

Public Works Committee

Tuesday, May 12, 2020

6:30 PM

McFarland Municipal Center
Community Room

AGENDA

You are invited to this meeting through a Zoom webinar. The Public is strongly encouraged to watch and participate in these meetings remotely through either the webinar or telephone options listed below.

PLEASE CLICK THE LINK BELOW TO JOIN THE ZOOM WEBINAR:

<https://us02web.zoom.us/j/81661863256>

Or by Telephone:

+1 (929) 205-6099 or +1 (301) 715-8592 or +1 (312) 626-6799 or +1 (669) 900-6833 or +1 (253) 215-8782
or +1 (346) 248-7799

Webinar ID: 816 6186 3256

1. CALL TO ORDER, ROLL CALL.
2. PUBLIC APPEARANCES.
 - a. This is an opportunity for members of the public to address the Village Board. Please remember this is a virtual meeting conducted through the Zoom online meeting platform. Zoom meeting attendees wishing to address the board may do so using the Question and Answer feature within the Zoom online meeting platform. You may state your name, address, and provide your comments to the board for their consideration. Members of the public who are present in person and wish to address the board should fill out a public comment form and turn into the meeting chairperson. Members of the public may speak during public appearances or during their selected agenda item as they designate on the public comment form. Please adhere to the 3-minute time limit. Additionally, you may send your public comments to cassandra.suettinger@mcfarland.wi.us to be included as part of the meeting.
3. APPROVAL OF MINUTES.
 - a. Discussion and action regarding the minutes from the Joint Public Utilities and Public Works meeting held on March 10, 2020.
 - b. Discussion and action regarding the minutes from the Public Works meeting held on March 10, 2020.
4. BUSINESS.
 - a. Discussion and action to make a recommendation to the Village Board regarding Ordinance #2020-13, an ordinance amending the McFarland Municipal Code regarding driveways.

- b. Discussion and action to make a recommendation to the Village Board regarding the award of contract for the 2020 Public Works Center Improvement project.
 - c. Discussion and action to make a recommendation to the Village Board regarding the award of a proposal for the addition of solar panels to the Public Works Center.
 - d. Presentation of the Public Works Monthly Report from the Director.
5. SCHEDULE NEXT MEETING DATE.
- a. Tuesday, June 9, 2020 at 6:00 pm
6. ADJOURNMENT.

This meeting notice constitutes an official meeting of the above referenced group and was posted in accordance with all applicable laws related to Open Meetings Law. It is possible that members of and possibly a quorum of members of other governmental bodies of the municipality may be in attendance at the above stated meeting to gather information. No action will be taken by any governmental body at the above stated meeting other than the governmental body specifically referred to above in this notice. Upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals. For additional information or to request this service, contact the McFarland Municipal Center at (608) 838-3153 or cassandra.suettinger@mcfarland.wi.us.

VILLAGE OF MCFARLAND

Public Utilities/Works Joint Committee Minutes

Tuesday March 10, 2020 – 6:00 P.M.

1. CALL TO ORDER, ROLL CALL

The meeting was called to order by Village Trustee and Public Works Committee Chairperson Dan Kolk at 6:00 p.m.

Members present: Village Trustee Eric Kryzenske, Village Trustee Jerry Adrian, Village Trustee Mary Pat Lytle, Pauline Boness, Marc Nielsen, Richard Vela, Marv Meyers. *Absent:* Chris Fredrick

Staff present: Jim Hessling (Director of Public Works/Utilities), Aimee Irwin (Assistant to the Director), Brian Berquist (Town & Country Engineering), Tim Stieve (Town & Country Engineering), Matt Schuenke (Village Administrator)

2. PUBLIC APPEARANCES

Cathy Kirby from 5812 E Open Meadow addressed the committee with thanks for the work being conducted in her neighborhood regarding sump pump issues. She encourages open communication regarding the project to those in this area along with timeline information for the project.

3. BUSINESS

a. Discussion and action to make a recommendation to the Village Board regarding the award of contract for the 2020 Street and Utility Improvements project(s).

- Tim Stieve reviewed the tabulated information for bids received. Committee members were provided Analysis of Bids and Recommendation for Award of Contracts. Overall Base Bid results show G-Pro Excavating as the low bidder. Tim stated that G-Pro completed a similar project for the Village in 2018. Based on analysis, Town and Country is recommending G-Pro Excavating LLC for the 2020 Street and Utility Improvement project(s) for Base Bid, Alternate Bid-Creamery Ct and Supplemental Bid.
- Committee members discussed the results of the bids received. Mary Pat Lytle clarified if the 10% contingency was included in the bid totals provided on the Analysis of Bids form. Tim stated that the contingency was not included. Matt Schuenke provided information regarding the 2020 budgeted amounts for these projects. Given the summary of bids, Matt stated the projects are within the budgeted amounts. Dan Kolk asked what the targeted date of completion is for these projects. Tim responded that September 15th is the target date.

- Motion by Dan Kolk recommending the award of contract for the 2020 Street and Utility Improvement project(s) for G-Pro Excavating to the Village Board at a total cost \$916,550. Seconded by Pauline Boness. Motion passed 8-0-0
- b. Discussion and action to make a recommendation to the Village Board regarding the award of the contract for the 2020 Stormwater and Path Improvement project(s).
 - Tim Stieve reviewed the tabulated information for bids received. Committee members were provided Analysis of Bids and Recommendation for Award of Contracts. Overall Base Bid results show Nelson Excavating and Son LLC as the low bidder. Town & County Engineering met with Nelson Excavating and Son LLC to analyze the bids assuring all items were included. Based on analysis, Town and Country is recommending Nelson Excavating and Son LLC for the 2020 Stormwater and Path Improvement project(s) for Base Bid and Alternate Bid-2.
 - Committee members discussed the results of the bids received. Matt Schuenke stated that additional funds could be allocated from a capital fund or the stormwater utility to absorb additional expenses that the budgeted numbers are not inclusive of.
 - Motion by Dan Kolk recommending the award of contract for the 2020 Stormwater and Path Improvement project(s) for Nelson Excavating and Son LLC to the Village Board Base Bid + Alternate Bid No. 2 plus 10% contingency. Seconded by Jerry Adrian. Motion passed 8-0-0.
- c. Presentation of the Public Works Monthly Report from the Director
 - Jim Hessling provided an update on public works activities in the Village for the month of February 2020.
- 4. ADJOURNMENT
 - a. Motion by Dan Kolk to adjourn at 6:24 p.m. Seconded by Mary Pat Lytle. Motion passed 8-0-0.

Respectfully submitted by Aimee Irwin

VILLAGE OF MCFARLAND
Public Works Committee Minutes

Tuesday March 10, 2020

1. CALL TO ORDER, ROLL CALL

The meeting was called to order by Village Board Trustee and Chairperson Dan Kolk at 6:31 pm in Conference Room A.

Members present: Village Board Trustee; Jerry Adrian, Richard Vela, Marv Meyers. *Absent:* Chris Fredrick

Staff present: Matt Schuenke (Village Administrator), Jim Hessling (Director of Public Works), Aimee Irwin (Assistant to the Public Works Director), Brian Berquist (Town & Country Engineering), Tim Stieve (Town & Country Engineering)

2. PUBLIC APPEARANCES

None.

3. APPROVAL OF MINUTES

- a. Discussion and action regarding the minutes from the Public Works meeting held on January 14, 2020.

- Chairperson Kolk asked for any changes or modifications. Hearing none, the minutes stand as presented.

4. BUSINESS

- a. Discussion and action to accept the final design for the improvements to the Public Works Center and authorize the project for bidding.

- Matt Schuenke provided background regarding the improvements for the Public Works Center and the final design along with an updated preliminary project budget. Included in the project budget are items that are bid alternates. Bidding will go to the low bidder, following the similar process to Street and Utility improvements project(s) bidding. Matt stated that the presented design is at 90%. Next steps would be to send out this project for bid in April and return results to the committee in May for possible approval. Original amount budgeted for this project was \$1,000,000. Project cost as presented is above the amount budgeted however bid alternates have been identified.
- Committee members discussed and reviewed the presented design and project budget.
- Motion by Jerry Adrian authorizing the Public Works Center project for bidding. Seconded by Marv Meyers. Motion passed 4-0-0.

- b. Discussion regarding a proposal for solar panels on the Public Works Center.
- Matt Schuenke provided background regarding the solar panels optional improvement to the Public Works Center. The building currently has solar panels but are older technology. This task would not occur until after the new roof has been installed and after the original work has been bid. Provided is a proposal as a point of discussion. This improvement would be connected to Strand to maintain compatibility with the Public Work Center improvements.
 - Committee members discussed the solar panels proposal. Richard Vela asked the age of the current panels. Staff responded they are unsure. Dan Kolk mentioned this may be an option to add to the sustainability subcommittee and to review how this idea may be incorporated through other places in the Village now or in the future.
 - No action taken on this item.
- c. Discussion and action to make a recommendation to the Village Board regarding replacement of air conditioning units at the Municipal Center.
- Jim Hessling provided explanation regarding the replacement of air conditioning units at the Municipal Center. Two proposals included from Harker and All Comfort Services. Jim stated that the current units are 20 years old and lately have been having increasing issues. The Police Department unit quit functioning in 2019 and was replaced. The proposals include the replacement of five units and both proposals appear comparable. One difference between the proposals is that All Comfort Services includes electrical work while Harker does not. The replacement work would be completed in two days. Harker's proposal estimate is \$59,799 while All Comfort Services proposal estimate is \$68,724 plus an additional \$3,400. *(Please note the stated \$3,400 amount calculation was incorrect. Additional fees calculate to \$4,559).*
 - Committee members discussed the two proposals. Members clarified that Harker includes the additional \$3,400 work from All Comfort Services proposal. Dan Kolk clarified that the units are the same between both proposals. Jim stated the units are the same. Dan asked if there would be any reason to obtain additional bids. Jim stated he is confident with the two proposals provided. Matt Schuenke stated that the cost of the replacements are included in the 2020 budget. *(Please note the stated \$3,400 amount calculation was incorrect. Additional fees calculate to \$4,559).*
 - Motion by Marv Meyers to recommend approval of the proposal by Harker to replace the air conditioning units at the Municipal Center to the Village Board. Seconded by Jerry Adrian. Passed 4-0-0

- d. Discussion and action to make a recommendation to the Village Board regarding the proposal for 2020 Crackseal and Chipseal street maintenance.
 - Jim Hessling provided background regarding this topic and reviewed the proposal provided by Fahrner. Proposal includes cost broken out by each street.
 - Committee member discussed this topic. Richard Vela asked if the proposal presented is in line with previous proposals for this type of work. Jim stated that the proposed amounts are similar to previous proposals.
 - Motion by Dan Kolk to recommend approval of the proposal by Fahrner for 2020 Crackseal and Chipseal street maintenance to the Village Board. Seconded by Jerry Adrian. Passed 4-0-0
5. SCHEDULE NEXT MEETING DATE
 - a. Tuesday April 14, 2020 at 6:00 p.m.
6. ADJOURNMENT
 - a. Motion by Jerry Adrian to adjourn at 7:13 p.m. Seconded by Dan Kolk. Motion passed 4-0-0.

Respectfully submitted by Aimee Irwin



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, May 12, 2020

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director

AGENDA ITEM: Discussion and action to make a recommendation to the Village Board regarding Ordinance #2020-13, an ordinance amending the McFarland Municipal Code regarding driveways.

PREVIOUS ACTION:

None.

ISSUE SUMMARY:

The Community & Economic Development Department received a request from a resident at 6115 South Court to reconstruct two existing driveways into one driveway. The existing driveways are separated by a 3-4 foot curb and green space. Removing the space between the two driveways is not permitted as the new driveway would be wider than permitted under the Village's driveway ordinance, Division 4, Sec. 53-546. Sec. 53-518 allows the Village Board to grant variances to driveway location, design and construction requirements; however, as written, Sec. 53-518 only applies to Division 3 and does not apply to the requirements of Division 4, Sec. 53-546. Staff and the Village Attorney find that this is an unintended omission of the Municipal Code. Ordinance 2020-13 would allow the Village Board to grant variances to the driveway requirements in the entire Article IX and not just those in Article IX, Division 3. Ordinance 2020-13 also provides new guidance under Sec. 53-518 as to those reasons for which the Village Board may grant a variance.

Ordinance 2020-13 also makes other amendments to Sec. 53-509 (Number) and Sec. 53-546 and 53-576 (Width of Driveways). Currently the Director of Public Works can administratively approve more than one driveway for a property, and driveway widths greater than 30 feet at the curb, with no standards for approval. Typically when an ordinance delegates a discretionary determination to an official there should be a standard for the official to follow. Also in practice, the Plan Commission would approve the number, location, and width of driveways as part of site plan review for commercial, industrial, multi-family and institutional uses under Sec. 62-310 of the Zoning Code. Ordinance 2020-13 amends Sec. 53-509 and 53-546 to vest the Plan Commission, through site plan review, and the Village Board through variance petitions, the authority currently vested with the Director of Public Works for deviations in the number and width of driveways.



Approval of Ordinance 2020-13 would allow the Village Board to grant the pending separate driveway variance request by the owner of 6115 South Court.

FINANCIAL/BUDGET IMPACT:

None.

VILLAGE PLAN REFERENCE:

None.

ORDINANCE REFERENCE:

Chapter 53, Article IX

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Recommend the Village Board approve Ordinance 2020-13.

ATTACHMENTS:

1. Driveway Code track changes (Ordinance 2020-13)
2. 2020-13 Ordinance Regarding Driveways

Summary of Proposed Changes to Chapter 53, Article IX Driveways, reflected in Ordinance 2020-13.
(code insertion), (code deletion)

53-509 - Number

The number of driveways to serve an individual property fronting on a street shall be one, except where approved by the Plan Commission as part of a site/design review under Sec. 62-310 or when approved by the ~~Director of Public Works~~ Village Board under Sec. 53-518.

53-518 - Variances

Any of the requirements listed in this ~~Division~~ Article may be varied by the Village Board in such instances where the peculiar nature of the property or the design of the street may make the rigid adherence to the requirements listed in this ~~Division~~ Article impossible or impractical, or when the Village Board determines that a variance is appropriate in order for the property to have reasonable and adequate street access, after considering the risk to the public, the volume of traffic on the affected street, and any other factor the Village Board determines relevant in making this determination.

53-545 – Applicability

The regulations in this Division are applicable to driveways serving agricultural, rural home, commercial and industrial properties

53-546 – Width of Driveways (Agriculture, Rural Home, Commercial and Industrial Driveways)

No part of a private driveway located within the dedicated area of a public street shall, except as hereinafter provided, have a width greater than 30 feet measured at right angles to the centerline of said driveway, except as increased by permissible radii. In instances where the nature of the ~~commercial or industrial~~ land use activity or the physical characteristics of the land would require a driveway of greater width than herein specified, the Plan Commission, as part of a site/design review under Sec. 62-310, or the ~~Director of Public Works~~ Village Board under Sec. 53-518 in cases of modifications to existing driveways, in his/her discretion may permit a driveway of additional width.

53-575 – Applicability

The regulations in this Division are applicable to driveways serving urban residential properties.

53-576 – Width of Driveways (Urban Residential Zoned Driveways)

Openings for vehicular ingress and egress for urban residential district properties shall be at least ten feet wide at the property line, but shall not exceed 24 feet at the property line, with a maximum of 30 feet at the curb opening. In instances where the nature of the land use activity or the physical characteristics of the land would require a driveway of greater width than herein specified, the Plan Commission, as part of a site/design review under Sec. 62-310, or the Village Board under Sec. 53-518 in cases of modifications to existing driveways, may permit a driveway of additional width.

ORDINANCE 2020-13

AN ORDINANCE AMENDING THE MCFARLAND MUNICIPAL CODE REGARDING DRIVEWAYS.

Purpose: To amend certain driveway provisions in the McFarland Municipal Code.

Sponsor: Andrew Bremer, Community & Economic Development Director

Recommended Referral: Public Works Committee

Public Hearing: Not Required

WHEREAS, the McFarland Municipal Code regulates the number, location, design, and construction of driveways; and

WHEREAS, Village staff recommends amending the current Code to update provisions concerning requests for modifications and variances to driveway requirements; and

WHEREAS, Village Board previously found, and continues to find, for the safety of the general public, the Village shall determine the location, size, construction and number of access points to public roadways within Village limits; and,

WHEREAS, the Village Board accepts the recommendations of Village staff and finds that the proposed changes to the Code are in the public interest because they provide clearer procedures concerning requests for modifications and variances to driveway requirements.

NOW, THEREFORE, the Village Board of the Village of McFarland, does ordain as follows:

1. Section 53-509 of the McFarland Municipal Code is amended to read as follows:

The number of driveways to serve an individual property fronting on a street shall be one, except where approved by the Plan Commission as part of a site/design review under Sec. 62-310 or when approved by the Village Board under Sec. 53-518.

2. Section 53-518 of the McFarland Municipal Code is amended to read as follows:

Any of the requirements listed in this Article may be varied by the Village Board in such instances where the peculiar nature of the property or the design of the street may make the rigid adherence to the requirements listed in this Article impossible or impractical, or when the Village Board determines that a variance is appropriate in order for the property to have reasonable and adequate street access, after considering the risk to the public, the volume of traffic on the affected street, and any other factor the Village Board determines relevant in making this determination.

3. Section 53-545 of the McFarland Municipal Code is amended to read as follows:

The regulations in this Division are applicable to driveways serving agricultural, rural home, commercial and industrial properties.

4. Section 53-546 of the McFarland Municipal Code is amended to read as follows:

No part of a private driveway located within the dedicated area of a public street shall, except as hereinafter provided, have a width greater than 30 feet measured at right angles to the centerline of said driveway, except as increased by permissible radii. In instances where the nature of the land use activity or the physical characteristics of the land would require a driveway of greater width than herein specified, the Plan Commission, as part of a site/design review under Sec. 62-310, or the Village Board under Sec. 53-518 in cases of modifications to existing driveways, may permit a driveway of additional width.

5. Section 53-575 of the McFarland Municipal Code is amended to read as follows:

The regulations in this Division are applicable to driveways serving urban residential properties.

6. Section 53-576 of the McFarland Municipal Code is amended to read as follows:

Openings for vehicular ingress and egress for urban residential district properties shall be at least ten feet wide at the property line, but shall not exceed 24 feet at the property line, with a maximum of 30 feet at the curb opening. In instances where the nature of the land use activity or the physical characteristics of the land would require a driveway of greater width than herein specified, the Plan Commission, as part of a site/design review under Sec. 62-310, or the Village Board under Sec. 53-518 in cases of modifications to existing driveways, may permit a driveway of additional width.

The above and foregoing Ordinance was duly adopted at a regular meeting of the McFarland Village Board on the ____ day of _____, 2020.

APPROVED:

Brad Czebotar, Village President

ATTEST:

ORDINANCE 2020 – 13	
MOTION	SECOND
ACTION	DATE
Adopted	
Referred	
Tabled	
Withdrawn	
Defeated	
Published	
INDIVIDUAL VOTING RECORD	
Brassington -	Kryzenske-
Clow -	Rupert -
Czebotar -	Utter -
Flaherty -	
VOTING RESULTS	
Motion Carried	
Motion Defeated:	

Cassandra Suettinger, Village Clerk-
Treasurer



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, May 12, 2020

SECTION: Business

DEPARTMENT: Public Works

CONTACT: Matt Schuenke, Village Administrator

AGENDA ITEM: Discussion and action to make a recommendation to the Village Board regarding the award of contract for the 2020 Public Works Center Improvement project.

PREVIOUS ACTION:

The Public Works Committee toured the current facility and discussed alternatives at their meeting on September 10, 2019. Based on the direction provided, the Committee advanced a proposal to design/bid the project according to the preferred alternative at their meeting on November 19, 2019. This was accepted by the Village Board on November 25, 2019.

At the meeting of March 10, 2020, the Committee evaluated the design for the project and took action to send the project out for bidding.

ISSUE SUMMARY:

Enclosed are the final drawings for the improvements to the Public Works Center. This includes replacement of the roof, office remodeling, addition of a mezzanine, racking storage, pave yard replacement, and other maintenance improvements to the facility. Specifications for the project are also available upon request (the document is about 500 pages long). The roof replacement was added to the 2018-2022 CIP as recommended by previous assessments with the additional improvements added the next year for construction in 2020. These improvements will address office inefficiencies, noted safety issues, improved mechanicals, deferred maintenance, better working conditions, additional storage capability, and prolongs the use of the facility.

There were 12 bidders pre-qualified for the project with the Village receiving 10 bids to do the work. The low bidder for the project is Newcomb Construction Company of Madison. Their bid has been evaluated and found to be responsive by our consultant. Staff is recommending the contract be awarded to Newcomb for the base bid plus the two alternatives.

FINANCIAL/BUDGET IMPACT:

The 2020 Budget was approved to fund the project at a cost of \$1,000,000. This line item also included the costs for solar that is considered in the next item. The expense was to be offset by \$750,000 borrowed money and \$250,000 from reserves used for facility maintenance. The project estimate in the Fall of 2019 was \$929,594 which is where the budgetary estimate was



derived from.

The project estimate rose to \$1,141,621 when we reviewed this at our meeting on March 10, 2020. To help provide flexibility, we inserted two alternates in case the costs came in too high plus planned on the inclusion of some funds from the utilities to help support the project.

Bids were opened on May 6th with the low bidder of Newcomb having a base bid of \$499,850 including \$113,750 for Alternative #1 (Yard) and \$32,605 (Garage Doors). The total cost of the project all included of those three items is \$646,205 which is substantially below the previous estimate and budgetary figures. This will allow the borrowing to be reduced to account for more favorable than expected bid prices.

VILLAGE PLAN REFERENCE:

The Facilities Master Plan was completed in 2017 to study facility needs of the Village across the organization. The Plan called attention to the fact that the facility within the office space was at capacity, especially with its storage needs. It suggested there were opportunities for mezzanine storage within the garage to assist with this while also looking into other technology to address file storage. It noted elements of the facility could use some security enhancements. Cost projected for the larger expansion at that time were projected at \$2.8 million. Further study of the facility since that time encountered additional issues within the office area as well as staffing growth of the Department this project is aligned to collectively address at a much lower dollar amount. The plan is located at www.mcfarland.wi.us/public_works_committee and information about Public Works can be found on page 14.

Elements of this project first began their inclusion in the 2018-2022 CIP and have been included through the most recent 2020-2024 CIP.

ORDINANCE REFERENCE:

None.

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Presented for the Committee to make a recommendation to the Village Board to award the contract to Newcomb Construction Company in an amount of \$710,825 which includes a contingency allowance of 10% similar to our street construction projects.

Construction Administration contract is already in place and approved for Strand to do this work.

Final item will be needed furnishings which are currently under review.

ATTACHMENTS:

1. Issued for Bid Drawings 22x34-4_8_2020
2. McFarland.ResultingBidTab

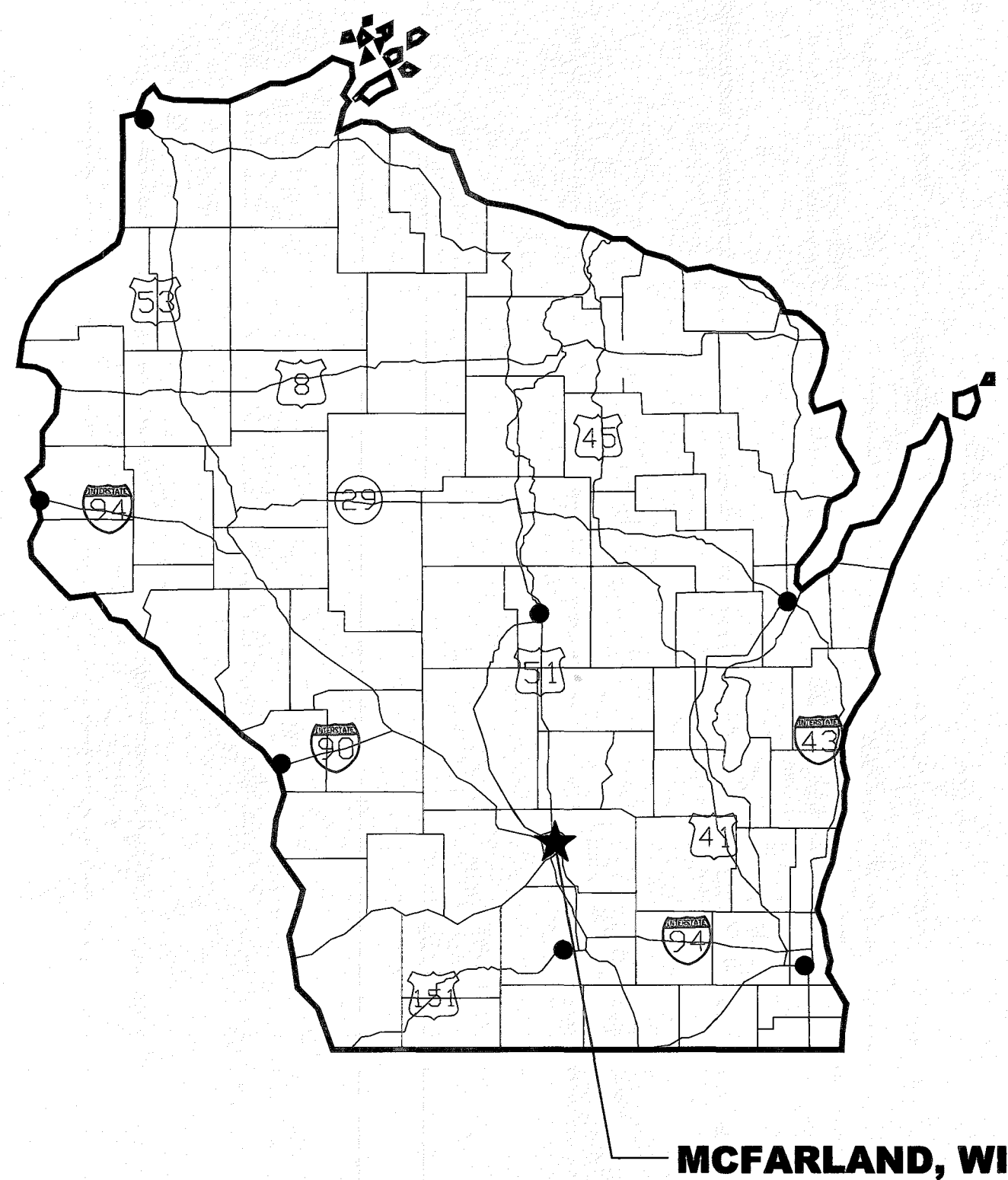


PUBLIC WORKS FACILITY RENOVATION

FOR THE

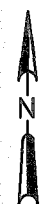
VILLAGE OF MCFARLAND

MCFARLAND, WISCONSIN



5115 TERMINAL DR,
MCFARLAND, WI 53558

VICINITY MAP
NO SCALE



126 NORTH JEFFERSON STREET, SUITE 350
MILWAUKEE, WI 53202
414 271-0771
414 271-8312 FAX
WWW.STRAND.COM

CONTRACT 1-2020

LIST OF DRAWINGS

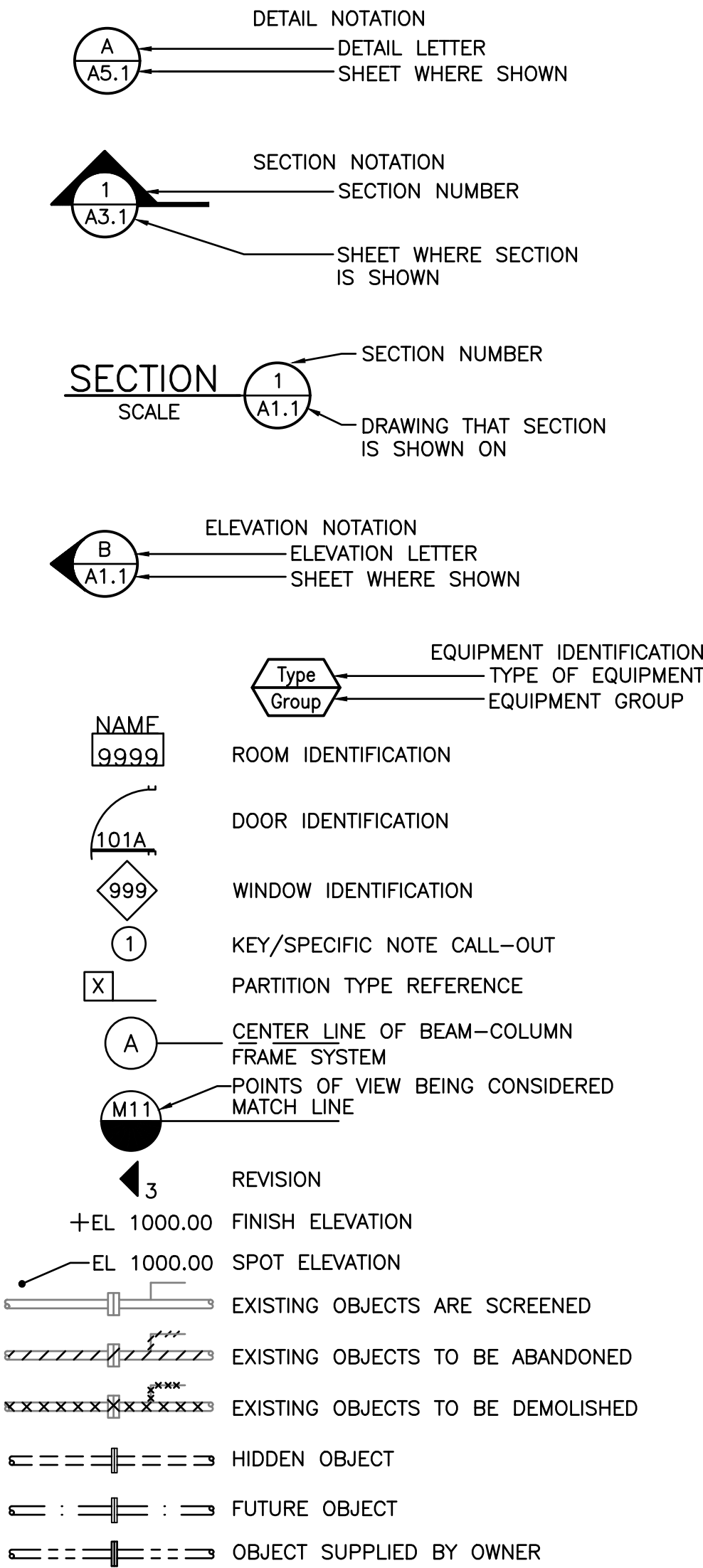
	SHEET NO.	DRAWING NO.	REVISION NO. 1	TITLE
<u>GENERAL</u>	1	G0.1		TITLE
	2	G0.2		STANDARD SYMBOLS AND ACCESSIBILITY GUIDELINES
	3	G0.3		OFFICE AND MEZZANINE CODE REVIEW, LIFE SAFETY, AND EXITING PLAN
<u>CIVIL</u>	4	C1.1		SITE PLAN
<u>DEMOLITION</u>	5	D1.1		OFFICE AND STORAGE GARAGE DEMOLITION FLOOR PLAN
<u>ARCHITECTURAL</u>	6	A1.1		OFFICE AND STORAGE GARAGE FIRST FLOOR PLAN
	7	A1.2		MEZZANINE FLOOR PLAN
	8	A1.3		ROOF PLAN
	9	A2.1		SOUTH EXTERIOR ELEVATION
	10	A3.1		SECTIONS-1
	11	A3.2		SECTIONS-2
	12	A5.1		ARCHITECTURAL DETAILS-1
	13	A5.2		ARCHITECTURAL DETAILS-2
	14	A6.1		DOOR AND WINDOW SCHEDULES AND DETAILS
	15	A6.2		OFFICE REFLECTED CEILING PLAN, FLOOR FINISH PLAN, AND ROOM FINISH SCHEDULE
<u>STRUCTURAL</u>	16	S1.1		CANOPY AND MEZZANINE ENLARGED FOUNDATION AND FRAMING PLANS
	17	S5.1		STRUCTURAL DETAILS - 1
	18	S5.2		STRUCTURAL DETAILS - 2
<u>HVAC</u>	19	H0.1		HVAC SYMBOLS AND ABBREVIATIONS
	20	H1.1		OFFICE ENLARGED HVAC PLAN
	21	H1.2		STORAGE GARAGE HVAC PLAN
	22	H3.1		HVAC SECTIONS
	23	H5.1		HVAC DETAILS
	24	H6.1		HVAC SCHEDULES
	25	H7.1		CONTROLS SCHEMATICS
<u>PLUMBING AND FIRE PROTECTION</u>	26	FP1.1		OVERALL PLUMBING AND FIRE PROTECTION FLOOR PLAN
	27	P7.1		PLUMBING SCHEMATICS
<u>ELECTRICAL</u>	28	DE1.1		ELECTRICAL DEMOLITION FLOOR PLAN
	29	E0.1		ELECTRICAL SYMBOLS AND ABBREVIATIONS
	30	E1.1		OVERALL ELECTRICAL FLOOR PLAN
	31	E1.2		OFFICE ENLARGED POWER PLAN
	32	E1.3		LIGHTING PLAN
	33	E4.1		UPPER AND LOWER LEVEL MEZZANINE POWER PLANS
	34	E4.2		UPPER AND LOWER LEVEL MEZZANINE LIGHTING PLANS
	35	E5.1		ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES
	36	E5.2		ELECTRICAL DETAILS



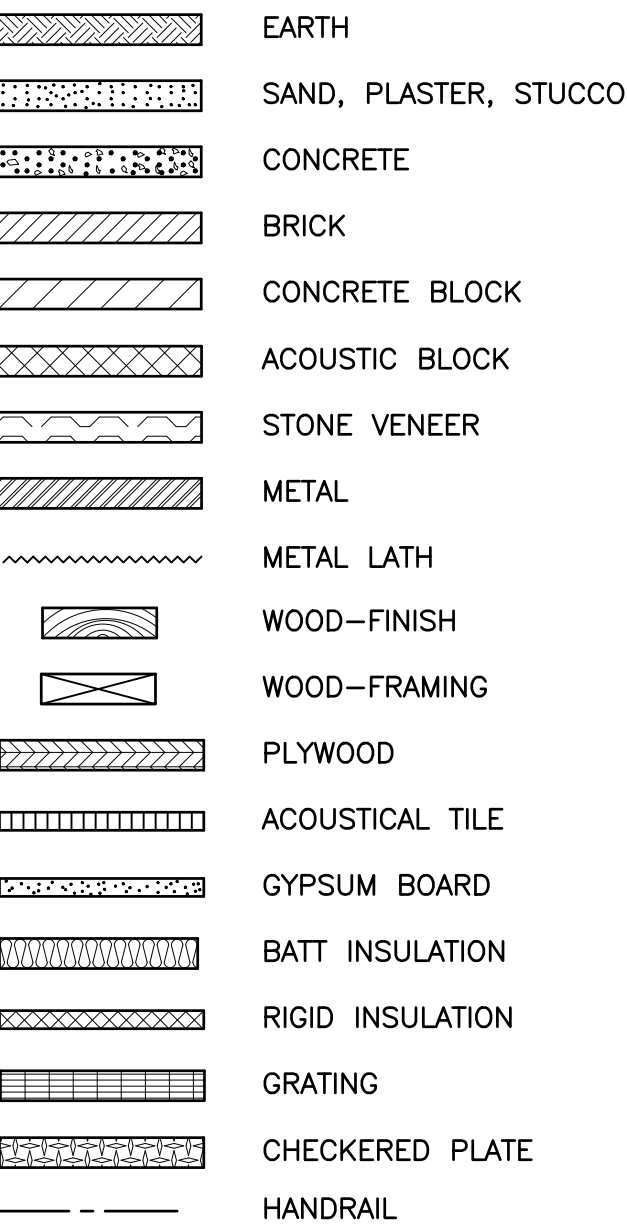
ISSUED FOR BID, 4/8/20

SHEET
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G0.01

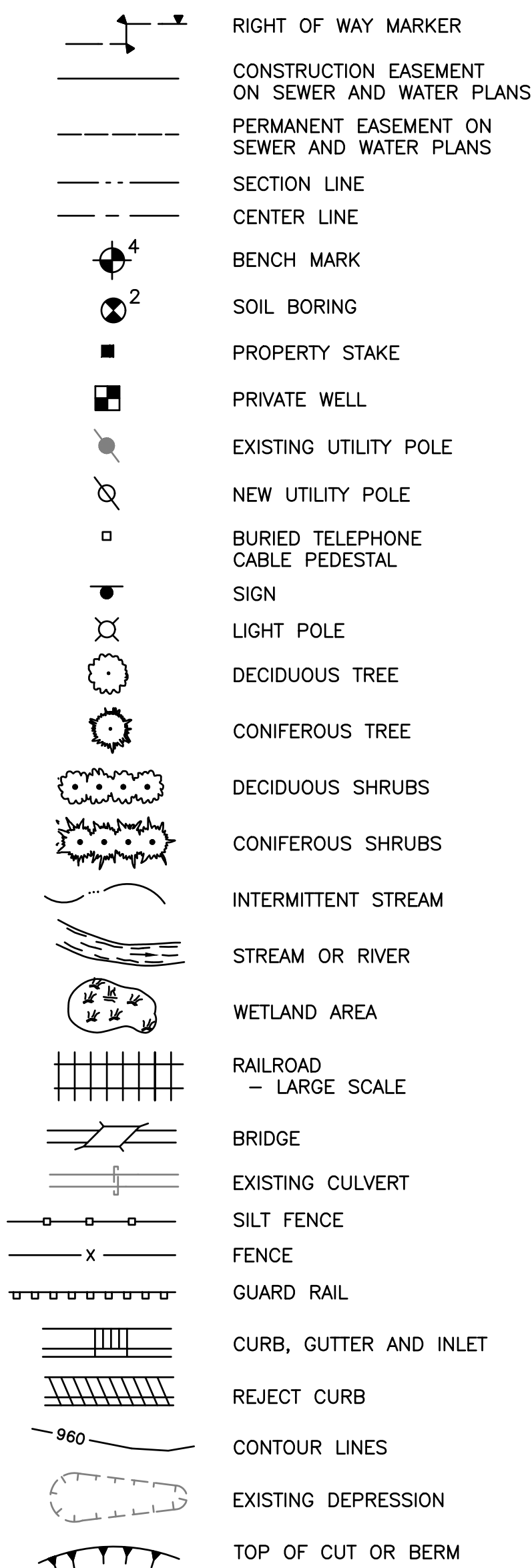
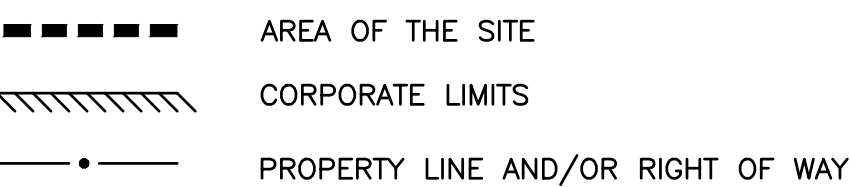
DRAFTING SYMBOLS



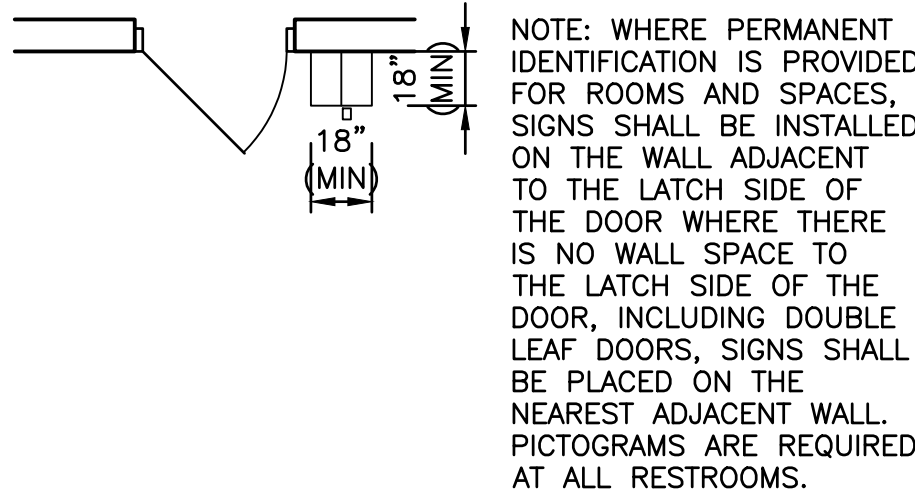
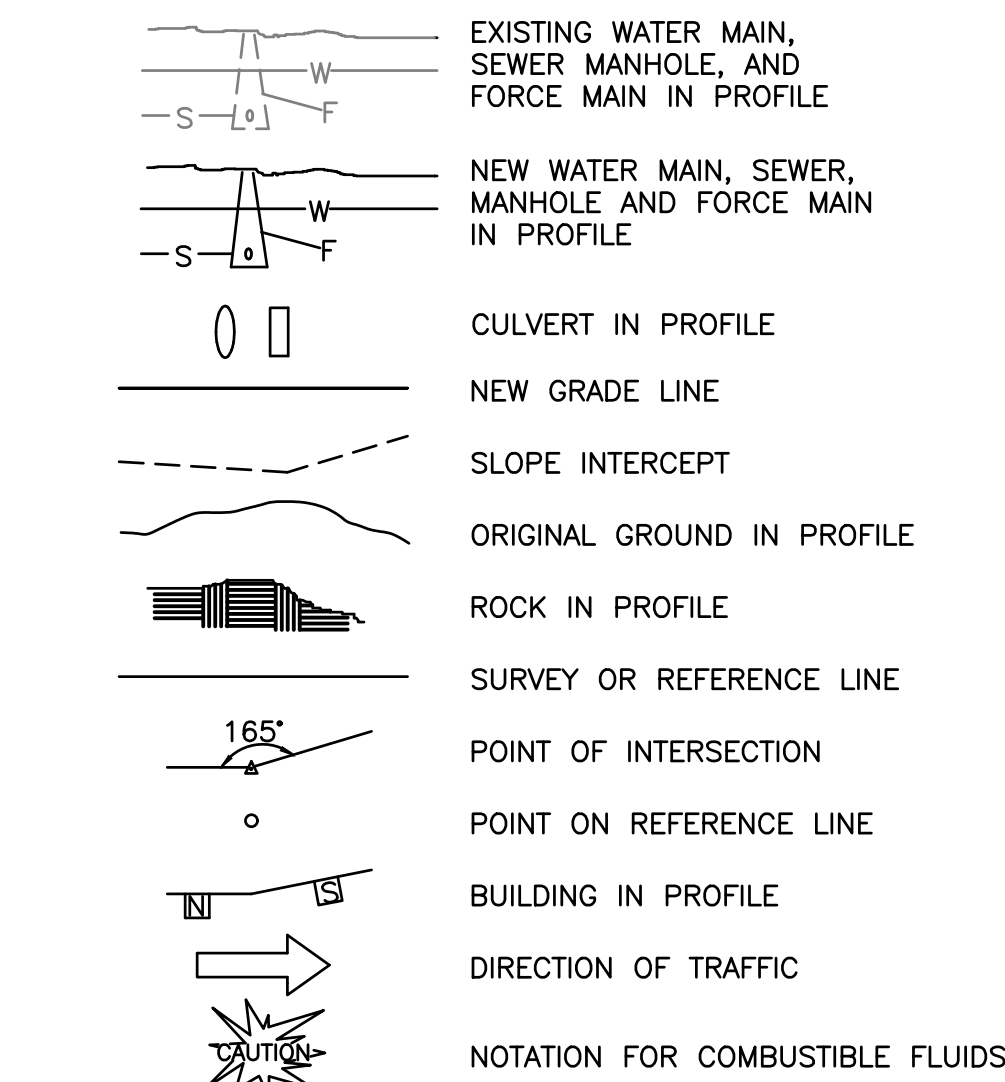
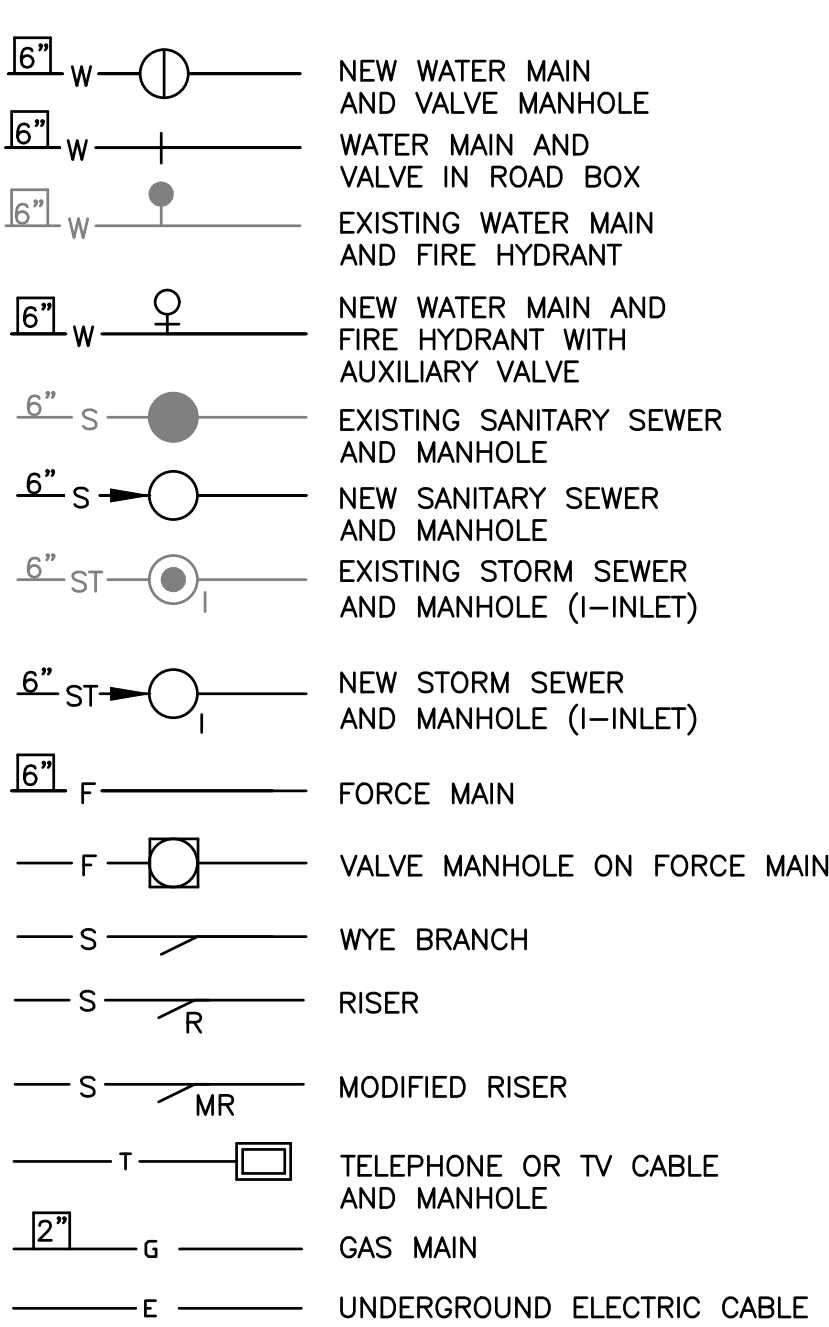
ARCHITECTURAL SYMBOLS



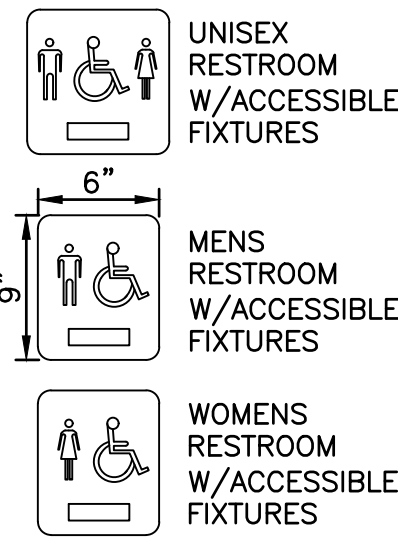
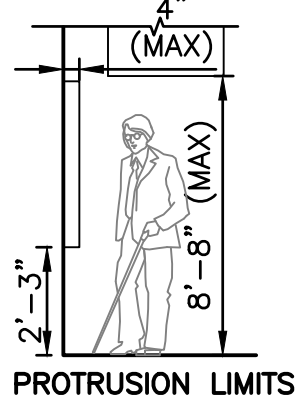
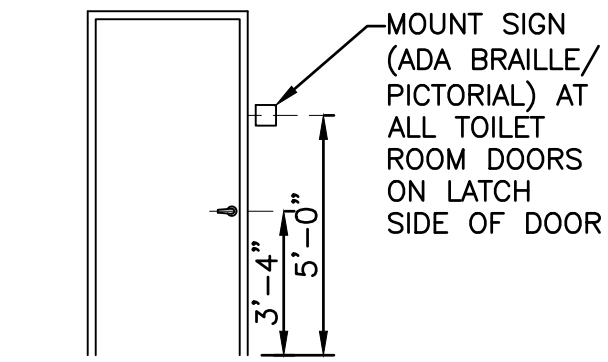
TOPOGRAPHICAL SYMBOLS



UNDERGROUND UTILITY SYMBOLS

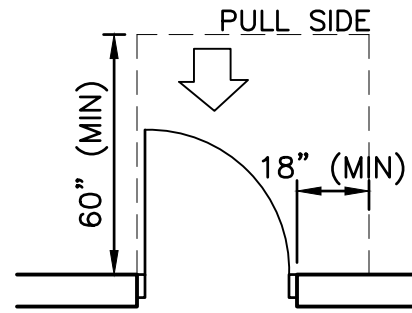
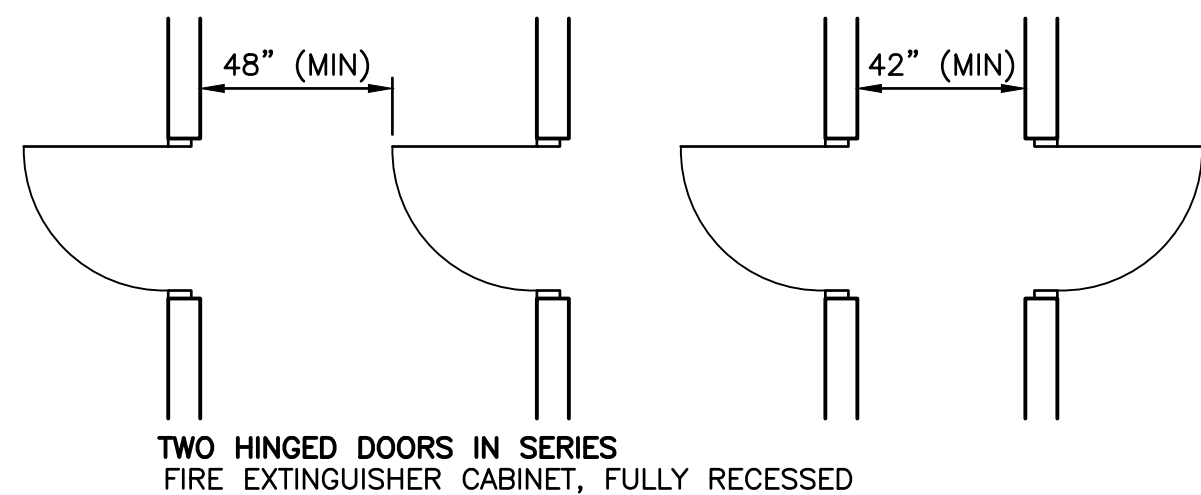


SEE 703/603.3/308 & 309

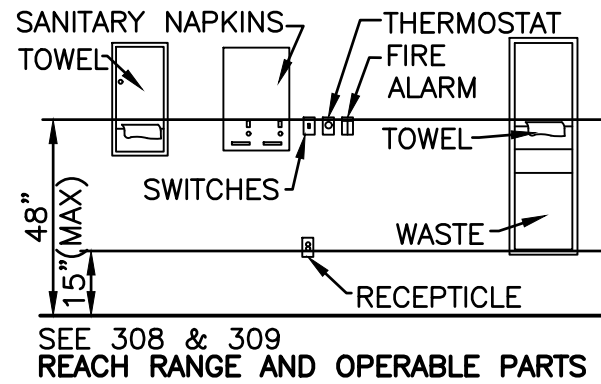
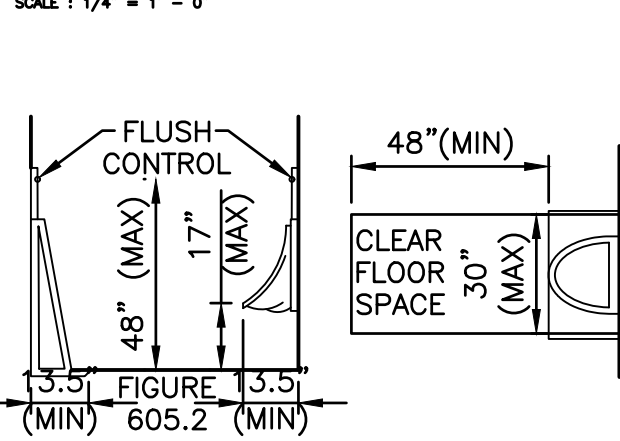


- NOTE:
- SIGNAGE TO BE MOLDED PLASTIC FRAMES WITH SEMI-PERMANENT SIGNAGE.
 - TEXT TO BE:
 - 1 1/2" LETTERS
 - RAISED 1/32"
 - CENTERED IN PANEL
 - ACCOMPANIED BY GRADE 2 BRAILLE
 - ALL COLORS TO BE MATTE FINISH
 - NOT ALL SIGNS ARE USED SEE PLANS FOR ALL APPLICABLE SIGNS.

TYPICAL PROJECT SIGNAGE

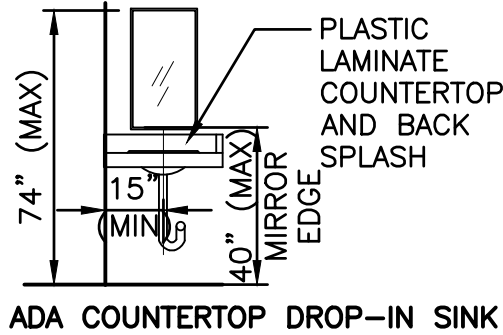
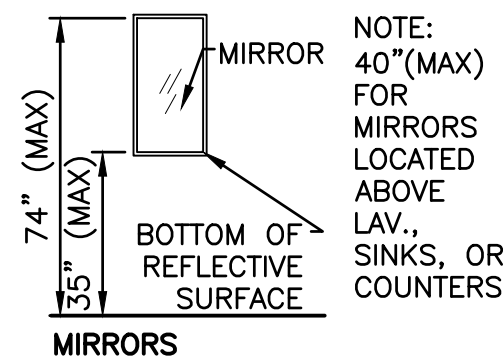


MANEUVERING CLEARANCES AT DOORS



NOTE: THE HIGHEST PART OF CONTROLS, DISPENSERS, RECEPTACLES AND OTHER OPERABLE EQUIPMENT SHALL BE PLACED IN THIS REACH ZONE.

NOTE: 46" (MAX) IF THERE IS AN OBSTRUCTION



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STANDARD SYMBOLS AND ACCESSIBILITY GUIDELINES

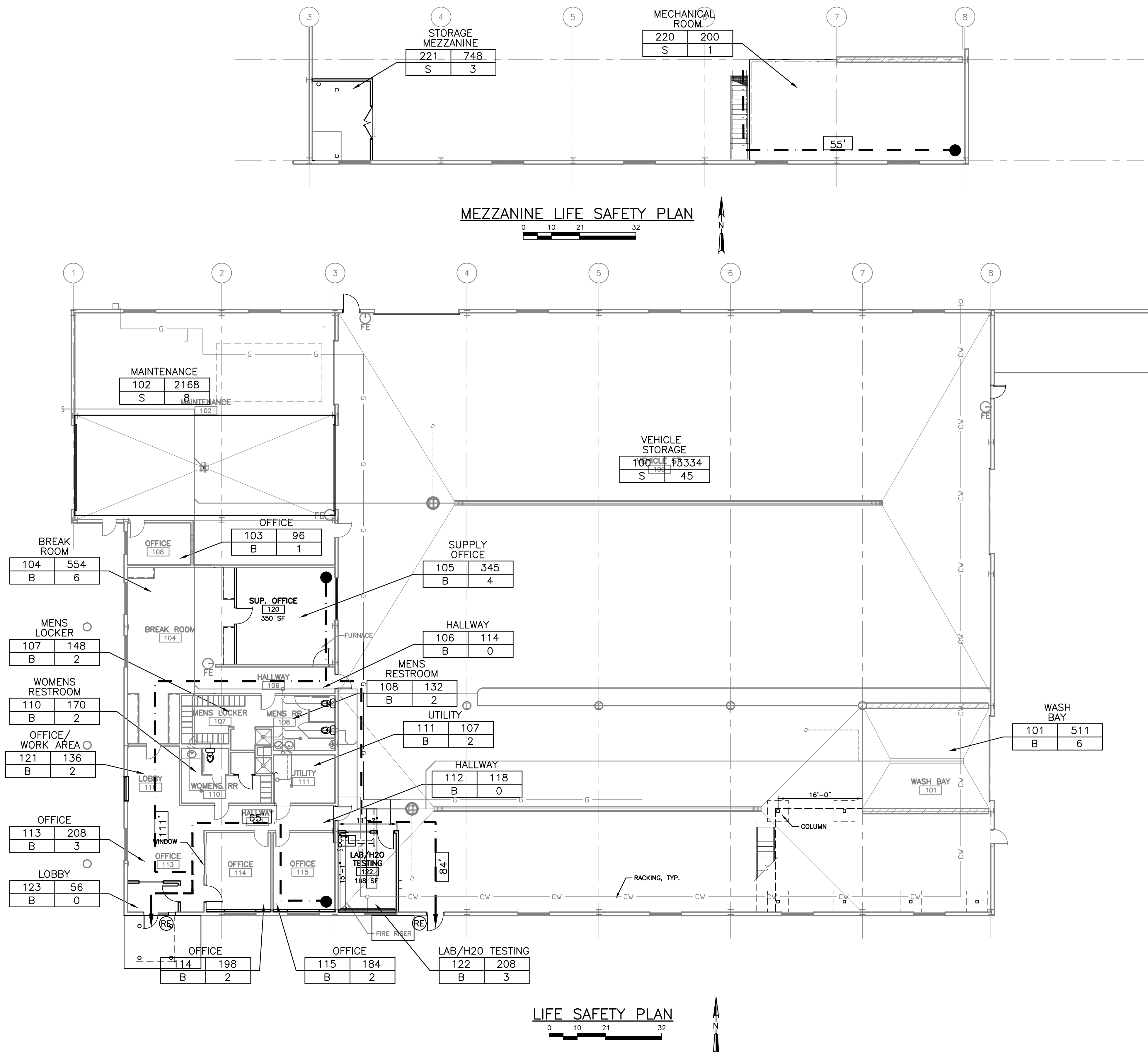
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



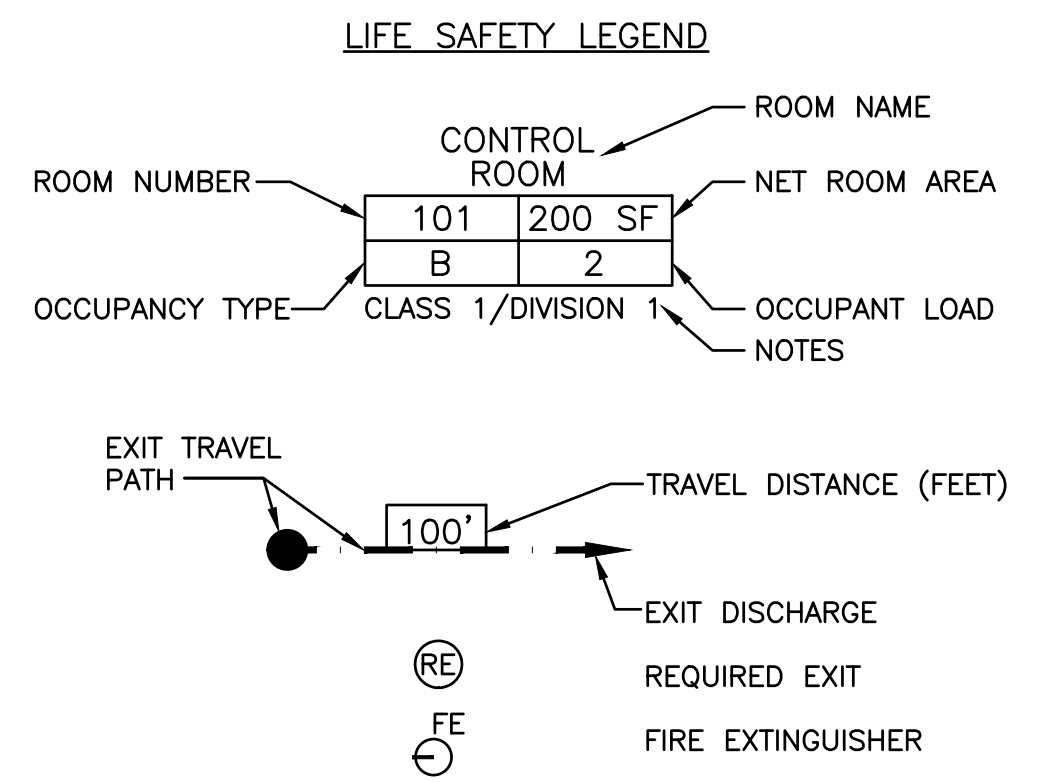
SHEET
2
G0.2



MEZZANINE LIFE SAFETY PLAN

LIFE SAFETY PLAN

PUBLIC WORKS FACILITY BUILDING CODE INFORMATION			
BUILDING CODE	2015 INTERNATIONAL BUILDING CODE (SPS 362)		
	2015 INTERNATIONAL FUEL GAS CODE (SPS 365)		
	2015 INTERNATIONAL MECHANICAL CODE (SPS 364)		
	2015 INTERNATIONAL ENERGY CONSERVATION CODE (SPS 365)		
	2015 INTERNATIONAL EXISTING BUILDING CODE		
	2017 NATIONAL ELECTRIC CODE (SPS 316)		
	2012 FIRE CODE		
	PLUMBING CODE (SPS 382)		
ADA STANDARDS (SPS 362)			
SCOPE OF WORK:			
LEVEL 2 ALTERATION TO EXISTING OFFICE LAYOUT, STORAGE ROOF, AND ADDITION OF 758 SF MEZZANINE TO VEHICLE STORAGE.			
OCCUPANCY TYPE	NON-SEPARATED USE		
USE GROUPS	B AND S-1		
CONSTRUCTION TYPE	TYPE VB		
OCCUPANCY SEPARATION - NONE REQUIRED			
HAZARDOUS MATERIALS - NOT PRESENT			
CHEMICAL	CHEMICAL CLASSIFICATION	MAX. CONTROL AREA QUANTITY	ACTUAL QUANTITY
GENERAL BUILDING INFORMATION			
	ALLOWABLE		ACTUAL
NO. OF STORIES	2 STORIES		1 STORY
HEIGHT	60 FEET		20'-5" T.O. STORAGE ROOF
AREA PER FLOOR LEVEL (GROSS SF)			
B: EXIST 3,585		S-1: EXIST	15,716 SF
B: NEW 3,795		S-1: NEW	15,505 SF
TOTAL ALLOWABLE AREA PER FLOOR LEVEL	36,000 SF	TOTAL ACTUAL AREA (FIRST FLOOR, GROSS SF)	19,740 SF
PUBLIC WAYS OR YARDS	ACCESSIBLE FROM 4 SIDES, MIN. 60-FOOT ACCESS WIDTH		
FIRE SUPPRESSION SYSTEM			
SPRINKLERED - PORTABLE FIRE EXTINGUISHERS, RATED CLASS A, B, C; 10-POUND CAPACITY.			
NUMBER OF OCCUPANTS			
OCCUPANT LOAD FACTOR	100 GROSS (B)	300 GROSS (S-1)	
OCCUPANT CALCULATION - SEE PLANS			
ACTUAL NUMBER OF OCCUPANTS	ZERO PERMANENT OCCUPANTS, ONLY PRESENT FOR MAINTENANCE AND OPERATION		
TRAVEL DISTANCE		EXIT ACCESS	COMMON PATH
	B	300 FEET	100 FEET
	S-1	250 FEET	100 FEET
EXITS			
ALL OTHER SPACES/OCCUPANCIES NOT LISTED ABOVE REQUIRE 1 EXIT.			
NOTES:			



OFFICE AND MEZZANINE
CODE REVIEW, LIFE SAFETY, AND EXITING PLAN

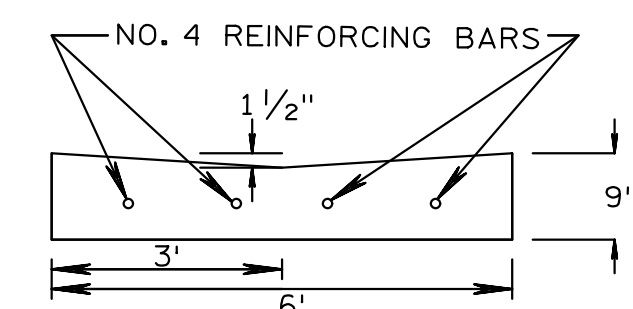
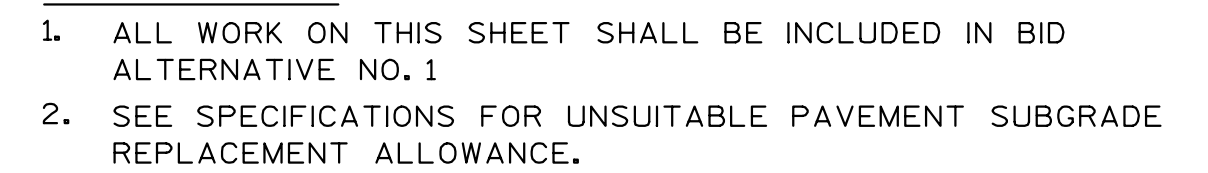
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VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

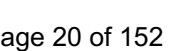
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SCOTT HERKERT

STRAND ASSOCIATES®

SHEET
3
G0.3



CONCRETE WATERWAY
SECTION A-A
NO SCALE

[illegible]

SITE PLAN

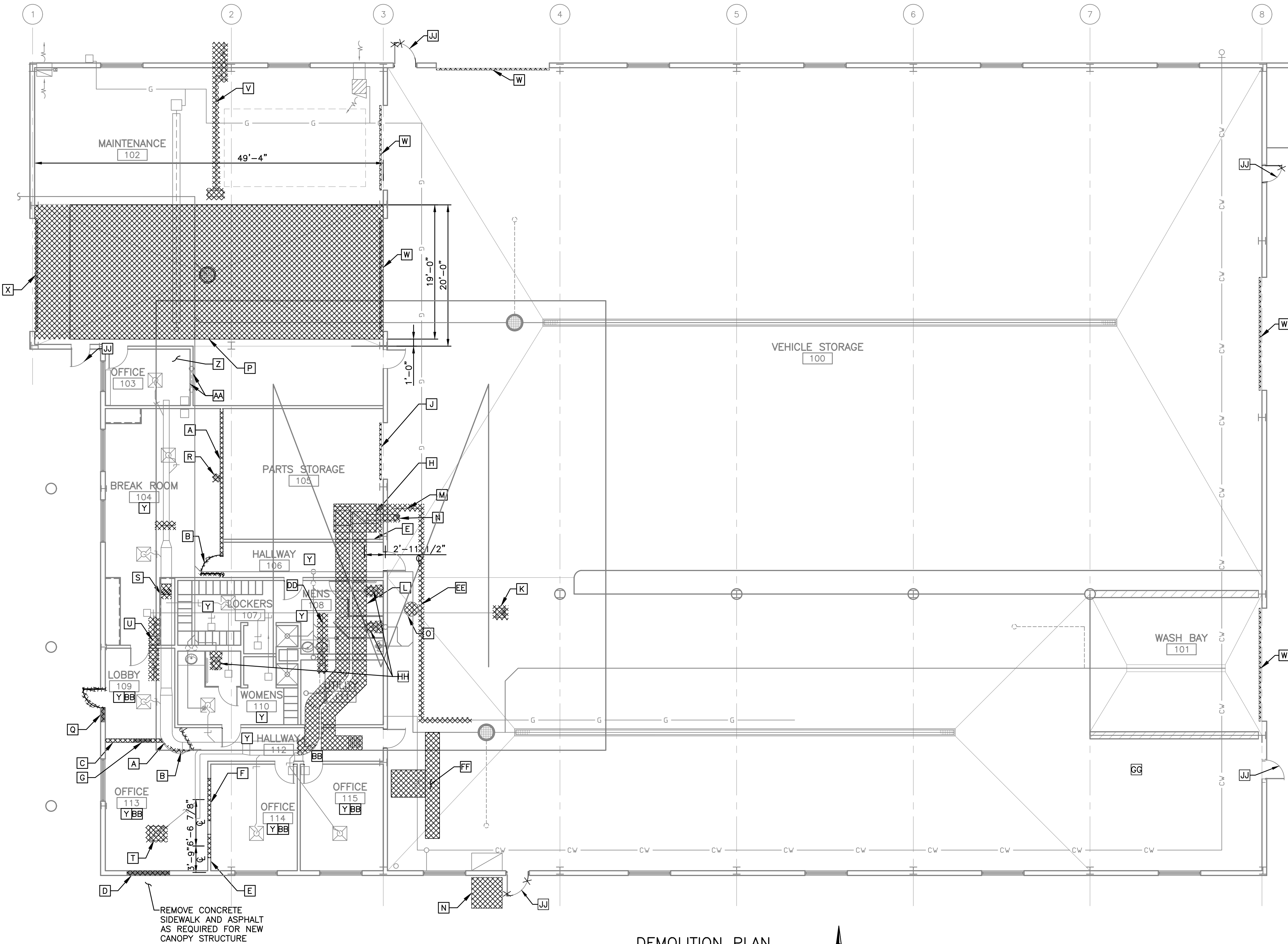
**PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN**

JOB NO.
1426.004

**PROJECT MGR.
SCOTT HERKERT**



SHEET
4
C1.1



DEMOLITION PLAN

GENERAL DEMOLITION NOTES:

- DRAWINGS IN GENERAL DO NOT SHOW DIMENSIONS OF EXISTING CONSTRUCTION, BUT ARE DRAWN APPROXIMATELY TO SCALE. CONTRACTOR SHALL OBTAIN ALL DIMENSIONS REQUIRED FOR DEMOLITION.
- DRAWINGS DO NOT NECESSARILY SPELL OUT ALL ITEMS REQUIRING DEMOLITION, REMOVAL, OR PATCHING. WHERE NOT SHOWN, ALL DEMOLITION, REMOVAL, CUTTING AND PATCHING, AND OTHER WORK NECESSARY TO ACCOMMODATE NEW CONSTRUCTION SHOWN SHALL BE PROVIDED AS PART OF THE CONTRACT.
- NOT ALL EXISTING EQUIPMENT, PIPING, OR CONDUIT IS SHOWN. ALL LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING STRUCTURES, PIPING, EQUIPMENT, AND CONDUIT.
- ALL HOLES AND OPENINGS FROM PIPING AND EQUIPMENT, PIPE HANGERS, ETC. BEING REMOVED SHALL BE PATCHED TO MATCH EXISTING.
- REFER TO DRAWING DE1.1 FOR ADDITIONAL ELECTRICAL DEMOLITION WORK REQUIRED.

DEMOLITION KEY NOTES:

- [A] REMOVE PARTITION WALL.
- [B] REMOVE DOOR, FRAMES, HARDWARE, AND ACCESSORIES.
- [C] REMOVE PARTITION WALL, WINDOW, FRAME, AND ACCESSORIES.
- [D] REMOVE EXTERIOR WINDOW FRAMES, GLAZING, AND ACCESSORIES. REMOVE EXTERIOR WALL FROM BELOW EXISTING WINDOW SILL TO GRADE FOR NEW DOOR. SEE DOOR SCHEDULE FOR DIMENSIONS AND DETAILS. SALVAGE 4" SPLIT FACE CMU VENEER FOR USE ELSEWHERE.
- [E] REMOVE PARTITION WALL FOR NEW DOOR AND FRAME.
- [F] REMOVE WALL FOR A NEW INTERIOR WINDOW. SEE WINDOW SCHEDULE FOR DIMENSIONS AND DETAILS.
- [G] SALVAGE EXISTING SLIDING GLASS WINDOW FOR REUSE.
- [H] REMOVE FURNACE AND ASSOCIATED NATURAL GAS/REFRIGERANT PIPING SERVING THE UNIT.
- [J] REMOVE OVERHEAD COILING DOOR, GUIDES AND ASSOCIATED ACCESSORIES.
- [K] REMOVE ROOF MOUNTED EXHAUST FAN.
- [L] REMOVE MAIN SUPPLY AND RETURN DUCTS FROM FURNACE TO HALLWAY 112.
- [M] REMOVE NATURAL GAS PIPING BACK TO MAIN.
- [N] REMOVE AIR COOLED CONDENSING UNIT. LEAVE CONCRETE PAD IN PLACE.
- [O] REMOVE OUTSIDE AIR DUCTWORK AND PATCH AND SEAL ROOF OPENING. PATCH UNSUED OPENINGS IN WALLS.
- [P] REMOVE APPROXIMATELY 49'-4" X 19'-0" SLOPED CONCRETE FLOOR SLAB AND FLOOR DRAIN BODY AND COVER. PREP DRAIN PIPING FOR RECONNECT INTO TO NEW FLOOR DRAIN.
- [Q] REMOVE DOOR, FRAME, HARDWARE, AND ACCESSORIES. RE-USE DOOR, FRAME, HARDWARE, AND ACCESSORIES AT NEW ENTRANCE.
- [R] REMOVE ZONE DAMPER THERMOSTAT.
- [S] REMOVE SECTION OF DUCTWORK AND CAP BOTH ENDS.
- [T] REMOVE CEILING DIFFUSER AND PREP DUCT FOR RECONNECTION.
- [U] REMOVE CEILING TRANSFER GRILLES AND REPLACE WITH CEILING TILES.
- [V] REMOVE VEHICLE EXHAUST VENTILATION SYSTEM AND TURN OVER TO OWNER.
- [W] REMOVE SECTIONAL OVERHEAD DOOR, TRACK AND OPERATOR. WORK TO BE INCLUDED IN ALTERNATIVE BID NO. 2.
- [X] REMOVE SECTIONAL OVERHEAD DOOR OPERATOR, TRACK AND DOOR TO REMAIN. WORK TO BE INCLUDED IN ALTERNATIVE BID NO. 2.
- [Y] REMOVE EXISTING ACOUSTICAL CEILING TILES. GRID TO REMAIN.
- [Z] REMOVE VINYL TILE FLOORING AND BASE IN THIS ROOM.
- [AA] REMOVE BOTTOM 2' OF DRYWALL ON BOTH SIDES OF WALL.
- [BB] REMOVE EXISTING CARPET AND VINYL BASE.
- [CC] REMOVE ZONE DAMPER CONTROLLER AND WIRING.
- [DD] REMOVE DUCTWORK AND GRILLE.
- [EE] REMOVE NATURAL GAS LINE WHERE SHOWN FOR NEW UPSIZED LINE TO BE INSTALLED.
- [FF] SAWCUT AND REMOVE CONCRETE TO PERMIT INSTALLATION OF NEW UNDERFLOOR PLUMBING.
- [GG] REMOVE CONCRETE SLAB IN THIS AREA AS REQUIRED FOR NEW FOOTINGS. USE CAUTION DURING DEMOLITION AND EXCAVATION WORK AS THERE IS UNDERGROUND WATER PIPING IN THIS AREA. EXACT LOCATION IS UNKNOWN.
- [HH] REMOVE EXISTING WATER CLOSET.
- [JJ] EXTERIOR DOOR DEMOLITION VARIES BASED ON NEED OF REPAIR. SEE DOOR SCHEDULE ON DRAWING A6.1 FOR REPAIR REQUIREMENTS AND DEMOLISH ELEMENTS AS NECESSARY.

DATE:	4/8/20								
REVISIONS									
NO.	1								

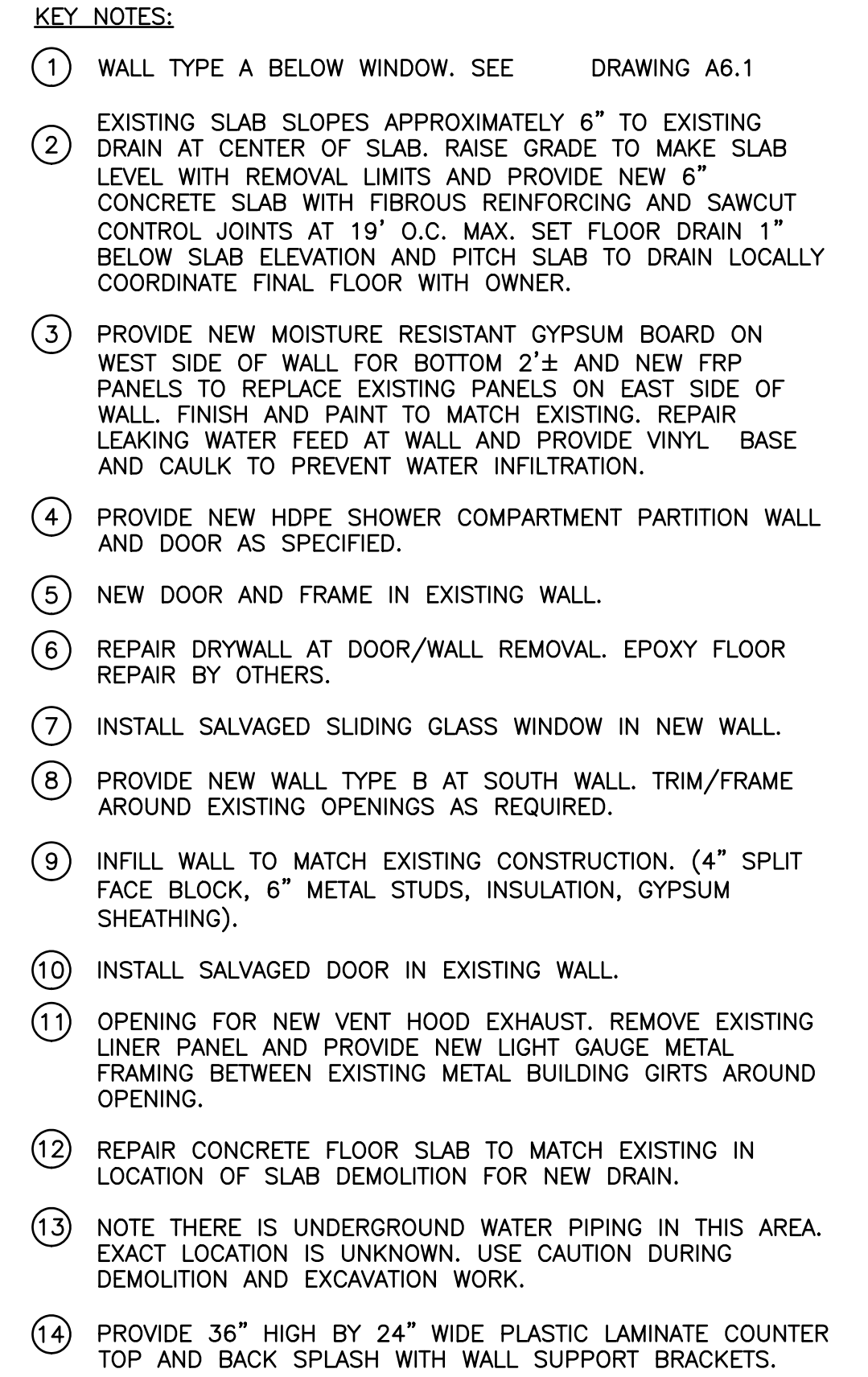
OFFICE AND STORAGE GARAGE
DEMOLITION FLOOR PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



SHEET
5
D1.1



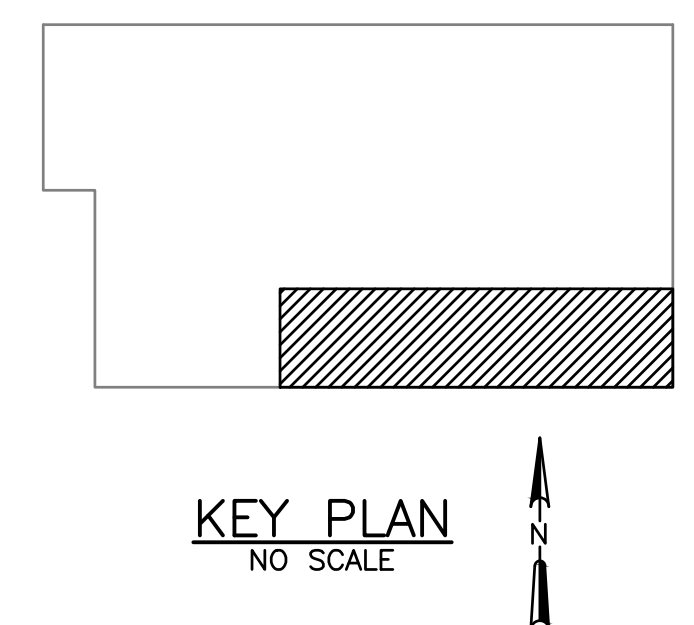
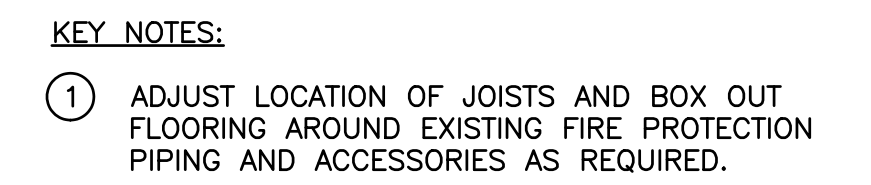
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SHEET
6
A1.1



NO.	ISSUED FOR BID	REMARKS	DATE
1			4/8/20

MEZZANINE FLOOR PLAN

JOB NO.	1426.004
PROJECT MGR.	TT HERKERT



SHEET
7
A1.2



GENERAL NOTES:

1. VERIFY REQUIRED OPENINGS IN NEW ROOF SYSTEM FOR SKYLIGHTS, ROOF EQUIPMENT, AND HVAC OPENINGS.
2. FLASH ALL PENETRATIONS PER ROOFING MANUFACTURER REQUIREMENTS.
3. SEE DRAWING A5.2 FOR TYPICAL DETAILS.
4. REVISE AND PROVIDE FLASHING AROUND ALL EXISTING VENT AND EXHAUST PIPES NOT SHOWN PER MANUFACTURER'S RECOMMENDATIONS.

KEY NOTES:

1. METAL-OVER-METAL RE-ROOF SYSTEM. FASTEN TO EXISTING DECK PER MANUFACTURER REQUIREMENTS AND PROVIDE 4" BATT INSULATION BETWEEN NEW AND EXISTING ROOF PANELS. SEE DRAWING A5.2 FOR TYPICAL SYSTEM DETAILS.
2. PROVIDE EAVE/FASCIA CLOSURE PER MANUFACTURER'S DETAILS.
3. REPLACE STANDING SEAM ROOF PANELS TO MATCH EXISTING, SEE SPECIFICATIONS.
4. MODIFY FLASHING AT SKYLIGHTS FOR NEW ROOF SYSTEM AS REQUIRED.
5. MODIFY GUTTER AS REQUIRED FOR NEW ROOF SYSTEM.
6. FLASH INTO WALL PANELS TO MATCH EXISTING CONSTRUCTION.
7. PROVIDE STANDING SEAM ROOF PANELS TO MATCH OFFICE AREA ROOF PANELS. PLACE PANELS FLUSH AGAINST EXISTING BUILDING SOFFIT.
8. REMOVE EXISTING SOLAR PANELS AND TURN OVER TO OWNER.

DATE:	4/8/20								
NO.	1								
REVISIONS	ISSUED FOR BID								

ROOF PLAN

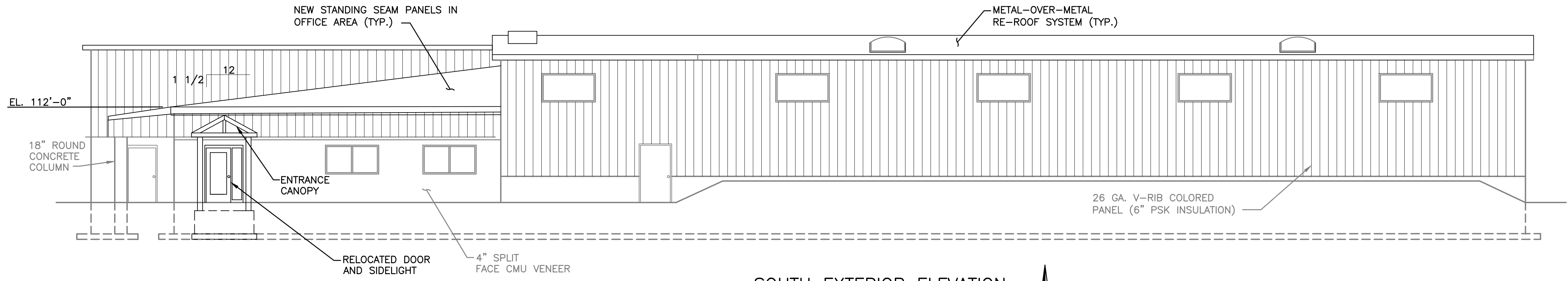
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1426.004

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SCOTT HERKERT



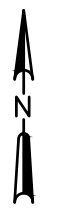
SHEET
8
A1.3



SOUTH EXTERIOR ELEVATION



KEY PLAN
NO SCALE



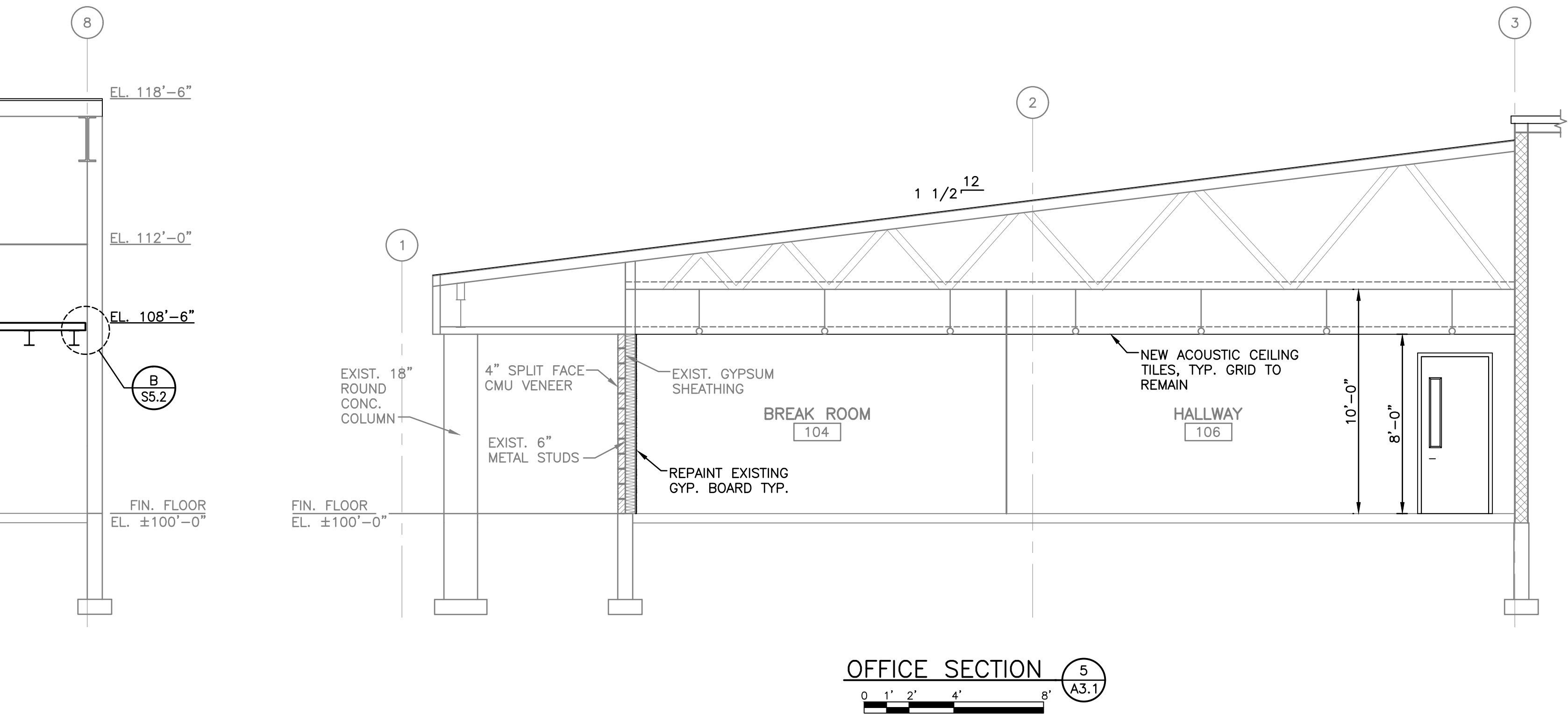
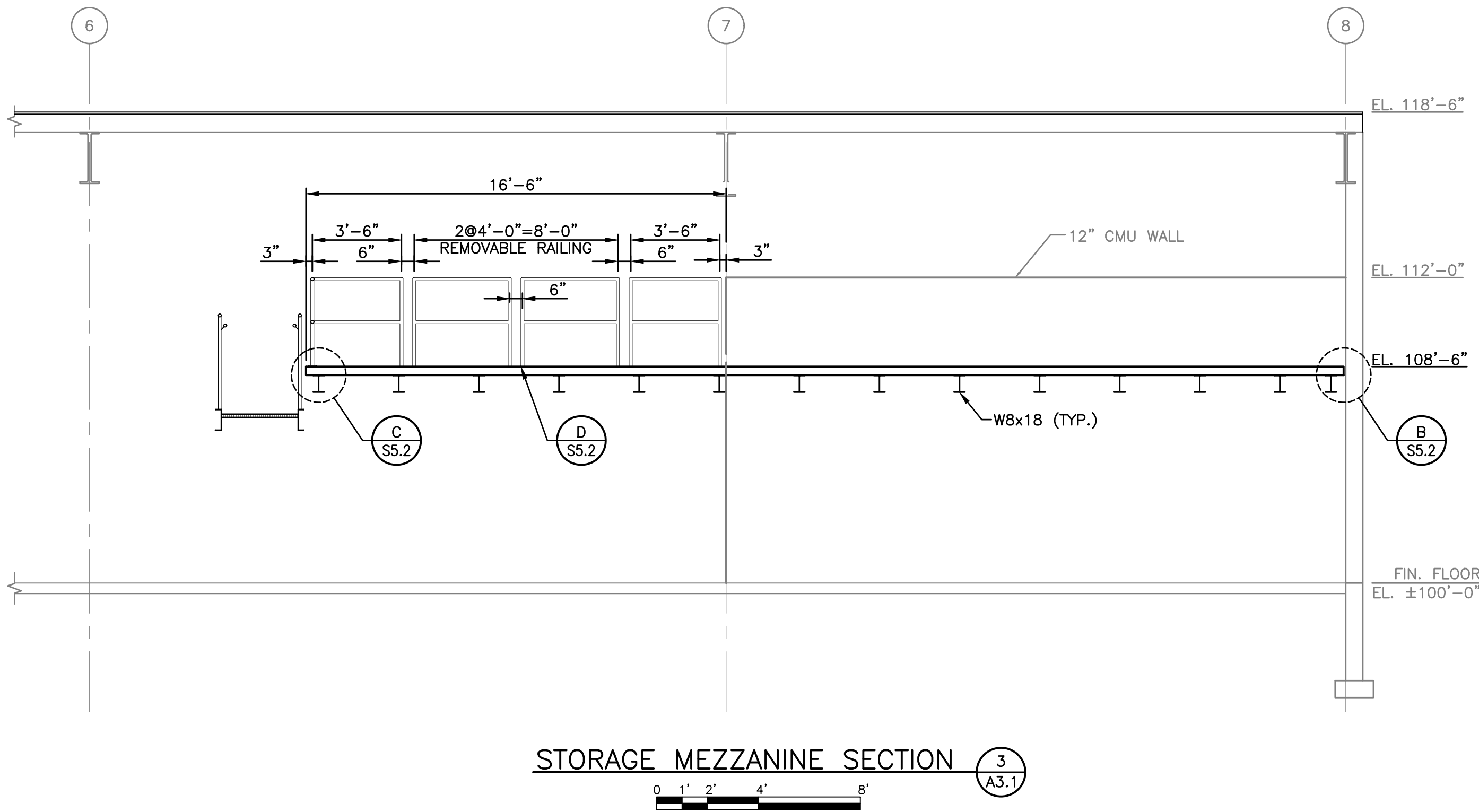
NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20

SOUTH EXTERIOR ELEVATION
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004
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SCOTT HERKERT



SHEET
9
A2.1

[illegible]

SECTIONS - 1

PUBLIC WORKS FACILITY RENOVATION

VILLAGE OF MCFARLAND

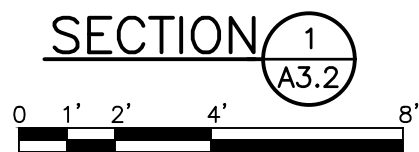
MCFARLAND, WISCONSIN

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1426.004

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SHEET
10
A3.1

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SECTIONS - 2

PUBLIC WORKS FACILITY RENOVATION

VILLAGE OF MCFARLAND

MCFARLAND, WISCONSIN

JOB NO.
1426.004

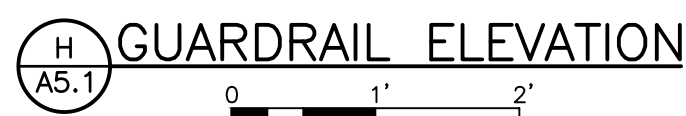
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SHEET
11
A3.2



1. ALL RAILS AND POSTS SHALL BE 1 1/2" STANDARD PIPE (1.9" O.D.), SCHEDULE 40 STEEL.
2. ALL RAIL SYSTEMS SHALL MEET OSHA PERFORMANCE STANDARDS FOR PUBLIC AND INDUSTRIAL APPLICATIONS AND 2015 INTERNATIONAL BUILDING CODE.
3. EXTEND HANDRAILS HORIZONTALLY A MINIMUM 1'-0" BEYOND TOP RISER. HANDRAILS SHALL CONTINUE TO SLOPE FOR THE DEPTH OF ONE TREAD BEYOND BOTTOM RISER.
4. MOUNT HANDRAIL TO WALLS OR GUARDRAIL



ARCHITECTURAL DETAILS - 1

PUBLIC WORKS FACILITY RENOVATION

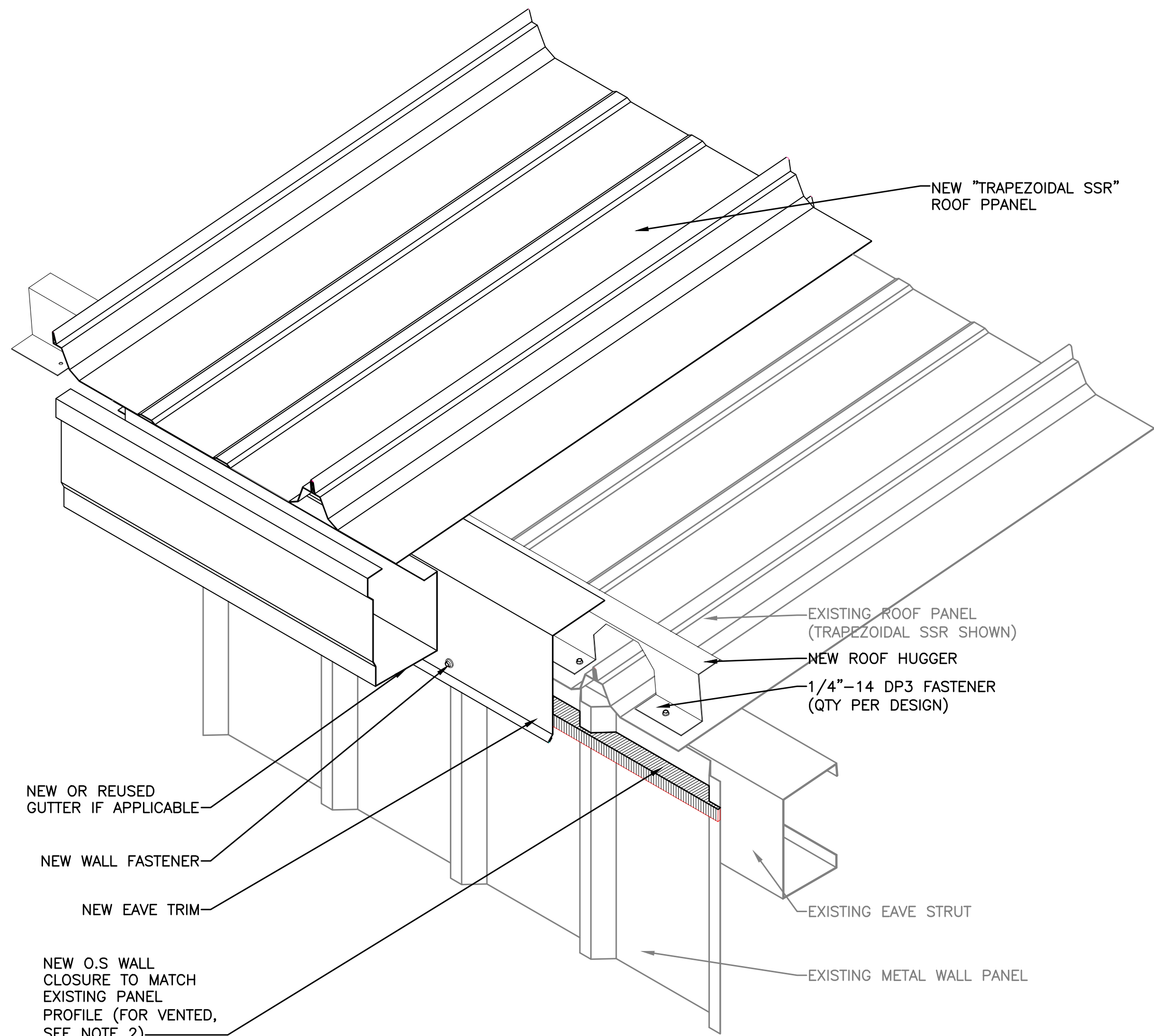
VILLAGE OF MCFARLAND

MCFARLAND, WISCONSIN



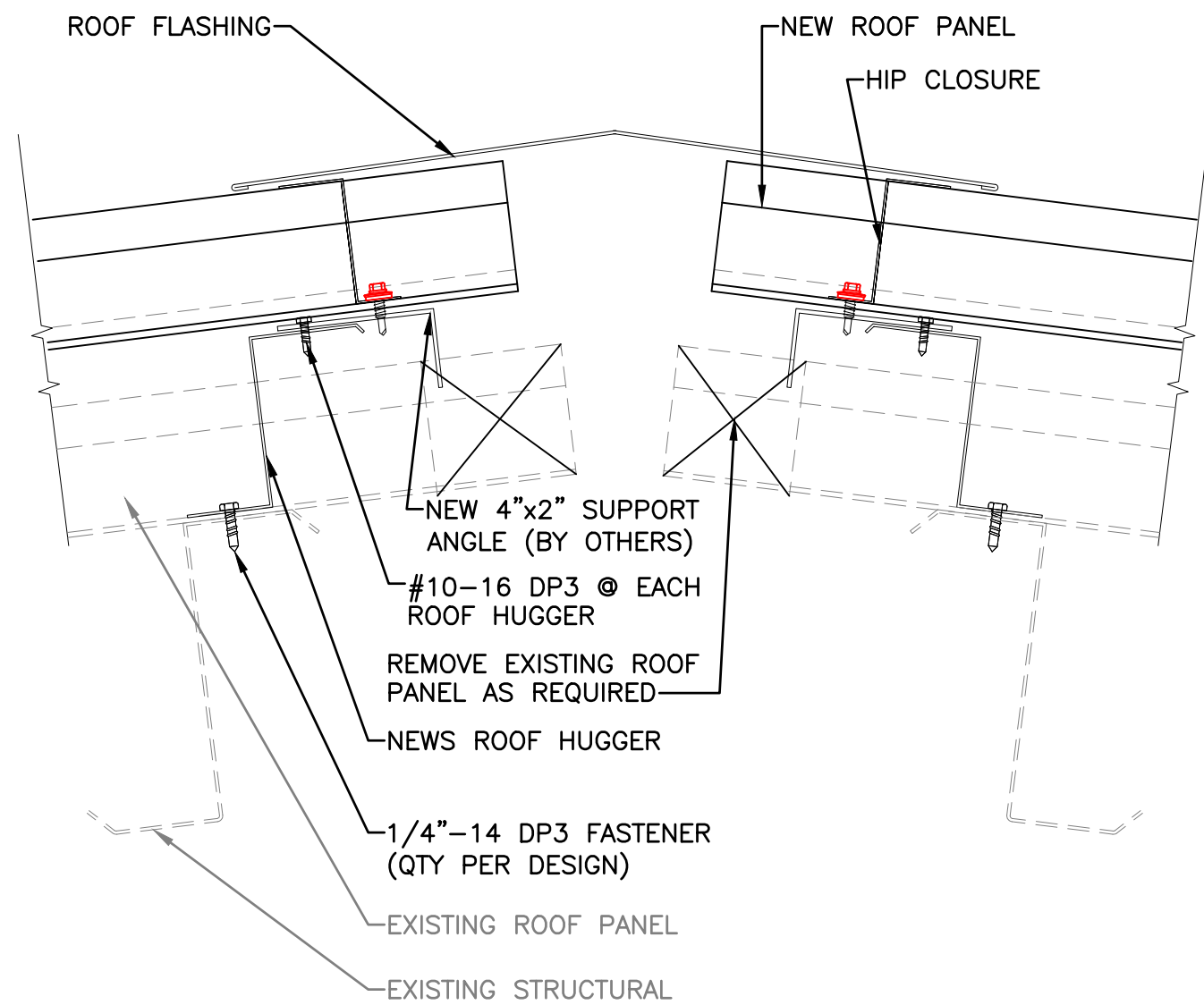
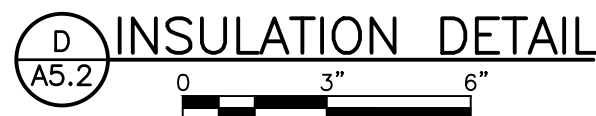
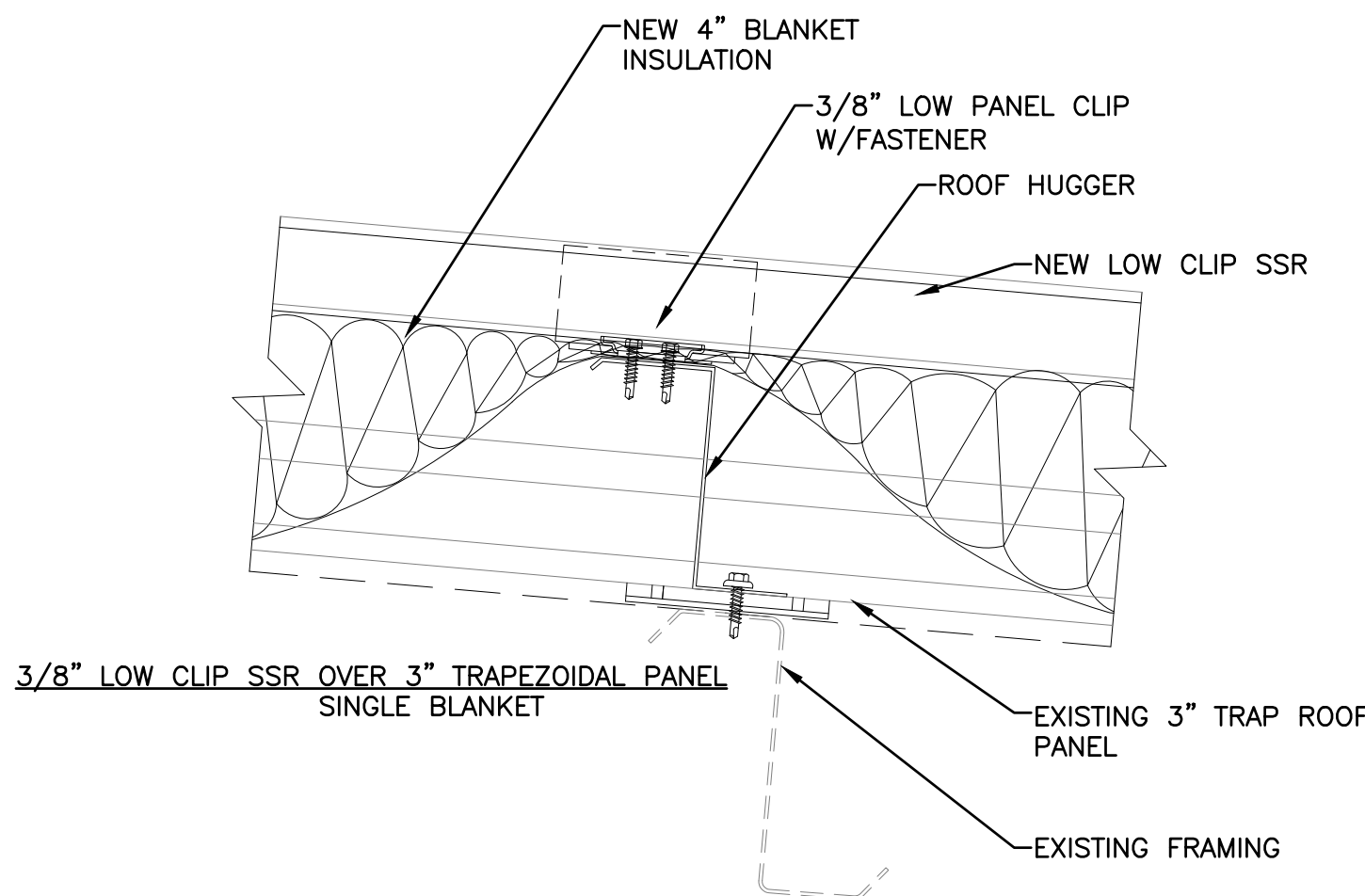
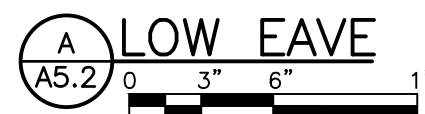
STRAND
ASSOCIATES

SHEET
12
A5.1



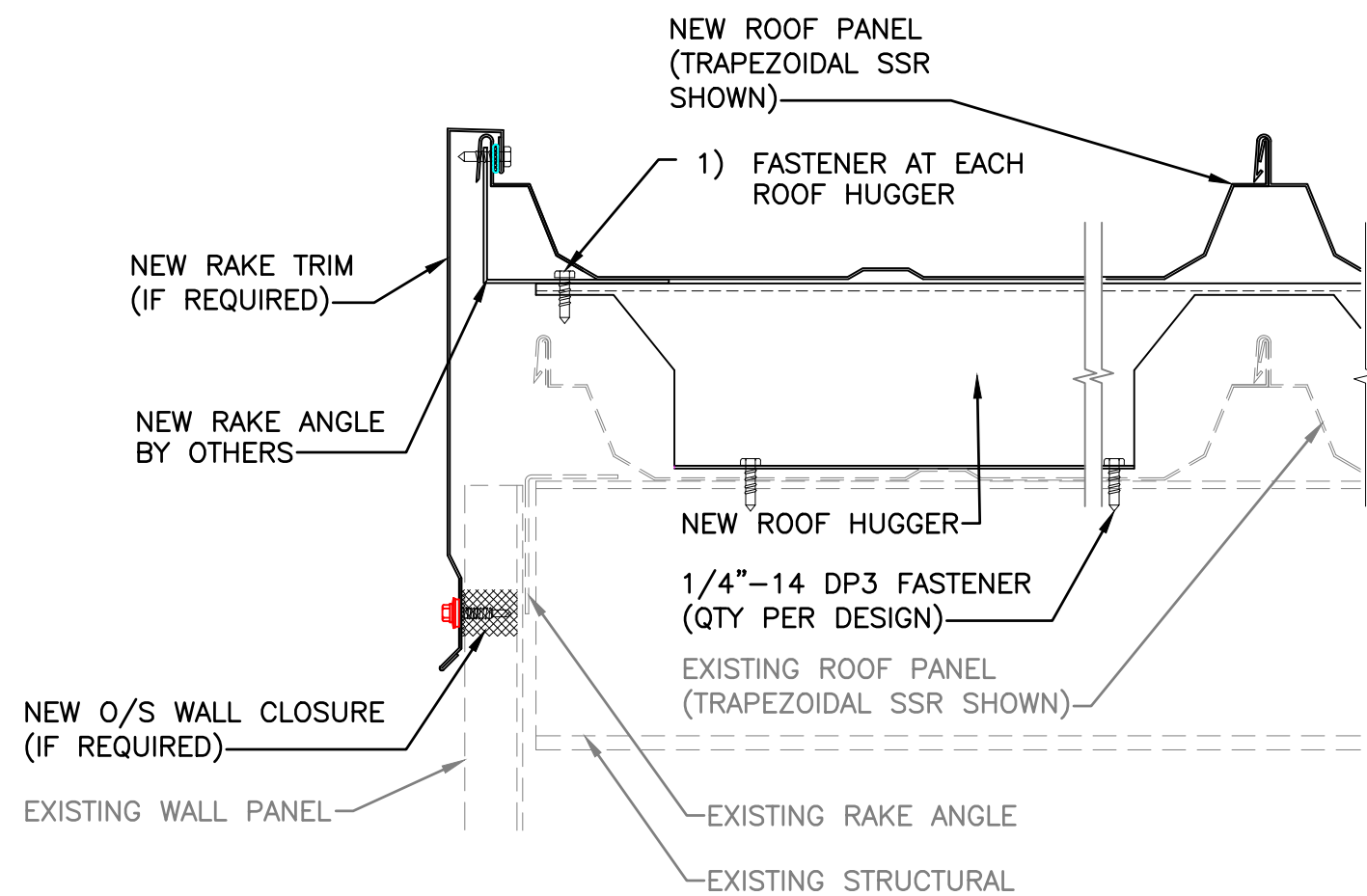
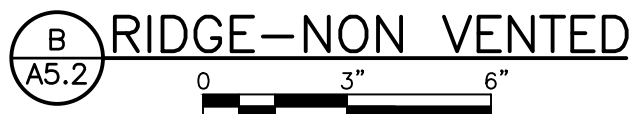
NOTES:

1. ALL FASTENERS NOT BY ROOF HUGGER UNLESS NOTED OTHERWISE
2. FOR VENTED LOW EAVE, USE "LP" VENTED CLOSURE AS MANUFACTURED BY MARCO INDUSTRIES - TULSA, OK OR OTHER AS PREFERRED.
3. ALL NEW ROOF SYSTEMS INCLUDING PANEL, FASTENERS, TRIM AND ACCESSORIES TO BE INSTALLED PER THAT MANUFACTURER'S STANDARDS.



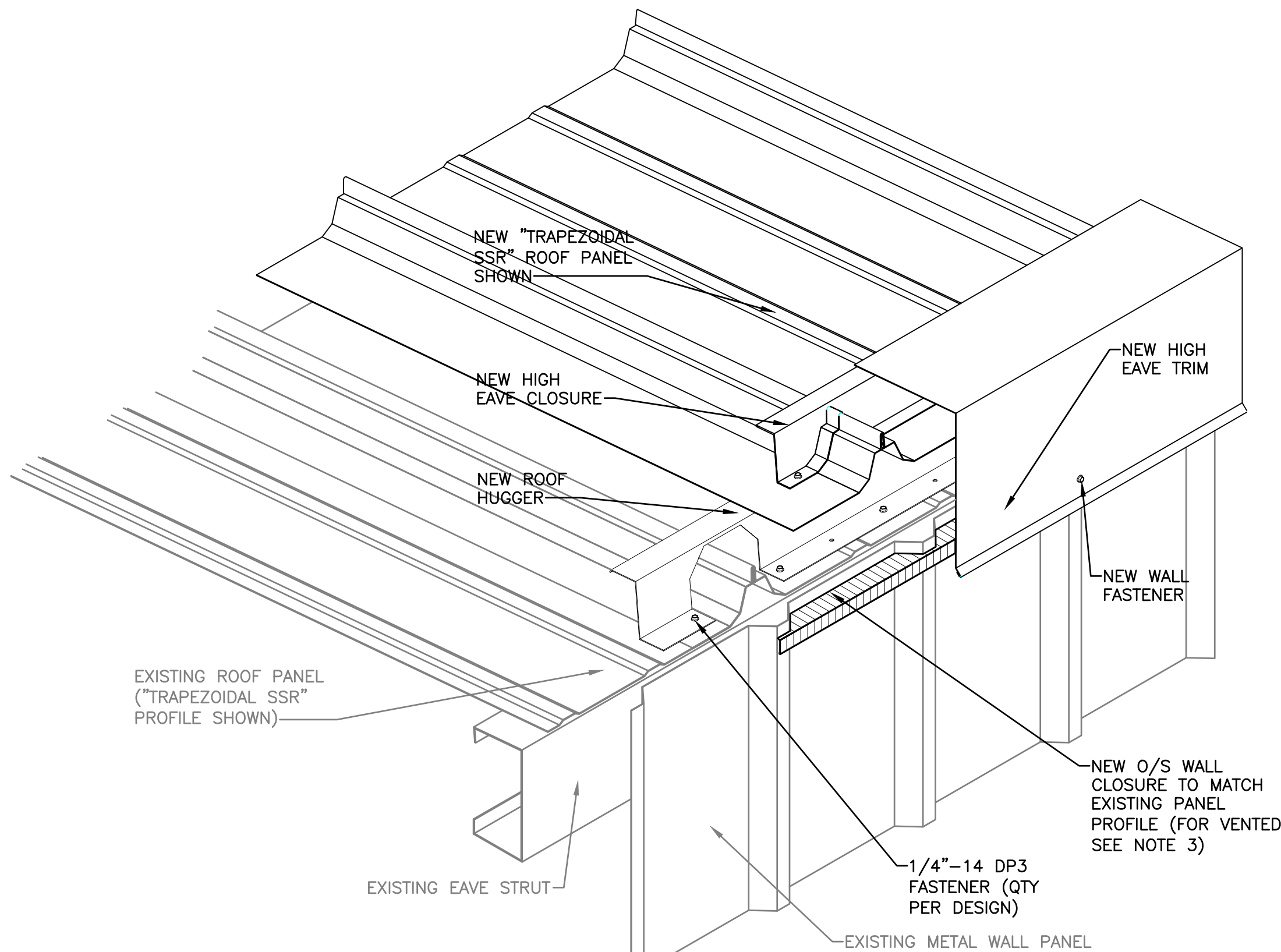
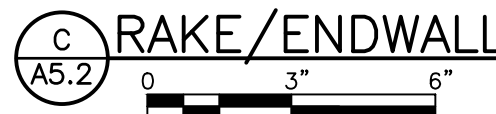
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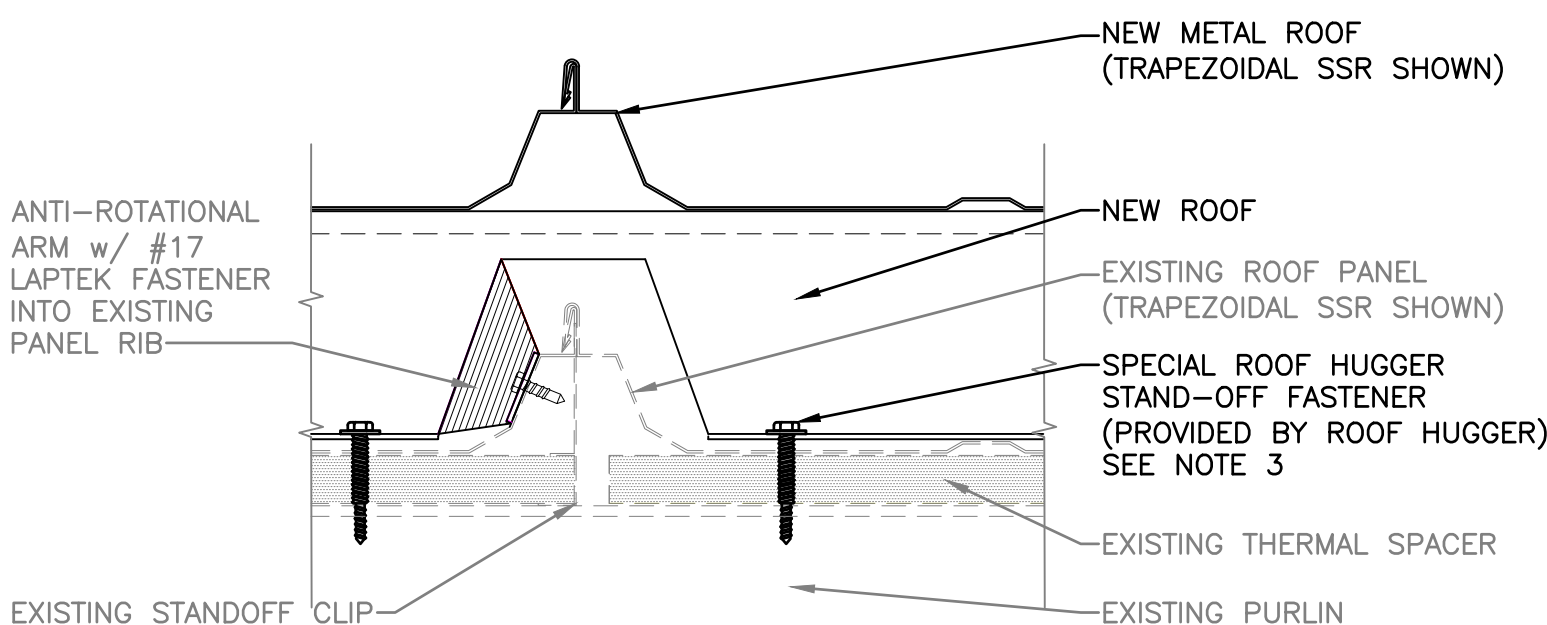
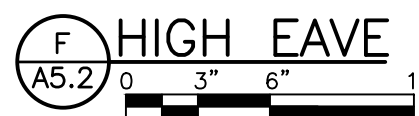
NOTES:

1. ALL FASTENERS NOT BY ROOF HUGGER UNLESS NOTED OTHERWISE.
2. ALL NEW ROOF SYSTEMS INCLUDING PANEL, FASTENERS, TRIM AND ACCESSORIES TO BE INSTALLED PER THAT MANUFACTURER'S STANDARDS.
3. IF OLD RAKE TRIM IS REMOVED, NEW RAKE TRIM MAY NEED TO EXTEND TO OLD TRIM LINE DUE TO WALL PANEL COLOR FADE.



NOTES:

1. ALL FASTENERS NOT BY ROOF HUGGER UNLESS NOTED OTHERWISE.
2. ALL NEW ROOF SYSTEMS INCLUDING PANEL, FASTENERS, TRIM AND ACCESSORIES TO BE INSTALLED PER THAT MANUFACTURER'S STANDARDS.
3. FOR VENTED HIGH EAVE, USE "LP" VENTED CLOSURE AS MANUFACTURED BY MARCO INDUSTRIES - TULSA, OK OR OTHER AS PREFERRED.



ARCHITECTURAL DETAILS - 2

PUBLIC WORKS FACILITY RENOVATION

VILLAGE OF MCFARLAND

MCFARLAND, WISCONSIN

JOB NO.
1426.004

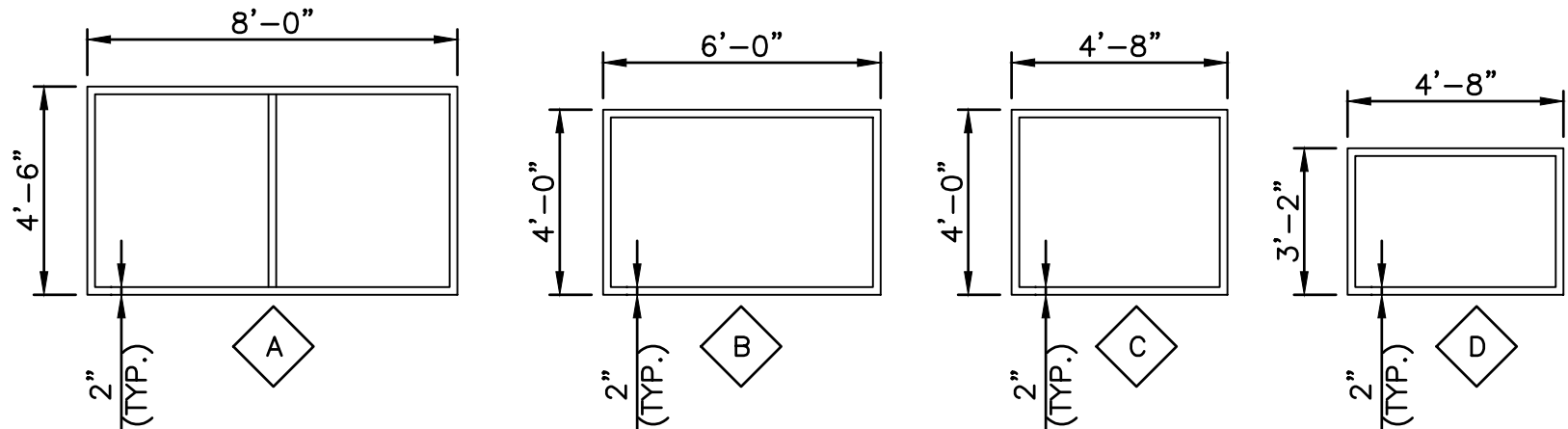
PROJECT MGR.
SCOTT HERKERT



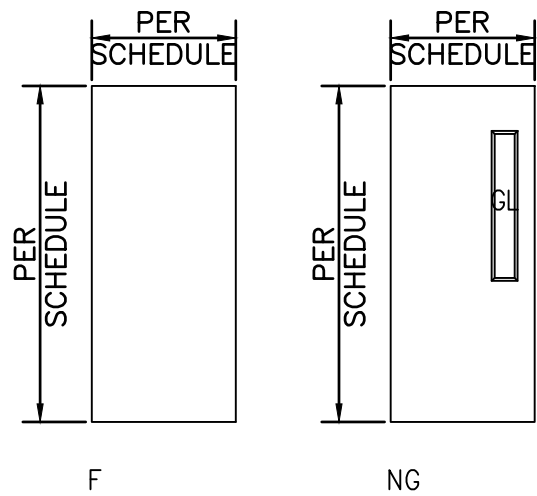
SHEET
13
A5.2

DOOR SCHEDULE																
DOOR NUMBER	DOOR						FRAME		LABEL	HARDWARE GROUP		LINTEL	DETAILS			NOTES
	SIZE (W x H)	MATERIAL	TYPE		SWING		TYPE	MATERIAL		ACTIVE	INACTIVE	TYPE	HEAD	JAMB	SILL	
100-OFFICE AND STORAGE																
100A	16'-0"x14'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			3,6
100B	16'-0"x16'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			3,6
100C	--	STL	F	--	LHR	--	1	STL	--	4	--	EXIST.	EXISTING			8
100D	3'-0"x7'-0"	STL	F	--	RHR	--	1	STL	--	2	--	EXIST.	EXISTING			9
100E	3'-0"x7'-0"	STL	F	--	RHR	--	2	STL	--	2	--	EXIST.	EXISTING			9
100F	3'-0"x7'-0"	STL	F	--	LHR	--	1	STL	--	5	--	EXIST.	EXISTING			10
101A	16'-0"x14'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			4,6
102A	16'-0"x16'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			3,7
102B	12'-0"x12'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			3,7,12
102C	16'-0"x16'-0"	STL	OHS	--	--	--	--	STL	--	ELECTRIC: 1/2 HP, 115V, 1 PHASE		--	EXISTING			2
102D	--	STL	F	--	LHR	--	2	STL	--	--	--	EXIST.	EXISTING			11
114A	3'-0"x7'-0"	WD	F	--	RH	--	1	STL	--	3	--	--	C/A6.1			5
120A	3'-0"x7'-0"	WD	NG	--	LH	--	1	STL	--	3	--	--	C/A6.1			5
120B	3'-0"x7'-0"	WD	NG	--	RH	--	1	STL	--	3	--	--	C/A6.1			5
122A	3'-0"x7'-0"	STL	F	--	LH	--	1	STL	--	3	--	--	C/A6.1			5
123A	--	AL	FG	--	LHR	--	--	AL	--	EXIST.	--	EXIST.	EXISTING			1
123B	3'-0"x7'-0"	WD	F	--	RH	--	1	STL	--	2	--	--	C/A6.1			5
200-MECHANICAL ROOM																
220A	(2)3'-4"x7'-0"	STL	F	--	RHR	LHR	1	STL	--	6	1	--	C/A6.1			5
LEGEND:																
MATERIAL																
TYPE																
SWING																
STL	=	STEEL	NG	=	NARROW GLASS	LH	=	LEFT HAND								
AL	=	ALUMINUM	F	=	FLUSH	RH	=	RIGHT HAND								
WD	=	WOOD	FG	=	FULL GLASS	LHR	=	LEFT HAND REVERSE								
			OHS	=	OVERHEAD SECTIONAL	RHR	=	RIGHT HAND REVERSE								
NOTES:																
1. RE-USE EXISTING ALUMINUM DOOR AND ENTRANCE AS SHOWN ON DRAWINGS.																
2. EXISTING OVERHEAD SECTIONAL DOOR AND FRAME TO REMAIN. PROVIDE NEW NEMA 12 INTERIOR 3-BUTTON CONTROL STATION, OPERATOR, AND CONTROLS PER SPECIFICATIONS.																
3. PROVIDE NEW SECTIONAL OVERHEAD DOOR, NEMA 12 INTERIOR 3-BUTTON CONTROL STATION, OPERATOR, AND CONTROLS PER SPECIFICATIONS. FIELD VERIFY EXISTING DIMENSIONS AND LAYOUTS.																
4. PROVIDE NEW SECTIONAL OVERHEAD DOOR, NEMA 4X INTERIOR 3-BUTTON CONTROL STATION, OPERATOR, AND CONTROLS PER SPECIFICATIONS. FIELD VERIFY EXISTING DIMENSIONS AND LAYOUTS.																
5. SEE SPECIFICATIONS FOR HARDWARE GROUP.																
6. PROVIDE INSULATED SECTIONAL OVERHEAD DOOR																
7. PROVIDE UNINSULATED SECTIONAL OVERHEAD DOOR																
8. DOOR AND FRAME TO REMAIN; REPAINT. ADD ELECTRIC STRIKE, AND REPLACE THRESHOLD AND SWEEP.																
9. REPLACE DOOR AND FRAME AND INCLUDE HARDWARE PER GROUP DESIGNATION.																
10. REPLACE DOOR, EXISTING FRAME TO REMAIN AND ELECTRONIC STRIKE TO REMAIN. REPAINT FRAME AND INCLUDE HARDWARE PER GROUP DESIGNATION.																
11. DOOR, FRAME, AND ELECTRONIC STRIKE TO REMAIN. REPAIR EXTERIOR FRAME AND REPAINT ALL STEEL ITEMS. REPLACE THRESHOLD AND SWEEP.																
12. PROVIDE JACK SHAFT OPERATOR.																

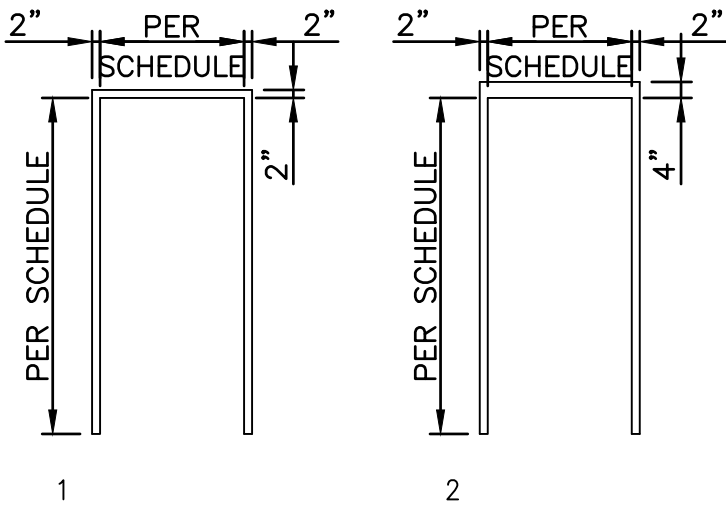
WINDOW SCHEDULE								
WINDOW NUMBER	SIZE (W x H)	SILL ELEVATION	FRAME MATERIAL	GLAZING TYPE	TYPE	SILL / JAMB / HEAD DETAILS	LINTEL TYPE	NOTES
A	8'-0"x4'-6"	3'-6"	AL	UNINSULATED	FIXED	A/A6.1	N/A	
B	6'-0"x4'-0"	3'-2"	AL	UNINSULATED	FIXED	A/A6.1	N/A	
C	4'-8"x4'-0"	3'-2"	AL	UNINSULATED	FIXED	A/A6.1	N/A	
D	4'-8"x3'-2"	4'-2"	AL	INSULATED	FIXED	B/A6.1	EXIST.	
LEGEND:								
AL = ALUMINUM								
NOTES:								



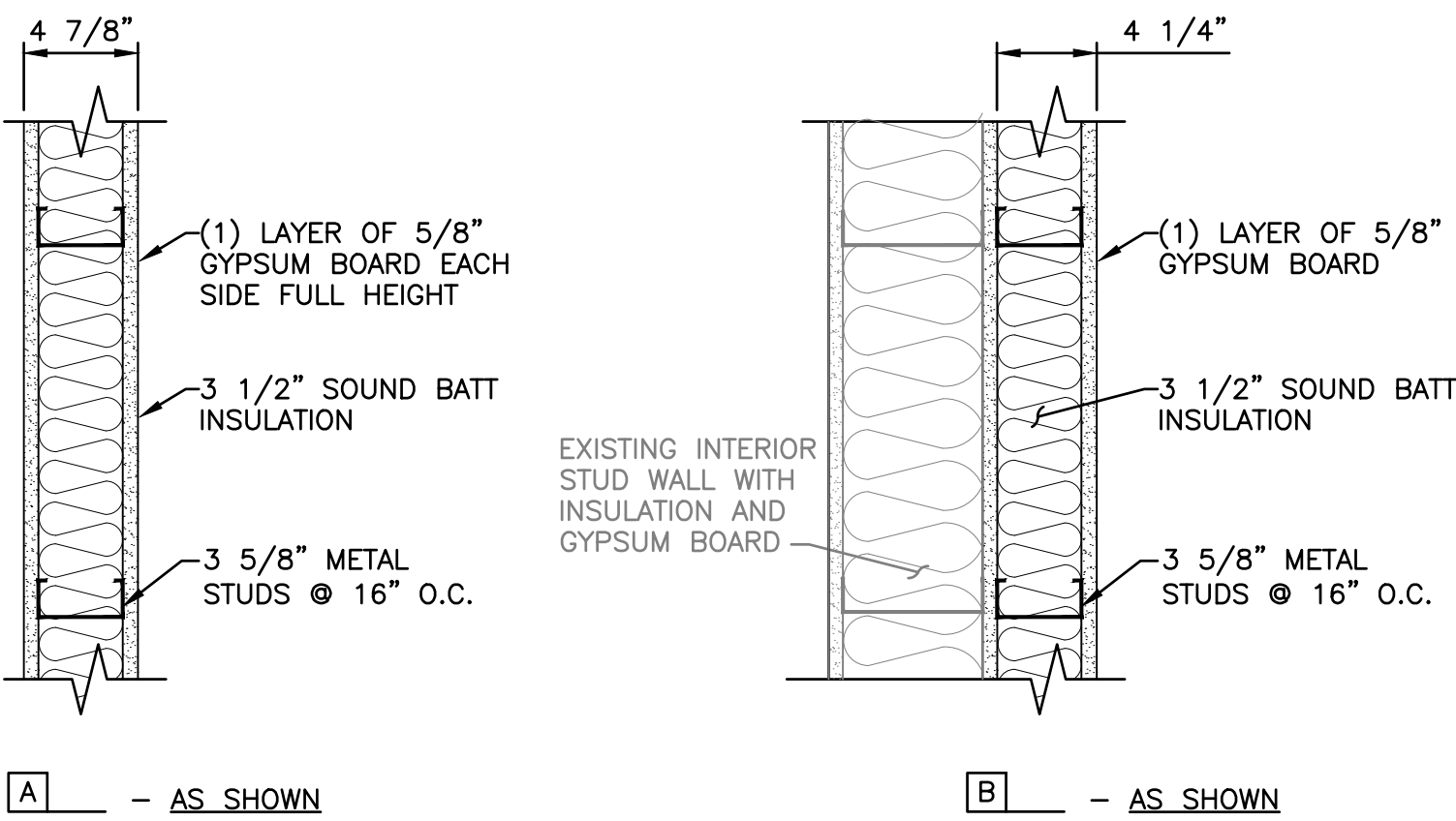
WINDOW TYPES
NO SCALE



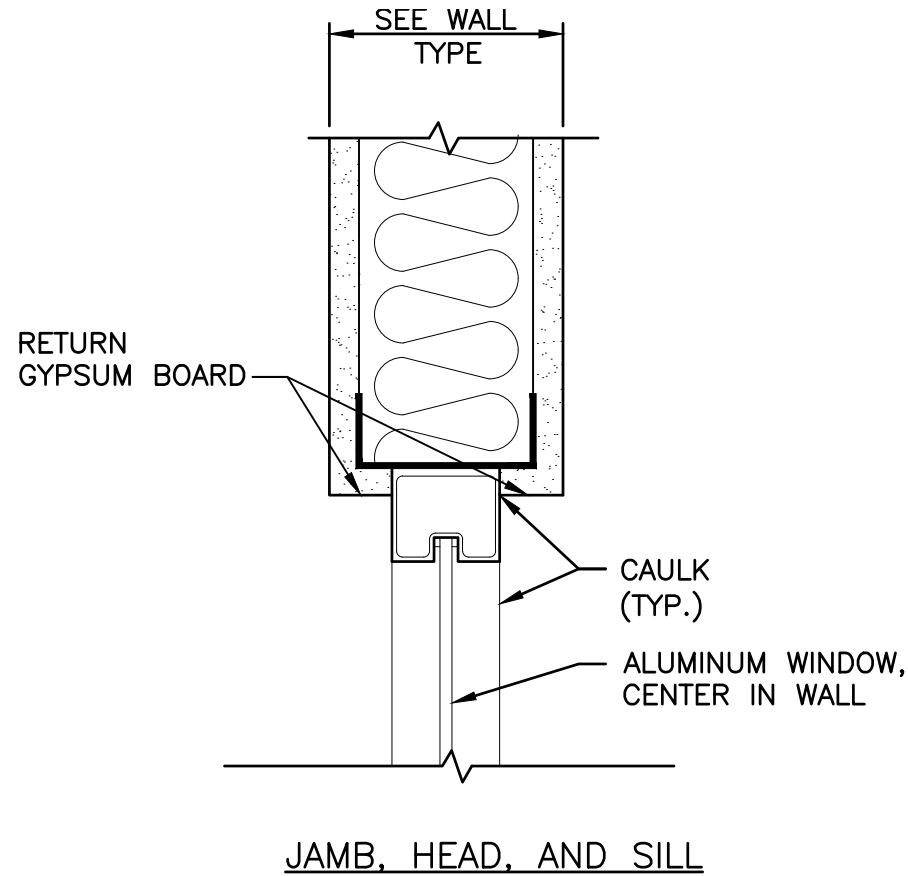
DOOR ELEVATIONS
NO SCALE



FRAME TYPES
NO SCALE

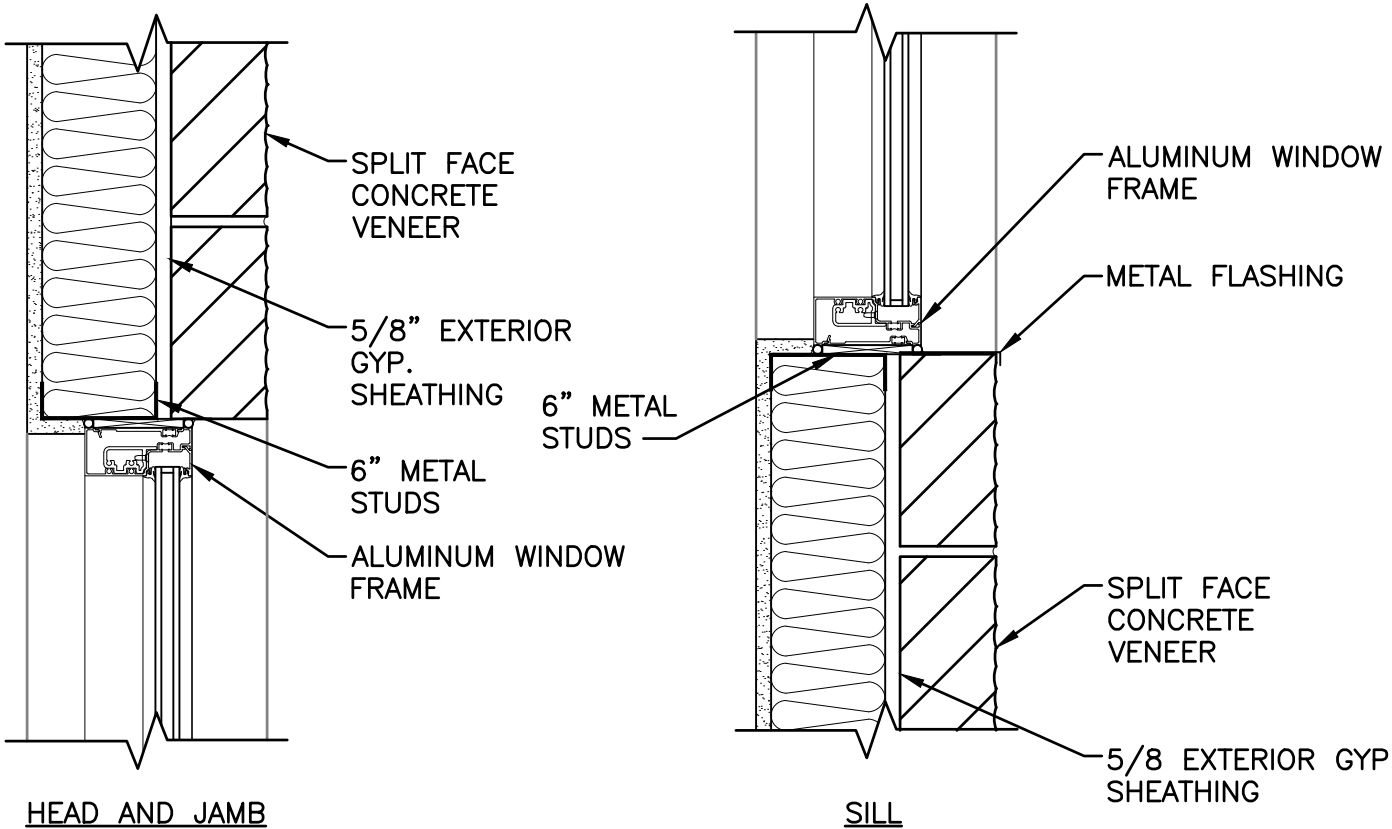


WALL TYPE
SCALE: 1'-1/2"=1'-0"



JAMB, HEAD, AND SILL

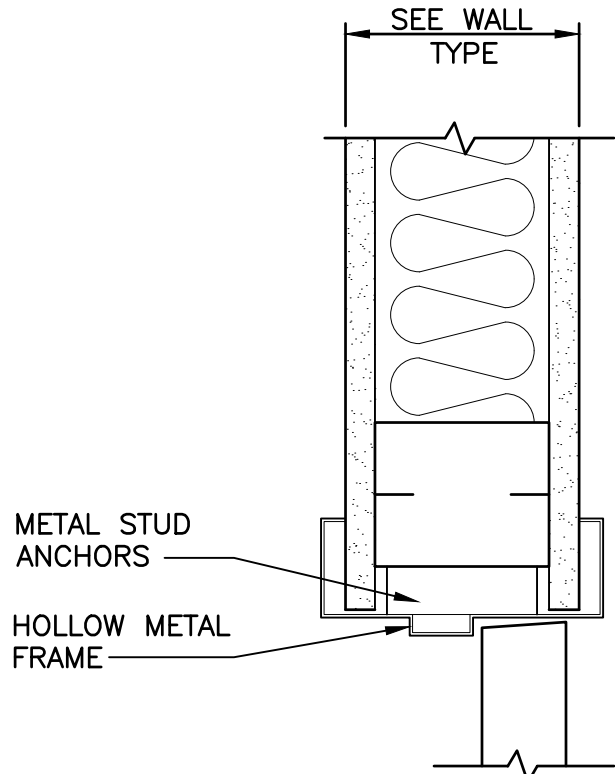
A
A6.1
INTERIOR WINDOW DETAIL
0 3 6



HEAD AND JAMB

SILL

B
A6.1
EXTERIOR WINDOW DETAILS
NO SCALE



HOLLOW METAL DOOR JAMB AND HEAD

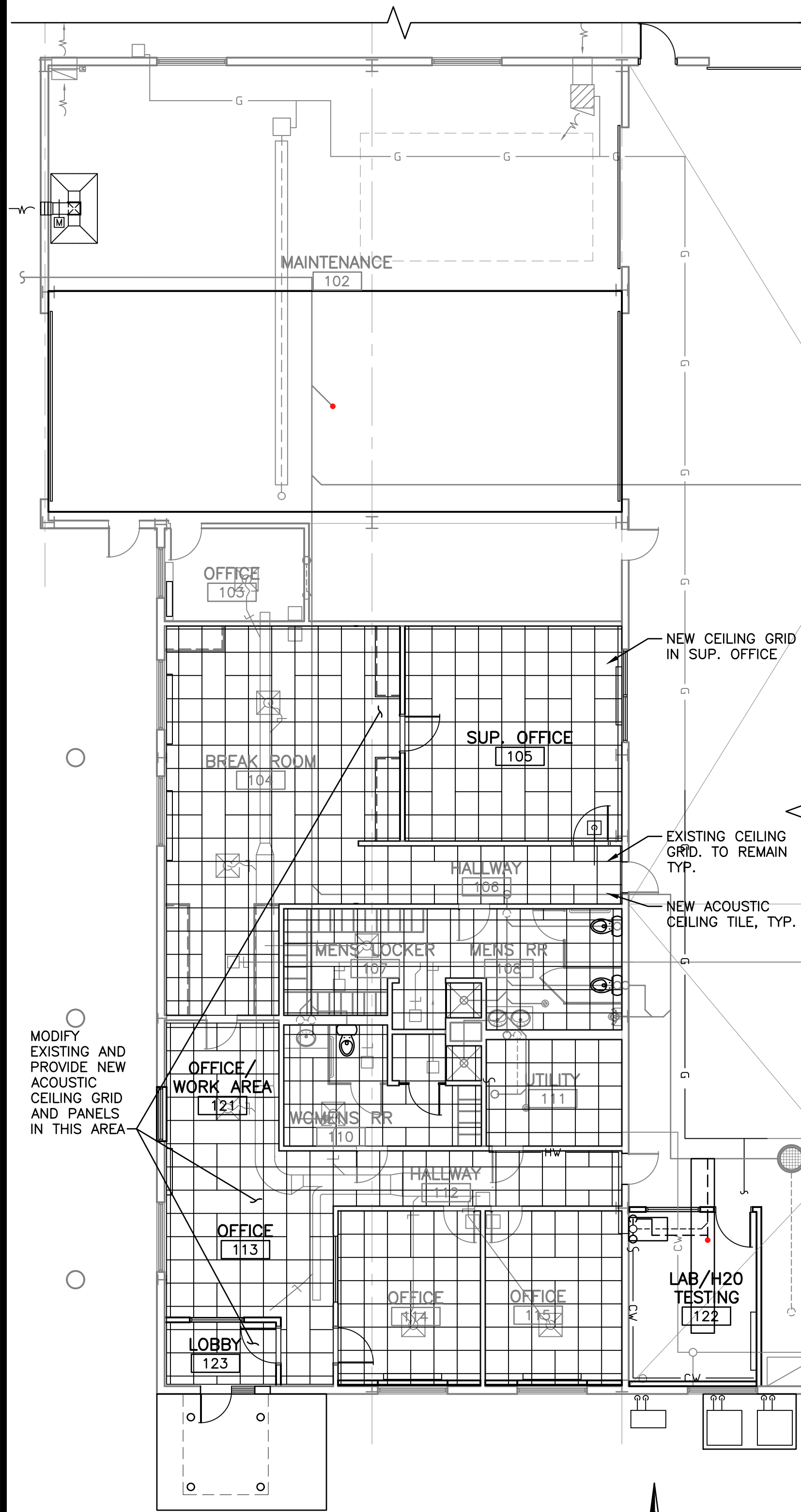
C
A6.1
INTERIOR DOOR DETAIL
0 3 6

DOOR AND WINDOW SCHEDULES AND DETAILS
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

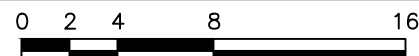
JOB NO.
1426.004
PROJECT MGR.
SCOTT HERKERT



SHEET
14
A6.1

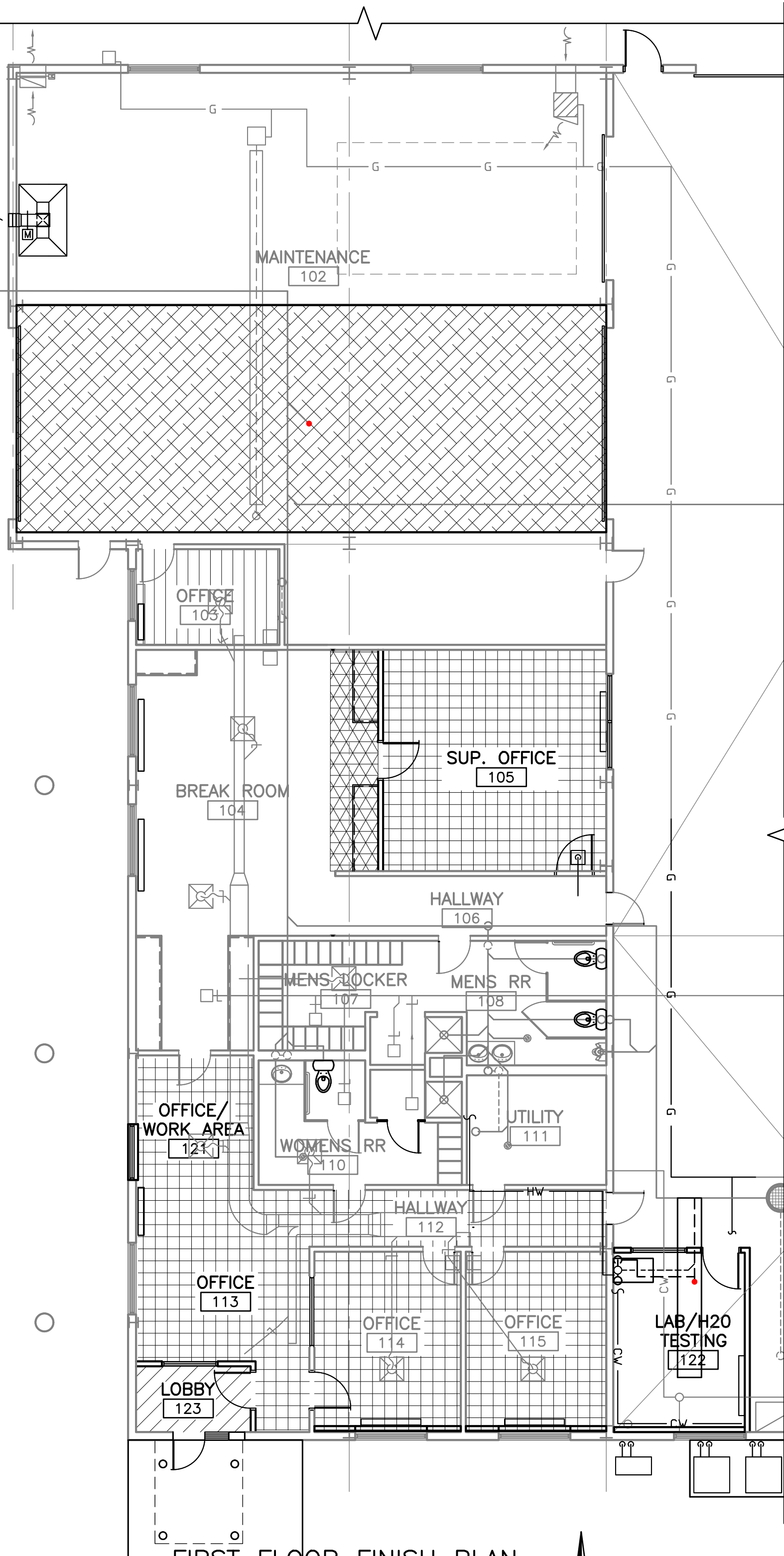


OFFICE REFLECTED CEILING PLAN

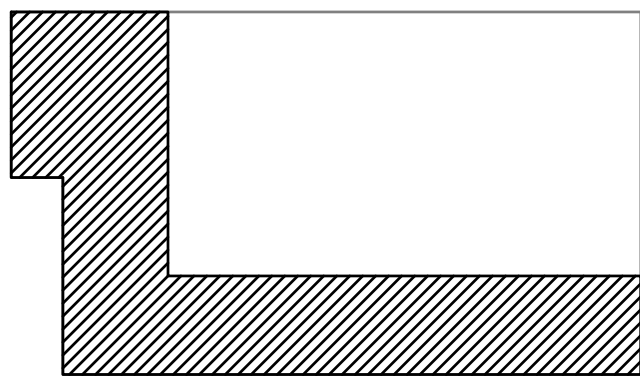
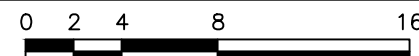


FLOOR FINISH LEGEND:

- [Blank Box] = EXISTING FLOOR OR NO NEW WORK
- [Cross-hatch Box] = SEALED CONCRETE
- [Grid Box] = CARPET TILE
- [Diagonal-hatch Box] = EPOXY (MATCH EXISTING)



FIRST FLOOR FINISH PLAN

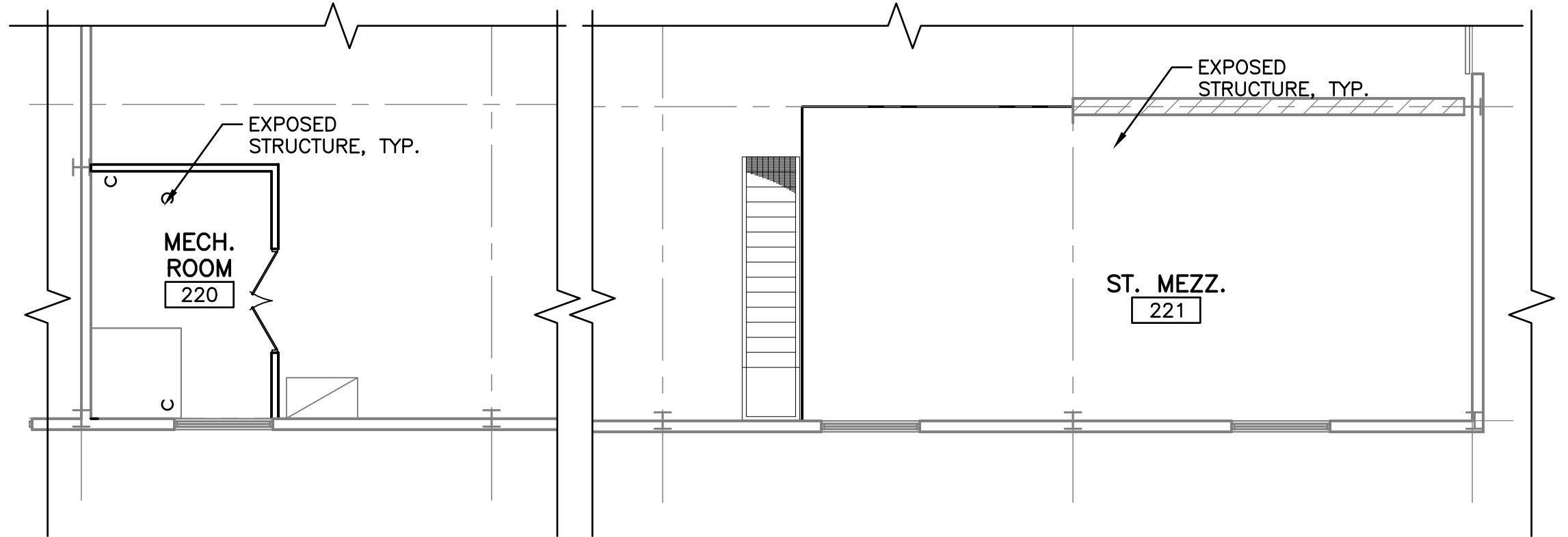


KEY PLAN
NO SCALE

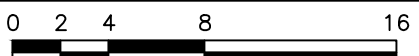
ROOM FINISH SCHEDULE										
ROOM NO.	ROOM NAME	FLOOR	BASE	N. WALL	E. WALL	S. WALL	W. WALL	CEILING		NOTES
								TYPE	HEIGHT	
100	VEHICLE STORAGE	--	--	--	--	--	--	--	--	
101	WASH BAY	--	--	--	--	--	--	--	--	
102	MAINTENANCE	F1	--	--	--	--	--	--	--	
103	OFFICE	F5	B1	W2	W2	W2	W2	C5	8'-0"	1
104	BREAK ROOM	F3	B1	W2	W2	W2	W2	C1	8'-0"	2,6,7
105	SUPERINTENDENT OFFICE	F2	B1	W2	W2	W2	W2	C1	8'-0"	3
106	HALLWAY	--	--	W2	W2	W2	W2	C1	8'-0"	6,7
107	MENS LOCKER	--	--	W2	W2	W2	W2	C3	8'-0"	4,7
108	MENS RESTROOM	--	--	W2	W2	W2	W2	C3	8'-0"	4,7
110	WOMEN	--	--	W2	W2	W2	W2	C3	8'-0"	4,7
111	UTILITY	--	--	W2	W2	W2	W2	--	8'-0"	7
112	HALLWAY	F3	B1	W2	W2	W2	W2	C1	8'-0"	7
113	OFFICE	F2	B1	W2	W2	W2	W2	C1	8'-0"	7
114	OFFICE	F2	B1	W2	W2	W2	W2	C1	8'-0"	7
115	OFFICE	F2	B1	W2	W2	W2	W2	C1	8'-0"	7
121	OFFICE/WORK AREA	F2	B1	W2	W2	W2	W2	C1	8'-0"	7
122	LAB H2O/TESTING	--	B1	W1	W1	W1	W4	C4	9'-0"	
123	LOBBY	F4	B1	W2	W2	W2	W2	C1	8'-0"	7
220	MECHANICAL ROOM	F6	B1	W2	W2	W4	W4	C2	VARIES	
221	STORAGE MEZZANINE	F1	--	W4	W4	W4	W4	C2	VARIES	5

FLOOR		BASE		WALL		CEILING	
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
F1	SEALED CONCRETE	B1	VINYL BASE	W1	PAINT MOISTURE RESISTANT DRYWALL	C1	ACOUSTIC CEILING
F2	CARPET TILE			W2	PAINT NEW/EXISTING DRYWALL	C2	EXPOSED STRUCTURE
F3	EPOXY			W3	METAL PANEL	C3	MOISTURE RESISTANT ACOUSTIC CEILING
F4	CERAMIC TILE			W4	EXPOSED STRUCTURE	C4	PAINT MOISTURE RESISTANT DRYWALL
F5	VINYL TILE					C5	PAINT DRYWALL
F6	USG CONCRETE SUBFLOOR						

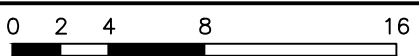
- NOTES:
1. REPLACE DAMAGED DRYWALL AS REQUIRED AND PAINT.
 2. ADD VINYL BASE AT EAST WALL ALONG WORKSTATION AREA.
 3. EXISTING CEILING HEIGHT AT 10'-0". INSTALL DROP ACOUSTICAL CEILING TO INTERIOR CEILING HEIGHT OF 8'-0".
 4. CLEAN AND SEAL EXISTING FLOOR TILE
 5. MAINTAIN A MIN. 7'-6" BELOW MEZZ. FOR TRUCK PARKING (WEST PORTION).
 6. NEW EPOXY FLOOR SYSTEM BY OTHERS.
 7. REPLACE CEILING TILE ONLY, GRID TO REMAIN AND BE MODIFIED AS REQUIRED.



REFLECTED CEILING PLAN



REFLECTED CEILING PLAN



OFFICE REFLECTED CEILING PLAN,
FLOOR FINISH PLAN, AND ROOM FINISH SCHEDULE

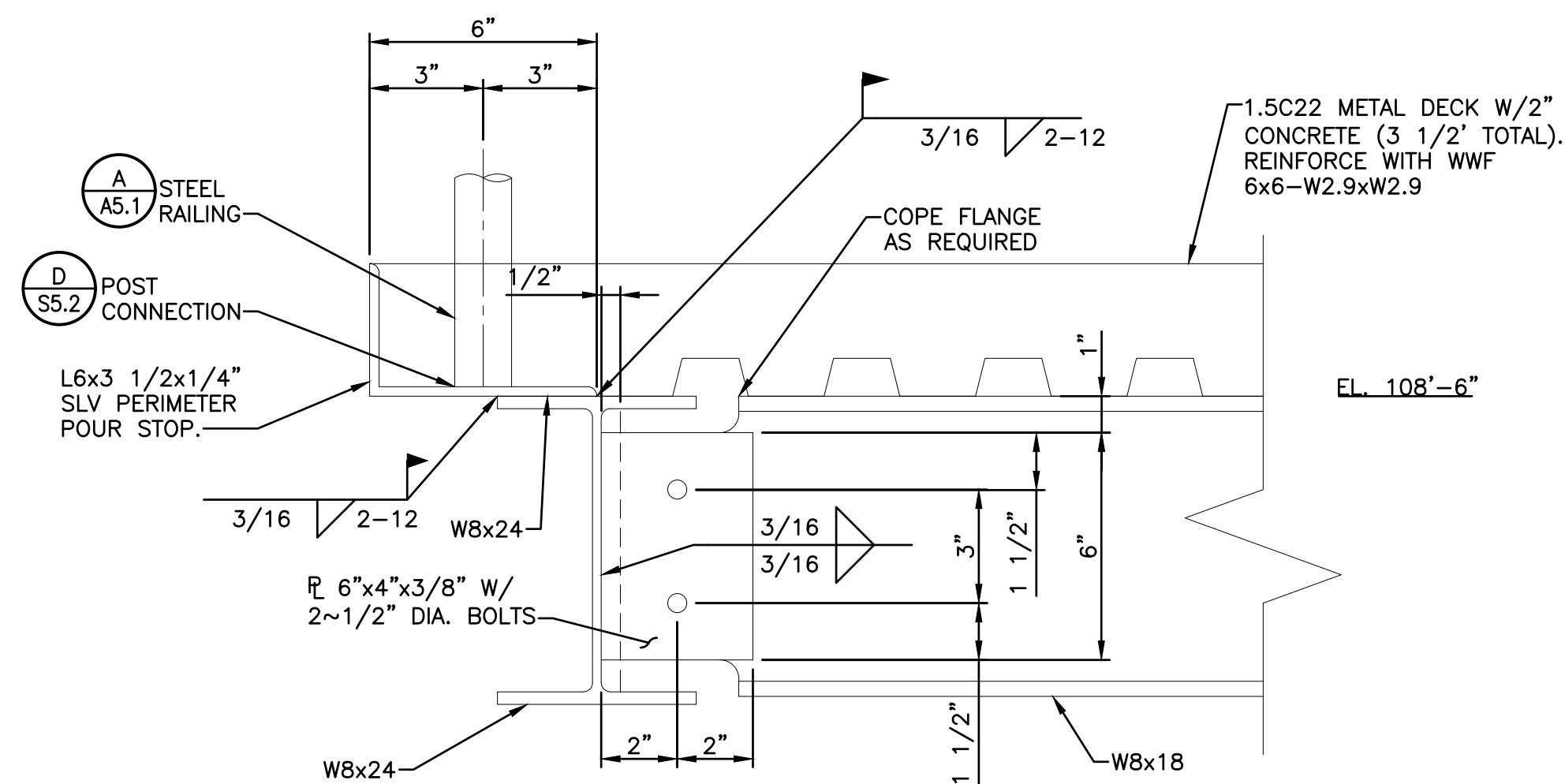
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

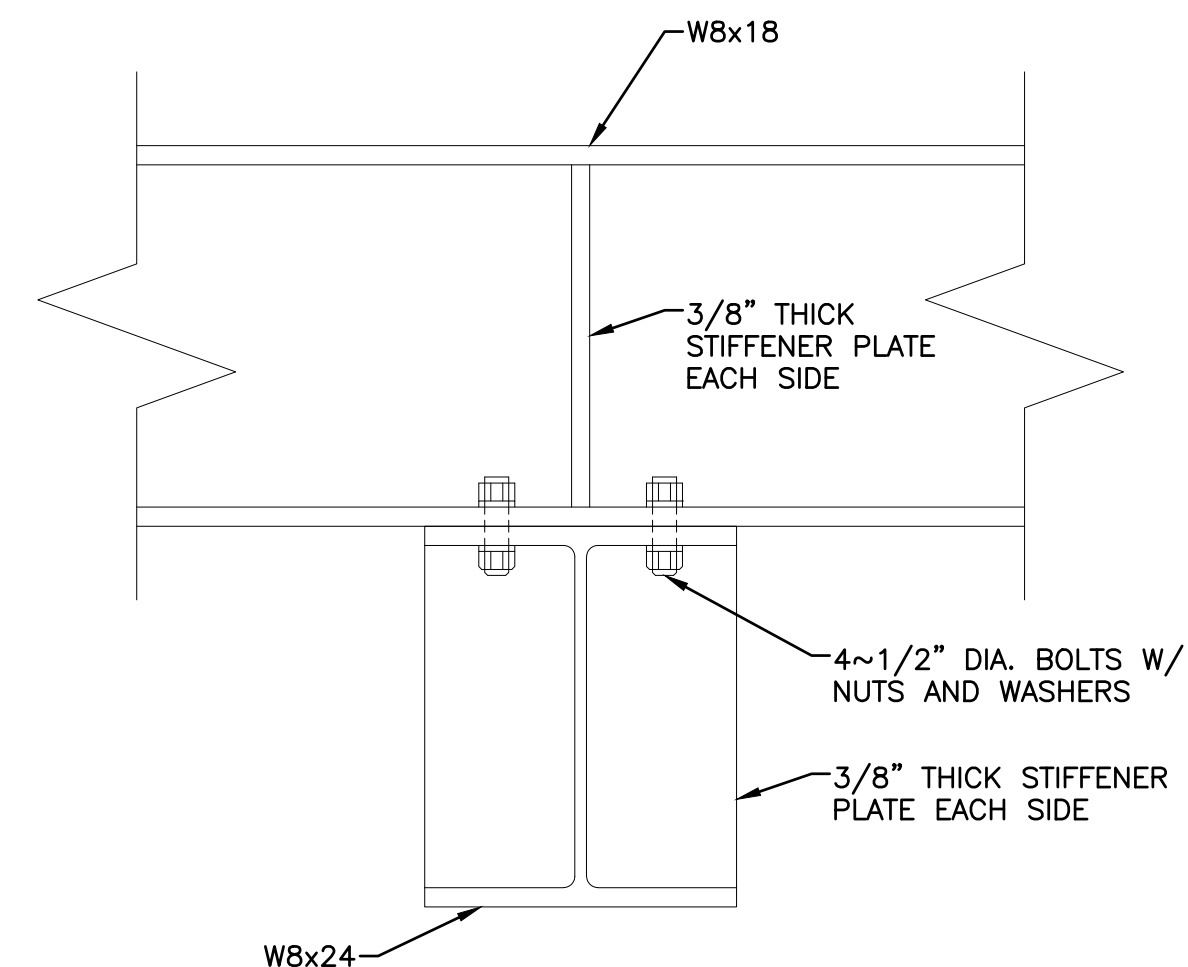
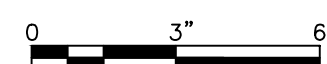
PROJECT MGR.
SCOTT HERKERT



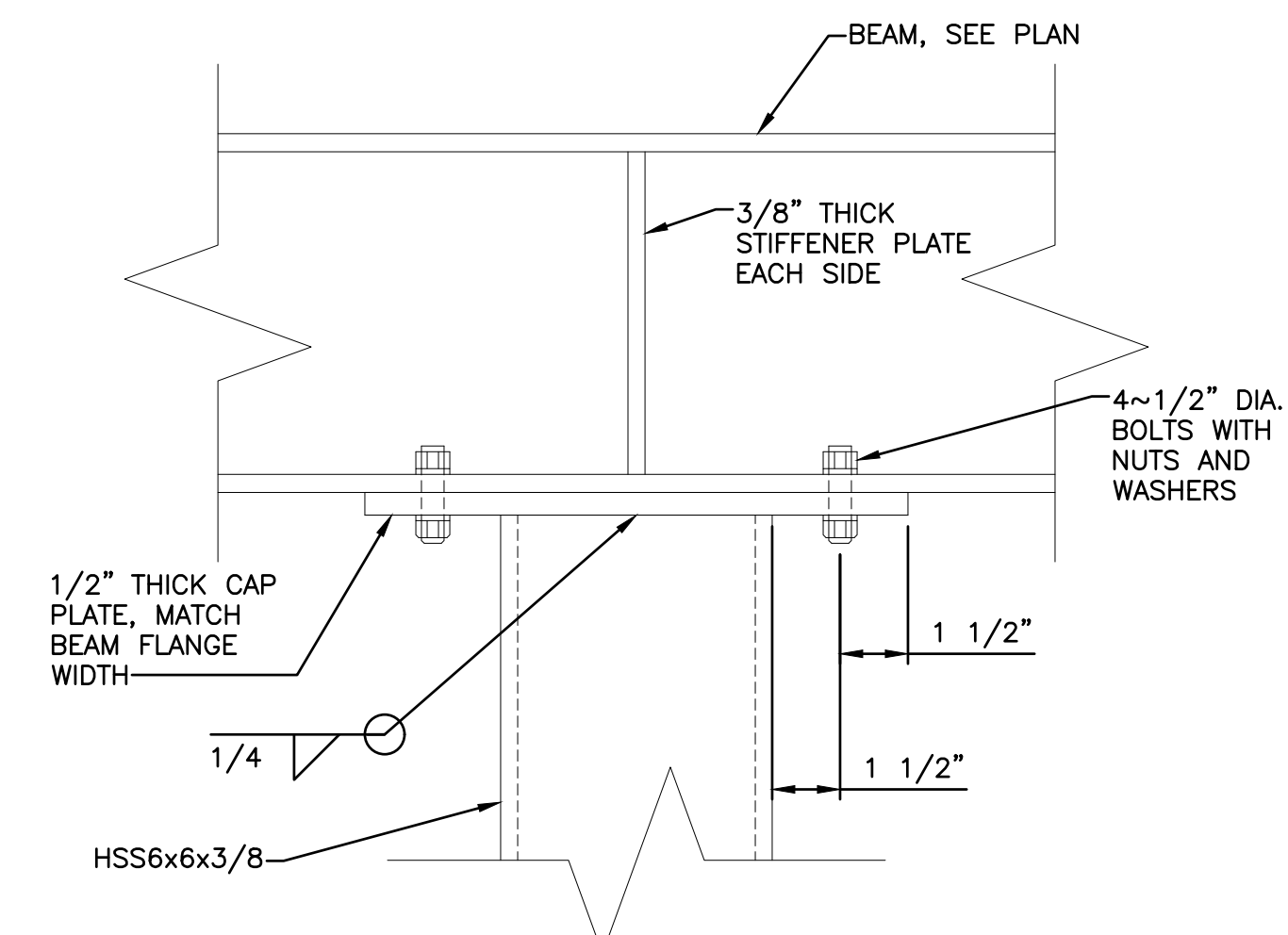
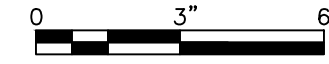
SHEET
15
A6.2



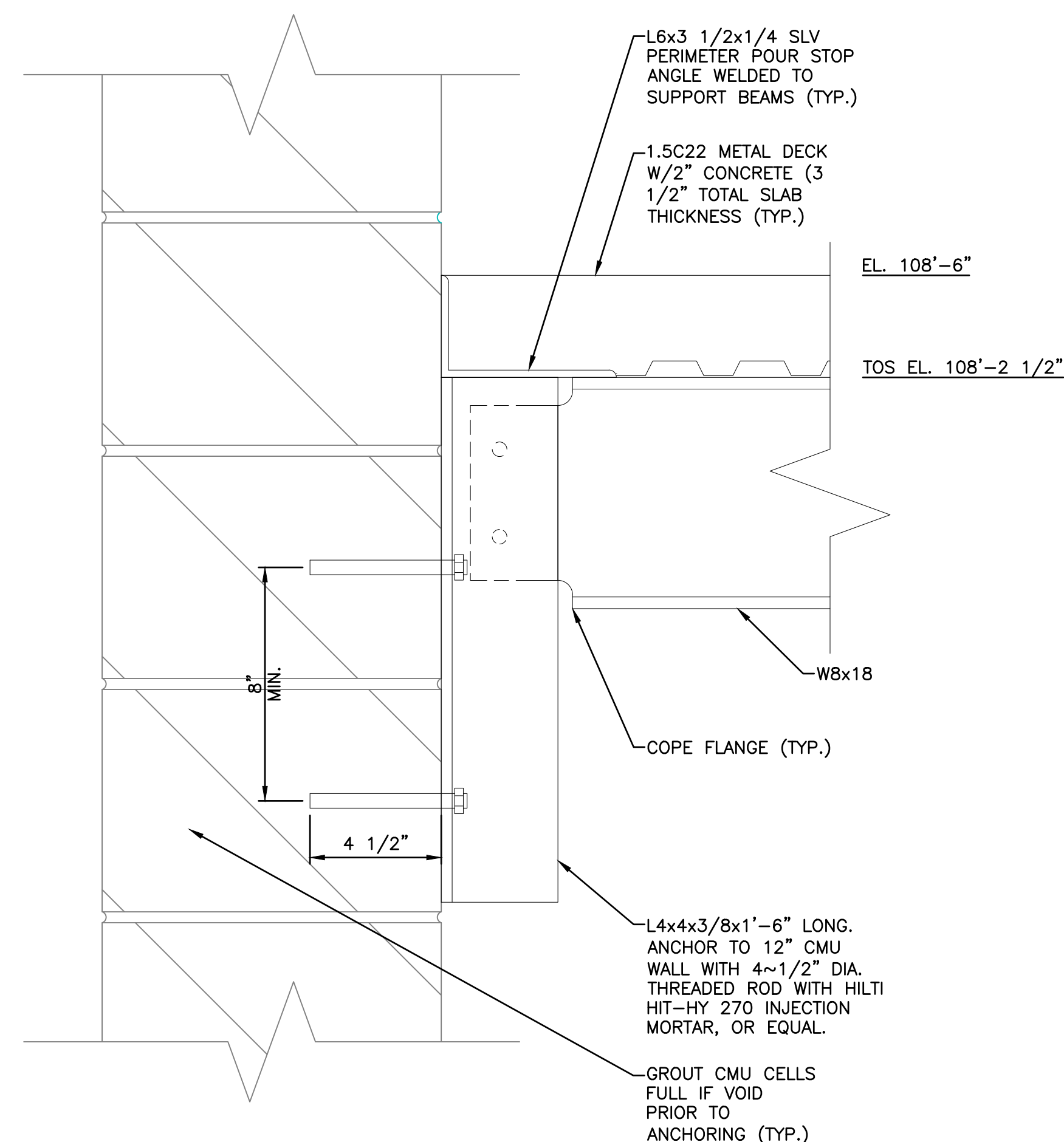
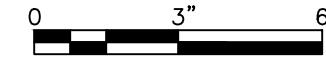
BEAM TO BEAM CONNECTION



BEAM OVER BEAM CONNECTION

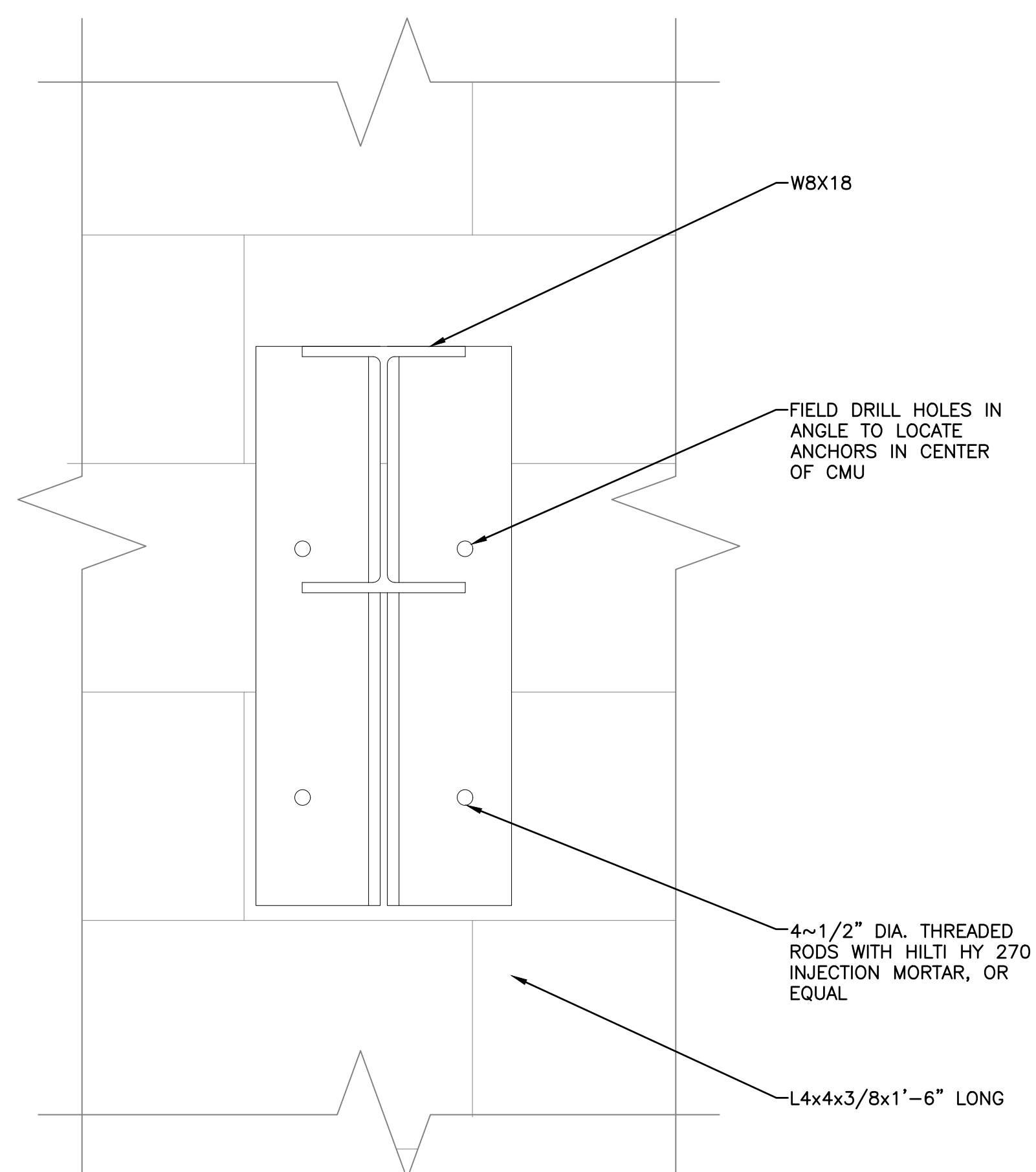
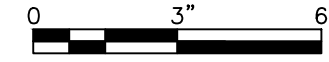
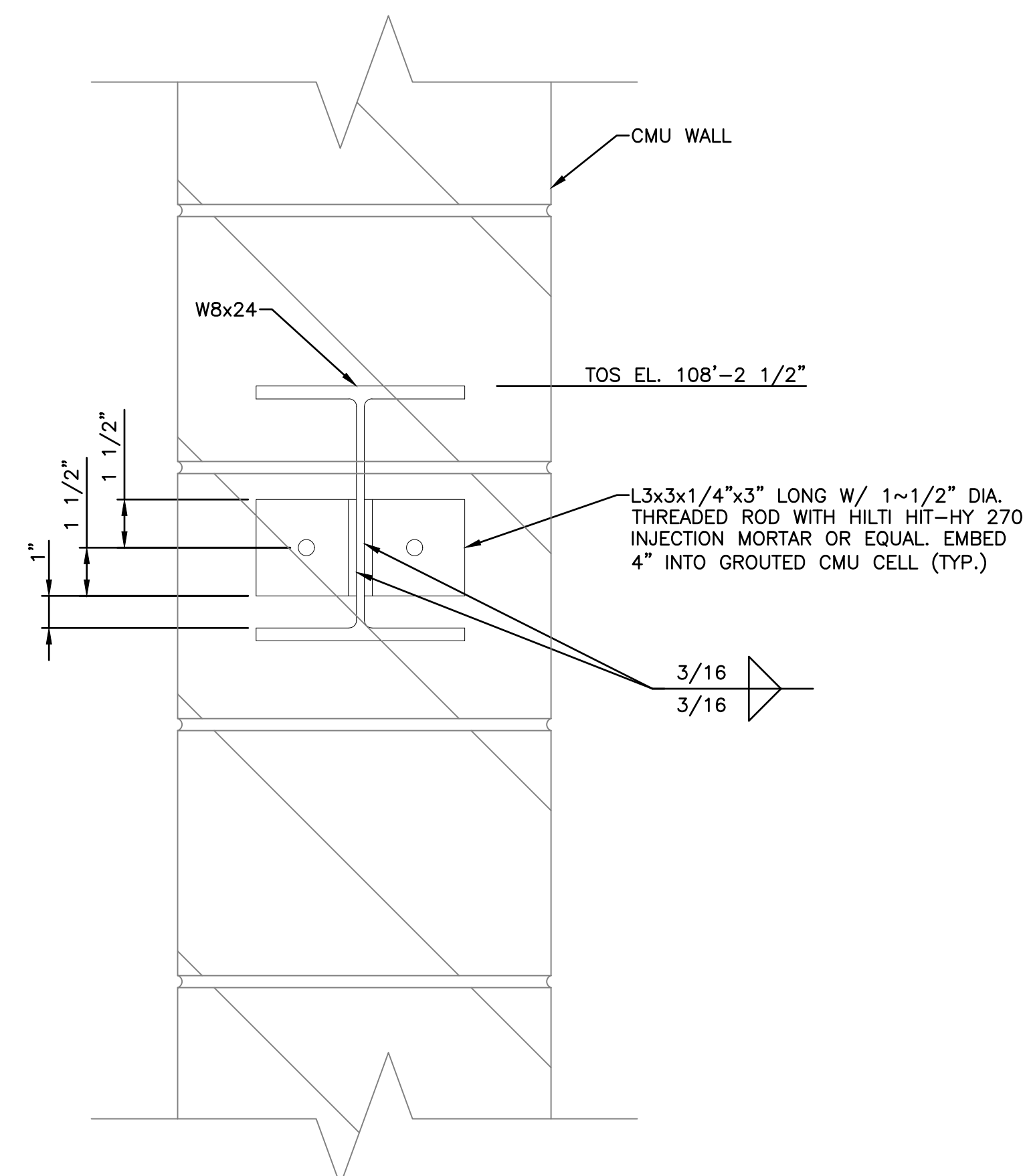


BEAM BEARING AT COLUMN

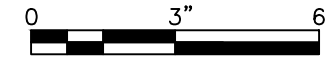


SECTION

BEAM TO CMU CONNECTION

ELEVATION

BEAM TO CMU END CONNECTION



NO.		REVISIONS	DATE:
1	ISSUED FOR BID		4/8/20

**STRUCTURAL
DETAILS - 1**

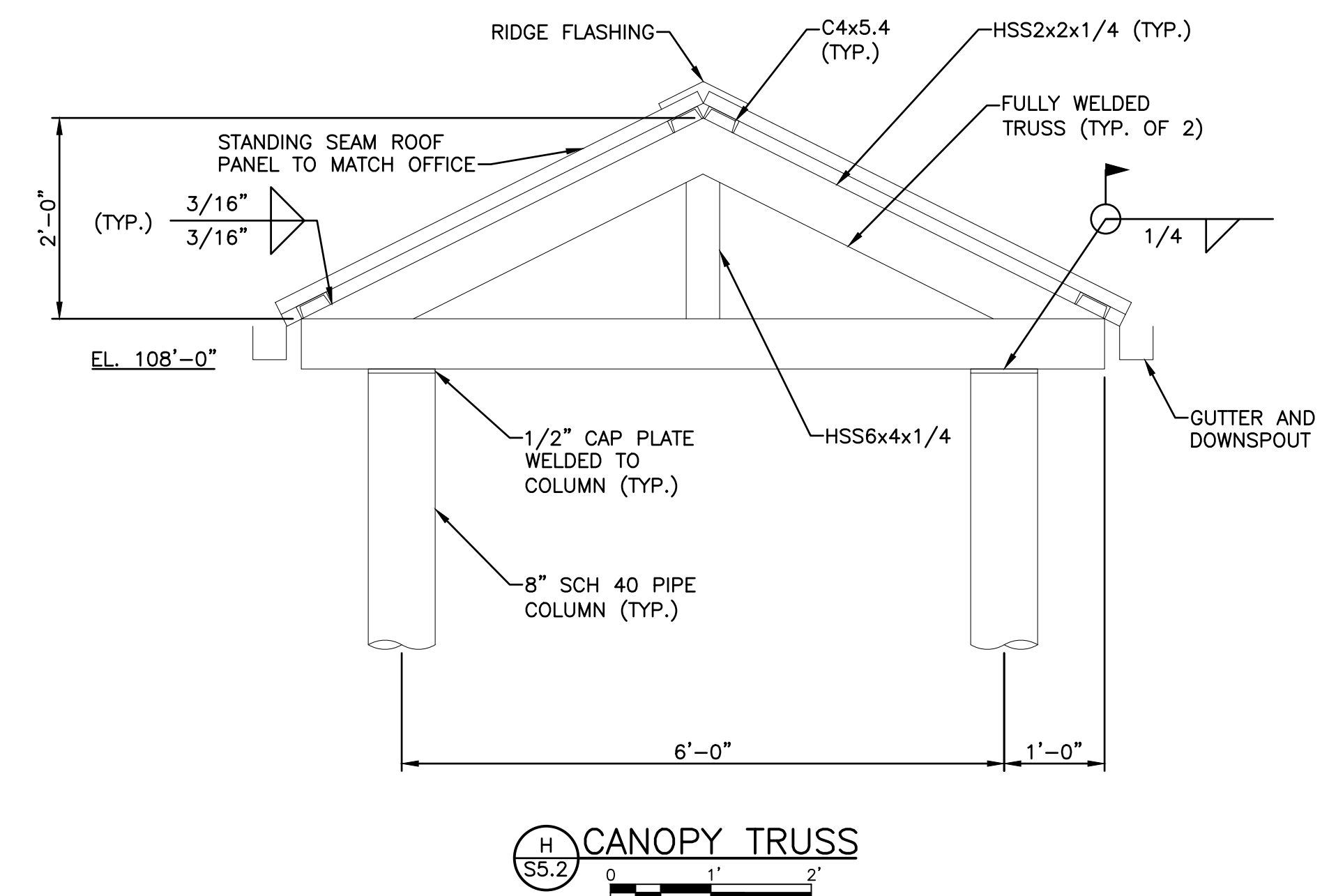
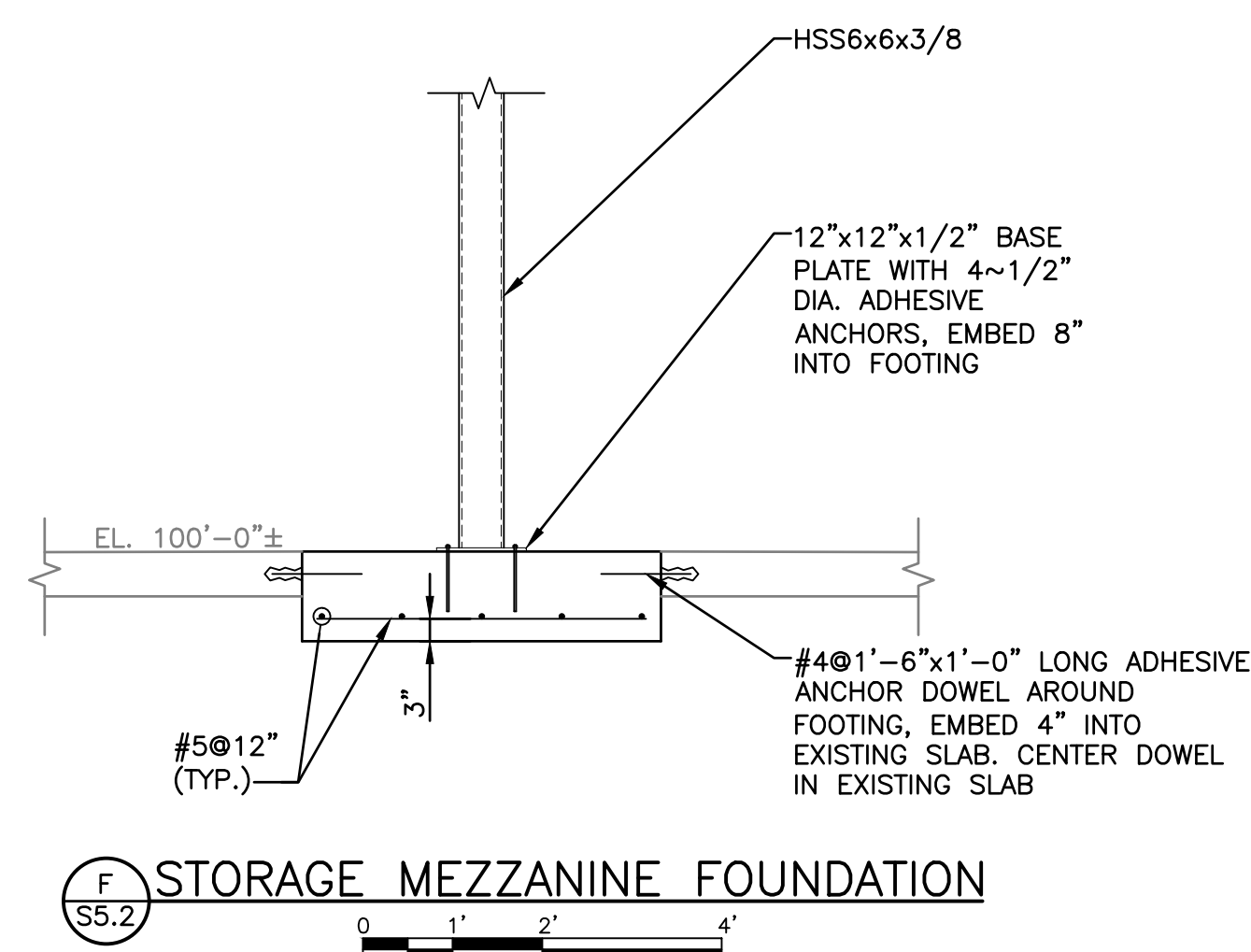
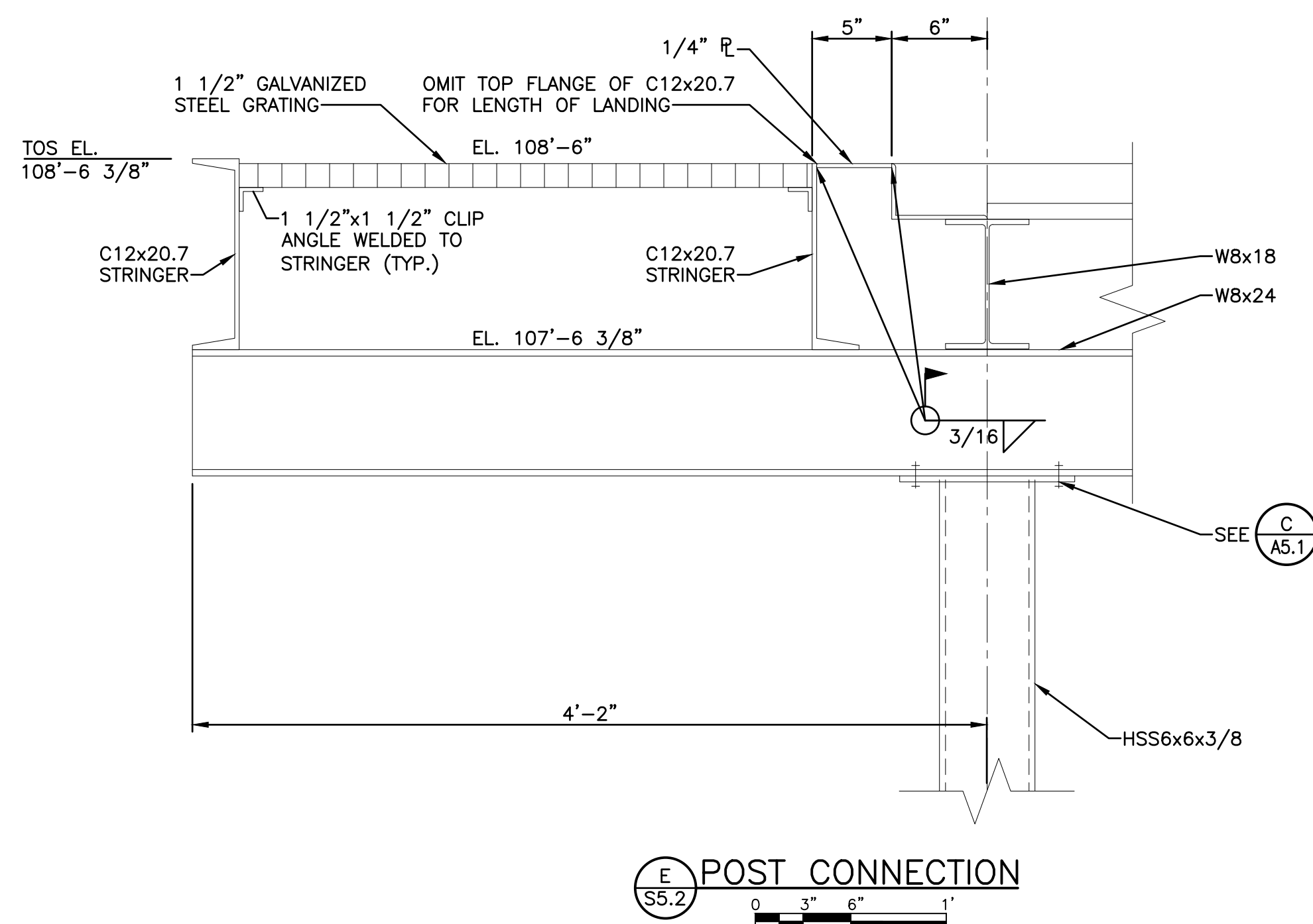
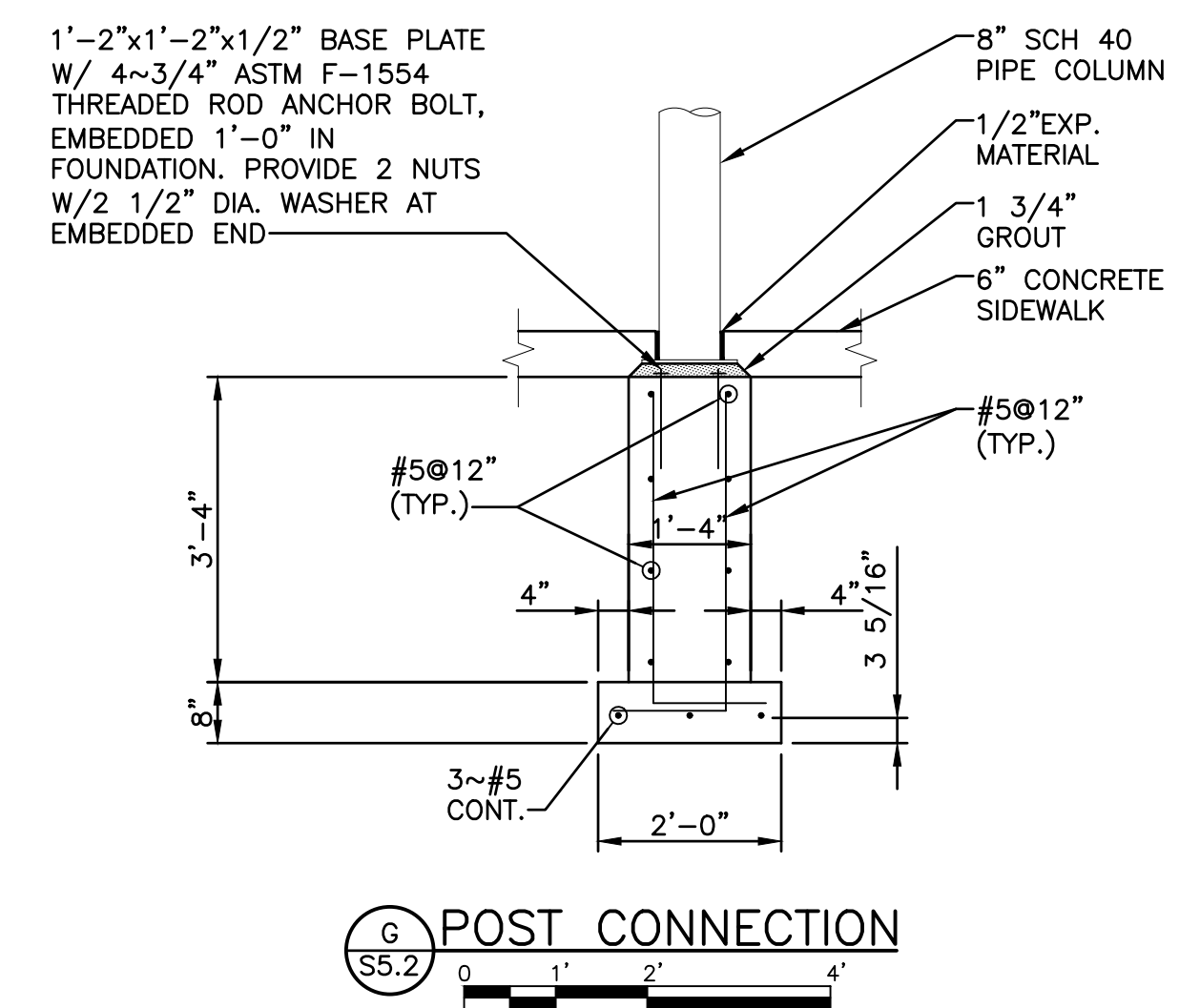
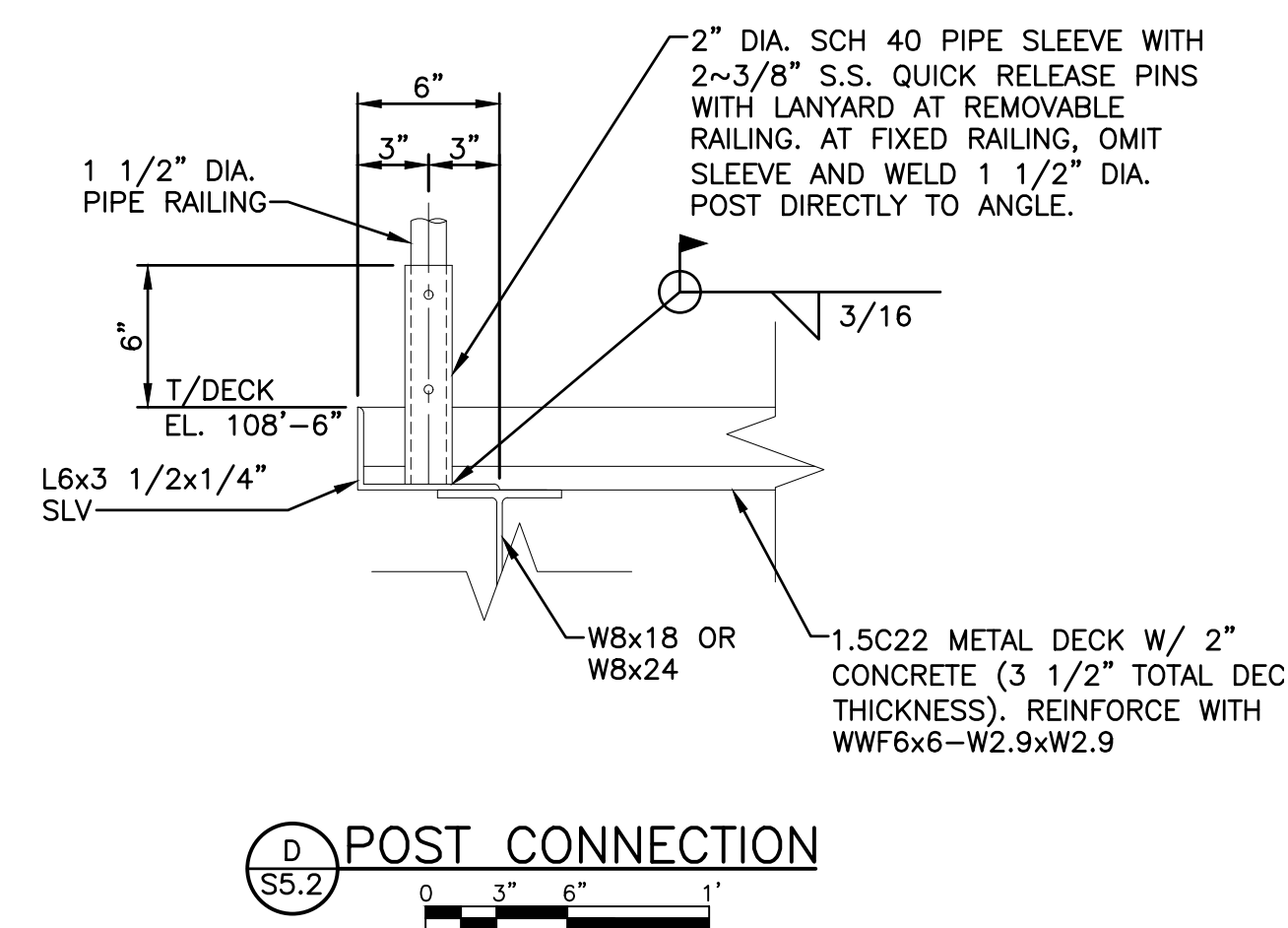
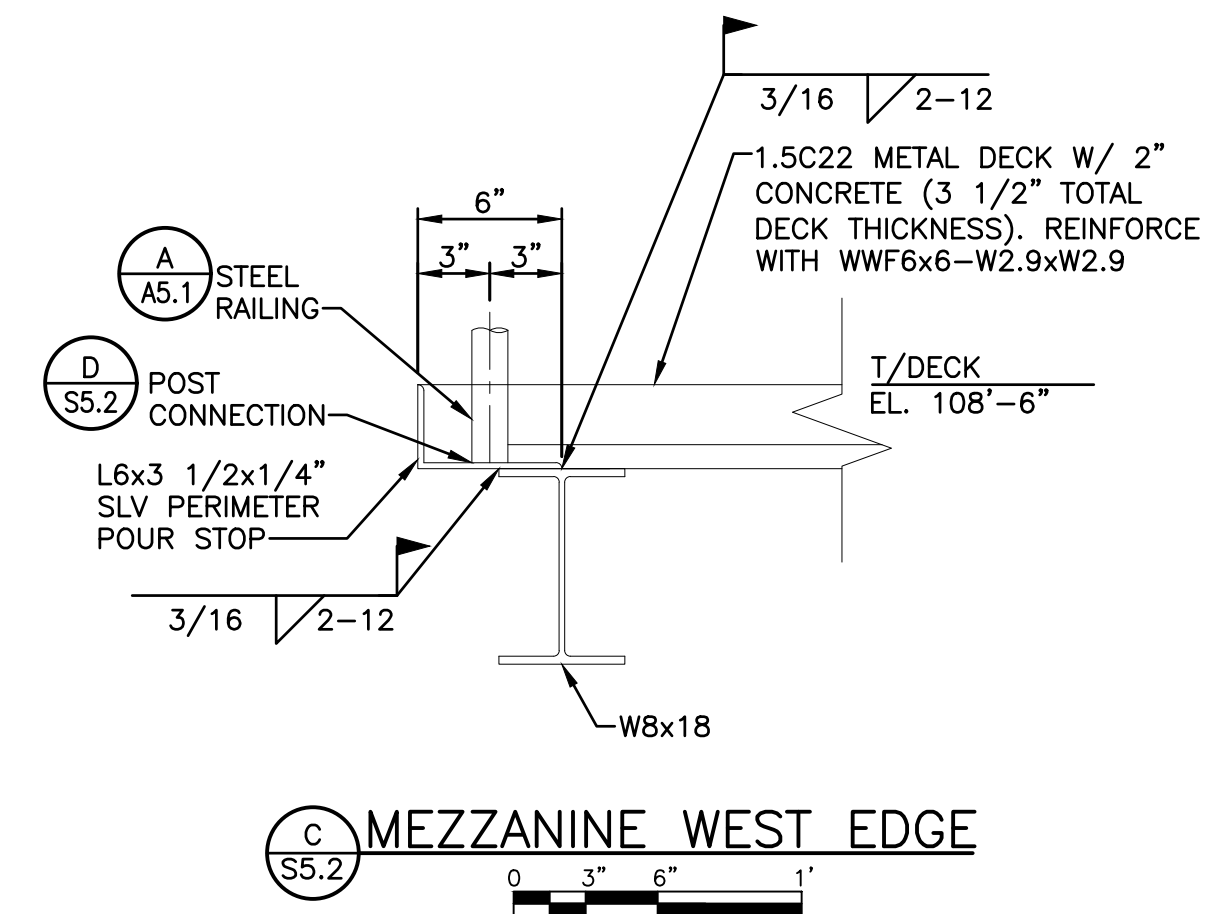
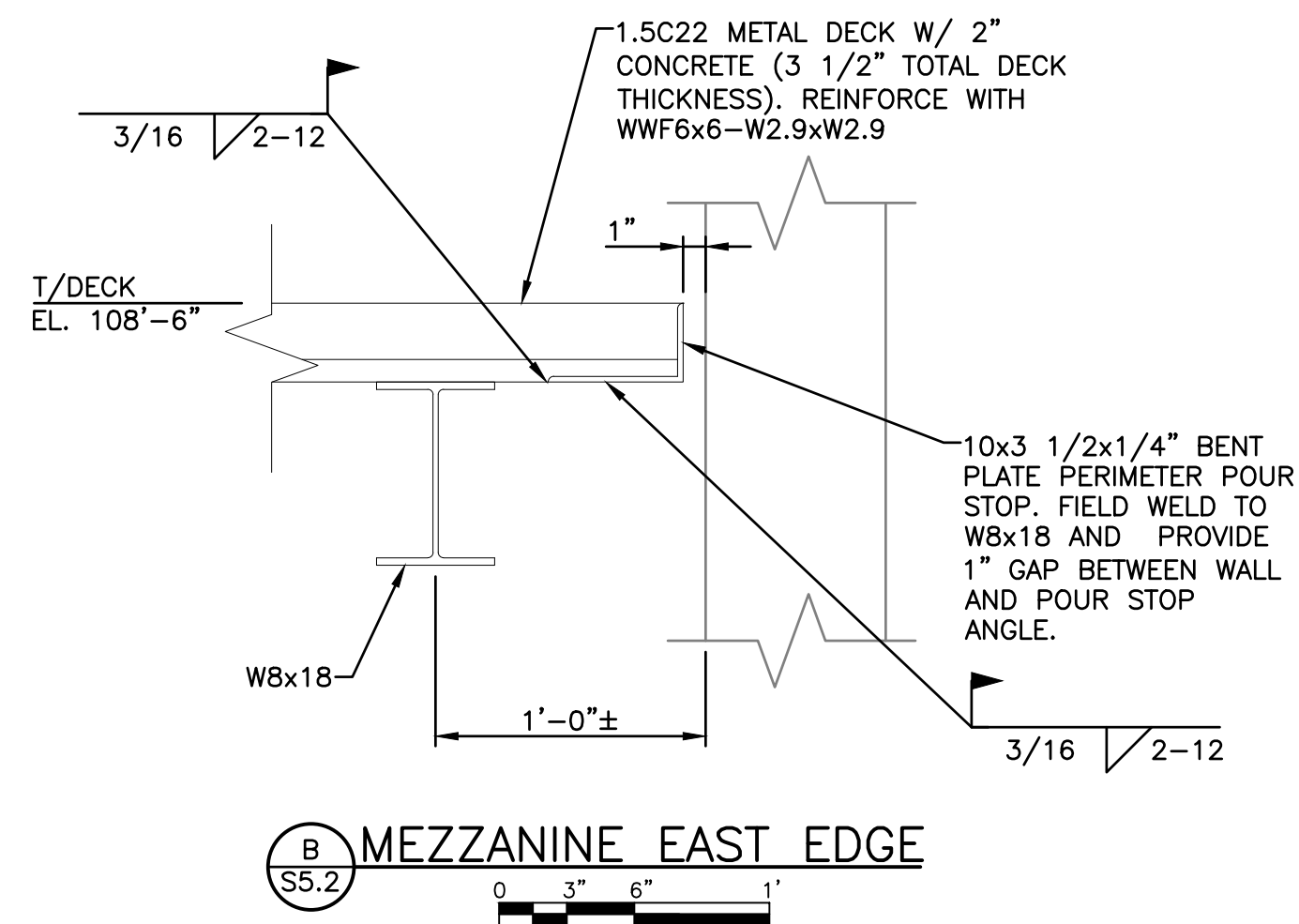
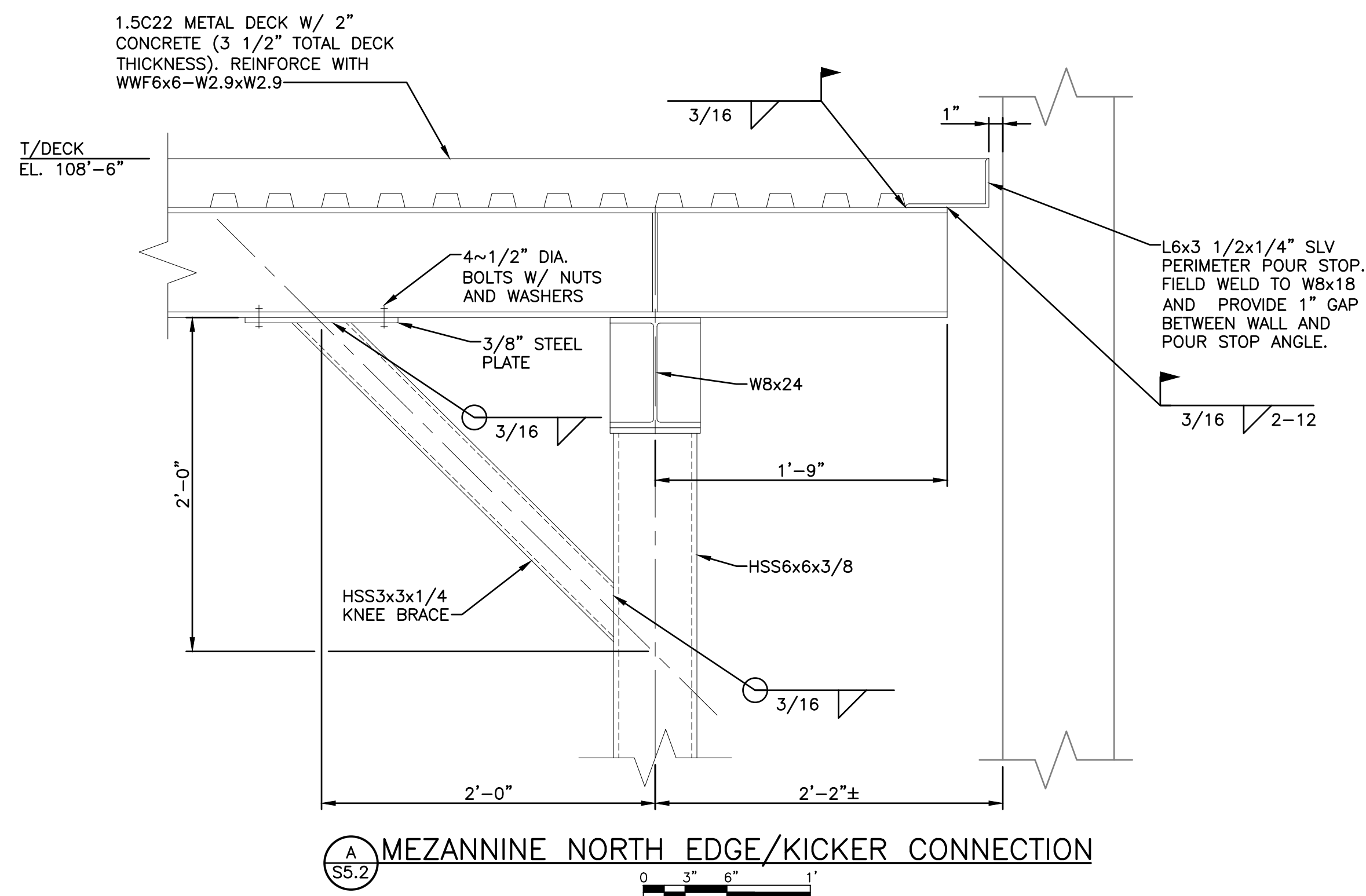
**PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN**

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



SHEET
17
S5.1

[illegible]

**STRUCTURAL
DETAILS - 2**

**PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN**

JOB NO.
1426.004

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SHEET
18
S5.2

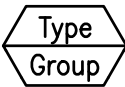
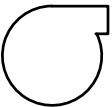
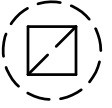
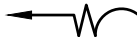
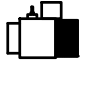
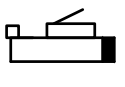
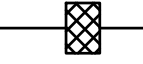
EQUIPMENT ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
BLR	BOILER
BB	BASEBOARD
CONV	CONVECTOR
CD	CEILING DIFFUSER
CHILL	CHILLER
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CWP	CHILLED WATER PUMP
DC	DRY COOLER
DH	DEHUMIDIFIER
DL	DRUM LOUVER
EBB	ELECTRIC BASEBOARD
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	EXPANSION LOOP
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERU	ENERGY RECOVERY UNIT
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FTR	FINNED TUBE RADIATION
FUR	FURNACE
HC	HEATING COIL
HP	HEAT PUMP
HU	HUMIDIFIER
HUH	HOT WATER UNIT HEATER
HWP	HOT WATER PUMP
HX	HEAT EXCHANGER
L	LOUVER
MAU	MAKE-UP AIR UNIT
P	PUMP
PC	PUMPED CONDENSATE
RCP	RADIANT CEILING PANEL
RF	RETURN FAN
RG	RETURN GRILLE
RR	REGISTER
RTU	ROOFTOP UNIT
SD	SUCTION DIFFUSER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SR	SUPPLY REGISTER
SS	SPLIT SYSTEM
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
TCP	TEMPERATURE CONTROL PANEL
TG	TRANSFER GRILLE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE

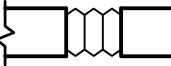
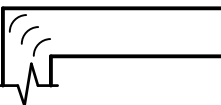
GENERAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AP	ACCESS PANEL
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COND	CONDENSATE
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DG	DOOR GRILLE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EL	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
FC	FAIL CLOSED
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FO	FAIL OPEN
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET
FVNR	FULL VOLTAGE NON REVERSING
GA	GAUGE
GPM	GALLONS PER MINUTE
HHW	HEATING HOT WATER
IPLV	INTEGRATED PART LOAD VALVE
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
TEFC	TOTALLY ENCLOSED FAN COOLED
WB	WET BULB

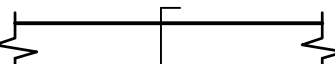
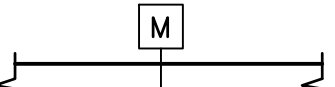
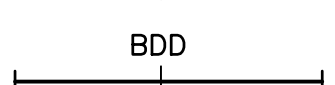
EQUIPMENT SYMBOLS

	EQUIPMENT TAG
	CONNECT TO EXISTING (TIE-IN NUMBER)
	BASE MOUNTED PUMP
	INLINE PUMP
	UNIT HEATER
	ROOF EXHAUST FAN
	AIR FLOW DIRECTION
	CEILING DIFFUSER WITH FLEXIBLE DUCT
	VARIABLE AIR VOLUME (VAV) BOX WITH HEATING HOT WATER REHEAT COIL
	VARIABLE AIR VOLUME (VAV) BOX WITH ELECTRIC REHEAT COIL
	DUCT BOOST COIL

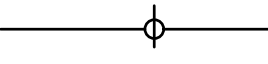
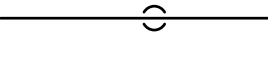
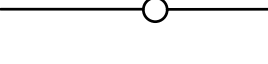
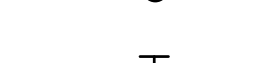
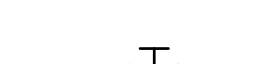
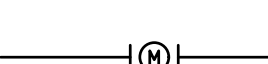
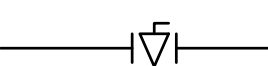
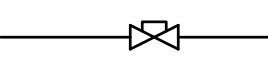
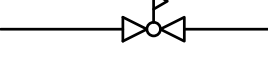
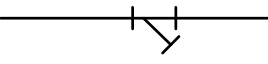
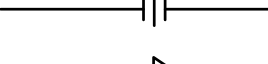
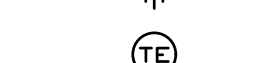
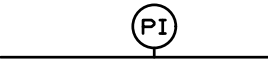
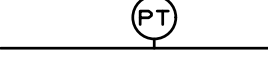
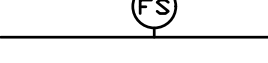
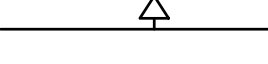
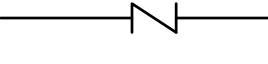
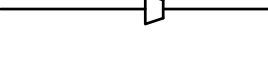
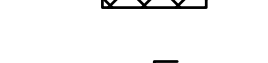
DUCTWORK SYMBOLS

	SUPPLY DUCT (UP OR SECTION)
	SUPPLY OR OUTSIDE AIR DUCT (DOWN/OR AWAY)
	EXHAUST OR RETURN DUCT (UP OR SECTION)
	EXHAUST OR RETURN DUCT (DOWN/OR AWAY)
	ROUND DUCTWORK UP
	ROUND DUCTWORK DOWN
	FLEXIBLE CANVAS CONNECTION
	TURNING VANES

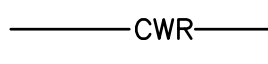
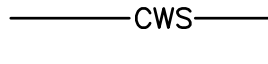
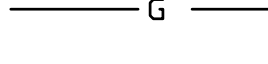
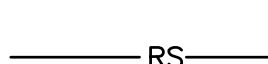
DAMPER SYMBOLS

	MANUAL VOLUME DAMPER
	AUTOMATIC DAMPER
	BACKDRAFT DAMPER
	1-1/2 HR. FIRE DAMPER

PIPING SYMBOLS

	BALL VALVE
	TEE DOWN
	TEE UP
	ELBOW DOWN
	ELBOW UP
	GATE VALVE
	GLOBE VALVE
	3-WAY VALVE
	METER
	GAS SHUTOFF PLUG VALVE
	BALANCING VALVE
	PRESSURE REDUCING VALVE
	STRAINER
	UNION
	GAS PRESSURE REGULATOR
	BUTTERFLY VALVE
	TEMPERATURE ELEMENT
	TEMPERATURE INDICATOR
	TEMPERATURE TRANSMITTER
	PRESSURE INDICATOR
	PRESSURE TRANSMITTER
	FLOW SWITCH
	MANUAL AIR VENT
	CHECK VALVE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	FLEXIBLE CONNECTOR
	TRIPLE DUTY VALVE
	FLOOR DRAIN

PIPING DESIGNATIONS

	CWR	CHILLED WATER RETURN
	CWS	CHILLED WATER SUPPLY
	G	GAS PIPING
	HHWR	HEATING HOT WATER RETURN
	HHWS	HEATING HOT WATER SUPPLY
	LPC	LOW PRESSURE CONDENSATE
	LPS	LOW PRESSURE STEAM
	RL	REFRIGERANT LIQUID
	RS	REFRIGERANT SUCTION

FIELD MOUNTED CONTROLS

	T	THERMOSTAT
	H	ROOM HUMIDISTAT
	P	PRESSURE SENSOR
	S	ROOM SENSOR
	@	DUCT SMOKE DETECTOR

ACTUATORS

	M	MOTOR (ELECTRIC)
	P	PNEUMATIC
	S	SOLENOID

HVAC SYMBOLS AND ABBREVIATIONS

PUBLIC WORKS FACILITY RENOVATION

VILLAGE OF MCFARLAND

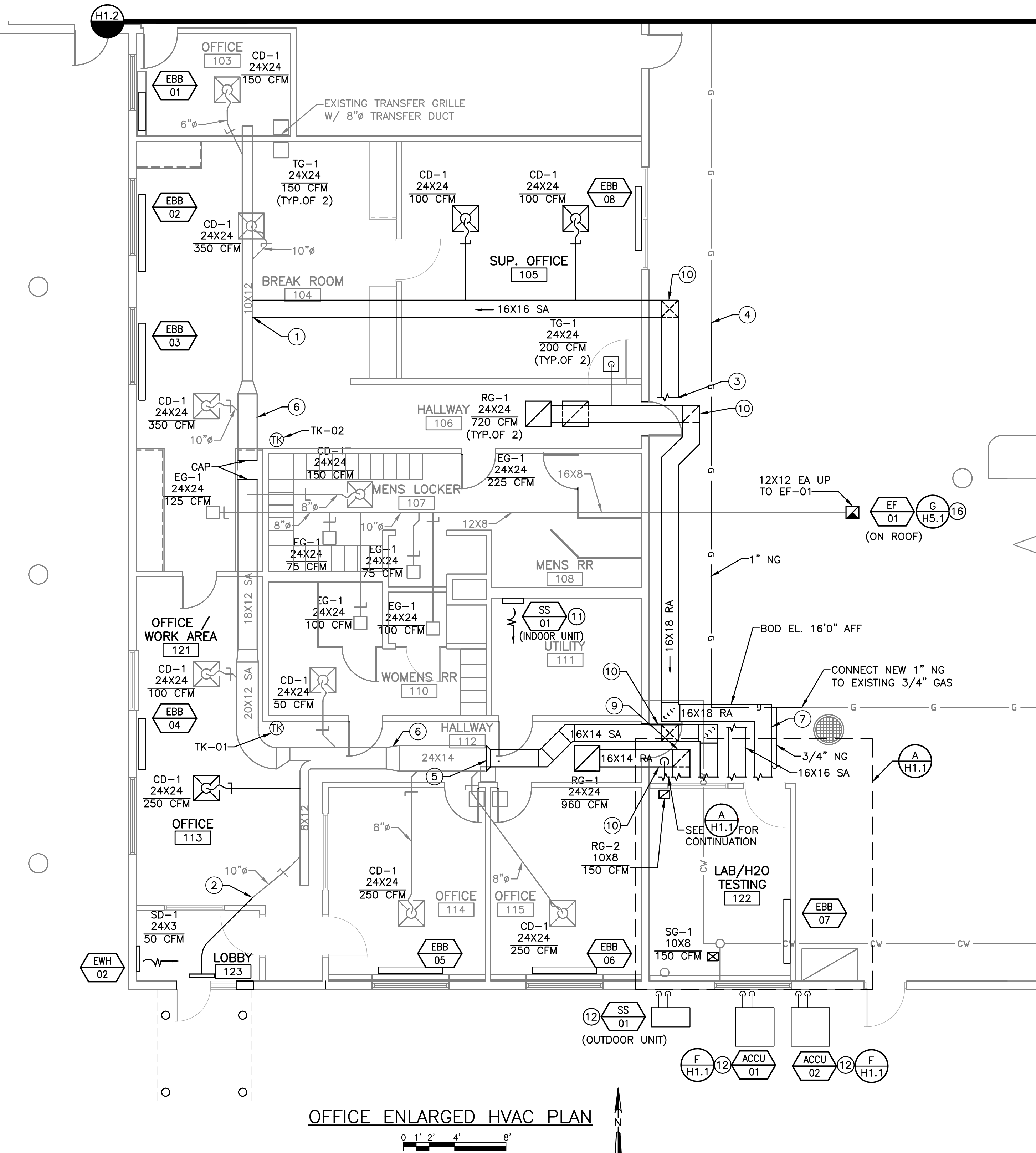
MCFARLAND, WISCONSIN

JOB NO.
1426.004

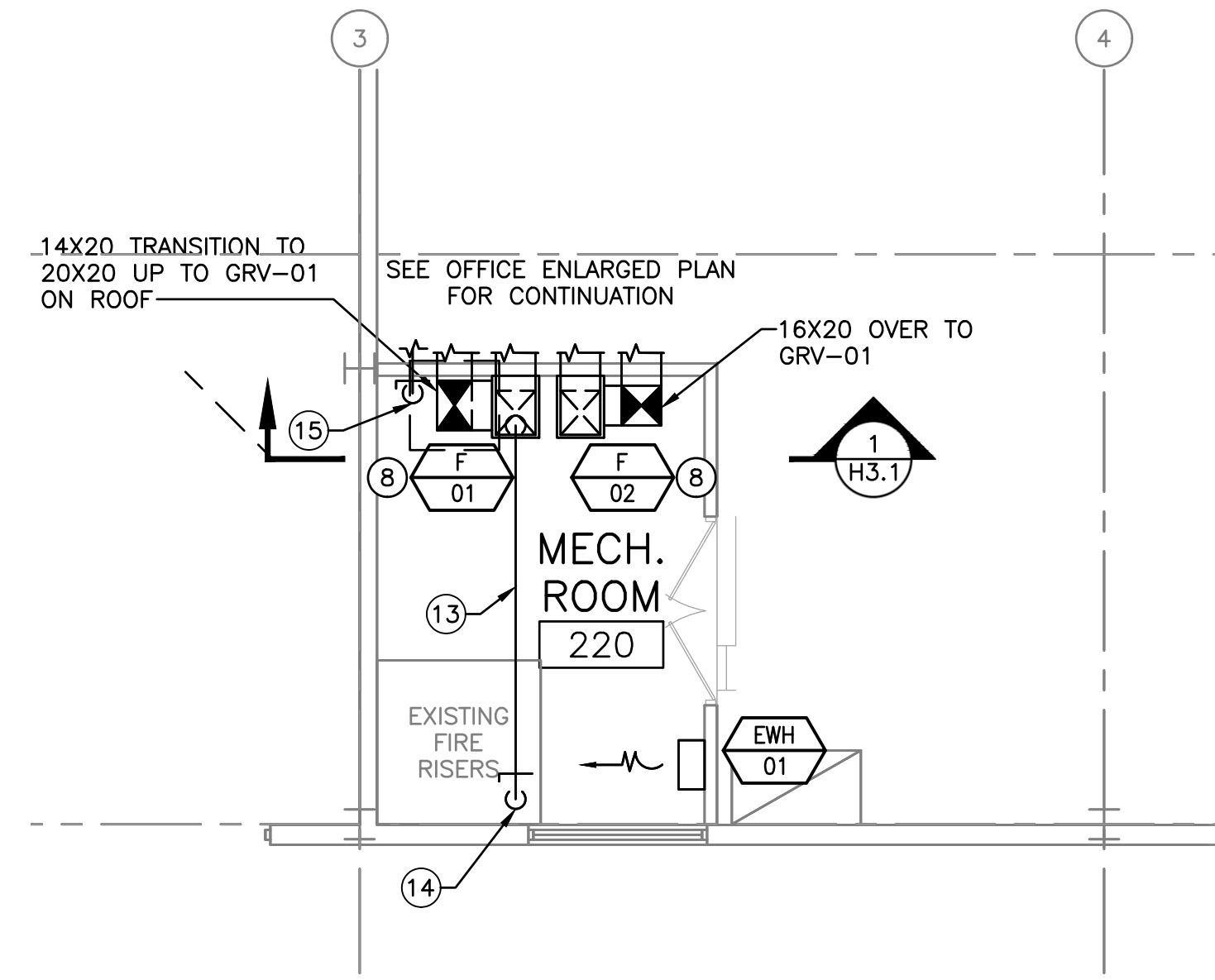
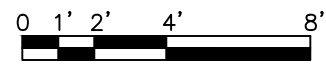
PROJECT MGR.
SCOTT HERKERT



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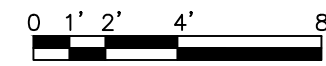


OFFICE ENLARGED HVAC PLAN



MECHANICAL MEZZANINE PLAN

H1.1/NO SCALE



GENERAL NOTES:

1. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
2. COORDINATE WITH OTHER TRADES TO ELIMINATE CONFLICTS BETWEEN PIPING, DUCTWORK, ELECTRICAL WORK, ETC.
3. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
4. ALL DUCT AND PIPE LOCATIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW PIPE ROUTING AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.
5. COORDINATE AND PROVIDE ALL DUCTWORK TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS PRIOR TO FABRICATION.
6. ROUTE DUCTWORK TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. SUPPLY DUCTWORK SHALL BE ROUTED BELOW RETURN AND EXHAUST DUCTWORK UNLESS OTHERWISE NOTED.
7. UNLESS OTHERWISE NOTED ALL EXISTING SUPPLY/RETURN/EXHAUST AIR TERMINALS SHALL REMAIN AND BE BALANCED TO AIRFLOW CALLED OUT ON DRAWINGS.

KEY NOTES:

- ① TIE INTO EXISTING 10X12 SUPPLY DUCT.
- ② TIE INTO EXISTING 10-INCH DIAMETER DUCT.
- ③ ROUTE SUPPLY DUCT TIGHT BENEATH RETURN DUCT. BOD ELEVATION FOR SUPPLY DUCT 14'-0" AFF.
- ④ INSTALL NEW 1-INCH NATURAL GAS LINE IN SAME LOCATION AS REMOVED LINE.
- ⑤ CONNECT NEW 16X14 SA DUCT TO EXISTING 24X14 SA DUCT.
- ⑥ PERFORM DUCT CLEANING ON EXISTING DUCTWORK. SEE SECTION 23 01 30 FOR DETAILS.
- ⑦ INSTALL BAROMETRIC RELIEF DAMPER IN RETURN DUCTWORK.
- ⑧ INSTALL SIDESTREAM FILTER NEAR RETURN INLET OF FURNACE.
- ⑨ ADD BAROMETRIC RELIEF DAMPER IN VERTICAL SECTION OF RETURN DUCTWORK.
- ⑩ OFFSET DUCTWORK DOWN SUCH THAT THE BOTTOM ELEVATION OF THE DUCT IS 9'-2". DUCTWORK SHALL PENETRATE WALL ABOVE ACOUSTICAL CEILING, BUT BELOW BOTTOM CORD OF TRUSSES.
- ⑪ CONDENSATE DRAIN SHALL BE ROUTED TO MOP BASIN.
- ⑫ REFRIGERANT PIPING SHALL BE ROUTED SO IT DOES NOT INTERFERE WITH HEADROOM OR ACCESS TO ANY VALVES OR OTHER ITEMS THAT SHALL BE ACCESSIBLE FOR MAINTENANCE.
- ⑬ ROUTE 6-INCH DUCT FROM SUPPLY ON F-01. DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITHIN ROOM 220.
- ⑭ SUPPLY DUCT SHALL PENETRATE FLOOR TO ROOM 122. DUCT SHALL TERMINATE AT THE CEILING OF ROOM 122 WITH SUPPLY GRILLE SG-1. BALANCE TO 150 CFM. COORDINATE PENETRATION WITH STRUCTURAL MEMBERS.
- ⑮ 6-INCH RETURN DUCT SHALL PENETRATE FLOOR TO ROOM 122. DUCT SHALL TERMINATE AT THE CEILING OF ROOM 122 WITH RETURN GRILLE RG-2. BALANCE TO 150 CFM. COORDINATE PENETRATION WITH STRUCTURAL MEMBERS.
- ⑯ REUSE EXISTING ROOF OPENING.

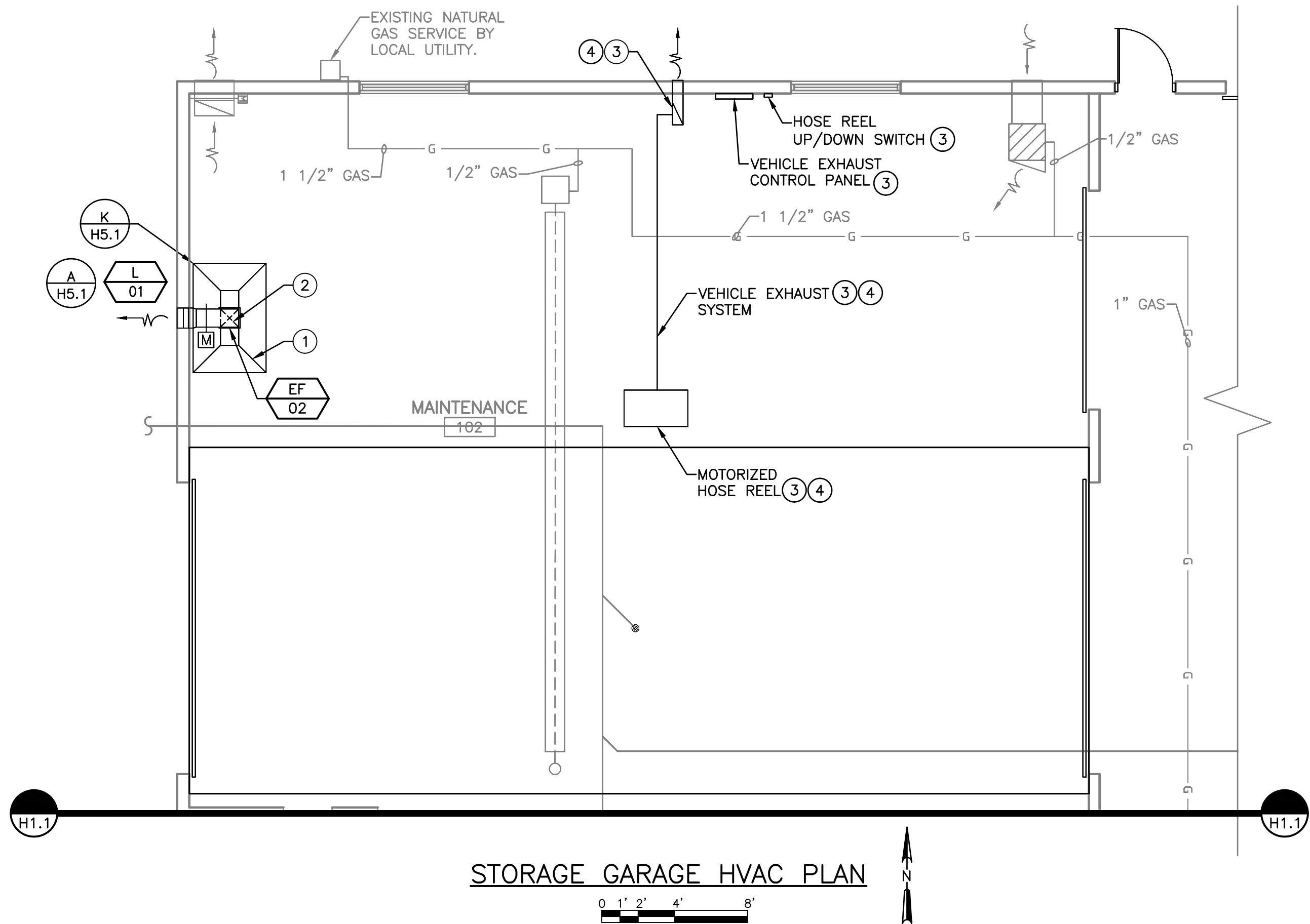
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OFFICE ENLARGED HVAC PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004
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SHEET
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H1.1



STORAGE GARAGE HVAC PLAN

GENERAL NOTES:

1. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
2. COORDINATE WITH OTHER TRADES TO ELIMINATE CONFLICTS BETWEEN PIPING, DUCTWORK, ELECTRICAL WORK, ETC.
3. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
4. ALL DUCT AND PIPE LOCATIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW PIPE ROUTING AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.
5. COORDINATE AND PROVIDE ALL DUCTWORK TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS PRIOR TO FABRICATION.
6. ROUTE DUCTWORK TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. SUPPLY DUCTWORK SHALL BE ROUTED BELOW RETURN AND EXHAUST DUCTWORK UNLESS OTHERWISE NOTED.

KEY NOTES:

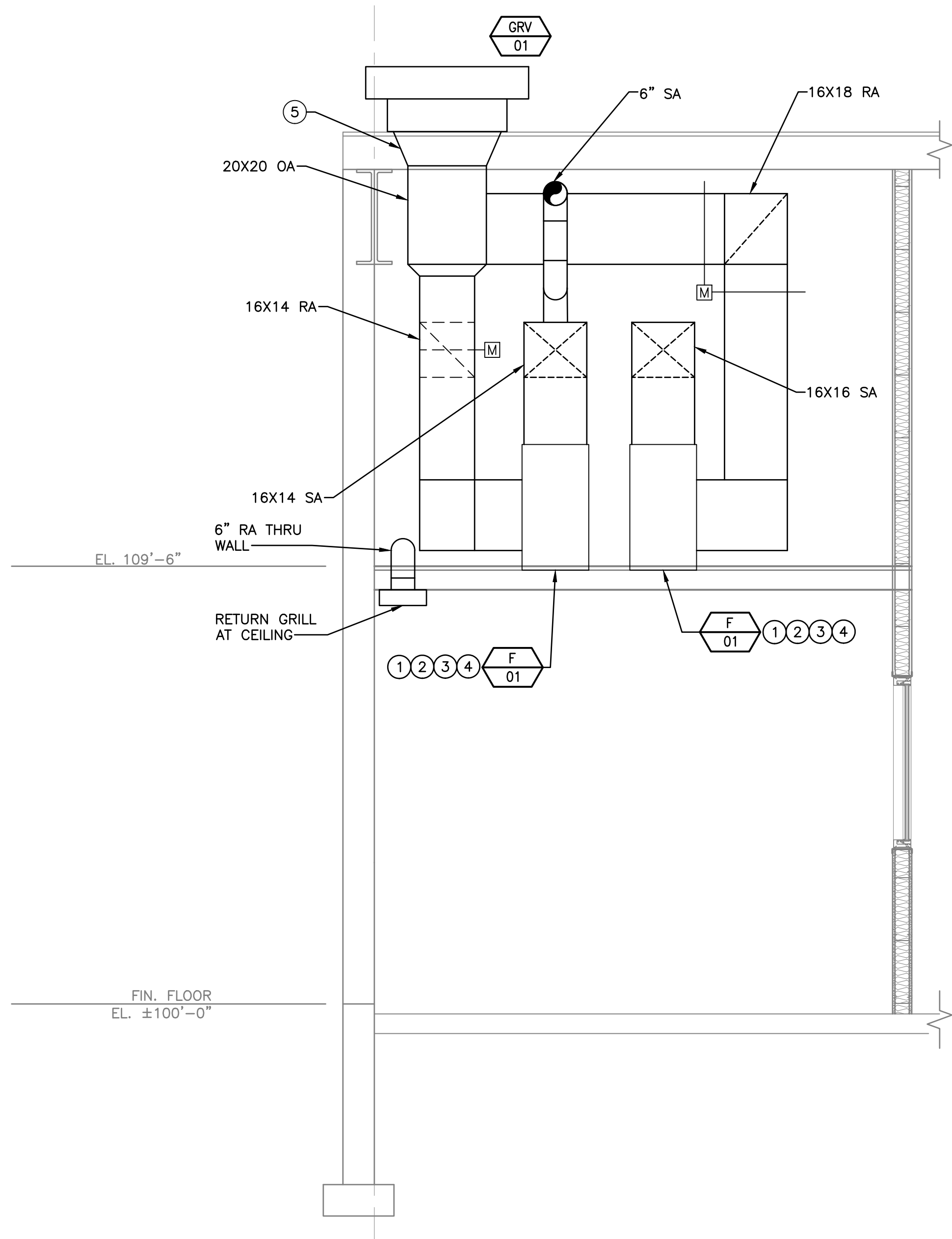
- ① 6'0" WIDE BY 4'-0" DEEP WELDING HOOD. HOOD SHALL BE CONSTRUCTED OF MINIMUM 18 GAGE GALVANIZED DUCTWORK AND MOUNTED 4'-0" ABOVE WELDING TABLE. OUTLET AT PEAK OF HOOD SHALL BE 12"x12". WELDING HOOD SHALL BE SUPPORTED FROM THE CEILING WITH THREADED ROD.
- ② ROUTE 12"x12" DUCTWORK FROM OUTLET ON WELDING HOOD TO INLET OF EF-02. EF-02 SHALL BE SUPPORTED FROM ABOVE. PROVIDE THE GROUND WITH VIBRATION ISOLATION.
- ③ THIS EQUIPMENT SHALL BE FURNISHED BY THE MANUFACTURER AND INSTALLED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER TO VERIFY EQUIPMENT IS INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
- ④ EQUIPMENT SHALL BE MOUNTED AS HIGH AS POSSIBLE AND SUPPORTED FROM THE ROOF. COORDINATE FINAL MOUNTING LOCATION WITH OWNER PRIOR TO INSTALLATION.

STORAGE GARAGE HVAC PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

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1426.004
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SCOTT HERKERT



SHEET
21
H1.2



SECTION 1
1/2" = 1'-0" H3.1

GENERAL NOTES:

1. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
2. COORDINATE WITH OTHER TRADES TO ELIMINATE CONFLICTS BETWEEN PIPING, DUCTWORK, ELECTRICAL WORK, ETC.
3. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
4. ALL DUCT AND PIPE LOCATIONS AND ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW PIPE ROUTING AND ELEVATIONS PRIOR TO FABRICATION AND INSTALLATION.
5. COORDINATE AND PROVIDE ALL DUCTWORK TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS PRIOR TO FABRICATION.
6. ROUTE DUCTWORK TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. SUPPLY DUCTWORK SHALL BE ROUTED BELOW RETURN AND EXHAUST DUCTWORK UNLESS OTHERWISE NOTED.

KEY NOTES:

1. INSTALL SIDE ACCESS FILTER NEAR RETURN INLET OF FURNACE.
2. ROUTE CONDENSATE PIPING THROUGH FLOOR TO HUB DRAIN IN H2O TESTING ROOM BELOW. PIPE ROUTING SHALL NOT IMPEDE ACCESS TO EQUIPMENT OR MEZZANINE SPACE. INSTALL IN ACCORDANCE WITH 
3. ROUTE REFRIGERANT PIPES FROM F-01 AND F-02 TIGHT TO WALLS TO ACCU-01 AND ACCU-02. ROUTING SHALL NOT IMPEDE ACCESS TO EQUIPMENT OR MEZZANINE SPACE.
4. ROUTE COMBUSTION AIR INTAKE AND EXHAUST VENT PIPING UP THROUGH CEILING. OFFSET PIPING TO AROUND DUCTWORK AND UP THROUGH ROOF PER  EXHAUST PIPING SHALL TERMINATE A MINIMUM  3'-0" ABOVE GRAVITY ROOF VENTILATOR GRV-01.
5. CONTRACTOR SHALL COORDINATE ROOF OPENING LOCATION AND ROOF CURB WITH ROOFING CONTRACTOR.
4. CONTRACTOR SHALL ROUTE NATURAL GAS PIPING TO EACH FURNACE. PIPING SHALL BE 3/4" SIZE UNTIL CONNECTION ON UNIT. EACH FURNACE SHALL HAVE DEDICATED REGULATOR AND SHUTOFF VALVE. REGULATOR SHALL BE VENTED TO THE OUTSIDE. INSTALL PIPING IN ACCORDANCE WITH DETAIL 

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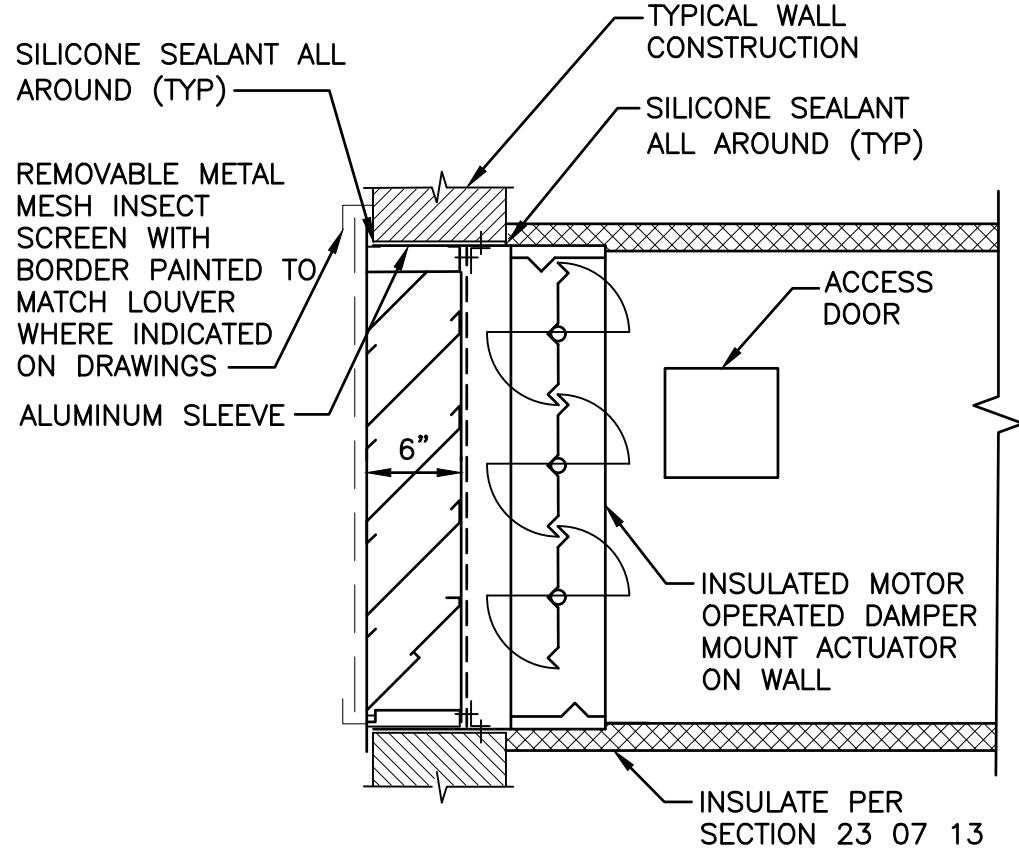
HVAC SECTIONS
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

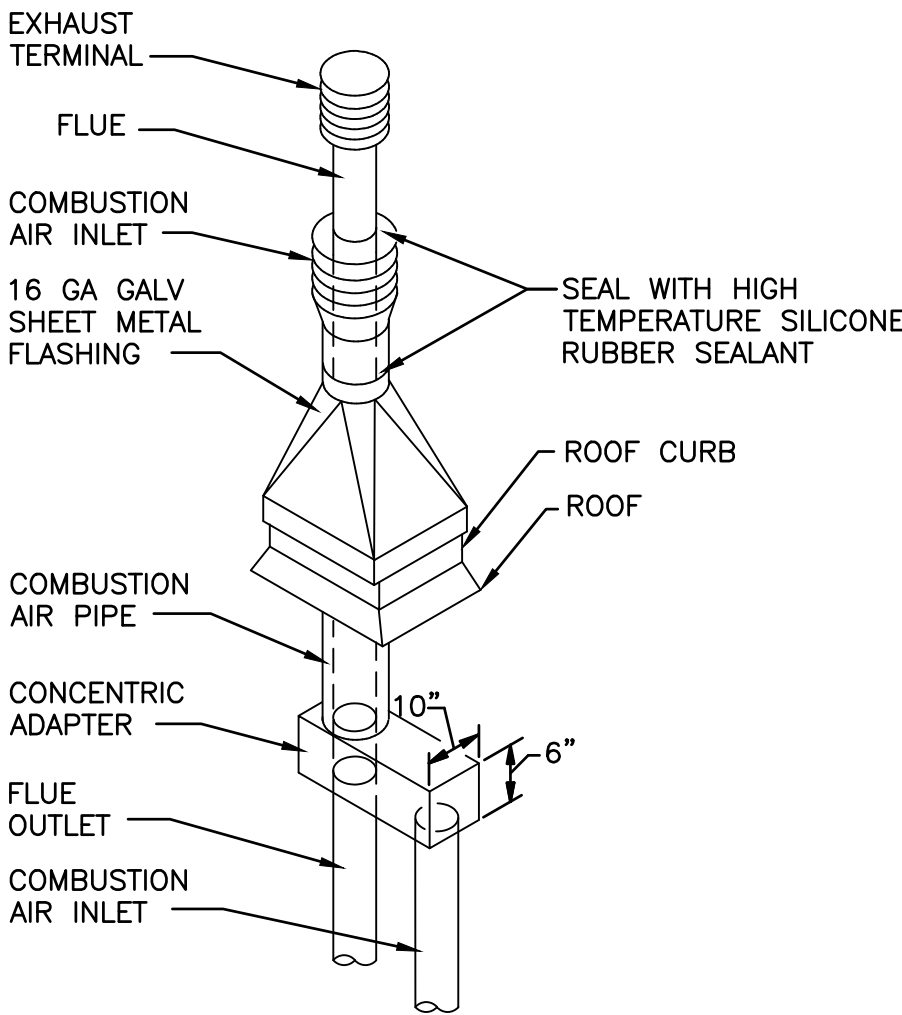
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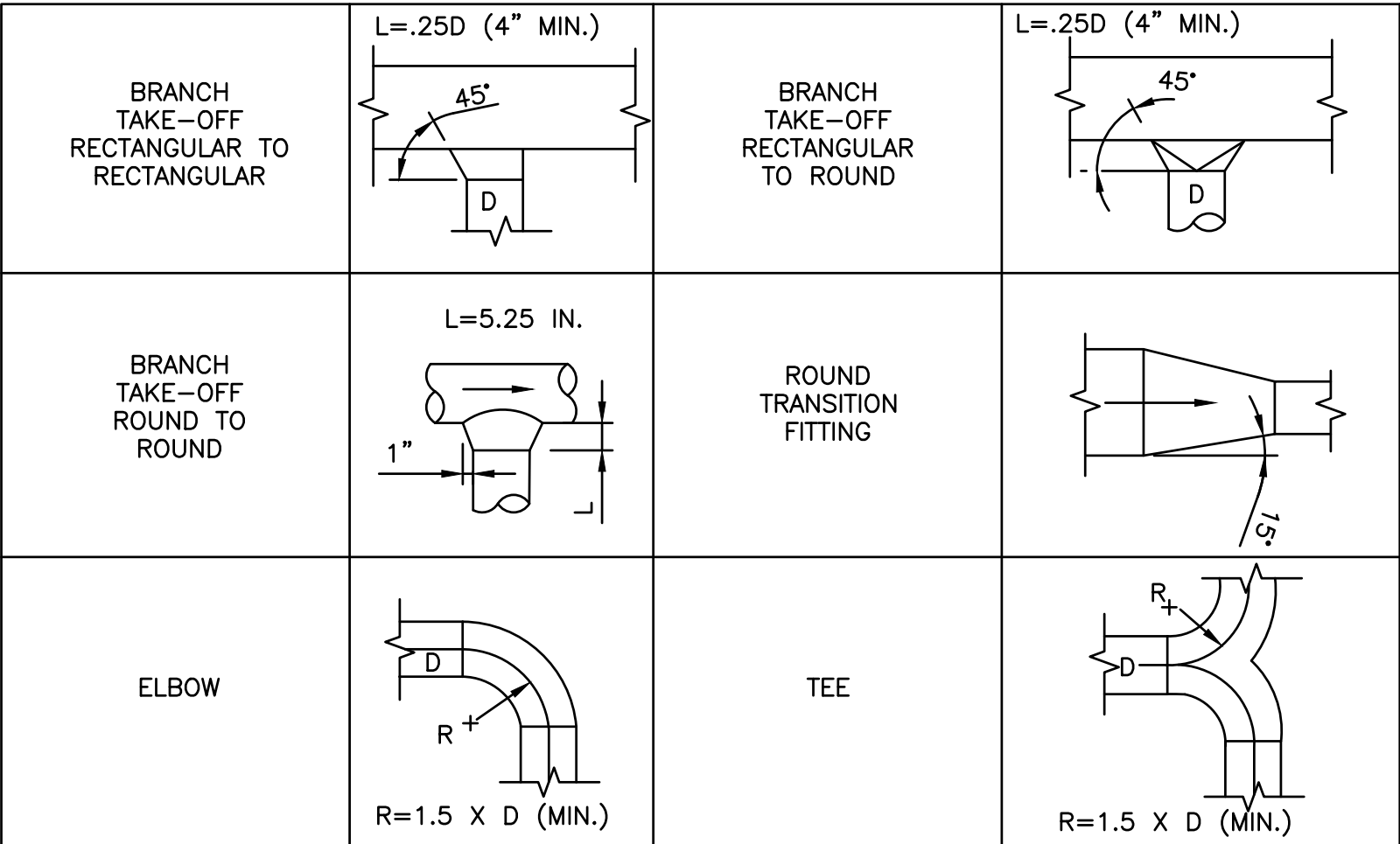
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H3.1



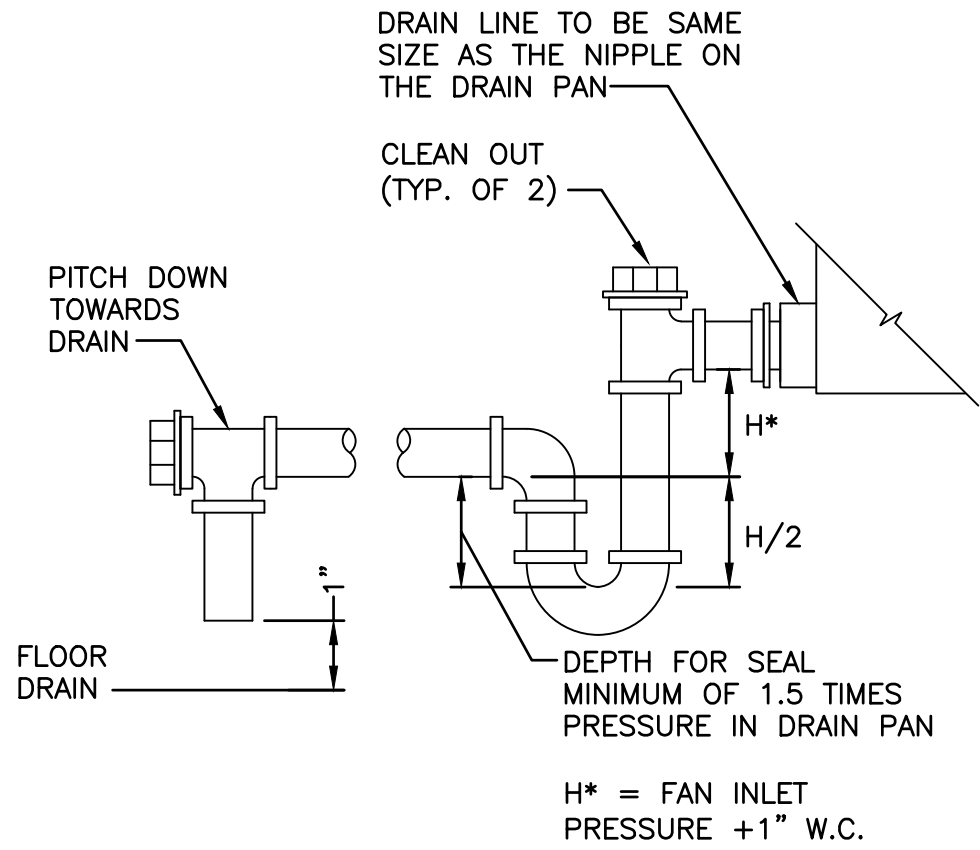
A WALL, LOUVER, DAMPER, AND DUCTWORK
H5.1 NO SCALE



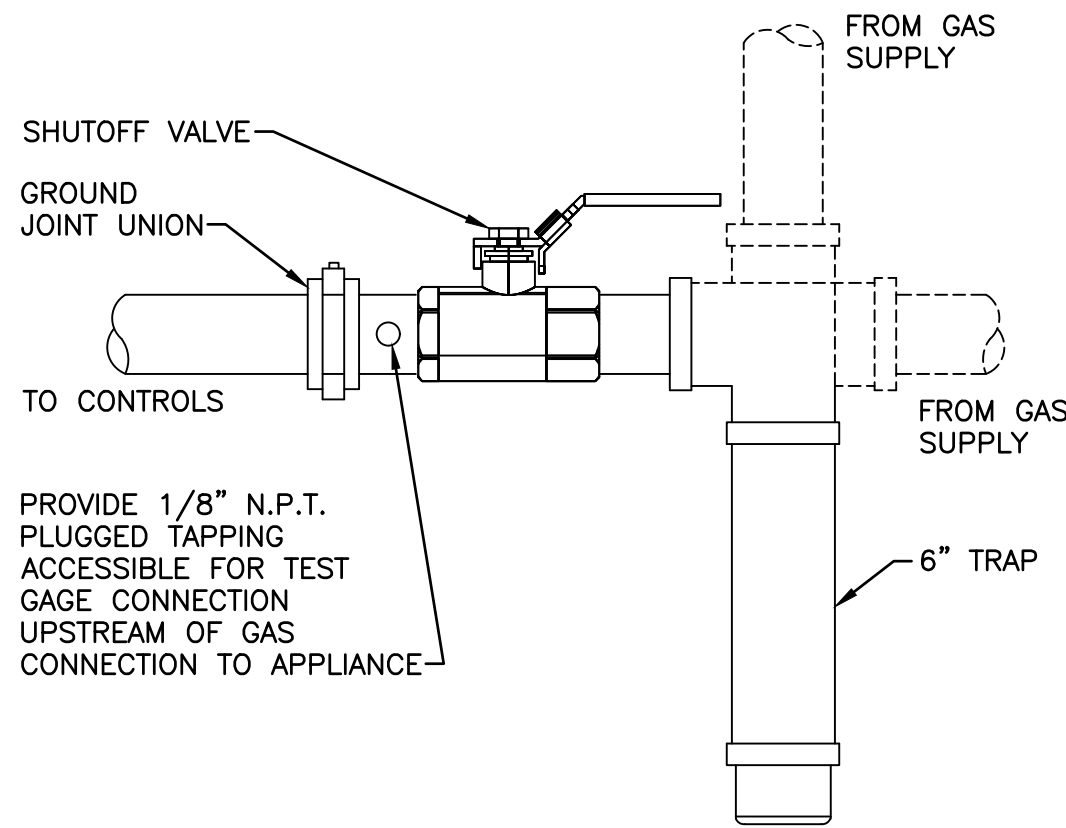
B VERTICAL VENT ASSEMBLY
H5.1 NO SCALE



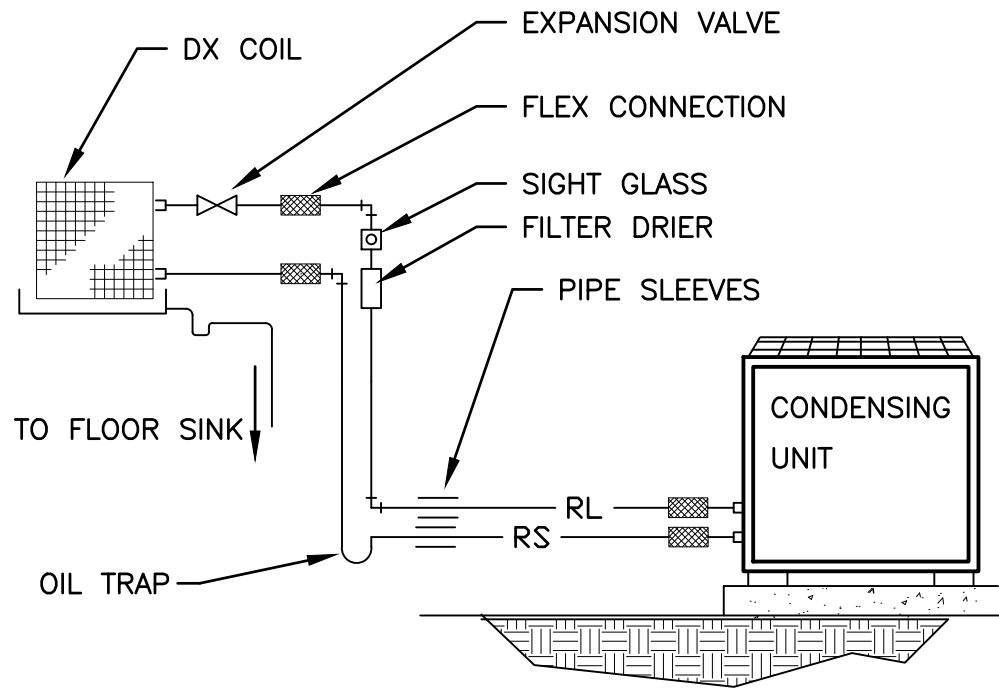
C TYPICAL DUCT TAKE-OFF DETAIL
H5.1 NO SCALE



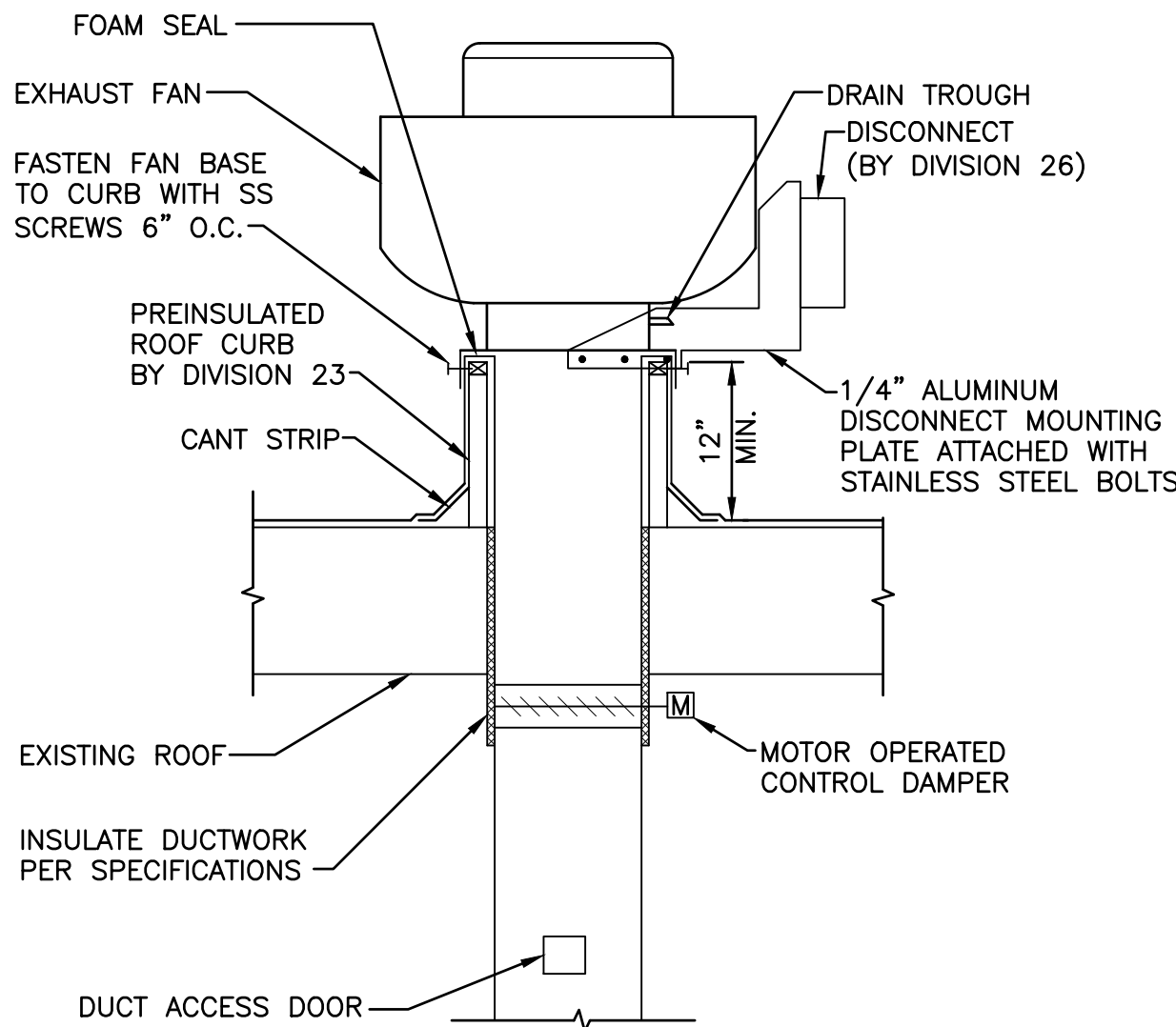
D CONDENSATE DRAIN
H5.1 NO SCALE



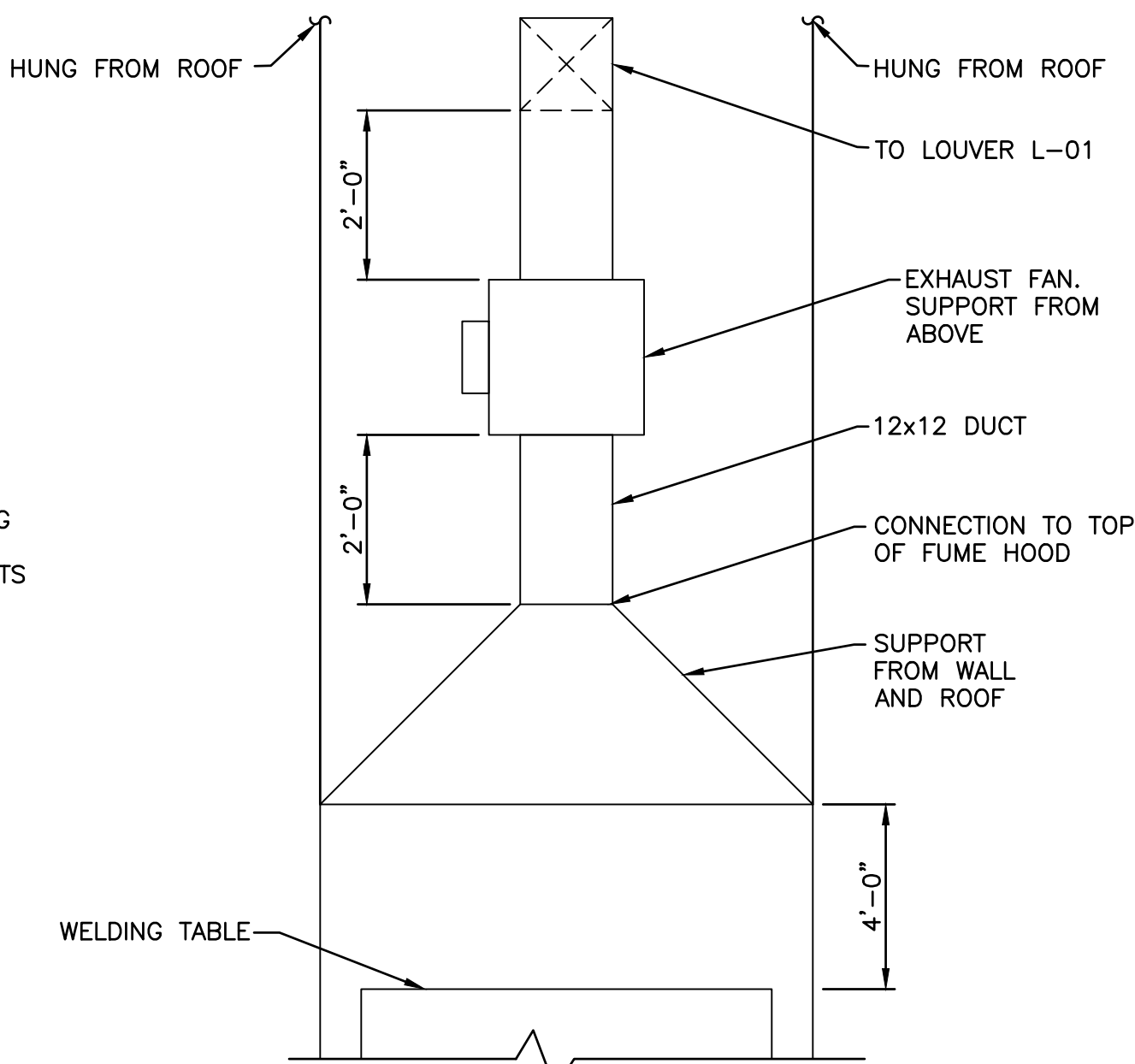
E NATURAL GAS CONNECTION
H5.1 NO SCALE



F DX COOLING SCHEMATIC
H5.1 NO SCALE



G UPBLAST EXHAUST FAN
H5.1 NO SCALE



H WELDING HOOD
H5.1 NO SCALE

HVAC DETAILS
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
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PROJECT MGR.
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H5.1

FURNACE SCHEDULE																									
UNIT NO. F—	LOCATION	SERVICE	TRANE MODEL NO.	FAN SECTION				FILTER TYPE	HEATING SECTION					COOLING COIL SECTION					ELECTRICAL				OPERATING WEIGHT (LBS.)	REMARKS	
				AIRFLOW (CFM)	MINIMUM OUTSIDE AIR (CFM)	EXTERNAL STATIC PRESS. (IN. OF W. C.)	SUPPLY FAN MOTOR SIZE (HP)		HEATING TYPE	GAS INPUT (MBH)/EFF.	EAT (°F)	LAT (°F)	GAS TRAIN PRESSURE (IN W.C.)	TRANE INDOOR MODEL NO.	EAT DB/WB (°F)	LAT DB/WB (°F)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	REFRIGERANT	VOLTS	PHASE	FLA			DISCONNECT BY
01	MECH. RM 220	OFFICE BUILDING	4PXC+SPX1B	960	190	0.9	1/2	MERV 8	NATURAL GAS	60/96%	53	90	5 TO 13"	4PXC+S9X1B	77/65	55/55	23.1	34	R-410A	115	1	10.3	DIV. 26	130	
02	MECH. RM 220	OFFICE BUILDING	4TXC+S9V2C	1,400	465	0.9	1	MERV 8	NATURAL GAS	80/96%	41	90	5 TO 13"	4PXC+S9X1B	79/67	55/55	34.3	48	R-410A	115	1	13.9	DIV. 26	150	

FAN SCHEDULE																
UNIT NO.	LOCATION	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	EXT. S.P. (IN. W.C.)	MOTOR SIZE (HP)	FAN TYPE	MOTOR TYPE	DRIVE	SOUND POWER (SONES)	ELECTRICAL				OPERATING WEIGHT (LBS.)	REMARKS
											VOLTAGE	PHASE	STARTER BY	DISCONNECT BY		
EF-01	ROOF	RESTROOMS	G-095-VG	665	0.5	0.15	CENTRIFUGAL EXHAUST	ECM	DIRECT	9.5	115	1	MANUFACTURER	MANUFACTURER	38	
EF-02	ROOF	WELDING HOOD	SQ-98-VG	600	0.5	0.75	INLINE	ECM	DIRECT	13.9	115	1	MANUFACTURER	MANUFACTURER	42	

AIR COOLED CONDENSING UNIT SCHEDULE																	
UNIT NO. ACCU—	LOCATION	SERVICE	TRANE MODEL NO.	NOMINAL CAPACITY (TONS)	COMPRESSORS		REFRIGERANT			ELECTRICAL					SEER	OPERATING WEIGHT (LBS.)	REMARKS
					NO. OF COMPRESSORS	COMPRESSOR TYPE	REFRIGERANT	SUCTION LINE SIZE (IN.)	LIQUID LINE SIZE (IN.)	VOLTAGE	PHASE	MCA	BREAKER SIZE	DISCONNECT BY			
01	EXTERIOR	F-01	4TTA3036	3	1	SCROLL	R-410A	0.75	0.375	208	3	14	20	DIV. 26	14	200	
02	EXTERIOR	F-02	4TTA4048	4	1	SCROLL	R-410A	0.875	0.375	208	3	18	30	DIV. 26	15	190	

SPLIT SYSTEM SCHEDULE															
UNIT NO. SS—	LOCATION	SERVICE	DAIKIN MODEL NO.		FAN SECTION			COOLING COIL SECTION			ELECTRICAL			OUTDOOR/INDOOR OPERATING UNIT WEIGHT (LBS.)	REMARKS
			(INDOOR UNIT)	(OUTDOOR UNIT)	SUPPLY AIR (CFM)	QUANTITY	MOTOR SIZE (HP)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	EAT DB/WB (°F)	VOLTAGE	PHASE	MCA		
01	UTILITY ROOM 111	ELECTRICAL ROOM	FTKB12AXVJU	RKB12AXVJU	360	1	0.17	8.2	11	85	208	1	7.7	60/20	①

① PROVIDE PRECHARGED REFRIGERANT PIPING KIT, SIZE AND LENGTH AS REQUIRED.

WALL LOUVER SCHEDULE													
UNIT NO. L—	LOCATION	SERVICE	GREENHECK MODEL NO.	AIRFLOW (CFM)	WIDTH (IN)	HEIGHT (IN)	BLADE DEPTH (IN)	MAX. APD (IN WG)	FACE VEL. (FPM)	FREE AREA (SQ. FT.)	SCREEN		REMARKS
											TYPE	LOCATION	
01	MAINTENANCE 102	WELDING HOOD EXHAUST	ESD—635	600	18	18	6	0.08	728	0.82	INSECT	EXTERIOR	

ELECTRIC WALL HEATER SCHEDULE										
UNIT NO. EWH—	LOCATION	Q—MARK MODEL NO.	CAPACITY (WATTS)	CAPACITY (BTU)	ELECTRICAL					REMARKS
					VOLTAGE	PHASE	FLA	BREAKER SIZE	DISCONNECT BY	
01	MECH. ROOM 220	CWH1101DSAF	1000	3,412	120	1	8.4	15	MANUFACTURER	
02	LOBBY 123	CWH1101DSAF	1000	3,412	120	1	8.4	15	MANUFACTURER	

DESIGN CONDITIONS				
APPLICABLE BUILDING CODE: WISCONSIN SPS 364		SUMMER EXTERIOR: 87°F DB / 75°F WB WINTER EXTERIOR: -15°F DB		
OCCUPANCY TYPE	VENTILATION	SUMMER INTERIOR (DB/WB)	WINTER INTERIOR (DB)	REMARKS
OFFICE BUILDING	7.5 CFM / PERSON	75/62.5	70	
LOCKERROOM	0.5 CFM / SF	75/62.5	70	
RESTROOMS	75 CFM / FIXTURE	75/62.5	70	

GRAVITY ROOF VENTILATOR SCHEDULE											
UNIT NO. GRV—	LOCATION	SERVICE	GREENHECK MODEL NO.	THROAT WIDTH (IN.)	THROAT LENGTH (IN.)	AIRFLOW (CFM)	STATIC PRESSURE (IN. W.C.)	THROAT VELOCITY (FPM)	THROAT AREA (SQ. FT)	OVERALL HEIGHT (IN.)	REMARKS
01	ROOF	OA INTAKE	GRSI	30.5	30.5	2,360	0.055	469	5.03	20.5	

ELECTRIC BASEBOARD HEATER SCHEDULE									
UNIT NO. EBB—	LOCATION	Q-MARK MODEL NO.	CAPACITY (WATTS)	LENGTH OF UNIT	ELECTRICAL			DISCONNECT BY	REMARKS
					VOLTAGE	PHASE	FLA		
01	OFFICE 103	2513W	750	3'	120	1	6.3	MANUFACTURER	
02	BREAK ROOM 104	2516W	1,500	6'	120	1	12.6	MANUFACTURER	
03	BREAK ROOM 104	2516W	1,500	6'	120	1	12.6	MANUFACTURER	
04	OFFICE / WORK AREA 121	2514W	1,000	4'	120	1	8.4	MANUFACTURER	
05	OFFICE 114	2515W	1,250	5'	120	1	10.5	MANUFACTURER	
06	OFFICE 115	2515W	1,250	5'	120	1	10.5	MANUFACTURER	
07	LAB/H2O TESTING 122	2515W	1,250	5'	120	1	10.5	MANUFACTURER	
08	SUP. OFFICE 105	2515W	1,250	5'	120	1	10.5	MANUFACTURER	

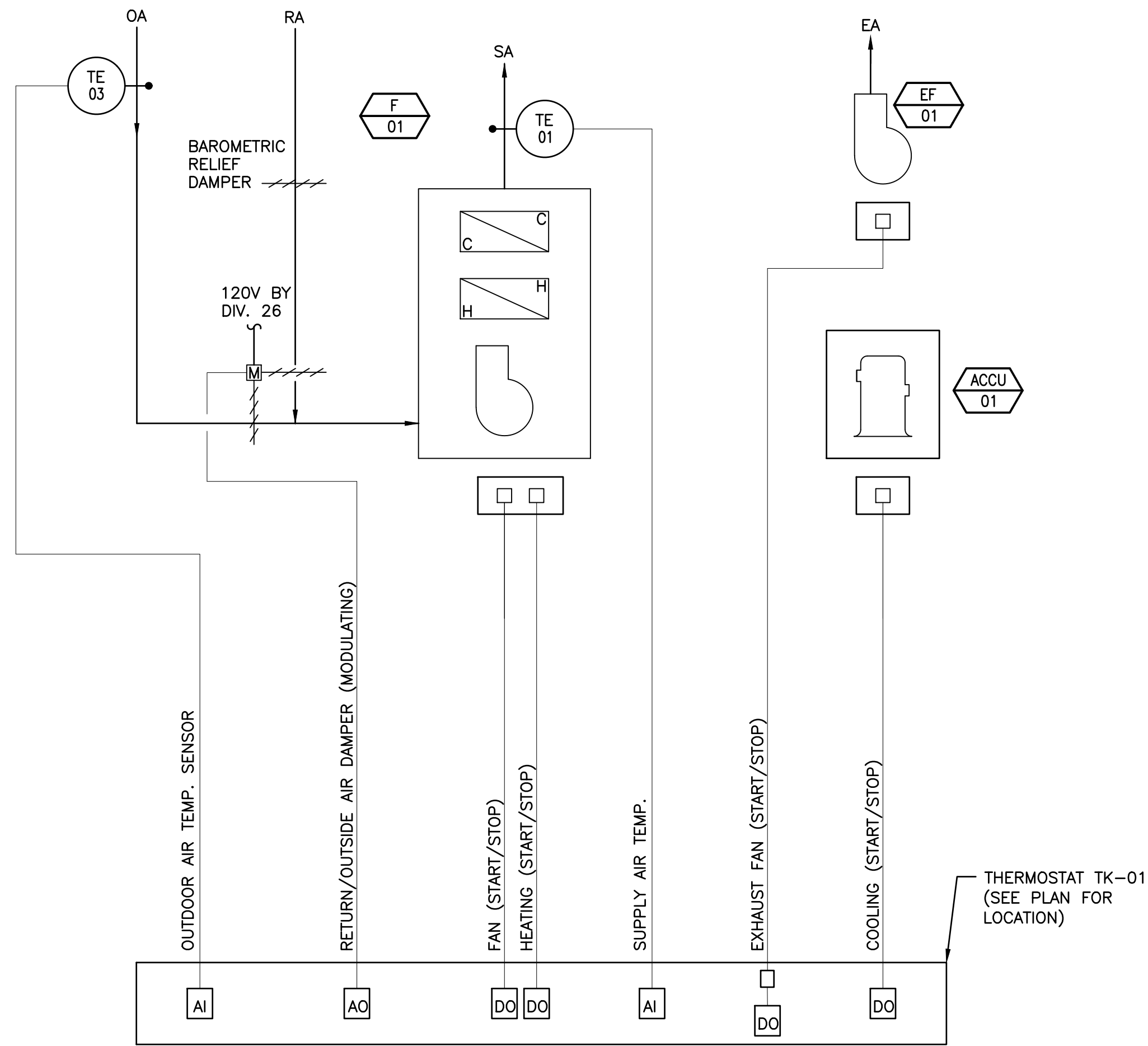
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REVISIONS							
	ISSUED FOR BID						
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HVAC SCHEDULES

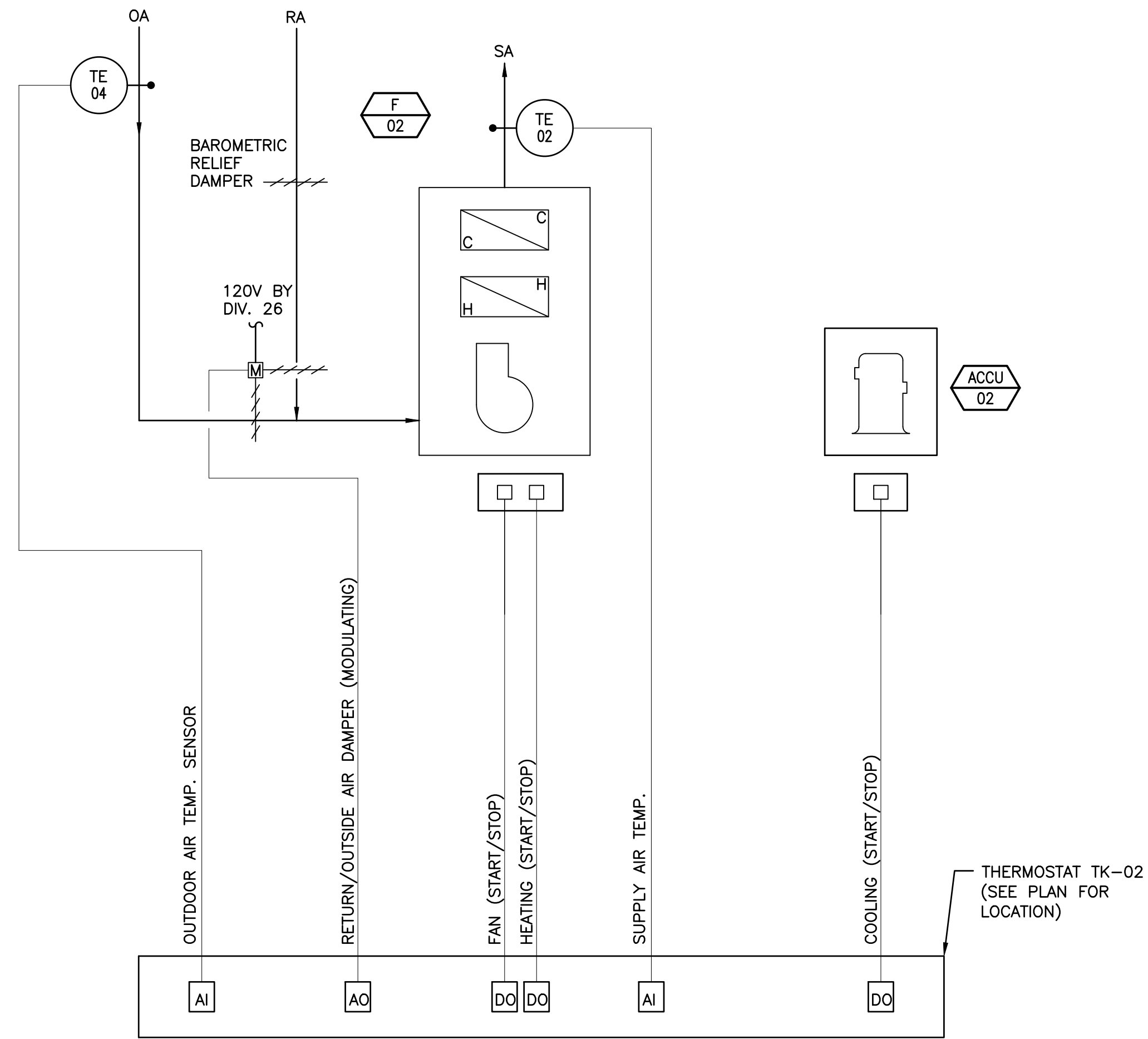
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO. 1426.004
PROJECT MGR. SCOTT HERKERT

SHEET 24 H6.1



FURNACE F-01 CONTROLS
NO SCALE



FURNACE F-02 CONTROLS
NO SCALE

NOTE: DIVISION 26 TO PROVIDE
ALL WIRING AND CONDUIT.

NO.	REVISIONS	DATE:
1	ISSUED FOR BID	4/8/20

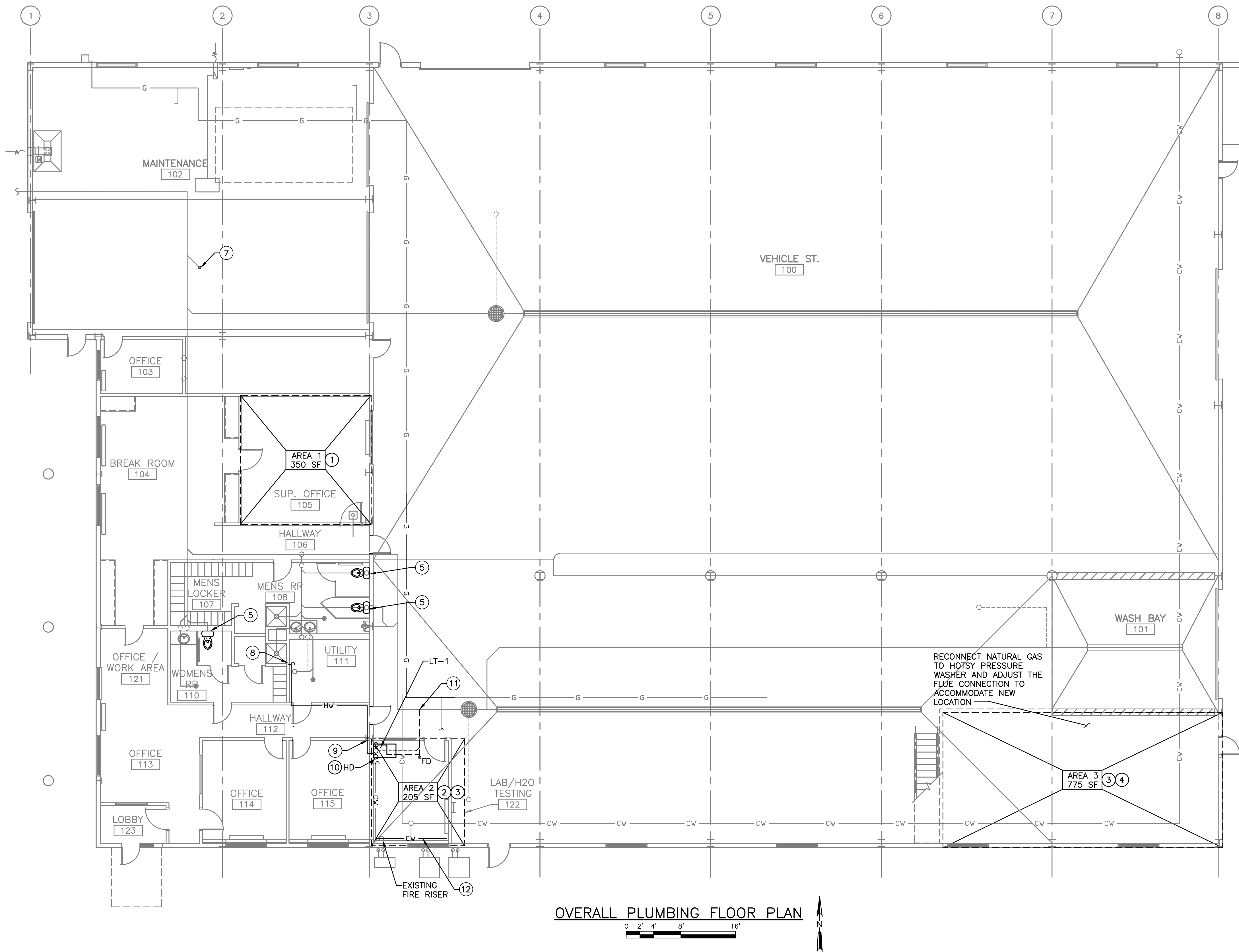
CONTROLS SCHEMATICS
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

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SHEET
25
H7.1



GENERAL NOTES:

1. VERIFY ALL CEILING HEIGHTS AT SITE, PRIOR TO INSTALLATION.
2. FIRE PROTECTION CONTRACTOR SHALL PERFORM WATER FLOW TEST AT FIRE HYDRANT PRIOR TO FINAL SPRINKLER DESIGN.
3. FIRE PROTECTION HYDRAULIC CALCULATIONS FOR AUTOMATIC SPRINKLER SYSTEM SHALL INCORPORATE MINIMUM 10 PSI SAFETY FACTOR.
4. ALL LEAKAGE EVIDENCED BY TESTING SHALL BE REPAIRED BY TIGHTENING OR REPLACING FITTING OR EQUIPMENT ONLY.
5. ALL REPAIRS SHALL BE AT THE CONTRACTORS EXPENSE. CAULKING, WRAPPING OR OTHER MEANS OF REPAIR SHALL NOT BE PERMITTED.
6. ALL PIPE PENETRATIONS THROUGH WALL SHALL BE SLEEVED AND SEALED TO MAKE WATERTIGHT AND MAINTAIN FIRE RATING.
7. SPRINKLERS NEAR HEATERS AND LOCATED WITHIN HEATER ZONES AS DEFINED BY NFPA-13, LATEST EDITION, SHALL BE HIGH TEMPERATURE RATED.
8. THE COMPLETE INSTALLATION AND TESTING OF THE AUTOMATIC SPRINKLER SYSTEM SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF NFPA.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ALL REQUIRED PIPING OFFSETS FOR COMPLETE SYSTEM INSTALLATION.

KEY NOTES:

- ① PIPING CURRENTLY ROUTED IN THE ATTIC SPACE ABOVE OFFICE AREA.
- ② AREA HAS A MEZZANINE ABOVE. MEZZANINE AREA IS ENCLOSED. SPRINKLER HEADS THAT SERVE THE LOWER LEVEL SHALL NOT PENETRATE THE MEZZANINE FLOOR. SPRINKLER PROTECTION SHALL BE PROVIDED ABOVE AND BELOW THE MEZZANINE AREA.
- ③ SPACE UNDER THE MEZZANINE IS DESIGNED FOR A ORDINARY GROUP 2 HAZARD AND SHALL NOT BE USED TO STORE COMBUSTIBLES OR FLAMMABLE AND/OR COMBUSTIBLE LIQUIDS IN EXCESS OF THOSE QUANTITIES PERMITTED BY NFPA 13 OR NFPA 30.
- ④ AREA HAS A MEZZANINE ABOVE. MEZZANINE AREA IS OPEN TO THE VEHICLE STORAGE AREA. SPRINKLER HEADS THAT SERVE THE LOWER LEVEL SHALL NOT PENETRATE THE MEZZANINE FLOOR. SPRINKLER PROTECTION SHALL BE PROVIDED ABOVE AND BELOW THE MEZZANINE AREA.
- ⑤ PROVIDE NEW WATER CLOSET. NEW WATER CLOSET-SHALL MATCH STYLE AND DIMENSIONS OF REMOVED UNIT. NEW WATER CLOSET SHALL BE PRESSURE ASSIST STYLE. INSTALL IN SAME LOCATION AS REMOVED UNIT.
- ⑥ PROVIDE NEW HOSE BIB TO SERVE LAB/H2O TESTING ROOM. PIPING FOR NEW HOSE BIB SHALL TIE INTO EXISTING WATER SUPPLY DOWNSTREAM OF EXISTING WATER METER. COORDINATE FINAL LOCATION WITH OWNER.
- ⑦ PROVIDE NEW FLOOR DRAIN. NEW FLOOR DRAIN SHALL TIE INTO EXISTING DRAIN PIPE. DRAIN CONNECTIONS SHALL BE SOLVENT WELD OR LINK SEAL. RUBBER COUPLINGS ARE NOT PERMITTED.
- ⑧ CONNECT TO EXISTING HOT WATER SUPPLY.
- ⑨ ROUTE PIPING ABOVE ACOUSTICAL CEILING. PROVIDE OFFSETS AS REQUIRED.
- ⑩ HUB DRAIN FOR EXISTING FIRE PROTECTION RISER DRAIN AND CONDENSATE FROM FURNACE UNITS. PROVIDE 4-INCH FUNNEL.
- ⑪ CONNECT NEW UNDER FLOOR DRAIN TO EXISTING DRAIN PIPING.
- ⑫ CONNECT TO EXISTING COLD WATER SUPPLY. ROUTE PIPING TIGHT TO WALL TO LAUNDRY TRAY.

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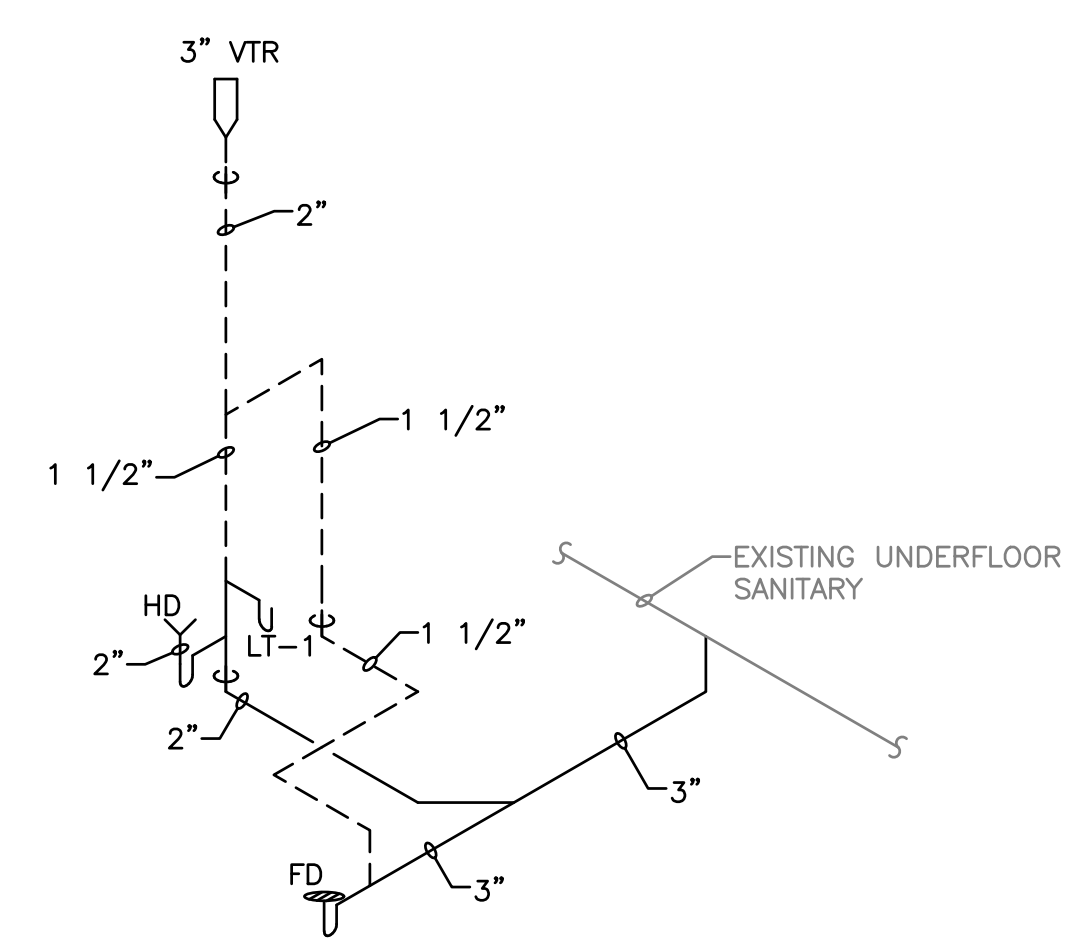
OVERALL PLUMBING AND FIRE PROTECTION FLOOR PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
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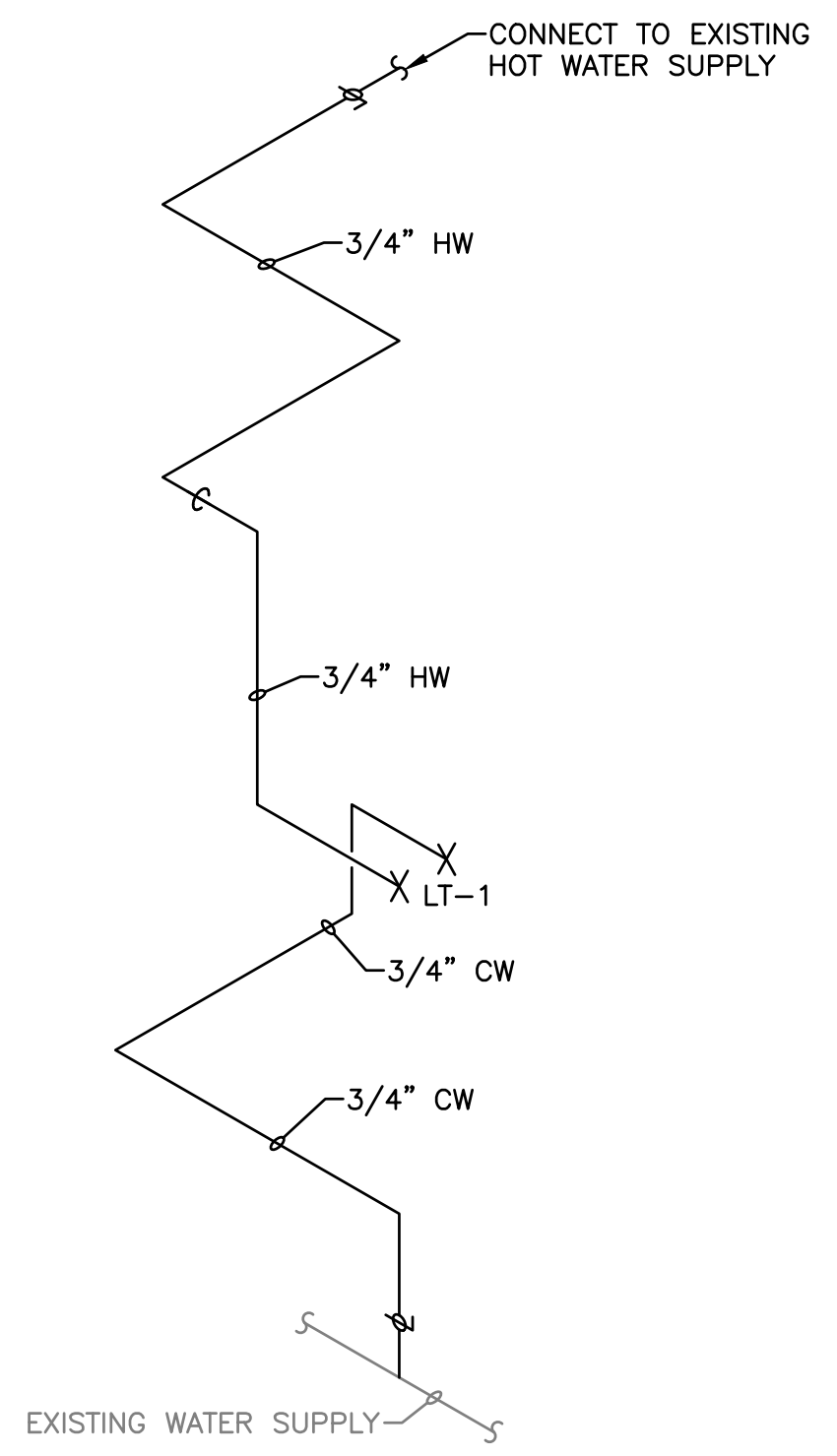
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26
FP1.1



WASTE AND VENT SCHEMATIC
NO SCALE



WASTE SUPPLY SCHEMATIC
NO SCALE

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	ISSUED FOR BID		
1			4/8/20

PLUMBING SCHEMATICS
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

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ELECTRICAL SYMBOLS

LIGHTING

	FIXTURE SYMBOL (TYPICAL) A=INDICATES FIXTURE TYPE 2=INDICATES CIRCUIT NUMBER b=INDICATES SWITCHING SOLID CIRCLE INDICATES ALWAYS ON
	SURFACE OR PENDANT MOUNTED
	WALL MOUNTED
	1X4 SURFACE OR PENDANT MOUNTED LINEAR
	1X8 SURFACE OR PENDANT MOUNTED LINEAR
	LINEAR WALL MOUNTED
	1X4 RECESSED LINEAR
	2X2 RECESSED LINEAR
	2X4 RECESSED LINEAR
	RECESSED CAN
	EXIT, SURFACE, PENDANT OR RECESSED
	EXIT, WALL
	EMERGENCY LIGHTING
SWITCHES	
	SINGLE POLE
	TWO POLE
	THREE WAY
	FOUR WAY
	KEYED
	DIMMER
	MANUAL MOTOR SWITCH (3 PHASE)
	WEATHER PROOF
	SWITCH WITH PILOT LIGHT
	LIGHTING CONTROL STATION
	PHOTOCELL

EQUIPMENT AND WIRING

	GROUND CONNECTION (ONE-LINE DIAGRAM)
	TRANSFORMER
	DISCONNECT, F=FUSED, B=CIRCUIT BREAKER, BLANK=NON-FUSED
	MOTOR STARTER MAGNETIC
	CIRCUIT BREAKER COMBINATION STARTER
	JUNCTION BOX
	LINE VOLTAGE THERMOSTAT
	LINE VOLTAGE THERMOSTAT W/REMOTE BULB
	480V LOAD, REFER TO MCC SCHEDULE FOR EQUIPMENT NUMBER
	VARIABLE FREQUENCY DRIVE

SITE SYMBOLS

	UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC
	CABLE TELEVISION SERVICE
	TELEPHONE SERVICE
	FIBER OPTIC CABLE
	UTILITY POLE

POWER SYMBOLS

	CIRCUIT NUMBER (TYPICAL)
	OTHERWISE SHOWN PANEL DESIGNATION (TYP.) INDICATES WEATHERPROOF
	DUPLEX, 125 VOLT, WP
	DUPLEX, 125 VOLT, ABOVE FURNITURE
	DOUBLE DUPLEX, 125 VOLT, ABOVE FURNITURE
	DOUBLE DUPLEX, 125 VOLT
	SINGLE CONVENIENCE, 125 VOLT FOR ELECTRIC WATER COOLER
	EXPLOSION-PROOF, ABOVE FURNITURE
	EXPLOSION-PROOF
	FIXED EQUIPMENT CONNECTION
	POWER OUTLET, VOLTAGE & AMPERAGE AS INDICATED
	AUTOMATIC TRANSFER SWITCH (ONE-LINE DIAGRAM)
	CIRCUIT BREAKER (ONE-LINE DIAGRAM)
	METER (ONE-LINE DIAGRAM)
	PANELBOARD

FIRE ALARM AND DETECTION SYMBOLS

	FIRE ALARM CONTROL PANEL
	FIRE ANNUNCIATOR CONTROL PANEL
	STROBE; WALL MOUNT - ADA RATED
	STROBE CANDELA RATING 80" AFF
	HORN STROBE; WALL MOUNT - ADA RATED
	STROBE CANDELA RATING 80" AFF
	SPEAKER STROBE; WALL MOUNT - ADA RATED
	STROBE CANDELA RATING 80" AFF
	HORN; WALL MOUNT - ADA RATED
	SPEAKER; WALL MOUNT - ADA RATED
	STROBE; CEILING MOUNT - ADA RATED
	STROBE CANDELA RATING
	HORN STROBE; CEILING MOUNT - ADA RATED
	STROBE CANDELA RATING
	SPEAKER STROBE; CEILING MOUNT - ADA RATED
	STROBE CANDELA RATING
	AREA OF RESCUE ASSISTANCE
	EMERGENCY TELEPHONE SYSTEM
	HEAT DETECTOR; CEILING MOUNT
	SMOKE DETECTOR; CEILING MOUNT
	ELEVATOR RECALL SMOKE DETECTOR
	NITROUS OXIDE SENSOR
	CARBON MONOXIDE SENSOR
	SWITCH INDICATION
	DUCT SMOKE DETECTOR
	DUCT SIZE
	REMOTE TEST SWITCH
	SWITCH INDICATION
	FIRE ALARM PULL STATION
	SPRINKLER FLOW SWITCH
	SPRINKLER VALVE TAMPER SWITCH
	FIRE ALARM BELL

INSTRUMENTATION EQUIPMENT

	ANALYSIS ELEMENT
	ANALYSIS INDICATING TRANSMITTER, *: DO=DISSOLVED OXYGEN, PH=PH, TRB=TURBIDITY, TSS=TOTAL SUSPENDED SOLIDS, GD=GAS DETECTOR, CA=CHLORINE ANALYZER, OP=OXYGEN PURITY, ORP=OXYGEN-REDUCTION POTENTIAL, LEL=LOWER EXPLOSIVE LIMIT, PR=PROXIMITY, MST=MOISTURE
	CONTROL SWITCH DEVICE TYPE (SEE MCC SCHEDULE)
	DENSITY ELEMENT
	DENSITY INDICATING TRANSMITTER
	FLOW ELEMENT
	FLOW INDICATING TRANSMITTER, *: M=MAGNETIC, TM= THERMAL MASS DP=DIFFERENTIAL PRESSURE, U=ULTRASONIC
	FLOW SWITCH *: P=PADDLE, T=THERMAL, C=CAPACITANCE, A=AIR FLOW
	HAND SWITCH *: SS=SAFETY SWITCH
	POWER ELEMENT (CURRENT XFMR, POTENTIAL XFMR)
	CURRENT SWITCH
	POWER INDICATING TRANSMITTER
	TIME SWITCH
	LEVEL ELEMENT
	LEVEL INDICATING TRANSMITTER, *: S=SUBMERSIBLE, U=ULTRASONIC, R=RADAR, TL=TANK LEVEL/RING PRESSURE TYPE, F=FLANGE MOUNTED)
	LEVEL SWITCH, *: C=CONDUCTANCE, F=BALL FLOAT, V=VIBRATING FORK, B=BUILDING FLOODING
	LEVEL TRANSDUCER S=SUBMERSIBLE
	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
	PRESSURE ELEMENT
	PRESSURE INDICATING TRANSMITTER
	PRESSURE SWITCH
	SPEED SWITCH
	TEMPERATURE CONTROLLER
	TEMPERATURE ELEMENT, *: R=RTD, T=THERMOCOUPLE
	TEMPERATURE INDICATING TRANSMITTER
	TEMPERATURE CONTROL STATION
	TEMPERATURE SWITCH
	TEMPERATURE TRANSMITTER
	VIBRATION ELEMENT
	VIBRATION INDICATING TRANSMITTER
	WEIGHT ELEMENT
	TORQUE SWITCH
	WEIGHT TRANSMITTER (SCALE)
	PRESENCE/ABSENCE DETECTOR
	POSITION SWITCH, *: D=DOOR, L=LIMIT, P=PROXIMITY
	SOLENOID VALVE
	GAS DETECTION SYSTEM HORN; WALL MOUNT
	GAS DETECTION SYSTEM STROBE; WALL MOUNT

TECHNOLOGY SYMBOLS

	DATA JACK
	PHONE JACK
	POTS ANALOG PHONE AND DATA JACKS * = # OF JACKS
	WALL MOUNT VOIP PHONE JACK 54" AFF
	WALL MOUNT POTS ANALOG PHONE JACK 54" AFF
	2-POST DATA RACK
	COAX CABLE JACK
	POWER POLE
	PA SYSTEM HORN; 10'-0" AFF
	PA SYSTEM SPEAKER
	SPEAKER; CEILING MOUNT A=SPEAKER TYPE
	KEY PAD
	GLASS BREAK DETECTOR
	MOTION SENSOR
	PUSH BUTTON
	ELECTRIC STRIKE
	MAGNETIC LOCK
	INTERCOM STATION
	OCCUPANCY SENSOR, CEILING, OR WALL SEE SPECIFICATION FOR SENSOR TYPE
	CARD READER
	REMOTE VOLUME CONTROL
	FIXED SECURITY CAMERA
	PAN, TILT, ZOOM SECURITY CAMERA

DUCTWORK SYMBOLS

	SUPPLY DUCT (UP OR SECTION)
	SUPPLY OR OUTSIDE AIR DUCT (DOWN/OR AWAY)
	EXHAUST DUCT (UP OR SECTION)
	EXHAUST OR RETURN DUCT (DOWN/OR AWAY)
	ROUND DUCTWORK UP
	ROUND DUCTWORK DOWN
	FLEXIBLE CANVAS CONNECTION
	TURNING VANES

DAMPER SYMBOLS

	AUTOMATIC DAMPER
	BACKDRAFT DAMPER
	MANUAL VOLUME DAMPER
	1-1/2 HR. FIRE DAMPER

FIELD MOUNTED HVAC CONTROLS

	THERMOSTAT
	ROOM HUMIDISTAT
	PRESSURE SENSOR
	ROOM SENSOR
	DUCT SMOKE DETECTOR
	PRESSURE GAUGE

ACTUATORS

	MOTOR (ELECTRIC)
	PNEUMATIC
	SOLENOID

EQUIPMENT SYMBOLS

	ACCUMULATOR
	AIR FLOW DIRECTION
	BASE MOUNTED PUMP
	BLOWER
	CEILING DIFFUSER WITH FLEXIBLE DUCT
	CENTRIFUGAL PUMP
	CONNECT TO EXISTING
	DRIP TRAP
	DUCT BOOST COIL
	EQUIPMENT TAG
	FLAME ARRESTER
	FLAME CELL
	FLAME TRAP ASSEMBLY
	GRINDER
	INLINE PUMP
	POSITIVE DISPLACEMENT PUMP
	ROOF EXHAUST FAN
	UNIT HEATER
	VARIABLE AIR VOLUME (VAV) BOX WITH ELECTRIC REHEAT COIL
	VARIABLE AIR VOLUME (VAV) BOX WITH HEATING HOT WATER REHEAT COIL
	FLOATING MIXER
	SCREW CONVEYOR

ELECTRICAL SYMBOLS

PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

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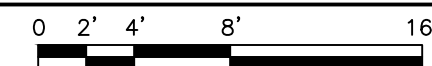
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29
E0.1

1. ALL 120/208V EQUIPMENT/LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.
2. ALL FIRE ALARMS DEVICES TO BE WIRED TO FACP/NAC IN UTILITY ROOM.

- ① OVERHEAD GARAGE DOOR CONTROLS FURNISHED AS SPECIFIED IN DIVISION 8 AND INSTALLED BY DIVISION 26. REFER TO DIVISION 8 OF SPECIFICATIONS FOR OPERATING DESCRIPTION AND ADDITIONAL CONTROLS TO BE WIRED BY DIVISION 26. MOTOR DISCONNECT SHALL BE MOUNTED ON CEILING ADJACENT TO MOTOR. ALL WORK ASSOCIATED WITH OVERHEAD DOORS SHALL BE PART OF BID ALTERNATIVE NO. 2. COORDINATE EXACT LOCATION OF CONTROLS WITH OWNER. MOTORS SHALL BE POWERED FROM EXISTING CIRCUIT USED FOR REMOVED MOTOR. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR AND CONTROLS TO NEW MOTOR AND CONTROLS.
- ② DEVICE SHALL BE RATED 96dB.
- ③ EXHAUST FAN SHALL BE POWERED FROM CIRCUIT USED FOR REMOVED FAN. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR TO NEW MOTOR.

- ④ PROVIDE 3~#12 AND #12 GROUND IN 3/4" CONDUIT FROM EXHAUST CONTROLLER TO VEHICLE EXHAUST CONTROL SYSTEM.
- ⑤ LIMIT SWITCH PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26. PROVIDE 2~#14 IN 3/4" CONDUIT FROM LIMIT SWITCH TO VEHICLE EXHAUST CONTROLLER.
- ⑥ EQUIPMENT PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26.
- ⑦ PROVIDE 2~#14 IN 3/4" CONDUIT FROM HOSE REEL CONTROLLER TO JUNCTION BOX ON HOSE REEL.
- ⑧ DAMPER SHALL BE WIRED TO OPEN WHEN EXHAUST FAN EF-02 IS RUNNING.
- ⑨ PROVIDE RACEWAY WITHIN DOOR FRAME FOR FUTURE CARD ACCESS WIRING.

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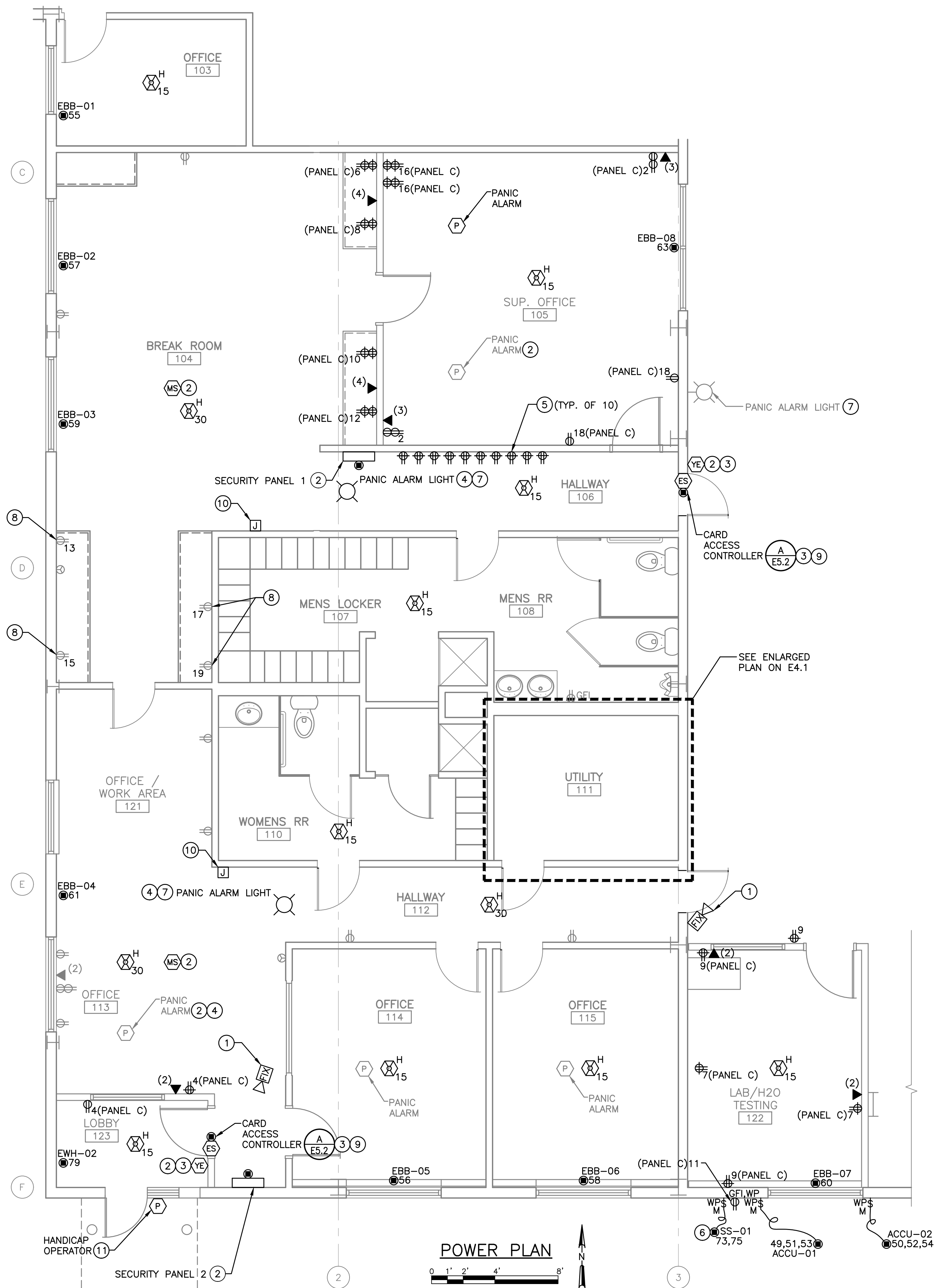
OVERALL ELECTRICAL FLOOR PLAN

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1426.004

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SCOTT HERKERT



SHEET
30
E1.1



GENERAL NOTES:

1. ALL 120/208V EQUIPMENT/LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.
2. COORDINATE EXACT LOCATIONS FOR ALL SECURITY DEVICES WITH OWNER.
3. CONTRACTOR SHALL COORDINATE SECURITY EQUIPMENT AND WORK WITH BOLDTRONICS, BURT BOLDEBUCK (608) 271-8979.
4. WIRING FOR ALL NEW DEVICES INSTALLED ON EXISTING WALLS SHALL BE INSTALLED IN SURFACE RACEWAY.
5. ALL FIRE ALARMS DEVICES TO BE WIRED TO FACP/NAC IN UTILITY ROOM.
6. REFER TO E5.1 FOR PANIC ALARM SYSTEM DIAGRAM.

KEY NOTES:

- ① RELOCATED CAMERA. COORDINATE AIMING WITH OWNER.
- ② RELOCATED SECURITY DEVICE. EXTEND CONDUIT AND WIRING AS REQUIRED.
- ③ ROUTE ALL CONDUIT AND CABLING TO EXISTING MAIN PANEL IN UTILITY ROOM.
- ④ PROVIDE RED PANIC ALARM LIGHT CONNECTED TO ALL NEW AND EXISTING PANIC BUTTONS, SUCH THAT WHEN ANY ALARM BUTTONS ARE PUSHED, BOTH LIGHTS SHALL BE ENERGIZED. REFER TO DIAGRAM ON E5.1 FOR ADDITIONAL INFORMATION. ALARM LIGHTS SHALL MATCH EXISTING ALARM LIGHTS.
- ⑤ RECEPTACLES SHALL BE INSTALLED IN SURFACE RACEWAY. 5 RECEPTACLES SHALL BE POWERED FROM CIRCUIT 20, PANEL C AND 5 RECEPTACLES SHALL BE POWERED FROM CIRCUIT 22, PANEL C. COORDINATE MOUNTING HEIGHT WITH OWNER.
- ⑥ PROVIDE 3~#12 AND #12 GROUND IN 3/4" CONDUIT AND 2~#14 IN 3/4" CONDUIT FROM SS-01 (OUTDOOR UNIT) TO SS-01 (INDOOR UNIT) FOR POWER AND CONTROL OF INDOOR UNIT.
- ⑦ EXTEND CIRCUIT FROM EXISTING PANIC ALARM LIGHTS. PROVIDE CONDUIT AND WIRING AS SHOWN ON THE RISER DIAGRAM ON SHEET E5.1. COORDINATE EXACT LOCATION OF ALARM LIGHTS WITH OWNER.
- ⑧ PROVIDE NEW WIRING IN EXISTING CONDUIT FROM PANEL C TO EACH RECEPTACLE.
- ⑨ POWER FROM SAME CIRCUIT AS EXISTING CONTROLLER IN UTILITY ROOM. VERIFY EXISTING VOLTAGE.
- ⑩ PROVIDE SURFACE MOUNTED BOX FOR DIVISION 23 PROVIDED THERMOSTAT AND SURFACE RACEWAY FROM BOX TO ABOVE CEILING. WIRING TO THERMOSTAT SHALL BE ROUTED WITH IN THE SURFACE RACEWAY.
- ⑪ RELOCATED HANDICAP OPERATOR.

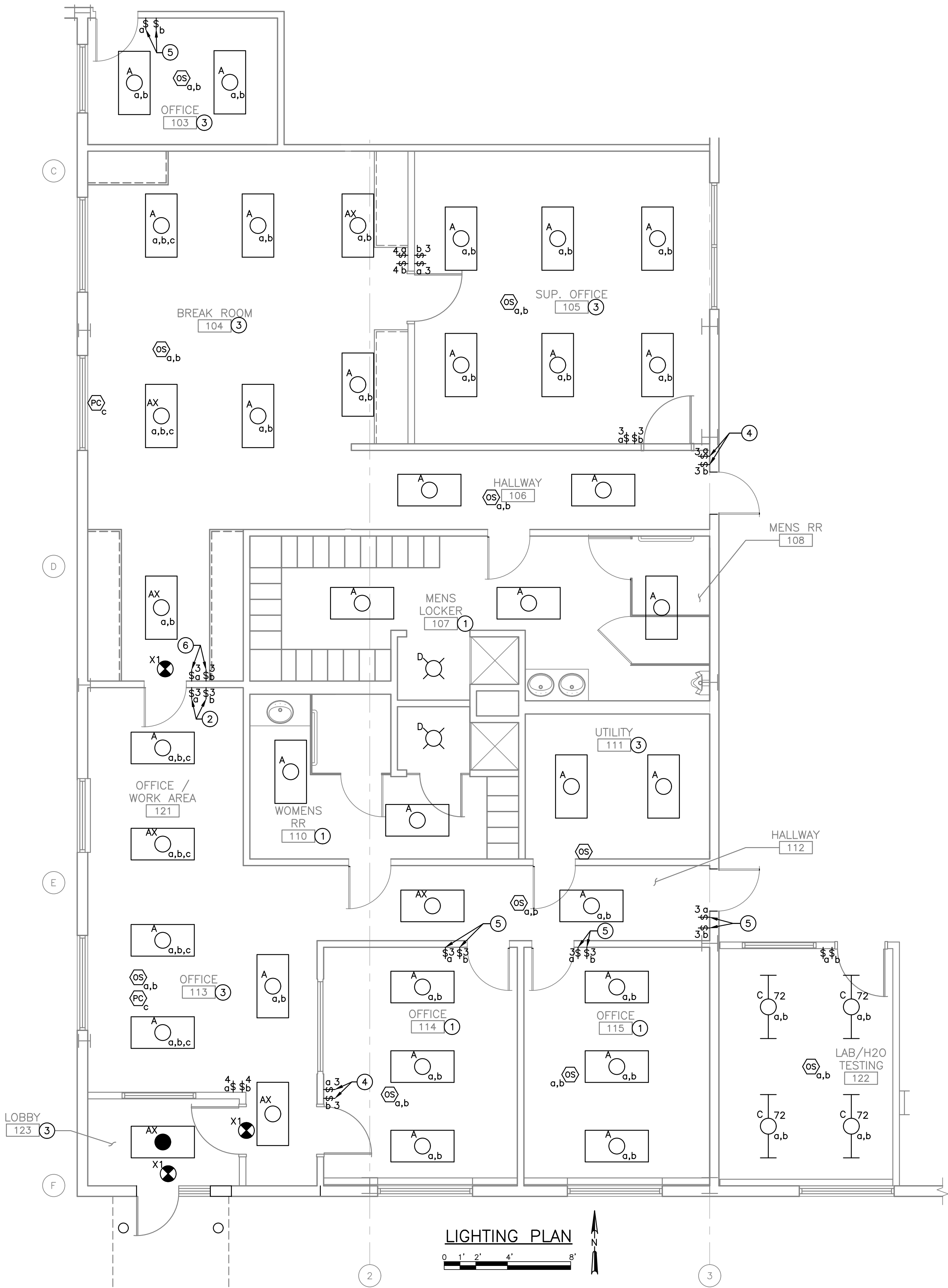
OFFICE ENLARGED POWER PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004
PROJECT MGR.
SCOTT HERKERT



SHEET
31
E1.2

NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20



GENERAL NOTES:

1. ALL 120/208V EQUIPMENT/LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.
2. REFER TO A6.2 FOR REFLECTED CEILING PLAN.
3. WIRING FOR ALL NEW DEVICES INSTALLED ON EXISTING WALLS SHALL BE INSTALLED IN SURFACE RACEWAY,

KEY NOTES:

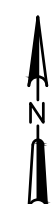
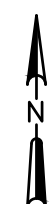
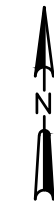
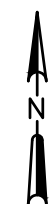
- ① POWER AND CONTROL LIGHTS FROM EXISTING CIRCUIT AND CONTROLS. PROVIDE NEW WIRING FROM LIGHTS TO SWITCHES/OCCUPANCY SENSOR,
- ② SWITCH SHALL BE MOUNTED IN EXISTING SWITCH BOX.
- ③ POWER NEW LIGHTS FROM CIRCUIT USED FOR REMOVED LIGHTS. PROVIDE CONDUIT AND WIRING AS REQUIRED.
- ④ PROVIDE NEW SWITCH BOX AND CONDUIT IN EXISTING WALL.
- ⑤ PROVIDE NEW SWITCH BOX ATTACHED TO EXISTING SWITCH BOX IN WALL.
- ⑥ PROVIDE A DUAL SWITCH IN THE EXISTING SWITCH BOX.

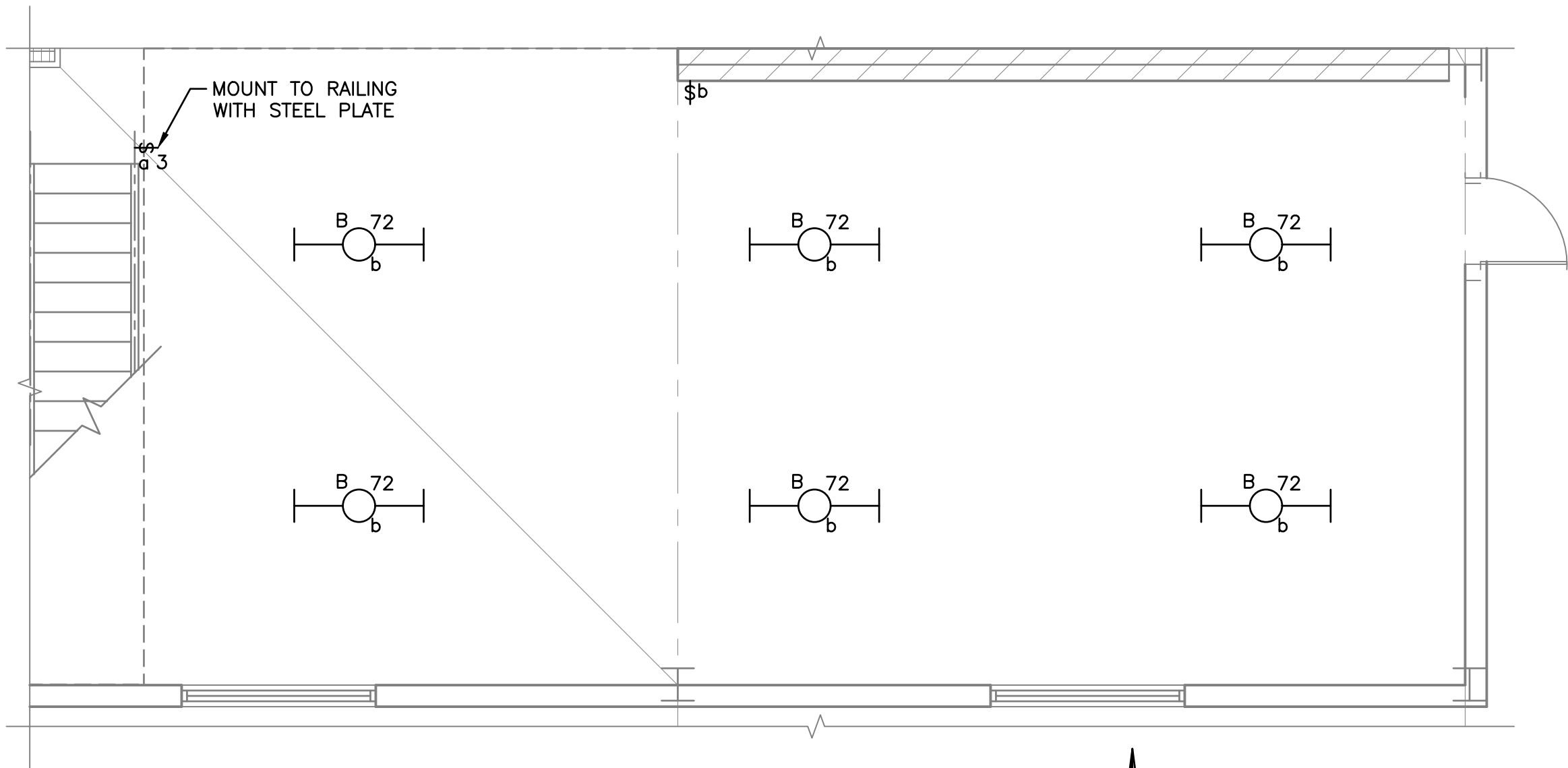
LIGHTING PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004
PROJECT MGR.
SCOTT HERKERT

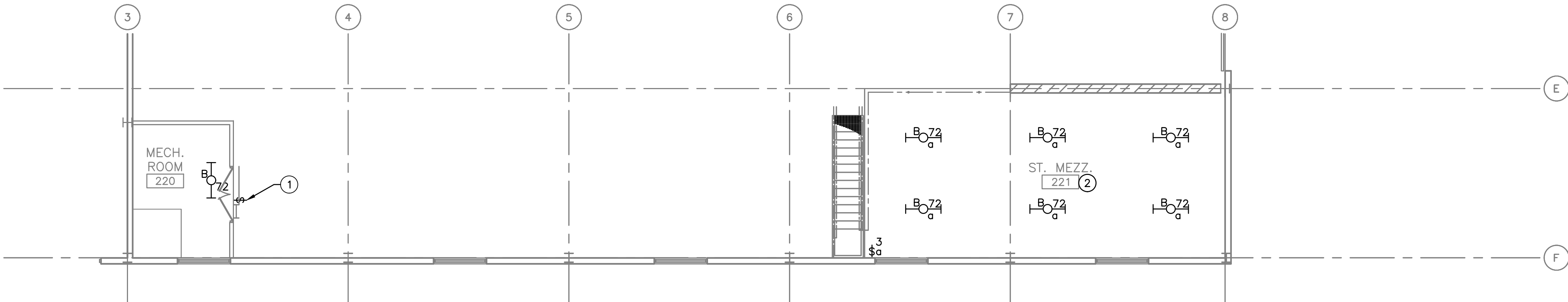
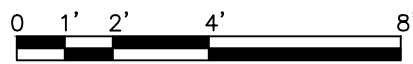


SHEET
32
E1.3

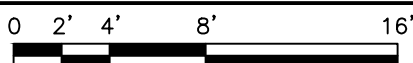




LOWER LEVEL MEZZANINE LIGHTING PLAN



UPPER LEVEL MEZZANINE LIGHTING PLAN



GENERAL NOTES:

1. ALL LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.

KEY NOTES:

- ① ATTACH SWITCH TO LADDER WITH A STEEL MOUNTING PLATE. MOUNT ADJACENT TO LADDER AT 48" A.F.F.
- ② PENDANT MOUNT FIXTURES IN THIS SPACE AT 22' A.F.F.

UPPER AND LOWER LEVEL MEZZANINE LIGHTING PLANS

PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

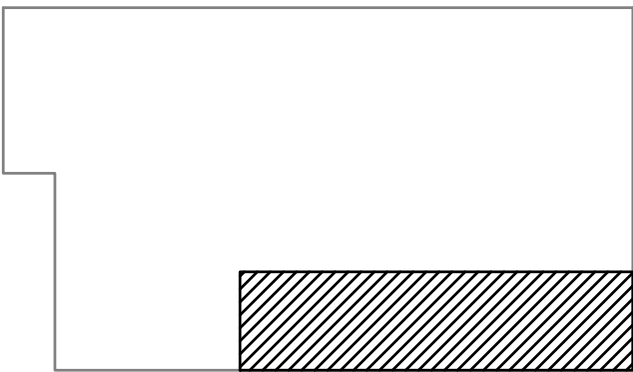
JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT

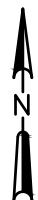


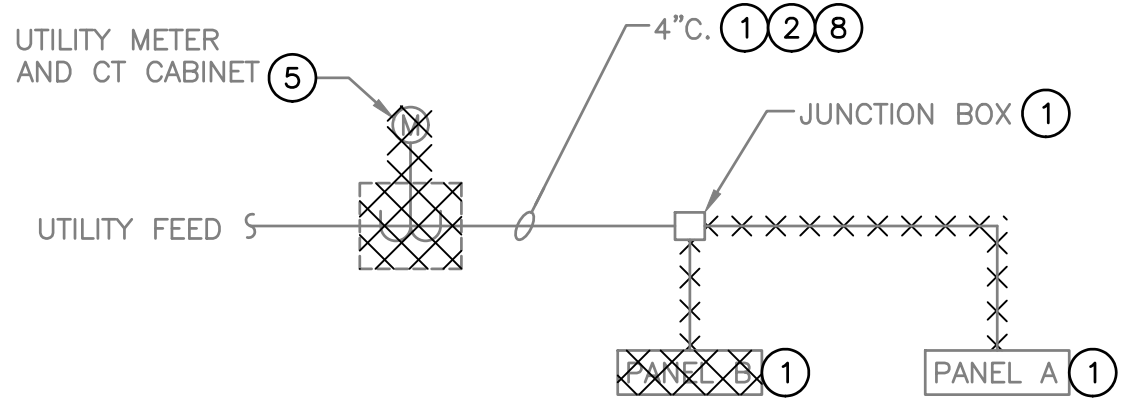
SHEET
34
E4.2

NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20

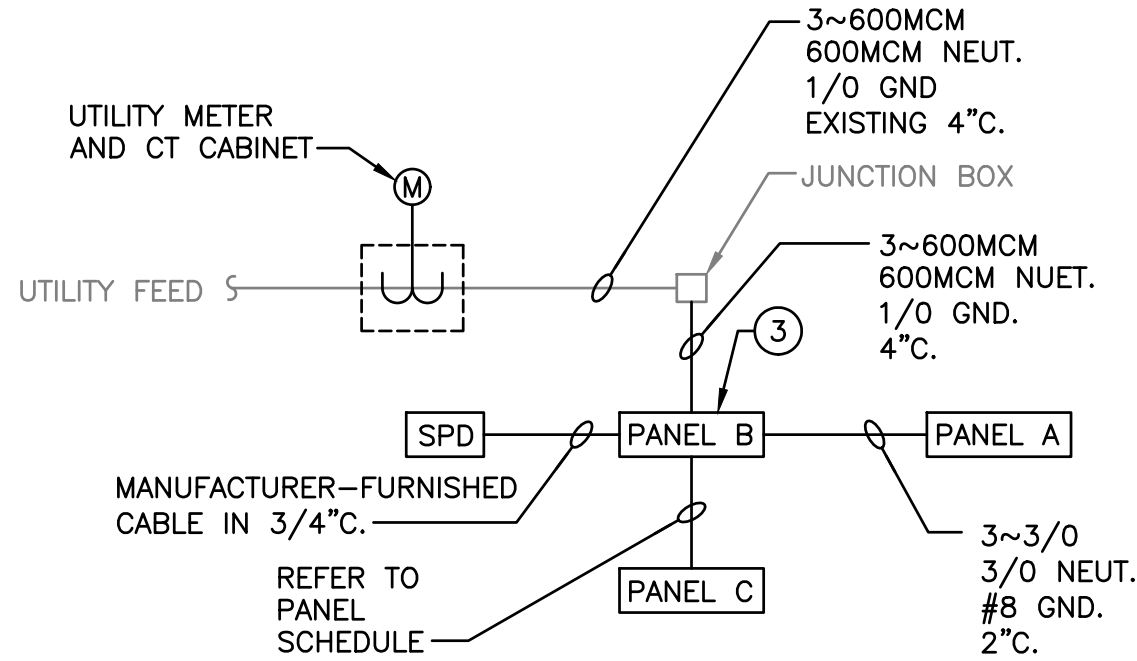


KEY PLAN
NO SCALE

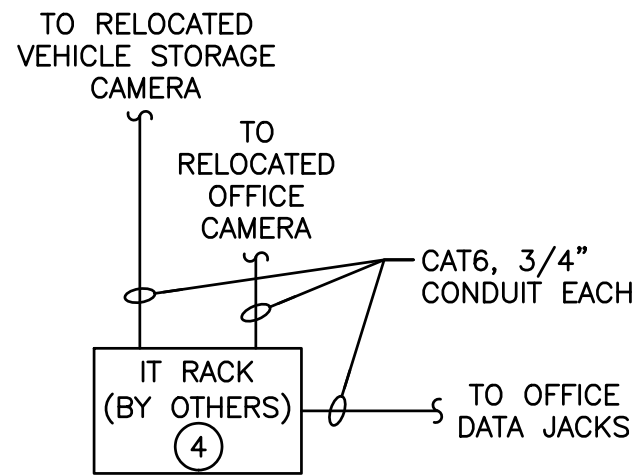




EXISTING ONE-LINE DIAGRAM
NO SCALE



ONE-LINE DIAGRAM
NO SCALE

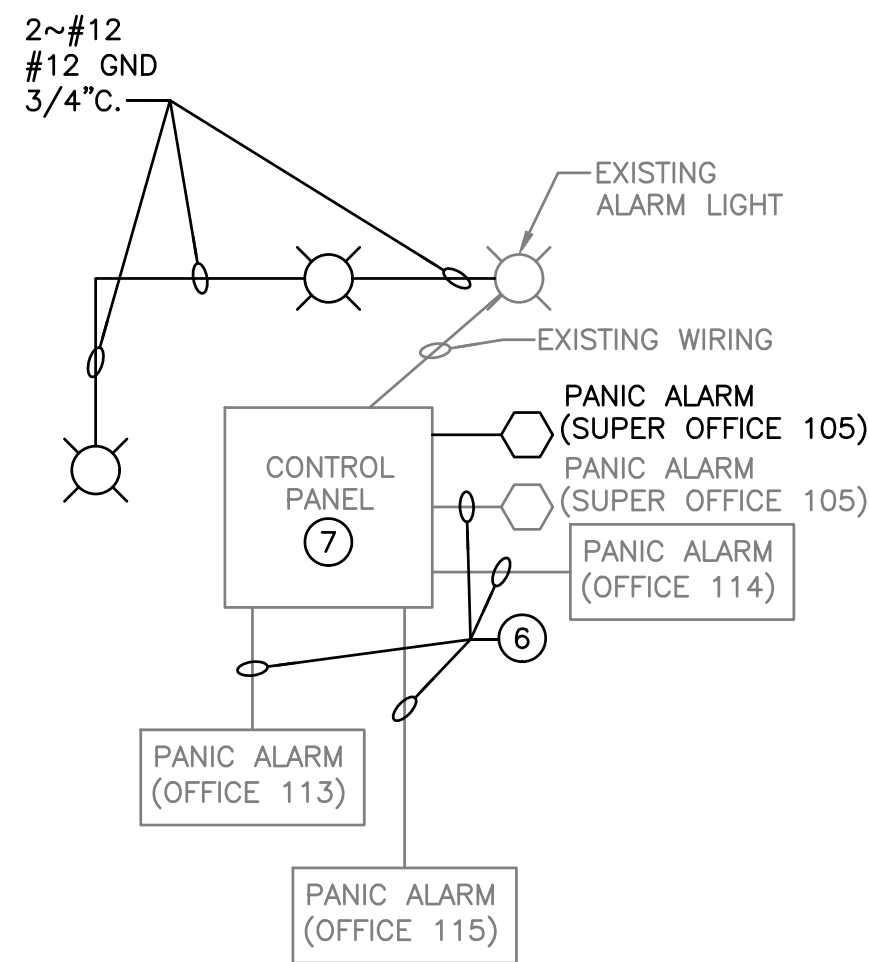


NETWORK RISER DIAGRAM
NO SCALE

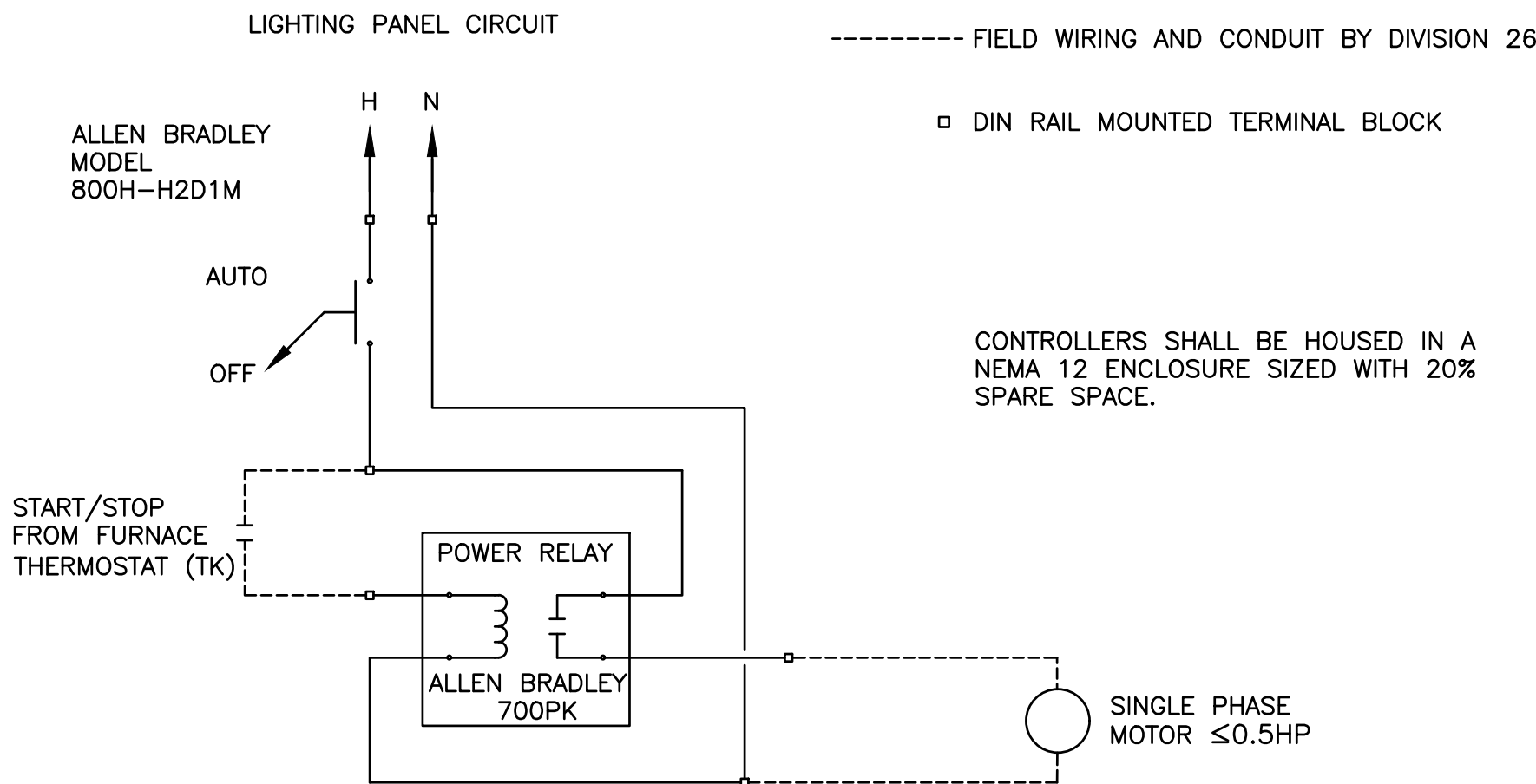
KEY NOTES:

- 1 REMOVE WIRING BETWEEN PANEL A, PANEL B, AND UTILITY SERVICE. GROUND CONDUCTOR SHALL REMAIN.
- 2 REMOVE EXISTING WIRING. CONDUIT SHALL REMAIN.
- 3 EXISTING GROUND CONDUCTOR SHALL BE CONNECTED TO NEW PANEL B.
- 4 COORDINATE TERMINATIONS WITH McFARLAND IT DEPARTMENT.
- 5 COORDINATE ALL WORK ASSOCIATED WITH CHANGES TO THE SERVICE WITH UTILITY COMPANY. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE BID.
- 6 EXTEND CONDUIT AND WIRING AS REQUIRED.
- 7 COORDINATE ALL WORK WITH BOLDTRONICS - BURT BOLDEBUCK (608) 271-8979.
- 8 TWO EXISTING 200-AMP FEED.CO.
- 9 PROVIDE NEW CT CABINET PER UTILITY REQUIREMENTS.

PANEL C															
Service: 120/208V, 3ø, 4W Main Breaker: 100A Location: UTILITY ROOM 111										Enclosure: NEMA 1 Mounting: Surface Main Bus: Copper SCIC: 10 kAIC					
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description	Amps	Poles
RECEPTACLES - MEZZANINE	20	1	1	500			720			2	1	20	RECEPTACLES - SUP. OFFICE 105		
SPARE	20	1	3					360		4	1	20	RECEPTACLES - OFFICE 113, LOBBY		
RECEPTACLES - MEZZANINE	20	1	5			500			360	6	1	20	RECEPTACLES - BREAKROOM 104		
RECEPTACLE - H2O TESTING LAB	20	1	7	1000			360			8	1	20	RECEPTACLES - BREAKROOM 104		
RECEPTACLE - H2O TESTING LAB	20	1	9		1000			360		10	1	20	RECEPTACLES - BREAKROOM 104		
RECEPTACLES - EXTERIOR	20	1	11			180			360	12	1	20	RECEPTACLES - BREAKROOM 104		
RECEPTACLES - BREAKROOM	20	1	13	720						14	1	20	SPARE		
RECEPTACLES - BREAKROOM	20	1	15		720			720		16	1	20	RECEPTACLES - SUP. OFFICE 105		
RECEPTACLES - BREAKROOM	20	1	17			720			360	18	1	20	RECEPTACLES - SUP. OFFICE 105		
RECEPTACLES - BREAKROOM	20	1	19	720			900			20	1	20	RECEPTACLES - SURFACE RACEWAY		
SPARE	20	1	21					900		22	1	20	RECEPTACLES - SURFACE RACEWAY		
SPARE	20	1	23							24	1	20	SPARE		
SPARE	20	1	25							26	1	20	SPARE		
SPARE	20	1	27							28	1	20	SPARE		
SPARE	20	1	29							30	1	20	SPARE		
Total Load per Phase per Side (VA)				2940	1720	1400	1980	2340	1080						
Total Load Phase A (VA)				4920	VA							Total Connected Load (A)			
Total Load Phase B (VA)				4060	VA							Total Connected Load + 25%			
Total Load Phase C (VA)				2480	VA							Spare 25%			
Total Connected Load (VA)				11460	VA							Feeder Load			



PANIC ALARM SYSTEM DIAGRAM
NO SCALE



SINGLE PHASE MOTOR CONTROL
NO SCALE

FURNACE CONDUIT AND WIRING SCHEDULE				
CONDUIT* DESIGNATION	ORIGIN	TERMINATION	CONDUIT SIZE	CONDUCTORS*
OUTDOOR AIR TEMP. SENSOR	TK-01	TE-03	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-01	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-01	F-01	3/4"	2-#14
HEATING (START/STOP)	TK-01	F-01	3/4"	2-#14
SUPPLY AIR TEMP.	TK-01	TE-01	3/4"	SH. PR.
EXHAUST FAN (START/STOP)	TK-01	EF-01	3/4"	2-#14
COOLING (START/STOP)	TK-01	ACCU-01	3/4"	2-#14
OUTDOOR AIR TEMP. SENSOR	TK-02	TE-04	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-02	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-02	F-02	3/4"	2-#14
HEATING (START/STOP)	TK-02	F-02	3/4"	2-#14
SUPPLY AIR TEMP.	TK-02	TE-02	3/4"	2-#14
COOLING (START/STOP)	TK-02	ACCU-02	3/4"	2-#14

*Provide ground conductor per NEC.
*Refer to Plans For Surface Raceway

FIXTURE SCHEDULE					
Fixture Type	Manufacturer(s)	Model Number	Lamp Type	Mounting	Remarks
A	LITHONIA	2BLT4-40L-ADP-SLD-LP840	31W LED	RECESSED	
AX	LITHONIA	2BLT4-40L-ADP-SLD-LP840-EL7L	31W LED	RECESSED	
B	LITHONIA	BLWP4 60L ADP SLD LP840	49W LED	SURFACE/PENDANT	
C	LITHONIA	BLWP4 30L ADP SLD LP840	25W LED	SURFACE/PENDANT	
D	RP LIGHTING	8763-4K	10W LED	RECESSED	
X1	SURE-LITES	SLX-7-SD-R	1W LED	WALL/PENDANT	PROVIDE MOUNTING HARDWARE, CHEVRONS AND FACES AND REQUIRED.

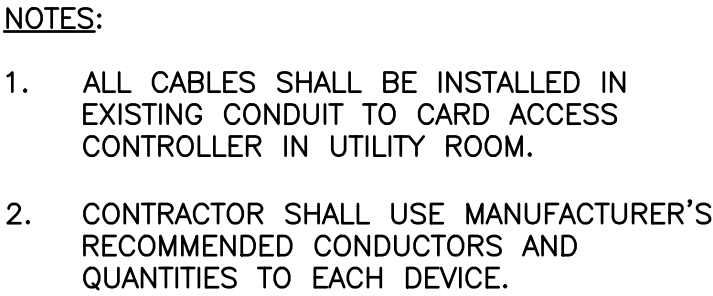
PANEL B															
Service: 120/208V, 3ø, 4W Main Breaker: 400A (SE RATED) Location: UTILITY ROOM 111										Enclosure: NEMA 1 Mounting: Surface Main Bus: Copper SCIC: 42 kAIC					
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description	Amps	Poles
EXISTING LOAD	20	1	1							2	1	20	PANEL GFI OUTLET		
EXISTING LOAD	20	2	3							4	1	20	EXISTING LOAD		
ENTRY DOOR OPENER	20	1	7							6	1	20	SMALL OFFICE		
FIRE ALARM PANEL	20	1	9							8	1	20	BASEBOARD HEAT - SPARE		
MECHANIC'S ROOM LIGHTS	20	1	11							10	1	15	CONTROL PANEL		
MECHANIC'S RM GFI OUTLETS	20	1	13							12	1	20	BATHROOM GFI OUTLET		
MECHANIC'S RM GFI OUTLETS	20	1	15							14	1	20	KITCHEN GFI OUTLET - SPARE		
MECHANIC'S RM GFI OUTLETS	20	1	17							16	1	20	LUNCHROOM OUTLET - SPARE		
MECHANIC'S RM GFI OUTLETS	20	1	19							18	1	20	OUTLETS-PARTS STORAGE & SMALL OFFICE		
MECHANIC'S RM GFI OUTLETS	20	1	21							20	2	40	RANGE		
WATER HEATER	30	2	23							22	1	20	FAX		
WASH BAY OUTLETS & LIGHTS	20	1	25							24	1	20	COPIER		
WASH BAY HEAT & GARAGE DR	20	1	27							26	1	20	SOFTENER		
PRESSURE WASHER WASH BAY	30	3	31							28	1	20			
EXISTING LOAD	20	3	33							30	3	100	EXISTING LOAD		
EXISTING LOAD	20	3	35							32	3	100	EXISTING LOAD		
EXISTING LOAD	20	3	37							34	3	100	EXISTING LOAD		
EXISTING LOAD	20	3	39							36	1	20	PHONE BOARD		
F-01	20	1	41	1236			264			38	1	20	PHONE BOARD		
F-02	20	1	43							40	1	15	EXISTING LOAD		
EF-02 & DAMPER	30	1	45		1663			1000		42	1	15	EXISTING LOAD		
ACC01	20	3	47			1656			200	44	1	20	EF-01 & DAMPER		
EBB-01	20	1	49	1686			2160			46	1	20	HOSE REEL		
EBB-02	20	1	51		1686					48	1	20	FURNACE DAMPERS		
EBB-03	20	1	53			1686				50	3	30	ACC02		
EBB-04	20	1	55	750						52	3	30	ACC02		
EBB-05	20	1	57		1500		1250		2160	54	1	20	EBB-05		
EBB-06	20	1	59			1500		1250		56	1	20	EBB-06		
EBB-07	20	1	61	1000			500			58	1	20	EBB-07		
EBB-08	20	1	63		1080			500		60	1	20	EBB-07		
SPARE	20	1	65						500	62	3	15	VEHICLE EXHAUST SYSTEM		
SPD	30	3	67							64	3	15	VEHICLE EXHAUST SYSTEM		
SS-01	20	2	69	800			4920		700	66	1	20	SPARE		
EW01	20	1	71		800			4060		68	1	20	SPARE		
EW02	20	1	73			1008				70	1	20	LIGHTING - MEZZANINE		
SPARE	20	1	75							72	1	20	LIGHTING - MEZZANINE		
SPARE	20	1	77							74	3	100	PANEL C		
SPARE	20	1	79							76	3	100	PANEL C		
SPARE	20	1	81							78	3	100	PANEL C		
SPARE	20	1	83							80	3	80	SPACE FOR FUTURE SOLAR		
Total Load per Phase per Side (VA)				6480	6729	5850	9094	8970	7290						
Total Load Phase A (VA)				15574	VA	PROVIDE THROUGH FEED LUGS FOR POWER TO PANEL A. EXISTING CIRCUITS SHALL BE RECONNECTED TO PANEL B.						Total Connected Load (A)			
Total Load Phase B (VA)				15699	VA							Total Connected Load + 25%			
Total Load Phase C (VA)				13140	VA							Spare 25%			
Total Connected Load (VA)				44413	VA							Feeder Load			

ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004
PROJECT MGR.
SCOTT HERKERT



SHEET
35
E5.1



ACCESS CONTROL INSTALLATION DIAGRAM

[illegible]

ELECTRICAL DETAILS

PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



SHEET
36
E5.2



Strand Associates, Inc.®

910 West Wingra Drive

Madison, WI 53715

(P) 608.251.4843

May 7, 2020

Mr. Matt Schuenke, Village Administrator
Village of McFarland
5915 Milwaukee Street
McFarland, WI 53558

Re: Public Works Facility Renovations
Contract 1-2020
Village of McFarland, Wisconsin

Dear Matt:

Bids for the above-referenced project were opened on May 6, 2020. Ten bids were received with the resulting bid tabulation enclosed. The low base bid of \$499,850.00 was less than ENGINEER's opinion of probable construction cost.

Newcomb Construction Company of Madison, Wisconsin, was the apparent low bidder at \$499,850.00. Their Alternative Bid No. 1 is \$113,750.00 and Alternative Bid No. 2 is \$32,605.00. The bid included a bid bond for 10 percent and Addendum Nos. 1 through 3 were acknowledged. The bid is deemed to be responsive.

Strand Associates, Inc.® has not had previous experience with Newcomb Construction Company.

Based on the review of the prequalification information by the Village, Newcomb Construction Company was considered a responsible bidder, therefore we recommend proceeding with award of the Contract in accordance with Article 19 of the Instructions to Bidders.

Sincerely,

STRAND ASSOCIATES, INC.®

Scott G. Herkert, P.E.
Senior Associate

Enclosure

Bids Received: 12:00 PM
May 6, 2020

STRAND ASSOCIATES, INC.®
910 West Wingra Drive
Madison, WI 53715

PUBLIC WORKS FACILITY RENOVATIONS
CONTRACT 1-2020
VILLAGE OF MCFARLAND, WISCONSIN

BID TABULATION SUMMARY

Bidder and Address	Bid Bond	Addenda Nos. 1-3 Acknowledged	Lump Sum Bid	Bid Alternative No. 1	Bid Alternative No. 2
Newcomb Construction Company, Inc. 999 Fourier Drive, Suite 102 Madison, WI, 53717	10%	Yes	\$499,850.00	\$113,750.00	\$32,605.00
Kenneth F. Sullivan Company 1314 Emil Street Madison, WI 53713	10%	Yes	\$521,600.00	\$109,490.00	\$29,700.00
Advanced Building Corporation 4125 Terminal Drive, Suite 100 McFarland, WI 53558	10%	Yes	\$556,282.00	\$119,405.00	\$32,250.00
KSW Construction Company 807 Liberty Drive, Suite 106 Verona, WI 53593	10%	Yes	\$557,996.00	\$97,041.00	\$34,551.00
Bachman Construction Company, Inc. 1201 South Stoughton Road Madison, WI 53716	10%	Yes	\$592,240.00	\$75,538.00	\$38,746.00

Bidder and Address	Bid Bond	Addenda Nos. 1-3 Acknowledged	Lump Sum Bid	Bid Alternative No. 1	Bid Alternative No. 2
Vogel Brothers Building Company 5460 Fen Oak Drive Madison, WI 53718	10%	Yes	\$617,850.00	\$112,850.00	\$47,720.00
McKee Associates, Inc. 925 Watson Avenue Madison, WI 53713	10%	Yes	\$626,900.00	\$132,510.00	\$40,630.00
Joe Daniels Construction Company, Inc. 919 Applegate Road Madison, WI 53713	10%	Yes	\$656,340.00	\$98,776.00	\$34,650.00
FCM Corporation 4906 Femrite Drive Madison, WI 53716	10%	Yes	\$705,000.00	\$108,110.00	\$52,428.00
T2 Contracting, LLC 311 Plastic Avenue Tomah, WI 54660	10%	Yes	\$861,562.55	\$93,830.00	\$39,162.00

Reviewed by:  _____

PUBLIC WORKS FACILITY RENOVATIONS
CONTRACT 1-2020
VILLAGE OF MCFARLAND, WISCONSIN

CASH ALLOWANCES

BIDDER AND ADDRESS				Newcomb Construction Company, Inc. 999 Fourier Drive, Suite 102 Madison, WI 53717		Kenneth F. Sullivan Company 1314 Emil Street Madison, WI 53713		Advanced Building Corporation 4125 Terminal Drive Suite 100 McFarland, WI 53558		KSW Construction Company 807 Liberty Drive Suite 106 Verona, WI 53593		Bachman Construction Company, Inc. 1201 South Stoughton Road Madison, WI 53716		Vogel Brothers Building Company 5460 Fen Oak Drive Madison, WI 53718		McKee Associates, Inc. 925 Watson Avenue Madison, WI 53713		Joe Daniels Construction Company, Inc. 919 Applegate Road Madison, WI 53713		FCM Corporation 4906 Femrite Drive Madison, WI 53716		T2 Contracting, LLC 311 Plastic Avenue Tomah, WI 54660	
Item No.	Description	Quantity Included in the Lump Sum Base Bid	Unit	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid	Unit Price	Total Included in Lump Sum Bid
1.	Electrical Service Utility Allowance Section 26 21 00	1	LS	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	
2.	Unsuitable Foundation Material for Driveways Section 31 23 00	350	CY	\$ 49.00	\$ 17,150.00	\$ 49.00	\$ 17,150.00	\$ -	\$ -	\$ 38.00	\$ 13,300.00	\$ 49.00	\$ 17,150.00	\$ 45.00	\$ 15,750.00	\$ 49.00	\$ 17,150.00	\$ 51.50	\$ 18,025.00	\$ 55.00	\$ 19,250.00	\$ 22.30	\$ 7,805.00

Reviewed by 



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, May 12, 2020

SECTION: Business

DEPARTMENT: Administration

CONTACT: Matt Schuenke, Village Administrator

AGENDA ITEM: Discussion and action to make a recommendation to the Village Board regarding the award of a proposal for the addition of solar panels to the Public Works Center.

PREVIOUS ACTION:

The Public Works Committee took action at its meeting on March 10, 2020 to solicit proposals for the installation of solar as part of the facility improvement project.

ISSUE SUMMARY:

Included within your packet are two proposals to add solar infrastructure to the Public Works Center after the roof has been replaced. This will replace the dated system that is currently in place and provide for a majority of the electricity needs of the facility. The Committee desired to conduct this process as an RFP similar to how we might purchase a vehicle or service. Only two responses were received after we tried to solicit a third applicant. Both are from reputable and experienced companies planning to install essentially the same product. The proposal from Eagle Point Solar is recommended and they have done similar work for public entities in Wisconsin.

FINANCIAL/BUDGET IMPACT:

The total budget for facility improvements to the Public Works Center in 2020 is \$1,000,000. The proposal from Eagle Point is \$69,498 compared to the proposal from Full Spectrum at \$83,802. As mentioned in the previous agenda item, substantial funds remain available for the project as the base bid for construction was well under anticipated amounts.

VILLAGE PLAN REFERENCE:

None.

ORDINANCE REFERENCE:

None.

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Presented for the Committee to make a recommendation to the Village Board to award the contract to Eagle Point Solar in an amount of \$69,498.



ATTACHMENTS:

1. Solar Bid Summary Letter 050820
2. McFarland Solar RFP and Attachments
3. McFarland Solar Proposal - Eagle Point Solar 05062020
4. McFarland Solar Proposal - Full Spectrum Solar 05062020



Strand Associates, Inc.®

910 West Wingra Drive

Madison, WI 53715

(P) 608.251.4843

May 8, 2020

Mr. Matt Schuenke, Village Administrator
Village of McFarland
5915 Milwaukee Street
McFarland, WI 53558

Re: Public Works Facility
Solar PV Array Bids
Village of McFarland, Wisconsin

Dear Matt,

Bids for the above-referenced project were opened on May 6, 2020. Two bids were received and the third firm that was provided a proposal did not submit a bid. The low bid of \$69,498.00 was less than ENGINEER's opinion of probable construction cost.

Full Spectrum Solar's bid was \$83,802.00. Eagle Point Solar, LLC of Dubuque, Iowa, was the apparent low bidder at \$69,498.00. The bid is deemed to be responsive. The materials and installation information supplied meets the requirements of the request for proposal and appears to provide a fully operational solar PV array at the facility. Eagle Point Solar, LLC has included a signed copy of the Indemnification Clause included in the RFP whereas the other bidder has not.

Strand Associates, Inc.® has previously worked with Eagle Point Solar, LLC on projects for Darlington School District, Wisconsin; Emmi-Roth, Platteville, Wisconsin; and Johnson County EMS, Iowa City, Iowa. For those projects, the OWNER(s) determined Eagle Point Solar, LLC to be responsible.

If you determine that Eagle Point Solar, LLC is a responsible bidder after your evaluation of their qualifications, we recommend proceeding with award of the Contract.

Sincerely,

STRAND ASSOCIATES, INC.®

Scott G. Herkert, P.E.
Senior Associate

REQUEST FOR PROPOSAL TO INSTALL
A SOLAR PHOTOVOLTAIC ARRAY AT
THE MCFARLAND PUBLIC WORKS FACILITY

INTRODUCTION AND GENERAL INFORMATION

The Village of McFarland is requesting bids to design, provide, and install a 31.5 kW DC roof mounted solar photovoltaic array at the Public Works Facility, 5115 Terminal Drive, McFarland, WI.

SCOPE OF PROJECT

The Village of McFarland is requesting bids to design, provide, and install a 31.45 kW DC roof mounted solar photovoltaic system at the Public Works Facility. Depending on the final cost per watt, the system may be reduced.

Contractor is to provide bid and additional information for the proposed work addressed to Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558 .

SPECIFICATION

Project site is located at the Public Works Facility, 5115 Terminal Drive, McFarland, WI.

Project is detailed as follows:

1. Bid cost will include all design, specifications, material, labor, and equipment to install a turn-key grid-tied 31.45 kW solar photovoltaic system (DC STC conditions), including connection/integration with Public Works Facility power system. The system shall be sized to deliver a minimum of 23kW AC with a minimum specific yield of 1290 kWh/kWp.
2. The system components and installation shall meet the requirements of the 2017 National Electrical Code (NFPA 70).
3. PV arrays to be mounted to roof of the Public Works Facility (see Attachments No. 1 and No. 2). Include all racking, support mountings, and installation on a standing seam metal roof. Approximate available area 2,000 square feet. Provide ample working space around skylights and events. Coordinate roof layout with Owner.
4. Inverters shall have a CEC weighted efficiency of no less than 97.5%. Inverters shall be UL 1741 listed and IEEE 1547 compliant and shall have a minimum 20 year warranty.
5. Inverters are to be a minimum of two (one~9kW and one~14.4kW) SolarEdge or equal units utilized in conjunction with DC power optimizers at each PV module. Mount inverters indoors. Space is available for wall mounted units in the vehicle storage in the Public Works Facility (see Attachments No. 3 and No. 4). The master inverter shall be equipped with input terminals to accept a dry contact signal from the facility's automatic transfer switch to disable the inverters when the transfer switch is not in the normal (utility) position.
6. Racking to be attached to standing seam roof without penetrating the roof.
7. PV panel shall be mounted at the same pitch as the roof. PV arrays to be fixed rack system. Provide PV panel mounting clips to attach to the standing seam room as manufactured by S-5!, model S-5-U.
8. Provide manufacturer standard Web based monitoring system to include monitoring screen (minimum size 20 inch) in utility room or area indicated by OWNER. The monitoring system shall be connected to the existing IT rack within the utility room. Coordinate work with McFarland IT department. All configuration, training, and installation shall be included within the Bid.
9. PV modules shall have a minimum rating of 370 watts and be UL 1703 listed. Preference will be given to PV modules with a PTC (PV USA Test Conditions) watts per square foot of 19 or greater.

Panels shall have a 25-year linear performance guarantee and minimum 10 year warranty and be as manufactured by Heliene, 72M, or equal.

10. Indoor AC wiring shall be type THHN and outdoor AC wiring shall be type XHHW. Indoor and outdoor above-grade DC wiring shall be type PV and underground DC wiring, if used, shall be type USE-2 or type PV as appropriate. Outdoor wiring shall be secured to the solar panel supports in a manner that minimizes exposure of the wiring to the elements and to general system maintenance activities such as weed control, snow removal, etc. Where wiring must be extended across 12-inch or larger gaps between the solar panels or other system components, wiring shall be placed in aluminum conduit. Underground conduits, if needed, within 6 feet of a building shall be PVC-coated RGS conduit or shall within a minimum 12-inch by 12-inch reinforced concrete duct. Provide heavy-duty non-metallic or aluminum cast junction boxes at wiring transitions from above-ground free air wiring to underground wiring in conduit. All AC wiring shall be installed in conduit.
11. Wiring from solar panel arrays to inverters shall be sized for a maximum 1% voltage drop of nominal panel voltage output from the furthest solar panel array. Wiring from inverters to the utility interconnection point shall be sized for a maximum 1% voltage drop of nominal inverter voltage output from the furthest inverter. Provide power consolidation panels with circuit protection via molded case circuit breakers as necessary such that there will be one point of connection between the photovoltaic system and the facility electrical distribution system.
12. Connection to the utility interconnection point shall be via the existing facility electrical distribution system in the utility room of the Public Works Facility (see Attachments No. 3 and No. 4).
13. There is an existing 30kW generator (exterior of the building, see Attachment No. 3) and automatic transfer switch (see Attachment No. 3). Contractor shall provide 2~#12 in 3/4-inch conduit between the automatic transfer switch and the master inverter to in order for the inverter to know that the facility power is on generator power. Provide additional dry contacts on existing automatic transfer switch as required to communicate this signal.
14. Provide all necessary equipment and appurtenances to meet the requirements of NEC Article 690.12-Rapid Shutdown of PV Systems on Buildings.
15. In the connection from the PV system to the existing facility distribution system, include a pad-lockable disconnect switch on the customer side of the utility metering cabinet. The equipment shall meet the requirements of the Alliant Energy. The equipment shall be near the existing utility service and shall be labeled per utility company requirements (see Attachment No. 3).
16. The contractor shall coordinate all necessary permits, agreements and coordination with Alliant Energy company.
17. The contractor is expected to consult the latest version of the International Building Code for regional snow load and wind category for this location. As guidance, we expect snow load of 30 psf and wind risk category of 90 mph, class C.
18. Provide projected annual output in kWh with calculation for the proposed PV array at metering connection based on PVSyst or similar software. This calculation must be as accurate as possible to indicate all losses through the balance of system components. A report indicating all modules, inverters, and losses used in the calculation shall be included with the bid. Losses included in the calculation shall be specific to the location and installation or the array.
19. Provide all grants (e.g. Focus On Energy) available to Owner during bidding review.
20. Bidder must provide details and contact references of at least two similar projects to demonstrate the capabilities of the firm to effectively complete the work.
21. Bidder must provide work schedule to indicate the project can be substantially complete by November 30, 2020.

TIMELINE

The Village Board is expected to award contract to selected contractor on May 15, 2020. Selected contractor will then provide detailed design plans, specifications (including electrical layout plans), and performance guarantee for approval by Village before finalization of contract agreement and commencement of construction in July 2020. This will also include a calculation of the expected power production over the first ten year period. Project completion is scheduled for not later than December 31, 2020.

QUALITY ASSURANCE

1. System Suppliers: Firms regularly engaged in the design and manufacture of photovoltaic systems equipment whose equipment has been in satisfactory use in similar service for not less than 10 years.
2. Installer: A firm with at least 10 years of successful installation experience on projects with photovoltaic system design and installation work similar to that required for the project.

EVALUATION FACTORS

In evaluating the bids, the Village will consider, in addition to the price quoted in the Bid, the following:

1. Compliance with the Scope of work and bid documents.
2. Clarity, pricing structure, and commercial terms and conditions.
3. Execution plan, project team, and ability to meet schedule. Provide relevant resources.
4. Contractor's experience with systems of similar size and scope. Provide a minimum of three examples and references of existing systems installed by contractor.
5. Equipment maintenance and reliability history.
6. Length and coverage of equipment warranties and performance guarantees.
7. Life cycle costs, including but not limited to, maintenance requirements.

SUBMITTALS

Contractor shall submit shop drawings and product data for review and approval by the Village. Included in submittals shall be a one-line diagram that shows all connections of photovoltaic equipment and monitoring as well as connection of the photovoltaic system to the existing electrical distribution system.

CONDITIONS

All work performed under this contract shall be subject to compliance with the Wisconsin Prevailing Wage Act, including latest revisions. Contractors are required to submit certified copies of their payroll each billing cycle. The Village of McFarland shall be exempt from any liability for costs incurred by unsuccessful bidders in preparation of this proposal. The Village of McFarland reserves the right to reject any or all bids.

ADDITIONAL INSURED ENDORSEMENTS

1. Contractor shall purchase and maintain liability insurance, as described above, specifically naming as additional insureds the Village of McFarland, Alliant Energy, and Strand Associates, Inc.®, using either insurance endorsement form CG 20 26 07 04, CG 20 10 07 04, or equivalent form. General liability policies shall also be endorsed with Form CG 20 37 07 04 to include the "products-completed operations hazard." Endorsements or General Liability policy shall not exclude supervisory or inspection services. Contractor shall also provide an Additional Insured Endorsement for the automobile policy, Form CA 20 48, or equivalent form.

2. That failure of Contractor to comply with the above requirements with respect to Additional Insured Endorsement and/or Certificate of Insurance shall not be construed as waiver of those provisions by any of the additional insureds so identified above.

INDEMNIFICATION

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Village of McFarland, Alliant Energy, and Strand Associates, Inc.®, and against all claims, costs, losses, and damages arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

The Village of McFarland will receive sealed bids to complete the proposed work until 12:00 PM, May 6, 2020.

Questions concerning the project or arranging a site visit with Village staff should be directed to: Village Administrator Matt Schuenke at 608-838-3153- or email: matt.schuenke@mcfarland.wi.us

Responses to all inquiries about the project or bid requirements will be distributed to all companies by email based upon the email address supplied to the Village of McFarland by the prospective bidders.

Company name

Address

.....

Contact Name

Phone #

Email

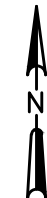
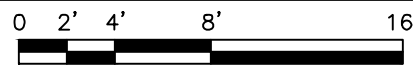
.....
Signature

.....
Name

.....
Date



OVERALL ROOF PLAN



GENERAL NOTES:

1. VERIFY REQUIRED OPENINGS IN NEW ROOF SYSTEM FOR SKYLIGHTS, ROOF EQUIPMENT, AND HVAC OPENINGS.
2. FLASH ALL PENETRATIONS PER ROOFING MANUFACTURER REQUIREMENTS.
3. SEE DRAWING A5.2 FOR TYPICAL DETAILS.
4. REVISE AND PROVIDE FLASHING AROUND ALL EXISTING VENT AND EXHAUST PIPES NOT SHOWN PER MANUFACTURER'S RECOMMENDATIONS.

KEY NOTES:

- ① METAL-OVER-METAL RE-ROOF SYSTEM. FASTEN TO EXISTING DECK PER MANUFACTURER REQUIREMENTS AND PROVIDE 4" BATT INSULATION BETWEEN NEW AND EXISTING ROOF PANELS. SEE DRAWING A5.2 FOR TYPICAL SYSTEM DETAILS.
- ② PROVIDE EAVE/FASCIA CLOSURE PER MANUFACTURER'S DETAILS.
- ③ REPLACE STANDING SEAM ROOF PANELS TO MATCH EXISTING, SEE SPECIFICATIONS.
- ④ MODIFY FLASHING AT SKYLIGHTS FOR NEW ROOF SYSTEM AS REQUIRED.
- ⑤ MODIFY GUTTER AS REQUIRED FOR NEW ROOF SYSTEM.
- ⑥ FLASH INTO WALL PANELS TO MATCH EXISTING CONSTRUCTION.
- ⑦ PROVIDE STANDING SEAM ROOF PANELS TO MATCH OFFICE AREA ROOF PANELS. PLACE PANELS FLUSH AGAINST EXISTING BUILDING SOFFIT.
- ⑧ REMOVE EXISTING SOLAR PANELS AND TURN OVER TO OWNER.

DATE:	4/8/20								
REVISIONS									
NO.	1								
	ISSUED FOR BID								

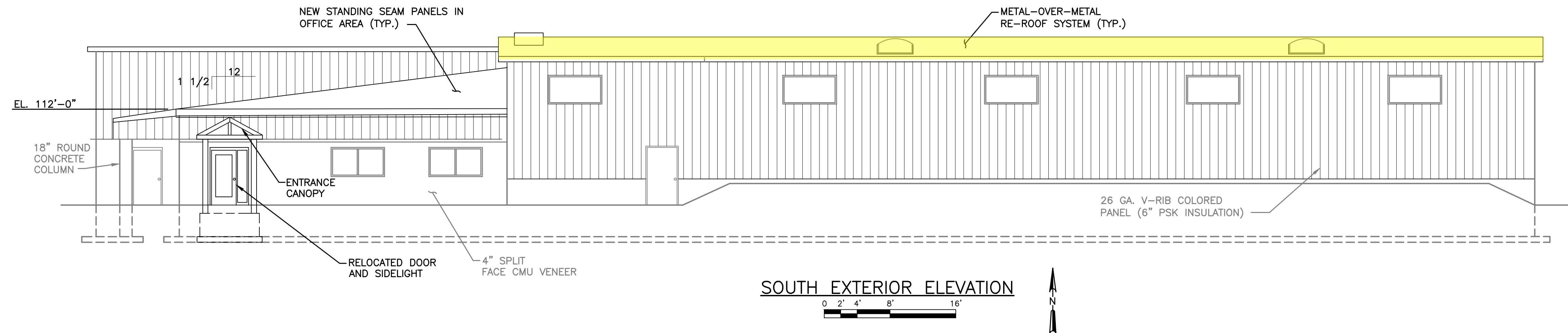
ROOF PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT


STRAND
ASSOCIATES®

SHEET
8
A1.3



SOUTH EXTERIOR ELEVATION

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



SHEET
9
A2.1

GENERAL NOTES:

1. ALL 120/208V EQUIPMENT/LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.
2. ALL FIRE ALARMS DEVICES TO BE WIRED TO FACP/NAC IN UTILITY ROOM.

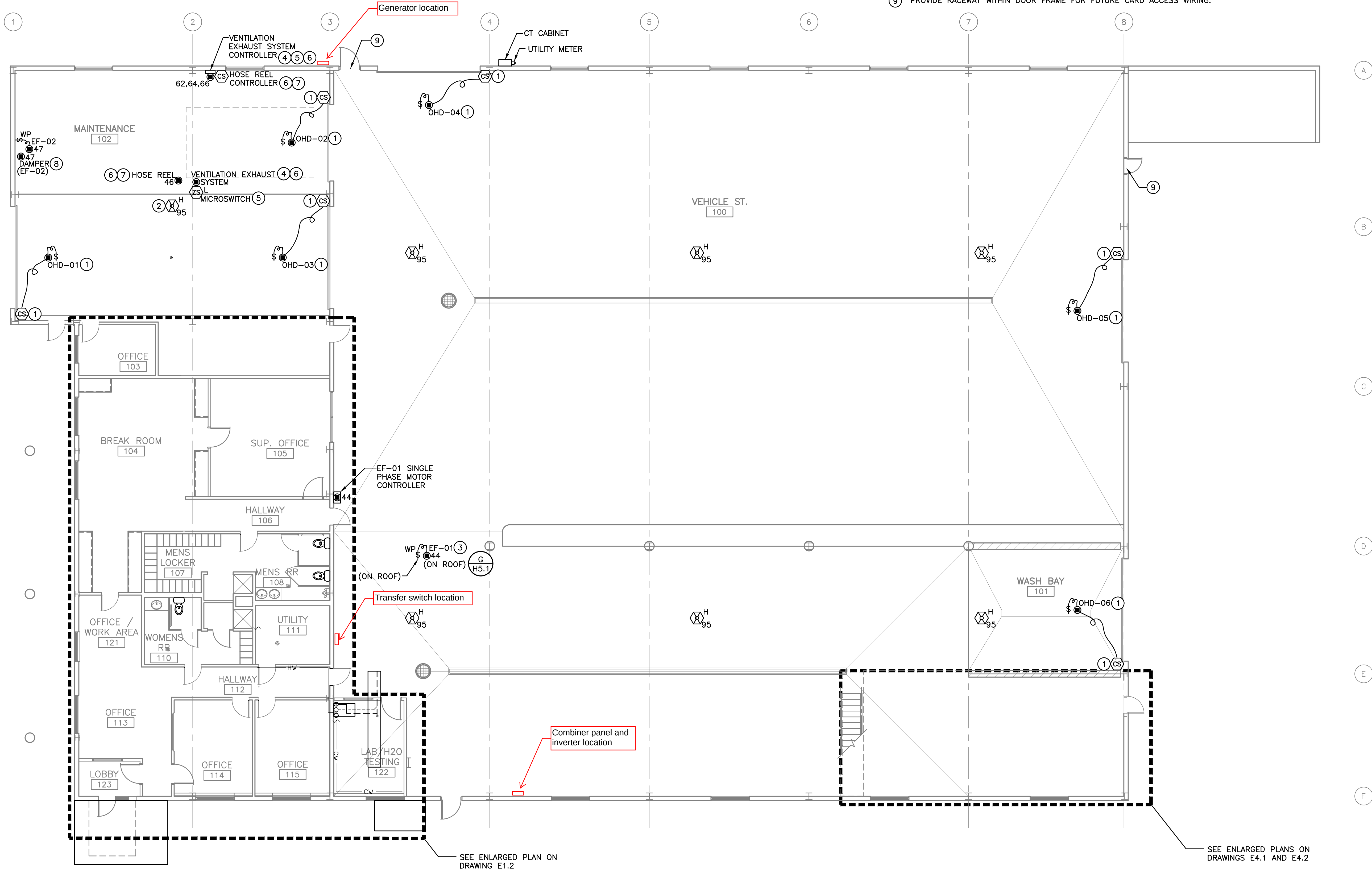
KEY NOTES:

- ① OVERHEAD GARAGE DOOR CONTROLS FURNISHED AS SPECIFIED IN DIVISION 8 AND INSTALLED BY DIVISION 26. REFER TO DIVISION 8 OF SPECIFICATIONS FOR OPERATING DESCRIPTION AND ADDITIONAL CONTROLS TO BE WIRED BY DIVISION 26. MOTOR DISCONNECT SHALL BE MOUNTED ON CEILING ADJACENT TO MOTOR. ALL WORK ASSOCIATED WITH OVERHEAD DOORS SHALL BE PART OF BID ALTERNATIVE NO. 2. COORDINATE EXACT LOCATION OF CONTROLS WITH OWNER. MOTORS SHALL BE POWERED FROM EXISTING CIRCUIT USED FOR REMOVED MOTOR. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR AND CONTROLS TO NEW MOTOR AND CONTROLS.
- ② DEVICE SHALL BE RATED 96dB.
- ③ EXHAUST FAN SHALL BE POWERED FROM CIRCUIT USED FOR REMOVED FAN. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR TO NEW MOTOR.

KEY NOTES:

- ④ PROVIDE 3~#12 AND #12 GROUND IN 3/4" CONDUIT FROM EXHAUST CONTROLLER TO VEHICLE EXHAUST CONTROL SYSTEM.
- ⑤ LIMIT SWITCH PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26. PROVIDE 2~#14 IN 3/4" CONDUIT FROM LIMIT SWITCH TO VEHICLE EXHAUST CONTROLLER.
- ⑥ EQUIPMENT PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26.
- ⑦ PROVIDE 2~#14 IN 3/4" CONDUIT FROM HOSE REEL CONTROLLER TO JUNCTION BOX ON HOSE REEL.
- ⑧ DAMPER SHALL BE WIRED TO OPEN WHEN EXHAUST FAN EF-02 IS RUNNING.
- ⑨ PROVIDE RACEWAY WITHIN DOOR FRAME FOR FUTURE CARD ACCESS WIRING.

Attachment No. 3



OVERALL ELECTRICAL FLOOR PLAN

0 2' 4' 8' 16'

NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20

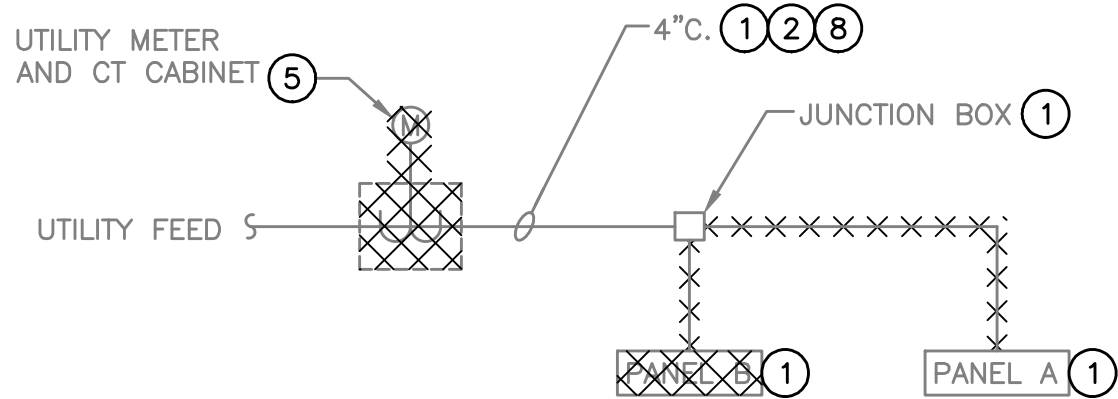
OVERALL ELECTRICAL FLOOR PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

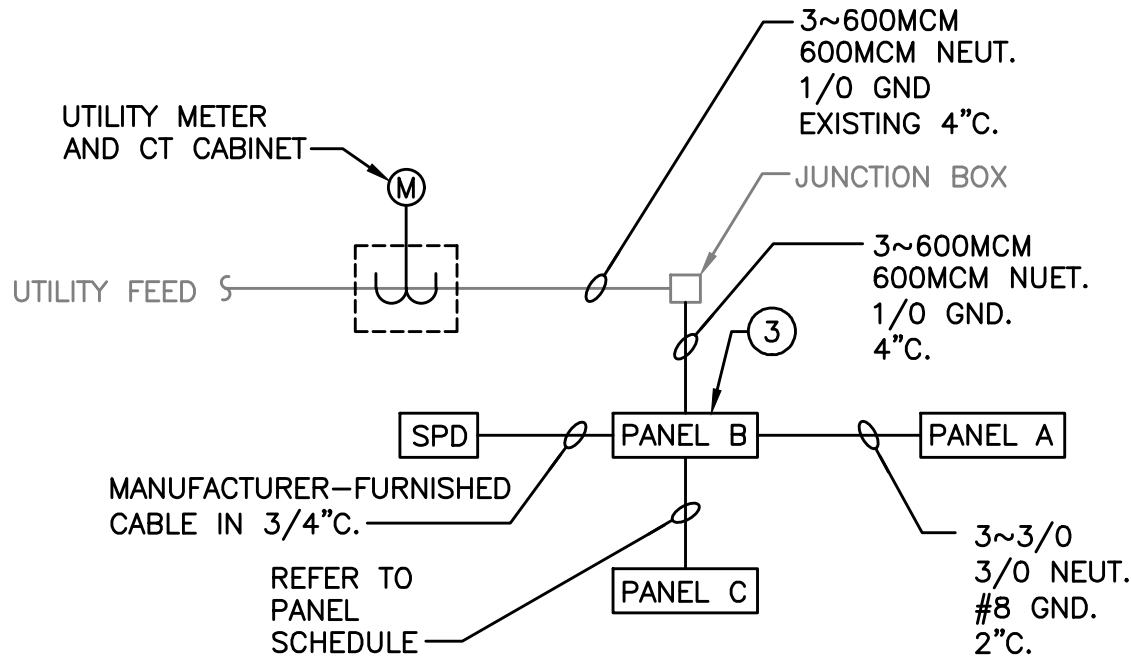
PROJECT MGR.
SCOTT HERKERT



SHEET
30
E1.1

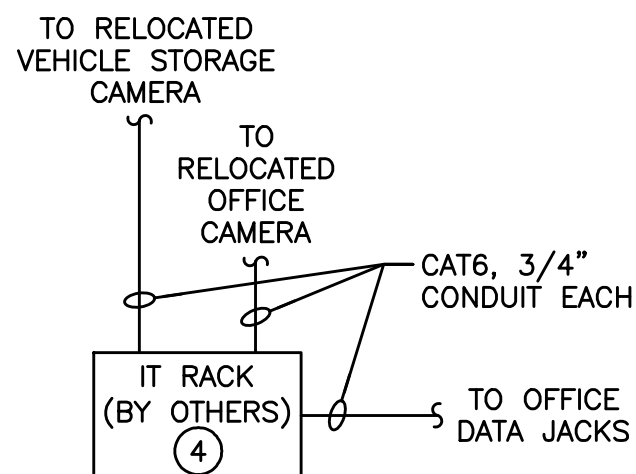


EXISTING ONE-LINE DIAGRAM
NO SCALE



ONE-LINE DIAGRAM
NO SCALE

Existing distribution system

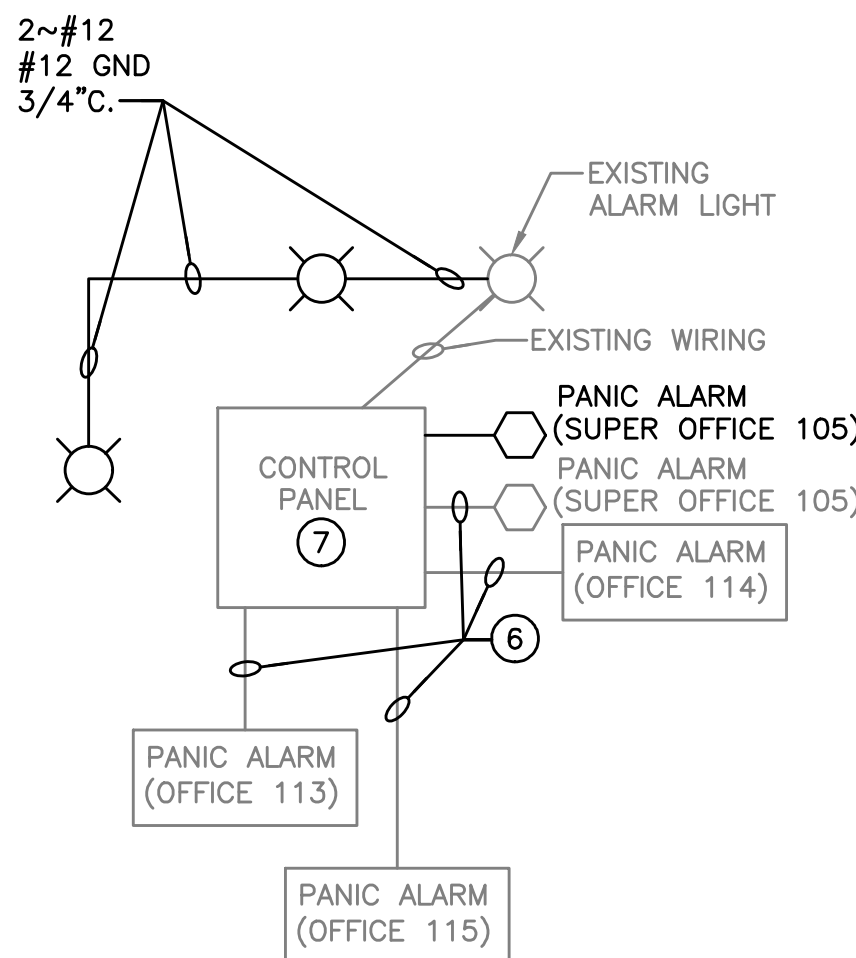


NETWORK RISER DIAGRAM
NO SCALE

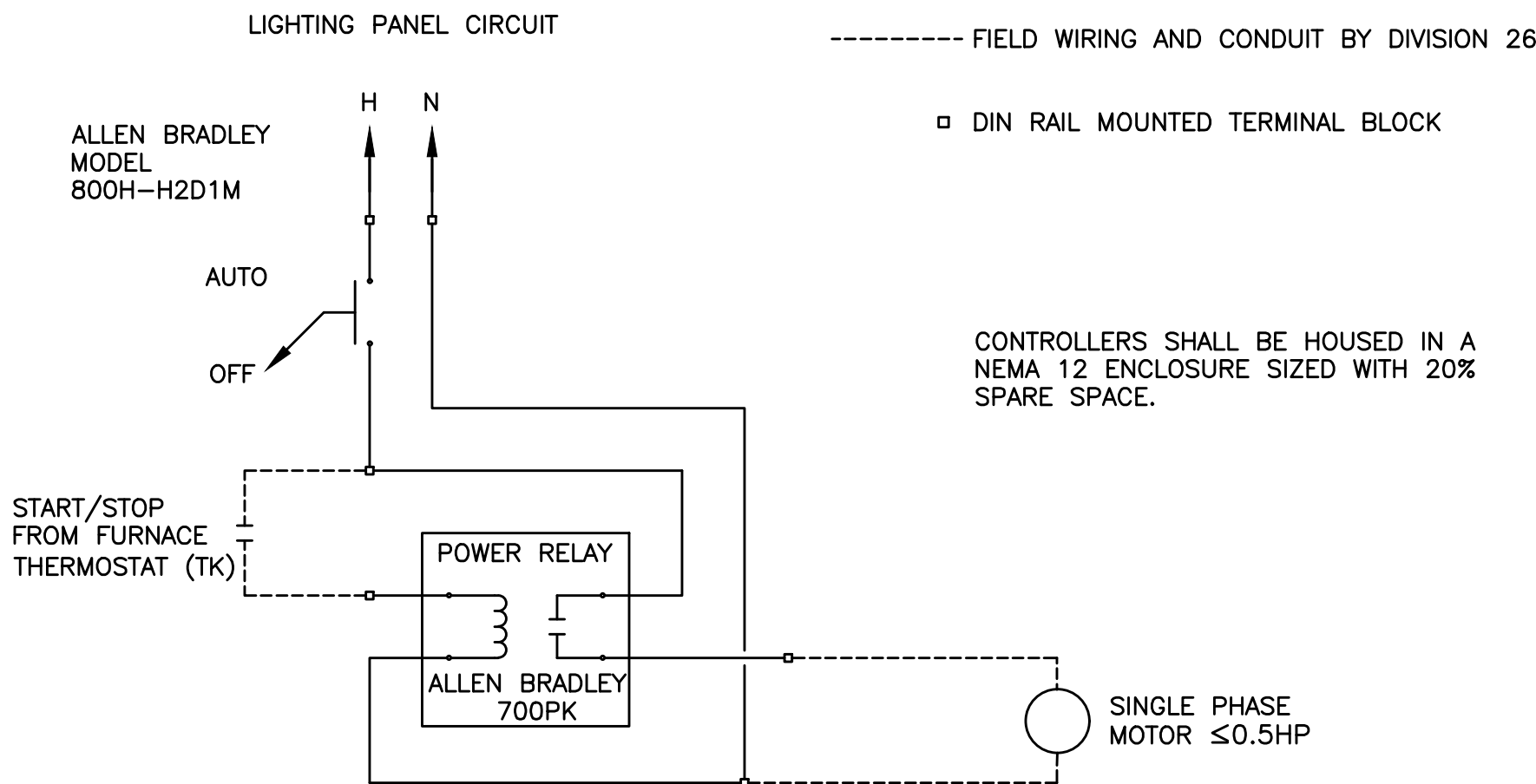
KEY NOTES:

- 1 REMOVE WIRING BETWEEN PANEL A, PANEL B, AND UTILITY SERVICE. GROUND CONDUCTOR SHALL REMAIN.
- 2 REMOVE EXISTING WIRING. CONDUIT SHALL REMAIN.
- 3 EXISTING GROUND CONDUCTOR SHALL BE CONNECTED TO NEW PANEL B.
- 4 COORDINATE TERMINATIONS WITH McFARLAND IT DEPARTMENT.
- 5 COORDINATE ALL WORK ASSOCIATED WITH CHANGES TO THE SERVICE WITH UTILITY COMPANY. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE BID.
- 6 EXTEND CONDUIT AND WIRING AS REQUIRED.
- 7 COORDINATE ALL WORK WITH BOLDTRONICS - BURT BOLDEBUCK (608) 271-8979.
- 8 TWO EXISTING 200-AMP FEED.CO.
- 9 PROVIDE NEW CT CABINET PER UTILITY REQUIREMENTS.

Attachment No. 4



PANIC ALARM SYSTEM DIAGRAM
NO SCALE



SINGLE PHASE MOTOR CONTROL
NO SCALE

FURNACE CONDUIT AND WIRING SCHEDULE				
CONDUIT* DESIGNATION	ORIGIN	TERMINATION	CONDUIT SIZE	CONDUCTORS*
OUTDOOR AIR TEMP. SENSOR	TK-01	TE-03	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-01	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-01	F-01	3/4"	2-#14
HEATING (START/STOP)	TK-01	F-01	3/4"	2-#14
SUPPLY AIR TEMP.	TK-01	TE-01	3/4"	SH. PR.
EXHAUST FAN (START/STOP)	TK-01	EF-01	3/4"	2-#14
COOLING (START/STOP)	TK-01	ACCU-01	3/4"	2-#14
OUTDOOR AIR TEMP. SENSOR	TK-02	TE-04	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-02	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-02	F-02	3/4"	2-#14
HEATING (START/STOP)	TK-02	F-02	3/4"	2-#14
SUPPLY AIR TEMP.	TK-02	TE-02	3/4"	2-#14
COOLING (START/STOP)	TK-02	ACCU-02	3/4"	2-#14

*Provide ground conductor per NEC.
*Refer to Plans For Surface Raceway

FIXTURE SCHEDULE					
Fixture Type	Manufacturer(s)	Model Number	Lamp Type	Mounting	Remarks
A	LITHONIA	2BLT4-40L-ADP-SLD-LP840	31W LED	RECESSED	
AX	LITHONIA	2BLT4-40L-ADP-SLD-LP840-EL7L	31W LED	RECESSED	
B	LITHONIA	BLWP4 60L ADP SLD LP840	49W LED	SURFACE/PENDANT	
C	LITHONIA	BLWP4 30L ADP SLD LP840	25W LED	SURFACE/PENDANT	
D	RP LIGHTING	8763-4K	10W LED	RECESSED	
X1	SURE-LITES	SLX-7-SD-R	1W LED	WALL/PENDANT	PROVIDE MOUNTING HARDWARE, CHEVRONS AND FACES AND REQUIRED.

PANEL C														
Service: 120/208V, 3ø, 4W					Enclosure: NEMA 1					Mounting: Surface				
Main Breaker: 100A										Main Bus: Copper				
Location: UTILITY ROOM 111										SCIC: 10 kAIC				
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description	
RECEPTACLES - MEZZANINE	20	1	1	500			720			2	1	20	RECEPTACLES - SUP. OFFICE 105	
SPARE	20	1	3					360		4	1	20	RECEPTACLES - OFFICE 113, LOBBY	
RECEPTACLES - MEZZANINE	20	1	5			500			360	6	1	20	RECEPTACLES - BREAKROOM 104	
RECEPTACLE - H2O TESTING LAB	20	1	7	1000			360			8	1	20	RECEPTACLES - BREAKROOM 104	
RECEPTACLE - H2O TESTING LAB	20	1	9		1000			360		10	1	20	RECEPTACLES - BREAKROOM 104	
RECEPTACLES - EXTERIOR	20	1	11			180			360	12	1	20	RECEPTACLES - BREAKROOM 104	
RECEPTACLES - BREAKROOM	20	1	13	720						14	1	20	SPARE	
RECEPTACLES - BREAKROOM	20	1	15		720			720		16	1	20	RECEPTACLES - SUP. OFFICE 105	
RECEPTACLES - BREAKROOM	20	1	17			720			360	18	1	20	RECEPTACLES - SUP. OFFICE 105	
RECEPTACLES - BREAKROOM	20	1	19	720			900			20	1	20	RECEPTACLES - SURFACE RACEWAY	
SPARE	20	1	21					900		22	1	20	RECEPTACLES - SURFACE RACEWAY	
SPARE	20	1	23							24	1	20	SPARE	
SPARE	20	1	25							26	1	20	SPARE	
SPARE	20	1	27							28	1	20	SPARE	
SPARE	20	1	29							30	1	20	SPARE	
Total Load per Phase per Side (VA)				2940	1720	1400	1980	2340	1080					
Total Load Phase A (VA)				4920	VA							Total Connected Load (A)		
Total Load Phase B (VA)				4060	VA							Total Connected Load + 25%		
Total Load Phase C (VA)				2480	VA							Spare 25%		
Total Connected Load (VA)				11460	VA							Feeder Load		
													32	A
													40	A
													10	A
													50	A

PANEL B														
Service: 120/208V, 3ø, 4W					Enclosure: NEMA 1					Mounting: Surface				
Main Breaker: 400A (SE RATED)										Main Bus: Copper				
Location: UTILITY ROOM 111										SCIC: 42 kAIC				
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description	
EXISTING LOAD	20	1	1							2	1	20	PANEL GFI OUTLET	
EXISTING LOAD	20	2	3							4	1	20	EXISTING LOAD	
ENTRY DOOR OPENER	20	1	7							8	1	20	SMALL OFFICE	
FIRE ALARM PANEL	20	1	9							10	1	15	BASEBOARD HEAT - SPARE	
MECHANIC'S ROOM LIGHTS	20	1	11							12	1	20	CONTROL PANEL	
MECHANIC'S RM GFI OUTLETS	20	1	13							14	1	20	BATHROOM GFI OUTLET	
MECHANIC'S RM GFI OUTLETS	20	1	15							16	1	20	KITCHEN GFI OUTLET - SPARE	
MECHANIC'S RM GFI OUTLETS	20	1	17							18	1	20	LUNCHROOM OUTLET - SPARE	
MECHANIC'S RM GFI OUTLETS	20	1	19							20	1	20	OUTLETS-PARTS STORAGE & SMALL OFFICE	
WATER HEATER	30	2	21							22	2	40	RANGE	
WASH BAY OUTLETS & LIGHTS	20	1	23							24	1	20	FAX	
WASH BAY HEAT & GARAGE DR	20	1	25							26	1	20	COPIER	
	20	1	27							28	1	20	SOFTENER	
PRESSURE WASHER WASH BAY	30	3	29							30				
			31							32	3	100	EXISTING LOAD	
			33							34				
EXISTING LOAD	20	3	35							36	1	20	PHONE BOARD	
			37							38	1	20	PHONE BOARD	
			39							40	1	15	EXISTING LOAD	
EXISTING LOAD	20	1	41							42	1	15	EXISTING LOAD	
F-01	20	1	43	1236			264			44	1	20	EF-01 & DAMPER	
F-02	20	1	45		1663			1000		46	1	20	HOSE REEL	
EF-02 & DAMPER	30	1	47			1656			200	48	1	20	FURNACE DAMPERS	
			49	1686			2160			50				
ACCU-01	20	3	51		1686			2160		52	3	30	ACCU-02	
			53			1686			2160	54				
EBB-01	20	1	55	750			1250			56	1	20	EBB-05	
EBB-02	20	1	57		1500			1250		58	1	20	EBB-06	
EBB-03	20	1	59			1500			1250	60	1	20	EBB-07	
EBB-04	20	1	61	1000			500			62				
EBB-08	20	1	63		1080			500		64	3	15	VEHICLE EXHAUST SYSTEM	
SPARE	20	1	65						500	66				
			67							68	1	20	SPARE	
SPD	30	3	69							70	1	20	SPARE	
			71						700	72	1	20	LIGHTING - MEZZANINE	
SS-01	20	2	73	800			4920			74				
			75		800			4060		76	3	100	PANEL C	
EWVH-01	20	1	77			1008			2480	78				
EWVH-02	20	1	79	1008						80				
SPARE	20	1	81							82				
SPARE	20	1	83							84	3	80	SPACE FOR FUTURE SOLAR	
Total Load per Phase per Side (VA)				6480	6729	5850	9094	8970	7290					
Total Load Phase A (VA)				15574	VA	PROVIDE THROUGH FEED LUGS FOR POWER TO PANEL A					Total Connected Load (A)			
Total Load Phase B (VA)				15699	VA	EXISTING CIRCUITS SHALL BE RECONNECTED TO PANEL B					Total Connected Load + 25%			
Total Load Phase C (VA)				13140	VA						Spare 25%			
Total Connected Load (VA)				44413	VA						Feeder Load			
												123	A	
												154	A	
												39	A	
												193	A	

ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

Breaker for PV array

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT

STRAND
ASSOCIATES®

SHEET
35
E5.1

Solar Proposal For:



Prepared By:



ARTICLE 1 – BID RECIPIENT -Transmittal Letter

May 5, 2020

Matt Schuenke
Village of McFarland
5115 Terminal Drive,
McFarland, WI 53558

Dear Matt,

Eagle Point Solar is pleased to provide a proposal to The Village of McFarland in response to your request for a proposal to design, build and maintain a solar array located at Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558

We have read, understand and agree to the terms of your RFP.

Our proposal is organized into the following sections:

1. Transmittal Letter
2. Project and Technology Description
 - A. Project Schedule and Timing
3. Warranties
4. Company Qualifications/Lead Installer information
5. Minimizing Downtime
6. Inverter Warranty option
7. Pricing
8. Other Pricing Options
9. References
10. Exhibits
 - A – Eagle Point Solar 5-Year Workmanship Warranty
 - B - Standard Operations & Maintenance Agreement (O&M)
 - C – Insurance Documentation
 - D – SolarEdge Monitoring System

Our proposal is “turn-key” in nature, meaning Eagle Point Solar will handle all aspects of the project including, design, optimization, construction, permitting, interconnection preparation & submission, equipment procurement, inspections, commissioning and 5 Years of on-going operations and maintenance services.

Per your instructions we have used the designs provided in the proposal request as the basis for our bid. You will also notice we have taken the liberty of adding some additional comments to the technical description. Our comments are simply things we would like to discuss further should we be selected to be involved in these projects.

Our base bid includes training for select the Village of McFarland staff on the operation of the solar array. This training is designed to be a supplement to the services Eagle Point Solar provides under the (O&M) agreement, not a replacement of those services.

We are very interested in assisting the Village of McFarland in educating citizens on why this project is good for the community. Ribbon cuttings, educational sessions and potentially installing a TV monitor in a prominent location to display the system production and environmental benefits are just a few things we will do should we be selected.

The Village of McFarland will certainly have multiple vendors bid on your solar project but as you evaluate each response it will become clear Eagle Point Solar provides the highest value for your solar installation.


Sincerely,
Dave Pluym
Solar Energy Consultant


Eagle Point
SOLAR
Bringing you the SUN®

BIDDER'S ACKNOWLEDGEMENTS

Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that

Bidder may agree to in writing upon request of Owner.:

The following is a description of the solar array including Google Earth image of the location with an overlay of the location of the modules, make, model & quantity of modules and make, model & quantity of inverters, first year kWh production estimate based on PV Watts, racking manufacturer and warranty information. Specification Sheets and warranty sheets are included in the "exhibit" section of this document.

Our design and equipment choices meet all of the requirements in the PR. Our philosophy is to continue to use only the highest quality components from established, stable, tier 1 manufacturers. An investment in a solar array is a long term investment and the ROI depends solely on the performance of the equipment so using only quality equipment is the correct choice.

BIDDER'S REPRESENTATIONS

Key Personnel:

Every project has corporate level management from Eagle Point Solar's headquarters in Dubuque, Iowa as well as local construction management at the site. Eagle Point Solar will oversee quality of service and product and is the prime contractor responsible for all of the project work. Our experienced construction management team has enabled us to attain a reputation as a consistent and efficient solar provider focused on customer satisfaction and quality workmanship.

Barry R. Shear CEO & President

Barry Shear is President and Owner of Eagle Point Solar. He has earned a wide reputation as a vigorous advocate for solar energy and climate change initiatives. Barry feels energy from renewable sources is the Industrial Revolution of the 21st century, and that jobs, economic growth, sustainability, and reducing greenhouse gas emissions can all be accomplished within a framework that works for the public and the utilities. Barry and Eagle Point Solar took the lead in the landmark Supreme Court case which now allows for third party power purchase agreements in Iowa. He is a founding Board member and Treasurer of ISETA (Iowa Solar Energy Trade Association) and is a frequent speaker and panelist on Solar Energy Policy.

Jim Pullen General Manager

Jim has over 25 years of Executive Sales and Operations Management experience. His focus is on process development and improvement, specifically with the sales and construction departments. Jim has also personally provided solar consultations to over 50 customers who have installed solar arrays. Prior to Eagle Point, Jim was a small business owner and the Vice President of Sales for an established technology firm.

Larry Steffen Vice President of Sales

Larry has over 38 years of Sales & Executive Sales Management experience. Leading the sales teams in his divisions as well as establishing and executing sales strategies is a major focus. Larry has also provided solar consultations to over 450 customers in the last 5 years. Prior to Eagle Point Solar, Larry was the Chief Operating Officer and co-owner of an agriculture fertilizer plant in Iowa. He holds 3 U.S. patents on agriculture and ornamental fertilizer formulations. Larry was also the Executive Director of Sales for an established software engineering consulting firm for 23 years.

Randy Ambrosy**Vice President of Operations**

Since 1991, Randy has served in a variety of Executive Management roles including Sales, Marketing, Product Development, International Business and Operations. Randy has lead acquisition and divestiture teams and has experience managing large projects. Randy brings Executive Leadership to the team, and oversees the construction phases of the business while focusing on process efficiency and improvement. Randy earned his Master's Degree in Business Analytics from Loras College in 2017.

*****Joseph Petsche – Lead Installer****Vice President of Construction/Project Manager**

Joe is a degreed engineer with an MBA from the University of Iowa. He has over 20 years of engineering and project management experience including previous positions with Kinder Morgan Energy Partners, British Petroleum and Amoco. He has managed dozens of energy related projects and is committed to precise planning, efficient execution, cost effective results and total customer satisfaction. Joe has also attended extensive solar training and is NABCEP certified.

Tod Hollenback**Vice President of Design and Procurement**

Tod has over 25 years of experience of design, sales, repair and procurement within the technology market. He is responsible for the design process which includes matching compatible equipment to the needs and goals of all client projects. Tod has attended various training sessions and is NABCEP certified. Prior to Eagle Point, Tod was a small business owner and previously worked for a technology company in various technical and sales roles.

Brian Gill**Master Electrician**

Brian has been in the electrical trade for nearly 25 years, the last 16 as a Master Electrician. Prior to Eagle Point Solar Brian worked as the Service & Project Manager for Hawkeye Electric in Dubuque. In addition to Brian's extensive electrical background, he has over 4 years of solar experience as a contractor working on projects for Eagle Point Solar. Brian will oversee all electrical functions corporately for Eagle Point Solar including design, engineering and construction. In addition to this, he will manage all electrical contractors and the in-house electrical staff.

Dave Pluym**Solar Energy Consultant**

Dave Pluym has over 4 years in the solar energy industry and brings a wide breadth and depth of technical sales experience to Eagle Point Solar as an addition to their solar sales team. Dave has over 35 years of sales and management expertise combined with design, repair and procurement within the technology market. His exemplary leadership and strong implementation strategies in technical and operational plans has a proven record in facilities management solutions for solar, IT, VFD drives, GPS/GIS consulting for land survey/design and machine guidance, along with M2M tracking and property and casualty insurance

Local Presence

Eagle Point Solar has developed a business model that includes offices and employees located in strategic geographies and partnerships with local solar experts in other areas. Our presence in the State of Wisconsin continues to grow with staff presently located in both the Osh Kosh and Milwaukee areas along with Kieler/Hazel Green. Our business plan calls for expansion into other markets in Wisconsin during 2020 -2021.

Company Qualifications/Lead Installer Information-Bidders Certification:

History:

Eagle Point Solar was founded in 2010 with an unwavering focus on quality, professionalism, and service. We have become one of the leading solar providers in the Midwest with over 750 completed systems in Iowa, Illinois, and Wisconsin with an aggregate size exceeding 19MW. We have provided solar solutions for a variety of customers and facilities including, utilities, schools, city & county governments, farms, non-profits, large and small businesses and homeowners.

We have worked with several public entities by installing solar arrays at multiple locations in Iowa, Illinois and Wisconsin including, the City of Asbury Iowa, the City of Galena, IL, Sauk County, WI, and the City of Milwaukee.

Qualifications:

Our commitment to the solar industry is evident as we are members of various trade organizations and a founding member of the Iowa Solar Energy Trade Association (ISETA) as well as current members of the Illinois Solar Trade Association (ISEA) and RENEW Wisconsin.

Here are a few things that make us uniquely qualified for the wastewater treatment plant project:

- 1) We are a professional solar installer/integrator that is 100% focused on the solar industry. For the last 10-years we have grown to a team of 78 employees with specific areas of expertise in our industry.
- 2) Full-time, on-staff installers. We do not sub-contract the installations of the solar array. We can leverage our knowledge from past projects and complete installations quickly, with consistent quality. Nearly every member of our crew will be from the local labour pool.
- 3) We have invested in education for our entire staff including the time, effort and financial commitment necessary to have multiple NABCEP certified individuals in our organization including:

Tod Hollenback - PV-041616-012867

*******Joseph Petsche - PV-042217-012772 – Lead Installer**

Matthew Pullen - PVA-020718-020696

Todd Lindquist - PV-090718-020118

Vivika Heller - PVA-110518-021693

Adam Jordan – PVA-091718-023370

Danny Leavenworth - PVA-021519-022497

- 4) Eagle Point Solar has invested in the equipment necessary to build ground arrays that are aesthetically pleasing and durable. The investment we made in our Vermeer PD-10 pile driving machine and our experience in operating it set our ground arrays apart from any other installer you will find in this area.
- 5) We have been named one of Solar Power World's Top 500 Solar Contractors in the U.S. for 3 years in a row.

Division of Professional Credential
Processing
4822 Madison Yards Way
Madison, WI 53705
Phone: (608) 266-2112
Fax: (608) 267-0592
Email: dpscredtrades@wi.gov
Website: www.dps.wi.gov

Certification, License, or Registration Card

Below you will find your certification, license or registration card. This card serves as an additional piece of documentation of licensure that may be carried on person. To view details about your credential or continuing education log into the eSLA portal where you can view your credential status or use the public lookup to verify the status of your CE.

Wisconsin Department of Safety and Professional Services	
EAGLE POINT SOLAR LLC	
Credential ID: DC-111500020	
Certification, License, or Registration Name	Expires:
Dwelling Contractor	2020-11-05
Signature:	

Please review the information on the card. If errors or discrepancies are found, you may contact the Department at 608-266-2112 or email DSPSCredTrades@wi.gov, and provide your ID number printed on the card. The Department should be notified of changes in addresses as they occur. Notification of address changes is the responsibility of the credential holder. A renewal notice will be emailed to the email address on file 30, 60, and 90 days before expiration. Before the expiration date of each credential indicated on the card. Renewals are contingent upon compliance with the requirements specified in Wisconsin Administrative Code SPS 305.

Village of McFarland – Roof Mounted



This proposal specifies a 31.59 kW DC roof mounted solar photovoltaic system at the Public Works Facility for the proposed work addressed to Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558

Project Summary:

Solar array to be installed at the following location:
5115 Terminal Dr. McFarland, WI
31.59 kW DC Roof Mounted Array

Solar Modules will be mounted on a flush mount array racking system on the Southern roof face of building. Flush mount racking system consists of S5! Clamp attachments and IronRidge rails and hardware designed to the specifications of the approving AHJ.

DC wiring will be run underneath the modules and secured to the array racking via cable management clips and cable ties when necessary. DC wiring off the roof will be run to the interior via sealed roof penetration. DC wiring will be run in conduit through the interior to the location of the inverters and combiner panel. SolarEdge inverters and combiner to mounted on interior south wall as shown in the RFP Attachment No. 3.

AC conduit and wire out of the combiner panel will be run across the building to the exterior North wall to the Utility DG disconnect required by Alliant. The disconnect will be mounted within 10' and line of sight of the existing metering cabinet. AC conduit and wire out of the disconnect will re-enter the building and be routed to

"PANEL B" inside the building. The solar point-of-connection will be made by landing a breaker into "PANEL B" as spec'd in the RFP.

Communications will be transmitted from the SolarEdge inverters to the existing router inside of the building via CAT6 cable.

Major Components/Services/Equipment:

- Components
 - (81) – JA Solar 390-watt Modules
 - (81) – SolarEdge Optimizers, Model: P400
 - (1) – SolarEdge Inverter, Model: SE9K-US
 - (1) – SolarEdge Inverter, Model: SE14.4K-US
 - IronRidge XR 100 Racking
 - S5! U Attachment Clamps
 - (300') – CAT6 cable for communication
- Services
 - Complete and submit all necessary Alliant and AHJ documentation including:
 - Interconnection Agreement
 - 1-Line Electrical Drawing
 - Project lay out sketch
 - Certificate of Completion
 - All Interconnection Fees
 - All Permitting Fees
 - Final Inspection and Commissioning
 - All potential incentive paperwork

Inverter Warranty Option:

We believe the best option for these projects is to purchase the manufacturer's 20-year extended warranty. This reduces the Village's potential liability for most of the expected life of the system.

This cost is approximately \$500/inverter or a total of \$1,000. **(Included in bid price)**

BASIS OF BID:

Our pricing proposal is "turn-key", meaning it is all inclusive with no additional costs for the Village of McFarland. Although there is a substantial amount of volatility in the solar materials and equipment, we will honor our price until 07/30/2020. Below is the pricing matrix:

Photovoltaic Installation

\$69,498

TIME OF COMPLETION

Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Project Schedule - McFarland Public Works Facility		
Activity	Date	
	Begins	Ends
Contract Award		May 15, 2020
Contract Negotiation and Approval	May 15, 2020	June 30, 2020
Final Design Completed & Submitted	May 15, 2020	June 30, 2020
Complete, Submit and Gain Approval of Utility Interconnections	May 15, 2020	June 30, 2020
Complete, Submit and Gain Approval of All Permits	May 15, 2020	June 30, 2020
Delivery of Equipment to Project Site	July 1, 2020	July 10, 2020
Construction	July 13, 2020	October 31, 2020
Final Inspections	November 30, 2020	November 30, 2020
Utility Inspections and Testing	November 30, 2020	November 30, 2020
System Commissioned		December 31, 2020

ATTACHMENTS TO THIS BID:

The following documents are submitted with and made a condition of this Bid:

- A. Our proposal includes our standard 5-year workmanship warranty which is described near the end of this document as Exhibit A.
- B. Eagle Point Solar offers a standard Operations & Maintenance agreement (O&M) which is described in Exhibit B at the end of this document.
- C. Insurance Certificate Exhibit C
- D. Monitoring and Specification sheets Exhibit D

RFP Design McFarland Public Works RFP, 5115 Terminal Dr. McFarland WI

Report

Project Name	McFarland Public Works RFP
Project Address	5115 Terminal Dr. McFarland WI
Prepared By	Nicole Tygart ntygart@eaglepointsolar.com

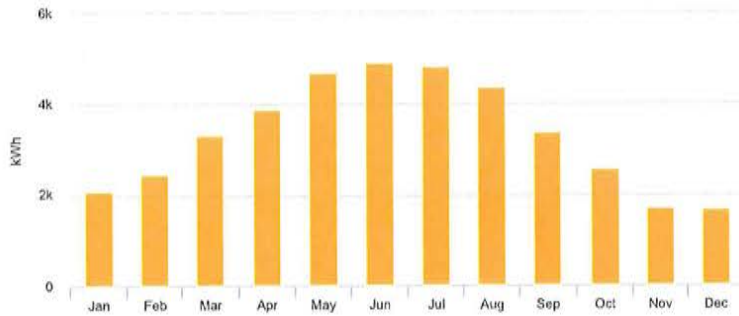
System Metrics

Design	RFP Design
Module DC Nameplate	31.6 kW
Inverter AC Nameplate	23.4 kW Load Ratio: 1.35
Annual Production	39.75 MWh
Performance Ratio	82.5%
kWh/kWp	1,258.2
Weather Dataset	TMY, MADISON DANE CO REGIONAL ARPT (ISIS), NSRDB (tmy3, I)
Simulator Version	70e353687f-301d24fdb-8f3cf974d4-5e9aee986c

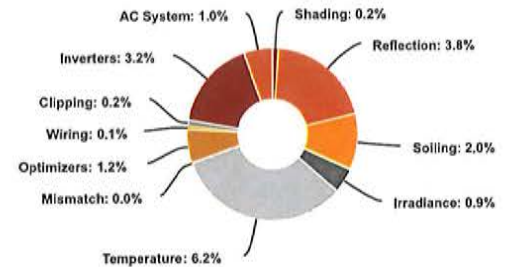
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,427.4	
	POA Irradiance	1,525.5	6.9%
	Shaded Irradiance	1,522.0	-0.2%
	Irradiance after Reflection	1,464.3	-3.8%
	Irradiance after Soling	1,435.0	-2.0%
	Total Collector Irradiance	1,435.0	0.0%
Energy (kWh)	Nameplate	45,337.8	
	Output at Irradiance Levels	44,936.2	-0.9%
	Output at Cell Temperature Derate	42,127.8	-6.2%
	Output After Mismatch	42,127.8	0.0%
	Optimizer Output	41,622.1	-1.2%
	Optimal DC Output	41,566.0	-0.1%
	Constrained DC Output	41,476.9	-0.2%
	Inverter Output	40,153.1	-3.2%
	Energy to Grid	39,747.9	-1.0%
Temperature Metrics			
	Avg. Operating Ambient Temp	11.4 °C	
	Avg. Operating Cell Temp	26.3 °C	
Simulation Metrics			
	Operating Hours	4607	
	Solved Hours	4607	

Condition Set

Description	Condition Set 2											
Weather Dataset	TMY, MADISON DANE CO REGIONAL ARPT [ISIS], NSRDB (tmy3, I)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a		b		Temperature Delta						
	Fixed Tilt	-3.56		-0.075		3°C						
	Flush Mount	-2.81		-0.0455		0°C						
	East-West	-3.56		-0.075		3°C						
	Carport	-3.56		-0.075		3°C						
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Uploaded By		Characterization								
	JAM72S09 -390/PR (JA Solar)	Folsom Labs		Spec Sheet Characterization, PAN								
Component Characterizations	Device	Uploaded By		Characterization								
	SE14.4KUS (SolarEdge)	Folsom Labs		CEC								
	SE9KUS (SolarEdge)	Folsom Labs		Spec Sheet								
	P400 (SolarEdge)	Folsom Labs		Mfg Spec Sheet								

Components

Component	Name	Count
Inverters	SE14.4KUS (SolarEdge)	1 (14.4 kW)
Inverters	SE9KUS (SolarEdge)	1 (9.00 kW)
AC Panels	1 input AC Panel	2
AC Home Runs	4 AWG (Copper)	3 (840.9 ft)
AC Home Runs	2 AWG (Copper)	1 (326.8 ft)
Strings	10 AWG (Copper)	7 (1,111.5 ft)
Optimizers	P400 (SolarEdge)	81 (32.4 kW)
Module	JA Solar, JAM72S09 -390/PR (390W)	81 (31.6 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	9-15	Along Racking
Wiring Zone 2	12	9-14	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Flush Mount	Portrait (Vertical)	9°	178.5°	0.0 ft	1x1	51	51	19.9 kW
Field Segment 2	Flush Mount	Portrait (Vertical)	9°	178.5°	0.0 ft	1x1	30	30	11.7 kW

📍 Detailed Layout



Project Details

Name	McFarland Public Works RFP	Date	05/05/2020
Location	5115 Terminal Drive, McFarland, WI, 53558	Total modules	81
Module	JA Solar : JAM72509 390/PR (40mm)	Total watts	31,590
Dimensions	78.27" x 39.57" x 1.57" (1988.0mm x 1005.0mm x 40.0mm)	Attachments	138
ASCE	7-10		

System Weight

Total system weight	4,534.5 lbs
Weight/attachment	32.9 lbs
Racking weight	498.3 lbs
Distributed weight	2.6 psf

Load Assumptions

Wind exposure	C
Wind speed	110 mph
Ground snow load	30 psf
Attachment spacing	4.0'

Roof Information

Roof material	Metal	Building height	20 ft
Roof attachment	L-Foot Only	Roof slope	9 °
Attachment hardware	Square	Risk category	II

Span Details XR100 - Portrait

Zone	Max span	Max cantilever
1	5' 5"	2' 2"
2	5' 5"	2' 2"
3	5' 4"	2' 2"

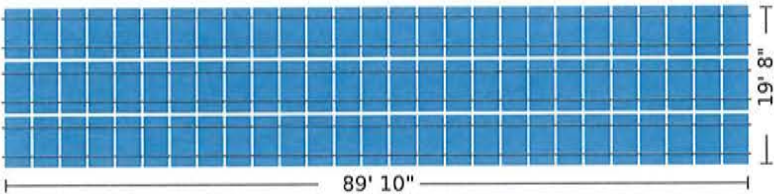
Reaction Forces XR100 - Portrait

Zone	Down (lbs)	Uplift (lbs)	Lateral (lbs)
1	369	158	62
2	369	319	62
3	370	501	63

Roof Section 1

Definition	Roof Section Weights	Roof Section (all segments)
81 modules	Total weight: 4,534.5 lbs	Provided rail: 558' [18 x 14', 18 x 17']
Portrait orientation	Weight/attachment: 32.9 lbs	Attachments: 138
Graphical entry	Total Area: 1,766.9 sq ft	Splices: 30
	Distributed weight: 2.6 psf	Clamps: 168

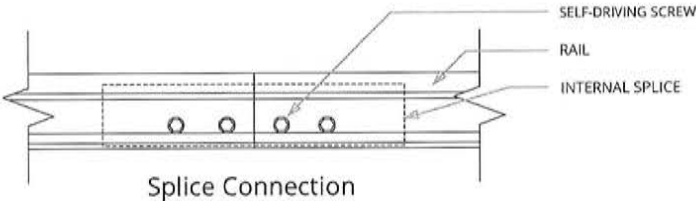
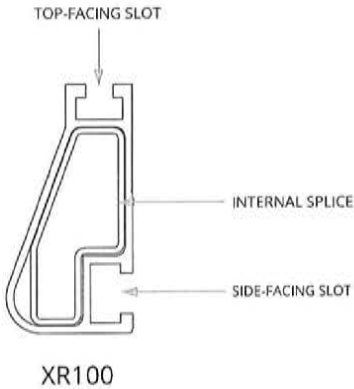
Diagram



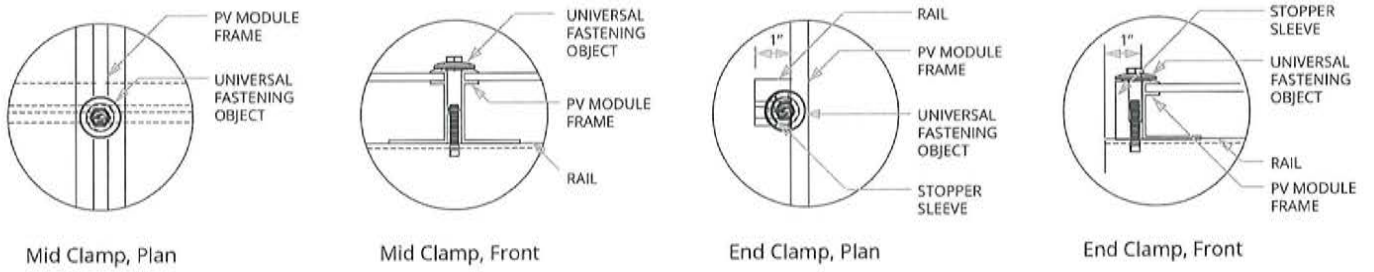
Segments

Columns	Length	Cantilever	Cantilever Violations	Rail	Attachments	Splices	Clamps
27	90'	1'	None	186' [6 x 14', 6 x 17']	46	10	56
Row segment totals (x 3) →				558' [18 x 14', 18 x 17']	138	30	168

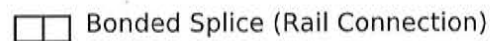
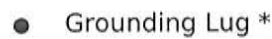
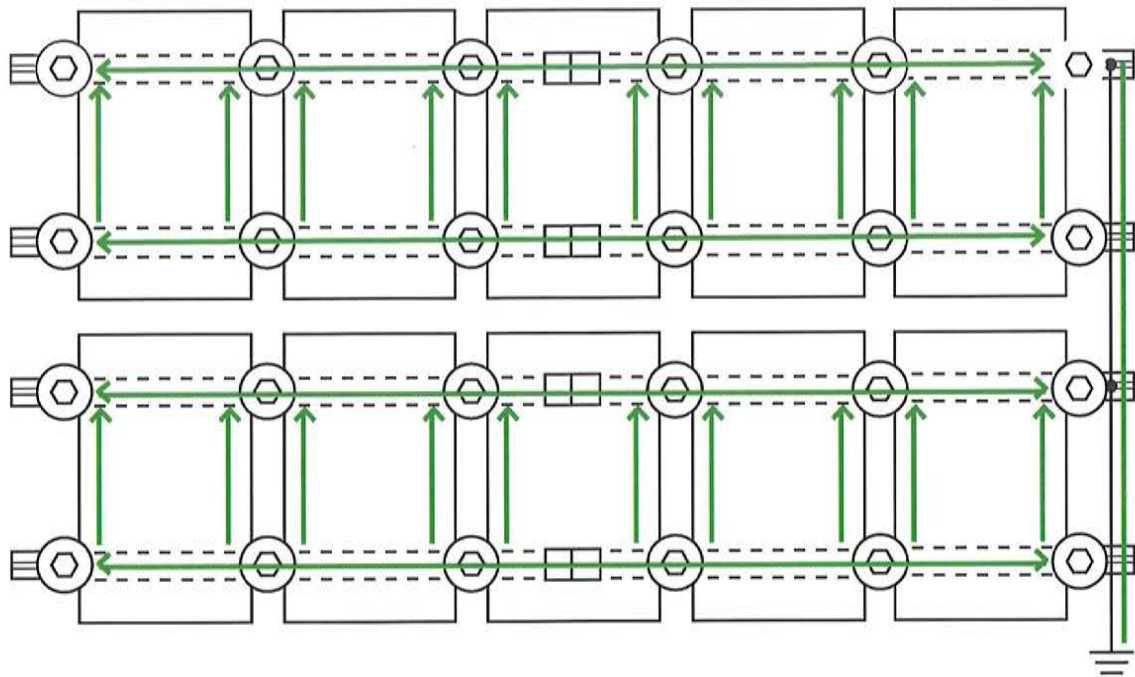
Splice Details



Clamp Detail



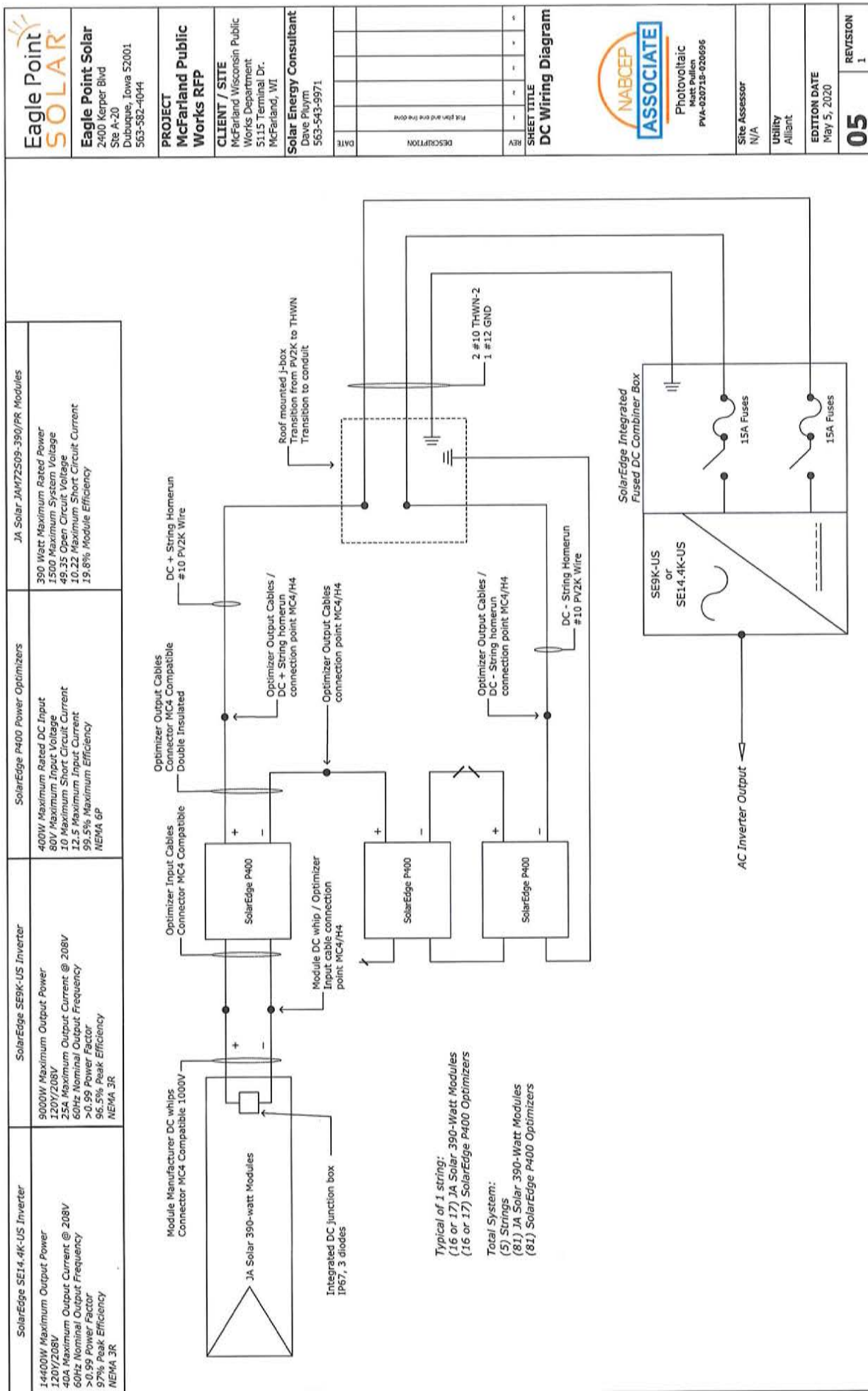
Grounding Diagram



* Grounding Lugs and Wire are not required in systems using Enphase microinverters.

Bill of Materials

Part	Spares	Total Qty
Rails & Splices		
XR-100-204A XR100, Rail 204" (17 Feet) Clear	0	18
XR-100-168A XR100, Rail 168" (14 Feet) Clear	0	18
XR-100-SPLC-M1 XR100 Bonded Splice (Incl. Self-tapping Screws)	0	30
Clamps & Grounding		
UFO-CL-01-A1 Universal Module Clamp, Clear	0	168
UFO-STP-40MM-M1 Stopper Sleeve, 40MM, Mill	0	12
XR-LUG-03-A1 Grounding Lug, Low Profile	0	3
Attachments		
LFT-03-M1 Slotted L-Foot, Mill	0	138
BHW-SQ-02-A1 Square-Bolt Bonding Hardware	0	138



Eagle Point Solar
 2400 Kerper Blvd
 Ste A-20
 Dubuque, Iowa 52001
 563-582-4044

PROJECT
McFarland Public Works RFP

CLIENT / SITE
 McFarland Wisconsin Public Works Department
 5115 Terminal Dr.
 McFarland, WI

Solar Energy Consultant
 Dave Pluym
 563-543-9971

DATE	DESCRIPTION

REVISION
 05

REVISION
 1

EDITION DATE
 May 5, 2020

Site Assessor
 N/A

Utility
 Alliant

PHOTOVOLTAIC
 Matt Pullen
 PVA-020718-020696

ASSOCIATE
 NABCEP

DC Wiring Diagram

Division of Professional Credential
Processing
4822 Madison Yards Way
Madison, WI 53705
Phone: (608) 266-2112
Fax: (608) 267-0592
Email: dpscredtrades@wi.gov
Website: www.dsps.wi.gov

Certification, License, or Registration Card

Below you will find your certification, license or registration card. This card serves as an additional piece of documentation of licensure that may be carried on person. To view details about your credential or continuing education log into the eSLA portal where you can view your credential status or use the public lookup to verify the status of your CE.

Wisconsin Department of Safety and Professional Services	
EAGLE POINT SOLAR LLC	
Credential ID: DC-111500020	
Certification, License, or Registration Name	Expires:
Dwelling Contractor	2020-11-05
Signature:	

Please review the information on the card. If errors or discrepancies are found, you may contact the Department at 608-266-2112 or email DSPSCredTrades@wi.gov, and provide your ID number printed on the card. The Department should be notified of changes in addresses as they occur. Notification of address changes is the responsibility of the credential holder. A renewal notice will be emailed to the email address on file 30, 60, and 90 days before expiration. Before the expiration date of each credential indicated on the card. Renewals are contingent upon compliance with the requirements specified in Wisconsin Administrative Code SPS 305.

References:

Northland Pines School District, Eagle River, WI

4250kW

Contact: Dave Bohnen dbohnens.k12.wi.us
(715) 479-5031



Sauk County Law Enforcement Center, Baraboo, WI

459kW

Contact: Ian Crammond ian.crammond@saukcountywi.gov
(608) 355-3245



City of

Milwaukee - Libraries

Project size: 200kW

Contact: Elizabeth Hittman elizabeth.hittman@milwaukee.gov
(414) 286-5593



Johnson Co. Health & Human Services Building –Iowa City, Ia.

Project size: 159.6kW

Contact: Josh Busard jbusard@co.johnson.ia.us
(319) 356-6085



Partial Project Portfolio:

Municipalities, Counties, Schools & Utilities

Name:	Projects	Total Size	Third Party Finance
Farmers Electric CCOP, IA	1	800kW	Y
Northland Pines CSD, Wi	1	425kW	Y
City of Galena, IL	2	400kW	N
Rochelle Municipal Utility, IL	1	368kW	N
Jo Carroll Energy, IL	1	126kW	Y
Hamilton County, IA	1	118kW	Y
City of Cedar Rapids, IA	5	307kW	Y
Johnson County, IA	2	245kW	Y
City of Dyersville, IA	3	297kW	Y
City of Dubuque, IA	6	351kW	Y
N.I.C.C., IA	1	104kW	Y
City of Asbury, IA	4	230kW	Y
Cedar County, IA	1	213kW	Y
City of Rochelle, IL	1	324kW	N
Bennett CSD, IA	1	166kW	N
Olin CSD, IA	2	136kW	N
Howard Winneshiek CSD, IA	1	35kW	N
Sauk County, WI	2	465kW	Y
City of Olin, IA	5	87kW	Y
Spoon River Electric Coop, IL	1	70kW	N
VIT CSD, IL	3	520kW	Y
Spoon River Valley CSD, IL	1	449kW	Y
City of Peosta, IA	7	405kW	Y
City of Oelwein, IA	5	254kW	Y
City of Marquette, IA	1	36kW	N

Exhibits:

Exhibit A

5-Year Limited Workmanship Warranty

Definition:

Eagle Point Solar (EPS) provides a 5-year workmanship warranty for every customer for whom it installs a solar array. The 5-year period begins on the date of commissioning and is subject to the following terms:

This warranty covers the work related to the installation of a solar array and completed by EPS. No coverage is provided for any part of the project which is completed by any party other than EPS unless specifically approved by EPS.

Items Covered by the Warranty:

- 1) For all solar arrays:
 - a. Mounting hardware will be mounted securely to the mounting surface in accordance with all Federal, State and Local regulations.
 - b. Railing will be securely fastened to the mounting hardware per manufacturer's requirements.
 - c. Modules will be securely fastened to the racking hardware per manufacturer's requirements.
 - d. Electrical connections will be secure and operational.
 - e. Production monitoring system operation.
- 2) For a solar array mounted on the roof:
 - a. The mounting hardware will not damage or cause the roof to leak.
- 3) For a solar array mounted on the ground:
 - a. Piers or posts will remain securely in the original installation position.

Exclusions:

- 1) Internet Service
 - a. Any interruption of customer's internet service by their service provider causing the solar array or the production monitoring system to malfunction.
 - b. Internet hardware failure by any customer owned hardware related to their internet service.
- 2) Vegetation control
- 3) Acts of God
- 4) Array kWh production
- 5) Normal wear and tear to customer's property during installation
- 6) Equipment issues covered by a manufacturer's warranty
- 7) Pre-existing property damage

Warranty claims:

- 1) EPS customer shall promptly notify EPS directly should a potential warranty claim be identified. EPS will at its discretion determine if such claim is valid and also the recourse plan if action. The recourse plan of action will be designed to repair the identified warranted item to their state prior to the warranty claim and be completed in a reasonable time frame.

Initials: _____
Customer EPS Representative

Exhibit B

SAMPLE - Operations & Maintenance Agreement

This Operations & Maintenance Agreement ("Agreement") is made between [Eagle Point Solar, LLC] ("Operator") and [customer] ("Owner"), as of [EXECUTION DATE]. Operator and Owner hereby agree as follows:

1. **O&M SERVICES.** Subject to and in accordance with this Agreement, Operator shall provide the services set forth on Schedule A ("Agreement Services") for the system described in Construction Contract Appendix A ("System") during the Term. Operator shall inform Owner of any additional services required for the safe, reliable operation of the System and of conditions adversely affecting the performance of the System. Operator shall submit a written cost estimate covering such additional services necessary to correct the identified issues. Operator shall not perform any services other than the Planned Maintenance, and Owner shall not be required to pay Operator for any Additional Services performed without Owner's approval.

2. **PRICE AND PAYMENT.** Owner shall pay Operator an annual fixed fee of \$[0] with a [0%] annual escalator for the Planned Maintenance. On an annual basis, Operator shall submit an invoice to Owner documenting the cost associated with the agreement. Owner shall pay Operator, including any applicable taxes, within thirty (30) days after receipt of each invoice.

Operator's additional services fees for items not covered in the Agreement or for those Owners without an Agreement will be as follows:

- A) Owner shall pay Operator any cost of equipment and materials not covered by manufacturer's warranty.
- B) Owner shall pay Operator for all labor hours, including travel time, for the hours each Operator employee dedicates to the Owner's project. This hourly rate will be \$50/hour.
- C) Owner shall pay Operator for each mile logged by Operator's employees or contractors in the event Operator dispatches employees or contractors to the Owner's location. This mileage rate will be equal to the then current IRS mileage reimbursement rate.
- D) Owner shall pay Operator a flat fee trip charge of \$75 for each trip and each vehicle deployed to the Owner's site.

3. **TERM.** The term of this Agreement begins on the date of this Agreement and continues for a period of 1 year following the initiation date. The Agreement will automatically renew for subsequent periods of 1 year, unless a written notice of non-renewal is given by either Operator or Owner at least 60 days prior to the expiration of the Initial Term or then applicable Subsequent Term. No expiration of this Agreement shall release either party from any obligations (including payment obligations) arising under this Agreement prior to such expiration.

4. **ENTRY.** Except in the event of an emergency, Operator and any approved subcontractor shall notify Owner at least 48 hours prior to entry onto Owner's premises and may be required to provide such addition information regarding Operator's or subcontractor's personnel and reason for entry as may be reasonably required by Owner.

5. **SERVICE REPORTS.** Within 30 days following the performance of the Annual Planned Maintenance Schedule or Owner-approved Additional Services, Operator shall provide Owner with a written report summarizing all cleaning, inspections, tests, checks and other actions undertaken by Operator in sufficient detail for Owner to evaluate independently the condition of the System and any issues that may give rise to performance issues. Owner's payment obligations under are conditioned on Operator providing complete and accurate reports to Owner.

6. **STANDARD OF PERFORMANCE.** Operator shall perform the Services in accordance with all applicable laws, regulations, permits, licenses and industry standards and the requirements of any insurance policies maintained by Owner or Operator. The Services shall be performed in a good and workmanlike manner, free of any defect or deficiency

and shall otherwise be performed in accordance with the requirements set forth in this Agreement. If Owner determines in its reasonable discretion that the Services are unsatisfactory or performed in a manner not consistent with industry standards, Operator shall, at its own cost and expense, reperform the Services. Operator shall review all of the manufacturer's warranties for the panels, inverters, racking and combiner boxes ("Manufacturers' Warranties") and perform the Services in accordance with such Manufacturers' Warranties, including all requirements, conditions and stipulations therein. If included as part of Owner-approved Additional Services, Operator shall assist Owner with the prosecution of any claims arising under the Manufacturers' Warranties. Owner has made all Manufacturers' Warranties available to Operator, and Operator has had full opportunity to review, and may from time to time request copies of, the Manufacturers' Warranties.

7. DEFAULTS. It shall be an Operator event of default if Operator breaches a material obligation under this Agreement and fails to cure such breach within 30 days following notice from Owner. If such Operator event of default occurs, Owner shall have the right to terminate this Agreement and pursue any and all remedies it may have at law or in equity. It shall be an Owner event of default if Owner fails to make timely payment pursuant to Section 2 and Owner fails to cure such breach within 30 days following notice from Operator. If such an Owner event of default occurs, Operator's sole and exclusive remedy shall be to terminate this Agreement and bring suit to recover such unpaid amounts.

8. INDEMNITY. Operator shall indemnify and hold harmless Owner from and against any and all losses incurred by Owner to the extent arising from or out of any third-party claim for any injury to or death of any person or loss or damage to property of any person to the extent caused by any negligence willful, reckless or otherwise tortious act or omission (including strict liability) in connection with Operator's performance of the Services.

9. INSURANCE. Operator shall, at its own cost and expense obtain and maintain in full force and affect any insurance coverage in founded amounts consistent with prudent industry standards and shall provide original certificates of such insurance coverages to Owner upon request.

10. NOTICES. Any written notice, instruction, request or other communication under this Agreement, shall be deemed to have been duly given on the date of receipt and shall be delivered (a) personally to the party to whom notice is to be given, (b) by a recognized overnight receipted delivery service, to the party to whom notice is to be given or (c) to the party to whom notice is to be given, by first class registered or certified mail, return receipt requested, postage prepaid. All notices shall be addressed to recipient's address as listed below or at the most recent address specified by written notice given to the other party in the manner provided in this Section 10.

Operator:
Eagle Point Solar, LLC
Attn: Jim Pullen
Address: 900 Jackson St., Suite 108
Dubuque, IA 52001]

Owner:
(Customer)
Attn: _____
Title
Address:

11. CONFIDENTIALITY. Neither party, without the prior written consent of the other party, will disclose the contents of this Agreement or any other information related thereto to any third party except to its fiduciary representatives who agree to keep such information confidential or as required by applicable law.

12. INTEGRATION. With respect to matters involving operations and maintenance for the system, this Agreement, together with all schedules hereto, constitutes the entire agreement of the Parties with respect to its subject matter,

supersedes all prior written or oral agreements and any other correspondence between the parties or offers made by either party, if any, of the parties with respect to its subject matter.

13. GENERAL TERMS. If any term or provision of this Agreement is declared invalid or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall not be affected, and, if appropriate, such invalid or unenforceable provision shall be modified or replaced to give effect to the underlying intent of the parties. Neither party may assign this Agreement without the prior written consent of the other party. The failure of Operator or Owner to enforce any of the provisions of this Agreement, or the waiver thereof, shall not be construed as a general waiver or relinquishment on its part of any such provision, in any other instance or of any other provision in any instance. This Agreement will be deemed made in and governed by the laws of the state in which the System is located, without application of such state's principles regarding conflicts of law. This Agreement, together with all schedules hereto, constitutes the entire agreement of the parties with respect to its subject matter, supersedes all prior written or oral agreements and any other correspondence between the parties or offers made by either party, if any, of the parties with respect to its subject matter. This Agreement may only be amended in a writing signed by both parties. "Including" and any other words or phrases of inclusion shall not be construed as terms of limitation, so that references to "included" matters shall be regarded as non-exclusive, non-characterizing illustrations. The terms of Sections 6, 8, 11, and 12 shall survive the expiration or termination of this Agreement. This Agreement may be executed by original or facsimile signature in one or more counterparts, each of which will be deemed an original, but which collectively will constitute one and the same instrument.

By signing below, each party acknowledges that it has authority and hereby causes this Agreement to be executed in their respective names as of the date set forth below.

[Eagle Point Solar, LLC]

By: _____
Name: Jim Pullen
Title: General Manager
Date: _____

[Customer]

By: _____
Name: Washburn School District
Title: _____
Date: _____

Schedule "A"

On-Going Operation Support:

- Operator will provide all services necessary to uphold equipment manufacturer's warranties.

System Monitoring:

(If Owner qualifies to have an on-line portal set up for the system, the following services will be included. If it is determined the Owner does not qualify to have the on-line portal set up, these services are not included.)

- Proactively monitor solar array production and provide Customer with an emailed production report annually.
- Configure, monitor and react to performance alerts generated by the monitoring system.

Annual Planned Maintenance Schedule:

- Visually check all DC disconnects and combiners for blown fuses / corrosion / heat distortion / moisture entry / insect or rodent issues
- Verify module cleanliness (note if cleaning is required in follow up)
- Visually check array for broken, loose / missing modules, loose racking hardware, unsecured wiring or MC connectors, correct as is necessary
- Check for corrosion between copper wires and PV frames and galvanized steel racking structure
- Check condition of plastic wire ties and the insulation materials between wires and metal edges in the array; replace as necessary
- Inspect array for build-up of debris; clean as necessary
- Inspect wire runs / piping / conduits; make necessary corrections (sealant, secure elbows, etc.)
- Inspect Inverter for external damage
- Check all AC/DC connections to note possible hot spots and re-torque where necessary
- Shut down AC/DC breakers to Inverter, power down inverter
- Wait for Inverter to discharge
- Clean area around Inverter & verify base is sealed
- Clean / replace air filters and clean air returns
- Visually inspect for moisture intrusions-correct as needed
- Verify torque specifications for all connections
- Verify system is operational

Exclusions:

The following items and services are specifically excluded from the Agreement:

- Owner's internet service:
 - Any interruption of Owner's internet service by their internet provider causing the solar array or the production monitoring system to malfunction.
 - Internet hardware failure by any Owner owned hardware related to their internet service.
- Acts of God.
- Vegetation Control.
- Solar array kWh production.

Initials: _____
Customer

EPS Representative

Exhibit C

Insurance Documentation:



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/19/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Kunkel & Associates, Inc.
401 Data Court
Dubuque IA 52003

CONTACT NAME: TJ Wagner
PHONE (No. Ext): 563-585-2310 FAX (No. Ext): 563-557-7316
E-MAIL: certs@kunkel-inc.com

INSURED
Eagle Point Solar LLC
900 Jackson St., Ste108
Dubuque IA 52001

EAGP012

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: West Bend Mutual	15350
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

COVERAGES

CERTIFICATE NUMBER: 457977036

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR LTR	POLICY NUMBER	POLICY EFF DATE (MM/DD/YYYY)	POLICY EXP DATE (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR			A053475	7/26/2018	7/26/2019	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (EA OCCURRENCE) \$500,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
	GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PER INCT ☐ LOC						\$
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☒ HIRED AUTOS ☒ SCHEDULED AUTOS ☐ NON-OWNED AUTOS			A053475	7/26/2018	7/26/2019	COMBINED SINGLE LIMIT (EA ACCIDENT) \$1,000,000 BODILY INJURY (Per person) \$500,000 BODILY INJURY (Per accident) \$500,000 PROPERTY DAMAGE (Per accident) \$500,000 \$
A	☒ UMBRELLA LIAB ☒ EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$0			A053475	7/26/2018	7/26/2019	EACH OCCURRENCE \$5,000,000 AGGREGATE \$5,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory In NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	A053505	7/26/2018	7/26/2019	☒ WC STATUS EL EACH ACCIDENT \$200,000 EL DISEASE - EA EMPLOYEE \$500,000 EL DISEASE - POLICY LIMIT \$500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

T.J. Wagner

ACORD 25 (2010/05)

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Exhibit D



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
5/5/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Kunkel & Associates, Inc. 401 Data Court Dubuque IA 52003	CONTACT NAME: TJ Wagner	
	PHONE (A/C, No, Ext): 563-585-2310	FAX (A/C, No): 563-557-7316
INSURED Eagle Point Solar LLC 2400 Kerper Boulevard, Suite A20 Dubuque IA 52001	E-MAIL ADDRESS: certs@kunkel-inc.com	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A: Integrity Insurance Company	
	INSURER B:	
	INSURER C:	
	INSURER D:	
INSURER E:		
INSURER F:		
NAIC # 14303		

COVERAGES	CERTIFICATE NUMBER: 2144315292	REVISION NUMBER:
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.		

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☒ PRO-JECT ☒ LOC OTHER:			CPP2788864	7/26/2019	7/26/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☒ HIRED AUTOS ☐ SCHEDULED AUTOS ☒ NON-OWNED AUTOS			CA2788866	7/26/2019	7/26/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	☒ UMBRELLA LIAB ☐ EXCESS LIAB ☒ DED ☒ RETENTION \$ 0			CUP2788868	7/26/2019	7/26/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		☐ Y ☒ N / A	WCP2788867	7/26/2019	7/26/2020	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: solar photovoltaic system at the Public Works Facility Village of McFarland, Alliant Energy, and Strand Associates, Inc., are additional insured on the General Liability policy with respect to the ongoing and completed operations performed by the named insured, and additional insured on the Auto Liability policy as per written contract.

CERTIFICATE HOLDER Village of McFarland 5115 Terminal Drive McFarland WI 53558	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE <i>T.J. Wagner</i>
--	--

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2. That failure of Contractor to comply with the above requirements with respect to Additional Insured Endorsement and/or Certificate of Insurance shall not be construed as waiver of those provisions by any of the additional insureds so identified above.

INDEMNIFICATION

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Village of McFarland, Alliant Energy, and Strand Associates, Inc.®, and against all claims, costs, losses, and damages arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

The Village of McFarland will receive sealed bids to complete the proposed work until 12:00 PM, May 6, 2020.

Questions concerning the project or arranging a site visit with Village staff should be directed to: Village Administrator Matt Schuenke at 608-838-3153- or email: matt.schuenke@mcfarland.wi.us

Responses to all inquiries about the project or bid requirements will be distributed to all companies by email based upon the email address supplied to the Village of McFarland by the prospective bidders.

Company name	Eagle Point Solar LLC
Address	2400 Kerper Blvd Suite A-20 Dubuque, IA 52001
Contact Name	David Pluym
Phone #	563-582-4044
Email	dpluym@eaglepointsolar.com



Signature

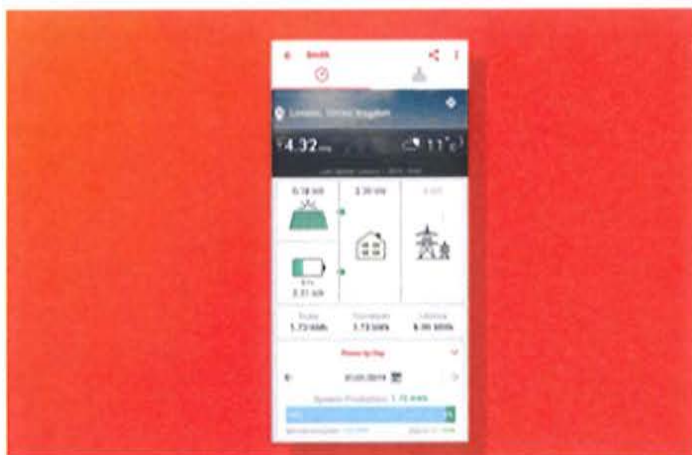
David J Pluym
Name

05/05/2020
Date

SolarEdge Monitoring System

Monitoring Platform

The **monitoring platform** provides enhanced PV performance monitoring and yield assurance through immediate fault detection and alerts at the module level, string level and system level. No hardware or wiring is required to transmit data from the power optimizers to the inverter: the monitoring sensors and transmitters are built into the SolarEdge power optimizer and **solar inverter**, and measurement data is transmitted over the regular power lines.



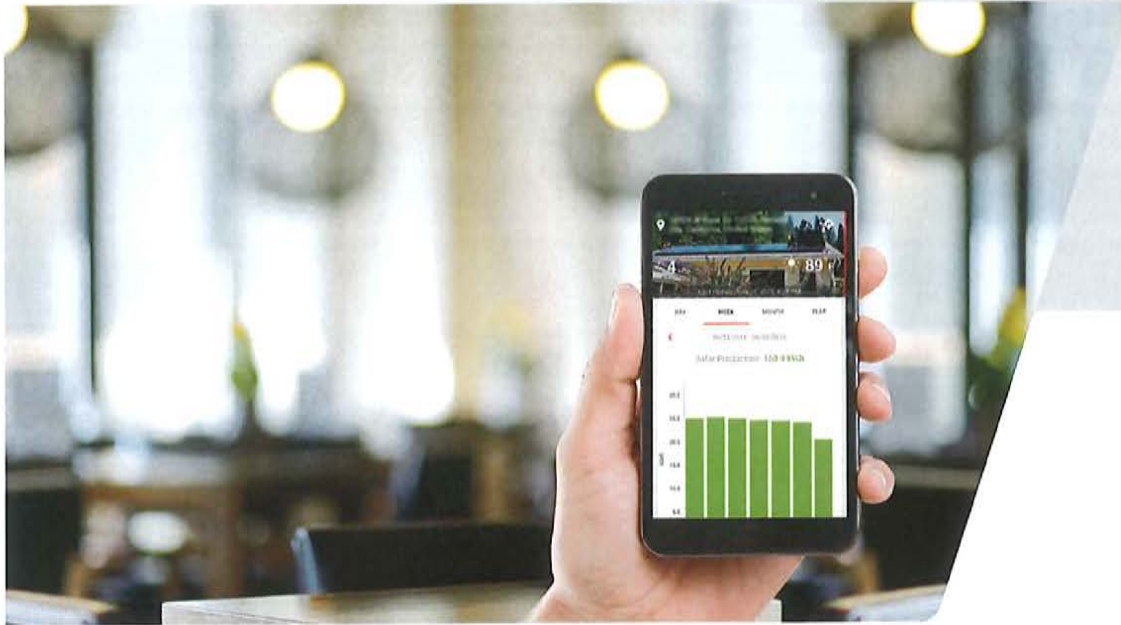
Key Benefits:

- Full visibility of your system's technical and financial performance, including interactive charts and site layout
- Visualization of PV production, building consumption, and self-consumption
- Data presentation at the module-level, string-level and system level
- Comprehensive site-level and fleet-level reporting and analysis tools with an option to schedule automatic reports and export reports
- Effective fleet management and improved O&M capabilities:
 - Automatic alerts on system issues
 - Remote troubleshooting and access to real-time system data and guided root-cause fault analysis
 - High resolution data, including historical and aggregated views with comparative analysis diagnostics
- Easy access from a computer, smartphone, or tablet
- Multiple options for social sharing and public display to drive referrals and generate leads
- Free for 25 years

All these features enable integrators, installers, maintenance staff, and system owners to improve the site performance, assure the yield of the system, maximize solar power harvesting and reduce maintenance costs by increasing system up-time and resolving faults more effectively.

The physical layout of the monitoring platform allows you to monitor systems at the module level, and pinpoint issues to the exact location of each module on a virtual site map.

To create and edit your site's physical layout quickly and easily, use the SolarEdge **Mapper** application or the web-based layout editor.



Know that your PV system is producing to its maximum potential.

View historic and real-time energy production of your SolarEdge optimized system on the go with your smart phone.



Easy to use charts show your PV performance.

Compare today's production to past measurements.



Want to know how your PV system stacks up against your friends?

You can share real-time system performance details with your friends across many social platforms: email, messaging apps, Facebook and on Twitter.



Real-time and forecasted weather data.

Evaluate your system's performance by understanding what environmental conditions affect energy production.

See and share your system's performance on the go: real-time insight to home energy production and usage.

Gain visibility into your system performance in real-time with this intuitive, user-friendly app. Share your system performance at the push of a button.

Don't have a solar system yet? You can explore and learn about features by using the demo account.

Download the app for free on iPhone or Android by visiting the AppStore or Google Play.



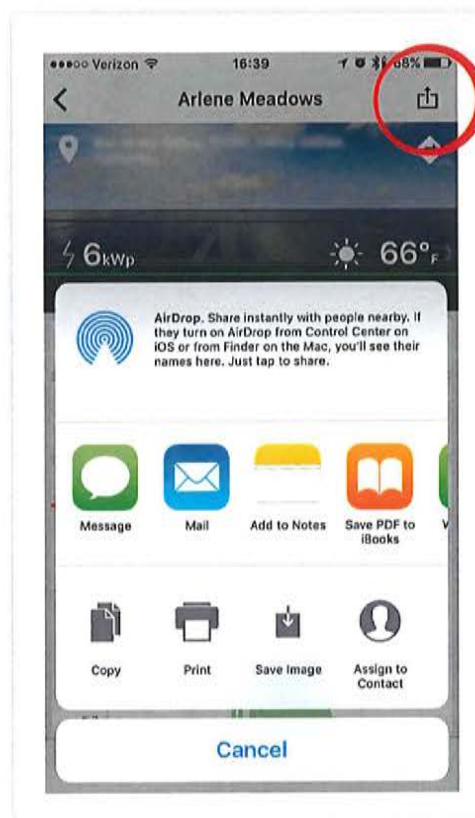
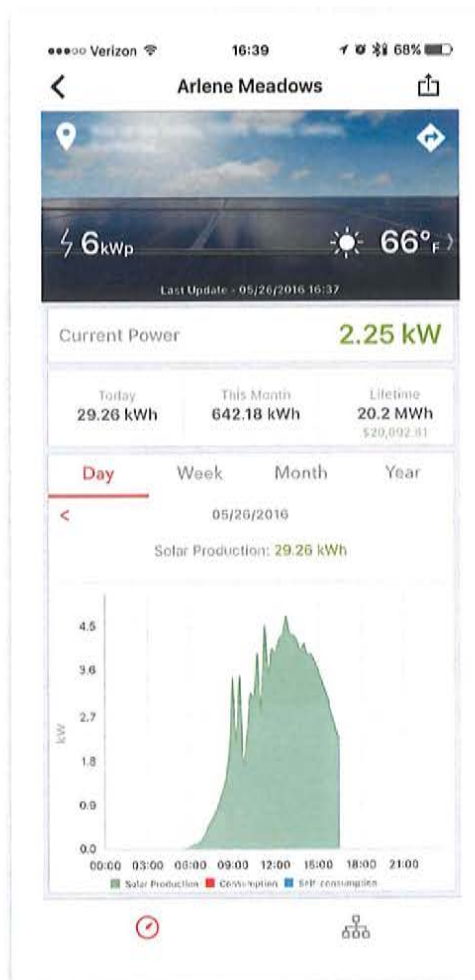
Getting Started with the SolarEdge Monitoring App

After your inverter connects to the internet, SolarEdge automatically begins tracking and reporting your site's performance. Your installer will need to create the physical layout in the SolarEdge portal for you to view. **Confirm with your installer regarding completion date of your homeowner account.**

* Before you can register you need to ensure that SolarEdge email isn't getting stuck in your SPAM folder. Add DoNotReply@solaredge.com to your contacts and watch for a registration email with the subject line: *Registration to SolarEdge Monitoring Portal.*

To begin using:

1. A link to register will be sent to you in email. *Note: if you click the link and nothing happens, simply copy and paste the same URL into your web browser address bar.
2. Register your site with SolarEdge:
 - You will need to enter your name, phone number, language, create a password and select units (*Imperial* for Fahrenheit and *Metric* for Celsius)
 - Check the box agreeing to SolarEdge's terms and conditions and select if you want news, updates or technical notifications from SolarEdge
 - Click Confirm, log-in and view your energy performance
3. To get updated information on your smart phone, download the free monitoring app:
 - Visit Google Play or the App Store to download the "SolarEdge Monitoring" app.
 - Login using the same email address and password that you created during registration. The app will remember your login information; allowing you to see your system's performance at any time.
4. You can begin sharing your system's performance on your favorite social network or by email or text.



Click on the icon to share

Three Phase Inverters

For the 208V Grid for North America

SE9KUS / SE14.4KUS



The best choice for SolarEdge enabled systems

- / Specifically designed to work with power optimizers
- / Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- / UL1741 SA certified, for CPUC Rule 21 grid compliance
- / Built-in module-level monitoring
- / Internet connection through Ethernet or Wireless
- / Small, lightweight, and easy to install outdoors or indoors on provided bracket
- / Fixed voltage inverter for longer strings
- / Integrated Safety Switch
- / Supplied with RS485 Surge Protection, to better withstand lightning events

/ Three Phase Inverters

For the 208V Grid for North America

SE9KUS / SE14.4KUS

SE9KUS		SE14.4KUS	
APPLICABLE TO INVERTERS WITH PART NUMBER		SEXXK-XXXXXNXXX	
OUTPUT			
Rated AC Power Output	9000	14400	VA
Maximum AC Power Output	9000	14400	VA
AC Output Line Connections	4-wire WYE (L1-L2-L3-N) plus PE or 3 wire Delta		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-N)	105-120-132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-L)	183-208-229		Vac
AC Frequency Min-Nom-Max ⁽²⁾	59.3 - 60 - 60.5		Hz
Max. Continuous Output Current (per Phase)	25	40	A
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
INPUT			
Maximum DC Power (Module STC)	12150	19400	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC to Gnd	250	300	Vdc
Maximum Input Voltage DC+ to DC-	500	600	Vdc
Nominal Input Voltage DC to Gnd	200		Vdc
Nominal Input Voltage DC+ to DC-	400		Vdc
Maximum Input Current	26.5	38	Adc
Maximum Input Short Circuit Current	45		Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	1MΩ Sensitivity	350kΩ Sensitivity ⁽³⁾	
CEC Weighted Efficiency	96.5	97	%
Night-time Power Consumption	< 3	< 4	W
ADDITIONAL FEATURES			
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional)		
Rapid Shutdown – NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect		
RS485 Surge Protection	Supplied with the inverter		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H-I)		
Emissions	FCC part15 class B		
INSTALLATION SPECIFICATIONS			
AC output conduit size / AWG range	3/4" minimum / 12-6 AWG	3/4" minimum / 8-4 AWG	
DC input conduit size / AWG range	3/4" minimum / 12-6 AWG		
Number of DC inputs	2 pairs	3 pairs ⁽⁴⁾	
Dimensions (H x W x D)	21 x 12.5 x 10.5 / 540 x 315 x 260		in / mm
Dimensions with Safety Switch (H x W x D)	30.5 x 12.5 x 10.5 / 775 x 315 x 260		in / mm
Weight	73.2 / 33.2	99.5 / 45	lb / kg
Weight with Safety Switch	79.7 / 36.2	106 / 48	lb / kg
Cooling	Fans (user replaceable)		
Noise	< 50	< 55	dBA
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁵⁾		*F / °C
Protection Rating	NEMA 3R		

⁽¹⁾ For 277/480V inverters refer to: <https://www.solaredge.com/sites/default/files/se-three-phase-us-inverter-datasheet.pdf>

⁽²⁾ For other regional settings please contact SolarEdge support

⁽³⁾ Where permitted by local regulations

⁽⁴⁾ Field replacement kit for 1 pair of inputs P/N: DCD-3PH-1TBK; Field replacement kit for 3 pairs of fuses and holders P/N: DCD-3PH-6FHK-S1

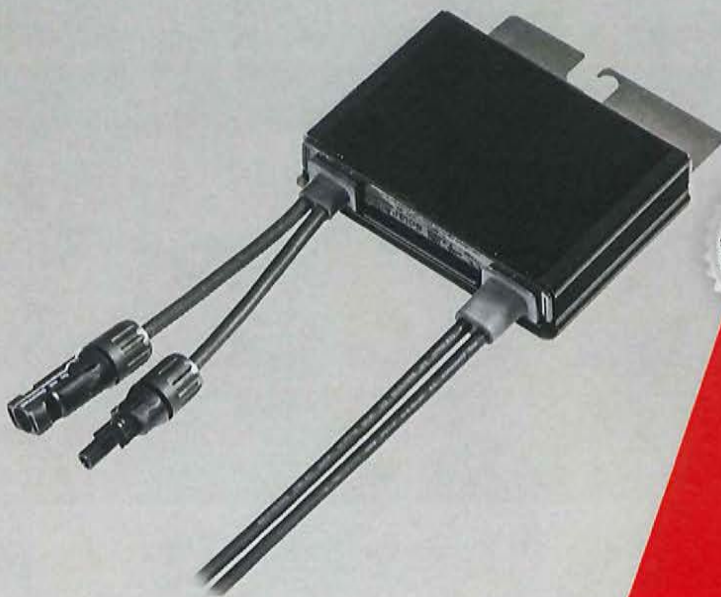
⁽⁵⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>



SolarEdge Power Optimizer

Module Add-On For North America

P300 / P320 / P400 / P405



POWER OPTIMIZER

PV power optimization at the module-level

- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety



SolarEdge Power Optimizer

Module Add-On for North America

P300 / P320 / P400 / P405

	P300 (for 60-cell modules)	P320 (for high-power 60-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	
INPUT					
Rated Input DC Power ⁽¹⁾	300	320	400	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		80	125	Vdc
MPPT Operating Range	8 - 48		8 - 80	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	10	11		10	Adc
Maximum DC Input Current	12.5	13.75		12.5	Adc
Maximum Efficiency			99.5		%
Weighted Efficiency			98.8		%
Overvoltage Category			II		
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)					
Maximum Output Current		15			Adc
Maximum Output Voltage		60		85	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)					
Safety Output Voltage per Power Optimizer		1			Vdc
STANDARD COMPLIANCE					
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety), UL1741				
RoHS	Yes				
INSTALLATION SPECIFICATIONS					
Maximum Allowed System Voltage	1000				Vdc
Compatible Inverters	All SolarEdge Single Phase and Three Phase inverters				
Dimensions (W x L x H)	128 x 152 x 27.5 / 5 x 5.97 x 1.08		128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 48 / 5 x 5.97 x 1.89	mm / in
Weight (including cables)	770 / 1.7		930 / 2.05	930 / 2.05	gr / lb
Input Connector	MC4 Compatible				
Output Wire Type / Connector	Double Insulated; MC4 Compatible				
Output Wire Length	0.95 / 3.0		1.2 / 3.9		m / ft
Operating Temperature Range	-40 - +85 / -40 - +185				°C / °F
Protection Rating	IP68 / NEMA6P				
Relative Humidity	0 - 100				%

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed.

PV SYSTEM DESIGN USING A SOLAREEDGE INVERTER ⁽²⁾	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8	10	18	
Maximum String Length (Power Optimizers)	25	25	50	
Maximum Power per String	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes			

⁽²⁾ It is not allowed to mix P405 with P300/P400/P600/P700 in one string.



LIMITED PRODUCT WARRANTY

This SolarEdge Technologies Ltd. Limited Warranty covers defects in workmanship and materials of the below-listed products for the applicable warranty period set out below:

- **Power optimizers:** 25 years commencing on the earlier of: (i) 4 months from the date the power optimizers are shipped from SolarEdge; and (ii) the installation of the power optimizers, *provided, however*, that for the module embedded power optimizers (CSI and OPJ models), the Warranty Period shall not exceed the maximum of (1) the module product warranty and (2) the module power warranty periods provided by the applicable module manufacturer.
- **Inverters, Safety & Monitoring Interface (SMI), Auto-transformer, GSM Cellular Modem:** 12* years commencing on the earlier of: (i) 4 months from the date the products are shipped from SolarEdge; and (ii) the installation of the products.
- **StorEdge Interface:** 10 years commencing on the earlier of: (i) 4 months from the date the Interfaces are shipped from SolarEdge; and (ii) the installation of the Interfaces.
- **Home Gateway, Control and Communication Gateway, Firefighter Gateway, Wireless Communication Products excluding GSM Cellular Modem, RS485 Expansion Kit, SolarEdge Meter, Smart Monitoring Combiner Box:** 5 years commencing on the earlier of: (i) 4 months from the date the product is shipped from SolarEdge; and (ii) the installation of the product. Warranty duration of wireless communication products is the same whether or not the product is pre-installed in the inverter.

* In some countries the inverter warranty is limited to 7 years. For a list of these countries please access http://www.solaredge.com/warranty_exceptions

The Limited Warranty does not apply to components which are separate from the Products, ancillary equipment and consumables, such as, for example, cables, fuses, wires and connectors, whether supplied by SolarEdge or others. Some components may carry their own manufacturer warranty. See product datasheet for more details. In addition, for all power optimizers with a part number ending in C, the SolarEdge warranty does not apply to the input connector.

The Limited Warranty only applies to the buyer who has purchased the Products from an authorized seller of SolarEdge for use in accordance with their intended purpose. The Limited Warranty may be transferred from buyer to any assignee, and will remain in effect for the time period remaining under the foregoing warranties, *provided* that the Products are not moved outside its original country of installation and any reinstallation is done in accordance with the installation directions and use guidelines accompany the Products (collectively the "Documentation").

If, during the applicable Warranty Period, buyer discovers any defect in workmanship and materials and seeks to activate the Limited Warranty, then buyer shall, promptly after such discovery, report the defect to SolarEdge by sending an email to support@solaredge.com with the following information: (i) a short description of the defect, (ii) the Product's serial number, and (iii) a scanned copy of the purchase receipt or warranty certificate of the applicable Product.

Upon buyer's notification, SolarEdge shall determine whether the reported defect is eligible for coverage under the Limited Warranty. The Product's serial number must be legible and properly attached to the Product in order to be eligible for Warranty coverage. If SolarEdge determines that the reported defect is not eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly and will explain the reason why such coverage is not available. If SolarEdge determines that the reported defect is eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly, and SolarEdge may, in its sole discretion, take any of the following actions:

- repair the Product at SolarEdge's facilities or on-site; or
- issue a credit note for the defective Product in an amount up to its actual value at the time buyer notifies SolarEdge of the defect, as determined by SolarEdge, for use toward the purchase of a new Product; or
- provide Buyer with replacement units for the Product.

SolarEdge will determine whether the Product should be returned to SolarEdge and, if SolarEdge so determined, the Return Merchandise Authorization ("RMA") Procedure (set out below) will be invoked. Where replacement Products are sent, SolarEdge generally sends such products within 48 hours. SolarEdge may use new, used or refurbished parts that are at least functionally equivalent to the original part when making warranty repairs. The repaired Product or replacement parts or Product, as applicable, shall continue to be covered under the Limited Warranty for the remainder of the then-current Warranty Period for the Product.

Where the RMA Procedure is invoked by SolarEdge, SolarEdge will instruct buyer how to package and ship the Product or part(s) to the designated location. SolarEdge will bear the cost of such shipment, upon receipt of the Product or part(s), SolarEdge will, at its expense and sole discretion, either repair or replace the Product or part(s).

SolarEdge will deliver the repaired or replaced Product or part(s) to buyer at buyer's designated location in countries where SolarEdge has an office and/or there is a significant PV market. For the specific list of countries to which such service is provided, please access http://www.solaredge.com/articles/shipping_cost_coverage_warranty. SolarEdge will bear the cost of such shipment, including shipping and customs (where applicable) and buyer shall bear any applicable value added tax. SolarEdge may elect to ship replacement Product and/or part(s) prior to receipt of the Product and/or part(s) to be returned to SolarEdge as per the above.

Where SolarEdge decides to repair the Product or part(s), warranty coverage includes labor and material costs necessarily incurred to correct the Product defect; and where SolarEdge decides to replace the Product or part(s) to which the Limited Warranty applies, warranty coverage includes the cost of the replacement of the Product or part(s). In addition, SolarEdge shall bear shipping costs in respect to the foregoing, as set out above. All other costs, including, without limitation, travel and boarding costs of SolarEdge service personnel that are incurred for repairs of Products on-site, as well as costs related to buyer's employees and contractors repair or replacement activities, are not covered by the Limited Warranty and, unless otherwise agreed in writing in advance by SolarEdge, shall be borne by the buyer.

Warranty Exclusions: This Limited Warranty will not apply if (a) buyer is in default under the General Terms and Conditions of other Agreement governing the purchase of the Product, or (b) the Product or any part thereof is:

- damaged as a result of misuse, abuse, accident, negligence or failure to maintain the Product;
- damaged as a result of modifications, alterations or attachments thereto which were not pre-authorized in writing by SolarEdge;
- damaged due to the failure to observe the applicable safety regulations governing the proper use of the Product;
- installed or operated not in strict conformance with the Documentation, including without limitation, not ensuring sufficient ventilation for the Product as described in SolarEdge installation guide;
- opened, modified or disassembled in any way without SolarEdge's prior written consent;
- used in combination with equipment, items or materials not permitted by the Documentation or in violation of local codes and standards;
- damaged or rendered non-functional as a result of power surges, lightning, fire, flood, pest damage, accident, action of third parties, or other events beyond SolarEdge's reasonable control or not arising from normal operating conditions; or
- damaged during or in connection with shipping or transport to or from buyer where buyer arranges such shipping or transport.

This Limited Warranty does not cover cosmetic or superficial defects, dents, marks or scratches, which do not influence the proper functioning of the Product.

THE LIMITED WARRANTIES SET OUT HEREIN ARE IN LIEU OF ANY OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS PURCHASED BY BUYER FROM SOLAREGE, WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL (INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), ALL OF WHICH ARE EXPRESSLY EXCLUDED TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW.

Claims by buyer that go beyond the warranty terms set out herein, including claims for compensation or damages, are not covered by the Limited Warranty, insofar as SolarEdge is not subject to statutory liability. In such cases, please contact the company that sold you the Product. Eventual claims in accordance with the law on product liability remain unaffected.

Coverage under the Limited Warranty is subject to buyer complying with the foregoing notification requirements and cooperating with SolarEdge's directions. SolarEdge's sole obligation and buyer's exclusive remedy for any defect warranted hereunder is limited to those actions expressly stated above. Such actions are final and do not grant any further rights, in particular with respect to any claims for compensation.

Unless otherwise specified in an executed Agreement with SolarEdge, the Limited Warranty and related provisions set out herein are subject to SolarEdge's General Terms and Conditions, including, without limitation, the provisions thereof, which relate to disclaimer of warranties, limitation of liability and governing law and jurisdiction.

Revised: June 2016



395W PERC Module

JAM72S09 375-395/PR Series

Introduction

Powered by high-efficiency PERCIUM cells, this series of high-performance modules provides the most cost-effective solution for lowering the LCOE of any PV systems large or small.



5 busbar solar cell design



Higher output power



Excellent low-light performance

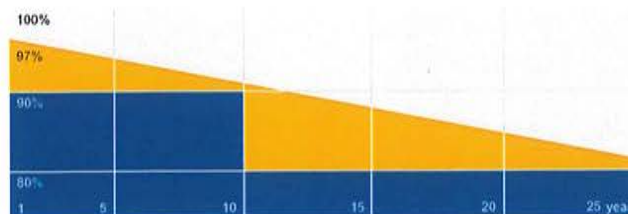


Lower temperature coefficient



Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty



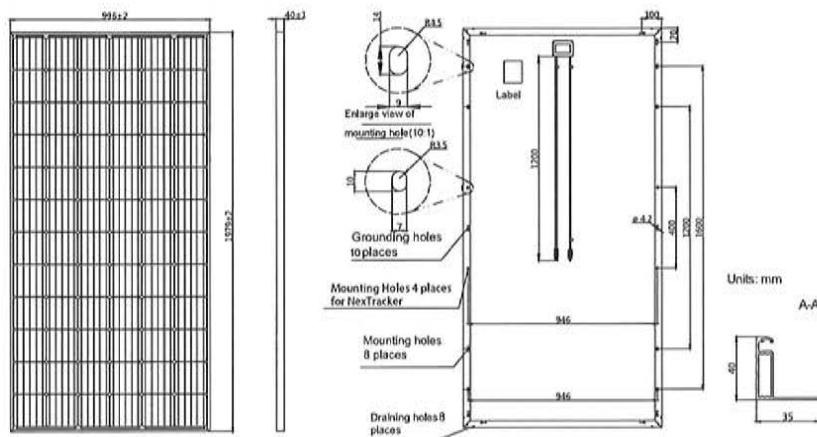
■ JA Linear Power Warranty ■ Industry Warranty

Comprehensive Certificates

- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval



MECHANICAL DIAGRAM



Remark: customized frame color and cable length available upon request

SPECIFICATIONS

Cell	Mono
Weight	22.3kg±3%
Dimensions	1979±2mm×996±2mm×40±1mm
Cable Cross Section Size	4mm ²
No. of cells	72(6x12)
Junction Box	IP67, 3 diodes
Connector	QC 4.10 (1000V) QC 4.10-35(1500V)
Packaging Configuration	27 Per Pallet

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72S09 -375/PR	JAM72S09 -380/PR	JAM72S09 -385/PR	JAM72S09 -390/PR	JAM72S09 -395/PR
Rated Maximum Power(Pmax) [W]	375	380	385	390	395
Open Circuit Voltage(Voc) [V]	48.47	48.75	49.04	49.35	49.64
Maximum Power Voltage(Vmp) [V]	39.27	39.59	39.90	40.21	40.48
Short Circuit Current(Isc) [A]	10.06	10.12	10.17	10.22	10.27
Maximum Power Current(Imp) [A]	9.55	9.60	9.65	9.70	9.76
Module Efficiency [%]	19.0	19.3	19.5	19.8	20.0
Power Tolerance	0~+5W				
Temperature Coefficient of Isc(α_{Isc})	+0.060%/°C				
Temperature Coefficient of Voc(β_{Voc})	-0.300%/°C				
Temperature Coefficient of Pmax(γ_{Pmp})	-0.370%/°C				

STC Irradiance 1000W/m², cell temperature 25°C, AM1.5G

*For NexTracker installations static loading performance: front load measures 2400Pa, while back load measures 2400Pa.

ELECTRICAL PARAMETERS AT NOCT

TYPE	JAM72S09 -375/PR	JAM72S09 -380/PR	JAM72S09 -385/PR	JAM72S09 -390/PR	JAM72S09 -395/PR
Rated Max Power(Pmax) [W]	278	281	285	289	292
Open Circuit Voltage(Voc) [V]	45.86	46.15	46.47	46.78	47.09
Max Power Voltage(Vmp) [V]	37.05	37.34	37.64	37.92	38.21
Short Circuit Current(Isc) [A]	7.95	7.99	8.03	8.07	8.11
Max Power Current(Imp) [A]	7.49	7.53	7.57	7.61	7.65

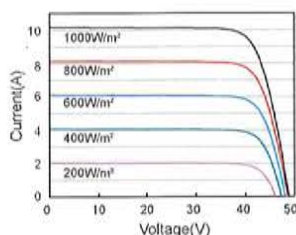
NOCT Irradiance 800W/m², ambient temperature 20°C,
wind speed 1m/s, AM1.5G

OPERATING CONDITIONS

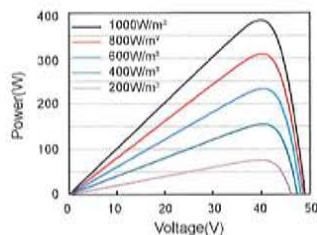
Maximum System Voltage	1000V/1500V DC(IEC)
Operating Temperature	-40°C~+85°C
Maximum Series Fuse	20A
Maximum Static Load,Front*	5400Pa
Maximum Static Load,Back*	2400Pa
NOCT	45±2°C
Application Class	Class A

CHARACTERISTICS

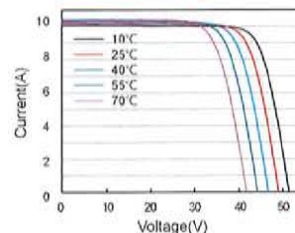
Current-Voltage Curve JAM72S09-385/PR



Power-Voltage Curve JAM72S09-385/PR



Current-Voltage Curve JAM72S09-385/PR



Limited Warranty

for PV Modules

JA SOLAR
www.jasolar.com

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Tel: +86-21-6095 5889/6095 6999
Email: service@jasolar.com
Website: www.jasolar.com

JA Solar © 2016

JA SOLAR

JA Solar Holdings Co., Ltd., and on behalf of ALL its DIRECTLY AND indirectly owned and controlled subsidiary, INCLUDING BUT NOT LIMITED TO Shanghai JA Solar Technology Co., Ltd. (hereinafter jointly referred to as "JA Solar") warrants its Photovoltaic Solar modules (MODULES) performance starting from the date of sale to the first customer installing (for their own use) the modules ("Customer") or starting at the latest 6 months after modules dispatch from the JA Solar factory, whichever occurs earlier (the "Warranty Commencement Date").

1. Limited Product Warranty – Twelve Year Repair or Replacement

JA Solar warrants that the MODULES together with the factory-assembled DC connectors and cables are free from any defects in materials and workmanship under normal application, usage, installation and service conditions for a period of one hundred and forty-four (144) months from the Warranty Commencement Date. If MODULES become malfunctioning or non-operative due to defects in material or workmanship during the one hundred and forty-four (144)-month period from the Warranty Commencement Date, as verified by an independent testing agency that will be selected and confirmed mutually by JA Solar and Customer in advance, JA Solar will, at its sole option, either repair or replace the malfunctioning or inoperative MODULES, MODULES' repair or replacement remedy shall be the sole and exclusive remedy provided under the Limited Product Warranty and shall not extend beyond the period set forth herein. This Limited Product Warranty does not warranty a specific power output at or during any time frame, which shall be exclusively covered under Section 2 of this Warranty hereinafter

("Limited Peak Power Warranty")

2. Limited Peak Power Warranty– Limited Remedy

JA Solar warrants that for a period of twenty-five years starting from the Warranty Commencement Date, less of power output against the minimum "Peak Power at STC" as specified on the label of the modules (hereinafter "Nominal Power") when measured at Standard Test Conditions (STC) for the Products; shall not exceed:

(1) For Mono Products: 3 % for the first year from the Warranty Commencement Date, and 0.65% per year thereafter from the 2nd to the 25th year of the warranty period; with a power output standing at 81.4% of the Nominal Power at the end of the 25-year warranty period;

(2) For Poly Products: 2.5 % for the first year from the Warranty Commencement Date, and 0.7% per year thereafter from the 2nd to the 25th year of the warranty period; with a power output standing at 80.7% of the Nominal Power at the end of the 25-year warranty period.

Within the period of twenty-five (25)-year warranty period from the Warranty Commencement Date, should any qualified module sold by JA Solar exhibit a loss of power output exceed the aforementioned warranted values, provided that any such declared loss in power has been verified by JA Solar, at its sole discretion is due to MODULES' defects in materials or workmanship attributable to JA Solar's own causes and further confirmed by an independent testing agency (if so requested by a customer) (which is to be selected and confirmed mutually by JA Solar and Customer in advance), JA Solar will, at its sole option and discretion, either (1) make up such loss in power by providing to customers additional MODULES; or (2) repair or replace the defective MODULES including free shipping to the location as set out in the original sales contract entered between JA Solar and the customer.

The remedies set forth herein are the sole and exclusive remedies JA Solar is bound to provide under the Limited Peak Power Warranty.

CAVEAT:

The shipping charges for any allegedly detected MODULES shall be borne by the customers making such claims in advance. Should the independent testing agency confirm that such filed detected are to be covered under this Warranty by JA Solar, the shipping charges advanced by the customers may be reimbursed by JA Solar against the original proof of expenditure.

3. Exclusions and Limitations

(a) Warranty claims from any customers, in any event, shall be filed in writing to JA Solar or its authorized distributors within the applicable warranty period and not beyond the last day of the applicable period of time as stated above.

(b) The Limited Product Warranty and Limited Peak Power Warranty shall not apply to MODULES which have been subject to:

- Misuse, abuse, neglect, vandalism or accident;
- Repair or modifications that do not strictly follow the manufacturer's instructions;
- Non-observance of JA Solar's maintenance instructions;
- Power failure, electrical spikes or surges, lightning, flood, fire, accidental breakage or other events outside JA Solar's control;
- Alteration, improper installation or application which is not compliant with JA Solar standard installation manual.

(c) The Limited Product Warranty and Limited Peak Power Warranty do not cover any costs associated with installation, removal or re-installation of the MODULES and (except as explicitly set forth in the last paragraph of the Section 5) customers clearance or any other costs for return of the MODULES.

(d) Warranty claims will not be honored if the type or serial number of JA Solar MODULES have been altered, removed or made illegible without written authorization from JA Solar.

4. Limitation of Warranty Scope

This Warranty as set forth herein is expressly in lieu of and excludes all other express or implied warranties, including but not limited to warranties of merchantability and of fitness for particular purpose, use, or application, and all other obligations or liabilities on the part of JA Solar, unless such other obligations or liabilities are expressly agreed to in writing signed and approved by JA Solar. JA Solar shall have no responsibility or liability whatsoever for damage or injury to persons or property, or for other loss or injury resulting from any cause whatsoever arising out of or related to the MODULES, including, without limitation, any defects in the MODULES or from use or installation.

Under no circumstances shall JA Solar be liable for incidental, consequential or special damages, however caused. Loss of use, loss of profits, loss of production, and loss of revenues. The aforementioned alleged losses by customers are specifically and without limitation excluded from responsibilities of JA Solar. JA Solar's aggregate liability, if any, in damages or otherwise, shall not exceed the invoice value as paid by the Customer, for the single unit of MODULES.

5. Obtaining Warranty Performance

If the Customer has a justified claim covered by this Warranty, an immediate written notification shall be directly made to JA Solar by means of registered letter to the address of JA Solar listed hereunder, or sending a notification via e-mail to the e-mail account of JA Solar listed hereunder. Together with the notification, the Customer should enclose the evidence of the claim with the corresponding serial number of the MODULES and the date on which the MODULES have been purchased. An invoice with clear indication of the purchase date, purchase price, module type, stamp or signature of JA Solar or its distributors should also be submitted as part of the preliminary evidence.

If the MODULES will be returned to JA Solar for inspection, repair or replacement by JA Solar, JA Solar shall provide the Customer with a Return Merchandise Authorization (RMA). However, JA Solar will not accept a return of any MODULES without such RMA. In connection with both the Limited Product Warranty and Limited Peak Power Warranty, JA Solar may reimburse customer for reasonable, customary and documented transportation charges by sea freight for both the return of the MODULES and reshipment of any repair or replacement MODULES, only if such cost reimbursement is authorized by JA Solar's Customer Service Department in advance.

6. Transferability

This warranty is extended to the original end-user purchaser, and is also transferable to any subsequent owner of the location or holder of the product when MODULES remain at their original installed location upon satisfactory proof of succession or assignment.

7. Severability

If a section, provision or clause of this Warranty, or the application thereof to any person or circumstance, is held invalid, void or unenforceable, such shall not affect and thus shall leave all other sections, provisions, clauses or applications under this Warranty severable, and therefore validly binding.

8. Dispute Resolution

In case of any dispute in terms of warranty-claims, a first-class international testing institute, such as PT Berlin, TÜV SÜD or Intertek, U.L., shall be entrusted by both parties upon mutual consents in order to provide third party verification and comments. All fees and expenses shall be borne by the party that demanded such verification procedure, unless otherwise agreed.

Further dispute over the claim shall be submitted to dispute resolution as stipulated in the main sales contract to which this Warranty is a part of and subject to the applicable jurisdiction agreed by the parties in the sales contract.

9. Various

The repair or replacement of the MODULES or the supply of additional MODULES does not lead to a new commencement of warranty terms, nor shall the original terms of this Warranty be extended. Any replaced MODULES shall become the property of JA Solar.

JA Solar shall at its own options to deliver another type of MODULES (different in size, color, shape, or power), either a new brand or the original one, in case that JA Solar has discontinued producing the module in question at the time of the claim.

10. Force Majeure

JA Solar shall not be responsible or liable to the Customer whatsoever or any third-party arising out of any non-performance or delay in performance of any terms and conditions of the sales, including this Warranty, due to causes of natural disasters such as fire, flood, blizzard, hurricane, thunder, acts of God, changes of public policies, terrorism, war, riots, strikes, unavailability of suitable and sufficient labor or materials and other events which are out of control of JA Solar.

REMARK:

"Peak Power" is the power in watt/peak that MODULES generates in its maximum power point under STC condition. "STC" are as follows:

- (a) Light spectrum of AM 1.5
- (b) Irradiance at 1,000W/m²
- (c) Cell temperature of 25 degree Centigrade at right angle irradiation

The measurements are carried out in accordance with IEC61215 as tested at the junction box terminals per the calibration and testing standards of JA Solar valid at the date of manufacture of the MODULES. JA Solar's calibration standards shall be in compliance with the standards applied by international institutions accredited for this purpose.

The right way to attach almost anything to metal roofs!

S-5!®

The Right Way!

S-5-U Clamp

The S-5-U clamp is by far our most popular and most versatile clamp. It fits about 85% of the standing seam profiles manufactured in North America—including most structural and architectural profiles. It can be used on vertically oriented seams and, by rotating the clamp 90 degrees, it can also be used on most horizontal 2" seam profiles.

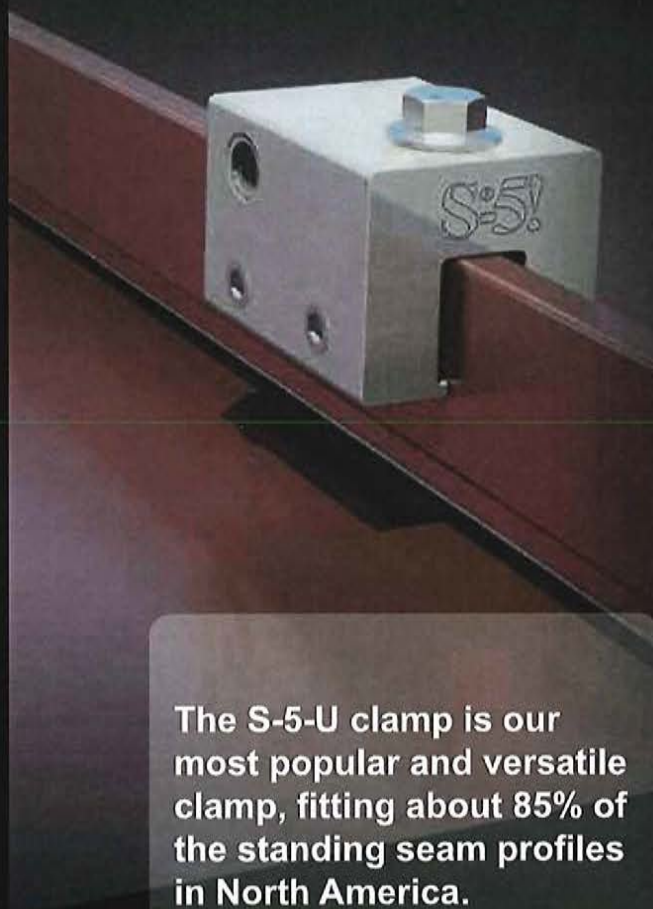
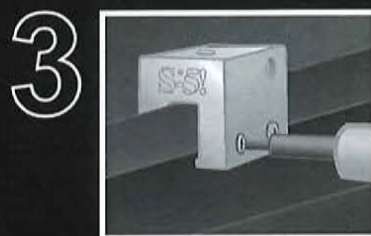
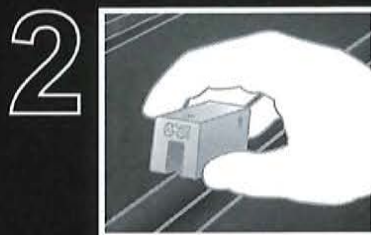
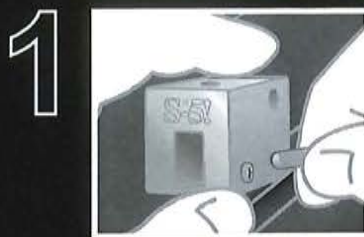
Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5!® snow retention products, such as ColorGard®, as well as with other heavy-duty applications.

Installation is as simple as setting the specially patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

S-5-U Mini Clamp

The S-5-U Mini is a bit shorter than the S-5-U and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.



The S-5-U clamp is our most popular and versatile clamp, fitting about 85% of the standing seam profiles in North America.

S-5-U and S-5-U Mini



888-825-3432 | www.S-5.com

METAL ROOF INNOVATIONS, LTD. (MRIL)

S-5!®

LIMITED WARRANTY

Metal Roof Innovations, Ltd (MRIL) warrants that all S-5!® products manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized MRIL distributor to the original purchaser. As purchaser's sole remedy for breach of this warranty, MRIL will, for a period of twenty-five (25) years after the date of sale, repair or replace any part of the S-5! manufactured product which is defective. This warranty applies only when the S-5! product is properly installed, used and maintained.

This warranty does not cover, and MRIL shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, negligence, misuse, abuse, accident, tampering, substitution of non-S-5! component parts, or incompatibility with equipment, structures, accessories or materials not manufactured by MRIL. The purchaser acknowledges that MRIL expresses no opinions as to the suitability of S-5! products or components for any specific application or project condition.

This warranty is conditioned upon (a) the prepaid return of the products claimed to be defective to an authorized MRIL distributor for verification of the claimed defect; and (b) receipt by MRIL of claims for product repair or replacement within thirty (30) days after discovery of the defect or after the defect could have been reasonably discovered. If the claimed defect is verified, MRIL will repair or replace free of charge any defective products manufactured by MRIL. Replacement product will be returned with transportation prepaid.

Claims under this warranty must be in writing and sent to MRIL along with a copy of this limited warranty, the part or product model name or number, date and place purchased, date installed, operating conditions, and date the defect was discovered. MRIL shall have the right to examine the components, related parts, and product application, including adjacent work on the actual building site. Purchaser grants MRIL access to the site of the installation during normal business hours for this purpose.

Disclaimers and Limitations. The terms of this warranty constitute purchaser's sole and exclusive remedy and are in lieu of any other warranties (expressed or implied). MRIL MAKES NO OTHER WARRANTIES ABOUT THE PRODUCTS AND DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR APPLICATION. PURCHASER ASSUMES ALL RISK OF USE OF ANY OF THE PRODUCTS IN COMBINATION WITH OR AS A COMPONENT PART OF ANY PRODUCT APPLICATION. NOTWITHSTANDING THE ABOVE AND REGARDLESS OF THE CIRCUMSTANCES, MRIL'S TOTAL LIABILITY TO PURCHASER IS LIMITED TO AND SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE DEFECTIVE PRODUCTS. PURCHASER WAIVES ANY AND ALL OTHER CLAIMS. IN NO EVENT SHALL MRIL BE LIABLE FOR, AND PURCHASER WAIVES ALL CLAIMS AGAINST MRIL RESPECT TO, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, OR FOR ANY LOST PROFITS. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES IS EXPRESSLY EXCLUDED. ANY CIVIL ACTION FOR BREACH OF WARRANTY MUST BE COMMENCED WITHIN TWENTY-FIVE (25) YEARS OF THE DATE OF SALE OR WITHIN ONE YEAR AFTER THE PURCHASER DISCOVERED OR SHOULD HAVE DISCOVERED THE DEFECTIVE PRODUCT

This warranty gives the purchaser specific legal rights. Purchaser may have other rights which vary from state to state.

Purchaser

Distributor

Project Name

Date of Sale

S-5!®

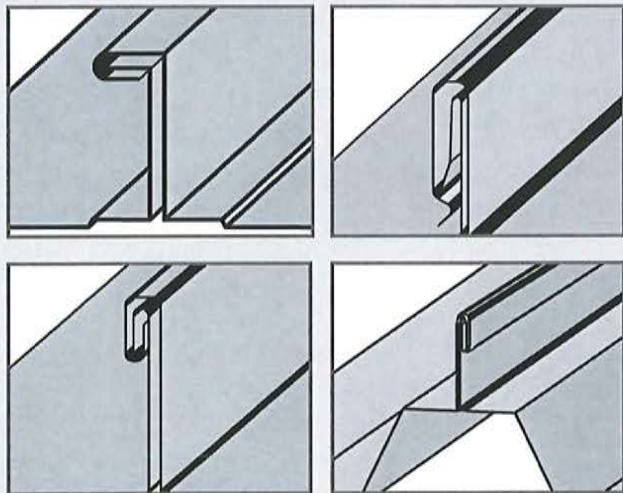
The Right Way!

The strength of the S-5-U clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving the roof manufacturer's warranty intact.

The **S-5-U** and **S-5-U Mini** clamps are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-U is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit www.S-5.com for more information including CAD details, metallurgical compatibilities and specifications.

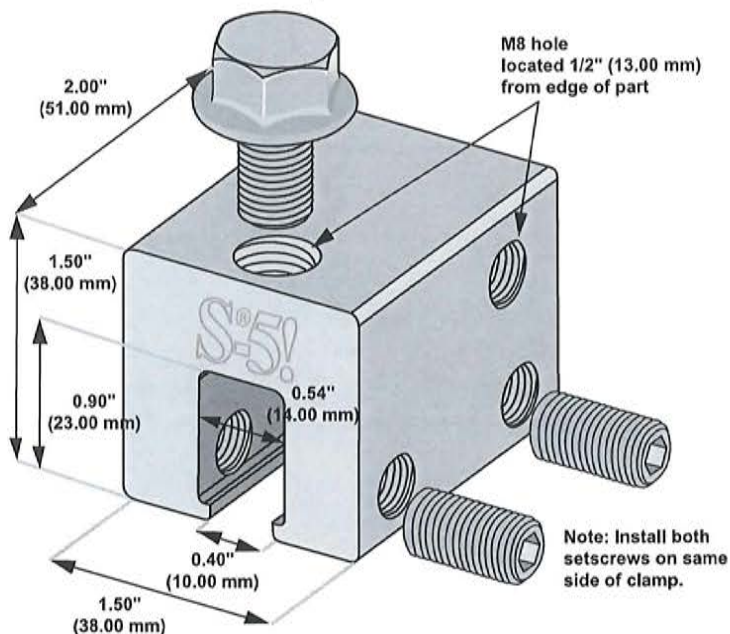
The S-5-U clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry.

Example Profiles

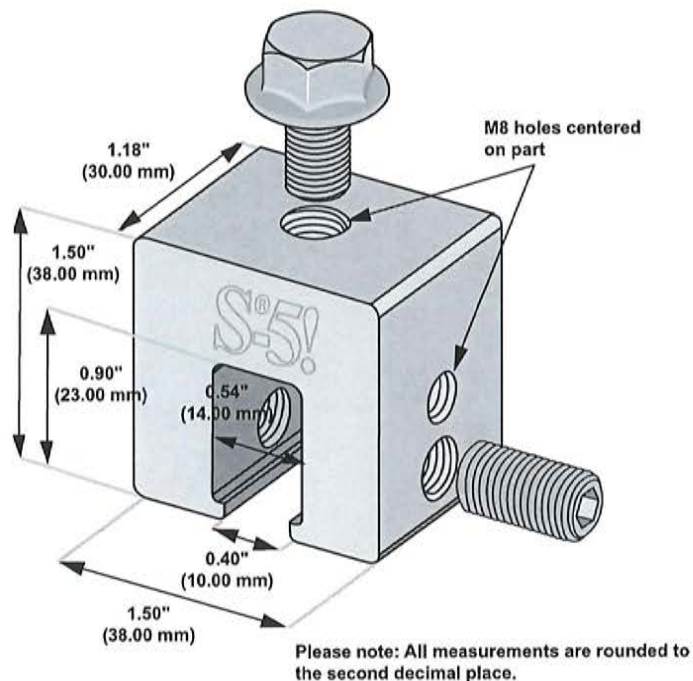


For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

S-5-U Clamp



S-5-U Mini Clamp



S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

Copyright 2015, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 052115.

Distributed by

IronRidge Limited Warranties

Effective for IronRidge, Inc. ("IronRidge") mounting structure components ("Products") manufactured after April 1st, 2012, IronRidge provides the following warranties, for Products installed properly and used for the purpose for which the Products are designed:

- finishes shall be free of visible defects, peeling, or cracking, under normal atmospheric conditions, for a period of three (3) years from the earlier of (i) the date of complete installation of the Product or (ii) thirty days after the original purchaser's date of purchase of the Product ("Finish Warranty");
- components shall be free of structurally-related defects in materials for a period of ten (10) years from the earlier of (i) the date of complete installation of the Product or (ii) thirty days after the original purchaser's date of purchase of the Product;
- components shall be free of functionally-related manufacturing defects for a period of twenty (20) years from date of manufacture.

The Finish Warranty does not apply to: (a) surface oxidation of the galvanized steel components or any foreign residue deposited on Product finish; and (b) Products installed in corrosive atmospheric conditions, as defined solely by IronRidge; corrosive atmospheric conditions include, but are not limited to, conditions where Product is exposed to corrosive chemicals, fumes, cement dust, salt water marine environments or to continual spraying of either salt or fresh water. The Finish Warranty is VOID if (c) the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminum" (www.aamanet.org) are not followed by Purchaser for IronRidge's aluminum based components; and (d) if the practices specified by ASTM A780 / A780M - 09 "Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings" are not followed by Purchaser for IronRidge's galvanized steel-based components.

The warranties above do not cover any parts or materials not manufactured by IronRidge, and exclude non-functionally-related defects, as defined solely by IronRidge. The warranties do not cover any defect that has not been reported to IronRidge in writing within twenty (20) days after discovery of such defect.

In the event of breach of or non-compliance with the warranties set forth above, IronRidge's sole obligation and liability, and the sole and exclusive remedy for such breach or non-compliance, shall be correction of defects by repair, replacement, or credit, at IronRidge's sole discretion. Such repair, replacement or credit shall completely satisfy and discharge all of IronRidge's liability with respect to these warranties.

Refurbished Product may be used to repair or replace the defective components. Transportation, installation, labor, or any other costs associated with Product replacement are not covered by these warranties and are not reimbursable. These warranties additionally do not cover (a) normal wear, or damage resulting from misuse, overloading, abuse, improper installation (including failure to follow professional instruction and certification), negligence, or accident, or from force majeure acts including any natural disasters, war or criminal acts; and (b) Products that have been altered, modified or repaired without written authorization from IronRidge or its authorized representative; and (c) Products used in a manner or for a purpose other than that specified by IronRidge. A formal document proving the purchase and the purchase date of the Product is required with any warranty claim.

Except as set forth above, IronRidge sells the Products on an "AS IS" basis, which may not be free of errors or defects, and ALL EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, WORKMANLIKE EFFORT, CORRESPONDENCE TO DESCRIPTION, DESIGN, TITLE OR NON-INFRINGEMENT, OR ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR TRADE PRACTICE, ARE HEREBY DISCLAIMED.



Dear Solar PV installers and Trade Allies,

Participation in the residential Solar PV offerings at the end of 2019 and the start of 2020 has led to unprecedented incentive subscription. Because of this, it is necessary to re-evaluate the incentive structure in order to provide incentives through the end of the year. Some changes that are being put in place include:

- Focus on Energy has added additional dollars to the residential incentive fund. The additional incentive funding is reflected on the website. Further shifts in funding may take place later in the year, but is not guaranteed.
- Effective immediately:
 - Incentive levels for projects with existing reservations will remain the same.
 - For new reservations and for all projects without a reservation that complete on or after June 1, 2020:
 - The incentive for residential systems will be reduced from \$300 to \$200 per kW up to \$1,000.
 - The incentive for commercial systems will also be reduced. Please see the table below.

Commercial	\$ / kW (DC)	Max Incentive
0 to 5 kW	\$200	\$1,000
5 to 10 kW	\$150	\$1,750
10 to 100 kW	\$125	\$13,000
100 to 300 kW	\$100	\$33,000
300 to 500 kW	\$85	\$50,000
500+ kW	\$0	\$50,000

Residential	\$ / kW (DC)	Max Incentive
All	\$200	\$1,000

FAQs

Q) What if my project is delayed due to permit or inspection delays related to COVID-19? Will the Program offer extensions for deadlines on existing reservations?

A) Existing reservations may be extended at Focus on Energy's discretion. If you have a project that will miss the deadline, please contact Focus on Energy at 800.762.7077 prior to the expiration of the reservation. We will need to know project name, project start date, reason for delay and expected finish date.

Q) If I submit a [reservation form](#) tomorrow, but I completed prior to June 1, what incentive will I receive?

A) You will receive the higher incentive.

Q) Does this change affect the rural or agricultural producer bonus?

Q) How quickly do I need to submit an application after a project is completed?

A) For projects with a reservation, the application must be received by Focus on Energy prior to the expiration of the reservation. For projects without a reservation, you must submit the application within 60 days of completion of install interconnect. Applications received after the 60 days may be subject to reduced or denied incentives. We encourage you to use the [online application](#) to submit for faster tracking and processing of your incentive.

Q) I submitted an application prior to this announcement. Will I receive the higher incentive?

A) If you have a reservation on file with Focus on Energy, you will have until the expiration date to install and submit the incentive application. If you do not have a reservation, the system would need to be installed before June 1, 2020 in order to receive the higher incentive.

Q) I quoted a customer recently. Now, do I have to go back and change my quote because the incentive has changed?

A) Unfortunately, you will, unless the project will be completed prior to June 1, 2020. The alternative would be for Focus on Energy to end the incentive offering early at current rates, leaving less for your future customers.

Q) How long is the reservation good for?

A) The reservation is 90 days for residential systems and 180 days for commercial systems. You have that amount of time to install, interconnect and submit the incentive application. Even if the system was completed before the expiration date, the incentive application must also be received by Focus on Energy on or before the expiration date. We encourage you to use the [online application](#) to submit for faster processing of your incentive.

Q) How long will these incentive rates stay in effect?

A) Focus on Energy anticipates these incentive rates will stay in effect until the end of 2021, coinciding with the end of the Investment Tax Credit. We are, however, keeping an eye on the market and may adjust rates as necessary.

We understand that this is a difficult change for you and for many of your current customers, and this is not something that we take lightly. However, it is a necessary step to avoid shutting down the offering prematurely. Please reach out to us with further questions.

Stay safe and healthy,
Focus on Energy

REDUCING ENERGY WASTE ACROSS WISCONSIN

Wisconsin utilities' statewide program for energy efficiency and renewable energy helps eligible residents and businesses save energy and money while protecting the environment. Focus on Energy information, resources and financial incentives help to implement energy efficiency and renewable energy projects that otherwise would not be completed. ©2020 Wisconsin Focus on Energy

WISCONSIN

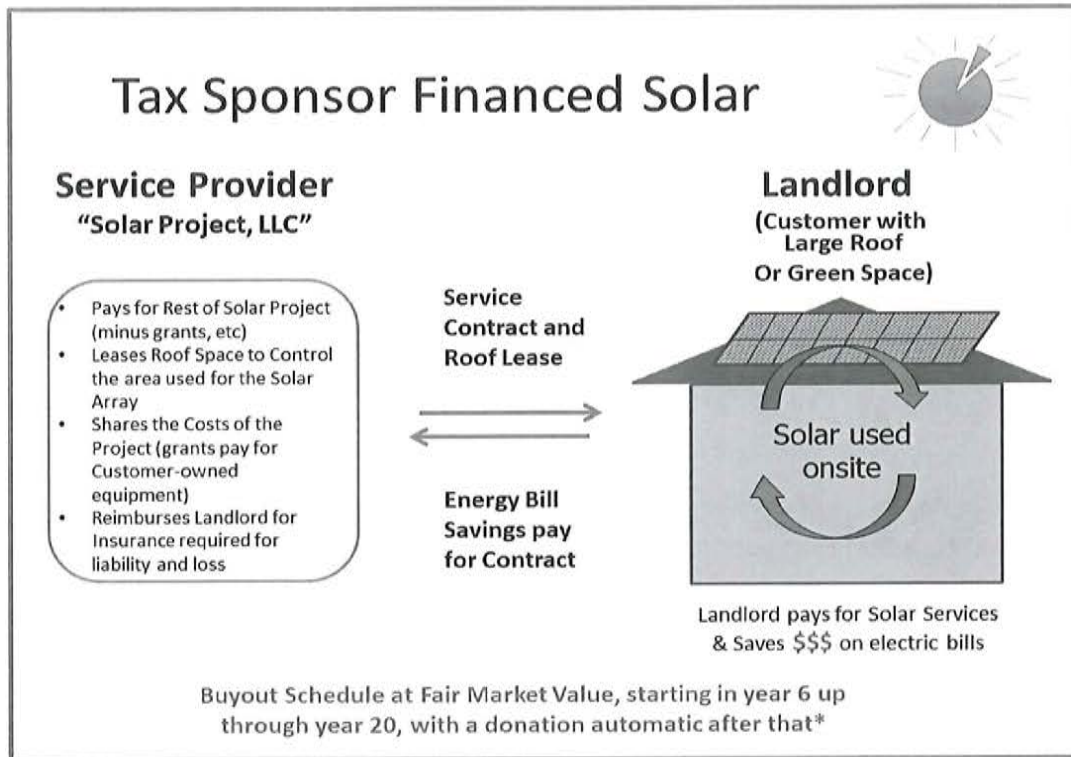


Focus on Energy
1 South Pinckney St., Suite 340, Madison, WI 53703

Click to [unsubscribe](#).

Legacy Solar Co-op

Introduction to Tax Financing for Solar Projects:



We have helped over 2 dozen Institutions in Wisconsin take advantage of this opportunity to reduce their up-front costs by 50% or more by having a **Tax Sponsor** own part of the solar array and reduce the cost of the solar energy equipment by virtue of the federal tax credit and 1st-year depreciation.

Like a lease, the Community Institution (Landlord) puts solar on their facility at a low cost, and pays for the service generated at a discount for at least the first 6 years, with the following options afterwards:

1. Buy out the rest of the solar project at **Fair Market Value**;
2. **Receive as a donation** the project to your Non-Profit; and/or
3. **A combination of both**, sometime within the first 12 years*.

These options allow the hosting Community Group to maximize their energy dollar and enjoy a legacy of clean energy electric bill savings over the next 30 to 40 years.

Let us know if your Community Institution has a good roof to lease out to a tax sponsor for this type of arrangement and we'd be happy to work with you to see if tax financing will be a good fit for your organization or municipality.

**Donation to non-profit depends on the Tax Sponsor's willingness and ability to either take a loss as early as year 6 or break-even by year 10, or earn a small profit by year 12. Each case is unique and requires a professional appraisal for Fair Market Value that the parties must agree upon. The donation option may be limited or unavailable in some cases.*

Contact us for more information:

608-957-6801 or Info@Legacysolarcoop.org Check out our track record: www.LegacySolarCoop.org



FINANCING CLEAN ENERGY

Communities are finding resources for financing clean energy from state and federal agencies. This section highlights programs and opportunities available to help a community identify funding for clean energy.

THE OFFICE OF ENERGY INNOVATION

The Wisconsin Office of Energy Innovation (OEI) is the state of Wisconsin's designated "Energy Office." Every state and territory has an energy office, funded by the US Department of Energy. Wisconsin's office seeks to promote innovative and effective energy policies and programs that benefit Wisconsin's citizens and businesses. OEI offers a number of programs and resources that can support local governments as they shift to renewable energy. The following programs may be especially useful for school districts, municipalities, and counties. OEI and UW Extension have compiled resources for local governments which can be found on the Energy On Wisconsin webpage.

ENERGY INDEPENDENT COMMUNITIES have either adopted a goal to source 25 percent of energy used from renewables by the year 2025 or have implemented another thoughtful plan towards achieving energy independence.

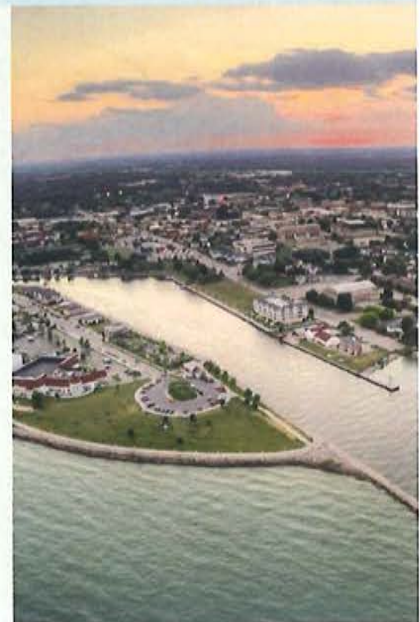
ENERGY INNOVATION GRANT PROGRAM offers competitive grant funding to support the reduction of energy consumption and its cost to businesses and taxpayers, increased use of renewable energy and transportation technologies, comprehensive energy planning, and bolstered preparedness and resiliency in energy systems.

FOCUS ON ENERGY is a ratepayer-funded energy efficiency and renewable energy program to help schools, government facilities, residences, and businesses reduce energy waste through partnerships with utilities across Wisconsin. Focus on Energy offers a number of financial incentives and technical resources to install renewable energy systems and energy efficient equipment and to reduce energy consumption. Learn more about Focus on Energy here: focusonenergy.com

MUNICIPAL ENERGY EFFICIENCY TECHNICAL ASSISTANCE PROGRAM (MEETAP) helps municipalities, cities, towns, counties, and K-12 School districts reach their energy efficiency goals. The program offers a number of services including a wastewater infrastructure accelerator, baseline analysis of building and vehicle usage to calculate energy expenditures, a plan to control energy costs, verification of energy savings, water utility benchmarking analysis, and more. MEETAP places a particular emphasis on helping municipalities, Tribal Nations, and schools execute successful Energy Saving Performance Contracts (ESPC). MEETAP has RFP, RFQ, and contract templates available, as well as advice for communities about measurement and verification of savings from energy projects. Local governments can request water utility benchmarking reports via email to oei@Wisconsin.gov or Megan.Levy@Wisconsin.gov.

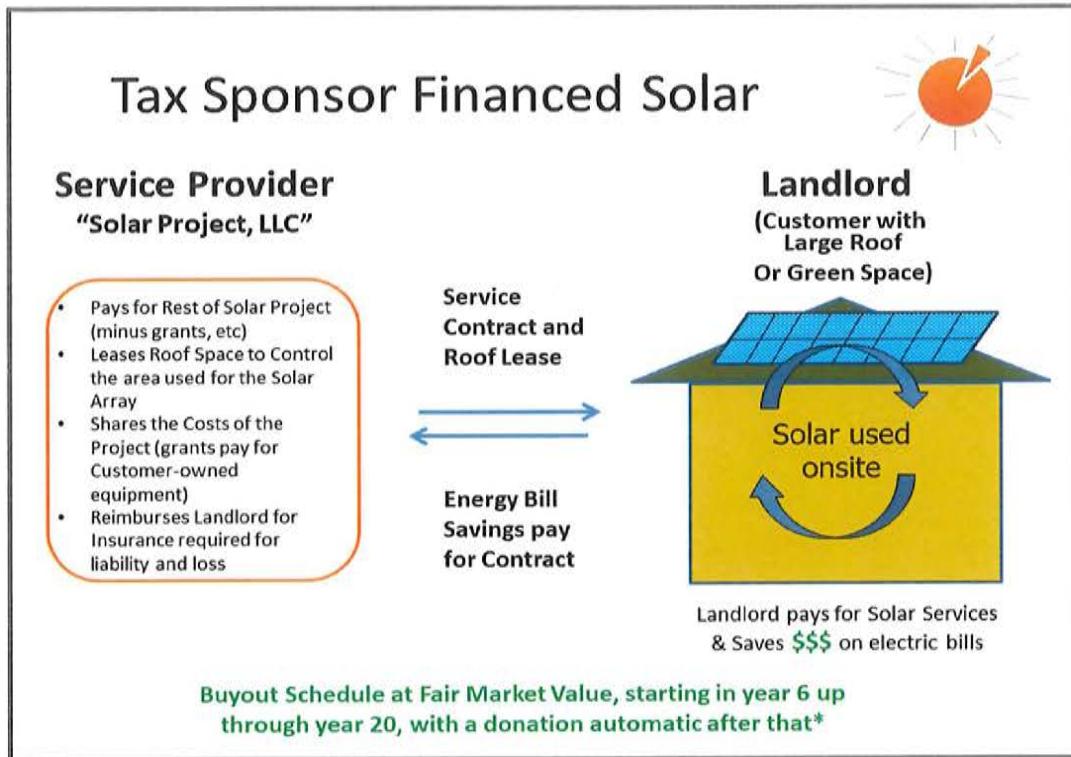
Sheboygan is probably similar to most cities. The city passed a voluntary resolution to meet the 25% clean energy goals by 2025 in 2008. They struggled for a couple of years without a political driver to move the goals forward into implementation. Committees would meet, but they didn't make much progress until Mayor Vandersteen was elected in 2012. It was a personal priority of his to have Sheboygan be more sustainable. There is limited bonding ability under the levy limits to invest in clean energy projects or technology. There are also limited overall funds to hire contractors to assist with developing plans. Convincing local leaders to spend more money upfront for cleaner, more sustainable projects is hard to do with overall limited funds.

Chad Pelishek
Director of Planning & Development: Sustainability Coordinator
for the City of Sheboygan



Legacy Solar Co-op

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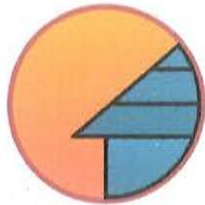
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FULL SPECTRUM SOLAR

1240 E. Washington Ave
Madison, WI 53703
(608) 284-9495
info@fullspectrumssolar.com
www.fullspectrumssolar.com

Installation & Repair - Commercial & Residential - New Construction & Retrofit - Solar Electric & Solar Thermal

May 5, 2020

Matthew Carerros
Strand Associates, Inc.
608-251-4843 ext. 1209
matthew.carerros@strand.com

Re: McFarland Public Works Solar Electric RFP

Matt,

Enclosed with this bid package please find the following documents:

- 1) a comprehensive proposal for the installation of a turn-key, utility-interactive 31.45KW DC solar electric system.
- 2) a copy of Full Spectrum Solar's Solar System Installation Agreement identifying, among other details, the contractual terms and conditions.
- 3) a list of Commercial Solar Electric References.
- 4) energy output simulation results from NREL's System Advisor Model, showing 1,320 kWh AC/KW DC.
- 5) a copy of Full Spectrum Solar's 5-Year Workmanship Warranty

In addition, supplemental proposal information includes:

Project Team:

Mike Joyce, Project Engineer, NABCEP-Certified PV Installation Professional & NABCEP-Certified PV Inspector, 12 years PV experience.

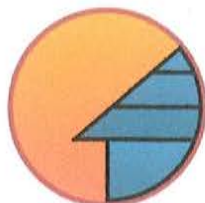
Leigh Weaver, Master Electrician, 13 years of PV experience

Greg Veldey, Journeyman Electrician and NABCEP-Certified PV Installation Professional, eight years of PV experience

Todd Lund, Crew Leader, eight years PV experience

Execution Plan:

The execution plan includes the following primary steps, in approximate chronological order. The total project length would not exceed two months while the installation portion would be substantially complete in a two- three week time span:



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info@fullspectrumssolar.com
www.fullspectrumssolar.com

Installation & Repair - Commercial & Residential - New Construction & Retrofit - Solar Electric & Solar Thermal

- 1) execute installation contract
- 2) apply for any available Focus On Energy incentives
- 3) complete electrical and mechanical design
- 4) submit Distributed Generation Application and Agreement with Alliant Energy
- 5) initiate structural analysis of building
- 6) obtain electrical and structural permits
- 7) order system equipment
- 8) complete installation
- 9) final inspection with the Authority Having Jurisdiction
- 10) system commissioning with Alliant Energy

Equipment Warrantees:

Modules: Heliene 72M370; 10-year workmanship warranty and 25-year warranty against power output loss.

Inverters: SolarEdge SE-9KUS and 14.4KUS; 25-year warranty.

Optimizers: SolarEdge P860 dual optimizers; 25-year warranty.

Maintenance Requirements/Costs:

The estimated annual maintenance cost of a utility-interactive solar electric system is equal to 0.2% of the installed cost.

Let me know if you have questions or require additional information at this time.

Regards,

Mike Joyce



FULL SPECTRUM SOLAR

Performance & Financial Analysis

31.45KW DC Solar Electric Installation Proposal

Prepared May 5, 2020 for

Matthew Carerros

McFarland Public Works

5115 Terminal Dr.

McFarland, WI 53558

Phone: 608-251-4843

Email: Matthew.Carrerros@strand.com

Prepared by Mike Joyce

Project Engineer

Full Spectrum Solar

1240 E. Washington Ave.

Madison, WI 53703

Phone: 608-284-9495 Ext: 202 | Email: mikej@fullspectrumssolar.com

- 1) Costs for roof reinforcements or additional racking materials are not included. In the event the roof analysis shows this is required, these costs will be reevaluated.
- 2) Prevailing Wage rates apply.
- 3) Assumes the system can tie into the existing electrical infrastructure. Added cost may be incurred if the utility and/or local Authority Having Jurisdiction (AHJ) require changes.

Executive Summary

31.45KW DC Solar Electric Installation Proposal

Electric Utility Savings: Anticipate a savings of approximately \$4,732 in electric bills (81%) at current utility rates in the first year. Savings will grow as electric utility rates are expected to rise 3.00% a year. The purchase of electric energy (kWh) from your utility is expected to be reduced by 81%.

Over 30 years, annual utility savings are anticipated to average \$7,609, for a total utility savings of \$228,255. After tax effects are applied, savings average \$5,098 annually or \$152,935 over the system life.

Performance Summary

Solar Electric (PV) System: 31.45 kW DC producing 41,514 kWh/Year.

Purchase Price & Net Cost

Contract Price: \$83,802

Incentives to Customer: (\$4,000)

Net Purchase Cost: \$79,802

MACRS Bonus & Straight Line
Depreciation: (\$26,329) (Total)

Financial Ratios

Cashflow Payback: 13.6 years

15.4 years (modified)

Internal Rate of Return (IRR): 6.3%

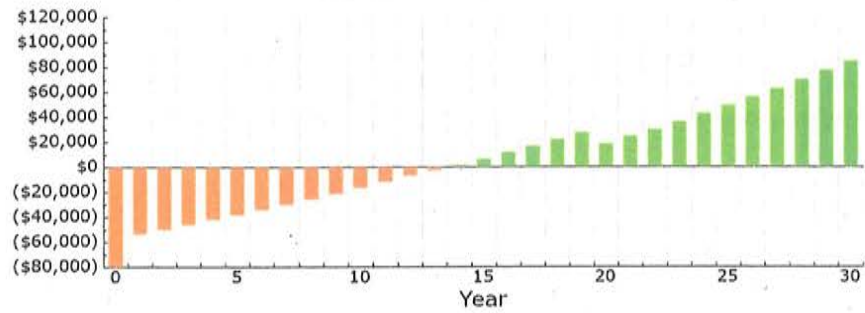
Net Present Value (NPV): \$19,169

Cash Gained over Life: \$84,819

- CO2 Saved over System Life: 1,021 tons. Equivalent to driving 2,042,000 auto miles

Finance: Cash

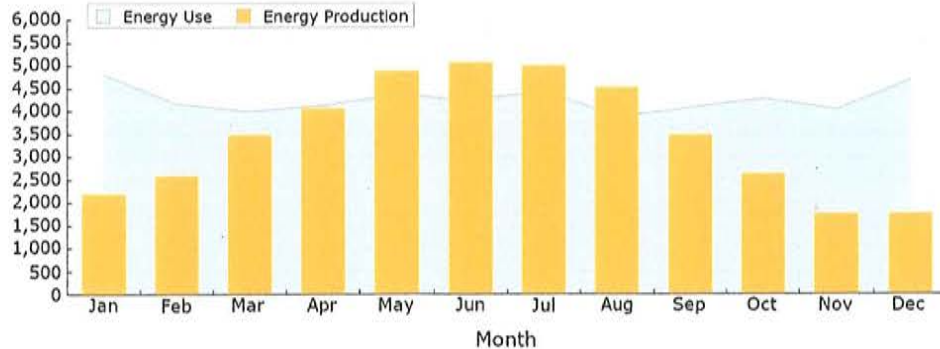
Cumulative Cash Flow





Solar Electric (PV) System Summary

Solar Electric (PV) kWh Production by Month (typical)



Array #1

Tilt: 10° Azimuth: 180° 3" Air Gap
Shade reduces production: 0%

PV Panels: 33 x Heliene, Model: 72M370

Inverters: 1 x SolarEdge Technologies, Model: SE9K

Included: System Adders:

* 10-year Inverter Warranty Extension: \$550

Total Panel Area: 1,740 sq-ft

System Peak Power: 31.45 kW DC

Annual Production: 41,514 kWh. Supplying 81% of annual electric use

Array #2

Tilt: 10° Azimuth: 180° 3" Air Gap
Shade reduces production: 0%

52 x Heliene, Model: 72M370

1 x SolarEdge Technologies, Model: SE14.4KUS

Contract Price Summary: Solar Electric (PV) System

Contract Amount: \$83,802 (\$2.66 per watt DC)

Less added cost items (as included): \$2.65 per watt DC

Incentives available to Customer in 1st Year

Estimated Focus on Energy - 2020 Business PV Incentive: (\$4,000)

Net Cost at Install (after incentives): \$79,802

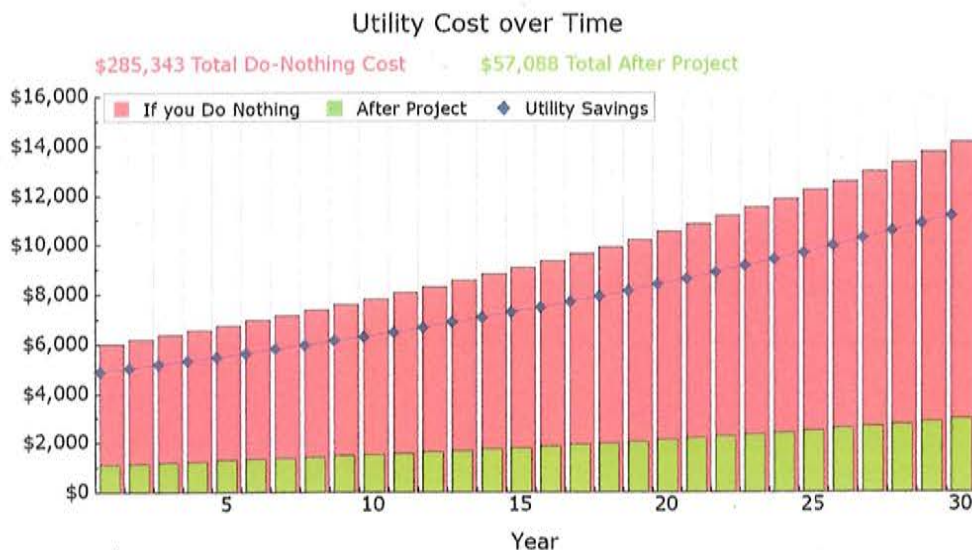
Net Installed Price per Watt: \$2.54 per watt DC

Less added cost items (as included): \$2.52 per watt DC



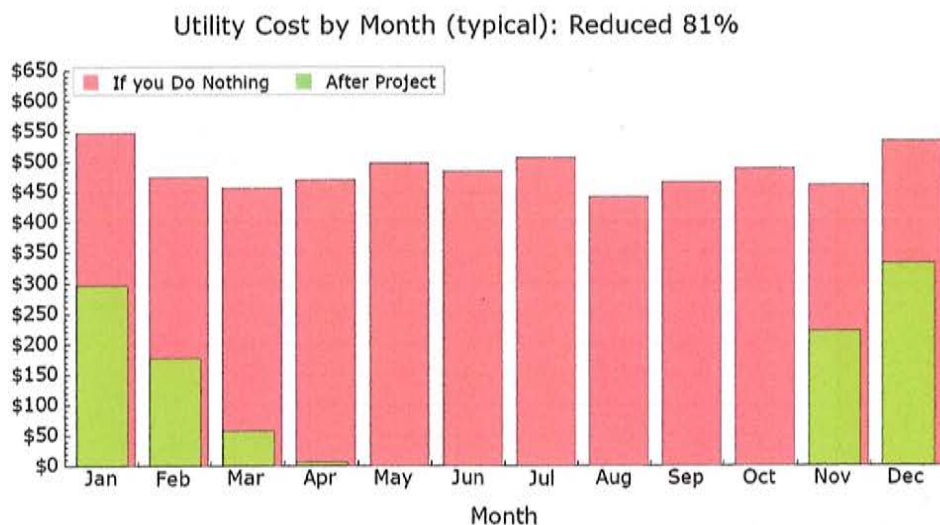
FULL SPECTRUM SOLAR

The Cost of Doing Nothing



Your Hedge Against Utility Inflation: Your investment in this project will protect you from utility rate inflation.

Utility Cost by Month



Includes monthly Net-Metering "True-Up" to reconcile any net-meter credits accumulated in prior month(s).

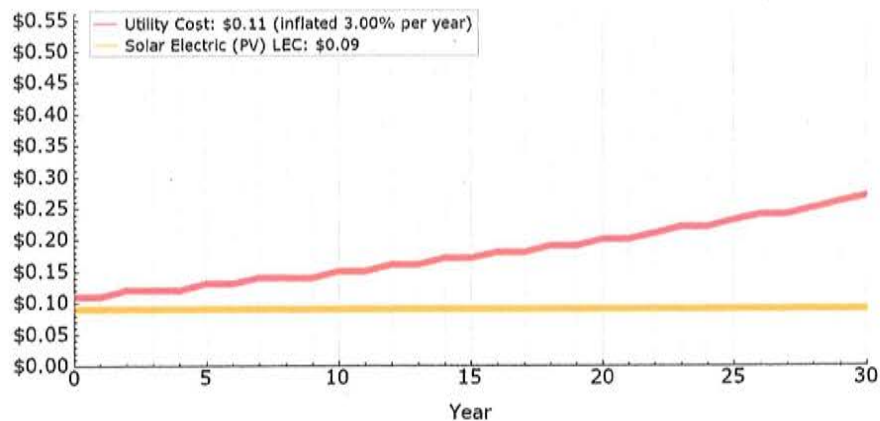


Levelized Energy Cost (LEC)

Your Hedge Against Utility Inflation: Your investment in this project will protect you from utility rate inflation. Levelized Energy Cost (LEC) analysis provides us with a "hurdle rate" (the levelized energy cost) which can be compared to the expected change in utility rates (by way of utility rate inflation). LEC is the average lifetime cost of energy produced by a particular system. We can compare the LEC to the current utility rate and its expected change in price as time goes on. In this manner one can judge the investment as a "better bet" than utility rates to contain energy costs. Represented below is the average cost of utility energy versus the cost of energy produced (LEC) by your system over time.

Electric: Levelized Energy Cost (LEC)

\$/kWh: Utility vs. System Levelized Energy Cost (LEC)





Carbon Footprint

Your carbon footprint will be reduced. Over the life of your system 1,021 tons of carbon dioxide (CO₂) will be eliminated from your footprint. Equivalent to:



Planting 23,789 trees.



Driving reduced by 2,042,000 auto miles, or 104,142 gallons of gasoline.



Recycling 3,226 tons of waste instead of sending it to landfill.



Displacing CO₂ emissions from the annual electric use of 116 homes.



994,884 pounds (497.4 tons) of coal burned.



Sensitivity Analysis: Utility Rate Inflation Scenarios

Sensitivity Analysis is a process of analyzing possible future events by considering alternative possible outcomes. The average change in utility rates (inflation) over the system life is perhaps the variable which may most affect the return on your investment. The following table summarizes how utility rate inflation may impact your investment. The project, as quoted, is compared to utility rate inflation that averages -5%, 0% and +5% over the system life.

	<u>As Quoted</u>	<u>-5% Inflation</u>	<u>0% Inflation</u>	<u>+5% Inflation</u>
Total Utility Savings:	\$228,255	\$69,897	\$140,031	\$324,528
Cash Gained over Life:	\$84,819	none	\$25,705	\$149,317
Return on Initial Cash Invested (IRR):	6.3%	0%	2.8%	8.4%
Wealth Created Over System Life (NPV):	\$19,169	(\$30,938)	(\$7,717)	\$47,177

Utility Inflation, as Quoted: Electric Rates: 3.00%



How to Interpret Financial Ratios and Measures

A Measure of Security: Cashflow Payback: 13.6 years - 15.4 years (modified)

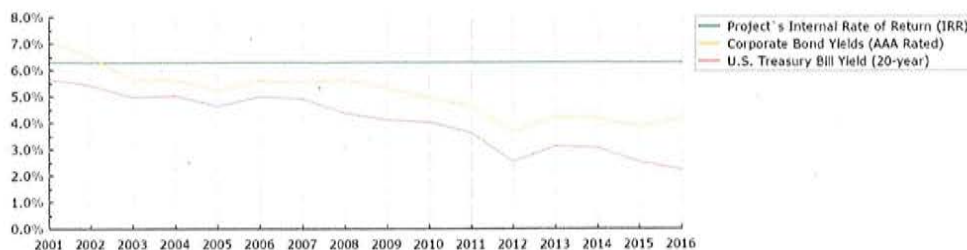
The most common measure of the security of a proposed investment is its payback, defined as the length of time until one gets one's money back. Cashflow Payback is when cumulative cash flow stays positive for good. Modified Cashflow Payback is when the cumulative cash in-flows exceed the total of all cash out-flows over the system life; future maintenance expenses are accommodated.

Net Present Value (NPV): \$19,169.

What NPV Means: NPV is an indicator of how much value (wealth) an investment adds to the customer. If NPV is positive then the investment would add value. If NPV is zero or negative then other "qualitative" factors may be of adequate value to justify the project (for example, lengthening a swimming pool season). *Net Present Value (NPV)* is one way to account for the time value of money. NPV calculates the current value of each future cash flow. For example, \$1.00 received two years from now is equivalent to something less today, if it can be invested now at some interest rate. This allows us to "discount" the cash flows (whether positive or negative) that the proposed investment is expected to generate at various times in the future back to their equivalent value today (that is, their "present value"). If one then subtracts the cost of the proposed investment from the sum of the present values of the ongoing cash inflows, one obtains the net present value (NPV) of the investment.

Internal Rate of Return (IRR): 6.3%

Internal Rate of Return (IRR) is a common measure of investment efficiency. Equivalent to the yield to maturity of a bond. The



internal rate of return (IRR) is the annualized effective compounded rate of return earned on the invested capital.



Measures of Predictability: Using "hurdle rates" Levelized Energy Cost (LEC)

Solar Electric (PV): \$0.09 per kWh

Another dimension of concern about a proposed investment is the predictability of its anticipated costs and returns, which requires measures of the uncertainty associated with them. Levelized Energy Cost (LEC) analysis provides us with a "hurdle rate" (the levelized energy cost). LEC is the average lifetime cost of energy produced by a particular system. We can compare LEC to the current utility rate and its expected change in price as time goes on. In this manner one can judge the investment as a "better bet" than utility rates to contain energy costs.

Assessing Option Value: The option value of a proposed investment represents the value of future opportunities that would be made available only if the investment were made. Like the ante in a poker game, the investment may promise no return other than the opportunity to look at the cards being dealt, at which point one can either fold or "exercise the option" by making additional investments in an attempt to win the pot. To realize future value here new investments are not necessarily required to "exercise the options" - ownership is enough. In the case of renewable energy systems in general, there are primarily two opportunities, or options, which may have future value: Property value appreciation, and Renewable energy certificates (RECs or SRECs):

Renewable Energy and/or Carbon Credits or Certificate (REC or SREC): Renewable Energy Certificates (sometimes called "solar renewable energy credits/certificates" - SRECs, S-RECs, or simply RECs) are a new and evolving method to ascribe future financial value to a renewable energy system. RECs represent the bundle of legal rights to the "green" part of each unit of energy produced by a renewable energy system. This green part can be sold for a value, which generates additional revenue for the seller. These certificates can be sold and traded or bartered and the owner of the REC can claim to have purchased renewable energy.



FULL SPECTRUM S O L A R

Utility Energy Summary: Electric

Electric Utility Rates

Current Rate

Fixed Price per unit \$0.1140/kWh
Average Cost: \$0.114 per kWh
Tiered Rate: No
Time-of-Use Rate: No
Demand Charges: No

Post Project Rate

Fixed Price per unit
Average Cost: \$0.114 per kWh
Tiered Rate: No
Time-of-Use Rate: No
Demand Charges: No

Summary of Utility & New Source Electricity

Electric by Month (kWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<u>Entered into Software (historical)</u>													
Monthly Use	4,800	4,160	4,000	4,120	4,360	4,240	4,440	3,880	4,080	4,280	4,040	4,680	51,080
Historical Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<u>Estimated by Software at Current Rates</u>													
Estimated Use	4,800	4,160	4,000	4,120	4,360	4,240	4,440	3,880	4,080	4,280	4,040	4,680	51,080
Current Cost	\$547	\$474	\$458	\$470	\$497	\$483	\$508	\$442	\$465	\$488	\$461	\$534	\$5,823
PV Production	(2,198)	(2,607)	(3,493)	(4,069)	(4,894)	(5,069)	(4,995)	(4,521)	(3,494)	(2,637)	(1,768)	(1,767)	
Post Project Use	2,602	1,553	507	51	(534)	(829)	(555)	(641)	586	1,643	2,272	2,913	9,568
Post Project Cost	\$297	\$177	\$58	\$6	\$0	\$0	\$0	\$0	\$0	\$0	\$221	\$332	\$1,091
Production Self-Consumption Percent:	36%	29%	24%	25%	23%	23%	24%	21%	26%	31%	38%	43%	
<u>Net-Meter Credit Values: Amounts Accrued and Applied to Post-Project Cost</u>													
Value Accrued in Month at Utility Retail Rate:													
	\$0	\$0	\$0	\$0	\$(61)	\$(95)	\$(63)	\$(73)	\$0	\$0	\$0	\$0	\$(292)
Value Applied	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$(67)	\$(187)	\$(38)	\$0	\$(292)

Minimum monthly meter fees may apply and are not included in this analysis.

Cash Flow Details for the System

Cash Flows in Year	0	1	2	3	4
Gross Cost: PV	(83,802)				
<u>Reference:</u> Utility Bill Savings with Inflation Applied	0	4,874	5,016	5,161	5,311
Utility Bill Net Cash Savings after Tax Effects	0	3,266	3,361	3,458	3,558
<u>Solar Electric (PV) Incentives</u>					
Estimated Focus on Energy - 2020 Business PV Incentive	4,000	0	0	0	0
Total Incentives	4,000	0	0	0	0
Federal MACRS Bonus Depreciation Tax Savings	0	22,345	0	0	0
State Straight Line Depreciation Tax Savings	0	166	332	332	332
Net Annual Cash Flow	(79,802)	25,777	3,693	3,790	3,890
Cumulative Cash Flow	(79,802)	(54,025)	(50,332)	(46,542)	(42,652)

Net Annual Cash Flow is the sum of values in gray lines.

Cash Flows in Year	5	6	7	8	9
<u>Reference:</u> Utility Bill Savings with Inflation Applied	5,465	5,624	5,787	5,955	6,128
Utility Bill Net Cash Savings after Tax Effects	3,662	3,768	3,877	3,990	4,106
State Straight Line Depreciation Tax Savings	332	332	332	332	332
Net Annual Cash Flow	3,994	4,100	4,209	4,322	4,438
Cumulative Cash Flow	(38,658)	(34,558)	(30,349)	(26,027)	(21,589)
Cash Flows in Year	10	11	12	13	14
<u>Reference:</u> Utility Bill Savings with Inflation Applied	6,306	6,488	6,677	6,871	7,071
Utility Bill Net Cash Savings after Tax Effects	4,225	4,347	4,474	4,604	4,738
State Straight Line Depreciation Tax Savings	332	332	332	166	0
Net Annual Cash Flow	4,557	4,679	4,806	4,770	4,738
Cumulative Cash Flow	(17,032)	(12,353)	(7,547)	(2,777)	1,961
Cash Flows in Year	15	16	17	18	19
<u>Reference:</u> Utility Bill Savings with Inflation Applied	7,276	7,487	7,704	7,927	8,158
Utility Bill Net Cash Savings after Tax Effects	4,875	5,016	5,162	5,311	5,466
Net Annual Cash Flow	4,875	5,016	5,162	5,311	5,466
Cumulative Cash Flow	6,836	11,852	17,014	22,325	27,791
Cash Flows in Year	20	21	22	23	24
O&M Cost: PV	(21,855)	0	0	0	0
<u>Reference:</u> Utility Bill Savings with Inflation Applied	8,394	8,637	8,888	9,146	9,412
Utility Bill Net Cash Savings after Tax Effects	5,624	5,787	5,955	6,128	6,306
Tax Savings from O&M Expense Deduction	7,212	0	0	0	0
Net Annual Cash Flow	(9,019)	5,787	5,955	6,128	6,306
Cumulative Cash Flow	18,772	24,559	30,514	36,642	42,948



Cash Flow Details for the System

Cash Flows in Year	25	26	27	28	29
<u>Reference:</u> Utility Bill Savings with Inflation Applied	9,685	9,966	10,256	10,553	10,858
Utility Bill Net Cash Savings after Tax Effects	6,489	6,677	6,872	7,071	7,275
Net Annual Cash Flow	6,489	6,677	6,872	7,071	7,275
Cumulative Cash Flow	49,437	56,114	62,986	70,057	77,332
Cash Flows in Year	30	31	32	33	34
<u>Reference:</u> Utility Bill Savings with Inflation Applied	11,174	0	0	0	0
Utility Bill Net Cash Savings after Tax Effects	7,487	0	0	0	0
Net Annual Cash Flow	7,487	0	0	0	0
Cumulative Cash Flow	84,819	0	0	0	0



Renewable Resources

The following renewable resource assumptions were used to develop estimates for the project location. These are typical values based upon observed data over several decades. Actual values (and system performance) will vary from month to month, and from year to year, in accordance to weather and climate pattern changes.

Weather station referenced: "MADISON DANE CO REGIONAL ARPT [ISIS]" (Wisconsin)

Solar Resources: Flat-Plate, South-facing Tilted at Latitude

Month	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
kWh/m ² /day	3.225	3.884	4.263	4.835	5.416	5.662	5.574	5.372	4.822	3.84	2.828	2.682

Proposal #: _____

Date Customer Signed Contract: _____

Note: You are entitled to a completely filled in copy of this Contract, signed by both you and Contractor, before any work may be started.

SOLAR SYSTEM INSTALLATION AGREEMENT

This Solar System Installation Agreement ("**Contract**") is effective as the latest date referenced on the signature line below ("**Effective Date**") by and between Next Energy, LLC dba Full Spectrum Solar_ ("**Contractor**"), a Wisconsin limited liability company, with its principal place of business located at 1240 East Washington Street, Madison, WI 53703 and _____ ("**Customer**"). Contractor and Customer are occasionally referred to herein individually as a "**Party**" and collectively as the "**Parties**."

- 1. Estimated Description of the Project, the Significant Materials to be Used and the Equipment to be Installed.** Contractor will furnish all work, labor, tools, equipment, materials, supervision, scheduling, coordination, and contract administration necessary to complete in a good and workmanlike manner the following: a _____ kW solar power generating facility and related equipment ("**Solar System**") as more particularly described in Attachment A to this Contract (the "Scope of Work"). Contractor's scope of work does not include any of the items on the "**List of Work Exclusions**" in Attachment B unless any such item(s) is explicitly listed in the Scope of Work. This Contract shall be controlling over the Scope of Work except that the Scope of Work shall control over the "**List of Work Exclusions**." Customer understands that the actual availability and cost of the equipment described in the Scope of Work may depend upon circumstances beyond Contractor's control, including among other things tariffs and supply shortages. Customer agrees that Contractor is authorized to substitute equipment of comparable function and quality so long as such substitution does not increase the Contract price. If such substitution would increase the Contract price, Contractor shall obtain a Change Order from Customer approving the substitution.
- 2. Work Site.** The following is the address of the location where the work by Contractor is to be performed: _____, Such location, together with all structures located there is referred to as (the "**Property**").
- 3. Contract Price.** Customer will pay Contractor the sum of \$_____ for the work to be performed under this Contract, subject to additions and deductions pursuant to any Change Order agreed upon in writing by the Parties.
- 4. Down Payment.** \$_____ is due at signing of this Contract.
- 5. Finance Charge.** Interest shall accrue on any past due balance owed at the rate of 1.5% per month (or the highest rate not prohibited by law, whichever is lower) beginning on the 30th day after receipt of the invoice by Customer. This remedy shall be in addition to, and not exclusive of, any other remedy available under this Contract or applicable law.
- 6. Schedule of Progress Payments.** Customer shall pay Contractor according to the schedule set forth in Attachment C to this Contract.
- 7. Security Interest in Financed Equipment.** Customer agrees the Contractor has a security interest in all equipment and other materials included in the Solar System to secure amounts due and payable under this Contract and that Contractor has the right to file a UCC-1 covering the Solar System to give public notice of its security interest. Such security interest shall automatically terminate upon Customer's payment in full of all amounts due under this Contract.
- 8. Notice of Right to Lien for Nonpayment.** As required by the Wisconsin construction lien law, Contractor hereby notifies Customer that persons or companies performing, furnishing, or procuring labor, services, materials, plans, or

specifications for the construction on Customer's land may have lien rights on Customer's land and buildings if not paid. Those entitled to lien rights, in addition to the undersigned Contractor, are those who contract directly with Customer or those who give Customer notice within 60 days after they first perform, furnish, or procure labor, services, materials, plans or specifications for the construction. Accordingly, Customer probably will receive notices from those who perform, furnish, or procure labor, services, materials, plans, or specifications for the construction, and should give a copy of each notice received to the mortgage lender, if any. Contractor agrees to cooperate with Customer and Customer's lender, if any, to see that all potential lien claimants are duly paid".

9. **Payment:** Payment to Contractor may be made by cash, check or wire transfer. If, subsequent to the execution of this Contract, a change occurs to any law, ordinance, rule, or regulation which materially affects Contractor's work, then Contractor shall notify Customer in writing of such change and Contractor will be entitled to an equitable adjustment in the Contract Price and the date of Substantial Completion.
10. **Financial Assurances:** Prior to commencement of work, and at each stage anticipated thereafter, Contractor shall have the right to request reasonable assurances that Customer can fulfill its financial obligations hereunder. If the evidence of financial arrangements is not satisfactory to Contractor, then Contractor may stop work hereunder until such financial assurance is provided or may terminate this Contract with written notice to Customer and Contractor will be entitled to any unrecoverable costs in the event of this termination.
11. **Approximate Project Start and Completion Dates.** The work to be performed under this Contract shall be commenced on approximately _____ as long as any agreed upon funds are paid to Contractor. The work shall be Substantially Completed by approximately _____, subject to permissible delays as defined in this Contract. For purposes of this Contract, the work will be "**Substantially Completed**" when all construction work is completed so the Solar System can be beneficially used for its intended purpose. Customer understands that on-site work cannot begin until after utility approval of the interconnection application for the Solar System. Customer further understands that achieving substantial completion of the Solar System, so it can be used for its intended purpose, depends upon a number of circumstances beyond Contractor's control. While Contractor intends to pursue the work in a commercially reasonable manner, Customer understands and acknowledges that, unless expressly stated otherwise in this Contract, any commencement dates and completion dates provided by Contractor are only estimates and subject to change based upon actual circumstances, including without limitation, Permissible Delays described in Section 12, availability of materials and labor, approval and inspection by third parties, Contractor's workload and other circumstances that may affect Contractor's scheduling and ability to commence and complete the work described in this Contract
12. **Permissible Delays.** Notwithstanding the foregoing, Contractor shall be excused from any delay in the commencement and completion of the Work to be performed under this Contract due to acts or omissions of Customer or of Customer's agents, employees or independent contractors, actions or omissions of governmental agencies (including the denial or cancellation of any necessary license or permit for the project), changes required to the project due to unanticipated circumstances, latent physical conditions at the Property, Customer's requests, Customer's failure to make progress payments promptly, and all causes beyond Contractor's reasonable control, including, but not limited to, acts of God, fires, weather-related delays, government restrictions, material shortages, embargoes, labor disputes, or acts of war.
13. **Labor and Material.** Contractor shall pay all valid charges for labor and material furnished by Contractor or its subcontractors and used in the construction of the project, but is excused from this obligation to the extent that Customer may be in arrears in making progress payments to Contractor.
14. **Customer's Responsibilities and Representations.**
 - 14.1. **Installation.** Customer is responsible for making the Property ready and in the condition Contractor used to create the Proposal. During Installation, Customer shall not move, remove, modify, alter, or change in any way the equipment or any part thereof without the prior written approval of Contractor. Notwithstanding the foregoing, Customer shall take reasonable steps to protect the Solar System from damage or injury if, due to an emergency, it is not possible or reasonable to notify Contractor before taking any such actions.
 - 14.2. **Unanticipated Work; Right to Terminate .** Customer is solely responsible for the coordination and expense of any unanticipated work during installation due to subsurface or unknown physical conditions that differ from those described in the Proposal or this Contract. If any unanticipated work is required, including, but

not limited to unanticipated approval requirements imposed upon Contractor by the local government or interconnecting utility. Customer agrees to pay Contractor for the cost of any work outside the Scope of Work and Contractor will prepare a change order to address the cost of the unanticipated work. If Contractor concludes that unanticipated work will make it unlikely for the Solar System to obtain any third party approval or pass any third party inspection necessary to interconnect the Solar System or place it in service, Contractor shall have the right to terminate this Contract upon notice to Customer, without liability or further obligation to Customer.

14.3. Tree Removal; Snow Removal; Cleaning of Panels. If necessary or desired to improve the performance of the PV System, tree removal, tree trimming, snow removal and cleaning of solar panels are the sole responsibility of the Customer.

14.4. Pre-Existing Conditions. Customer acknowledges that proper operation of the equipment purchased hereunder may be dependent upon Customer's existing equipment and Contractor shall have no liability for equipment not purchased hereunder. While Contractor will exercise all due care, Contractor will not be responsible for pre-existing conditions of any roof or for damages or problems arising from such pre-existing conditions which may be aggravated by normal material handling procedures on the roof.

14.5. Access to Work. Customer shall grant free access to work areas for workmen and vehicles, for utility and governmental employees who may be required to inspect the Solar System or Property and shall allow areas for storage of materials and rubbish. Customer agrees to keep driveways clear and available for movement and parking of trucks during normal work hours. Contractor and workmen shall not be expected to keep gates closed for animals or children, or provide work area security. Customer shall be responsible for keeping the work area free of animals and children.

14.6. Good Faith Cooperation. Customer shall, at all times, cooperate in good faith with Contractor to facilitate Contractor's performance of the work. Such cooperation includes, without limitation, promptly responding to Contractor requests for information and review of documents relating to the work, signing any documents needed for Contractor to perform the work, such as applications for incentives and interconnection, and generally acting in a manner that promotes, rather than impedes Contractor's performance and completion of the work.

15. Inspections, Building Department and Engineering Requirements. Contractor will coordinate and attend local building department inspections as needed. Customer is expected to be at the final utility inspection if requested by the utility company.

16. List of Documents to Be Incorporated into the Contract.

16.1. Drawings, Specifications, Permits, and Fees. The work to be performed hereunder will be constructed according to the Proposal, drawings, specifications and other documents, created by Contractor for the project. Contractor will obtain and pay for all required building permits for the work. Contractor will not charge Customer any costs for its own labor in obtaining those permits. All drawings and specifications are intended to supplement one another and are incorporated by reference to this Contract. In the event of a conflict, however, the specifications shall control the drawings, and this Contract shall control both.

16.2. Notice About Extra Work and Change Orders. Extra work and change orders ("**Change Orders**") become part of the Contract once an order is prepared in writing and signed by the Parties prior to the commencement of any work covered by the Change Order. The Change Order must describe the scope of the extra work or change, the cost to be added or subtracted from the Contract, and the effect the order will have on the schedule of progress payments. Customer may not require Contractor to perform extra or Change Order work without providing written authorization prior to the commencement of work covered by the new Change Order. Contractor's failure to comply with the Change Order process does not preclude recovery of compensation for work performed based upon legal or equitable remedies designed to prevent unjust enrichment. If installation is delayed by more than thirty (30) days once work has commenced due to acts or omissions of Customer, Contractor will have the option to require a Change Order is executed to account for any additional costs or changes to the construction schedules or may in its sole discretion cancel this Contract. As the solar industry is dependent on suppliers' manufacturing capacity and deliveries to the United States at the time immediately prior to installation, minor variations in parts due to substitutions of like product will result in invoices being

adjusted accordingly. For purposes of this Contract, the term "like product" means products of like quality and price-performance to the equipment specified.

16.3. Attachments. The following are incorporated by reference to this Contract: Scope of Work, List of Work Exclusions and Payment Schedule.]

17. Insurance Coverage. Contractor carries workers compensation insurance as required by law and commercial general liability insurance. Upon request by Customer, Contractor shall provide Customer with a certificate of insurance verifying such coverage. Owner shall carry commercial liability insurance in amounts sufficient for Customer and the Solar System to satisfy any requirements relating to incentives, approvals, inspections, interconnection and any other requirement applicable to Customer and/or the Solar System.

18. Title to Equipment and Right to Remove. Title to the equipment and materials supplied by Contractor will remain with Contractor and not pass to Customer until all sums due Contractor have been paid. Contractor may, at its option, remove any portion of materials equivalent in value to any payment required hereunder and not paid within sixty (60) days after receipt of proper invoices thereunder without limiting Contractor's rights herein.

19. Risk of Loss. Customer shall assume the risk of loss for all materials and equipment which are to be included in Contractor's work hereunder at such time as the materials and equipment are installed at the Property.

20. Cleanup. Contractor shall keep the project free from accumulation of debris, waste materials, or rubbish caused by its operations. On completion of the work, Contractor will remove all debris, waste materials, rubbish, and surplus material from Customer's property and will thoroughly clean the project, leaving it in a neat and broom-clean condition.

21. Limited Warranty.

21.1. Limited Warranty – Repair or Replacement. Contractor warrants the Solar System against defective workmanship for a period of five (5) years after Substantial Completion. This warranty covers the Solar System as a whole only and provides for no-cost repair or replacement of any defective work performed by Contractor. Contractor shall also assign any assignable manufacturer's warranties for the equipment in the Solar System to Customer and make available to Customer all warranty documents relative to the equipment and materials incorporated in the Solar System as provided by the applicable manufacturers. Any claims arising from those materials are excluded from Contractor's warranty obligations. This limited warranty does not warrant a specific power output, which is exclusively covered under the module manufacturer warranty. Contractor does not make any promises or guarantees about any return-on-investment variables related to the Solar System, including but not limited to, issues related to utility rate increases, home resale value, maintenance costs, performance degradation, home energy needs, and Solar System output.

21.2. Exclusions. This limited warranty excludes the following: (i) failure to properly operate or maintain the Solar System in accordance with printed instructions provided with the Solar System; (ii) any repair or replacement using a part or service not provided or authorized in writing by Contractor; (iii) damages caused by, in Contractor's judgment, Customer or third party abuse, accident, alteration, improper maintenance or installation, pre-existing roof conditions, removal by anyone other than an Contractor or authorized Contractor representative, misuse, negligence or vandalism, riots, animal damage, or environmental pollution such as soot, salt damage, or acid rain, or earthquake, fire, flood, extreme weather conditions such as high wind or frozen water buildup, or other acts of God or other unforeseen conditions that are beyond Contractor's control; (iv) solar systems with the type or serial number(s) altered, removed, or illegible; and (v) cosmetic defects, such as discoloration or scratches, caused by normal wear and tear.

22. Limitation of Warranty; No Consequential Damages. THE WARRANTIES SET FORTH IN SECTION 21 ABOVE ARE THE ONLY WARRANTIES APPLICABLE TO THIS CONTRACT, THE SOLAR SYSTEM AND WORK PERFORMED HEREUNDER. CONTRACTOR HEREBY EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, USE OR APPLICATION, AND ALL OTHER OBLIGATIONS OR LIABILITIES. IN NO EVENT SHALL CUSTOMER OR CONTRACTOR BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, LOSS OF USE, LOSS OF PROFITS, LOSS OF PRODUCTION, OR LOSS OF REVENUES FOR ANY REASON WHATSOEVER.

23. LIMITATION OF LIABILITY. CONTRACTOR'S SOLE LIABILITY, AND CUSTOMER'S SOLE REMEDY, WITH RESPECT TO ANY WORK AND MATERIALS THAT BREACH CONTRACTOR'S OBLIGATIONS UNDER THIS CONTRACT SHALL BE FOR CONTRACTOR TO REPAIR, REPLACE OR RE-PERFORM THE DEFECTIVE OR NONCONFORMING WORK.

24. Notice. All notices and other communications permitted or required to be given hereunder shall be delivered or sent by e-mail, facsimile, nationally-recognized courier service, registered or certified mail, return receipt requested, addressed to the Party at the address set forth below, or to such other address as such Party may designate in writing to the other:

If to Contractor: Next Energy LLC dba Full Spectrum Solar
 1240 E. Washington Avenue
 Madison, WI 53703
 Email:
 Attention: _____

If to Customer: _____

 Attention: _____

Any such notice shall be deemed to have been given upon the earlier of receipt, the date of delivery for e-mail, one (1) business day following delivery to such nationally-recognized courier service, when sent by confirmed facsimile, if sent during normal business hours of the recipient, if not so confirmed, then on the next business day, or three (3) business days following mailing by registered or certified mail.

25. Assignment; Third-Party Beneficiaries. Customer may not transfer or assign this Contract and its rights and obligations herein to a successor or purchaser of the Property or an interest therein. There are no third-party beneficiaries to this Contract. Nothing in this Contract shall create a contractual relationship with or a cause of action in favor of a third-party against either Party. Notwithstanding the above, (i) Contractor may assign this Contract without notice to or consent of Customer in the event of a merger, reorganization, consolidation or sale of all or substantially all of Contractor's assets, and (ii) if all or any of this Contract is to be financed through a financial institution, Customer may assign its rights hereunder to such institutions. Customer and Contractor will make, execute and deliver all forms reasonably required by a lender for such purposes.

26. Indemnity. To the fullest extent permitted by law, each Party ("**Indemnifying Party**") shall indemnify, defend and hold harmless the other Party, and its officers, directors, shareholders, employees and agents (each, an "**Indemnified Party**"), from and against all third party claims, loss, cost, liability, claims and expenses, including but not limited to, attorneys' fees and disbursements, to the extent arising out of or resulting from the actions or omissions of Indemnifying Party and its agents, guests and family members which are negligent, wrongful or in breach of this Contract. The foregoing shall not be limited to or by any insurance coverage which may be in force or required to be in force.

27. Default. Either of the following occurrences or events, by or against Contractor and by or against Customer, shall constitute a default under this Contract: (a) a material breach of any of the terms, conditions, representations, warranties, or guarantees expressed in this Contract; or (b) filing of a voluntary petition in bankruptcy or confession of insolvency. In the event that a Party is in default of this Contract, and fails to cure such default thirty (30) days following receipt of written notice from the non-defaulting Party that an event of default has occurred, then this Contract may be terminated by the non-defaulting Party.

28. Costs; Attorneys' Fees. If the Contract Price is not paid when due, Customer shall pay all costs of collection, including reasonable attorneys' fees. The prevailing Party (which shall refer solely to the prevailing party as set forth in any final judgement or final award rendered in such legal proceeding) in any legal action or arbitration proceeding related to this Contract shall be entitled to receive from the other Party, in addition to any other relief that may be granted, their reasonable attorneys' fees, costs, and expenses incurred in the action or proceeding.

29. **Governing Law.** This Contract shall be governed by and interpreted in accordance with the laws of the State of Wisconsin.

30. **Dispute Resolution; Good Faith Negotiation & Arbitration.** In the event of any controversy or claim arising out of or relating to this Contract, or breach thereof, Contractor and Customer shall first attempt to resolve it by good faith negotiation between authorized representatives of Contractor and Customer, meeting in person to discuss the issues in dispute within 10 business days after either party provides written notice to the other of such dispute. If the good faith negotiation does not result in settlement of the dispute within 30 days after such meeting, then any unresolved controversy or claim arising out of or relating to this Contract or breach thereof shall be settled by arbitration administered by the American Arbitration Association in accordance with the applicable version of its Construction Arbitration Rules and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. Unless the parties expressly agree otherwise, the place of good faith negotiation and arbitration shall be Madison, Wisconsin.

BECAUSE WE HAVE AGREED TO ARBITRATE ALL DISPUTES, NEITHER OF US WILL HAVE THE RIGHT TO LITIGATE OUR DISPUTES IN COURT OR TO HAVE A JURY TRIAL ON THAT DISPUTE, OR ENGAGE IN DISCOVERY EXCEPT AS PROVIDED FOR IN THE ARBITRATION PROCEEDING. THE ARBITRATOR'S DECISION WILL BE FINAL AND BINDING, EXCEPT TO THE EXTENT IT IS SUBJECT TO REVIEW IN ACCORDANCE WITH APPLICABLE LAW GOVERNING ARBITRATION AWARDS.

31. **Complete Agreement.** This Contract constitutes the entire agreement of the Parties. No other agreements, oral or written, pertaining to the work to be performed under this Contract exist between the Parties. This Contract can be modified only by an agreement in writing signed by both Parties.

32. **Severability.** If any provision of this Contract shall be determined to be unenforceable, void or otherwise contrary to applicable law, or in the event that any of the provisions of this Contract are held unenforceable or invalid by any court of competent jurisdiction, such condition shall in no manner operate to render any other provision of this Contract unenforceable, invalid, void or contrary to applicable law, and this Contract shall continue in force in accordance with the remaining terms and provisions hereof.

INTENDING TO BE LEGALLY BOUND, the Parties are executing this Contract through their legally authorized representative on the date stated below.

_____(Contractor):

Customer(s) _____:

Dated: _____

Dated: _____

By: _____

Print: _____

Sign: _____

Sign: _____

ATTACHMENT A

SCOPE OF WORK

[See Attached]

ATTACHMENT B

LIST OF WORK EXCLUSIONS

Unless specified to the contrary in the Proposal or a Change Order, the services, activities and work set forth below are excluded from the scope of work required by Contractor pursuant to the Contract:

1. Remove, remediate or dispose of any hazardous substances that exist on the Property;
2. Improve the construction of the roof or the Property to support the Solar System;
3. Remove or replace existing rot, rust, or insect infested structures;
4. Provide structural framing for any part of the Property;
5. Pay for or correct construction errors, omissions, and deficiencies by the Customer or contractors hired by the Customer;
6. Pay for, remove, or remediate mold, fungus, mildew, or organic pathogens;
7. Upgrade the Property's existing electrical service;
8. Installation of any smoke detectors, sprinklers, or life safety equipment required by municipal code or inspectors as a result of the Solar System installation;
9. Pay for the removal or re-location of equipment, obstacles or vegetation in the vicinity of the Solar System;
10. Move items unassociated with the Solar System around the Property;
11. Pay for any costs associated with municipal design or architectural review, or other specialty permits, including cost to attend any public hearings, notification of neighbors, or additional drawings required;
12. Paint electrical boxes or conduit at the Property;
13. Pay for compliance with changes in regulations of codes that materially change the scope of work for the Solar System;
14. Repair of damage to roadways, sidewalks, or driveways that may occur when construction equipment and vehicles are being used in the normal course of construction unless such damage is caused by the negligence of Contractor; and
15. Structural engineering review and soil analysis.

Attachment C
Payment Schedule

Contract Price. Customer will pay Contractor the sum of \$_____ for the work to be performed under this Contract, subject to additions and deductions pursuant to any Change Order agreed upon in writing by the Parties.

Down Payment. \$_____ is due at signing of this Contract.

Schedule of Progress Payments. Following execution of the Contract and payment of the Down Payment, Customer shall pay Contractor according to the schedule below:

[INSERT PAYMENT SCHEDULE HERE]

Commercial Solar Electric References

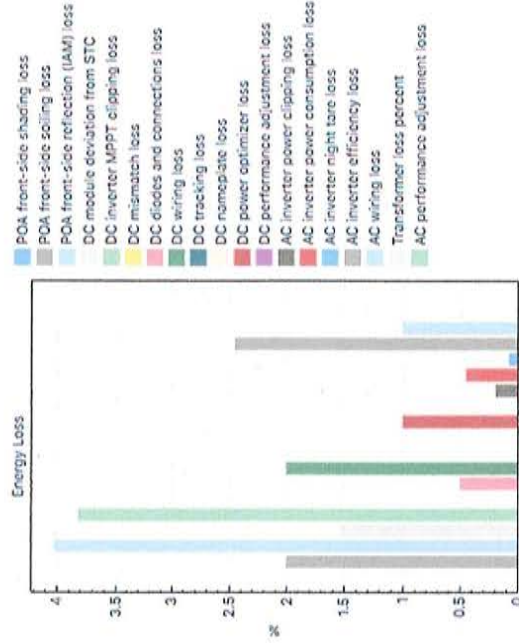
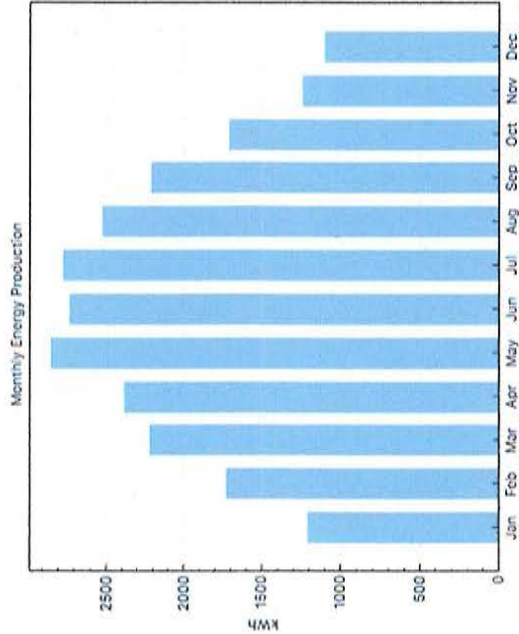
Below is just a small sampling of the hundreds of satisfied Full Spectrum Solar customers. Quality, communication, and timeliness are our strengths, as our customers will attest. More references are available upon request.

Reference	System Description
Aaron Kostichka Vice President, LEED AP McGann Construction 3622 Lexington Ave. Madison, WI 53714 608-241-5585	Full Spectrum Solar designed and installed: • Two 20 kW systems for Porchlight in 2017 • Three photovoltaic and nine solar thermal systems for Troy Gardens Co-Housing Community in 2006 • 400SF solar thermal system at Yahara River Apartments in 2003 • 20 kW photovoltaic system at Nakoosa Trail Apartments in 2012 • 71 kW photovoltaic system on a Middleton apartment building in 2015
Kay Schindel Energy Engineer City of Madison Engineering Division 1600 Emil Street Madison, WI 53713 608-266-4668	Full Spectrum Solar designed and installed a 4.2 kW awning-mounted photovoltaic system and a 19.11 kW roof mounted photovoltaic system on the City of Madison Engineering Building. We have also installed several solar water heating systems for the City.
Rich Arneson Vice President Stone House Development 625 N. Segoe Rd., Suite 107 Madison, WI 53705 608-251-6000	Full Spectrum Solar designed and installed photovoltaic systems at five of Stone House Development's properties: • 47.6 kW – Arbor Crossing Apartments, 2013 • 19.9 kW – The Overlook at Hilldale, 2011 • 19.7 kW – The Overlook at Midtown, 2011 • 29.9 kW – City Row Apartments, 2010 • 9.9 kW – Park Central Apartments, 2008
Svein Morner, Ph.D, P.E Sustainable Engineering Group 7475 Hubbard Ave. #201 Middleton, WI 53562 608-836-4488	Full Spectrum Solar designed and installed a 20 kW photovoltaic system for Sustainable Engineering Group's office in 2015. We have worked with SEG on other projects, including the Fort Atkinson and Oregon schools.
Brad Hinkfus Porchlight, Inc. 306 N. Brook Street Madison, WI 53715 608-257-2534	Full Spectrum Solar designed and installed a 20 kW photovoltaic system on Porchlight's Safe Haven housing in Madison in 2012 and a 6.1 kW photovoltaic system and a 200 square foot Heliodyne solar water heat on their Fitchburg transitional housing in 2006.
Pastor Susan Schneider Trinity Lutheran Church 1904 Winnebago St. Madison, WI 53704 608-249-8527	Full Spectrum Solar designed and installed a 20 kW photovoltaic system for Trinity Lutheran church in 2015. Full Spectrum Solar's owners financed the system through an innovative third-party ownership agreement. The church has significantly reduced its electricity costs through this arrangement.

Reference	System Description
Andrew Weiland Business Manager Oregon School District 6011 Pleasant Oak Dr. Oregon, WI 53575 608-729-5958	Full Spectrum Solar designed and installed a 60 kW photovoltaic system for Oregon Middle School in 2015, a 34 kW system for Brooklyn Elementary in spring 2016, and a 135 kW system for Oregon Middle School in 2017.

14.4KW AC Inverter Output Simulation NREL System Advisor Model Output

Metric	Value
Annual energy (year 1)	24,596 kWh
Capacity factor (year 1)	15.1%
Energy yield (year 1)	1,320 kWh/kW
Performance ratio (year 1)	0.82





FULL SPECTRUM SOLAR

Next Energy, LLC

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Installation & Repair – Residential & Commercial – New Construction & Retrofit – Solar Electric & Solar Thermal

FIVE-YEAR WORKMANSHIP WARRANTY ON INSTALLED PHOTOVOLTAIC SYSTEMS

SCOPE OF COVERAGE

This warranty applies to complete photovoltaic systems designed and installed by FULL SPECTRUM SOLAR (hereinafter F.S.S.). It extends to the original owner and any subsequent owners or lessees.

WARRANTY

F.S.S. warrants its installation against any defects in labor and workmanship under normal use and service for a period of five (5) years from the date of completed system installation.

Any defect caused by labor or workmanship performed by F.S.S. will be corrected, repaired, or replaced by F.S.S. without charge to the customer during the first five (5) years of system operation. This service will occur within a reasonable amount of time when such defects become evident.

F.S.S. will provide field inspection of warranted items to verify failure, establish probable cause, and determine the corrective action required within a reasonable time, at no charge to the owner, when such failure is reported.

EXCLUSIONS

The above warranty does not apply to the following conditions:

1. Defects in system components and materials, and labor to correct, repair, or replace these defective components and materials. These components will be covered by the corresponding manufacturers' limited warranties, which will vary in length and terms of coverage. These components include, but are not limited to: solar modules, inverters, and other electrical equipment.
2. Those conditions resulting from a defect in a component that is not part of the products installed by F.S.S.
3. Damage of any sort or nature resulting from abuse, misuse, neglect, vandalism, accidents or fire, Force Majeure Events, utility power spikes, or other causes beyond the control of F.S.S.
4. Normal fading and minor deterioration of exterior surfaces due to exposure to the elements.
5. Conditions resulting from repair or alteration by anyone other than the original equipment manufacturer or person duly authorized by F.S.S. for such repair or alteration. This includes, but is not limited to, conditions relating to: disconnecting or moving modules, and service or adjustments to electrical equipment.
6. F.S.S. makes no warranty as to the performance of the system as this depends upon weather variables, which are impossible to predict or control.
7. F.S.S. shall not be liable for consequential damages (such as damage to your home, loss of time, inconvenience, loss of energy offset by the system, or loss of use of the product) or any incidental expenses resulting from any breach of the above expressed warranty.

RIGHT TO ARBITRATION

Any dispute between the buyer and F.S.S. pertaining to this warranty may at the option of the buyer be resolved by arbitration according to the rules of the American Arbitration Association or by mediation.



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, May 12, 2020

SECTION: Business

DEPARTMENT: Public Works

CONTACT:

AGENDA ITEM: Presentation of the Public Works Monthly Report from the Director.

PREVIOUS ACTION:

ISSUE SUMMARY:

FINANCIAL/BUDGET IMPACT:

VILLAGE PLAN REFERENCE:

ORDINANCE REFERENCE:

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

ATTACHMENTS:

1. April 2020 Public Works Directors report

PUBLIC WORKS COMMITTEE

May 12, 2020

PUBLIC UTILITIES COMMITTEE

May 19, 2020

Public Works Directors Report

for

April 2020

The following is information concerning events and activities of the Public Works Department along with the Water and Sewer Utilities for the previous month. This information is provided in brief to provide an overview of the highlights.

New Hire

The Department of Public Works is pleased to announce Lee Igl as the new Public Works Superintendent. Lee comes to us from the City of Sun Prairie where he served as their Director of Public Works. His first day was April 6th. Welcome Lee.

Platooning of Staff

Staff continues to work in platoons. Only essential services are being provided. Daily water testing and sewer pump checks are being performed. We are also performing the required monthly sampling requirements for the water utility.

Hydrant Flushing

Staff started village wide hydrant flushing. This is expected to last about two weeks depending on daily tasks with a limited staff.

Meetings/Training/Seminars

All meetings were held by electronic means this month.

Igl, Larson, Irwin & Hessling participated in a Public Works Spring Safety Webinar

Igl & Hessling participated in the Winter Salt Certification Training for Parking Lots and Sidewalks

Hessling participated in the following meetings:

COVID-19 Implications to Operations, Compliance & Training (waterworks based)

APWA monthly board meeting via teleconference