AOCA
ENGINEERING CONSULTANTS

Appendix C – H92 Rainscreen Cladding (Genius LTD)

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Aidan O'Connell & Associates Ltd T/A AOCA

H92 RAINSCREEN CLADDING

To be read with Preliminaries/General conditions.
(Help to complete individual sections is given in Guidance Notes to H92)

TYPE(S) OF RAINSCREEN CLADDING

Genius Facades Limited Cladding System comprising 3mm thick Aluminium Prime tray panels carried by the adjustable aluminium support structure. The system is fixed to an inner leaf structural wall and other components such as insulant, membranes, breakers, etc are incorporated. The system is drained and back-ventilated.

Complete rainscreen wall design to take licence of all structural, thermal, acoustic, and air-tightness requirements to ensure compliance with current Building Regulations.

Approved, trained, and certified design/installation contractors to install the system and components.

System selected to have formal test certification from a UK accredited testing facility which complies with testing requirements laid out in the CWCT publication, “Testing for Ventilated Rainscreen Facades”.

120 RAINSCREEN CLADDING (insert location or identification)

- Drawing reference(s): (insert)
- Primary support structure: (insert brief description of supporting background wall eg – block, concrete, stud wall, etc)
- Rainscreen cladding system: Genius Facades Limited Prime cladding system
  Manufacturer and reference:Genius Facades Limited, Lambert Works,
  Colliery Road, Wolverhampton WV1 2RD
  Telephone: 01922 716 245
  E-mail: enquiries@geniusfacades.com
  Type: Drained and back-ventilated
- Rainscreen panel: 3mm aluminium panels stiffened as necessary to meet performance criteria for deflection under wind load as clause 350.
  Material: 3mm Aluminium 1050A
  Thickness: 3mm
  Colour & Finish:
  Colour to be selected from the Axalta Coating Systems
  Joint type: As CWCT tessting. No sealants or mastics to be used.
  Joint width: 20mm standard
- Air gap: (insert____mm. N.B. – minimum 25mm))
- Support system: Adjustable support system comprising extruded vertical support rails with adjustable wall attachment brackets to zone range (insert-insert)mm
  Material: Extruded aluminium to BS1474 in 6063/T6 grade alloy.
  Fasteners: Panels fixed with Genius fixing clips to support rails or through overlap recessed joints
  Number and location of fasteners: As detailed within the CWCT test and approved bt the project engineer
- Backing wall: As clause 130
- Breather membrane: As section 785

- Thermal insulation: As clause 775.
- Accessories: (Define)
- Other requirements: (Insert any panel properties not included above or in referenced drawings)

130 Internal wall: (By others)

130A (Use for major accessory items eg – fascias, louvres, etc)
- Drawing references:
- Manufacturer:
- Material:
  Finish/colour:
- Fixing:
- Other requirements:

GENERAL REQUIREMENTS/PREPARATORY WORK

210 DESIGN
- Complete the detailed design of the rainscreen cladding and associated features shown on the preliminary design drawings to meet the requirements of this specification
- Co-ordinate detailed design with that for all related works.

215 DESIGN PROPOSALS: The preliminary design drawings indicate design intent but do not preclude submission with tender of reasonable alternative proposals for consideration.

220 SPECIFICATION:
- Comply with the latest edition of the Centre for Window and Cladding Technology (CWCT) 'Standard for walls with ventilated rainscreen' and 'Standard for testing of ventilated rainscreen' unless specified otherwise in this section.
- Keep a copy of the CWCT 'Standard for walls with ventilated rainscreen' and 'Standard for testing of ventilated rainscreens' together with other CWCT publications invoked by these documents, at the design office, workshop and on site, readily accessible for reference at all times during the course of the works.

225 INFORMATION TO BE PROVIDED WITH TENDER: Submit to the CA the following rainscreen cladding particulars:
- Typical plan, section and elevation drawings at suitable scales.
- Typical detailed drawings at large scales, including (insert any specific details which should be clarified at tender stage)
- Technical information and certification demonstrating compliance with the specification of proposed incorporated products and finishes, including (insert product/finish types generically specified)
- Certification, reports and calculations demonstrating compliance with the specification of the proposed rainscreen cladding.
- Proposals for connections to and support from the primary support structure.
- Proposals for any primary support structure additional to that shown on preliminary design drawings.
- Schedule of builder's work, special provisions and special attendance by others.
- Examples of standard documentation from which the project quality plan will be prepared.
- Preliminary fabrication and installation method statements and programme.

- Proposals for replacing damaged or failed products.
- Areas of non-compliance with the specification.

230 INFORMATION TO BE PROVIDED AFTER ACCEPTANCE OF TENDER: Submit to the CA within (insert) weeks of appointment the following rainscreen 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 all fabrication tolerances/size tolerances.
- A detailed testing programme in compliance with the main contract master programme (this may not be required)
- A detailed fabrication and installation programme in compliance with the main contract master programme.
- A quality plan in compliance with the CWCT 'Guide to good practice for facades', Section 6.
- Proposals to support any outstanding applications for Building Regulation consents or relaxations.

235 INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT OF RAINSCREEN CLADDING WORK: Submit to the CA before testing or fabrication the following rainscreen cladding 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 rainscreen cladding.
- Recommendations for spare parts for future repairs or replacements.
- Recommendations for safe dismantling and recycling or disposal of all products.

240 PRODUCT SAMPLES: Before commencing detailed design provide the CA with identified samples of:
(usually panel and finish samples)
Obtain approval of appearance before proceeding.

250 SAMPLES OF FIXINGS: At an agreed stage during detailed design work provide the CA with identified samples of each type of fixing, together with manufacturers' recommended torque figures

260 FABRICATION SAMPLES: At an agreed stage during detailed design work provide the CA with samples of:
(usually small system samples – not full mock-up)
Obtain approval of appearance before proceeding

270 MOCK-UP: (if required) At an agreed stage during detailed design work construct in an approved location a mock-up of:
(insert size and details)
Purpose(s) of mock-up:
(usually to validate details)

Arrange for inspection to be carried out jointly with the CA. Obtain approval of appearance before proceeding. Retain mock-up in undisturbed condition until completion of rainscreen cladding installation.

DESIGN/PERFORMANCE REQUIREMENTS

310 GENERALLY:
- Comply with CWCT as 'Standard for walls with ventilated rainscreen', Section 2 - performance criteria unless specified or agreed otherwise.
- Project performance requirements specified in this sub-section are to be read in conjunction with CWCT performance criteria.

330 INTEGRITY OF VENTILATED RAINSCREEN CLAD WALLS: Determine size(s) and thickness of panels, the size(s), 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 all factored dead, imposed and design live loads, and accommodate all deflections and movements without damage.
- Calculate wind loads on rainscreen walls appropriate to location, exposure, height, building shape, and size in accordance with BS 6399-2 standard method, taking full account of existing and known future adjacent structures.
  Basic wind speed (V_b): _____ m/s.
  Altitude factor (S_a): _____
  Direction factor (S_d): _____
  Seasonal factor (S_s): 1.
  Probability factor (S_p): 1.
  Terrain and building factor (S_b): _____
  External and internal size effect factors (C_a): 1.
  External pressure coefficients (C_{pe}): As determined from BS 6399-2, clauses 2.4 and 2.5.
  Internal pressure coefficients (C_{pi}): As determined from BS 6399-2, clause 2.6.
  Dominant opening: _____
- Impact load(s) in accordance with BS 8200:
  Location and category _____
- Temporary imposed loads: _____
  (Use this clause where the parameters determining wind loads are critical)

350 DEFLECTION UNDER WIND LOAD: At positive and negative applications of the design wind pressure the maximum normal deflection for the listed components must not exceed:
Individual rainscreen panels – L/90 of the span measured between the points of attachment of the panel this being defined as the perimeter folded edges of the panel. The panel face (or pan) can deflect to a calculated safe dimension based upon the mechanical properties of the material.
Framing members – L/200 of the span of the member measured between points of attachment to the building, or 20mm, whichever is the lesser.

370 APPEARANCE AND FIT:

- Design rainscreen wall:
  - To ensure position and alignment of all parts and features as shown on the referenced drawings listed in type(s) of rainscreen cladding clause(s).
  - To accommodate deviations in the primary support structure.
- Maximum permitted component and installation tolerances:

1. Permitted deviation of overall panel width	+3.0mm	-3.0mm
2. Permitted deviation in panel length		
For panels up to 2400mm	+3.0mm	-3.0mm
For panels over 2400mm	+4.0mm	-4.0mm
3. Maximum permitted deviation in length of two opposite sides of panel	+2.0mm	-2.0mm
4. Squareness of panels: When the longest of two adjacent sides of the panel is taken as the base line, the deviation of the shorter side measured from a perpendicular to the baseline at any point along the baseline not to exceed	+2.0mm	-2.0mm
5. Flatness: Deviation under a 1.0m straight edge placed anywhere on a flat surface not to exceed		1.0mm
6. Alignment of joints between adjacent panels: deviation of panel corner from protected lines of edges of adjacent panels not to exceed		2.0mm
7. Alignment of faces to adjacent panels: Deviation of panel edge under a 1.0m straight edge placed across adjacent panel not to exceed		1.0mm

380 GENERAL MOVEMENT: The rainscreen cladding must accommodate anticipated building movements as follows: (To be inserted by Client's Engineer)

390 AIR PERMEABILITY GENERALLY: The average air leakage rate through the listed wall(s) at a differential pressure of 50 pascals must not exceed :
(typically 10m3/hr/m2)

_____

430 THERMAL PROPERTIES:

- Method for calculating the thermal transmittance (U-value) of the rainscreen wall:

_____

- Average U-value of rainscreen wall: _____W/m²K.

440 CONDENSATION: The psychrometric 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 any insulation are:

- Outdoor notional psychrometric conditions as BS 6229, table 6:

	Winter	Summer
Temperature	-5°C	18°C
Relative humidity	90%	65%
Vapour pressure	0.361 kPa	1.341 kPa
Duration	60 days	60 days

- Indoor notional psychrometric conditions:

Temperature: _____ °C
Relative humidity: _____ %
Vapour pressure: _____ kPa.
(Data available in BS 6229, table 7)

- Calculated amount of winter interstitial condensate must not exceed _____ kg/m².
Calculated annual net retention must not exceed 5% of winter condensate.
(0.5kg/m2 for non fibrous and closed cell insulants, 0.35kg/m2 for fibrous insulants)

450 VAPOUR CONTROL LAYER: Determine the interstitial condensation risk of the rainscreen wall using the method described in BS 5250 appendix D. If necessary, provide a suitable vapour control layer to ensure that damage and nuisance from interstitial condensation does not occur.

460 SOUND TRANSMITTANCE BETWEEN INTERIOR AND EXTERIOR OF RAINSCREEN CLAD WALL: Minimum sound reduction indices (R) to BS EN ISO 140-3:

One third octave band centre frequency (Hz)	R(dB)
_____	_____

465 SOUND TRANSMITTANCE BETWEEN ADJOINING FLOORS ABUTTING RAINSCREEN CLAD WALL: Minimum sound reduction indices (R) to BS EN ISO 140-3:

One third octave band centre frequency (Hz)	R(dB)
_____	_____

470 SOUND TRANSMITTANCE BETWEEN ADJOINING ROOMS ABUTTING RAINSCREEN CLAD WALL: Minimum sound reduction indices (R) to BS EN ISO 140-3:

One third octave band centre frequency (Hz)	R(dB)
_____	_____

480 FIRE RESISTANCE OF BACKING WALL: To BS 476- 21 and not less than _____

485 INTERNAL SURFACE SPREAD OF FLAME OF BACKING WALL: To BS 476-7, Class _____

490 CAVITY FIRE BARRIERS: To BS 476-20 and must resist the passage of flame and smoke for not less than _____

TESTING

The Centre for Window and Cladding Technology have developed “The Standard for Testing of Ventilated Rainscreen” and “Test Methods for Ventilated Rainscreen” Genius Facades Limited have commissioned and passed the following tests which are required by these standards for rainscreen systems –

- Weather-tightness and water penetration as test regime no 6 (barrier wall air permeability assumed as 5m3/hour/m2).
- Wind loading – Serviceability – as test regime no 8 (load applied 1.75kN/m2)
- Wind loading – Safety – as test regime no 9 (load applied as serviceability test x 1.5 for safety factor)
- Wind resistance – Cyclic loading as test regime defined in “Standard for Walls with Ventilated Rainscreen” section 2.8.2 and BRE digest 346 part 7 (load applied as wind loading, serviceability test level)

Other tests which may be required are -

595 AIR PERMEABILITY TESTS – AIR BARRIER
- To CWCT “Standard for testing of ventilated rainscreen”, clause 3.3 and 3.3.1
- Peak test pressure: (Insert)
- Allowable leakage rates: As clause 390

620 WINDLOADING TEST – LARGE SPECIMEN – AIR BARRIER
- To CWCT ‘Standard for testing of ventilated rainscreen’, clause 3.5.1
- Test pressure: (Insert)
- Loading directions: (Insert)
- Allowable elastic deformation: (Insert)
- Allowable residual deformation: (Insert)

661 IMPACT TEST:
- To CWCT ‘Standard for testing of ventilated rainscreen’, clause 3.12.1 and BS 8200.
- Wall category: (Insert)
  (This test regarded as compulsory by CWCT for ground floor treatments)

PRODUCTS (Delete sections not required)

710 ALUMINIUM ALLOY FRAMING SECTIONS:
- To BS 1474, alloy 6063 and suitable for the specified finish.
- Structural members to comply with BS 8118.

712 ALUMINIUM ALLOY SHEET: 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 MILD STEEL FRAMING SECTIONS/ REINFORCEMENT: To the relevant parts of BS 7668, BS EN 10029, BS EN 10113, BS EN 10137, BS EN 10155 and BS EN 10210, in a thickness suitable for the application, and for galvanizing or other protective coating.

717 MILD STEEL SHEET: To the relevant parts of BS 1449-1, BS EN 10048, BS EN 10051, BS EN 10111, BS EN 10131, BS EN 10139, BS EN 10140, BS EN 10149, BS EN 10209, and BS EN 10268 in a grade and thickness suitable for the application, and suitable for galvanizing or other protective coating.

720 STAINLESS STEEL SHEET: To the relevant parts of BS EN 10029, BS EN 10048, BS EN 10051, BS EN 10095, BS EN 10258, BS EN 10259 and BS EN 10088-2, austenitic, grade 1.4301 (304) generally, grade 1.4401 (316) when used externally or in severely corrosive environments, and in a 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, or
- Mild steel to BS 4190 and suitable for galvanizing or other protective coating, or
- Aluminium complying with BS 1474 and BS EN 755.

732 ADHESIVES must not be degradable by moisture or water vapour.

735 FIXINGS AND FASTENERS must be:
- Of dimensions not less than recommended by their manufacturers.
- Capable of adequate three-dimensional adjustment to accommodate primary support structure and rainscreen cladding fabrication/installation tolerances.

776 THERMAL INSULATION:
- Material: (Insert choice of material)
  Manufacturer and reference: (Insert)
  Thickness: (Insert _____mm). (Exact thickness determined by thermal analysis of complete wall build up).
- Keep dry during installation.
- Installation method: (Insert)

785 BREATHER MEMBRANE:
- Material: Spun bond polypropylene membrane (TBC)
  Manufacturer and reference: The Proctor Group, The Haugh, Blairgowrie, Perthshire PH10 7ER Telephone: 01250 872261
- Lay membrane over insulation as work proceeds ensuring continuity.
- Overlap joints not less than 150mm and seal with tape recommended by the membrane manufacturer, to prevent water reaching the insulation.
- Fully seal at penetrations using taping methods recommended by the membrane manufacturer.
- Before covering check for tears and punctures. Carefully repair using a patch of breather membrane with 150mm laps sealed with tape.
- Ensure that bottom edges overlap flashings, sills, etc. to allow free drainage to the exterior.

FINISHES

810 PROTECTIVE COATING OF MILD STEEL FRAMING SECTIONS/REINFORCEMENT: All surfaces must be:
- Hot dip galvanized to BS EN ISO 1461, or
- Treated with an appropriate equivalent coating to BS 5493, BS EN ISO 12944 and BS EN ISO 14713.

820 PROTECTIVE COATING OF MILD STEEL MECHANICAL FIXINGS: All surfaces must be:
- Hot dip galvanized to BS EN ISO 1461, or
- Sherardized to BS 4921, class 1 coating thickness and passivated, or

FABRICATION AND INSTALLATION

910 GENERALLY:
- Fabricate and install rainscreen cladding in accordance with this specification and the final detailed drawings.
- Fabricators and installers must employ competent rainscreen cladding operatives. Records of their experience are to be provided to the CA on request.
- Select and align all products to ensure uniformity of appearance.
- Joints must only occur at positions indicated on final detailed drawings.
- Isolate dissimilar metals to prevent electrolytic corrosion.
- Machine cut and drill all products in the workshop wherever possible.
- Mark or tag all products to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the complete installation.
- Ensure that fabricated panels are stored prior to installation in a dry, ventilated area. Manufacturer's packaging must ensure that panels are separated from one another and in a moisture-free environment

912 METALWORK: As section Z11, unless specified otherwise in this section.

922 FIXINGS/ADHESIVES APPLICATION: As section Z20, unless specified otherwise in this section.

925 SEALANT APPLICATION: 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 and designed open joints, must be rigidly secured, reinforced where necessary and fixed with hairline abutments.
- Take precautions to prevent displacement of components in assembled units. Obtain approval for any reassembly on site.

935 INSPECTION:
- All fabrications and assembled units must be carefully inspected for match with approved samples and for compliance with this specification and the final detailed drawings before dispatch to site.
- Give adequate notice of inspection arrangements to enable the CA and/or other affected parties to be present.

940 PROTECTION:
- All fabrications and assembled units must be protected against damage, corrosion and disfigurement during handling, installation and subsequent site operations.
- Protective coverings must be applied before dispatch to site and must not be detrimental to rainscreen cladding products, finishes or installation procedures.
- The patina on the panels is easily damaged by compression or scraping and care must be taken to avoid this damage

945 HANDLING AND STORAGE:
- Do not deliver to site any rainscreen cladding products and units which cannot be installed immediately or unloaded into a suitably well protected storage area.
- Store products and units on level bearers clear of the ground and separate with resilient spacers.
- Any protective should be removed from panels immediately after installation.

950 SUITABILITY OF STRUCTURE:
- Not less than (insert) weeks before commencement of rainscreen cladding installation carry out a geometric survey of the supporting structure, checking line, level and fixing points. Report immediately to the CA if structure will not allow the required accuracy or security of erection.
- Coordinate geometric survey for rainscreen cladding with any other survey(s) for adjacent cladding.
- Set out erection datum points, lines and levels for a complete elevation at a time unless otherwise agreed with the CA.

960 PRELIMINARY RAINSCREEN CLADDING INSTALLATION: Complete a preliminary area of rainscreen cladding as set out below for inspection and approval of appearance by the CA.

970 RAINSCREEN CLADDING INSTALLATION:
- Set out straight, parallel and truly aligned.
- Tighten all mechanical fixings to manufacturer's recommended torque figures. Do not overtighten 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 IN SITU WELDING is not permitted.

977 IN SITU WELDING is permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

980 INTERFACES: Ensure that flashings, closers, etc. (specified in another section) are located correctly and neatly overlap the rainscreen cladding to form a weather-tight junction.

985 DAMAGE:
- Do not repair rainscreen cladding without approval. Such approval will not be given where products and units are badly damaged or where the proposed repair will impair performance or appearance.
- Repairs may require additional site testing at the discretion of the CA.
- Schedule repairs or record on drawings for inclusion in the maintenance manual.

995 MAINTENANCE: Prepare a maintenance manual in accordance with CWCT ‘Guide to good practice for facades’, Section 10. Unless otherwise instructed or agreed the manual must be completed and handed over to the CA at practical completion.

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Maintenance of coated surfaces

General recommendations:

- In order to retain the original appearance, thermosetting powder coatings, in common with other organic coatings, need to be treated with some basic precautions.

- Thermosetting powder coatings may be sensitive (depending on the powder coating type and it's end use) to:
  - Mechanical stresses: scratching, abrasion, scarring, impact, distortion, ...
  - Chemical attack: humidity, acids, solvents, ...
  - Physicochemical stresses: light, heat, cold, ...

- Special care should be taken with metallic finishes.

- Therefore, the cleaning of treated surfaces should be performed in line with the following points:
  - Do not use abrasive media (buffer or cutting comp[und) but only a **soft damp cloth**

  - **Recommended media:**
    - Soft sponge
    - Soft damp cloth made from non-abrasive media: cotton wool, nonwoven, lint free paper towel white color only
  - **Excluded media:**
    - Abrasive sponge, steel wool
    - Colored damp cloth
  - Do not use aggressive cleaning agents such as strong organic solvent or strongly alkaline detergent, **use water cleaning or a pH-neutral detergent followed by clean water washing and drying with an absorbent damp cloth.**
  - Be careful of water retention areas that can retain cleaning agents, ensure these are well rinsed.
  - Cleaning with high-pressure cleaning equipment (like Kärcher) must be done with care using the procedure:
    - Distance between the treated surface and the spray nozzle, pressure, type of spray nozzle (standard, rotor-type nozzle, brush)
    - Temperature, use of detergent

Some deterioration of the coated film may occur
The coated surface should be treated as if it were a vehicle body

Recommended cleaning agents:

- Clean water, soapy water
- pH-neutral detergent (pH5 to 8) + water rinse + drying

"Tolerated" agents:

- Ethanol, Isopropanol, rubbing alcohol, fuel type E & F, white spirit, undyed petroleum, window cleaning product.

Before using any cleaning agent, a short test should be done on a hidden area to ensure suitability of the agent.

Agents which must not be used:

- Abrasive products (cutting compounds)
- Alkaline detergent (pH > 9), bleach, ... (depending on concentration)
- Sulphuric, acetic, nitric, hydrochloric, oxalic acids ... (depending on concentration)
- Soda, potash, ammonia ...
- Hydrocarbon and solvents: unleaded petrol, acetone, MEK, MIBK, toluene, xylene, trichloroethylene ... nail polish remover.

Special precautions for chrome effect coatings on the cleaning of the coatings

- The chrome effect coating must be overcoated with a protective clearcoat and must be cleaned like any other finish.
- Without any protective clearcoat, the finish is very sensitive to:
  - Staining (fingerprints)
  - Humidity (oxidation of aluminium)
  - Scratch
  - Abrasion
  - Alkalis and acids
  - ...

Before using any cleaning agent, a short test should be done on a hidden area to ensure the suitability of the cleaning agent.

For information purposes only, the tables below provide further information on the compatibility of powder coated surfaces with domestic and professional products.

The free advice herein is given to you by Axalta Coating Systems France. It comes from our own experience and they are applicable to powder coatings from our company but they do not constitute in any way a warranty.
The implementation of the process remains entirely the responsibility of the final user who must ensure the suitability for his purposes.

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Maintenance of coated surfaces

Household products:

Designation	Active substance	Recommended	To be used with caution	Not recommended	Comments
Acetic acid			X	On metallic finishes	Diluted use + clean water rinse
Vinegar	Acetic acid		X		
Hydrochloric acid			X		
Soda lye	Sodium hydroxide		X		
Cleaner for stove window	Potassium hydroxide		X		
Bleach	Sodium hypochlorite		X		
Oxygenated water	Hydrogen peroxide		X		
Alkali	Ammonia		X		
Acetone and derivative				X	
Nail polish remover	Ethyl acetate			X	
Unleaded petrol				X	
Gas oil and domestic fuel			X		Special precautions on strong colors + clean water rinse
White Spirit	Solvent naphtha		X		
Petrol C			X		
Household alcohol, methylated spirits	Petroleum distillates		X		
Medical spirit	Denatured ethanol		X		
Auto windshield-washer fluids	Alcohol + surfactants		X		
Coolant fluid for car	Glycol and methyl alcohol		X		
Neutral pH Household cleaner	Various surfactants	X			Diluted use + clean water rinse
Window cleaner	Surfactants + alcohol	X			
Dishwashing liquid	Various surfactants	X			
Scouring powders and creams	Abrasive powders + surfactants			X	
Automotive refinish polish	Abrasive powders + surfactants + solvent		X		Special precautions on matt finishes and strong colors

Alesta®

Maintenance of coated surfaces

Professional products:

Designation	Active Substance	Recommended	To be used with caution	Formally misadvised	Comments
IPA	Isopropanol		X		Special precautions on strong colors + clean water rinse
Petrol E	Naphtha solvent		X		
Petrol F			X		
Acetone				X	
MIBK				X	
MEK				X	
Heptane				X	
Xylene				X	
Toluene				X	
Trichloroethylene				X	
Perchloroethylene				X	
Nitric acid			X	On metallic finishes	Diluted use + clean water rinse
Sulfuric acid			X		
Sealant and tar remover cleaner	Methyl andethyl acetate		X	On matt finishes	
Anti-graffiti cleaner	Butoxypropanol, terpene, solvent mixture, bases, ...			X	
Neutral pH industrial cleaner	Various surfactants	X			Diluted use + clear water rinse
Aluminium and PVC frame cleaners	Surfactants, alcohol		X		Special precautions on strong colors + clean water rinse
Powder coating refinish polish	Abrasive powders + surfactants + solvent		X		Special precautions on matt finishes and strong colors + clean water rinse

Aluminium Alloy
1050A H14 Sheet

SPECIFICATIONS

Commercial	1050A
EN	1050A

Aluminium alloy 1050 is a popular grade of aluminium for general sheet metal work where moderate strength is required.
Alloy 1050 is known for its excellent corrosion resistance, high ductility and highly reflective finish.

Applications - Alloy 1050 is typically used for:
Chemical process plant equipment
Food industry containers
Pyrotechnic powder
Architectural flashings
Lamp reflectors
Cable sheathing

CHEMICAL COMPOSITION

BS EN 573-3:2009
Alloy 1050A

Element	% Present
Iron (Fe)	0.0 - 0.40
Silicon (Si)	0.0 - 0.25
Zinc (Zn)	0.0 - 0.07
Magnesium (Mg)	0.0 - 0.05
Titanium (Ti)	0.0 - 0.05
Manganese (Mn)	0.0 - 0.05
Copper (Cu)	0.0 - 0.05
Other (Each)	0.0 - 0.03
Aluminium (Al)	Balance

ALLOY DESIGNATIONS

Aluminium alloy 1050A also corresponds to the following standard designations and specifications **but may not be a direct equivalent**:
AA1050
S1B
A91050

TEMPER TYPES

The most common tempers for 1050 aluminium are:

- H14 - Work hardened by rolling to half hard, not annealed after rolling

SUPPLIED FORMS

Plain sheet
Plain sheet with a PVC coating on one side
Stucco sheet
Stucco sheet with a PVC coating on one side
Shate

- Sheet

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	2.71 g/cm³
Melting Point	650 °C
Thermal Expansion	24 x10^{-6} /K
Modulus of Elasticity	71 GPa
Thermal Conductivity	222 W/m.K
Electrical Resistivity	0.0282 x10^{-6} Ω .m

MECHANICAL PROPERTIES

BS EN 485-2:2008
Sheet
0.2mm to 6.00mm

Property	Value
Proof Stress	85 Min MPa
Tensile Strength	105 - 145 MPa
Hardness Brinell	34 HB
Elongation A	12 Min %

Properties above are for material in the H14 condition

WELDABILITY

When welding 1050 to itself or an alloy from the same subgroup the recommended filler wire is 1100. For welding to alloys 5083 and 5086 or alloys from the 7XXX series, the recommend wire is 5356. For other alloys use 4043 filler wire.

FABRICATION

Workability – Cold: Excellent
Machinability: Poor
Weldability – Gas: Excellent
Weldability – Arc: Excellent
Weldability – Resistance: Excellent
Brazability: Excellent
Solderability: Excellent

[1 OF 2] CONTINUED

CONTACT

Address:	Please make contact directly with your local service centre, which can be found via the Locations page of our web site
Web:	www.aalco.co.uk

REVISION HISTORY

Datasheet Updated	13 December 2017

DISCLAIMER

This Data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

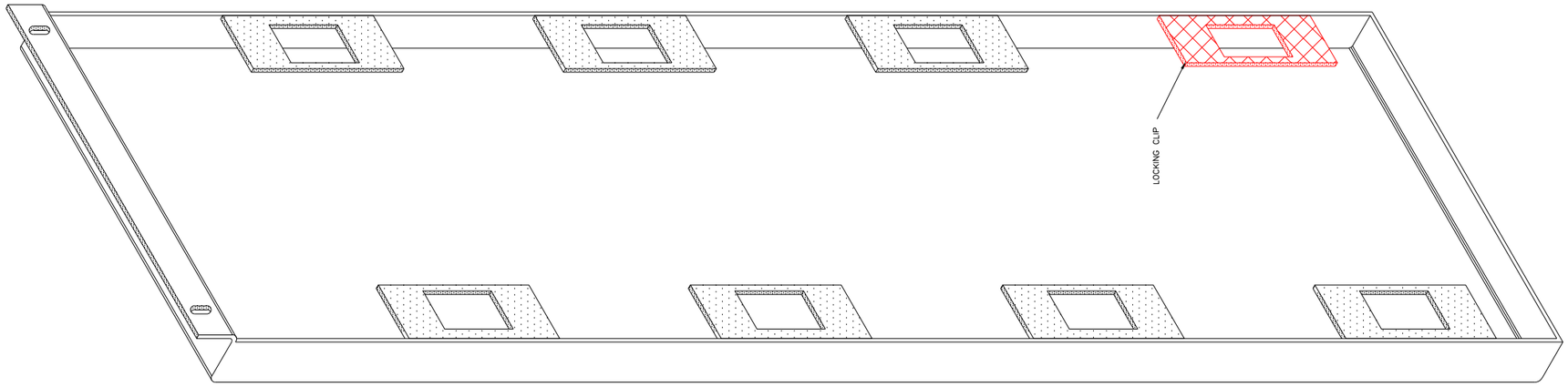
Please note that the 'Datasheet Update' date shown above is no guarantee of accuracy or whether the datasheet is up to date.

The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources.

Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards.

As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.



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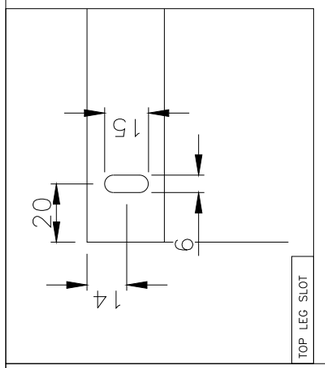
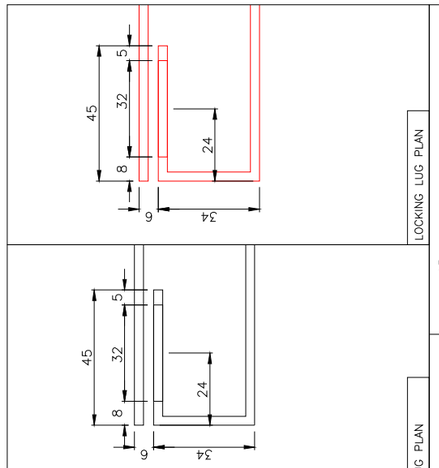
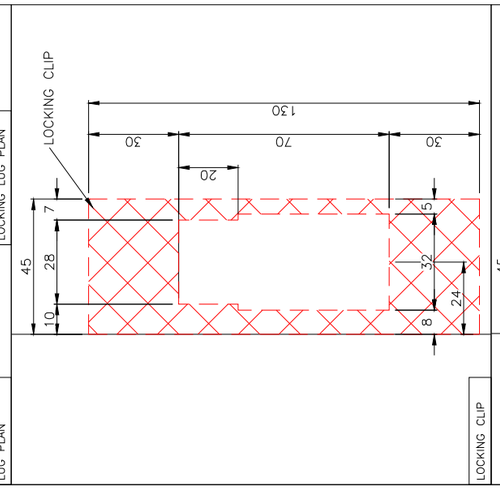
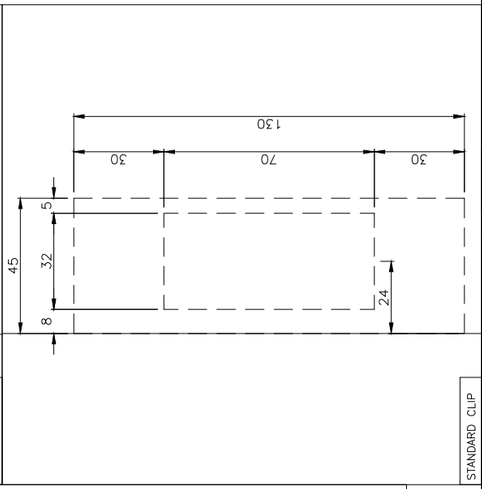
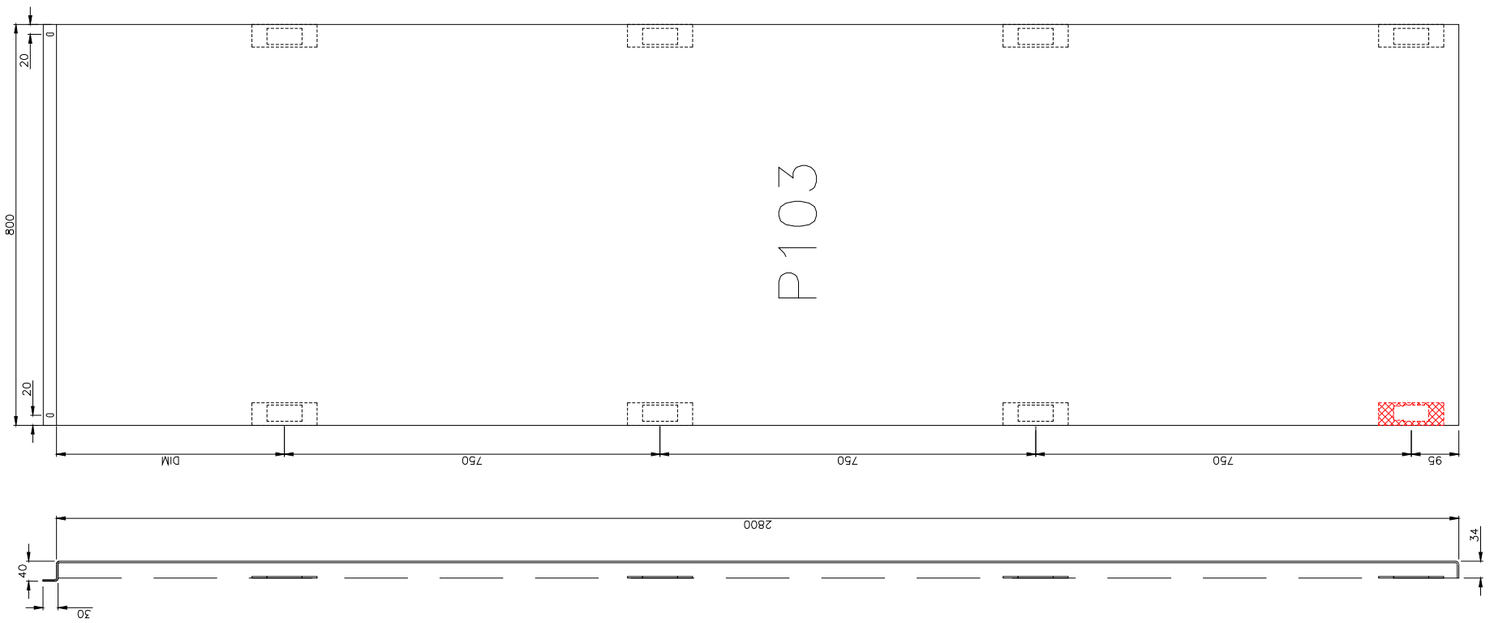
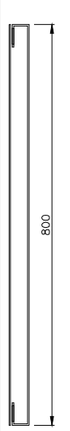












PANEL ELEVATION

PANEL PLAN

Site Location Plan:

General Notes:

Rev	By:	Date:	Description
A	DNH	04.12.17	KEY HOLE LUG

Client:

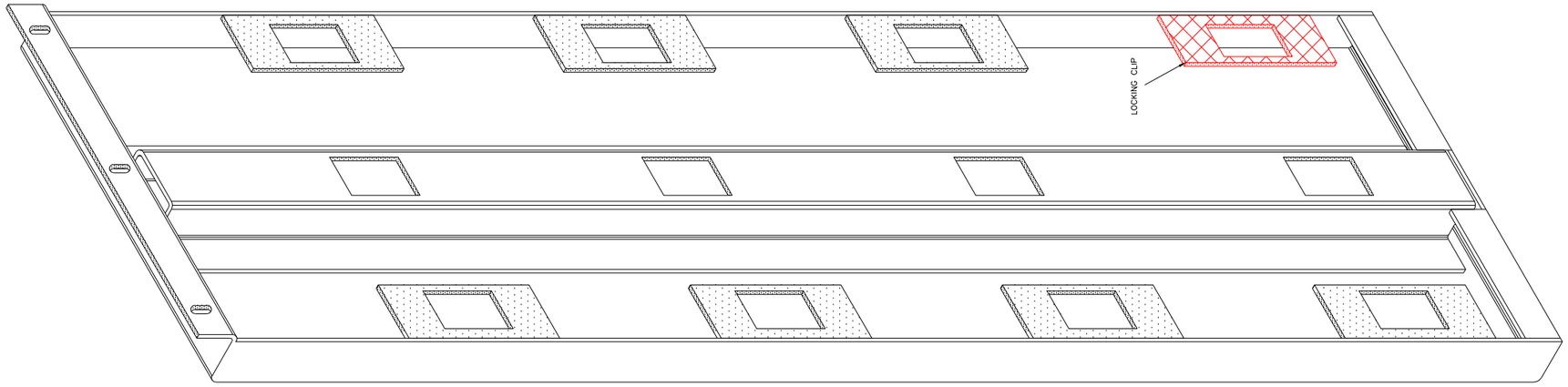
Project Name and Address:

GENIUS PRIME 3mm ALUMINIUM CASSETTE

Drawing Title:
PRIME GENIUS PANEL FABRICATION DRAWING

Drawn by	
Drawing Date	13/03/2017
Checked by	
Checked Date	
Scale	NTS
Sheet	A1
Drawing Status	TESTING
Drawing Reference	PRIME-CWCT-P103

GENIUS FACADES
QUALITY. TESTED. INNOVATION.



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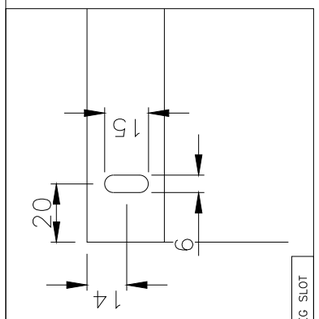

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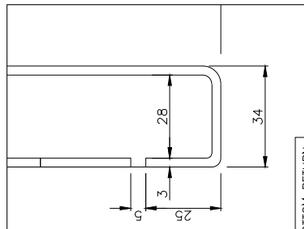
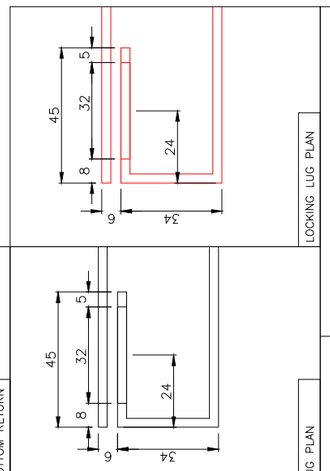
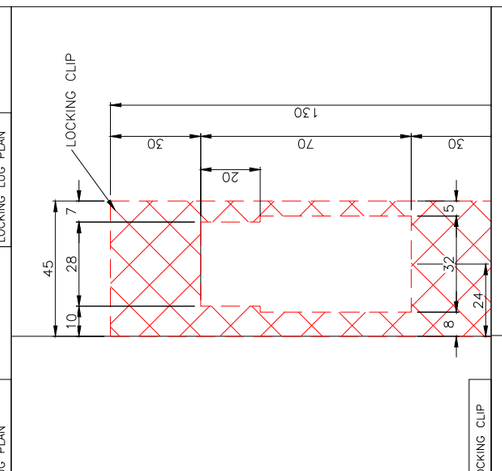


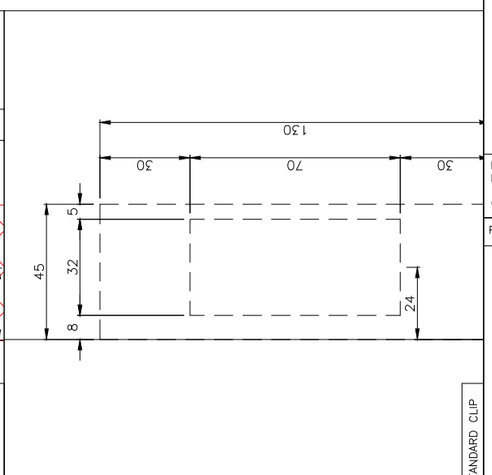
BOTTOM RETURN



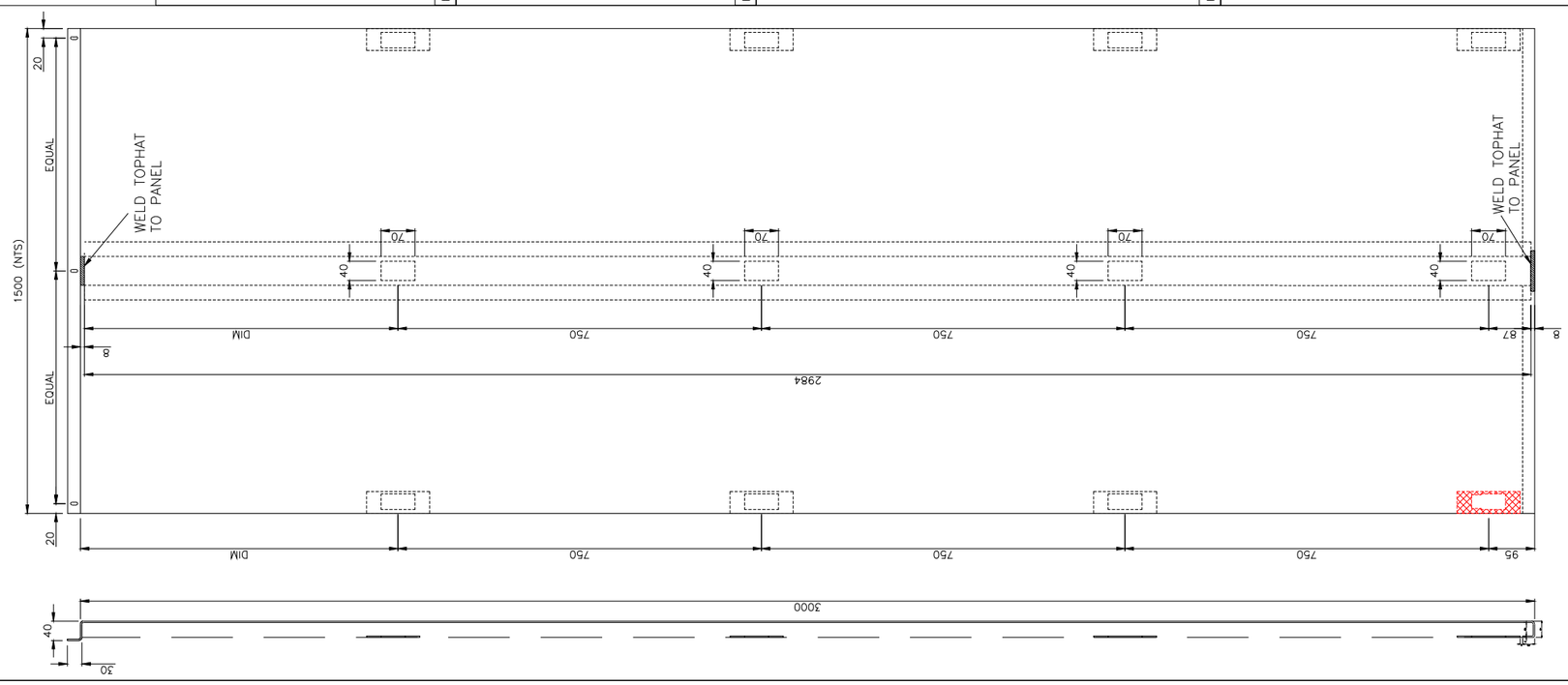
LUG PLAN



LOCKING CLIP



STANDARD CLIP



PANEL ELEVATION

PANEL PLAN

Site Location Plan:

General Notes:

Rev	By:	Date:	Description
A	DNH	04.12.17	KEY HOLE LUG

Client:

Project Name and Address:

GENIUS PRIME 3mm ALUMINIUM CASSETTE

Drawing Title:
PRIME GENIUS PANEL FABRICATION DRAWING

Drawn by	
Drawing Date	13/03/2017
Checked by	
Checked Date	
Scale	NTS
Sheet	A1
Drawing Status	TESTING
Drawing Reference	PRIME-CWCT-P105

genius facades