

*Acrytec Logo*

## **SPECIFICATION SECTION 07 44 53**

### ***Acrytec “NC 25” & “NC 25 Insulated” Glass-Fiber Reinforced Cementitious (GFRC) Rainscreen Panel System***

*SPEC NOTE: This specification has been numbered, organized and formatted in accordance with the MasterFormat, Section Format and Page Format documents published by Construction Specifications Canada (CSC).*

*The content of this specification is of general order and must be adapted to the specific requirements of a project. It is offered as a guide to experienced and knowledgeable construction professionals who must assume full responsibility for its interpretation and use. Acrytec Panel Industries is the material manufacturer.*

*The square brackets [] containing texts indicate an option to be considered/inserted by the specifier. Remove brackets and unused options before printing. The Acry NC (Non-Combustible) Rainscreen systems are engineered for commercial, industrial and residential application.*

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

1. Supply and installation of glass-fiber reinforced cement panel system with acrylic coating including mounting channels, backer components, adhesives, joint sealants, and fasteners, and insulation.

##### **1.02 RELATED SECTIONS**

- [.1 Section 03 30 00 – Concrete Substrates].
- [.2 Section 04 00 00 – Masonry Substrates].
- [.3 Section 05 10 00 – Structural Metal Framing].
- [.4 Section 06 10 00 – Rough Carpentry].

##### **1.03 REFERENCES**

- .1 Ensure glass-fiber reinforced cementitious panel system conforms to the following:
  - .1 ANSI/ASME B18.6.4 -1998, Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws - Inch.
  - .2 ASTM C920-14, Standard Specification of Elastomeric Joint Sealants.

- .3 CAN/CSA G164-M92 (R2003) Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 CAN/ULC S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .5 CAN-S114-05, Standard Method of Test for Determination of Non-Combustibility in Building Materials.
- .6 ASTM E283-04 (2012), Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
- .7 ASTM E331-00 (2009) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.
- .8 ASTM E330/E330M, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .9 DIN 4201-A1, Non-Combustible in compliance with part 4, 2.2.1d.

#### 1.04 PRE-INSTALLATION MEETINGS

- .1 Co-ordinate products, techniques and sequencing of related work with Section [01 31 19 – Project Meeting] [and] [01 31 19.33 – Pre-Installation Meetings].

#### 1.05 SUBMITTALS

- .1 Submit the following in accordance with Section [01 33 00 – Submittal Procedures], and as follows:
  - .1 Shop Drawings: Provide shop drawings as specified in [Section 01 33 23] showing large scale details of members and materials, of anchoring devices where required, dimensions, thicknesses, description of materials, finishing specifications, dimensioned wall layout, and other pertinent information.
  - .2 Test and evaluation reports from independent laboratory showing physical properties.
  - .3 Product Data: Glass-fiber reinforced cementitious panel manufacturer’s printed product literature and written “Installation Instructions”.
  - .4 Samples: Duplicate 305 mm x 305 mm samples of panel type showing anchoring method, 25 mm rainscreen drainage cavity, and finish.
  - .5 Warranty Documentation: Manufacturer’s sample warranty certificate.
  - .6 Maintenance Instructions: Panel maintenance and cleaning instructions.

## 1.06 QUALITY ASSURANCE

- .1 Retain a licensed Professional Engineer registered in the [Province of Ontario] for design of panel work and to review, stamp and sign shop drawings.
- .2 Ensure materials required for this Section of Work are sourced from one manufacturer including panels, mounting channels, backer components, joint sealants, and fasteners.
- .3 Manufacturer: to have minimum 2 years experience with glass-fiber reinforced cementitious panels manufacturing.
- .4 Installer Qualifications: [Minimum 5 years documented experience installing similar products] [manufacturer approved installers].
- .5 Mock-up:
  - .1 Construct mock-up consisting of a minimum of 2 over 2 panels.
  - .2 Include the following components in mock-up:
    - a. Structural support framing for cladding system.
    - b. Associated components and accessories.
    - c. Fastening system.
    - d. Panel cladding.
  - .3 Erect mock-up as part of building installation, leave in place when accepted.
  - .4 Obtain Consultant's review of mock-up prior to proceeding with cladding installation work.
  - .5 Approved mock-up to serve as standard of quality of installation for this project. All panels must be reviewed in accordance to samples as noted in 1.05 of this Section.

## 1.08 PACKAGING WASTE MANAGEMENT

- .1 Separate waste materials for [reuse] [recycling] [\_\_\_\_\_] in accordance with Section [01 7419 - Construction/Demolition Waste Management and Disposal] [\_\_\_\_\_].
- .2 Divert used metal cut-offs from landfill by disposal [into the on-site metals recycling bin] [at the nearest metal recycling facility] [\_\_\_\_\_].
- .3 Divert reusable materials for reuse at nearest used building materials facility.
- .4 Divert unused caulking, sealants, and adhesive materials from landfill through disposal at hazardous material depot.

## PART 2 PRODUCTS

### 2.01 MANUFACTURER

- .1 Acceptable Wall Panel Manufacturer: Acrytec Panel Industries, 40 Gaudaur Road, Unit 1, Woodbridge, Ontario L4L 4S6; Tollfree: 1-800-316-9430; Tel: 905-326-3749; Fax: 905-326-2732; Email: [RequestForABrochure@acrytecpanel.com](mailto:RequestForABrochure@acrytecpanel.com)  
Web: [www.acrytecpanel.com](http://www.acrytecpanel.com)
- .2 Substitutions: Not permitted, however requests for substitutions will be considered providing substitute products and methods of execution are submitted at least 10 days prior to bid closing date.
- .3 Accompany requests for substitutions with evidence substantiating similarity in quality, including technical product data sheet, Product Evaluation report, formal 3-Part specification, and in accordance with Substitution Procedures outlined in [Section 01 25 00, Division 01- General Requirements].

### 2.02 MATERIALS

*SPEC NOTE: Delete NC panel not required (Acry NC 25 vs Acry NC 25 Insulated).*

- .1 Acry “NC 25” Rainscreen System
  - .1 Moisture/vapour barrier:
  - .2 Mounting channels: Galvanized 18 gauge steel, G-90 coating thickness to CAN/CSA G164-M, depth as indicated on contract drawings, and complete with drainage holes @100 mm O.C. vertically and preinstalled weatherstrip on flange.
  - .3 Backer components: Acry band 26 gauge G-90 galvanized steel, 64 mm wide flat trim piece horizontally mounted. Acry 90, 26 gauge G-90 galvanized steel 50 mm x 100 mm (L shaped).

*SPEC NOTE: Choose finish and fill in colour as selected from manufacturer’s standard colour chart.*

- .4 Wall panels: Acry NC 25 Series prefabricated panel of glass-fiber reinforced cement with acrylic coating in [Gemtex finish, \_\_\_\_\_ colour] [QuartzKote finish, \_\_\_\_\_ colour] [Eurocote finish, \_\_\_\_\_ colour] [\_\_\_\_\_ custom colour]. Flame spread 20, smoke developed 35 to CAN/ULC S102 and CAN4-S114; thickness as noted on drawings.
- .5 Panel to channel adhesive: One-component, moisture curing, polyurethane 3M “540 sealant” or 3M “550 sealant” for cold weather.
- .6 Joint Sealant: One-part low modulus, neutral cure silicone to ASTM C920, Type S, Grade NS such as Tremco Spectrum 3 or Tremco Ill mod 600 pre-compressed polyurethane foam sealant.

- .7 Screw Fasteners: Coated stainless steel Type 410 to ASNI B18.6.4 or as recommended by panel manufacturer.

*SPEC NOTE: Face fasteners may also be exposed and colour matched to wall panels.*

- .8 Panel Patching Filler: Matching GRFC material for countersunk and concealed screw fasteners, and site cut panel edges.

## .2 Acry “NC 25 Insulated” Rainscreen System

- .1 Z Girts: Size and gauge as noted on drawings, G-90 coating thickness to CAN/CSA G164-M.

*SPEC NOTE: Developed by NASA, Thermablok can increase the RSI value of a wall by up to 40% regardless of cavity insulation.*

- .2 Thermal bridging under Z-girts (optional): Thermablok aerogel-based self-adhesive compressible insulating material 6.25 mm thick x 38 mm wide.
- .3 Insulation: Type and thickness as noted on drawings.
- .4 Moisture/vapour barrier (optional): Appropriate moisture barrier.
- .5 Mounting channels: Galvanized 18 gauge steel, G-90 coating thickness to CAN/CSA G164-M, depth as indicated on contract drawings, and complete with drainage holes @100 mm O.C. vertically and preinstalled weatherstrip on flange.
- .6 Wall panels: Acry NC 25 Series prefabricated panel of glass-fiber reinforced cement with acrylic coating in [Gemtex finish, \_\_\_\_\_ colour] [QuartzKote finish, \_\_\_\_\_ colour] [Eurocote finish, \_\_\_\_\_ colour] [\_\_\_\_\_ custom colour]. Flame spread 20, smoke developed 35 to CAN/ULC 5102 and CAN4-S114; thickness as noted on drawings.
- .7 Panel to channel adhesive: One-component, moisture curing, polyurethane 3M “540 sealant” or 3M “550 sealant” for cold weather.
- .8 Joint Sealant: One-part low modulus, neutral cure silicone to ASTM C920, Type S, Grade NS such as Tremco Spectrum 3 or Tremco Ill mod 600 pre-compressed polyurethane foam sealant.
- .9 Screw Fasteners: Coated stainless steel Type 410 to ASNI B18.6.4 or as recommended by panel manufacturer.

*SPEC NOTE: Face fasteners may also be exposed and colour matched to wall panels.*

- .10 Panel Patching Filler: Matching GRFC material for countersunk and concealed screw fasteners, and site cut panel edges.

## 2.03 PERFORMANCE/DESIGN CRITERIA

- .1 Air Tightness (Infiltration): To withstand incrementally increased positive static pressure differentials, up to a maximum of = 300 Pascals.
- .2 Water Tightness: To withstand incrementally increased positive static pressure differentials (simulated driving rain wind pressures) of 150, 200, 300, 400, 500, 600 and 700 Pascals with each pressure condition applied for a period of 15 minutes with the wall panel in a vertical position.
- .3 Structural Performance: To provide resistance to deflection including blow-out, of the entire assembly (or “rainscreen” portion of entire assembly) under incrementally applied static pressure differentials, up to a maximum design positive and negative loads of 300 Pascals, respectively.
- .4 Surface Burning Characteristics: Flame Spread and Smoke Developed Rating based upon triplicate sample testing conducted in accordance with CAN/ULC - S10Z-07.
- .5 Non-Combustibility: To meet CAN/ULC - S114-05 as a Non-Combustible construction material.

## 2.04 FABRICATION

Glass fiber reinforced cementitious rainscreen panels to be factory fabricated with the ability to offer pre-finished corner details, as well as modular sized panels that may be cleanly cut on site using standard power tools.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- .1 Inspect substrates for sound structural integrity and approval by certified project engineer.
- .2 Ensure substrate surface preparation meets acceptable building standards and be free of any obstructions, as well as straight and uniform.
- .3 Ensure substrates are capable of handling load requirements of GFRC rainscreen systems.
- .4 Ensure any vertical studs acting as substrate are not spaced more than 400 mm apart.
- .5 Verify actual site dimensions and conditions prior to commencement of work.
- .6 Notify Consultant in writing of any conditions that would be detrimental to installation.
- .7 Commencement of work will imply acceptance of previously completed substrate conditions.

### 3.02 INSTALLATION

*SPEC NOTE: Delete items not applicable.*

- .1 Install GFRC rainscreen panels strictly in accordance with shop drawings and manufacturer's printed installation instructions. Perform installation only by authorized distributor of manufacturer or by factory personnel.
- .2 Co-ordinate work with related work to ensure proper installation of wall panels.
- .3 Use only GFRC manufacturer materials and components for installation of rainscreen systems.
- .4 Ensure all flashing details are pre-installed as indicated by the architectural drawings.
- .5 Ensure moisture and vapour barrier materials are in accordance with local building code requirements and are installed as specified, including the sealing of all window details/wall openings appropriately, prior to installation of GFRC.
- .6 Install all mounting channels securely using GFRC fasteners and components.
- .7 Do not over-tighten mechanical fasteners which may negate providing adequate support. Remove any stripped screw fasteners immediately.
- .8 Establish termination points at grade, top of windows, doors, top of wall, etc. and install mounting channels horizontally, tightly butted together with appropriate fasteners to [every vertical stud] [no greater than 400 mm apart if substrate is concrete or block]. Ensure 25 mm flange is pointed up.

*SPEC NOTE: For Acry "NC 25 Insulated" panel system, use the following paragraph in lieu of .8 above.*

- .8 Establish termination points and install Z girts horizontally every [609 mm o.c. with appropriate fasteners to every vertical stud] [406 mm o.c. with appropriate fasteners to concrete or masonry substrate]. Ensure flange against substrate is pointed up. If Thermablock is specified, attach to Z girts prior to installation. Install insulation between Z girts tightly. Install moisture/vapour barrier over insulation if use is indicated on contract drawings.
- .9 Install vertical channels securely fastened using appropriate mechanical fasteners no greater than 400 mm apart. Add additional channels where necessary for added support where required. [Ensure vertical studs are not spaced more than 400 mm apart.] Do not overlap any channels.

*SPEC NOTE: For Acry “NC 25 Insulated” panel system, use the following paragraph in lieu of .9 above.*

- .9 Install vertical channels securely using 3/16” industrial stainless steel rivets to Z girts. Add additional channels where necessary for added support where required. Locate channels no greater than 406 mm o.c. Do not overlap channels.
- .10 Add backer component metal bands at all horizontal joints and expansion joints during wall panel installation. Note: At expansion joints, ensure metal bands are fastened only on one side to allow for expansion and contraction.
- .11 Add 90° pre-manufactured inside and outside corners at corner locations.
- .12 Keep finished face down when cutting wall panels.
- .13 Install wall panels to mounting channels using appropriate size and type of mechanical fasteners and use specified adhesive in conjunction with mechanical fasteners on all wall panels applied to all channels in a zig zag pattern using a 12 mm bead.
- .14 For hidden fasteners, countersink all fasteners to a depth of 4 mm from surface and no more than 450 mm apart while keeping a distance of 15 mm from panel edges and 75 mm from panel corners.
- .15 Do not countersink exposed fasteners. Colour match to wall panel finish.
- .16 Prior to patching countersunk screw holes, clean bump around ring of cavity to ensure panel surface is flat and clean.
- .17 After mixing patching filler in container prior to use, fill fastener cavities with amount needed to fill in screw holes, without exceeding size of screw hole diameter.
- .18 Remove excess patching material to ensure flat surface.
- .19 Patch countersunk screw heads as soon as possible to avoid colour variations and within 24 hours of panel installation.
- .20 Do not apply patching filler below 5°C.
- .21 All panel joints not to exceed 6 mm width.

### 3.04 CLEANING

- .1 Upon completion of work, remove excess materials, equipment and debris from site.

- .2 Clean surfaces of work exposed to view, using soft fiber brushes, water and mild cleaning agents as recommended by the GFRC manufacturer. Remove deposits of foreign material, dirt, soiling and stains. Rinse surfaces thoroughly after cleaning.
- .3 Use proper cleaning materials and methods to prevent damage to surfaces or work of other trades. Make good any such damage to satisfaction of Consultant.

### 3.05 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for [reuse] [and] [recycling at nearest used building materials' facility].

**END OF SECTION**