

## ANN ARBOR HISTORIC DISTRICT COMMISSION

### Staff Report

**ADDRESS:** 523 Fourth Street, Application Number HDC20-094

**DISTRICT:** Old West Side Historic District

**REPORT DATE:** July 9, 2020

**REPORT PREPARED BY:** Jill Thacher, Historic Preservation Coordinator

**REVIEW COMMITTEE DATE:** Monday, July 6, 2020

	<b>OWNER</b>	<b>APPLICANT</b>
<b>Name:</b>	Dan & Tina Ezekiel	Rueter Associates Architects
<b>Address:</b>	523 Fourth Street Ann Arbor, MI 48103	515 Fifth Street Ann Arbor, MI 48103
<b>Phone:</b>	(734) 709-6024	(734) 769-0070

**BACKGROUND:** The Carl F. and Pearl E. Wild house was built in 1928 and first occupied in 1929. Mr. Wild was a janitor at Schaeberle & Sons Music House (110 S Main, currently Vinology). This 1 ½ story Arts & Crafts style bungalow features bracketed eaves, three-over-one windows, a large, gabled, street-facing dormer and a full-width front porch with wood sided half-walls.

**LOCATION:** The house is on the east side of Fourth Street, south of West Jefferson and north of West Madison.

**APPLICATION:** The applicant seeks HDC approval to modify a contributing garage with the following work: remove and rebuild a modern side addition in a design more suitable for a workshop, replace a non-original person door, place solar panels on the south-facing roof, and add a small shed roof addition off the rear.

### **APPLICABLE REGULATIONS:**

#### **From the Secretary of the Interior's Standards for Rehabilitation:**

- (1) A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
- (2) The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

- (9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
- (10) New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property will be unimpaired.

**From the Secretary of the Interior's Guidelines for Rehabilitating Historic Buildings (other SOI Guidelines may also apply):**

**District or Neighborhood Setting**

*Not Recommended:* Introducing new construction into historic districts that is visually incompatible or that destroys historic relationships within the setting.

**Roofs**

*Recommended:* Designing and constructing a new feature when the historic feature is completely missing, such as a chimney or cupola. It may be an accurate restoration using historical, pictorial, and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

*Not Recommended:* Radically changing, damaging, or destroying roofs which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Introducing a new roof feature that is incompatible in size, scale, material and color.

**From the Ann Arbor Historic District Design Guidelines (other Guidelines may apply):**

**Solar**

*Appropriate:* Mounting solar panels at grade or on ground pole mountings. In the absence of an appropriate ground-based mounting location, panels should be mounted on side or rear facing roof surfaces.

Installing mechanical and service equipment on the roof related to the solar units and their related devices so that they are inconspicuous from the public right-of-way and do not damage or obscure character-defining features.

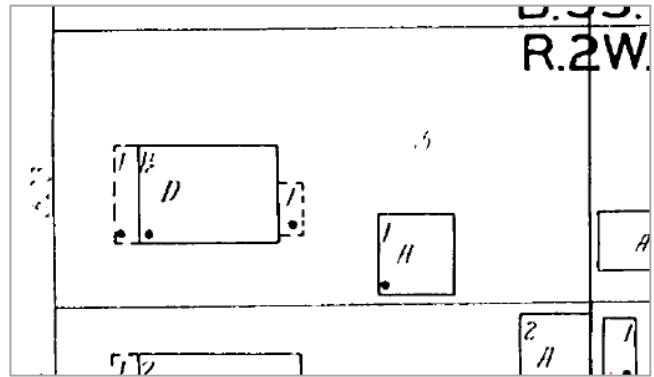
For sloped roof installations, mounting solar panels parallel to and within 8" of roof surface.

*Not Appropriate:* Mounting solar panels and their related devices on primary elevations or roofs that face the primary elevation or in planes that are highly visible from the street view. This location has the highest impact on the historic character of the historic building and all other options should be thoroughly explored.

Any other alteration or installation procedure that will cause irreversible changes to historic features or materials.

### STAFF FINDINGS:

1. The 1931 Sanborn Fire Insurance Map (right) shows the house and garage. The garage features a clipped gable in front and the front elevation currently has a rollup door on half and a person door and window on the other half. It was probably originally two car doors.
2. The side screen porch was built after the period of significance. It is not visible from the street. The owner proposes to remove and rebuild it in the same dimensions, but with fewer windows. The interior wall separating it from the garage would be removed, to make one larger space suitable for a workshop. Also, a small shed roofed bumpout would be built on the rear of the garage. It is 4' deep, with sliding doors, and would replace some windows in non-original openings that were cut into the siding.
3. The new side wing and the bumpout would be clad in wood siding to match the existing garage. Windows would be Andersen clad wood. The proportions of the windows (casement and awning) are compatible. Solar conduits are shown appropriately on the back of the garage.
4. A new roof and solar panels are proposed on the south-facing roof of the garage. The panels would completely cover the roof surface, and extend 6" above the ridge. Since the garage is an accessory structure, the panels are removeable, and the height above the garage roof ridge will be barely visible from the street, staff believes it meets the standards and guidelines for solar.
5. Staff believes the solar panels, rebuilt addition and new rear bumpout do not significantly impact the historic design, massing, or features of the garage. All of the existing historic materials would remain intact, and the new work is differentiated from the old. Staff recommends approval of the application.



**POSSIBLE MOTIONS:** (Note that the motion supports staff findings and is only a suggestion. The Review Committee, consisting of staff and at least two Commissioners, will meet with the applicant on site and then make a recommendation at the meeting.)

I move that the Commission issue a Certificate of Appropriateness for the application at 523 Fourth Street, a contributing property in the Old West Side Historic District, to: remove and rebuild a modern side addition; replace a non-original person door; place solar panels on the south-facing roof; and add a small shed roof addition off the rear, as

proposed. The work is compatible in exterior design, arrangement, materials, and relationship to the garage and the surrounding area and meets *The Secretary of the Interior's Standards for Rehabilitation* and *Guidelines for Rehabilitating Historic Buildings*, in particular standards 1, 2, 9, and 10 and the guidelines for roofs and district or neighborhood setting, and the *Ann Arbor Historic District Design Guidelines* for solar.

**ATTACHMENTS:** application, drawings, photos



523 Fourth Street (2008 Survey Photo)





# HISTORIC DISTRICT COMMISSION

## PLANNING AND DEVELOPMENT SERVICES

City Hall: 301 E. Huron St. Ann Arbor, MI 48104-6120

Mailing: P.O. Box 8647, Ann Arbor, MI 48107-8647

Phone: 734.794.6265 ext. 42608

[jthacher@a2gov.org](mailto:jthacher@a2gov.org)

Fax: 734.994.8460

OFFICE USE ONLY	
Permit Number	HDC# _____
	BLDG# _____
DATE STAMP	

**APPLICATION MUST BE FILLED OUT COMPLETELY**

### PROPERTY LOCATION/OWNER INFORMATION

NAME OF PROPERTY OWNER <b>Dan and Tina Ezekiel</b>			HISTORIC DISTRICT <b>Old West Side</b>	
PROPERTY ADDRESS <b>523 Fourth Street</b>			CITY <b>Ann Arbor</b>	
ZIP CODE <b>48103</b>	DAYTIME PHONE NUMBER <b>( 734 ) 709-6024</b>	EMAIL ADDRESS <b>dan.ezekiel24@gmail.com</b>		
PROPERTY OWNER'S ADDRESS (IF DIFFERENT FROM ABOVE) <b>Same</b>			CITY	STATE, ZIP

### PROPERTY OWNER'S SIGNATURE

SIGN HERE		PRINT NAME	<b>Dan Ezekiel</b>	DATE	<b>6/18/2020</b>
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### APPLICANT INFORMATION

NAME OF APPLICANT (IF DIFFERENT FROM ABOVE) <b>Rueter Associates Architects</b>				
ADDRESS OF APPLICANT <b>515 Fifth Street</b>				CITY <b>Ann Arbor</b>
STATE <b>Michigan</b>	ZIP CODE <b>48103</b>	PHONE / CELL # <b>( 734 ) 769-0070</b>	FAX No <b>( 734 ) 769-0167</b>	
EMAIL ADDRESS <b>jscrivens@rueterarchitects.com</b>				

### APPLICANT'S SIGNATURE (if different from Property Owner)

	DATE <b>6/19/20</b>
--	------------------------

### BUILDING USE – CHECK ALL THAT APPLY

<input checked="" type="checkbox"/> SINGLE FAMILY	<input type="checkbox"/> DUPLEX	<input type="checkbox"/> RENTAL	<input type="checkbox"/> MULTIPLE FAMILY	<input type="checkbox"/> COMMERCIAL	<input type="checkbox"/> INSTITUTIONAL
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### PROPOSED WORK

Describe in detail each proposed exterior alteration, improvement and/or repair (use additional paper, if necessary).

We are removing the non-historic side porch on the garage while maintaining the existing porch foundation. We will be reconstructing the porch area with new walls and roof to expand the existing garage. In addition to rebuilding the side porch area we will be removing the three sashes at the rear of the garage that are not original to the garage, they were cut into the siding and are not water tight. We are proposing to provide three new high clerestory windows. This will allow us to provide a new lean-to shed to back up to the rear of the garage to store gardening tools. The front door on the garage is also not original to the garage and we are asking to replace the current door as well. This original door was a used door, intended for interior use that was install on the exterior and is not functioning well. As part of this work the entire garage will be reroofed and painted.



# ANN ARBOR HISTORIC DISTRICT COMMISSION

APPLICATION FOR DETERMINATION OF APPROPRIATENESS  
FOR THE  
Dan and Tina Ezekiel, 523 Fourth Street, Ann Arbor, 48103



PHOTO: 523 Fourth St Garage - view rear yard, 1 story wood garage with attached enclosed porch.

## LIST OF DRAWINGS

- T1. TITLE SHEET
- A1 SITE PLAN EXISTING
- A2 FLOOR PLAN
- A3 PHOTOS OF EXISTING
- A4 ELEVATIONS EXISTING
- A5 SITE PLAN - PROPOSED
- A6 FIRST FLOOR PLAN - PROPOSED
- A7 WEST ELEVATION(PROPOSED)
- A8. SOUTH ELEVATION(PROPOSED)
- A9. EAST ELEVATION (PROPOSED)
- A10. NORTH ELEVATION(PROPOSED)

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DRAFT

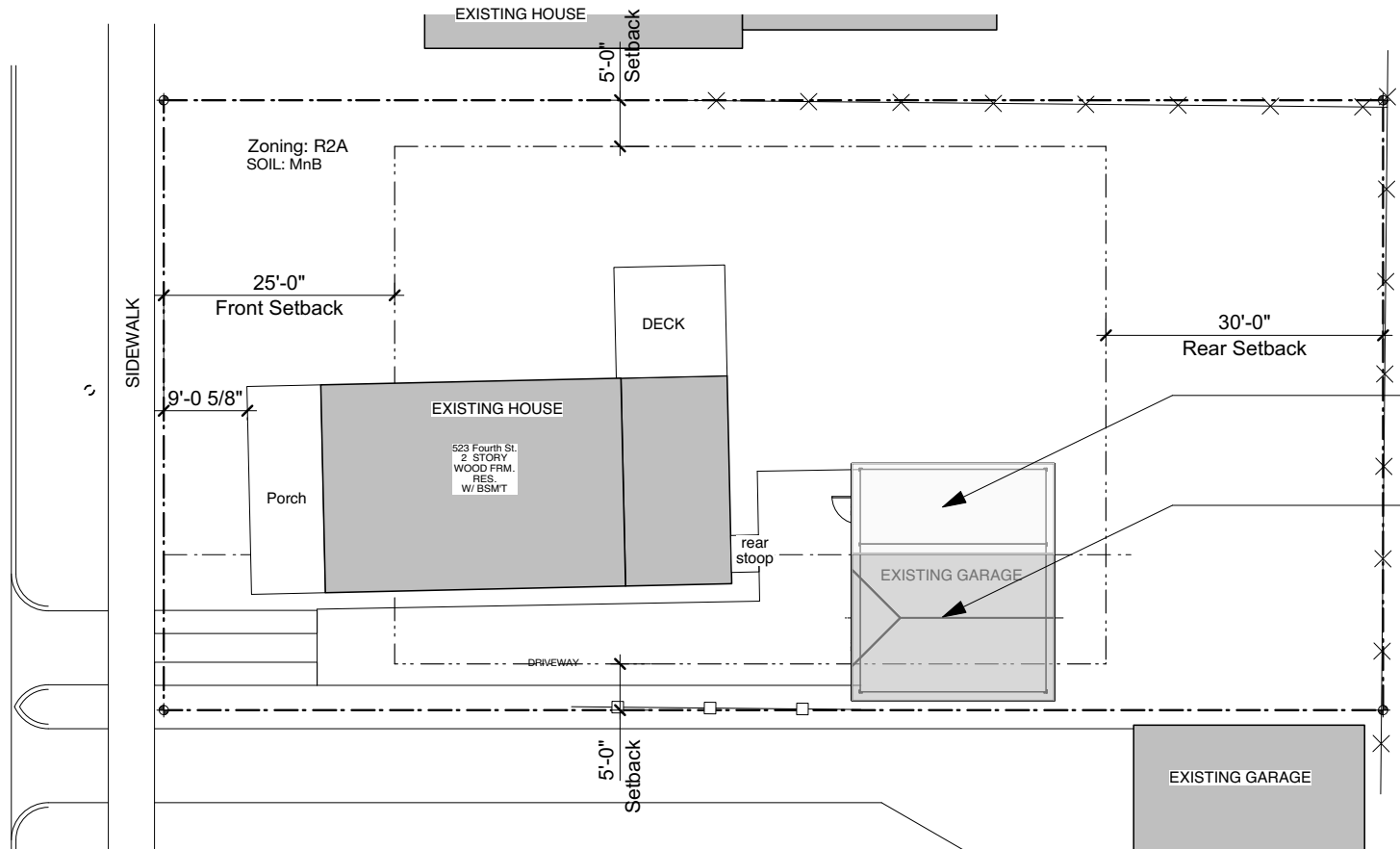
□ RUETER ASSOCIATES □

ARCHITECTS  
515 Fifth Street, Ann Arbor, Michigan 48103  
phone: (734) 769-0070, fax: (734) 769-0167  
RAA: 20-015 HDC 06.19.20

Dan and Tina Ezekiel  
523 Fourth Street, Ann Arbor, Mi 48103

T1

Fourth Street



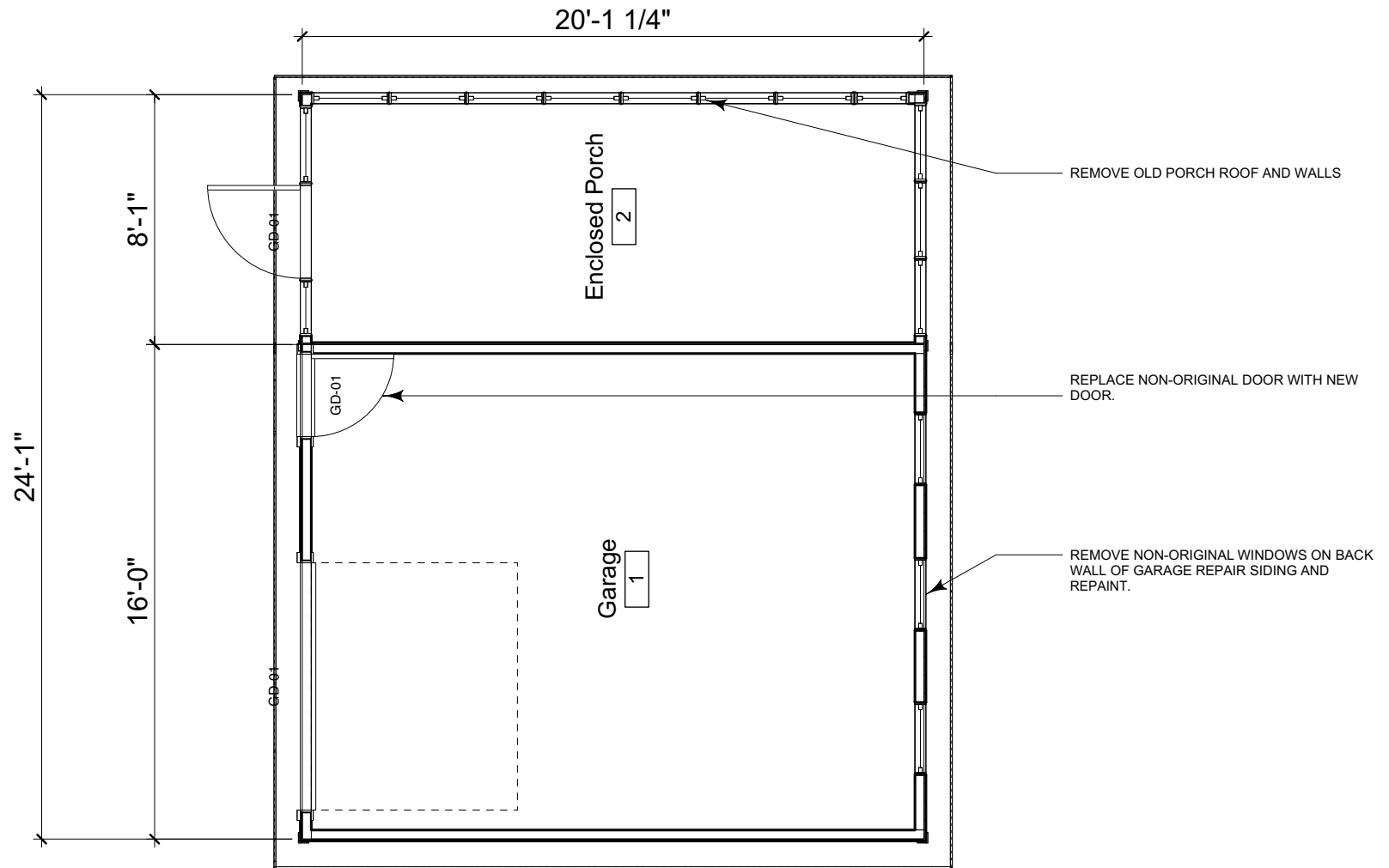
Existing attached enclosed side porch with garage. Aerial photos show it was built between 1966 and 1979

Existing garage date of construction is 1928

1 Site Plan - Existing  
Scale: 1" = 20'-0"



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1 Floor Plan - Existing  
Scale: 3/16" = 1'-0"



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PHOTO: 523 Fourth St Garage - view rear yard, 1 story wood garage with attached enclosed porch.

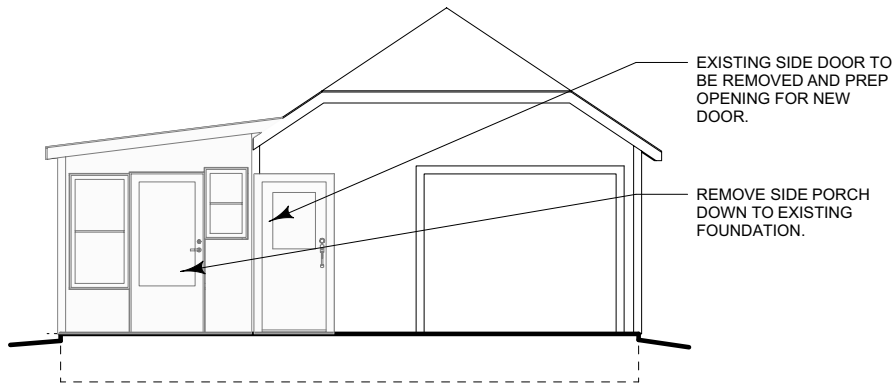


PHOTO: 523 Fourth St Garage - view rear yard, 1 story wood garage with attached enclosed porch.

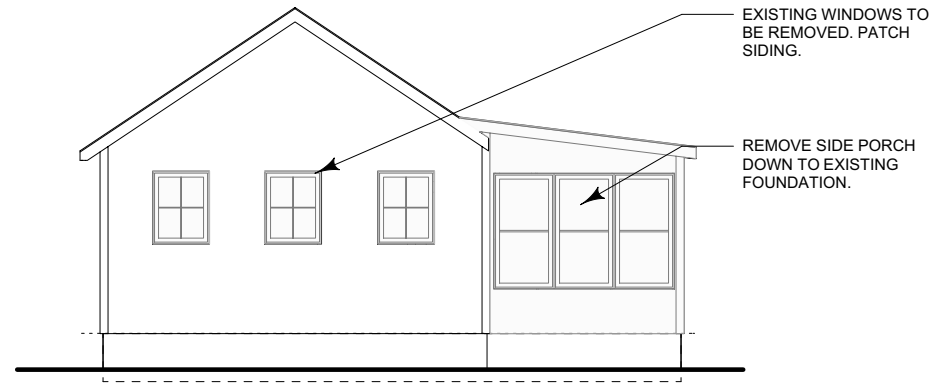


PHOTO: 523 Fourth St Garage - view rear yard, 1 story wood garage with attached enclosed porch.

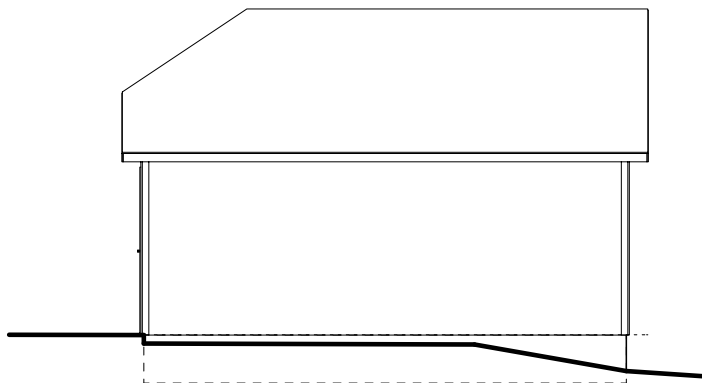
HDC SUBMISSION 06.19.20  
DRAFT



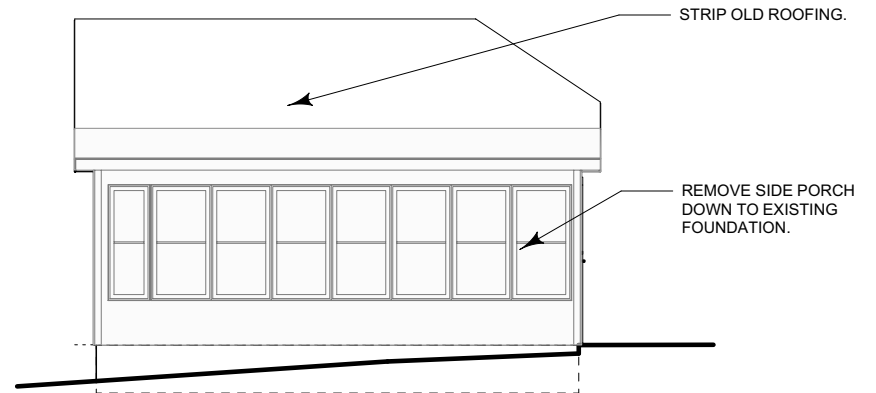
**4** Existing West Elevation  
Scale: 1/8" = 1'-0"



**3** Existing East Elevation  
Scale: 1/8" = 1'-0"

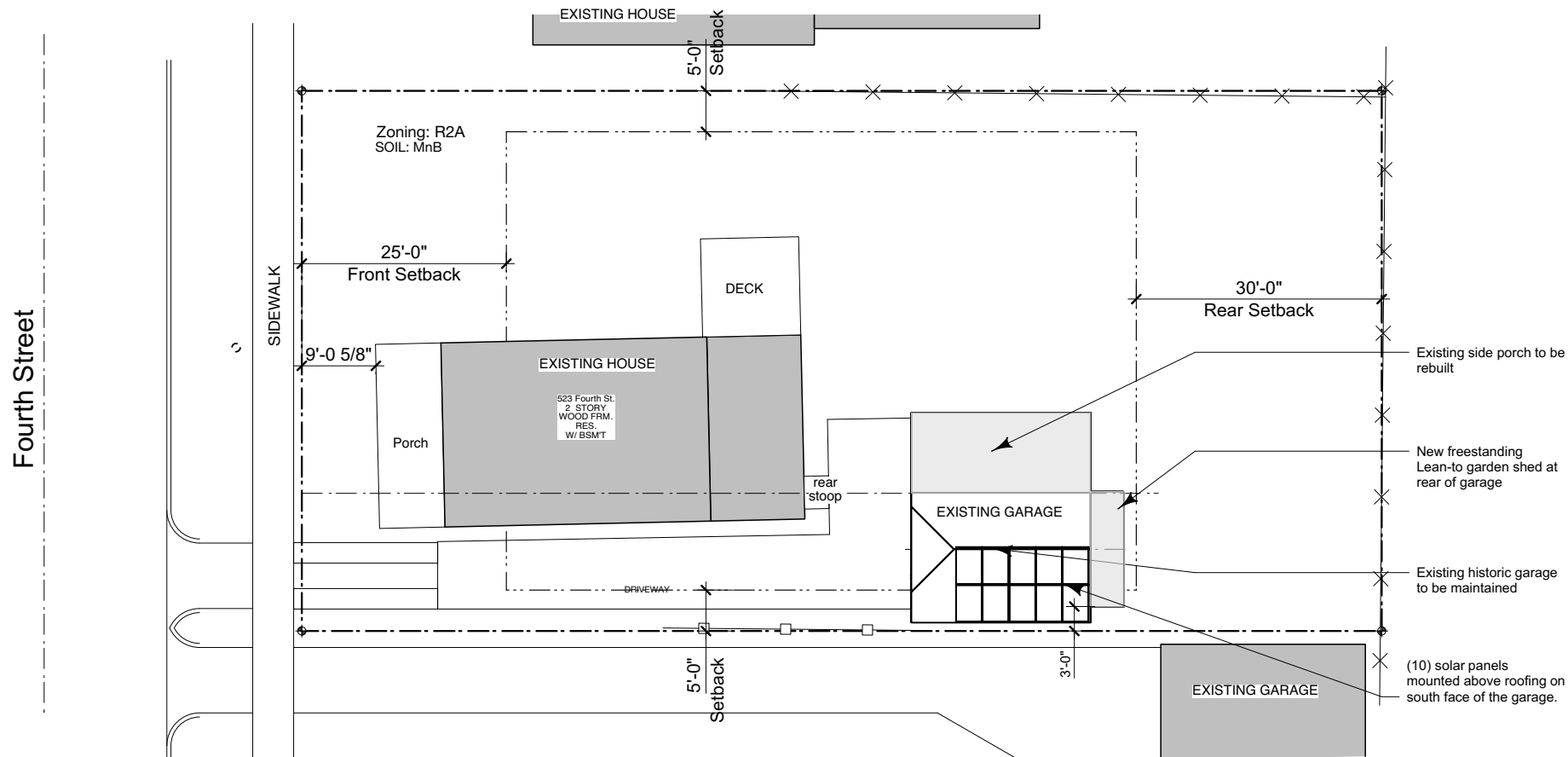


**2** Existing South Elevation  
Scale: 1/8" = 1'-0"



**1** Existing North Elevation  
Scale: 1/8" = 1'-0"

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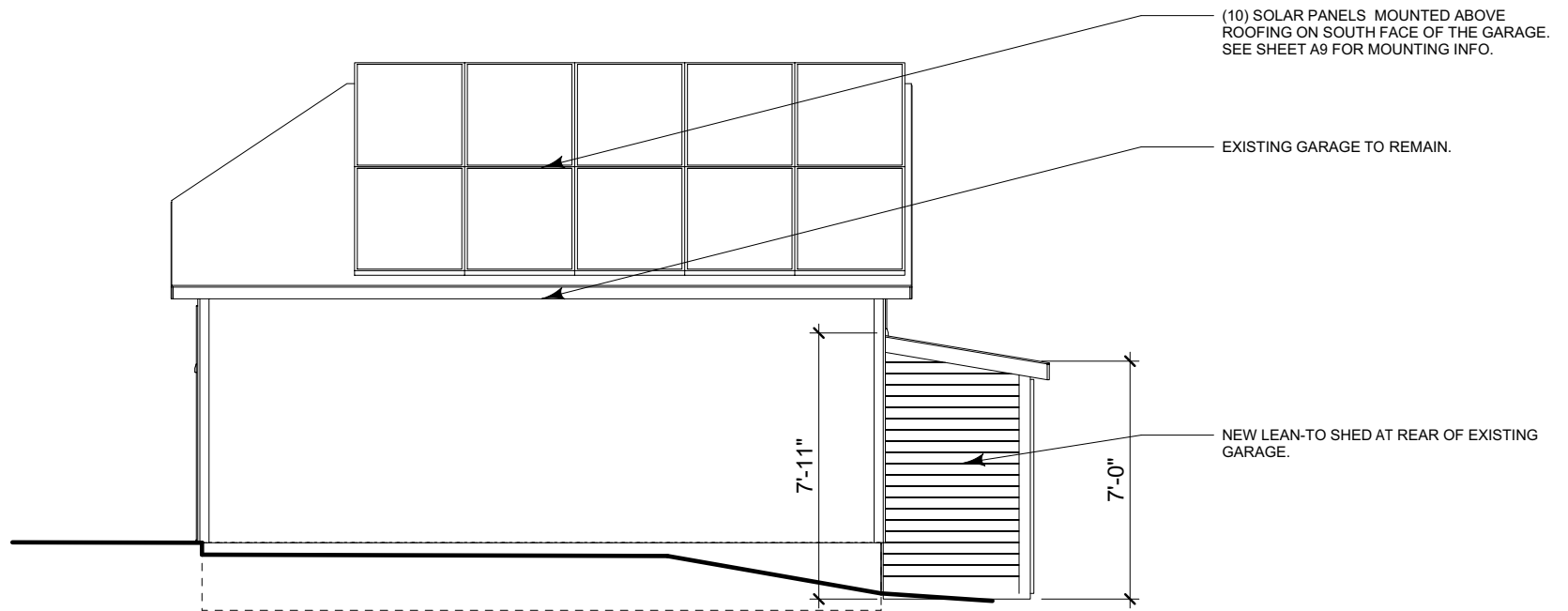
1 New Site Plan  
Scale: 1" = 20'-0"



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**1** Proposed South Elevation  
Scale: 3/16" = 1'-0"

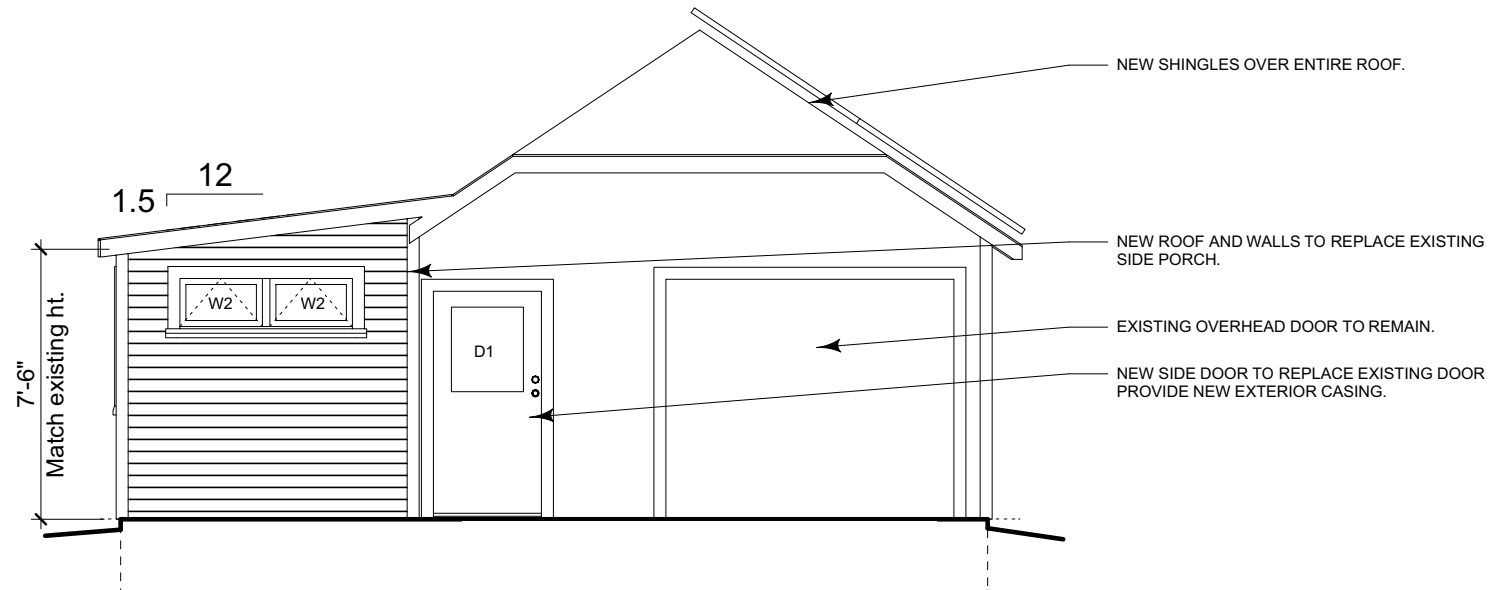
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## WINDOW SCHEDULE

Mark	And.#	Type	Unit Size W X H	Notes
W1	100CS2636	csmt	29 1/2" x 41 1/2"	1 lite
W2	100AS3016	awng	29 1/2", a 17 1/2"	1 lite

### WINDOW NOTES:

Windows shall be Andersen A100 composite wood frame. Glazing shall be double glazed low e. Finish shall be white. Screens shall be supplied with all windows.



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**1** Proposed West Elevation  
Scale: 3/16" = 1'-0"

□ RUETER ASSOCIATES □

ARCHITECTS  
515 Fifth Street, Ann Arbor, Michigan 48103  
phone: (734) 769-0070, fax: (734) 769-0167  
RAA: 20-015 HDC 06.19.20

Dan and Tina Ezekiel  
523 Fourth Street, Ann Arbor, Mi 48103

A8

## NEW ADDITION MATERIAL DESCRIPTION:

**ROOF:**  
Laminated asphalt shingles - existing to be replaced

**FASCIA:**  
1"X 6" wd bd

**GUTTERS:**  
5" K style alum gutters

**GABLE RAKE BOARD**  
5/4"x 6" bd

**FRIEZE BD (BELOW RAKE)**  
5/4"x 4"

**SOFFITS:**  
3/4" preprimed trim with vents

**CORNER BOARDS"**  
5/4" X 4" wd bd

**SIDING:**  
Pine vee grooved ship lap 8" spacing to match existing, color: painted.

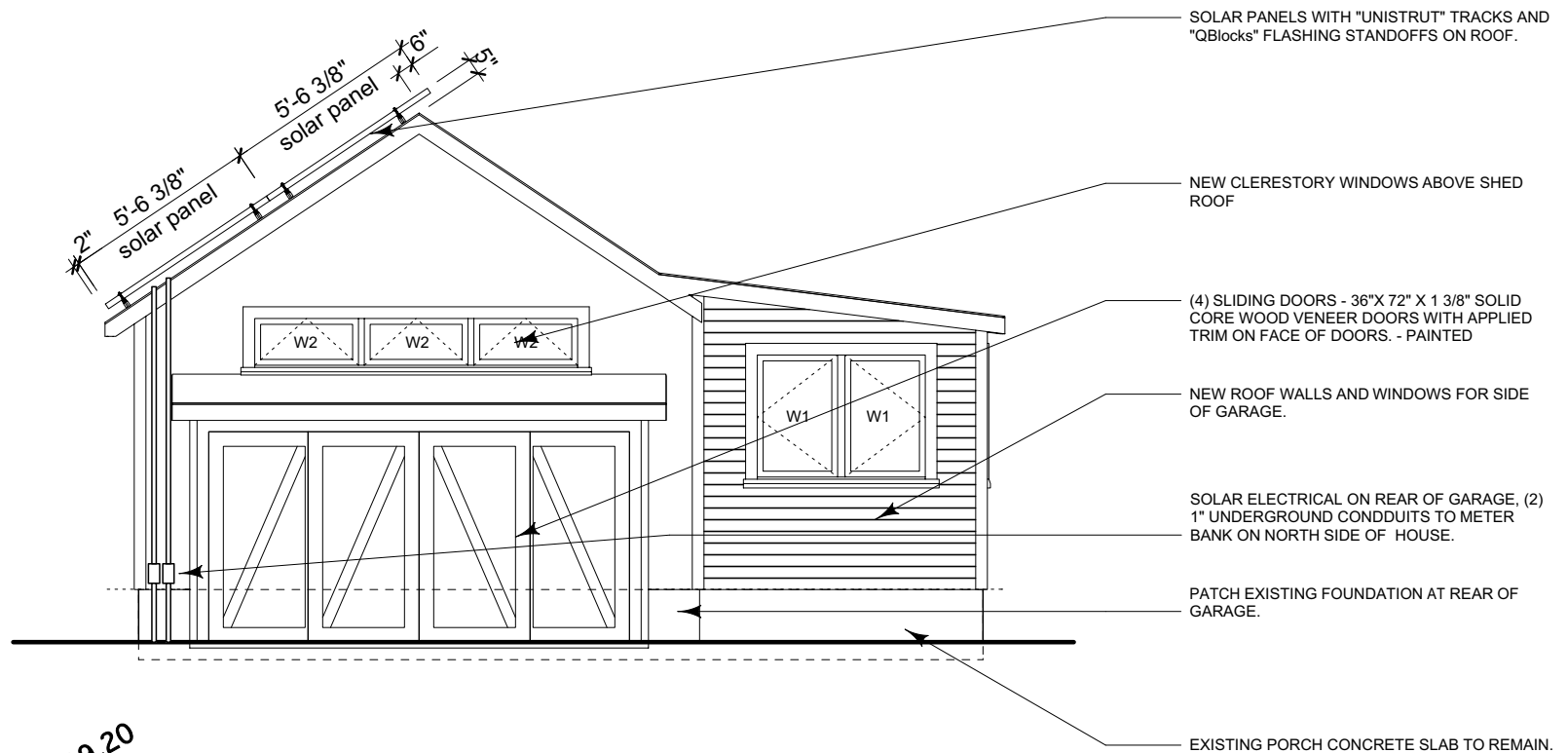
**EXPOSED FOUNDATION:**  
Concrete foundation to remain patch existing foundation at rear of garage.

**WINDOWS:**  
(W1,2) Andersen Composite wood windows with 5/4" X 4" WD casings

**DOORS:**  
Side door: (D1) JELD-WEN Premium Steel doors with half light Model # (CT-684) THDJW184700036

Overhead door: Existing - no change

**SHED DOORS:**  
(4) SLIDING DOORS - 36"X 72" X 1 3/8" SOLID CORE WOOD VENEER DOORS WITH APPLIED TRIM ON FACE OF DOORS, HUNG FROM TRACK, LOCKED WITH HASP AND SLIDE BOLTS. - PAINTED



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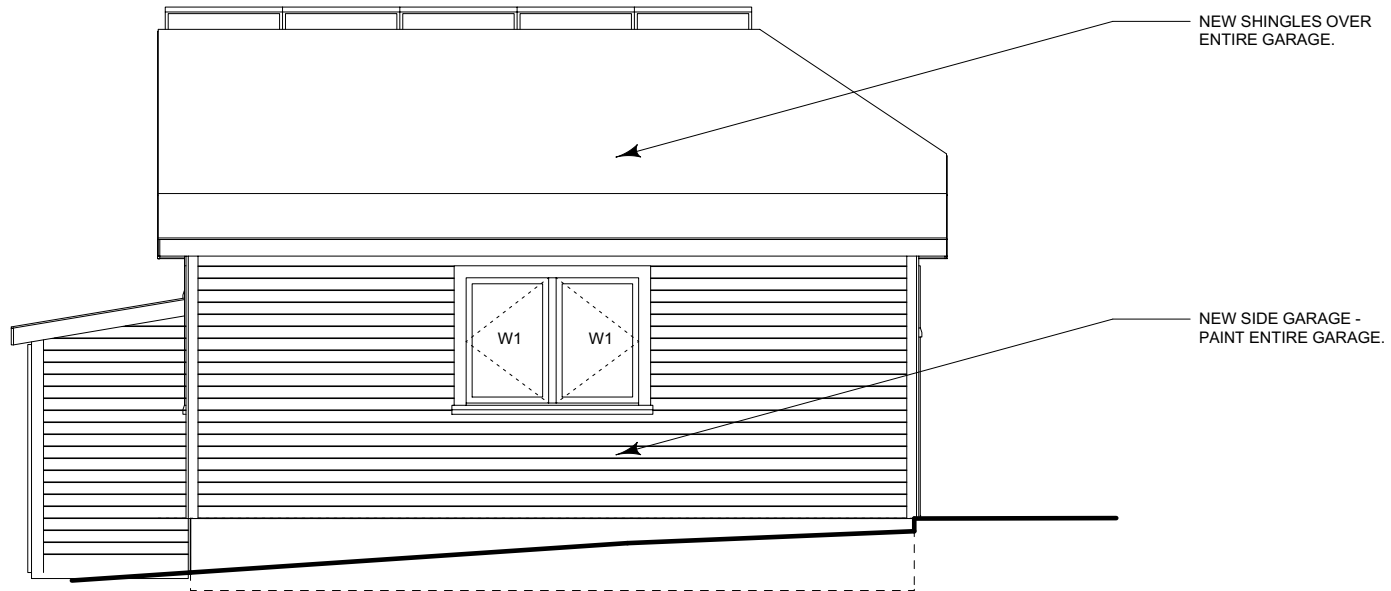
1 Proposed East Elevation  
Scale: 3/16" = 1'-0"

□ RUETER ASSOCIATES □

ARCHITECTS  
515 Fifth Street, Ann Arbor, Michigan 48103  
phone: (734) 769-0070, fax: (734) 769-0167  
RAA: 20-015 HDC 06.19.20

Dan and Tina Ezekiel  
523 Fourth Street, Ann Arbor, Mi 48103

A9



HDC SUBMISSION 06.19.20  
DRAFT

1 Proposed North Elevation  
Scale: 3/16" = 1'-0"



## A BETTER CHOICE

Whether you're replacing, remodeling or building new, Andersen® 100 Series products offer many advantages over vinyl at a good value. They're made of our innovative Fibrex® composite material that's 2X stronger than vinyl, environmentally smart, energy efficient and offers superior strength and performance making them a better choice for your home.



- Fibrex material construction provides long-lasting performance
- Weatherstrip is designed to be an energy-efficient barrier against wind, water and dust
- Virtually seamless corners offer a cleaner, more contemporary look
- Premium matte finish never needs painting and won't fade, flake, blister or peel\*
- 100 Series products have a 12X thicker finish than that of painted vinyl windows\*\* resulting in superior scratch resistance

### PRODUCT TYPES

- Casement windows
- Awning windows
- Single-hung windows
- Gliding windows
- Picture windows
- Transom windows
- Specialty Windows



\*Visit [andersenwindows.com/warranty](https://andersenwindows.com/warranty) for details.

\*\*When 100 Series products were tested against five leading competitors' painted vinyl window products.

# 100 SERIES Windows

## PRODUCT OPTIONS

### GLASS OPTIONS

- Low-E glass
- Low-E glass with HeatLock® technology
- Low-E Sun glass
- Low-E SmartSun™ glass
- Low-E SmartSun glass with HeatLock technology

Tempered glass, sound reducing glass and patterned glass is available. Contact your Andersen supplier for availability.



### FRAME OPTIONS

1 3/8" flange setback, 1" flange setback with stucco key or replacement configurations with or without an accessory kerf available.

### EXTERIOR COLORS



### INTERIOR COLORS



\*Products with Sandtone, dark bronze, and black interiors have matching exteriors.

## HARDWARE OPTIONS\*\*

### SINGLE-HUNG & GLIDING

#### Standard



Lock

Optional Lift/Pull

Lock automatically engages when window is closed.  
Hardware color matches the window's interior.  
Shown in white.

#### Optional Slim Line Metal Hardware



Lock

Antique Brass | Black | **Dark Bronze**  
Sandtone | Satin Nickel | White

### CASEMENT & AWNING

#### Standard Folding



**Antique Brass** | Black | Dark Bronze  
Sandtone | Satin Nickel | White

Folding handle avoids interference with window treatments.

Bold name denotes finish shown.

## ACCESSORIES

### • Wireless Open/Closed Sensor

Indicates if windows are open or closed† for peace of mind and feature a sleek, compact design for a clean appearance.

### • Grilles

Variety of grille options available including Finelight™ grilles-between-the-glass for convenient cleaning and full divided light grilles for an authentic look.

### • Insect Screens

Optional TruScene® insect screens for windows provide 50% more clarity than our conventional insect screens, letting in more air and sunlight.



For more information, visit [andersenwindows.com/100series](http://andersenwindows.com/100series)

\*\*Hardware is sold separately, except standard hardware.

†When properly configured and maintained with a professionally installed security system and/or self-monitoring system compatible with Honeywell® 5800 controls.

Printing limitations prevent exact replication of colors and finishes. See your Andersen supplier for actual color and finish samples.

"ENERGY STAR" is a registered trademark of the U.S. Environmental Protection Agency.

\*Andersen" and all other marks where denoted are trademarks of Andersen Corporation. ©2020 Andersen Corporation. All rights reserved. 02/20





# Exterior Doors

## Steel Door Features

Contours™ | Gladiator® | FiniShield®





# EXTERIOR STEEL DOORS

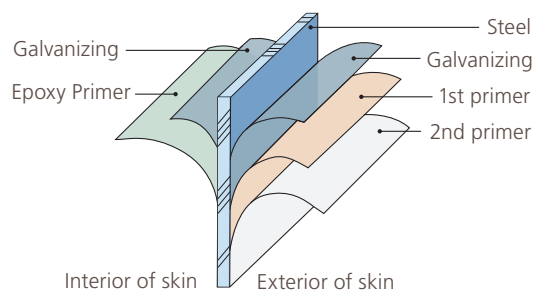


## Every JELD-WEN® Steel exterior door is durable and economical.

It is by no coincidence that every JELD-WEN® Steel door comes with a 10-year limited warranty. This is a line of doors built to deliver on strength and durability, from our utility-grade Gladiator® to our premium-grade Contours™.

They include wood stiles and rails with mitered top corners to prevent water absorption. Galvanized exterior door facings are factory-primed with neutral, low-sheen, baked-on enamel primer for easy finishing.

Consider how well these doors are constructed.



## Steel Door Sticking Profiles



★ Beaded Sticking (CT)



▲ Ovolo Sticking (CT, GL, FS)



● Tiered Sticking (CT)



■ Craftsman Sticking (CC)



### Fire-Rated Doors

Our fire-rated steel doors are made to meet or exceed local fire rating building codes for both residential and light commercial use. For true fire protection, these doors must be used with certified frames and hardware. Fire rated doors available in Contours™ steel only.



Ask your sales associate which JELD-WEN® doors are ENERGY STAR® qualified.

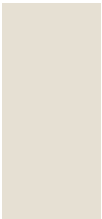


Visit [www.jeld-wen.com](http://www.jeld-wen.com) for complete warranty information.

# STANDARD GLASS INSERT CUTOUTS

## 6'8" Doors

Flush



CT-100



CT-919



CT-686



CT-636

3-Panel



CT-30



CT-949



CT-607

Craftsman



CC-30



CC-866

1-Panel



CT-11



CT-969

2-Panel



CT-21



CT-684-1P

2-Panel Arch Top



CT-20



CT-684-1P

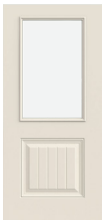


CT-673-1P

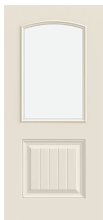
2-Panel Plank



CT-24



CT-684-1PL



CT-673-1PL

4-Panel Blank Top



CT-40BT



CT-659



CT-648



CT-673



CT-637

9-Panel



CT-90



CT-640

6-Panel



CT-60



CT-680



CT-692



CT-684



CT-662

8-Panel



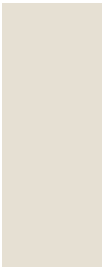
CT-80



CT-632

## 8'0" Doors

Flush



CT8-100



CT8-686

6-Panel



CT8-60



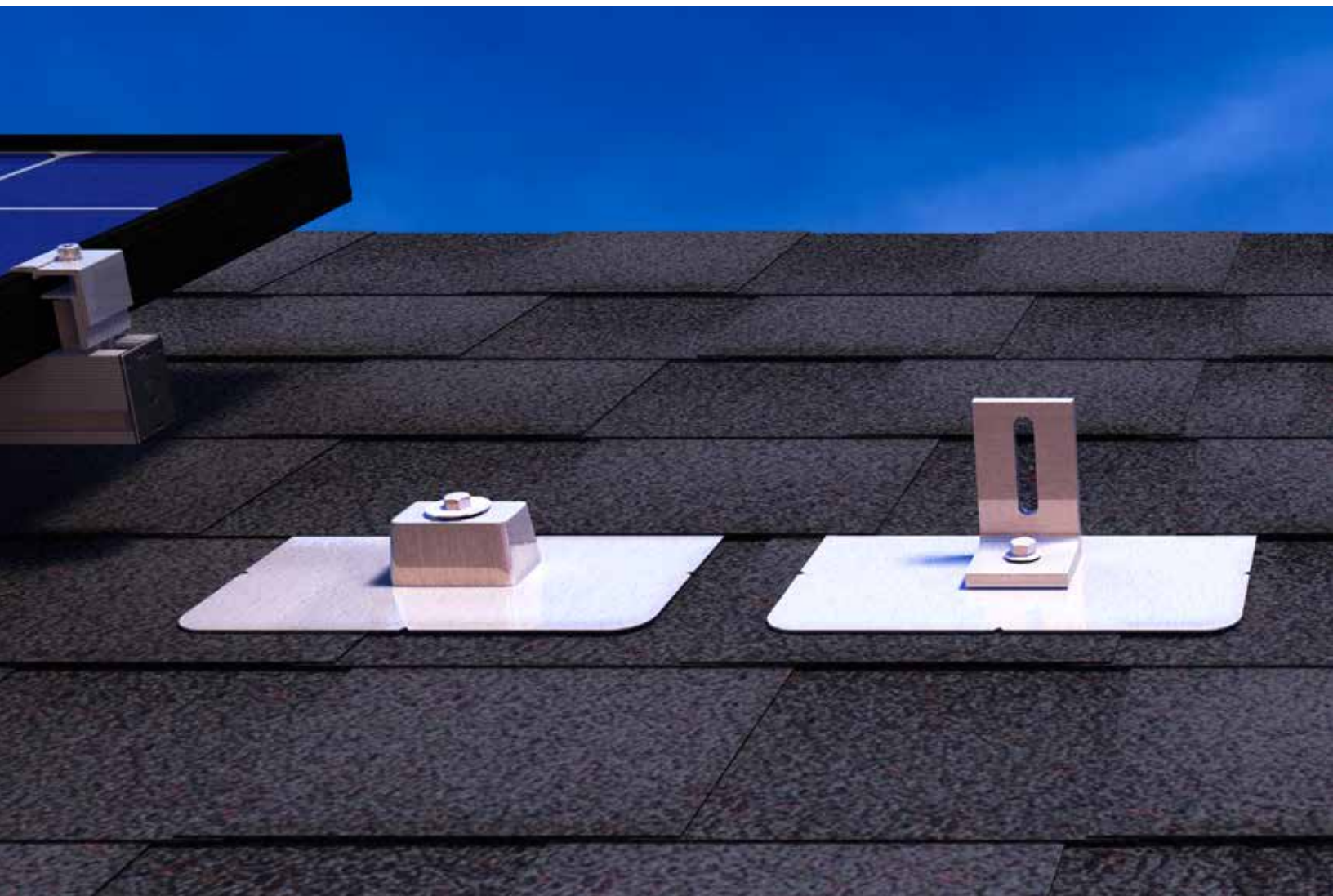
CT8-684

\*Contours, FiniShield and Gladiator Sunburst and Camber Top designs have different top rail dimensions.  
See specifications at [www.jeld-wen.com](http://www.jeld-wen.com)

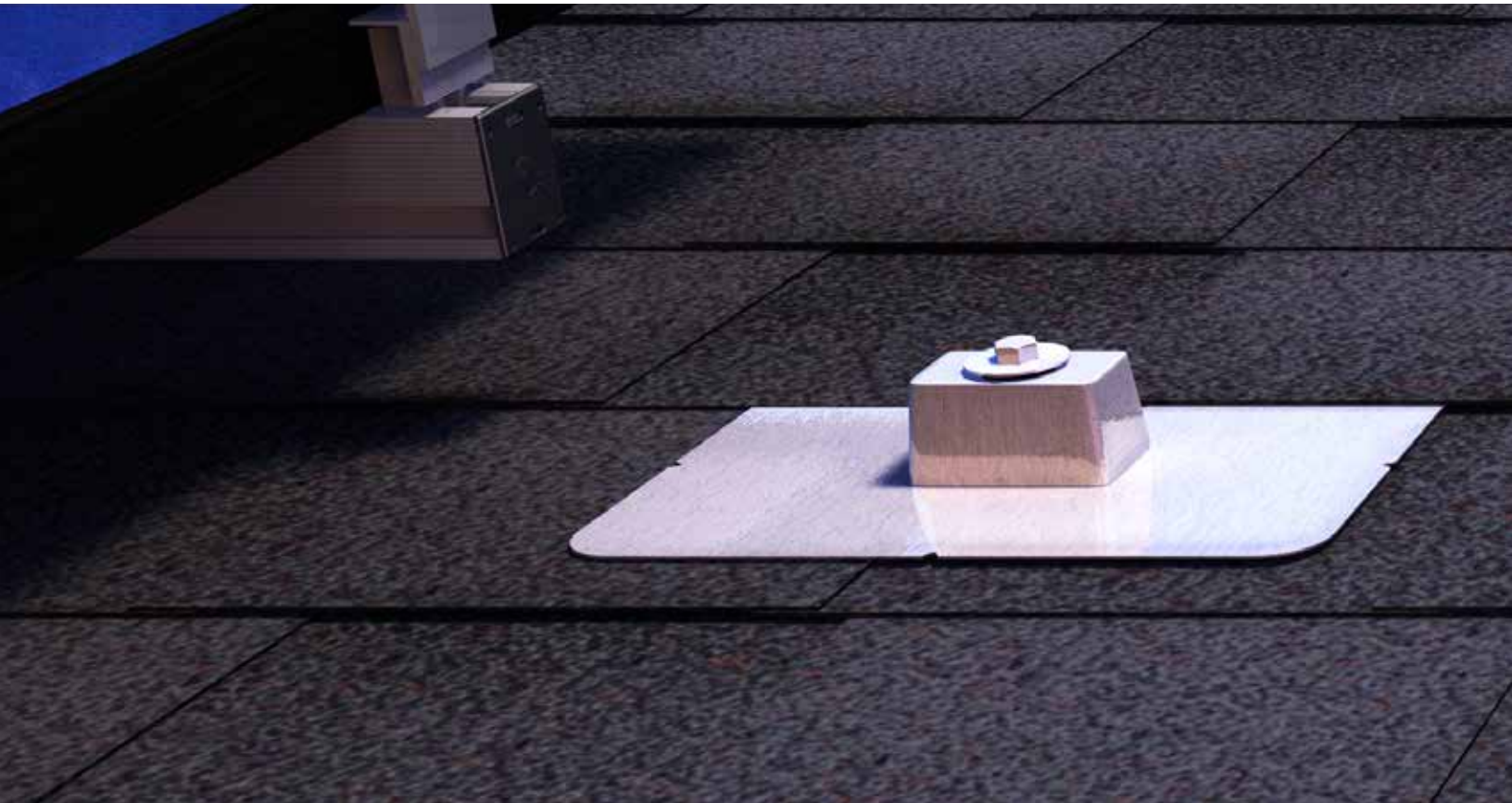


# Solar Mounting Solutions

## Composition/Asphalt Shingle Roofs



# QBlock® Composition Mounts



The Classic Composition Mount and the E-Mount series are designed for fast, simple installation onto existing composition/asphalt shingle roofs. Both mounts use Quick Mount PV's QBlock Elevated Water Seal Technology® for a long, watertight life on the roof. Both series are also available with multiple attachment options: lag bolt, hanger bolt and extended hanger bolt.

Use the Classic Composition Mount when your project demands the highest quality mount on the market. The heavier, 12" x 12" flashing provides added protection for extreme climate zones.

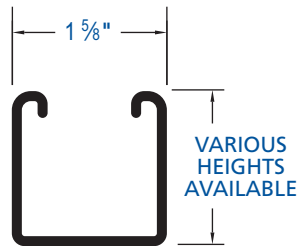
The E-Mount, with a smaller, lighter flashing, is ideal for price-sensitive jobs in less extreme, milder climate zones.

## FEATURES

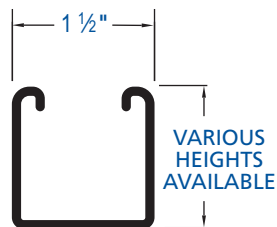
- QBlock® Elevated Water Seal Technology®
- Works with all leading racks
- Single bolt installation, no shingle cutting
- Aluminum flashing
- Approved by leading roof manufacturers, won't void roof warranty
- Meets or exceeds roofing industry best practices; 100% IBC compliant
- 18-8 stainless steel hardware included
- Alignment guides
- ICC-ES certified (ICC-ESR-3744)
- 25-year warranty

## THE MOST COMPLETE METAL FRAMING SYSTEM — FOUR CHANNEL-WIDTH OPTIONS

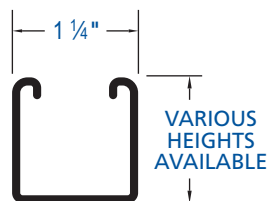
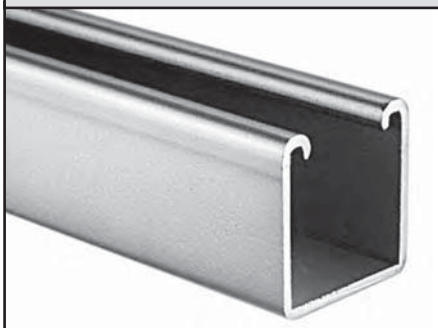
Adjustability, demountability and reusability are engineered into each of the four Unistrut channel series. Each series offers channels of varying depth and gage plus a complete line of fittings and accessories.

**1 $\frac{5}{8}$ " width Series Channel****1 $\frac{5}{8}$ " (41.3 mm) width**

Designed to carry the heaviest loads and provide the widest variety of applications, the 1 $\frac{5}{8}$ " series has become the accepted standard for use in mechanical, electrical and general construction applications where supports and attachments must meet the highest strength requirements.

**1 $\frac{1}{2}$ " width Series Channel****1 $\frac{1}{2}$ " (38.1 mm) width**

A framing system designed for medium to heavy loads, the 1 $\frac{1}{2}$ " series offers hole spacing and fittings where all parts fit together, no matter where they're used, or at what angle.

**1 $\frac{1}{4}$ " width Series Channel****1 $\frac{1}{4}$ " (31.8 mm) width**

A framing system designed for medium loads, the 1 $\frac{1}{4}$ " series is especially suitable for use in the OEM, commercial and display markets. It maintains a lightness in scale and a clean line that makes it aesthetically pleasing as well as functional.

**1 $\frac{3}{16}$ " width Series Channel****1 $\frac{3}{16}$ " (20.6 mm) width**

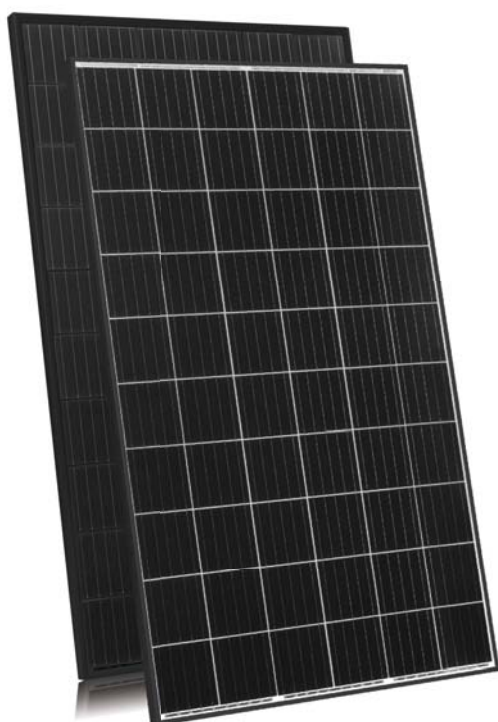
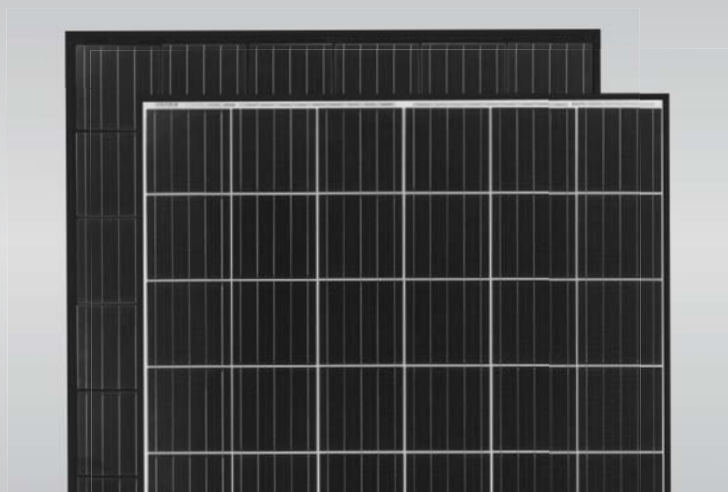
A unique half-size reduction of the 1 $\frac{5}{8}$ " channel-width series, this smaller channel size can be used to carry light loads economically in applications such as instrumentation, retail displays and light-duty laboratory supports. It also provides the flexibility found in all Unistrut framing systems.

# Eagle 60M G2

## 305-325 Watt

MONO PERC MODULE

Positive power tolerance of 0~+3%



- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- OHSAS18001 Occupational Health & Safety Standards
- IEC61215, IEC61730 certified products
- UL1703 certified products

Nomenclature:

JKM325M - 60BL

Code	Backsheet	Code	Cell
null	White	null	Normal
B	Black	L	Diamond



## KEY FEATURES



### Diamond Cell Technology

Uniquely designed high performance 5 busbar mono PERC cell



### PID FREE

World's 1<sup>st</sup> PID Free module



### Low-light Performance

Advanced glass technology improves light absorption and retention



### Strength and Durability

Certified for high snow (5400Pa) and wind (2400 Pa) loads

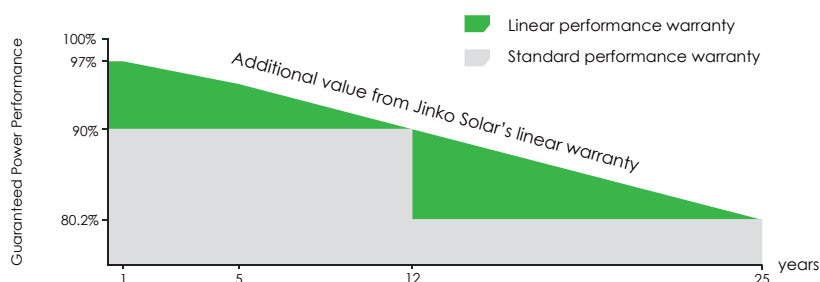


### Weather Resistance

Certified for salt mist and ammonia resistance

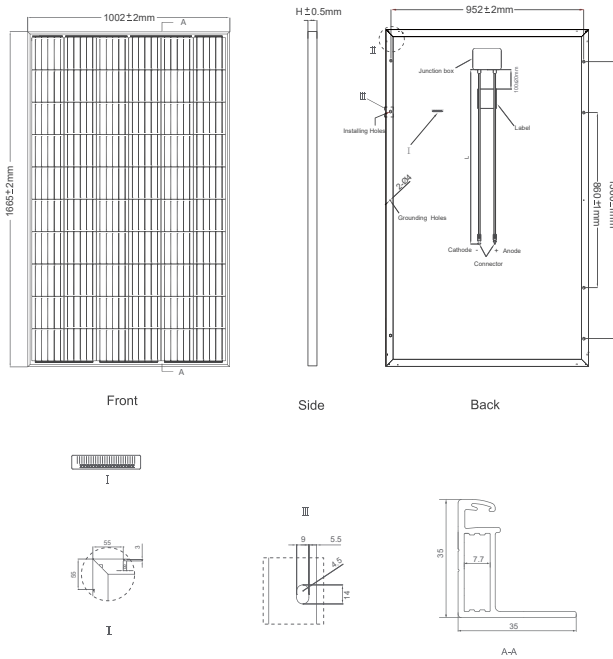
## LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty





## Engineering Drawings

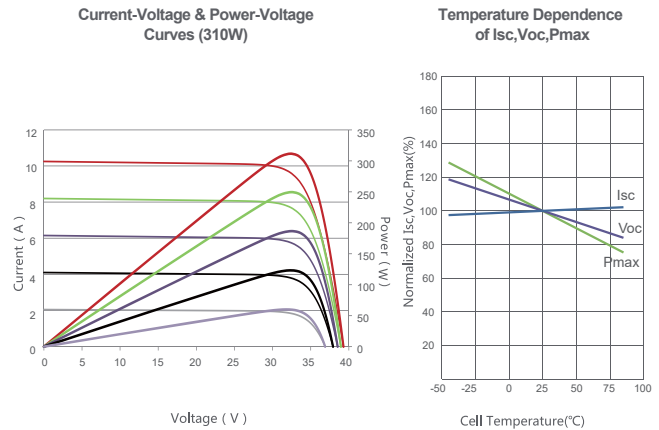


## Packaging Configuration

( Two pallets = One stack )

30pcs/pallet, 60pcs/stack, 780pcs/40'HQ Container

## Electrical Performance & Temperature Dependence



## Mechanical Characteristics

Cell Type	Mono PERC Diamond Cell (158.75 x 158.75 mm)
No. of cells	60 (6×10)
Dimensions	1665×1002×35mm (65.55×39.45×1.38 inch)
Weight	19.0 kg (41.9 lbs)
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP67 Rated
Output Cables	12 AWG, Length 1000mm or Customized Length
Fire Type	Type 1

## SPECIFICATIONS

Module Type	JKM305M-60L		JKM310M-60L		JKM315M-60L		JKM320M-60L		JKM325M-60L	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	305Wp	227Wp	310Wp	231Wp	315Wp	235Wp	320Wp	239Wp	325Wp	242Wp
Maximum Power Voltage (Vmp)	32.8V	30.8V	33.0V	31.0V	33.2V	31.2V	33.4V	31.4V	33.6V	31.6V
Maximum Power Current (Imp)	9.30A	7.40A	9.40A	7.49A	9.49A	7.56A	9.59A	7.62A	9.68A	7.66A
Open-circuit Voltage (Voc)	40.3V	37.2V	40.5V	37.4V	40.7V	37.6V	40.9V	37.8V	41.1V	38.0V
Short-circuit Current (Isc)	9.83A	8.12A	9.92A	8.20A	10.04A	8.33A	10.15A	8.44A	10.20A	8.54A
Module Efficiency STC (%)	18.28%		18.58%		18.88%		19.18%		19.48%	
Operating Temperature (°C)	-40°C~+85°C									
Maximum System Voltage	1000VDC(UL)/1000VDC(IEC)									
Maximum Series Fuse Rating	20A									
Power Tolerance	0~+3%									
Temperature Coefficients of Pmax	-0.39%/°C									
Temperature Coefficients of Voc	-0.29%/°C									
Temperature Coefficients of Isc	0.048%/°C									
Nominal Operating Cell Temperature (NOCT)	45±2°C									

STC: Irradiance 1000W/m<sup>2</sup>

Cell Temperature 25°C

AM=1.5

NOCT: Irradiance 800W/m<sup>2</sup>

Ambient Temperature 20°C

AM=1.5

Wind Speed 1m/s

\* Power measurement tolerance: ± 3%

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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 US-MKT-325M-60L\_1.0\_rev2018