AGENDA
LANDMARK COMMISSION
REGULAR MEETING
4:00 p.m. Monday, April 3, 2023
City Council Chambers, 2nd Floor of City Hall
823 Rosenberg, Galveston, Texas

1. Call Meeting To Order
2. Attendance
3. Conflict Of Interest
4. Approval Of Minutes
   A. March 20, 2023
      Documents:
      03-20-2023 LC MINUTES.PDF
5. Public Comment

   Request to Address Commission on Agenda Items Without Public Hearings and Non-Agenda Items (three-minute maximum per speaker. If speaking through a translator, six-minute maximum per speaker)

6. Consent Items
   A. 23LC-009 (1117 Church/ Avenue F) Request For A Certificate Of Appropriateness For Modifications To The Structure Including Enclosing The Existing Rear Porch And Adding A New Rear Porch. Property Is Legally Described As M.B. Menard Survey Lot 3, Block 371, In The City And County Of Galveston, Texas. Applicant: Brax Easterwood Property Owner: Christie Gillespie Campbell
      Documents:
      23LC-009 - PKT.PDF
7. New Business And Associated Public Hearings
   A. LANDMARK DESIGNATION
   1. 23LC-008 (2222 Bernardo De Galvez/Avenue P) Request For Designation As A Galveston Landmark. Property Is Legally Described As M.B. Menard Survey, Portion Of Lots 12 & 13 (2012-1), Southwest Block 68, Galveston Outlots, In The City And County Of Galveston, Texas. Applicant And Property Owner: Joe Torres And Jennifer Gaw
      Documents:
      23LC-008 STF PKT.PDF
   B. CERTIFICATE OF APPROPRIATENESS

1. 23LC-010 (1328 Sealy / Avenue I) Request For A Certificate Of Appropriateness For A Garage Apartment. Property Is Legally Described As Lot 14 And The West 3 Feet Of Lot 13, Block 253, In The City And County Of Galveston, Texas. Applicant: Greg Lewis, AIA, Lewis Design Group Property Owners: Dennis And Kelly Maresh

   Documents:

   23LC-010 - PKT.PDF

2. 23LC-011 (1520 Rosenberg/25th Street) Request For A Certificate Of Appropriateness For Alterations To The Structure Including The Installation Of Solar Panels. Property Is Legally Described As The M. B. Menard Survey, Lot 9, Northwest Block 42, Galveston Outlots Special Subdivision, In The City And County Of Galveston, Texas. Applicant: Cheyenne Neckar Property Owner: Cathy McLean

   Documents:

   23LC-011 - STF PKT.PDF

8. Discussion And Action Items

   A. Recorded Texas Historic Landmarks (RTHL) Discussion Of Notification And Reporting Efforts (Baker/Patterson)

9. Adjournment

I certify that the above Notice of Meeting was posted in a place convenient to the public in compliance with Chapter 551 of the Texas Government Code on March 29, 2022 at 8:37 A.M.

Prepared by: Karina Rosales, Planning Technician

Note: An aggrieved applicant must file a letter requesting an appeal to the Historic Preservation Officer within 10 days of the rendition of the Commission's decision.

IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA), PERSONS IN NEED OF A SPECIAL ACCOMMODATION TO PARTICIPATE IN THIS PROCEEDING SHALL, WITHIN THREE (3) DAYS PRIOR TO ANY PROCEEDING, CONTACT THE CITY SECRETARIES OFFICE, SUITE 201, 823 ROSENBERG, GALVESTON, TEXAS 77550 (409-797-3510).

MEMBERS OF CITY COUNCIL MAY BE ATTENDING AND PARTICIPATING IN THIS MEETING

City of Galveston

MINUTES OF THE LANDMARK COMMISSION OF THE CITY OF GALVESTON
REGULAR MEETING – March 20, 2023

CALL MEETING TO ORDER

The meeting was called to order at 4:00 p.m.

ATTENDANCE

Members Present:	Alberstadt, Baker, Bourgeois (Alternate), Click, Flint-Budde, Johnson (Alternate), Swanson, Councilmember Collins
Members Absent:	Patterson, Stetzel-Thompson
Staff Present:	Catherine Gorman, AICP, Assistant Director/Historic Preservation Officer; Daniel Lunsford, Senior Planner; Karina Rosales, Planning Technician; Donna Fairweather, Assistant City Attorney

CONFLICT OF INTEREST

None

APPROVAL OF MINUTES

The March 6, 2023 minutes were approved as presented.

PUBLIC COMMENT

None

NEW BUSINESS AND ASSOCIATED PUBLIC HEARINGS

CERTIFICATE OF APPROPRIATENESS

23LC-005 (805 12th Street) Request for a Certificate of Appropriateness in order to construct a covered porch. Adjacent property is legally described as M.B. Menard Survey, Part of Lot 7 (7-1), Block 252, in the City and County of Galveston, Texas.
Applicant: Joseph and Joan Lowe
Property Owner: Joseph and Joan Lowe

Staff presented the staff report and noted that of four notices of public hearing sent, none were returned.

Vice-Chairperson Sarah Moore Click opened the public hearing on the case. Joseph Lowe, the applicant and property owner, gave a presentation to the commission. The public hearing was closed and the Vice-Chairperson called for a motion.

Commissioner Nancy Flint-Budde made a motion to approve the request with Staff's recommendations to the following change:
1. strike specific condition 1.a..

Julie Baker seconded.

The Chairperson called for questions or comments from the Commission. The following votes were cast:

In favor:	Alberstadt, Baker, Bourgeois (Alternate), Click, Flint-Budde, Johnson (Alternate), Swanson
Opposed:	None
Absent:	Patterson, Stetzel-Thompson
Non-voting participant:	Councilmember Collins
Abstained:	None

The motion passed.

LICENCE TO USE

23LC-006 (Adjacent to 805 12th Street) Request for a recommendation regarding a License to Use in order to construct a covered porch and stairs. Adjacent property is legally described as M.B. Menard Survey, Part of Lot 7 (7-1), Block 252, in the City and County of Galveston, Texas.
Applicant: Joseph and Joan Lowe
Adjacent Property Owner: Joseph and Joan Lowe
Easement Holder: City of Galveston

Staff presented the staff report and noted that of twenty-five notices of public hearing sent, none were returned.

Vice-Chairperson Sarah Moore Click opened the public hearing on the case. The public hearing was closed and the Vice-Chairperson called for a motion.

Commissioner Julie Baker made a motion to recommend approval of the request with Staff's Recommendations. Milton Alberstadt seconded.

The Chairperson called for questions or comments from the Commission. The following votes were cast:

In favor:	Alberstadt, Baker, Bourgeois (Alternate), Click, Flint-Budde, Johnson (Alternate), Swanson
Opposed:	None
Absent:	Patterson, Stetzel-Thompson
Non-voting participant:	Councilmember Collins
Abstained:	None

The motion passed.

23LC-007 (Adjacent to 2302 Mechanic / Avenue C). Request for a recommendation regarding a License to Use in order to place construction fencing in the public right-of-way. Adjacent property is legally described as M.B. Menard Survey, Part of Lots 8 and 9 (8-2), Block 623, in the City and County of Galveston, Texas.
Applicant: Taylor Barham, HAF Hospitality Tremont Realty, LLC.
Adjacent Property Owner: HAF Hospitality Tremont Realty, LLC.
Easement Holder: City of Galveston

Staff presented the staff report and noted that of twenty-seven notices of public hearing sent, five were returned in favor.

Vice-Chairperson Sarah Moore Click opened the public hearing on the case. The public hearing was closed and the Vice-Chairperson called for a motion.

Commissioner Milton Alberstadt made a motion to recommend approval of the request with Staff's Recommendations. Jane Swanson seconded.

The Chairperson called for questions or comments from the Commission. The following votes were cast:

In favor:	Alberstadt, Baker, Bourgeois (Alternate), Click, Flint-Budde, Johnson (Alternate), Swanson
Opposed:	None
Absent:	Patterson, Stetzel-Thompson
Non-voting participant:	Councilmember Collins
Abstained:	None

The motion passed.

THE MEETING ADJOURNED AT 4:25 PM

Landmark Commission
Development Services Department
City of Galveston
April 3, 2023

23LC-009 STAFF REPORT

ADDRESS:
1117 Church/Avenue F

LEGAL DESCRIPTION:
The property is legally described as Lot 3, Block 371, in the City and County of Galveston, Texas.

APPLICANT/REPRESENTATIVE:
Brax Easterwood

PROPERTY OWNER:
Christie Campbell

ZONING DISTRICT:
Residential, Single Family, Historic (R-3-H)

HISTORIC DISTRICT:
East End

REQUEST:
Request for a Certificate of Appropriateness for modifications to the structure including enclosing the existing rear porch and adding a new rear porch.

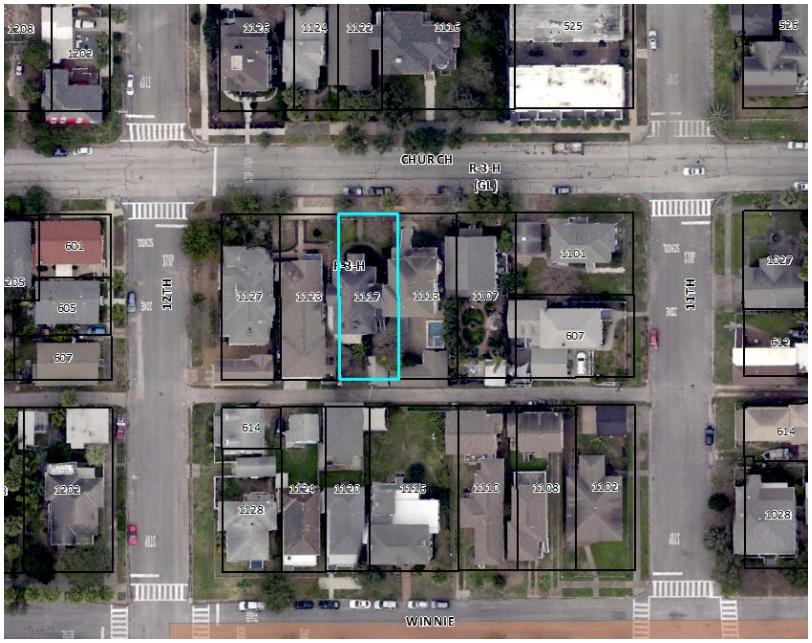
STAFF RECOMMENDATION:
Approval with Conditions

EXHIBITS:
A – Historic District Survey
B – Applicant's Submittal
C – Survey and Site Plan

STAFF:
Daniel Lunsford
Senior Planner
(409) 797-3659
dlunsford@galvestontx.gov

Public Notice and Comment:

Sent	Returned	In Favor	Opposed	No Comment
6				



Zoning and Land Use

Location	Zoning	Land Use
Subject Site	Residential, Single Family, Historic (R-3-H)	Residential
North	Residential, Single Family, Historic (R-3-H)	Residential
South	Residential, Single Family, Historic (R-3-H)	Residential
East	Residential, Single Family, Historic (R-3-H)	Residential
West	Residential, Single Family, Historic (R-3-H)	Residential

Historical and/or Architectural Significance

Date	1880
Style	Folk Victorian
Condition	Excellent
Evaluation	Medium: Contributes to the historical significance of the district through location, design, setting, materials, workmanship, feeling and/or association.
Note	Roof material replaced

Executive Summary

The applicant is proposing modifications to the structure including the following:

a) Enclose a small porch on the southeast side of the house.
b) Expand the southeast corner of the house to add a kitchen and laundry room.
c) Add a new wood rear porch, handrail, and stairs.

The applicant is proposing to add new salvaged wood windows to the addition and all of the new siding will be wood to match the existing siding on the house, or to salvage and reuse existing windows. The existing rear door will also be retained and relocated. The new roof addition will preserve the historic roof line as seen from Avenue F.

Note that the same request and identical scope of work were previously approved under Landmark Commission case 16LC-074. That approval has lapsed with no work started, and so another review is required.

Design Standards

The following Design Standards are applicable to the project:

Historic Residential Porches and Decks

Porches and galleries are, and always have been, the focal point of Galveston houses. They frame and protect the main entrances. They also display a concentration of decorative details. In many neighborhoods, they continue to serve as outdoor living rooms. Some very simple houses, including alley houses, have an uncovered porch or stoop at the entrance.

Most porches are built entirely of wood, in keeping with the frame house construction. There are some exceptions, such as Craftsman-style dwellings that have wooden tapered columns on top of masonry pedestals. A few early frame houses also have cast-iron balustrades that are original.

Preserving front porches is a high priority. Rear and side porches also may be important architectural features, especially for buildings that are located on corner lots, and their preservation is encouraged (although these may also be appropriate locations for new additions.)

3.15 If necessary, replace damaged porch elements.

Appropriate

- Use materials that are similar to the historic building materials.
- An alternative material may be considered for a porch in a secondary location, when the appearance is similar to that of the original. See "Using Alternative Materials on a Historic Structure" on page 31 for more information.

Historic Residential Windows

Windows in older Galveston buildings are important character defining features. Most windows are wooden, double-hung sash. This means that they have two balanced sashes, one sliding over the other vertically. Each sash is divided into panes, also called "lights."

3.12 When replacing a window, match the original design and pane configuration.

Appropriate

- Use wood frames and sashes for windows on a primary façade (preferred approach).
- Consider using clad wood windows on a primary façade (may be appropriate if consistent with the approach described in "Interpreting the Design Standards" on page 16).
- Maintain the wood window trim if metal or vinyl windows are installed (non primary façade only).
- Reinstall windows and doors in previously enclosed openings. City staff will field verify all evidence of the feature's previous existence prior to approval.
- Use clear replacement panes.

Inappropriate

- Vinyl windows are not permitted on primary façades
- Tinted glass is not permitted.
- Do not change the size or position of a window opening.
- The addition of large picture windows on the main façade is not permitted.
- Do not use dark window screens.
- Do not use unpainted metal sashes with a raw metal color.

Additions to Historic Residential Structures

A new addition, if appropriately designed, can be made to a historic building without compromising its historic character. When making an addition to a locally-designated individual historic residential landmark or contributing residential structure in a locally-designated historic district, it is important to consider the relationship with the surrounding historic context and the scale, placement and materials of the addition.

3.40 Design an addition to a historic residential structure to be clearly differentiated from the original structure.

Appropriate

- Use a lower-scale connecting element to join an addition to a historic residential structure.
- Differentiate an addition from the historic original using changes in material, color and/or wall plane

3.41 Keep an addition to a historic residential structure simple in size, shape, materials, color and detail.

Inappropriate

- Do not try to make an addition appear older than it is. This creates a false sense of history and is not permitted.
- Do not disturb the street sides of existing buildings whenever possible.

3.42 Design an addition to a historic residential structure to be subordinate to the primary structure.

Appropriate

- Place an addition to the side or the rear.
- Vertical additions must be placed in the rear so they are not visible from the street or right-of-way.

3.11 Preserve the original roof form of a historic residential structure.

Appropriate

- Maintain and repair the original size and shape of dormers.
- Avoid altering the angle of a historic roof.
- Installing a new dormer on a secondary roof plane may be considered when it will remain subordinate in scale and character to the roof itself. Proposals for new dormers on secondary façades require Landmark Commission approval.

Inappropriate

- Do not introduce new dormers on a visible street façade. Do not introduce skylights, vents or attic ventilators on street-facing roof slopes.
- New roofing systems that permanently damage or alter the existing historic roof are not permitted.

Conformance with the Design Standards

Staff finds that the request conforms to the Design Standards for Historic Properties. The addition is in the rear of the house in Location D: Not typically visible rear façade. More flexibility in treatment may be considered, especially for compatible replacement or alteration that is not visible from the street. The materials proposed are in conformance with the Design Standards, and the applicant has indicated that either existing windows and rear door will be retained and reused, or salvaged windows that closely match the existing windows will be used where needed. Finally, the roof material over the addition will match existing, and is not easily visible from the Church Street right-of-way.

Staff Recommendation Staff recommends approval of the request with the following conditions:

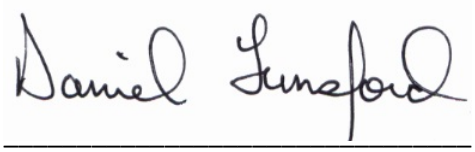
Specific Conditions:

1. The exterior modifications shall conform to the design, materials and placement presented in Exhibit A of the staff report;

Standard Conditions:

2. Any significant alteration from the design approved by the Landmark Commission, shall require the request to be returned to the Commission for review;
3. Any additional work will require a separate building permit from the Building Department, and may require review by the Landmark Commission and/or the City's Historic Preservation Officer prior to construction;
4. The Landmark Commission approval shall expire after 2 years if no progress has been made toward completion of a project unless the applicant files a request for an extension or can show progress toward completion of a project; and,
5. In accordance with Section 10.110 of the Land Development Regulations, should the applicant be aggrieved by the decision of the Landmark Commission, a letter requesting an appeal must be submitted to the Historic Preservation Officer within 20 days of the Commission decision. Additionally, a Zoning Board of Adjustment application must be submitted to the Development Services Department by the next respective deadline date.

Respectfully Submitted,



03/22/23

Daniel Lunsford
Senior Planner

Date

APPLICABLE CODES:

- CODE OF THE CITY OF GALVESTON

- 2012 INTERNATIONAL RESIDENTIAL CODE WITH LOCAL AMENDMENTS (CH 10 OF CITY CODE)

- 2012 INTERNATIONAL ENERGY CODE WITH LOCAL AMENDMENTS (CHAPTER 10 OF CITY CODE)

- 2012 MECHANICAL CODE, WITH LOCAL AMENDMENTS (CHAPTER 21 OF CITY CODE)

- 2012 INTERNATIONAL FIRE CODE ORDINANCE

- 2014 NATIONAL ELECTRIC CODE

- CITY OF GALVESTON FLOOD PLAIN ORDINANCE.

PROJECT DESCRIPTION/SCOPE OF WORK

- IT IS THE RESPONSIBILITY OF ALL CONTRACTORS TO EXPAND AND REMODEL A KITCHEN, INCLUDING A NEW ROOF, LANDING, STAIR AND A NEW DECK FOR A SINGLE FAMILY HISTORIC HOME. ALL TRADES WILL BE REQUIRED TO COMPLETE THE WORK. THIS WORK SHALL INCLUDE ALL SITE PREPARATION, PROCUREMENT OF MATERIALS, AND ASSEMBLING OF THE SAME REQUIRED IN ORDER TO ACHIEVE A FINAL PRODUCT BEARING THE CHARACTERISTICS DESCRIBED BY THESE CONSTRUCTION DOCUMENTS.

- THE SCOPE OF THE WORK SHALL NOT BE CONSTRUED AS BEING LIMITED TO PROVIDING AND INSTALLING ONLY THE WORK, MATERIALS, OR ITEMS DIRECTLY CALLED OUT IN THESE CONSTRUCTION DOCUMENTS. THE SCOPE OF WORK IS DEFINED AS INCLUDING ALL NECESSARY COMPONENTS AND DEVICES AS MAY BE REQUIRED, AS MAY BE REASONABLY INFERRED, OR AS RECOMMENDED BY THE MANUFACTURER, IN ORDER FOR THE MAJOR SYSTEMS AND DEVICES SHOWN IN THE CONSTRUCTION DOCUMENTS TO BE FULLY OPERATIONAL AND FUNCTIONAL.

- ALL FIELD MODIFICATIONS REQUIRED BY CITY BUILDING INSPECTORS SHALL BE DOCUMENTED BY THE GENERAL CONTRACTOR AND SUBMITTED TO THE ARCHITECT AND OWNER FOR RECORD.

- THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF 1 YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

- THE CONTRACTOR SHALL MAINTAIN ALL LEGALLY REQUIRED INSURANCE, INCLUDING WORKERS COMPENSATION TO STATUTORY LIMITS.

- THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL INDEMNIFY AND HOLD HARMLESS THE BUILDING OWNER, THE ARCHITECT, AND THE ENGINEERS RESULT OF - THE CONTRACTOR'S AND SUB-CONTRACTORS' WORK OR OPERATIONS.

- THE GENERAL CONTRACTOR SHALL CHECK ALL EXISTING DIMENSIONS AND COORDINATE THE DOCUMENTS WITH CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.

- THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR:
a. JOB SITE SAFETY
b. DIMENSIONS WHICH MUST BE CONFIRMED AND COORDINATED AT THE JOB SITE.
c. FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION.
d. COORDINATING THE WORK OF ALL OTHER TRADES.
e. THE SATISFACTORY PERFORMANCE OF THE SUBCONTRACTORS.

ROOF PLAN NOTES:

1. ROOFING: TDI COMPOSITION SHINGLES; GRADE;325#; SIZE:18 x 36; UNDERLAY: (1) LAYER 30 # RAG FELT, INSTALLED TO TDI WINDSTORM REQUIREMENTS. VERIFY COLORS WITH CITY/ARCHITECT PRIOR TO PLACING ORDER TO MATERIALS AND METAL DRIP.

2. FLASHING MATERIAL TO BE 26 GA. GALVANIZED SHEET METAL.

3. ROOF SHEATHING SHOULD BE MIN 5/8" PLYWOOD. INSTALL PER TDI WINDSTORM REQUIREMENTS STRUCTURAL NAILING SCHEDULE. ENSURE CONTINUOUS VENTING EAVE TO RIDGE TROUGH RAFTER SPACE.

4. GUTTERS: CONTINUOUS FORMED 6" ALUMINUM GUTTERS AND 5" ALUMINUM DOWN SPOUTS WITH CONCRETE SPLASH BLOCKS.

GENERAL NOTES

1. ALL CONCRETE SHALL BE NORMAL WEIGHT (SAND AND GRAVEL) AGGREGATE WITH MINIMUM 28 DAYS COMP STRENGTH / 3000 PSI. CONFORM TO ASTM C94.86(5 SACKS PER CUBIC YARD - SLUMP AT 3-4 INCHES. ADD NO WATER AT JOB SITE. CONCRETE SHALL CURE FOR 28 DAYS.

2. WOOD FRAME CONSTRUCTION SHALL CONFORM ALL APPLICABLE REQUIREMENTS TDI WINDSTORM RESISTANCE POLICY-130 MPH @ 3 SECOND GUSTS

3. ALL WOOD CONSTRUCTION FRAMING SHALL BE NO. 2 SP OR BETTER. ALL EXTERIOR EXPOSED WOOD TO BE PRESSURE TREATED

4. FRAMING CONNECTIONS: USE GALVANIZED METAL CONNECTIONS SUCH AS TECO FRAMING ANCHORS OR SIMPSON STRONG TIE LUMBER CONNECTOR, INSTALLED PER MANUFACTURER RECOMMENDATIONS. ALL EXPOSED CONNECTORS SHALL BE HOT-DIPPED GALVANIZED STEEL OR STAINLESS STEEL.

6. +/- 50 PSF MINIMUM DESIGN PRESSURE PER PROJECT ENGINEER

7. FASTENERS: SHEATHING FRAMING NAILS ARE TO BE A MINIMUM OF 8d COMMON WIRE. FRAMING NAILS ARE TO BE 16d. ALL FASTENERS TO BE STAINLESS STEEL (ASTM 617) OR HOT DIPPED GALVANIZED (ASTM A123, ASTM A653)

8. 5/8" PLYWOOD SHEATHING NAILING PATTERN @ 4" O.C. AT CORNER SHEETS AND ALL EDGES. 8" O.C. AT TYPICAL FIELD. 7A. 5/8" PLYWOOD SHEATHING NAILING PATTERN @ 4" O.C. AT CORNER SHEETS AND ALL EDGES. 8" O.C. AT TYPICAL FIELD.

SITE NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.

2. EXISTING AND PROPOSED STRUCTURE IS IN COMPLIANCE WITH SETBACKS AND HEIGHT RESTRICTIONS FOR HISTORIC (HZD) ZONING DISTRICT. PROPERTY DOES LIE WITHIN A HISTORIC DISTRICT OR ZONING OVERLAY.

REFER TO CASE 16LC-074 FOR LANDMARK APPROVAL

4. SIDE SETBACKS = 1' ADJ. TO COMMON PROPERTY LINE. REAR SETBACK = 1'. FRONT BUILD-TO LINE = 15'

5. THE GENERAL CONTRACTOR MUST INSPECT THE SITE AND VERIFY EXISTING CONDITIONS BEFORE BEGINNING WORK AND IDENTIFY CONFLICTS OR INCONSISTENCIES BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS.

6. GENERAL CONTRACTOR SHALL PROVIDE A SECURE CONSTRUCTION STAGING AREA FOR MATERIALS, TOOLS ND EQUIPMENT USED IN THE WORK. COORDINATE LOCATION OF TEMPORARY FACILITIES WITH OWNER.

7. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS, SETBACKS, BUILDING LINES AND EASEMENTS.

8. NO CONSTRUCTION EXCEPT SIDEWALKS, DRIVES AND FENCES IN ANY EASEMENTS, BUILDING LINES OR SETBACKS.

9. COORDINATE WITH CENTERPOINT ELECTRICAL SERVICE. VERIFY LOCATION OF INCOMING ELECTRICAL.

10. ALL EXISTING VEGETATION, SHRUBS, AND TREES TO REMAIN SHALL BE PROTECTED AS REQUIRED TO PREVENT DAMAGE FROM CONSTRUCTION ACTIVITIES AND REPAIRED/REPLACED AT NO ADDITIONAL COST TO THE OWNER IF NECESSARY.

11.GENERAL CONTRACTOR SHALL HAUL ALL UNUSED EXCAVATED DIRT, DEBRIS, VEGETATION AND MATERIALS FROM PROPERTY.

9. ALL RAILINGS/GUARDRAILS TO MEET 200 LB CONCENTRATED LOAD REQUIREMENTS PER IRC. 40 PSF DISTRIBUTED LOAD, 50 PSF FOR RAIL

10. DECK TO MEET 120 LB/SQ FT PRESSURE REQUIREMENTS PER IRC FRAMING CONNECTIONS: USE GALVANIZED METAL CONNECTIONS SUCH AS TECO FRAMING ANCHORS OR SIMPSON STRONG TIE LUMBER CONNECTOR, INSTALLED PER MANUFACTURER RECOMMENDATIONS.

11. CONSTRUCTION MUST MEET ASCE - 7 - 05 STANDARDS. CONSTRUCTION TYPE = TYPE 5.

12. ALL ELECTRICAL, INSULATION, PLUMBING FIXTURES AND OTHER ENERGY RELATED ITEMS SHALL MEET 2012 INTERNATIONAL ENERGY CODE REQUIREMENTS AND REQUIRED BY THE STATE OF TEXAS.

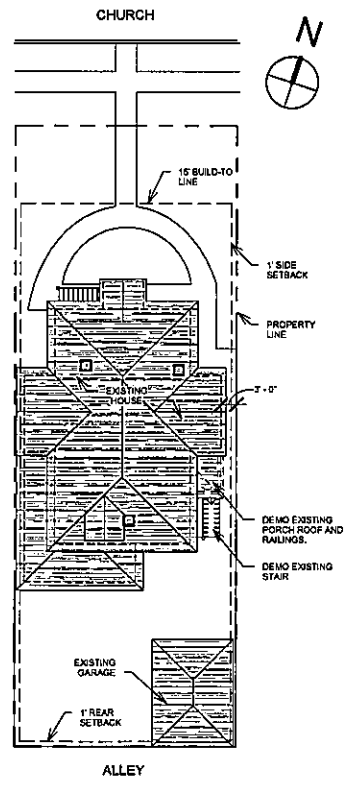
13. PROVIDE VACUUM BREAKER (ANTI-SIPHON VALVE) AT ALL HOSE BIBS, KITCHEN SINKS, ETC. AS REQUIRED BY CODE AND ORDINANCE. PROVIDE BACKFLOW PREVENTER AS REQUIRED.

14. WATERLINES RUNNING THROUGH UNCONDITIONED SPACES SHALL BE INSULATED. PIPE INSULATION SHALL BE R-8 MINIMUM.

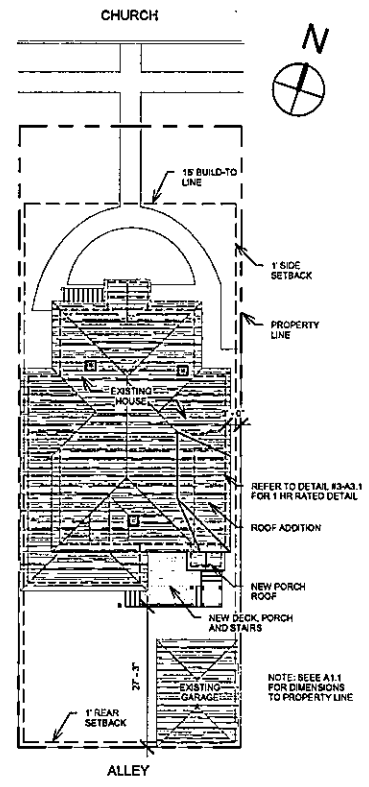
16.PROVIDE WIND RESISTANT HOLD DOWN DEVICES FOR ALL EXTERIOR MOUNTED EQUIPMENT

17. ALL CONSTRUCTION SHALL COMPLY WITH TEXAS DEPT. OF INSURANCE WINDSTORM REQUIREMENTS, AND SHALL BE INSPECTED BY A LICENSED STRUCTURAL ENGINEER. THE CONSTRUCTION SHALL ALSO COMPLY WITH THE REQUIREMENTS OF THE CITY OF GALVESTON. THE ENGINEER SHALL BE CERTIFIED TO INSPECT AND CERTIFY THE CONSTRUCTION AS MEETING THE TDI REQUIREMENTS. THE ENGINEER SHALL PERFORM ALL DUTIES TO OBTAIN THE COMPLETED CERTIFICATION FORMS ISSUED BY TDI.

SHEET INDEX



1 Site Existing
1" = 20'-0"



2 Site New
1" = 20'-0"

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550

R16-013.01

ARCHITECTECT SEAL

BEE EASTERWOOD
PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

BRAX EAST DESIGN
2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550

CONSULTANT SEAL

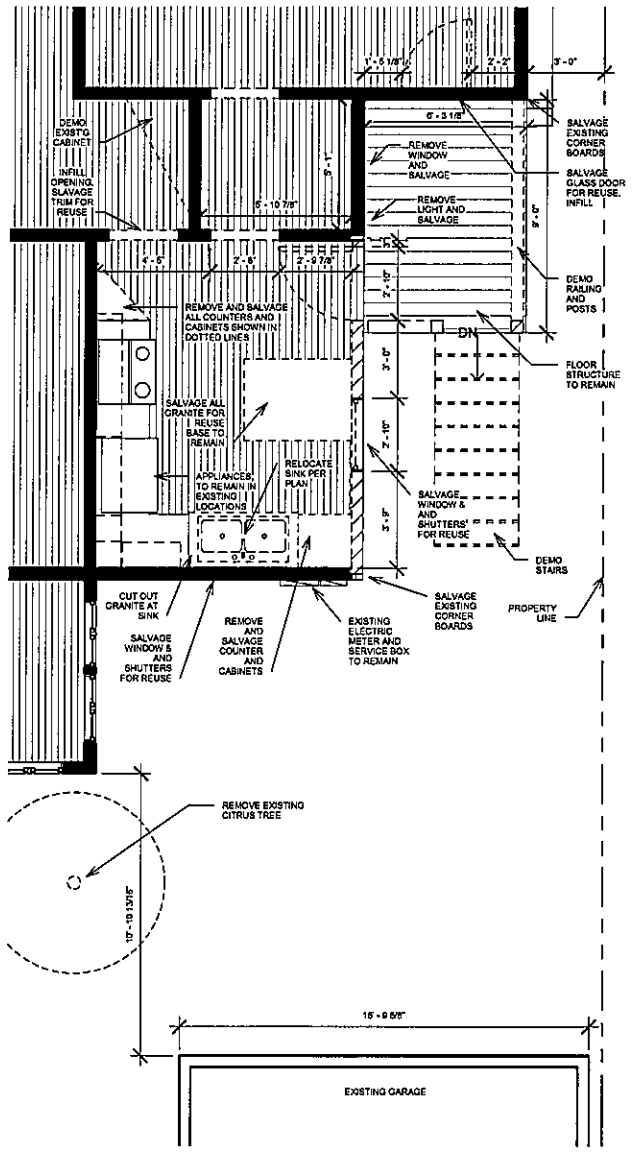
REVISION SCHEDULE

Number	Date

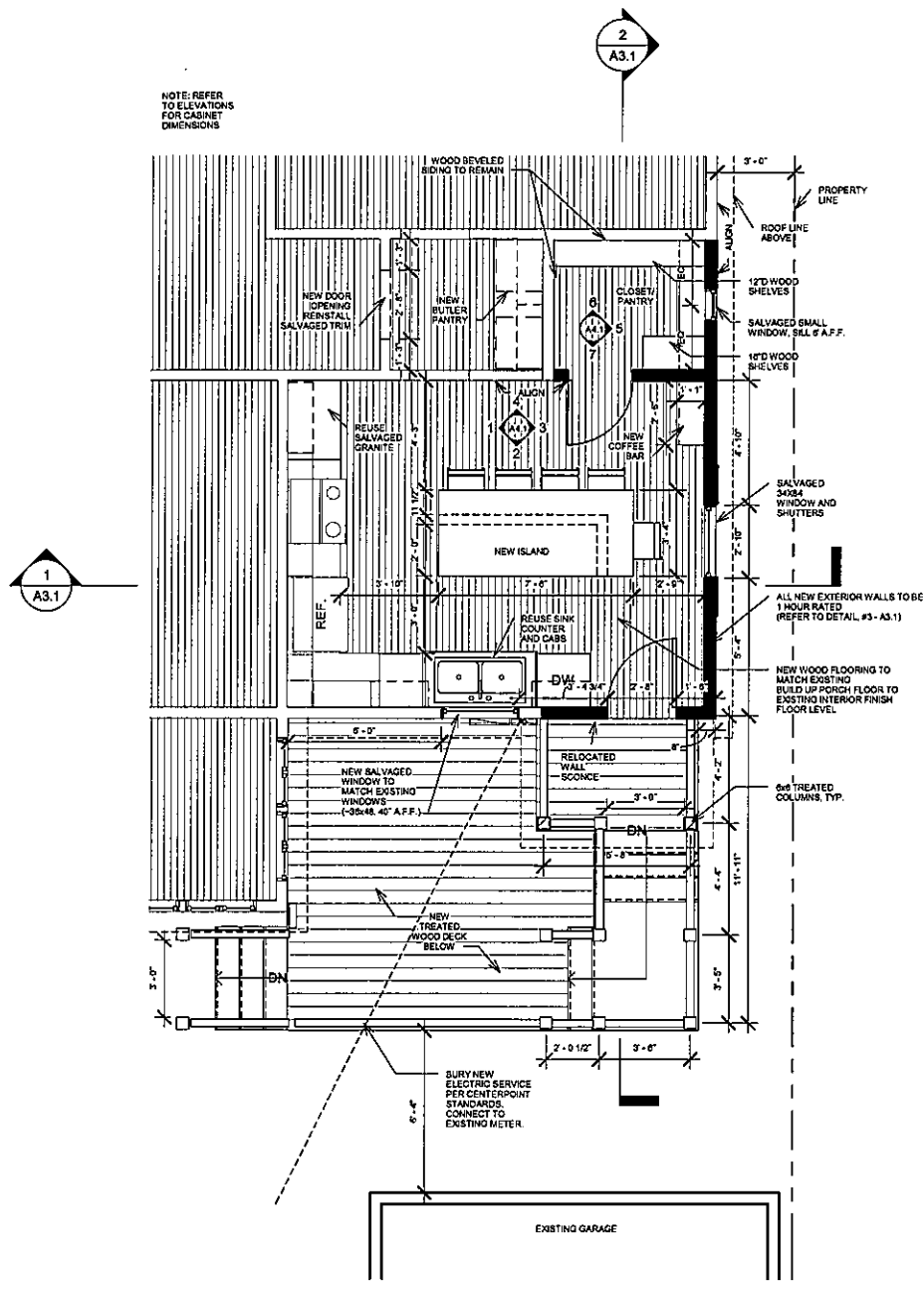
PERMIT SET
DATE ISSUED: 01/10/2017

A0.0
Cover

EXHIBIT A



1 Level 1 Existing/Demo
1/4" = 1'-0"



2 Level 1 New/Proposed
1/4" = 1'-0"

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550
R16-013.01

ARCHITECTECT SEAL

BRAXEASTERWOOD
DESIGN
2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550
PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

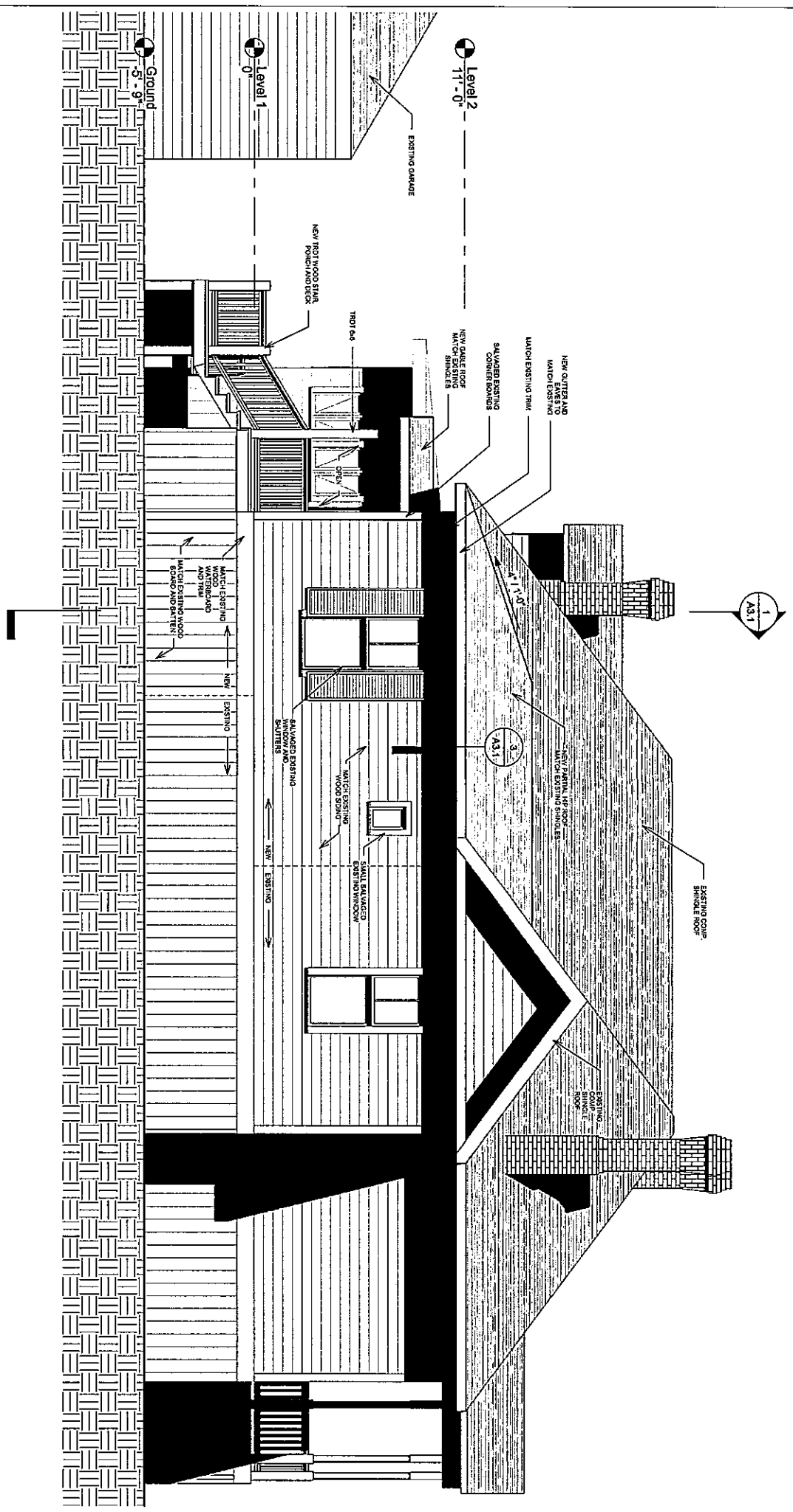
CONSULTANT SEAL

REVISION SCHEDULE

Number	Date

PERMIT SET
DATE ISSUED: 01/10/2017

A1.1
Floor Plans



1 East
1/4" = 1'-0"

PERMIT SET
DATE ISSUED: 10/11/16

A2.1

East Elevation

REVISION SCHEDULE

Number	Date

CONSULTANT SEAL

BRAX EASTERWOOD
DESIGN

2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550

PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

ARCHITECTECT SEAL

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550

R16-013.01

1 South
1/4" = 1'-0"

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550
R15-013.01

ARCHITECTECT SEAL

BRAXEASTERWOOD be
DESIGN
2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550
PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

CONSULTANT SEAL

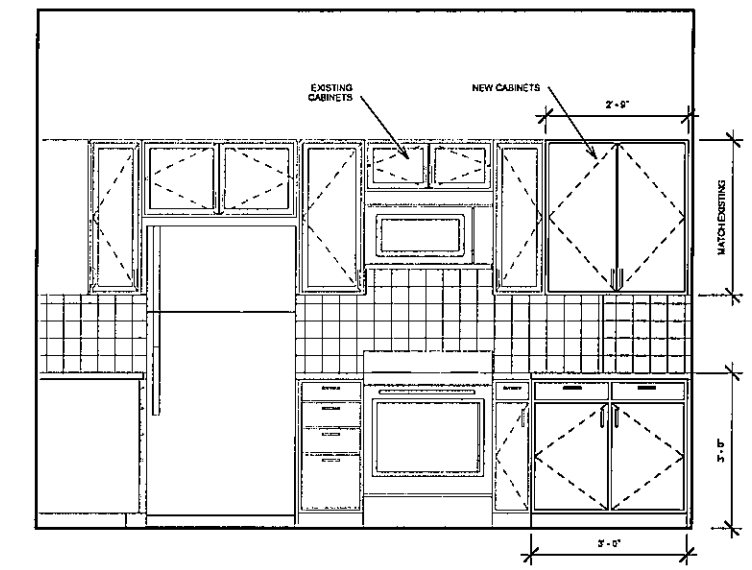
REVISION SCHEDULE

Number	Date

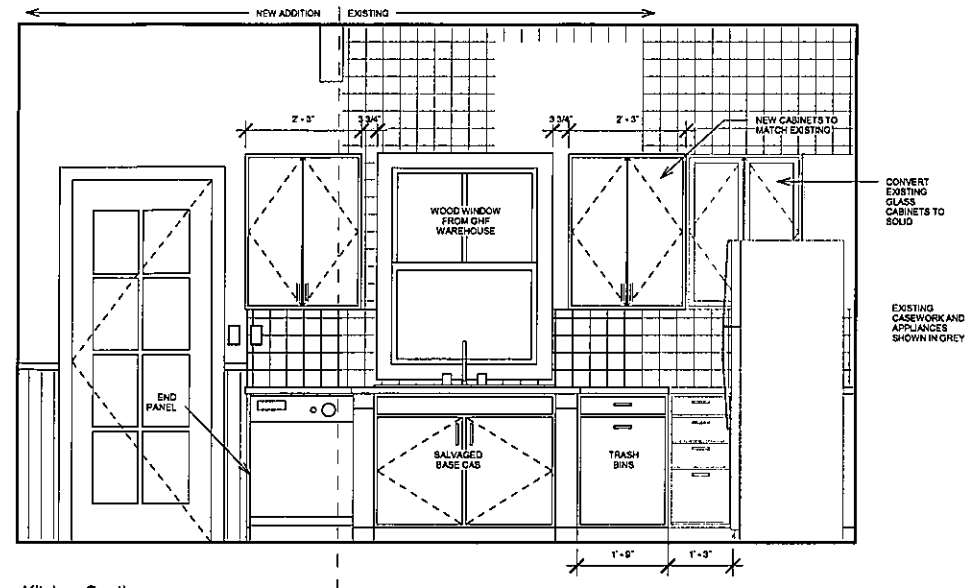
PERMIT SET
DATE ISSUED: 01/10/2017

A2.2

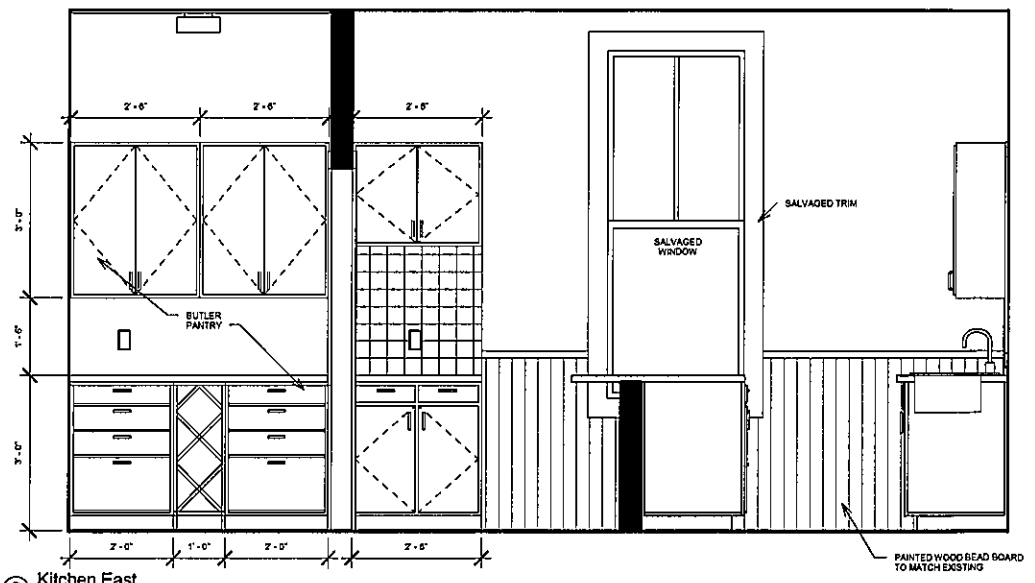
South Elevation



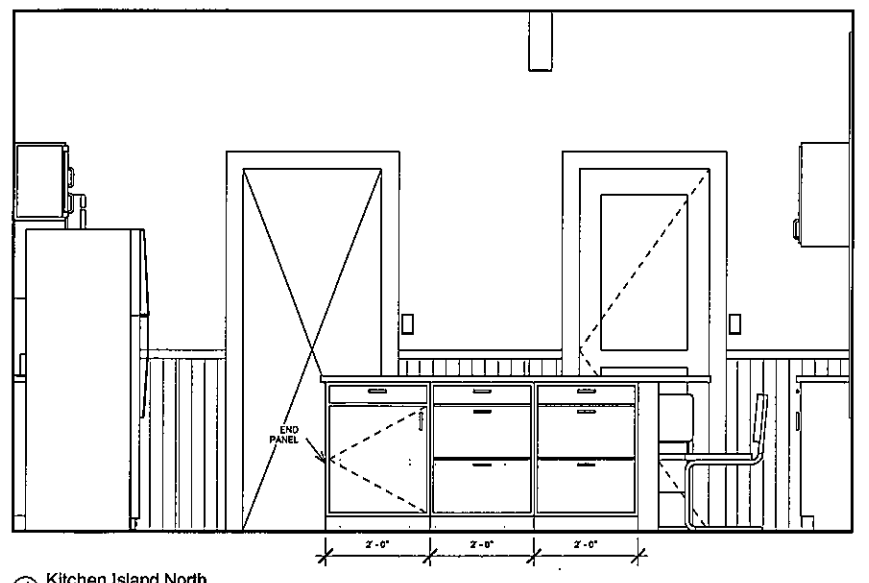
1 Kitchen West
1/2" = 1'-0"



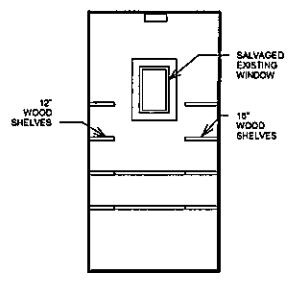
2 Kitchen South
1/2" = 1'-0"



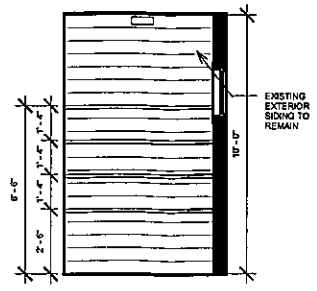
3 Kitchen East
1/2" = 1'-0"



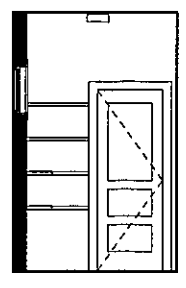
4 Kitchen Island North
1/2" = 1'-0"



5 Closet/Pantry East
1/4" = 1'-0"



6 Closet/Pantry North
1/4" = 1'-0"



7 Closet/Pantry South
1/4" = 1'-0"

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550
R16-013.01

ARCHITECTECT SEAL

BRAXEASTERWOOD bE
DESIGN
2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550
PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

CONSULTANT SEAL

REVISION SCHEDULE

Number	Date

PERMIT SET
DATE ISSUED: 01/10/2017

A4.1
Interior Elevations

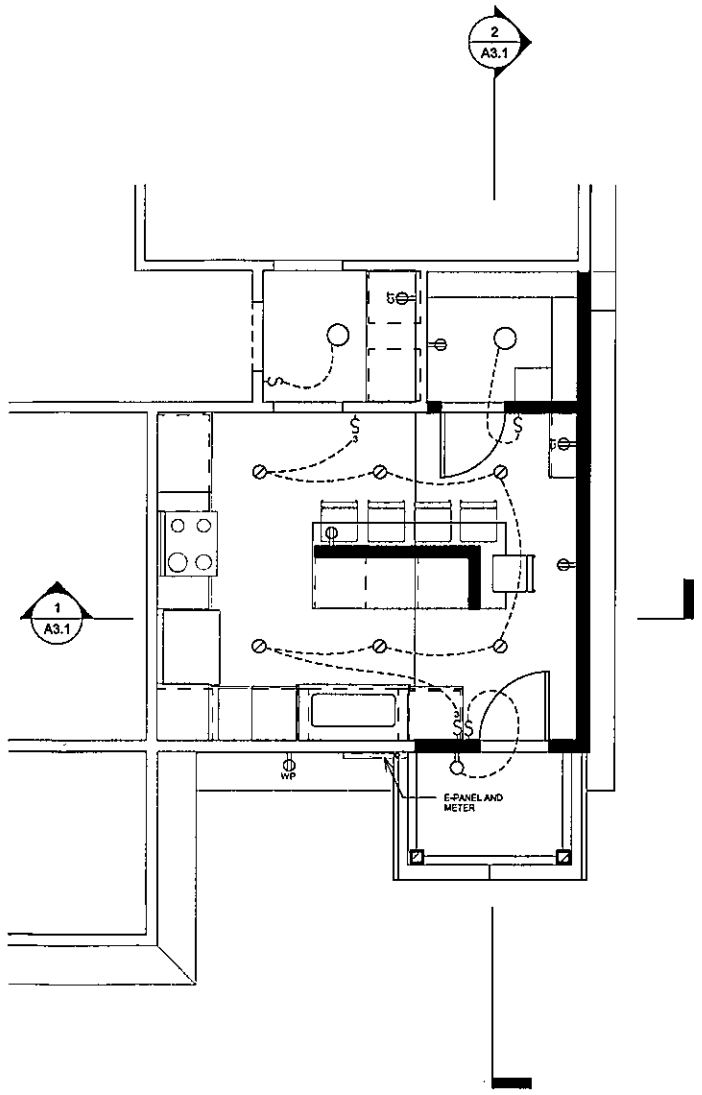
ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
φ	110V CONVENIENCE DUPLEX OUTLET
φ WP	110V WEATHERPROOF DUPLEX OUTLET
φ CP	110V RECESSED OUTLET "CLOCK PLUG"
⊠	110V FLOOR OUTLET
φ CT	110V COUNTERTOP HEIGHT DUPLEX OUTLET
φ CT/ GFI	110V COUNTERTOP HT./ GROUND FAULT INTERRUPTER
φ GFI	110V CONVENIENCE W/ GROUND FAULT INTERRUPTER
φ WP/GFI	110V CONVENIENCE WATER PROOF / GROUND FAULT INTERRUPTER
φ DED.	110V CONVENIENCE, DEDICATED CIRCUIT
φ S	SWITCH HALF OF CONVENIENCE DUPLEX
φ 220	220V WALL OUTLET
φ UC	110V CONVENIENCE DUPLEX OUTLET - UNDER COUNTER
φ X"	110V CONVENIENCE DUPLEX OUTLET - X" ABOVE FLOOR
φ E	EXISTING 110V CONVENIENCE DUPLEX OUTLET
S	WALL SWITCH
S D	WALL DIMMER
S 2	DOUBLE SWITCH
S 3	THREE-WAY SWITCH
S J	JAMB SWITCH
S R	RHEOSTAT
S W	WATERPROOF SWITCH
S E	EXISTING SWITCH
▼	TELEPHONE JACK
◁	FLOOR TELEPHONE JACK
TV	CABLE TV OUTLET
SD	SMOKE DETECTOR
SP	SPEAKER
S V	SPEAKER VOLUME CONTROL
DB CHIMES	DOOR BELL CHIMES
DB	DOOR BELL
B	CALL BUZZER
	VENT FAN
M	MOTOR
N	NETWORK (DATA)
T	THERMOSTAT
WH	WATER HEATER

LIGHT FIXTURE LEGEND

SYMBOL	DESCRIPTION
	SURFACE MOUNTED CEILING FIXTURE
	RECESSED CEILING FIXTURE
	WALL WASHER
	UNDER-CABINET LIGHTING
	WALL MOUNTED FIXTURE
	PENDANT
	EXTERIOR FLOOD LIGHTS
	FLUORESCENT FIXTURE, MOUNT VERTICAL
	LOW VOLTAGE STRIP LIGHTING MOUNTED VERTICALLY
	1X4 FLUORESCENT FIXTURE
	2X4 FLUORESCENT FIXTURE
	CEILING FAN - SEPERATE SWITCHES FOR FAN AND LIGHT

Electrical Legend BED
1/4" = 1'-0"



1 Level 1
1/4" = 1'-0"

CHRISTIE CAMPBELL
1117 CHURCH
GALVESTON TX 77550

R15-013.01

ARCHITECTECT SEAL

BRAX EASTERWOOD
DESIGN
2728 AVE Q SUITE 2
GALVESTON, TEXAS 77550
PHONE 409.354.8976
EASTERWOOD@BEAIA.COM

CONSULTANT SEAL

REVISION SCHEDULE

Number	Date

PERMIT SET
DATE ISSUED: 01/10/2017

A5.1
Reflected Ceiling Plan

1117 CHURCH, GALVESTON, TX 77550

HHM-12385

Parcel ID	690157	Year Built	ca. 1880
District	East End Historic District	Priority Rating	Medium
Building Faces	N		

High = Individually Eligible/Listed; Contributing
Medium = Contributing
Low = Non-Contributing

DESCRIPTION

Type	Single-Family House Center Passage
Stylistic Influences	Folk Victorian
Stories	1
Exterior Wall Materials	Horizontal wood board
Foundation Type	High-raised, Pier-and-beam
Landscape Features	Brick curb, Concrete wall

ROOF

Roof Shape	Hipped, Side-gabled
Roof Materials	Asphalt composition shingles
Roof Features	Flared eaves, Box eaves
Gable End Treatment	Same as wall treatment
Gable End Openings	Enclosed opening
Gable End Features	Vent

WINDOWS & DOORS

Window Types	Double-hung
Window Frame Materials	Wood
Window Light Configuration	2/2
Window Features	Wood shutters
Door Materials	Wood
Door Types	Single door primary entrance
Door Features	Transom light, Screens

CHIMNEYS

No. of Chimneys	3
Chimney Material	Brick
Chimney Placement	Internal, Central, Side, Rear
Chimney Features	Corbelling, Chimney cap, Patterned masonry, Stair-stepping

PORCH

Porch Type	One story, Entry
Porch Location	Front
Porch Roof	Front gable
No. of Porch Bays	1
Porch Support Type	Turned wood posts
Porch Features	Jig-sawn porch frieze, Squared wood balusters

INTEGRITY

Condition	Excellent
Alterations	Roof material replaced

TX_GalvestonCounty_1117_Church_1.jpg

Landmark Commission
Planning and Development Division
City of Galveston
April 3, 2023

23LC-008 STAFF REPORT

ADDRESS:
2222 Bernardo de Galvez/Avenue P

LEGAL DESCRIPTION:
Property is legally described as M.B. Menard Survey, Portion of Lots 12 & 13 (2012-1), Southwest Block 68, Galveston Outlots, in the City and County of Galveston, Texas

APPLICANTS/REPRESENTATIVE:
Joe Torres and Jennifer Gaw

PROPERTY OWNERS:
Joe Torres and Jennifer Gaw

ZONING DISTRICT:
Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)

HISTORIC DISTRICT:
Galveston Landmark

REQUEST:
Request for designation as a Galveston Landmark

STAFF RECOMMENDATION:
Approval with Conditions

EXHIBITS:
A – Applicant's Submittal

STAFF:
Catherine Gorman, AICP
Assistant Director/HPO
409-797-3665
cgorman@galvestonTX.gov

Public Notice and Comment:

Sent	Returned	In Favor	Opposed	No Comment
29				

Zoning and Land Use

Location	Zoning	Land Use
Subject Site	Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)	Residential
North	Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)	Residential
South	Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)	Commercial/Residential
East	Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)	Residential
West	Urban Neighborhood, Neighborhood Conservation District 1 (UN-NCD-1)	Residential

Executive Summary

The applicant is requesting designation of the above referenced address, as a Galveston Landmark.

Analysis

As per Article 10 of the Land Development Regulations, the following criteria should be considered during the Landmark Designation review process:

1. **The character, interest, or value as part of the development, heritage, or cultural characteristics of the City of Galveston, Galveston County, the State of Texas, or the United States.**

   Constructed in 1909, the Elmo and Lillian Johnson Bungalow was built by the Elmo Johnson as his primary residence. Mr. Johnson pulled the building permit for the house two weeks before he and Lillian were married. Mr. Johnson was a lawyer that practied law in his father's, Marsene Johnson, firm. Ms. Johnson was a member of the prominent Crain family from Victoria, Texas. The marriage was short lived. The couple divorced in 1915 and Mr. Johnson remarried just six months later.

   The house was later owned by members of the Schuler family for 74 years.

2. **Distinctive characteristics of a period or method of construction, or architecture, representative of, or a rare survivor of, the work of a master designer, builder, or craftsmen.**

   The Elmo and Lillian Johnson Bungalow is a fine example of the Craftsman style. Originally located facing Tremont/23rd Street, the house was relocated to its current location in 1921 by the third owner, Edgar Williams. Mr. Williams then constructed the brick apartment building at 2228 Avenue P in its place. House relocations were a common occurrence in Galveston.

3. **Retention of historic integrity, meaning that the property possesses several, and usually most, of the following aspects of integrity: location, design, setting, materials, workmanship, feeling or association.**

   The structure retains all aspects of historic integrity.

Financial Incentives for Historic Properties

The property is not located in a historic district, and is eligible for the Financial Incentive for Historic Properties for new Galveston Landmarks.

Other Reviews

The Planning Commission will hear this request at the April 4, 2023, meeting. City Council has the final decision regarding the request for a Landmark Designation. The request will be heard at the regular meeting of April 27, 2023.

Staff Recommendation

Staff recommends approval with the following condition:

Standard Condition:

1. As with all properties containing a Historic Overlay Designation, including Landmark Designations, exterior alterations to the property will be subject to review and approval by the Landmark Commission and must conform to the Design Standards for Historic Properties of Galveston, Texas.

Respectfully Submitted:

Catherine Gorman, AICP
Assistant Director/HPO

03/28/2023
Date

Elmo and Lillian Johnson Bungalow
2222 Bernardo de Galvez (Avenue P)
South parts of lots 12, 13/ Southwest Outlot 68
Built 1909

Historical Background

Elmo Johnson built this one-story frame bungalow in 1909 for use as his primary residence. Johnson pulled the building permit for the house on 1 April 1909, two weeks before he married Ida Lillian Crain. The couple resided with her parents until construction was completed. Originally located on the south parts of lots 13 and 14 on the southwest quadrant of city outlot 68, the Johnson bungalow faced Tremont Street and was initially addressed as 1824 23rd Street. The building's original insurance record described a residential dwelling topped with a metal roof and elevated 4' on wood beams mounted to 1 ½' brick piers. The bungalow included one bedroom with a closet, a parlor and dining room, one bathroom with porcelain fixtures, a butler's pantry and two porches that included a wrap-around front porch and small back porch.

In 1921, the third owner of the bungalow relocated the house east to the south parts of lots 12 and 13 and oriented the dwelling toward Avenue P. Readdressed as 2222 Avenue P, the bungalow was "updated and repaired" after it was moved. The Sanborn Fire Insurance Maps in 1947 note part of the updates and repairs included partial enclosure (east portion) of the original wrap-around porch. After it was moved, a two-story garage and apartment was constructed behind the bungalow on the north part of the lot.

Elmo and Lillian Johnson

Prominent Galveston attorney Elmo Marsene Johnson (1885-1929) was born in Fort Worth, Texas. He was the son of Texas native Beatrice Heath and Marsene Johnson, who moved to Fort Worth from Georgia in 1881 and was once considered the leading criminal lawyer in Southeast Texas. In 1890, Marcene Johnson relocated his family to Galveston where Elmo was educated in the public schools before he entered law school at the University of Texas in Austin. After he passed the bar examination in 1908, Elmo joined his father's Galveston law firm on Market Street.

On 15 April 1909, Elmo married Lillian Ida Crain (1891-1964). Born in Victoria, Texas, Lillian was the daughter of Ida Sparks Crossland and James M. Crain, a member of the 8th Texas Calvary Regiment known as Terry's Texas Rangers. Elmo and Lillian resided in their bungalow at 23rd and Avenue P until 1915. In May of that year, the couple divorced and six months later, Elmo married Dess Jane Johnson. Lillian returned to reside with her parents while Elmo and his new bride moved to the Grand Hotel on Postoffice Street. Elmo retained ownership of the bungalow and utilized it as rent property until he sold it in 1918.

The Schuler Family

German immigrant William Oskar Schuler (1878-1956) and his wife, Ida, purchased the Johnson Bungalow in May 1922. Known as "Pop," Schuler immigrated to Galveston as a baby and was a salesman associated with the National Biscuit Company for nearly fifty years. After he retired he served in advisory capacities on various recreational fields across the island and was well known in local athletic circles. On 24 January 1900, Pop married life-long Galvestonian Ida Cecile Sylvester (1879-1978). Ida was a devoted housewife and active congregant of Trinity Episcopal Church and O.W. S. Mizpah Chapter No. 5, of which she retained membership for 48 years. After Pop and Ida died, their son and daughter-in-law, Junie and Eva, maintained the Schuler family residence at 2222 Avenue P.

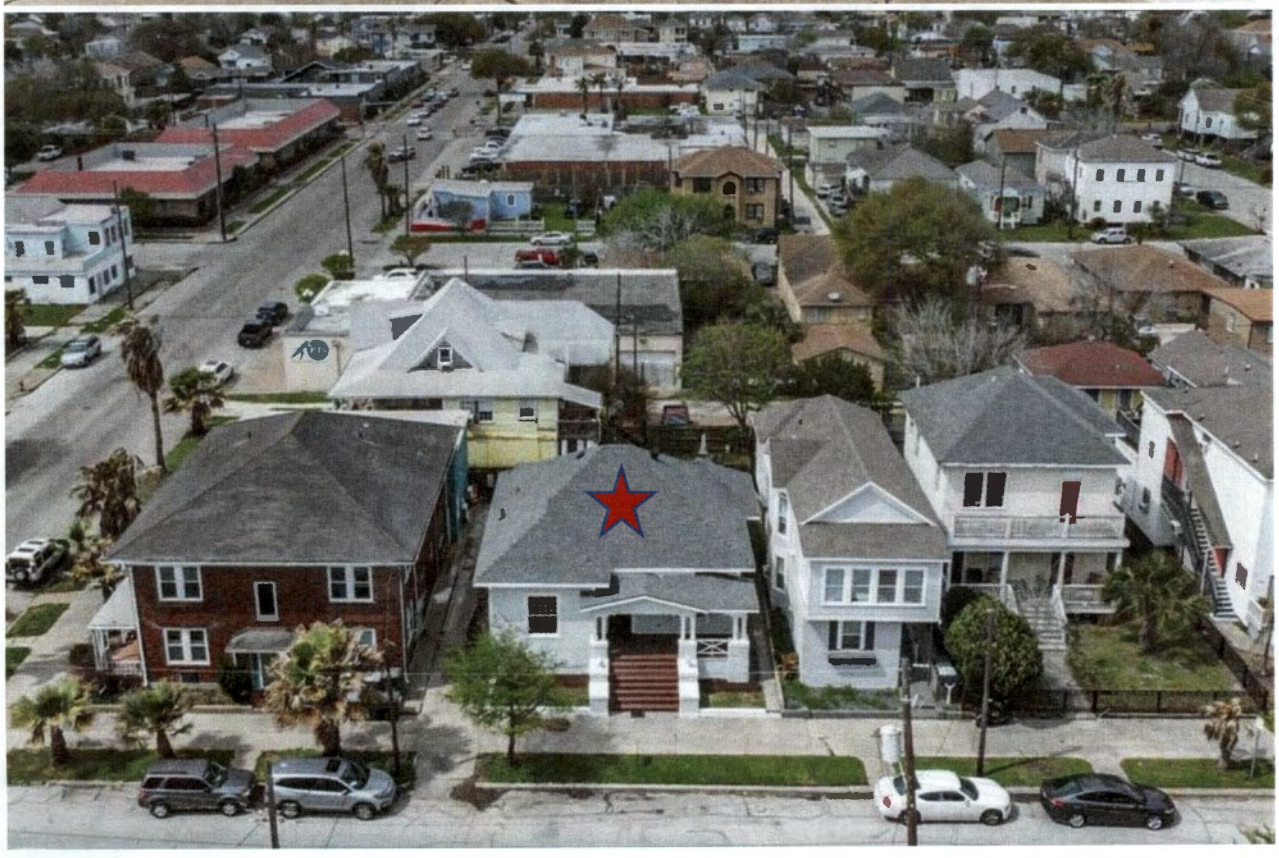
Born on the island, William O. "Junie" Schuler, Jr., (1917-1995) was a graduate of Ball High School and former state Decathlon champion. He served in the U. S. Air Corps during World War II and returned to Galveston when the war ended and worked for Union Carbide in Texas City for 26 years. In 1976, Junie married Michigan native Eva Sova (1920-2000). After his death, Eva remained in the bungalow with daughter Barbara Wright. In 1996, Eva sold the bungalow and ended 74 years of Schuler family ownership.

Chain of Title

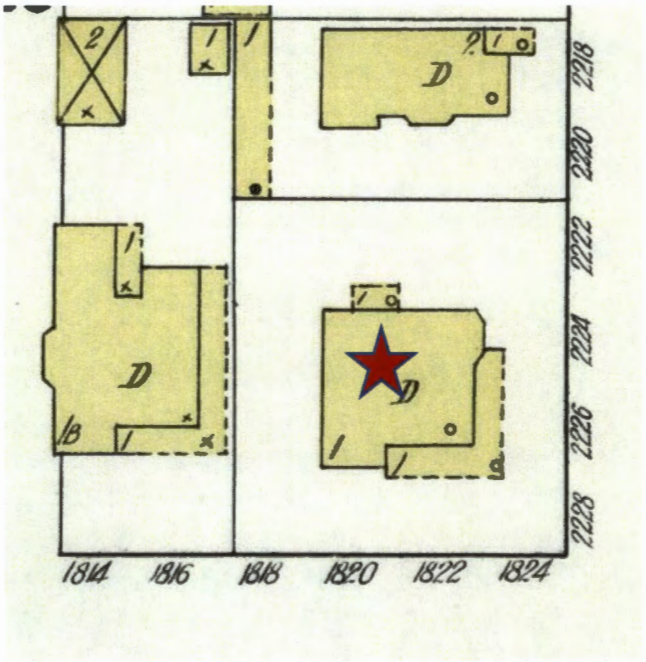
Elmo and Lillian Johnson
Thomas M. Nabors. Purchased August 1918.
Edgar Williams. Purchased March 1920. [1]
William Shuler. Purchased May 1922
William Schuler, Jr. and Gregory E. (Schuler) Wright, transfer of ownership 1978 after death of mother, Ida. [2]
Robert Dennis Wright. Purchased July 1994 [3]
Eva K. Shuler, wife of W. O. Schuler, Jr. Purchased December 1995.
William R. Moyer. Purchased August 1996.
William H. Dailey. Purchased March 2000.
Gold Coast Equity LLC to Constructionize LLC. Purchase and transfer September 2020.
Current owners. Purchased May 2021.

---

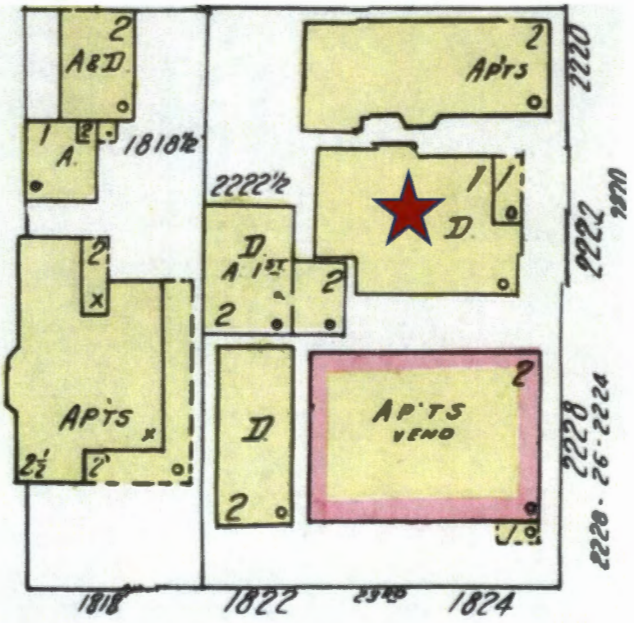
[1] Williams is responsible for 1921 relocation of the Johnson Bungalow to face Avenue P. After he moved the bungalow, he built the extant brick four-plex apartment building at 2228 Avenue P in April 1924.
[2] Gregory Wright was Ida Schuler's son by a previous marriage. He was noted as Gregory Schuler in early Galveston City Directories and U.S. Census records.
[3] Robert Dennis Wright was noted as Junie and Eva Schuler's son in both of their obituaries.



Sanborn Fire Insurance Map footprint, Lots 12, 13 and 14/ Southwest Outlet 68 (2222 Ave P)



1912 (above)- Johnson Bungalow (built 1909) facing Tremont (1824 23rd) on parts of lots 13 and 14. Footprint of the one-story frame building illustrates original wrap-around porch with south and western exposure as well as small back porch on east elevation. 1947 (below) registered the relocated bungalow to parts of lots 12 and 13 (2222 Avenue P). The 1947 map noted removal/enclosure of part of the wrap-around porch as well as addition of two-story frame garage/dwelling at rear of lot (built 1921) and Williams Apartments, 2228 Avenue P (built 1924).



Galveston City Directory Search, 2222 Avenue P

1908-1909

Elmo Johnson, Stenographer, Marsene Johnson, also notary public, r. 1716 Postoffice
Marsene Johnson, attorney, office over 2003 Market, ph. 780, r. 1716 Postoffice, 4. Ph. 597

1909-1910

Elmo Johnson, attorney, assistant Marsene Johnson 2003 ½ Market, ph. 780, also notary public, r. 1824 Tremont

1911-1912

Elmo Johnson, attorney, with Marsene Johnson 2003 ½ Market, ph. 780, also notary public, r. 1824 Tremont. 3

1913

Elmo Johnson, attorney, with Marsene Johnson 2003 ½ Market, ph. 780, also notary public, r. 1824 Tremont. 3. Ph. 66

1914

Elmo Johnson, lawyer and notary with Marsene Johnson 2003 ½ Ave D, ph. 780, r. 1824 Tremont. 3. Ph. 66

1916

Elmo Johnson, lawyer and notary with Marsene Johnson 2003 ½ Ave D, ph. 780,rooms Grand Hotel, Tel. 66
Grand Hotel, 2012-18 Avenue E
Leonard N. Taylor, proprietor Taylor Moters Co., 1923-27 23rd, Tel 3323, r. 1824 23rd (2)

1919

Elmo Johnson (Dess J), lawyer and notary with Marsene Johnson 2003 ½ Ave D, ph. 780, r.1828 Av M, Tel. 66
Thomas M. Nabors (Helen D), Pres and Mgr Coca-Cola Bottling Co., r. 1824 23rd, Tel 5335

1921

Edgar P. Williams (Jessie), supt Elevators A and B, Galveston Wharf Co., r. 1824 23rd
Although the bungalow was relocated in 1921, information for directories was gathered a year in advance, sp the bungalow was still noted at 1824 23rd

1923

William O. Schuler (Ida), r. 2222 Ave P

Gregory E. Schuler, student, h. 2222 Ave P

1924-1925
William O. Schuler (Ida), salesman, r. 2222 Ave P
Gregory E. Schuler, clerk GC&SF Ry., h. 2222 Ave P

1930
William O. Schuler (Ida), salesman, r. 2222 Ave P
Gregory E. Schuler, clerk GC&SF Ry., h. 2222 Ave P

1941
William O. Schuler (Ida), salesman, r. 2222 Ave P
William O. Schuler Jr., clerk ANICo, h. 2222 Ave P
Gregory E. Schuler, tax investigator, h. 2220 Ave P

1951
William O. Schuler (Ida), r. 2222 Ave P
William O. Schuler Jr. (Davene), dir City Rec & Park Dept., r. 2222 ½ Ave P

1960
Ida Schuler (wid Wm O), r. 2222 Ave P
Mrs. Dollie J. Morris (wid Vernon), r. rear 2222 Ave P
William O. Schuler Jr. (Davene), clk C&CC Corp., r. 3515 Ave R

1971
Ida Schuler (wid Wm O), clk Union Carbide (TC), r. 2222 Ave P
No listing in cross directory for rear 2222 Ave P or 2222 ½ Ave P

1980
William O. Schuler Jr. (Eva K), retired, r. 2222 Ave P
Rena Layman, retired, r. 2222 ½ Ave P

1991
William O. Schuler Jr. (Eva K), retired, r. 2222 Ave P
Barbara R. Wright, emp Key Logos Hotel, r. 2222 ½ Ave P

1996 (last year directories were issued)
William O. Schuler Jr. r. 2222 Ave P
No listing in cross directory for rear 2222 Ave P

Landmark Commission
Planning Department
City of Galveston
April 3, 2023

23LC-010 STAFF REPORT

ADDRESS:
1328 Sealy / Avenue I

LEGAL DESCRIPTION:
Property is legally described as Lots 14 and the West 3 Feet of Lot 13, Block 253, in the City and County of Galveston, Texas.

APPLICANT/REPRESENTATIVE:
Greg Lewis, Lewis Design Group

PROPERTY OWNER:
Dennis and Kelly Maresh

ZONING DISTRICT:
Residential, Single Family, Historic (R-3-H)

HISTORIC DISTRICT:
East End Historic District

REQUEST:
Request for a Certificate of Appropriateness for a garage apartment.

STAFF RECOMMENDATION:
Approval with conditions.

EXHIBITS:
A – Applicant's Submittal
B – Historic Sites Inventory Sheet

STAFF:
Daniel Lunsford, Senior Planner
(409) 797-3659
dlunsford@galvestontx.gov

Public Notice and Comment:

Sent	Returned	In Favor	Opposed	No Comment
5				

Executive Summary:
The applicant is requesting approval of site modifications including the addition of a two-story garage apartment. The apartment will be attached at the edge of the existing rear porch roof as shown in Exhibit A of the staff report.

Executive Summary (Continued)

Note that a similar request and scope of work were previously approved under Landmark Commission case 15LC-004. That approval has lapsed with no work started on the garage addition, and so another review is required.

Zoning and Land Use

Location	Zoning	Land Use
Subject Site	Residential, Single Family, Historic (R-3-H)	Residential
North	Residential, Single Family, Historic (R-3-H)	Residential
South	Residential, Single Family, Historic (R-3-H)	Sacred Heart Catholic Church
East	Residential, Single Family, Historic (R-3-H)	Residential
West	Residential, Single Family, Historic (R-3-H)	Residential

Historical and/or Architectural Significance

Date	1880
Style	Folk Victorian
Condition	Excellent
Evaluation	"Contributing" – contributes to the historical significance of the district through location, design, setting, materials, workmanship, feeling, and/or association.
Notes	Rear addition

Design Standards

Additions to Historic Residential Structures

A new addition, if appropriately designed, can be made to a historic building without compromising its historic character. When making an addition to a locally-designated individual historic residential landmark or contributing residential structure in a locally-designated historic district, it is important to consider the relationship with the surrounding historic context and the scale, placement and materials of the addition.

3.37 Design a secondary structure to be subordinate in scale to that of the primary building.

Appropriate

- If a proposed secondary building is to be wider than one lot, break up the mass into smaller modules that reflect traditional secondary structures.
- Traditionally, these are located along an alley edge.

3.38 Locate a new secondary structure to be line with others in the district.

- Traditionally, these are located along an alley edge.
- Metal buildings are not permitted.

3.39 Use materials that appear similar in character to those of the primary structure.

Inappropriate

- Metal buildings are not permitted.

3.40 Design an addition to a historic residential structure to be clearly differentiated from the original structure.

Appropriate

- Use a lower-scale connecting element to join an addition to a historic residential structure.
- Differentiate an addition from the historic original using changes in material, color and/or wall plane

3.41 Keep an addition to a historic residential structure simple in size, shape, materials, color and detail.

Inappropriate

- Do not try to make an addition appear older than it is. This creates a false sense of history and is not permitted.
- Do not disturb the street sides of existing buildings whenever possible.

3.42 Design an addition to a historic residential structure to be subordinate to the primary structure.

Appropriate

- Place an addition to the side or the rear.
- Vertical additions must be placed in the rear so they are not visible from the street or right-of-way.

Parking and Driveways

Driveways placed in the city right-of-way must adhere to the requirements for sidewalks as prescribed by the City Code. The proper permits must also be obtained.

3.7 Minimize the visual impact of parking.

Appropriate

- Locate a parking area at the rear or to the side of a site whenever possible.
- Use landscaping to screen parking areas.
- Keep paved areas and curbs cuts for driveways to a minimum widths.
- Maintain historic strip driveways. These driveways, from the 1920s and 1930s, allow for better drainage and permit grass to grow between the concrete strips.

Inappropriate

- Paving the front yard for parking is not permitted.
- New driveways and garages that open onto a primary street are not permitted.

- A new semi-circular drive in a front yard is not permitted unless there is evidence of its previous existence.

Conformance with the Design Standards

Staff finds that the request generally conforms to the Design Standards. The proposed work conforms to the elements prescribed in the Design Standards regarding materials, size, placement, and the use of lower-scale elements to connect the existing and proposed structure.

However, the request does not conform to the Design Standards regarding new driveways and garages, which are not allowed on a primary street. Staff recommends that the new driveway on 14th Street be omitted, and the garage doors be modified to access the alley directly behind. In addition, the proposed drawings depict windows with divided lights. While this is often appropriate for new windows added to historic homes, for new construction 1-over-1 windows are recommended by the Design Standards.

Staff Recommendation

Staff recommends approval of the request with the following conditions:

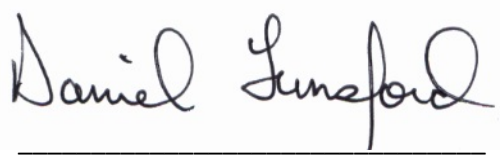
Specific Conditions:

1. The exterior modifications shall conform to the design, materials and placement presented in Attachment A with the following modifications:
    a. The proposed garage apartment shall be modified to provide automobile access (garage doors) from the alley only, and the proposed driveway onto 14th Street be likewise omitted;
    b. Windows in the new addition shall be of a 1-over-1 light configuration;

Standard Conditions:

2. Any significant alteration from the design approved by the Landmark Commission, shall require the request to be returned to the Commission for review;
3. All work will require a building permit prior to construction. Any additional work will require a separate building permit from the Building Department, and may require review by the Landmark Commission and/or the City's Historic Preservation Officer prior to construction;
4. The Landmark Commission approval shall expire after 2 years if no progress has been made toward completion of a project unless the applicant files a request for an extension or can show progress toward completion of a project; and
5. In accordance with Section 10.110 of the Land Development Regulations, should the applicant be aggrieved by the decision of the Landmark Commission, a letter requesting an appeal must be submitted to the Historic Preservation Officer within 20 days of the Commission decision. Additionally, a Zoning Board of Adjustment application must be submitted to the Development Services Department by the next respective deadline date.

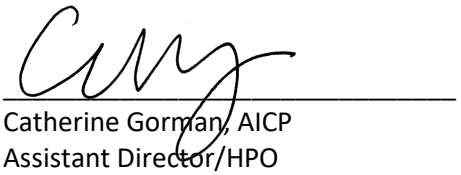
Respectfully Submitted,



03/22/23

Daniel Lunsford
Senior Planner

Date



03/22/23

Catherine Gorman, AICP
Assistant Director/HPO

Date

EXHIBIT A

AREA OF PROPOSED ADDITION

Exstg. under ground electrical.

Existing wood fence to remain.

Existing wood fence.

120'-0" PROPERTY LINE

UGE

0'-0" bldg. setback

Existing power pole to remain.

Existing wood fence to remain up to new structure..

Distance of new Building from North Property Line.

6"

11'-2"

Distance of new Building from East Property Line.

EXISTING STAIRS AND LANDING TO REMAIN

Generator.

HVAC unit.

GAS METER

6'-0"

GRASS

Existing large oak tre

5'-0"

OUTDOOR KITCHEN

Roof line

5'-9"

8"

5'-8"

6'-0"

GRASS

TWO STORY FRAME BUILDING GARAGE AND UPSTAIRS APARTMENT.

EXISTING DECK ROOF (to remain)

TWO STORY EXISTING FRAME HOUSE (TO REMAIN)

LANDING

STEPS

SIDEWALK

ALLEY (20' Alley)

42'-0"

43'-0" PROPERTY LINE

43'-0"

PROPERTY LINE

SIDEWALK

UTILITIES

Existing utility box to remain.

24'-0"

23'-4"

EXISTING DECK (to remain)

20' bldg. setback

GRASS

3'-0" bldg. setback line.

Existing power pole to remain.

4'-9"

3'-6"

Existing house roof line

PROPERTY LINE

120'-0"

10'-6" (EXSTG DECK)

Distance of new Building from West Property Line.

Distance btwn new Building and exstg house.

5'-6"

1'-5"

5'-0"

SIDEWALK

Existing stop sign.

Existing concrete sidewalk to remain.

New concrete sidewalk.

Slope

Level

Slope to Alley Max. 1:12.

14'-0"

14'-5"

5'-0"

grass

grass

grass

New concrete sidewalk

Existing GAS LINE.

Existing fire hydrant.

NEW CONCRETE RIBBON DRIVEWAY

9'-0"

GRASS

GRASS

New concrete curb cut to be installed..

New concrete curb cut to be installed.

Existing concrete street curb.

21'-5"

8'-0"

SEALY AVENUE (70' R.O.W.)

14TH STREET - SITE PLAN

1328 SEALY AVENUE

N E S W

Exstg. under ground electrical.

Existing wood fence to remain.

120'–0"

UGE UGE UGE UGE UGE UGE

PROPERTY LINE

0'–0" bldg. setback

Existing power pole to remain.

Existing wood fence to remain up to new structure..

6"

11'–2"

Distance of new Building from North Property Line.

Distance of new Building from East Property Line.

EXISTING STAIRS AND LANDING TO REMAIN

Generator.

HVAC unit.

5'–0"

OUTDOOR KITCHEN

Roof line

43'–0" PROPERTY LINE

ALLEY

(20' Alley)

42'–0"

TWO STORY FRAME BUILDING. GARAGE AND UPSTAIRS APARTMENT.

EXISTING DECK ROOF (to remain)

TW

UTILITIES

Existing utility box to remain.

24'–0"

23'–4"

EXISTING DECK (to remain)

3'–0" bldg. setback line.

Existing power pole to remain.

4'–9"

3'–6"

Existing house roof line

PROPERTY LINE

120'–0"

10'–6" (EXSTG DECK)

Distance of new Building from West Property Line.

14'–5"

5'–0"

Distance btwn new Building and exstg house.

New concrete sidewalk.

Slope to Alley Max. 1:12.

Slope

Level

14'–0"

Grass

Grass

Grass

New concrete sidewalk

Existing fire hydrant.

NEW CONCRETE RIBBON DRIVEWAY

5'–0"

New concrete curb cut to be installed..

New concrete curb cut to be installed.

21'–5"

SITE PLAN

Scale: $\frac{3}{16}$" = 1'0" @ 11" x 17"

14TH STREET - WEST ELEVATION

1328 SEALY AVENUE

14TH STREET - WEST ELEVATION

1328 SEALY AVENUE

FRONT ELEVATION

12/19/2022

SCALE: 1/4"=1'0" @ 11"x17"

REV: 03/03/2023

ALLEY ELEVATION

12/19/2022

Scale: 1/4"=1'0" @ 11"x17"

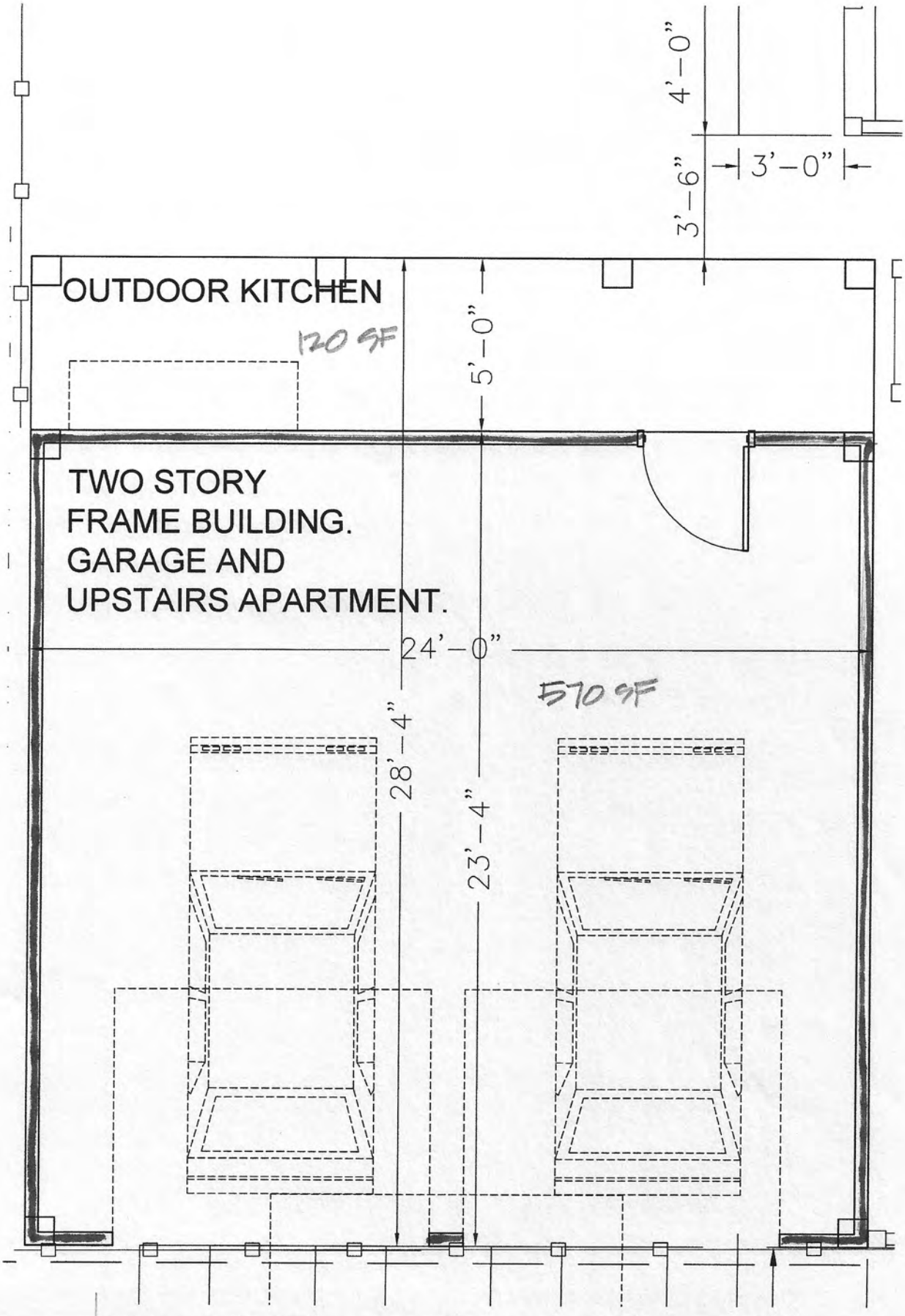
REV: 03/03/2023

REAR ELEVATION

12/19/2022

Scale: 1/4"=1'0" @ 11"x17"

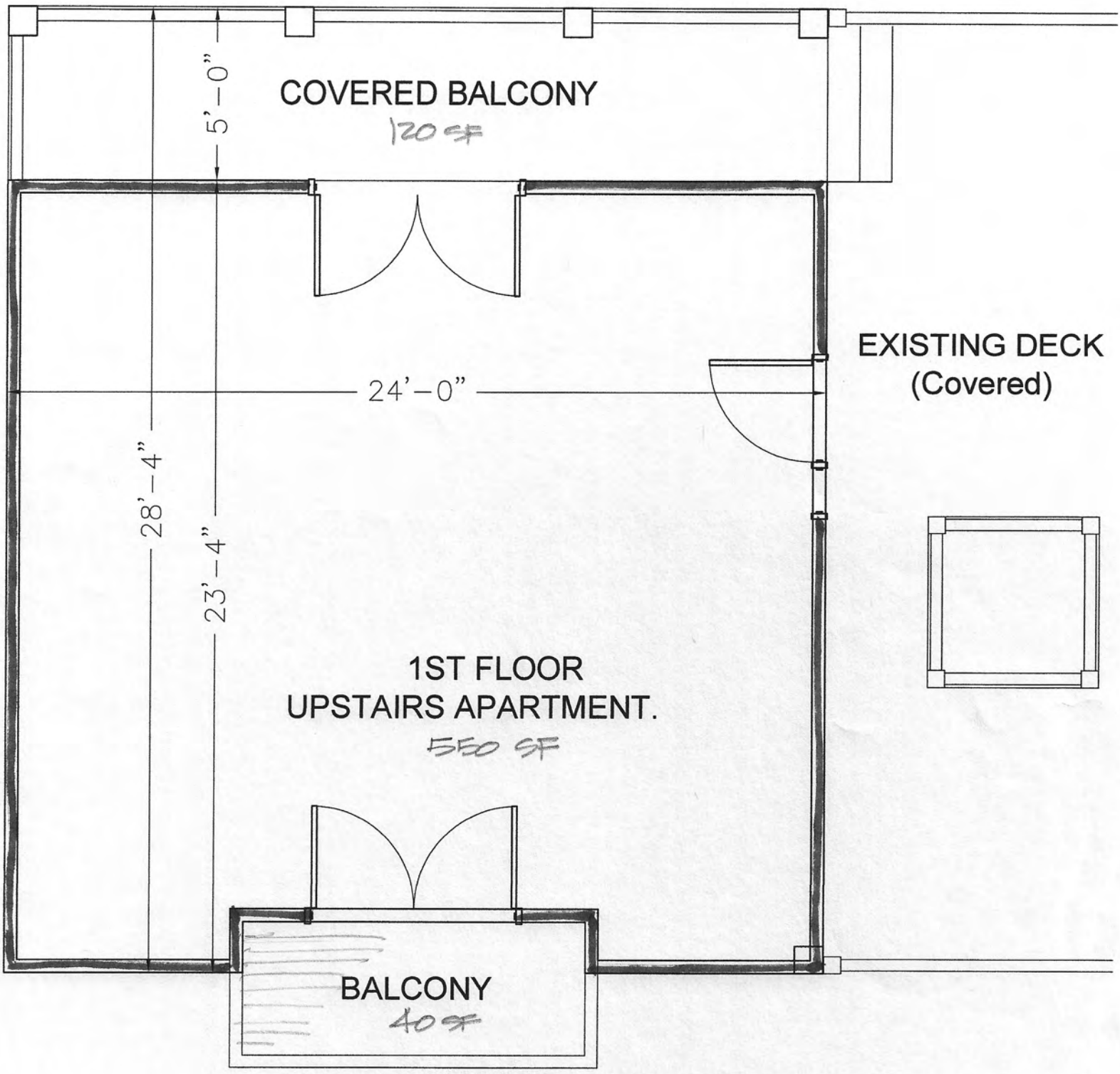
REV: 03/03/2023



GROUND FLOOR

1/4"=1'0"

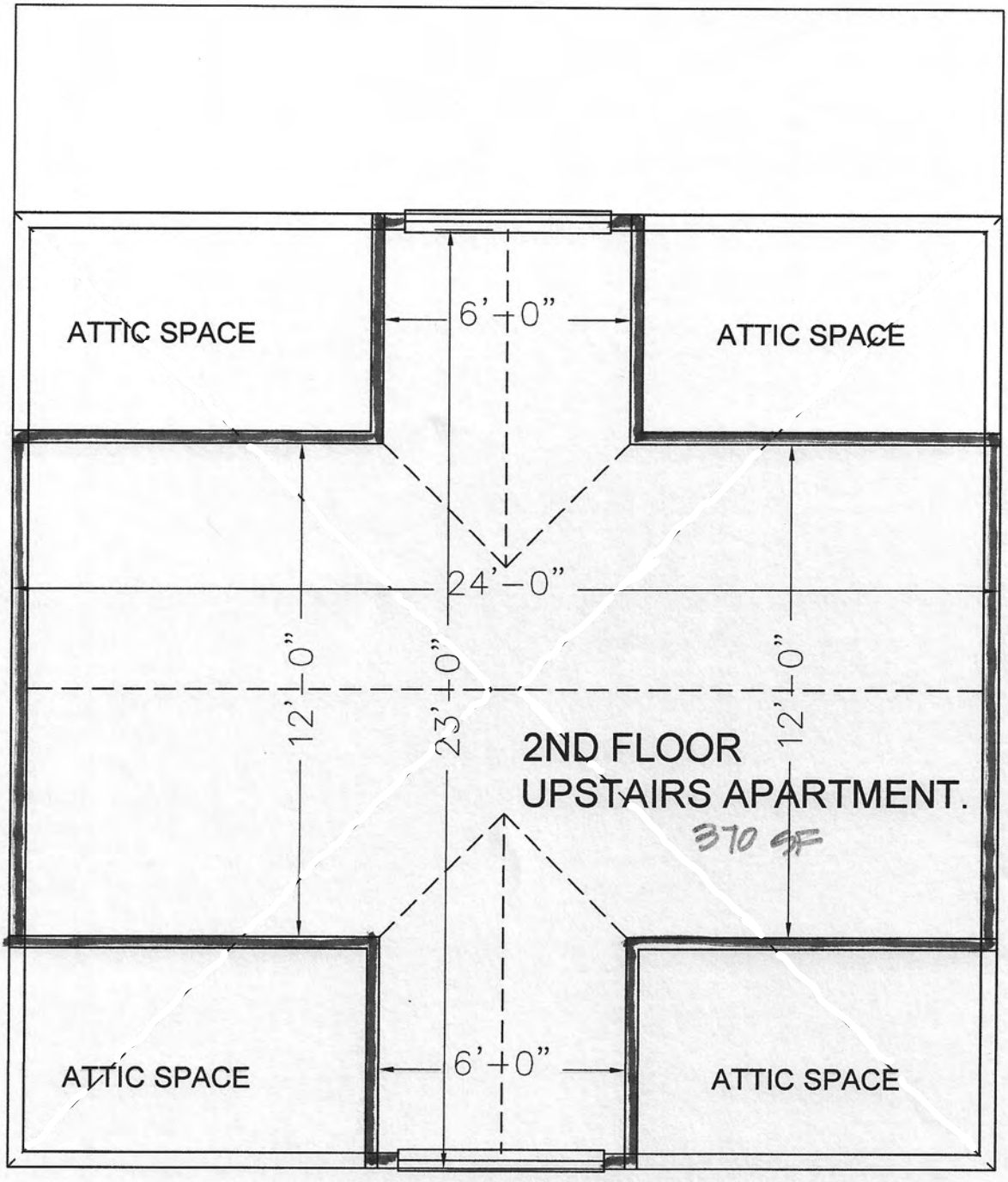
02.07.2023



FIRST FLOOR

1/4"=1'0"

02-07-2023



SECOND FLOOR

1/4"=1'0"

02-07-2023

EXHIBIT B

1328 SEALY, GALVESTON, TX 77550

HHM-13368

Parcel ID	689753	Year Built	ca. 1880	High = Individually Eligible/Listed; Contributing Medium = Contributing Low = Non-Contributing
District	East End Historic District	Priority Rating	Medium	
Building Faces	S			

DESCRIPTION

Type	Single-Family House Massed Plan
Stylistic Influences	Folk Victorian
Stories	2
Exterior Wall Materials	Horizontal wood board
Foundation Type	High-raised
Fence Type	Picket fence

ROOF

Roof Shape	Side-gabled
Roof Materials	Asphalt composition shingles
No. of Dormers	3
Dormer Roof Type	Gable
Gable End Treatment	Same as wall treatment
Gable End Openings	Windows

WINDOWS & DOORS

Window Features	Wood shutters
Door Types	Double door primary entrance
Door Features	Transom light
Windows & Doors Notes	Windows shutterec

CHIMNEYS

PORCH

Porch Type	Full width, One story
Porch Location	Front
Porch Roof	Flat
No. of Porch Bays	3
Porch Support Type	Square posts
Porch Features	Jig-sawn brackets, Jig-sawn porch frieze, Turned wood balusters

INTEGRITY

Condition	Excellent
Additions	Rear addition

TX_GalvestonCounty_1328_Sealy_1.jpg

Landmark Commission
Development Services Department
City of Galveston
April 3, 2023

23LC-011 STAFF REPORT

ADDRESS:
1520 Rosenberg/25th Street

LEGAL DESCRIPTION:
Property is legally described as the M. B. Menard Survey, Lot 9, Northwest Block 42, Galveston Outlots Special Subdivision, in the City and County of Galveston, Texas

APPLICANT/REPRESENTATIVE:
Cheyenne Neckar

PROPERTY OWNER:
Cathy McLean

ZONING DISTRICT:
Single-Family Residential, Historic District (R-3-H)

HISTORIC DISTRICT:
Silk Stocking

REQUEST:
Request for a Certificate of Appropriateness for alterations to the structure including the installation of solar panels

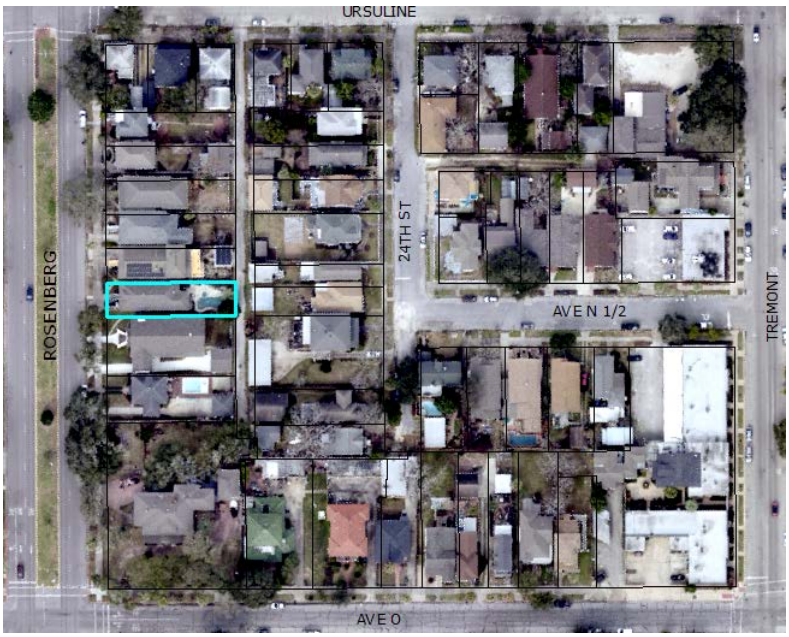
STAFF RECOMMENDATION:
Approval with conditions

EXHIBITS:
A – Applicant's Submittal

STAFF:
Catherine Gorman, AICP
Assistant Director/HPO
409-797-3665
cgorman@galvestontx.gov

Public Notice and Comment:

Sent	Returned	In Favor	Opposed	No Comment
6				



Zoning and Land Use

Location	Zoning	Land Use
Subject Site	Single-Family Residential, Historic District (R-3-H)	Residential
North	Single-Family Residential, Historic District (R-3-H)	Residential
South	Single-Family Residential, Historic District (R-3-H)	Residential
East	Single-Family Residential, Historic District (R-3-H)	Residential
West	Single-Family Residential (R-1)	School

Historical and/or Architectural Significance

Date	1920
Style	Craftsman
Condition	Excellent
Priority Rating	Medium – Contributing

Executive Summary

The applicant is requesting to install 22 solar panels on the south portion of the roof. Please see Exhibit A for more details.

Design Standards for Historic Properties

The following Design Standards are applicable to the project:

Using Energy-Generating Technologies

When integrating modern energy technology into a historic structure, maintain the resource's historic integrity and the ability to interpret its historic significance. Use of energy-generating technologies should be the final option considered in an efficiency rehabilitation project. Utilize strategies to reduce energy consumption prior to undertaking an energy generation project. Consider the overall project goals and energy strategies when determining if a specific technology is appropriate for your project.

As new technologies are tried and tested, it is important that they leave no permanent negative impacts to historic structures. The reversibility of their application will be a key consideration when determining appropriateness.

Locate energy-generating technology to minimize impacts to the historic character of the site and structure.

Appropriate

- Locate technology where it will not damage, obscure or cause removal of significant features or materials.
- Maintain the ability to interpret the historic character of the building.

Install new technology in a reversible manner.

Appropriate

- Install technology in such a way that it can be readily removed and the original character easily restored.

- Use materials which are environmentally friendly and that will not interact negatively with historic building materials.

Solar Collectors
Solar collectors should be designed, sized and located to minimize their effect on the character of a historic building.

2.56 Minimize adverse effects from solar collectors on the character of a historic building.
Appropriate
- Place collectors to avoid obscuring significant features or adversely affecting the perception of the overall character of the property.
- Size collector arrays to remain subordinate to the historic structure.
- Mount collectors flush below the ridge line on a sloping roof. This will not cause a significant decrease in the device's solar gain capabilities.
- Install collectors on an addition or secondary structure
- Minimize visual impacts by locating collectors back from the front façade.
- Ensure that exposed hardware, frames and piping have a matte finish, and are consistent with the color scheme of the primary structure.

2.57 Use the least invasive method feasible to attach solar collectors to a historic roof.
Appropriate
- Avoid damage to significant features.
- Install a collector in such a way that it can be removed and the original character easily restored.

Inappropriate
- Do not threaten the structural integrity of the building with collector arrays.

2.58 Consider using building- integrated photo voltaic technology where the use of new building material is appropriate.
Appropriate
- Plan installation of integrated photo voltaic systems so they will not hinder the ability to interpret the historic significance of the structure. For example, installation of solar shingles on a rear or secondary roof façade where the original roof material is missing or significantly damaged would be appropriate.

Locating Solar Panels on a Historic Structure
When locating solar panels on a historic building, it is important to consider the building's significance as well as the visibility of the proposed installation location.

Preferred Location
If the existing structure has a high level of historic significance, the surrounding context has many intact historic structures or the roof is highly visible, panels should be set back from the front façade and flush-mounted to the roof.
- Panels are set back from the front façade.
- Panels are flush with the roof.

Acceptable Location

If the roof is not highly visible and/or site constraints restrict solar access, it may be appropriate to locate flush-mounted solar panels towards the front facade.

- Panels are set back from the eave, but closer to the front.
- Panels are flush with the roof.
- Panels are subordinate to the roof plane.

Conformance with the Design Standards

The roof style is a hipped roof. The solar panels are not proposed for the street facing roof planes. The solar panels will be as far back on the roof as possible to minimize visibility. The installation of the solar panels will be mounted flush below the ridgeline with brackets and mounting rails. There was no indication of the finish of the solar panels but the Design Standards encourage them to be in a matte black finish. Staff finds the installation of solar panels to be in conformance with the Design Standards with conditions.

Staff Recommendation

Staff recommends approval of the request with the following conditions:

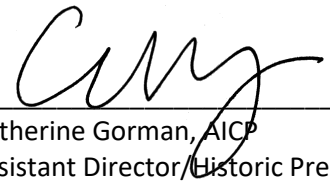
Specific Conditions:

1. The applicant shall conform to the design, materials and placement indicated in Exhibit A with the following clarification:
    a. The solar panel finish shall be matte black

Standard Conditions:

2. Any significant alteration from the design approved by the Landmark Commission, shall require the request to be returned to the Commission for review;
3. The applicant shall obtain a building permit prior to beginning construction;
4. Any additional work will require a separate building permit from the Building Division, and may require review by the Landmark Commission and/or the City's Historic Preservation Officer prior to construction;
5. The Landmark Commission approval shall expire after two years if no progress has been made toward completion of a project unless the applicant files a request for an extension or can show progress toward completion of a project; and,
6. In accordance with Section 10.110 of the Land Development Regulations, should the applicant be aggrieved by the decision of the Landmark Commission, a letter requesting an appeal must be submitted to the Historic Preservation Officer within 10 days of the Commission decision. Additionally, a Zoning Board of Adjustment application must be submitted to the Development Services Department by the next respective deadline date.

Respectfully submitted,

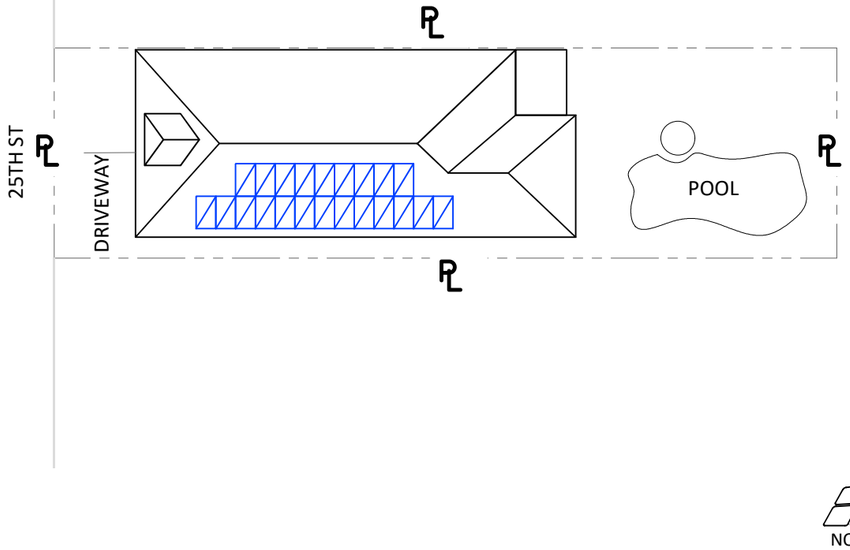


Catherine Gorman, AICP
Assistant Director/Historic Preservation Officer

03/28/2023
Date

PARCEL MAP

GPS COORDINATES (29.294268,-94.79221)



PROJECT APN:

GOVERNING CODES

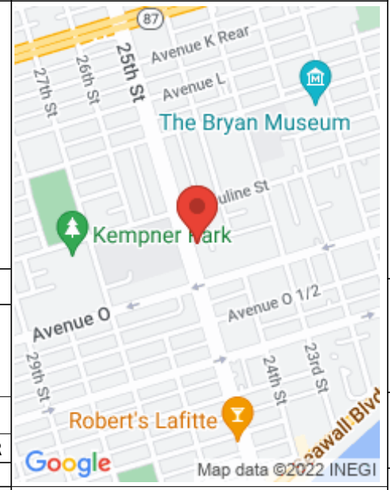
APPLICABLE BUILDING CODES:

2012 INTERNATIONAL BUILDING CODE
2012 INTERNATIONAL RESIDENTIAL CODE
2012 INTERNATIONAL FIRE CODE
2017 NATIONAL ELECTRIC CODE

DESIGN CRITERIA

BUILDING OCCUPANCY: R-3
RISK CATEGORY: II
ASCE 7-10 WIND SPEED: 150
EXPOSURE CATEGORY: Exposure C
SNOW LOAD: 0
SNOW EXPOSURE: N/A
CONSTRUCTION TYPE: VB

PROJECT LOCATION



SCOPE OF WORK

ROOF MOUNTED PV (SOLAR) PROJECT GRID-TIED W/O BATTERY STORAGE

PROPOSED SOLAR EQUIPMENT

QTY.	EQUIPMENT	DESCRIPTION/MFG/MODEL
22	MODULES	MISSION SOLAR MSE345SX5T
22	INVERTER(S)	Enphase IQ7PLUS-72-2-US (240V)
N/A	MOUNTING	IronRidge XR100 Rail
42	STANCHIONS	IronRidge FlashFoot2
N/A	RSD DEVICE	INTEGRATED IN INV
N/A	BATTERIES	N/A
N/A	COMBINER(S)	N/A
(E)	MSP RATINGS	200A BUS/200A MAIN BREAKER

SITE / PROJECT DETAILS

CONNECTION	BACK-FED BREAKER
SYSTEM SIZE DC	7.590 KW
SYSTEM SIZE AC	6.786 KW
QTY. STRING/CKT.	2
ELECT. SERVICE	120/240V - 1Φ
ROOF COVERING	Comp Shingle
TILT	20°
AZIMUTH	163°

SHEET INDEX

SHEET NUMBER	SHEET TITLE
PV-001	COVER SHEET
N-001	GENERAL NOTES
PV-100R	PV ARRAY LAYOUT
S-100	RACKING LAYOUT
S-200	SECTION ELEVATION
S-201	ATTACHMENT DETAILS
E-001	EQUIP. CALCULATION
E-002	WIRE AND COND. CALCS
E-003	THREE LINE DIAGRAM
E-100	ELECTRICAL LAYOUT
P-001	STANDARD PLACARDS
P-002	DYNAMIC PLACARDS
R-1xx	EQUIP.CUT SHEETS

PROJECT TEAM LIST

CONTRACTOR:
Daybreak Solar Power, LLC
2106 N Main St
Fort Worth , TX 76164
CONTRACTOR LIC #: TECL32815
PHONE: (817) 618-6574
CONTACT NAME: Cheyenne Neckar
PHONE: (817) 501-4922
EMAIL: cheyenne@daybreakinstall.com

DESIGN BY:
Cheyenne Neckar
PHONE: (817) 501-4922
EMAIL: cheyenne@daybreakinstall.com

PROJECT DRAFTER:
Advanced Solar Solutions
2372 Morse Ave #912
Irvine, CA 92614
PHONE: 559-321-7000
EMAIL: info@advpermits.com

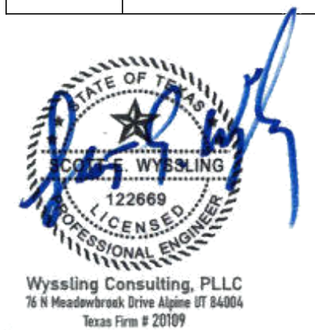
HOME OWNER PROJECT LOCATION:
Mclean, Cathy
1520 25th St, Galveston, TX 77550

CONTACT NAME: Mclean, Cathy
PHONE:
EMAIL:

ELECTRICAL UTILITY:
CenterPoint Energy Houston Electric LLC
METER NUMBER: 89632383
ESI ID NUMBER: 10089010114115140901 00
PHONE:

AUTHORITY HAVING JURISDICTION:
BUILDING: City of Galveston
PHONE:

ENGINEERED BY:
Scott E. Wyssling
76 North Meadowbrook Dr
Alpine, UT 84004
LICENSE #: 122669
LICENSE TYPE: PE
PHONE: (202) 874-3483
EMAIL: swyssling@wysslingconsulting.com



Signed 1/17/2023

GENERAL PROJECT & JURISDICTIONAL NOTES

INSPECTION REQUIREMENTS

1. A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH ALL OSHA REGULATIONS.

2. PENDING LOCAL JURISDICTIONAL REQUIREMENTS AND WHEN APPLICABLE ALL ELECTRICAL ENCLOSURE DEAD FRONTS, COVERS, DOORS, ETC. SHALE BE OPEN AND ACCESSIBLE FOR INSPECTIONS. WHEN TRENCH AND ROOF INSPECTIONS ARE REQUIRED WORK SHALL BE OPEN AND ACCESSIBLE FOR INSPECTOR.

JURISDICTIONAL & LISTING REQUIREMENTS

1. WHEN APPLICABLE A SMOKE DETECTOR, APPROVED AND LISTED BY THE STATE FIRE MARSHAL OR ANSI/UL 217 CERTIFIED TO NATIONAL FIRE ALARM AND SIGNALING CODE, NFPA 72 SHALL BE VERIFIED FUNCTIONAL OR INSTALLED IN ALL APPLICABLE CODE REQUIRED LOCATIONS.

2. ALL APPLICABLE EQUIPMENT TO BE UL LISTED OR LISTED BY OTHER JURISDICTIONAL AND UTILITY APPROVED ASSOCIATION OR NATIONALLY RECOGNIZED ORGANIZATION.

3. FULL SCOPE OF WORK SHALL COMPLY WITH ALL APPLICABLE CODES LISTED IN GOVERNING CODES SECTION, ALL MANUFACTURES' LISTINGS, INSTALLATION INSTRUCTIONS AND SPECIFICATIONS AND JURISDICTIONAL REQIREMENTS.

4. REVISED PLANS WILL BE REQUIRED TO BE RESUBMITTED TO THE LOCAL JURISDICTION IF THE INSTALLED ARRAY AND ASSOCIATED EQUIPMENT DOES NOT MATCH THE APPROVED BUILDING PLANS. ADDITIONAL FEES MAY ALSO APPLY.

5. THE PLACEMENT OF A UTILITY PV PRODUCTION METER SHALL BE PROVIDED AND PLACED BY THE CONTRACTOR AS PER APPLICABLE UTILITY OR AHJ REQUIREMENTS.

COPYRIGHT NOTICE

1. UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT EXPRESSED WRITTEN PERMISSION FROM THE CONTRACTOR AND ADVANCED SOLAR SOLUTIONS IS A VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTION.

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

COVER SHEET

PV-001

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

GENERAL NOTES:*

PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION *NEC 110.26.*

PV SYSTEM COMPONENTS; INCLUDING BUT NOT LIMITED TO, MODULES, INVERTERS AND SOURCE CIRCUIT COMBINERS ARE IDENTIFIED AND LISTED FOR USE IN PV SYSTEMS IN COMPLIANCE WITH *NEC 690.4 AND 690.6* AND *ALL UL, IEC, IEEE* CLASSIFICATIONS AS REQUIREMENTS.

RAPID SHUTDOWN NOTES:*

PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDIDNG SHALL INCLUDE A **RAPID SHUTDOWN FUNCTION** THAT CONTROLS SPECIFIC PV CONDUCTORS IN ACCORDANCE WITH *2017 NEC 690.12(A)-(D)*

EQUIPMENT LOCATIONS & ELECTRICAL NOTES:*

JUNCTION AND PULL BOXES ARE PERMITTED TO BE INSTALLED UNDER PV MODULES IN COMPLIANCE WITH *NEC 690.34*.

ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT. *2017 NEC 690.15(A)*

ALL EQUIPMENT SHALL BE INSTALLED **ACCESSIBLE TO QUALIFIED PERSONNEL** IN COMPLIANCE *WITH NEC* APPLICABLE CODES.

ALL COMPONENTS ARE **LISTED FOR THEIR INTENDED PURPOSE AND RATED FOR OUTDOOR USAGE** WHEN APPLICABLE.

STRUCTURAL AND INSTALLATION NOTES:*

RACKING SYSTEM & PV PANELS MOUNTED ON A ROOFTOP SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1703* AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

ALL PV RACKING ATTACHMENT POINTS SHALL NOT EXCEED THE PRE-ENGINEERED **MAX SPANS** OUTLINED BY THE RACKING MANUFACTURES ENGINEER OF RECORD.

GROUNDING NOTES:*

IN UNGROUNDED SYSTEMS ONLY THE DC CONDUCTORS ARE UNGROUNDED AND REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN COMPLIANCE WITH *NEC 250.134* AND *NEC 250.136(A)*.

PV EQUIPMENT INCLUDING **MODULE FRAMES AND OTHER METAL PARTS SHALL BE GROUNDED** IN COMPLIANCE WITH *NEC 690.43* AND MINIMUM GROUND CONDUCTORS SIZED IN ACCORDANCE WITH *NEC TABLE 250.122*.

CONDUCTIVE PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES SHALL BE GROUNDED IN COMPLIANCE WITH *NEC 250.134 AND NEC 250.136(A)*.

UL2703 APPROVED **MODULE AND RACK GROUNDING** SHALL BE USED AND INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL. IF *UL2703* APPROVED GROUNDING IS NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH *NEC 690.47* AND *NEC 250.50* THROUGH *NEC 250.106*. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH *NEC 250, NEC 690.47* AND *AHJ*.

PV SYSTEMS SHALL BE PROVIDED WITH **DC GROUND-FAULT PROTECTION** *2017 NEC 690.41(B)*

INTERCONNECTION / POC NOTES:*

ALL LOAD-SIDE INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)*

THE TOTAL RATING OF ALL OCPD IN SOLAR LOAD CENTERS SHALL NOT EXCEED THE RATED AMPACITY OF THE BUSBAR EXCLUDING THE OCPD PROTECTING THE BUSBAR IN COMPLIANCE WITH *NEC 705.12(B)(2)(3)(c)*

ALL FEEDER TAP (LOAD SIDE) INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)(2)(1)*

THE PV SYSTEM BACK-FEED BREAKER SHALL BE INSTALLED ON THE OPPOSITE END OF THE BUS BAR AND IT SHALL ALSO BE SIZED APPROPRIATELY AS PER *2017 NEC 705.12(B)(2)(3)(b)*

SUPPLY SIDE TAP INTERCONNECTIONS ARE IN COMPLIANCE WITH *NEC 705.12(A)* WITH SERVICE ENTRANCE CONDUCTORS IN COMPLIANCE WITH *NEC 230.42*

BACKFEEDING BREAKER FOR INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING *2017 NEC 705.12(B)(5)*

MICROINVERTER BRANCH CIRCUITS SHALL BE CONNECTED TO A SINGLE OCPD IN ACCORDANCE WITH THEIR INSTALLATION INSTRUCTIONS AND *NEC 690.9*

DISCONNECTS AND OCPD NOTES:*

ALL DISCONNECTING SWITCHES WILL BE CONFIGURED SO THAT ALL ENERGIZED CONDUCTORS WHEN DISCONNECT IS OPEN SHALL BE ON THE TERMINALS MARKED, "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)

ALL AC DISCONNECTS SHALL BE LABELED, LOCKABLE, OF VISIBLE BREAK TYPE SWITCH WITH EXTERNAL HANDLE AND ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL.

AC DISCONNECTS SHALL BE A "KNIFE BLADE" TYPE DISCONNECT. IF EXTERIOR, RATED TO NEMA 3R OR BETTER PER *NEC 110.28*

ADDITIONAL AC DISCONNECTS SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WIHTIN SIGHT OF THE UTILITY AC DISCONNECT. *2017 NEC 690.15(A)*

BOTH POSITIVE AND NEGATIVE PV CONDUCTORS REMAIN UNGROUNDED. THEREFORE, BOTH SHALL REMAIN OPEN WHERE A DISCONNECT IS REQUIRED IN COMPLIANCE WITH *2017 NEC 690.15(D)*

ALL OCPD RATINGS AND TYPES SPECIFIED SHALL BE IN COMPLIANCE WITH *NEC 690.8, 690.9, 705.12* AND *240*.

BOTH POSITIVE AND NEGATIVE DC PV CONDUCTORS ARE UNGROUNDED; BOTH REQUIRE OVERCURRENT PROTECTION IN COMPLIANCE WITH *NEC 690.9*

ARC FAULT (AFCI) DC CIRCUIT PROTECTION IS REQUIRED FOR ALL PV SYSTEMS ON OR PENETRATING A BUILDING WITH A MAXIMUM SYSTEM VOLTAGE OF 80 VOLTS OR GREATER. ALL DC PV CIRCUITS INSTALLED IN OR ON BUILDINGS WILL BE ARC-FAULT CIRCUIT PROTECTED IN COMPLIANCE WITH *NEC 690.11, UL1699B* AND SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1699 (B)*.

WIRING & CONDUIT NOTES:*

ALL CONDUIT AND CONDUCTORS SHALL BE APPROVED FOR THEIR INTENDED PURPOSE INCLUDING WET LOCATIONS AND EXPOSED TO SUNLIGHT. CONDUIT AND CONDUCTOR SIZE SPECIFICATIONS ARE BASED ON THE MINIMUM CODE REQUIREMENTS AND ARE NOT LIMITED TO UP SIZING.

ALL CONDUCTORS SHALL BE SIZED IN COMPLIANCE WITH *NEC 690.8, NEC 690.7*.

ALL CONDUCTORS SHALL BE DERATED AS APPLICABLE TO THEIR RESPECTIVE ENVIRONMENT INCLUDING DIRECT SUNLIGHT IN ACCORDANCE WITH *2017 NEC 310.15(B)(3)(4)(c)*

EXPOSED UNGROUNDED DC PV SOURCE AND OUTPUT CIRCUITS SHALL USE CONDUCTORS LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE IN COMPLIANCE *2017 NEC 690.31(C)(1)*. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS IN COMPLIANCE WITH *2017 NEC 690.4(B)*

PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE IN COMPLIANCE WITH *NEC 200.6 (A)(6)*.

PV MODULE CONDUCTORS LOCATED UNDER ARRAYS WILL BE SECURED IN A WORKMANLIKE MANNER IN COMPLIANCE WITH *NEC 110.12*.

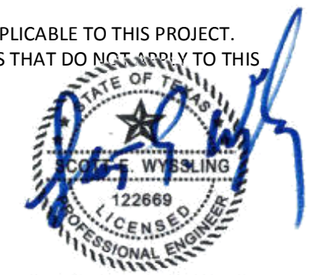
VOLTAGE DROP CALCULATIONS IN THIS PLAN SET ARE CALCULATED ON CIRCUITS 50' IN LENGTH OR LONGER, THE TOTAL VOLTAGE DROP FROM INVERTER TO POINT OF CONNECTION OR UTILITY TRANSFORMER ARE NOT CALCULATED. ELECTRICAL CONTRACTOR MUST EVALUATE AND FIELD VERIFY INVERTER MANUFACTURES MAX VOLTAGE DROP REQUIREMENTS AND DETERMINE THE TOTAL VOLTAGE DROP WITHIN CIRCUITS AS DIRECTED BY MANUFACTURER AND COMPLY WITH SUCH LIMITATIONS AND REQUIREMENTS, (TYPICALLY 2% FROM INVERTER TO POI/POC, AND 3% FROM INVERTER TO UTILITY TRANSFORMER.)

WATERPROOFING:*

ALL NEW **ROOFTOP PENETRATIONS** SHALL BE SEALED AND MADE WEATHER TIGHT WITH APPROVED CHEMICAL SEALANT AND FLASHINGS WHERE REQUIRED PER CODE AND GENERAL BUILDING AND ROOFING WORKMANSHIP STANDARDS BY A LICENSED CONTRACTOR.

ALL **EXTERIOR ELECTRICAL EQUIPMENT, SHALL BE NEMA 3R** OR BETTER RATED. ALL EXTERIOR CONDUIT AND CONNECTORS SHALL BE RATED FOR WET LOCATIONS.

*ALL NOTES ARE AS APPLICABLE TO THIS PROJECT. DISREGARD ANY NOTES THAT DO NOT APPLY TO THIS PROJECT.



Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
Texas Firm # 20109

Signed 1/17/2023

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

GENERAL NOTES

N-001

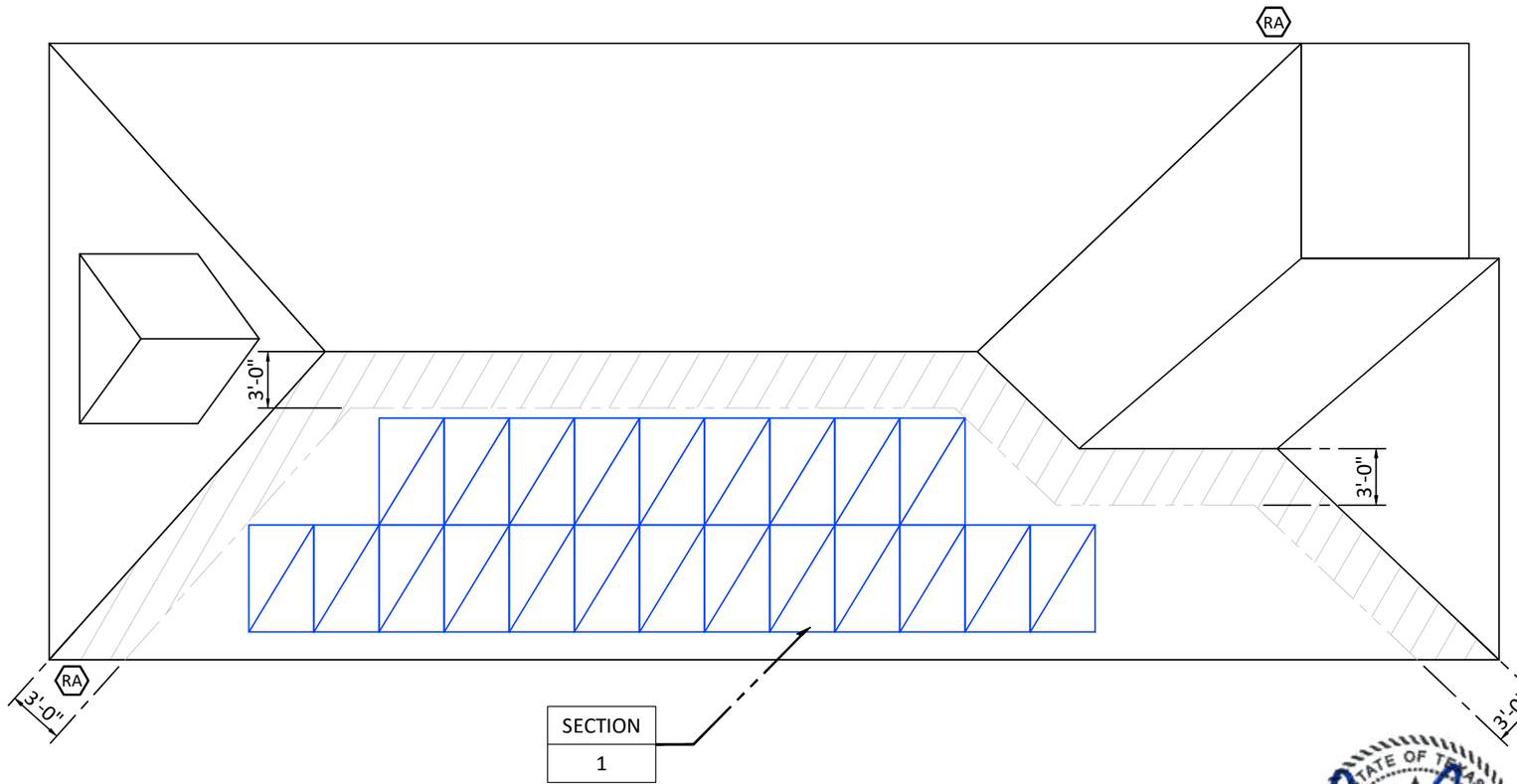
7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL
WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED
WITHIN 10 FEET OF THE METER

NOTE: ALL ELECTRICAL LAYOUT DETAILS ON SHEET E-100



2012 IFC ROOF ACCESS REQUIREMENTS

THE FOLLOWING INFORMATION INDICATES THE REQUIRED ROOF TOP CLEARANCES FOR PANELS/ARRAYS INSTALLED ON RESIDENTIAL BUILDINGS WITH SLOPES GREATER THAN 2:12:

ROOF ACCESS POINTS - ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.

HIP ROOF LAYOUTS - PANELS/MODULES INSTALLED ON RESIDENTIAL BUILDINGS WITH HIP ROOF LAYOUTS SHALL BE LOCATED IN A MANNER THAT PROVIDES A 3-FOOT-WIDE CLEAR ACCESS PATHWAY FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE PANELS/MODULES ARE LOCATED. THE ACCESS PATHWAY SHALL BE LOCATED AT A STRUCTURALLY STRONG LOCATION ON THE BUILDING CAPABLE OF SUPPORTING THE LIVE LOAD OF FIRE FIGHTERS ACCESSING THE ROOF.

SINGLE RIDGE - PANELS/MODULES INSTALLED ON RESIDENTIAL BUILDINGS WITH A SINGLE RIDGE SHALL BE LOCATED IN A MANNER THAT PROVIDES TWO, 3-FOOT-WIDE ACCESS PATHWAYS FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE PANELS/MODULES ARE LOCATED.

HIPS AND VALLEYS - PANELS/MODULES INSTALLED ON RESIDENTIAL BUILDINGS WITH ROOF HIPS AND VALLEYS SHALL BE LOCATED NO CLOSER THAN 18 INCHES TO A HIP OR A VALLEY WHERE PANELS/MODULES ARE TO BE PLACED ON BOTH SIDES OF A HIP OR VALLEY. WHERE PANELS ARE TO BE LOCATED ON ONLY ONE SIDE OF A HIP OR VALLEY THAT IS OF EQUAL LENGTH, THE PANELS SHALL BE PERMITTED TO BE PLACED DIRECTLY ADJACENT TO THE HIP OR VALLEY.

RESIDENTIAL BUILDING SMOKE VENTILATION - PANELS/MODULES INSTALLED ON RESIDENTIAL BUILDINGS SHALL BE LOCATED NO HIGHER THAN 3 FEET BELOW THE RIDGE IN ORDER TO ALLOW FOR FIRE DEPARTMENT SMOKE VENTILATION OPERATIONS.

SEE HATCH DEFINITION BELOW

*NOTE: DESIGNATION OF RIDGE, HIP, AND VALLEY DOES NOT APPLY TO ROOFS WITH 2:12 OR LESS PITCH.

PV SITE LAYOUT LEGEND

SECTION
1

PV ARRAY TAG
SECTION #
MODULE GROUP

RA ROOF ACCESS POINT
SA SITE ACCESS
GA GATE ACCESS

AZIMUTH AND TILT TABLE

SECTION #	AZIMUTH	ROOF PITCH / TILT
SECTION-1	163	20°

SQUARE FOOTAGE CALCULATIONS

ROOF REFERENCE	SQUARE FOOTAGE
EXISTING ROOF	2401
SECTION-1	437
TOTAL PERCENTAGE	18.2%

* EXISTING DIMENSIONS ARE APPROX.
CONFIRM ALL DIMENSIONS SHOWN

SCALE: 1/8"= 1'0" @ SHEET SIZE A3

STATE OF TEXAS
COLE E. WYSSLING
122669
LICENSED
PROFESSIONAL ENGINEER

Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
Texas Firm # 20109

Signed 1/17/2023

NORTH

ESI ID: 10089010114115140901 00 METER NUMBER: 89632383 QTY 22 MISSION SOLAR MSE345SX5T MODULES, QTY 22 Enphase IQ7PLUS-72-2-US (240V) MICRO INVERTER

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

PV-100R

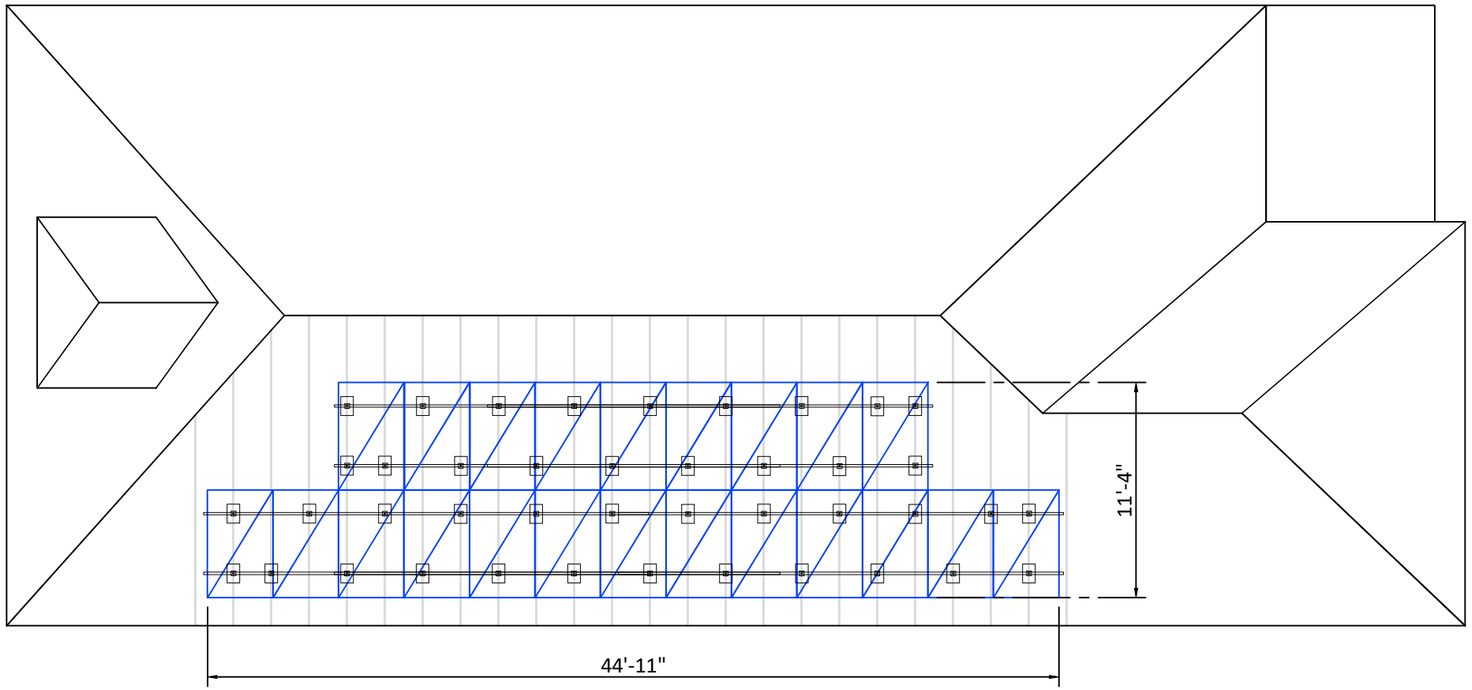
PV ARRAY LAYOUT

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

PM NOTE: MAKE SURE ALL PROJECTS IN THIS SPECIAL WIND AREA HAVE STANCHION/ANCHOR SPANS NO MORE THAN 4 FEET OC, AS ALL PROJECTS IN THIS AREA REQUIRE A CERTIFICATION THAT IS VERY STRINGENT.



SHEET NOTES

A. FOR MANUFACTURED PLATED WOOD TRUSSES AT SLOPES OF FLAT TO 6:12, THE HORIZONTAL ANCHOR SPACING SHALL NOT EXCEED 4'-0"AND ANCHORS IN ADJACENT ROWS SHALL BE STAGGERED. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS.

B. ANCHORS ARE ALSO KNOWN AS "STAND-OFFS," "MOUNTS," OR "STANCHIONS." HORIZONTAL ANCHOR SPACING IS ALSO KNOWN AS "CROSS-SLOPE" OR "EAST-WEST" ANCHOR SPACING. MAXIMUM HORIZONTAL ANCHOR SPACING SHOWN IN DETAIL. UNLESS NOTED OTHERWISE PER RACKING MANUFACTURER CERTIFIED ENGINEERED PRODUCT AND LOCAL REQUIREMENTS. SEE "TABLE OF DIMENSIONS" EACH SECTION DETAILED FOR HORIZONTAL ANCHOR SPACING.

C. SEE SHEET S-200 FOR SPECIFIC RACKING COMPONENT MANUFACTURERS.

PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

SECTION
1

PV ARRAY TAG SECTION # MODULE GROUP

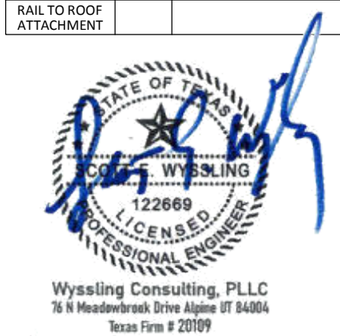
* DETAILS IN TOP VIEW

EXISTING ROOF CONSTRUCTION

COMPONENT	TYPE
ROOF STRUCTURAL CONSTRUCTION	Rafter - Strut to Walls Below 24" O.C.
FRAMING INFO	2"x6" @ 24" MAX OC
ROOFING COVERING	Comp Shingle
RACKING MAX PSF	2.88 PSF

RACKING BILL OF MATERIALS (BOM)

COMPONENT	QTY	MODEL	LENGTH
PV RAIL 1			
PV RAIL SPLICE 1			
PV RAIL 2			
PV RAIL SPLICE 2			
RAIL TO ROOF ATTACHMENT			



Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
Texas Firm # 20109

Signed 1/17/2023

* EXISTING ROOF DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE: 1/8"= 1'0" @ SHEET SIZE A3

NORTH

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

RACKING LAYOUT

S-100

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

ESI ID: 10089010114115140901 00 METER NUMBER: 89632383 QTY 22 MISSION SOLAR MSE345SX5T MODULES, QTY 22 Enphase IQ7PLUS-72-2-US (240V) MICRO INVERTER

1 STRUTS TO WALL(S) / RAFTER - PORTRAIT — SCALE: NTS

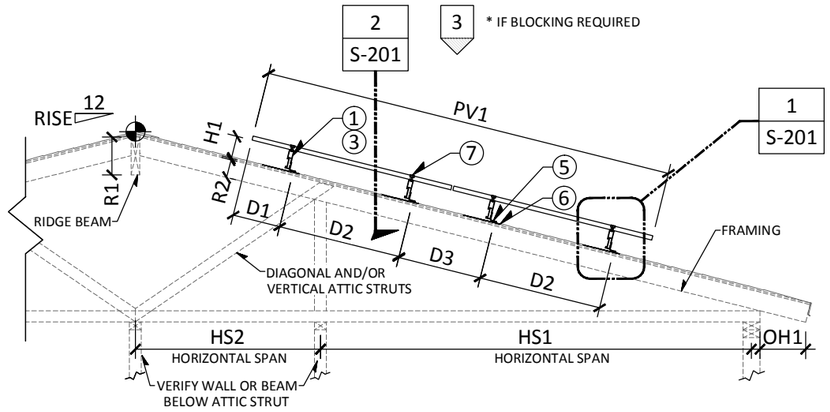


TABLE OF DIMENSIONS

DIM	COMPONENT	DIMENSIONS	DIM	COMPONENT	DIMENSIONS
OH1	OVERHANG IN THIS AREA		R1	RIDGE BEAM DEPTH	
RISE	ROOF PITCH	20°	R2	RAFTER DEPTH THIS AREA	6"
H1	PV MODULE HGT. ABOVE ROOF	3" - 6" TYP	HS1	HORIZONTAL SPAN	
	MAX RAFTER SPAN	11'-9" MAX	HS2	HORIZONTAL SPAN	
UPSLOPE ANCHOR SPACING					
D1	RAIL OVERHANG	17.2"	D3	STANCHION O.C.	34.66"
D2	STANCHION O.C.	34.41"	D4	MIN./MAX. STANCHION O.C.	

2 STRUTS TO WALL(S) / RAFTER - LANDSCAPE — SCALE: NTS

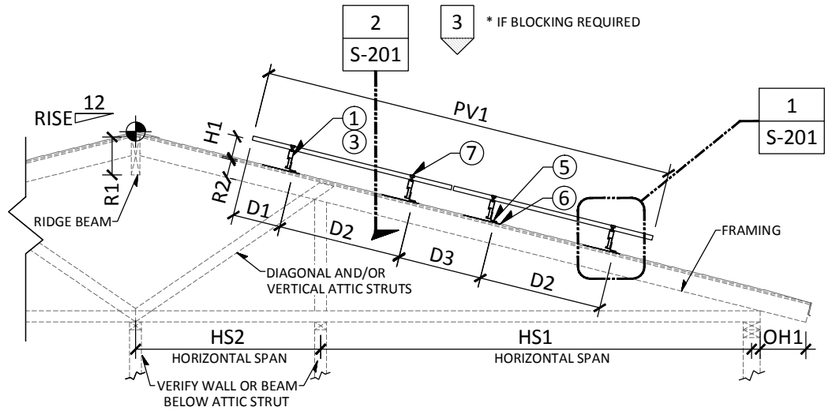


TABLE OF DIMENSIONS

DIM	COMPONENT	DIMENSIONS	DIM	COMPONENT	DIMENSIONS
OH1	OVERHANG IN THIS AREA		R1	RIDGE BEAM DEPTH	
RISE	ROOF PITCH	20°	R2	RAFTER DEPTH THIS AREA	6"
H1	PV MODULE HGT. ABOVE ROOF	3" - 6" TYP	HS1	HORIZONTAL SPAN	
	MAX RAFTER SPAN	11'-9" MAX	HS2	HORIZONTAL SPAN	
UPSLOPE ANCHOR SPACING					
D1	RAIL OVERHANG	10.37"	D3	STANCHION O.C.	21"
D2	STANCHION O.C.	20.75"	D4	MIN./MAX. STANCHION O.C.	

SHEET NOTES

A. THESE NOTES APPLY TO RAFTER ROOF CONSTRUCTION.

B. THE ROOF STRUCTURE CONFORMED TO BUILDING CODE REQUIREMENTS AT THE TIME IT WAS BUILT.

C. THE ROOF SHEATHING IS AT LEAST 7/16" THICK ORIENTED STRAND BOARD OR PLYWOOD. 1X SKIP SHEATHING IS ACCEPTABLE.

D. THE SOLAR ARRAY DISPLACES ROOF LIVE LOADS (TEMPORARY CONSTRUCTION LOADS) THAT THE ROOF WAS ORIGINALLY DESIGNED TO CARRY.

E. IF THE ROOF COVERING IS SHINGLES; IT SHALL BE NO MORE THAN TWO LAYERS. (SHOWN)

F. IF ROOF COVERING IS TILE; ITS A SINGLE LAYER. ALL TILES ON PLANE OF PV COMPONENTS ARE SECURE. (NOT SHOWN IN DETAIL)

G. THE ROOF STRUCTURE IS STRUCTURALLY SOUND, WITHOUT SIGNS OF ALTERATIONS OR SIGNIFICANT STRUCTURAL DETERIORATION OR SAGGING.

H. THE PV MODULES ARE PARALLEL WITH THE ROOF SURFACE.

I. THERE IS A 2" TO 10" GAP BETWEEN UNDERSIDE OF MODULE AND THE ROOF SURFACE. (SEE TABLE OF DIMENSIONS "H1")

J. UPSLOPE ANCHOR SPACING MAY VARY FROM LISTED TABLES. STANCHIONS CAN BE PLACED NO CLOSER THAN 24" O.C.

K. DETAILS SHOWN ARE A REPRESENTATION OF EXISTING ROOF CONDITIONS. ACTUAL FIELD CONDITIONS MAY VARY. DETAILS ARE SHOWN FOR DIAGRAM USE ONLY. REFER TO TABLES FOR DESIGN CRITERIA.

L. ALL PLUMBING AND ROOF VENTS SHALL NOT BE OBSTRUCTED BY PV MODULES AND EQUIPMENT.

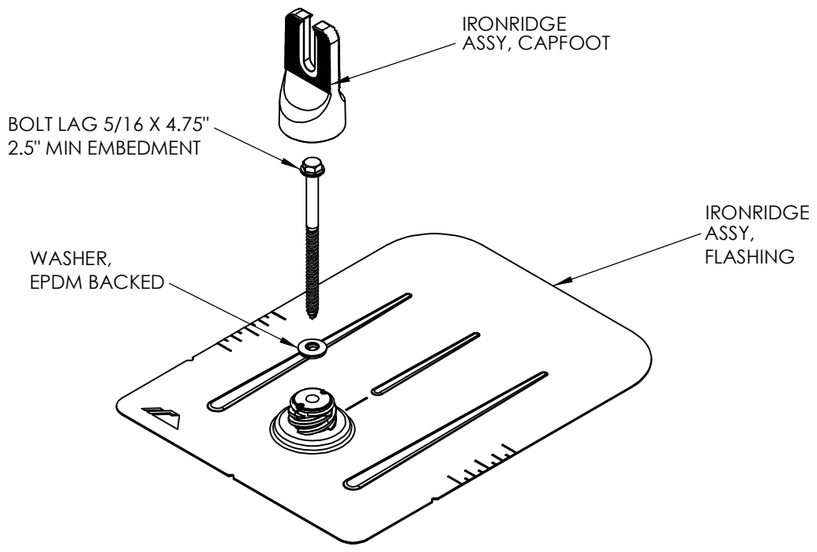
M.

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

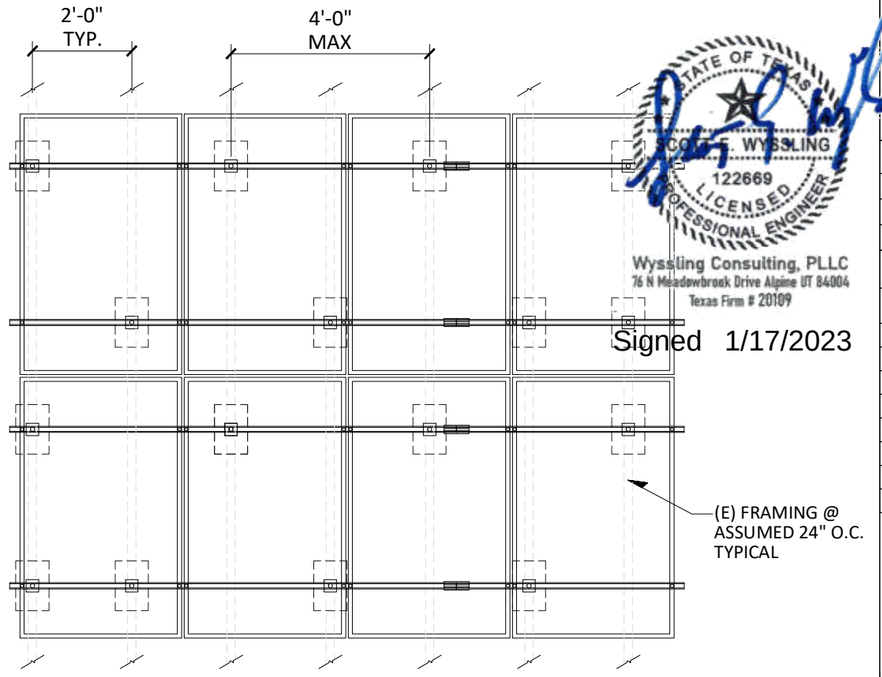
SECTION ELEVATIONS

S-200

3 EXPLODED STANCHION & FLASHING DETAIL — SCALE: NTS



4 STANCHION SPACING DETAIL — SCALE: NTS



STATE OF TEXAS
SCOTT E. WYSSLING
122669
LICENSED
PROFESSIONAL ENGINEER

Wyssling Consulting, PLLC
76 N Meadowbrook Drive Alpine UT 84004
Texas Firm # 20109

Signed 1/17/2023

PV RACKING LEGEND

ROOF RACKING RAIL

ROOF RACKING RAIL SPLICE

ROOF RACKING STANCHION W/ RETRO FIT FLASHING

SECTION | 1 — PV ARRAY TAG SECTION # MODULE GROUP

DETAILS IN SECTION OR SIDE VIEW

EXISTING ROOF CONSTRUCTION

COMPONENT	TYPE
MEAN ROOF HGT MAX	25'
ROOFING COVERING	Comp Shingle

TABLE OF COMPONENTS

#	COMPONENT	MODEL
1	PV RAIL TYPE 1	XR100 Rail
2	PV RAIL SPLICE TYPE 1	PER RAIL MANUFACTURER
3	PV RAIL TYPE 2	NOT USED
4	PV RAIL SPLICE TYPE 2	PER RAIL MANUFACTURER
5	STANCHION	FlashFoot2
6	FLASHING	Integrated
7	MID CLAMP	PER RAIL MANUFACTURER
8	END CLAMP	PER RAIL MANUFACTURER

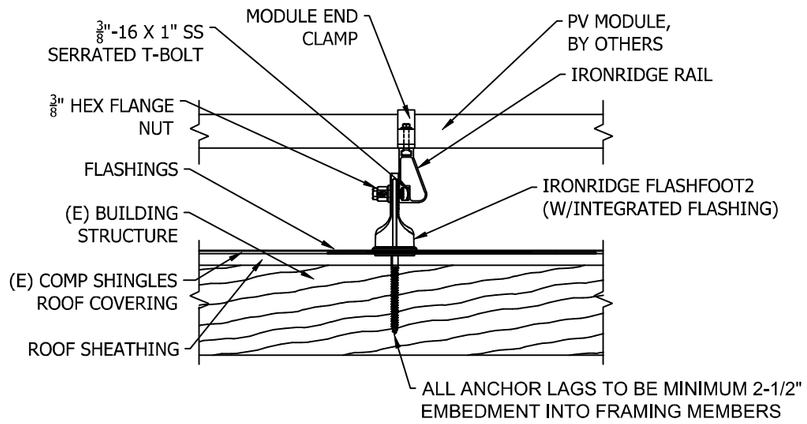
7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

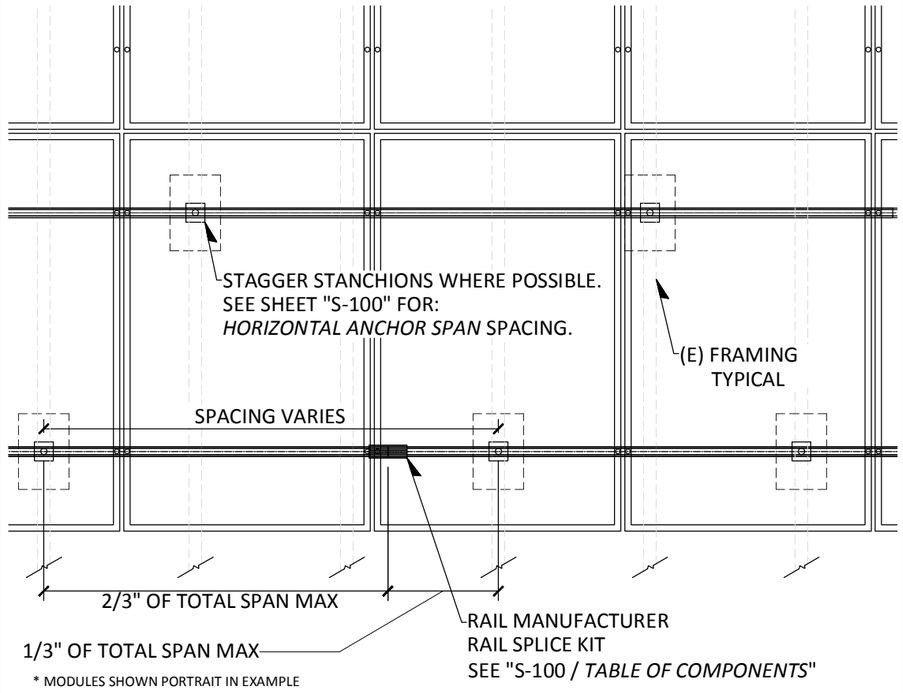
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Daybreak Solar Power, LLC

1 STANCHION ATTACHMENT DETAIL — SCALE: NTS



2 RAIL SPLICE DETAIL - HORIZONTAL RAIL — SCALE: NTS



* MODULES SHOWN PORTRAIT IN EXAMPLE

SHEET NOTES

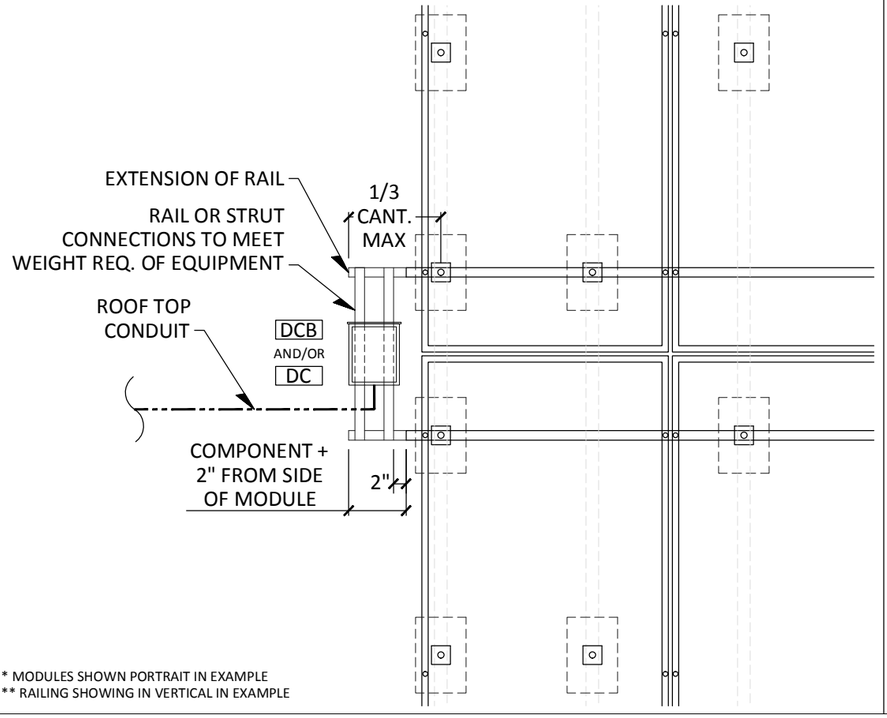
1. A MINIMUM OF (1) 5/16" DIAMETER LAG SCREWS WITH 2.5" EMBEDMENT INTO THE RAFTER USED, OR THE ANCHOR FASTENER MUST MEET THE MANUFACTURER'S ENGINEERING.
2. ADHERE TO RACKING MANUFACTURERS INSTALLATION INSTRUCTIONS PERTAINING TO CANTILEVER.

PV RACKING LEGEND

- ROOF RACKING RAIL
- ROOF RACKING RAIL SPLICE
- ROOF RACKING STANCHION W/ RETRO FIT FLASHING
- SECTION / 1 — PV ARRAY TAG SECTION # MODULE GROUP

* DETAILS IN SECTION OR SIDE VIEW

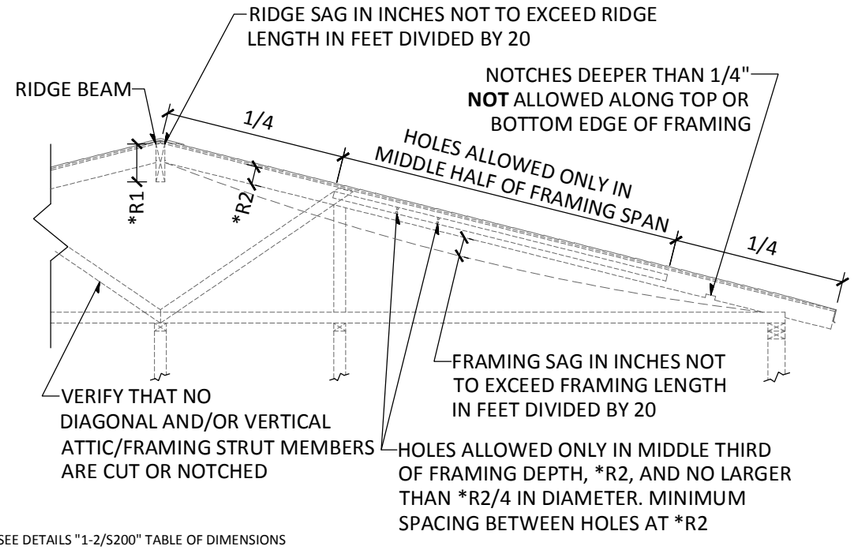
3 RAIL EXTENSION DETAIL — SCALE: NTS



* MODULES SHOWN PORTRAIT IN EXAMPLE
** RAILING SHOWING IN VERTICAL IN EXAMPLE

4 RAFTER HOLE AND CONSTRUCTION DETAIL — SCALE: NTS

NOTE: WHERE FRAMING IS VISIBLE FROM ATTIC &/OR UNDERSIDE OF ROOF, VISUALLY REVIEW FRAMING TO VERIFY THAT NO SIGNIFICANT STRUCTURAL DECAY OR UN-REPAIRED FIRE DAMAGE EXISTS.



* SEE DETAILS "1-2/S200" TABLE OF DIMENSIONS

Signed 1/17/2023

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

S-201 ATTACHMENT DETAILS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

PV MODULE #1 SPECIFICATIONS

MANUFACTURER	MISSION SOLAR	
MODEL NUMBER	MSE345SX5T	
WEIGHT	44.8	lbs
DIMENSIONS	68.82 x 41.49 x 1.57	L" x W" x D"/THICK
PEAK POWER @ STC (Pmax)	345	WATTS
Voc (OPEN-CIRCUIT VOLTAGE)	41.0	VOLTS DC
Vmp (MAX-POWER VOLTAGE)	33.37	VOLTS DC
isc (SHORT-CIRCUIT CURRENT)	10.92	AMPS
imp (SHORT-CIRCUIT POWER)	10.34	AMPS
MFR. Voc TEMP COEFFICIENT	-0.26	%/K
MAX SERIES FUSE RATING	20.0	AMPS
TEMP. CORRECTED Voc	43.87	VOLTS DC

MICRO INVERTER #1 SPECIFICATIONS

MANUFACTURER	Enphase	
MODEL NUMBER	IQ7PLUS-72-2-US (240V)	
NOMINAL POWER RATING	290	WATT AC
WEIGHT	2.38	lbs.
DC INPUT		
Max PV POWER @ MODULE STC	290	WATTS
Max INPUT DC VOLTAGE	60	VOLTS DC
Max INPUT CURRENT	15.0	AMPS
MODULES PER MICRO INVERTER	1	QTY
AC OUTPUT		
NOMINAL VOLTAGE OUTPUT	240	VOLTS AC
MAX OVERCURRENT PROTECTION (OCPD)	20	AMPS
MAX. OUTPUT CURRENT	1.21	AMPS - MAX

AC COMBINER (SOLAR LOAD CENTER)

MANUFACTURER	Enphase	
MODEL NUMBER	EN-X-IQ-AM1-240-4	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	125	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
MAIN BREAKER SIZE	N/A	AMPS
TOTAL INPUT CURRENT	26.62	AMPS
NUMBER OF BRANCH CIRCUITS	2	CIRCUITS

AC DISCONNECT #1 (IF APPL.)

MANUFACTURER	Generic	
MODEL NUMBER	60A Fused Exterior	
QUANTITY	1	AC DISCO.(S)
DISCONNECT DEVICE TYPE	Fusible	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	60	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
FUSE RATING	40.0	AMPS
TOTAL INPUT CURRENT	26.62	AMPS

AC DISCONNECT #2 (IF APPL.)

MANUFACTURER		
MODEL NUMBER		
QUANTITY		AC DISCO.(S)
DISCONNECT DEVICE TYPE		
RATED OPERATIONAL VOLTAGE		VOLTS
RATED CURRENT		AMPS
NUMBER OF POLES		P
NEMA RATING		
FUSE RATING		AMPS
TOTAL INPUT CURRENT		AMPS

AC SUB-PANEL #1 (IF APPL.)

NEW OR EXISTING		
MAKE / MODEL		
TYPE OF PANEL		
NUMBER OF POLES		P
NEMA RATING		
BUSS BAR RATING		AMPS
SUB-PANEL MAIN BREAKER		AMPS
MAIN SERVICE PANEL P.O.C. BREAKER		AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT		AMPS
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)

AC SUB-PANEL #2 (IF APPL.)

NEW OR EXISTING		
MAKE / MODEL		
TYPE OF PANEL		
NUMBER OF POLES		P
NEMA RATING		
BUSS BAR RATING		AMPS
SUB-PANEL MAIN BREAKER		AMPS
MAIN SERVICE PANEL P.O.C. BREAKER		AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT		AMPS
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)

MAIN SERVICE PANEL (IF APPL.)

NEW OR EXISTING	EXISTING	
ELECTRICAL SERVICE	120/240V Single Phase	
BUSS BAR RATED CURRENT	200	AMPS
MAIN BREAKER RATED CURRENT	200	AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT 100%	0	AMPS
MAX ALLOWABLE SOLAR CURRENT 120%	40	AMPS (Imax)
PV BACKFEED BREAKER #1	40	AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)
ALT. ENERGY BACKFEED BREAKER (IF APPL.)		AMPS (Imax)

PV SYSTEM MAXIMUM VOLTAGE (MODULE Voc_{MAX})

DATA SOURCE	SOLARABCS.ORG/ABOUT/PUBLICATIONS/REPORTS/ EXPEDITED-PERMIT/MAP/											
EXTREME MIN. TEMP. [°C]		STC TEMPERATURE [°C]		CORRECTED TEMPERATURE		MFR. P_{MAX} TEMP COEFFICIENT [-0.#%/C] * 100		FORMULA		CORRECTED TEMP. COEFFICIENT		MODULE Voc [VDC]	TEMPERATURE CORRECTED OPEN CIRCUIT VOLTAGE
-2	-	25	=	-27	*	-0.26%	=	0.07	+ 1	1.07	*	41.0	= 43.87

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

E-001

EQUIP. CALCULATIONS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC

TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS
2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.
3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS
4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING		AC WIRING	
EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW	EQUIPMENT GROUND	GREEN OR BARE, OR GREEN/YELLOW
TYPICALLY POSITIVE	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY	GROUNDED CONDUCTOR (NEUTRAL)	WHITE OR GRAY
	CONVENTION IS RED FOR GROUNDED SYSTEMS	UNGROUNDED CONDUCTOR(S) HOT: L1 AND L2	ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.
	RED (+) AND BLACK (-) FOR UNGROUNDED SYSTEMS		CONVENTION IS L1 BLACK
			CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL CIRCUITS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
DC1	PV MODULE	INVERTER	(1) CU	90	#12 AWG	30	10.92	X	1	X	1.25	X	1.25	=	17.1	ROOFTOP	34	>7/8"	0	34	0.96	2	N/A	30	X	0.96	X	1.0	=	28.8	17.1	≤	28.8

AC WIRE AND CONDUIT FILL DERATE CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY					CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION							AMPACITY CHECK		
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	≤	CORRECTED AMPACITY
AC1	INVERTER	JUNCTION BOX	(1) CU	75	#12 AWG	25	1.25	X	13.31	=	16.6	ROOFTOP	34	>7/8"	0	34	0.94	2	N/A	25	X	0.94	X	1.0	=	23.5	16.6	≤	23.5
AC2	JUNCTION BOX	AC COMBINER	(1) CU	75	#10 AWG	35	1.25	X	13.31	=	16.6	ATTIC	34	IN ATTIC	0	34	0.94	4	.80	35	X	0.94	X	.80	=	26.3	16.6	≤	26.3
AC3	AC COMBINER	AC DISCONNECT	(1) CU	75	#8 AWG	50	1.25	X	26.62	=	33.3	INT/EXT WALL	34	N/A	0	34	0.94	3	1.0	50	X	0.94	X	1.0	=	47.0	33.3	≤	47.0
AC4	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#8 AWG	50	1.25	X	26.62	=	33.3	INT/EXT WALL	34	N/A	0	34	0.94	3	1.0	50	X	0.94	X	1.0	=	47.0	33.3	≤	47.0
AC5								X		=											X		X		=			≤	
AC6								X		=											X		X		=			≤	
AC7								X		=											X		X		=			≤	
AC8								X		=											X		X		=			≤	
AC9								X		=											X		X		=			≤	
AC10								X		=											X		X		=			≤	

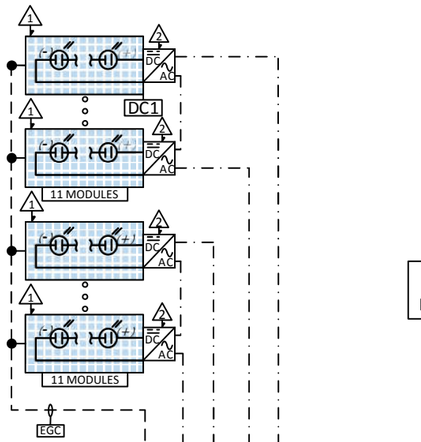
REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

E-002 WIRE AND COND. CALCS.

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922



MODULE NAMEPLATE
RATING 345W

INVERTER NAMEPLATE
RATING 290W/240V

BRANCH	MODULE QTY	OCPD
1	11	20A
2	11	20A
BACK-FEED SOLAR BREAKER:		40A

EQUIPMENT TABLE

TAG	QTY	COMPONENT	
1	22	PV MODULES	MISSION SOLAR MSE345SX5T
2	22	MICRO INVERTER	Enphase IQ7PLUS-72-2-US (240V)
3	1	AC COMBINER BOX	Enphase EN-X-IQ-AM1-240-4
4	1	JUNCTION BOX	Soladeck RSTC 0799-5B
5	0	NEW SOLAR LOAD CENTER	
6	0	AC DISCONNECT AT GROUND LEVEL	
7	0	PROD/GEN METER	
8	0	SUB PANEL	
9	1	AC DISCONNECT (FUSIBLE)	Generic 60A Fused Exterior
10			
11	1	EXISTING MAIN SERVICE PANEL	200A BUS/200A MB
12	1	EXISTING UTILITY METER	120/240V - 1Φ
13	0	BATTERY	
14			

NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED

	CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
AC1	3	#12 AWG	TRUNK CBL	#6 AWG	N/A	Open Air
AC2	5	#10 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC3	4	#8 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC4	4	#8 AWG	THWN-2	#6 AWG	3/4 inch	EMT
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC# DC CONDUCTOR TAG
AC# AC CONDUCTOR TAG
1 EQUIPMENT TAG
GND GROUND CONDUCTOR TAG

SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS

ELECTRICAL NOTES

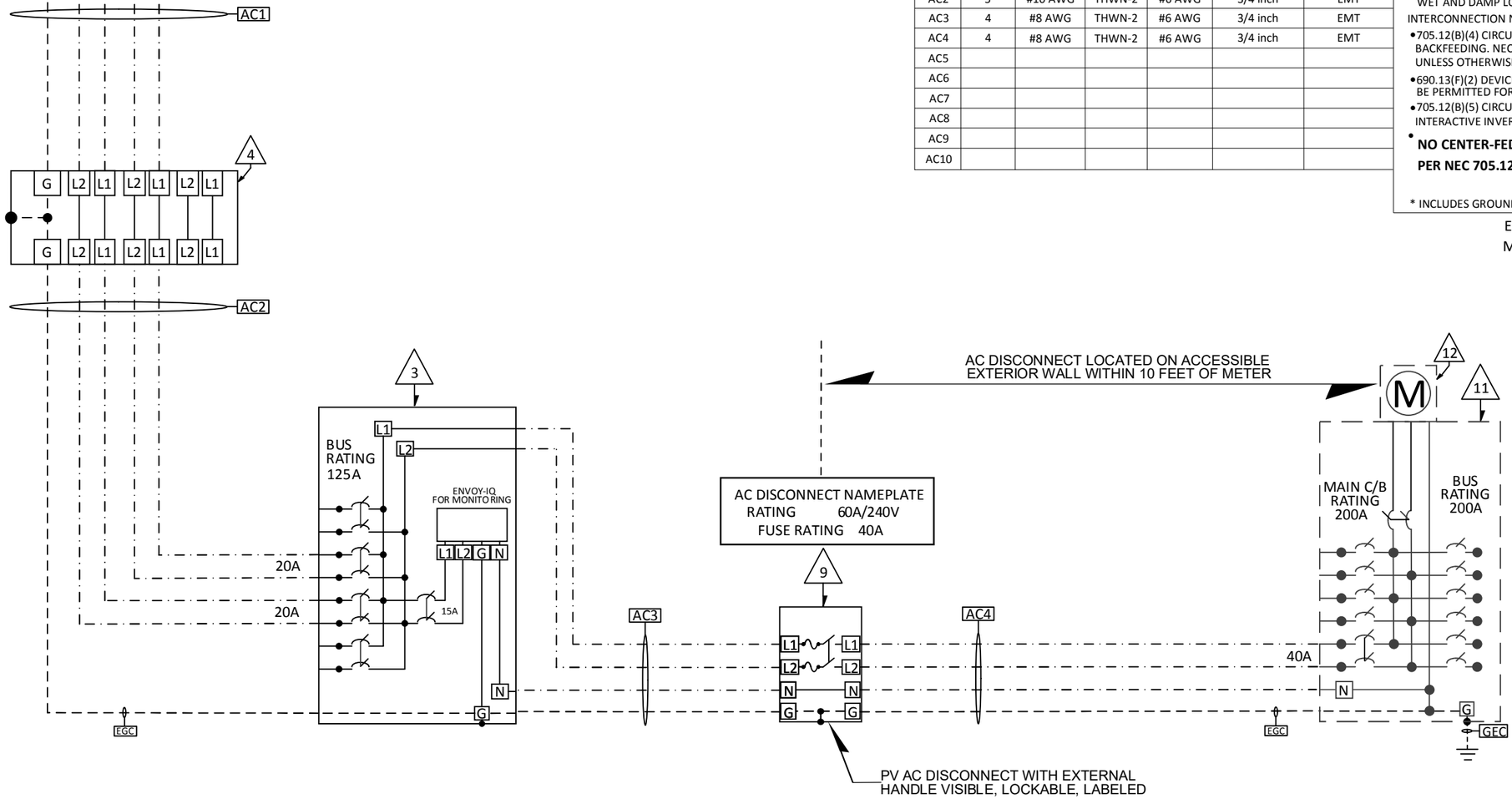
- INTEGRATED MICRO INVERTERS (AC MODULES) MUST BE CERTIFIED UL1742 AND UL1703 COMPLIANT. AS EITHER INDIVIDUAL COMPONENTS OR AC MODULE ASSEMBLY. THEY MUST ALSO BE LABELED "UTILITY INTERACTIVE" CONFORMING TO IEEE1547 TESTING.
- PV MODULES THAT HAVE INVERTERS ATTACHED WITHOUT AN AC MODULE EVALUATION BY A NRTL MAY VIOLATE THE ORIGINAL LISTING OF THE PV MODULE AND VOID THE WARRANTY OF THE MODULE.
- VERIFY MODULE IS COMPATIBLE WITH MICRO INVERTER MANUFACTURER AND MODEL.
- ARTICLE CEC/NEC 690 STILL APPLIES. THE INSTALLER WILL NEED TO CONSIDER REQUIREMENTS SUCH AS: DC GROUND FAULT DETECTION AND INTERRUPT, DC CABLE MANAGEMENT, DC DISCONNECTING MEANS AND DC GROUNDING AS WELL AS THE AC EQUIPMENT GROUNDING CONDUCTOR TO THE INVERTER.
- ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
- ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:

- 705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
- 690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT
- 705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)
- **NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(B)(2)(3)(b)**

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

ESI ID: 10089010114115140901 00
METER NUMBER: 89632383



REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

THREE LINE DIAGRAM

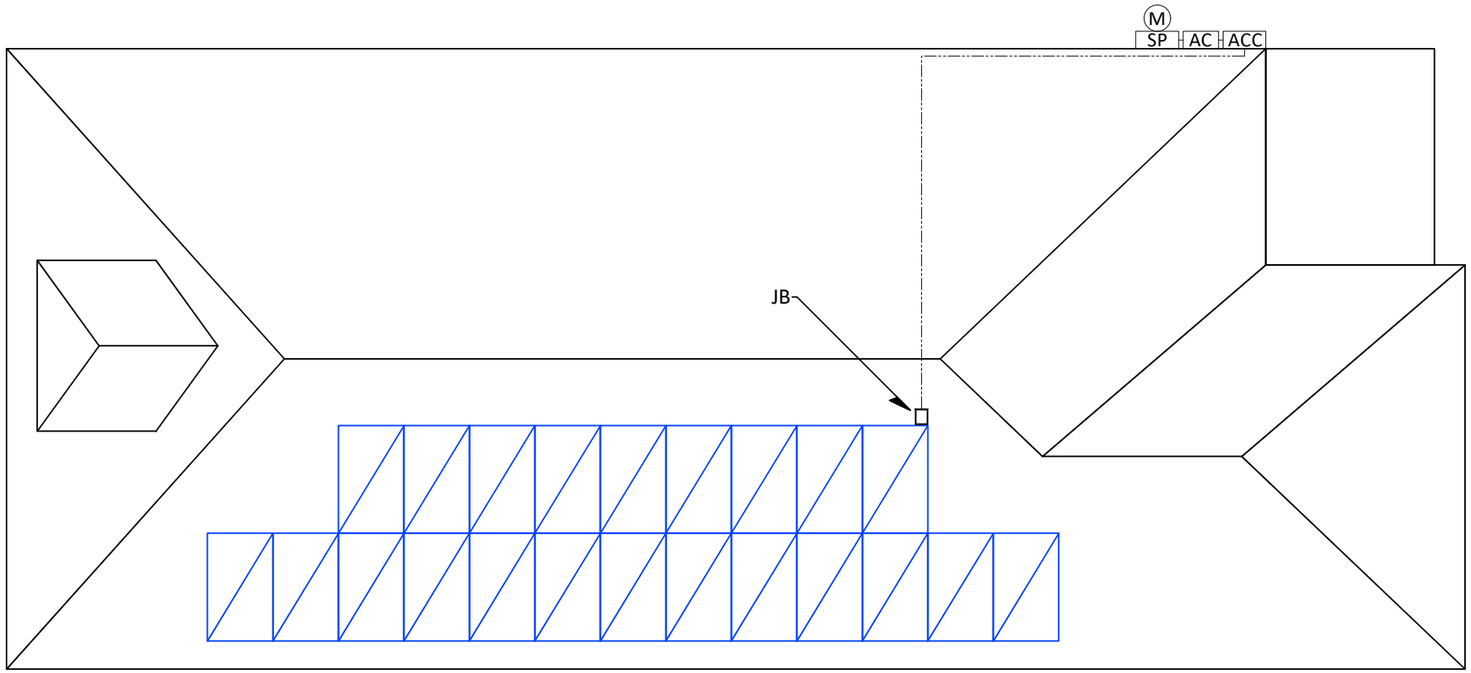
E-003

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Daybreak Solar Power, LLC



EQUIPMENT GROUNDING

1. METAL PV MODULE FRAMES NEED TO BE CONNECTED TO THE EGC (EQUIPMENT GROUNDING CONDUCTOR).
   - 1.1. WEEBS MAY BE USED IN LIEU OF MODULE GROUND CLAMPS OR LUGS, WITH APPROVAL OF AHJ AND RACKING MFG. WEEBS ARE ONE TIME USE ONLY. SEE "we-llc.com" FOR RACKING SPECIFIC WEEB, INSTALL INSTRUCTIONS, AND UL 2703 CERT.
   - 1.2. FOR "LAY-IN" LUG MODULE GROUNDING; CORRECT HARDWARE OF PROPER METAL MATERIAL TO AVOID CORROSION MUST BE USED. TYPICALLY DIRECT BURIAL RATED, TINNED, OR STAINLESS STEEL. GROUNDING LUGS MUST BE ATTACHED AT MARKED LOCATION ON EACH MODULE.
2. THE EGC (EQUIPMENT GROUNDING CONDUCTOR) IS USED TO BOND ALL NON-CURRENT CARRYING CONDUCTORS AND EXPOSED METAL PARTS THAT MIGHT COME INTO CONTACT WITH CURRENT-CARRYING CONDUCTORS, INCLUDING THE FOLLOWING:
   - 2.1. PV MODULES FRAMES, ARRAY MOUNTING RACKING; THE METAL CHASSIS OF EQUIPMENT SUCH AS INVERTERS, DISCONNECTS, METERS, JUNCTION BOXES AND COMBINER BOXES; AND METAL CONDUIT HOLDING CIRCUITS > 250 VOLTS TO GROUND PER NEC 250.97
3. THE GEC (GROUNDING ELECTRODE CONDUCTOR) IS THE CONDUCTOR USED TO CONNECT THE GE OR GE SYSTEM TO THE SYSTEM GC, TO THE EGC, OR TO BOTH.
4. THE GE (GROUNDING ELECTRODE) IS A CONDUCTING OBJECT, OFTEN A ROD, RING, OR PLATE ESTABLISHING A DIRECT CONNECTION TO EARTH. THE AC SYSTEM GROUND IS EXISTING, USUALLY AT THE EXISTING MAIN PANEL AND/OR UTILITY METER. THE GROUND CAN ONLY OCCUR IN ONE PLACE AND MUST NOT BE DUPLICATED IN SUB-PANELS OR ANYWHERE ELSE ON AC SIDE.

ELECTRICAL SYMBOL LEGEND

ATF	AUTO TRANSFORMER	JB	JUNCTION BOX
SLC	SOLAR LOAD CENTER	AC	AC DISCONNECT
ACC	AC COMBINER	SP	SERVICE PANEL
BATT	BATTERY	(P)	PERFORMANCE METER
SUB	SUB-PANEL	(M)	UTILITY METER
CB	CIRCUIT BREAKER DISCONNECT	CLP	CRITICAL LOADS PANEL
EB	EMERGENCY BATTERY DISCONNECT	XFMR	TRANSFORMER
RS	EMERGENCY RSD SWITCH	ATS	AUTO TRANSFER SWITCH
SECTION / 1	PV ARRAY TAG SECTION # MODULE GROUP	STS	SMART TRANSFER SWITCH
		TGW	TESLA GATEWAY
		TPW	TESLA POWERWALL
		GEN	GENERATOR
		[ ]	EXISTING EQUIPMENT

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER.

ESI ID: 10089010114115140901 00 METER NUMBER: 89632383 QTY 22 MISSION SOLAR MSE345SX5T MODULES, QTY 22 Enphase IQ7PLUS-72-2-US (240V) MICRO INVERTER

NORTH

SCALE: 1/8"= 1'0"@ SHEET SIZE A3

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

E-100 ELECTRICAL LAYOUT

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TEC1.32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

1 CONDUIT, RACEWAY, J-BOX, AND PULL BOXES

SCALE: 1/2" = 1'-0"

WARNING: PHOTOVOLTAIC POWER SOURCE

1. PLACE ON CONDUIT AND/OR RACE WAYS EVERY 10' (60"), 12" FROM BENDS, 12" ABOVE AND BELOW PENETRATIONS.
2. CODE REFERENCE: NEC 690.31(G)(3)
3. MINIMUM OF 1 1/8" x 5 3/4"
4. FONT: 3/8" AND .8 WIDTH FACTOR.
5. REFLECTIVE WHITE LETTERS ON A RED BACKGROUND.

2 DC DISCONNECTS

SCALE: 1/4" = 1'-0"

⚠WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENGERGIZED IN THE OPEN POSITION

1. PLACED ON DC DISCONNECT(S) AND ON ANY EQUIPMENT THAT STAYS ENERGIZED IN THE OFF POSITION FROM THE PV SUPPLY.
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 3 1/2" x 10"
4. FONT: 3/8"
5. WARNING LABEL IS WHITE AND ORANGE

3 INVERTER(S)

SCALE: 1/4" = 1'-0"

⚠WARNING

THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT

1. MINIMUM OF 3 1/2" x 10 1/2"
2. FONT: 3/8"
3. WARNING LABEL IS WHITE AND ORANGE

SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.13 & 690.53)
4. THE MARKINGS ON THE CONDUITS, RACEWAYS AND CABLE ASSEMBLIES ARE EVERY 10 FEET, WITHIN ONE FOOT OF ALL TURNS OR BENDS AND WITHIN ONE FOOT ABOVE AND BELOW ALL PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS AND BARRIERS. (IFC 605.11.1.4, NEC 690.31[G][3])
5. WHERE PV CIRCUITS ARE EMBEDDED IN BUILT-UP, LAMINATE OR MEMBRANE ROOFING MATERIALS IN ROOF AREAS NOT COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT, THE LOCATION OF CIRCUITS SHALL BE CLEARLY MARKED.
6. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
7. MARKING CONTENT AND FORMAT:
   - 7.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   - 7.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   - 7.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   - 7.4. CONTRASTING BACKGROUND AND LETTERING.
   - 7.5. ALL CAPITAL LETTERS.
   - 7.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   - 7.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT

4 NON-LOAD BREAK DC COMBINER / J-BOX

SCALE: 1/2" = 1'-0"

DO NOT OPEN UNDER LOAD

1. CODE REFERENCE: NEC 690.13(C)
2. USE ON NON-LOAD BREAK RATED DISCONNECTION.
3. MINIMUM OF 1" x 6"
4. FONT: 3/8" AND .8 WIDTH FACTOR
5. WHITE LETTERS ON A RED BACKGROUND.

DO NOT DISCONNECT UNDER LOAD

5 DC COMBINER BOX

SCALE: 1/2" = 1'-0"

DC COMBINER BOX

COMBINER # 1

1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 DC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR
4. WHITE LETTERS ON A RED BACKGROUND.

6 SWITCHBOARDS

SCALE: 1/2" = 1'-0"

⚠WARNING

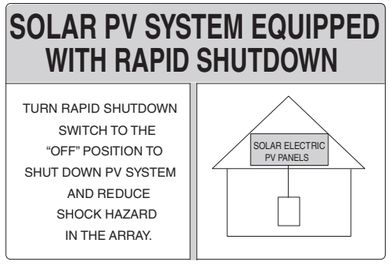
ARC FLASH HAZARD
APPROPRIATE PPE REQUIRED
FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY
REFER TO NFPA 70E

1. VERIFY WHICH PLACARD IS REQUIRED WITH AHJ.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .8 WIDTH FACTOR
4. WARNING LABEL IS WHITE AND ORANGE
5. DATA COLLECTED FROM AS-BUILT INFO, PRIOR TO PTO, BY OTHERS.

7 MAIN SERVICE PANEL

SCALE: 1/4" = 1'-0"

1. LOCATE NO MORE THAN 1 m FROM THE SERVICE DISCONNT MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION.



2. CODE REFERENCE: NEC 690.56(C)(1)(a)
3. TITLE: MIN. 3/8" BLACK CHARACTERS ON YELLOW BACKGROUND, REMAINING CHARACTERS MIN. 3/16" IN BLACK ON WHITE BACKGROUND.

8 AC AND DC DISCONNECTS

SCALE: 1/4" = 1'-0"

AC DISCONNECT # 1

DC DISCONNECT # 1

USE PLACARD "[AC][DC] DISCONNECT # 1" WHEN MORE THAN ONE DISCONNECT IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.

PHOTOVOLTAIC	PHOTOVOLTAIC
DC DISCONNECT	AC DISCONNECT

1. PLACE ON ALL AC AND DC DISCONNECTS
2. CODE REFERENCE: NEC 690.13(B)
3. MINIMUM OF 1" x 10 1/2"
4. FONT: 3/8"
5. WHITE LETTERS ON A RED BACKGROUND.

9 J-BOX, DC COMBINER, AND DC DISCONNECT

SCALE: 1/4" = 1'-0"

⚠WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENGERGIZED IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

1. ONLY FOR UNGROUNDED SYSTEMS.
2. PLACED ON ALL ENCLOSURES WITH UNGROUNDED CIRCUITS OR DEVICES WHICH ARE ENERGIZED AND MAY BE EXPOSED DURING SERVICE.
3. MINIMUM OF 3" x 10 1/2"
4. FONT: 3/8"
5. WARNING LABEL IS WHITE AND ORANGE

ENGINEERING STAMP (if appl.)

10 INVERTER(S)

SCALE: 1/2" = 1'-0"

INVERTER # 1

1. USE PLACARD "INVERTER # 1" WHEN MORE THAN 1 INVERTER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8"
4. WHITE LETTERS ON A RED BACKGROUND.

11 RAPID SHUTDOWN SWITCH

SCALE: 1/4" = 1'-0"

1. A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 1M (3 FT) FROM THE SWITCH THAT INCLUDES THE FOLLOWING:

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

2. THE LABEL SHALL BE REFLECTIVE WITH ALL LETTERS CAPITALIZED AND HAVING A MINIMUM HEIGHT OF 9.5 MM (3⁄8 IN.), IN WHITE ON RED BACKGROUND.

ESI ID: 10089010114115140901 00 METER NUMBER: 89632383 QTY 22 MISSION SOLAR MSE345SX5T MODULES, QTY 22 Enphase IQ7PLUS-72-2-US (240V) MICRO INVERTER

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

P-001 STANDARD PLACARDS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

1 AC COMBINER

SCALE: 1/2" = 1'-0"

AC COMBINER BOX

COMBINER # 1

1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 AC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS.
2. MINIMUM OF 1" x 4"
3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR MINIMUM.
4. WHITE LETTERS ON A RED BACKGROUND.
5. PLACARDS MAY BE COMBINED TOGETHER. I.E. "AC COMBINER BOX #1". MINIMUM REQUIREMENTS LISTED ABOVE.

2 AC DISCONNECT, AC SUB-PANEL

SCALE: 1/4" = 1'-0"

AC COMBINER / DISCONNECT #1

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT 26.62 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT 26.62 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

AC COMBINER / DISCONNECT #2

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT 26.62 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT 26.62 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS

AC COMBINER / DISCONNECT #3

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

AC SUB-PANEL #1

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

AC SUB-PANEL #2

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

PHOTOVOLTAIC SYSTEM
AC DISCONNECT
RATED AC OUTPUT CURRENT AMPS
AC NORMAL OPERATING VOLTAGE VOLTS

1. PLACARD PLACED ON EACH SOLAR SYSTEM DISCONNECTING COMPONENT.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   SEE SHEET "E-001 / AC DISCONNECT [#]"
3. CODE REFERENCE: NEC 690.54
4. MINIMUM OF 1 1/2" x 8 1/2" (TOP), 1 3/4" x 6 1/2" (BOT)
5. FONT: 3/8" HEADER, 3/16" DATA
6. WHITE LETTERS ON A RED BACKGROUND.

3 UTILITY METER, SERVICE PANEL, SUB-PANEL

SCALE: 1/4" = 1'-0"

WARNING
DUAL POWER SOURCES
RATED AC OUTPUT CURRENT 26.62 AMPS
AC NORMAL OPERATING VOLTAGE 240 VOLTS
#1

BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV
UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING
#2

BUILDING CONTAINS TWO SOURCES OF POWER:
UTILITY, SOLAR PV
UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING
#3

1. (#1) PLACARD PLACED AT MAIN UTILITY SERVICE DISCONNECT/BREAKER AND PV SYSTEM SUPPLY BREAKER AT POINT OF INTERCONNECTION. (#2 & #3) PLACARD(S) REQUIRED WITH #1 PLACARD WHEN UTILITY SERVICE AND PV SYSTEM DISCONNECT ARE NOT LOCATED NEXT TO EACH OTHER. MAP PLACARD REQUIRED AS SPECIFIED.
2. VALUES MUST MATCH EQUIPMENT CALCULATIONS.
   2.1. VALUES WILL MATCH LOAD CENTER OR SUB-PANEL VALUES IF INSTALLED AFTER INVERTERS. IF AC CONNECTION TO SERVICE PANEL COMES FROM INVERTERS; SEE SHEET "E-001 / STRING INVERTER[#] SPECIFICATIONS".
      2.1.1. INVERTERS ARE PARALLEL CONNECTIONS.
      2.1.2. "RATED AC OUTPUT CURRENT" WILL BE THE SUM OF THE INVERTERS
      2.1.3. "AC NORMAL OPERATING VOLTAGE" WILL BE THE NAME PLATE RATING OF THE INVERTER
3. CODE REFERENCE: NEC 690.54, NEC 705.12(B)(3)
4. MINIMUM OF 2" x 6 1/2" (#1), VARIES (#2 & #3)
5. FONT: 3/8" HEADER, 3/16" DATA (#1), 1/4" (#2 & #3)
6. WHITE LETTERS ON A RED BACKGROUND.

SHEET NOTES

CODE ABBREVIATIONS:
NATIONAL ELECTRICAL CODE (NEC)
INTERNATIONAL BUILDING CODE (IBC)
INTERNATIONAL RESIDENTIAL CODE (IRC)
INTERNATIONAL FIRE CODE (IFC)
UNDERWRITERS LABORATORY (UL)

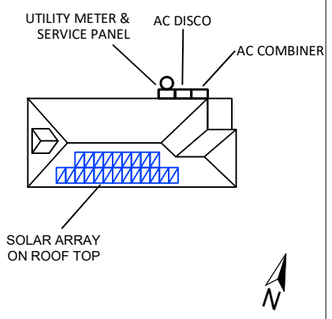
1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT.
2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL.
3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.53)
4. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969)
5. MARKING CONTENT AND FORMAT:
   5.1. ARIAL OR SIMILAR FONT, NON-BOLD.
   5.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS.
   5.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA
   5.4. CONTRASTING BACKGROUND AND LETTERING.
   5.5. ALL CAPITAL LETTERS.
   5.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT
   5.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT
6. ANSI Z535.4 PRODUCT SAFETY SIGNS AND LABELS: THIS INFORMATIONAL NOTE AND ITS REQUIREMENTS FOR PLACARDS MAY BE USED WITH PRIOR APPROVAL OF THE AHJ. MOST NOTABLE DIFFERENCES IS COLOR OF PLACARDS AND USE OF HAND WRITTEN VALUES WITH INDUSTRIAL MARKERS ON STANDARD PLACARDS WHERE THE VALUE MAY CHANGE AT A FUTURE DATE. I.E. ADDING MODULES AT A FUTURE DATE, OR STANDARD PLACARD MANUFACTURER INSTALLED ON ELECTRICAL COMPONENT. AHJ APPROVAL REQUIRED. (SEE NOTE #1 FOR INDIVIDUAL PLACARDS)

4 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

SCALE: 1/2" = 1'-0"

CAUTION

POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:



WARNING

ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

ESI ID: 1008901011411514090100
METER NUMBER: 89632383

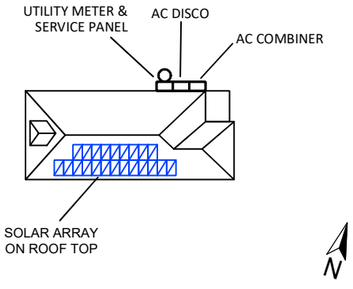
1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 7 3/4" x 5"
6. FONT: 3/4" "CAUTION", 1/4" "WARNING", 3/16" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (CFC 605.11.1.3 & CRC R331.2.3)

5 MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)

SCALE: 1/2" = 1'-0"

CAUTION

POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:



ESI ID: 1008901011411514090100
METER NUMBER: 89632383

1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION.
2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS.
3. CODE REFERENCE: NEC 690.56(A)(B), 705.10
4. WHITE LETTERS ON A RED BACKGROUND.
5. MINIMUM OF 6 1/2" x 6 1/2"
6. FONT: 3/4" "CAUTION", 1/4" HEADER, 1/8" DATA AND NOTES
7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (CFC 605.11.1.3 & CRC R331.2.3)

RESPONSIBILITY NOTES

1. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE PHOTOVOLTAIC SYSTEM INSTALLATION. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE INFORMATION REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEM DETAILED IN THIS DOCUMENT.
2. ADVANCED SOLAR SOLUTIONS, INC IS RESPONSIBLE FOR APPLYING SUPPLIED INFORMATION INTO A SET OF PERMIT DRAWINGS. ANY CHANGES TO DRAWINGS ARE SUBJECT TO CONTRACT CONDITIONS BETWEEN THE CLIENT AND ADVANCED SOLAR SOLUTIONS, INC. IN ACCORDANCE WITH THE REQUIREMENTS OF THE AHJ.

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT

P-002

DYNAMIC PLACARDS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

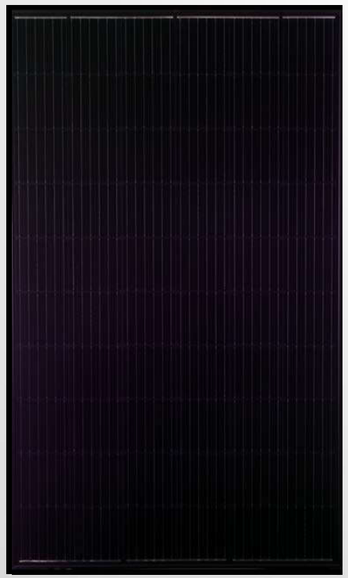
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Daybreak Solar Power, LLC

AMERICA'S MODULE COMPANY™

MISSION SOLAR ENERGY

MSE PERC 60



CLASS LEADING POWER OUTPUT

330 – 345 W

POSITIVE POWER TOLERANCE

-0 to +3 %

The True American Brand

Mission Solar Energy is headquartered in San Antonio, Texas, where we manufacture our modules. We produce American, high quality solar modules ensuring the highest in class power output and best in-class reliability. Our product line is tailored for residential, commercial and utility applications. Every Mission Solar Energy solar module is certified and surpasses industry standard regulations, proving excellent performance over the long-term. Demand the best, demand Mission Solar Energy.

CERTIFIED RELIABILITY
› Tested to UL 61730 & IEC standards
› PID resistant
› Resistance to salt mist corrosion

ADVANCED TECHNOLOGY
› PERC and 6 busbar drive >18.7% module efficiency
› Ideal for all applications

EXTREME WEATHER RESILIENCE
› 5600 Pa front and 4800 Pa back load
› Tested load to UL 61730

BAA COMPLIANT FOR GOVERNMENT PROJECTS
› Buy American Act
› American Recovery & Reinvestment Act

25 YEAR FRAME-TO-FRAME WARRANTY

MODULES ASSEMBLED DESIGNED & ENGINEERED IN THE USA OF U.S. AND NON-U.S. PARTS

FRAME-TO-FRAME WARRANTY

Degradation guaranteed not to exceed 2.5% in year one and 0.7% annually from years two to 30 with 80.7% guaranteed in year 25.

CERTIFICATIONS

UL 61730
IEC 61215 - IEC 61730
IEC 61701

c UL us LISTED CEC TÜV SÜD

Please contact Mission Solar Energy if you have questions or concerns about certification of our products in your area.

*Standard 12-year product warranty extendable to 25 years with registration:
www.missionsolar.com/warranty/

PERC 60

CLASS-LEADING 330-345 W

ELECTRICAL SPECIFICATION

Product Type	MSExxxSX5T (xxx=P_{max})					
Power Output	P_{max}	W_p	330	335	340	345
Module Efficiency		%	17.9	18.2	18.5	18.7
Tolerance		%	0/+3	0/+3	0/+3	0/+3
Short Circuit Current	I_{sc}	V	10.72	10.78	10.86	10.92
Open Circuit Voltage	V_{oc}	A	40.40	40.58	40.82	41.00
Rated Current	I_{mp}	V	10.05	10.14	10.24	10.34
Rated Voltage	V_{mp}	V	32.85	33.03	33.20	33.37
Fuse Rating		A	20	20	20	20
System Voltage		V	1000	1000	1000	1000

TEMPERATURE COEFFICIENTS

Normal Operating Cell Temperature (NOCT)	44.43°C (±3.7%)
Temperature Coefficient of P_{max}	-0.361%/°C
Temperature Coefficient of V_{oc}	-0.262%/°C
Temperature Coefficient of I_{sc}	0.039%/°C

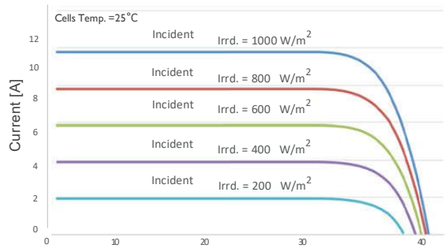
OPERATING CONDITIONS

Maximum System Voltage	1,000Vdc
Operating Temperature Range	-40°C (-40°F) to +85°C (185°F)
Maximum Series Fuse Rating	20A
Fire Safety Classification	Type 1
Front & Back Load (UL Standard)	5600 Pa front and 4800 Pa back load Tested to UL 61730
Hail Safety Impact Velocity	25mm at 23 m/s

MECHANICAL DATA

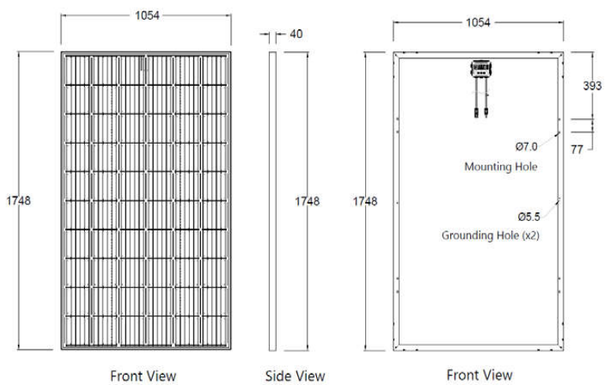
Solar Cells	P-type mono-crystalline silicon
Cell Orientation	60 cells (6x10)
Module Dimension	1748mm x 1054mm x 40mm
Weight	20.3 kg (44.8 lbs.)
Front Glass	3.2mm, tempered, low-iron, anti-reflective
Frame	Anodized
Encapsulant	Ethylene vinyl acetate (EVA)
Junction Box	Protection class IP67 with 3 bypass-diodes
Cable	1.0m, Wire 4㎟(12AWG)
Connector	Stäubli MC4, Renhe 05-8

MSE345SX5T: 345WP, 60 CELL SOLAR MODULE CURRENT - VOLTAGE CURVE



Current-voltage characteristics with dependence on irradiance and module temperature

BASIC DIMENSIONS (UNITS: mm)



CERTIFICATIONS & TESTS

IEC	61215, 61730, 61701
UL	61730

c UL us LISTED CEC TÜV SÜD

SHIPPING INFORMATION

Container FT		Pallets	Panels	345 W Bin
53'	Double Stack	36	936	322.92 kW
40'	Double Stack	28	728	251.16 kW

Pallet [26 Panels]			
Weight	Height	Width	Length
1263 lbs. (573 kg)	47.5 in (120.65 cm)	46 in (116.84 cm)	70.25 in (178.43 cm)

Mission Solar Energy reserves the right to make specification changes without notice

Mission Solar Energy | 8303 S. New Braunfels Ave., San Antonio, Texas 78235
www.missionsolar.com | info@missionsolar.com

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-100

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Daybreak Solar Power, LLC

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell/120 half-cell and 72-cell/144 half-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell/144 half-cell modules.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US	IQ7PLUS-72-2-US
Commonly used module pairings[1]	235 W - 350 W +	235 W - 440 W +
Module compatibility	60-cell/120 half-cell PV modules only	60-cell/120 half-cell and 72-cell/144 half-cell PV modules
Maximum input DC voltage	48 V	60 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V
Operating range	16 V - 48 V	16 V - 60 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V
Max DC short circuit current (module Isc)	15 A	15 A
Overvoltage class DC port	II	II
DC port backfeed current	0 A	0 A
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	

OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	18 mA		18 mA	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	

EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %

MECHANICAL DATA	
Ambient temperature range	-40°C to +65°C
Relative humidity range	4% to 100% (condensing)
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)
Dimensions (HxWxD)	212 mm x 175 mm x 30.2 mm (without bracket)
Weight	1.08 kg (2.38 lbs)
Cooling	Natural convection - No fans
Approved for wet locations	Yes
Pollution degree	PD3
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure
Environmental category / UV exposure rating	NEMA Type 6 / outdoor

FEATURES	
Communication	Power Line Communication (PLC)
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

© 2020 Enphase Energy. All rights reserved. Enphase, the Enphase logo, Enphase IQ 7, Enphase IQ 7+, Enphase IQ Battery, Enphase Enlighten, Enphase IQ Envoy, and other trademarks or service names are the trademarks of Enphase Energy, Inc. Data subject to change. 2020-08-12

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

EQUIP. CUT SHEETS

R-101

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Tech Brief

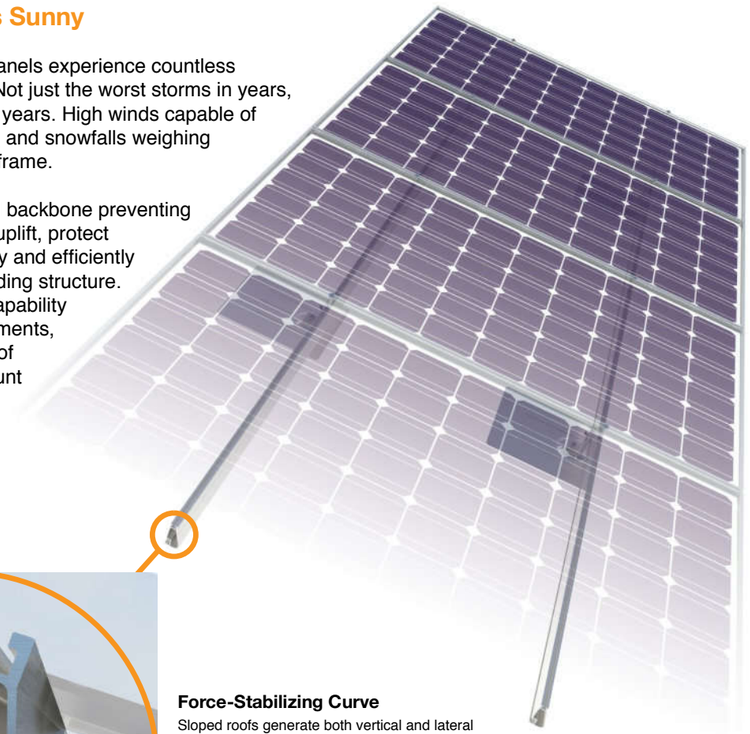
IRONRIDGE

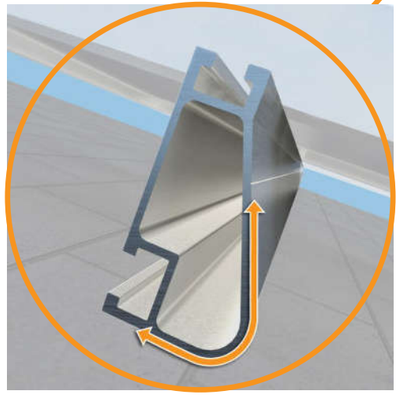
XR Rail Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.





Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

Tech Brief

XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your locatio n, there is an XR Rail to match.

XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear & black anodized finish
- Internal splices available

XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available

XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineeri ng codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Me an Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100						
	120						
	140	XR10		XR100		XR1000	
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

© 2014 IronRidge, Inc. All rights reserved. Visit www.ironridge.com or call 1-800-227-9523 for more information. Version 1.13

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-102

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC

TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

Tech Brief

IRONRIDGE

Class A Fire Rating

Background

All roofing products are tested and classified for their ability to resist fire.

Recently, these fire resistance standards were expanded to include solar equipment as part of the roof system. Specifically, this requires the modules, mounting hardware and roof covering to be tested together as a system to ensure they achieve the same fire rating as the original roof covering.

These new requirements are being adopted throughout the country in 2016.

IronRidge Certification

IronRidge was the first company to receive a Class A Fire Rating—the highest possible rating—from Intertek Group plc., a Nationally Recognized Testing Laboratory.

IronRidge Flush Mount and Tilt Mount Systems were tested on sloped and flat roofs in accordance with the new UL 1703 & UL 2703 test standards. The testing evaluated the system's ability to resist flame spread, burning material and structural damage to the roof.

Refer to the table below to determine the requirements for achieving a Class A Fire Rating on your next project.

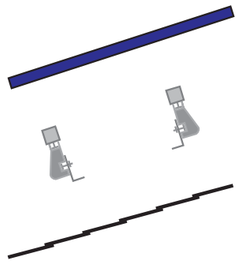
Fire Testing Process

Test Setup

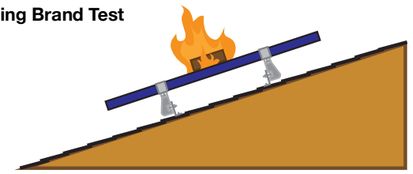
Solar Modules
Solar modules are given a Type classification based on their materials and construction.

Mounting System
Mounting is tested as part of a system that includes type-tested modules and fire-rated roof covering.

Roof Covering
Roof covering products are given a Fire Class Rating of A, B or C based on their tested fire resistance.

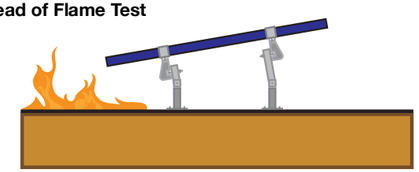


Burning Brand Test



A burning wooden block is placed on module as a fan blows at 12 mph. Flame cannot be seen on underside of roof within 90 minutes.

Spread of Flame Test



Flame at southern edge of roof is aimed up the roof as a fan blows at 12 mph. The flame cannot spread 6 feet or more in 10 minutes.

System	Roof Slope	Module	Fire Rating*
Flush Mount	Any Slope	Type 1, 2, & 3	Class A
Tilt Mount	≤ 6 Degrees	Type 1, 2, & 3	Class A

*Class A rated PV systems can be installed on Class A, B, and C roofs.

Tech Brief

Frequently Asked Questions

What is a "module type"?

The new UL1703 standard introduces the concept of a PV module type, based on 4 construction parameters and 2 fire performance parameters. The purpose of this classification is to certify mounting systems without needing to test it with every module.

What roofing materials are covered?

All fire rated roofing materials are covered within this certification including composition shingle, clay and cement tile, metal, and membrane roofs.

What if I have a Class C roof, but the jurisdiction now requires Class A or B?

Generally, older roofs will typically be "grandfathered in", and will not require re-roofing. However, if 50% or more of the roofing material is replaced for the solar installation the code requirement will be enforced.

Where is the new fire rating requirement code listed?

2012 IBC: 1509.7.2 Fire classification. Rooftop mounted photovoltaic systems shall have the same fire classification as the roof assembly required by Section 1505.

Where is a Class A Fire Rating required?

The general requirement for roofing systems in the IBC refers to a Class C fire rating. Class A or B is required for areas such as Wildland Urban Interface areas (WUI) and for very high fire severity areas. Many of these areas are found throughout the western United States. California has the most Class A and B roof fire rating requirements, due to wild fire concerns.

Are standard mid clamps covered?

Mid clamps and end clamps are considered part of the PV "system", and are covered in the certification.

What attachments and flashings are deemed compatible with Class A?

Attachments and their respective flashings are not constituents of the rating at this time. All code-compliant flashing methods are acceptable from a fire rating standpoint.

What mounting height is acceptable?

UL fire testing was performed with a gap of 5", which is considered worst case in the standard. Therefore, the rating is applicable to any module to roof gap.

Am I required to install skirting to meet the fire code?

No, IronRidge achieved a Class A fire rating without any additional racking components.

What determines Fire Classification?

Fire Classification refers to a fire-resistance rating system for roof covering materials based on their ability to withstand fire exposure.

Class A - effective against severe fire exposure
Class B - effective against moderate fire exposure
Class C - effective against light fire exposure

What if the roof covering is not Class A rated?

The IronRidge Class A rating will not diminish the fire rating of the roof, whether Class A, B, or C.

What tilts is the tilt mount system fire rated for?

The tilt mount system is rated for 1 degrees and up and any roof to module gap, or mounting height.

More Resources

Installation Manuals
Visit our website for manuals that include UL 2703 Listing and Fire Rating Classification.
Go to IronRidge.com

Engineering Certification Letters
We offer complete engineering resources and pre-stamped certification letters.
Go to IronRidge.com

© 2016 IronRidge, Inc. All rights reserved. Visit www.ironridge.com or call 1-800-227-9523 for more information. Version 1.20

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-103

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

IRONRIDGE

Tech Brief

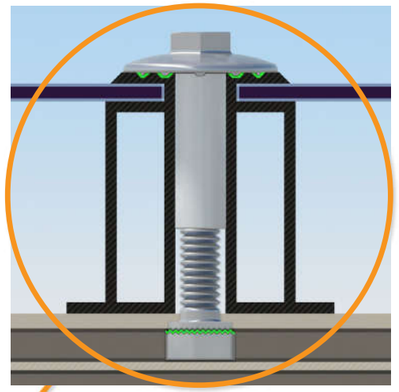
UFO Family of Components

Simplified Grounding for Every Application

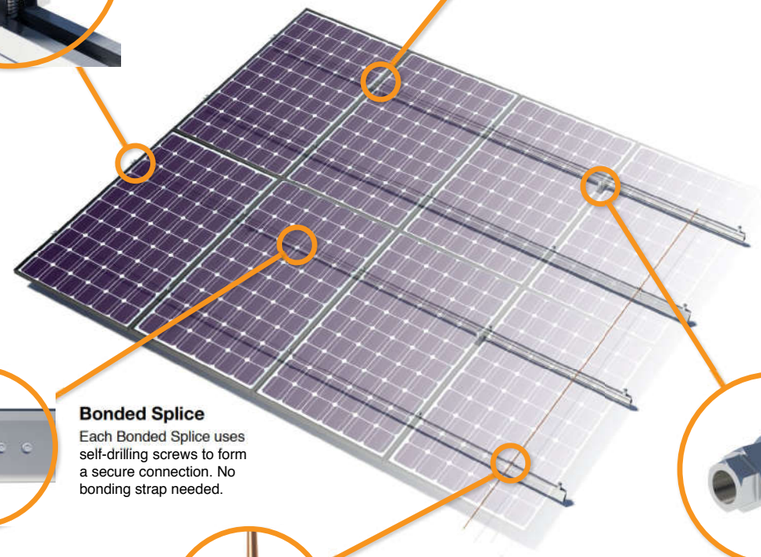
The UFO family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge XR Rails. All system types that feature the UFO family—Flush Mount, Tilt Mount and Ground Mount—are fully listed to the UL 2703 standard.

UFO hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.

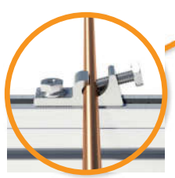
Stopper Sleeve
The Stopper Sleeve snaps onto the UFO, converting it into a bonded end clamp.



Universal Fastening Object (UFO)
The UFO securely bonds solar modules to XR Rails. It comes assembled and lubricated, and can fit a wide range of module heights.



Bonded Splice
Each Bonded Splice uses self-drilling screws to form a secure connection. No bonding strap needed.

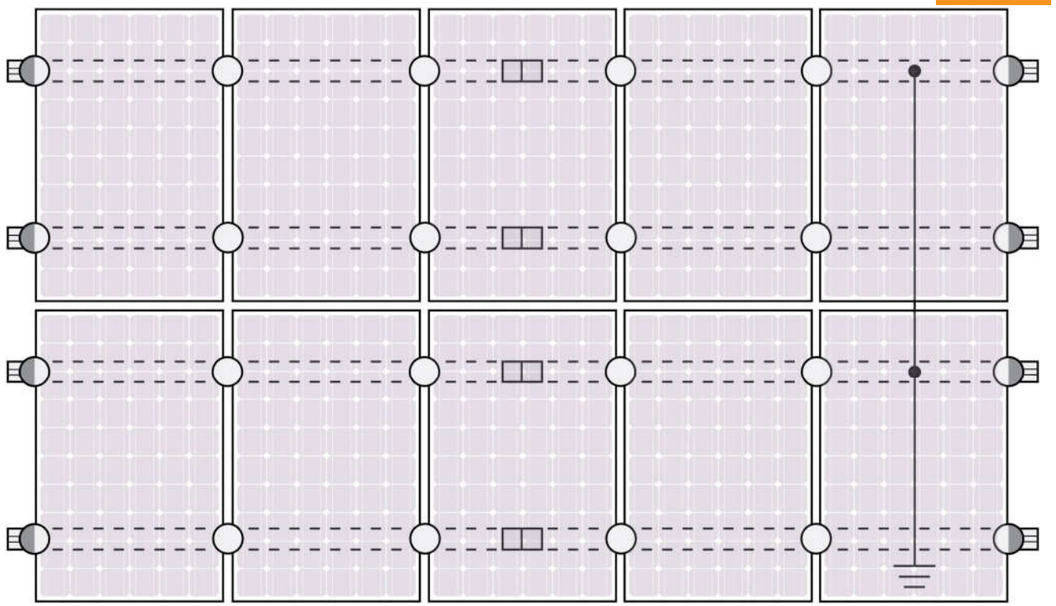


Grounding Lug
A single Grounding Lug connects an entire row of PV modules to the grounding conductor.

Bonded Attachments
The bonding bolt attaches and bonds the L-foot to the rail. It is installed with the same socket as the rest of the system.

System Diagram

Tech Brief



Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

UL Certification

The IronRidge Flush Mount, Tilt Mount, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to IronRidge.com/UFO

Cross-System Compatibility			
Feature	**Flush Mount**	**Tilt Mount**	**Ground Mount**
XR Rails	✔	✔	XR1000 Only
UFO/Stopper	✔	✔	✔
Bonded Splice	✔	✔	N/A
Grounding Lugs	1 per Row	1 per Row	1 per Array
Microinverters & Power Optimizers	Enphase - M250-72, M250-60, M215-60, C250-72 Darfon - MIG240, MIG300, G320, G640 SolarEdge - P300, P320, P400, P405, P600, P700, P730		
Fire Rating	Class A	Class A	N/A
Modules	Tested or Evaluated with over 400 Framed Modules Refer to installation manuals for a detailed list.		

© 2016 IronRidge, Inc. All rights reserved. Visit www.ironridge.com or call 1-800-227-9523 for more information. Version 1.10

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-104

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth, TX 76164
(817) 501-4922

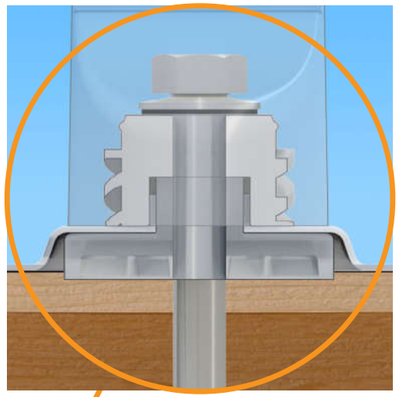
Tech Brief

IRONRIDGE

FlashFoot2

The Strongest Attachment in Solar

IronRidge FlashFoot2 raises the bar in solar roof protection. The unique water seal design is both elevated and encapsulated, delivering redundant layers of protection against water intrusion. In addition, the twist-on Cap perfectly aligns the rail attachment with the lag bolt to maximize mechanical strength.

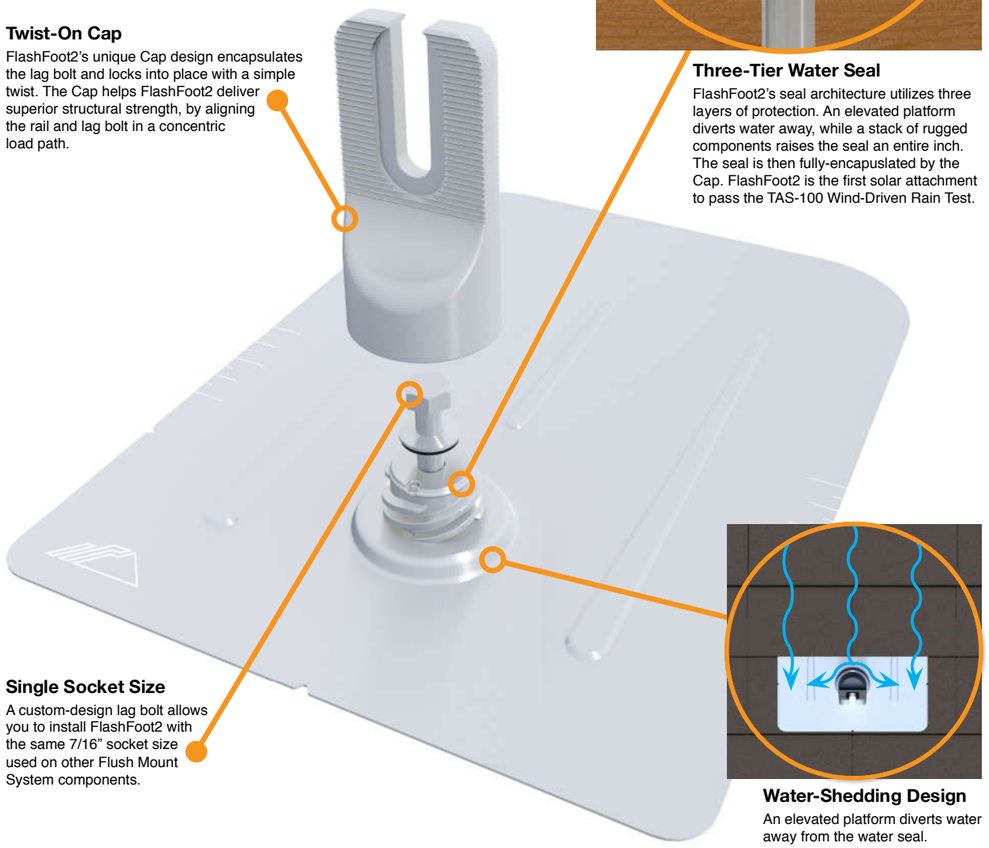


Three-Tier Water Seal

FlashFoot2's seal architecture utilizes three layers of protection. An elevated platform diverts water away, while a stack of rugged components raises the seal an entire inch. The seal is then fully-encapuslated by the Cap. FlashFoot2 is the first solar attachment to pass the TAS-100 Wind-Driven Rain Test.

Twist-On Cap

FlashFoot2's unique Cap design encapsulates the lag bolt and locks into place with a simple twist. The Cap helps FlashFoot2 deliver superior structural strength, by aligning the rail and lag bolt in a concentric load path.



Single Socket Size

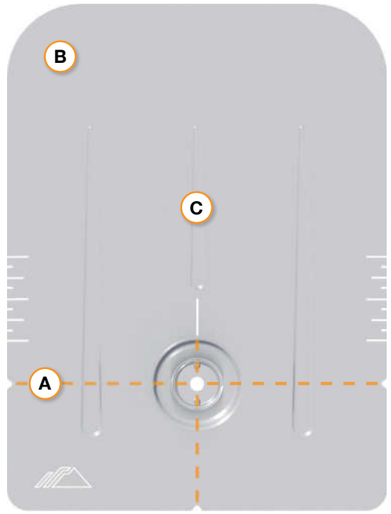
A custom-design lag bolt allows you to install FlashFoot2 with the same 7/16" socket size used on other Flush Mount System components.

Water-Shedding Design

An elevated platform diverts water away from the water seal.

Tech Brief

Installation Features



A Alignment Markers

Quickly align the flashing with chalk lines to find pilot holes.

B Rounded Corners

Makes it easier to handle and insert under the roof shingles.

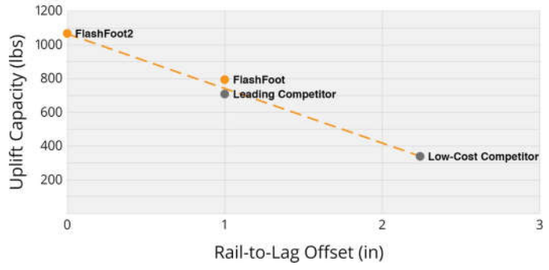
C Reinforcement Ribs

Help to stiffen the flashing and prevent any bending or crinkling during installation.

Benefits of Concentric Loading

Traditional solar attachments have a horizontal offset between the rail and lag bolt, which introduces leverage on the lag bolt and decreases uplift capacity.

FlashFoot2 is the only product to align the rail and lag bolt. This concentric loading design results in a stronger attachment for the system.



Testing & Certification

Structural Certification

Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7.

Water Seal Ratings

Water Sealing Tested to UL 441 Section 27 "Rain Test" and TAS 100-95 "Wind Driven Rain Test" by Intertek. Ratings applicable for composition shingle roofs having slopes between 2 :12 and 12:12.

UL 2703

Conforms to UL 2703 Mechanical and Bonding Requirements. See Flush Mount Install Manual for full ratings.

© 2016 IronRidge, Inc. All rights reserved. Visit www.ironridge.com or call 1-800-227-9523 for more information. Version 1.0

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-105

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC

TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

8431 Murphy Drive
Middleton, WI 53562 USA

Telephone: 608.836.4400
Facsimile: 608.831.9279
www.intertek.com

Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544 USA
Product Description:	Flush Mount System with XR Rails.
Ratings & Principle Characteristics:	Fire Class Resistance Rating: -Flush Mount (Symmetrical). Class A Fire Rated for Low Slope applications when using Type 1, 2 and 3, listed photovoltaic modules. Class A Fire Rated for Steep Slope applications with Type1, 2 and 3, listed photovoltaic modules. Tested with a 5" gap (distance between the bottom the module frame and the roof covering), per the standard this system can be installed at any gap allowed by the manufacturers installation instructions. No perimeter guarding is required. This rating is applicable with any IronRidge or 3'rd party roof anchor.
Models:	IronRidge Flush Mount with XR Rails
Brand Name:	IronRidge Flush Mount
Relevant Standards:	UL 2703 (Section 15.2 and 15.3) Standard for Safety Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels, First Edition dated Jan. 28, 2015 **Referencing** UL1703 Third Edition dated Nov. 18, 2014, (Section 31.2) Standard for Safety for Flat-Plate Photovoltaic Modules and Panels.
Verification Issuing Office:	Intertek Testing Services NA, Inc. 8431 Murphy Drive Middleton, WI 53562
Date of Tests:	08/27/2014 to 03/17/2015
Test Report Number(s):	101769343MID-001r1, 101769343MID-001a, 101915978MID-001 & 101999492MID-001ar1-cr1.

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:	Chris Zimbrich	**Reviewed by:**	Chad Naggs
Title:	Technician II, Fire Resistance	**Title:**	Technician I, Fire Resistance
Signature:		**Signature:**	
Date:	05/25/2016	**Date:**	05/25/2016

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

IRONRIDGE

28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com

Attn: Corey Geiger, COO, IronRidge Inc.
Date: September 5th, 2019

Re: Structural Certification for the IronRidge FlashFoot2

This letter addresses the structural capacity of the IronRidge FlashFoot2 (FF2) component for use as a roof attachment for PV solar systems. FF2 is composed of an aluminum Cap, a 9" x 12" aluminum flashing, and an aluminum stabilizing base. The flashing component is attached to an underlying roof rafter using a 5/16" lag bolt. The assembly details are shown in Exhibit EX-0013.

The referenced uplift and lateral resistance of FF2 is based on structural tests conforming to ASTM D1761-12 "*Standard Test Methods for Mechanical Fasteners in Wood*." Testing was performed by installing a FF2 component on a sample roof deck composed of composition shingles covering ½" OSB Board over a 2x4 Douglas Fir rafter as shown in Figure 1. The moisture content and specific gravity of the rafter was measured and recorded per ASTM D2395-14 "*Standard Test Methods for Density and Specific Gravity (Relative Gravity) of Wood and Wood-Based Materials*." The moisture content for uplift test samples was between 8% and 15% with an average specific gravity of 0.54. The moisture content for lateral test samples was 13% with an average specific gravity of 0.54.

The critical failure mode observed for both the uplift and lateral tests was pullout of the 5/16" lag screw from the rafter. The average peak loads recorded at the critical failure point for the uplift and lateral tests were 3203 lbs. and 1237 lbs., respectively. **A safety factor of 3.0 was applied to certify the allowable uplift capacity to 1067 lbs. and the allowable lateral capacity to 412 lbs. for a substrate with a specific gravity of 0.54.**

For rafter wood species with specific gravity other than 0.54, the allowable uplift capacity shall be adjusted by a factor of $\left(\frac{G}{0.54}\right)^{\frac{3}{2}}$ per AP&PA National Design Specification Eq. (12.2-1), and the allowable lateral capacities shall be adjusted per the equation $1-(0.5-G)$ from APA Engineering Wood Construction Guide APA 2011 (G is wood specific gravity). For the common wood species, the allowable capacities are provided in Table 1.

Table 1. IronRidge FlashFoot2 Allowable Capacities (1)

Wood Species	NDS Assigned Specific Gravity(2)	Allowable Uplift Capacity (lbs)(3)	Allowable Lateral Capacity (lbs)(3)
Douglas Fir, Larch	0.50	951	396
Douglas Fir, South	0.46	839	380
Hem, Fir	0.43	758	368
Hem, Fir (North)	0.46	839	380
Southern Pine	0.55	1097	416
Spruce, Pine, Fir	0.42	732	364

(1) The minimum size rafter is 2x4.
(2) The listed specific gravities are per 2015 NDS Table 12.3.3A.
(3) Values are based on securing lag bolt within center 1/3 of rafter width with a minimum 2.5" end distance, and loading directions as shown in Figure 1.

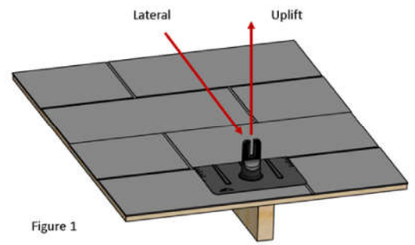


Figure 1

© 2019 IronRidge, Inc.

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-106

EQUIP. CUT SHEETS

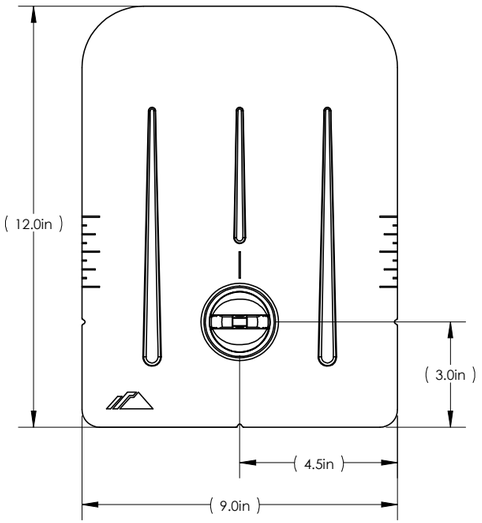
7.590 kW PHOTOVOLTAIC PLANS

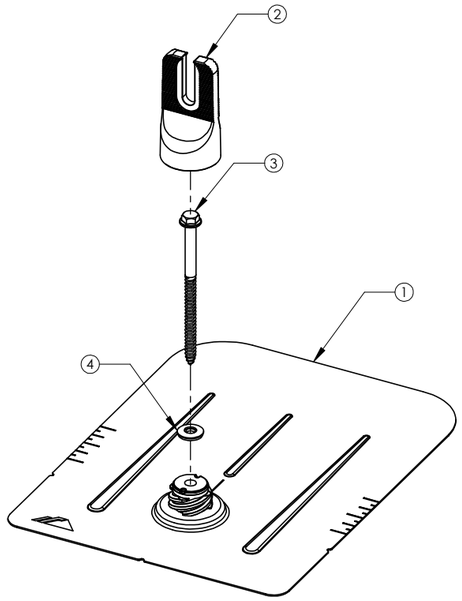
NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

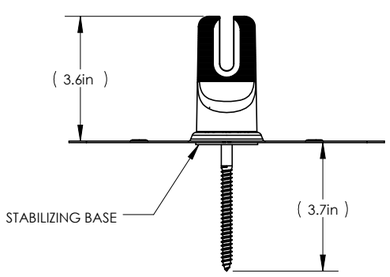
Daybreak Solar Power, LLC

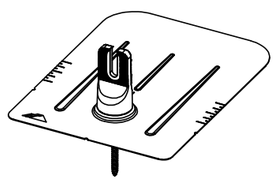
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922

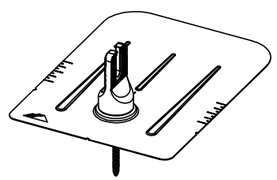
EXHIBIT: EX-0013











FlashFoot2 Cap can be installed in either orientation shown

ITEM NO.	DESCRIPTION
1	ASSY, FLASHING, MILL OR BLACK
2	ASSY, CAP, MILL OR BLACK
3	BOLT LAG 5/16 X 4.75"
4	WASHER, EPDM BACKED

IRONRIDGE

ASSY, FLASHFOOT2

DWG. NO. EX-0013

REV	DATE	RELEASE
	12/27/2022	SUBMIT FOR PERMIT
1	01/19/2023	METER NUMBER UPDATE

R-107

EQUIP. CUT SHEETS

7.590 kW PHOTOVOLTAIC PLANS

NAME	Mclean, Cathy
ADDRESS	1520 25th St
ADDRESS	Galveston, TX 77550
APN	

Daybreak Solar Power, LLC
TECL32815
2106 N Main St
Fort Worth , TX 76164
(817) 501-4922