**Click on the “pilcrow”in the MS Word Toolbar to toggle ROCKWOOL™ GUIDE NOTES on and off. Delete this text before incorporating the section into a Project Manual.**

ROXUL GUIDE NOTE: This master specification section is based on ROXUL INC., AFB®. Standard application: for wall/floor systems where acoustical performance and fire resistance are the primary concerns.

ROXUL GUIDE NOTE: If this section is being used to specify primarily thermal and fire resistance insulation, then it is recommended that the section number and title shown in the header be changed to 09 81 16 - Blanket (And Batt) Insulation.

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

1.1 SUMMARY OF WORK

A. This Section specifies mineral fiber batt and blanket thermal insulation and stone fibre batt and blanket acoustical insulation with no added formaldehyde.

1.2 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.

A. Section [07 92 19 - Acoustical Joint Sealants].

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

1.3 REFERENCE STANDARDS

A. ASTM International (ASTM).

1. ASTM C167 - [2009], Standard Test Method for Thickness and Density of Blanket or Batt Thermal Insulations.

2. ASTM C423 - [2009a], Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

3. ASTM C518 - [2010], Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

4. ASTM C553 - [2011], Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.

5. ASTM C665 - [2011], Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

6. ASTM C795 - [2013], Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.

7. ASTM C1104/C1104M - [2000(2006)], Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.

8. ASTM E84 - [2012b], Standard Test Method for Surface Burning Characteristics of Building Materials.

9. ASTM E90 - [2009], Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

10. ASTM E136 - [2011], Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

11. ASTM E413 - [2010], Classification for Rating Sound Insulation.

12. ASTM E1050 - [2012], Standard Test Method for Impedance and Absorption of Acoustical Materials Using a Tube, Two Microphones and a Digital Frequency Analysis System.

B. US Green Building Council (USGBC).

1. LEED v4-[2014], LEED (Leadership in Energy and Environmental Design): Green Building Rating System.

C. Underwriters' Laboratories (UL).

1. UL 181 - [2005], Factory-Made Air Ducts and Connectors.

1.4 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. [Roofing] [Deck] 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.

1.5 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 [5.5 x 7.5] inches minimum sample of insulation in thickness used on Project.

D. Test Reports:

1. Submit evaluation service reports or other independent testing agency reports 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.

G. Insulation Installer Qualifications:

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

1.6 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 1.03.6.

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.

1.7 QUALITY ASSURANCE

A. Batt and Blanket 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.

1.8 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].

1.9 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.

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

2 PRODUCTS

2.1 MANUFACTURER

1. Manufacturer: ROCKWOOL™, 4594 Cayce Road, Byhalia, MS 38611-7550, Phone: 905-878-8474, Toll Free: 1-800-265-6878, e-mail: contactus@rockwool.com, URL: [www.rockwool.com](http://www.rockwool.com).

2.2 Description

A. Non-combustible, lightweight, mineral wool batt insulation to ,ASTM C665 Type 1, that provides fire resistance to ASTM E136 and sound control to ASTM C423.

2.3 Performance CRITERIA

A. Acoustical and fire batt insulation for walls and floors to ASTM C665, Type 1.

1. Fire performance:

a. Non-combustibility: To ASTM E136.

b. Surface Burning Characteristics: To ASTM E84.

 1) Flame spread: 0.

 2) Smoke developed: 0.

2. Acoustical Performance:

a. Airborne sound transmission loss: To ASTM E90.

b. Rating sound insulation: To ASTM E413.

c. Sound absorption co-efficients: To ASTM C423.

Sound Absorption Co-efficiences at Frequencies

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Thickness (inches) | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 1 | 0.14 | 0.25 | 0.65 | 0.90 | 1.01 | 1.01 | 0.70 |
| 1 1/2 | 0.18 | 0.44 | 0.94 | 1.04 | 1.02 | 1.03 | 0.85 |
| 2 | 0.28 | 0.60 | 1.09 | 1.09 | 1.05 | 1.07 | 0.95 |
| 3 | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 |
| 4 | 0.86 | 1.11 | 1.20 | 1.07 | 1.08 | 1.07 | 1.10 |

d. Impedence and absorption of acoustic materials: To ASTM E1050.

3. Air erosion velocity: 1,000 ft/m maximum to UL 181.

4. Thermal resistance: To ASTM C518.

5. Corrosive resistance: To ASTM C665, Corrosive to steel - Pass.

6. Stainless steel stress corrosion: To ASTM C795.

7. Density: To ASTM C167, 2.5 lbs/ft3(thicknesses ≥ 3”), 2.8 lbs/ft3 (thicknesses < 3”)

ROXUL GUIDE NOTE: All ROXUL insulation materials contain recycled content. All ROXUL products produced in the Milton, Ontario, facility contain a minimum of 40% recycled content. ROXUL products produced in our Grand Forks, British Columbia and the Byhallia, Mississippi facilities contain a minimum of 16% recycled content.. Edit the following paragraph to address the recycled content for the location of the manufacturing plant

8. Recycled content: [40] [16] % minimum.

2.4 MATERIALS

A. Non-combustible, lightweight, mineral wool batt insulation to ASTM C665, Type 1, that provides fire resistance to ASTM E136 and a sound control to ASTM E90 and ASTM C423.

1. Size: [16] [24] x 48 inches.

2. Thickness: [1] [1.5] [2] [2.5] [3] [3.5] [4] [5] [6] inches.

ROXUL GUIDE NOTE: Contact ROXUL Inc., directly using contact information listed above for R values for other thicknesses.

3. R value/1 inch at 75 ºF: [\_\_\_\_\_\_] h ft2 ºF/Btu.

4. Acceptable Material: ROCKWOOL™, ROCKWOOL AFB evo™.

2.5 accessories

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

B. Acoustical sealant in accordance with Section [07 92 19 - Acoustical Joint Sealants].

2.6 source quality control

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

2.7 PRODUCT SUBSTITUTIONS

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

3 EXECUTION

3.1 INSTALLERS

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

3.2 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.

3.3 INSTALLATION

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

A. Install insulation in accordance with manufacturer’s written recommendations.

B. Install insulation to maintain continuity of thermal protection to building elements and spaces.

C. Do not compress insulation to fit into spaces.

D. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

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

E. Keep insulation minimum [3] inches from heat emitting devices such as recessed light fixtures, and minimum [2] inches from sidewalls of chimneys and vents.

ROXUL GUIDE NOTE: Use the following paragraph when acoustical insulation is being used as part of a sound absorbing system.

F. Seal joints with acoustical joint sealant in accordance with Section [07 92 19 - Acoustical Joint Sealants].

G. Do not enclose insulation until before inspection and receipt of Consultant’s written approval.

3.4 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, duration and costs of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Contact ROXUL Inc. to determine any costs associated with the ROXUL Technical Representative providing manufacturer’s field services. Delete if manufacturer’s field services are not required.

1. Coordinate manufacturer’s services with Section [01 45 00 - Quality Control].

ROXUL GUIDE NOTE: Delete the following paragraph if no costs are associated with manufacturer’s services.

a. Arrange for payment for manufacturer’s services.

b. 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.

3.5 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.

3.6 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 2116 – Blanket (and batt) Insulation (AFB evo™)