

ROXUL GUIDE NOTE: This master specification section is based on ROXUL Inc., COMFORTBOARD™ CIS. Standard application: exterior non-structural commercial and industrial insulation sheathing.

ROXUL GUIDE NOTE: This master specification section includes guide notes identified as “ROXUL GUIDE NOTE” for information purposes and to assist the specification writer in making appropriate decisions. The ROXUL GUIDE NOTE always immediately precedes the text to which it is referring. The section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.

ROXUL GUIDE NOTE: This specification section follows the recommendations of the Construction Specifications Institute, Project Resource Manual including MasterFormat™, SectionFormat™, and PageFormat™. Optional text is indicated by square brackets [____]; delete the optional text including the brackets in the final copy of the specification and retain only text pertaining directly to the project. Delete the ROXUL GUIDE NOTES in the final copy of the specification. Trade/brand names with appropriate product model numbers, styles, and types are used in ROXUL GUIDE NOTES and in the specification text Article or Paragraph titled “Acceptable Material”.

1 GENERAL

1.01 SUMMARY OF WORK

1. This Section specifies stone fibre board insulation for exterior non-structural commercial and building construction insulation sheathing applications.

1.02 RELATED REQUIREMENTS

ROXUL GUIDE NOTE: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Paragraph below. Do not include Division 00 Documents or Division 01 Sections since it is assumed that all technical sections are related to all project Division 00 Documents and Division 01 Sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered a legal part of the Contract. Edit the following paragraphs to suit specific project conditions.

1. Section [07 46 13 - Preformed Metal Panels].

ROXUL GUIDE NOTE: In the following Article, include only those reference standards which appear in the finished version of the project specification.

1.03 REFERENCE STANDARDS

- A. ASTM International (ASTM).
 1. ASTM C165 - [2007], Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
 2. ASTM C209 - [2012], Standard Test Methods for Cellulosic Fiber Insulating Board.
 3. ASTM C356 - [2010], Standard Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat.
 4. ASTM C423 - [2009a], Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 5. ASTM C518 - [2010], Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 6. ASTM C612 - [2010], Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
 7. ASTM C795 - [2008], Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
 8. ASTM C1104/C1104M - [2000(2006)], Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
 9. ASTM C1338 - [2008], Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
 10. ASTM E96/E96M - [2010], Standard Test Methods for Water Vapor Transmission of Materials.
- B. US Green Building Council (USGBC).

1. LEED® NC Version 2.2-[2009], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Co-ordination: Co-ordinate work of this Section with roofing or deck work and with work of other trades for proper time and sequence to avoid construction delays.

ROXUL GUIDE NOTE: The pre-installation meeting may be deleted if the size and complexity of the project does not require prior co-ordination and review of the barrier system installation.

- B. Pre-installation Meeting: Convene pre-installation meeting after Award of Contract and [one week] before starting work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.
 1. Comply with Section 01 31 19 - Project Meetings and co-ordinate with other similar pre-installation meetings.
 2. Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
 - a. Owner;
 - b. Consultant;
 - c. Board Insulation Installation Subcontractor;
 - d. Manufacturer's Technical Representative.
 3. Ensure meeting agenda includes review of methods and procedures related to insulation installation including co-ordination with related work.
 4. Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

ROXUL GUIDE NOTE: Article below includes submittal of relevant data to be furnished by Contractor.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- A. Make submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit product data including manufacturer's literature for insulation materials and accessories, indicating compliance with specified requirements and material characteristics.
 1. Submit list on insulation manufacturer's letterhead of materials and accessories to be incorporated into Work.
 2. MSDS report.
 3. Include product name.
 4. Include preparation instructions and recommendations, installation methods, and storage and handling requirements.
 5. Include contact information for manufacturer and their representative for this Project.
- C. Samples:
 1. Submit [6 x 6] inches minimum sample of insulation in thickness used on Project.
- D. Test Reports:
 1. Submit evaluation service reports, or other independent testing agency reports, if available, showing compliance with specified performance characteristics and physical properties.
- E. Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.
- F. Sustainable Design (LEED).
 1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements]
 2. Submit verification for items as follow:
 - a. EA Credit 1: Thermal value of insulation contributing to overall energy performance of building.

- b. MR Credits 4: Recycled content of insulation indicating percentages by weight of preconsumer and postconsumer recycled content.
- c. MR Credits 5: Verify location where insulation is extracted, processed and manufactured.

.7 Insulation Installer Qualifications:

- 1. Submit letter verifying insulation installer's experience with work similar to work of this Section.

1.06 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Supply maintenance data for insulation materials for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

ROXUL GUIDE NOTE: If LEED is not a part of the project delete the following Paragraph in its entirety as well as the reference standards in 1.03.

- B. Sustainable Design Closeout Documentation (LEED).
 - 1. Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates for work of this Section demonstrating percentage of construction wastes which were recycled.
 - 2. Submit verification from recycling facility showing receipt of materials.
- C. Record Documentation: In accordance with Section 01 78 00 - Closeout Submittals.
 - 1. List materials used in insulation work.
 - 2. Warranty: Submit warranty documents specified.

1.07 QUALITY ASSURANCE

- A. Board Insulation Installer Quality Assurance: Work experience of [5] years minimum with work similar to work of this Section.

ROXUL GUIDE NOTE: If LEED is not a part of the project delete the following Paragraph in its entirety as well as the reference standards in Articles 1.03 and 1.05.

- B. Sustainability Standards Certification (LEED).
 - 1. LEED submittals: In accordance with Section 01 35 21 - LEED Requirements.

ROXUL GUIDE NOTE: The following Article although not part of Quality Assurance, can be used to enhance the quality of materials by ensuring that they are delivered and handled properly at the work site.

1.08 DELIVERY STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Deliver material in accordance with Section 01 61 00 - Common Product Requirements.
 - 2. Deliver materials and accessories in insulation manufacture's original packaging with identification labels intact and in sizes to suit project.
 - 3. Ensure insulation materials are not exposed to moisture during delivery.
 - 4. Replace wet or damaged insulation materials.
- B. Storage and Handling Requirements: Store materials off ground in dry location and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 - 1. Store in original packaging until installed.
- C. Packaging Waste Management:

ROXUL GUIDE NOTE: For smaller projects that do not have a separate Section for waste management and disposal, delete the following paragraph.

- 1. Separate and recycle waste packaging materials in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
- 2. Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.

ROXUL GUIDE NOTE: For smaller projects that do not have a Waste Management Plan, delete the option referring to a Waste Management Plan.

3. Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycling [in accordance with Waste Management Plan].

1.09 WARRANTY

- A. Project Warranty: Refer to Contract Conditions for project warranty provisions.
- B. Manufacturer's warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to and not intended to limit other rights Owner may have under Contract Conditions.

ROXUL GUIDE NOTE: Co-ordinate article below with manufacturer's warranty requirements.

3. Warranty period: [1] years commencing on Date of Substantial Performance of Work.

2 PRODUCTS

2.01 MANUFACTURER

- A. Manufacturer: ROXUL Inc., 420 Bronte Street South, Suite 105, Milton, Ontario, L9T 0H9, Phone: 905-878-8474, Toll Free: 1-800-265-6878, e-mail: contactus@roxul.com, URL: www.roxul.com.

2.02 DESCRIPTION

- A. Non-combustible, rigid, water repellent, mineral wool insulation board for exterior non-structural commercial and industrial high performance insulation sheathing applications to ASTM C612, Type IVB.

2.03 PERFORMANCE CRITERIA

- A. Board insulation for exterior curtain wall systems: To ASTM C612, Type IVB.
 1. Fire performance:
 - a. Surface Burning Characteristics: To ASTM E84.
 - 1) Flame spread: 0.
 - 2) Smoke developed: 0.
 2. Thermal resistance (R value/inch at 75 ° F: [4.0] hr ft² F/Btu to ASTM C518.
 3. Moisture resistance:
 - a. Moisture sorption: 0.28 % maximum to ASTM C1104/C1104M.
 - b. Water vapour transmission: 35 perm to ASTM E96, Desiccant Method.
 - c. Water absorption: 1.2 % to ASTM C209.
 4. Dimensional stability: 0.38 % maximum linear shrinkage at 1200 °F to ASTM C356.
 5. Corrosive resistance:
 - a. Steel to ASTM C665: Non-corrosive.
 - b. Stainless steel to ASTM C795: Non-corrosive.
 6. Density: 11.0 lb/ft³ to ASTM C612.
 7. Compressive strength: To ASTM C165.
 - a. 1220 psf at 10 %.
 - b. 1880 psf at 25 %.

ROXUL GUIDE NOTE: ROXUL is pleased to have third-party certification of our products' recycled content for our Milton Facility completed by ICC -ES SAVE™. All ROXUL products produced in the Milton facility contain a minimum of 40% recycled content.

8. Recycled content: 40 % minimum.
9. Fungi resistance: To ASTM C1338.

ROXUL GUIDE NOTE: For sound absorption co-efficients for different insulation thicknesses, refer to manufacturer's web site at

www.roxul.com.

10. Acoustical performance sound absorption co-efficients to ASTM C423.

Sound Absorption Co-efficiencies at Frequencies

Thickness (inches)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	NRC
1	0.13	0.49	0.85	0.89	0.89	0.97	0.80
2	0.50	0.71	0.85	0.90	0.96	1.01	0.85

2.04 MATERIALS

- A. Non-combustible, rigid, water repellent, mineral wool insulation board to ASTM C612, Type-IVB.
1. Size: [24 x 48] [48 x 72] inches.
 2. Thickness: [1] [1 1/4] [2] [2 1/2] [3] inches.
 3. Acceptable Material: Roxul Inc., COMFORTBOARD™ CIS.

2.05 ACCESSORIES

- A. Mechanical fasteners in accordance with insulation manufacturer's written recommendations.

2.06 SOURCE QUALITY CONTROL

1. Ensure insulation components and accessories are supplied or approved in writing by single manufacturer.

2.07 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 23 13 - Product Substitution Procedures] [No substitutions permitted].

3 EXECUTION

3.01 INSTALLERS

- A. Use only installers with [5] years minimum experience with work similar to work of this Section.

3.02 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for insulation installation in accordance with manufacturer's written recommendations.
1. Visually inspect substrate in presence of Consultant.
 2. Ensure surfaces are free of snow, ice, frost, grease and other deleterious materials.
 3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.
- B. Start of insulation installation indicates installer's acceptance of substrate installation conditions.

3.03 INSTALLATION

- A. General:

ROXUL GUIDE NOTE: Refer to the insulation manufacturer's current installation guide for detailed information regarding installation.

1. Install insulation in accordance with manufacturer's written recommendations.
2. Install insulation to maintain continuity of thermal protection to building elements and spaces.

ROXUL GUIDE NOTE: For following paragraph, verify clearances with local building regulations, safety codes and authorities having

jurisdiction.

3. Keep insulation minimum [3] inches from heat emitting devices such as recessed light fixtures, and minimum [2] inches from sidewalls of chimneys and vents.
 4. Do not enclose insulation before inspection and receipt of Consultant's written approval.
- B. Installation of Insulation Board:
1. Install insulation board in accordance with insulation manufacturer's written recommendations.

3.04 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 - Quality Control].

ROXUL GUIDE NOTE: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Manufacturer field reports are included under PART 1, Action and Informational Submittals.

- B. Manufacturer's Services:

ROXUL GUIDE NOTE: Use the following Paragraphs only when manufacture's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Delete if field services are not required.

1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].
 - a. Have manufacturer review work involved in handling, installation, protection, and cleaning of insulation and accessories, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
2. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
 - a. Report any inconsistencies from manufacturer's recommendations immediately to Consultant.
3. Schedule site visits to review work at stages listed:
 - a. After delivery and storage of drainage sheet and accessories, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
 - b. Twice during progress of work at 25% and 60% complete.
 - c. Upon completion of Work, after cleaning is carried out.
 - d. Obtain reports within three days of review and submit immediately to Consultant.

3.05 CLEANING

ROXUL GUIDE NOTE: For smaller projects that do not have a separate Division 01 Section for cleaning, delete the reference to Section 01 74 00 – Cleaning in the following two Paragraphs.

- A. Progress Cleaning: Perform cleanup as work progresses [in accordance with Section 01 74 00 - Cleaning and Waste Management].
1. Leave work area clean at end of each day.
- B. Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment [in accordance with Section 01 74 00 – Cleaning and Waste Management].
- C. Waste Management:
1. Co-ordinate recycling of waste materials with 01 74 19 - Construction Waste Management and Disposal.
 2. Collect recyclable waste and dispose of or recycle field generated construction waste created during construction or final cleaning related to work of this Section.
 3. Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.06 PROTECTION

- A. Protect installed products and accessories from damage during construction.

- B. Repair damage to adjacent materials caused by insulation installation.

END OF SECTION 07 21 13 – BOARD INSULATION (COMFORTBOARD™ CIS)