

CHARTER TOWNSHIP OF FLUSHING

6524 N. Seymour Road, Flushing, MI 48433

P (810) 659-0800 F (810) 659-4212

www.flushingtowship.com

ZONING BOARD OF APPEALS AGENDA

DATE: October 27th, 2025

TIME: 5:00 P.M.

MEMBERS OF ZONING BOARD OF APPEALS

Chair – Steve Moulton

Vice Chair – Vacant

Melissa Fitch

Kevin MacDermaid

Fred Peivandi

Planning Commission Representative – Amy Bolin

Jeanette Sizemore, Recording Secretary

I. CALL THE MEETING TO ORDER:

ROLL CALL

PLEDGE OF ALLEGIANCE

II. APPROVAL OF AGENDA

III. APPROVAL OF PREVIOUS MINUTES: January 30th, 2024

IV. PUBLIC COMMENTS: Pertaining to Agenda Items Only. Each speaker limited to three minutes.

V. UNFINISHED BUSINESS: None

VI. NEW BUSINESS

1. Discussion and possible motion on election of officers.
2. Public Hearing to consider a variance request to *Chapter 36, Section 36-420 Solar Energy System Regulation (B) On-Site Roof-Mounted Solar Energy Collectors*
4. Not be located within 3 feet of any peak, eave, or valley to maintain Adequate accessibility at Parcel No. 08-22-526-049, 9071 Saddle Horn Dr., Flushing, MI 48433 also known as LOT 49 THE PONDEROSA SEC 22 T8N R5E
3. Discussion and possible motion to consider a variance request to *Chapter 36, Section 36-420 Solar Energy System Regulation (B) On-Site Roof-Mounted Solar Energy Collectors*
4. Not be located within 3 feet of any peak, eave, or valley to maintain Adequate accessibility at Parcel No. 08-22-526-049, 9071 Saddle Horn

Dr., Flushing, MI 48433 also known as LOT 49 THE PONDEROSA SEC 22 T8N R5E

4. Public Hearing to consider a variance request to *Chapter 36, Article 4 Site Regulations, Section 36-403 Lot Sizes* for a land split on parcel No. 08-23-577-025, addresses 5020/5024 Meadowbrook Lane, Flushing, MI 48433 also known as S 105 FT OF LOT 18 & S 105 FT OF W17 FT OF LOT 19 FLUSHING MEADOWS (03) FR 08-23-577-018/-019
5. Discussion and possible motion to consider a variance request to *Chapter 36, Article 4 Site Regulations, Section 36-403 Lot Sizes* for a land split on parcel No. 08-23-577-025, addresses 5020/5024 Meadowbrook Lane, Flushing, MI 48433 also known as S 105 FT OF LOT 18 & S 105 FT OF W17 FT OF LOT 19 FLUSHING MEADOWS (03) FR 08-23-577-018/-019

VII. NEXT REGULAR MEETING:

AS NEEDED.

VIII. ADJOURNMENT

CHRIS CZYZIO, Zoning Administrator
Charter Township of Flushing

CHARTER TOWNSHIP OF FLUSHING

6524 N. SEYMOUR ROAD, FLUSHING, MI 48433

P (810) 659-0800

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www.flushingtowship.com

SPECIAL ZONING BOARD OF APPEALS MINUTES

DATE: JANUARY 30TH, 2024

TIME: 5:00 P.M.

MEMBERS OF ZONING BOARD OF APPEALS

Chair – Steve Moulton

Andrew Eichorn

Vice Chair – Richard Vaughn

James Sarka

Planning Commission Representative – Amy Bolin

Jeanette Sizemore, Recording Secretary

PRESENT: Eichorn, Bolin, Vaughn, Sarka and Moulton

ABSENT: None

OTHERS PRESENT: 4 (four) others present.

I. MEETING CALLED TO ORDER at 5:00 P.M. by Zoning Board of Appeals
Chairperson Moulton with Roll Call and Pledge to the American Flag.

II. APPROVAL OF AGENDA:

MR. VAUGHN, supported by Mrs. Bolin to approve the agenda.

THE MOTION CARRIED.

III. APPROVAL OF PREVIOUS MINUTES:

MR. EICHORN, supported by Mr. Sarka to approve the minutes of the September 25th, 2023 meeting.

ACTION ON THE MOTION

ROLL CALL VOTE:

AYES: Vaughn, Sarka, Moulton, Eichorn and Bolin

NAYS: None

ABSENT: None

THE MOTION CARRIED.

IV. PUBLIC COMMENTS

OPEN FOR PUBLIC COMMENTS 5:04 P.M.

NONE

CLOSED FOR PUBLIC COMMENTS 5:05 P.M.

V. UNFINISHED BUSINESS

None

VI. NEW BUSINESS

1. Public Hearing on variance for the Planning Commission decision pertaining to fence requirements at the 8464 W. Mt. Morris Rd, Flushing Michigan 48433, Parcel No. 08-02-300-021 and 08-02-300-022, pursuant to *Flushing Township Code of Ordinances*, 36-1804(X) MINI STORAGE FACILITIES (OUTDOOR AND/OR INDOOR STORAGE), 36-1804(H) AUTOMOBILE GASOLINE FILLING, AND SERVICE STATION AND 19-65(2) STORAGE OF JUNK MOTOR VEHICLES (AUTOMOBILES) RESTRICTED.

Public Hearing Opened at 5:07 P.M.

Chairperson Moulton - Mr. Hansen you are speaking in support of the variance?

Mr. Hansen -Yes.

Chairperson Moulton - As I reviewed the application, I couldn't see your basis for requesting the variance.

Mr. Hansen – Yeah, I was out of town when I filled that out. And so it was a rush, rush thing to get it in on time. But it was approved, there was an issue around the storage unit being a privacy fence instead of a 6 foot chain link fence. I have a letter from the residence that own the abutting property on the North side. (He read the letter to the Zoning Commission) (And handed the letter to Mr. Moulton, which will be added to the Minutes)

Chairperson Moulton – You are the owner of the property at 8464 W. Mt. Morris Rd?

Mr. Hansen – I have a purchase agreement on it and we have an approval from the Planning Commission to put in a gas station. And in that approval on December 11th it was added that, we put in a privacy fence. We have a chain link fence around it now. And so I would like it to stay the way it is. That kind of business you really need to see it, so you can see that there is a storage facility there. (Mr. Hansen also explained that there are some similar facilities that are not in our Township that have similar fencing that he has now) It is a lot of additional cost and work than what is there now. There is a lot of green area as it is. I would like to leave it as it is, as it was not originally in the first agreement, when I was keeping the original building. When we decided to add a brand new building is when it all came about on December 11th, 2023.

Chairperson Moulton – So, you appeared before the Planning Commission on December 13, 2023 requesting the approval of a new site plan where then you would remove the existing building that serves as a convenience store and laundrymat. And replace it with a completely new building.

Mr. Hansen – Completely new building.

Chairperson Moulton – And that approval was granted subject to several requirements or conditions, am I correct? One was that there be a privacy fence installed around the perimeter of the storage facility.

The Planning Commission waved the requirement for a 4 foot concrete wall around the service station facility. There may have been other conditions, but all of those were rolled into one decision. The Site Plan was approved subject to those conditions, correct? Were you at that Planning Commission Meeting?

Mr. Hansen – I was.

Chairperson Moulton – Was there any discussion on your part regarding the privacy fence issue?

Mr. Hansen – I really didn't have a chance to get into it. It was brought up at the last minute to put in a privacy fence and then it was approved. So we didn't get to discuss the matter. I also have some photos of some property's that are similar privacy fencing.

Chairperson Moulton – So, at the meeting when there was discussion regarding a privacy fence, you understood, that would be the type of fence that would conceal view from outside and that the existing fence at the facility right now would not meet that requirement?

Mr. Hansen – Well that what was thrown in at the last minute. When we went in to remodel the existing store and put in a gas station and that was not included.

Commissioner Eichorn – That would be my question. Building a new Gas Station, what was the change?

Commissioner Bolin – Well the thing is, I am on the Planning Commission. And one thing that was discussed at that meeting is that if you would be doing outside storage. So, it was not only the storage itself, the concern was about you storing vehicles and campers out in the area around the storage unit. Based on that we felt that the privacy fence, based on the Ordinances is what we needed to stay consistent with.

Commissioner Eichorn – Is there any rule though for storing vehicles and campers and such in the State of Michigan? I thought that it was ok as long as they were plated.

Mr. Hansen – This was approved in 1993 when it was build.

Commissioner Eichorn – I was just curious as far as the fence.

Commissioner Bolin – Well that is kinda what Mr. Czyzio put together was the different ordinances in the Township where it is consistent that with the storage of vehicles you have to have an obscuring fence and that's what is in the information that he sent to us. So staying consistent with those ordinances is what we were following.

Mr. Hansen – In the site plan that was approved, we even said we would put some tall arborvitaes in to block it as well. And then have a gas station convenience store in front of it.

Mr. Hansen – I looked at a couple other facilities with privacy chain length fences and the only one with a privacy fence that is close to this one is on Elms Rd and Lennon Rd.

Chairperson Moulton – Mr. Czyzio, could you come forward, taking that blown up diagram Mr. Hansen has provided. Could you flip it 90 degrees so that north is up and Mt. Morris Rd is down. Do you know the zoning of the property to the west.

Zoning Administrator – Mr. Czyzio – The property to the west here is C2, the property to the east is C2 as well.

Chairperson Moulton – What is the current use of the property to the West that is zoned C2?

Zoning Administrator – Mr. Czyzio – He does fire damage and those kinds of things. He uses the building in the back that you cannot see here to store equipment and stuff like that.

Chairperson Moulton – So that is commercial as zoned and used. The property to the east is zoned C2, is it currently agricultural use?

Zoning Administrator – Mr. Czyzio – It appears that it is agricultural, there have been crops in it.

Chairperson Moulton – The property to the north?

Zoning Administrator – The property to the north is RSA. It is a large batch of woods that is the property in question.

Commissioner Eichorn – It is 7 acre parcel.

Chairperson Moulton – Mr. Hansen did you speak to the owners to the north?

Mr. Hansen – Yes, they signed the letter today. (he presented a signed letter that will be added to these minutes.)

After much more discussion on the tree farm and wedding venue. That neither one of the them have had any complaints. And that no one has sent in complaints on the new build or fencing. The main reason for the meeting is to discuss keeping ordinances in place as best as possible so the Township doesn't have problems with complaints or request in the future, not necessarily for the gas station/storage facility but any other facilities in Flushing Township.

It was for the most part agreed that the new building will be nice to have and that the arborvitaes would be a good solution as long as they are 3 feet high when planted.

Chairperson Moulton – Let me try to read this out as a possible compromise. There would be no outside storage beyond the line extending the north line of the back line of the building east and west of the property lines. So you could have outside storage north of the building. No outside storage to the south, east or west of the building. To the back of the north wall. There will be arborvitaes planted along the line along the south of the building as depicted on the site plan. You will plant arborvitaes from the northeast corner of the lot, along the east property line to the same length that the site plan arborvitaes are. In otherwords you wouldn't have to go any farther than the east line with new arborvitaes, except to join the line with the arborvitaes already depicted on the site plan.

Mr. Hansen - So these planting here? You want something here?

Chairperson Moulton – Correct, from the northeast corner, which would be the one you are pointing to right there. But the line of Arbovitaes could end even with the gate to the back.

Commissioner Eichorn – So you are saying that line of arborvitaes could stop at the ones running east to west line would end with the north to south line.

Chairperson Moulton – Yes

Chairperson Moulton – And the Zoning Board of Appeals will accept into the record the letter from Mr. and Mrs. Bundy the owners of the RSA property immediately north of the storage facility and if that property should sell or the property would change. The owner of the storage facility would plant arborvitaes along the north side of the storage facility.

Mr. Hansen – But I don't want to be stuck in the situation that if someone else buys the property north of the storage facility and cuts the trees that are blocking the view of the storage unit. I don't want to be stuck planting arborvitaes on the north side at that point to block the view of the storage unit, when it was already blocked at this point.

Chairperson Moulton – No, but if the property changes that the huge pines or conifer are gone and the property is now being used and the new owner has an obstructed view of the storage, then the storage unit owner will then plant arborvitaes at that point to stop the view.

Commissioner Eichorn, Vaugn and others agreed that they don't feel that if the property to the north of the storage facility is sold and the new owner/owners cut the conifer/pine trees down and have view of the

storage facility it shouldn't be the owner of the storage units responsibility to block the view of the storage unit facility. The owners that bought and cut the trees down should know that it would open that view up.

More discussion was made about storage units and fencing that would keep kids or what not out from breaking in the storage area. And trying to keep the zoning ordinances in place. And that the new owners, if the property north of the storage facility is sold, it would be common knowledge that if you cut the trees or conifers down you should know what you are uncovering.

Chairperson Moulton – Mr. Czyzio – Zoning Administrator, do you have any concerns that we have suggesting for a resolution?

Zoning Administrator – If there is a motion that states no vehicles or anything stored in the front of the building. As you stated the north or the building is fine. And the arborvitaes would be fine and that would cover it.

Chairperson Moulton – At any time of the discussion did anyone mention the high they arborvitaes needed to be when planted?

After much discussion about the arborvitaes. It was agreed that the arborvitaes start growing faster after 3 feet of growth.

January 30, 2024

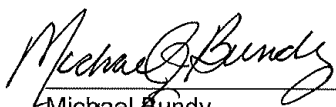
TO: Zoning Board of Appeals

We, Michael and Teresa Bundy, own the residential property directly behind or abutting the storage unit property located at 8464 W. Mt. Morris Road.

We see no issue with the current fencing around the structure, or see a need for any additional fencing to be placed to block the view of the storage unit.

In addition, we do not feel the need for a masonry obscuring wall.

We would like the see the property revised to include a new gas station/convenience store.



Michael Bundy
POA Teresa Bundy



Teresa Bundy

CHAIRPERSON MOULTON MOVED, SUPPORTED BY Commissioner Eichorn to approve a variance with respect to the requirement of the Planning Commission for a privacy fence at the 8464 W. Mt. Morris Rd, Flushing Michingan 48433, parcel No. 08-02-300-021 and 08-02-300-022, pursuant to *Flushing Township code of Ordinances*, 36-1804(X) MINI STORAGE FACILITIES (OUTDOOR AND/OR INDOOR STORAGE), 36-1804(H) AUTOMOBILE GASOLINE FILLING, AND SERVICES STATION AND 19-65(2) STORAGE OF JUNK MOTOR VEHICLES (AUTOMOBILES) RESTRICTED. That would have encircled the entirety of the property containing the mini storage facility. So that the variance would be as follows, at the owners expense shall install a row of arborvitaes along the east property line from the north east corner of the property to terminate along the east west line established by the arborvitaes that are already shown on the owners site plan. The arborvitaes on the site plan should be at 3 feet of height at the time of planting. The operator of the storage facility shall not allow anything south of the storage facility from a line extending along the north edge of the building east and west to the west property line to the east property line. So only North of the building should have any materials stored.

ACTION ON THE MOTION

ROLL CALL VOTE:

AYES: Eichorn, Vaughn, Moulton, Bolin and Sarka

NAYS: None

ABSENT: None

THE MOTION CARRIED.

X. NEXT REGULAR SCHEDULED MEETING

TUESDAY, MAY 14TH, 2024 AT 7:00 P.M.

XI. ADJOURNMENT

With no further business, the meeting adjourned at 5:55 P.M.

STEVE MOULTON, Chairperson

JEANETTE SIZEMORE, Recording Secretary

Date of Approval

VARIANCE REQUEST FORM

Variance Request

Variance Fee: \$650.00 # 41134 Receipt Bmt.

Date Paid: 9/30/2025

Date Notice was Published: _____

Date of Public Hearing: _____

Affidavit Attached: _____

FLUSHING TOWNSHIP ZONING BOARD OF APPEALS VARIANCE REQUEST

Required information from owner or person having interest in requesting Zoning Board of Appeals (ZBA) review and opinion.

1. Name of applicant/owner requesting ZBA review and opinion.

A. Applicant

Name: **Perry Kendall**

Address: **9491 Beech Street, New Lothrop MI 48460**

B. Owner of property if different than above

Name: **Perry Kendall Trust**

Address: **9491 Beech Street, New Lothrop MI 48460**

2. Location of Property:

Street number and name: **5020/5024 Meadowbrook Lane, Flushing MI 48433**

Property tax identification number: **08-23-577-025**

Legal description of property involved: **S 105 FT OF LOT 18 & S 105 FT OF W17 FT OF LOT 19 FLUSHING MEADOWS (03) FR 08-23-577-018/-019**

List deed restrictions and easements: **None**

Present zoning of property: **RSA**

3. With all requests, a plot plan drawn to scale (1" = 20') showing lot, location of existing buildings, proposed buildings and additions to existing buildings, plus distance from property line, is required. **SEE ATTACHED LAND SURVEY**

4. Answer the following questions of the affidavit:

Will the strict enforcement of the provisions of the township zoning ordinance unreasonably prevent the owner from using the property for a permitted purpose, or would render conformity unnecessarily burdensome? **Yes**

If yes, how? **The ordinance requires a specific amount of frontage and the lots to be a minimum size in order to split the parcels. If I decide to sell one side or both I would like to make it individual homes instead of rentals. Homeownership is an asset to the community, resulting in accountability of maintenance, up keep and value.**

- a. Is the need for a variance due to unique circumstances of the property? **Yes**
If yes, please describe. **Each Townhouse located on the parcel is independent of each other. Each home has their own entrance and garage, NO adjoining door from one home to the other, and all utilities are separate from each other. Homes are single family dwellings as other single homes in the subdivision.**
- b. Did you create the problems you are trying to get around? **NO**
- c. Will the requested variance confer special privileges that are denied other properties similarly situated and in the same zoning district? **NO, there are other similar townhomes located in the township, that are independent of each other. Homes are single family homes with each parcel having individual numbers and tax liabilities.**
- d. Will the requested variance be contrary to the spirit and intent of this zoning district and public safety? **No, the location/sub division is all single-family homes. Splitting the property would not change or increase traffic. I hope by allowing the change from one parcel to two that it would offer a more permanent resident than transient and add value to the community.**

ACKNOWLEDGEMENT AND CERTIFICATION: It is hereby acknowledged that the applicant(s) has fully read and completed the above application. It is also understood that in case of cancellation or failure of the owner or his representative to appear at the hearing, I understand that all fees will be forfeited.

Signature of Applicant

Signature of Owner
(If different than applicant)

ZONING BOARD OF APPEALS:

The Zoning Board of Appeals (ZBA) having reviewed the submitted data do hereby:

() APPROVE () DISAPPROVE the application for the following reasons: _____

If approved, are there conditions? _____

Date

Zoning Board of Appeals Chairperson

5020/5024 MEADOWBROOK



CHARTER TOWNSHIP OF FLUSHING
LAND DIVISION/COMBINATION APPLICATION FORM

Approval of a division/combination request may be granted with the following requirements:

- Application filled out in full and signed.
- Full legal descriptions of all parcels before and after the change.
- Survey of property with new and existing parcels clearly identified.
- Certificate of Paid Taxes from Genesee County Treasurers office.
- Fee of \$100 for any Land Divisions and \$50 for any land combinations.

PAID

SEP 29 2025

CHARTER TOWNSHIP
OF FLUSHING

PROPERTY INFORMATION

Parcel ID number(s) of Parent Parcel(s) 08-23-577-025

Division X or Combination _____

Are the new divisions to be used as a development site _____

Property address of all resulting parcels: 5020 Meadow Brook LN
5024 Meadow Brook LN

PETITIONER INFORMATION

Name: Perry Wendahl
Mailing Address: 9491 Birch
New Hamburg Mt 48460

Phone Number: _____

I declare, under the penalty of perjury, that I am the owner, or have the consent or authority of the owner of the above mentioned properties to act on the owner's behalf in asking for this land division or combination.

I declare that the foregoing statements and all provided information are true to the best of my knowledge and belief.

REQUESTED BY:

Perry Wendahl
Signature

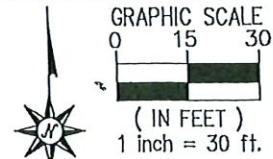
Perry Wendahl
Print Name

9-10-2025
Dated

Rev: 8/18/20

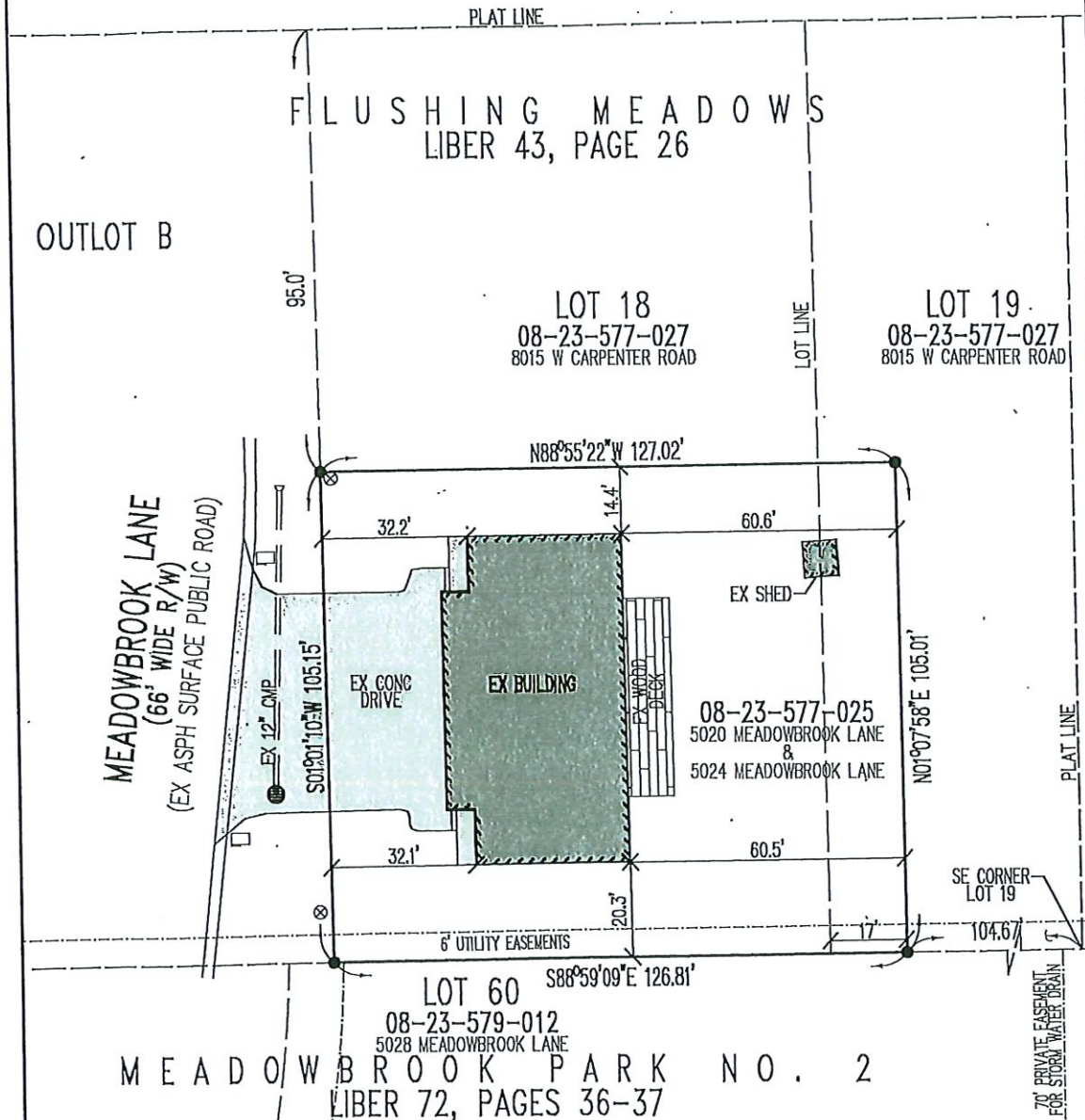
NOT Enough sq ft for lots
NOT Enough Frontage for lots

EXISTING CONDITIONS



LEGEND

- FOUND IRON
- R/W RIGHT OF WAY
- E-W EAST-WEST
- ⊗ EX CATCHBASIN
- EX MAILBOX
- ⊗ EX WATER VALVE



CERTIFICATE OF SURVEY FOR:
PERRY KENDALL
5020 MEADOWBROOK LANE
FLUSHING, MI 48433

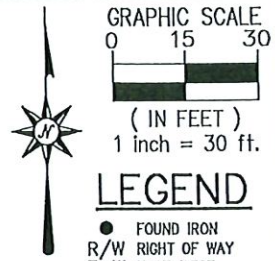
SCALE: 1"=30'	JOB NO. 25-306	DATE: 09.11.2025	FLD BY: J.P.W.
DRN. BY: J.R.M.		APPR BY: J.P.W.	PAGE: 1 of 3



Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD. SUITE 101A, FENTON, MI 48430

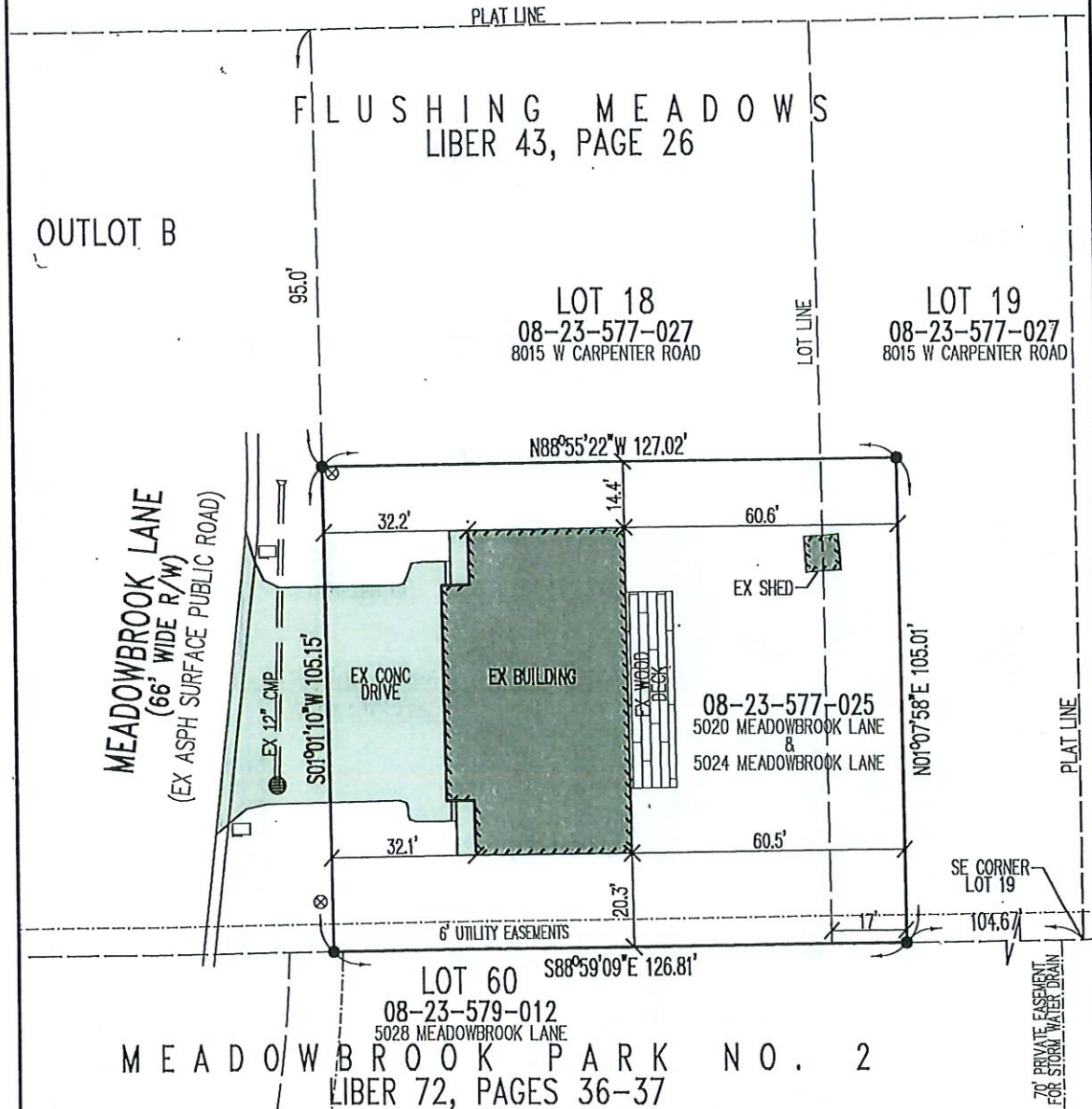


EXISTING CONDITIONS



LEGEND

- FOUND IRON
- R/W RIGHT OF WAY
- E-W EAST-WEST
- ⊗ EX CATCHBASIN
- EX MAILBOX
- ⊗ EX WATER VALVE



CERTIFICATE OF SURVEY FOR:
PERRY KENDALL
5020 MEADOWBROOK LANE
FLUSHING, MI 48433

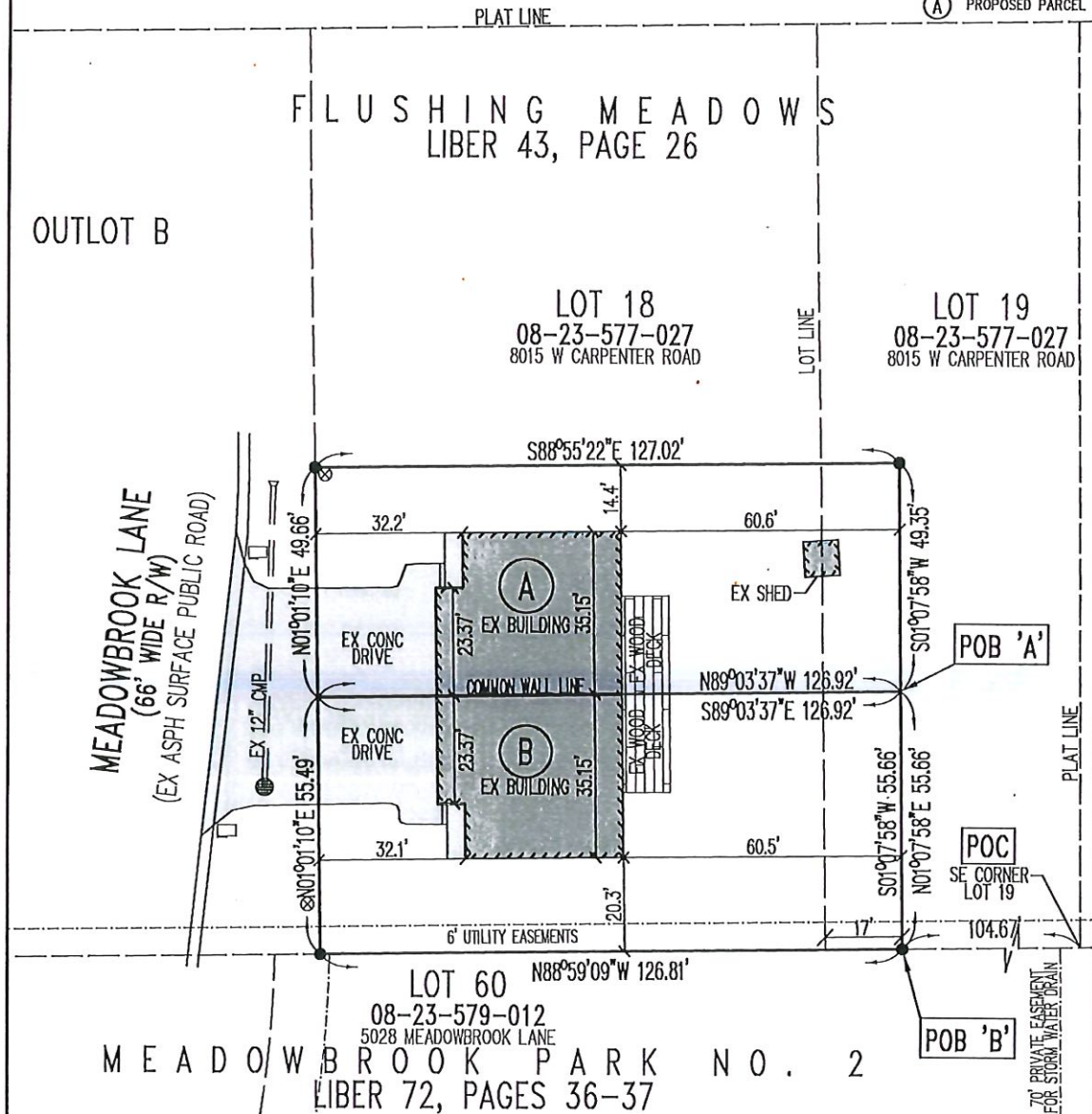
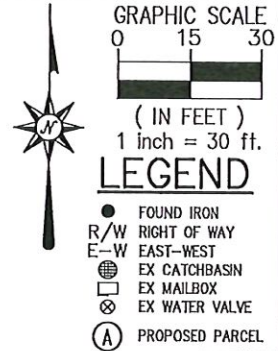
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DRN. BY: J.R.M.		APPR BY: J.P.W.	PAGE: 1 of 3



Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430



PARCEL SPLIT



CERTIFICATE OF SURVEY FOR:
PERRY KENDALL
5020 MEADOWBROOK LANE
FLUSHING, MI 48433

SCALE: 1"=30'	JOB NO. 25-306	DATE: 09.11.2025	FLD BY: J.P.W.
DRN. BY: J.R.M.		APPR BY: J.P.W.	PAGE: 2 of 3



Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430



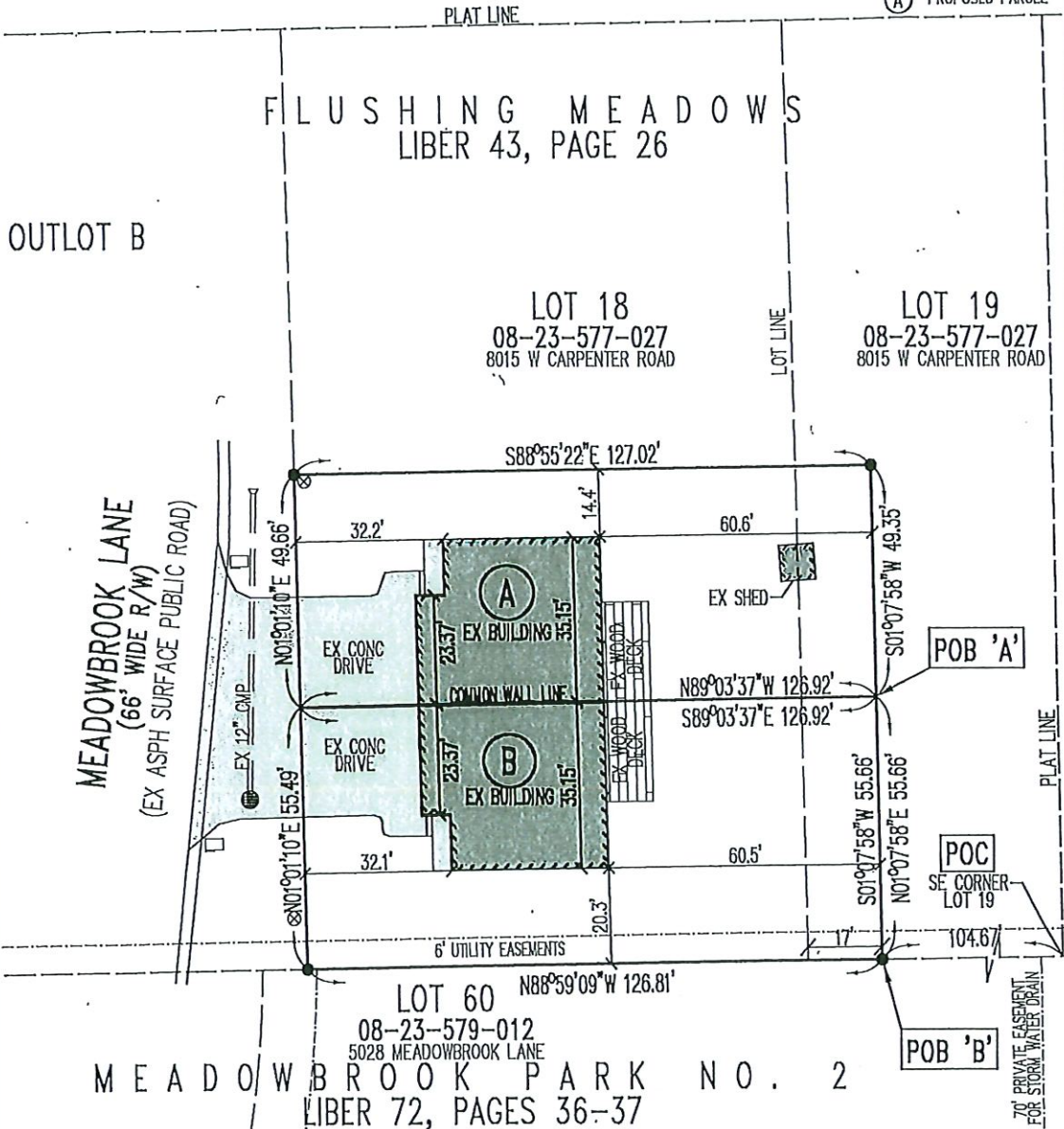
PARCEL SPLIT

GRAPHIC SCALE
0 15 30

(IN FEET)
1 inch = 30 ft.

LEGEND

- FOUND IRON
- R/W RIGHT OF WAY
- E-W EAST-WEST
- ⊕ EX CATCHBASIN
- ⊠ EX MAILBOX
- ⊗ EX WATER VALVE
- (A) PROPOSED PARCEL



CERTIFICATE OF SURVEY FOR:
PERRY KENDALL
5020 MEADOWBROOK LANE
FLUSHING, MI 48433

SCALE: 1"=30'	JOB NO. 25-306	DATE: 09.11.2025	FLD BY: J.P.W.
DRN. BY: J.R.M.		APPR BY: J.P.W.	PAGE: 2 of 3



Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430



PARCEL SPLIT

EXISTING DESCRIPTION:

EXHIBIT "A" FILE NO.: 454013CLK

EX PARCEL: (5020 & 5024 MEADOWBROOK LANE-TAX ID 08-23-577-025:

PROPERTY SITUATED IN THE CHARTER TOWNSHIP OF FLUSHING, COUNTY OF GENESEE, AND STATE OF MICHIGAN DESCRIBED AS:

THE SOUTH 105 FEET OF LOT 18 AND THE SOUTH 105 FEET OF THE WEST 17 FEET OF LOT 19, FLUSHING MEADOWS, ACCORDING TO THE RECORDED PLAT THEREOF AS RECORDED IN LIBER 43, PAGE 26 OF PLATS, GENESEE COUNTY RECORDS.

PROPOSED DESCRIPTIONS:

PROPOSED PARCEL A: (5020 MEADOWBROOK-EXISTING HOUSE, NEW TAX ID):

PART OF THE SOUTH 1/2 OF THE SOUTHEAST 1/4 OF SECTION 23, T8N-R5E, GENESEE COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE SOUTHEAST CORNER OF LOT 19 OF FLUSHING MEADOWS, ACCORDING TO THE PLAT AS RECORDED IN LIBER 43, PAGE 26 OF GENESEE COUNTY PLAT RECORDS: THENCE NORTH 88°59'09" WEST, ALONG THE SOUTH LINE OF LOT 19, 104.67 FEET AND NORTH 01°07'58" EAST, 55.66 FEET TO THE POINT OF BEGINNING, THENCE NORTH 89°03'37" WEST, 126.92 FEET, THRU THE COMMON WALL BETWEEN ADDRESS 5020 AND 5024; THENCE NORTH 01°01'10" EAST, ALONG THE WEST LINE OF LOT 18, 49.66 FEET; THENCE SOUTH 88°55'22" EAST, 127.02 FEET; THENCE SOUTH 01°07'58" WEST, 49.35 FEET TO THE POINT OF BEGINNING, CONTAINING 0.144 ACRES OF LAND, MORE OR LESS. SUBJECT TO ANY EASEMENTS, CONDITIONS, OR RESTRICTIONS OF RECORD, IF ANY.

PROPOSED PARCEL B: (5024 MEADOWBROOK-EXISTING HOUSE, NEW TAX ID):

PART OF THE SOUTH 1/2 OF THE SOUTHEAST 1/4 OF SECTION 23, T8N-R5E, GENESEE COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE SOUTHEAST CORNER OF LOT 19 OF FLUSHING MEADOWS, ACCORDING TO THE PLAT AS RECORDED IN LIBER 43, PAGE 26 OF GENESEE COUNTY PLAT RECORDS: THENCE NORTH 88°59'09" WEST, ALONG THE SOUTH LINE OF LOT 19, 104.67 FEET TO THE POINT OF BEGINNING, THENCE, CONTINUING, NORTH 88°59'09" WEST, 126.81 FEET TO THE SOUTHWEST CORNER OF LOT 18 OF SAID FLUSHING MEADOWS PLAT; THENCE NORTH 01°01'10" EAST, ALONG THE WEST LINE OF SAID LOT 18, 55.49 FEET; THENCE SOUTH 89°03'37" EAST, 126.92 FEET, THRU THE COMMON WALL BETWEEN ADDRESS 5020 AND 5024; THENCE SOUTH 01°07'58" WEST, 55.66 FEET TO THE POINT OF BEGINNING, CONTAINING 0.162 ACRES OF LAND, MORE OR LESS. SUBJECT TO ANY EASEMENTS, CONDITIONS, OR RESTRICTIONS OF RECORD, IF ANY.

SURVEYOR'S NOTES:

1. DATE OF LAST FIELD WORK: 09.10.2025.
2. THE PURPOSE OF THIS SURVEY IS TO SPLIT PARCEL 08-23-577-025, INTO 2 PARCELS.
3. PARCEL DIVISION IS SUBJECT TO MUNICIPAL APPROVAL PER P.A. 288 OF 1967, AS AMENDED.
4. BEARINGS ARE BASED ON THE PLAT OF "FLUSHING MEADOWS" AS RECORDED IN LIBER 43, PAGE 26 OF GENESEE COUNTY PLAT RECORDS.

SURVEYORS CERTIFICATE:

I, JASON P. WHITE, HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED UNDER MY DIRECT SUPERVISION, AND EACH CORNER SHOWN ON THE SURVEY HAS A RELATIVE POSITIONAL PRECISION OF LESS THAN (0.07 FEET PLUS 50 PARTS PER MILLION), AND THAT ALL REQUIREMENTS OF P.A. 132 OF 1970, AS AMENDED, HAVE BEEN COMPLIED WITH.

CERTIFICATE OF SURVEY FOR:
PERRY KENDALL
5020 MEADOWBROOK LANE
FLUSHING, MI 48433

SCALE:	NONE	JOB NO.	25-306	DATE:	09.11.2025	FLD BY:	J.P.W.
DRN. BY:	J.R.M.	APPR BY:	J.P.W.	PAGE:	3 of 3		



Fenton Land Surveying & Engineering, Inc
14165 N. FENTON ROAD, SUITE 101A, FENTON, MI 48430



VARIANCE REQUEST FORM

Variance Request

Variance Fee: \$650⁰⁰

Date Paid: 9/22/25 #41137 (Receipt)

Date Notice was Published: _____

Date of Public Hearing: _____

Affidavit Attached: _____

FLUSHING TOWNSHIP ZONING BOARD OF APPEALS VARIANCE REQUEST

Required information from owner or person having interest in requesting Zoning Board of Appeals (ZBA) review and opinion.

1. Name of applicant/owner requesting ZBA review and opinion.

A. Applicant

Name: NorthCoast Solar / Jimmy Johns

Address: 8253 MCCandlish rd Grand Blanc, MI 48439

Phone: _____

B. Owner of property if different than above

Name: Jarrett Acklin

Address: 9071 Saddle Horn Drive Flushing Mi 48433

Phone: _____

2. Location of Property:

Street number and name: 9071 Saddle Horn dr

Property tax identification number: _____

Legal description of property involved: Single family

List deed restrictions and easements: N/A

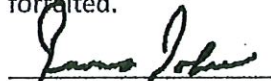
Present zoning of property: RSA

3. With all requests, a plot plan drawn to scale (1" = 20') showing lot, location of existing buildings, proposed buildings and additions to existing buildings, plus distance from property line, is required.

4. Answer the following questions of the affidavit:

- a. Will the strict enforcement of the provisions of the township zoning ordinance unreasonably prevent the owner from using the property for a permitted purpose, or would render conformity unnecessarily burdensome? No
If yes, how? _____
- b. Is the need for a variance due to unique circumstances of the property? Yes
If yes, please describe. More so for his Solar project setbacks on the roof you have in place
- c. Did you create the problems you are trying to get around? The design created for his project has
- d. Will the requested variance confer special privileges that are denied other properties similarly situated and in the same zoning district? NA
- e. Will the requested variance be contrary to the spirit and intent of this zoning district and public safety? No

ACKNOWLEDGEMENT AND CERTIFICATION: It is hereby acknowledged that the applicant(s) has fully read and completed the above application. It is also understood that in case of cancellation or failure of the owner or his representative to appear at the hearing, I understand that all fees will be forfeited.



Signature of Applicant



Signature of Owner
(If different than applicant)

ZONING BOARD OF APPEALS:

The Zoning Board of Appeals (ZBA) having reviewed the submitted data do hereby:

() APPROVE () DISAPPROVE the application for the following reasons: _____

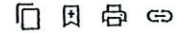
If approved, are there conditions? _____

Date

Zoning Board of Appeals Chairperson

SECTION 1205

SOLAR PHOTOVOLTAIC POWER SYSTEMS

**1205.1 General.**

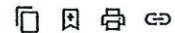
Solar photovoltaic (PV) systems shall be installed in accordance with the *International Building Code* or *International Residential Code*. The electrical portion of solar PV systems shall be installed in accordance with NFPA 70. Rooftop-mounted solar photovoltaic systems shall be installed in accordance with Sections 1205.2 through 1205.4.3. Ground-mounted solar photovoltaic systems shall comply with Section 1205.5.

1205.2 Access and pathways. COP INSIGHTS

Roof access, pathways and spacing requirements shall be provided in accordance with Sections 1205.2.1 through 1205.3.3. Pathways shall be over areas capable of supporting firefighters accessing the roof. Pathways shall be located in areas with minimal obstructions, such as vent pipes, conduit or mechanical equipment.

Exceptions:

1. Detached, nonhabitable Group U structures including, but not limited to, detached garages serving Group R-3 buildings, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where the *fire code official* has determined that rooftop operations will not be employed.
3. Building-integrated photovoltaic (BIPV) systems where the BIPV systems are *approved*, integrated into the finished roof surface and are *listed* in accordance with [UL 3741](#). The removal or cutting away of portions of the BIPV system during firefighting operations shall not expose a firefighter to electrical shock hazards.

> **INSIGHTS (2)****1205.2.1 Solar photovoltaic (PV) systems for Group R-3 buildings.** COP

Solar photovoltaic (PV) systems for Group R-3 buildings shall comply with Sections 1205.2.1.1 through 1205.2.3.

Exceptions:

1. These requirements shall not apply to structures designed and constructed in accordance with the *International Residential Code*.
2. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.7-percent slope) or less.

1205.2.1.1 Pathways to ridge.

Not fewer than two 36-inch-wide (914 mm) pathways on separate roof planes, from lowest roof edge to ridge, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, not fewer than one 36-inch-wide (914 mm) pathway from lowest roof edge to ridge shall be provided on the same roof plane as the photovoltaic array, on an adjacent roof plane or straddling the same and adjacent roof planes.

1205.2.1.2 Setbacks at ridge.

For photovoltaic arrays occupying 33 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, a setback of not less than 36 inches (457 mm) wide is required on both sides of a horizontal ridge.

1205.2.1.3 Alternative setbacks at ridge.

Where an *automatic sprinkler system* is installed within the *dwelling* in accordance with Section 903.3.1.3, setbacks at the ridge shall conform to one of the following:

1. For photovoltaic arrays occupying 66 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

1205.2.2 Emergency escape and rescue openings.

Panels and modules installed on Group R-3 buildings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway of not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue opening.

1205.2.3 Building-integrated photovoltaic (BIPV) systems. **INSIGHTS**

Where building-integrated photovoltaic (BIPV) systems are installed in a manner that creates areas with electrical hazards to be hidden from view, markings shall be provided to identify the hazardous areas to avoid **for ladder placement**. The markings shall be reflective and be visible from grade **beneath the eaves or other location approved by the fire code official**.

Exception: BIPV systems *listed* in accordance with **UL 3741**, where the removal or cutting away of portions of the BIPV system during firefighting operations have been determined to not expose a firefighter to electrical shock hazards.

> **INSIGHTS (3)**

1205.3 Other than Group R-3 buildings. **CCP**

Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 1205.3.1 through 1205.3.3.

Exception: Where it is determined by the *fire code official* that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 1205.2.1.1 through 1205.2.1.3 are a suitable alternative.

1205.3.1 Perimeter pathways. **CCP**

There shall be a minimum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.

Exception: Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum width of 4 feet (1219 mm).

1205.3.2 Interior pathways. **CCP**

Interior pathways shall be provided between array sections to meet the following requirements:

1. Pathways shall be provided at intervals not greater than 150 feet (45 720 mm) throughout the length and width of the roof.
2. A pathway not less than 4 feet (1219 mm) wide in a straight line to roof standpipes or ventilation hatches.
3. A pathway not less than 4 feet (1219 mm) wide around roof access hatches, with not fewer than one such pathway to a parapet or roof edge.

1205.3.3 Smoke ventilation. **CDP**

The solar installation shall be designed to meet the following requirements:

1. Where nongravity-operated smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide shall be provided bordering all sides.
2. Where gravity-operated dropout smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide on not fewer than one side.
3. Smoke ventilation options between array sections shall be one of the following:
 - 3.1. A pathway not less than 8 feet (2438 mm) wide.
 - 3.2. A pathway not less than 4 feet (1219 mm) wide bordering 4-foot by 8-foot (1219 mm by 2438 mm) venting cutouts every 20 feet (6096 mm) on alternating sides of the pathway.

1205.4 Buildings with rapid shutdown. **CDP**

Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with Sections 1205.4.1 through 1205.4.3.

1205.4.1 Rapid shutdown type. **CDP**

The type of solar photovoltaic system rapid shutdown shall be labeled with one of the following:

1. For solar photovoltaic systems that shut down the array and the conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of $\frac{3}{8}$ inch (10 mm) in black on a yellow background. The remaining characters shall be uppercase with a minimum height of $\frac{3}{16}$ inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1205.4.1(1) and state the following:

SOLAR PV SYSTEM EQUIPPED WITH
RAPID SHUTDOWN. TURN RAPID

SHUTDOWN SWITCH TO THE "OFF"
POSITION TO SHUT DOWN PV SYSTEM
AND REDUCE SHOCK HAZARD IN ARRAY.

2. For photovoltaic systems that only shut down conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of $\frac{3}{8}$ inch (10 mm) in white on a red background and the remaining characters shall be capitalized with a minimum height of $\frac{3}{16}$ inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1205.4.1(2) and state the following:

THIS SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN. TURN RAPID
SHUTDOWN SWITCH TO THE "OFF"
POSITION TO SHUT DOWN CONDUCTORS
OUTSIDE THE ARRAY. CONDUCTORS
WITHIN ARRAY REMAIN ENERGIZED IN SUNLIGHT.

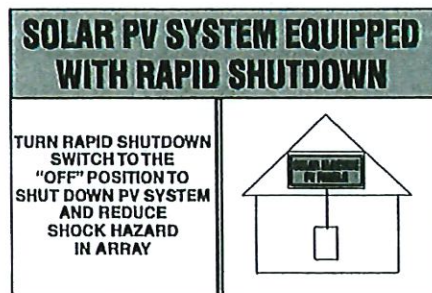


FIGURE 1205.4.1(1)
LABEL FOR SOLAR PV SYSTEMS THAT REDUCE SHOCK HAZARD WITHIN ARRAY AND SHUT DOWN CONDUCTORS LEAVING ARRAY

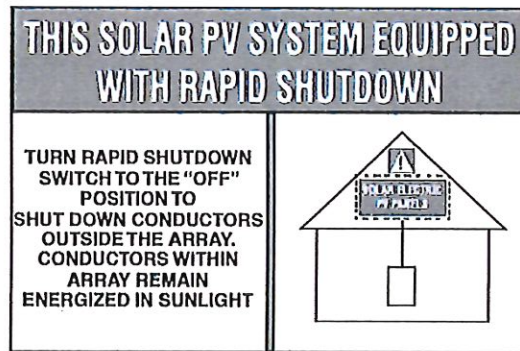


FIGURE 1205.4.1(2)
LABEL FOR SOLAR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY

1205.4.1.1 Diagram. CDP

The labels in Section 1205.4.1 shall include a simple diagram of a building with a roof. Diagram sections in red signify sections of the solar photovoltaic system that are not shut down when the rapid shutdown switch is turned off.

1205.4.1.2 Location. CDP

The rapid shutdown label in Section 1205.4.1 shall be located not greater than 3 feet (914 mm) from the service disconnecting means to which the photovoltaic systems are connected, and shall indicate the location of all identified rapid shutdown switches if not at the same location.

1205.4.2 Buildings with more than one rapid shutdown type. CDP

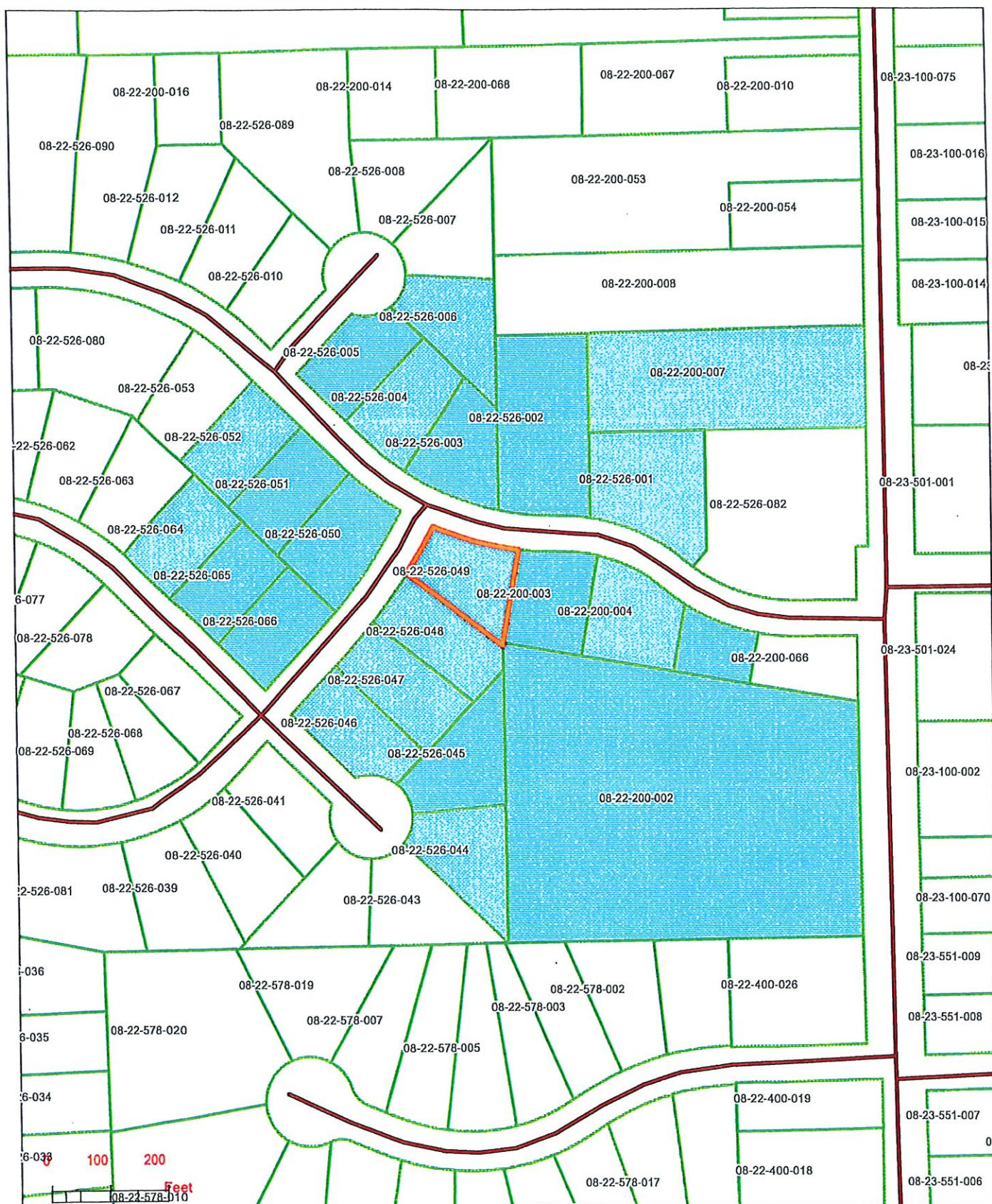
Solar photovoltaic systems that contain rapid shutdown in accordance with both Items 1 and 2 of Section 1205.4.1 or solar photovoltaic systems where only portions of the systems on the building contain rapid shutdown, shall provide a detailed plan view diagram of the roof showing each different photovoltaic system and a dotted line around areas that remain energized after the rapid shutdown switch is operated.

1205.4.3 Rapid shutdown switch. CDP

A rapid shutdown switch shall have a label located not greater than 3 feet (914 mm) from the switch that states the following:

RAPID SHUTDOWN SWITCH
 FOR SOLAR PV SYSTEM

9071 SADDLE HORN



September 4, 2025

Greenlancer Energy Inc.
500 Woodward Avenue, Suite 2125
Detroit, MI 48226

Re: Engineering Services
Acklin Residence
9071 Saddle Horn Drive, Flushing MI
19.350 kW System

To Whom It May Concern:

We have received information regarding solar panel installation on the roof of the above referenced structure. Our evaluation of the structure is to verify the existing capacity of the roof system and its ability to support the additional loads imposed by the proposed solar system.

A. Site Assessment Information

1. Site visit documentation identifying attic information including size and spacing of framing for the existing roof structure.
2. Design drawings of the proposed system including a site plan, roof plan and connection details for the solar panels. This information will be utilized for approval and construction of the proposed system.

B. Description of Structure:

Roof Framing: Prefabricated wood trusses at 24" on center. All truss members are constructed of 2x4 dimensional lumber.
Roof Material: Composite Asphalt Shingles
Roof Slope: 30 degrees
Attic Access: Accessible
Foundation: Permanent

C. Loading Criteria Used

- **Dead Load**
 - Existing Roofing and framing = 7 psf
 - New Solar Panels and Racking = 3 psf
 - TOTAL = 10 PSF
- **Live Load** = 20 psf (reducible) – 0 psf at locations of solar panels
- **Ground Snow Load** = 30 psf
- **Wind Load** based on ASCE 7-16
 - Ultimate Wind Speed = 115 mph (based on Risk Category II)
 - Exposure Category B

Analysis performed of the existing roof structure utilizing the above loading criteria is in accordance with the 2021 IRC. This analysis indicates that the existing framing will support the additional panel loading without damage.

D. Solar Panel Anchorage

1. The solar panels shall be mounted in accordance with the most recent Ironridge installation manual. If during solar panel installation, the roof framing members appear unstable or deflect non-uniformly, our office should be notified before proceeding with the installation.
2. The maximum allowable withdrawal for a 1/4" wood screw in 1/2" plywood is 55 lbs per screw (per APA technical note E830d). Connection on the roof is utilizing six (6) 1/4" wood screws into the existing decking to resist uplift forces. Contractor to verify installation to be performed in accordance with the manufacturer's recommendations. Based on six (6) 1/4" wood screws into 1/2" plywood, 330 lbs of uplift resistance is provided per attachment.
3. Considering the wind speed, roof slopes, size and spacing of framing members, and condition of the roof, the panel supports shall be placed no greater than 48" on center.

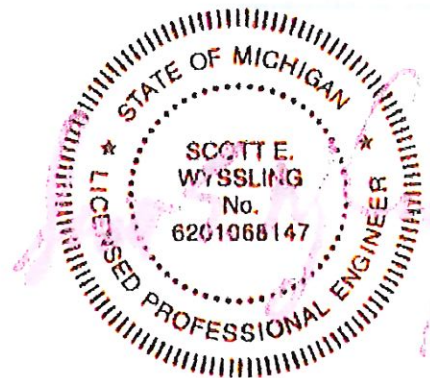
Based on the above evaluation, this office certifies that with the racking and mounting specified, the existing roof system will adequately support the additional loading imposed by the solar system. This evaluation is in conformance with the 2021 IRC, current industry standards, and is based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,



Scott E. Wyssling, PE
Michigan License No. 6201068147



Signed 9/04/2025

A logo for "WYSSLING" featuring the name in a stylized, outlined font above a horizontal line that ends in a small bell-like shape.

PROJECT DESCRIPTION:

43 X 450 REC450AA PURE-RX MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
SYSTEM SIZE: 19.35 KW DC STC
ARRAY AREA: ROOF#1 - 805.07 SQ FT
ARRAY AREA: ROOF#2 - 201.69 SQ FT
ARRAY AREA: ROOF#3 - 89.64 SQ FT
ARRAY AREA: ROOF#4 - 67.23 SQ FT

EQUIPMENT SUMMARY
43 REC450AA PURE-RX MODULES
43 ENPHASE IQB8K-80-M-US MICROINVERTERS
02 ENPHASE IQBATTERY-10C-1P-NA

AUTHORITIES HAVING JURISDICTION
BUILDING : CHARTER TOWNSHIP OF FLUSHING
ZONING : CHARTER TOWNSHIP OF FLUSHING
UTILITY : CONSUMERS ENERGY

DESIGN CRITERIA	
WIND SPEED	SEE STRUCTURAL LETTER
EXPOSURE CATEGORY	
RISK CATEGORY	
MOUNTING METHOD	
GROUND SNOW LOAD	

CODE COMPLIANCE

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK

BUILDING CODE:

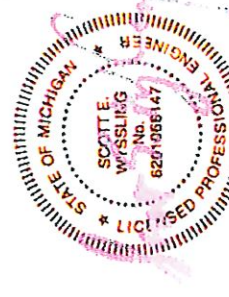
ALL WORK SHALL COMPLY WITH THE
2015 INTERNATIONAL RESIDENTIAL CODE
2015 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL MECHANICAL CODE
2015 INTERNATIONAL ENERGY CODE
2021 INTERNATIONAL PLUMBING CODE
ALONG WITH THE COH AMENDMENTS FOR ALL CODES LISTED ABOVE.

ELECTRICAL CODE:

ALL ELECTRICAL WORK SHALL COMPLY WITH THE
2023 NATIONAL ELECTRIC CODE AS AMENDED BY THE MICHIGAN ELECTRIC CODE.
NOTE : NO ENCROACHMENT INTO BASEMENTS BY NEW SCOPE OF WORK (SOLAR PANELS, RACK/RAIL SYSTEMS & EQUIPMENT)

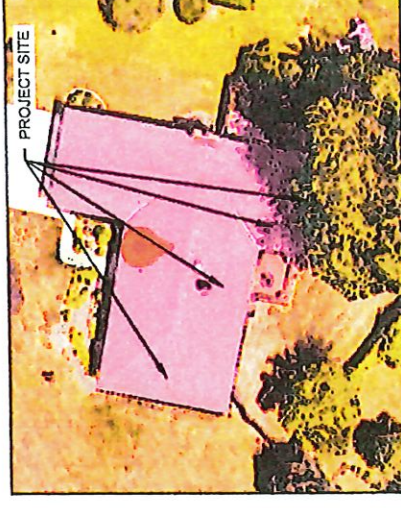
GENERAL INSTALLATION NOTES

1. INSTALLER SHALL ASSUME FULL RESPONSIBILITY AND LIABILITY FOR COMPLIANCE WITH REGULATIONS PER FEDERAL OSHA AND LOCAL REGULATIONS PERTAINING TO WORK PRACTICES, PROTECTION OF WORKERS AND VISITORS TO THE SITE.
2. INSTALLER SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT SITE BEFORE COMMENCING WORK.
3. CONTRACTOR SHALL FURNISH ALL MATERIAL EXCEPT AS SPECIFIED IN THE CONTRACT AND/OR THESE DRAWINGS.
4. ALL MATERIALS SHALL BE IN NEW AND UNUSED CONDITION.
5. MANUFACTURER'S MATERIAL EQUIPMENT, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
6. THE INSTALLER SHALL BECOME FAMILIAR WITH ALL UTILITY AS-BUILT PLANS AND THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES, PAVEMENT OR IMPROVEMENTS.
7. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE OWNER OF DISCREPANCIES REQUIRING FURTHER CLARIFICATION BEFORE PROCEEDING WITH THE WORKS.
8. INSTALL ALL ASPECTS OF THIS PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS AND AS NOTED ON DRAWINGS ISSUED FOR CONSTRUCTION.
9. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER 310.0(D)
10. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26
11. EXACT CONDUIT RUN LOCATIONS SUBJECT TO CHANGE
12. ROOF PENETRATIONS ARE SEALED.
13. INVERTER IS LISTED TO UL-1741 "UTILITY INTERACTIVE"
14. VISIBLE, LABELED, LOCKABLE DISCONNECT LOCATED LESS THAN 5' FROM UTILITY METER

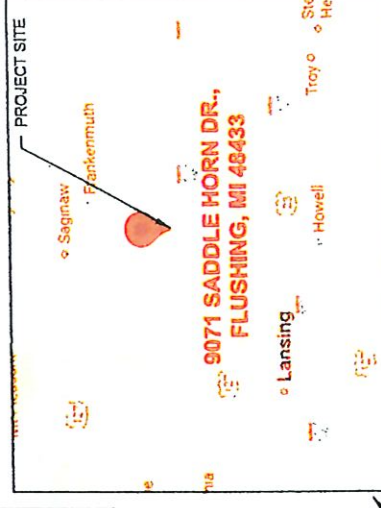


Signed 9/04/2025

SHEET INDEX	
PV-0	COVER SHEET
PV-1	PLOT PLAN
PV-2	ROOF PLAN & MODULES
PV-2A	BRANCH LAYOUT
PV-3	ATTACHMENT DETAIL
PV-4	ELECTRICAL LINE DIAGRAM
PV-5	WIRING CALCULATIONS
PV-6	WARNING LABELS & PLACARD
PV-7 to 13	EQUIPMENT SPECIFICATIONS



1 HOUSE PHOTO
SCALE: NTS



2 VICINITY MAP
SCALE: NTS



REVISIONS	
DESCRIPTION	DATE

Signature with Seal

DATE: 30/08/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME

COVER SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

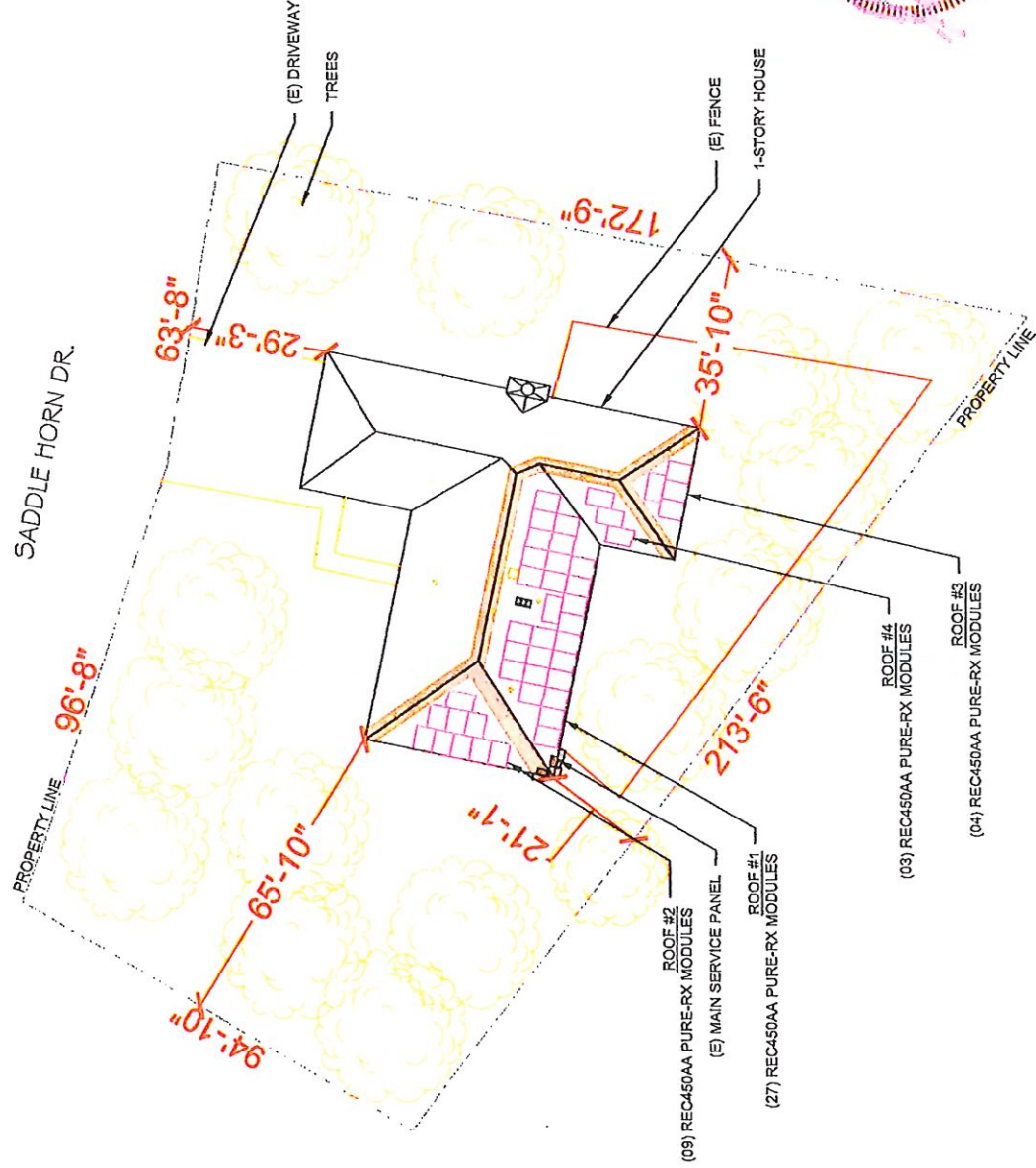
PV-0

EQUIPMENT SUMMARY
43 REC450AA PURE-RX MODULES
43 ENPHASE IQ8X-80-M-US MICROINVERTERS
02 ENPHASE IQBATTERY-10C-1P-NA

SYSTEM SIZE: 19.35kW DC STC
SYSTEM SIZE: 16.34kW AC STC

METER NO.: 30770596

NOTE:
VISIBLE, LABELED, LOCKABLE DISCONNECT LOCATED
LESS THAN 5' FROM UTILITY METER
NO ENCROACHMENT INTO EASEMENTS BY NEW SCOPE OF
WORK (SOLAR PANELS, RACKRAIL SYSTEMS & EQUIPMENT).



1 | PLOT PLAN

PV-1 SCALE: 1/25"=1'-0"



Signed 9/04/2025

NORTH COAST SOLAR
8253 McCandless Grand Blanc, MI
LIC. NO. 241800125
ELECTRICAL LIC. 61-4332

REVISIONS		
DESCRIPTION	DATE	BY

Signature with Seal

DATE: 30/08/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
F1 USHING, MI 48433

SHEET NAME

PLOT PLAN

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 43 MODULES
 MODULE TYPE = REC450AA PURE-RX MODULES
 MODULE WEIGHT = 50.04 LBS / 22.7 KG.
 MODULE DIMENSIONS = 68.03" x 47.44" = 22.41 SF
 UNIT WEIGHT OF ARRAY = 2.23 PSF

EQUIPMENT SUMMARY

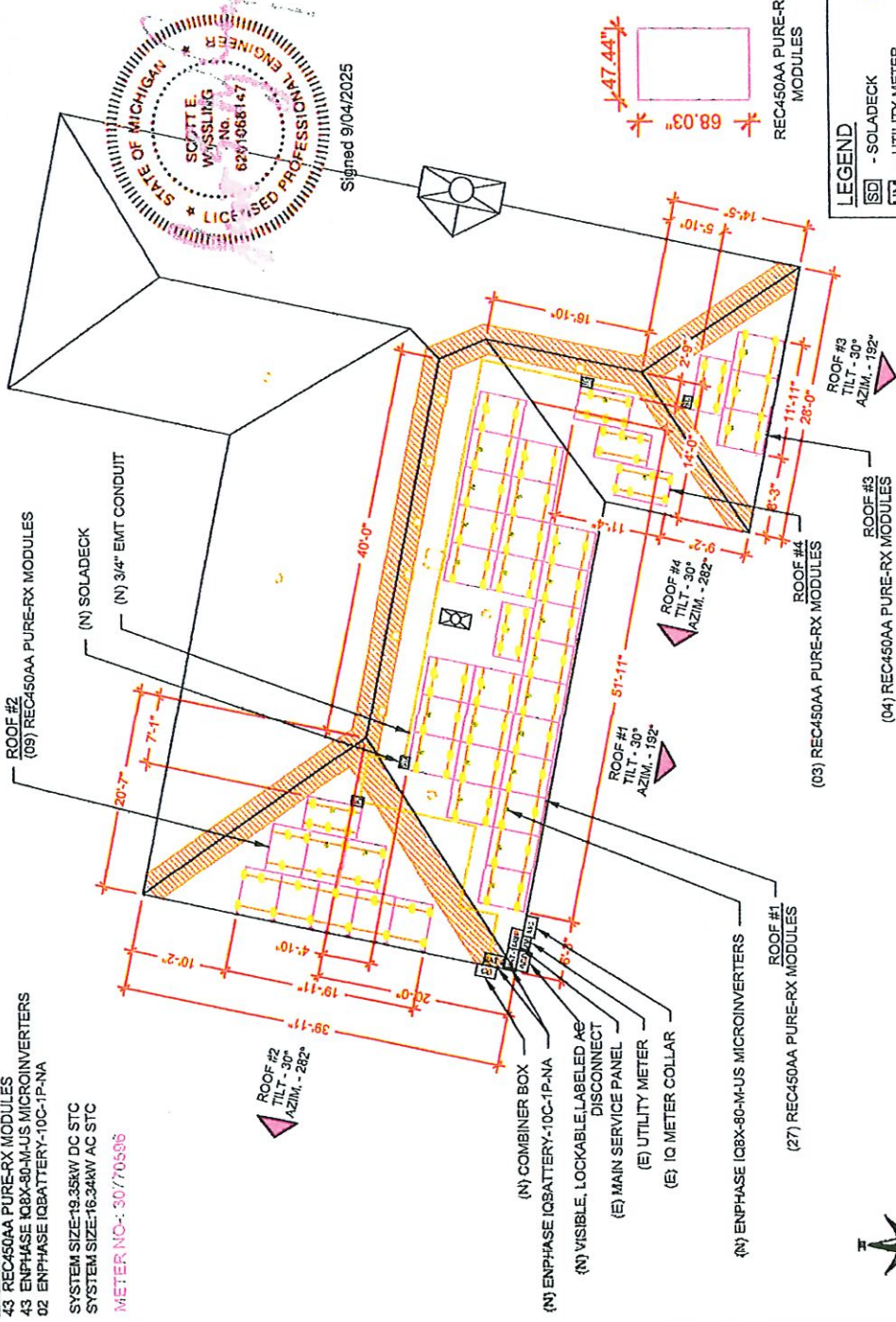
43 REC450AA PURE-RX MODULES
 43 ENPHASE IQ8X-80-MAJUS MICROINVERTERS
 02 ENPHASE IQBATTERY-10C-1P-NA

SYSTEM SIZE=19.35kW DC STC
 SYSTEM SIZE=16.34kW AC STC

METER NO.: 30770586

SADDLE HORN DR.
 (E) FRONT OF RESIDENCE

NOTE: VISIBLE, LABELED, LOCKABLE DISCONNECT LOCATED LESS THAN 5' FROM UTILITY METER NO ENCROACHMENT INTO EASEMENTS BY NEW SCOPE OF WORK (SOLAR PANELS, RACK/RAIL SYSTEMS & EQUIPMENT).



(E) BACK OF RESIDENCE

1 ROOF PLAN & MODULES

SCALE: 1/12"=1'-0"

ROOF DESCRIPTION			
ROOF	ROOF TYPE	COMPOSITION	TRUSS
	TILT	SHINGLE	SPACING
#1	30°	192°	
#2	30°	282°	
#3	30°	192°	
#4	30°	282°	

SEE STRUCTURAL LETTER

ARRAY AREA & ROOF AREA CALC'S			
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	27	605.07	945.21
#2	09	201.66	411.46
#3	04	89.54	202.03
#4	03	67.23	227.09
#5	03	67.23	227.09

TOTAL ARRAY AREA WITH MOUNTING			
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1 - #4	43	953.63	4246.09
#5	23		

LEGEND

- SD - SOLADECK
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- ACD - VISIBLE, LOCKABLE, LABELED AC DISCONNECT
- CB - COMBINER BOX
- BAT - BATTERY
- MI - MICROINVERTER
- VF - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- RA - ROOF ATTACHMENT
- RF - RAFTERS
- CD - CONDUIT
- MC - IQ METER COLLAR

NORTH COAST SOLAR
 8253 Lakewood Dr. and Blair, MI
 48106-1100
 TEL: 248-240-1100
 FAX: 248-240-1101
 EMAIL: info@northcoastsolar.com

REVISIONS	DATE	BY

Signature with Seal

DATE: 30/08/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
 RESIDENCE
 9071 SADDLE HORN DR.,
 FLUSHING, MI 48433

SHEET NAME
 ROOF PLAN & MODULES

SHEET SIZE
 ANSI B
 11" X 17"

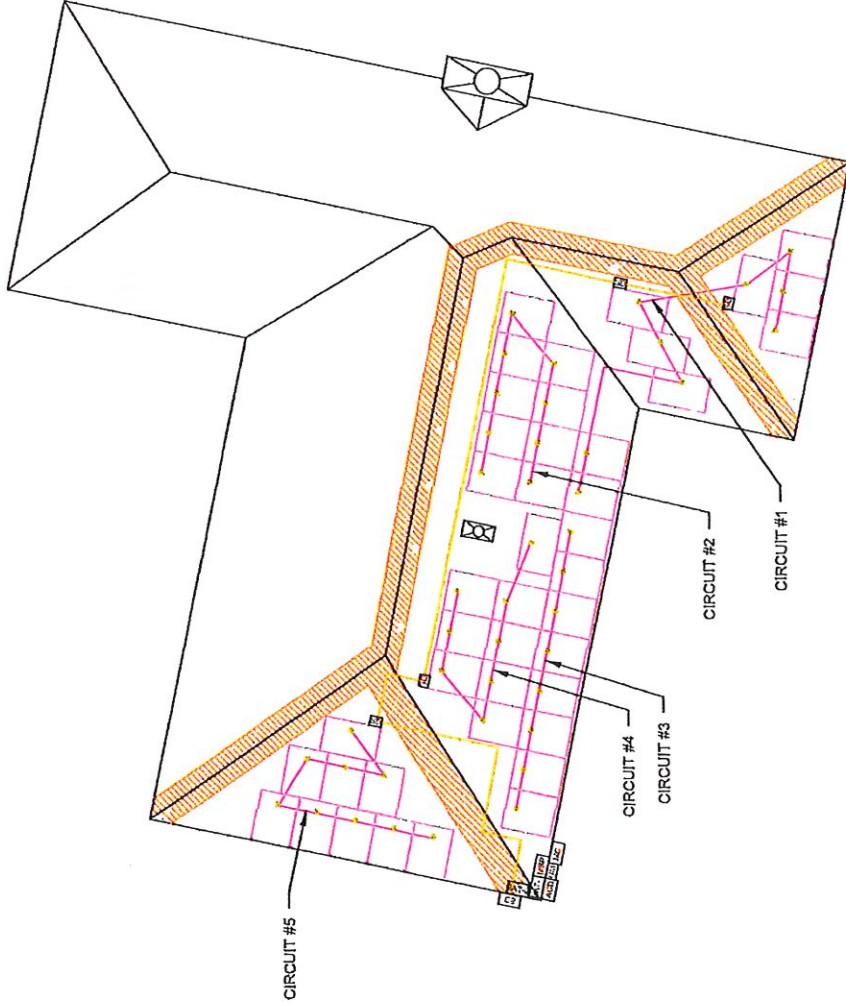
SHEET NUMBER

PV-2

EQUIPMENT SUMMARY
43 REC450AA PURE-PX MODULES
02 ENPHASE IQBX-80-M-US MICROINVERTERS
02 ENPHASE IQBATTERY-10C-1P-NA
SYSTEM SIZE: 19.35kW DC STC
SYSTEM SIZE: 16.34kW AC STC
ME1 ER NO- 30770596

NOTE:
VISIBLE, LABELED, LOCKABLE DISCONNECT LOCATED
LESS THAN 5' FROM UTILITY METER
NO ENCROACHMENT INTO EASEMENTS BY NEW SCOPE OF
WORK (SOLAR PANELS, RACK/RAIL SYSTEMS & EQUIPMENT).

SADDLE HORN DR.
(E) FRONT OF RESIDENCE



(E) BACK OF RESIDENCE

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	43	REC450AA PURE-PX MODULES
INVERTER	43	ENPHASE IQBX-80-M-US MICROINVERTERS
AC DISCONNECT	1	100A FUSED (2) 90A FUSES, NEMA 3R, UL LISTED
COMBINER BOX	1	ENPHASE X-IQ-AM1-240-6C AC COMBINER BOX UL LISTED
BATTERY	2	ENPHASE IQ BATTERY-10C-1P-NA
JUNCTION BOX	4	SOLADECKS, NEMA 3R, UL LISTED
RAILS	24	IRONRIDGE XR100 RAIL 1"
SPICE KIT	8	BONDED SPICE
MODULE CLAMPS	58	UNIVERSAL MODULE CLAMPS
GROUNDING LUG	14	IRONRIDGE GROUNDING LUG
END CLAMPS	64	END CLAMPS / STOPPER SLEEVE
ATTACHMENT	134	IRONRIDGE HALO ULTRAGRIP ATTACHMENT



1
PV-2A
BRANCH LAYOUT
SCALE: 1/12"=1'-0"



NORTH COAST SOLAR
8253 McCarroll Grand Blvd. MI
LIVESTOCK, MI 48150-1225
E-MAIL: sales@northcoastsolar.com

REVISIONS	DATE	BY

Signature with Seal

DATE: 30/09/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME
BRANCH
LAYOUT

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2A

REVISIONS		
NO.	DATE	REV

Signature with Seal

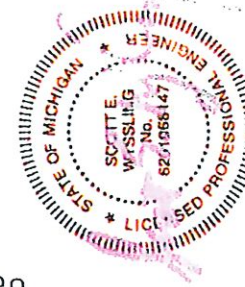
DATE: 30/09/2025
 PROJECT NAME & ADDRESS

JARRETT ACKLIN
 RESIDENCE
 9071 SADDLE HORN DR.,
 FLUSHING, MI 48433

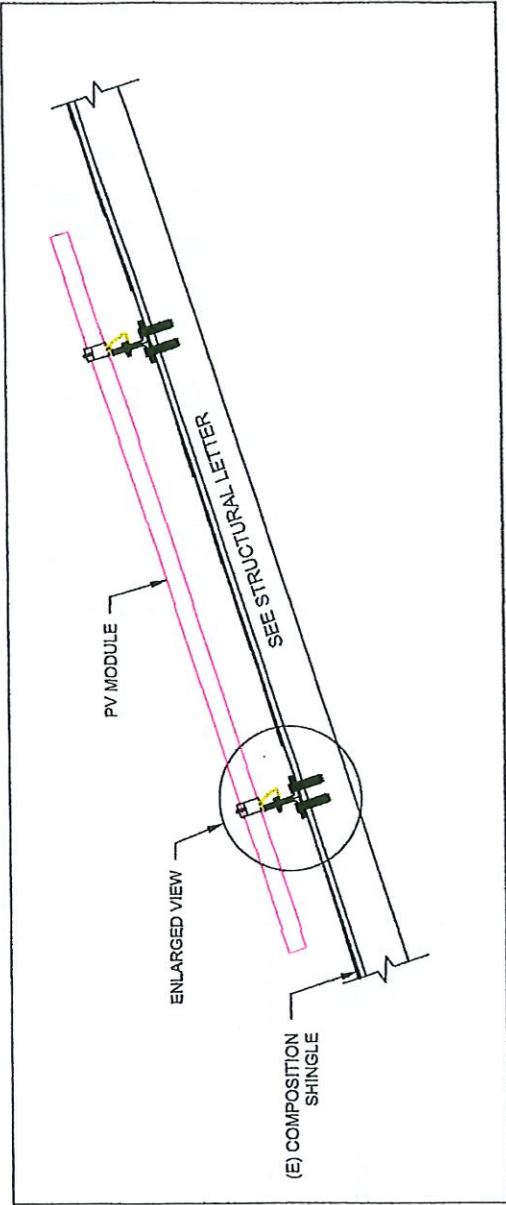
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 ATTACHMENT
 DETAIL

SHEET SIZE
 ANSI B
 11" X 17"

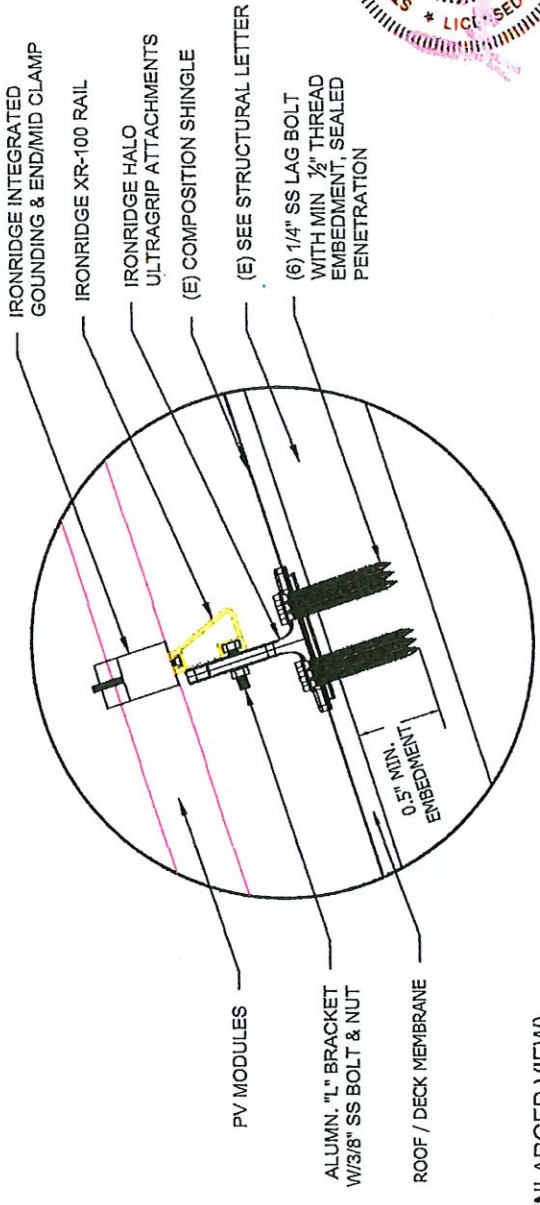
SHEET NUMBER
 PV-3



Signed 9/04/2025



1 ATTACHMENT DETAIL
 SCALE: NTS



2 ATTACHMENT DETAIL (ENLARGED VIEW)
 SCALE: NTS

MAX PV VOLTAGE & CURRENT CALC'S:

BRANCH CIRCUIT MAX VOLTAGE:
240.0VAC
MAX PV CURRENT PER NEC.690.8(A)(3)
1.25X MAX AC OUTPUT CURRENT X # OF
INVERTERS PER STRING
1.25 X 1.58 X 08 = 15.80A
1.25 X 1.58 X 09 = 17.77A

AC CONDUCTOR AMPACITY CALCULATIONS: FROM ROOF TOP JUNCTION BOX TO IQ COMBINER BOX:

AMBIENT TEMPERATURE ADJUSTMENT FOR EXPOSED CONDUIT
PER NEC 310.15(B)(2)(C): -10°
EXPECTED WIRE TEMP (°C): 32°
TEMP CORRECTION PER TABLE 310.16: 0.96
OF CURRENT CARRYING CONDUCTORS: 10
CONDUIT FILL CORRECTION PER NEC.310.15(B)(2)(a): 0.5
CIRCUIT CONDUCTOR SIZE: 10AWG
CIRCUIT CONDUCTOR AMPACITY: 40A
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC.690.8(A&B):
1.25 X MAX AC OUTPUT CURRENT X # OF INVERTERS PER STRING
1.25 X 1.58 X 08 = 15.80A
1.25 X 1.58 X 09 = 17.77A
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16
TEMP CORR. PER NEC TABLE 310.16X CONDUIT FILL CORR. PER NEC
310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY =
0.96 X 0.5 X 40 = 19.20A

AC CONDUCTOR AMPACITY CALCULATIONS: FROM IQ COMBINER BOX TO POI:

EXPECTED WIRE TEMP (°C): 32°
TEMP CORRECTION PER TABLE 310.16: .94
CIRCUIT CONDUCTOR SIZE: 3 AWG
CIRCUIT CONDUCTOR AMPACITY: 100A
OF CURRENT CARRYING CONDUCTOR: 3
CONDUIT FILL PER NEC 310.15(B)(2)(a): 1
1.25 X OUTPUT CURRENT OF INVERTER
1.25 X 1.58 X 43 = 84.92A

DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16
TEMP CORR. PER NEC TABLE 310.16 X
310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY =
1 X .94 X 100 = 94.0A

INTERNAL VOLTAGE RISE WITHIN THE ENGAGE CABLES: PER ENPHASE TABLE:

BRANCH CIRCUIT OF 08 = 0.33%
BRANCH CIRCUIT OF 09 = 0.42%

TO IQ COMBINER BOX:

VRise = (AMPS/INVERTER * #OF INVERTER *
(RESISTANCE Q/FT) * (2 WAY WIRE LENGTH
VRise = (1.58A*08) * (0.00129Q/ft) * (20ft X 2)
VRise = 0.652V
VRise = 0.652V/240V = 0.27% VRise

VOLTAGE RISE FROM IQ COMBINER BOX TO POI:

VRise = (SUM OF STRING CURRENT) * (RESISTANCE Q/FT)
* (2 WAY WIRE LENGTH)
VRise = (1.58A*43) * (0.000210Q/ft) * (20ft X 2)
VRise = 0.570V
VRise = 0.570V/240V = 0.24% VRise

SUMMARY OF CALCULATIONS FOR 240VAC APPLICATIONS:

0.33 + 0.27 + 0.24 = 0.84%
0.84 % < 2% = OK

TO IQ COMBINER BOX:

VRise = (AMPS/INVERTER * #OF INVERTER *
(RESISTANCE Q/FT) * (2 WAY WIRE LENGTH
VRise = (1.58A*08) * (0.00129Q/ft) * (20ft X 2)
VRise = 0.733V
VRise = 0.733V/240V = 0.30% VRise

VOLTAGE RISE FROM IQ COMBINER BOX TO POI:

VRise = (SUM OF STRING CURRENT) * (RESISTANCE Q/FT)
* (2 WAY WIRE LENGTH)
VRise = (1.58A*43) * (0.000210Q/ft) * (20ft X 2)
VRise = 0.570V
VRise = 0.570V/240V = 0.24% VRise

SUMMARY OF CALCULATIONS FOR 240VAC APPLICATIONS:

0.42 + 0.30 + 0.24 = 0.96%
0.96 % < 2% = OK

REVISIONS			
DESCRIPTION	DATE	REV	

Signature with Seal

DATE: 30/08/2029
PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME	WIRING
CALCULATIONS	
SHEET SIZE	
ANSI B	11" X 17"
SHEET NUMBER	
PV-5	

REVISIONS	DATE	REV

Signature with Seal

DATE: 30/08/2025
PROJECT NAME & ADDRESS

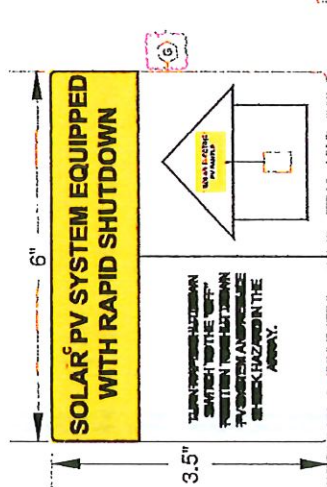
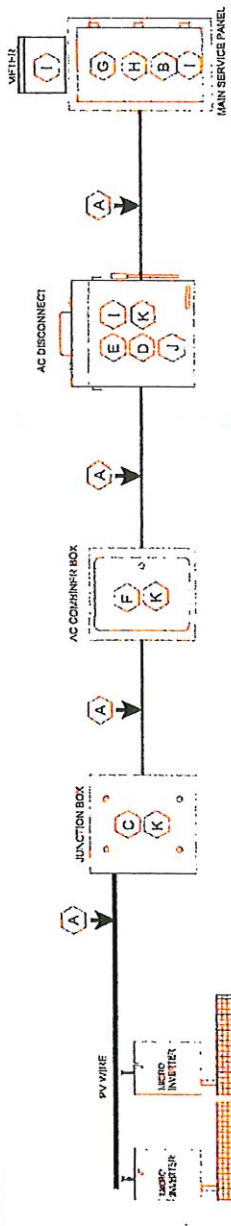
JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME
WARNING LABELS
& PLACARD

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

- SIGNAGE REQUIREMENTS:**
- RED BACKGROUND
 - WHITE LETTERING
 - MINIMUM 3/8" LETTER HEIGHT
 - ALL CAPITAL LETTERS
 - ARIAL OR SIMILAR FONT
 - REFLECTIVE WEATHER RESISTANT MATERIAL UL969



CAUTION: MULTIPLE SOURCES OF POWER
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN AT: MAIN SERVICE PANEL & UTILITY METER AC DISCONNECT COMBINER BOX

WARNING
TURN OFF PHOTOVOLTAGE AC
DISCONNECT PRIOR TO WORKING
INSIDE PANEL
AT MAIN SERVICE DISCONNECT (NEC 705.7(D)(4))

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES: TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR

WARNING PHOTOVOLTAGE POWER SOURCE
LABEL LOCATION: ON EVERY BUSBARS CONTAINING DC CIRCUITS. PER CODES: NEC 2020: 690.31(D)(2), NEC 2021: 690.31(C)(4), 690.31(C)(5), NEC 2014: 690.31(C)(2), 690.31(C)(4), NEC 2017: 690.31(E)(3), 690.31(E)(4), IFC 2012: 690.31.1.2

CAUTION: MULTIPLE POWER SOURCES
PER CODES: NEC 2020: 690.31(D)(2), NEC 2021: 690.31(C)(4), 690.31(C)(5), NEC 2014: 690.31(C)(2), 690.31(C)(4), NEC 2017: 690.31(E)(3), 690.31(E)(4), IFC 2012: 690.31.1.2

WARNING
THE DISCONNECTION OF THE GROUNDING CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT
NEC 490.31 (E)

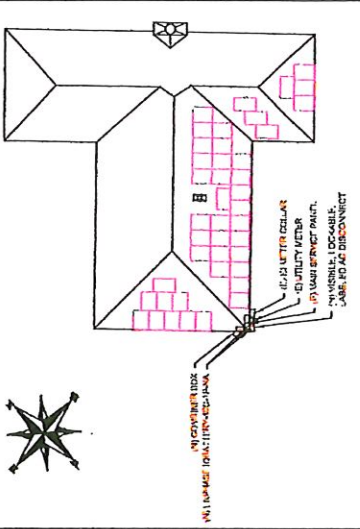
WARNING
DO NOT RELOCATE THIS OVERCURRENT DEVICE
ADJACENT TO PV BREAKER AND ESS
PER CODES: NEC 2020: 705.12(B)(3)(2), NEC 2021: 705.12(B)(3)(2), NEC 2014: 705.12(B)(3)(2), NEC 2017: 705.12(B)(3)(2), IFC 2012: 705.12(B)(3)(2)

WARNING
DO NOT RELOCATE THIS OVERCURRENT DEVICE
ADJACENT TO PV BREAKER AND ESS
PER CODES: NEC 2020: 705.12(B)(3)(2), NEC 2021: 705.12(B)(3)(2), NEC 2014: 705.12(B)(3)(2), NEC 2017: 705.12(B)(3)(2), IFC 2012: 705.12(B)(3)(2)

WARNING
DO NOT RELOCATE THIS OVERCURRENT DEVICE
ADJACENT TO PV BREAKER AND ESS
PER CODES: NEC 2020: 705.12(B)(3)(2), NEC 2021: 705.12(B)(3)(2), NEC 2014: 705.12(B)(3)(2), NEC 2017: 705.12(B)(3)(2), IFC 2012: 705.12(B)(3)(2)

MAXIMUM DC VOLTAGE OF PV SYSTEM
PER CODES: NEC 690.53

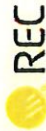
PHOTOVOLTAGE AC DISCONNECT
PER CODES: NEC 690.53



9071 SADDLE HORN DR., FLUSHING, MI 48433
PER CODE(S): NEC 2023: 705.10 + 710.10

REC ALPHA® PURE-RX DATASHEET

SOLAR'S MOST TRUSTED



4x4 MODULE CURRENT CAPABLE
WITH PLATE

450 - 470W
HETEROJUNCTION
TECHNOLOGY



226 W/m² POWER DENSITY
>92% POWER IN YEAR 25
-0.24%/°C TEMPERATURE
COEFFICIENT OF P_{max}

GENERAL DATA

Cell Type: Bifacial, mono-crystalline PERC, 181mm x 181mm, 156 cells per module.
Cells: 3.2mm solar cells with anti-reflection coating, 181mm x 181mm, 156 cells per module.
Backsheet: High performance, 181mm x 181mm, 156 cells per module.
Frame: Anodized aluminum (Black).
Junction Box: 4 port, 4 bypass diodes.
Connectors: MC4, 4 port, 4 bypass diodes.
Cable: 1000mm, 4 port, 4 bypass diodes.
Dimensions: 1720 x 1020 x 30mm (L x W x H).
Weight: 22.2kg.
Origin: Made in Singapore.

ELECTRICAL DATA

Parameter	STC	NOCT
Power Output P _{max} (W)	450	350
Short Circuit Current I _{sc} (A)	9.40	7.50
Open Circuit Voltage V _{oc} (V)	54.9	54.9
Maximum Power P _{max} (W)	450	350
Maximum Power Voltage V _{mp} (V)	45.0	45.0
Maximum Power Current I _{mp} (A)	9.40	7.50
Temperature Coefficient of P _{max} (%/°C)	-0.24	-0.24
Temperature Coefficient of V _{oc} (%/°C)	-0.33	-0.33
Temperature Coefficient of I _{sc} (%/°C)	0.05	0.05

NOTES

1. All electrical data is based on standard test conditions (STC): 1000W/m² irradiance, 25°C cell temperature, AM1.5 spectrum.
2. The power output of the module will vary with temperature and irradiance.
3. The module is designed for use in a 4x4 configuration with a maximum system voltage of 1500VDC.
4. The module is designed for use in a 4x4 configuration with a maximum system current of 20A.
5. The module is designed for use in a 4x4 configuration with a maximum system power of 1800W.

TEMPERATURE COEFFICIENTS*

P_{max}: -0.24%/°C
V_{oc}: -0.33%/°C
I_{sc}: 0.05%/°C

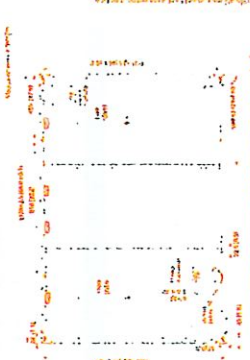
MODULE RATINGS

Maximum Operating Temperature: 85°C
Minimum Operating Temperature: -40°C
Standard Module Operating Temperature: 25°C
Maximum System Voltage: 1500VDC
Maximum System Current: 20A
Maximum System Power: 1800W

Available from:

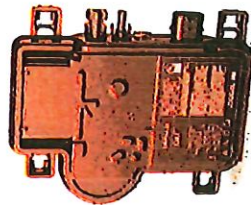
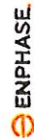
REC Solar Pte. Ltd.
20, Woodlands Ave 1, #01-01, Woodlands Industrial Estate, Singapore 738000.
Tel: +65 6742 1234, Fax: +65 6742 1235, Email: sales@recsolar.com.sg
Website: www.rec-solar.com.sg

REC ALPHA® PURE-RX DATASHEET



CERTIFICATIONS

UL1709, UL1741, IEC 61215, IEC 61730, CE, TUV, ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 26001, ISO 28001, ISO 29001, ISO 30001, ISO 31001, ISO 34001, ISO 38001, ISO 40001, ISO 43001, ISO 45001, ISO 46001, ISO 47001, ISO 48001, ISO 49001, ISO 50001, ISO 51001, ISO 52001, ISO 53001, ISO 54001, ISO 55001, ISO 56001, ISO 57001, ISO 58001, ISO 59001, ISO 60001, ISO 61001, ISO 62001, ISO 63001, ISO 64001, ISO 65001, ISO 66001, ISO 67001, ISO 68001, ISO 69001, ISO 70001, ISO 71001, ISO 72001, ISO 73001, ISO 74001, ISO 75001, ISO 76001, ISO 77001, ISO 78001, ISO 79001, ISO 80001, ISO 81001, ISO 82001, ISO 83001, ISO 84001, ISO 85001, ISO 86001, ISO 87001, ISO 88001, ISO 89001, ISO 90001, ISO 91001, ISO 92001, ISO 93001, ISO 94001, ISO 95001, ISO 96001, ISO 97001, ISO 98001, ISO 99001, ISO 10001, ISO 10101, ISO 10201, ISO 10301, ISO 10401, ISO 10501, ISO 10601, ISO 10701, ISO 10801, ISO 10901, ISO 11001, ISO 11101, ISO 11201, ISO 11301, ISO 11401, ISO 11501, ISO 11601, ISO 11701, ISO 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IQ8X Microinverter

Our newest IQ8 Series Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the IQ8 Series Microinverter is our proprietary microgrid-forming controller. This chip is built using advanced 35-nm technology with high-speed digital logic and an application-specific integrated circuit (ASIC) that enables the inverter to manage power flow and respond to changing loads and grid events, allowing constraints on battery storage for home energy systems.

IQ8X Microinverter is the latest addition to this family, designed to support PV modules with high output DC voltage and cell counts, such as 80-half-cut cells, 88-half-cut cells, and 96-cells.



Part of the Enphase Energy System, the IQ8 Series Microinverter works with the IQ8 Battery, IQ8 Controller, and the Enphase App monitoring and analysis software.



Connect PV modules quickly and easily to the IQ8 Series Microinverters with Enphase's MC4 connectors.

Enphase Energy, 35111 Highway 101, Fremont, CA 94538

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Easy to Install

- Lightweight and compact with plug-and-play connection
- Power line communication (PLC) for system monitoring and diagnostics
- Battery installation with simple two-wire cabling

High productivity and reliability

- More power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Compatible with the latest advanced grid-tied inverters
- Supports automatic updates for the latest firmware
- Configurable to support a wide range of grid profiles
- Meets UL 9540 (UL 1741-SA) and IEEE 1547-2018 (UL 1741-SB)

NOTE

- IQ8 Series Microinverters are designed to support PV modules with up to 100VDC input voltage. For higher input voltages, consult the manufacturer's specifications.
- IQ8 Series Microinverters are designed to support PV modules with up to 100VDC input voltage. For higher input voltages, consult the manufacturer's specifications.
- IQ8 Series Microinverters are designed to support PV modules with up to 100VDC input voltage. For higher input voltages, consult the manufacturer's specifications.

ENPHASE-01-19-0000-00-00

IQ8X Microinverter

ENVIRONMENTAL		ELECTRICAL		MECHANICAL	
W	320-540	W	346	W	346
To meet compatibility, PV modules must be within the following maximum input DC voltage and maximum module I_{sc} available compatibility can be checked at https://www.enphase.com/support/compatibility					
Model compatibility	320-540	Model compatibility	346	Model compatibility	346
MPPT voltage range	43-60	MPPT voltage range	43-60	MPPT voltage range	43-60
Overvoltage range	25-70.5	Overvoltage range	25-70.5	Overvoltage range	25-70.5
Minimum and maximum start voltage	50-70.5	Minimum and maximum start voltage	50-70.5	Minimum and maximum start voltage	50-70.5
Minimum input DC voltage	70.5	Minimum input DC voltage	70.5	Minimum input DC voltage	70.5
Maximum continuous operating DC current	10	Maximum continuous operating DC current	10	Maximum continuous operating DC current	10
Maximum input DC short-circuit current	35	Maximum input DC short-circuit current	35	Maximum input DC short-circuit current	35
Maximum module I_{sc}	12	Maximum module I_{sc}	12	Maximum module I_{sc}	12
Over-voltage class DC port	II	Over-voltage class DC port	II	Over-voltage class DC port	II
DC port rated current	0	DC port rated current	0	DC port rated current	0
PV array configuration	1	PV array configuration	1	PV array configuration	1
Impedance array to additional DC side protection: Impedance array to additional DC side protection requires a maximum of 120 A per branch circuit					
UL 1741-SA, UL 1741-SB, UL 1741-SD	346	UL 1741-SA, UL 1741-SB, UL 1741-SD	346	UL 1741-SA, UL 1741-SB, UL 1741-SD	346
Peak output power	346	Peak output power	346	Peak output power	346
Maximum continuous output power	346	Maximum continuous output power	346	Maximum continuous output power	346
Maximum grid voltage (UL)	240	Maximum grid voltage (UL)	240	Maximum grid voltage (UL)	240
Maximum and minimum grid voltage	240	Maximum and minimum grid voltage	240	Maximum and minimum grid voltage	240
Maximum continuous output current	10	Maximum continuous output current	10	Maximum continuous output current	10
Rated frequency	60	Rated frequency	60	Rated frequency	60
Extended frequency range	47-66	Extended frequency range	47-66	Extended frequency range	47-66
AC short circuit fault current per three cycles	2.70	AC short circuit fault current per three cycles	2.70	AC short circuit fault current per three cycles	2.70
Maximum output per 25 A UL branch circuit	10	Maximum output per 25 A UL branch circuit	10	Maximum output per 25 A UL branch circuit	10
Total harmonic distortion	15	Total harmonic distortion	15	Total harmonic distortion	15
Overvoltage class AC port	II	Overvoltage class AC port	II	Overvoltage class AC port	II
AC port backfeed current	15	AC port backfeed current	15	AC port backfeed current	15
Power factor rating	1.0	Power factor rating	1.0	Power factor rating	1.0
Grid-tied power factor (adjustable)	0.95 leading - 0.95 lagging	Grid-tied power factor (adjustable)	0.95 leading - 0.95 lagging	Grid-tied power factor (adjustable)	0.95 leading - 0.95 lagging
Peak efficiency	97.3	Peak efficiency	97.3	Peak efficiency	97.3
CEC weighted efficiency	96.5	CEC weighted efficiency	96.5	CEC weighted efficiency	96.5
Lighting power consumption	20	Lighting power consumption	20	Lighting power consumption	20
Ambient temperature range	-40°C to 120°C (-40°F to 100°F)	Ambient temperature range	-40°C to 120°C (-40°F to 100°F)	Ambient temperature range	-40°C to 120°C (-40°F to 100°F)
Relative humidity range	4% to 90% (non-condensing)	Relative humidity range	4% to 90% (non-condensing)	Relative humidity range	4% to 90% (non-condensing)
DC connector type	MC4	DC connector type	MC4	DC connector type	MC4
Enclosure (H x W x D) Weight	200 mm (H) x 175 mm (W) x 102 mm (D) (4.5 kg)	Enclosure (H x W x D) Weight	200 mm (H) x 175 mm (W) x 102 mm (D) (4.5 kg)	Enclosure (H x W x D) Weight	200 mm (H) x 175 mm (W) x 102 mm (D) (4.5 kg)
Certification	UL 1741-SA, UL 1741-SB, UL 1741-SD	Certification	UL 1741-SA, UL 1741-SB, UL 1741-SD	Certification	UL 1741-SA, UL 1741-SB, UL 1741-SD
Approved for use by	Enphase Energy	Approved for use by	Enphase Energy	Approved for use by	Enphase Energy
Product	Class II double-insulated, non-metallic polymeric enclosure	Product	Class II double-insulated, non-metallic polymeric enclosure	Product	Class II double-insulated, non-metallic polymeric enclosure
Environmental category	UL type rating	Environmental category	UL type rating	Environmental category	UL type rating

ENPHASE-01-19-0000-00-00

REVISIONS	DATE	REV
DESCRIPTION		

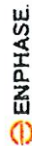
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DATE: 30/08/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME EQUIPMENT SPECIFICATION
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-8



IQ Combiner 6C

The IQ Combiner 6C consolidates interconnection equipment into a single enclosure, streamlining the installation of IQ Series Microinverters. It integrates the IQ Gateway to offer a consistent, pre-wired solution for residential applications. It includes breaker spaces for PV battery, EV charger, and an integrated load controller. Additionally, it reduces installation time with integrated and pre-wired current transformers for PV and batteries.



Specifications

IQ-AM-240-6C	
Nominal voltage / Range (L-L)	240 VAC / 120% Split-phase (L1-L2 240 V, L-N 120 V, 180°)
Nominal frequency / Range	60 Hz / 50-63 Hz
Maximum continuous PV current (combined)	80 A
Maximum continuous battery current	2 x 59 A
Maximum continuous EVSE current	1 x 48 A
Maximum continuous integrated load controller current	84 A
Maximum continuous Distributed Energy Resources (DERs) current	160 A
Maximum continuous backfeed current	100 A
Maximum aggregate PV breaker size installed breaker ¹	Up to 100 A ships with 80 A pre-installed breaker ²
Dimensions (H x W x D)	680 mm (26.8") x 480 mm (18.1") x 220 mm (8.7")
Ambient operating temperature range	-40°C to 46°C (-40°F to 115°F)
Cooling	Solar shield, active air cooling

Smart

- Integrated combiner controller board (CCB) and IQ Gateway.
- Includes Enphase Mobile Connect (CELLMODEM-07-NA).
- Supports flexible networking: Wi-Fi, Ethernet, or cellular.
- Integrated revenue-grade production and storage metering via pre-installed current transformers. Also supports consumption and EV charger monitoring.

Easy

- Pre-installed UL 489 certified device for Rapid Shutdown.
- Single-stud mountable with two screws.
- Supports multiple conduit entry options: top and bottom, side right, bottom rear, and bottom.
- Supports up to five PV branches, two battery circuit breakers, and one EVSE circuit breaker.
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup.
- Supports an integrated load controller with up to 80 A using double-pole or quadplex breakers.

Reliable

- Durable NRTL-certified NEMA Type 3R enclosure.
- 15-year limited warranty.

1. See the IQ Combiner 6C Installation Manual for more information on the CCB and the CCB's role in the system.

2. See the IQ Combiner 6C Installation Manual for more information on the CCB and the CCB's role in the system.

Product Details

IQ Combiner 6C

- IQ Combiner 6C includes the following components:
- IQ Gateway for revenue-grade production and storage metering.
 - Combiner controller board for safety.
 - Solar shield and fans to enhance thermal performance.
 - Integrated Rapid Shutdown Initiator for outdoor installs.
 - Integrated and pre-wired current transformers for PV and batteries.
 - Enphase Mobile Connect cellular modem (CELLMODEM-07-NA).
 - Integrated load controller, with monitoring and control loads.

IQ Combiner 6C (X-IQ-AM-240-6C)

What's in the Box

- Enclosure
- Enphase Mobile Connect
- Accessory kit
- Aggregate PV breaker
- The pre-installed (80 A) UL 489-certified breaker is usable as a Rapid Shutdown Initiator if the IQ Combiner 6C is installed at a readily accessible outdoor location.

Features

- IQ Gateway**
- Distributed Energy Resources (DER) relay
- The integrated IQ Gateway reports production and storage metering, IQ EV Charger, and consumption monitoring, along with IQ Battery and IQ Microinverters data from the site to the Enphase Cloud. This monitoring and analysis software enables comprehensive, remote maintenance and management of Enphase systems.
- The integrated DER relay isolates home loads from PV systems and batteries. It enables the system to automatically recover the State of Charge (SoC) when the batteries are depleted during off-grid operation.
- A 100 A PV busbar (for IQ Microinverters) with support for four double-pole breakers for installing IQ Series Microinverters.
- A 200 A DER busbar (for PV, batteries, EV charger, and other home loads) with support for four double-pole breakers for installation:
- Two for IQ Battery 10C.
 - One for Enphase EV charger.
 - One for aggregate PV (Integrated Rapid Shutdown Device).
- Fully integrated meter with solid-core current transformer (CT), accurate up to +0.5%. ANSI C12.20 class 0.5 compliant. Does not require field wiring.
- Fully integrated meter with two solid-core CTs, accurate up to +0.5%. ANSI C12.20 class 0.5 compliant. Does not require field wiring.
- Fully integrated monitoring using two solid-core CTs, accurate up to +2.5%. Does not require field wiring.
- Fully integrated monitoring using two solid-core CTs, accurate up to +0.5%. Does not require field wiring.
- Supports monitoring of EV charger accuracy up to +2.5%.
- Up to 4 x 20 A breakers for PV.
- Up to 1 x 100 A aggregate PV breaker.

DER busbar

Integrated production metering

Integrated battery metering

Integrated backfeed monitoring

Integrated monitoring in the built-in load controller

EV charger monitoring

Breaker spaces¹

1. IQ Combiner 6C is not a revenue-grade meter. IQ Combiner 6C does not support generation, storage, and utility grid systems (that is, internal energy storage).
2. Agency and PV system-specific metering requirements may vary. Consult the local utility for more information.
3. All breaker spaces are pre-wired with integrated backfeed monitoring. Back to the CCB for information on the specific agency's requirements for the system. See the IQ Combiner 6C Installation Manual for more information.
4. See the IQ Combiner 6C Installation Manual for more information on the CCB and the CCB's role in the system.

REVISIONS	
DESCRIPTION	DATE

Signature with Seal

DATE: 30/08/2029

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

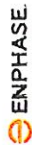
SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-9



MADE IN NORTH AMERICA

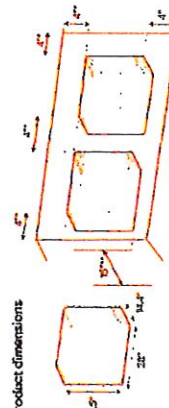
IQ Battery 10C

The IQ Battery 10C all-in-one AC-coupled system is compact, powerful, reliable, and safe. It has a total usable capacity of 10.0 kWh and includes four embedded, grid-forming microinverters with a 7.08 kVA continuous power rating. It provides backup capability, and installers can quickly design the right system size to meet the customer's needs.



Key Specifications	
Rated (continuous) output power	7.08 kW ¹
Rated output current (g240 V _{L-L} AC-)	28.5 A ²
Rated neutral current (g240 V _{L-L} AC-)	24 A ³
Interconnection	Single-phase
Nominal voltage	120/240 VAC-
Nominal frequency	60 Hz
Usable capacity	10.0 kWh ⁴
Ambient operating temperature range (charging) ⁵	-20°C to 50°C (-4°F to 122°F) Non-condensing
Ambient operating temperature range (discharging) ⁶	-20°C to 55°C (-4°F to 131°F) Non-condensing
Chemistry	Lithium iron phosphate (LFP)
Mounting	Wall-mount or pedestal-mount (sold separately)

Product dimensions



¹The 4" interconnect wires are not included in the UL 9540A evaluation. Enphase recommends 4" for ease of service.
²Follow the local authority regulations when planning. A 1" clearance at the front is recommended for ease of service.

Refer to the following page for more details.

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EN-10000-01-01-2024-01-24

Product details

Name

IQ Battery 10C

Description

The IQ Battery 10C system with two 5 kWh battery units having integrated IQ Microinverters (SKU: IQBTL-10CBN) with a battery management system (BMS) as part of IQBL Microinverters.

Unit of measure

60% capacity, up to 15 years, or 6,000 cycles⁷

Output (AC-)

7.08 kVA¹

Rated (continuous) output power

240/211-264 VAC-

Nominal voltage/range

60/57-63 Hz

Nominal frequency/range

28.5 A²

Rated output current (g240 V_{L-L} AC-)

24 A³

Rated neutral current (g240 V_{L-L} AC-)

58 A (three seconds), 44.8 A (ten seconds)

Peak output current (g240 V_{L-L} AC-)

Up to 90 A LRA⁴

Power factor (adjustable)

0.85 leading — 0.85 lagging

Maximum conductor size supported

3 AWG

Overcurrent protection device (OCPD)

40 A OCPD, requires a minimum of 8 AWG for one IQ Battery 10C or
80 A OCPD, requires a minimum of 4 AWG for two or more IQ Battery 10C

Interconnection

Single-phase

AC round-trip efficiency

90%

Usability

10.0 kWh

Usable capacity⁵

10.0 kWh

DC round-trip efficiency

96%

Nominal DC voltage

76.8 V

Maximum DC voltage

86.4 V

Ambient operating temperature range (charging)⁵

-20°C to 50°C (-4°F to 122°F)
non-condensing

Ambient operating temperature range (discharging)⁶

-20°C to 55°C (-4°F to 131°F)
non-condensing

Optimum operating temperature range

0°C to 30°C (32°F to 86°F)

Chemistry

Lithium iron phosphate (LFP)

¹Maximum capacity is based on 100% depth of discharge (DoD).
²Maximum capacity is based on 100% depth of discharge (DoD).
³Maximum capacity is based on 100% depth of discharge (DoD).
⁴Maximum capacity is based on 100% depth of discharge (DoD).
⁵Maximum capacity is based on 100% depth of discharge (DoD).
⁶Maximum capacity is based on 100% depth of discharge (DoD).
⁷Maximum capacity is based on 100% depth of discharge (DoD).

EN-10000-01-01-2024-01-24

REVISIONS	DATE	REV

Signature with Seal

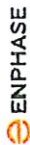
PROJECT NAME & ADDRESS
DATE: 3/10/2023

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-10



NEW AMERICA

IQ Meter Collar

IQ Meter Collar is a meter socket adapter with an integrated microgrid interconnect device (MID) and energy meter. It is installed on an ANSI C12 Form 25 meter socket. IQ Meter Collar is rated for 200 A continuous current. It can be installed either at the service entrance between an ANSI C12 Form 25 utility meter and the meter socket or on the load side of the utility service on a separate meter socket pan.



Key specifications	
Nominal grid supply	120/240 VAC/1Ø/3Ø, split-phase
Nominal frequency	60 Hz
Nominal power consumption	3.8 W
Overvoltage category	Category IV (service entrance-rated)
Integrated consumption meter	±0.5% accurate
Maximum continuous current rating	200 A
Maximum short-circuit current withstand	22 kA
Maximum overcurrent protection device	200 A
Weight	3.6 lb (1.63 kg)
Meter and meter socket interface	ANSI Form 25, 200 A, ringless, or ring type

- Easy to install**
 - Lightweight and simple to install
 - Lowest cost of whole home backup
 - Remote commissioning saves additional truck roll
- Robust and reliable**
 - Thermal management minimizes use of internal fan
 - Integrated AC-DC power supply closes MID to restore power to the home when the utility grid is available, even if battery energy is exhausted
 - 15-year product warranty
- Smart grid-ready**
 - Complies with advanced grid support, voltage, and frequency ride-through requirements
 - Supports remote firmware updates to changing grid requirements
 - Configurable at commissioning to comply with applicable grid interconnection parameters
 - Meets CA Rule 21 (UL 1741-SA), IEEE 1547-2018 (UL 1741-SB), Puerto Rico Electric Power Authority (PREPA), and Hawaiian Electric Industries (HEI) SRD V2.0 grid profiles

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EN-000000-000000-0000

Product details

IQ Meter Collar	
Order code	MC-200-011-V01
What's in the box	
IQ Meter Collar	Meter collar adapter with microgrid interconnect device (MID)
Seal ring	Seal ring to prevent tampering or unauthorized removal of the utility watt-hour meter
Plastic bag	Plastic bag for installers to hang the IQ Meter Collar next to the utility watt-hour meter
Quick install guide (QIG)	IQ Meter Collar quick install guide
Accessories kit	One control connector one junction box sub-assembly; two cable glands, 1/2" NPT (national pipe taper thread)
Blank cover plate	One blank cover plate attached in front of the IQ Meter Collar

Electrical specifications

Nominal grid supply	120/240 VAC/1Ø/3Ø, split-phase
Nominal frequency	60 Hz
Nominal power consumption	3.8 W
Power consumption	2.5 W to 5.8 W
Overvoltage category	Category IV (service entrance-rated)
Integrated consumption meter	±0.5% accurate
Maximum continuous current rating	200 A
Maximum short-circuit current withstand	22 kA
Maximum overcurrent protection device	200 A

Mechanical specifications

Dimensions (L x W x D)	6.9 in x 8.1 in x 5.0 in (175 mm x 206 mm x 128 mm)
Weight	3.6 lb (1.63 kg)
Meter and meter socket interface	ANSI Form 25, 200 A, ringless, or ring type
Cooling	Forced convection-cooled

Environmental specifications

Ambient temperature range	-40°F to 122°F (-40°C to 50°C)
Enclosure environmental rating	Indoor/Outdoor, NEMA type 3R
Maximum altitude	9,200 ft. (2,800 m)

Compliance

Safety	UL 414
Emissions	CFR 47 Part 15B
System and grid compatibility	UL 1741 SA/SB (IEEE 1547-2018), multi-mode
Grid	Current sensor for a power control system under UL 3141
Power control system (PCS)	

The IQ Meter Collar is a registered trademark of Enphase Systems, Inc. All other marks are the property of their respective owners.

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REVISIONS	
DATE	REV

Signature with Seal

DATE: 30/08/2025

PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME	EQUIPMENT SPECIFICATION
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-11

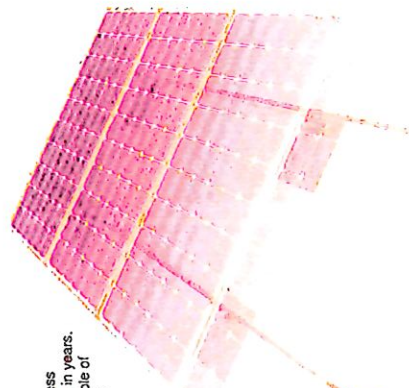


XR Rail® Family

Solar is Not Always Sunny

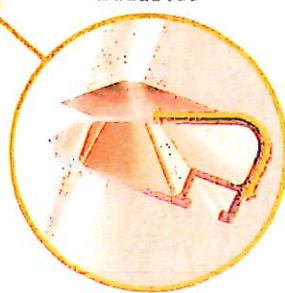
Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails® are the structural backbone preventing those 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

Steady winds 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 resist these forces. This feature ensures greater security during extreme weather and a longer system lifetime.



Compatible with Flat & Pitched Roofs

XR Rails® are compatible with a range of tilt leg options for flat, pitched and snow load applications.

Corrosion-Resistant Materials

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



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 location, there is an XR Rail® to match.



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light to moderate wind and snow conditions, while also maintaining spans up to 10 feet.

- 6" spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splice available



XR100

XR100 is a residential and commercial mounting rail, designed for regions with moderate wind and snow conditions, while also maintaining spans up to 10 feet.

- 10" spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splice available



XR1000

XR1000 is a heavy-weight, among the strongest rails in the XR Rail® family, designed for regions with extreme climate and spans up to 12 feet for commercial applications.

- 12" spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splice available

Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2a, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

Load		Rail Span			
Snow Load (psf)		Wind Speed (mph)			
None		90	120	140	160
		XR10			
20		XR100			
30		XR1000			
40					
80					
120					

REVISIONS	
SECTION	DATE

Signature with Seal

DATE: 30/08/2024
PROJECT NAME & ADDRESS

JARRETT ACKLIN
RESIDENCE
9071 SADDLE HORN DR.,
FLUSHING, MI 48433

SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER
PV-12

REVISIONS	DATE	REV
DESCRIPTION		

Signature with Seal

DATE: 30/08/2025
 PROJECT NAME & ADDRESS

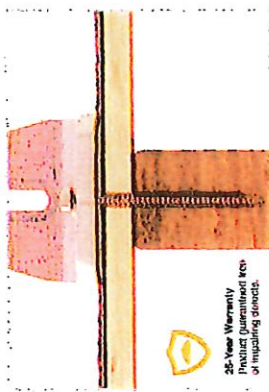
JARRETT ACKLIN
 RESIDENCE
 9071 SADDLE HORN DR.,
 FLUSHING, MI 48433

SHEET NAME	EQUIPMENT SPECIFICATION
SHEET SIZE	ANSI B 11" X 17"
SHEET NUMBER	PV-13

Adaptive, Rafter-Friendly Installation



Trusted Strength & Less Hassle



25-Year Warranty
 Product furnished with
 all required details.

Structural capacities of HUG™ were reviewed in many load directions, with racking rail running cross-slope or up-slope in relation to roof pitch.

For further details, see the HUG certification letters for attaching to rafters and decking.

IronRidge designed the HUG in combination with the RD Structural Screw to streamline installs, which means the following:

- No prying shingles
- No roof nail interference
- No pilot holes necessary
- No sealant (in most cases)
- No bulky shims needed

Systems conform to UL 2703 mechanical and bonding requirements. See Flush Mount Manual for more info.

HUG passed both the UL 441 Section 27 "Rain Test" and TAS 100(A)-95 "Wind Driven Rain Test" by Intertek.

Parts are designed and certified for compliance with the International Building Code & ASCE/SEI-7.

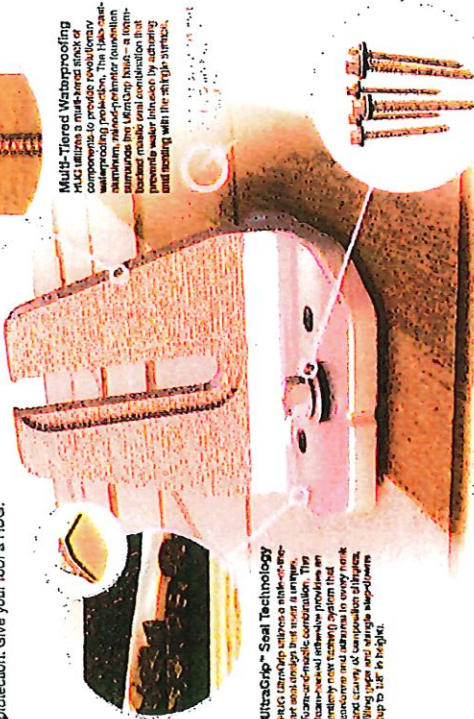
The rafter-mounted HUG has been tested and rated to support 1004 (lbs) of uplift and 368 (lbs) of lateral load.

IRONRIDGE

The IronRidge HUG is a revolutionary new solar mounting system.

When integrating with a home, solar attachments must be dependable for the lifetime of the rooftop. Due to recent innovations, many asphalt shingles have bonded courses. A mount that protects without the need to pry shingles can really speed things up.

Halo UltraGap™ (HUG™) is here to respect the roof. Its Halo is a cast-aluminum barrier that encases the UltraGrip, our industrial-grade, foam-and-mastic seal. This allows HUG to accelerate the installation process and provide the utmost in waterproofing protection. Give your roof a HUG.



Multi-Tiered Waterproofing
 HUG utilizes a multi-tiered seal of cast-aluminum, foam-and-mastic, and a waterproofing membrane. The Halo cast-aluminum, raised-penetrator foundation surrounds the UltraGrip base—a foam-and-mastic seal that provides an additional barrier to prevent water leakage by capping and sealing with the shingle structure.

UltraGrip™ Seal Technology
 Halo UltraGrip features a state-of-the-art seal design that most is unique, foam-and-mastic combination. The foam-and-mastic combination provides an extra layer of protection in every nook and cranny of complex shingle layouts, filling gaps and sealing irregularities up to 1/8" in height.

Rafter & Deck Mounting Options
 Mount HUG to the roof rafters, the roof deck, or both with our custom-engineered RD rafter-decked Structural Screw. The RD Structural Screw is a high-strength, self-drilling screw that provides a secure, long-lasting connection to the rafter or deck, ensuring a strong, reliable mounting system.



Third-Party & Certified
 to meet the Best
 UL 2703, 441, 95
 TAS 100(A)-95