requirement of Approved Document B (2000) of the Building Regulations for a fire escape window. Altering the configurations may achieve compliance.

Safety in Use
Due to client preference or conflicting regulations and standards the windows described above may not/do not comply with the safe internal cleaning requirements of BS8213-1:2004 terms of reach.
Introducing alternative window configurations may result in a greater degree of compliance with BS8213 Pt.1.
BS8213: Part 1 2004 (Code of Practice for Design for Safety in Use and During Cleaning of Windows…) requires a Risk Assessment to be carried out. Please note that Hydro Building Systems cannot carry out such an assessment as we have insufficient knowledge of the occupation and operation of the building. However, we will be happy to contribute our specialist knowledge to a Risk Assessment carried out by others. Consult your Hydro Building Systems Project Consultant for more details.

Thresholds
Door thresholds have not been specified to comply with Approved Document M due to the multi storey nature of the building.

Document L

The windows/screens ref xxxxxx is assumed to be “display glazing” and therefore not subject to Building Regulation Part L.

The information contained in this Specification is given on an advisory basis only and specifiers should contact suppliers of non-Hydro Building Systems Limited products to ensure that such products are suitable.

Unless expressly agreed otherwise in writing by Hydro Building Systems Limited, specifiers and/or any third party to whom this Specification may be provided must carry out their own design work (including calculations etc) to ensure that Hydro Building System Limited's products are suitable for
Footnotes for Specifiers only (cont)
their particular project. Hydro Building Systems Limited accepts no liability to specifiers and/or any third party in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever in respect of the design of the particular project.

In respect of the information contained in this Specification, unless expressly agreed otherwise in writing by Hydro Building Systems Limited:

(a) specifiers and/or any third party to whom this Specification may be provided should satisfy themselves as to suitability or not of Hydro Building System Limited's products for their particular project; and

(b) Hydro Building Systems Limited shall not be liable to specifiers and/or any third party in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever, and whatever the cause thereof, (i) for any increased costs or expenses, or (ii) for any loss of profit, business, contracts, revenues or anticipated savings, or (iii) for any special indirect or consequential damage of any nature whatsoever."

In any event, specifiers will (unless expressly agreed otherwise in writing by Hydro Building Systems Limited) indemnify Hydro Building Systems Limited against all actions, proceedings, claims or

demands in any way connected with the information contained in this Specification including (but not limited to) the use of such information in the design of the particular project.

NO FIRE-RATED PRODUCTS HAVE BEEN DISCUSSED OR SPECIFIED