

06.17.20 Planning Commission Meeting: CST Companies Handout

Applicant Responses to 06.10.20 City Council Questions: Pages 1-3

Proposed Roofing Specifications: Pages 4-5

Proposed Brick Specifications: Pages 6-7

Example of Insulated Proposed Metal Siding Colors: Pages 8-9 ("Espresso" and "Tobacco")

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Proposed Insulated Metal Panel Specifications: Pages 11-21

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MPCA Noise Pollution Guidelines: Page 24

From: [Megan Toft](#)
To: [Ben Gutknecht](#)
Cc: [Elizabeth Mursko](#); [Chad Toft](#)
Subject: RE: Comments and Concerns from the 06.10.2020 City Council Meeting
Date: Wednesday, June 17, 2020 2:58:35 PM

Ben-

See below for answers to the questions. Please let me know if you need anything further.

Thanks,

Megan M. Toft

Chief Operating Officer / President
CST Distribution, LLC / CST Transportation, Inc / CST Companies, LLC

11717 205th Ave NW
Elk River, MN 55330

Phone: 763-515-6660 ext 406 Fax: 763-276-7401
Email: megan@cstcompanies.com URL: www.cstcompanies.com

From: Ben Gutknecht <planningtech@ci.columbus.mn.us>
Sent: Monday, June 15, 2020 3:46 PM
To: Megan Toft <Megan@cstcompanies.com>; Chad Toft <Chad@cstcompanies.com>
Cc: Greg Stotko <greg@stotkospeedling.com>; Friedner, Dan <Dan.Friedner@ngkf.com>; Elizabeth Mursko <cityadministrator@ci.columbus.mn.us>
Subject: Comments and Concerns from the 06.10.2020 City Council Meeting

Good Afternoon Megan and Chad,

Below you will find a list of topics that we believe will need further clarification, this list stems from comments and concerns that the City Council had at the June 10, 2020 meeting. I'd first like to say, we understand most of the answers you will be able to provide us are going to be estimates, and we respect that. We believe that it is easier for Planning Commission and City Council to discuss conditions and concerns when there is a tangible number behind a description truck traffic, or hours of operation (for example).

1. Color Machine- Please describe the entire coloring operation, such as:
 - a. Location and size of machine. **See site plan for location. Size of coloring machine can vary depending which model is purchased. Biggest model is 8 ft. wide x 20 ft. long and we would not purchase this large of a size due to it being too large for the site, produces more mulch than the site needs.**
 - b. What is the amount of the colored mulch that would be stored on the property, and how? (in piles, bins, etc.) **Mulch will be kept in a pile after coloring and then moved into**

the sale bins. Piles will be no larger than 15-18 feet as stated and agreed to in Recommendation #12. Bulk Material bins will be no higher than 10-12 feet high as stated and agree to in #14 Recommendation.

- c. Will colored mulch be bagged on site? If so, how and where would that mechanism be set up? **Due to site constraints we are unable to setup a bagging operation.**
 - d. If colored mulch is not bagged on site, would it be trucked to Elk River in a similar way as normal mulched tree waste? **No, the coloring machine would cut down on moving product in/out and therefore cutting truck traffic. Anything colored on site will be sold on site.**
 - e. Should you get to the point where you begin coloring onsite in Columbus, would it be seasonal or year-round use? **Due to water required to color we are unable to do this operation thru the winter months.**
 - f. How many years down the road do you anticipate starting to color mulch onsite in Columbus? **We plan to install coloring machine in 2021. This is an investment we are willing to make to provide this product for the local area despite the uncertainty of the demand or future growth of Columbus.**
2. Traffic- Please provide an estimate and describe to the best of your ability the following:
- a. How much anticipated daily truck traffic can be expected a day when you would be mulching? (CST Company trucks hauling mulch offsite to Elk River) **When grinding we anticipate 12-17 trucks per day can move natural product offsite. When not grinding, we anticipate 1 – 10 trucks per day.**
 - b. How much anticipated daily traffic will be associated with individuals dropping off Tree Waste? **We are uncertain what the demand will be but as we grow we would hope to have 10 to 12 a day during peak season and fewer in off season.**
 - c. In your experience would this traffic mostly consist of large trucks, pickup trucks, or trailers? **This would be a combination of all three**
 - d. How much anticipated daily traffic will be associated with Contractor Wholesale/retail business? **We can't anticipate this as it's a new business**
Again, in your experience what are majority of the vehicles expected, large trucks, pickup trucks, or trailers? **This would be a combination of all three including personal automobiles.**
3. Mulching Operation Clarification- What are the anticipated hours to allow for drop off? (same or different as normal business hours) – **During normal business hours**
4. Site Plan Updates and Additional Clarification- please make the following edits and describe to the best of your ability the following:
- a. Indicate and describe where on the site the coloring operation will take place, such as any anticipated outdoor piles or how trucks will be loaded. **See site plan for location. Mulch would be colored and then moved to a bin for sale. Colored mulch will not be trucked offsite, anything colored on site will be sold on site. Coloring piles will be directly west of the coloring machine on blacktop. Site plan indicates inflow and outgate locations.**
 - b. Please indicate the traffic circulation- how are contractors going to park to fill up trucks

and trailers with product, how do cars move about the site, are drive aisles one or two lane? All traffic comes in the “ingate” and parks in a parking spot unless you have a trailer then you will park east of the material bins. They then will go into to office to receive paperwork and then loader operators will load with product according to their sales slip. They will not move down the product aisles as that is only for loaders. Then they will pull forward and drive thru the “outgate”.

5. Noise- Do you have a report regarding the decibel for the Grinding machine? If so, please provide it at earliest convenience. No, this was purchased two years after the Noise study was done for our potential purchase in the City of East Bethel. We did decibel readings with Ron and Barb while the grinder was in operation. 74-77 decibels were recorded in their presence at a distance of 25-30 yards away. C

Note: Ben has spoken with Danielle Devito with the Department of Agriculture and she has recommended a few edits to the Conditions on the Staff Report pertaining to regulatory agency inspections and process. Danielle has also clarified that the DNR would most likely not have a large regulatory role to play in the movement and process of mulching. She has offered her time to the attend the Planning Commission meeting on June 17, 2020 and can provide further clarity then.

Lastly, we understand that this is a quite extensive list and some of the edits to the Site Plans will not be able to be completed by the June 17, 2020 Planning Commission meeting, but we would still appreciate any effort in having ready responses to these questions for the Planning Commission meeting.

Please do not hesitate to reach out to Elizabeth or myself with any questions you may have!

Thank you very much for your patience while you waited for me to get this over to you,
Ben Gutknecht

Ben Gutknecht, City Planning Technician
[City of Columbus](#)
16319 Kettle River Blvd. N.E.
Columbus, MN 55025
Main: 651-464-3120 ext. 1008



PVDF Cool Coatings

PVDF utilizes a two-coat system featuring fade resistant color, incredible durability, and environmentally-friendly “cool” technology.



a **NUCOR** company



Regal White [†] IR .72 SRI 88



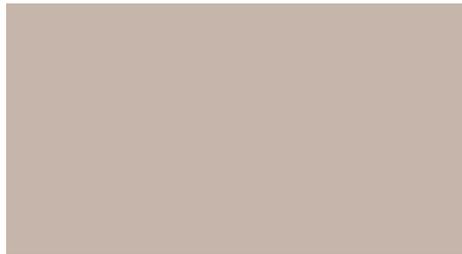
Reflective White ^{**} IR .63 SRI 76



Warm White [†] IR .63 SRI 76



Pearl Gray ^{**} IR .47 SRI 54



Desert Sand ^{**} IR .57 SRI 67



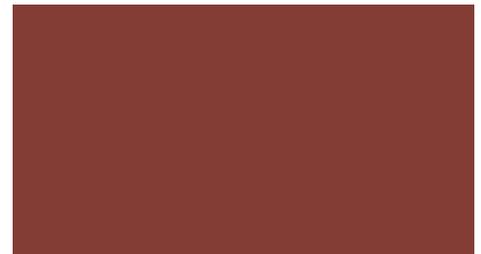
Surrey Beige [†] IR .50 SRI 56



Slate Gray [†] IR .37 SRI 40



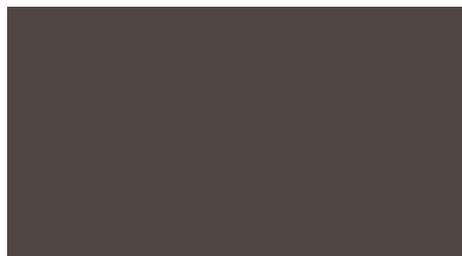
Royal Blue [†] IR .30 SRI 30



Terra Cotta [†] IR .36 SRI 38



Cypress Green [†] IR .31 SRI 31



Dark Bronze [†] IR .32 SRI 33



Brite Red ^{**} IR .38 SRI 40



Charcoal ^{**} IR .32 SRI 34



Midnight Black ^{**} IR .27 SRI 26



Galvalume ^{**} IR .77 SRI 72

*Non-Stock Color: Extended lead times may apply. *The Galvalume coating process is likely to result in variances in spangle (size, number, and reflection) from coil to coil which may result in noticeable shade variations. Galvalume is also subject to variable weathering and may appear to have different shades due to weathering characteristics. These shade variations are not cause for rejection. [†]ENERGY STAR[®] Qualified Color. All standard PVDF colors have a 35-year finish warranty. Colors shown closely approximate actual coating colors. These colors utilize Cool Coating Technology. The term “TBK” on the Order Document refers to “To Be Selected” from standard PVDF colors as shown on this chart. Please note that PVDF is a slight upcharge over SP.



PVDF Cool Coatings

Product Specifications



a NUCOR company

Solar Reflectance, Thermal Emittance and Solar Reflectance Index (SRI)

Solar Reflectance

To be considered “cool,” products must have a Solar Reflectance of at least .25. Solar Reflectance is the fraction of the total solar energy that is reflected away from a surface.

Thermal Emittance

Thermal Emittance is the measure of a panel’s ability to release heat that it has absorbed.

Solar Reflectance Index (SRI)

Put Solar Reflectance and Thermal Emittance together and you get the Solar Reflectance Index (SRI). SRI is calculated by using the values of solar reflectance, thermal emittance and a medium wind coefficient. The higher the SRI value, the lower its surface temperature and consequently, the heat gain into the building. Metal roofs coated with pigmented PVDF resin achieve an SRI of 26-88, depending on the color.

Conventional roof surfaces have low reflectance (0.05 to 0.25) and high thermal emittance (typically over .85). Roof panels with both high reflectance and high emittance can reduce the surface temperature by as much as 30-50% based on color and geographic location, which will result in a reduced heat gain to the building, therefore reducing the energy demand.

GALVALUME® is a registered trademark of BIEC International Inc., and some of its licensed producers.

PVDF COOL PANEL COLORS

PVDF Cool Color	Initial Solar Reflectance (IR)	Initial Thermal Emittance	Solar Reflectance Index (SRI)
Regal White	.72	0.85	88
Reflective White	.63	0.86	76
Warm White	.63	0.86	76
Pearl Gray	.47	0.86	54
Desert Sand	.57	0.86	67
Surrey Beige	.50	0.85	56
Slate Gray	.37	0.85	40
Royal Blue	.30	0.85	30
Terra Cotta	.36	0.85	38
Cypress Green	.31	0.85	31
Dark Bronze	.32	0.86	33
Brite Red	.38	0.84	40
Charcoal	.32	0.86	34
Midnight Black	.27	0.85	26
Galvalume®	.77	0.08	72

PVDF COOL TECHNICAL INFORMATION

Test	Test Methods	Performance
Dry Film Thickness	ASTM D1400	0.15 - 0.30 mil primer 0.70 - 0.90 mil topcoat
Gloss	ASTM D523 @ 60°	25 - 35
Solar Reflectance	ASTM E903 Steep Slope: Low Slope:	>25% Initial >15% after 3 years >65% Initial >50% after 3 years
Emissivity	ASTM C1371, ASTM E408	0.80 (80%) min.
Pencil Hardness	ASTM D3363	F-2H
Flexibility	T-Bend, ASTM D4145	0 - 2 T-Bend; No pick off
Adhesion	ASTM D3359	No adhesion loss
Reverse Impact	ASTM D2794	No cracking or adhesion loss
Abrasion, Falling Sand	ASTM D968	65 - 85 l/mil
Mortar Resistance	ASTM C267	No effect
Detergent Resistance	ASTM D2248 3% detergent @ 100°F (72 hrs.)	No Effect
Acid Resistance	ASTM D1308 10% muriatic acid - 24 hrs. 20% sulfuric acid - 18 hrs.	No effect No effect
Acid Rain Test	Kesternich SO2, DIN 50018	15 cycles min. No objectionable color change
Alkali Resistance	ASTM D1308 10% , 25% NaOH, 1 hr.	No effect
Salt Spray Resistance	ASTM B117 5% salt fog @ 95°F	None or few #8 blisters; Max. average 1/8” Scribe creep Passes 1000 hrs.
Humidity Resistance	ASTM D714, ASTM D2247 100% relative humidity @ 95°F	Passes 1500 hrs. No #8 blisters
Exterior Exposure	ASTM D2244, ASTM D 4214 10 yrs. @ 45°F, South Florida	Max. 5 fade Max. 8 chalk

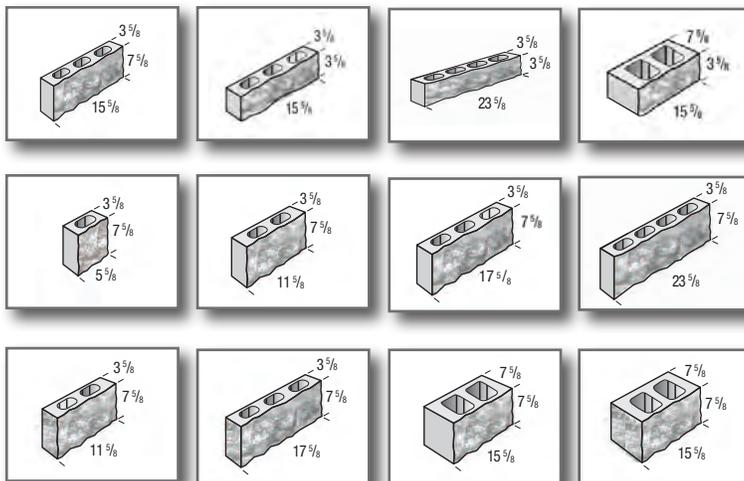
STONE MASON™ ARCHITECTURAL SERIES



STONE MASON™ ARCHITECTURAL SERIES

Stone Mason™ Series CMUs provide the timeless look of natural weathered stone with the strength and economy of a concrete masonry unit system. The multi-sized, classic hewn appearance of the Stone Mason series make it ideal for “brick-or-better” specifications.

- Simulates natural stone sizes, but in a modular unit which is compatible with conventional wall construction methods.
- Available in both full-height and half-height options in both veneer and structural depths.
- Available in over 40 solid and variegated/blended colors or work with our team to create your own signature color blend.
- Manufactured using Amcon™ EnviroTrol™ curing system to ensure completely hydrated, fully-cured, pre-shrunk units to reduce the potential for efflorescence.
- Also available using Amcon™ Sustainable Solutions mix design for eco-friendly or LEED projects.



LOCATIONS

AMCON • ST. CLOUD
2211 Highway 10 South
St. Cloud, MN 56304
320.251.6030

AMCON • ST. JOSEPH
8644 Ridgewood Road
St. Joseph, MN 56374
320.363.0905

AMCON • SIOUX FALLS
101 Industrial Road
Harrisburg, SD 57032
605.330.8481

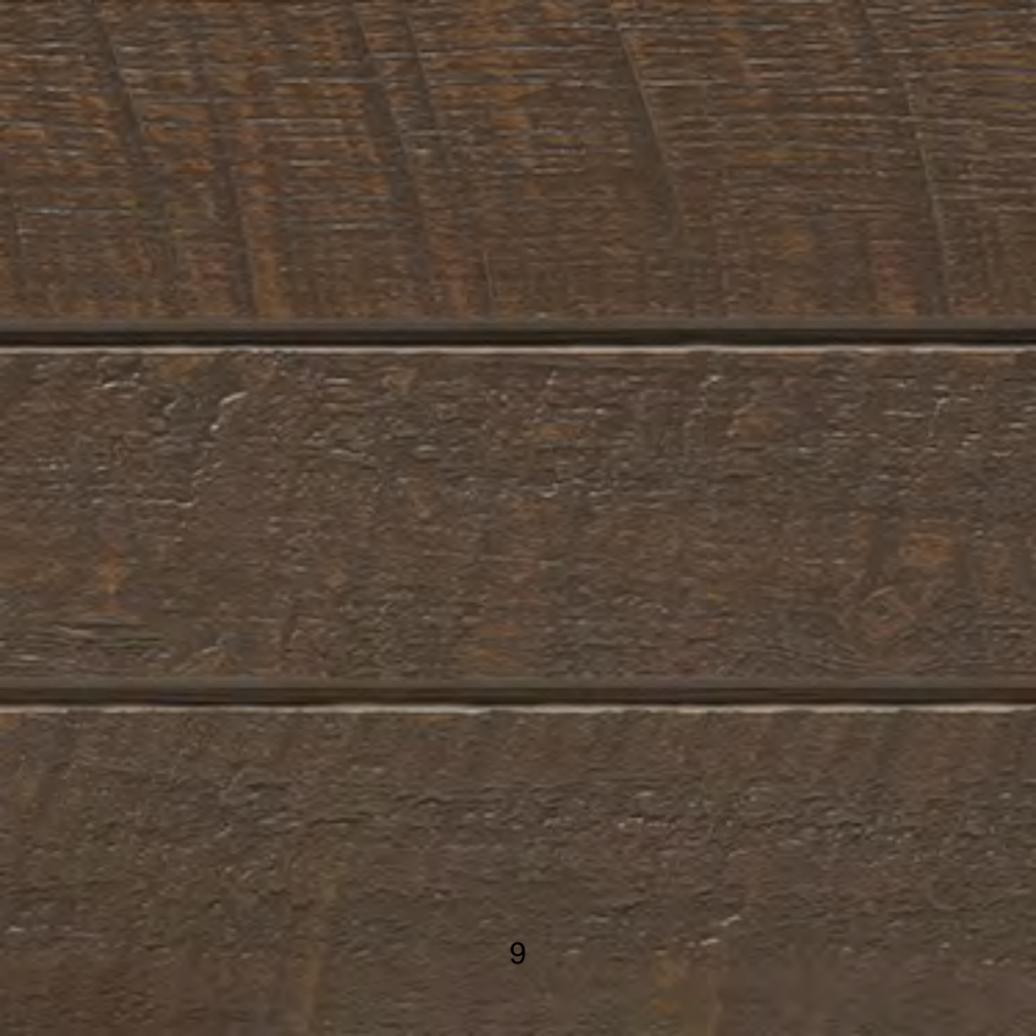
AMCON • ANNANDALE
12052 Highway 24
Annandale, MN 55302
320.274.5587

AMCON • MEDFORD
2173 NW 76th Street
Medford, MN 55049
507.451.7278

TCC BLOCK • RAPID CITY
3292 Lien Street
Rapid City, SD 57702
605.342.6070



2025 Centre Pointe Blvd, Suite 300
Mendota Heights, MN 55120
651.688.9116 • amconconcreteproducts.com





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INNOVATIVE. ADAPTABLE. ENERGY EFFICIENT.

INSULATED METAL PANELS



INSULATED METAL PANELS



Leading the industry in technology, design flexibility, quality, and value, Nucor Building Systems is one of the largest and most experienced manufacturers of custom engineered steel building systems. In addition to offering a full line of custom products, our insulated panels rank as one of the most energy-efficient, well-made, cost-effective building solutions on the market today.

Innovative • Adaptable • Energy Efficient

Our insulated metal panels embody attractive styling and cutting edge energy efficiency. Designed with the latest scientific breakthroughs, our panels are lightweight, durable and still maintain their ease of installation and visual appeal. Now is the best time to build with NBS insulated metal panels because the benefits have never been greater.

Attractive & Lightweight

One of the most sophisticated building products on the market today, insulated panels offer a clean, consistent and high-quality appearance that immediately adds value to any building. Insulated panels enhance the visual appearance of your buildings, and their remarkable light weight reduces structural requirements and installation costs.

Sturdy & Durable

The panels incorporate a finished interior liner, factory applied air and vapor shield, and insulated foam core finished exterior weathering surface into a single cladding unit. The composite action resulting from a chemical bond between the injected-in-place foam core and steel skins creates a lightweight, rigid unit with exceptional spanning capacity.

Easy to Install & Affordable

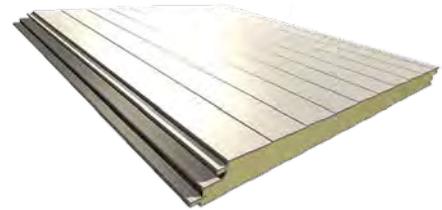
Lightweight and simplified fastening systems deliver quick installation and reduce labor costs. The panels themselves are very affordable, in part because of their lowered shipping costs attributed to their light weight. Panels can even be installed in adverse weather conditions.

Superior Thermal Performance

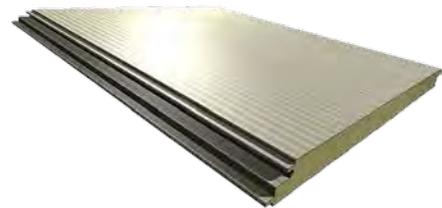
You get 100% reliable thermal performance and insulation continuity – no cavities, no gaps, no crushed insulation and no thermal bridges. No change of R-value occurs when purlin and girt center dimensions are varied. The insulated core is the most thermally effective insulant commonly available today. Insulation values can be easily increased by simply increasing the thickness of the panels.

Insulated Wall Panels

Double Mesa Profile (DM40)



Striated Profile (ST40)

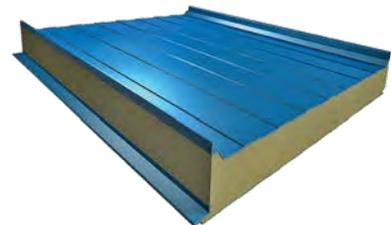


Heavy Embossed Profile (HE40)



Insulated Roof Panels

Standing Seam Roof Profile (SR2)



High Rib Roof Profile (HR3)



INSULATED WALL PANELS

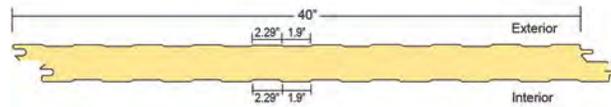


Each project follows a different set of parameters and as such, may require a different set of wall panels. We offer a selection of panels to accommodate the needs of any project. Each of our three wall panel profiles detailed below is ideally suited for commercial and industrial applications. The 40" wide panels install quickly and easily. Fasteners are concealed within the panel side joint, and the attractive profiles break up the flat expanse of metal on large projects such as manufacturing plants or warehouses. Trim for all three panel types is smooth as a standard.



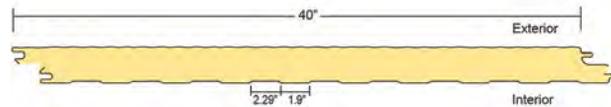
Double Mesa Profile (DM40)

Exterior Texture: Light Embossed • Interior Texture: Light Embossed



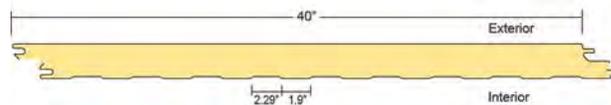
Striated Profile (ST40)

Exterior Texture: Light Embossed • Interior Texture: Light Embossed



Heavy Embossed Profile (HE40)

Exterior Texture: Heavy Embossed • Interior Texture: Light Embossed



Features & Benefits

- The double tongue & groove is self-aligning and weathertight. This allows for sealant application at either the interior or exterior side of the panel joinery, depending on the direction of the vapor drive.
- Hidden/concealed fasteners give the panel a clean and aesthetically appealing appearance.
- Removable film prevents damage to the exterior of the panel during shipping and installation.
- Panels arrive on-site in one piece, requiring a simple one-step installation, reducing construction time and costs.
- Standard exterior and interior steel surface is 26 gauge, with 24ga and 22ga optional for some profiles.
- Panels are available in 2", 2.5", 3", and 4" thickness, 5" & 6" are available as special order. Lengths can range from 8'-0" to 50'-0", depending on solar loading.

Wall Systems Specifications

Double Mesa, Striated & Heavy Embossed Profiles

Thickness	2"	2.5"	3"	4"
R-Values*	R16	R20	R24	R32
U-Factors	U0.063	U0.049	U0.041	U0.031
Width	40"			
Length	8'0" minimum to 50'0" maximum, depending on solar loading			
Coatings	Exterior: PVDF Interior: Imperial White (polyester)			
Interior Texture	Light Embossed			
Insulation	CFC-free foamed-in-place Polyisocyanurate foam @ 2.2 to 2.5 pcf density			
Metal Facings	Exterior: 26 ga galvanized steel 24 & 22 ga are optional for some profiles Interior: 26 ga galvanized steel 24 & 22 ga are optional for some profiles			
Joint Configuration	Off-set tongue & groove with concealed fastener			

*R-values are derived from thermal testing per ASTM C518 @ 40°F mean and ASTM C1363 @ 35°F mean. For project specific values, please contact your sales representative.

Structural Load Table

Allowable load for all wall panels (PSF) is based on L/180 deflection

Thickness	Weight	Simple Span								Two or More Spans							
		Inches	PSF	5'	6'	7'	8'	9'	10'	11'	12'	5'	6'	7'	8'	9'	10'
2"	2.22	65	49	38	30	24	19	15	13	70	55	44	36	30	25	21	18
2.5"	2.34	85	65	51	41	33	27	22	18	90	72	58	48	40	34	29	24
3"	2.41	106	82	65	53	43	35	29	25	111	89	72	60	51	43	37	32
4"	2.62	147	116	94	77	64	53	45	38	153	123	101	85	72	62	54	47

Notes: Spans shown are based on a transverse load testing of panels per ASTM E-72. Thermal effect due to temperature differentials have not been considered. Loads shown do not include a check of the attachment to the supports. Attachment requirements will vary based on the project wind load requirements. Loads shown are based on panels with 26 gauge interior and exterior facings.

INSULATED ROOF PANELS

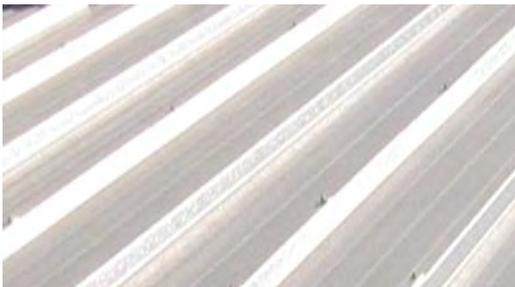
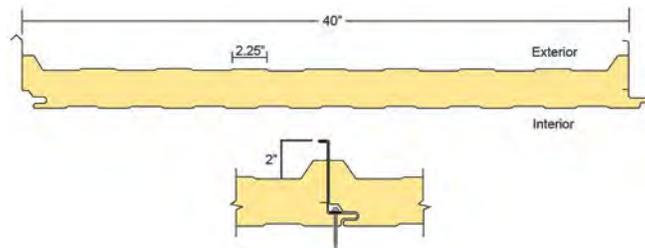


Nucor's SR2 brings the look of a traditional standing seam roof with all the benefits of an insulated metal panel. Field seamed with a hidden fastener, the SR2 offers maximum protection against the elements. Our HR3 is the economical solution to field assembled metal roofing and installs quickly by through fastening at the standing ribs into supporting structural members.



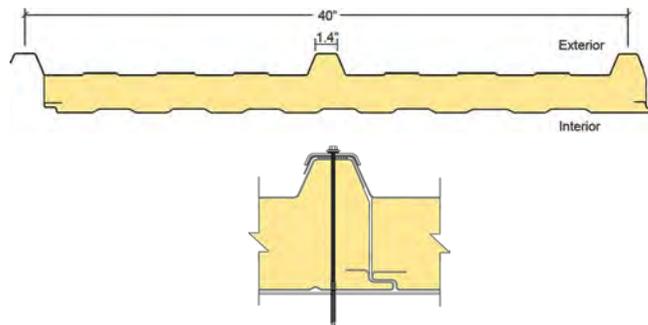
Standing Seam (SR2)

Exterior Texture: Smooth • Interior Finish: Light Embossed



High Rib (HR3)

Exterior Texture: Smooth • Interior Finish: Light Embossed



Features & Benefits

- Panels arrive on-site in one piece, requiring a simple one-step installation, reducing construction time and costs.
- The HR3 panels have an overlapping joint that is self-aligning, which allows for easy sealant application at the panel joinery.
- SR2 panels arrive with factory applied sealant on the topside rib of all panels as a standard. Some restrictions will apply.
- High level of thermal R-Value leads to energy cost savings for your facility.
- Standard metal surface is 26 gauge G-90 galvanized steel, with a PVDF coating providing fade-resistant, energy efficient exterior.
- HR3 Roof Panels are available in 2.5", 4", 5", and 6" thickness and install quickly and easily by through fastening at the standing ribs into supporting structural members.
- The SR2 trapezoidal rib design provides added strength against potential foot traffic damage compared to other standing seam products.

Roof Systems Specifications

SR2 Standing Seam and HR3 High Rib

Thickness	2.5" (HR3 only)	3.25" (SR2 only)	4"	5"	6"
R-Value*	R21	R26	R33	R42	R50
U-Factors	.050	.038	.031	.024	.020
Width	40"				
Length	8'0" minimum to 50'0" maximum depending on solar loading				
Coatings	Exterior: PVDF Interior: Imperial White (polyester)				
Interior Texture	Light Embossed				
Insulation	CFC-free foamed-in-place Polyisocyanurate foam @ 2.2 to 2.5 pcf density				
Metal Facings	Exterior: 26 ga galvanized steel (24 & 22 optional) Interior: 26 ga galvanized steel				
Joint Configuration	SR2: Off-set tongue & groove with concealed fastener. 90° field seamed HR3: Overlapping with through fastening at standing rib				
Min. Roof Pitch	SR2: 1/2 : 12 HR3: 1:12				

*R-values are derived from thermal testing per ASTM C518 @ 40°F mean and ASTM C1363 @ 35°F mean. For project specific values, please contact your sales representative.

Structural Load Table

Allowable load for SR2 standing seam and HR3 High Rib roof panels (PSF) is based on L/240 deflection

Thickness	Weight	SR2 Panel Spans						HR3 Panel Spans					
		4'	4.5'	5'	5.5'	6'	7'	4'	4.5'	5'	5.5'	6'	7'
2.5"	2.33	n/a	n/a	n/a	n/a	n/a	n/a	83	73	65	59	54	45
3.25"	2.48	90	79	70	62	56	46	n/a	n/a	n/a	n/a	n/a	n/a
4"	2.65	112	98	87	78	71	59	116	102	90	81	73	61
5"	2.86	142	125	111	100	90	75	146	128	114	102	93	77
6"	3.12	172	151	135	121	110	92	175	155	138	124	112	94

Notes: Spans shown are based on a transverse load testing of panels per ASTM E-72. Thermal effect due to temperature differentials have not been considered. Loads shown do not include a check of the attachment to the supports. Attachment requirements will vary based on the project wind load requirements. Loads shown are based on panels with 26 gauge interior and exterior facings.

ADVANTAGES



Safer & More Cost-Effective Than Tilt-Wall

Insulated metal panels offer a much safer and cost effective solution to tilt wall construction. Not to mention, IMPs are recyclable. Both costly and time consuming, tilt wall construction also requires the use of heavy equipment. Insulated Metal Panels offer sustainable construction, with far less construction time and higher insulation values.

- Insulation R-values are higher with insulated metal panels than tilt wall construction
- Installation of insulated metal panels is faster, easier and safer for crews, as the panels are much lighter and easier to handle
- Fewer trades are required for the installation of insulated metal panels, which means less heavy equipment and fewer crews
- Insulated metal panels can be installed in virtually any weather condition, as opposed to tilt wall which leaves you at the mercy of unpredictable climatic conditions which can make construction schedules difficult to meet
- Concrete walls may require an interior liner, where insulated metal panels include a finished interior
- Insulated panels support LEED® and green building design



Insulated Metal Panels Are Green

Designed to offer superior thermal capabilities, our insulated metal panels minimize the use of the energy necessary to heat and cool your building. By using recyclable materials to manufacture these panels, they become 100% recyclable products, with finishes that are engineered for a reduced carbon footprint, maximum solar reflectance, and thermal emissivity.

NBS Insulated Panels can also contribute significantly towards LEED® certification of your building. The blowing agents used in our panels meet or exceed the regulatory standards which contributes to the reduction of global warming potential (GWP). Our panels have no ozone depleting potential, nor do they produce volatile organic compounds.

- Insulated metal panels contain a minimum of 30% recycled steel content
- 100% recyclable and reusable at the end of its service life
- Contribute to LEED® credits and net-zero energy targets

AdobeTexture™ Finish Option

AdobeTexture™ factory finish coated wall panels offer a multi-textured profile with a matte finish that simulates a troweled stucco appearance. This unique patented process eliminates the need for additional or factory applied stucco coatings.

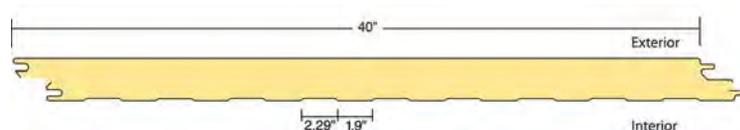
The panel's exterior stucco-like surface is a hard aggregated fiber-reinforced polymer finish. This factory-rolled texture combines an attractive appearance with durability, resisting the effects of impact, abrasion and weather. The light embossed interior panel face can act as a finished interior wall. The AdobeTexture™ insulated wall panels deliver excellent energy efficiency.

- Eliminates need for field coatings
- Breakthrough technology brings stucco look and texture to insulated wall panels
- Same easy installation as standard insulated wall panels
- Eliminates multi-step field assembly currently needed for stud and stucco systems
- Self-aligning double tongue and groove with concealed fastener joints



AdobeTexture™ Wall Panels

Exterior Texture: AdobeTexture • Interior Texture: Light Embossed



COLOR SELECTION



Our insulated panels feature vivid, fade-resistant color, incredible durability and environmentally friendly cool technology originally developed for stealth aircrafts in the U.S. military. This is by far the best paint system available on the market for commercial buildings.

To be considered cool, products must have a solar reflectance of at least 25%. Solar reflectance is the measure of a panel's ability to not absorb certain wavelengths of the sun. Another important factor is thermal emittance, the measure of a panel's ability to release heat that it has absorbed. Put these two factors together and you get the solar reflectance index, the measure of a panel's ability to reflect solar heat. Using insulated wall and roof panels as part of your whole cool-coated metal system can reduce energy consumption by more than 40% (as reported by the Oak Ridge National Laboratory).

PVDF Cool Exterior Coatings



Regal White
IR .72 SRI 88



Warm White
IR .63 SRI 76



Surrey Beige
IR .50 SRI 56



Pearl Gray
IR .47 SRI 54



Royal Blue
IR .30 SRI 30



Cypress Green
IR .31 SRI 31

AdobeTexture™ Wall Panels



Regal White Adobe



Sandstone Adobe



Surrey Beige Adobe



Pearl Gray Adobe

Interior Color - Polyester



Imperial White

NOTE: When using field-applied coatings, always order Imperial White Polyester for the exterior coating.



Our insulated wall and roof panels have been extensively tested under a variety of North American Standards to ensure compliance with various building codes and industry standards.

Insulated Wall Panels

- ASTM C518: Thermal Transmission
- ASTM D1929: Ignition Properties
- ASTM E72: Structural Strength
- ASTM E84: Flame Spread
- ASTM E283: Air Infiltration
- ASTM E119: Fire Endurance (1hr test with fire panel)
- ASTM E331: Water Infiltration
- ASTM E711: Heat of Combustion
- FM 4880: Class 1 Fire Rating
- FM4881: Wall System
- Florida (FL) Approved
- Miami-Dade Approved

CAN/ULC Testing

- S101 Fire Endurance (1hr test with fire panel)
- S138 Fire Endurance
- S102, S126 Flame Spread
- S127 Flammability
- S134 Fire Test of Exterior

Insulated Roof Panels

- ASTM C518: Thermal Transmission
- ASTM D1929: Ignition Properties
- ASTM E72: Structural Strength
- ASTM E84: Flame Spread/Smoke Index
- ASTM E108: Fire Testing
- ASTM E1646: Water Infiltration
- ASTM E1680: Air infiltration
- FM 4471: Class A Fire Rating
- FM 4471: Class 1-SH Severe Hail Damage
- FM 4471: Wind Uplift Approvals
- FM 1-60: Fire Testing
- FM 1-90, FM 1-105, FM 1-135: (SR2 only)
- FM 4880: Class 1 Fire Rating
- FM 4881: Class 1 Ext Wall System
- Florida (FL) Approved

CAN/ULC Testing

- S138 Fire Endurance
- S102, S126 Flame Spread
- S127 Flammability
- S134 Fire Test of Exterior

Noise Sources and Their Effects

Noise Source	Decibel Level	comment
Jet take-off (at 25 meters)	150	Eardrum rupture
Aircraft carrier deck	140	
Military jet aircraft take-off from aircraft carrier with afterburner at 50 ft (130 dB).	130	
Thunderclap, chain saw. Oxygen torch (121 dB).	120	Painful. 32 times as loud as 70 dB.
Steel mill, auto horn at 1 meter. Turbo-fan aircraft at takeoff power at 200 ft (118 dB). Riveting machine (110 dB); live rock music (108 - 114 dB).	110	Average human pain threshold. 16 times as loud as 70 dB.
Jet take-off (at 305 meters), use of outboard motor, power lawn mower, motorcycle, farm tractor, jackhammer, garbage truck. Boeing 707 or DC-8 aircraft at one nautical mile (6080 ft) before landing (106 dB); jet flyover at 1000 feet (103 dB); Bell J-2A helicopter at 100 ft (100 dB).	100	8 times as loud as 70 dB. Serious damage possible in 8 hr exposure
Boeing 737 or DC-9 aircraft at one nautical mile (6080 ft) before landing (97 dB); power mower (96 dB); motorcycle at 25 ft (90 dB). Newspaper press (97 dB).	90	4 times as loud as 70 dB. Likely damage 8 hr exp
Garbage disposal, dishwasher, average factory, freight train (at 15 meters). Car wash at 20 ft (89 dB); propeller plane flyover at 1000 ft (88 dB); diesel truck 40 mph at 50 ft (84 dB); diesel train at 45 mph at 100 ft (83 dB). Food blender (88 dB); milling machine (85 dB); garbage disposal (80 dB).	80	2 times as loud as 70 dB. Possible damage in 8 h exposure.
Passenger car at 65 mph at 25 ft (77 dB); freeway at 50 ft from pavement edge 10 a.m. (76 dB). Living room music (76 dB); radio or TV-audio, vacuum cleaner (70 dB).	70	Arbitrary base of comparison. Upper 70s are annoyingly loud to some people.

Conversation in restaurant, office, background music, Air conditioning unit at 100 ft	60	Half as loud as 70 dB. Fairly quiet
Quiet suburb, conversation at home. Large electrical transformers at 100 ft	50	One-fourth as loud as 70 dB.
Library, bird calls (44 dB); lowest limit of urban ambient sound	40	One-eighth as loud as 70 dB.
Quiet rural area	30	One-sixteenth as loud as 70 dB. Very Quiet
Whisper, rustling leaves	20	
Breathing	10	Barely audible

[modified from <http://www.wenet.net/~hpb/dblevels.html>] on 2/2000. SOURCES: Temple University Department of Civil/Environmental Engineering (www.temple.edu/departments/CETP/environ10.html), and *Federal Agency Review of Selected Airport Noise Analysis Issues*, Federal Interagency Committee on Noise (August 1992). Source of the information is attributed to *Outdoor Noise and the Metropolitan Environment*, M.C. Branch et al., Department of City Planning, City of Los Angeles, 1970.

1. Noise rules in Minnesota

1.1 The basics

Minnesota's noise pollution rules are based on statistical calculations that quantify noise levels over a one-hour monitoring period. The L_{10} calculation is the noise level that is exceeded for 10 percent, or six minutes, of the hour, and the L_{50} calculation is the noise level exceeded for 50 percent, or 30 minutes, of the hour. There is not a limit on maximum noise.

The statutory limits for a residential location are $L_{10} = 65$ dBA and $L_{50} = 60$ dBA during the daytime (7:00 a.m. – 10:00 p.m.) and $L_{10} = 55$ dBA and $L_{50} = 50$ dBA during the nighttime (10:00 p.m. – 7:00 a.m.) ([Minn. R. 7030.0040](#)). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time.

The basic noise rules for other noise area classifications are:

Noise Area Classification	Daytime		Nighttime	
	L_{10}	L_{50}	L_{10}	L_{50}
1	65	60	55	50
2	70	65	70	65
3	80	75	80	75

1.2 Noise area classifications

Noise area classifications (NAC) are based on the land use at the location of the person who hears the noise, which does not always correspond with the zoning of an area. Therefore, noise from an industrial facility near a residential area is held to the NAC 1 standards if it can be heard on a residential property.

Some common land uses associated with the NACs include:

NAC 1: Residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services

NAC 2: Retail, business and government services, recreational activities, transit passenger terminals

NAC 3: Manufacturing, fairgrounds and amusement parks, agricultural and forestry activities

NAC 4: Undeveloped and unused land

Note that, although there is a NAC 4, there are no noise standards for these areas. The full list of NAC land uses can be found starting on [page 21](#) of this guide or in Minnesota Rule [7030.0050](#).