

Install Solar Array, Hangar LAASF Readiness Center Jefferson City, Missouri



OWNER: STATE OF MISSOURI
MICHAEL L. KEHOE,
GOVERNOR

MECHANICAL, ELECTRICAL AND PLUMBING DESIGN

DESIGNER: MIDWEST ENGINEERING AND DESIGN
3100 BROWN STATION RD, SUITE C
COLUMBIA, MISSOURI 65202

PROJECT NUMBER: T2338-01

PROJECT OFFICE OF ADMINISTRATION
MANAGEMENT: DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

SITE NUMBER: 6298
ASSET NUMBER: 8136298008

SHEET NUMBER:

G-001

1 OF 18 SHEETS
07-22-2025

FOR
INFORMATION
PURPOSES
ONLY

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& Design**
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Midwest Engineering & Design
Missouri State Certificate of Authority #2010032467

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

MISSOURI
NATIONAL
GUARD

INSTALL SOLAR ARRAY

HANGER LAASF
READINESS CENTER

1225 Cooper Dr.
JEFFERSON CITY, MO 65101

PROJECT # T2338-01
SITE # 6298
ASSET # 8136298008

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 07/22/2025

CAD DWG FILE: SARC-e.dwg
DRAWN BY: JJS
CHECKED BY: JLD
DESIGNED BY: JLD

SHEET TITLE:
STRUCTURAL
REPORT -
INFORMATIONAL
ONLY

SHEET NUMBER:

S-101

3 OF 18 SHEETS
2025-07-22

Engineering Our Community

June 28, 2024

Mr. Jim Dove
Midwest Engineering and Design
3100 Brown Station Rd
Columbia, Missouri 65202

Re: Support Solar Array
Army Aviation
1225 Cooper Dr
Jefferson City, MO 65101

Dear Mr. Dove:

Per your request, the roof framing for the aforementioned building was analyzed to determine the load carrying capacity of the existing roof system. A site visit was conducted on April 26th, 2024, to field verify that the structural elements and framing layout shown on the 1981 existing structural drawings provided by you were accurate.

The analysis was completed for the following loads.

- A. Loads
- i. Roof dead load = 15 psf
 - ii. Snow load
 - i. Ground snow load, Pg = 20 psf
 - ii. Balanced snow load, Pb = 16.9 psf
 - iii. Drifting at parapets (in addition to Pb)
 - 1. Drift load, Pd = 32.9 psf
 - Drift width, Wd = 16.9 ft

Upon completion of the analysis, it was determined that the roof structure has an available capacity of 13 psf. Note that due to snow drift at the parapets, all solar array systems shall be located a minimum of 15.5' away from the parapet at all four sides of the building. See the attached partial roof framing plan labeled "A".

It is understood that the building will be getting a new roof in the near future. Note that the dead load stated above does not include additional load from a new roof. Should you proceed with re-roofing, please ensure that the existing roofing material is completely removed before applying the new roofing. If the existing roofing is left in place, the available load stated above will be reduced by the weight of the new roofing.

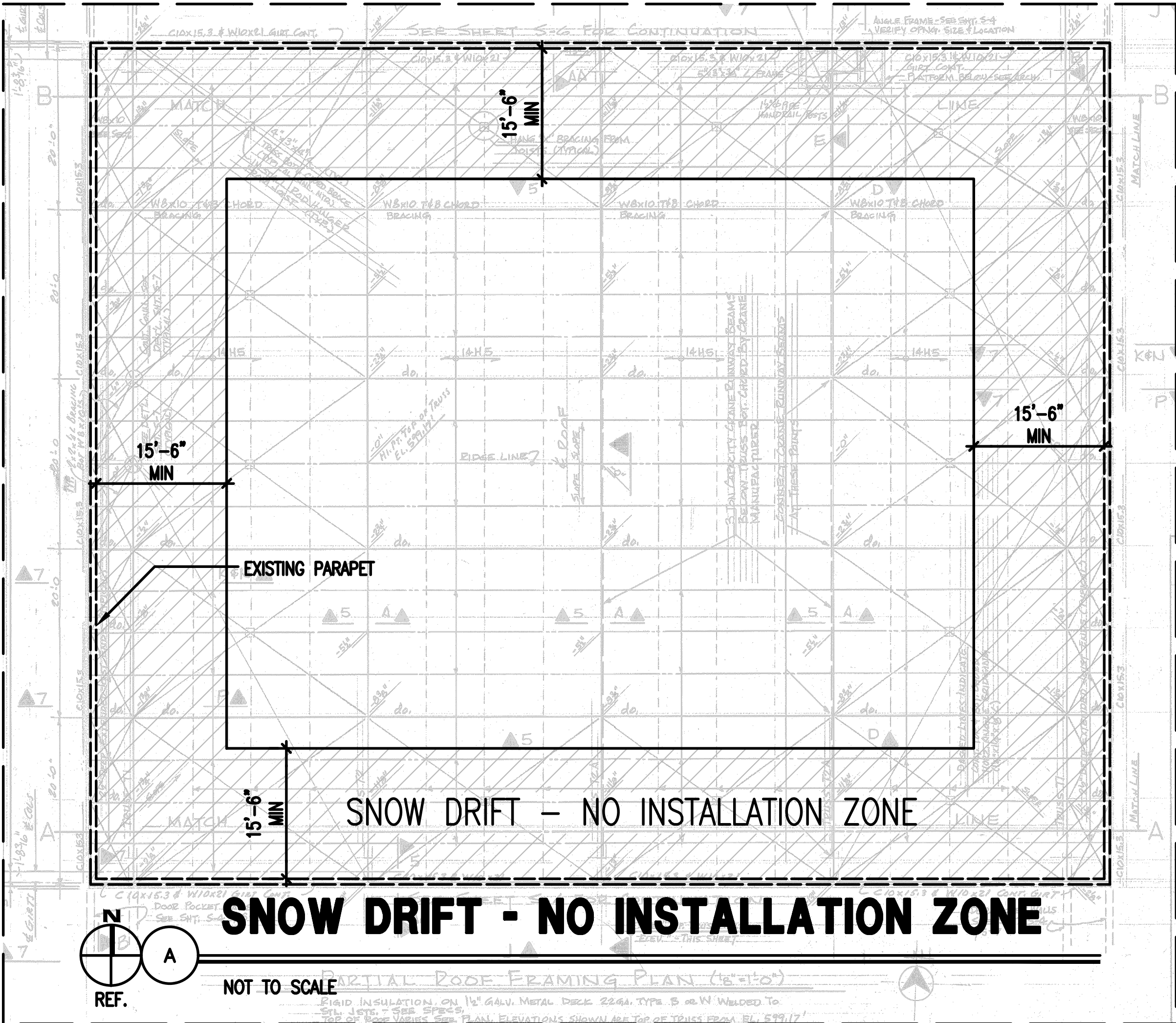
Please contact us if we can be of further assistance.

Respectfully,
Allstate Consultants LLC



David Torres, PE

Bethany Hagemann
Bethany Hagemann, PE



**ALLSTATE
CONSULTANTS**

ARMY AVIATION SUPPORT SOLAR ARRAY

1225 COOPER DR
JEFFERSON CITY, MISSOURI 65101

PROJECT NO.
24053.02

S-01



- ## KEYNOTES - DEMOLITION PLAN

12	BEFORE WORKING OVER THE CENTRAL HANGER AREA, INSTALL SUSPENDED TARPS, AT THE INTERIOR OF THE SPACE BELOW THE AREA OF WORK, FOR THE PURPOSE OF CATCHING ANY DEBRIS AND PREVENTING DEBRIS FROM ENTERING OR DAMAGING THE AIRCRAFT BELOW
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Missouri Certificate of Authority Number: 000826

INSTALL SOLAR ARRAY

1225 Cooper Dr
Jefferson City, MO 65101

[illegible]

DRAWN BY: CJ
CHECKED BY: NB
DESIGNED BY: SOA

SHEET NUMBER:

A101

SHEET 4 OF 18
ISSUE DATE: 7/22/2025



KEY PLAN - NORTH

1" = 80'-0"



1/8"=1'-0" 0' 4'-0" 8'-0" 16'-0" 24'-0"

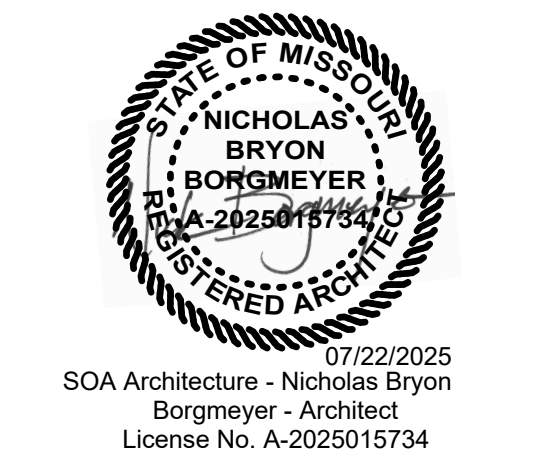
DEMOLITION ROOF GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS. IF DIMENSIONS VARY SIGNIFICANTLY NOTIFY THE ARCHITECT
2. ALL DIMENSIONS TO FACE OF STEEL STUD OR EXISTING FINISH UNLESS NOTED OTHERWISE
3. CONSTRUCTION MATERIALS SHALL BE SECURED NIGHTLY TO ELIMINATE THE POSSIBILITY OF ANYTHING BEING BLOWN OF THE ROOF

KEYNOTES - DEMOLITION PLAN

- 01 REMOVE ROOFING (TPO OR EPDM MEMBRANE) DOWN TO TOP OF EXISTING RIGID INSULATION. ROOFING TO BE REMOVED IS REPRESENTED BY THE FOLLOWING HATCH:
- 02 EXISTING EXHAUST FAN TO BE TEMPORARILY LIFTED FOR RE-ROOFING (REMOVE EXISTING TURNED UP FLASHING AND PREPARE SURFACE FOR NEW MEMBRANE ROOFING.
- 03 REMOVE EXISTING METAL COPING AS REQUIRED FOR NEW MEMBRANE ROOFING. INSTALL OVER TOP OF PARAPET WALL
- 04 REMOVE EXISTING ROOF HATCH AND ADJACENT SAFETY RAILING
- 05 EXISTING MECHANICAL UNIT TO BE TEMPORARILY LIFTED FOR RE-ROOFING (REMOVE TURNED UP FLASHING AND PREPARE SURFACE FOR NEW MEMBRANE ROOFING.
- 06 EXISTING GAS PIPING - TEMPORARILY SUPPORT AS REQUIRED FOR NEW MEMBRANE ROOFING INSTALLATION.
- 07 REMOVE EXISTING THROUGH WALL METAL FLASHING. EXISTING PREFINISHED METAL DOWNSPOUT TO REMAIN. COORDINATE FLASHING TRANSITION WITH NEW MEMBRANE ROOFING
- 08 EXISTING MEMBRANE FLASHING OVER CURB - REMOVE AND DISPOSE OF
- 09 REMOVE ROOFING (TPO OR EPDM MEMBRANE) & RIGID INSULATION DOWN TO TOP OF EXISTING ROOF DECK. ROOFING TO BE REMOVED IS REPRESENTED BY THE FOLLOWING HATCH:
- 10 THROUGH WALL TPO SCUPPER - REMOVE. TEMPORARILY REMOVE METAL SCUPPER COLLECTOR AND METAL DOWNSPOUT AS NEEDED AND REINSTALL
- 11 REMOVE EXISTING METAL GRAVEL STOP COPING AS REQUIRED FOR NEW MEMBRANE ROOFING. INSTALL OVER TOP OF PARAPET WALL
- 12 BEFORE WORKING OVER THE CENTRAL HANGER AREA, INSTALL SUSPENDED TARPS AT THE INTERIOR OF THE SPACE BELOW THE AREA OF WORK, FOR THE PURPOSE OF CATCHING ANY DEBRIS AND PREVENTING DEBRIS FROM ENTERING OR DAMAGING THE AIRCRAFT BELOW

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



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PROJECT # T2338-01

CONSTRUCTION DOCUMENTS

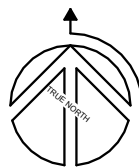
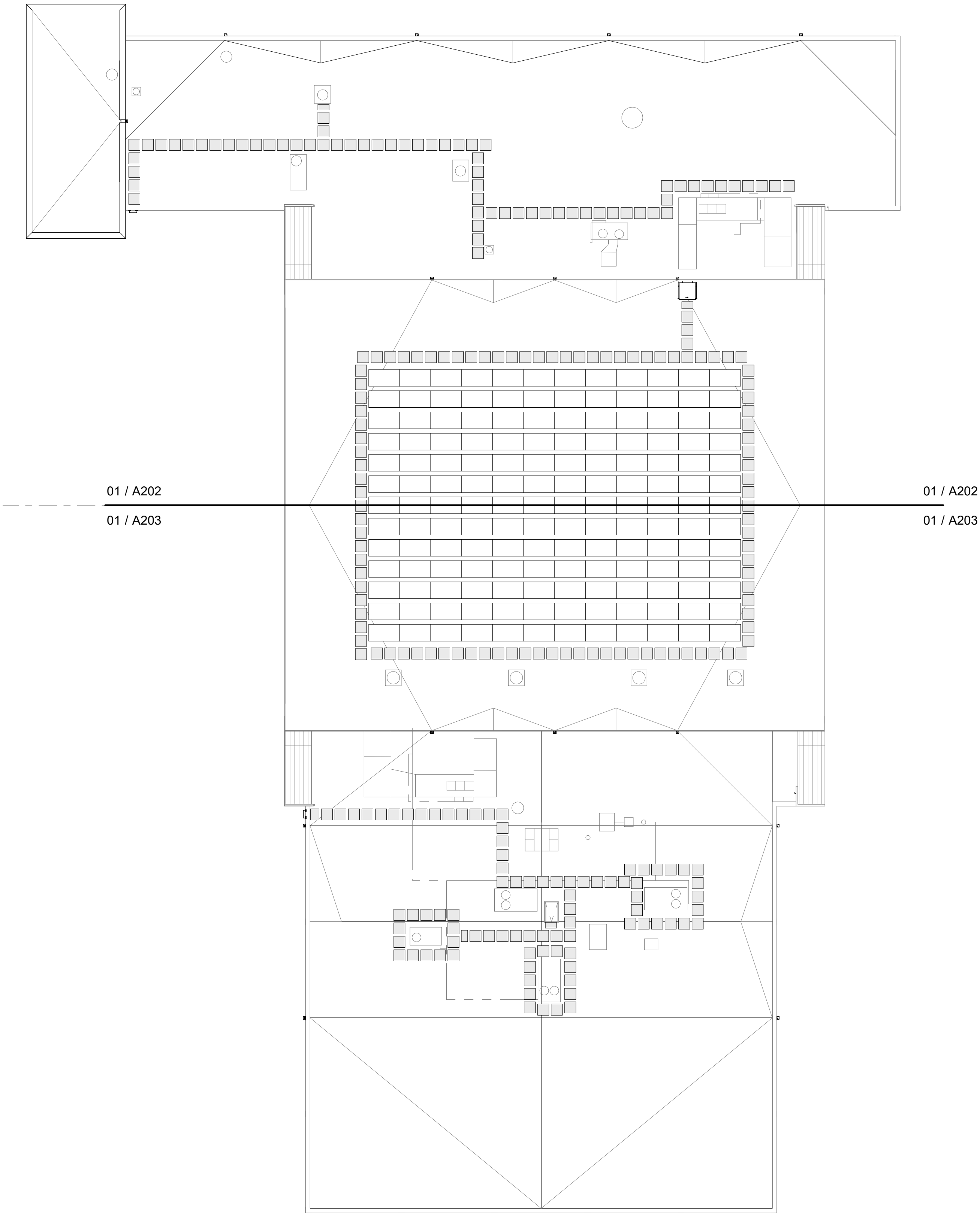
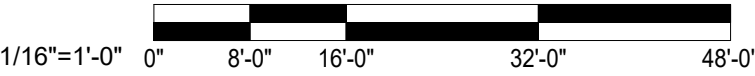
REVISION	DATE

ISSUE DATE: 7/22/2025

CAD DWG FILE:
T2338-01_xxxx_xxxxxxxxxx_A102.DWG
DRAWN BY: CJ
CHECKED BY: NB
DESIGNED BY: .SOA

SHEET TITLE:
DEMOLITION ROOF
PLAN - SOUTH

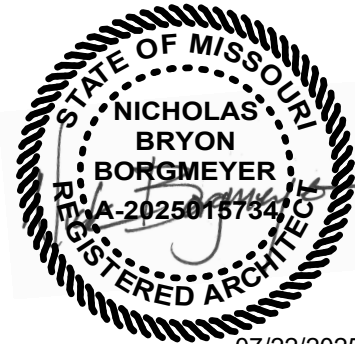
SHEET NUMBER:
A102
SHEET 5 OF 18
ISSUE DATE: 7/22/2025



01 NEW WORK OVERALL ROOF PLAN

A201 1/16" = 1'-0"

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07/22/2025
SOA Architecture - Nicholas Bryon
Borgmeyer - Architect
License No. A-2025015734



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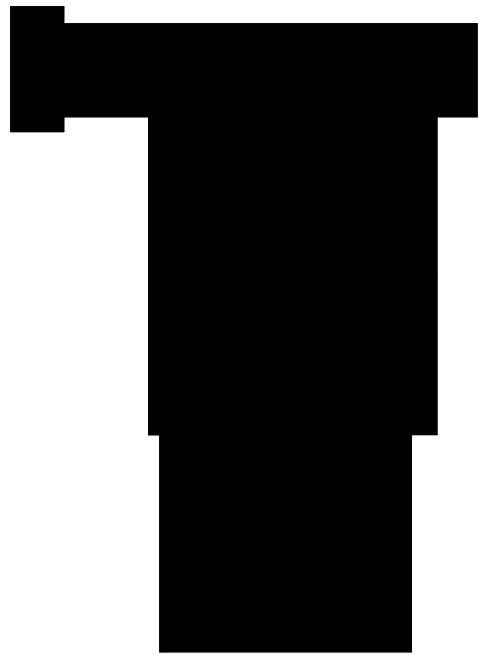
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DRAWN BY: CJ
CHECKED BY: NB
DESIGNED BY: .SOA

SHEET TITLE:
NEW WORK ROOF
PLAN - OVERALL

SHEET NUMBER:

A201

SHEET 6 OF 18
ISSUE DATE: 7/22/2025



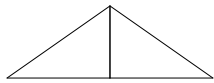
KEY PLAN - OVERALL

1" = 80'-0"

1/8"=1'-0" 0' 4'-0" 8'-0" 16'-0" 24'-0"

NEW WORK GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS. IF DIMENSIONS VARY SIGNIFICANTLY NOTIFY THE ARCHITECT
2. ALL DIMENSIONS TO FACE OF STEEL STUD OR EXISTING FINISH UNLESS NOTED OTHERWISE
3. NEW ROOF FLASHING AT ALL VENT PIPES
4. CONSTRUCTION MATERIALS SHALL BE SECURED NIGHTLY TO ELIMINATE THE POSSIBILITY OF ANYTHING BEING BLOWN OFF THE ROOF
5. CRICKETS ARE REPRESENTED BY THE FOLLOWING SYMBOL:



KEYNOTES - ROOF PLAN

- | | |
|----|--|
| 01 | FULLY ADHERED TPO ROOF MEMBRANE ON 1/2" COVER BOARD |
| 02 | FULLY ADHERED TPO ROOF MEMBRANE ON 1/2" COVER BOARD OVER RIGID INSULATION (THICKNESS AND SLOPE TO MATCH EXISTING INSULATION TO REMAIN) |
| 03 | NEW THROUGH WALL TPO SCUPPER REINSTALL EXISTING METAL SCUPPER COLLECTOR AND METAL DOWNSPOUT AS NEEDED |
| 04 | REINSTALL EXISTING GUARD RAILING INTEGRATED INTO ROOF HATCH |
| 05 | REINSTALL ROOF HATCH |
| 06 | PREFINISHED METAL COPING |
| 07 | SOLAR PANEL - REFER TO ELECTRICAL DRAWINGS |
| 08 | WALKING PAD |
| 09 | LADDER RECEIVER |

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GOVERNOR



07/22/2025
SOA Architecture - Nicholas Bryon
Borgmeyer - Architect
License No. A-2025015734

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PROJECT # T2338-01

CONSTRUCTION DOCUMENTS

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CAD DWG FILE:
T2338-01_xxxx_xxxxxxxxxx_A202.DWG

DRAWN BY: CJ

CHECKED BY: NB

DESIGNED BY: .SOA

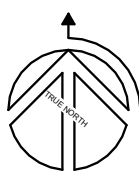
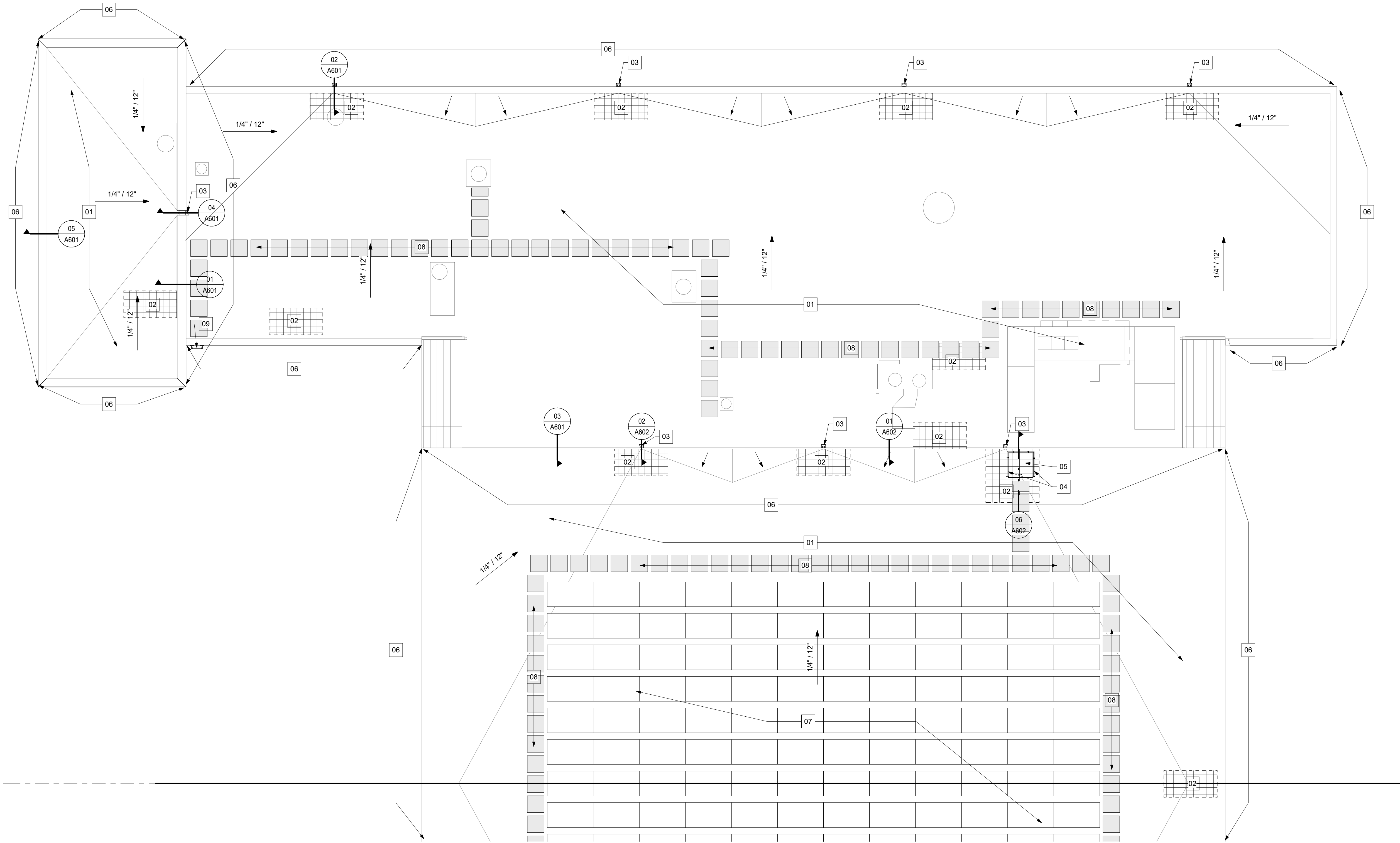
SHEET TITLE:
NEW WORK ROOF
PLAN - NORTH

SHEET NUMBER:

A202

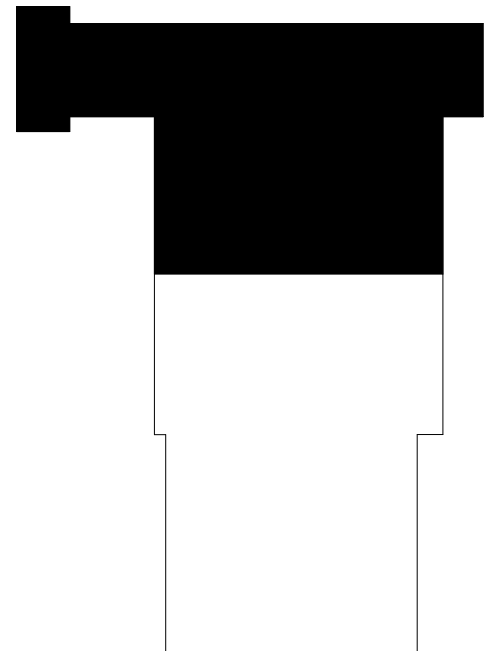
SHEET 7 OF 18

ISSUE DATE: 7/22/2025



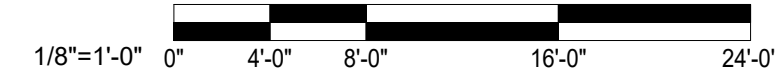
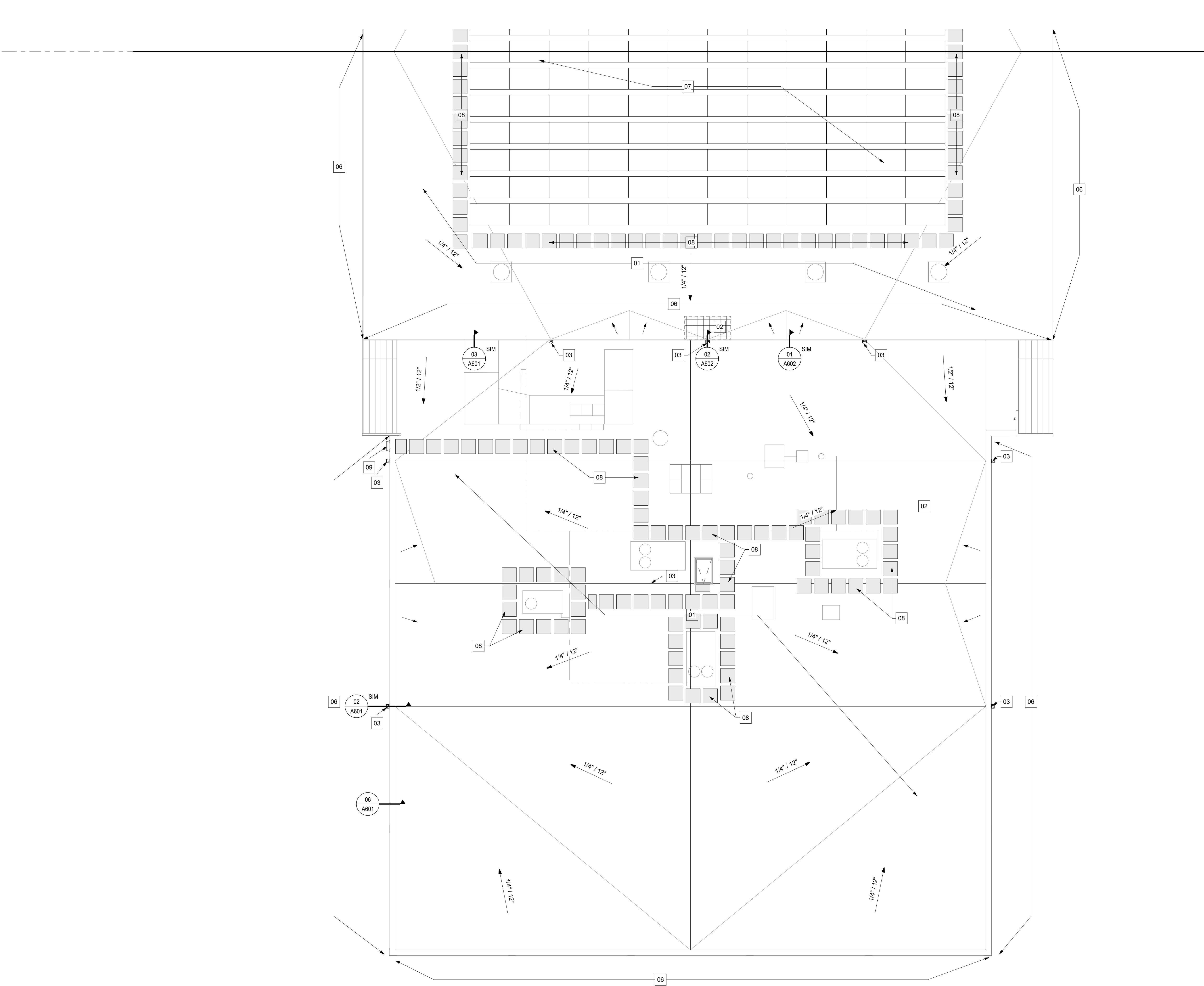
01 NEW WORK ROOF PLAN - NORTH

A202 1/8" = 1'-0"



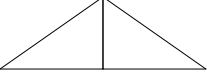
KEY PLAN - NORTH

1" = 80'-0"



NEW WORK GENERAL NOTES

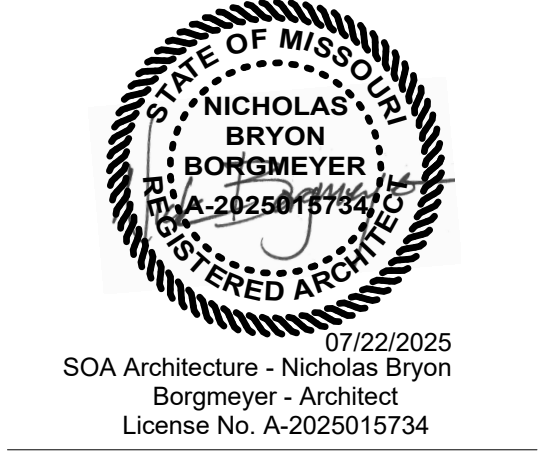
1. FIELD VERIFY ALL DIMENSIONS. IF DIMENSIONS VARY SIGNIFICANTLY NOTIFY THE ARCHITECT
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4. CONSTRUCTION MATERIALS SHALL BE SECURED NIGHTLY TO ELIMINATE THE POSSIBILITY OF ANYTHING BEING BLOWN OFF THE ROOF
5. CRICKETS ARE REPRESENTED BY THE FOLLOWING SYMBOL:



KEYNOTES - ROOF PLAN

- | | |
|----|--|
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| 02 | FULLY ADHERED TPO ROOF MEMBRANE ON 1/2" COVER BOARD OVER RIGID INSULATION (THICKNESS AND SLOPE TO MATCH EXISTING INSULATION TO REMAIN) |
| 03 | NEW THROUGH WALL TPO SCUPPER. REINSTALL EXISTING METAL SCUPPER COLLECTOR AND METAL DOWNSPOUT AS NEEDED |
| 04 | REINSTALL EXISTING GUARD RAILING INTEGRATED INTO ROOF HATCH |
| 05 | REINSTALL ROOF HATCH |
| 06 | PREFINISHED METAL COPING |
| 07 | SOLAR PANEL - REFER TO ELECTRICAL DRAWINGS |
| 08 | WALKING PAD |
| 09 | LADDER RECEIVER |

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PROJECT # T2338-01

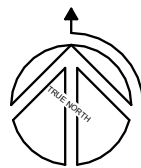
CONSTRUCTION DOCUMENTS

REVISION	DATE

ISSUE DATE: 7/22/2025
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DRAWN BY: CJ
CHECKED BY: NB
DESIGNED BY: .SOA

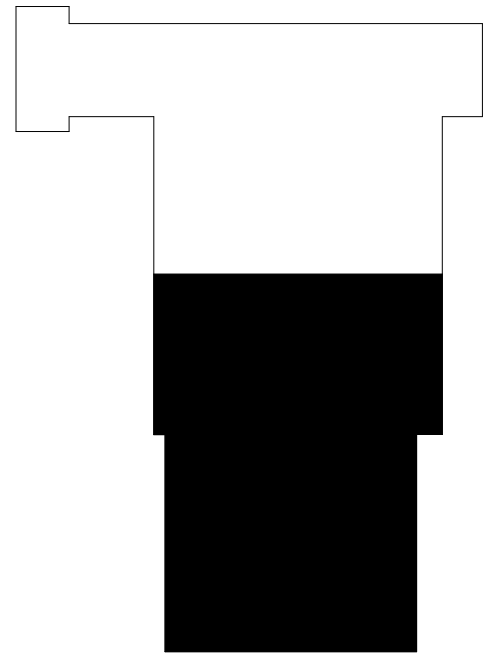
SHEET TITLE:
NEW WORK ROOF
PLAN - SOUTH

SHEET NUMBER:
A203
SHEET 8 OF 18
ISSUE DATE: 7/22/2025



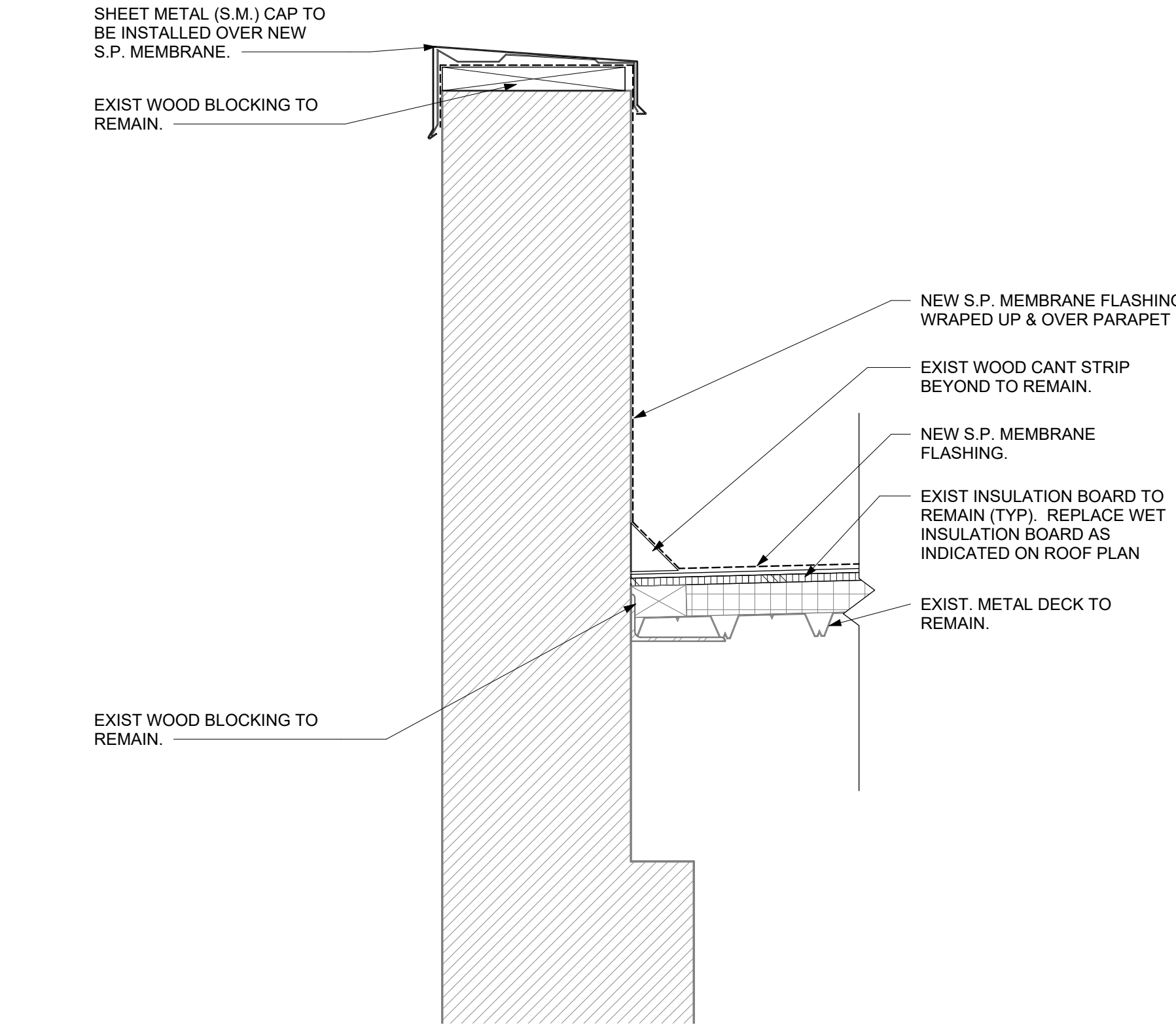
01 NEW WORK ROOF PLAN - SOUTH

A203 1/8" = 1'-0"

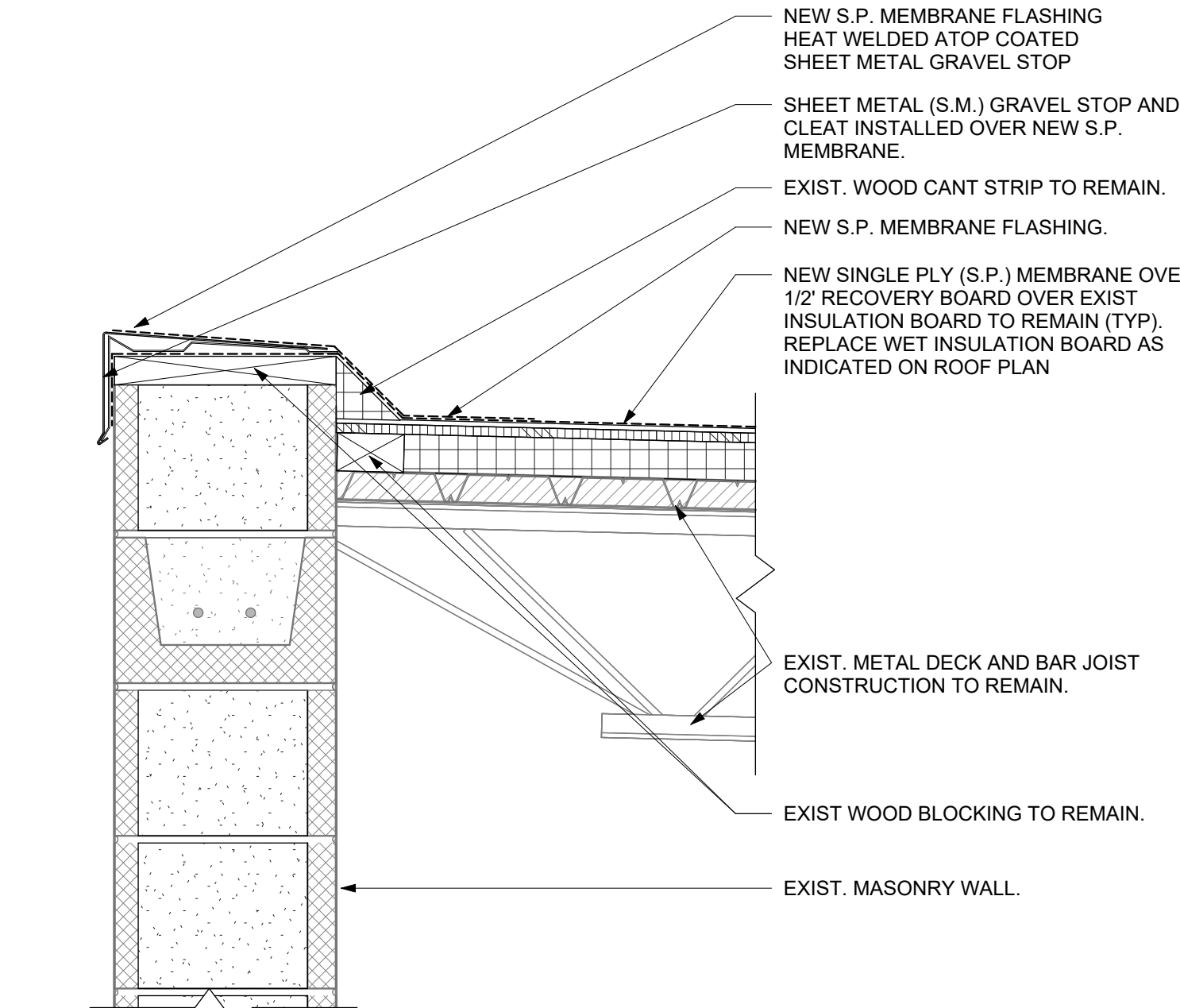


KEY PLAN - SOUTH

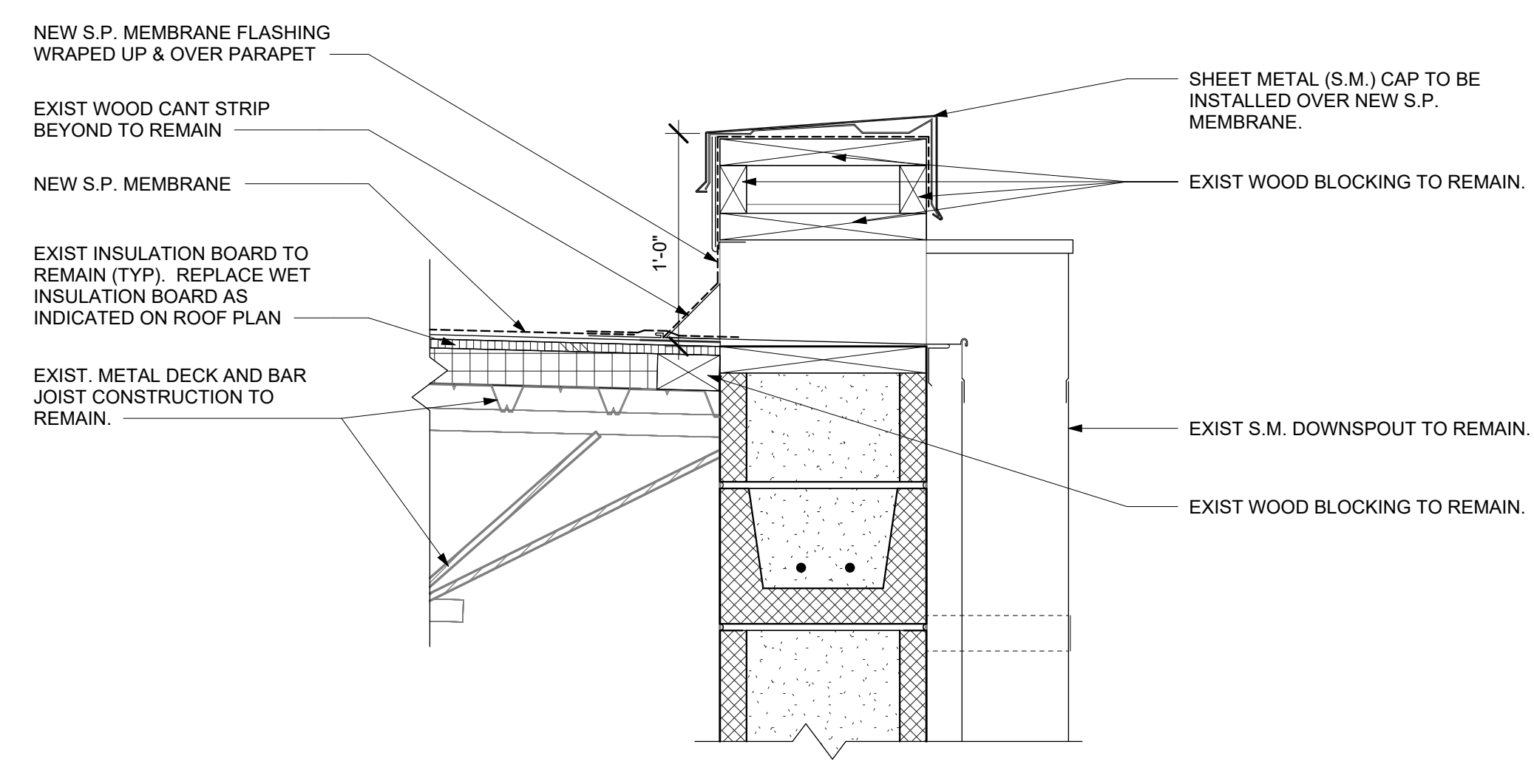
1" = 80'-0"



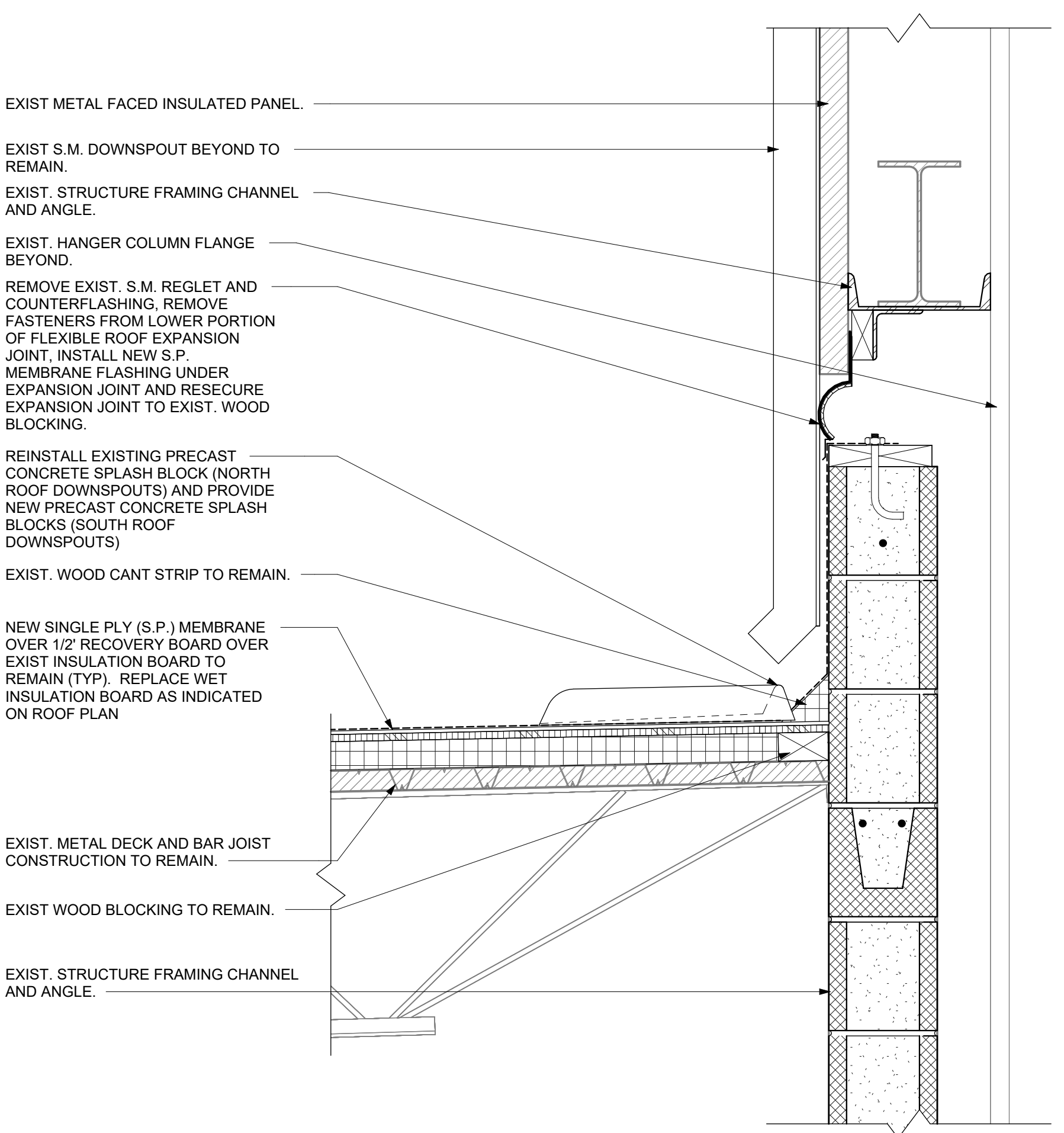
06 TYP. DTL SECT - @ PARAPET WALL
A601 1 1/2" = 1'-0"



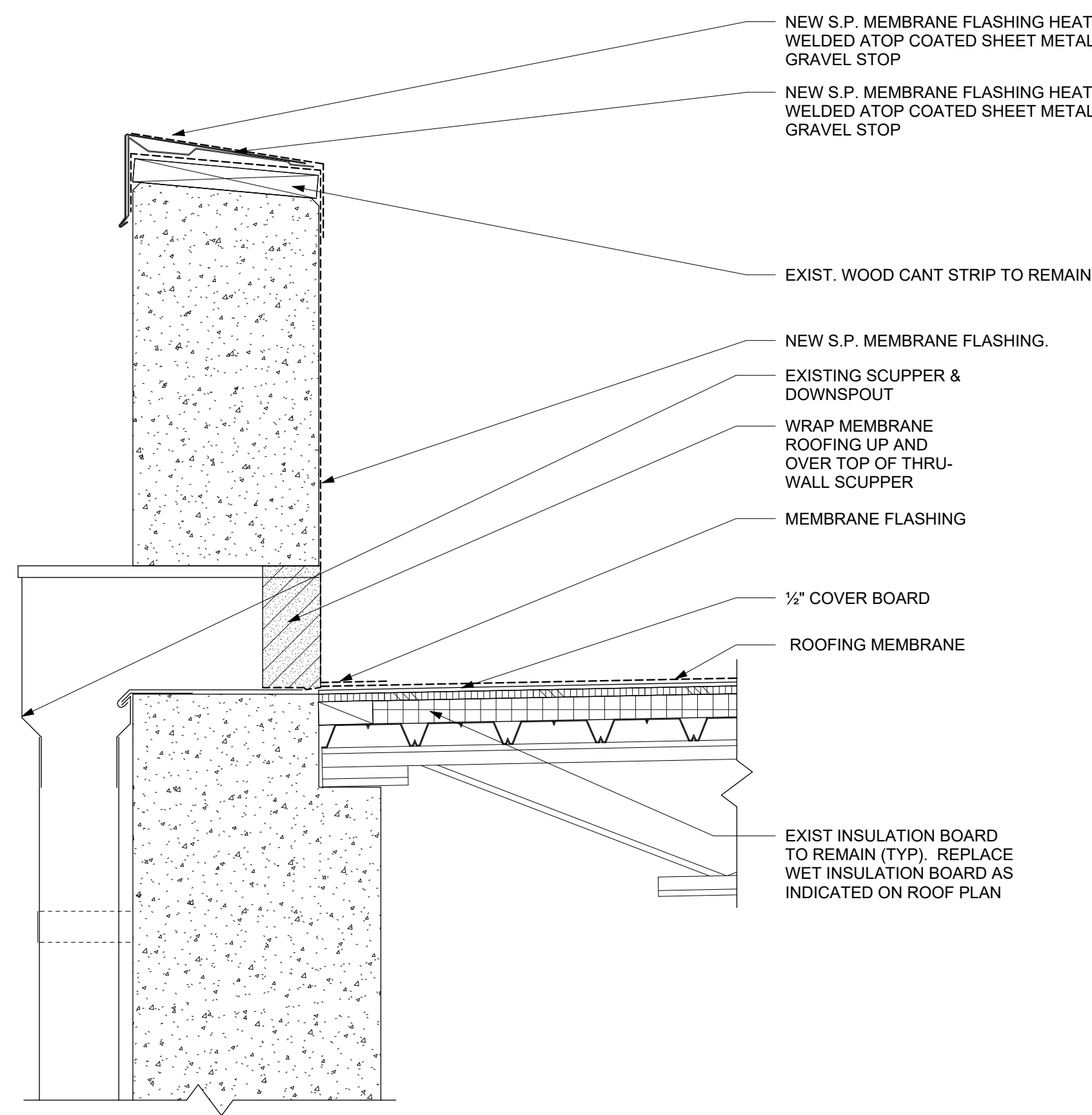
05 DTL SECT - GRAVEL STOP COPING
A202 A601 1 1/2" = 1'-0"



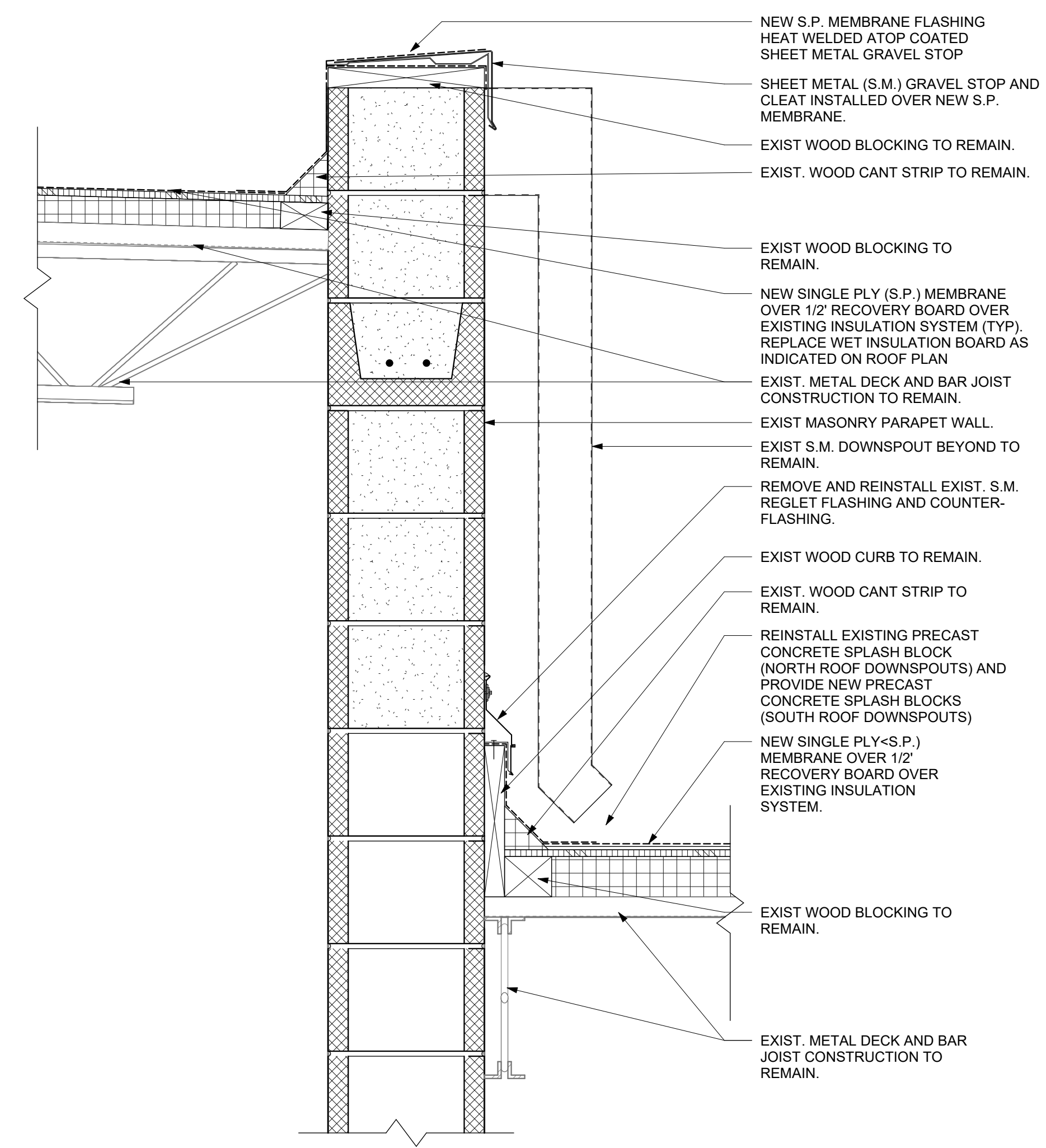
04 DTL SECT - THROUGH WALL SCUPPER @ CMU
A202 A601 1 1/2" = 1'-0"



03 DTL SECT - ROOF TO UPPER WALL TRANSITION
A202 A601 1 1/2" = 1'-0"

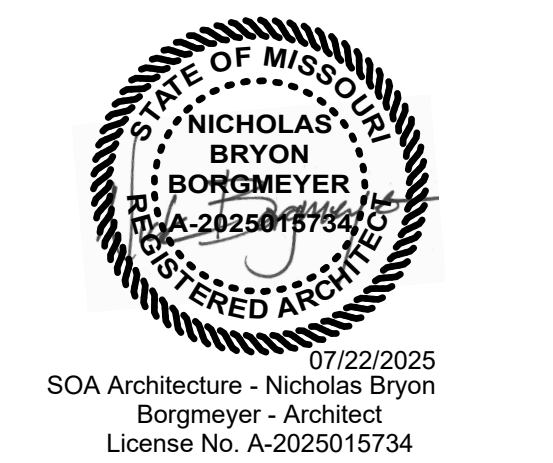


02 DTL SECT - THROUGH WALL SCUPPER @ PRECAST
A601 1 1/2" = 1'-0"



01 DTL SECT - ROOF HEIGHT TRANSITION
A202 A601 1 1/2" = 1'-0"

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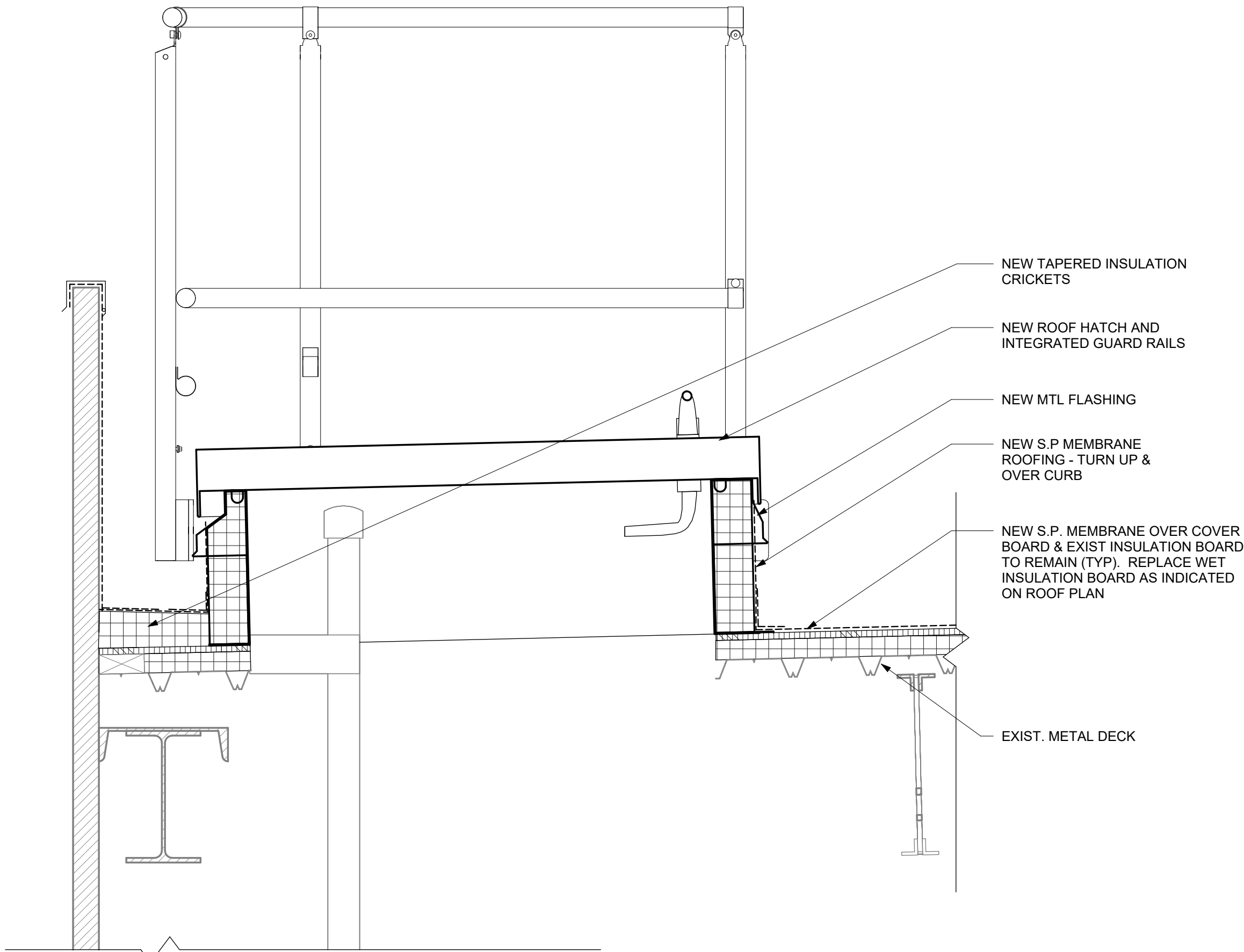
ISSUE DATE: 7/22/2025

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DRAWN BY: CJ
CHECKED BY: NB
DESIGNED BY: SOA

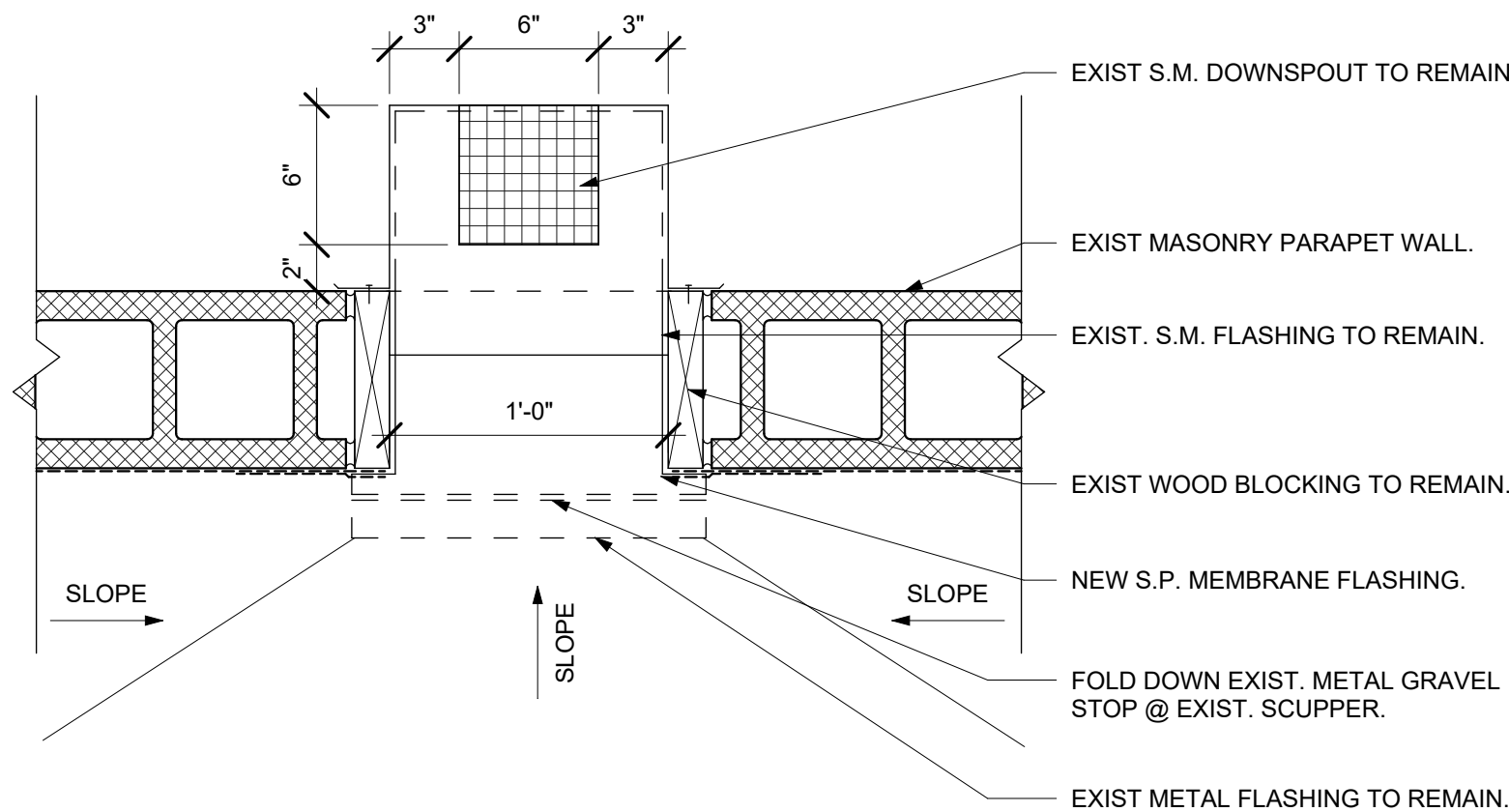
SHEET TITLE:
ROOF DETAIL &
ROOF SECTIONS

SHEET NUMBER:
A601
SHEET 9 OF 18
ISSUE DATE: 7/22/2025



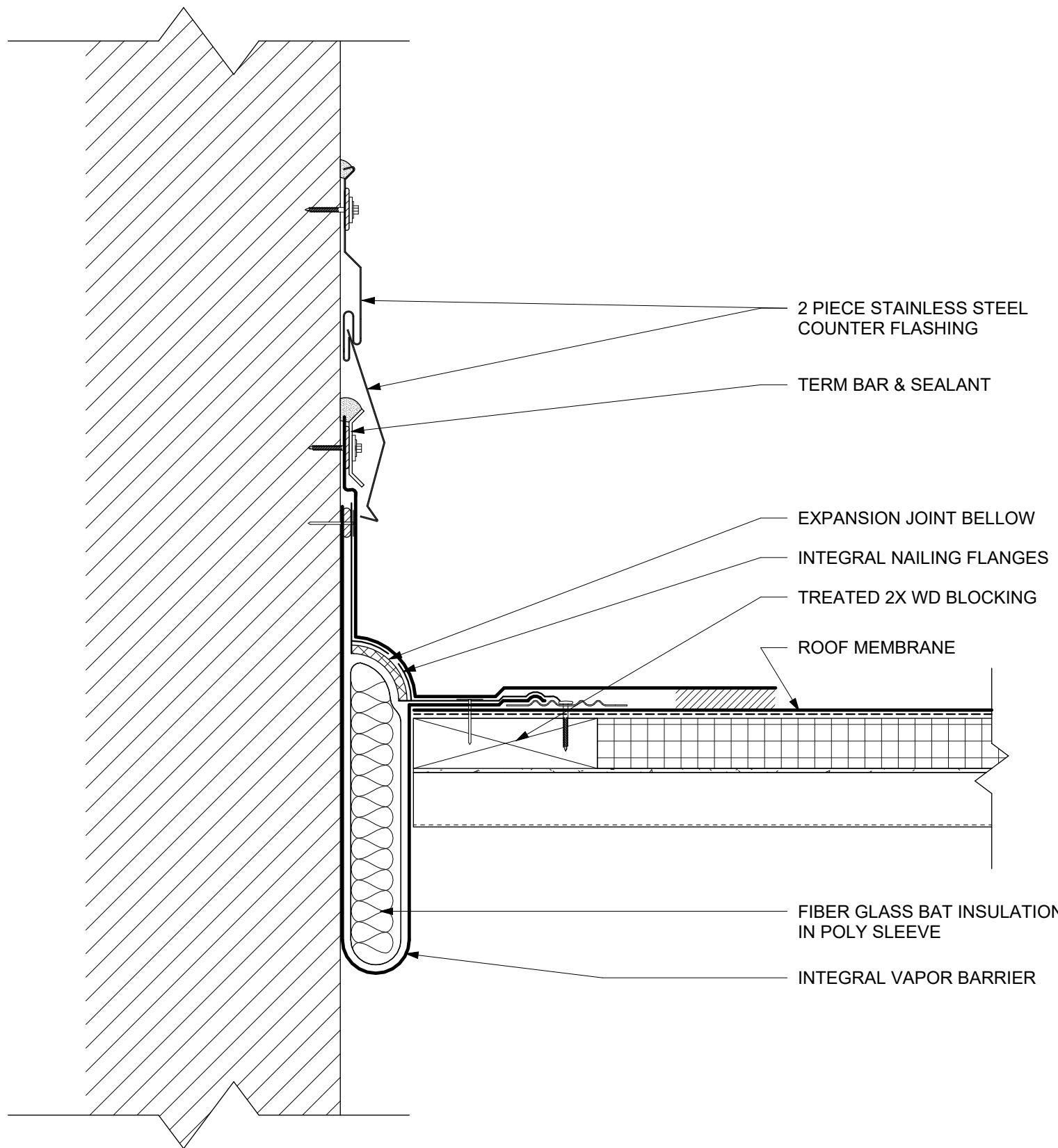
06 DTL SECT - ROOF HATCH

A602 1 1/2" = 1'-0"



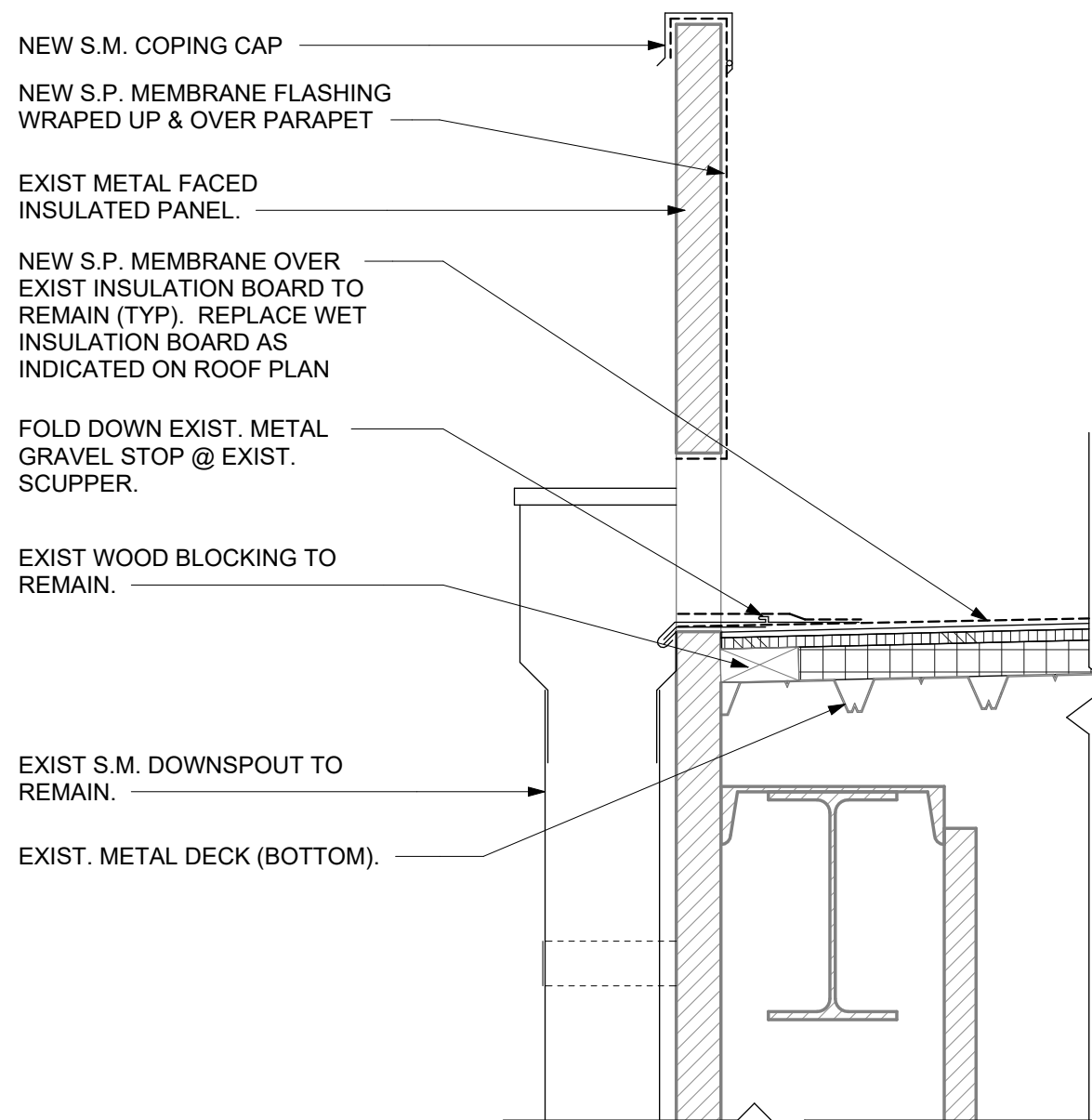
03 PLAN DTL - TYP THROUGH WALL SCUPPER

A602 1 1/2" = 1'-0"



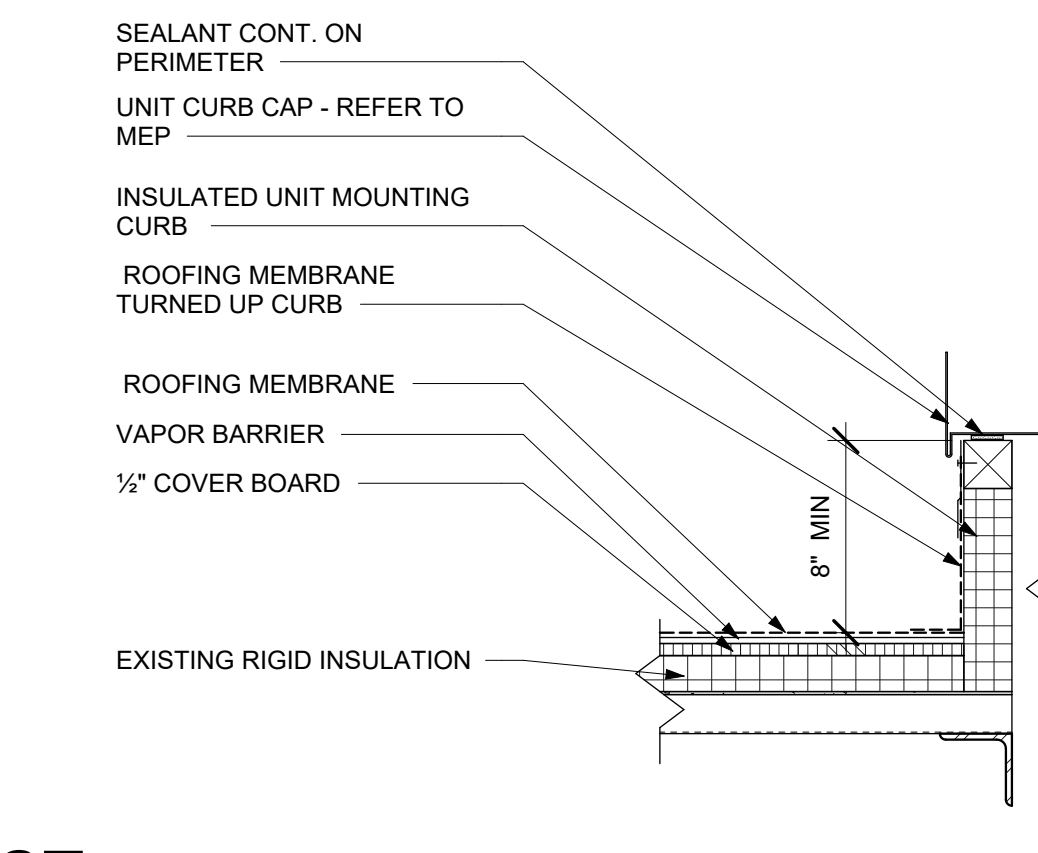
05 ROOF EXPANTION JOINT

A602 3" = 1'-0"



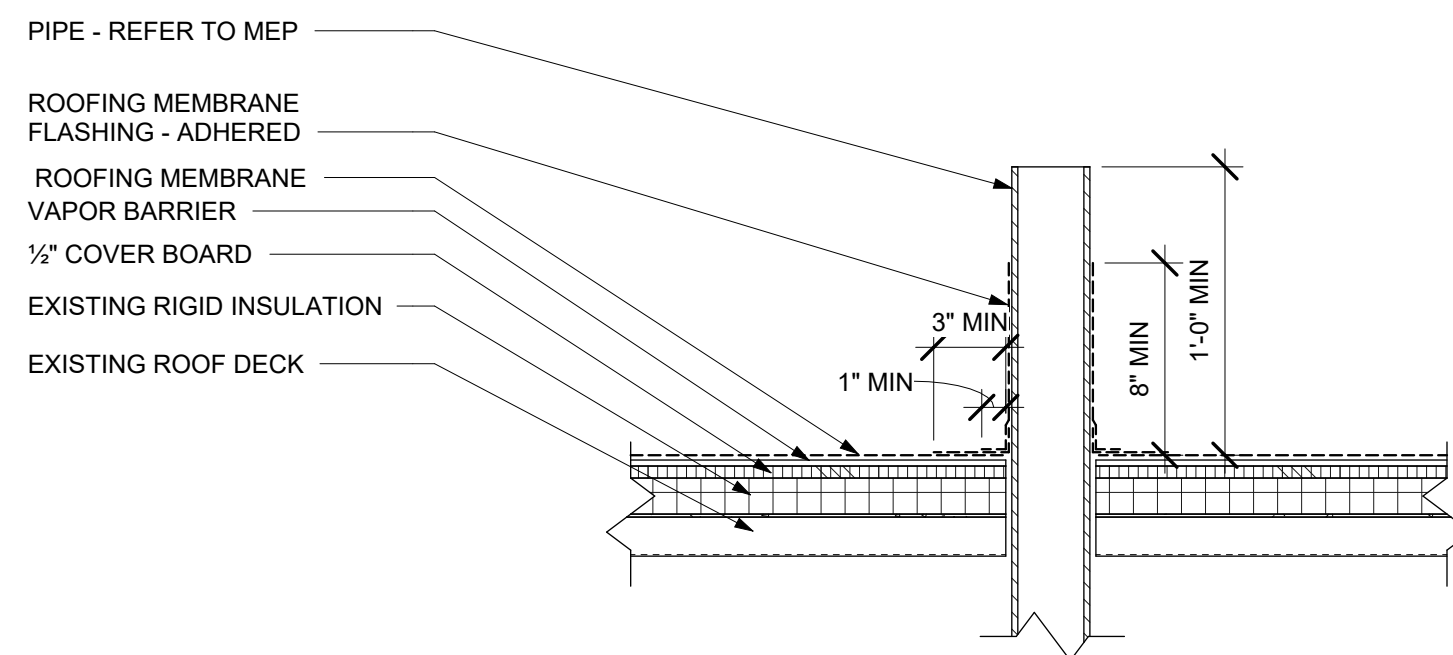
02 DTL SECT - INSUL MTL PANEL SCUPPER

A602 1 1/2" = 1'-0"



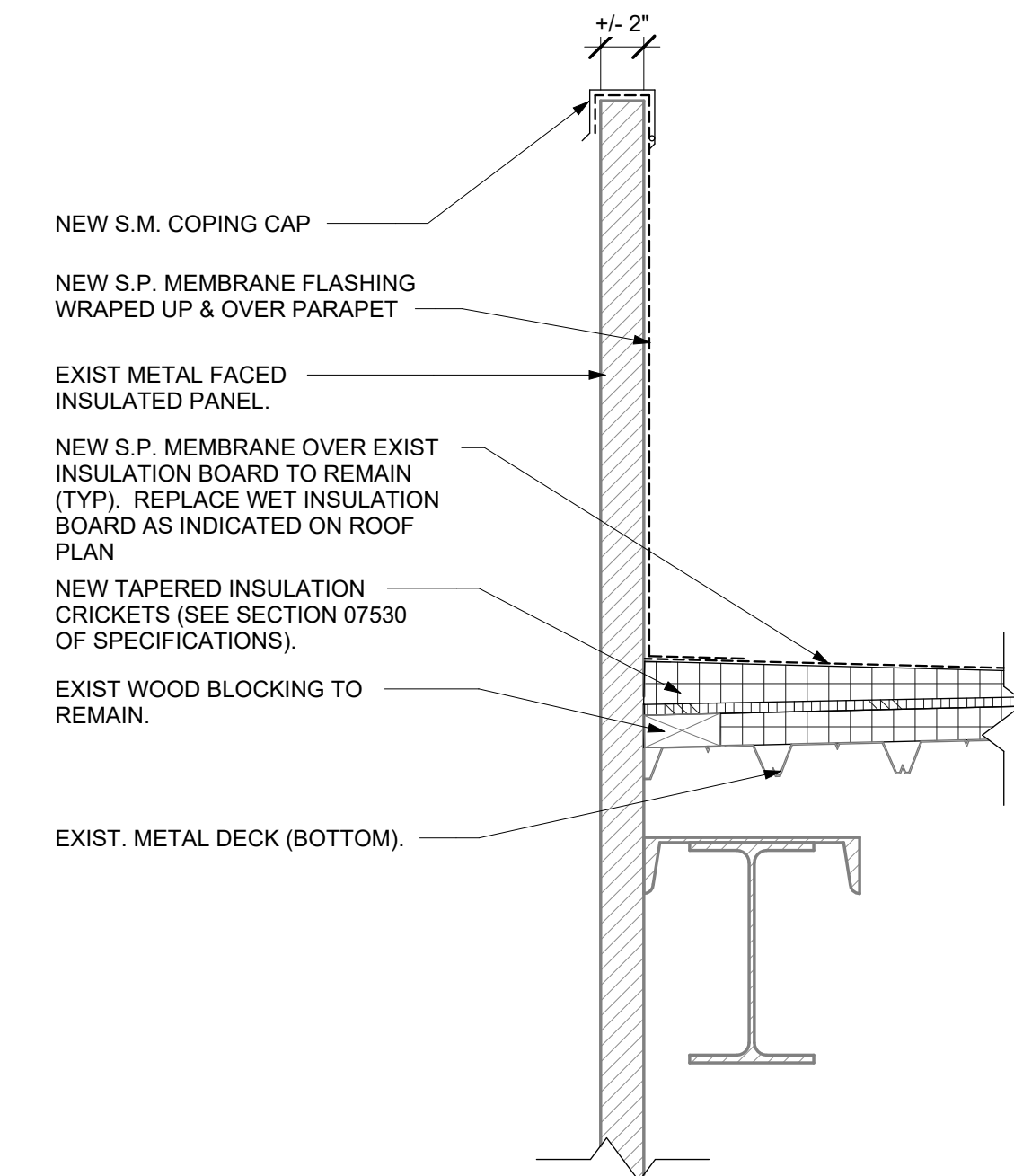
07 TYP. ROOF CURB DETAIL

A602 1 1/2" = 1'-0"



04 TYP. ROOF PENETRATION DETAIL

A602 1 1/2" = 1'-0"



01 DTL SECT - INSUL MTL PANEL PARAPET

A602 1 1/2" = 1'-0"

3"=1'-0" 0' 2' 4' 8' 1'-0"

1 1/2"=1'-0" 0' 3' 6' 1'-0" 2'-0"

STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



07/22/2025
SOA Architecture - Nicholas Bryon
Borgmeyer - Architect
License No. A-2025015734

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CAD DWG FILE:
T2338-01_xxxx_xxxxxxxxxx_A602.DWG

DRAWN BY: CJ

CHECKED BY: NB

DESIGNED BY: SOA

SHEET TITLE:
ROOF DETAIL &
ROOF SECTIONS

SHEET NUMBER:

A602

SHEET 10 OF 18

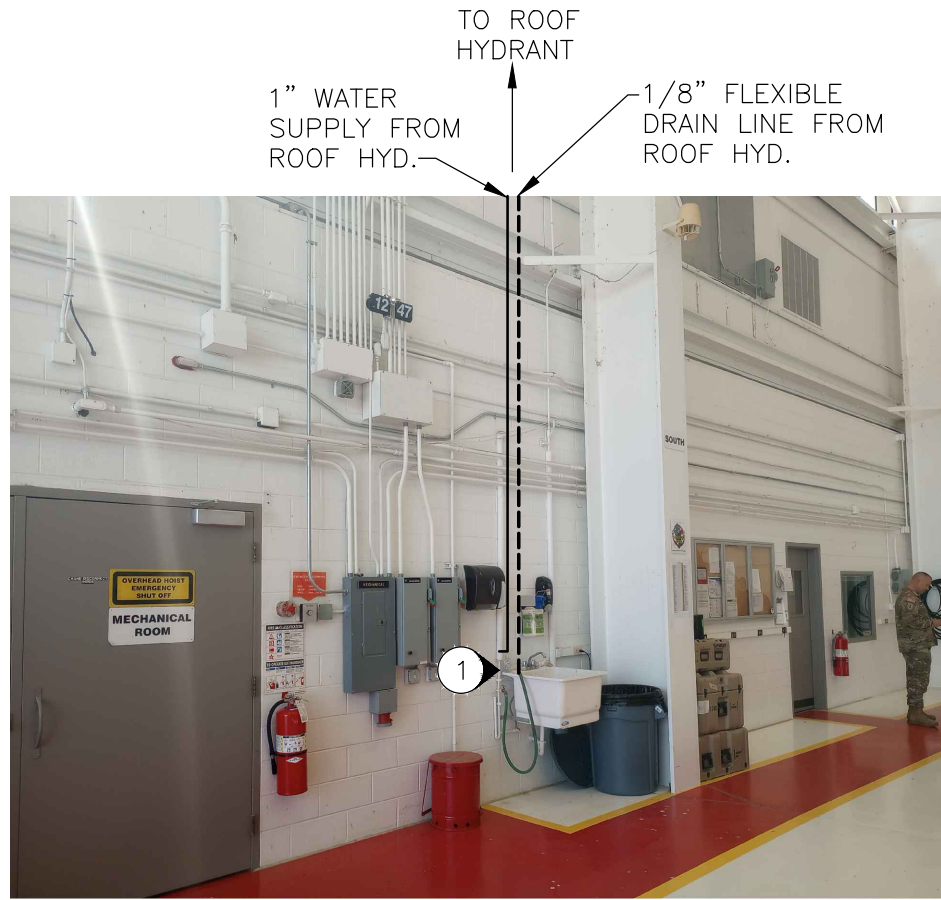
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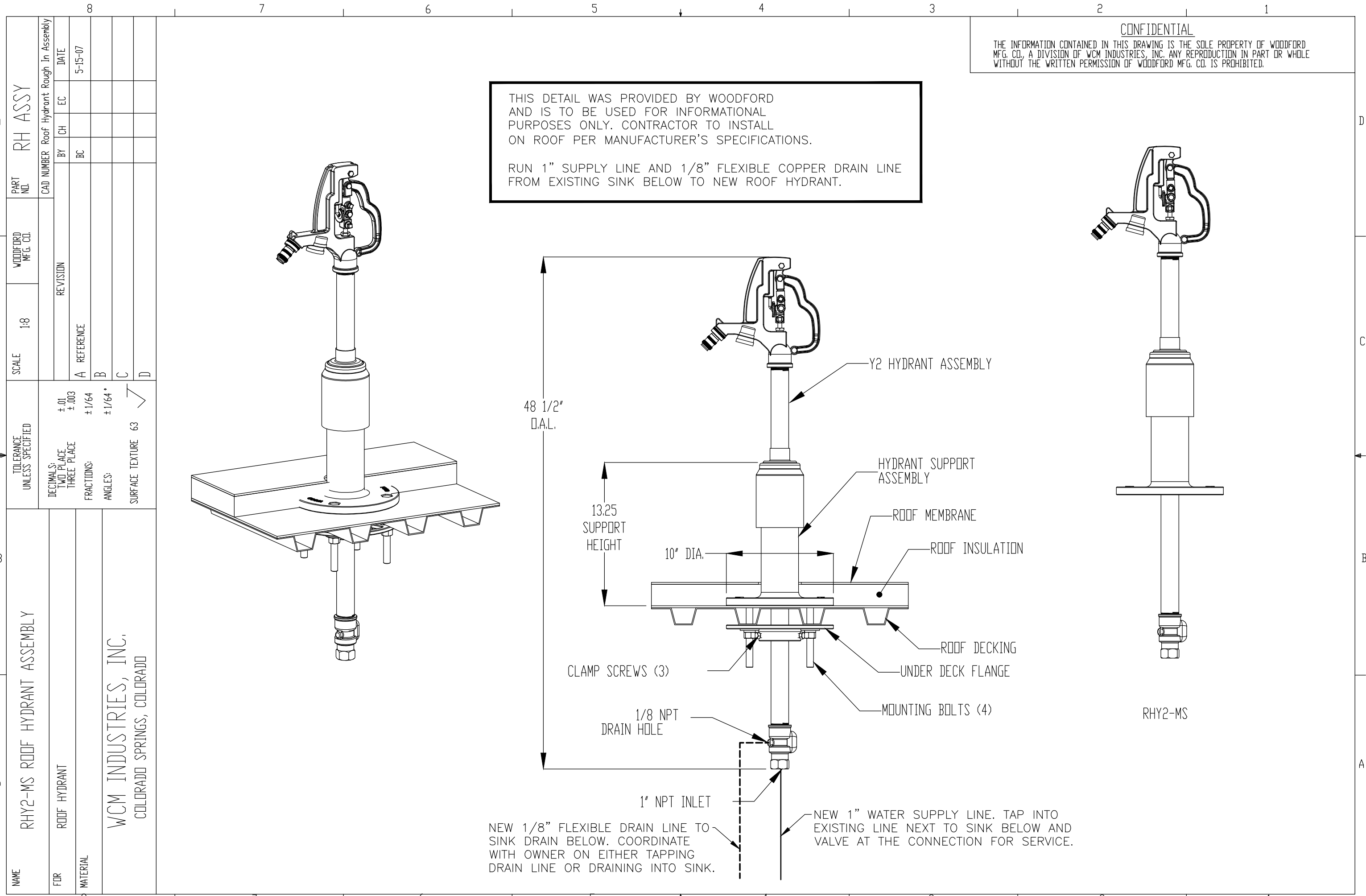
1 NEW ROOF PLUMBING PLAN
SCALE: 1"=20'

GENERAL CONSTRUCTION NOTES

- 1 COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE AND INSTALL NEW ROOF HYDRANT FOR SOLAR PANEL CLEANING NEXT TO PARAPET WALL AND ABOVE SINK BLEOW. USE PARAPET AND UNISTRUT FOR MOUNTING. HYDRANT TO BE WOODFORD RHY2-MS OR EQUAL. TIE TO EXISTING SINK SUPPLY LINE AND RUN 1" WATER LINE FROM SUPPLY TO NEW ROOF HYDRANT. RUN FLEXIBLE 1/8" COPPER DRAIN LINE TO SINK DRAIN BELOW AND TIE IN. RUN NEAT AND CLEAN ALONG WALL AND SUPPORT PER PLUMBING CODE. COORDINATE EXACT LOCATION WITH OWNER.



2 SINK FOR ROOF HYDRANT SUPPLY AND DRAIN
SCALE: NONE



STATE OF MISSOURI
MIKE KEHOE,
GOVERNOR



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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
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DESIGN AND CONSTRUCTION

MISSOURI
NATIONAL
GUARD

INSTALL SOLAR ARRAY

HANGER LAASF
READINESS CENTER

1225 Cooper Dr.
JEFFERSON CITY, MO 65101

PROJECT # T2338-01
SITE # 6298
ASSET # 8136298008

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 07/22/2025

CAD DWG FILE: SARC-e.dwg
DRAWN BY: MDS
CHECKED BY: JLD
DESIGNED BY: JLD

SHEET TITLE:

ROOF
PLUMBING
PLAN

SHEET NUMBER:

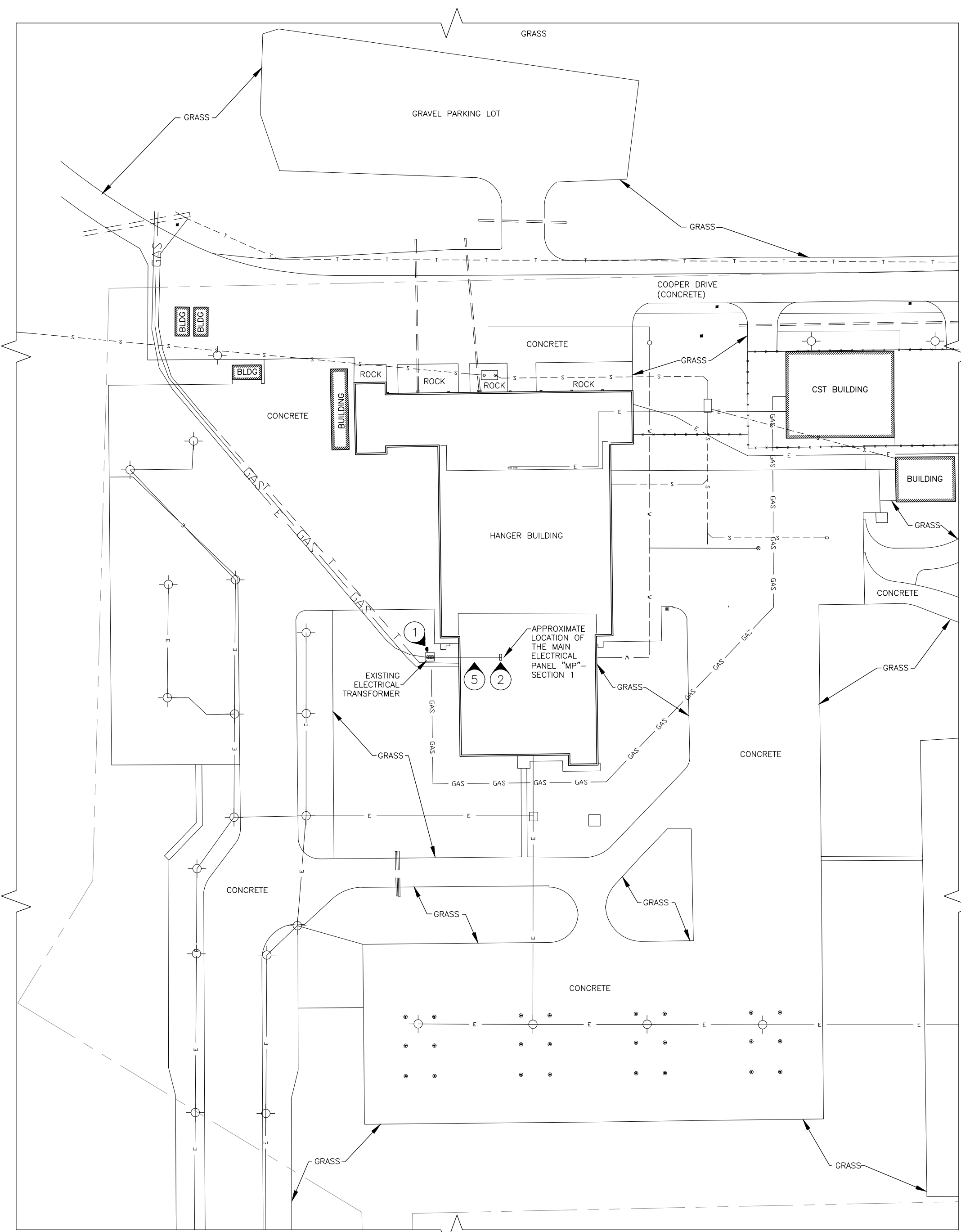
P-101

11 OF 18 SHEETS
2025-07-22

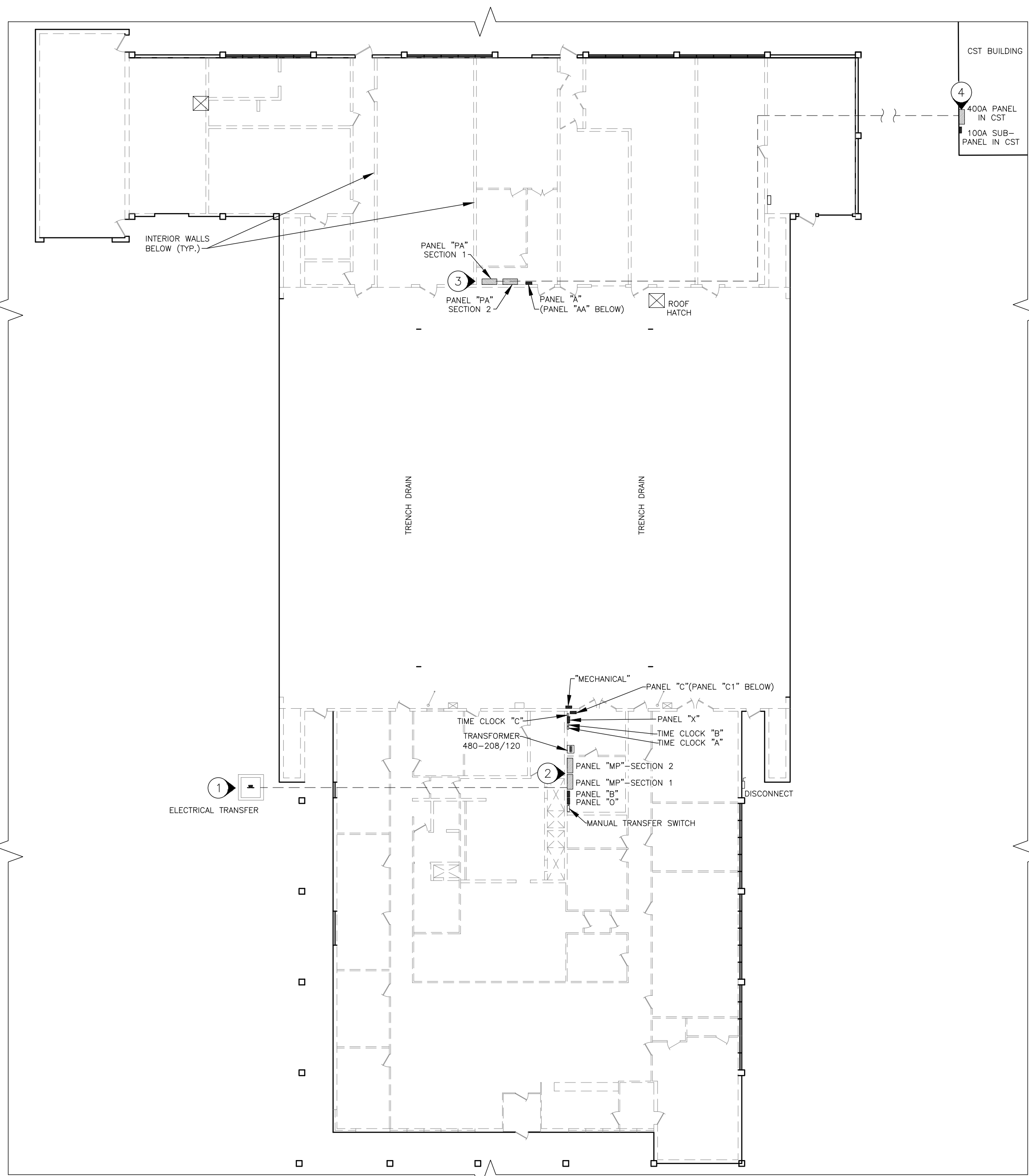
NOTES

INDICATES KEYED NOTES

- 1
- EXISTING ELECTRICAL SERVICE TRANSFORMER AND METER.
- 2
- LOCATION OF EXISTING MAIN DISTRIBUTION PANEL.
- 3
- LOCATION OF EXISTING ELECTRICAL PANEL "PA".
- 4
- LOCATION OF EXISTING 400A CST BUILDING PANEL AND 100A SUB-PANEL.
- 5
- THE BUILDING MAIN ELECTRICAL SERVICE LINE RUNS UNDERGROUND FROM THE TRANSFORMER ON THE WEST SIDE OF THE BUILDING TO MAIN PANEL "MP".
- 6
- SITE PLAN DATA SHOWN IS FROM FIELD OBSERVATIONS AND EXISTING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE ACCURACY OF THE INFORMATION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING.



1 EXISTING SITE UTILITY PLAN
SCALE: 1"=60'



2 EXISTING ELECTRICAL PANEL LOCATION PLAN
SCALE: 1"=20'

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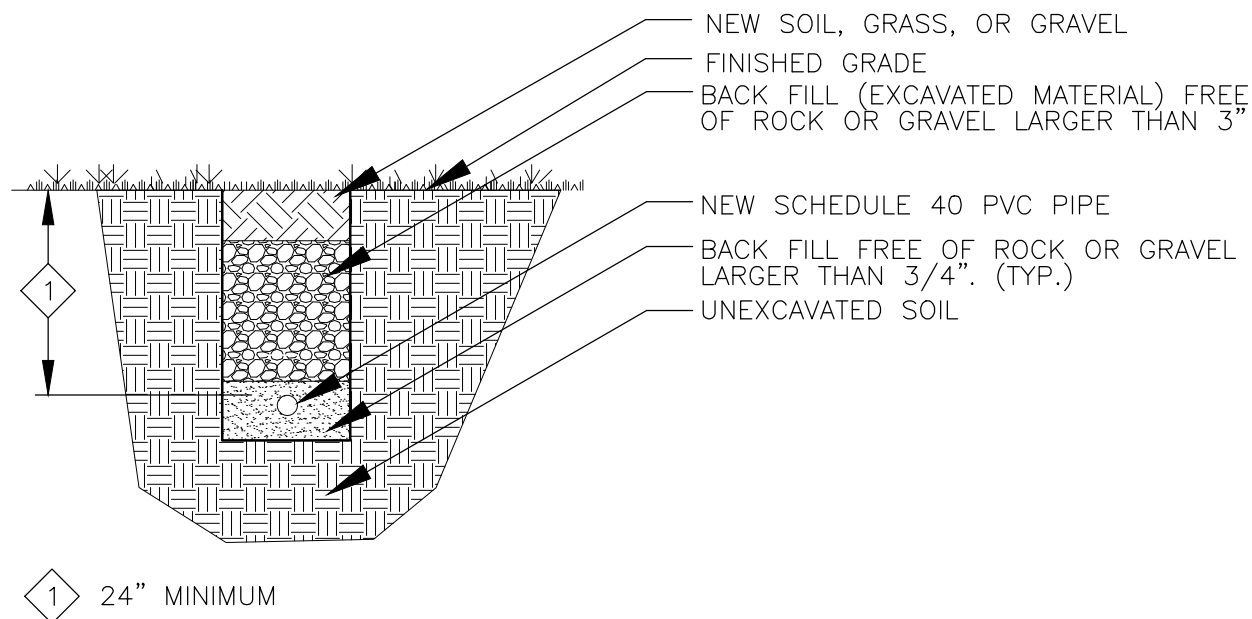
SHEET TITLE:

EXISTING UTILITY
PLAN

SHEET NUMBER:

E-100

12 OF 18 SHEETS
2025-07-22



1 ELECTRICAL TRENCH DETAIL
SCALE: NONE

NOTES

N INDICATES KEYED NOTES

- 1 THE BASIS OF DESIGN FOR THE NEW SOLAR SYSTEM SHOWN IS A SILFAB SIL-500 HM, 500 WATT PANEL MOUNTED ON A UNIVAC RM10 10' RACK SYSTEM. EACH PANEL IS TO HAVE 1 ENPHASE IQ8 MICROINVERTER CONVERTING DC TO AC VOLTAGE. THERE ARE A MAXIMUM OF 12 PANELS PER 20A/3P CIRCUIT. THE CURRENT LAYOUT UTILIZES 156 PANELS FOR A TOTAL OUTPUT OF ~78.00KW/216A OF POWER WITH A STRUCTURAL SETBACK OF 15.5'. CALCULATIONS AND LAYOUT OF PANELS WERE DERIVED FROM UNIRAC ON LINE DESIGN TOOL U-BUILDER APPLICATION VERSION 6.6.0.
- 2 NEW 225A, COPPER BUS, 208V, 3P, 4W, MAIN LUG, 42 SPACE COMBINING ELECTRICAL PANEL ON ROOF. MOUNTED ON UNISTRUT. EACH GROUP OF 12 SOLAR PANELS HAS A 1" CONDUIT WITH 3-#8 CU CONDUCTORS THAT RUNS TO THE ELECTRIC PANEL. SEE ELECTRICAL RISER ON SHEET E-501.
- 3 NEW 1200A, 3P, 4W, HEAVY DUTY, FUSIBLE, NEMA 3R SAFETY SWITCH (SCHNEIDER ELECTRIC H368NR OR EQUAL). ESTABLISH NEW SERVICE GROUND AT THIS DISCONNECT AND CARRY A GROUND WIRE BACK TO THE 400A DISCONNECT.
- 4 NEW 400A, 3P, 4W, HEAVY DUTY, FUSIBLE, 1 NEUTRAL, NEMA 3R SAFETY SWITCH. (SCHNEIDER ELECTRIC H325NR OR EQUAL). PROVIDE NEW GROUND - INSTALL #6 CU GRND W/ GROUND ROD AND ENSURE SERVICE GROUNDING IS 25 OHMS OR LESS (GROUND ROD 5/8" X 8' COPPER OR COPPER CLAD). RUN (1) #4 CU GROUND TO EACH OF THE NEW ELECTRICAL PANELS. CONTRACTOR TO INSTALL A 1/0 CU CONDUCTOR TO BUILDING METAL FRAME.
- 5 ELC TO HYDRO EXCAVATE THE EXISTING SERVICE CONDUIT AND CONDUCTORS. INSTALL A NEW ELECTRICAL GROUND BOX LARGE ENOUGH TO INTERCEPT AND REROUTE THE MAIN SERVICE CONDUITS AND CONDUCTORS (BOX TO BE QUAZITE OR EQUAL).

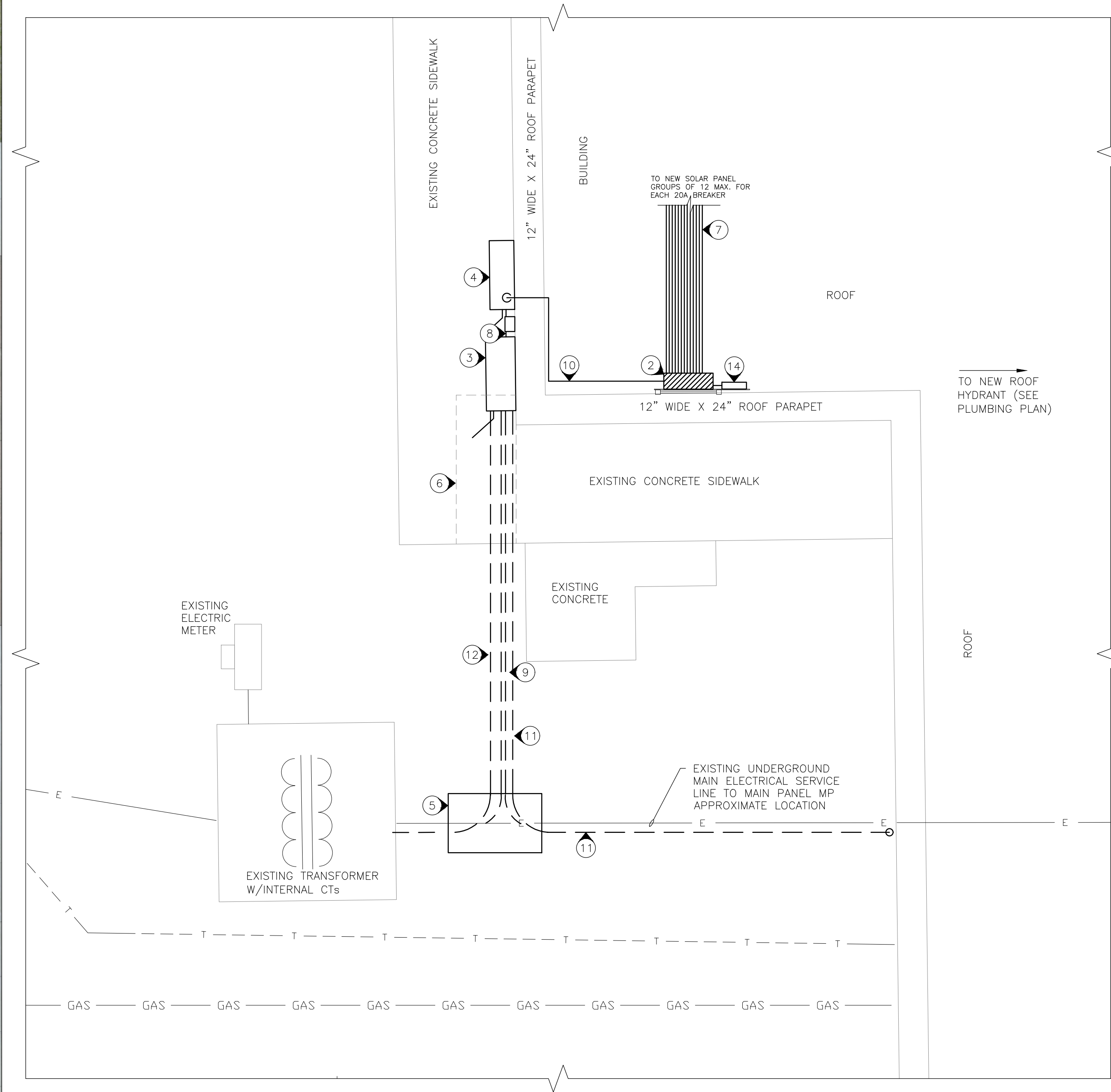
NOTES (CONTINUED)

- 6 CONTRACTOR TO SAW CUT AND REMOVE EXISTING CONCRETE SIDEWALK AND SIDEWALK REPAIR.
- 7 ELECTRIC LINES FROM EACH SOLAR PANEL GROUP OF (12) PER EACH 20 AMP/3P BREAKER. SEE SHEET E601. RUN 2 #8 CU THWN AND 1 #10 CU GND IN 1" RIGID CONDUIT.
- 8 (3) 500 KCMIL CU THWN, (1) 350 KCMIL CU THWN AND (1) #2 CU GROUND IN (1) 3" CONDUIT FROM 400A DISCONNECT SWITCH TO 1200A DISCONNECT SWITCH.
- 9 ELC TO HYDRO EXCAVATE (12) 500 CU KCMIL CU THWN, (4) 4/0 CU THWN AND (4) 3/0 CU GROUND IN (4) 3"C FROM NEW 1200A DISCONNECT TO GROUND BOX. GRADE AREA BACK TO ORIGINAL CONDITION, SEED AND MULCH.
- 10 (12) 4/0 CU THWN, (1) 3/0 CU THWN AND (1) #4 CU GROUND IN (1) 2 1/2" CONDUIT OVER PARAPET WALL AND DOWN TO DISCONNECT.
- 11 ELC TO RUN A NEW 3/0 CU GROUND IN 1" GRS WITH GROUND BUSHINGS TO GROUND THE PIPE. RUN FROM DISCONNECT TO THE EXISTING MDP BY RUNNING UP THE SIDE OF THE BUILDING AND USING AN LB FITTING TO GO ABOVE THE CEILING. RUN IN THE CEILING TO EXISTING MDP. SEE E-501.
- 12 UNDERMINE EXISTING TRANSFORMER AND INSTALL NEW SERVICE CONDUIT AND CONDUCTORS FROM TRANSFORMER TO NEW 1200A SERVICE DISCONNECT. ((12) 500 CU KCMIL CU THWN, (4) 4/0 CU THWN AND (4) 3/0 CU GROUND IN (4) 3"C))
- 13 COORDINATE WITH PLUMBING CONTRACTOR TO PROVIDE AND INSTALL NEW ROOF HYDRANT FOR SOLAR PANEL CLEANING. HYDRANT TO BE WOODFORD RHY2-MS OR EQUAL. RUN 1" WATER LINE AND FLEXIBLE 1/8" COPPER LINE TO SINK BELOW. COORDINATE EXACT LOCATION WITH OWNER. SEE PLUMBING SHEET AND INFORMATIONAL DETAIL ON SHEET E-601.
- 14 PROVIDE AND INSTALL ENPHASE IQ GATEWAY ON CCA TREATED BOARD MOUNTED TO UNISTRUT. PROVIDE AND INSTALL A NEMA 4X JUNCTION BOX FOR THE GATEWAY. RUN WIRE(#12 CU THWN) AND CONDUIT TO ELECTRICAL PANEL. COORDINATE WITH OWNER ON HOW UNIT REPORTS SOLAR INFORMATION.



Ⓢ =CIRCUIT NUMBER

2 NEW ROOF ELECTRICAL POWER PLAN
SCALE: 1"=20'



3 ENLARGED ROOF ELECTRICAL POWER PLAN
SCALE: 3/8"=1'-0"

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ISSUE DATE: 07/22/2025

CAD DWG FILE: SARC-e.dwg
DRAWN BY: MDS
CHECKED BY: JLD
DESIGNED BY: JLD

SHEET TITLE:
**ROOF
ELECTRICAL
POWER PLAN**

SHEET NUMBER:

E-101

13 OF 18 SHEETS
2025-07-22

FOR
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CAD DWG FILE:SARC-e.dwg
DRAWN BY: MDS
CHECKED BY: JLD
DESIGNED BY: JLD

SHEET TITLE:
SUPPLEMENTAL
SOLAR DETAILS

SHEET NUMBER:

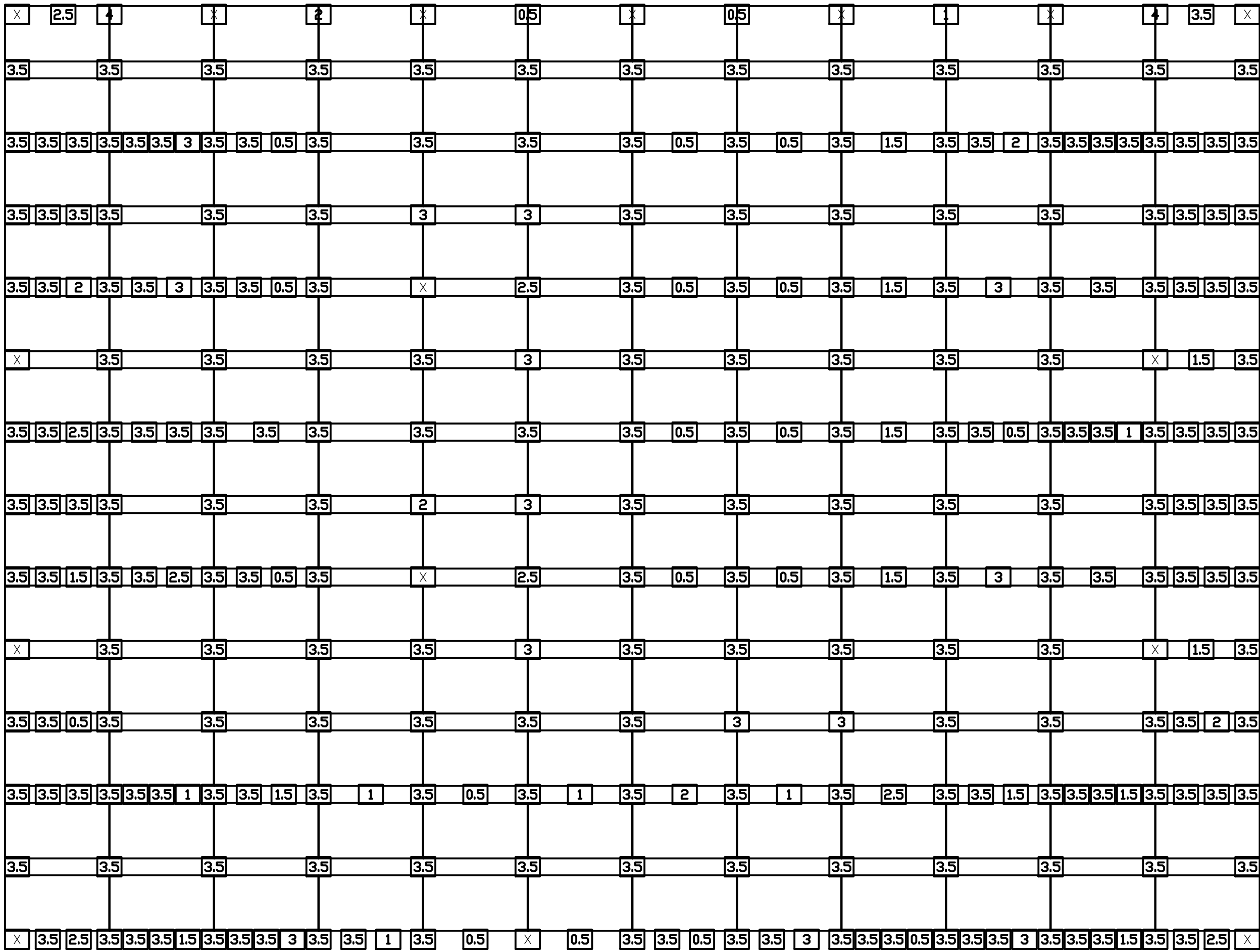
E-201

14 OF 18 SHEETS
2025-07-22

NOTES

 INDICATES KEYED NOTES

- 1 CALCULATIONS WERE PERFORMED BY USING THE ON--LINE SOFTWARE PROVIDED BY UNIRAC.
- 2 IF THE CONTRACTOR SUBSTITUTES WITH A DIFFERENT PANEL, CONTRACTOR SHALL PROVIDE ALL CALCULATIONS AND DETAILS FOR INSTALLATION OF THAT SYSTEM WITH THE SUBSTITUTION REQUEST.
- 3 INFORMATION SHOWN ON THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY AND IS TO SUPPLEMENT THE ELECTRICAL DESIGN.

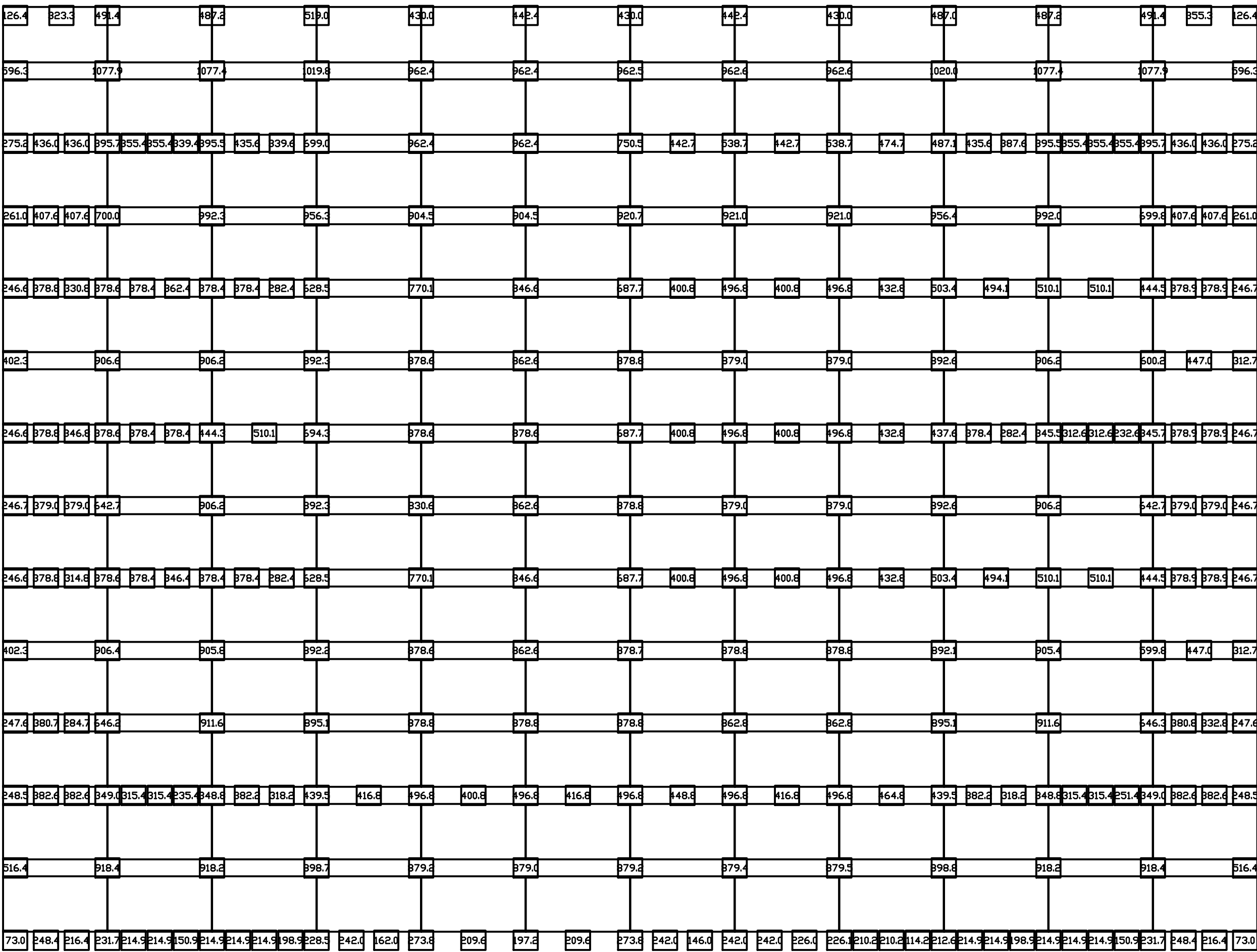


BALLAST MAP

Legend

-  Number of blocks in each bay
-  Bay with attachment

BOM: Roof Area 1 - Array 1	
Parts	Qty
RM10 EVO FIELD BAY	288
RM10 EVO NORTH ROW BAY	15
RM ROOF PAD	332
EVO MOD CLAMP SIDE BOLT BULK	1102
EVO MOD CLAMP BULK	1102
FLASHLOC RM KIT	16
RM10 ATTACHMENT KIT	16
BALLAST HALF BLOCK	258
BALLAST BLOCK	751



DOWNPOINT LOAD MAP

Legend

-  Bay - Downpoint load

NOTES

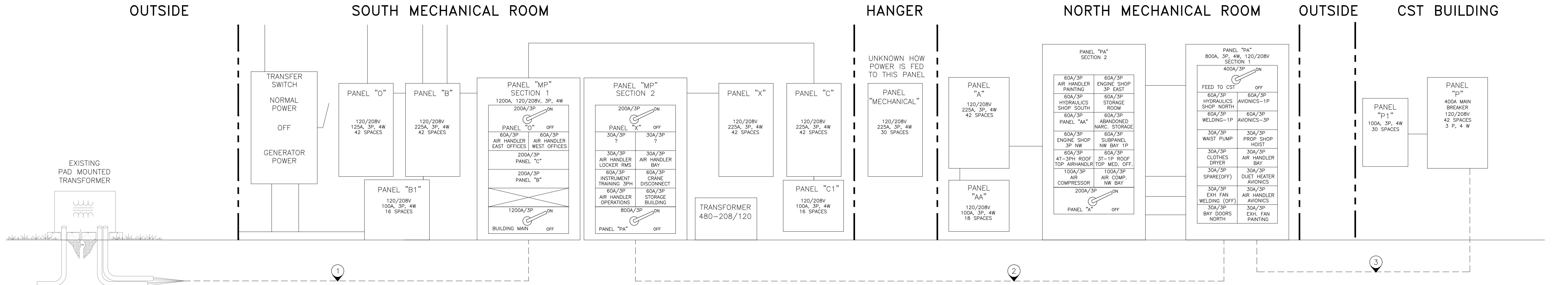
INDICATES KEYED NOTES

- 1 EXISTING - (12) 500 KCMIL AND (4) 4/0 IN (4) 3°C.
- 2 EXISTING - (9) 300 KCMIL AND (3) 2/0 IN (3) 3°C.
- 3 EXISTING - (3) 500 KCMIL AND (1) #3 IN (1) 4°C.
- 4 NEW 225A, 3P, 4W, 120/208V, 42 SPACE, MLO, NEMA 3R ENCLOSURE (SQ-D NQ442L2C OR EQUIVALENT) ON ROOF. MOUNT PANEL ON A UNISTRUT RACK SUPPORTED WITH POLYCARBONATE BASE SIMILAR TO ROOFTOP BRAND 18"x16" SLEEPER SUPPORT. THE ROOF MEMBRANE IS NOT TO BE PENETRATED. RUN NEW CONDUIT ON PARAPET SIDE WALL TO PREVENT WATER DAMMING.
- 5 INSTALL (3) 4/0 CU THWN, (1) 3/0 CU THWN, & (1) #4 CU GRND IN (1) 2 1/2" CONDUIT FROM NEW PANEL TO 400A DISCONNECT.
- 6 NEW 1200A, 3P, 4W, HEAVY DUTY, FUSIBLE, NEMA 3R SAFETY SWITCH. (SCHNEIDER ELECTRIC H368NR OR EQUAL)
- 7 NEW 400A, 3P, 4W, HEAVY DUTY, FUSIBLE, NEMA 3R SAFETY SWITCH FOR SOLAR DISCONNECT. (SCHNEIDER ELECTRIC H325NR OR EQUAL)
- 8 CONTRACTOR SHALL SEVER EXISTING CONDUITS PRIOR TO SERVICE ENTERING THE BUILDING. UNDERMINE EXISTING TRANSFORMER AND INSTALL NEW SERVICE CONDUIT AND CONDUCTORS FROM TRANSFORMER TO NEW 1200A SERVICE DISCONNECT. INSTALL NEW CONDUIT AND SERVICE CONDUCTORS FROM 1200A SERVICE DISCONNECT TO NEW SPLICE BOX. INSTALL A NEW ELECTRICAL SPLICE BOX WHERE EXISTING SERVICE WAS SEVERED. BOX SHALL BE LARGE ENOUGH TO SPLICE MAIN SERVICE CONDUCTORS. BOX TO BE QUAZITE OR EQUAL WITH THE WORD "ELECTRICAL" STAMPED ON THE TOP COVER.

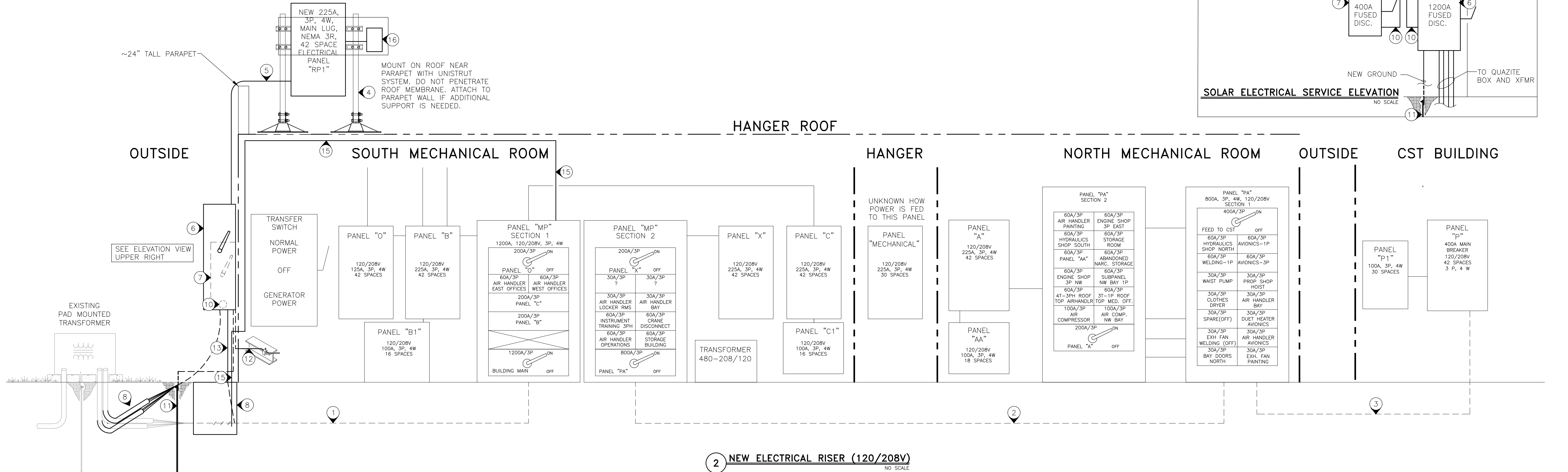
NOTES

INDICATES KEYED NOTES

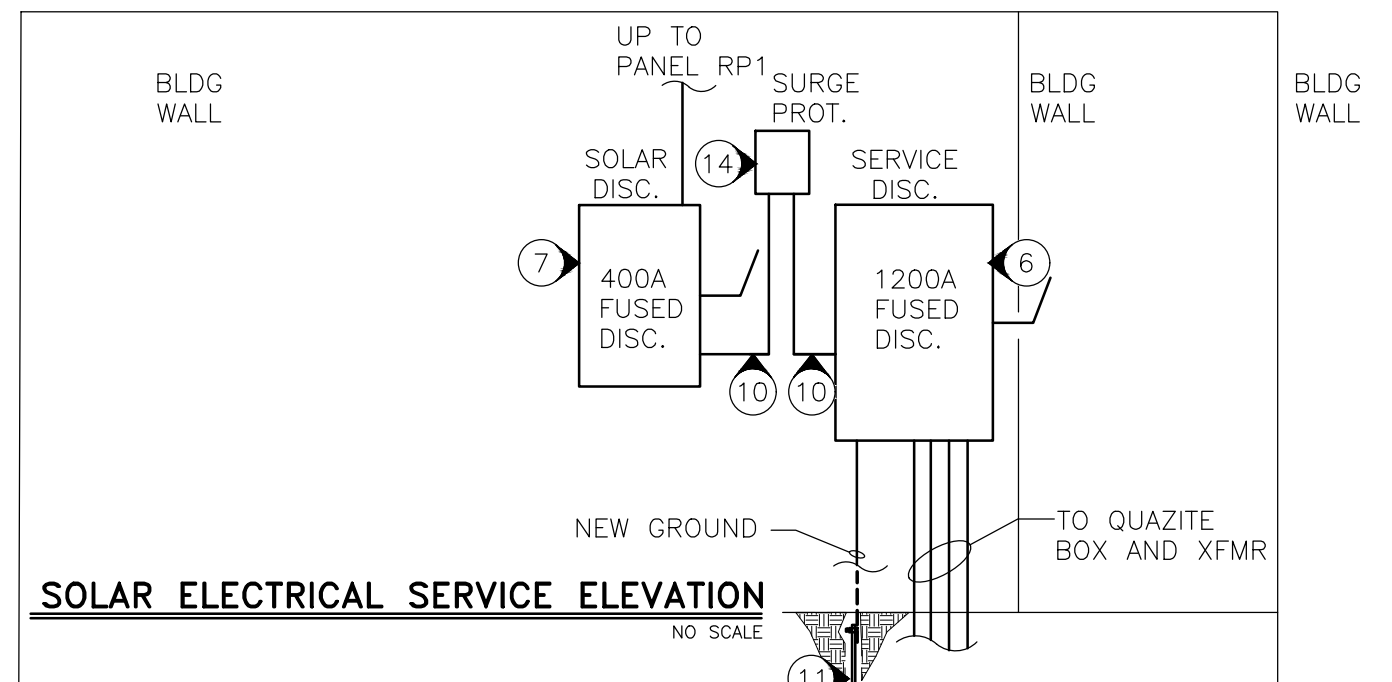
- 9 CONTRACTOR SHALL HYDRO EXCAVATE ALL TRENCHING REQUIRED NEAR THE EXISTING MAIN SERVICE ENTRANCE. A LOCAL RESOURCE FOR THIS IS HYDROVAC OF MISSOURI (NATHAN RAIL 573-533-0255).
- 10 (3) 500 KCMIL CU THWN, (1) 350 KCMIL CU THWN, & (1) #2 CU GRND IN (1) 3" CONDUIT FROM 400A DISCONNECT SWITCH TO 1200A DISCONNECT SWITCH.
- 11 INSTALL #6 CU GRND W/ GROUND ROD AND ENSURE SERVICE GROUNDING IS 25 OHMS OR LESS (GROUND ROD 5/8" X 8' COPPER OR COPPER CLAD).
- 12 INSTALL A #3/0 CU CONDUCTOR TO BUILDING METAL FRAME.
- 13 NEW (4) SETS OF (3) 500 KCMIL CU THWN, (1) 4/0 CU THWN IN (4) 3°C.
- 14 PROVIDE AND INSTALL NEW SURGE PROTECTION DEVICE, 200ka, 208V, 3 PHASE, 4 WIRE TYPE 2 IN A NEMA 4X ENCLOSURE (SCHNEIDER ELECTRIC SSP02XDSE20A OR EQUAL).
- 15 ELC TO RUN A NEW 3/0 CU GROUND IN 1" GRs WITH GROUNDING BUSHINGS TO GROUND THE PIPE. RUN FROM NEW 1200A DISCONNECT TO THE GROUND BOX THEN TO EXISTING MDP BY RUNNING UP THE SIDE OF THE BUILDING AND USING AN LB FITTING TO GO ABOVE THE CEILING. RUN IN THE CEILING TO EXISTING MDP GROUND BUSS.
- 16 PROVIDE AND INSTALL ENPHASE IQ GATEWAY ON CCA TREATED BOARD MOUNTED TO UNISTRUT. PROVIDE AND INSTALL A NEMA 4X JUNCTION BOX FOR THE GATEWAY. RUN WIRE(#12 CU THWN) AND CONDUIT TO ELECTRICAL PANEL. COORDINATE WITH OWNER ON HOW UNIT REPORTS SOLAR INFORMATION.



1 EXISTING ELECTRICAL RISER (120/208V)
NO SCALE



2 NEW ELECTRICAL RISER (120/208V)
NO SCALE



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CAD DWG FILE: SARC-e.dwg
DRAWN BY: MDS
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SHEET TITLE:

ELECTRICAL RISER
DETAILS

SHEET NUMBER:

E-501

15 OF 18 SHEETS
2025-07-22

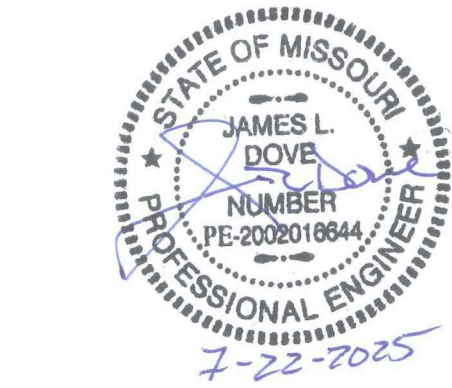
NOTES

INDICATES KEYED NOTES

NEW ROOF MOUNTED NEMA 3R ELECTRIC PANEL FOR POWER FROM ROOF SOLAR PANELS. SEE E-501 FOR DETAILS.

PANEL DESIGNATION: PANEL "RP1"													
VOLTAGE: 208 3PHASE 4WIRE		PANEL LOCATION: SOUTH END OF ROOF AT SOLAR PANELS						TOTAL VOLTAMPS THIS PANEL			78010		
MAINS: 225 A _CB X MLO		MOUNTING: _ FLUSH X SURFACE			PANEL SPACES: 42			TOTAL CONNECTED LOAD (AMPS)			217		
		CONNECTED LOAD				CKT.	CONNECTED LOAD						
CIRCUIT DESIGNATION		WIRE	TRIP	A	B	C	NO.	A	B	C	TRIP	WIRE	CIRCUIT DESIGNATION
12 SOLAR PANELS		#8		2000			1 2	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		3 4		2000		20A/3P	#8	
		#8				2000	5 6			2000		#8	
12 SOLAR PANELS		#8		2000			7 8	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		9 10		2000		20A/3P	#8	
		#8				2000	11 12			2000		#8	
12 SOLAR PANELS		#8		2000			13 14	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		15 16		2000		20A/3P	#8	
		#8				2000	17 18			2000		#8	
12 SOLAR PANELS		#8		2000			19 20	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		21 22		2000		20A/3P	#8	
		#8				2000	23 24			2000		#8	
12 SOLAR PANELS		#8		2000			25 26	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		27 28		2000		20A/3P	#8	
		#8				2000	29 30			2000		#8	
12 SOLAR PANELS		#8		2000			31 32	2000				#8	12 SOLAR PANELS
		#8	20A/3P		2000		33 34		2000		20A/3P	#8	
		#8				2000	35 36			2000		#8	
12 SOLAR PANELS		#8		2000			37 38	5			20A/2P	#12	EMPHASE IQ GATEWAY (SOLAR MONITORING)
		#8	20A/3P		2000		39 40		5			#12	
		#8				2000	41 42						
			14000					12005			PHASE A	26005	
				14000					12005		PHASE B	26005	
					14000					12000	PHASE C	26000	

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OF PUBLIC SAFETY
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HIGHWAY PATROL

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DRAWN BY: MDS
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DESIGNED BY: JLD

SHEET TITLE:

ELECTRICAL
PANEL
SCHEDULE

SHEET NUMBER:

E-601

