



**NATIONAL FIBER**

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This MANU-SPEC<sup>®</sup> utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*<sup>™</sup>, *SectionFormat*<sup>™</sup> and *PageFormat*<sup>™</sup>. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ] and/or Specifier Notes; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in Specifier Notes and in the specification text Article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies cellulose insulation that is produced from recycled newspapers and is manufactured by National Fiber. This product may be pneumatically dense packed or applied as a loose fill. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

**SECTION 07 20 00**  
**THERMAL PROTECTION**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes: This Section specifies cellulose insulation.

1.02 REFERENCE STANDARDS

Specifier Note: Paragraph below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain References Paragraph when specifying products and installation by an industry reference standard. List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Contract Conditions Section 01 42 00 - References may establish the edition date of standards. This Paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards that are referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

- A. ASTM International (ASTM):
  1. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  2. ASTM C739 Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation.
  3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
  4. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
  5. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
- B. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) - ASHRAE/IESNA Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays. Comply with Section [01 31 00 - Project Management and Coordination].

Specifier Note: Add additional text to specify unusual or detailed coordination requirements affecting the work results of this Section.

1. [\_\_\_\_\_].

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

**1.04 ACTION SUBMITTALS**

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].
- B. Product Data: Submit specified products as follows:
  1. Manufacturer's product data, including manufacturer's technical data sheet.
  2. Manufacturer's installation instructions.
  3. Catalog pages illustrating products to be incorporated into project.
  4. Material Safety Data Sheets (MSDS).

**1.05 QUALITY ASSURANCE**

Specifier Note: Retain the following Paragraph when certification related to sustainability submittals is a project requirement.

- A. Sustainability Standards Certification:
  1. Provide certification for [minimum energy performance] [optimized energy performance] [\_\_\_\_\_] certified by [\_\_\_\_\_] in accordance with [USGBC LEED program] [\_\_\_\_\_].
  2. Provide certification for [post consumer] [post industrial] recycled content certified by [\_\_\_\_\_] in accordance with [USGBC LEED program] [\_\_\_\_\_].
  3. Provide certification for local regional materials [manufactured] [harvested] locally certified by [\_\_\_\_\_] in accordance with [USGBC LEED program] [\_\_\_\_\_].

**1.06 DELIVERY, STORAGE & HANDLING**

- A. Delivery and Acceptance Requirements:
  1. Deliver material in accordance with Section [01 61 00 - Common Product Requirements] and in accordance with manufacturer's written instructions.
  2. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.
- B. Storage and Handling Requirements:
  1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
- C. Packaging Waste Management:

Specifier Note: The disposal of packaging waste into landfill sites demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for USGBC's LEED® construction project certification.

Specifier Note: Include the following Subparagraphs to specify information that will provide direction to the Contractor for the disposal of construction waste materials using environmentally responsible methodology other than landfill resources.

1. Separate waste materials for [reuse] [and] [recycling] in accordance with [Section 01 74 19 - Construction Waste Management and Disposal].

Specifier Note: USGBC's LEED® certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials.

2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
3. Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] packaging material [in appropriate onsite bins] for recycling.

Specifier Note: Add additional Subparagraphs to include pallets, crates, padding and other packing materials that are typically associated with the specified products.

4. Remove:
  - a. Pallets from site and return to manufacturer.
  - b. [\_\_\_\_\_].

**PART 2 PRODUCTS**

Specifier Note: Retain Article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as “or equal,” “or approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining “or equal” products.

2.01 CEL-PAK CELLULOSE INSULATION

- A. Manufacturer: National Fiber.
  1. Contact: 50 Depot Street, Belchertown, MA 01007-9619; Telephone: 800-282-7711, 413-283-8747, Fax: 413-283-2462; E-mail: [Sales@NationalFiber.com](mailto:Sales@NationalFiber.com); website: [www.nationalfiber.com](http://www.nationalfiber.com).
  2. Single Source Responsibility: Provide components and materials specified in this section from a single manufacturer.

Specifier Note: Substitution procedures must either be in the Contract Conditions or in Section 01 25 00 - Substitution Procedures. Do not include substitution procedures here.

3. Substitution Limitations:
  - a. Substitutions: [In accordance with [Contract Conditions] [Section 01 25 00 - Substitution Procedures] [No substitutions permitted].

B. Description:

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Contract Conditions and Section 01 41 00 - Regulatory Requirements. Repetitive statements should be avoided.

1. Regulatory Requirements:
  - a. In accordance with Section [01 41 00 - Regulatory Requirements].
  - b. [\_\_\_\_\_].
2. Sustainability Characteristics:

Specifier Note: Use of National Fiber Cel-Pak Cellulose Insulation within a project may contribute points toward LEED® certification. Material meets requirements for LEED® EA Prerequisite 2 for Fundamental Energy Performance, EA Credit 1 for Optimized Energy Performance and MR Credits 4.1 and 4.2 for Post Consumer and Post Industrial Recycled Content. Projects within 500 miles of Belchertown, MA may qualify for MR Credits 5.1 and 5.2 Local Regional Materials. Review manufacturer’s product data, including manufacturer’s technical data sheet, retain or delete Subparagraphs below and edit to suit project requirements.

- a. Recycled Content: Not less than 83%.
3. Compatibility:
  - a. Ensure components and materials are compatible with specified accessories and adjacent materials.
- C. Performance Criteria: Provide insulation complying with ASTM C739 and the following:
  1. Thermal Resistance, ASTM C518: R-value of not less than 3.8 per inch.
  2. Settled Density, ASTM C739: Not less than 1.6 pcf (25.6 kg/m<sup>3</sup>).
  3. Surface Burning Characteristics, ASTM E84 and E119:
    - a. Flamespread: 20.
    - b. Smoke Developed: 0.

4. Critical Radiant Flux, ASTM E648: Not more than 0.12 watts/cm<sup>2</sup>.
5. Smoldering Combustion, ASTM C739: Not more than 15%.
6. Moisture Absorption, ASTM C739: Not more than 15%.
7. Corrosiveness, ASTM C739: Acceptable.
8. Fungal Growth, ASTM C739: Acceptable.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verification of Conditions: Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer's instructions prior to cellulose installation.
  1. Inform [Owner] [Architect] [Consultant] of unacceptable conditions immediately upon discovery.
  2. Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval from [Owner] [Architect] [Consultant]].
  3. [\_\_\_\_\_].

Specifier Note: Specify actions required to prepare the surface, area or site for incorporation of the section's primary products. Describe requirements for exposure or removal of existing assemblies, components, products or materials.

**3.02 PREPARATION**

Specifier Note: Specify preparatory work required prior to installation/application/erection of primary products.

- A. Ensure structure or substrate is adequate to support cellulose insulation.
- B. Surface Preparation: Prepare surface in accordance with manufacturer's written recommendations and coordinate with Section [01 71 00 - Examination and Preparation].
  1. [\_\_\_\_\_].

Specifier Note: Specify preparatory work, such as selective removal of existing work, required prior to execution of new work. Specify requirements for exposure or removal of existing assemblies, components, products or materials.

**3.03 INSTALLATION**

- A. Coordinate installation of products in accordance with [01 73 19 - Installation].
- B. Coordinate cellulose insulation work with work of other trades for proper time and sequence to avoid construction delays.

Specifier Note: Select installation method(s) below to conform to project requirements.

- C. Install loose fill cellulose insulation in accordance with manufacturer's instructions to settled thickness or settled R-value indicated on the drawings.
- D. Install cellulose insulation using the injection method (dense pack) in accordance with the manufacturer's instructions to provide a minimum installed density of 3.5 pcf.

**3.04 CLEANING**

- A. Perform cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] and Section [01 74 13 - Progress Cleaning].
- B. Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section [01 74 23 - Final Cleaning].

Specifier Note: Specify special measures needed to minimize waste, collect recyclable waste and dispose of or recycle field-generated construction waste created during demolition, construction or final cleaning.

- C. Waste Management:
  1. Coordinate 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 demolition,

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construction or final cleaning.

3. Remove recycling containers and bins from site.
4. [\_\_\_\_\_].

### 3.05 PROTECTION

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction].
- B. Repair damage to adjacent materials caused by cellulose insulation installation.

Specifier Note: Specify provisions for maintenance services as applicable to critical systems, equipment and landscaping. Service agreements, if not paid in advance, should be separate from the construction agreement to avoid delay of the final payment and holding the contract open for extended periods.

**END OF SECTION**