POWERSHINGLE®

QUALITY WEATHER PROTECTION

WATER SHEETS DOWN THE PANELS, ELIMINATING THE NEED FOR A SUBROOF

POWERSHINGLE®

HIGHER SYSTEM PERFORMANCE
Generates power on front and back with bi-facial technology

PROUDLY MANUFACTURED IN THE USA

SHIPPED WITH POSITIVE TOLERANCE

FRAMELESS MODULES
With anti-reflective coating on glass

JUNCTION BOX OPTIMIZED
For bi-facial performance

QUALITY WEATHER PROTECTION
Designed so water sheets down the panels, eliminating the need for a subroof

INDUSTRY LEADING PTC RATING
UL 1703 Type Designation 3

COMPATIBLE WITH ANY PURLIN DESIGN

3RD PARTY RELIABILITY TESTING

25 YEAR LINEAR PERFORMANCE WARRANTY
15 YEAR PRODUCT WARRANTY

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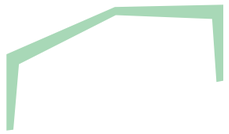
TYPES OF STRUCTURES



GABLE ROOF

This provides a roof with two sloping sides and a ridge. The roof slope can be as low as ¼:12 or as steep as 6:12.

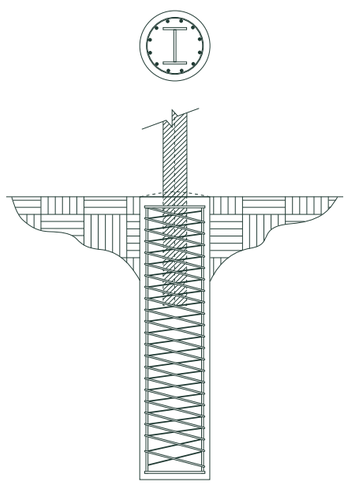
GABLE - MODULAR RIGID FRAME

Our modular rigid frame's interior columns provide multiple spans on wider buildings. It is available in both gable and single slope designs.

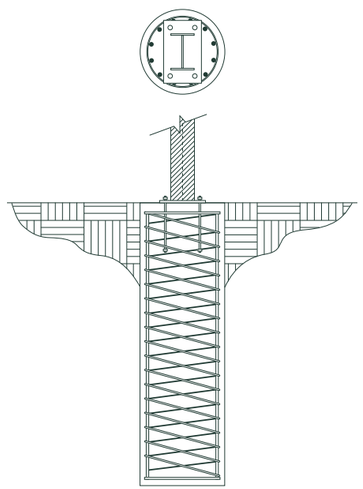
SINGLE SLOPE

These buildings have one roof surface. The roof slope can be as low as ¼:12 or as steep as 6:12.

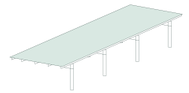
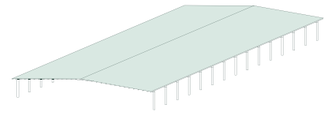
FOUNDATION DESIGNS



EMBEDDED COLUMN



COLUMN WITH BASE PLATE

PS-1 Covers 1 row of parking	PS-2 Covers 2 rows of parking	PS-4 1 MW of storage
EXAMPLE: 15′ x 98′ x 10′ (3 x 25 array)	**EXAMPLE:** 37′ x 98′ x 14′ (7 x 25 array)	**EXAMPLE:** 146′ x 398′ x 20′ (102 x 27 array)
		

WIND & GROUND SNOW CAPACITY

Safe for use in appropriate site conditions for wind and snow.

Requires engineer investigation

PS-1 / PS-2
EXPOSURE B
MONOSLOPE / FREE ROOF

WIND SPEED (mph) \ GROUND SNOW (lb/ft²)	<	85	90	95	100	105	110	115
120	■	■	■	■	■	■	■	
125	■	■	■	■	■	■	■	
130	■	■	■	■	■	■	■	
135	■	■	■	■	■	■		
140	■	■	■	■	■	■		
145	■	■	■	■	■			
150	■	■	■	■				
155	■	■	■	■				
160	■	■	■					
165	■	■						
170	■							
175								

PS-1 / PS-2
EXPOSURE C
MONOSLOPE / FREE ROOF

WIND SPEED (mph) \ GROUND SNOW (lb/ft²)	<	85	90	95	100	105	110	115
90	■	■	■	■	■	■	■	
95	■	■	■	■	■	■	■	
100	■	■	■	■	■	■	■	
105	■	■	■	■	■	■	■	
110	■	■	■	■	■	■		
115	■	■	■	■	■	■		
120	■	■	■	■				
125	■	■	■					
130	■	■	■					
135	■	■						
140	■							
145								

PS-4
EXPOSURE B
GABLED / PITCH FREE ROOF

WIND SPEED (mph) \ GROUND SNOW (lb/ft²)	<	50	55	60	65	70	75	80
115	■	■	■	■	■	■	■	
120	■	■	■	■	■	■	■	
125	■	■	■	■	■	■	■	
130	■	■	■	■	■	■	■	
135	■	■	■	■	■	■	■	
140	■	■	■	■	■	■	■	
145	■	■	■	■	■	■	■	
150	■	■	■	■	■	■	■	
155	■	■	■	■	■	■	■	
160	■	■	■	■	■	■	■	
165	■	■	■	■	■	■	■	
170	■	■	■	■	■	■	■	

PS-4
EXPOSURE C
GABLED / PITCH FREE ROOF

WIND SPEED (mph) \ GROUND SNOW (lb/ft²)	<	50	55	60	65	70	75	80
85	■	■	■	■	■	■	■	
90	■	■	■	■	■	■	■	
95	■	■	■	■	■	■	■	
100	■	■	■	■	■	■	■	
105	■	■	■	■	■	■	■	
110	■	■	■	■	■	■	■	
115	■	■	■	■	■	■	■	
120	■	■	■	■	■	■	■	
125	■	■	■	■	■	■	■	
130	■	■	■	■	■	■	■	
135	■	■	■	■	■	■	■	
140	■	■	■	■	■	■	■	

All load calculation provided by Nucor Building Group Engineers upon final design drawings in submittal package.

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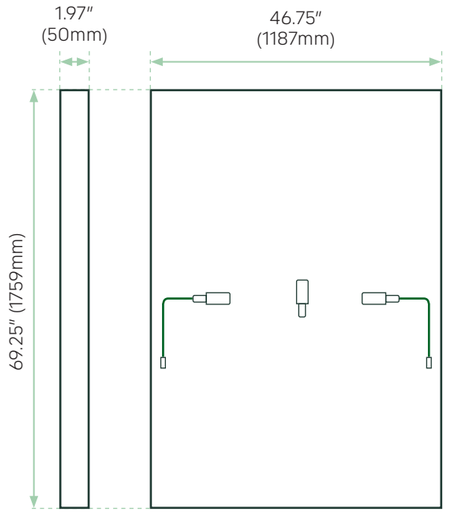
410 WATT | BI-FACIAL SERIES



MECHANICAL SPECIFICATIONS	
FRAME	PowerShingle Frame
DIMENSION (L x W x D)	69.25″ x 46.75″ x 1.97″ 1759mm x 1187mm x 50mm
WEIGHT / PC	28.44kg / 62.7lbs
PALLET	26 pcs per crate
LOADING CONTAINER	24 crates x 26 each = 624pcs / 40′ FTL
MAXIMUM LOADS	5400Pa (snow) 3600Pa (wind)

AXN6M610Bxxx	FRONT SIDE PERFORMANCE	TOTAL POWER OUTPUT FOR DIFFERENTIAL BI-FACIAL GAIN COEFFICIENTS			
		5%	10%	20%	30%
MAXIMUM POWER (+3%)	410W	431W	451W	492W	533W
Voc (V)	37.54	37.54	37.54	37.54	37.54
Isc (A)	13.86	14.55	15.25	16.63	18.02
Vmp (V)	31.55	31.55	31.55	31.55	31.55
Imp (A)	13.00	13.65	14.30	15.60	16.90
MODULE EFFICIENCY (%)	19.0%	19.9%	20.9%	22.7%	24.6%
SERIES FUSE RATING	30A				
JUNCTION BOX PROTECTION	IP68				
MAXIMUM SYSTEM VOLTAGE	VDC1500				
OPERATING TEMPERATURE	-40°C to 85°C				
NUMBER OF CELLS	108				
CONNECTOR TYPE	MC4 Compatible				
CERTIFICATION/FIRE RATING	UL 61730; UL 1703 Fire Type 3				

Bi-facial modules produce power on both front and back. Nominal bi-facial module gain coefficient can run from 10% to 30%, depending on the installation and the amount of direct irradiance. It is recommended to design the electrical circuits with safety factor that accounts for the additional power in order to protect electrical hardware.

Electrical measurements at STC. Electrical parameter tolerance +/- 10%

TEMPERATURE COEFFICIENTS	
NOCT	45°C
SHORT CIRCUIT CURRENT	+0.044% / C
OPEN CIRCUIT VOLTAGE	-0.244% / C
MAX POWER OUTPUT	-0.319% / C

STANDARD TEST CONDITIONS (STC)	
IRRADIANCE	1000W/m²
MODULE TEMPERATURE	25°C
AM	1.5

Specifications subject to change without notice.

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BONIPAK PRODUCE

SANTA MARIA, CA

- Two ground solar canopies
- ~120,000 sq. ft.
- ~2 MW
- 346 tons of steel

This 180-foot clearspan structure is the first of its kind. The two structures were built to produce 1 MW of power for the facility's cooling facilities while providing storage for produce and equipment. The two structures are separated by an insulated panel fire wall.

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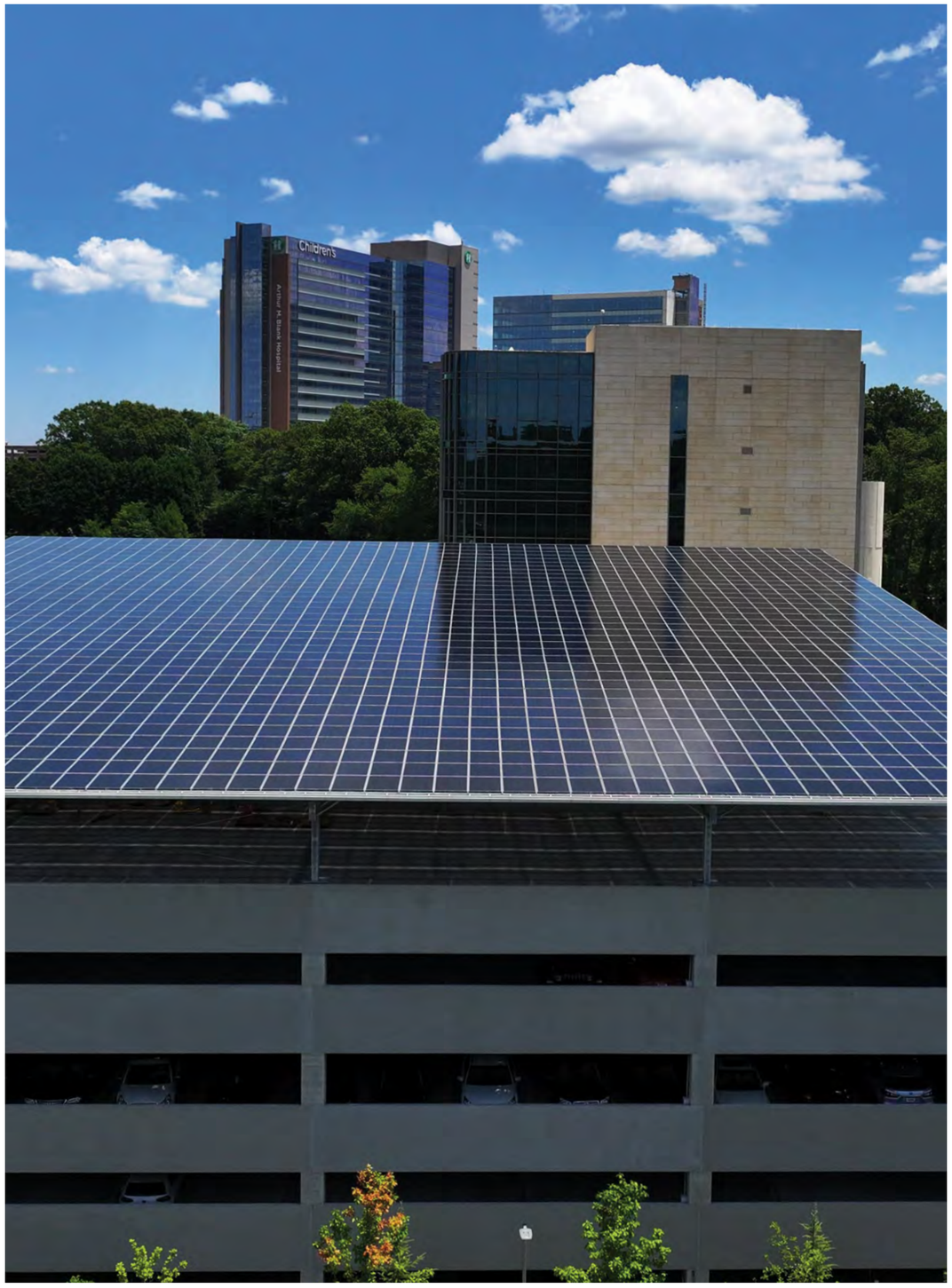

EMORY UNIVERSITY

ATLANTA, GA

- Garage top solar canopy
- ~34,000 sq. ft.
- ~587 kW
- 74 tons of steel

As part of their green initiative, Emory University utilized Nucor's PowerShingle® for the Musculoskeletal Institute building, which will be the first solar project completed for the initiative.

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TAYLOR FARMS

SAN JUAN BAUTISTA, CALIFORNIA

- PowerShingle® solar ground canopy
- Over 75,000 sq. ft. dry storage
- 1.32 MW
- 143.5 tons of steel

Taylor Farms in San Juan Bautista cannot afford to be without electricity, even for a few hours. The 450,000-square-foot facility is a 50-acre farm processing operation where vegetables are trimmed, mixed into salads and packaged for shipment and sale. The need for constant refrigeration to help ensure the safety of the nation's food supply is paramount.

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The PowerShingle® system didn't require Taylor Farms to give up any valuable farmland to install the elevated solar structures. The PowerShingle arrays consist of three 585-foot long canopies elevated 14 feet, offering more than 75,000 square feet of weather-protected canopy and clean power generation. This structure can generate up to 1.32 MW of clean energy per hour, while allowing produce to be stored and cars and other equipment to operate freely underneath.

PowerShingle's pre-engineered solar structures, which work with any Nucor purlin design and can be customized with spans of up to 200 feet, are made from 80% recycled domestic steel and can be certified Econiq™, Nucor's net-zero carbon steel.

PowerShingle maintains greater efficiency than standard solar arrays. Over the lifespan of a typical array – typically 30 years – solar panels lose about 1% of efficiency per year. PowerShingle, however, loses only about 0.66% efficiency per year, meaning an array can be in service for 10 years longer than standard arrays.

CONTACT US

Our goal is to partner with you to deliver world-class results. If you'd like to learn more about how Nucor can benefit your business, please contact us.

energy@nucor.com

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