

# SPECIFICATION

## **Unifix System Exterior cladding system conform to CAN\ULC S-101 standard**

This document is intended for use by professionals to assist in developing specific projects.  
Final specifications must be approved by the owner's representative.

This document replaces any specifications previously issued.  
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### **PART 1      GENERAL**

#### **1.1 Work Included**

Provide all labour, materials and equipment necessary to install the rain screen UNIFIX system, as evaluated with CAN/ULC S-101 standard.

#### **1.2 Related work specified elsewhere**

- |                  |               |
|------------------|---------------|
| 1. Metal framing | Section 05400 |
| 2. Sealant       | Section 07900 |

#### **1.3 Description**

The system consists of installing PermaBase cement boards to create a rain screen system. The boards are attached on furring and finished with non-combustible acrylic base coat, glass fibre mesh, trims, primer and acrylic finish coat.

#### **1.4 Conceptual requirements**

1. All work undertaken must comply with the current codes and norms, the manufacturer's requirements and construction best practices.
2. The substrate system shall be engineered to withstand all applicable loads, including live, dead, seismic, positive and negative, etc.
3. In a non vertical surface, the minimum slope of the system shall be a 1 in 2 pitch and of a maximum length of 10" (250 mm).
4. The substrate shall be covered with a waterproof membrane, sealed at joints and openings;
5. Boards shall never be fastened directly on studs;
6. The furring system must allow for venting and for drainage towards the exterior;
7. Control joints that will allow for movement will be put in the following places :
  - a) At floor levels of all buildings;
  - b) At floor levels where a deflection track is present;
  - c) At control joints in the substrate;
  - d) At expansion joints of the building;
  - e) At the junction of two different materials;
  - f) At inside corners and major openings;
  - g) Anywhere specified on the plans;
  - h) At a maximal distance of 16 ft (5m), to counter thermal expansion;
  - i) Where a deflection higher than L/360 is expected.

#### **1.5 Quality Assurance**

1. The applicator shall have a sufficient amount of material and enough qualified labour at his disposal to install the system.
2. The applicator must follow the directions for use given by the manufacturer for all system component's installation.

#### **1.6 Delivery, Storage and Handling**

1. All materials supplied by ADEX Systems Inc. shall be delivered in their original packages with intact and legible labels..
2. All materials supplied by ADEX Systems Inc. shall be stored in a cool dry location, out of the sunlight, protected from weather and other damage and at temperatures above 41°F (5°C).

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3. Materials that are suspected of having been exposed to freezing must not be used.
4. Minimise the exposure of containers to temperatures exceeding 90° F (32°C).
5. Store boards on a smooth horizontal surface .
6. Boards shall be handled according to manufacturer's recommendation in order to prevent damage or loss of performance of the boards.

### 1.7 Job Conditions

1. Air and substrate temperature shall be at least 41°F (5°C) during installation.
2. When installing in temperatures below 41°F (5°C), tarping, heating and ventilation shall be provided.
3. Ambient temperature shall be maintained above 41°F (5°C) after installation of the system for a minimum of 24 to 48 hours or longer if necessary to ensure that drying is complete.
4. The substrate shall be subjected to tests before the installation of the system to ensure that it's solid, waterproof and plumb.
5. Installation of Unifix materials shall be co-ordinated with the other construction trades.
6. Adjacent areas and surfaces shall be protected from damage during the installation of Unifix materials.
7. All installed materials shall be protected at the end of the work day to prevent water penetration behind the system.

### 1.8 Alternatives

Systems considered equivalent to the UNIFIX system shall conform to CAN\ULC S-101 standard, feature a 10 year warranty and shall be approved by the architect, in writing, at least ten (10) working days prior to the project bid date.

### 1.9 Warranty

Upon request, the manufacturer shall provide a ten-year limited warranty, stating that materials conform to specifications and are free of manufacturing defects.

## PART 2 PRODUCTS

### 2.1 Manufacturer

All components of the system shall be obtained from ADEX Systems Inc. or its authorised distributors. No substitution or addition of other materials is permitted without written consent from the manufacturer.

### 2.2 Products

1. Steel framing
  - a) Metal thickness shall not be less than 20 gauge, and flange width not less than 32 mm (1.25") for fastening boards. Maximum lengths possible shall be used to conform with dimensions indicated on drawings. Deflection of assembly shall not exceed L/360;
  - b) Metal shall be hot-dip galvanised, in conformity with ASTM-A525 (G90).
2. Lightweight cement board
  - a) Shall be PermaBase or PermaBase-Flex from UNIFIX inc., with dimensions as specified on the drawings, and made of Portland cement, sand, expanded polystyrene beads, with a fully embedded alkali resistant glass fibre mesh facing.
  - b) The board shall have the following minimum performance characteristics:
    1. Conform to ANSI A118.9;
    2. Free of asbestos, gypsum, organic fibres or cellulose;
    3. Ends and sides shall be square cut ;
    4. Edgetech chamfered longitudinal edges;
    5. Water absorption (ASTM C473): less than 8%;
    6. Weight: 14,65 kg/m<sup>2</sup> (3 lb/pi<sup>2</sup>);

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7. Humidified deflection (ASTM D-1037) :  $\leq 0,05\%$ ;
  8. Mildew resistance (ASTM D-3273); no growth;
  9. Fungi resistance (ASTM G-21): no growth;
  10. Resistance to wind gusts (ASTM E330) :  $192 \text{ kg/m}^2$  (40 lb/pi<sup>2</sup>);
  11. Flame spread (ASTM E-84) : 0;
  12. Smoke developed (ASTM E-84) : 0;
  13. Impact resistance (ASTM D-1037) : no damage;
  14. Fasteners pull strength (ASTM D-1037) 849 N (125 lbs);
  15. Flexural strength (ASTM C947) : 750 psf;
  16. Compression strength (ASTM D-2394): 2250;
  17. Minimum thickness: 12,7 mm (1/2").
3. Fasteners  
Shall be PermaBase Screw from UNIFIX inc., self-tapping, wafer-head screw with the following minimal requirements:
    - a) #8-16, 1-1/4" or 1-5/8";
    - b) Head diameter: 11.5 mm (0.45");
    - c) Without ribs under head;
    - d) Zinc plated with chemical coating
    - e) Salt Spray resistance (ASTM B117): 1000 hours
    - f) SO<sub>2</sub> resistance (Kesternich test) : 15 cycles.
    - g) Heat resistance (JIS K54007.1) : 250° C / 7hrs
  4. PVC mouldings (if necessary)  
Shall meet ASTM D-1784 standards for exterior use.  
(See NOVATRIM shapes in ADEX and UNIFIX CATALOGUE).
  5. Acrylic base coat  
Shall be a 100% acrylic based, asbestos-free product, made by ADEX Systems Inc., such as the ACRYJOINT.
  6. Glass Fibre Mesh
    - a) Shall be alkali resistant according to ANSI 99-A-2001.
    - b) Shall be sold by ADEX Systems or its authorised distributors.
    - c) Shall meet ASTM E-2098, ASTM D-5035 standards.
    - d) Shall have different weights according to specific needs:
      1. UNITAPE: 75mm (3") wide , self-adhesive
      2. UNIROLL: 96 cm (38") wide
  7. Primer  
Shall be an acrylic and silica mix that can be applied by roller, such as ACRYROLL, manufactured by ADEX Systems Inc.
  8. Finish coat
    - a) Shall be factory-mixed, 100% acrylic based, ready for use and shall contain integral colour and texture.
    - b) The texture shall be [see ADEX and UNIFIX CATALOGUES].

### 2.3 Other materials

1. Cement  
Shall be of type GU, meet CSA A-3001 standard, be fresh and free of lumps.
2. Water  
Shall be limpid, potable and free of sediment.

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### 2.4 Tests

1. Tests performed by an independent laboratory on the specified materials can be requested.
2. The system must have been evaluated along CAN\ULC S-101 standard.
3. Properties shall meet or exceed the following values when tested by methods listed:
  1. Accelerated weathering resistance :  
ASTM D822 (exposed 2500 hours) : no deleterious effect
  2. Salt spray resistance :  
ASTM-B117 (exposed 300 hrs) : no deleterious effect
  3. Freeze-thaw resistance :  
ASTM C-666 (50 cycles) : no cracks, delamination or crazing.
  4. Mildew and fungus resistance :  
Mil.Std.810 E : no mildew or fungal growth.
  5. Water permeability :  
UEAtc "Directives for E.I.F.S.", art. 3.3.1.1. :  $\geq 2$  hours.
  6. Water Absorption :  
UEAtc "Directives for E.I.F.S.", art. 3.3.1.2. :  $\leq 20\%$ .
  7. Bond Test :  
UEAtc "Directives for E.I.F.S.", art. 3.3.2.1. :  
after 2 hours drying :  $\geq 100$  kPa,  
after 7 days drying :  $\geq 300$  kPa.
  8. Water vapour transmission:  
ASTM E96-95 :  $\geq 170$  ng/Pa.s.m<sup>2</sup>

## PART 3 EXECUTION

### 3.1 Inspection

1. The substrate shall be examined for soundness, solidity, and to ensure that there are no voids or projections.
2. The waterproofing membrane shall be verified to be continuous and sealed at all junctions and all apertures.
3. All metal flashing shall be examined to ensure that they allow for the evacuation towards the exterior of any eventual infiltration.
4. The architect and general contractor shall be advised of any discrepancies and work shall not proceed until unsatisfactory conditions are corrected.

### 3.2 Mixing

ACRYJOINT Base coat:

- a) In a clean container, ACRYJOINT and GU cement shall be mixed to a final weight ratio of one-to-one.
- b) After 5 minutes have been allowed for initial set, the mixture shall be stirred again.
- c) No additive (such as rapid binders, anti-freeze, accelerators or others) shall be added.

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## 3.3 Installation

1. Install furring (Z or omega shape) vertically on the substrate. Make sure to provide adequate ventilation and drainage at the bottom of all walls.
2. Maximum distance between furring shall be 400 mm (16") on vertical surfaces, 300 mm (12") on ceilings and 200mm (8") when PermaBase Flex board is used. Furring shall be lined with a maximum deviation of 3mm in 2400mm (1/8" in 8ft).
3. Where expansion joints are to be installed, furring shall be interrupted, providing a minimum space of 12mm (1/2").
4. Do not install any wet board.
5. Position boards horizontally, perpendicularly to the furring. The rough surface and tapered edges shall face outwards. All edges shall be fully supported by furring and/or studs. Boards shall fit tight and true with adjacent boards, and no space shall show between them. Avoid jointing boards at corners of openings. Vertical joints shall be offset a minimum of 300 mm (12") from those in adjacent panels.
6. Each and every board or piece of board shall straddle a minimum of 3 furring.
7. Start screwing boards in the middle moving towards edges.
8. Fasten cement boards to furring with appropriate screws at every 200 mm (8"), 150 mm (6") for ceilings.
9. Screws shall be installed between 10 and 15 mm (3/8" and 5/8") from edges.
10. Screw heads shall be flush with the surface of board; they must not damage the fibreglass mesh facing. Ensure that the boards are well attached and that they are in continuous contact with the support.
11. A 50 mm x 50 mm (2" x 2" ) 20 gauge galvanised steel corner bead shall be installed at all interior & exterior corners, to provide a good line and support. It shall be fastened behind the board but not through the substrate.
12. Remove from the board face any label or foreign material that could inhibit adhesion of the base coat.
13. Attach NOVATRIM mouldings where required, using stainless steel tacks every 200 mm (8"). Ensure that joints are well adjusted and aligned.
14. Apply self adhesive UNITAPE on all board joints.
15. Cover all UNITAPE, screws and NOVATRIM edges with ACRYJOINT mixture, making sure that all NOVATRIM holes are properly filled.
16. A 9 1/2" x 12" (240 mm x 300 mm) piece of glass fibre mesh shall be applied in the ACRYJOINT at a 45° angle at the corners of every opening.
17. Allow 24 hours minimum for drying.
18. The ACRYJOINT mixture shall be applied to the surface to a thickness of 1/16" (1,6 mm). The UNIROLL mesh shall be embedded in it. The surface shall be smoothed until the mesh is fully embedded.
19. The mesh shall be lapped a minimum of 2 1/2" (63 mm) on all sides.
20. The mesh shall cover all NOVATRIM wings.
21. A second coat of the ACRYJOINT mixture may be required if, after drying, there are imperfections or the mesh is not completely embedded.
22. A period of 24 hours shall elapse before installing the finish coat.
23. A coat of ACRYROLL primer of the same colour as the finish coat shall be applied evenly with a roller before installing the finish coat.
24. The primer shall be touch dry before starting to apply the finish coat.
25. A tight coat of Unifix Finish, texture [see ADEX and UNIFIX CATALOGUES] shall be applied with a trowel, continuously, to a thickness not greater than the largest aggregate. A wet edge shall be maintained. Levelling and texturing shall take place in one operation to give it a uniform appearance.
26. Finish coat shall not be applied on locations where caulking will be applied.
27. All moulding junctions shall be properly sealed.
28. Ensure that the general contractor protects all work against infiltration and damages by installing the necessary flashing and caulking in a timely manner.

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### 3.4

#### **Clean-Up**

1. Materials left over by the applicator shall be removed from the job site.
2. The applicator shall clean adjacent materials and surfaces.

END OF SECTION

This information represents the recommendations on the date of this document for the installation of the UNIFIX System. It is provided in good faith, only for indicative purposes. The information is subject to change without notice. ADEX Systems Inc. shall not be held responsible, whether formally or implicitly, for any damage, defect or deficiency resulting in mistakes, errors or omissions in the structure, engineering or the contractor's labour.