CITY OF SAINT PAUL
HERITAGE PRESERVATION COMMISSION STAFF REPORT

FILE NAME: 855 West Seventh Street
HISTORIC NAME: Stahlmann-Schmidt-Bremer House
DATE OF APPLICATION: June 17, 2019
APPLICANT: Lois Mueller, RS EDEN
OWNER: RS EDEN
PROJECT MANAGER: Andy Goke, Apadana Solar Technologies
DATE OF HPC MEETING: July 15, 2019
PIN: 122823230054
HPC SITE/DISTRICT: Jacob Schmidt Brewing Company Heritage Preservation District
CATEGORY: Contributing
INVENTORY NUMBER: RA-SPC-5316
PERIOD OF SIGNIFICANCE: 1858-1955
NRHP: Jacob Schmidt Brewing Company Historic District (2018) RA-SPC-5318
CLASSIFICATION: Building Permit
ZONING: RM2 **WARD:** 2 **PLANNING DISTRICT:** 9
STAFF INVESTIGATION AND REPORT: Christine Boulware
DATE: July 2, 2019

A. SITE DESCRIPTION

Built of native Platteville limestone in 1874, the Stahlmann-Schmidt-Bremer House has abundant marks of the Italianate style: dressed limestone door and window cornices, wide frieze punctured by attic-lights, massive bracketing, and a hipped roof. The house originally had three distinct parts, clearly indicated by changes in height or setback from front-to-rear: a front, nearly cubical mass housing the main rooms below and the bedrooms above, a two-story wing with the servants' quarters above, and a one-story rear wing. A two-story, octagonal bay is featured prominently on the west elevation and a full-width, open, one-story porch along the south façade. Schmidt replaced the original wood front and side verandas with the extant, neoclassical, long-stone porches during his decade of ownership (1900-1910). He also added to the rear of the house, building a second story onto the rear-wing and extending it laterally in 1907. The date of the enclosure of the side veranda is unknown. The property is categorized as contributing to the Jacob Schmidt Brewing Company Heritage Preservation District.

B. PROPOSED CHANGES

The applicant is proposing to install a solar electric system made up of forty-one (41) panels on the south west and north east facing roof planes of the residence. The panels are approximately 77'' in length, 39.1" in width, and 1.6" thick. The panels would be elevated 3.3 inches above the roof and lay parallel to the roof plane on a racking system. Thirteen (13) on the south west (side) roof plane at the front portion of the residence, eighteen (18) on the south west (side) roof plane of the two-story rear addition and ten (10) on the north east (side) roof plane of the two-story rear addition.

Each panel weighs approximately 47.4 lbs. Additional associated equipment was not shown in the application.

C. BACKGROUND

An application was submitted for the June 17, 2019 HPC public hearing and was withdrawn by the applicant on June 11th after reviewing the staff report and recommendation. Staff determined that there

was not enough information in the application to make a recommendation at that time and the applicant reapplied for HPC review on June 17th and included information responding to staff's questions and concerns.

D. STAFF COMMENTS

The Stahlmann-Schmidt-Bremer House is owned by RS EDEN and used as a residence (Reentry West) that helps transition those returning from prison back into society. RS EDEN has plans to install solar on all their Saint Paul buildings that have capacity for solar in 2019. Three sites, including this one, were accepted for a low-income serving grant.

The installation of solar panels will not require the removal or alteration of historic features of the building, but given the unique setting of the building, there will be visible impacts to the historic character of the site and the district.

While located in the upper-middle of the district, the orientation of the residence is to West Seventh Street, thus staff has determined that is the primary elevation. While there is a high degree of visibility to the rear and sides of the building from Webster Street, staff has determined it to be secondary. Findings have been made with the orientation and visibility in mind.

E. STANDARDS & GUIDELINES

Jacob Schmidt Brewing Company Preservation Program - Legislative Code Sec. 74.08.

Sec. 74.08(b)(1) General Intent. The city, a certified local government in the National Historic Preservation Program, has agreed to conduct its design review of locally designated heritage preservation sites and districts according to the Secretary of the Interior's Standards for Rehabilitation (1995). The standards are applied to projects in a reasonable manner, taking into consideration economic and technical feasibility. The ten (10) standards are:

Standards & Guidelines	Meets Guideline?	Staff Comments
SOI 2. *The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.*	Yes & No	The installation of solar panels would not result in the removal of historic materials or alteration of features. The installation of solar panels will visually alter the character of the property.
SOI 5. *Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.*	Yes	The installation of solar panels will not result in the alteration or removal of distinctive features and finishes of the property.
SOI 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.*	Yes & No	The installation of solar panels at the property is an exterior alteration. The installation will not destroy historic materials that characterize the property. The location, placement and number of solar panels will have a visual and physical impact on the historic integrity of the property and its environment. Panels on the front portion of the resident will have more of a visual

		impact to the historic integrity of the property than the panels on the rear additions.
SOI 10. *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*	Yes	If the solar panels and racking system were removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Sec.74.08(b)(4) Existing structures and buildings.		
Sec.74.08(b)(4) d. Roof shape: The original roof type, slope, overhangs and architectural details shall be preserved. The size, shape and original roof features such as dormers, cupolas and parapets shall also be preserved. New roof features may be acceptable if compatible with the original design and not conspicuously located.	Yes & No	The roof type, slope, overhangs and architectural details will not be removed or altered. The solar panels and associated equipment/hardware would be a new roof feature that is not compatible with the original design of the resident. The property is sited on a triangular block with high-visibility from the right-of-way on two sides; the solar panels, while not proposed on the primary (West Seventh facing roof slope) are conspicuously located given the layout of the property and the block. The panels on the front portion of the residence will have a higher degree of visibility from West Seventh Street.
Sec.74.08(b)(4) d. Materials: When the roof is visible from street level, the original material should be retained if possible, otherwise it should be replaced with new material that matches the old in composition, size, shape, color, and texture. When partially re-roofing, deteriorated roof coverings should be replaced with new materials that match the original in composition, profile, size, shape, color and texture. When entirely re-roofing, new materials which differ to such an extent from the original in composition, size, shape, color or texture that the appearance of the building is altered shall not be used. The predominant roof materials on the residential buildings in the Jacob Schmidt Brewery Historic District are asphalt	No	Solar panels have a highly reflective surface that does not match original roofing materials in composition, profile, size, shape, color or texture. The proposal does not comply with the guideline

shingles. When asphalt shingles began to be used in the 1890s and early twentieth century, the most common colors were solid, uniform, deep red and solid, uniform, dark green. Dark brown, dark gray and weathered-wood colors may also be acceptable for new asphalt shingles.		
Sec.74.08(b)(4) d. Alterations: The roof shape at the front of the building shall not be altered except to restore it to the original documented appearance. The additions of architecturally compatible elements like dormers may be considered by the HPC on a case-by-case basis. Documentation includes pictorial or physical evidence of the former appearance of the building, or, in the case of pattern book houses, those of similar period and style. Alterations to the roof shape at the sides or rear shall be compatible with the architectural character of the building.	Yes & No	The application does not propose solar panels on the front roof plane. Solar panels are not an architecturally compatible element for a building constructed in the 1870s. The installation of solar panels will not alter the roof shape at the sides or rear of the building.
Sec.74.08(b)(4) d. Skylights: New skylights and vents should be behind and below parapet level for flat roofs. Skylights and vents shall not be installed on principal elevations for sloped roofs. Modern skylights are a simple way to alter a roof to admit light and air without disrupting its plane surface. Skylights should be flat and as close to the roof plane as possible. They should not be placed on the front or highly visible roof planes. "Bubble"-type skylights shall not be installed.	Yes	While the preservation program for the Jacob Schmidt Brewing Company Heritage Preservation District does not specifically address solar installations, it does address roof features like skylights. In comparing solar panels to a feature like skylights when considering placement, the preservation program indicated that they should not be installed on principal elevations for sloped roofs and where permissible, not on front or highly visible roof planes, they should be flat and as close to the roof plane as possible. The roof planes of the front portion of the residence have high-visibility; panels should not be placed on the front portion of the residence. The placement of the panels on the rear additions is less visible from the West Seventh Street and complies with the preservation program.
Sec.74.08(b)(4) d. Chimneys, stovepipes and smokestacks: Chimneys and smokestacks should be preserved or	Yes	The “Solar System Details” sheet shows the chimneys unaffected by the potential installation.

restored to their original condition. In the absence of historical documentation on the original design, chimney design should be in keeping with the period and style of the building. New chimneys and stovepipes should not be installed on front roof planes.		
Sec.74.08(b)(4) d. Cornices, parapets and other details: All architectural features that give the roof its essential character should be preserved or replaced in kind. Similar material should be used to repair/replace deteriorating or missing architectural elements such as cornices, brackets, railings and chimneys, whenever possible. The same massing, proportions, scale and design theme as the original should be retained.	Yes	The installation of the solar panels will not remove nor alter architectural features that give the roof its character and will not adversely impact the massing, proportions, scale and design of the architectural elements of the roof.
Sec.74.08(b)(4) h. Mechanical. Location and siting. Mechanical related equipment should be sited in such a way that they do not block or disrupt principal elevations and prominent views, especially on roof tops. Mechanical related equipment that is sited on grade should be inconspicuously sited. In some cases, appropriate screening, may be necessary.	Yes	In reviewing solar panels as mechanical related equipment, it is not proposed on the primary roof planes, but would be visible on the side roof planes. While the photos show trees blocking the visibility of the panels, they are only seasonal and non-permanent screening; the trees would not provide screening more than half the year and tree diseases and infestations have demonstrated that plantings are not a reliable screening method. As proposed, the installation would not block or disrupt principal elevations and prominent views.

The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings (2011)

Solar Technology Recommended:	Solar Technology Not Recommended:	Meets guidelines?	Staff Comments
Considering on-site, solar technology only after implementing all appropriate treatments to improve energy efficiency of the building, which often have greater life-cycle cost	*Installing on-site, solar technology without first implementing all appropriate treatments to the building to improve its energy efficiency.*	Yes	The applicant indicated that several energy efficiency treatments have been implemented at the property over the past several years including: a new boiler (2013), window repair, replacement,

benefit than on-site renewable energy.			and weather-stripping (2015 & 2016), new storm windows (2015 & 2016), new air conditioning units (2017), and all lighting converted to LED (2019).
Analyzing whether solar technology can be used successfully and will benefit a historic building without compromising its character or the character of the site or the surrounding historic district.	*Installing a solar device without first analyzing its potential benefit or whether it will negatively impact the character of the historic building or site or the surrounding historic district.*	Yes & No	The applicant provided a report modeling how much kWh production the system will produce based on 44 years of weather data and factoring in shading and snow-cover. The locations of the panels were determined to maximize solar production on the building while minimizing visibility. The solar panels would have an impact the historic and architectural character of the Stahlmann-Schmidt-Bremer House and the Jacob Schmidt Brewing Company Heritage Preservation District. Without a site study staff cannot determine if the installation will compromise the character of the property and district.
Installing a solar device in a compatible location on the site or on a non-historic building or addition where it will have minimal impact on the historic building and its site.	*Placing a solar device in a highly-visible location where it will negatively impact the historic building and its site.*	Yes	The applicant indicated that all RS EDEN buildings in St. Paul were evaluated by their engineer design teams and only three buildings were identified as sufficient for solar due to their minimal shading, roof shape and roof-orientation. The other RS EDEN buildings in the Jacob Schmidt Brewing Co. Heritage Preservation District – 357 Oneida St. and 847 W. Seventh St. – were determined not feasible due to tree cover and limited space on the roofs.

Installing a solar device on the historic building only after other locations have been investigated and determined infeasible.	*Installing a solar device on the historic building without first considering other locations.*	Yes	The property owner owns multiple properties adjacent to the Stahlmann house. The Stahlmann house is a pivotal residential building in the district with a high degree of architectural integrity and visibility. 357 Oneida St. and 847 W. Seventh St. were evaluated and determined not feasible due to tree cover and limited space on the roofs.
Installing a low-profile solar device on the historic building so that it is not visible or only minimally visible from the public right of way: for example, on a flat roof and set back to take advantage of a parapet or other roof feature to screen solar panels from view; or on a secondary slope of a roof, out of view from the public right of way.	*Installing a solar device in a prominent location on the building where it will negatively impact its historic character.*	Yes	Solar panels are proposed on the side roof plane of the front (primary) portion of the residence and the (secondary) side roof planes of the rear addition. The residence is sited on a triangular parcel in the district and the roof planes are visible from the public right-of-way along West Seventh Street (primary) and Webster Street (secondary). The roof slopes are low and simple in design. There are not any features on the roof that would screen solar panels from view from the public. The installation of the panels will be low-profile and parallel to the roof planes.
Installing a solar device on the historic building in a manner that does not damage historic roofing material or negatively impact the building's historic character and is reversible.	*Installing a solar device on the historic building in a manner that damages historic roofing material or replaces it with an incompatible material and is not reversible.*	Yes	The original roofing material is no longer extant. The current roofing material is asphalt shingles. The installation of solar panels on the roof is reversible.
	Removing historic roof features to install solar panels.	Yes	The "Solar System Details" sheet shows the chimneys unaffected by the potential installation.

	Altering a historic, character-defining roof slope to install solar panels.	Yes	The roof slope would not be altered by the installation of solar panels.
	Installing solar devices that are not reversible.	Yes	If the panels and racking were removed in the future the essential form and integrity of the historic property and its environment would be unimpaired.
Installing solar roof panels horizontally – flat or parallel to the roof – to reduce visibility.	*Placing solar roof panels vertically where they are highly visible and will negatively impact the historic character of the building.*	Yes	The applicant has indicated that the panel will be installed parallel to the slope of the roof planes.

F. FINDINGS

1. On May 25, 2011, the Jacob Schmidt Brewing Company Heritage Preservation District was established under Council Ord. No. 11-46 and Chapter 73 of the Legislative Code states the Heritage Preservation Commission shall protect the architectural character of heritage preservation sites through review and approval or denial of applications for city permits for exterior work within designated heritage preservation sites §73.04(4).
2. The Stahlmann-Schmidt-Bremer House is located within the Jacob Schmidt Brewing Company Heritage Preservation District and is categorized as contributing.
3. Sec.74.08(b)(3) c. Residential. The preservation program for the Jacob Schmidt Brewing Company Heritage Preservation District specifically calls out the Stahlmann-Schmidt-Bremer House as noteworthy and a fine and intact surviving example of Italianate architecture in the West End.
4. The property is sited on a triangular block with high-visibility from the right-of-way on West Seventh Street (primary) and Webster Street (secondary). The solar panels are a new roof feature that is conspicuously located. The proposed location of the panels is not on the primary (front) roof plane facing West Seventh Street but on the side roof planes and visible from both streets. The roof pitch of the rear addition is lower than that of the front portion of the residence. Given the unique setting of the property and the visibility of the panels, the installation on the front portion of the residence will have an adverse visual impact on the historic character of the residence and its environment. The panels on the rear elevation will also have a visual impact, but more so from the secondary views from Webster Street. Installation of solar panels on the front portion of the residence do not comply with the guidelines.
5. The panels will not remove nor alter the roof slope or architectural features of the roof. This complies with the preservation program.
6. The panels are proposed to be low and flush to the roof plane. This complies with the preservation program.

7. Solar panels have a highly reflective surface that does not match original roofing materials in composition, profile, size, shape, color or texture. The proposal does not comply with the guideline.
8. The application does not propose solar panels on the front roof plane. Solar panels are not an architecturally compatible element for a building constructed in the 1870s. The installation of solar panels will not alter the roof shape at the sides or rear of the building. Solar panels on the lower roof pitch of the rear addition would have less of a visual impact on the historic character of the property. Installation on the front portion of the residence would have a higher degree of visibility highlighting an architecturally incompatible element.
9. While the preservation program for the Jacob Schmidt Brewing Company Heritage Preservation District does not address solar installation, it does address roof features like skylights. In comparing solar panels to a feature like skylights when considering placement, the preservation program indicated that they should not be installed on principal elevations for sloped roofs and where permissible, not on front or highly visible roof planes, they should be flat and as close to the roof plane as possible. The placement of the panels illustrated in the application complies with the preservation program except for the panels proposed on the front portion of the residence which is a highly visible roof plane.
10. The "Solar System Details" sheet shows the chimneys unaffected by the potential installation.
11. The installation of the solar panels will not remove nor alter architectural features that give the roof its character and will not adversely impact the historic massing, proportions, scale and design of the architectural elements of the roof.
12. In looking at solar panels as a mechanical related equipment, it is proposed on one primary roof plane and mostly secondary roof planes on the rear addition. While the photos show trees blocking the visibility of the panels, they are only seasonal and non-permanent screening; the trees would not provide screening more than half the year and tree diseases and infestations have demonstrated that plantings are not a reliable screening method. As proposed, the installation would not block principal elevations and prominent views, but would disrupt the view of the property from West Seventh Street.
13. The proposed solar panel installation at 855 West Seventh Street will not adversely impact the Program for the Preservation and architectural control for the Jacob Schmidt Brewing Company Heritage Preservation District (Leg. Code §73.06 (e)) so long as the conditions are met.

G. STAFF RECOMMENDATIONS

Based on the findings, staff recommends approval of the application to install solar panels on the roof of the Stahlmann-Schmidt-Bremer House at 855 West Seventh Street with the following conditions:

1. Solar panels shall not be installed on the roof of the front, two-story portion of the building. Panels may be installed on the rear additions given they are secondary elevations with less visibility from West Seventh Street.
2. Any additional equipment that will need to be installed at or on the exterior of the property, such as conduit of electrical boxes, shall not be located on primary elevations of the property and will need to be reviews and approved by HPC staff.
3. The HPC stamped approved plans shall remain on site for the duration of the project. If an updated set of plans is submitted for City permits, HPC staff shall receive a full set for final review to determine compliance with the HPC decision and conditions.
4. Any revisions to approved plans shall be re-reviewed and approved by the HPC staff. If revisions are significant, new plans may need to be drafted and submitted for final review and approval.
5. Items not listed in project scope have not been reviewed. Any changes or additions require

further review.

6. This approval is VOID if the approved plans are altered from the Heritage Preservation approved plans.
7. All measurements and relationships of existing conditions and new construction shall be field checked for accuracy with submitted plans at the responsibility of the applicant. Inaccuracies or differences should be reported to HPC staff prior to commencement.
8. Work shall be accomplished in accordance with all applicable zoning regulations and building codes, and/or Board of Zoning Appeals decisions. This authorization does not constitute or recommend a hardship for purposes of zoning review.
9. Further permits and approvals may be required. This approval signifies review and issuance based on Heritage Preservation regulations and guidelines. No other city, state, or federal review and approval should be assumed or implied by this approval.

H. SUGGESTION MOTION

I move to conditionally approve the application to install solar panels on the roof of the Stahlmann-Schmidt-Bremer House at 855 West Seventh Street as per the findings of fact, presented testimony, submitted documentation and information provided in the staff report with the nine conditions.

MOTION CHANGE

If the HPC decides to change the motion, then findings 4, 7, 8, 9 & 12 and condition 1 & 2 will need to be revised.

I. ATTACHMENTS

1. HPC Design Review Application
2. Documentation submitted by applicant
   a. Responses to staff questions
   b. Solar details, benefits and analysis
   c. Racking System – rail
   d. Racking System – foot
   e. Panel datasheet
   f. Structural letter
3. 1903-1925 Sanborn Fire Insurance Map
4. Photographs

Saint Paul Heritage Preservation Commission
Department of Planning and Economic Development
25 Fourth Street West, Suite 1400
Saint Paul, MN 55102
Phone: (651) 266-9078
ApplyHPC@stpaul.gov

Project Address:
855 West Seventh St

Heritage Preservation Commission Design Review Application

PROCESS

This application must be completed in addition to required city permit applications for individually designated Heritage Preservation Sites and properties located within Heritage Preservation Districts.

Design review applications are reviewed and approved by either heritage preservation staff or the Heritage Preservation Commission (HPC) at a public hearing. HPC staff are authorized to approve work that complies with adopted design review guidelines and preservation programs, available at our website www.stpaul.gov/hpc, while the HPC reviews projects that are significant alterations, demolitions, additions, new construction or proposals that do not comply with HPC guidelines. The decision of whether a proposal may be reviewed and approved by HPC staff or must be reviewed by the HPC at a public hearing is made once a complete application is submitted.

The HPC public hearing schedule is viewable here:
https://www.stpaul.gov/departments/planning-economic-development/heritage-preservation/heritage-preservation-commission

A complete application consists of:
1) An application form
2) Required attachments that adequately describe the proposed work (see attached checklist)

An incomplete application will be put on hold and staff will contact you for additional information. If an application is incomplete for 30 days after it was received, it will be returned to the applicant.

Complete applications will be reviewed in the order they are received. **Applications are not entered in queue to be reviewed until staff has determined them to be complete.** Once reviewed, a Certificate of Approval will be issued along with any conditions for the proposed work. You will be notified by staff when the Certificate of Approval has been issued and a copy will be sent to the Department of Safety and Inspections (DSI) to complete the HPC process of obtaining the necessary permit(s).

1. CATEGORY

Please check the category that best describes the proposed work

☐ Repair/Rehabilitation
☐ Moving
☐ Demolition
☐ Sign/Awning
☐ Fence/Retaining Wall
☒ Other Solar panel install
☐ New Construction/Addition/ Alteration
☐ Pre-Application Review Only

2. PROJECT ADDRESS

Street and number: 855 West Seventh St Zip Code: 55102

3. APPLICANT INFORMATION

Name of contact person: Lois Mueller

Company: RS EDEN

Street and number: 1931 W Broadway Ave

City: Minneapolis State: MN Zip Code: 55411

Phone number: 612-287-1612 e-mail: lmueller@rseden.org

4. PROPERTY OWNER(S) INFORMATION (If different from applicant)

Name: RS EDEN

Street and number: 1931 W Broadway Ave

City: Minneapolis State: MN Zip Code: 55411

Phone number: _____ e-mail: _____

5. PROJECT ARCHITECT (If applicable)

Contact person: Andy Goke

Company: Apadana Solar Technologies

Street and number: 2360 Nevada Ave N

City: Golden Valley State: MN Zip Code: 55427

Phone number: 651-707-3090 e-mail: andy.goke@apadanat

6. PROJECT DESCRIPTION

Completely describe ALL exterior changes being proposed for the property. Include description of affected existing exterior features and changes to architectural details such as windows, doors, siding, railings, steps, trim, roof, foundation or porches. Attach specifications for doors, windows, lighting and other features, if applicable, including color and material samples.

Solar panels proposed to be added to the south west and north east portions of the roof. Diagram provided. Installation of panels will not remove building material, and panels will be low and parallel to the roof where they are placed. A grant was approved for funding at this site for solar, pending your approval for installation. Goal is to lower the carbon footprint of the building, help RS EDEN save costs so they can spend more on programming, and maintain the integrity and beauty of this historic building.

Total Project Value:		*Attach additional sheets if necessary*

7. ATTACHMENTS & DESIGN REVIEW CHECKLIST

Please refer to the following checklist section(s) that relate to your proposed scope of work and check next to the items that are attached to your application. Attach all checked items listed to this application or attach in an email to ApplyHPC@stpaul.gov

Staff may contact you for additional information or materials.

If your project or work type is not included in this checklist, please contact the staff by calling 651-266-9078 or sending an e-mail to applyhpc@stpaul.gov for assistance on how to complete an application.

Applicant Submitted	*Staff Received*	*Date Received*	
			Restoration /Repair/Rehabilitation
☐	☐		Three (3) copies of scaled and dimensioned plans which note all materials, finishes, and dimensions on plan (2 copies will be forwarded to the Dept. of Safety and Inspections).
☐	☐		Photographs of all features and areas affected by proposed work.
☐	☐		If an existing architectural feature is being replaced, please provide detailed drawings of the existing feature.
☐	☐		Historic photographs (if any) that inform the restoration/rehabilitation/repair work.
			Sign/Awning:
☐	☐		Photographs of location of proposed signage on structure/property.
☐	☐		Photographs of structure and all exterior sides affected by proposed work.
☐	☐		Three (3) copies of plans that note materials, dimensions, colors, and method of attachment.
☐	☐		Section drawing showing point of installation, method of installation, awning profile and projection.
☐	☐		Illumination plan.
☐	☐		Photographs or elevation of the building showing location of proposed sign in relation to the building and, if applicable, other signage on the building.
			New Construction/Addition/Exterior Alteration:
☐	☐		Three (3) copies of construction level plans which note all materials, finishes, and dimensions on plan (2 copies will be forwarded to the Dept. of Safety and Inspections). Show how the addition(s) relates to the existing structure.
☐	☐		Photographs of all features and areas affected by proposed work.
☐	☐		Site plan showing lot dimensions, location of any existing buildings, and proposed addition(s), elevation plans, section and detail drawings as necessary. All plans must be scaled and dimensioned.
☐	☐		Digital copies of the plans and photos submitted on CD or USB.

Applicant Submitted	*Staff Received*	*Date Received*	
			Fencing/Retaining Wall:
☐	☐		A site plan showing the location of the fence/wall in relation to property lines and any structures with measurements.
☐	☐		An elevation drawing or photo of the proposed fence/wall.
			Roofing:
☐	☐		Sample or description of existing material(s).
☐	☐		Sample or specifications of proposed material(s).
☐	☐		Sample colors.
☐	☐		Photographs of all exterior sides affected by the proposed work.
☐	☐		Photographs of the building and roof showing existing conditions of roof, coping, flashing, affected masonry, parapet, siding, existing skylights, and/or dormers. Also include any other critical intersections where the roof meets the historic fabric, and sightline drawings when a change in slope or other potentially visible change is proposed.
			Heating, Ventilating, and Air Conditioning Equipment
☐	☐		Site plan showing location of condenser in relation to the building(s) and property lines.
☐	☐		Photographs of the proposed location of any condensers or venting.
☐	☐		Photographs demonstrating that the proposed unit is not visible from the street.
☐	☐		A screening plan if a condenser is in the side yard.
☐	☐		Drawing or photograph demonstrating where and how conduit will be attached to the building.
			Window/Sash Replacement:
☐	☐		Statement describing in detail why windows need replacement as well as a description of weatherization efforts and copy of window repair estimates.
☐	☐		Existing window design and dimensions.
☐	☐		Proposed window design, dimensions, and manufacturer's specifications including shop drawings.
☐	☐		Existing type of exterior storm windows.
☐	☐		Proposed style of exterior storm windows.
☐	☐		Existing exterior window trim material.
☐	☐		Proposed exterior window trim material and style.
☐	☐		Photographs of all exterior sides where window replacement is being proposed.
☐	☐		Photographs of existing features/conditions which support window replacement proposal.

Applicant Submitted	*Staff Received*	*Date Received*	**Other Items Requested by HPC Staff:**
☑	☐		Solar Panel install request, and materials to support.
☐	☐		
☐	☐		
☐	☐		
☐	☐		

Will any federal money be used in this project? **YES** ☐ **NO** ■

Are you applying for the Investment Tax Credits? **YES** ☐ **NO** ■

I, the undersigned, understand that the Design Review Application is limited to the aforementioned work to the affected property. I further understand that any additional exterior work to be done under my ownership must be submitted by application to the St. Paul Heritage Preservation Commission. Any unauthorized work will be required to be removed.

Signature of applicant: _____ **Date:** 6/17/19

Typed name of applicant: Lois Mueller

Signature of owner: _____ **Date:** 6/17/19

Typed name of owner: Dan Cain

Send completed application with the necessary attachments to ApplyHPC@stpaul.gov or to:

Saint Paul Heritage Preservation Commission
Department of Planning and Economic Development
25 Fourth Street West, Suite 1400
Saint Paul, MN 55102

You may also click the button below to attach the completed application to an email that will go directly to ApplyHPC@stpaul.gov . **Please attach supporting documents to the email** as well.

Submit Application

FOR HPC OFFICE USE ONLY

Address: 855 West Seventh St

Date received: _____

Date complete: _____

FILE NO. _____

City Permit # ____ - _____

District:_____/Individual Site:_____

Pivotal/Contributing/Non-contributing/New Construction/Parcel

☐ Requires staff review

Supporting data: **YES** **NO**
Complete application: **YES** **NO**

The following condition(s) must be met in order for application to conform to preservation program:

It has been determined that the work to be performed pursuant to the application does not adversely affect the program for preservation and architectural control of the heritage preservation district or site (Ch.73.06).

_____
HPC staff approval

Date _____

☐ Requires Commission review

Submitted:

- ❑ 3 Sets of Plans
- ❑ 15 Sets of Plans reduced to 8 ½" by 11" or 11" by 17"
- ❑ Photographs
- ❑ CD of Plans (pdf) & Photos (jpg)
- ❑ City Permit Application
- ❑ Complete HPC Design Review application

Hearing Date set for: _____

HPC Staff Notes

855 West Seventh Street- Historic Building for solar panel approval

(Additional information from Commission Staff Report received)

6/17/19

Additional information

"Proposed changes":

Attachments of the racking system (Flash foot and rails) are included. The Flash foot is the racking system that suspends the panels 3.3 inches from the roof. The panels run parallel to the roof.

SOL 1: The levels of Co2 in the environment have not been this high in over 8 million years. The City of St Paul is finalizing its Climate Action and Resilience Plan now, with a goal of the city operations being carbon neutral by 2030, and to have at least 10 Megawatts of power by then from small and mid-size commercial buildings throughout the city. All efforts are needed now, to curb the effects of climate change. And what better way to help preserve our historic buildings than to help them run using cleaner energy, so they also play a part in helping ensure that in hundreds of years from now, not only will these buildings be around, but so will humankind.

All RS EDEN properties have been evaluated to add solar to their buildings that would be able to support it, in an urgent effort to help combat global warming and save funds for a non-profit serving organization. The Reentry West building helps transition those returning from prison back into society. The plan is to put solar on all of RS EDEN's St Paul buildings that have capacity for it this year, then in 2020 put solar on all their Minneapolis buildings that have capacity for it. The three St Paul building sites, including this one, got accepted for a low-income serving grant.

Panels will be secured in a low profile to the roof, which is a low slopped roof, and placed in areas to minimize their views. The originally proposed panels on the front of the building were moved to another location, to limit the potential visibility of them from west seventh.

SOL 2: No removal of historic material will happen with this project.

SOL 5: Solar panel frames will be using an aluminum series frame, which will pair nicely with the grey stone exterior.

SOL 9: Location and number of panels have been updated, and details are in provided proposal.

SOL 10: At the time of removal of the solar panels and racking system, it will be either time for a new roof, or if chosen not to do a new roof, the solar materials will be removed and sealing put in place of where the racking system was.

(4) Existing structures

Roof Shape:

Panels will be not be conspicuously located. There will be no panels on the front, high traffic street, and they will be placed on the low sloped roof.

Roof remains intact. Silver framing of panels matches well with stone exterior.

Alterations: No solar panels will be places on front of the building, we changed the design.

Skylights: Panels will not be on the principal front of the property. Panels will be placed flat, and as close to the roof as possible.

Cornices, parapets, and other details: See proposal for plans on where solar panels will be installed. Panels will be placed parallel to the roof, 3.3 inches from the roof.

(4) Existing structures and buildings. H. Mechanical.

Location and sighting: Based on feedback, proposed panels were removed from the front roof to eliminate the potential problem of visibility if the trees were to go away, or not have as much cover in the winter months.

Solar Technology recommended:

"Considering on-site, solar technology only after implementing all appropriate treatments to improve energy efficiency…"- Energy upgrades to the building that have happened: New A/C last year, windows replaced or sealed for energy efficiency (Approved through the Heritage preservation commission), new boiler 6 years ago, and all lighting converted to LED in 2019.

"Analyzing whether solar technology can be used successfully and will benefit a historic building with out compromising its character or the character of the site or the surrounding historic district."-

Attached proposal projects the solar array can produce 32% of the electrical useage of the building, producing over 15,000 kW of power in its first year.

“Installing a solar device in a compatible location on the site or on a non-historic building or addition where it will have minimal impact on the historic building and its site”. All RS EDEN building locations in St Paul have been evaluated by Apadana’s engineer design teams, in St Paul (Where the grants have been received), and only three buildings have been identified as sufficient for solar due to their minimal shading, shape and orientation of the roof. All viable Minneapolis RS EDEN buildings, pending board approval, will be adding solar in 2020 as well. For the building itself, the design included in this proposal shows areas that are more shaded, and therefore are not good locations for solar. The location of panels were placed to maximize solar production on the building, while minimizing placing them in high visibility areas.

“Installing a solar device on the historic building only after other locations have been investigated and determined infeasible.” All RS EDEN building locations in St Paul have been evaluated by Apadana’s engineer design teams, in St Paul (Where the grants have been received), and only three buildings have been identified as sufficient for solar due to their minimal shading, shape and orientation of the roof. All viable Minneapolis RS EDEN buildings, pending board approval, will be adding solar in 2020 as well.

“Installing a low-profile solar device on the historic building so that it is not visible from the public right of way…” Panels were removed from the front of the building to eliminate any potential future visibility concerns if the front trees were to be removed, or if there is little cover in the winter time when the leaves have fallen. Panels could be visible from the Weber Street, however, that is a much less traveled road, and with the low slope of the roof, visibility would be minimized compared to other higher profiled roofs.

“Altering a historic character-defining roof slope to install solar panels” Solar panels would be installed with a very low profile, 3.3 inches off the roof, and parallel to it.

“Installing solar devices that are not reversible”- When panels and racking get removed, the form and integrity of the roof and property and its environment will remain unimpaired.

“Installing roof panels horizontally- flat or parallel to the roof- to reduce visibility.” Panels are installed flush (3.3 inches off of the roof) and parallel to the roof.

Staff recommendations:

1. Energy efficiency projects completed already include: New A/C last year, windows replaced or sealed for energy efficiency (Approved through the Heritage preservation commission), new boiler 6 years ago, and all lighting converted to LED in 2019.
2. To determine the feasibility of this on-site solar, attached has a report modeling out how much kWh production the system will produce, based on 44 years of weather data, and factors in shading and snow cover. The system proposed would generate 15,548 kWh of electricity in year one, and produce power for 25-40 years. (proposal shows details of production)
3. The RS EDEN St Paul buildings listed below were evaluated and determined by our design engineers to not be feasible for solar due to tree cover and limited available space on the roofs. Two other RS EDEN St Paul locations (1360 West Seventh Street), and (1499 Jackson Street) will be having solar installed this summer. All RS EDEN Minneapolis locations will be evaluated for solar, for 2020 projects, when grant funding for those areas opens up.

357 Oneida St	St. Paul, MN 55102
847 7th St W	St. Paul, MN 55102
532 Ashland Ave	St. Paul, MN 55102
444 West Lynnhurst Ave	St. Paul, MN 55104

4. No materials, features, or finishes would need to be removed or altered.
5. Attached report shows where the panels will be installed, and the spec sheet for the panels and racking system are included.
6. Licensed engineer letter attached, confirming structure can handle panels.
7. Originally proposed solar panels on the front of the building were removed from the design, based on concerns of their visibility if the trees on west seventh were to be removed in the future.

Clean and Cost Effective Solar Energy is Within Reach - Let Apadana Solar Technologies Make it a Reality for You

Everything included

We take care of every step of the process, so there's only one company to call if you have any questions.

Quality guaranteed

Our projects are guaranteed for the lifetime of the system. We monitor all of our systems for problems, and respond quickly to any problems or concerns that may arise.

Premium service

Apadana's customers are our highest priority. We will deliver a superior solution and ensure that you are completely satisfied with all aspects of your new solar system.

We are proud to help you achieve your environmental and financial goals

Proposal for

RS Eden Reentry West
855 7th St W
St Paul, MN 55102

Contact

John Ehresmann
Solar@apadanatech.com
612-568-2220

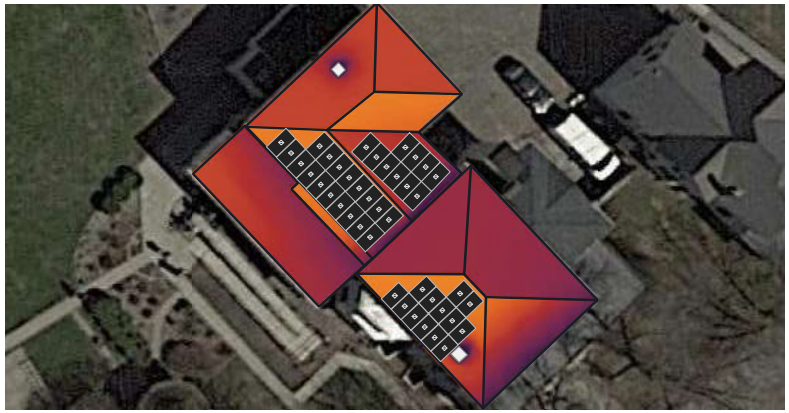
APADANA SOLAR TECHNOLOGIES™

Solar System Details

System Design

System Size
14.96 kW

Estimated Production
15,548 kWh

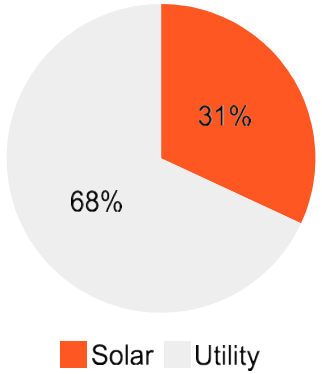


System Production

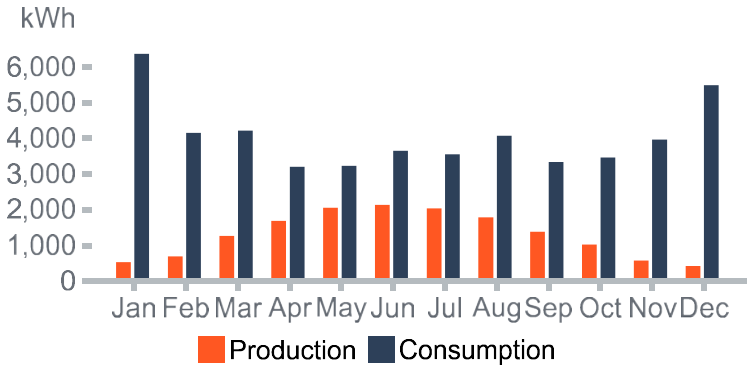
Your system generates

32 %

of your energy from solar every year



Solar Production vs. Total Energy Consumption



Environmental Benefits

We can make a difference together by choosing to utilize sustainable energy sources. Your choice to go solar will have a direct effect on the environment.

Contact us today to get started on your new solar system!

John Ehresmann
Solar@apadanatech.com
612-568-2220

Over the lifetime of your system, you will save

274,725 lbs.

of coal

That's equivalent to

Removing 56 cars from the road per year

Planting 6,558 new trees per year

APADANA SOLAR TECHNOLOGIES™

APADANA SOLAR TECHNOLOGIES™

Prepared by: Apadana
2360 Nevada Ave N
Golden Valley, MN 55427
Solar@apadanatech.com
www.ApadanaSolarTech.com

Prepared for: Re-entry West
855 7th St W
St. Paul, MN 55102

Proposal ID: Preliminary
Date: 6/17/2019
Offer Expire:

INVESTMENT SNAPSHOT		
Project Cost	$	**41,888**
Installed System Cost ($/Watt)	$	2.80
Income-Based Grant	$	14,960
Solar Rewards Incentive	$	8,916
Depreciation Tax Savings	$	-
Cost Net of ITC, Incentives, and Tax Savings	**$**	**18,012**
Project Payback (Years)		**13.9**
Cumulative Solar Savings (30 yrs)	**$**	**32,351**

SYSTEM SNAPSHOT		
System Type		Grid-tied Solar PV
System Capacity (DC kW)		15.0
Number of Modules		41
Total Module Area (sq. ft)		856
Avg Utility Electric Rate ($/kWh, 25 yrs)	$	0.109
Average Solar Cost ($/kWh, 25 yrs)	$	0.050
Current Annual Consumption (kWh)		48,709
Solar Portion of Total Electric Consumption		**31.9%**

ASSUMPTIONS		
Starting Cost of Elec. ($/kWh)		0.07
Rate Escalation (%/year)		3.5%
* Federal Tax Rate		21%
** State Tax Rate		9.8%
Loan Provider		N/A
Loan Amount	$	-
Loan Term (years)		N/A
Loan Interest Rate (%/yr)	N/A	
Year 1 Module Degradation		3.0%
Year 2+ Module Degradation		0.5%

FINANCIAL DETAILS

Year	Solar Generation [kWh]	Utility Savings [$]	Solar Rewards [$]	Income-Based Grant [$]	* Federal MACRS Tax Savings [$]	** State MACRS Tax Savings [$]	Loan Payment [$]	Cash Flow [$]	Cumulative Cash Flow [$]	Year
Totals - Year 30	*423,632*	*$ 50,363*	*$ 8,916*	*$ 14,960*	*$ -*	*$ -*	*$ -*		*$ 32,351*	
0								($41,888)	($41,888)	0
1	15,548	$ 1,088	$ 933	$ 14,960	$ -	$ -	$ -	$ 16,981	$ (24,907)	1
2	15,082	$ 1,093	$ 905			$ -	$ -	$ 1,998	$ (22,909)	2
3	15,006	$ 1,125	$ 900			$ -	$ -	$ 2,026	$ (20,884)	3
4	14,931	$ 1,159	$ 896			$ -	$ -	$ 2,055	$ (18,829)	4
5	14,856	$ 1,193	$ 891			$ -	$ -	$ 2,085	$ (16,744)	5
6	14,782	$ 1,229	$ 887			$ -	$ -	$ 2,116	$ (14,628)	6
7	14,708	$ 1,266	$ 882				$ -	$ 2,148	$ (12,480)	7
8	14,635	$ 1,303	$ 878				$ -	$ 2,181	$ (10,299)	8
9	14,562	$ 1,342	$ 874				$ -	$ 2,216	$ (8,083)	9
10	14,489	$ 1,382	$ 869				$ -	$ 2,252	$ (5,831)	10
11	14,416	$ 1,423						$ 1,423	$ (4,408)	11
12	14,344	$ 1,466						$ 1,466	$ (2,942)	12
13	14,273	$ 1,510						$ 1,510	$ (1,432)	13
14	14,201	$ 1,555						$ 1,555	$ 123	14
15	14,130	$ 1,601						$ 1,601	$ 1,724	15
16	14,059	$ 1,649						$ 1,649	$ 3,373	16
17	13,989	$ 1,698						$ 1,698	$ 5,071	17
18	13,919	$ 1,749						$ 1,749	$ 6,819	18
19	13,850	$ 1,801						$ 1,801	$ 8,620	19
20	13,780	$ 1,854						$ 1,854	$ 10,474	20
21	13,711	$ 1,910						$ 1,910	$ 12,384	21
22	13,643	$ 1,967						$ 1,967	$ 14,351	22
23	13,575	$ 2,025						$ 2,025	$ 16,376	23
24	13,507	$ 2,086						$ 2,086	$ 18,462	24
25[2]	13,439	$ 2,148						$ 2,148	$ 20,610	25[2]
26	13,372	$ 2,212						$ 2,212	$ 22,822	26
27	13,305	$ 2,278						$ 2,278	$ 25,101	27
28	13,239	$ 2,346						$ 2,346	$ 27,447	28
29	13,173	$ 2,416						$ 2,416	$ 29,863	29
30	13,107	$ 2,488						$ 2,488	$ 32,351	30
Totals - Year 30	*423,632*	*$ 50,363*	*$ 8,916*	*$ 14,960*	*$ -*	*$ -*	*$ -*		*$ 32,351*	

Notes:

1. The information above is the property of Apadana and may not be disclosed to third parties without written consent from Apadana. Dissemination or distribution is strictly prohibited.

2. All equipment warrantied by manufacturers, including 25-year performance warranty for solar modules. Inverters warrantied 12 to 25 years, depending on model. Installation and workmanship warrantied for 5 years.

3. Operation and Maintenance (O&M) Services available at an additional cost

4. Production projections based on assumptions as noted and TMY 44-year meteorological averages

5. Please consult with your tax advisor or CPA to confirm the applicability of all tax estimations presented here

Terms and Conditions:

A. Late fee of $35 plus 10% APR will be added for payments received after the invoice due date. Credit Card payments will be subject to a 3.5% processing fee.

B. Apadana has the option to treat failure to pay by customer on due date on the invoice as a material breach of this agreement, and may cancel this agreement and/or seek legal remedies. Customer agrees to repay Apadana for all legal fees.

C. We participate in the Credit Trade Exchange Program. We report all prompt and slow payments.

Down payment $ 12,566 **Due at project completion** $ 29,322

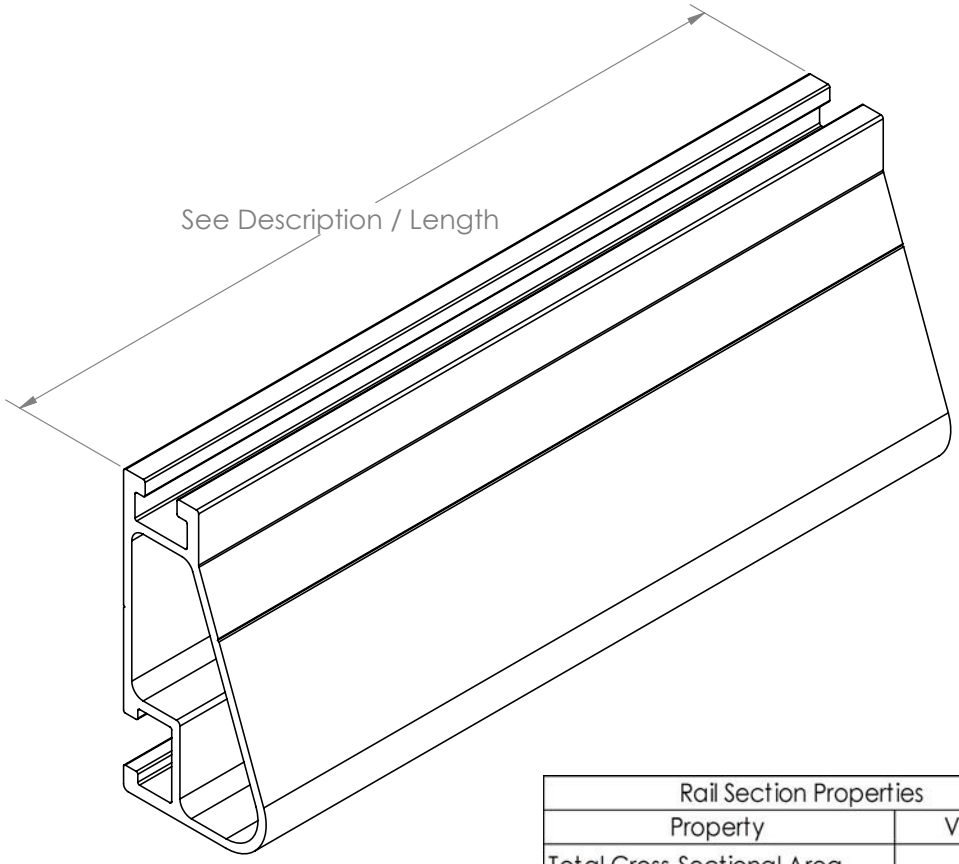
D. Please make checks payable to Apadana Energy LLC

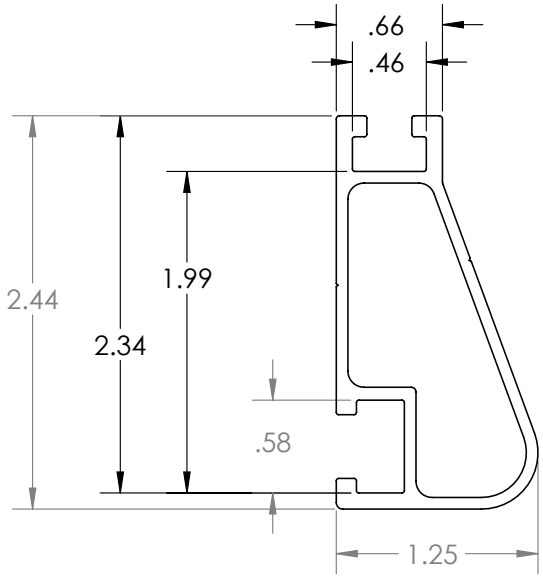
I accept the solar system proposal by Apadana Energy LLC and authorize Apadana Energy LLC to sign and submit all necessary forms on my behalf to the utility provider for my entity/business at the above address

Name of authorized representative **Date:** **Signature:**

IRONRIDGE

XR100 Rail

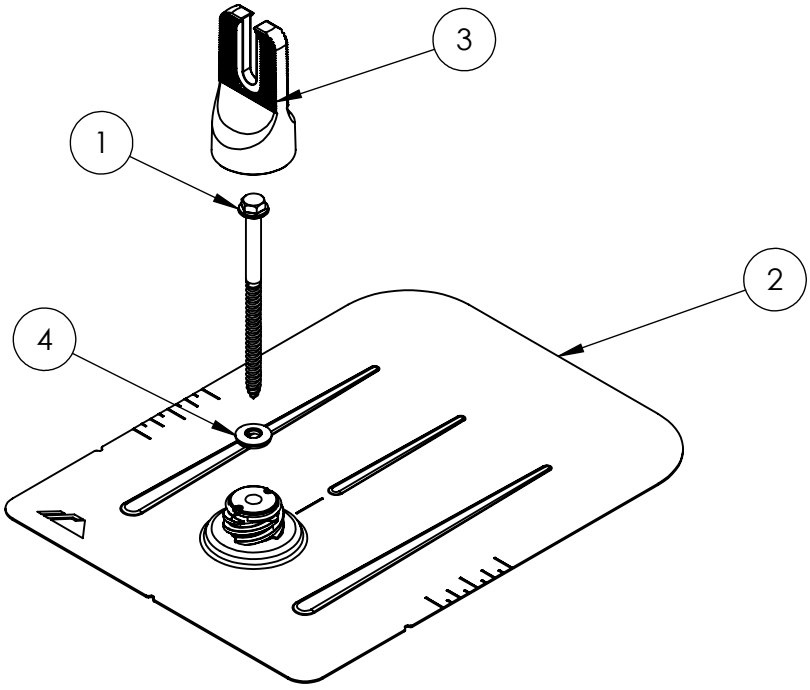




Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.582 in^2
Section Modulus (X-axis)	0.297 in^3
Moment of Inertia (X-axis)	0.390 in^4
Moment of Inertia (Y-axis)	0.085 in^4
Torsional Constant	0.214 in^3
Polar Moment of Inertia	0.126 in^4

APPROVED MATERIALS:
6005-T6, 6005A-T61, 6105-T5, 6N01-T6
(34,000 PSI YIELD STRENGTH MINIMUM)

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-100-132A	XR-100-132B	XR100, Rail 132" (11 Feet)	6000-Series Aluminum	7.50 lbs.
XR-100-168A	XR-100-168B	XR100, Rail 168" (14 Feet)		9.55 lbs.
XR-100-204A	XR-100-204B	XR100, Rail 204" (17 Feet)		11.60 lbs.

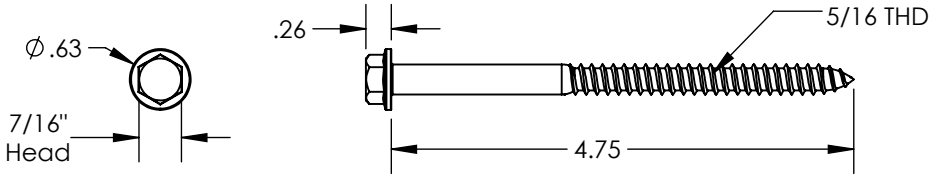


ITEM NO.	DESCRIPTION	Qty in Kit
1	BOLT LAG 5/16 X 4.75"	4
2	ASSY, FLASHING	4
3	ASSY, CAPFOOT	4
4	WASHER, EPDM BACKED	4

FLASHFOOT2

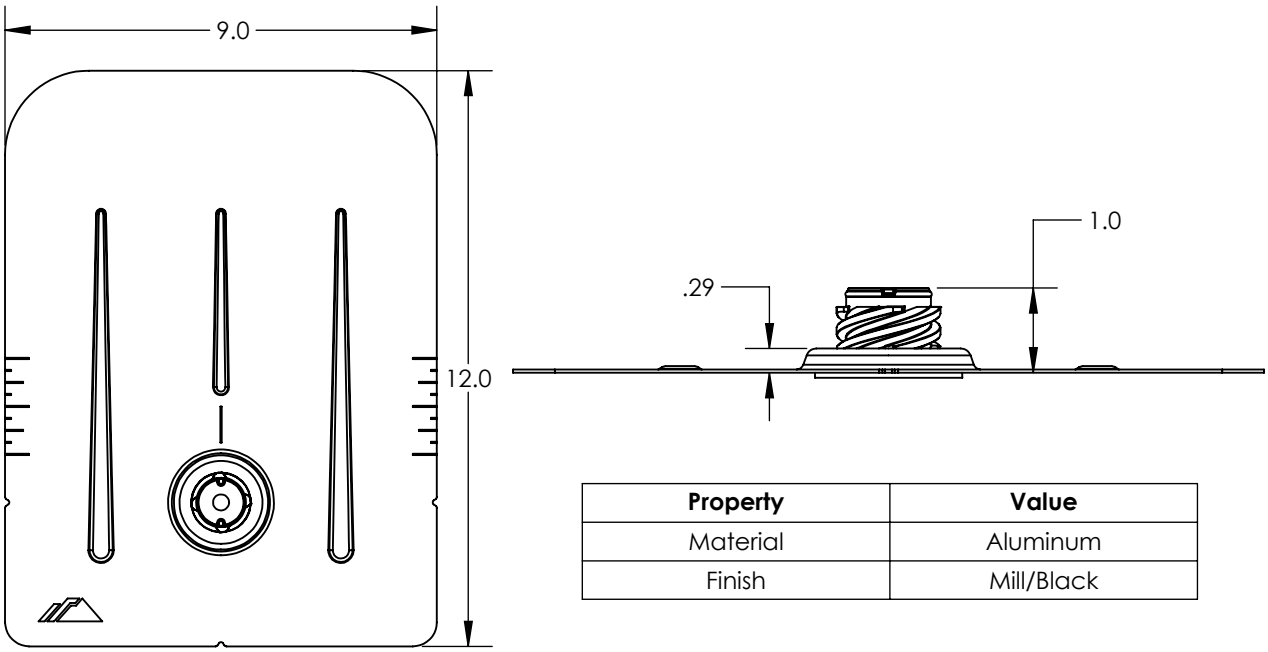
Part Number	Description
FM-FF2-001	Kit, 4pcs, FlashFoot2 (Mill)
FM-FF2-001-B	Kit, 4pcs, FlashFoot2 (Black)

1) Bolt, Lag 5/16 x 4.75



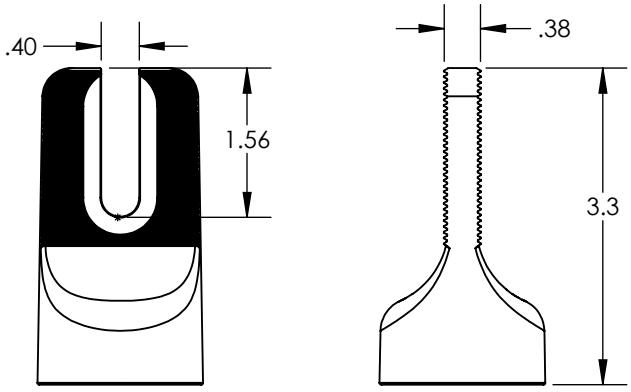
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) Assy, Flashing



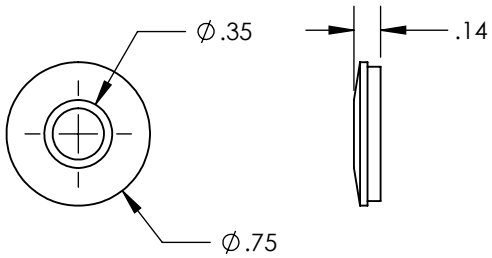
Property	Value
Material	Aluminum
Finish	Mill/Black

3) Assy, Capfoot



Property	Value
Material	Aluminum
Finish	Mill/Black

4) Washer, EPDM Backed



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

HT-SAAE

Reliable State-owned Enterprise Deliver Solar Power since 1960s

HIGHWAY

HT72-156M
HT72-156M(V)

* V means 1500V module

355W-380W

IEC 61215:2016
IEC 61730:2016

Advanced surface treatment，less surface reflection and 5BB cell design can reduce the series resistance and improve the module

19.6%
Module Efficiency

Designed for high voltage systems of up to 1500 VDC, increasing the string length of solar systems and saving on BoS costs

1000Pa
Certified to withstand dynamic mechanical load 1000 Pascal

Pkw
Higher module's output power

PID
PID resistant

NH3
Ammonia corrosion resistant
Salt Mist Corrosion resistant

Microcrack resistant
Triple EL tested of high quality control.

Entire module certified to with stand extreme wind (2400 Pa) and snow loads (5400 Pa)

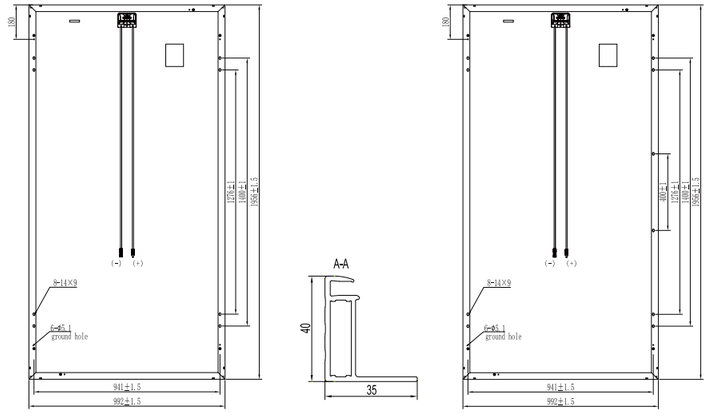
ISO
Strict quality control, meeting the highest international standards: ISO 9001, ISO14001

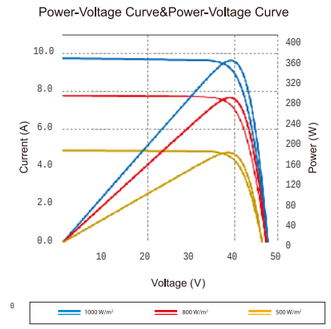
2%
All the modules are sorted and packaged by amperage, reducing mismatch losses and maximizing system output.

Comprehensive and first-rate certification system

IEC61215:2016,IEC61730:2016 Latest Standard
ISO9001, ISO14001 and OHSAS18001,meeting the highest international standards
Strict quality control

Engineering Drawing





I-V Curves

Electrical Charateristricts

Module	HT72-156M/ HT72-156M(V)					
Maximum Power at STC(Pmax)	355W	360W	365W	370W	375W	380W
Open-Circuit Voltage(Voc)	47.5V	47.7V	47.9V	48.1V	48.3V	48.5V
Short-Circuit Current(Isc)	9.69A	9.76A	9.83A	9.90A	9.97A	10.04A
Optimum Operating Voltage (Vmp)	38.7V	39.1V	39.5A	39.9V	40.3V	40.7V
Optimum Operating Current(Imp)	9.19A	9.23A	9.26A	9.30A	9.33A	9.36A
Module Efficiency	18.3%	18.6%	18.8%	19.1%	19.3%	19.6%
Power Tolerance	0 ~ +5W					
Maximum System Voltage	1000V/1500V DC(IEC)					
Maximum Series Fuse Rating	15A					
Operating Temperature	-40 ℃ to + 85 ℃					

STC:Irradiance 1000W/m², module temperature 25, AM=1.5
Optional black frame or white frame module according to customer requirements

NOCT

Module	HT72-156M / HT72-156M(V)					
Maximum Power	262W	266W	269W	273W	277W	280W
Open Circuit Voltage （Voc）	44.4V	44.6V	44.8V	45.0V	45.1V	45.3V
Short Circuit Current (Isc)	7.83A	7.88A	7.94A	8.00A	8.05A	8.11A
Maximum Power Voltage (Vmp)	36.1V	36.5V	36.9V	37.2V	37.6V	38.0V
Maximum Circuit Current (Imp)	7.25A	7.28A	7.30A	7.33A	7.35A	7.38A
NOCT	44 ℃ ± 2 ℃					

NOCT: Irradiance 800W/m², ambient temperature 20℃, wind speed 1 m/s

Mechanical Characteristics

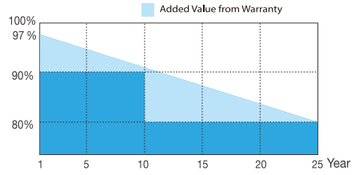
Solar Cells	Monocrystalline 156.75 × 156.75mm
No.of Cells	72 (6 × 12)
Dimensions	1956 × 992 × 40mm (77.0 × 39.1 × 1.6in)
Weight	21.5kg（47.4lbs）
Front Glass	High transmission tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP67
Cable	4㎜² (IEC)
Connectors	MC4/MC4 Compatible
Packaging Configuration	26pcs/box, 672pcs/40'HQ Container

Temperature Characteristics

Temperature Coefficient of Pmax	γ (Pm)	-0.39%/K
Temperature Coefficient of Voc	β (Voc)	-0.29%/K
Temperature Coefficient of Isc	α (Isc)	0.049%/K

Warranty

10ys 10-year product warranty
25ys 25-year warranty on power output



Information Box

Shanghai Aerospace Automobile Electromechanical Co., Ltd.
Website: http://htsolar.com.tr/
Email: trinfo@ht-saae.com
Factory: HT SOLAR ENERJI ANONIM SIRKETI
Lianyungang ShenZhou New Energy Co., Ltd.

The module recycling should be carried out by the professional institutions at the the end of module life cycle

To: John Ehresmann

Subject: Structural evaluation of the roof Framing for proposed solar roof modulus

Address: 855 7th St. W. St Paul, MN 55102

Date: 06/17/2019

Dear Sir:

We reviewed the proposed installation of solar panels on the roof top for the above referenced structure and the following are the result of our review.

1. The existing roof framing consists of 2"X6" rafter at 16" o.c. spacing and asphalt shingle roofing. The roof is designed for 35 PSF snow and dead load of the roofing material.

2. The proposed new solar modules to be anchored down to the wood rafters are estimated to add a distributed dead load of not to exceed 3.25 PSF.

3. Considering the magnitude of added superimposed load, size and spacing of rafters, and effect of sliding snow on the sloped roof, the roof structure is adequate to support the weight of the solar panels and railing.

If there are any questions, I will be happy to provide you further details.

Regards,

Ali A. Kiyan, PE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: ALI A. KIYAN

SIGNATURE:

DATE: 6/17/2019 LICENSE #: 19687

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78

St. Paul, Vol. I.

79

Scale of Feet.

Insurance Maps of St. Paul, Minnesota - Volume 1
Publisher: Sanborn Map Co.
1903 revised through August 1925
Handwritten notations by St. Paul Planning Commission

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