



Weaver

CONSTRUCTION MANAGEMENT

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SUBMITTAL TRANSMITTAL

March 27, 2012
Submittal No: 13121-002

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Heath Steel**
141 Racquette Dr
Fort Collins, CO 80522
970-490-8031 Randy Gates
rgates@heathsteel.com

SUBJECT: Insulation submittal for the Equipment & Maintenance Prefabricated Metal Building.

SPEC SECTION: 13121

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Date: 3/27/12
Reviewed by: Chuck Berry

(x) Reviewed Without Comments
() Reviewed With Comments

Engineer's Stamp:

ENGINEER'S
COMMENTS: _____

SECTION 13121

PREFABRICATED METAL BUILDING

As it pertains to Metal Building Insulation

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope

1. Furnish and erect a prefabricated metal building complete with all accessories and components necessary for a weather-tight metal building complete in place as indicated on the Drawings and specified herein, including but not limited to
 - a. Structural framing
 - b. Roofing
 - c. Siding
 - d. Exterior doors, door frames, hardware and accessories
 - e. Gutters and downspouts
 - f. Accommodations for ventilation equipment and plumbing facilities
 - g. Insulation
 - h. Fasteners
 - i. Sealants
 - j. Connections to foundation structure
 - k. Coatings
 - l. All appurtenances, accessories and miscellaneous items of work, complete in place

B. Additional Requirements Specified Elsewhere

1. Section 01340: Shop Drawings, Product Data, and Samples
2. Section 01400: Quality Control
3. Section 01600: Materials and Equipment

C. Related Requirements Specified Elsewhere

1. Section 02372: Drilled Caissons
2. Section 03300: Cast-In-Place Concrete
3. Section 03600: Grout
4. Section 05500: Metal Fabrications
5. Section 05501: Anchor Bolts and Drilled-In Anchors
6. Section 06100: Carpentry
7. Section 07200: Insulation
8. Section 07501: Metal Roof and Wall Panels
9. Section 07600: Flashing and Sheet Metal
10. Section 07900: Joint Sealants
11. Division 8: Doors and Windows
12. Division 9: Finishes
13. Division 15: Mechanical
14. Division 16: Electrical

1.2 QUALITY ASSURANCE

A. Reference Standards: Conform to current conditions of the following specifications and standards relating to work of this section

1. American Institute of Steel Construction
 - a. "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" complete with commentary and supplements
2. American Iron and Steel Institute (AISI)
 - a. "Specification for the Design of Cold-Formed Steel Structural Members"
 - b. "Design of Light Gage Steel Diaphragms"
3. American Welding Society
 - a. "Structural Welding Code"
4. Metal Building Manufacturer's Association (MBMA)
 - a. "Recommended Design Practices Manual"
 - b. "Recommended Code of Standard Practice"
5. Pikes Peak Regional Building Department, 2011 Edition

B. Design Criteria

1. Design criteria, rationally applied to structures and their components, shall conform to applicable sections of the publications referenced herein with regards to design requirements and allowable stresses
2. Structural mill sections and welded-up plate sections: Paragraph 1.2.A.1.a of this section
3. Cold-formed steel structural members: Paragraph 1.2.A.2.a of this section
4. Primary and secondary members and coverings: Paragraphs 1.2.A.4.a and 1.2.A.5 of this section using the following design criteria
 - a. General: Conform to requirements of the Pikes Peak Regional Building Department
 - b. Snow load: 30 psf
 - c. Basic wind speed (3-second gust): 100 mph
 - d. Seismic loads
 - 1) Importance factor: 1.25
 - 2) Site class: D
 - 3) Seismic design category: B
 - e. Additional dead and live loads for HVAC equipment, electrical equipment and future office framing in magnitudes and at locations as indicated on the Drawings
 - f. Accommodations for future expansion of building with the same or similar structural system

C. Design Basis

- ~~1. Varco-Pruden, Memphis, Tennessee~~
- ~~2. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items~~

- a. Compliance shall be determined by the Engineer based upon review of proposed materials, fabrications, erection details and conformance with design and construction drawings and specifications
- b. It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by the General Contractor, Engineer and Owner, complete product data and specifications demonstrating complete conformance with the specified items

1.3 SUBMITTALS

A. In Accordance with Section 01340

B. Manufacturer's Literature and Drawings

C. Shop Drawings and Product Data

1. Submit complete fabrication, assembly, foundation and erection drawings
2. Submit detailed specifications and data describing materials, parts, devices and accessories
3. Submit data for verification of compliance with specifications and to illustrate construction and assembly of products
 - a. Dimensions
 - b. Materials
 - c. Thickness or gages
 - d. Fasteners
 - e. Finishes
 - f. Heat transmission ("U" values)
4. Door rough opening and finish details

~~D. Foundation Design Data~~

- ~~1. Rigid frame and internal column reactions, horizontal and vertical for all applicable load cases~~
- ~~2. Anchor bolt setting drawings and details including size, location and projection required for all anchor bolts~~
- ~~3. Review anchor bolt patterns shown on the Construction Drawings and accommodate adaptation of frame base plate bolt pattern with proposed construction~~

E. Samples

- ~~1. Manufacturer's complete line of available colors and patterns for wall panels, infill panels, fascia panels and accessories for color selection~~

F. Certifications

- ~~1. Design calculations or letter of design certification signed and sealed by a Professional Engineer licensed in the State of Colorado for the structural framing, covering panels and the foundation design criteria for the metal building system~~

2. ~~Design calculations may be manual or computer generated at the discretion of the prefabricated metal building system manufacturer~~
 - a. ~~Design data, calculations and supporting data shall be acceptable to the Pikes Peak Regional Building Department~~

G. Building Permit

1. Furnish and submit all required documents to the Pikes Peak Regional Building Department
2. Coordinate as necessary to obtain all required permits

1.4 DELIVERY, STORAGE AND HANDLING By Installer

- A. Protect all equipment and materials for damage during handling, delivery and storage
- B. Equipment or material which is damaged during handling, delivery and storage or is damaged by the elements shall be restored to new conditions prior to installation or replaced

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN REQUIREMENTS

~~A. Prefabricated Metal Building~~

- ~~1. Structural type: Clear span, rigid frame, peak roof with outset girts~~
- ~~2. Roof slope: 3 to 12 unless otherwise indicated on the Drawings~~
- ~~3. Size~~
 - ~~a. Building sizes vary; see Construction Drawings~~
 - ~~b. Bay sizes typically not to exceed 25' plus manufacturer's standard endwalls~~
 - ~~c. Eave height: Varies; see Construction Drawings~~
- ~~4. Rigid frame and columns; see Construction Drawings~~

2.2 MATERIALS, FABRICATION AND MANUFACTURE

~~A. Fabrication~~

- ~~1. Shop fabricate primary and secondary framing members complete with base, cap, splice and stiffener plates as applicable, factory welded into place~~
- ~~2. Factory punched bolt connection holes for field assembly of all components of various systems~~

~~B. Welding~~

- ~~1. In accordance with AWS "Structural Welding Code"~~
- ~~2. Furnish certifications of welder qualifications if requested by the Owner~~

C. Bolting

1. High strength bolts (ASTM A325) for field assembly of frame members
2. Anchor bolts in accordance with Section 05501-Anchor Bolts and Drilled-In Anchors as required and as indicated by the prefabricated metal building manufacturer's anchor bolt layout drawings
 - a. Embedded anchor bolts are required for intermediate and endwall base plate anchorage; drilled-in and adhered anchors are not acceptable

D. Primary Framing

1. Rigid Frames
 - a. Columns, roof beams and internal columns where applicable complete for bolted field assembly
 - b. Shop fabricated bases
 - c. Provide interior or intermediate structural frame at designated endwall to accommodate future building extension
2. Endwall
 - a. Corner columns, roof beams and endwall columns complete for bolted field assembly
 - b. Shop fabricated bases
3. Columns and rafters may be either uniform depth or tapered
4. Hot rolled structural sections: ASTM A36
5. Built-up steel sections
 - a. Plates and bars: ASTM A572, Grade 50
 - b. Sheet and strip: ASTM A607, Grade 50
 - c. Minimum yield stress: 50,000 psi

E. Secondary Structural Members

1. Purlins: Cold-formed "Z" shaped members
2. Girts: Cold-formed "Z" shaped sections
3. Eave struts: Cold-formed stiffened channel sections to provide adequate backup for both roof and wall panels at the building eaves
4. Base angle provided for attachment of wall covering to foundation wall, secured in place with contractor furnished expansion anchors
5. Bracing: Provide all diagonal bracing, flange braces, sag rods, bevel washers, etc., of sizes and shapes as required by design loading specified
6. Intermediate bracing: Provide all intermediate bracing between columns to support HVAC and electrical gear as indicated on the Construction Drawings

F. Structural Painting

1. Cleaning: Factory clean all structural steel components to remove all loose dirt, grease and mill scale and chemically treat with phosphoric type cleaner
2. Painting: Factory prime with rust inhibitive primer compatible with specified finish coating system per Section 09900
3. Abrasions caused by handling shall be touched up in the field using manufacturer furnished primer compatible to shop primer
4. Finish coat all structural framing members prior to installation of roof and wall panels

- a. Factory or field finish coating acceptable
 - b. Coatings in accordance with Section 09900
- G. Roof Panels
- 1. See Section 07501-Metal Roof and Wall Panels
 - 2. Design Basis: Met-Tile, Inc. Met-Tile roofing system
- H. Wall Panels
- 1. See Section 07501-Metal Roof and Wall Panels
 - 2. Design Basis
 - a. Varco Pruden "Texture Clad" wall system
 - b. Custom Panel Systems "Stucco Building Panel" system
- I. Accessories
- 1. Trim and accessories: See Section 07501-Metal Roof and Wall Panels
 - 2. Closures: See Section 08710-Finish Hardware
 - 3. Gutters: See Section 07501-Metal Roof and Wall Panels
 - 4. Downspouts: See Section 07501-Metal Roof and Wall Panels
 - 5. Hollow metal doors and frames
 - a. See Section 08100-Metal Doors and Frames
 - b. See Construction Drawings for each specific building requirements
 - 6. Hardware: Each door
 - a. See Section 08710-Finish Hardware
 - b. See Construction Drawings for each specific building requirements
 - 7. Insulated overhead steel door: See Section 08301-Overhead Sectional Doors
 - 8. Provide framing as required for blockouts and/or penetrations for installation of HVAC equipment by others
 - a. Size and location of blockouts as indicated on the Drawings and/or as specified to accommodate equipment furnished and installed
 - 9. Grout: See Section 03600-Grout
- J. Wall and Roof Insulation
- 1. Material
 - a. Noncombustible material
 - b. Batt, blanket or rigid insulation may be used
 - c. Faced with vapor barrier placed toward interior of the building
 - d. Combination assembly including vapor barrier facing shall carry a U.L. Fire hazard Classification indicating a flame spread of 25 or less
 - e. Extreme care shall be taken to ensure that a completely un-broken vapor barrier is in place throughout the building walls and roof
 - f. Rigid insulation design basis. Insulated Panel Systems, Inc., Houston, Texas
 - 2. Thickness as required to provide R-values of
 - a. R-19 in walls
 - b. R-30 in the roof

K. Sealants

1. Refer to Section 07900 - Joint Sealants
2. Standard of quality of a reputable and established sealant manufacturer, approved by the manufacturer of the prefabricated metal building
3. Sealants shall have good cohesion as well as good adhesion to the protective coated metal and shall not be corrosive to any components on which it is applied
4. Adequate handling characteristics during normal ranges of construction/erection temperatures
5. Retain weather sealing properties under conditions for which it is applied
6. Material
 - a. Extrudable sealant of the non-migratory, non-drying and non-skinning type
 - b. Synthetic elastomer base material conforming to the National Association of Architectural Manufacturer's (NAAMM) Standard SS-1a
 - c. Except for "tack-free-time" conform to performance requirements of Fed. Spec. TTC-598-b, Type I
 - d. Application
 - 1) Factory-applied or field-applied sealant in longitudinal ribs of panels
 - 2) Spot-sealing laps (where applicable) of roof panels
 - 3) Spot-sealing trapezoidal corrugated-nestable panels

PART 3 - EXECUTION By Installer

3.1 PREPARATION

- A. Examine concrete foundation and anchor bolt layout for conditions or defects that will adversely affect execution, permanence or quality of the work
- B. Do not begin erection of prefabricated metal building until unsatisfactory conditions are corrected

3.2 ERECTION

- A. Erection of prefabricated metal building shall be conducted by the manufacturer's authorized erection representative in strict accordance with
 1. Manufacturer's shop and erection drawings and
 2. Accepted trade practices as outlined in the MBMA "Code of Standard Practice"
- B. Confirm furnishing and installation of embedded anchor bolts with foundation construction
 1. If necessary, adapt frame base plates to conform to bolt material and pattern that exist in the foundation
- C. Conform to erection tolerances set forth in the AISC Code except individual member shall be considered plumb, level and aligned if the error does not exceed 1:300
- D. Erect all components and accessories of the system as specified to assure that the building shell is complete and weathertight

- E. Remove all rubbish and debris resulting from erection work and leave installation ready for acceptance
- F. Seal all wall and roof penetrations to assure a complete, weathertight installation
 - 1. Keep exterior steel wall and roof panel penetrations to a minimum in number and size

END OF SECTION



March 27th, 2012

PROJECT: HDT WRF – Equipment and Maintenance Building

Submittal 13121 Metal Building Insulation

By Heath Steel

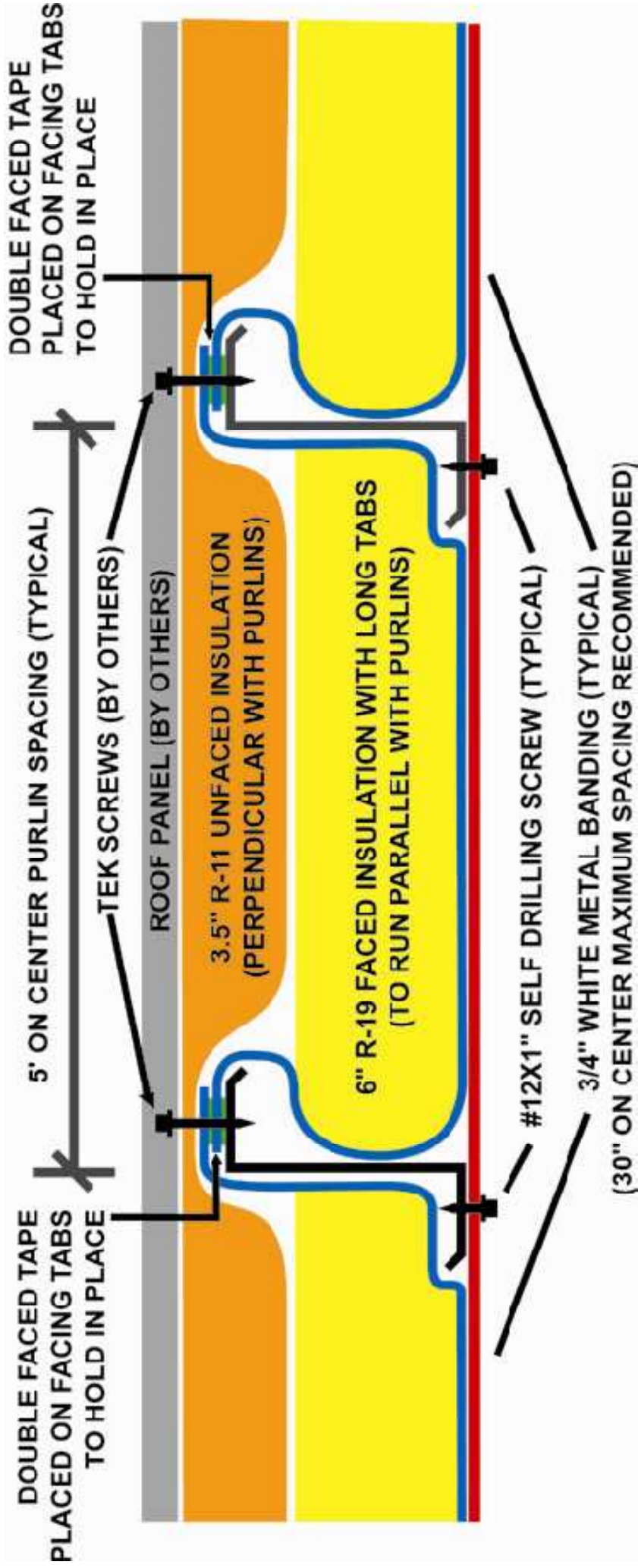
PROPOSED ROOF INSULATION SYSTEM:

Single layer rolls of 6" thick, R19 fiberglass insulation with laminated WMP-VR (white) vapor retarder installed parallel to purlins, in the purlin cavity. An additional layer of 3½" thick, R11 un-faced fiberglass insulation rolled out over and perpendicular to the purlins. The roof panel is to be installed over the top of the insulation system. The total roof insulation system will carry an R30 value. The lower layer of insulation will be supported with long tabs adhered to the purlin with spray adhesive and also supported by steel bands screwed to the bottom flange of the purlins. See attached literature.

PROPOSED WALL INSULATION SYSTEM:

Metal Building installer is to install thermal break tape which is furnished under this scope of work between the metal building wall girts and the metal wall panel. After the metal wall panel has been installed, single layer rolls of 6" thick, R19 un-faced fiberglass insulation is friction fit between the wall girts. Separate rolls of white WMP-VR vapor retarder will be installed perpendicular over the inside flange of the wall girts, under the metal liner panel.

See additional sections and details pertaining to the insulation shown on previous submittals for standing seam roof system and wall panel system.



Proposed R30 2-Layer, Banded Cavity Roof Insulation System

Metal Building Insulation 202-96

PRODUCT DESCRIPTION

Basic Use: CertainTeed Fiber Glass Metal Building Insulation 202-96 is a flexible blanket insulation furnished in rolls and intended to be laminated on one side with a suitable vapor retarder. It is used as a thermal and acoustical insulation in the roofs and sidewalls of pre-engineered metal buildings and post frame construction.

Benefits: Metal Building Insulation 202-96 reduces transmission of exterior sound to the interior of the building and absorbs reverberating sounds within the building.

Composition and Materials: The product is composed of tan, uniformly textured, inorganic fibrous glass and formed with a formaldehyde-free binding agent.

Limitations: This product is designed for use in interior (weather protected) walls and roofs of pre-engineered metal buildings. It should be laminated on a first-in, first-out basis and should be kept dry at all times during processing and end use. After lamination, packaging should not exceed a 5.5:1 compression ratio. For additional information, please refer to the appendix of the NAIMA 202-96 (Rev. 2000) standard.

Sizes: Standard available sizes as noted in table below. Contact CertainTeed for non-standard sizes.



INSTALLATION

The vapor retarder on Metal Building Insulation 202-96 should be installed toward the conditioned spaces in the building. The insulation is normally applied over or between the structural members of the building and held in place by the covering sheets or insulation support system. When using high R-Value systems, it is recommended that the cavity between the exterior metal sheet and the faced fiber glass insulation should be completely filled.

THERMAL PERFORMANCE			
Nominal Thickness (Pre-Lamination)		R-Value	
in.	mm	R	RSI
3%	86	10	1.76
3¾	95	11	1.94
4¾	111	13	2.29
5¼	133	16	2.82
6%	162	19	3.35
6¾	171	21	3.70
8	203	25	4.40
9¼	235	30	5.30

AVAILABLE SIZES

R-Value	Nominal Thickness		Width		Length	
	in.	mm	in.	mm	ft.	m
10	3%	76.2	36, 48, 60, 72	914, 1219, 1524, 1829	100	30.5
11	3¾	88.9	36, 48, 60, 72	914, 1219, 1524, 1829	100	30.5
13	4¾	101.6	36, 48, 60, 72	914, 1219, 1524, 1829	75	22.9
16	5¼	133.35	36, 48, 60, 72	914, 1219, 1524, 1829	50	15.2
19	6%	127	36, 48, 60, 72	914, 1219, 1524, 1829	50	15.2
21*	6¾	152.4	36, 48, 60, 72	914, 1219, 1524, 1829	45	13.7
25*	8	203.2	36, 48, 60, 72	914, 1219, 1524, 1829	30	9.1
30*	9¼	203.2	36, 48, 60, 72	914, 1219, 1524, 1829	25	7.6

Non-standard widths are available and subject to an upcharge on an individual basis determined by manufacturer's capability, quantity, lead times and packaging availability. *R-21, R-25 and R-30 are made to order.

Product Name	CertainTeed Metal Building Insulation 202-96
Manufacturer	CertainTeed Corporation
Address	P.O. Box 860 Valley Forge, PA 19482-0105
Phone	610-341-7000 • 800-233-8990
Fax	610-341-7571
Website	www.certainteed.com/insulation

TECHNICAL DATA

Applicable Standards

- Model Building Codes:
 - ICC
- Material Standards:
 - ASTM C991, Type I
 - NAIMA 202-96 (Rev. 2000)

Fire Resistance

- Fire Hazard Classification:
 - UL 723, ASTM E84, NFPA 255
Max. Flame Spread Index: 25
Max. Smoke Developed Index: 50
 - CAN/ULC-S102-M88
- Non-combustible:
 - ASTM E136 / Meets requirements

Physical/Chemical Properties

- Thermal Resistance:
 - ASTM C518 and/or ASTM C177 at 75°F (24°C)
mean temperature: see table at left
- Acoustical Performance: see tables on other side
- Water Vapor Sorption:
 - ASTM C1104 / No greater than 5.0% by weight
- Corrosiveness:
 - ASTM C665 / Meets requirements for steel, copper and aluminum
- Odor Emission:
 - ASTM C1304 / Pass
- Fungi Resistance:
 - ASTM C1338 / Pass Test

Quality Assurance

CertainTeed's commitment to quality and environmental management has ensured the registration of the Athens, Chowchilla and Kansas City plants to ISO 9001:2000 and ISO 14001:2004 standards.

AVAILABILITY AND COST

Manufactured and sold throughout the United States and Canada. For availability and cost, contact your local distributor or call CertainTeed Sales Support Group in Valley Forge, PA at 800-233-8990.

WARRANTY

In as much as CertainTeed has no control over installation design, installation workmanship, accessory materials or conditions of application, CertainTeed does not warrant the performance or results of any installation containing its products.

MAINTENANCE

An inspection and preventative maintenance program for the insulation and vapor retarder system is recommended to ensure optimum performance.

TECHNICAL SERVICES

Technical assistance can be obtained either from the local CertainTeed sales representative, or by calling CertainTeed Sales Support Group in Valley Forge, PA at 800-233-8990.

FILING SYSTEMS

- CertainTeed Pub. No. 30-25-056.
- Additional product information available upon request.

SOUND ABSORPTION - UNFACED									
R-Value	Nom. Thickness		Absorption Coefficients @ Octave Band Frequencies (Hz)						NRC
	in.	mm	125	250	500	1000	2000	4000	
10	3 $\frac{3}{8}$	86	0.29	0.82	1.02	0.94	0.96	0.98	0.95
11	3 $\frac{1}{2}$	95	0.39	0.91	1.01	0.92	0.93	0.98	0.95
13	4 $\frac{3}{8}$	111	0.53	0.97	1.04	0.90	0.95	0.98	0.95
16	5 $\frac{1}{4}$	133	0.67	1.05	1.02	0.92	0.98	0.99	1.00
19	6 $\frac{3}{8}$	162	0.89	1.22	1.02	0.98	1.01	1.00	1.05

Sound absorption tested in accordance with ASTM C423 using Type A mounting per ASTM E795.

SOUND TRANSMISSION								
Construction Type	Transmission Loss in dB at the Octave Frequencies						STC Rating	
	125	250	500	1000	2000	4000		
ROOFS								
No Insulation	12	13	19	24	30	32	24	
R-10 Faced 202-96 Insulation Over the Purlins	12	16	26	37	45	49	29	
R-19 Faced 202-96 Insulation Over the Purlins	13	20	30	41	49	51	32	
202-96 Insulation Over & Between the Purlins to Fill the Cavity (R-25 Combined)	14	24	34	44	53	56	36	
WALLS								
No Insulation	12	14	19	19	20	27	21	
R-10 Faced 202-96 Insulation Over the Girts	13	16	25	32	37	46	28	
R-13 Faced 202-96 Insulation Over the Girts	13	17	26	33	38	47	29	
R-13 Faced 202-96 Insulation Over the Girts 3-5/8" Steel Studs on 24" Centers with 1/2" Gyp. Board on Interior	26	40	51	60	64	65	50	
R-13 Faced 202-96 Insulation Over the Girts 3-5/8" Steel Studs on 24" Centers with R-11 Batts & 1/2" Gyp. Board on Interior	31	43	55	68	73	75	54	

Sound Transmission Class (STC) in accordance with ASTM E90.

- Roof construction is 24ga. standing seam roof with 8" Z purlins on 5' centers.
- Wall construction is 26ga. wall panels screwed to 8" Z girts placed on 7' centers.
- Interior metal furring wall studs were 3-5/8" by 25ga. on 24' centers.



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CertainTeed Corporation
 P.O. Box 860
 Valley Forge, PA 19482

Professional: 800-233-8990
 Consumer: 800-782-8777
www.certainteed.com/insulation



WMP-VR

POLYPROPYLENE / SCRIM / KRAFT

Meets ASTM C1136, Type IV

FACING COMPOSITION	DESCRIPTION	VALUES (ENGLISH)	VALUES (METRIC)
White Film	Polypropylene	0.0015 inch	38.1 micron
Adhesive	Flame Resistant		
Reinforcing	Tri-directional Fiberglass/Polyester	5 / inch (MD) 4 / inch (XD)	20 / 100 mm (MD) 16 / 100 mm (XD)
Kraft	Natural	11 lbs / 3000 ft ²	18 g / m ²

PHYSICAL PROPERTIES	TEST METHOD	VALUES (ENGLISH)	VALUES (METRIC)
Basis Weight	Scale	17 lbs / 1000 ft ²	83 g / m ²
Permeance (WVTR)	ASTM E96 Procedure A	0.09 perm (grains/hrft ² in Hg)	5.17 ng / N's
Bursting Strength	ASTM D774	60 psi	4.2 kg / cm ²
Puncture Resistance	ASTM C1136	125 beach units	3.7 Joules
Tensile Strength	ASTM C1136	40 lbs/inch width (MD) 30 lbs/inch width (XD)	7.0 kN / m (MD) 5.3 kN / m (XD)
Caliper / Thickness	Micrometer	0.008 inch	203 micron
Accelerated Aging	30 Days @ 95% RH, 120°F (49°C)	No Corrosion No Delamination	No Corrosion No Delamination
Low Temperature Resistance	ASTM D1790 -40°F (-40°C)	Remains Flexible No Delamination	Remains Flexible No Delamination
High Temperature Resistance	4 hours @ 240°F (116°C)	Remains Flexible No Delamination	Remains Flexible No Delamination
Water Immersion	24 hours @ 73°F (23°C)	No Delamination	No Delamination
Mold Resistance	ASTM C665 / C1338	No Growth	No Growth
Dimensional Stability	ASTM D1204	0.25%	0.25%
Light Reflectance	ASTM C523	85%	85%

FIRE TESTING	UL-723 / ASTM E84		CAN ULC-S102M		BRITISH STANDARD 476
	Flame Spread	Smoke Developed	Flame Spread	Smoke Developed	Parts 6 and 7 Summary Report
Film Exposed	10	10	15	30	Class 0 Surface
Kraft Exposed	15	5	15	45	

Physical Properties based upon statistical averages, Weight / Thickness +/- 10%

“LAMTEC” AND “WMP” ARE REGISTERED TRADEMARKS OF LAMTEC CORPORATION

Lamtec Corporation Bartley-Chester Road P.O. Box 37 Flanders, New Jersey 07836-0037 USA

Phone: (973) 584-5500
(800) 852-6832

www.lamtec.com

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(888) 852-6832