

BUTLER® ROOF SYSTEMS

ROOF SYSTEMS DESIGN AND SELECTION GUIDE



A BlueScope Steel Company

BUILDING IN A NEW LIGHT®

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BUTLER® ROOF SYSTEMS—PERFORMANCE, PROTECTION, POSSIBILITIES

Butler Manufacturing Company is the industry's leading provider of roofing solutions that address the most critical concerns of architects, builders, and building owners. From new construction to retrofit, and from low-slope systems to soaring rooflines, you'll find the beauty you desire and the protection you need in the many roofing offerings from Butler.

Butler has maintained a reputation for quality in the building industry for more than 100 years. We use only the best materials and innovative procedures, fabricating roof systems engineered to stand the test of time. That might be all you need in a roof, but it isn't all you get with Butler.

MORE THAN A SUPPLIER, AN EXPERIENCED PARTNER

When you specify Butler® roof systems, you enter into a uniquely collaborative relationship. From concept through project completion, you benefit from dependable support and technical guidance. Butler experts work with you to make optimum component choices.

With Butler as your partner, you see reduced development and construction times—a fast track from commencement to occupancy. Consistent, dependable long-term technical guidance starts during design and lasts until completion and beyond.



THE BUTLER BUILDER® ADVANTAGE

Critical to Butler's capability to deliver precision-engineered building systems and components are Butler Builders®, independent construction professionals who undergo comprehensive training provided by Butler. Strategically located throughout the world,

Butler Builders provide—

- Outstanding project management expertise
- Construction capability to ensure that your project is built on time—and within budget
- Unequaled turnkey service



To learn more about how Butler Builders can help ensure the success of your project, visit www.butlerbuilder.com.

SELECTING THE RIGHT BUTLER ROOF SYSTEM

You want your building to be constructed with the same precise standards you put into the design. Butler roof systems offer optimal control to make sure those standards are met, top to bottom.

As the industry leader, Butler has a roof for every building design, from low-slope to complex roof geometries, and for new construction or retrofit. Use the Product Selection Chart on the next page to choose the right Butler system for your project.



PRODUCT SELECTION CHART

ROOF SYSTEMS

NEW CONSTRUCTION

	Structural	Architectural	Insulation	SEAMS			PERFORMANCE			
				Rib Height	Machine Seamed	Through-Fastened	UL-90 Classification	US Army Corps Tested	FM Global Available	Miami-Dade County Approved
MR-24®	•		Blanket/TLS*	2¾"	•		•	•	•	•
CMR-24®	•		Rigid Board	2¾"	•		•	•	•	•
VSR™	•	•	Blanket/TLS*/Rigid	2"	•		•	•	•	
Butlerib® II	•		Blanket/TLS*	1½"		•	•	•	•	•

RETROFIT STRUCTURAL SYSTEMS

	Structural	Architectural	Cavity Height
Low-Profile Retrofit	•		1½" min. (roof has existing slope)
High-Profile Retrofit	•		3" min. (roof has existing slope)
Slope Build-Up Reroof	•	•	1¼" + (provides added or new roof slope)

*ThermaLiner™ Insulation System

SUSTAINABLE ARCHITECTURE

Butler is a member of the U.S. Green Building Council and is dedicated to providing better-performing roof systems with attention to sustainability. The MR-24® roof system, for instance, offers compelling green attributes as a material-efficient, recyclable, low-maintenance, and long-life roof solution. Butler roof systems also enhance energy efficiency to lower energy consumption inside the building.



AIA-APPROVED ONLINE CONTINUING EDUCATION

The Butler Continuing Education seminar—**Life Cycle Costs of Metal Roofing Products**—provides an overview of the types, characteristics, and benefits of metal roofing products, cool roofing, and related finishes, as well as a comparison of Life Cycle Costs (LCC) of metal roofing versus conventional roofing systems. This 1-hour course qualifies for 1 AIA/CES learning unit. To learn more or to download this seminar, go to www.aecdaily.com/en/1588021.

GUARDED HOT BOX

Butler's commitment to environmental responsibility is longstanding, and the company has a proven history of developing innovations that contribute to the energy efficiency of its products.

A demonstration of this is one of the first guarded hot boxes in North America, which was built by Butler for the testing of actual R-values. This testing assures that thermal values provided by Butler are verifiable and can be trusted.

COOL ROOFS

Butler offers a selection of sustainable 25-year fluoropolymer color finishes that meet reflectance and emittance standards for "cool roofs" as certified by the CRRC. All finishes applied by Butler meet or exceed EPA regulations for low-VOC paints.

Butler roof products featuring the Energy Star label keep buildings cooler by increasing reflectivity and reducing energy use, utility costs, and air pollution. Butler cool roofs reduce the Heat Island Effect,

which produces high relative temperatures in urban areas.

WWW.BUTLERMFG.COM/ARCHITECTS

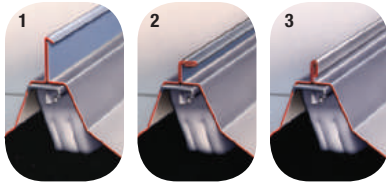


MR-24® ROOF SYSTEM

Exclusive factory-punched precision in the most-specified standing-seam roof system.

The MR-24® roof system is specified twice as often as any other standing-seam roof system—more than 2 billion square feet have been installed since 1969. It is the standard by which all other roofing systems are judged. And as a material-efficient, recyclable, low-maintenance, and long-life roof solution, it also offers compelling green attributes.

The MR-24 roof system acts like a single steel membrane to protect your entire building with exclusive features that ensure weathertightness—factory punching, moveable roof clips, 360-degree Pittsburgh double-lock standing seams, and staggered endlaps. All accessories and integrated panels are also engineered for exact fit.

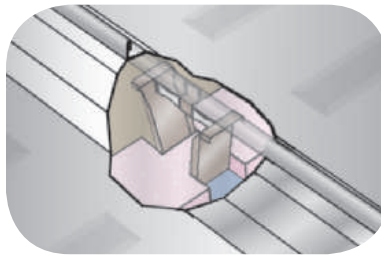
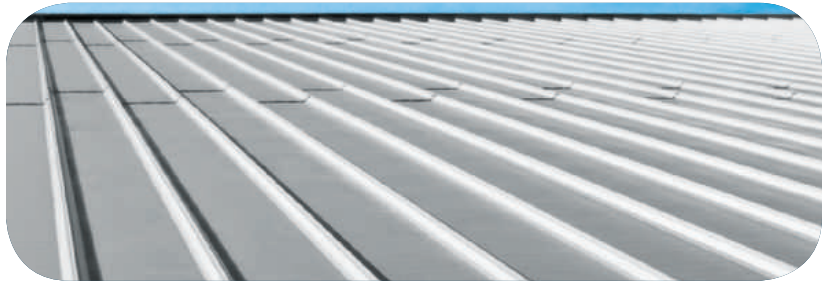


The Pittsburgh double-lock standing seam produces exceptional weathertightness.

The MR-24 system offers complete design flexibility and can be used with—

- Z-purlins
- Truss purlins
- Retrofit subsystems

With the best roof warranty available in the industry—25 years for panel finish protection and weathertightness—the MR-24 roof system is the best insurance for the long life of your building.



Engineered for thermal expansion and contraction.



Butler's exclusive Roof Runner® completes the industry's only field-formed 360-degree Pittsburgh double-lock seam.

APPLICATIONS

- Retail
- Warehouses
- Manufacturing plants
- Schools
- Gymnasiums
- Airplane hangars
- Other larger structures

KEY ATTRIBUTES

- Factory punching ensures precise alignment
- Mechanically seamed 360°
- Roof clip is super secure, yet allows roof movement
- Splices over supporting steel for strength
- Staggered panel splices prevent exposed seams
- Butler Scrubolt™ fasteners have twice the pullout strength of self-drillers
- Optional thermal spacer blocks avoid "thermal short circuit" between purlin and roof panel

PROFILE

- 24" wide
- 2 major 2"-high corrugations
- Cross-flutes on 6" centers reduce wind noise and improve walkability
- Roof slope minimum ¼" in 12"
- 24 gauge standard, 22 gauge optional

MEETS ALL PERFORMANCE STANDARDS

- Complies with U.S. Army Corps of Engineers Unified Facilities Guide Specifications (UFGS) for Structural Standing Seam Metal Roof (SSSMR) Systems
- UL Class 90 Uplift Rating
- Uplift testing performed in accordance with ASTM E 1592
- FM Global Roof Panel System
- Miami-Dade County, Florida, approved

FINISH CHOICES

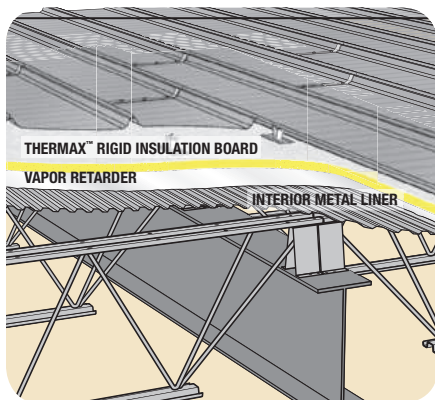
- Unpainted Galvalume®
- Butler-Cote™ finish system of 70% Kynar 500® or Hylar 5000® fluoropolymer coating guaranteed not to blister, peel, crack, chip, or experience material rust-through for 25 years
- Standard colors and custom color options available

FM Global and UL ratings may result in lower wind damage insurance premiums for your new building.

CMR-24® ROOF SYSTEM

The industry standard, insulated for energy efficiency.

The CMR-24® composite roof system takes all the strength, flexibility, and weathertightness of the MR-24® roof system and adds the superior energy-saving features of a layer of rigid insulation board and an interior liner** (steel roof deck).



The CMR-24 roof system adds a layer of rigid insulation board and an interior liner to the MR-24 roof system for superior energy efficiency.

APPLICATIONS

- Retail
- Manufacturing plants
- Gymnasiums
- Other larger structures
- Warehouses
- Schools
- Airplane hangars

KEY ATTRIBUTES

Includes all the features of the MR-24 roof system plus—

- Superior-quality rigid board insulation in a variety of thicknesses and R-values
- Attractive corrugated interior steel liner
- Vapor retarder to provide vapor control and prevent condensation

MEETS ALL PERFORMANCE STANDARDS

- Complies with U.S. Army Corps of Engineers Unified Facilities Guide Specifications (UFGS) for Structural Standing Seam Metal Roof (SSSMR) Systems
- UL Class 90 Uplift Rating

- Uplift testing performed in accordance with ASTM E 1592
- FM Global Roof Panel System
- Miami-Dade County, Florida, approved

FINISH CHOICES

- Unpainted Galvalume®
- Butler-Cote™ finish system of 70% Kynar 500® or Hylar 5000® fluoropolymer coating guaranteed not to blister, peel, crack, chip, or experience material rust-through for 25 years

THE CORRUGATED STEEL LINER

- Protects the insulation
- Acts as a diaphragm to transfer loads throughout the roof system
- Is easy to clean
- Gives the interior a more finished look
- Comes in a painted white finish or unpainted Galvalume finish

FM Global and UL ratings may result in lower wind damage insurance premiums for your new building.

**The acoustic characteristics of rigid foam board insulation may not be suitable for certain building applications.

BUTLERIB® II ROOF SYSTEM

The economical roof system available with an optional 10-year weathertightness warranty.

The Butlerib® II roof system—the best through-fastened roof system in the industry—is weathertight and economical to install and maintain.

Factory-cut and punched panels (optional) ensure accurate endlap alignment and easy installation, while Butler's exclusive "return leg" provides extra support at the sidelaps.



The Butlerib II system is the best through-fastened roof system in the industry.

APPLICATIONS

- Small industrial
- Small community
- Distribution and warehouses

KEY ATTRIBUTES

- Outstanding value leader
- Designed to AISI specifications
- Slots allow for expansion/contraction
- Grooves assure proper sealant application
- Optional Butler Lock-Rivet™ fasteners enhance weathertightness

PROFILE

- Panel width 36"
- Four 1½" -high corrugations
- ⅝" -high minor corrugations
- 26 or 24 gauge

MEETS ALL PERFORMANCE STANDARDS

- UL Class 90 Uplift Rating
- FM Global Roof Panel System
- Miami-Dade County, Florida, approved
- U.S. Army Corps of Engineers CECS 07416 Certification

FINISH CHOICES

- Unpainted Galvalume
- Butler-Cote finish system of 70% Kynar 500 or Hylar 5000 fluoropolymer coating guaranteed not to blister, peel, crack, chip, or experience material rust-through for 25 years
- Standard colors and custom color options available

VSR™ ARCHITECTURAL ROOF SYSTEM

The VSR™ architectural standing-seam system combines the quality appearance of a batten roof system with the strength and performance of a structural roof system.

Flexible enough for your most imaginative and unique projects, the VSR system accommodates even the most complex roof geometries and popular details such as continuous roof-to-fascia designs (not recommended in snow areas).

The VSR roof system can be used as a structural roof system or placed over roof deck materials as a nonstructural roof system—

- Spans structural members spaced up to 5' on centers as a structural roof system
- Structural spanning capability often results in lower cost

APPLICATIONS

- Office buildings
- Municipal
- Condominiums
- Auto dealerships
- Healthcare facilities
- Banks
- Churches
- Retail
- Libraries
- Schools

KEY ATTRIBUTES

- Roof clips allow up to 2½" of movement
- Return leg is machine seamed
- Factory-applied sealant
- Splices occur over supporting steel
- Optional blanket insulation up to 6"
- Optional purlin spacer blocks avoid "thermal short circuit" between purlin and roof panel

PROFILE

- Panel width 16"
- Fluted or nonfluted
- Prepainted fasteners match panel color
- Roof slope $\geq \frac{1}{2}$ " in 12"
- 24 gauge standard, 22 gauge optional

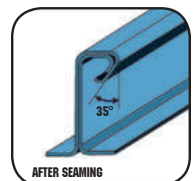
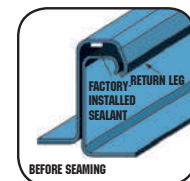
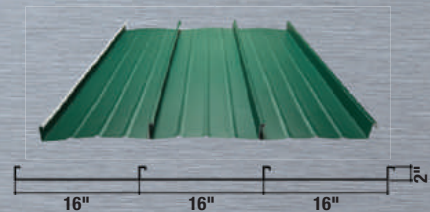
MEETS ALL

PERFORMANCE STANDARDS

- Complies with U.S. Army Corps of Engineers Unified Facilities Guide Specifications (UFGS) for Structural Standing Seam Metal Roof (SSSMR) Systems
- UL Class 90 Uplift Rating
- Uplift testing performed in accordance with ASTM E 1592
- FM Global Roof Panel System

FINISH CHOICES

- Unpainted Galvalume®
- Butler-Cote™ finish system of 70% Kynar 500® or Hylar 5000® fluoropolymer coating guaranteed not to blister, peel, crack, chip, or experience material rust-through for 25 years
- Standard colors and custom color options available



Both the clips and panels of the VSR roof system have a factory-installed sealant to prevent leaks from driving rains.



RETROFIT METAL-OVER-METAL SYSTEM

The Butler low-profile and high-profile retrofit systems.

The low-profile and high-profile systems each allow installation of an MR-24® or VSR™ standing-seam roof system—with unique factory punching and staggered endlaps to provide optimum weathertightness—over an existing through-fastened rib-type roof.

Whether you're specifying for a cavity depth under or over 3," the low- and high-profile systems each feature a complete line of accessories, including seamed-in curbs and stainless steel gutters, as well as all the benefits of the industry-leading MR-24 and VSR roof systems.



APPLICATIONS

- Retrofit for existing through-fastened rib-type roofs or standing-seam roofs for high-profile systems

KEY ATTRIBUTES

- Complete line of integrated engineered products
- Minimum slopes of ¼" in 12" (MR-24) or ½" in 12" (VSR)
- Clip design accommodates movement in roofs up to 250' wide

LOW PROFILE

- 1½" cavity height, MR-24 roof system only
- Panel support blocks rest on the flats of the existing panel to transfer loads to existing structural members

HIGH PROFILE

- >3" cavity height
- Metal spacers allow thicker insulation
- Also used with VSR roof system



The ability to add insulation enables you to enhance energy efficiency.

SLOPE BUILD-UP RETROFIT SYSTEM

A fully engineered reroof solution from Butler.

This is the industry's premier custom reroofing solution, combining high-quality Butler roof systems to mesh with a building's existing roof slope design, no matter how complicated.

The MR-24 roof system is used for low-slope roofs with a minimum slope of ¼" in 12". For higher-slope applications where the roof plays an important role in the building's appearance, the VSR architectural roof system may be used.

PROFILE

- Uses industry-leading MR-24 roof system for low-slope areas
- Slope Build-Up framing system accommodates the VSR roof system for higher-slope areas
- Field-cutting of vertical components for maximum flexibility



A Butler reroofing system is a long-term solution that saves the cost and inconvenience of tearing off an existing roof.

ENGINEERED ROOF ACCESSORIES

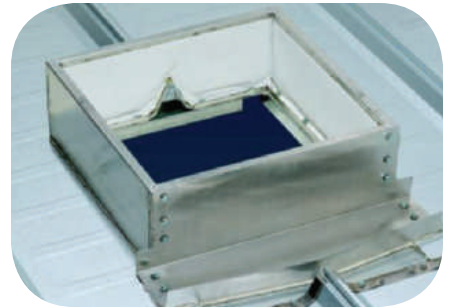
Precision-built to fit seamlessly.

Taking precision factory engineering to the next level, Butler offers a complete range of accessories fully engineered at the factory to fit seamlessly—and weathertight—into Butler® roof systems.

Studies show that 90% of roof leaks are due to poorly designed or installed roof penetrations. Butler's exclusive factory punching eliminates misalignment, and an internal flange design not only conceals fasteners within the curb, but also further eradicates leaks.

BUTLER ENGINEERED ROOF ACCESSORIES

- Vents
- Curbs
- Pipe flashings
- Butler Lite*Panl® translucent roof and wall panels
- Skylights
- Roof hatches
- Gutter and trim options



Butler® engineered roof accessories maintain structural integrity and weathertightness

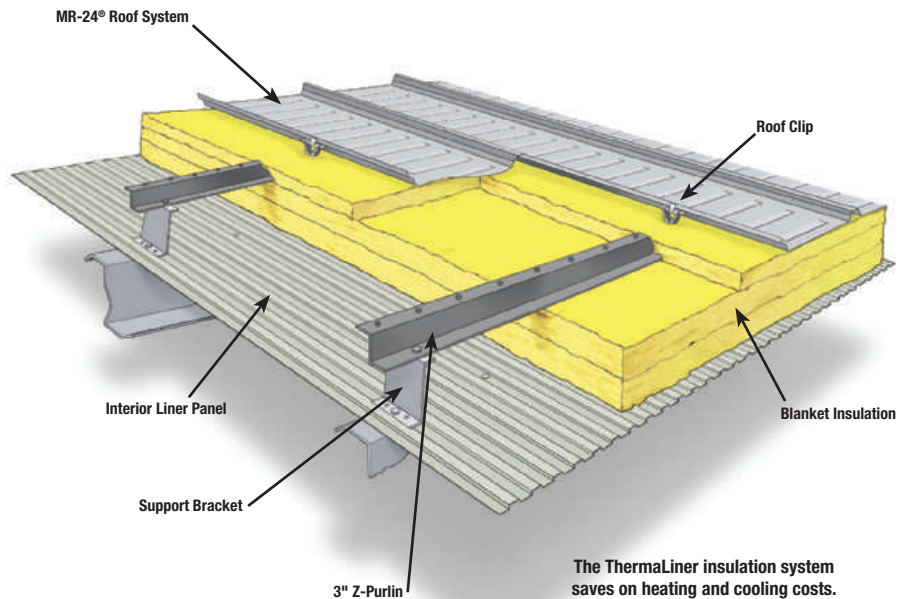
THERMALINER™ INSULATION SYSTEM

A superb insulation option for Butler roof systems.

The ThermoLiner™ insulation system incorporates all the benefits of the MR-24®, VSR™, or Butlerib® II roof systems while providing the additional advantages of an interior liner panel, superior thermal efficiency to R-40, condensation control, and acoustic properties.

KEY ATTRIBUTES

- R-values available up to R-40
- Vapor retarder controls condensation
- Liner offers finished interior look
- Noise reduction
- Can be installed on any Butler structural system (see Sweets 13 34 19/BUT)



The ThermoLiner insulation system saves on heating and cooling costs.



A BlueScope Steel Company

BUILDING IN A NEW LIGHT®

Butler Manufacturing
Kansas City, MO
816-968-3000

Butler Buildings Canada
Burlington, ON
Canada L7M 3X1

www.buttermfg.com



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