Benx Rainscreen System
Typical H92 Project Specifcation

SlipFast Allface on SFS 0.18W(m2K)

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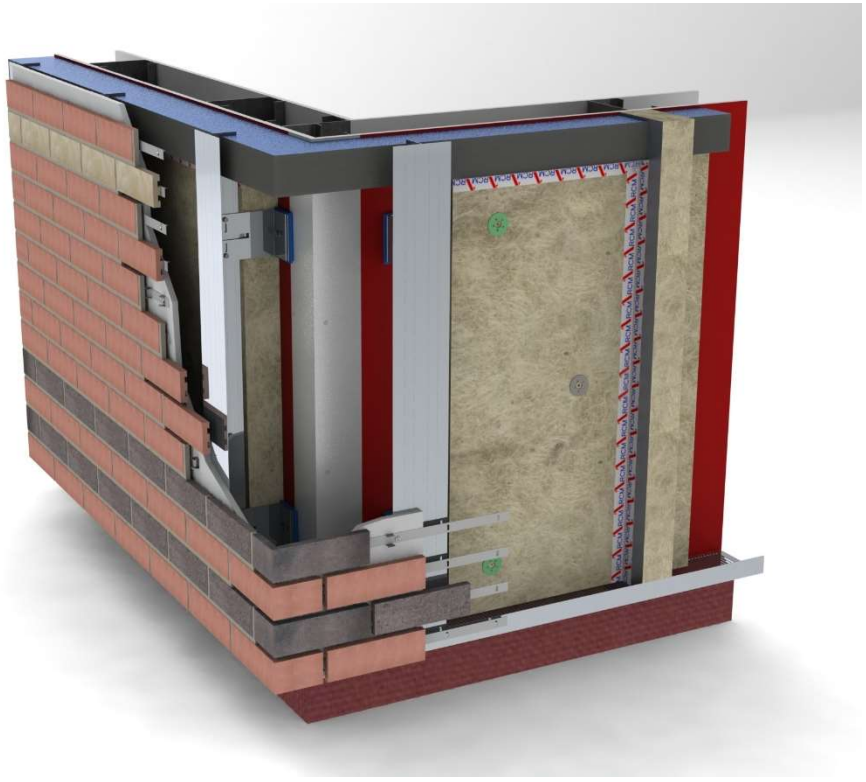
Project:	Targeted Specification
Project Reference:	‘U’ value 0.18 W(m2K)
Specification Number:	n/a
System:	SlipFast Allface on SFS frame substrate
Substrate:	Steel Framed Structure with Sheathing Board
Insulation:	Dual Density Mineral Wool Rainscreen Slab
Thickness	349mm.
Method of Fixing:	Allface aluminium support system (Subject to design)
System Finish:	SlipFast extruded clay brick slips
Accreditation:	3146 SlipFast Steel & Timber Frame BAW-20-173-S-A-UK 21.07.2022 CD N3P



Typical corner fixed to Allface on a SFS substrate.

Key Contact Details

Regional Sales Manager: n/a – Specification Manager

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Supporting Links Technical Downloads
NBS Plus – RCM

Date of Issue: 24/10/2023
Prepared by: Benx Technical Services

Project Specification Revision Record (for use on project specific specifications)

Version Number	Date of Issue	Key Revision Amendments / Additions	Requested By	Prepared By	Checked By
A	24/10/2023	Intumescent strip	Facades	MT	MT

Quality Assurance Note :-

The following specification should be read in conjunction with Benx Quality Assurance documentation, best practice, and installation guidelines.

Benx ISO CERTIFICATION

- ISO 14001 - ENVIRONMENTAL REGISTERED COMPANY CERTIFICATE No. SP240368
- ISO 9001 - REGISTERED COMPANY CERTIFICATE No. SP240367
- ISO 45001 - HEALTH & SAFETY CERTIFICATE
- ISO 50001 - ENERGY MANAGEMENT

BENX Ltd. SPECIFICATION: SlipFast Allface on SFS frame substrate

H92 RAINSCREEN CLADDING

To be read with Preliminaries/General conditions.

This section covers the Benx Rainscreen system for external walls with the inclusion of:

- Sheathing Boards and fixing to Substrate
- Airtight solutions
- Rainscreen Insulation
- Cavity Barriers
- Support frame options
- Carrier board with primer coat to face
- Façade SlipFast extruded clay slip bricks

Drawing References:

- 5307-TD-SW.YW0.18-SFS-MW-P-00 Typical Details, Key Drawing
- 5307-TD-SW.YW0.18-SFS-MW-P-01 Typical Details, Vertical Joint
- 5307-TD-SW.YW0.18-SFS-MW-P-02 Typical Details, Horizontal joint
- 5307-TD-SW.YW0.18-SFS-MW-P-03 Typical Details, Internal Corner Cantilever
- 5307-TD-SW.YW0.18-SFS-MW-P-04 Typical Details, Internal Corner Fixed
- 5307-TD-SW.YW0.18-SFS-MW-P-05 Typical Details, External Corner Cantilever
- 5307-TD-SW.YW0.18-SFS-MW-P-06 Typical Details, External Corner Fixed
- 5307-TD-SW.YW0.18-SFS-MW-P-07 Typical Details, Jamb detail
- 5307-TD-SW.YW0.18-SFS-MW-P-08 Typical Details, Window cill detail
- 5307-TD-SW.YW0.18-SFS-MW-P-09 Typical Details, Window head Detail
- 5307-TD-SW.YW0.18-SFS-MW-P-10 Typical Details, Base Detail
- 5307-TD-SW.YW0.18-SFS-MW-P-11 Typical Details, Coping Detail
- 5307-TD-SW.YW0.18-SFS-MW-P-12 Typical Details, Soffit Detail
- 5307-TD-SW.YW0.18-SFS-MW-P-13 Typical Details, Movement Joint Vertical
- 5307-TD-SW.YW0.18-SFS-MW-P-14 Typical Details, Services Penetration
- 5307-TD-SW.YW0.18-SFS-MW-P-15 Typical Details, Flue, or extract fan detail
- 5307-TD-SW.YW0.18-SFS-MW-P-16 Typical Details, Brickwork abutment joint
- 5307-TD-SW.YW0.18-SFS-MW-P-17 Typical Details, Joint with other cladding
- 5307-TD-SW.YW0.18-SFS-MW-P-18 Typical Details, Abutment Joint with other cladding
- 5307-TD-SW.YW0.18-SFS-MW-P-19 Typical Details, Soffit detail
- 5307-TD-SW.YW0.18-SFS-MW-P-20 Typical Details, Heavy duty external fixing detail
- 5307-TD-SW.YW0.18-SFS-MW-P-21 Typical Details, External fixing detail

Manufacturers:

- Sheathing Boards: Y-Wall,
- Airtight Solutions: Proctor, DAFA, Illbrook
- Support Frame: Allface aluminium support system (Subject to design)
- Cavity Barriers: BENX Facades
- Rainscreen Insulation: Rockwool,
- Carrier board Renderflex
- Façade: BENX Facades

Rainscreen Cladding System:

Benx SlipFast Allface on steel frame substrate / Type: Ventilated

Primary Support Substrate:

Steel frame Substrate/Existing structure and structural elements/ All to be advised by full structural survey (Not undertaken by Benx).

Rainscreen Type: SlipFast– *All SlipFast system components are to be supplied by BENX Façades Ltd.*

Sheathing Board

BENX Facades: Y-WALL (Walls, Breather membrane optional)

- Material: Calcium silicate-based fibre cement building board.
- Thickness: 12mm (1200 x 2400mm boards)
- Finish/Colour: BENX Facades Y-wall has one smooth face and one textured face, the smooth face should be fixed outermost, Colour: light grey/light pink.
- Fixing system: Self-drilling wingtip fixings
- Fasteners: BENX Facades countersunk self-drilling, zinc coated screws FIX005 4.2x42mm (Use stainless steel in marine environments)
- Number and location of fasteners: BENX Facades Y-wall edge distance is 12-15mm except at the board corners where fixings should be moved up or down to achieve 50mm. Fixings should be fixed using a maximum 600mm x 300mm grid pattern. (See BENX Facades/Y-Wall Fixing guide).
- Joint type: Open from 2 to 5mm

ACCESSORIES

Tapes / Joint Sealant

TAPES

- DAFA UV Tape, to sheathing boards joints, single-sided polyester base tape, 60 and 100 mm width

JOINT SEALANT

- BENX Facades: FR Pro, sheathing board joint sealant, fire resistant silicone sealant
- BENX Facades: RCM Joint sealant liquid
- BENX Facades: Expanding Sealant tape, seals and joints, fire retardant flexible open cell polyurethane foam.

EPDM / Breather Membranes

This section can be composed of a combination of different types of membranes and tapes, fulfilling all of them the requirements of the Benx Rainscreen system.

EPDM

- BENX Facades: ME220, Ethylene Propylene Diene Monomer rubber 100-300mm width
- BENX Facades: ME241, Ethylene Propylene Diene Monomer rubber, corner accessories
- BENX Facades: RCM015, High tac EPDM adhesive fixing membrane to sheathing board.

BREATHER MEMBRANES / ADHESIVE

- PROCTOR Wraptite, Triple layer polypropylene microporous film laminate, with a proprietary acrylic moisture vapour permeable adhesive and silicon coater PET release liner 1500mm width

Cavity Barriers

Provision of cavity barriers is given for specified locations in conjunction with the project engineer.

VERTICALS

- Material: Polythene sleeved Rockwool CSCB
- Manufacturer: BENX-AM Fire Barrier Slab
- Thickness: 75mm
- Finish/Colour: Foil facing, Colour Silver.
- Fixing system: Push fitted into place.
- Fasteners: Stainless-steel fixing clips and Coarse wound screws
- Number and location of fasteners: Clips may be omitted when the barrier is less than 250mm, 2 clips per 1mm length are required for cavities up to 400mm, and 3 clips per 1m length are required for cavities over 400mm.
- Joint type: Fire barrier slabs to butt together.

HORIZONTALS

- Material: Intumescent strip, 25mm expansion
- Manufacturer: BENX-AM Open State Cavity Barrier FF102/50
- Dimensions: 75x6mm
- Finish/Colour: Foil facing, Colour Silver.
- Fixing system: Mechanically fitted into place. Butt end joints
- Fasteners: Stainless-steel screws
- Number and location of fasteners: Screws may be fitted at 500mm max. centres, with a minimum of two screws per individual length.
- Joint type: Fire barrier slabs to butt together.

ACCESSORIES

- BENX Facades mastic sealant fire rated.
- Fixings to generic substrate to specification
- Stainless-steel fixing clips and Coarse wound screws

Secondary Support System:

ALLFACE (Aluminium)

ALLFACE extruded 'T' and 'L' aluminium rails range with adjustable helping hand wall brackets F1x3/F1+ x5 to the existing structure at centres determined in conjunction with project engineer and relevant wind load calculations in accordance with BS 6399 part II

- Material: Aluminium EN-AW 6060 T66
- Rails: 'L' 60x40x2mm Mill finished A-L04006020
- Rails: 'T' 100x60x2mm Mill finished A-T10006020
- Wall Brackets F1x3 Mill finished with 3 slots in face 1x11mm & 2x6.5mm 65x90mm and throat depth range: 170mm.
- Wall Brackets F1+x5 Mill finished with 5 slots in face 2x11mm & 3x6.5mm 65x175mm and throat depth range: 170mm.
- Fasteners Bracket to rail: A2 - Self drilling Ø4.8 x 19mm (FIX 034) 2 per bracket F1 and 4 per bracket F1+
- Fasteners Bracket/Isolator pad fixing through sheathing board into SFS: A2 - Self drilling steel fixing and washer, 2 per bracket (subject to project static design)
- Fasteners Rail to Carrier Board: Self drilling Ø4.8x38mm countersunk head.
- Number and location of fasteners: At a max. spacing of 600mm between intermediate supports (rails), and 300mm max. along intermediate supports. Around board edges max. 50mm
- Accessories: ALLFACE UV-stabilised high-density polyethylene I.F1.CNM 71.2x97x5mm -I.F1+.CNM 71.2x182x5mm

Insulation

KNAUF - MINERAL WOOL INSULATION

- Material: Earthwool Rainscreen slab is a lightweight, non-combustible rock mineral wool slab containing a water repellent additive.
- Manufacturer: KNAUF Insulation.
- Thickness: 140mm (600 x 1200mm slabs)
- Finish/Colour: Yellow
- Fixing system: Plastic and stainless-steel washers with steel or stainless-steel fasteners
- Number/location of fasteners: type and quantities per m2, see installation manual
- Joint type: Insulation slabs to butt together.

Carrier Board

BENX Facades: Renderflex

- Material: Cellulose fibre cement render carrier board.
- Thickness: 12mm (1200 x 2400mm boards)
- Finish/Colour: BENX Facades Renderflex has one smooth face and one textured face, the smooth face should be fixed outermost, Colour: light grey.
- Fixing system: Ø4.2x42mm FIX005 self-drilling
- Fasteners: BENX Facades countersunk self-drilling, zinc coated screws FIX005 4.2x42mm (Use stainless steel in marine environments)
- Number and location of fasteners: BENX Facades Y-wall edge distance is 12-15mm except at the board corners where fixings should be moved up or down to achieve 50mm. Fixings should be fixed using a maximum 600mm x 300mm grid pattern. (See BENX Facades/Y-Wall Fixing guide).
- Joint type: max. 3mm

ACCESSORIES

TAPES

- DAFA UV Tape, to sheathing boards joints, single-sided polyester base tape, 60 and 100 mm width
- BENX Facades: ME315 Tape, to sheathing boards joints, single-sided polyester tape, 60mm width

PRIMER COAT

- BENX Facades: Ecorend S10 bonding primer, silicone resin-based primer.

SUPPORTING RAILS

- SF-Flat: flat support rail, grade 304 stainless steel.
- SF-Crimp: mechanical brick slip clip, grade 304 stainless steel.
- Fixings: R-PHST-48016-a2 grade 304 stainless steel self-tapping screw with pan head Ø4.8x16mm at a maximum 225mm centres.

Brick Slips

BENX Facades: SlipFast

- Material: Clay
- Dim: 65x215x15mm
- Finish/Colour: Contact our sales teams for the colour range.
- Fixing system: SF-FLAT+CRIMP
- Joint type: Pointing mortar.

ACCESSORIES

BEADS/TRIMS/PROFILES/RAILS :

Full System Beads

- Length: 2.5m
- Aluminum Base bead Ref. ABP-D100
- Full depth stop bead Ref FSS-100
- Vertical movement bead Ref.ESPS/3036
- Vertical movement bead (Internal Corner) Ref.ESPS/3035
- Horizontal movement bead combination- Ref:ABP-D100 Plus Clip on bead Ref.ESPS/9182 Plus Lower base angle Ref.ESPS/9181
- N.B – the above Horizontal movement bead must be used in conjunction with the specified starter track.

POINTING MORTAR

- Pointing mortar: PM1 pre-coloured, water repellent, frost-resistant, cement based polymer modified mortar, in accordance with BS EN 13888

GENERAL REQUIREMENTS/PREPARATORY WORK

210 DESIGN

- Rainscreen cladding system and associated features: Complete detailed design in accordance with this specification and the preliminary design drawings and submit before the commencement of fabrications.
- Related works: Co-ordination detailed design.

215 DESIGN PROPOSALS

- Submission of alternative proposals: Preliminary design drawings indicate intent. Other reasonable proposals will be considered.

220 SPECIFICATION

- Compliance standards: The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
- Reference information: For the duration of the Contract, keep available at the design office, workshop and on-site copies of:
- The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
- Publications invoked by the CWCT 'Standard for systemised building envelopes'.

230 INFORMATION TO BE PROVIDED DURING DETAILED DESIGN

Submit the following cladding particulars:

- A schedule of detailed drawings and dates for submission for comment.
- A schedule of loads that will be transmitted from the rainscreen cladding to the structure.
- Proposed fixing details and systems relevant to the structural design and construction with methods of adjustment and tolerances.
- A schedule of fabrication tolerances/ size tolerances.
- A detailed testing programme in compliance with the Main Contract master programme.
- A detailed fabrication and installation programme in compliance with the Main Contract master programme.
- Proposals to support outstanding applications for Building Regulation consents or relaxations.

235 INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT OF TESTING OR MANUFACTURE OF RAINSCREEN CLADDING SYSTEM

Submit the following particulars:

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

DESIGN /PERFORMANCE REQUIREMENTS

310 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 6 - Fire performance.
- Part 7 - Robustness, durability, tolerances, and workmanship.

Project performance requirements specified in this subsection: Read in conjunction with CWCT performance requirements.

335 INTEGRITY

- Requirement: Determine sizes and thickness of brick-slip sizes, number and spacing of fixings, configuration and location of secondary support systems and incorporation of other accessories and fittings to ensure the cladding system, primary support structure and other elements forming the rainscreen wall will resist factored dead, imposed and design live loads, and accommodate deflections and movements without damage.
- Design wind pressure: Calculate to BS EN 1991-1-4, Standard Method appropriate to the location, exposure, height, building shape, and size taking account of existing and known future adjacent structures.
- Impact performance to CWCT Technical notes TN75 AND TN76
- Safety Impact requirements to CWCT Table 1 in TN75
- Serviceability impact requirements CWCT CLAUSE 2.3.4.2
- External Impact exposure Table 3 in CWCT TN75
- Hard and Soft body impact loads BS EN 14019 CWCT TN75-76
- Imposed loads Clause 335 and 340
- Design wind pressure Calculate in accordance with BS EN 1991-1-4 AND National Annex BS 6399-2
- Impact performance:
    - Safety impact requirements
        - To CWCT TN75 negligible risk
        - To CWCT TN75 low risk
        - To CWCT TN75 moderate risk
        - To CWCT TN75 high risk
    - Serviceability impact requirements
        - To CWCT TN75 serviceability class 1
        - To CWCT TN75 serviceability class 2
        - To CWCT TN75 serviceability class 3
        - To CWCT TN75 serviceability class 4
        - To CWCT TN75 serviceability class 5
    - External impact exposure in accordance with CWCT TH75
    - Hard and soft body impact loads to BS EN 14019

350 DEFLECTION UNDER WIND LOAD

- Requirement: For listed components, at positive and negative applications of the design wind pressure, normal deflections are not to exceed: Allowable deflection ratio for panel 1/300 between panel supports.
- Additional stiffness to CWCT 'Standard for systemised building envelopes' clause 3.5.4.2: Not allowed

360 WIND RESISTANCE – CYCLICAL LOADING

Requirement: No reduction in the performance of the rainscreen cladding must occur when subjected to the test sequence given in CWCT 'Standard for systemised building envelopes,' clause 8.14.6.

Test method: As clause 665. Effective wind pressure has been applied for 10,000 cycles.

370 APPEARANCE AND FIT

Requirement: Design rainscreen wall:

- To ensure position and alignment of all parts and features as shown on preliminary design drawings.
- To accommodate deviations in the primary support structure.
- Primary support structure: Before commencing installation of the rainscreen cladding system, carry out survey sufficient to verify that required accuracy of erection can be achieved.
- Give notice: If the structure will not allow the required accuracy or security of erection.

Design tolerances:

- Acc. EN 1090-2: additional tolerance: class 1 acc. EN 1090-2

Rainscreen envelop zone tolerances:

- Adjustable wall bracket to accommodate deviations in the primary support structure.
- Maximum permitted component and installation tolerances: There should be a maximum setting out tolerance of +/-1 mm (non-cumulative) across the width of the panel. Because of the adjustment available within the system there should be 0 mm misalignment on the front face of the panel.
- Panel length +/-2 mm
- Panel width +/-1 mm
- Secondary support bracket length +/-1 mm
- Panel tolerance +/-2 mm, installation tolerance +/-2mm, overall = +/-4mm

380 GENERAL MOVEMENT

Requirement: Rainscreen cladding must accommodate anticipated building movements as follows:

- Incorporation of movement joints where required. To be advised by the Architect / Designer at design stage.

390 AIR PERMEABILITY EXFILTRATION

- Requirement: Average air leakage rate through the listed walls at a differential pressure of 50 Pascal's must not exceed: All external walls: 4 $m^3/(h.m^2)$ at a test pressure of 50 Pa.

410 AIR PERMEABILITY

- Requirement: No regions of concentrated airflow through the air barrier, its closures or interfaces with windows, doors, or other penetrations through the wall at a test pressure of 200 Pa.

420 WATER PENETRATION

- Requirement: Moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted when the rainscreen wall is subjected to a test pressure of 300 Pa.

430 THERMAL PROPERTIES

- Method for calculating the thermal transmittance (u-value) of the rainscreen wall: Elemental area
- Average u-value of rainscreen wall overall wall construction 0.18 W/m² deg C / 0.3 W/m² deg C. To be calculated by the designer. Benx will offer assistance provided that specific information can be provided regarding existing building elements. Information and calculations will be provided for GUIDANCE PURPOSES ONLY.
- Method for assessing thermal transmittance (U-value) of assemblies: By calculation.

450 VAPOUR CONTROL LAYER

- Condensation risk of rainscreen wall: Determine using the method described in BS 5250 Annex D. If necessary, provide a suitable air and vapour control layer to ensure that damage and nuisance from condensation is reduced.

AVOIDANCE OF CONDENSATION

- Requirement: Psychometric conditions under which condensation must not form within or on the interior surface of the rainscreen wall or any surface of the wall that is on the warm side of insulated are:
- Notional outdoor psychometric conditions as BS 6229, table A1

	Winter	**Summer**
Temperature	-5ºC	18ºC
Relative humidity	90%	65%
Vapour pressure	0.36kPa	1.34kPa
Duration	60 days	60 days

- Notional indoor psychometric conditions

Temperature	20ºC
Relative humidity	50%
Vapour pressure	1.17kPa
Winter interstitial condensate:	
Calculated amount (maximum):	0.35kg/m².
Calculated annual retention:	Nil

460 SOUND TRANSMITTANCE

- Must not permit flanking transmission, which would compromise the values shown on the partition layouts.

470 FIRE PERFORMANCE OF RAINSCREEN CLADDING

- Standard: In accordance with the CWCT 'Standard for systemised building envelopes,' section 6 and TN 98.

Reaction to fire/ surface spread of flame: To BS EN 13501-1,
- Class A2-s1, d0 or better

External surfaces: To BS EN 13501-1,
- Class A2-s1, d0 or better

Internal (cavity) surfaces: To BS EN 13501-1,
- Rockwool: Class A1

Verification of fire performance:
- In accordance with the CWCT 'Standard for systemised building envelopes,' section 6 and TN98, with BRE BR 135 and BS 8414-1 and BS 8414-2

480 FIRE RESISTANCE OF BACKING WALL

Minimum periods and criteria:
BS EN 1364-1: Non-Loadbearing
- 12mm Y-wall: Class EI 120.

EN 1363-1, 1364-1 and 1365-1:
- 12mm Y-wall: Class EI 120 Loadbearing to BS EN 1363-1 and 1365-1
- 12mm Y-wall: Class EI 120 Non-Loadbearing to BS EN 1363-1 and 1364-1

BS 476-21: loadbearing
- 12mm Multipurpose: 90-minute integrity, 90-minutes insulation

BS 476-22: Non-loadbearing
- 12mm Y-wall: 90-minute integrity, 90-minutes insulation

485 INTERNAL REACTION TO FIRE OF BACKING WALL

Class: BS EN 13501-1

- Y-Wall: Class A1

490 FIRE PERFORMANCE OF CAVITY FIRE BARRIERS

- Standard: BS EN 15725
- Tested to TDG 19 & BS EN 1363-1
- Requirement: To resist the passage of flame and smoke for not less than 30 minutes integrity, 15 minutes insulation.

TESTING

510 COMPARISON (TYPE) TESTING

- Verification of performance: Certification and reports satisfying CWCT ‘Standard for systemised building envelopes’, clause 1.5.5 items a and b
- Commencement of fabrication and installation of rainscreen cladding: Not until test results and reports showing compliance with this specification have been submitted.

530 TESTING AUTHORITY -UKAS/CE approved – approved laboratory

- Requirement: Project testing must be carried out by a United Kingdom Accreditation Service (UKAS) approve independent laboratory.
- CE MARKING WILL BE RECOGNISED UNTIL 30 June 2025

590 AIR PERMEABILITY TESTS

- Requirement: To CWCT 'Standard for testing of ventilated rainscreens', clauses 3.3, 3.3.2 and 3.3.3.
- Test pressure: As clause 410.
- Allowable leakage rates: As clause 390.
- In situ test: To BS 5638-1.

PRODUCTS

710 ALUMINIUM ALLOY FRAMING SECTIONS

- Standards: To BS EN 755 alloy EN AW-6063 and suitable for the specified finish.
- Structural members: To comply with BS EN 1999-1-1, -3 and -4

712 ALUMINIUM ALLOY SHEET

- Standards: To BS EN 485, BS EN 515, and BS EN 573.
- Alloy, temper, and thickness: Suitable for the application and specified finish.

715 CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

- Standards: To the relevant parts of BS 7668, BS EN 10029, BS EN 10025, or BS EN 10210.
- Thickness: Suitable for the application, and for galvanizing or other protective coating.

717 CARBON STEEL SHEET

- Standards: To the relevant parts of BS 1449-1, BS EN 10048, BS EN 10051, BS EN 10111, BS EN 10131, BS EN 10132, BS EN 10139, BS EN 10140, BS EN 10149-1, -2, -3, BS EN 10209 or BS EN 10268.
- Grade and thickness: Suitable for the application, and suitable for galvanizing or other protective coating.

725 TIMBER BATTENS

- General regularized softwood free from decay, insect attack (except ambrosia beetle damage) and with no knots wider than half of the section.
- Preservative treatment: as section Z12 and wood protection association (WPA) commodity specification C8.
- Moisture content at time of fixing max. 19%

730 MECHANICAL FIXINGS – MATERIAL REQUIREMENTS

- 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 galvanizing or other protective coating.
- Aluminium: To BS EN 755.

732 ADHESIVES

- General: Not degradable by moisture or water vapour.

735 FIXINGS AND FASTENERS

- Type and use: Reviewed and approved by manufacturers. Submit confirmatory information on request.
- Dimensions: Not less than recommended by their manufacturers.
- Adjustment capability: Sufficient in three dimensions to accommodate primary support structure and rainscreen cladding fabrication/ installation tolerances

760 GASKETS

Material:
- Noncellular rubber to BS 4255-1.
- Cellular rubber to ASTM-C509-06
- Durability: Resistant to oxidation, ozone, and UV degradation.

765 WEATHERSTRIPPING OF OPENING UNITS

Material:
- Noncellular rubber to BS 4255-1.
- Cellular rubber to ASTM-C509.
- Polypropylene woven pile, silicone treated.
- Installation: Fixed in undercut grooves in framing sections using preformed corners with any joints in the length.

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.

785 BREATHER MEMBRANE

- Standard: To BS EN 13859-2
- Material: Reinforced polyethylene, Spunbonded high density polyethylene, Spunbonded polypropylene, UV durable underlay to BS EN 13859-2
- Supplier: BENX Facades
- Product reference: See ‘ACCESSORIES - EPDM / Breather Membranes’
- Continuity: No breaks. Minimise joints.
- Penetrations and abutments: Attach to the breather membrane with tape. Achieve full bond.
- Laps: Not less than 150mm, bond with tape. Achieve full bond.
- Tape: As recommended by the breather membrane manufacturer.
- Repairs: Lapped patch or breather membrane material secured with continuous band of tape on edges.
- Junctions at flashings, sills, gutters etc. Overlap and allow free drainage to exterior.

FINISHES

810 PROTECTIVE COATING OF CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

- Treatment: All surfaces to one of the following:
- Hot dip galvanized to BS EN ISO 1461.
- An appropriate equivalent coating to BS EN ISO 12944 and BS EN ISO 14713-1 and -2.

820 PROTECTIVE COATING OF CARBON STEEL MECHANICAL FIXINGS

- Treatment: All surfaces to one of the following:
- Hot dip galvanized to BS EN ISO 1461.
- Sherardized to BS EN ISO 17668, class 30 coating thickness and passivated.
- Zinc plated to BS EN ISO 2081, coating designation of FE//Zn//C for an iridescent (yellow passivate) chromate conversion coating or FE//Zn//D for an opaque (olive green) chromate conversion coating.

830 POWDER COATING

- Requirement: Factory applied to BS 6496-BS EN 13438
- Applicator requirements approved by the powder coating manufacturer and currently certified to BS EN ISO 9901

850 POLYVINYLIDENE FLUORIDE (PVDF) COATING

- Standard: To BS 4842 or AAMA 2604-20, subject to minimum coating thicknesses recommended by the manufacturer on all significant surfaces.
- Applicator: Contractor’s choice or Submit proposal
- Product reference: Contractor’s choice or Submit proposal
- Process: Prepare base metals, prime, PVDF coat, test samples, protect components and repair damage in accordance with manufacturer's recommendations.
- Sequence: Wherever possible, apply coatings after fabrication is complete.
- Fabrication of prefinished lengths: Submit proposals beforehand.
- Uncoated edges: Invisible in completed assemblies

FABRICATION AND INSTALLATION

910 GENERALLY

- Electrolytic corrosion: Take necessary measures to prevent.
- Identification of products: Mark or tag to facilitate identification during assembly, handling, storage, and installation. Do not mark surfaces visible in the complete installation.

922 FIXING/ADHESIVES APPLICATION

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

925 SEALANT APPLICATION

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

930 ASSEMBLY

- Location: Carry out as much assembly as possible in the workshop.
- Joints: Other than movement joints and designed open joints, must be rigidly secured, reinforced where necessary and fixed with hairline abutments.
- Displacement of components in assembled units: Submit proposals for reassembly on site.

960 PRELIMINARY RAINSCREEN CLADDING INSTALLATION

- Requirement: Complete an area of cladding for inspection and approval or appearance by the Principal Contractor.

970 RAINSCREEN CLADDING INSTALLATION

- Tightening mechanical fasteners: To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
- Protective coverings: Remove only where necessary to facilitate installation and from surfaces which will be inaccessible on completion

975 WELDING

- In-situ welding: Not permitted.

980 INTERFACES

- Installation: Locate flashings, closers etc. correctly and neatly overlap cladding to form a weathertight junction

985 DAMAGE

- Repairs: Do not repair cladding without approval.
- Approval: Will not be given where the proposed repair will impair performance or appearance.
- Record of repairs: Prepare schedule or record on drawings for inclusion in the maintenance manual.

995 MAINTENANCE

- Maintenance manual: Incorporate details within the Building Manual in accordance with CWCT ‘Standard for systemised building envelopes’ clause 7.6.1.

Materials certification and test reports to be included:

- System Accreditation - SlipFast KIWA Agrément Certificate: BAW-20-173-S-A-UK
- System Accreditation - AllFace KIWA Agrément Certificate: BAW-19-117-S-A-UK
- The terms and conditions of any guarantee.
- Method statement for means of access for maintenance and for use of any permanent equipment.
- Method statement covering the procedures for replacement of parts that have a design life less than the design life of the rainscreen system.
- Recommendations for routine maintenance and cleaning including suitable cleaning agents and lubrication/adjustments to working parts.
- Record book for listing defects, maintenance and repairs. List any supplementary contents in the clause. The maintenance manual should schedule inspection requirements. Submission requirements need to be included in section A37.

NBS - Reference Specification

Z20 FIXINGS AND ADHESIVES

GENERAL

Cross-reference

General: Read with A90 General technical requirements.

Definitions

In this section the following definitions are used:

- Fixing: The act of securing an object to another object or background, e.g., Fix A to B with screws at 200 mm centres.
- Fixings: Systems that fix objects together, composite connection items comprising, e.g., nuts, bolts, washers, spacers, cover caps.
- Fasteners: Components that fix objects together, e.g., screws, nails.

PRODUCTS

- Fasteners generally
- Materials: To have bimetallic corrosion resistance and atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

Packings

- Material: Noncompressible, corrosion resistant, rot proof.
- Area of packings: Sufficient to transfer loads.

Masonry fixings

- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

Pelleted countersunk fixings

- Pellets: Cut from matching timber, grain matched.

Plugs

- Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

Adhesives generally

Standards:

- Hot-setting phenolic and aminoplastic: To BS 1203.
- Thermosetting wood adhesives: To BS EN 12765.
- Polyvinyl acetate thermoplastic adhesive: To BS 4071.

Pelleted countersunk fixings

- Pellets: Cut from matching timber, grain matched.

Powder actuated fixing systems

- Types of fastener, accessories and consumables: As recommended by tool manufacturer.
- Tools: To BS 4078-2, Kitemark certified.
- Operatives: Trained and certified as competent by tool manufacturer.

EXECUTION

Fixing generally
- Types, sizes, and quantities of fasteners/ packings and spacings of fixings: Selected to retain supported components without distortion and loss of support.
- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners, and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings, and fasteners of dissimilar metals: Isolate with plastics washers/ sleeves to avoid bimetallic corrosion.
- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.
- Appearance: Fixings to be in straight lines at regular centres.

Fixing packings
- Function: To take up tolerances and prevent distortion of materials/ components.
- Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
- Locations: Not within zones to be filled with sealant.

Fixing cramps
- Cramp positions: 150 mm (maximum) from each end of frame sections and at 600 mm (maximum) centres.
- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bedded in mortar.

Pelleted countersunk fixings
- Finished level of countersunk screw heads: 6 mm (minimum) below timber surface.
- Pellets: Cut from matching timber, match grain and glue into full depth of hole.
- Finished level of pellets: Flush with surface.

Plugged countersunk screw fixing
- Finished level of countersunk screw heads: 6 mm (minimum) below timber surface.
- Plugs: Glue into full depth of hole.
- Finished level of plugs: Projecting above surface.

Powder actuated fixing systems
- Powder actuated fixing tools, method of use: To BS 4078-1.
- Operatives: Trained and certified as competent by tool manufacturer.

Applying adhesives
- Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide, as necessary. Do not mark surfaces or distort components being fixed.
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z22 SEALANTS

GENERAL

Cross-reference
General: Read with A90 General technical requirements.

PRODUCTS

- Joints
- Design: To BS 6093 (2006).

Sealants
- Classification and requirements: To BS EN ISO 11600. (2003 + AMD 15975)

Non-cellular gaskets
- Standard: To BS 4255-1.

Components
- Backing strips, bond breakers, primers: Types recommended by sealant manufacturer.

EXECUTION

Suitability of joints
Presealing checks:
- Joint dimensions: Within limits specified for the sealant.
- Substrate quality: Surfaces regular, undamaged, and stable.
- Joints not fit to receive sealant: Submit proposals for rectification.

Preparing joints
Surfaces to which sealant must adhere:
- Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
- Clean using materials and methods recommended by sealant manufacturer.
- Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.
- Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
- Protection: Keep joints clean and protect from damage until sealant is applied.

Applying sealants
- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice, or snow.
- Environmental conditions: Mix and apply primers and sealants within temperature and humidity ranges recommended by manufacturers. Do not dry or raise temperature of joints by heating.
- Sealant application: Unless specified otherwise, fill joints completely and neatly, ensuring firm adhesion to substrates.

Sealant profiles:
- Butt and lap joints: Slightly concave.
- Fillet joints: Flat or slightly convex.
- Protection: Protect finished joints from contamination or damage until sealant has cured

DESIGN GENERAL NOTES

On draft specifications for Rainscreen Systems:

The purpose of these draft specifications is to assist the Project design team in producing the respective documentation for any project under consideration.

The draft specifications are provided in good faith for use at the discretion of the respective design consultants, to be amended and edited as required to suit the project requirements.

As manufacturers/suppliers Benx Technical is not privy to detailed contractual arrangements and documentation of individual projects and is therefore not able to co-ordinate related work by others. It is not the intention of this draft to relate to any project, but to provide a guide to the more common items encountered in construction assemblies incorporating Benx, SPS, and BENX FACADES products.

Whilst it is the Planning supervisor/Quantity surveyors/Project designer's responsibility to produce their respective documents and we can assist them in their duties, we cannot accept responsibility for any errors or omissions which may occur in tender or contract documents or for compliance with the requirements of the CDM and Health & Safety regulations which may be applicable.

Finally, please ensure that any amendments to Benx Technical draft specifications represent a true interpretation of the project designer's requirements.