

Trumbull High School Building Committee
MINUTES
November 9, 2011

- Called to Order:** Chairman, James Nugent called the meeting to order at 7:14 p.m.
- Present:** Ms. Bivona, Mr. Doyle, Ms. Flynn, Mr. Lemay (arrived at 7:34 p.m.), Mr. McCabe, Mr. Meisner (arrived at 7:16 p.m.), Mr. Preusch, Ms. Timpanelli and Mr. Chmielewski.
- Absent:** Mr. Ronnow and Mr. Jenkins.
- Also Present:** Mr. Al Barbarotta of AFB Construction Management, Stephen Burgess of JCJ, Joe Vetro of O&G Construction, Mr. Tom Walsh of AP Construction.

Approval of Minutes:

Moved by Ms. Timpanelli, seconded by Mr. Chmielewski to amend the October 26, 2011 meeting minutes to correct the second to last sentence (happened).

(Mr. Meisner arrived at 7:16 p.m.)

VOTE: Motion carried as amended unanimously.

Mr. A. Barbarotta distributed the AFB monthly report to the Building Committee, (no review necessary).

Mr. Burgess reported that there had been no recording device/server in the base price it had been taken out as an addendum. Mr. A. Barbarotta confirmed that it had never been included in the bid and that Mike Kerwin of Vanderweil attended the owner's meeting.

Mr. Burgess and Mr. A. Barbarotta reported that the security system will arrive on the 14th and will be installed. PEC will install the system first and then the cameras will be installed, 26 will be on-line by Thanksgiving and more to follow thereafter. A meeting will take place tomorrow at 9:00 a.m. to work out a schedule in phases for the installation of all 80 cameras. Mr. Burgess stated that O&G will have Vanderweil inspect, they are currently on the correct phase/schedule now.

Mr. A. Barbarotta reported that there had been a leak in the gym roof. Mr. Vetro reported that the leak has since been repaired; the whole floor will be screened. The cricket on the roof had a valley which collected water, it is difficult to figure exactly when it had occurred. Mr. A. Barbarotta stated that there are areas of the roof with ponding water.

Mr. Barbarotta updated the Building Committee regarding the roof ductwork insulation issue. After the last meeting AFB had been directed to work with professionals. Frank Zano has been evaluating the situation, winter is coming the issue needs to be addressed. Sections have dried out, there will be temporary coverings put into place to gain time for the resolution and to be able to go out to bid. DTC has looked at the system to see if there is a less expensive resolution than to have to redesign the whole system. A mock up of the THS roof insulation had been brought to the meeting for the Building Committee to better understand what had been designed and what could be done. The current system involves batt insulation; there is a suggestion to use the rigid board insulation. The mock up had been

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made for phase I. The system was installed as the mock-up. Three other types of rigid board systems were presented to the Building Committee representing a cost of \$998,000, \$985,000 and \$1,023,000. See Attached product descriptions). These three are based on Vebtureclad 1577. There is an additional option based on Ventureclad 1579 which can be installed during the winter representing a cost \$1,264,232. The Building Committee discussed another option, alumaguard LT at a cost of \$1,115,013.

The DTC representative present at this meeting explained that there is an installation issue with what is on the roof now, it is not the same aluminum that was specified and the installation appears to have been rushed due to the impending hurricane (Hurricane Irene).

(Mr. Lemay arrived at 7:34 p.m.)

Mr. A. Barbarotta stated that the vendor is not standing behind their product they need to come to the table to discuss the issue. The DTC representative explained that failure of the system is usually due to air not water, this is not the case. The straight lines of the ductwork appear to be dry now and overall it is dryer than expected. The ducts are now being heated which is forcing the water out.

Mr. A. Barbarotta stated originally designed was a Cadillac system, some thought it was overkill and was sent back for a redesign. DTC would like the opportunity to work with what is existing for a possible remedy. Mr. Barbarotta believes the issues are now isolated enough that they will be able to keep the school warm and allow for the time for DTC and Frank Zano to work on a resolution. In approximately two weeks DTC will report back, there are many "what ifs" at this time, and this will allow them to repair the system correctly in the spring weather.

In response to the Chair, DTC explained that some of the ductwork was not closed during the rains of the hurricane. Mr. A. Barbarotta explained that the wet areas were much wetter 3-4 weeks ago than they are now; cautioning using adhesives for the repair during the winter could be problematic.

The Building Committee reviewed the product sheets distributed at this meeting.

In response to the Chair, Mr. Vetro stated that the system could be wrapped in plastic for the winter to protect; there will be some cost in maintaining the system.

Mr. A. Barbarotta will ask not only the installer for a bid but the other bidders will be offered it as well. Mr. Vetro stated that to get through the winter with this system there will be necessary maintenance throughout the winter. Mr. A. Barbarotta stated that they will do what they have to get through the winter.

In response to Ms. Flynn, Mr. A. Barbarotta stated that it would not be his recommendation at this time to go with the \$1 million resolution; there are many areas that do not have exposure issues. Ms. Flynn spoke against spending a lot of money for the maintenance of this issue that may ultimately need to be replaced. It was confirmed for the Chair that the maintenance of the ductwork would be done by contractors.

The Chair stated it is premature to consider the new systems.

Mr. Zano stated that the fail points should have been a one piece saddle, this is a detail issue. Mr. Doyle stated that it will not be possible to build a retrofit for what is currently there.

Mr. A. Barbarotta stated that the engineers need to look at the system and figure out a better way to go; it is our responsibility as the owner and they as the engineer of record to look to see if the system could be retrofitted. DTC stated that the workmanship of the installers had gotten sloppier as they progressed on the job. DTC has not communicated the issues of the installation with O&G yet. DTC confirmed for Mr. Meisner that there should have been no punctures in the installation; a saddle had been designed;

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they are currently investigating this. The Chair stated it would be necessary to convene in two weeks to discuss this issue. Zano and DTC will meet on site. Mr. Vetro and Mr. A. Barbarotta agreed that any areas exposed will get wrapped. Mr. John Barbarotta will take pictures for the record. The pricing discussed at this meeting includes removing what is there currently.

Direction to the CM is as follows:

Pursue temporary measures to carry the system through the winter, this will allow them to do their due diligence and to do what is right at a reasonable cost.

Mr. A. Barbarotta stated that he had met with the state to discuss if this is an upgrade and whether it would be reimbursable and is awaiting the response.

Mr. Preusch stated that the Building Committee is hearing different things on this issue since the last meeting, further investigation is necessary from the design team, CM and the third party consultant. The next two weeks should be for investigation. The Chair wants confirmation that all can be sealed for the winter and will be secure to ride out the winter. Mr. Preusch stated that in two weeks time all should be more reassured after more research has been done.

Moved by Ms. Bivona, seconded by Mr. McCabe to approve the JCJ Invoice #37 in the amount of \$21,874.55 dated 10-31-11.

VOTE: Motion 8-2 (Against: Flynn and Timpanelli).

Moved by Ms. Bivona, seconded by Ms. Flynn to approve the Ciulla & Donofrio LLP Invoice # 15071 in the amount of \$670. 50. This represents 3 hrs. time calls and conferencing. VOTE: Motion carried unanimously.

By unanimous consent the THSBC agreed the next scheduled meeting to be on Tuesday, November 22, 2011 at 7:00 p.m. at the Helen Plumb Building due to the upcoming holiday.

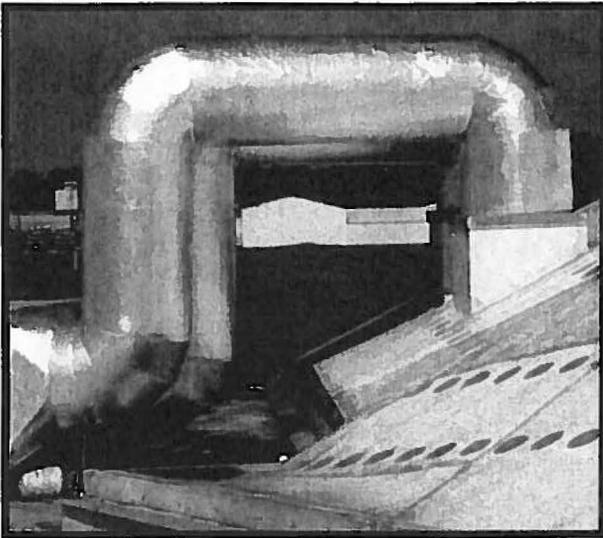
There being no further business to discuss the THSBC adjourned by unanimous consent at 8:28 p.m.

Respectfully submitted,


Margaret D. Mastroni, Clerk

VentureClad™ 1579CW®

J A C K E T I N G S Y S T E M



Venture Tape VentureClad™ 1579CW® (VentureClad™ Plus) is a zero permeability, absolute vapor barrier for insulation cladding and jacketing applications. A 13-ply, material is as tough as metal but installs quickly and easily with no special tools required.

VentureClad™ 1579CW® exceeds most building code requirements and can be used for new construction as well as repair on existing structures.

Available in natural aluminum or white VentureClad™ 1579CW® is the highest performing product on the market today.

Features & Benefits

- Flexible, strong, fabric reinforced insulation cladding product combines vapor barrier function with heavy-duty all weather mechanical protection
- Ultra high performance jacketing product performs well over a wide temperature range (-30°F to +248°F application surface temperature)
- **Venture CW® cold weather acrylic adhesive** applies easily at temperatures as cold as -10°F
- Zero permeability, absolute vapor barrier
- High puncture and tear resistance
- UL Listed – exceeds all requirements of UL723

Product Configurations

- Available in Natural Aluminum (1579CW®) and White (1579CW® - W)
- Standard widths: 23", 35 ½", and 46"
- Standard length: 25 yards
- Custom widths and lengths available, contact Venture Tape for specifications and requirements

Contact Venture Tape today for a complete list of products or a free sample

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90A Northgate Drive
Thomastown 3074 Victoria
Australia
(03) 9464 2089

VentureTape®

ALUMAGUARD® All-Weather (LT) Flexible Weather-Proofing Jacket

Alumaguard® All-Weather(LT) weather-proofing cladding from **Polyguard Products** is the only flexible insulation cladding available in the market which combines the self-healing characteristics of rubberized asphalt with the ease of application and cold weather performance of acrylic adhesive-based products.

- Proven: Uses the same outer layer and rubberized asphalt compound as the original **Alumaguard** membrane which has been used successfully in the market for 12 years as a lower cost alternative to standard metal and mastic/fab applications.
- Self-Healing: rubberized bituminous membrane seals small cuts and punctures; is UV stable.
- Acrylic adhesive allows installation down to 10°F.
- No pinning or activator required
- Excellent emissivity
- Can be used year round

Description

Alumaguard All-Weather (LT) is a composite membrane consisting of an embossed UV-resistant aluminum outer layer laminated to a multi-ply cross-laminated polyethylene film to which is applied a layer of rubberized asphalt specially formulated for use on insulated duct and piping applications. A metallized polyester film coated with a high quality low temperature acrylic adhesive is then applied to the rubberized asphalt. A heavy duty kraft release liner gives **Alumaguard All-Weather (LT)** its peel and stick functionality.

Uses

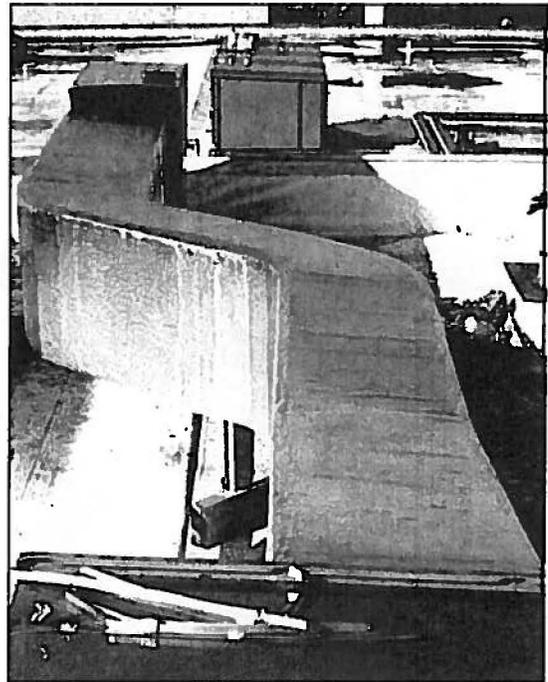
Alumaguard® All-Weather (LT) is designed to be used outdoors to weather-proof exterior insulated ductwork, piping or other insulated tanks, vessels and equipment. **Alumaguard LT (All-Weather)** resists moisture, air and vapor intrusion.

Notes: Prior to the installation of **Alumaguard All-Weather (LT)**, ducts must be sealed in accordance with **SMACNA HVAC Duct Construction Standards Metal and Flexible, 3rd Edition (2005), Seal Class A.**

Installation

All roof-top ductwork to which **Alumaguard All-Weather (LT)** is to be applied **must** be designed with adequate slope (watershed) to prevent ponding water. Ponding water is defined as water that stays in place for greater than 24 hours.

Alumaguard All-Weather should only be applied to faced fiberglass or faced closed-cell foam insulation board.



Houston, TX 2008

Alumaguard® All-Weather (LT) is a "peel and stick" product which must be applied to a properly prepared substrate. In duct applications, **Alumaguard All-Weather (LT)** can be used for the underside of the duct and does not require pinning. Complete installation instructions are available on our website, www.polyguardproducts.com.

Packaging

Alumaguard All-Weather (LT) is available in 4" x 50' and 36" x 75' rolls packaged 12 and 1 to a carton respectively in an embossed foil finish.

Limited Warranty

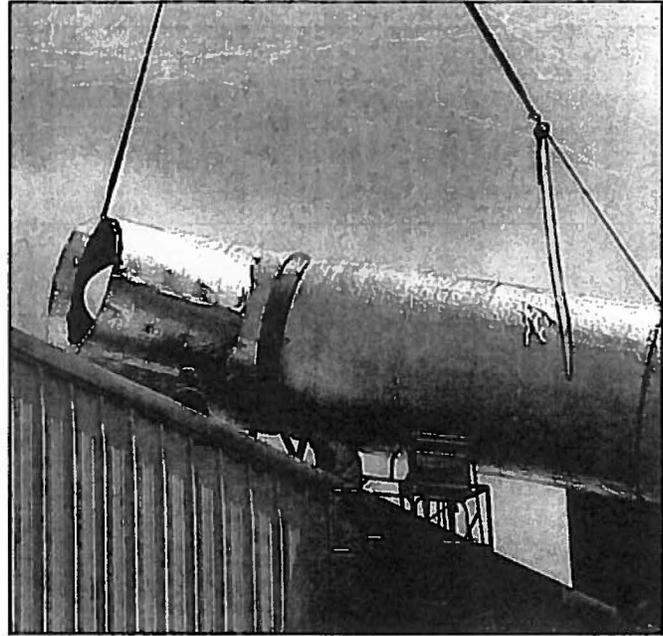
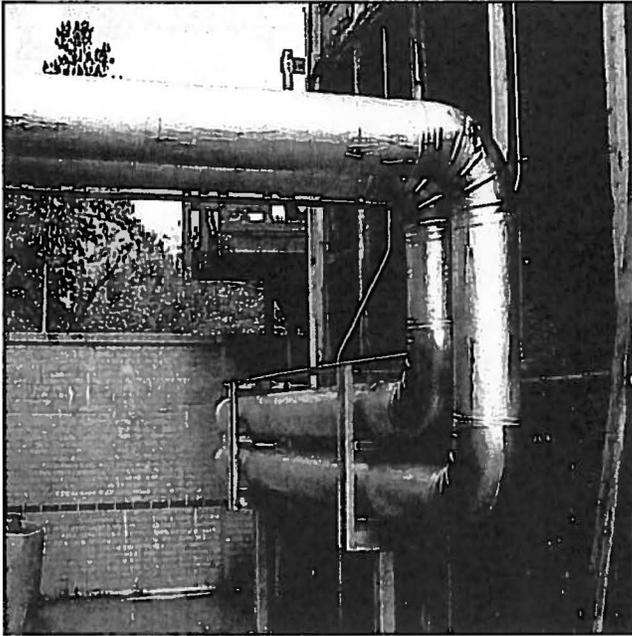
Polyguard Products warrants material to be free from leaks caused by defects in materials or manufacturing for a period of ten (10) years from the date of installation when material is applied according to installation instructions in effect at the time of installation. Contact **Polyguard** for complete details on the Limited Warranty.

P.O. Box 755
Ennis, TX 75120
PH: (214) 515-5000
FX: (972) 875-9425

This information is based on our best knowledge, but
POLYGUARD cannot guarantee the results to be obtained.



Polyguard is ISO 9001 certified since 1996.



Limitations

Alumaguard® All-Weather (LT) should be installed on a properly prepared, clean and dry substrate. **Alumaguard All-Weather (LT)** must be protected from damaging chemicals including petroleum and/or coal tar solvents.

Alumaguard All-Weather (LT) should not be adhered directly to commercial roofing membranes. For specific information regarding **Alumaguard All-Weather (LT)** and commercial roofing, refer to Technical Bulletin, 2011-1.

Alumaguard All-Weather (LT) should be stored in a clean dry area with boxes laid horizontally and not on end. The product has a recommended shelf life of 12 months.

Note: Before installing **Alumaguard® All-Weather (LT)**, please obtain a full set of our most current installation instructions on our website, or call **Polyguard** at 800-541-4994.

Alumaguard® All-Weather (LT) Technical Properties and Testing

Membrane Property	Test Method	Results
Total Product Thickness (w/o liner)	ASTM D1000	35 mils
Water Vapor Transmission (grains/hr-ft ²)	ASTM E96-00	.00
Permeance (US Perms)	ASTM E96-00	.00
Peel Adhesion (to primed steel)	ASTM D1000	>16 lbs/in
Elongation at Break	ASTM D882	400%
Low Temperature Pliability	ASTM D146(modified)	No Cracks@-15°F, -31°F
Tensile Strength (Film only)	ASTM D882(Method B)	5000 PSI
Puncture Resistance (Film Only)	ASTM E154	>40 Lbs
Fungus Resistance	ASTM G21-90	No Growth
Sound Transmission Coefficient	ASTM E 90-97	0.18
Upper Temperature Limit	LAB	150°F
Bond to Itself (2 hr UV Exposure) Lbs/1"	ASTM D1000	5.8
Bond to Itself (3 day UV Exposure) Lbs/1"	ASTM D1000	8.2
Peel Adhesion (overlap bond)@-15°F	ASTM D1000	5.8
Peel Adhesion (overlap bond)@-31.5°F	ASTM D1000	8.2
Emissivity	ASTM C1371	.030

ALUMAGUARD® LT All Weather Installation Recommendations

Ducts *must* be sealed in accordance with SMACNA HVAC Duct Construction Standards Metal and Flexible – Second Edition (1995) Seal Class A prior to insulation of ALUMAGUARD LT All Weather

Alumaguard LT All Weather solves the problem of installing a rubberized asphalt product in cold temperatures. We created a hybrid product by combining **Alumaguard Lite** with our standard **Alumaguard** to create a self healing product which would install in low temperatures without the use of a solvent based activator or heat gun.

The introduction of **Alumaguard Lite** made it unnecessary to pin through the membrane on the bottom of duct. This is now true for **Alumaguard LT All Weather**.

Hot and cold air ducts should be installed in the following manner to maintain proper vapor barrier and physical integrity; the board insulation should be mechanically installed on properly sealed duct according to the engineer's specification using insulation fasteners (mini-cup weld pins or perf. based pins and washers). Insulation on the top of the ductwork *should be* installed in such a manner as to allow for 'water shed' from the top of the duct to prevent water from 'ponding'.

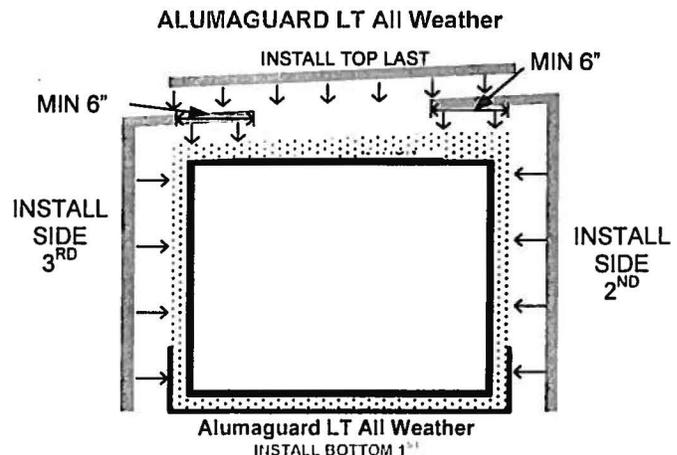
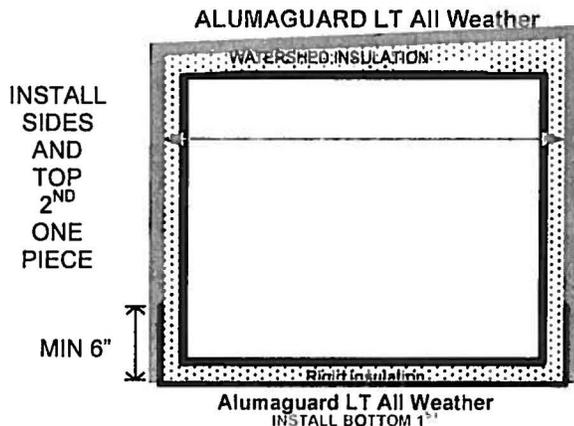
Polyguard recommends our **Alumaguard® LT All Weather** system be installed according to one of the following procedures;

- Cut one piece of **Alumaguard Lite** to cover the underside of the duct and up 6" on each side
- Cut two **Alumaguard LT All Weather** side pieces to fit from the bottom corner of the duct up over the top of the duct, lap over the top 6", **DO NOT FOLD A LAP UNDER THE DUCT**
- Cut the final piece of **Alumaguard LT All Weather** to cover the top, trim it flush with the top corners

OR:

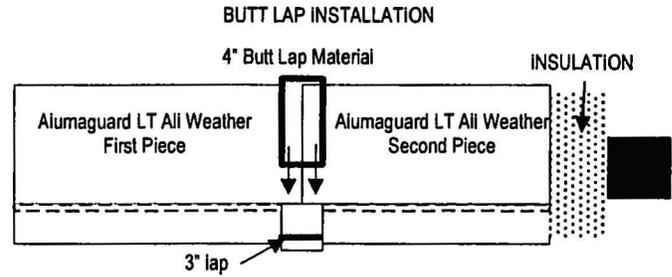
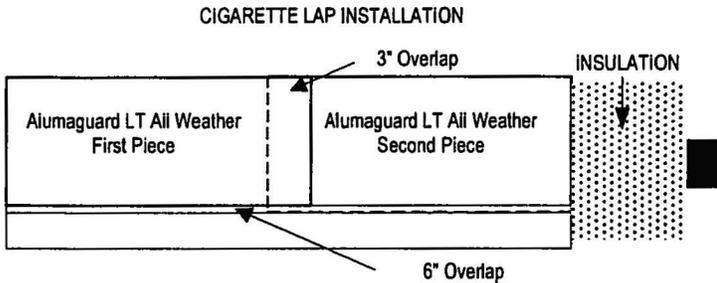
- Cut one piece of **Alumaguard Lite** to cover the underside of the duct and up 6" on each side
- Start at the bottom corner of one side with **Alumaguard LT All Weather**; go up over the top, then down the other side cutting it flush with the bottom.

Install the **Alumaguard LT All Weather** with a laminate roller or 6" squeegee as you remove the release film to insure adhesion and lessen wrinkling



Do not terminate a lap on the bottom of the duct!

Alumaguard LT All Weather must be protected from damaging chemicals; rubberized bitumen can be 'solvated' when exposed to chemical, petroleum, or coal tar based compounds. If you are unsure of the materials you will be subjecting our product to, please feel free to call us at 1-800-541-4994 for more information. Store **Alumaguard** in a warm dry place prior to installation. For specific Installation recommendations please call us for detail drawings as you require them.



Factory installed, each piece should be cut to allow a 3-6" lap over the circumferential lap. Install tightly around the pipe insulation, rolling with a laminate roller or other firm "rolling pin" type roller to insure contact with the substrate and a 4" wide butt lap placed over the joint and rolled with a roller. The butt lap should start where the circumferential lap ends, wrapping around the pipe, and then lapping over 6" past the starting point. Installation can also be a cigarette wrap method using a 3" longitudinal lap and the same 6" circumferential lap. Install the first **Alumaguard LT All Weather** piece over the insulation with a 6" lap terminated at the 4 o'clock position. Install the second piece of **Alumaguard LT All Weather** with 3" overlapped onto the previous piece of **Alumaguard LT All Weather**.

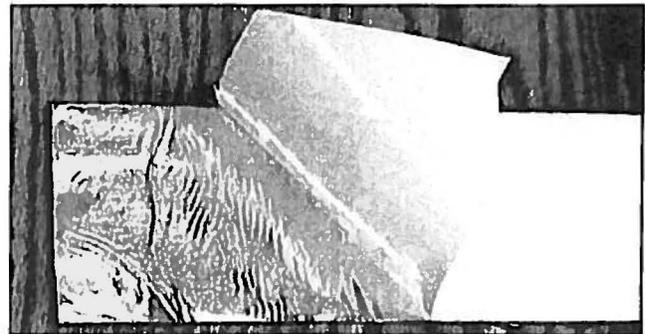
temperatures after insulation do not exceed our upper use limitations. It is important to note that heat transfer through single layer joint seams could result in the softening or melting of the rubberized asphalt compound.

Fittings, 90's, tee, valves, and 45's can be laid out using standard sheet metal methods, modified to allow for overlap. This can be accomplished by adding to the throat and heel of the fittings. The bottom piece is installed first, and then the top piece lapped over the bottom piece to permit water shedding over the lap. Fittings can also be 'gored', over sizing each gore piece to allow for a lap onto the preceding piece. Installers can also use standard metal fitting covers with the **Alumaguard** products. Care must be used to insure that the fittings are vapor sealed! Standard metal stamped fittings can be used with **Alumaguard** products.

NOTE: Care should be taken when using **Alumaguard LT All Weather** on a hot system, insure that the surface

NOTE: ALUMAGUARD LT All Weather IS NOT TO BE USED AS A MECHANICAL FASTENER! Insulation must be installed (tape or bands) according to the manufacturers instruction. If **ALUMAGUARD** is pre-applied to pipe cover, it **MUST BE BANDED** when installed.

DO NOT PAINT ALUMAGUARD!



ISO-C1/2.0 Polyisocyanurate Insulation

2.0 lb/ft³ (32.1 kg/m³) Density Foam

ISO-C1/2.0 is Dyplast Products' cornerstone polyisocyanurate rigid foam insulation within its broad ISO line of products. ISO-C1/2.0 is independently tested and audited and is the only polyiso bunstock foam listed with both UL and FM as having met the demanding Class 1 flame spread and smoke development requirements per ASTM E84. More importantly for some clients, it is also the only polyiso bunstock foam that is listed under FM's Approval Standard 4880 for Class 1 Steel Faced Interior Wall and Ceiling Panels at foam thicknesses up to 3". ISO-C1 has higher thermal efficiency than competing polyiso, EPS, XPS, fiberglass, or cellglass insulation, offering exceptional performance in both piping and panel applications from -297F to +300F. ISO-C1 physical properties are superior in other areas, achieving code compliance plus levels of dimensional stability, closed cell content, and moisture resistance otherwise unattainable.

ISO-C1 is produced as a continuous foam bunstock with the ability to custom size the bun in order to provide for fabrication to virtually any shape or size, thus reducing waste. For specific stock bun sizes contact the sales department at 1-800-433-5551 or log on to our website for ISO sizing (www.dyplastproducts.com/ISO_bun_sizing.htm). Our proprietary production process utilizes hydrocarbon blowing agents creating a portfolio of ISO-C1 products with physical properties superior to prior generation formulations.

THERMAL EFFICIENCY

With its high R-factor, ISO-C1/2.0 can achieve the same insulating value with as little as half the thickness required by alternative insulating materials. Less insulation leads to thinner walls, less weight, more space, and fewer and tighter energy-losing seams - - further enhanced by the availability of larger pieces (for example, 24-foot panels or blocks). Less insulation in mechanical applications also equates to reduced quantities of expensive vapor retarders, jackets, and mastics. The lighter weight of ISO-C1/2.0 compared to cellular glass (roughly one-third) reduces structural support requirements.

LONG TERM R-FACTOR

High thermal insulation efficiency is achieved by infusing cells with gases having low thermal conductivity. All such rigid foam insulation (including polyurethanes and extruded polystyrene) thus lose a small amount of their insulating value over time as air displaces insulating gases. ISO-C1's smaller, stronger cell structure and our proprietary cell-gas formulation work together to impede gas transfer across cell boundaries, thus reducing loss of thermal efficiency. At a testpoint of 75F, the average R-factor of ISO-C1/2.0 over a 15 year period is comparable to the six-month "aged" R-factor. It is important to note that ISO-C1/2.0's service temperatures are normally well below 75F, and that thermal aging is reduced considerably at lower operating temperatures. Thicker insulation, vapor barriers, and metal constraints also limit gas diffusion. Long Term Thermal Resistance calculation standards are not accurate for ISO-C1/2.0 bunstock, particularly as-installed in low temperature applications.

Dyplast Products is the preeminent manufacturer of polyisocyanurate and expanded polystyrene rigid foam products, and also distributes a variety of complementary products. With new world-class production facilities in Miami, Florida, Dyplast Products offers its customers unsurpassed technology, responsiveness, wide-ranging product configurations, and state-of-the-art quality control. Our customer-focused staff, combined with our sound financial footing, ensure we deliver incomparable value to our customers far into the future. **For information on Dyplast Products or additional technical data on this product, visit our website at www.dyplastproducts.com.**

WATER ABSORPTION

Water absorption by insulation can degrade thermal insulating performance. ISO-C1/2.0's excellent resistance to water absorption (0.04%) and high R-factor help ensure long-term thermal performance remains superior to polystyrenes, phenolic foams, fiberglass, and even cellular glass - - which has water absorption of 0.2%, as well as considerably lower insulating value. Also ISO/C1 measurement is per ASTM C272 (Method A), which requires a 24 hour immersion period. The comparable cellular glass test per ASTM C240 requires only a 2 hour immersion.

WATER VAPOR TRANSMISSION

For optimum performance and longevity, insulation systems for low temperature applications must be designed to control condensation. One primary design strategy is to specify high insulation efficiency since if the surface temperature of the insulation system can be maintained above the dewpoint, condensation will not occur. Since a minimal amount of condensation may be acceptable (or unavoidable) in humid environments, a secondary design strategy is to also demand insulation with low water vapor transmission. In this regard, no other insulation alternative offers ISO-C1/2.0's combination of superior R-factor and low permeability of 1.65 perm-inch.

SURFACE BURNING CHARACTERISTICS

The International Mechanical Code defines Class 1 insulation as meeting the 25/450 flame spread/smoke development rating. ISO-C1/2.0 performs well within this range with a 25/195 rating. When comparing surface burning characteristics of alternative products, care must be taken to consider the installed insulation system as a whole. For example, a well-designed ISO-C1/2.0 insulation system can improve overall fire/smoke performance of the polyiso insulation system. On the other hand, cellular glass' fire/smoke ratings may be compromised by the use of the sealants or jacketing often recommended by suppliers. There is also the matter of insulation system integrity during a fire. ISO-C1/2.0 may be charred by flame, but maintains its integrity and continues to protect the insulated system.

* See "Compliances and Approvals"

REV. ISOC1/20 1010

ISO-C1/2.0

Dyplast
products



APPROVED



Physical Properties ¹	ASTM Method	English Units ²	Metric Units ²
Density ³	D 1622	2.1 lb/ft ³	33.64 kg/m ³
Compressive Strength ³	D 1621		
Parallel to Rise		26 lb/in ²	179 kPa
Perpendicular to Rise		29 lb/in ²	200 kPa
Shear Strength: Parallel and Perpendicular	C 273	27 lb/in ²	187 kPa
Shear Modulus	C 273	346 lb/in ²	2386 kPa
Tensile Strength: Parallel and Perpendicular	D 1623	33 lb/in ²	228 kPa
Flexural Strength: Parallel and Perpendicular	C 203	54 lb/in ²	372 kPa
Flexural Modulus	C 203	864 lb/in ²	5957 kPa
Thermal Conductivity: K-Factor (@ 1" 10-day initial)	C 518	0.15 BTU-in/hr-ft ² -F	0.022 W/m-C
Thermal Conductivity: K-Factor (@ 1" aged 6 months)	C 518	0.176 BTU-in/hr-ft ² -F	0.025 W/m-C
Thermal Resistance R-Factor (@ 1" aged 6 months)	C 518	5.7 hr-ft ² -F/BTU	1.00 m ² -C/W
Closed Cell Content	D 2856	>95 %	>95 %
Water Absorption (24-hour immersion)	C 272	0.04 % by volume	0.04 % by volume
Water Vapor Transmission	E 96	1.65 perm-inch	2.40 ng/Pa-s-m
Service Temperature ⁴		-297 to +300F	-183 to +149C
Dimensional Stability ⁵	D 2126		
@ -40F (-40C), 7 days:		Length	< +0.1 % Change
		Volume	< +0.1 % Change
@ 158F (70C)/97% RH, 7 days:		Length	< +1.0 % Change
		Volume	< +2.0 % Change
@ 212F (100C), 7 days:		Length	< +0.6 % Change
		Volume	< +1.0 % Change
Surface Burning Characteristics ⁶		UL Rating	FM Rating
Flame Spread @ 4" (10 cm)	E 84	25	25
Smoke Density @ 4" (10 cm)	E 84	195	130
Hot Surface	C 411	Pass	Pass

1. Physical properties are measured at 70-75F, unless otherwise indicated, and all test values are from independent certified testing laboratories.
2. These are nominal values obtained from representative product samples, and are subject to normal manufacturing variances.
3. Average value through the foam cross section.
4. Above 300F, discoloration and charring will occur, resulting in an increased K-Factor in the discolored area.
5. Frequent and severe thermal cycling can produce dimensional changes significantly greater than those listed here. Special design considerations must be made in systems subject to severe cycling.
6. This numerical flame spread data is not intended to reflect hazards presented by this or any other material under actual fire conditions.

FEATURES AND BENEFITS

Dimensionally stable; Superior insulating value; Excellent Moisture Resistance; Easy to handle, shape in the field; Sheets can be cut to 1/32" tolerance; Variable bunstock sizing in 3 dimensions; Fabrication available to virtually any shape/size; Environmentally friendly (Zero-ODP); High flexural strength; Chemically resistant; Low life-cycle cost; Light-weight.

APPLICATIONS

Pipe, tank, and vessel insulation; Panel insulation for refrigeration and freezers; Core material for architectural and panelized construction; Panel insulation for shipping containers and rail cars; Flat panels for duct and air plenum insulation.

INDUSTRIES

Refrigeration/freezer manufacture; Commercial HVAC and chill water systems; LNG, LOX and other cryogenic facilities; Commercial building construction; Refrigerated transportation.

INSTALLATION

When using ISO-C1 as part of an insulation system with vapor retarders, mastics, and jacketing, Dyplast recommends that vapor retarders be factory applied by an authorized fabricator, with mastics and jacketing applied in the field. (See Dyplast's Technical Manual for details.)

COMPLIANCES AND APPROVALS

ISO-C1/2.0 has been tested by an independent lab (RADCO) to meet or exceed the requirements of the ASTM C591, and has a Class 1 ASTM E84 listing from UL. In addition, we have FM Approval for ISO-C1/2.0 as Specification Tested per ASTM E84 Test Method, and under Approval Standard 4880 for Class 1 Steel Faced Wall and Ceiling Panels at foam thicknesses up to 3 inches. ISO-C1/2.0 also has an ICC-ES listing (ICC-ES Evaluation Report No. 2052) at AC12 criteria (more stringent than C591); and also received a Notice of Acceptance from Miami-Dade. More information on certifications is available on our website, as well as MSDS sheets, specifications, installation guidelines, and other technical information.

DISCLAIMER OF WARRANTIES AND LIABILITIES

Characteristics, properties, performance of materials, and application specifications herein described are based on data obtained under controlled conditions. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. Dyplast Products makes no implied warranties of any type, including without limitation, any warrant of merchantability or fitness of purpose. In no event will Dyplast Products be responsible for damages of any nature whatsoever resulting from the use of or reliance upon this information or the product to which information refers. No agent, sales representative, or employee is empowered to change, alter, or amend this provision, unless approved in writing by a duly authorized officer of Dyplast Products.



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* See "Compliances and Approvals"