BSD ELMONICA ELEMENTARY SCHOOL: 2021 RE-ROOF

CITY OF BEAVERTON, OR (AHJ)

BEAVERTON SCHOOL DISTRICT

OWNER

16550 SW MERLO ROAD BEAVERTON, OR 97003 (T): (503) 356-4318 CONTACT: MEGAN FINCH

TO BE DETERMINED

CONTRACTOR

CCB #:----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200 PORTLAND, OREGON 97224 (T): (503) 226-1285 CONTACT: DUSTIN JOHNSON

RDH BUILDING SCIENCE

ROOFING CONSULTANT

5331 S. MACADAM AVE, #314 PORTLAND, OREGON 97239 (T): (503) 867-8519 CONTACT: SCOTT MECALIS

R&W ENGINEERING

COST CONSULTANT

9715 SW ALLEN BLVD, #117 BEAVERTON, OREGON 97005 (T): (503) 292-6000 CONTACT: ED CARLISLE

SITE INFORMATION

01101 TAX MAP: ISI06AD ZONE:

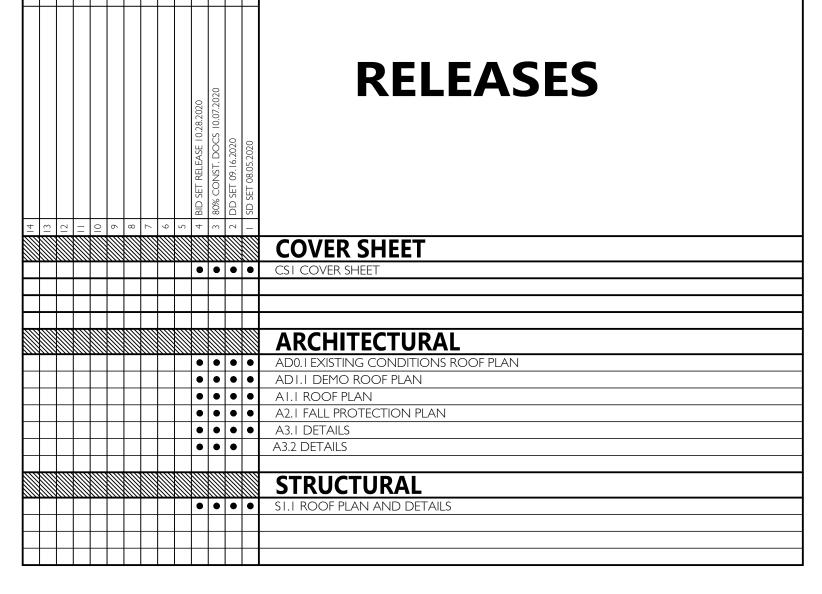
SITE AREA: 8.63 ACRES (375,922.8 SF)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC)

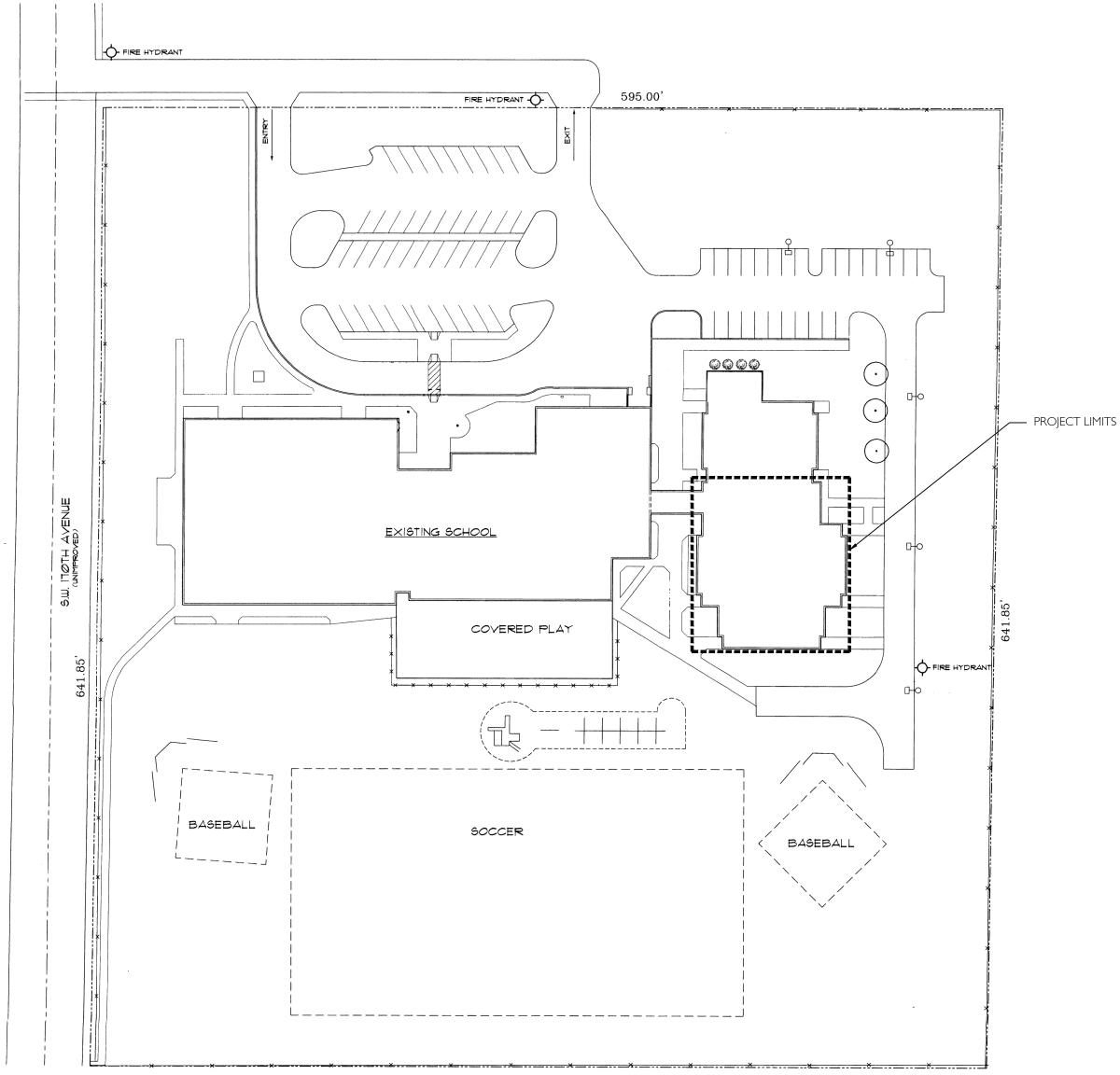
OCCUPANCY: E (EDUCATION) CONSTRUCTION TYPE: V-B (SPRINKLERED) **BUILDING AREA:**

PROJECT DESCRIPTION



1 VICINITY MAP

CS1 NO SCALE

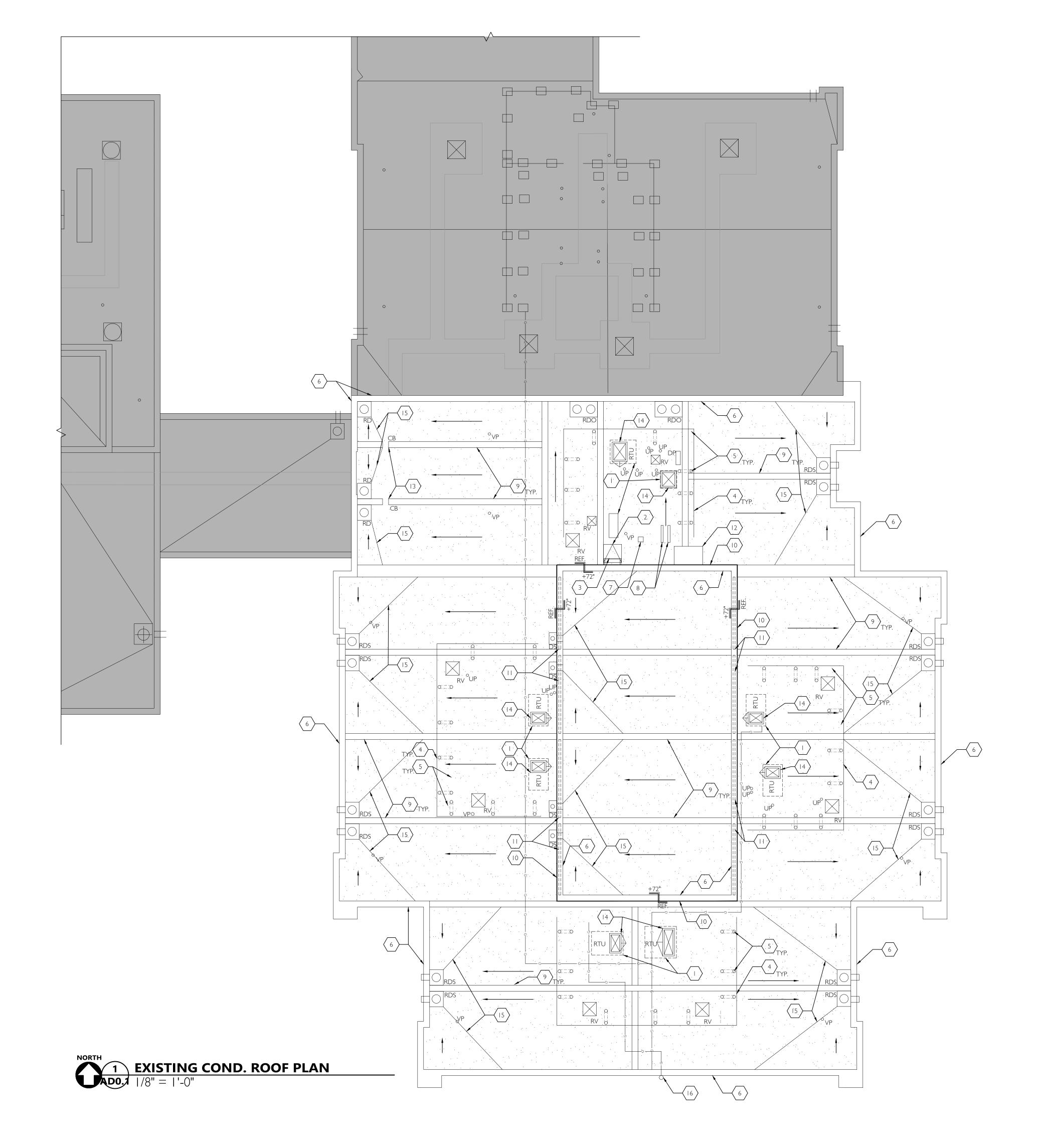


2 SITE PLAN - FOR REFERENCE ONLY

ELMONIC

COVER SHEET

JOB NO. 20Y082.01 (C)2020 CIDA, P.C./CIDA ALL RIGHTS RESERVE



EXST. CONDITIONS ROOF PLAN GENERAL NOTES

- CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH. EQUIPMENT ARE DIAGRAMMATIC
- ONLY -- CONTRACTOR TO FIELD VERIFY PLACEMENT BENEATH UNIT.

 4. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS NON-CURBED CONDITION.

EXST. CONDITIONS ROOF PLAN LEGEND

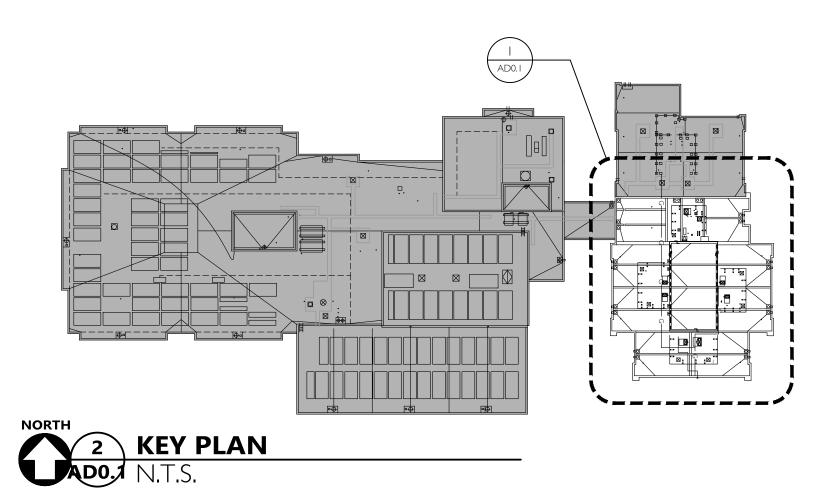
| | | 1 | | | | |
|------|---|---|------------------------------|--------------------------------|--|--|
| RV | - (E) CURB MOUNTED ROOF VENT | | - (E) WA | | | |
| | | —— G——— G—— | - (E) NA | TURAL | . GAS LINE | |
| °VP | - (E) VENT PIPE PENETRATION | —— E ——— | - (E) ELE | CTRIC/ | AL LINE | |
| °UP | - (E) UTILITY PENETRATION | | | | | |
| | - (E) SCUPPER WITH DOWNSPOUT | | - AREA OUTSIDE SCOPE OF WORK | | | |
| RDO | - (E) ROOF DRAIN AND OVERFLOW DRAIN | | - (E) PEA | - (E) PEA GRAVEL BUILT-UP ROOF | | |
| RDS | - (E) ROOF DRAIN WITH SCUPPER OVERFLOW | - | - DIRECTION OF DRAINAGE | | | |
| CB | - (E) CURB BREAK OVERFLOW | <u>ABBREVIATIONS</u> | | | | |
| DP | - (E) DUCTED PENETRATION | (E) -EXISTING (N) -NEW TYPTYPICAL | IN UIT | RV UP | -ROOF VENT -UTILITY PENETRATION | |
| +32" | REFERENCE PLANE VERTICAL EDGE ELEVATION RELATIVE TO REFERENCE PLANE | RTU -ROOFTOP UVP -VENT PIPE DS -DOWNSPO DP -DUCT PENETRATIO | UT | RDO RDS CB | -ROOF DRAIN OVERFLOW -ROOF DRAIN SCUPPER -CURB BREAK | |

EXST. CONDITIONS ROOF PLAN KEYNOTES

(E) CURB-MOUNTED MECHANICAL EQUIPMENT

VERTICAL ELEVATION CHANGE

- (E) ROOF HATCH
- (E) FIXED LADDER
- (E) REMOVABLE MECHANICAL SCREEN
- (E) MECHANICAL SCREEN STEEL PIPE SUPPORTS
- $\left\langle 7\right\rangle$ (E) PITCH POCKET WITH SHEET METAL HOOD
- (E) ABANDONED CURBS WITH SHEET METAL CAPS
- (E) ROOF CURB-TO-CURB EXPANSION JOINT, BETWEEN MODULARS, TYP.
- (E) SIDEWALL WITH BOX RIB METAL SIDING
- (E) FIBERGLASS CLERESTORY WINDOW BELOW
- (E) SIDEWALL BUMP-OUT WITH SHEET METAL CAP
- (E) CURB BREAK OVERFLOW
- (E) EQUIPMENT CURB AND ROOF PENETRATION
- (E) CRICKET
- (E) GAS RISER





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PORTLAND, OREGON 97224 T E L : 5 0 3 . 2 2 6 . I 2 8 5 FAX: 503.226.1670

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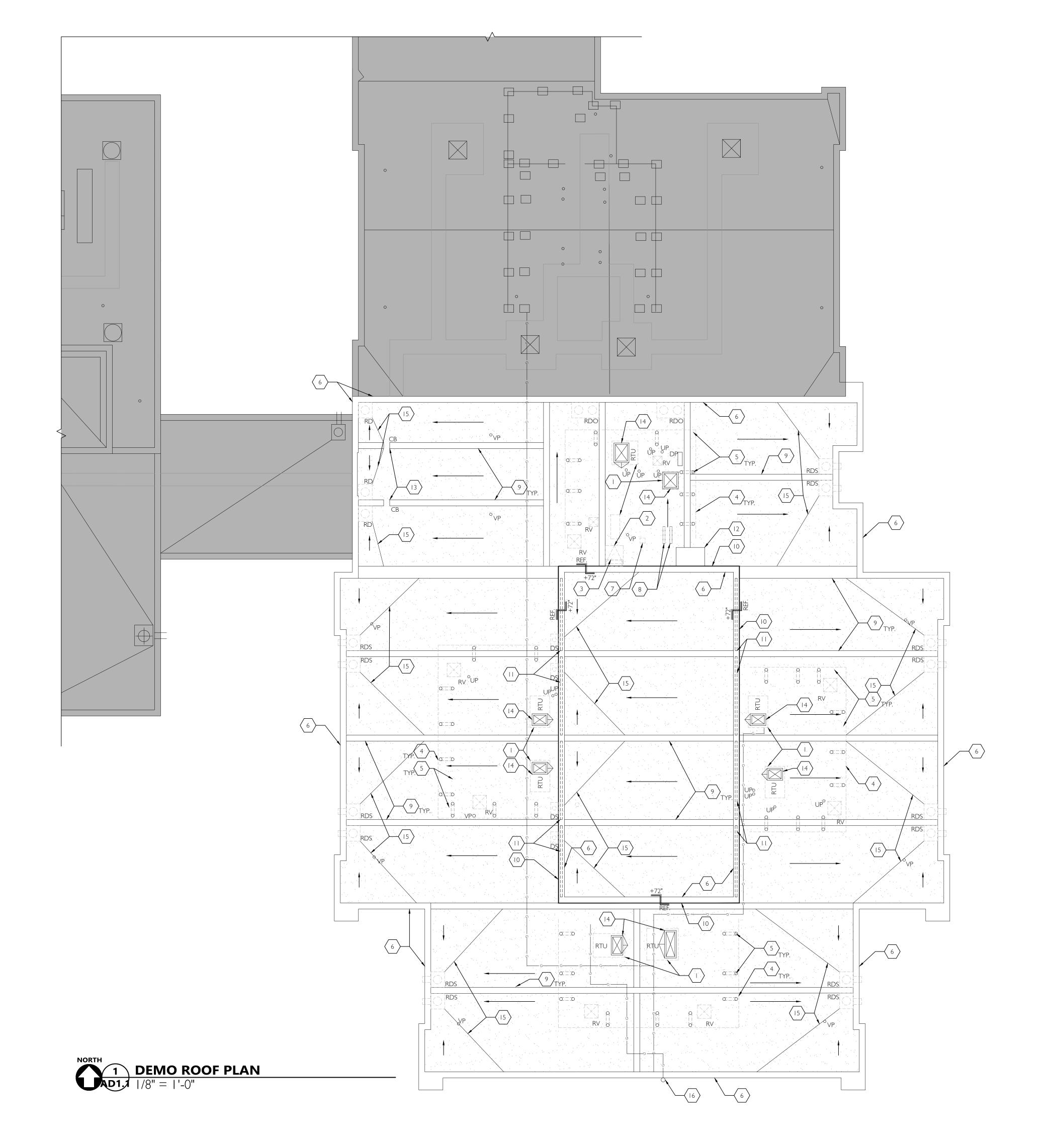
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WS 03691 **LMONICA**

EXISTING CONDITIONS ROOF PLAN

AD0.1 JOB NO. 20Y082.01

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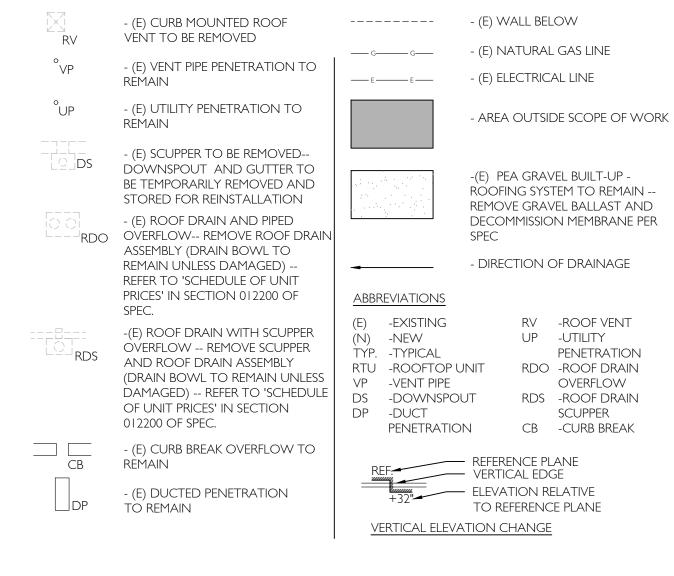


DEMO ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. APPLICABLE CODES: ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES. ALL CODE REFERENCES IN THE DRAWINGS AND SPECIFICATIONS SHALL MEAN, AND ARE INTENDED TO BE, THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCED STANDARD IN EFFECT AS OF THE
- DATE OF THE CONTRACT DOCUMENTS. 4. SEE MECHANICAL DRAWINGS FOR ALL MECHANICAL EQUIPMENT TO BE REMOVED AND FOR SIZES OF NEW OR REVISED CEILING PENETRATIONS.
- 5. FOR EXISTING FIXTURES AND EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED, CONTRACTOR TO STORE ON-SITE IN A WEATHER TIGHT LOCATION APPROVED BY THE DISTRICT. SEE SPEC SECTION -- FOR
- ADDITIONAL STORAGE REQUIREMENTS. 6. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC
- ONLY -- CONTRACTOR TO FIELD VERIFY ACTUAL PLACEMENT BENEATH UNIT. 7. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS
- 8. SEE ROOFING SPECIFICATION IN PROJECT MANUAL FOR ALL EXISTING ROOFING COMPONENTS AND ACCESSORIES TO BE REMOVED AND FOR OTHER PROCEDURES REQUIRED IN PREPARATION OF INSTALLING
- 9. UNLESS OTHERWISE NOTED, ROOF CURBS AT EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED SHALL
- REMAIN IN PLACE. 10. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

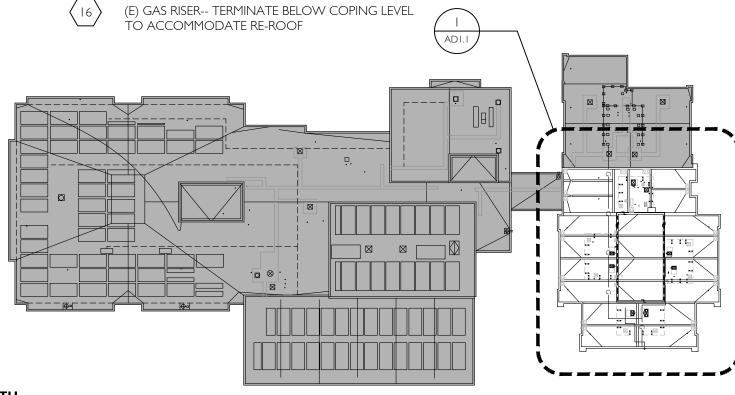
DEMO ROOF PLAN LEGEND

NON-CURBED CONDITION.

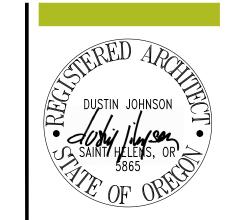


DEMO ROOF PLAN KEYNOTES

- (E) CURB-MOUNTED MECHANICAL EQUIPMENT-- TEMPORARILY REMOVE AND STORE FOR REINSTALLATION
- (E) ROOF HATCH-- TEMPORARILY REMOVE AND STORE FOR REINSTALLATION
- (E) FIXED LADDER TO REMAIN
- (E) MECHANICAL SCREEN-- TEMPORARILY REMOVE SCREEN AND STORE FOR REINSTALLATION
- (E) MECHANICAL SCREEN SUPPORTS-- TEMPORARILY REMOVE AND STORE FOR REINSTALLATION-- (E) THROUGH-ROOF PIPE SLEEVE AT SUPPORTS TO REMAIN IN PLACE DURING RE-ROOF
- (E) PARAPET-- REMOVE SHEET METAL COPING AND COUNTER FLASHING
- (E) PITCH POCKET WITH SHEET METAL HOOD TO REMAIN
- (E) ABANDONED EQUIPMENT CURBS-- REMOVE AND PATCH/REPAIR DECK AND (E) ROOFING PER SPEC
- (E) ROOF CURB-TO-CURB EXPANSION JOINT-- REMOVE METAL CAP AND ROOFING/FLASHING AT JOIN-- (E) CURBS TO REMAIN
- (E) SIDEWALL WITH BOX RIB METAL SIDING TO REMAIN
- (E) FIBERGLASS CLERESTORY WINDOW BELOW TO REMAIN
- (E) SIDEWALL BUMP-OUT WITH SHEET METAL CAP TO REMAIN
- (E) CURB BREAK OVERFLOW TO REMAIN
- (E) EQUIPMENT CURB AND ROOF PENETRATION TO REMAIN-- REMOVE CURB FLASHING AND PREP FOR ROOF RE-COVER
- (E) CRICKET TO REMAIN









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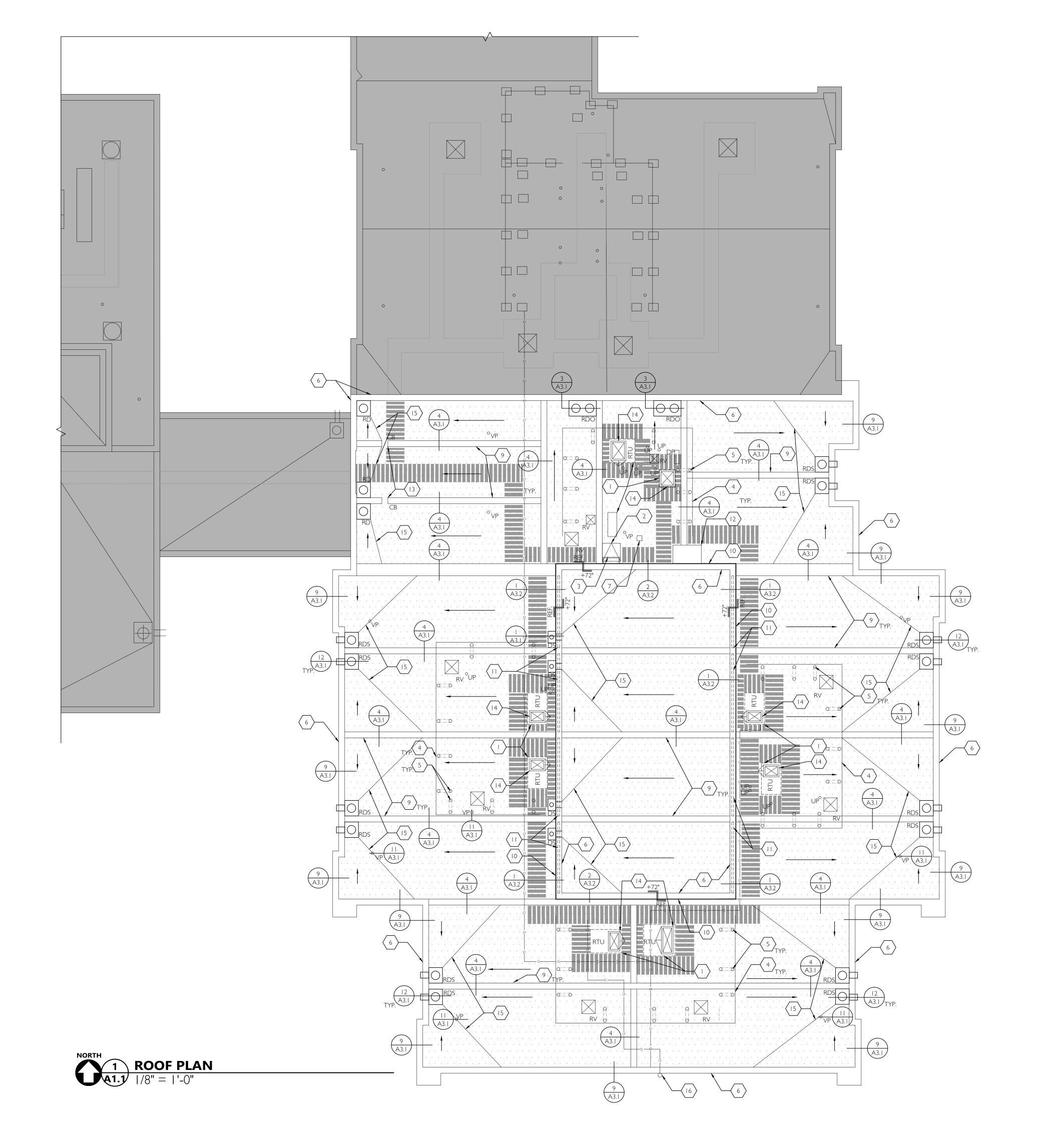
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DEMO ROOF PLAN

AD1.1

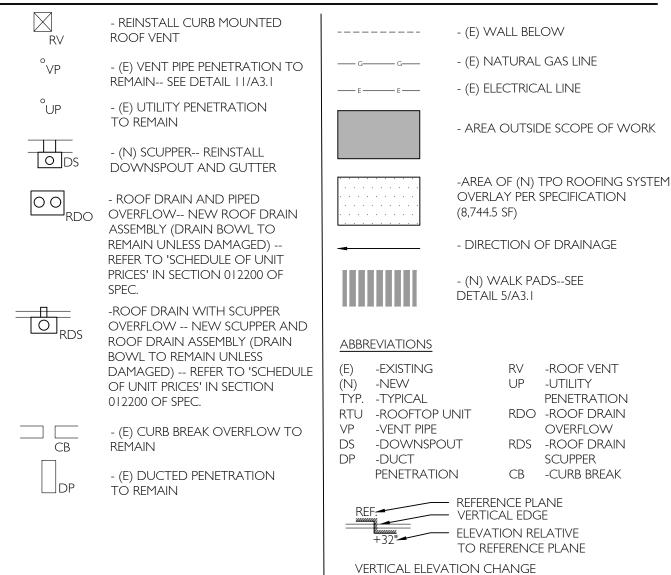
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ROOF PLAN GENERAL NOTES

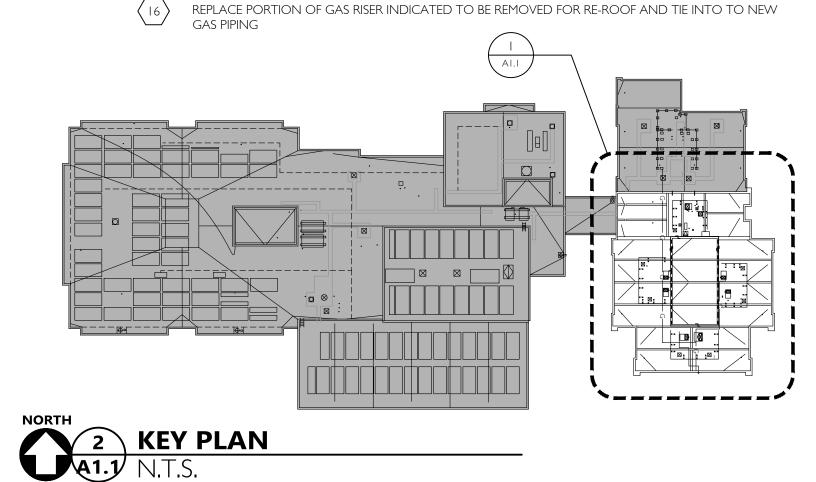
- I. CONTRACTOR TO VERIFY (E) CONDITIONS SHOWN OR IMPLIED AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. ALL ROOFING REPAIR WORK TO BE PREFORMED BY ROOFING CONTRACTOR CERTIFIED BY ROOFING MANUFACTURER AND AS REQUIRED TO MEET INSTALLATION REQUIREMENTS OF SPECIFIED ROOFING SYSTEM
- 4. ALL ROOFING REPAIR WORK IS SUBJECT TO INSPECTION AND APPROVAL BY ROOFING MANUFACTURER FIELD REPRESENTATIVE. CONTRACTOR TO SCHEDULE ROOFING INSPECTION AT INTERVALS DETERMINED BY MANUFACTURER FOR ROOFING SYSTEM WARRANTY.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION OF FINAL ROOF PENETRATIONS TO AVOID
- CONFLICT WITH EXISTING STRUCTURE AND BUILDING SYSTEMS. 6. CONTRACTOR TO CONFIRM ROOF PENETRATION SIZES AND EQUIPMENT CURB DIMENSIONS WITH
- MECHANICAL DRAWINGS.
- 7. WHERE PATCH AND REPAIR WORK IS INDICATED, CONTRACTOR SHALL PATCH AFFECTED AREAS TO MATCH ADJACENT FINISHES AND CONDITIONS FOR 'LIKE NEW' APPEARANCE UNLESS OTHERWISE NOTED. SEE SPECIFICATION SECTION 017329 'CUTTING AND PATCHING' FOR ADDITIONAL INFORMATION.
- 8. SEE STRUCTURAL DRAWINGS FOR BRACING REQUIREMENTS AT NEW ROOFTOP MECHANICAL EQUIPMENT. 9. CONTRACTOR TO MAINTAIN SURFACE DRAINAGE PATTERNS OF EXISTING ROOF WITH SLOPE OF NOT LESS
- 10. CONTRACTOR TO PROVIDE CRICKETING AT MECH EQUIPMENT CURBS, PARAPETS, ROOF DRAINS AND OTHER LOCATIONS AS REQUIRED TO MAINTAIN POSITIVE SLOPE TO POINT OF ROOF DRAINAGE.
- 11. CONTRACTOR TO CONNECT ALL NEW AND RE-INSTALLED EQUIPMENT TO SUPPORTING UTILITIES (NATURAL GAS, ELECTRICAL, LOW VOLTAGE, ETC...).
- 12. FOR INSIDE AND OUTSIDE CORNER REINFORCEMENT SEE DETAILS 3&4/A3.2
- 13. CONTRACTOR TO SUBMIT TAPERED INSULATION SHOP DRAWINGS FOR A/E APPROVAL.
- 14. CONTRACTOR TO SUBMIT WEATHER PROTECTION PLAN FOR A/E & DISTRICT APPROVAL PER SPEC DIVISION 7.
- 15. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

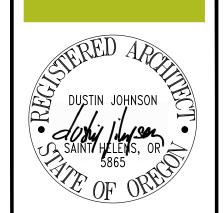
ROOF PLAN LEGEND



ROOF PLAN KEYNOTES

REINSTALL (E) CURB-MOUNTED MECHANICAL EQUIPMENT-- SEE DETAIL 6/A3.1 FOR CURB FLASHING REINSTALL (E) CURB MOUNTED ROOF HATCH-- SEE DETAIL 6/A3.1 FOR CURB FLASHING (E) FIXED LADDER REINSTALL (E) MECHANICAL SCREEN-- CONTRACTOR TO VERIFY THERE IS ADEQUATE SPACE TO PASS BETWEEN THE EDGE OF THE SCREEN AND THE WALL/DOWNSPOUT-- IF THERE IS NOT ADEQUATE SPACE TO PASS THEN RELOCATE DOWNSPOUT AS NEEDED REINSTALL (E) SCREEN SUPPORTS IN (E) THROUGH-ROOF PIPE SLEEVES-- SEE DETAIL 11/A3.1 FOR FLASHING INSTALL NEW COPING CAP AT (E) PARAPET-- SEE DETAIL 9/A3.1 (E) GOOSENECK THROUGH-ROOF PENETRATION-- EXTEND AS NEEDED ABOVE DECK AND RE-INSTALL **NOT USED** INSTALL (N) ROOF CURB-TO-CURB EXPANSION JOINT AT EXISTING ROOF CURB-- SEE DETAIL 4/A3.1 (E) SIDEWALL WITH METAL SIDING-- SEE DETAIL 2/A3.2 (E) FIBERGLASS CLERESTORY WINDOW BELOW-- SEE DETAIL 1/A3.2 (E) SIDEWALL BUMP-OUT WITH SHEET METAL CAP TO REMAIN (E) CURB BREAK OVERFLOW TO REMAIN (E) EQUIPMENT CURB-- SEE DETAIL 6/A3.1 FOR FLASHING (E) CRICKET TO REMAIN





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ARCHITECTU PLANNIN INTERIOF

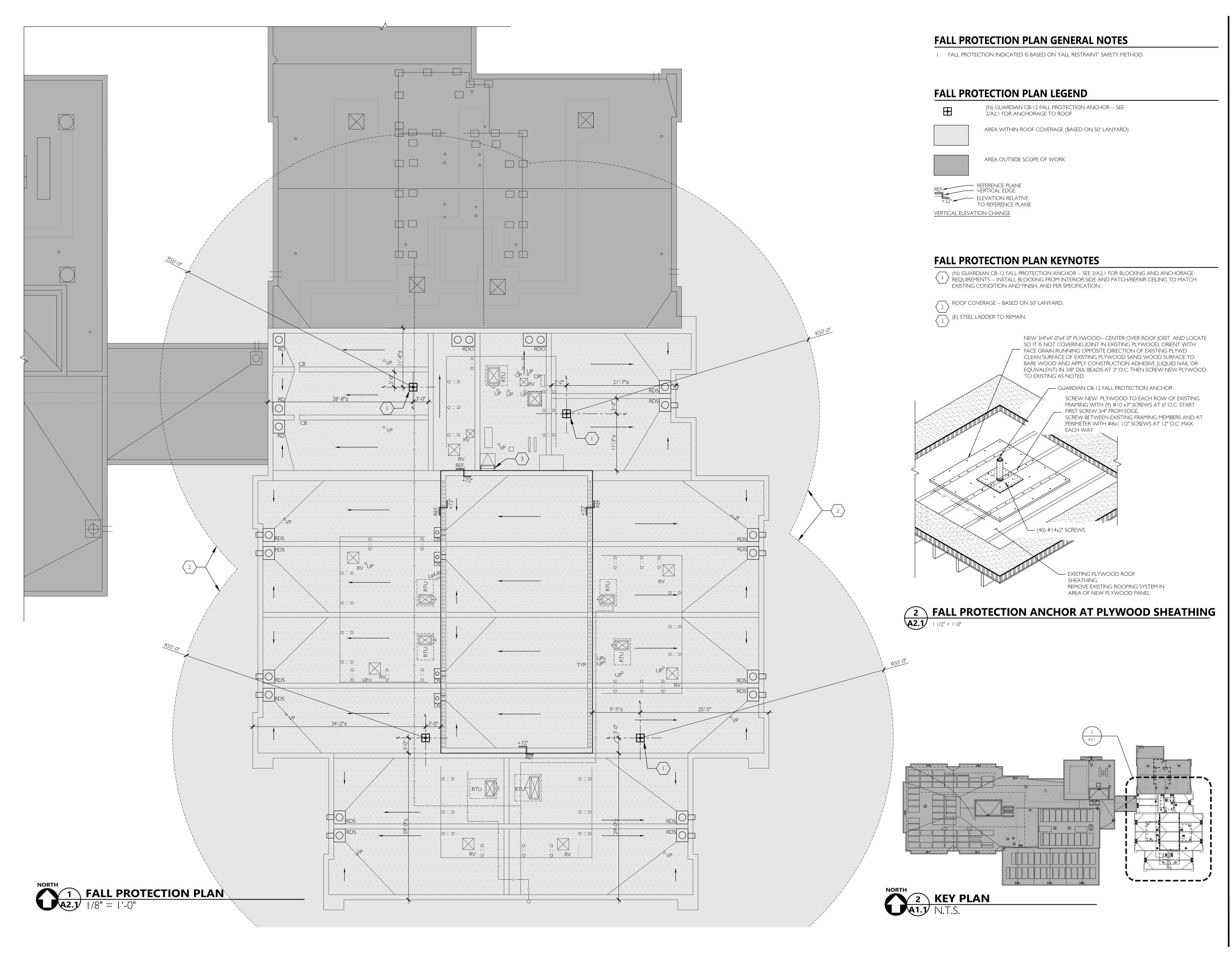
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ROOF PLAN

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15895 SW 72ND AVE SUITE 20 PORTLAND, OREGON 97224

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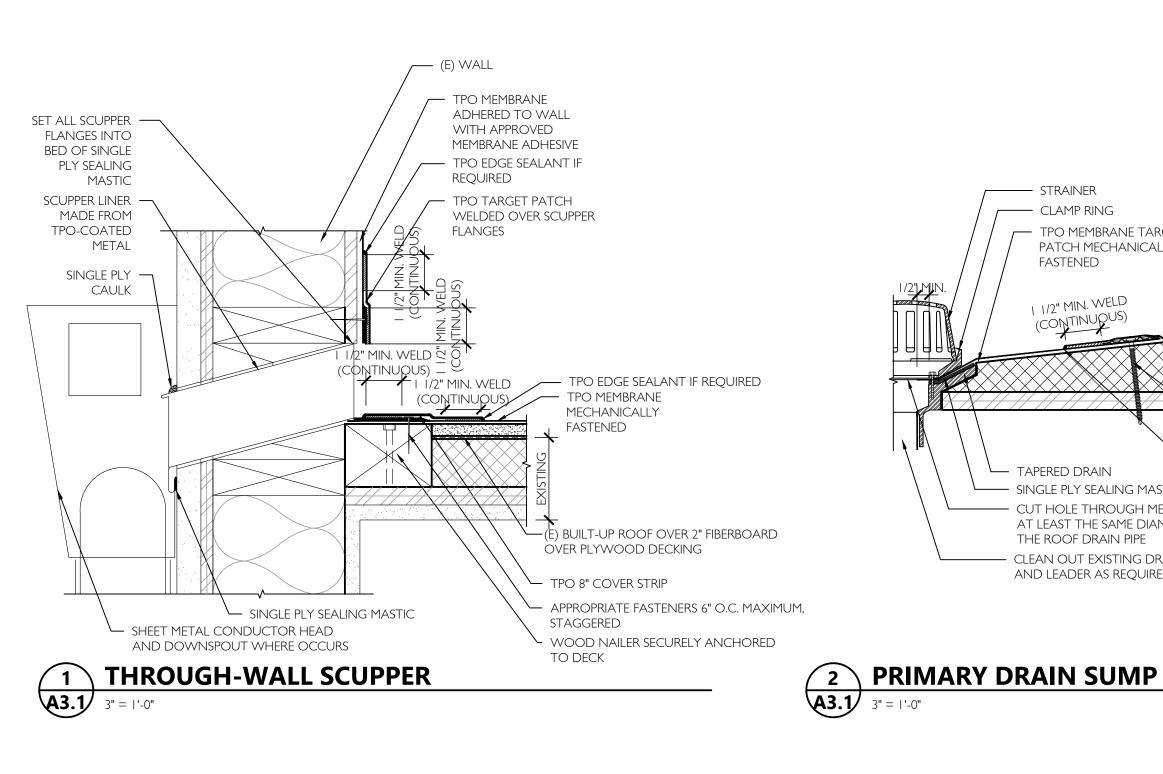
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16950 SW LISA **ELMONICA**

FALL PROTECTION PLAN

A2.1 JOB NO. 20Y082.01

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I 1/2" MINIMUM CONTINUOUS $oldsymbol{--}$

(MUST BE WATERTIGHT)

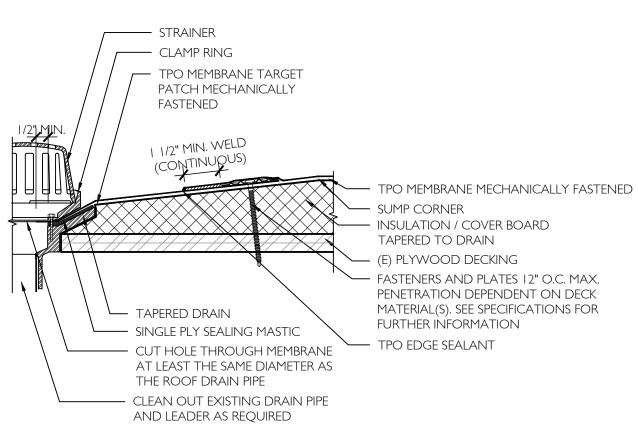
WELD AROUND EDGE OF WALKPAD

TPO HEAT WELDED SEAM -

5 TPO WALKPADS

9 PARAPET

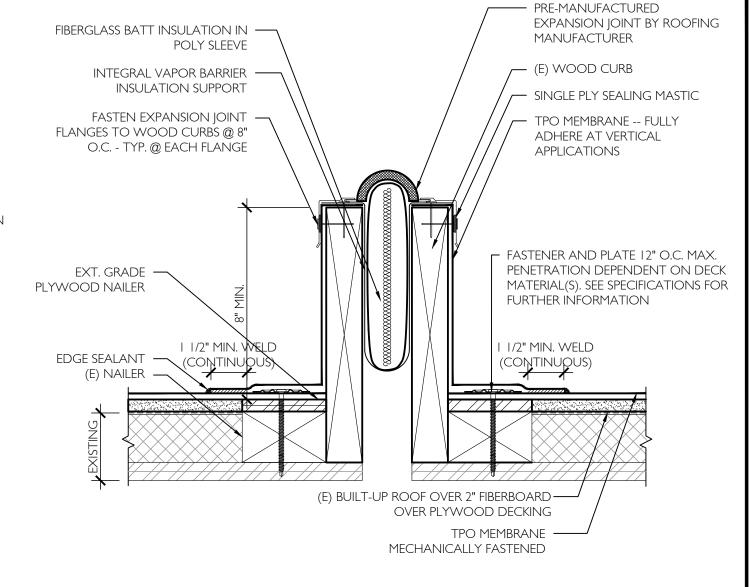
A3.1 3" = 1'-0"



-EQUIPMENT PER PLAN

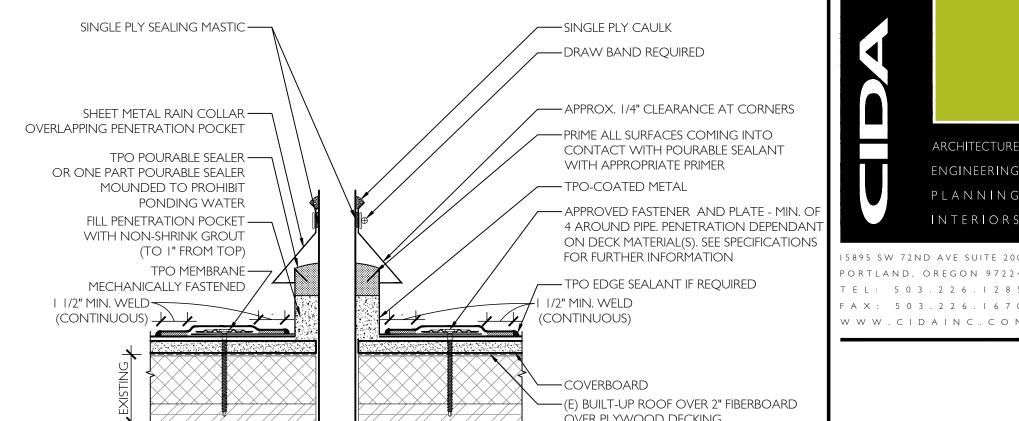
(E) EQUIPMENT FLASHING (MAY INCLUDE HVAC EQUIPMENT, SKYLIGHTS, ROOF HATCHES, ETC.)

- STRAINER - CLAMP RING TPO FIELD MEMBRANE FULLY ADHERED INTO DRAIN BOWL — INSULATION / COVER BOARD TAPERED TO DRAIN TPO MEMBRANE MECHANICALLY FASTENED HIGH INTERNAL STANDPIPE - (E) PLYWOOD DECKING — TAPERED DRAIN PRIMARY DRAW OVERFLOW DRAIN — SINGLE PLY SEALING MASTIC — CUT HOLE THROUGH MEMBRANE AT LEAST THE SAME DIAMETER AS THE ROOF DRAIN PIPE - TYP. - CLEAN OUT EXISTING DRAIN PIPE AND LEADER AS REQUIRED PRIMARY AND OVERFLOW DRAIN SUMP



4 CURB TO CURB EXPANSION JOINT COVER

NOTE: AT CONTRACTOR'S OPTION WHERE CONDITION PERMITS & WHERE SPECIFIED WARRANTY CAN BE MAINTAINED, CONTRACTOR MAY SUBSTITUTE THIS DETAIL FOR 11/A3.1



OVER PLYWOOD DECKING

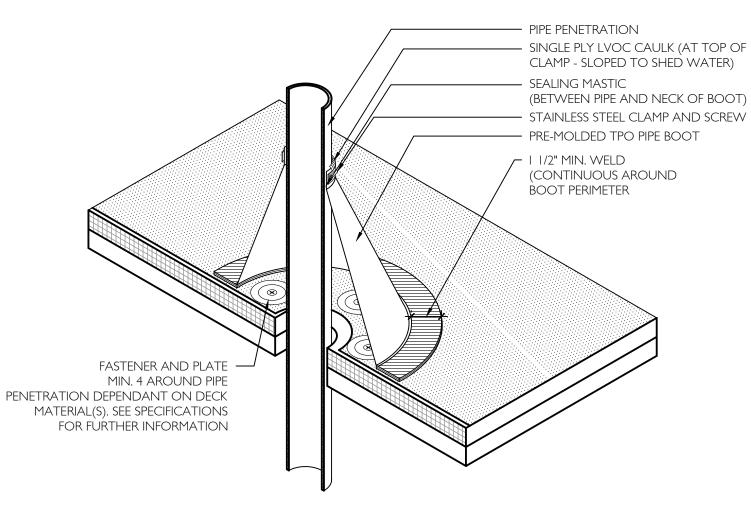
8 METAL PENETRATION POCKET

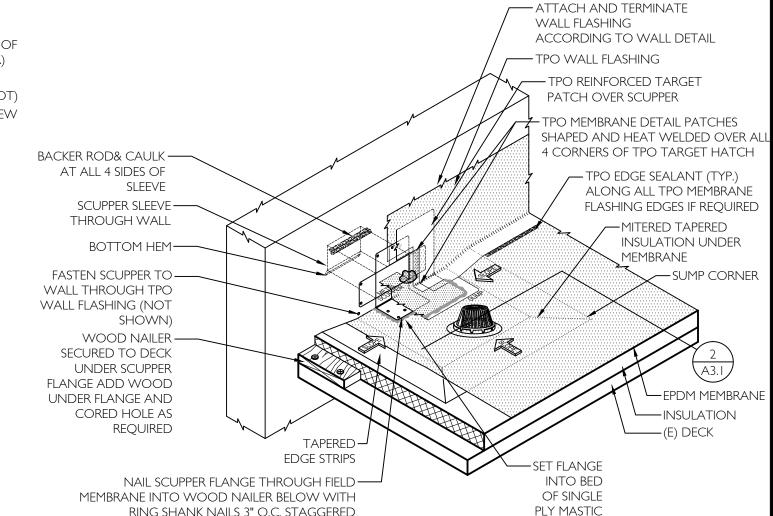
-PREFABRICATED METAL CURB ——2 X 4 WOOD NAILER COUNTER FLASHING APPROXIMATELY 12" O.C. — COUNTERFLASHING SKIRT TPO MEMBRANE MECHANICALLY FASTENED--FULLY ADHERE AT VERTICAL SURFACES -TPO RHINOPLATE UNDER MEMBRANE (WELDED ON TOP OF MEMBRANE USING HE INDUCTION WELDER) 12" O.C. MAX. —COVERBOARD —(E) BUILT-UP ROOF OVER 2" FIBERBOARD OVER PLYWOOD DECKING

6 EQUIPMENT CURB

7 NOT USED

A3.1 3" = 1'-0"





RING SHANK NAILS 3" O.C. STAGGERED PLY MASTIC

12 DRAIN AND OVERFLOW SCUPPER

METAL CLEAT GAUGE, FASTENER AND SPACING PER NRCA, SMACNA OR MANUFACTURERS REQUIREMENTS (MINIMUM 24 GAUGE, 6" O.C. MAXIMUM -INSTALL MEMBRANE DOWN OUTSIDE FACE OF WALL 1/2" BELOW NAILER FASTEN 12" O.C. MAX. WITH APPROPRIATE FASTENERS -METAL COPING SLOPED TO DRAIN PER SMACNA -GASKETED FASTENERS INSTALLED PER SMACNA OR NRCA GUIDELINES TPO MEMBRANE ADHERED TO WALL WITH MEMBRANE ADHESIVE TPO RHINOPLATE UNDER MEMBRANE (WELDED ON TOP OF MEMBRANE USING HE INDUCTION WELDER) 12" O.C. MAX. -COVERBOARD -(E) BUILT-UP ROOF OVER 2" FIBERBOARD OVER PLYWOOD DECKING

10 NOT USED

11 VENT PIPE

SCHO ELEM. **MONICA BSD**

SD DD 80%

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ARCHITECTU

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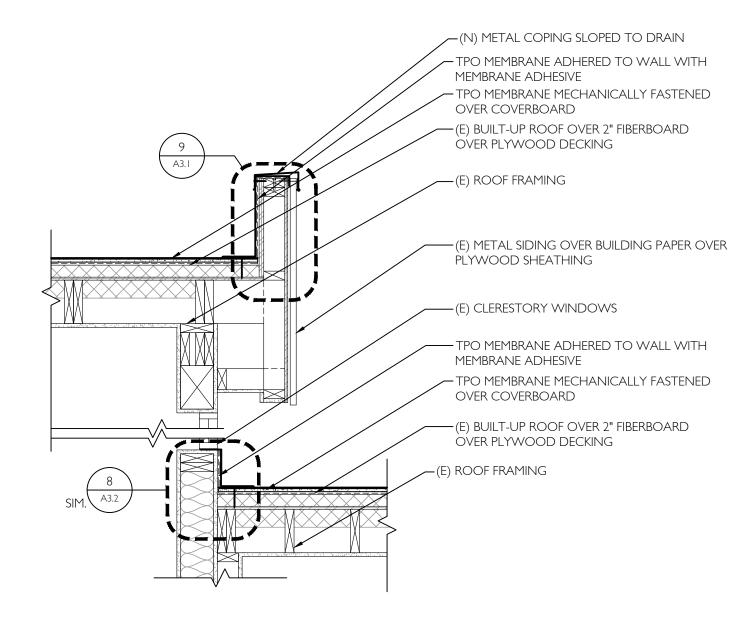
PORTLAND, OREGON 9722

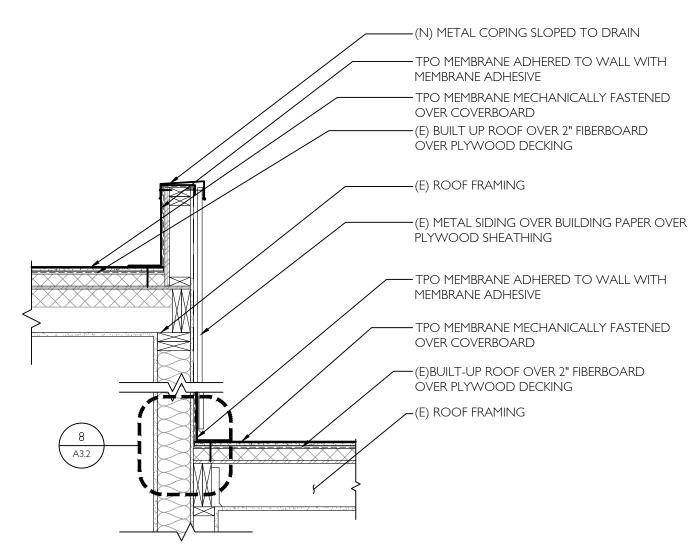
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DETAILS **A3.**1

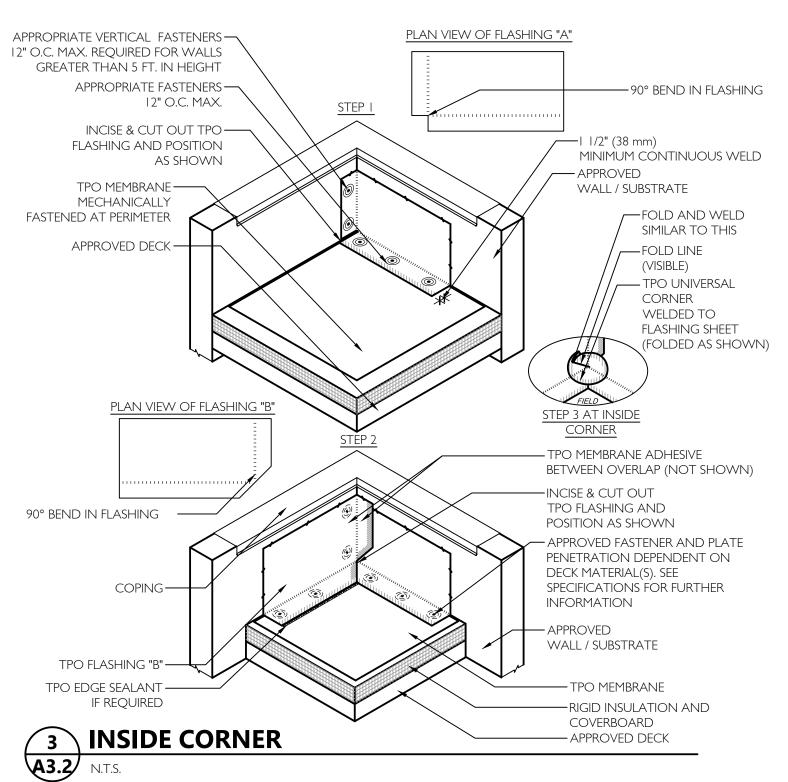
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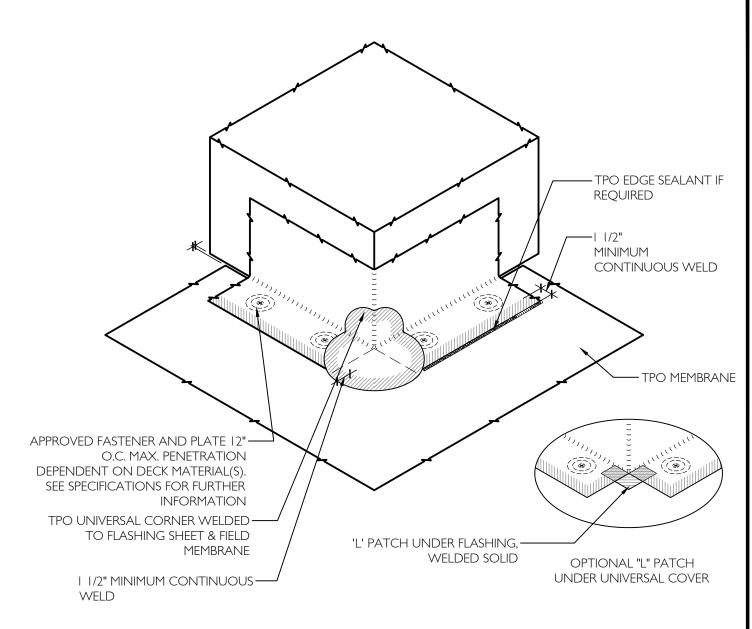




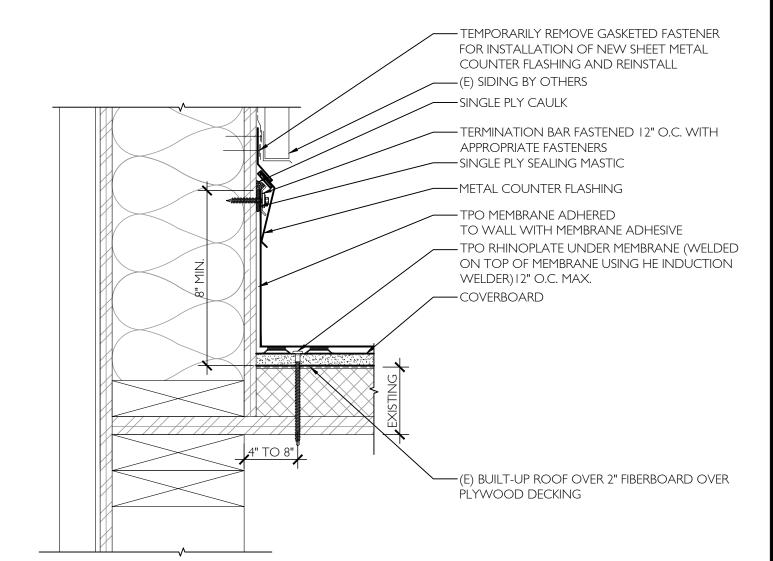




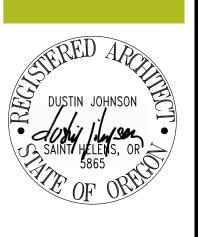












SD DD 80% _ ∠ ₺ 4

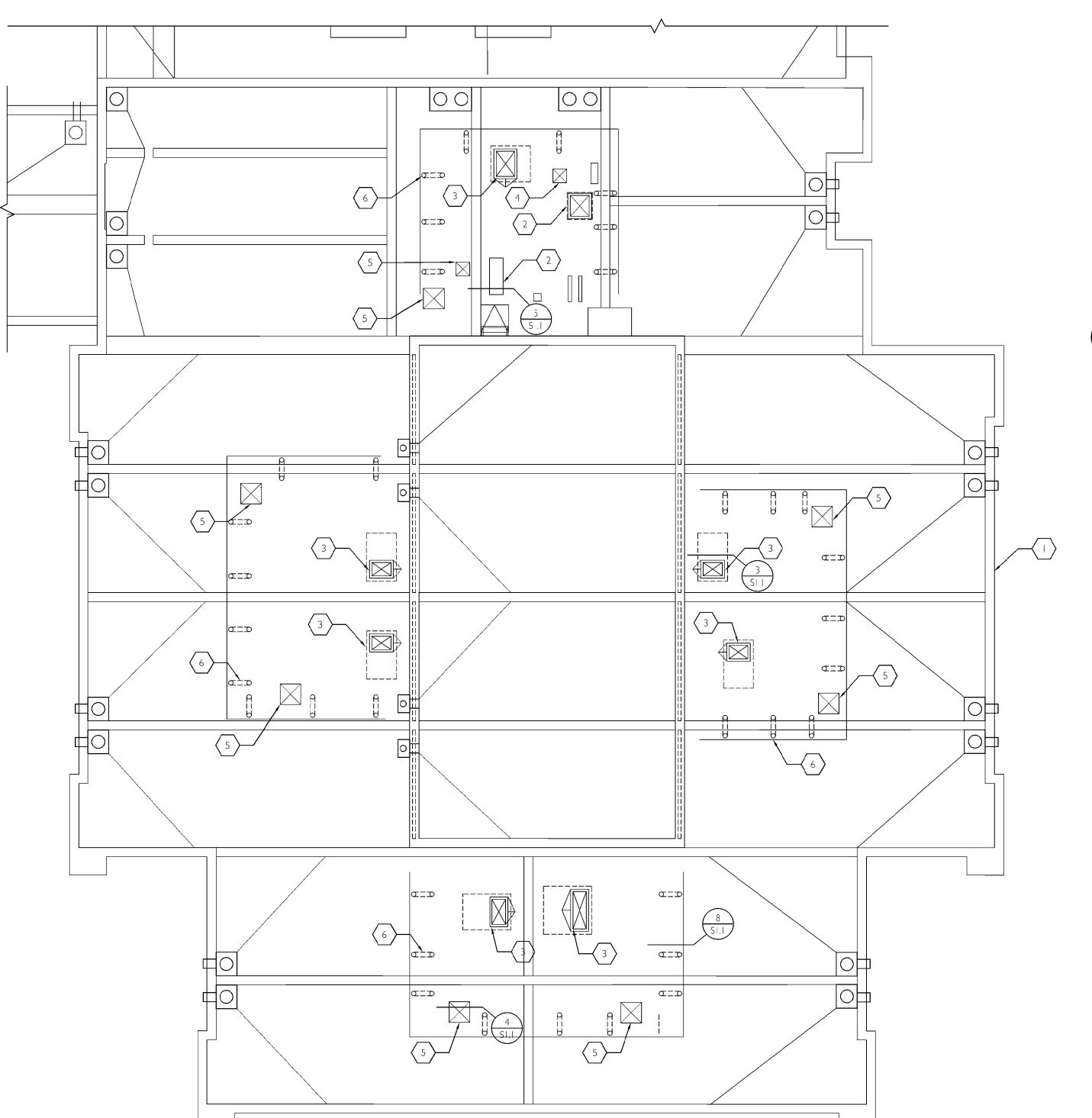


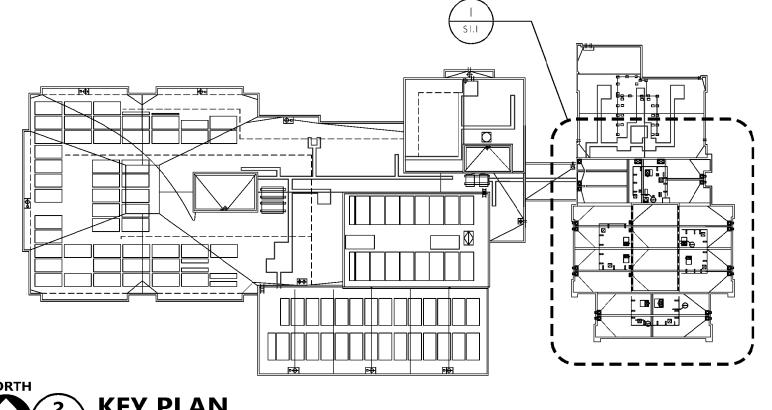
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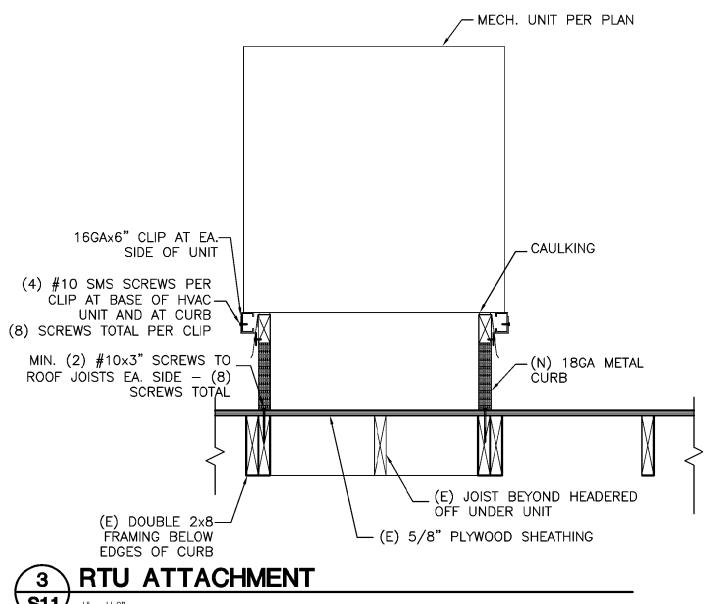




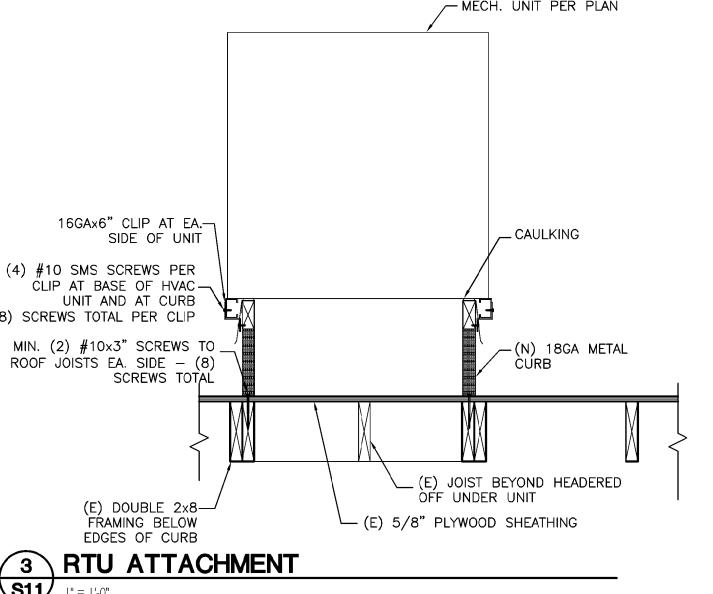
EXAMPLAN SI.1 N.T.S.

ROOF PLAN KEYNOTES

- (E) --ROOF VENT AND CURB TO BE RE-INSTALLED ON ROOF PER 6/S1.1
- (E) --VENT FAN UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 7/S1.1
- (E) MECHANICAL SCREEN TO BE REMOVED AND REINSTALLED--BOTTOM PORTION



- EXISTING BUILDING PRIMETER
- (E) CONDENSER UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 4&5/S1.1
- (E) 440LB MAX WT CARRIER UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 3/S1.1
- OF LEGS ATTACHED TO ROOF STRUCTURE TO REMAIN IN PLACE -- SEE 8/S I. I



CODE

2019 OREGON STRUCTURAL SPECIALTY CODE (2019 OSSC)

DESIGN CRITERIA

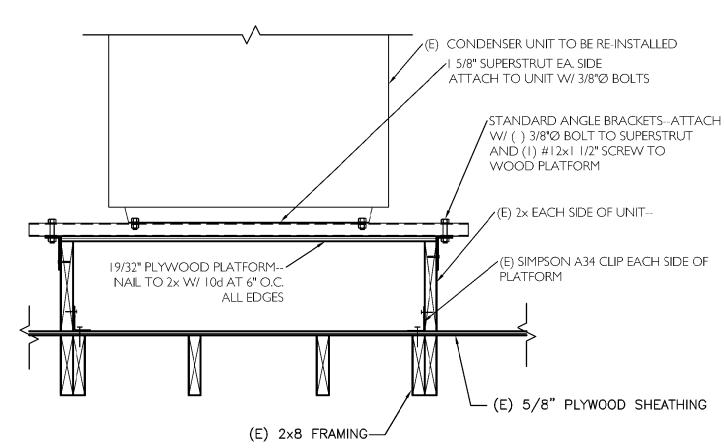
WIND LOADS: BASIC WIND SPEED (3 SECOND GUST) = 103 MPH (LRFD) EXPOSURE CATEGORY = B F = 33.13 PSF (LRFD)

F(UPLIFT) = 26.16 PSF (LRFD)EARTHQUAKE: SEISMIC PARAMETERS: OCCUPANCY CAT. III IMPORTANCE FACTOR = 1.0MAPPED: Ss = 0.893 SITE CLASS: D
DESIGN: Sps = 0.714 SEISMIC DESIGN CATEGORY = D

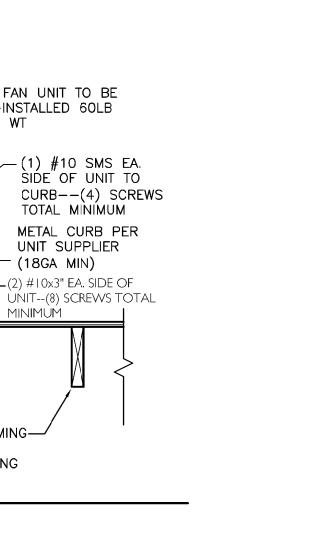
FORCE RESISTING SYSTEMS: MECHANICAL EQUIPMENT: Fp=0.36*WT FOR NON-SPRING ISOLATED AIR SIDE HVAC EQUIPMENT

GENERAL

- I. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE A/E SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH
- 3. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- 4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
- 5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- 6. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE
- 7. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL
- 8. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON
- 9. ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ LIKE CONDITIONS



4 CONDENSER UNIT ATTACHMENT TO ROOF



– (E) FAN UNIT TO BE RE-INSTALLED 60LB MAX WT

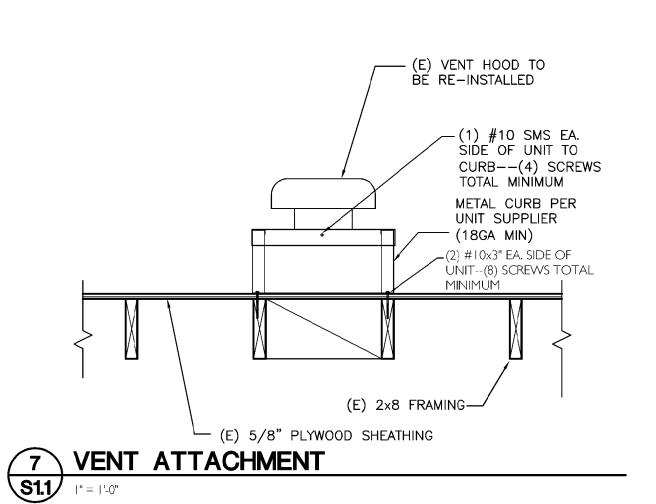
UNIT SUPPLIER (18GA MIN)

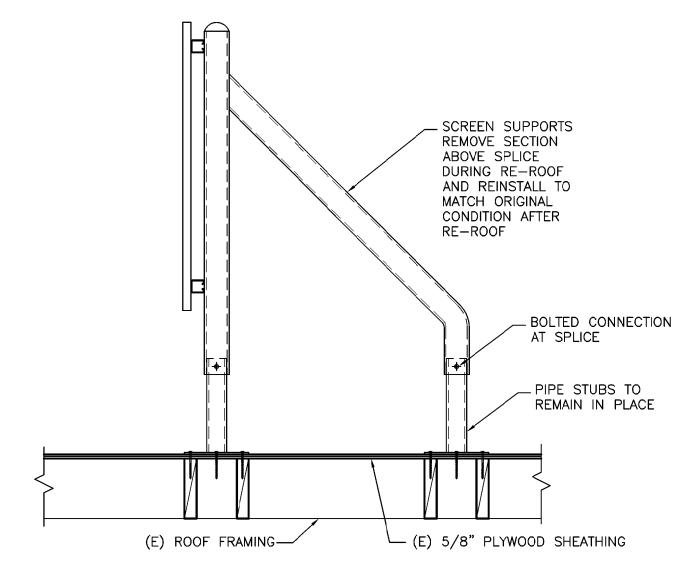
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(E) 2x8 FRAMING—

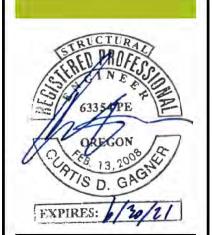
(E) 5/8" PLYWOOD SHEATHING

6 FAN UNIT ATTACHMENT

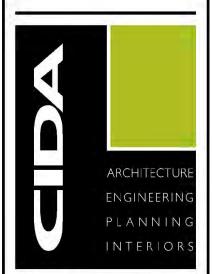








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SCHOOL

ELMONICA BSD

ROOF PLAN AND DETAILS

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5 CONDENSER UNIT ATTACHMENT TO ROOF
S1.1 |" = | '-0"

19/32" PLYWOOD PLATFORM-

NAIL TO 2x W/ | 0d AT 6" O.C

ALL EDGES

(E) 2x8 FRAMING—

1 PARTIAL ROOF PLAN \$1.1 |/8" = |'-0"

(E) CONDENSER UNIT TO BE RE-INSTALLED

ATTACH TO UNIT W/ 3/8"Ø BOLTS

WOOD PLATFORM

/STANDARD ANGLE BRACKETS--ATTACH W/ (1) 3/8"Ø BOLT TO SUPERSTRUT

(E) SIMPSON A34 CLIP EACH SIDE OF

(E) 5/8" PLYWOOD SHEATHING

AND (1) #12x1 1/2" SCREW TO

 $_{\prime}$ (E) 2× EACH SIDE OF UNIT--

1 5/8" SUPERSTRUT EA. SIDE

BSD ERROL HASSELL ELEMENTARY SCHOOL: 2021 RE-ROOF

WASHINGTON COUNTY, OR (AHJ)

BEAVERTON SCHOOL DISTRICT

OWNER

16550 SW MERLO ROAD BEAVERTON, OR 97003 (T): (503) 356-4318 CONTACT: MEGAN FINCH

TO BE DETERMINED

CONTRACTOR

CCB #:----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200 PORTLAND, OREGON 97224 (T): (503) 226-1285 (F): (503) 226-1670 CONTACT: DUSTIN JOHNSON

RDH BUILDING SCIENCE

ROOFING CONSULTANT

533 | S. MACADAM AVE, #314 PORTLAND, OREGON 97239 (T): (503) 867-8519 CONTACT: SCOTT MECALIS

R&W ENGINEERING MECHANICAL ENGINEER/COST CONSULTANT

9715 SW ALLEN BLVD, #117 BEAVERTON, OREGON 97005 (T): (503) 292-6000 CONTACT: ED CARLISLE

SITE INFORMATION

TAX LOT: 22300 &16200 TAX MAP: ISI19CB & ISI19CC INSTITUTIONAL DISTRICT (INST) ZONE: 9.21 ACRES (401,187.6 SF)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) OCCUPANCY: E (EDUCATION) CONSTRUCTION TYPE: V-B (SPRINKLERED)

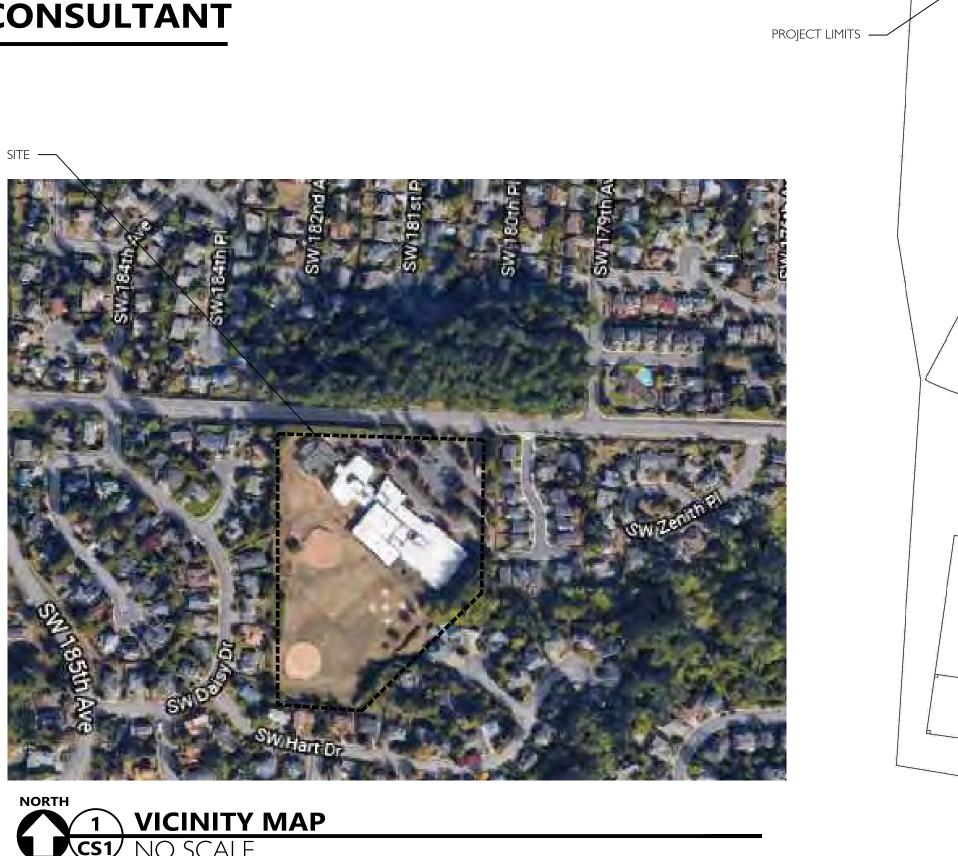
59,485 SF

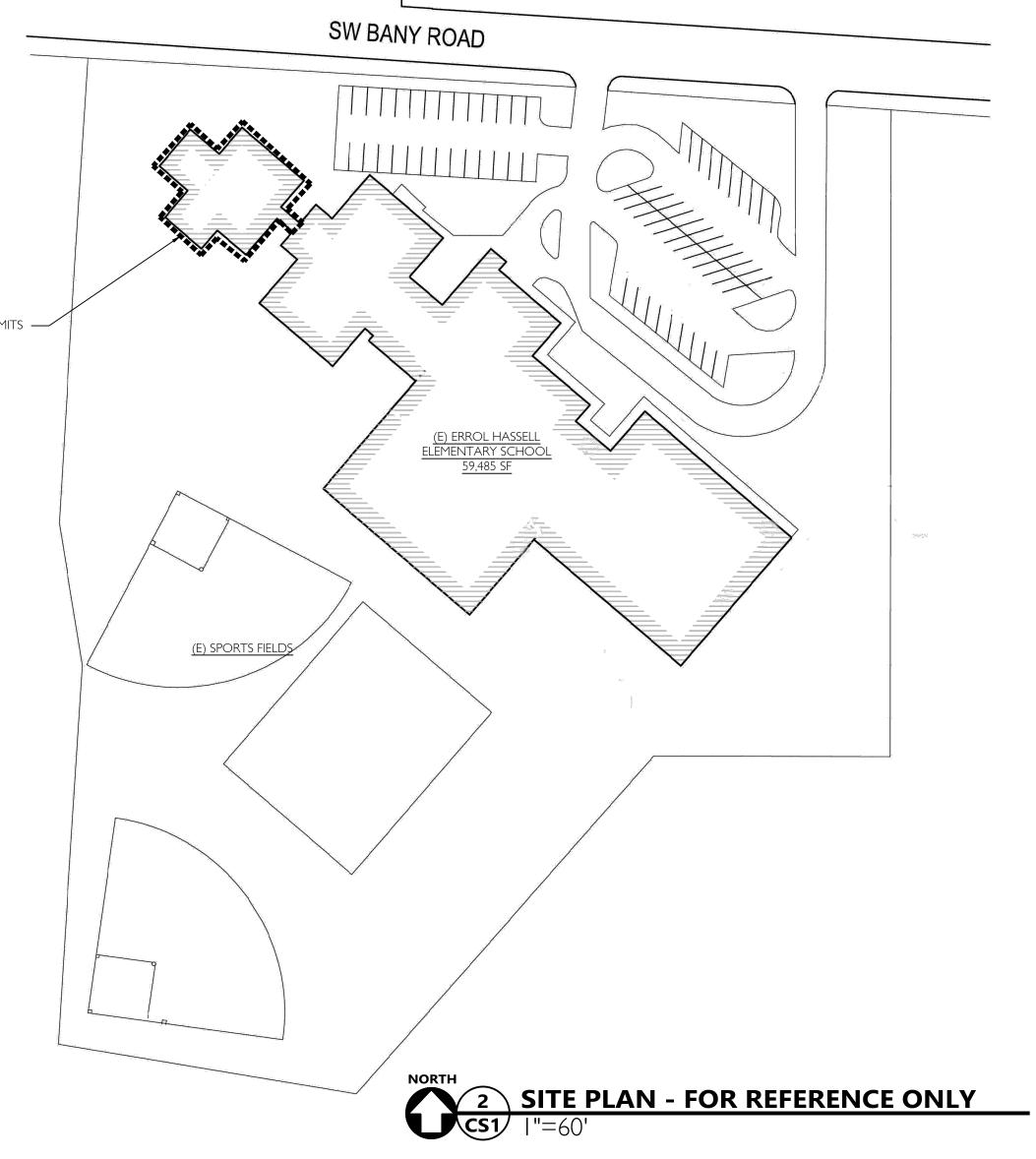
PROJECT DESCRIPTION

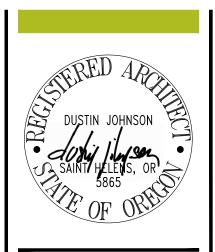
BUILDING AREA:

OVER NEW COVERBOARD AND RIGID INSULATION. SEE PLANS AND SPECIFICATIONS FOR FULL SCOPE.

RELEASES COVER SHEET • • • • ARCHITECTURAL A2.1 FALL PROTECTION PLAN A3.1 DETAILS A3.2 DETAILS **STRUCTURAL MECHANICAL** MI.I ROOF PLAN-MECHANICAL M2.1 MECHANICAL SPECIFICATIONS





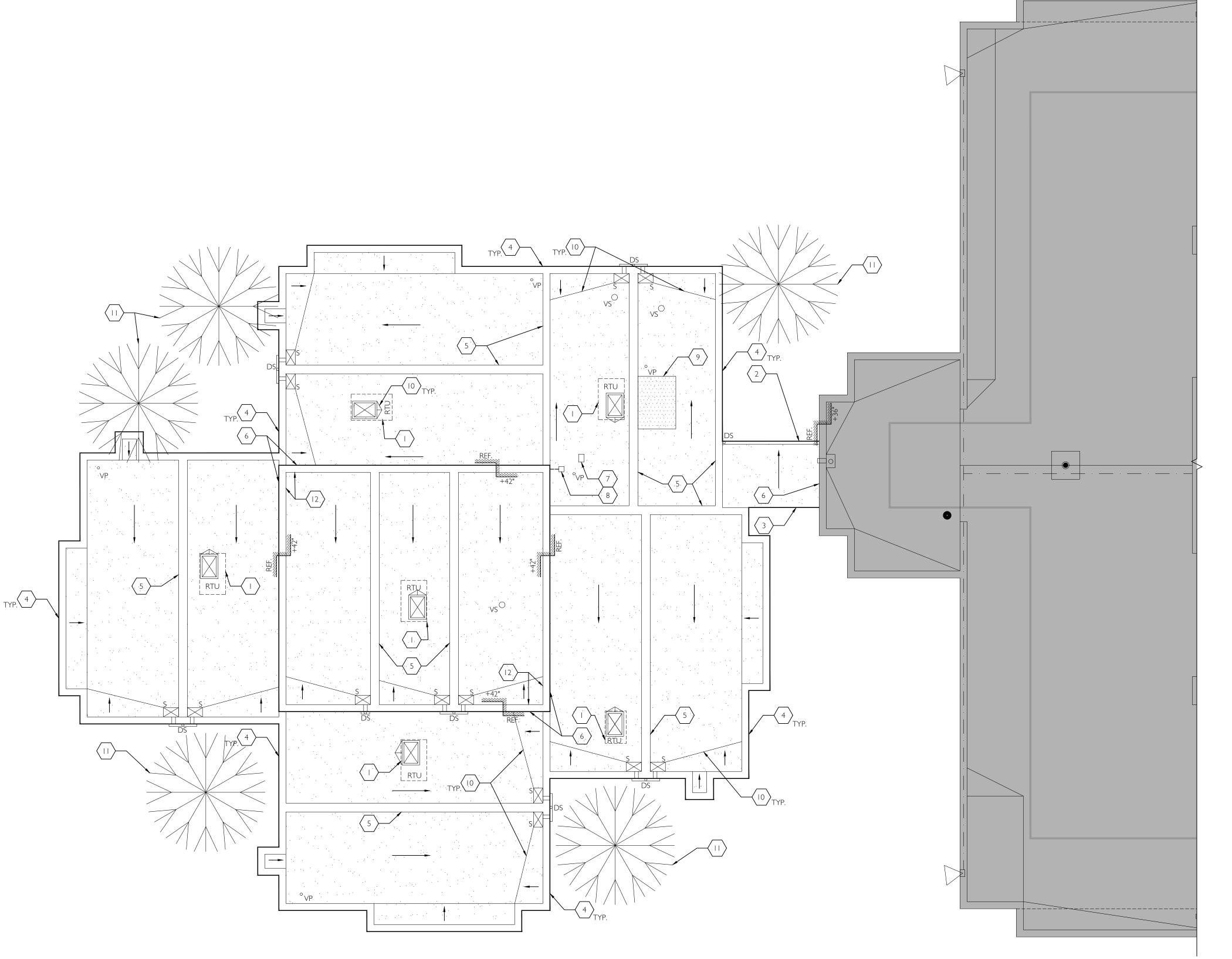


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COVER SHEET

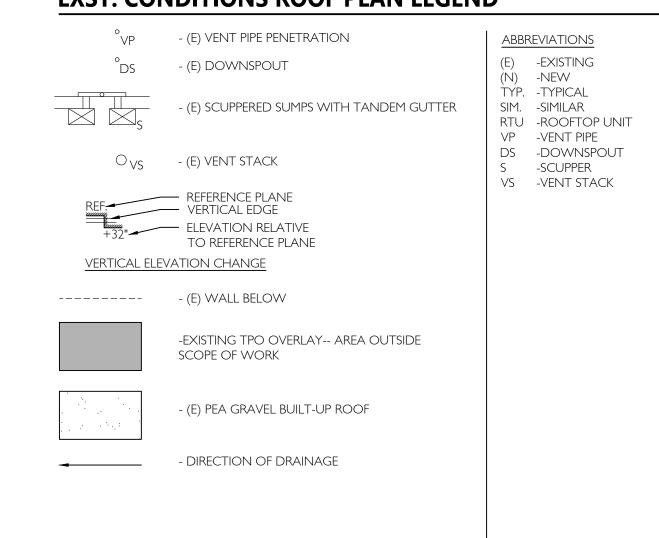
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EXST. CONDITIONS ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES. 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO FIELD VERIFY PLACEMENT BENEATH EQUIPMENT

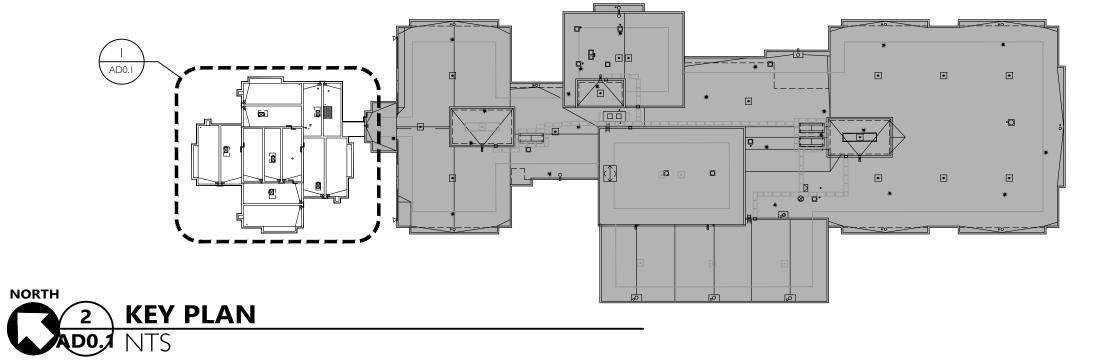
EXST. CONDITIONS ROOF PLAN LEGEND



EXST. CONDITIONS ROOF PLAN KEYNOTES

- (E) CURB MOUNTED MECHANICAL EQUIPMENT
- (E) ROOF GUTTER
- $\left\langle 3\right\rangle$ (E) DRIP EDGE
- $\left\langle 4\right\rangle$ (E) LOW PARAPET AT ROOF PERIMETER-- ± 4 "-8"
- (E) CURB-TO-CURB EXPANSION JOINT
- (E) SIDEWALL WITH SHEET METAL COUNTERFLASHING
- (E) PITCH POCKET WITH CONDUIT PENETRATION THROUGH SIDEWALL
- (E) ROOF PATCH / AREA OF KNOWN ROOFING FAILURE
- (E) CRICKET
- (E) PARAPET WALL





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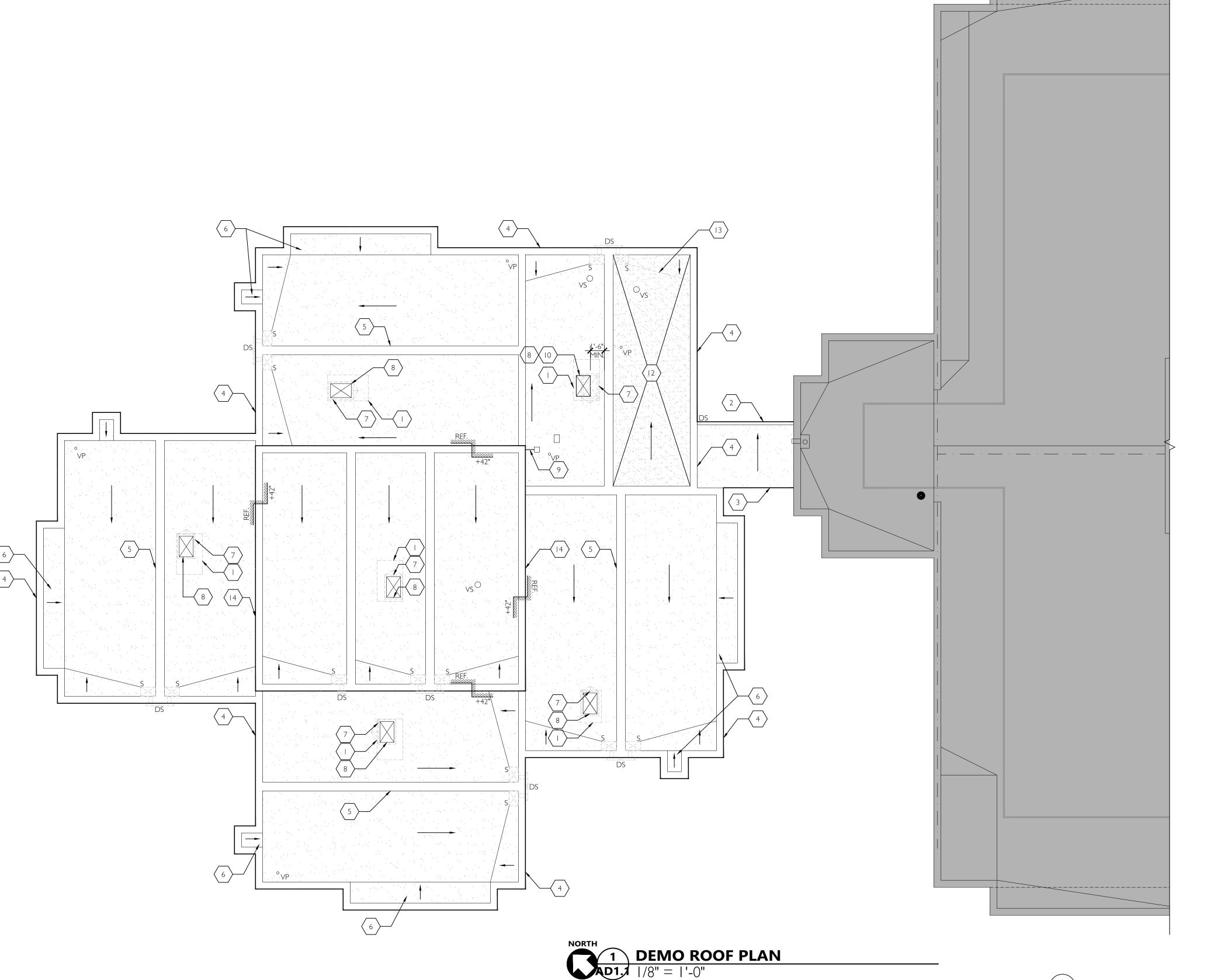
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EXISTING CONDITIONS ROOF PLAN

AD0.1 JOB NO. 20Y082.02

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DEMO ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. APPLICABLE CODES: ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES. ALL CODE REFERENCES IN THE DRAWINGS AND SPECIFICATIONS SHALL MEAN, AND ARE INTENDED TO BE, THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCED STANDARD IN EFFECT AS OF THE DATE OF THE CONTRACT DOCUMENTS.
- 4. SEE MECHANICAL DRAWINGS FOR ALL MECHANICAL EQUIPMENT TO BE REMOVED AND FOR SIZES OF NEW OR REVISED ROOF PENETRATIONS.
- 5. FOR EXISTING FIXTURES AND EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED, CONTRACTOR TO STORE ON-SITE IN A WEATHER TIGHT LOCATION OR OTHERWISE PROTECTED FROM WEATHER--COORDINATE WITH DISTRICT FOR LOCATION APPROVAL
- 6. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC

(E) -EXISTING

(N) -NEW

TYP. -TYPICAL

SIM. -SIMILAR RTU -ROOFTOP UNIT

ds -downspout

S -SCUPPER VS -VENT STACK

ONLY -- CONTRACTOR TO FILED VERIFY PLACEMENT BENEATH EQUIPMENT. 7. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

DEMO ROOF PLAN LEGEND

- (E) VENT PIPE PENETRATION TO REMAIN

- (E) DOWNSPOUT TO BE TEMPORARILY REMOVED

- (E) SCUPPER AND SUMPS TO BE REMOVED--TEMPORARILY REMOVE AND STORE TANDEM GUTTER AND DOWNSPOUT FOR REINSTALLATION VP -VENT PIPE

- (E) VENT STACK TO REMAIN

ELEVATION RELATIVE TO REFERENCE PLANE VERTICAL ELEVATION CHANGE

----- - (E) WALL BELOW

-EXISTING TPO OVERLAY-- AREA OUTSIDE SCOPE OF WORK

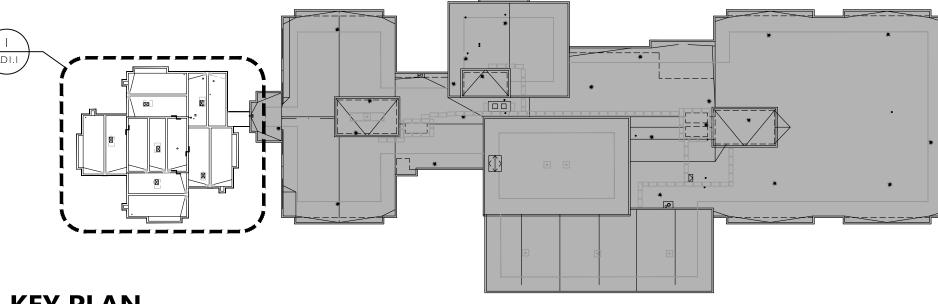
- AREA OF (E) PEA GRAVEL BUILT-UP ROOFING SYSTEM TO BE REMOVED TO SHEATHING --PREP SHEATHING PER SPEC FOR INSTALLATION OF NEW ROOFING SYSTEM, REPLACE COMPROMISED SHEATHING AS NEEDED.

- (E) PEA GRAVEL BUILT-UP - ROOFING SYSTEM TO REMAIN -- REMOVE GRAVEL BALLAST AND DECOMMISSION MEMBRANE PER SPEC

- DIRECTION OF DRAINAGE

DEMO ROOF PLAN KEYNOTES

- (E) MECHANICAL UNIT TO BE TEMPORARILY REMOVED AND STORED FOR
- INSTALLATION. SEE KEYNOTE I ON SHEET A I. I FOR BID ALTERNATE. (E) ROOF GUTTER-- TO BE REMOVED
- (E) DRIP EDGE-- REMOVE SHEET METAL GRAVEL STOP AND DRIP EDGE FLASHING
- (E) PARAPET-- REMOVE SHEET METAL COPING CAP, COUNTER FLASHING AND BASE FLASHING, TYP.
- (E) ROOF EXPANSION JOINT- REMOVE SHEET METAL COPING CAP AND EXPANSION JOINT -- PREP CONDITION FOR INSTALLATION OF NEW EXPANSION JOINT -- SEE
- ROOF PLAN ON SHEET A1.1 FOR MORE INFORMATION.
- (E) OVERBUILD FRAMING TO REMAIN
- (E) MECHANICAL EQUIPMENT CURB TO BE REMOVED-- SEE KEYNOTE 8 ON SHEET A 1.1 FOR BID ALTERNATE
- (E) ROOF PENETRATION TO REMAIN. <u>ALT#1: RE-SIZE ROOF PENETRATION AS NEEDED TO ACCOMMODATE NEW MECHANICAL EQUIPMENT-- SEE MECHANICAL DRAWINGS FOR UNIT SIZE-- SEE SPEC SECTION 012300</u> ALTERNATES' FOR ADDITIONAL INFO.
- (E) GAS LINE -- CONTRACTOR TO COORDINATE TEMPORARY REMOVAL WITH DISTRICT AS NEEDED TO ACCOMMODATE RE-ROOF SCOPE
- EXTEND (E) ROOF PENETRATION TO ACCOMMODATE RELOCATION OF ROOFTOP MECHANICAL EQUIPMENT -- SEE SHEET A I. I FOR ADDITIONAL INFORMATION
- REMOVE (E) ROOFING SYSTEM TO SHEATHING -- REPLACE SHEATHING IN AREAS OF ROT (AS NEEDED) AND PREP SUBSTRATE FOR NEW ROOFING SYSTEM PER SPEC. -- PROVIDE UNIT PRICE PER SPEC SECTION 0 | 2000 'UNIT
- (E) CRICKET TO BE REMOVED
- (E) PARAPET WALL -- REMOVE SHEET METAL COPING AND BASE FLASHING



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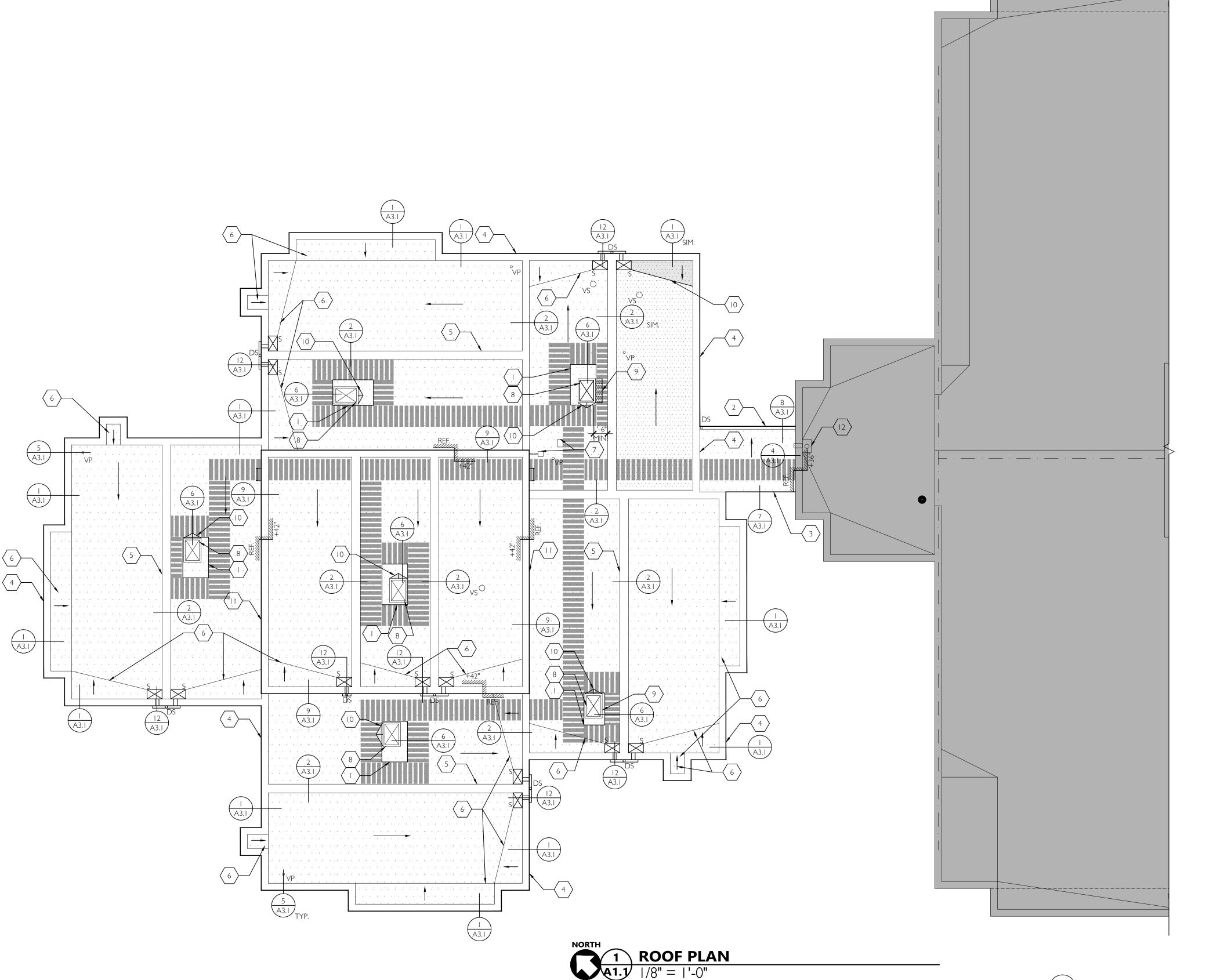
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DEMO ROOF PLAN

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ROOF PLAN GENERAL NOTES

- I. CONTRACTOR TO VERIFY (E) CONDITIONS SHOWN OR IMPLIED AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. ALL ROOFING REPAIR WORK TO BE PREFORMED BY ROOFING CONTRACTOR CERTIFIED BY ROOFING MANUFACTURER AND AS REQUIRED TO MEET INSTALLATION REQUIREMENTS OF SPECIFIED ROOFING SYSTEM
- 4. ALL ROOFING REPAIR WORK IS SUBJECT TO INSPECTION AND APPROVAL BY ROOFING MANUFACTURER FIELD REPRESENTATIVE. CONTRACTOR TO SCHEDULE ROOFING INSPECTION AT INTERVALS DETERMINED BY MANUFACTURER FOR ROOFING SYSTEM WARRANTY.
- 5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION OF FINAL ROOF PENETRATIONS TO AVOID
- CONFLICT WITH EXISTING STRUCTURE AND BUILDING SYSTEMS. 6. AT ALL NEW CURB LOCATIONS PROVIDE A PLYWOOD CRICKET AS REQUIRED TO MAINTAIN A POSITIVE ROOF SLOPE AWAY FROM CURB AND AT SLOPE NOT LESS THAN EXISTING.
- 7. CONTRACTOR TO CONFIRM ROOF PENETRATION SIZES AND EQUIPMENT CURB DIMENSIONS WITH MECHANICAL DRAWINGS.
- 8. WHERE PATCH AND REPAIR WORK IS INDICATED, CONTRACTOR SHALL PATCH AFFECTED AREAS TO MATCH ADJACENT FINISHES AND CONDITIONS FOR 'LIKE NEW' APPEARANCE UNLESS OTHERWISE NOTED. SEE
- SPECIFICATION SECTION 017329 'CUTTING AND PATCHING' FOR ADDITIONAL INFORMATION. 9. ALL ROOF EDGE SHEET METAL FABRICATIONS INCLUDING BUT NOT LIMITED TO BASE FLASHINGS, COUNTER FLASHINGS, GRAVEL STOPS, DRIP EDGES, COPINGS, SCUPPERS AND GUTTERS TO BE REMOVED AND REPLACED
- 10. SEE STRUCTURAL DRAWINGS FOR BRACING REQUIREMENTS AT NEW ROOFTOP MECHANICAL EQUIPMENT. II. CONTRACTOR TO MAINTAIN SURFACE DRAINAGE PATTERNS OF EXISTING ROOF WITH SLOPE OF NOT LESS
- 12. CONTRACTOR TO PROVIDE CRICKETING AT MECH EQUIPMENT CURBS, PARAPETS, ROOF DRAINS AND OTHER
- LOCATIONS AS REQUIRED TO MAINTAIN POSITIVE 2% SLOPE TO POINT OF ROOF DRAINAGE. 13. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO COORDINATE WITH MECHANICAL DRAWINGS FOR FINAL ROOF PENETRATION /
- 14. FOR INSIDE AND OUTSIDE CORNER REINFORCEMENT -- SEE DETAILS 10&11/A3.1.
- 15. CONTRACTOR TO SUBMIT TAPERED INSULATION SHOP DRAWINGS FOR A/E APPROVAL
- 16. CONTRACTOR TO SUBMIT WEATHER PROTECTION PLAN FOR A/E & DISTRICT APPROVAL, PER SPEC SECTION
- 17. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

ROOF PLAN LEGEND

- (E) VENT PIPE PENETRATION TO REMAIN **ABBREVIATIONS** - REINSTALLED DOWNSPOUT - (N) SCUPPER AND SUMP--REINSTALLED TANDEM SIM. -SIMILAR GUTTER AND DOWNSPOUT - (E) VENT STACK TO REMAIN -- SEE DETAIL 3/A3. I -EXISTING TPO OVERLAY-- AREA OUTSIDE

-AREA OF (N) TAPERED INSULATION

SCOPE OF WORK

-AREA OF (N) TPO ROOFING SYSTEM OVERLAY PER SPECIFICATION (5,813.25 SF)

- DIRECTION OF DRAINAGE

-AREA OF (N) TPO ROOFING SYSTEM PER SPECIFICATION (363 SF)-- TEAR-OFF EXISTING ROOFING THIS AREA

- (N) WALK PADS

(E) -EXISTING (N) -NEW TYP. -TYPICAL RTU -ROOFTOP UNIT VP -VENT PIPE

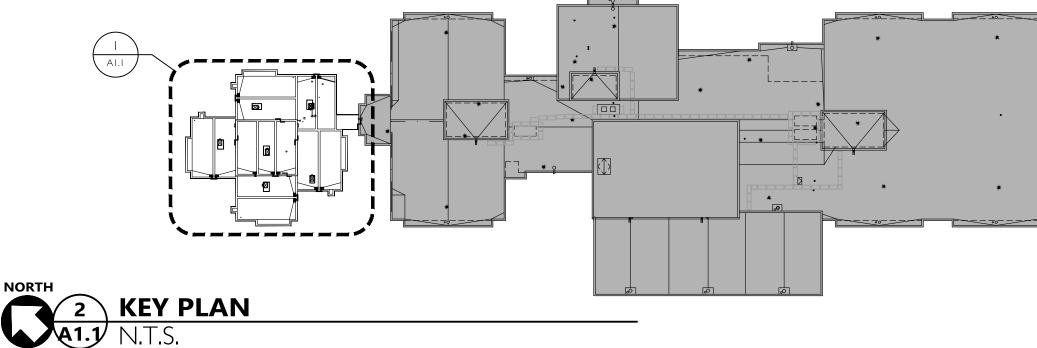
DS -DOWNSPOUT S -SCUPPER VS -VENT STACK

> - (E) WALL BELOW REFERENCE PLANE
> VERTICAL EDGE +32" ELEVATION RELATIVE TO REFERENCE PLANI

VERTICAL ELEVATION CHANGE

ROOF PLAN KEYNOTES

- REINSTALL (E) MECHANICAL UNIT. <u>ALT#1: REPLACE EXISTING MECHANICAL UNIT WITH NEW PERMECHANICAL DRAWINGS-- SEE SPEC SECTION 012300 'ALTERNATES' FOR ADDITIONAL INFORMATION</u>
- REINSTALL ROOF GUTTER-- SEE DETAIL 8/A3.1
- DRIP EDGE-- INSTALL NEW DRIP EDGE FLASHING PER SPEC-- SEE DETAIL 7/A3.1
- PARAPET-- INSTALL NEW SHEET METAL COPING CAP AND COUNTER FLASHING PER SPEC-- SEE DETAIL 1/A3.1
- ROOF EXPANSION JOINT BY ROOFING MANUFACTURER-- SEE DETAIL 2/A3.1
- (E) CRICKET TO REMAIN.
- EXTEND EXISTING PITCH POCKET AWAY FROM ROOF DECK AS REQUIRED FOR
- MIN. 8" FLASHING CONDITION -- SEE DETAIL 1/A3.2.
- (E) EQUIPMENT CURB-- FLASHING PER DETAIL 6/A3.1. <u>ALT#1: REPLACE EXISTING MECHANICAL CURB WITH NEW INSULATED MECHANICAL CURB-- SEE DETAIL 6/A3.1 FOR FLASHING CONDITION-- SEE SPEC SECTION 012300</u>
- INFILL PORTION OF (E) OPENING WITH MATCHING ASSEMBLY TO
- ACCOMMODATE RELOCATED MECH UNIT.
- NEW TAPERED INSULATION CRICKET.
- PARAPET WALL -- INSTALL NEW SHEET OF METAL COPING CAP AND BASE FLASHING PER SPEC -- SEE DETAIL
- (E) ROOF DRAIN WITH SCUPPER OVERFLOW TO REMAIN



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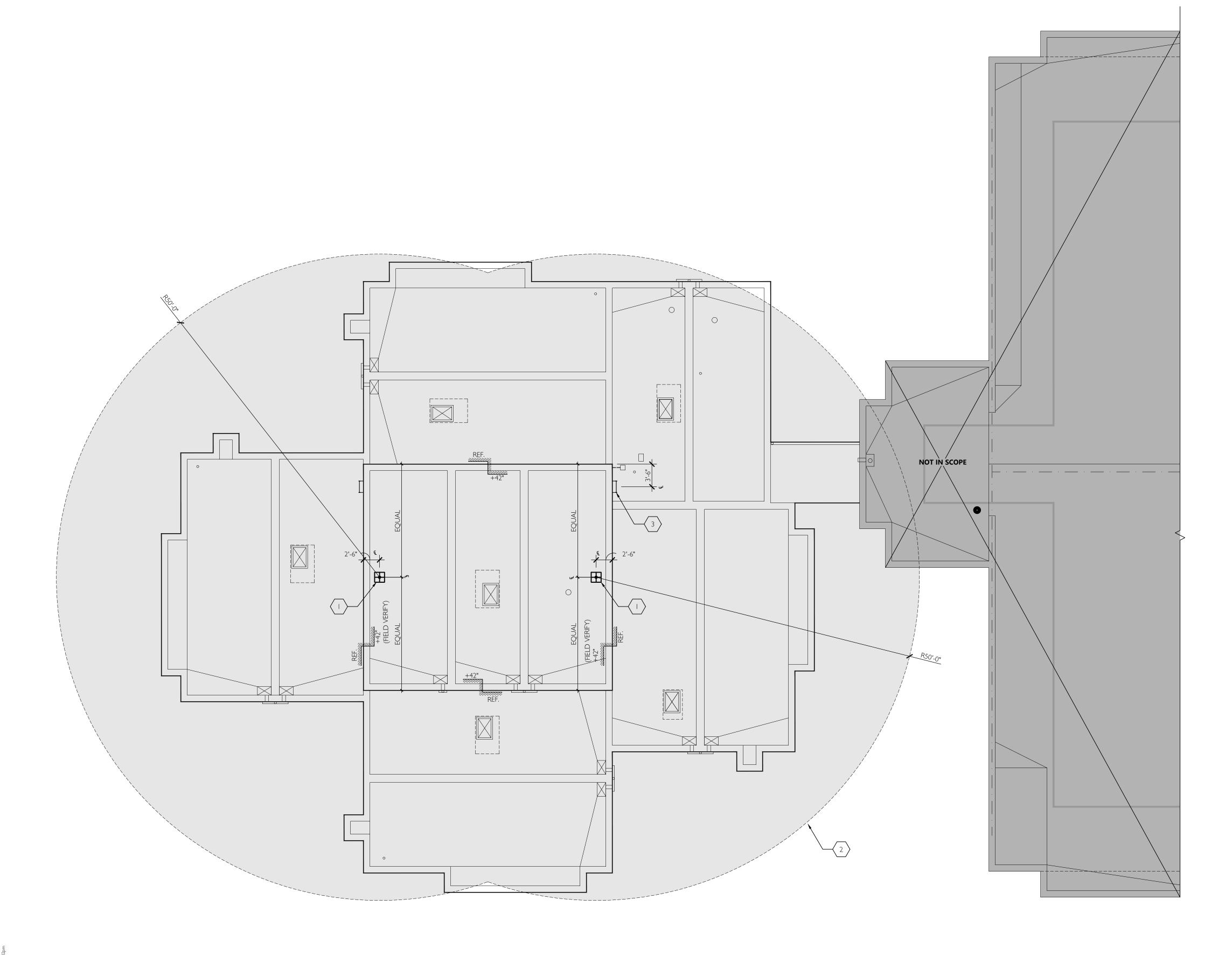
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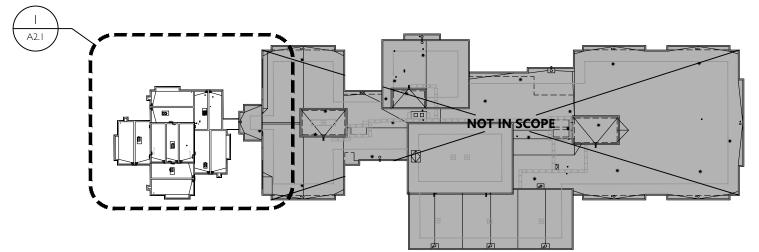
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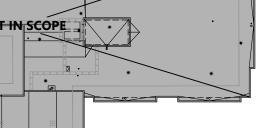
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ROOF PLAN







XEY PLAN
A2.1 N.T.S.



FALL PROTECTION GENERAL NOTES

I. FALL PROTECTION INDICATED IS BASED ON 'FALL RESTRAINT SAFETY' METHOD.

FALL PROTECTION LEGEND

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR --SEE 10/S2.1 FOR ANCHORAGE TO ROOF

AREA WITHIN ROOF COVERAGE (BASED ON 50' LANYARD)



AREA OUTSIDE SCOPE OF WORK

REFERENCE PLANE
VERTICAL EDGE ELEVATION RELATIVE TO REFERENCE PLANE

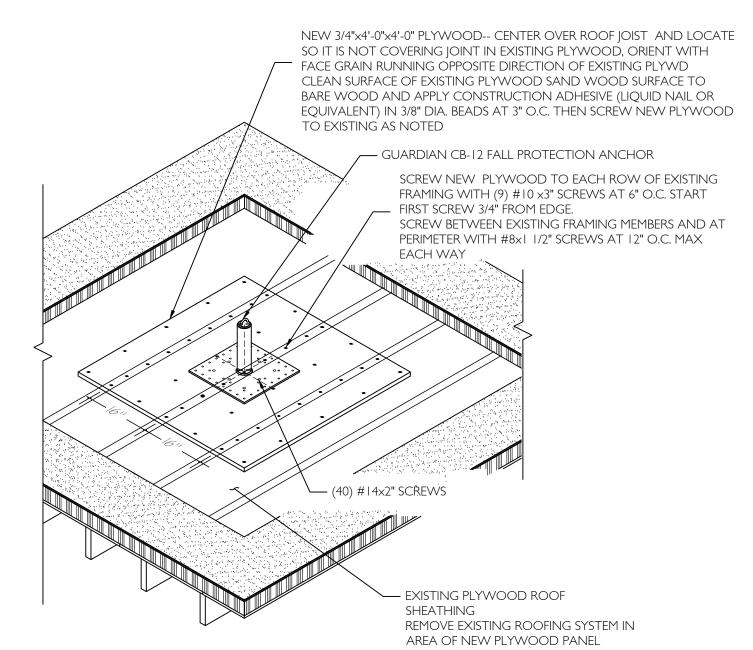
VERTICAL ELEVATION CHANGE

FALL PROTECTION KEYNOTES

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR BLOCKING AND ANCHORAGE REQUIREMENTS -- INSTALL BLOCKING FROM INTERIOR SIDE AND PATCH/REPAIR CEILING TO MATCH EXISTING CONDITION AND FINISH, AND PER SPECIFICATION.

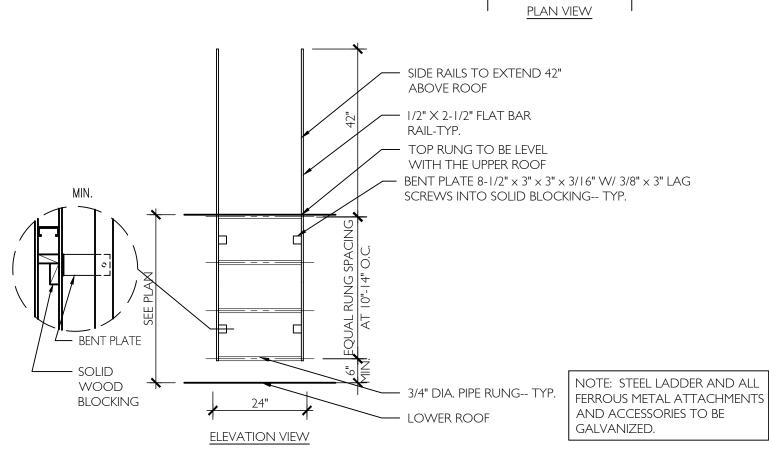
ROOF COVERAGE -- BASED ON 50' LANYARD.

NEW STEEL PIPE LADDER -- CONTRACTOR TO FIELD VERIFY HEIGHT, TYP. -- SEE DETAIL 3/A2. I

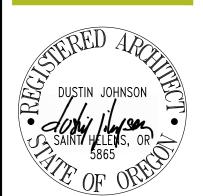


2 FALL PROTECTION ANCHOR AT PLYWOOD SHEATHING

— 1/2" X 2-1/2" FLAT BAR RAIL-- TYP. 3/4" DIA. PIPE RUNG--TYP.



3 ROOF LADDER
A2.1 1/2" = 1'-0"



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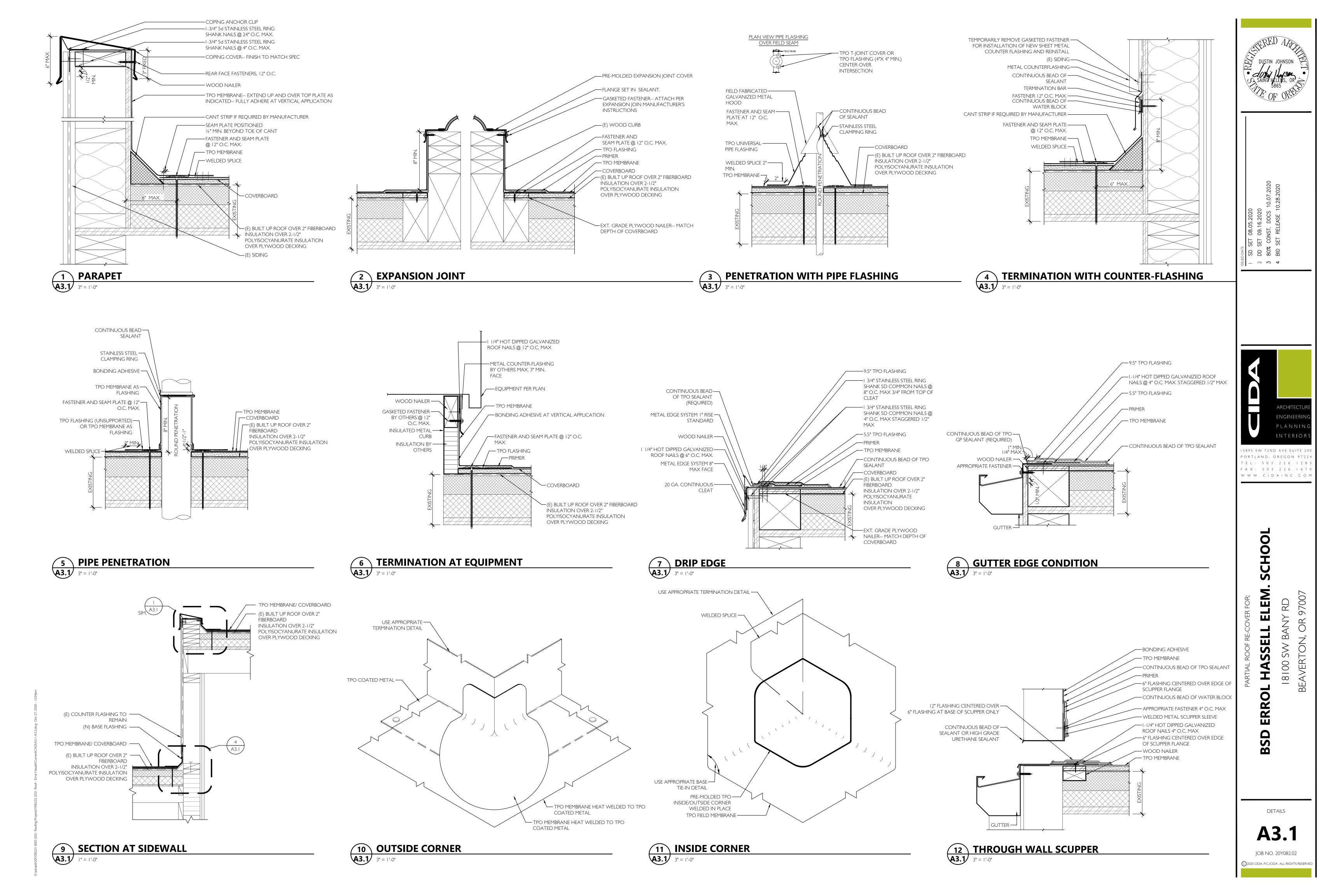
, OR 97007 18100 SW BANY RD

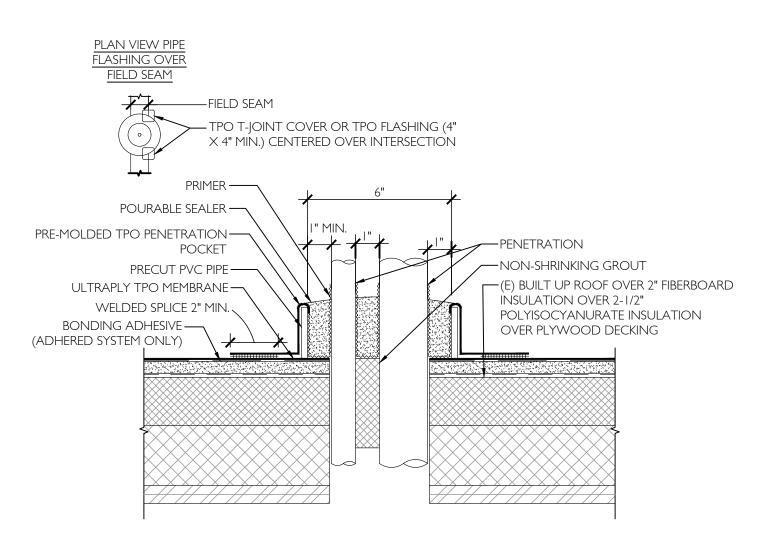
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FALL PROTECTION PLAN

A2.1 JOB NO. 20Y082.02

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PENETRATION WITH TPO PENETRATION POCKET

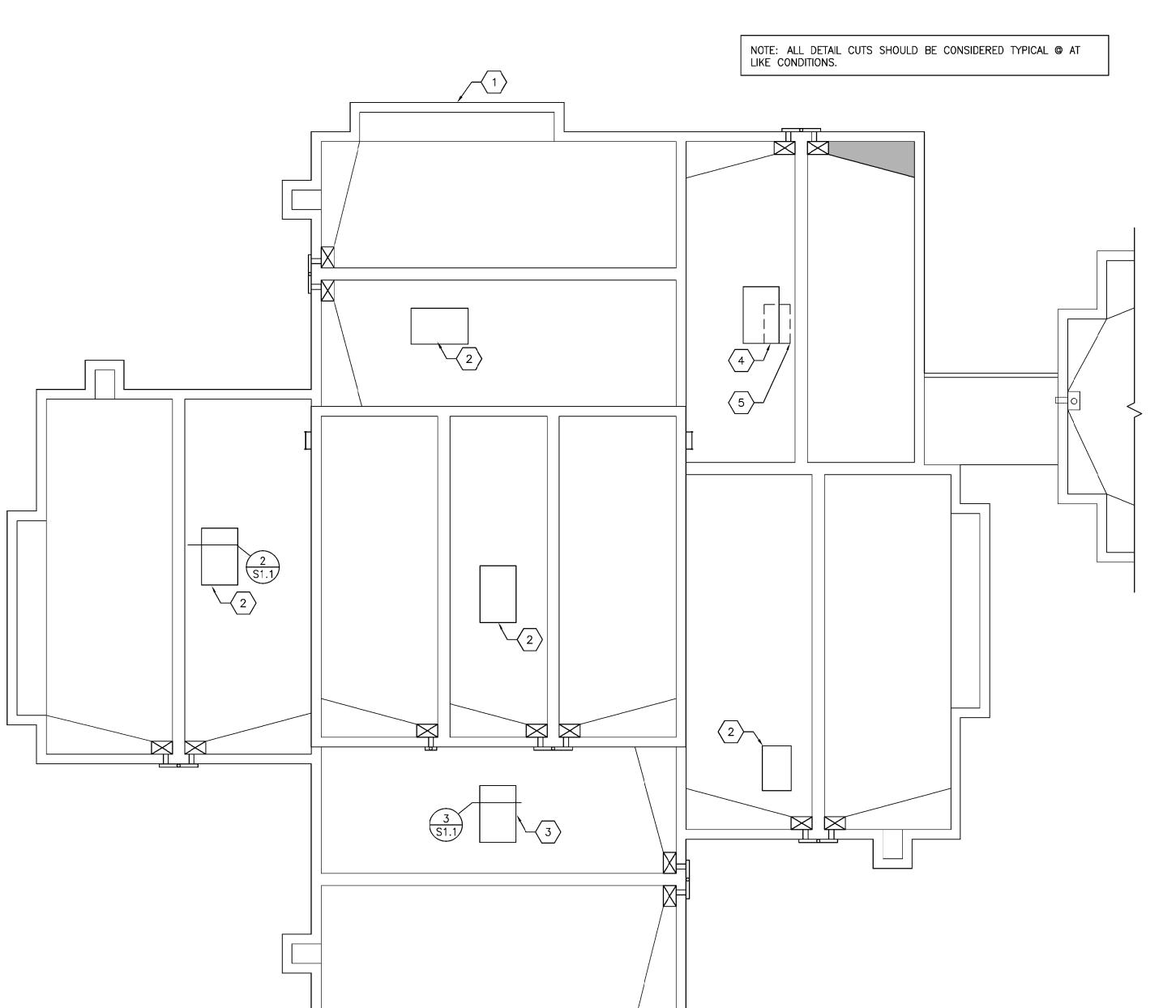
3" = |'-0"

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BSD ERROL HASSELL ELEM. SCHOOL

18100 SW BANY RD BEAVERTON, OR 97007

JOB NO. 20Y082.02



ROOF PLAN KEYNOTES

- EXISTING BUILDING PRIMETER
- REMOVE AND REPLACE EXISTING UNIT IN SAME LOCATION --BID ALTERNATE REPLACE EXISTING 530LB UNIT ON ROOF WITH NEW 535LB UNIT AND 115LB MAX WEIGHT CURB TO PER 2/S1.1
- REMOVE AND REPLACE EXISTING UNIT IN SAME LOCATION --BID ALTERNATE REPLACE EXISTING 530LB UNIT ON ROOF WITH NEW 535LB UNIT AND 115LB MAX WEIGHT CURB TO PER 3/S1.1
- REMOVE AND REPLACE EXISTING UNIT IN SHIFTED LOCATION PER ARCH --BID ALTERNATE REPLACE EXISTING 280LB UNIT ON ROOF WITH NEW 535LB UNIT AND 115LB MAX WEIGHT CURB TO PER 2/S1.1
- ORIGINAL UNIT LOCATION--SEE 4/S1.1 FOR INFILL FRAMING AT ORIGINAL DUCT OPENING

CODE

2019 OREGON STRUCTURAL SPECIALTY CODE (2019 OSSC)

DESIGN CRITERIA

WIND LOADS: BASIC WIND SPEED (3 SECOND GUST) = 103 MPH (LRFD) EXPOSURE CATEGORY = B F = 30.7 PSF (LRFD)F(UPLIFT) = 24.2 PSF (LRFD)

EARTHQUAKE: SEISMIC PARAMETERS: OCCUPANCY CAT. III IMPORTANCE FACTOR = 1.0 MAPPED: Ss = 0.865 SITE CLASS: D

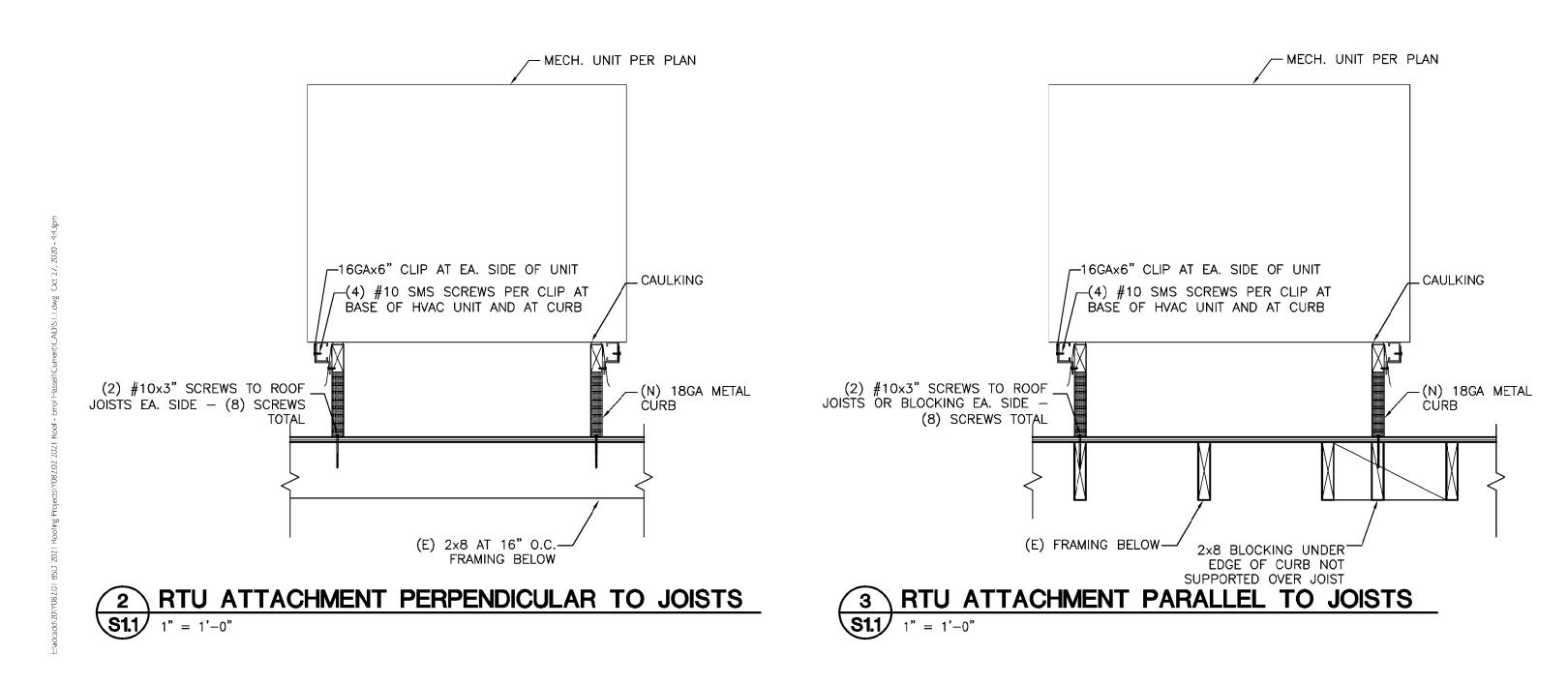
DESIGN: SDS = 0.692 SEISMIC DESIGN CATEGORY = D FORCE RESISTING SYSTEMS:

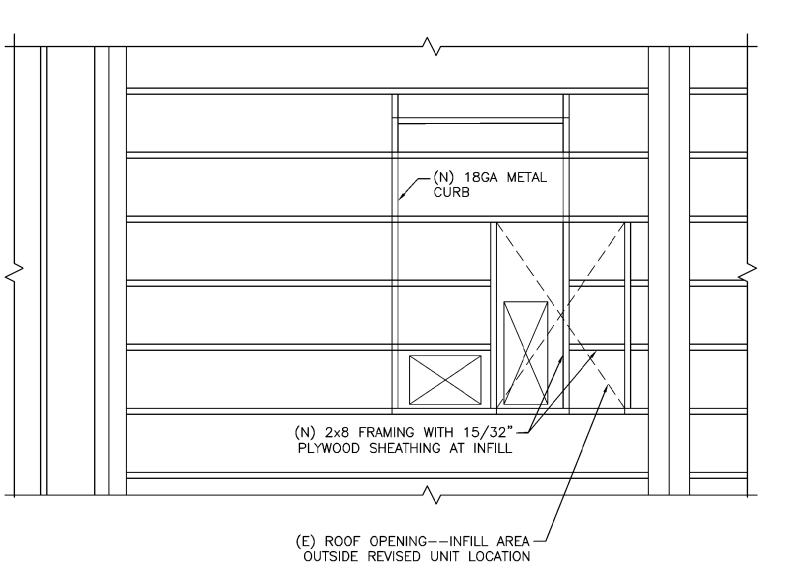
MECHANICAL EQUIPMENT: Fp=0.35*WT FOR NON-SPRING ISOLATED AIR SIDE HVAC EQUIPMENT

GENERAL

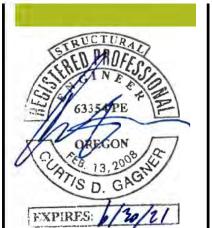
- 1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE A/E SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH
- CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- 4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
- 5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- 6. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE
- 7. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL
- 8. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON
- 9. ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ LIKE CONDITIONS



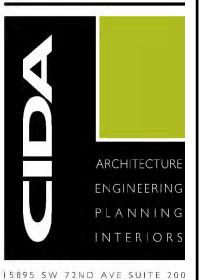








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> SCHOOL ELEM.

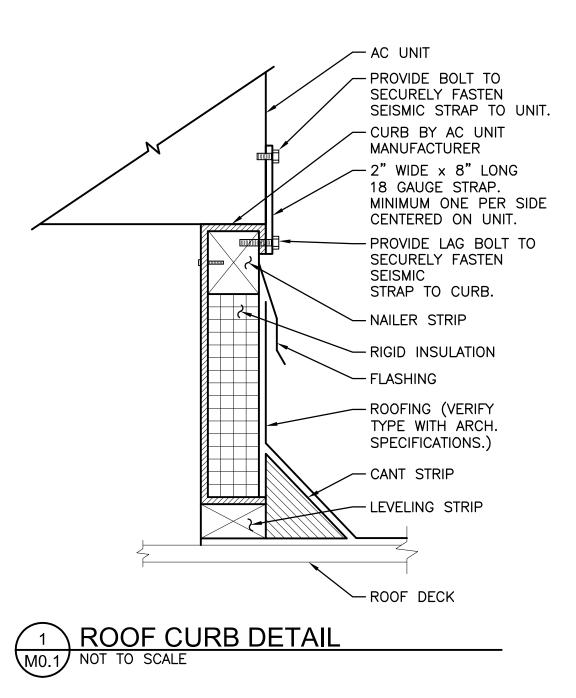
HASSELL ERROL

ROOF PLAN

BSD

S1

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-UV RESISTANT RECYCLED

SUPPORT WITH 14 GA GALVANIZED CHANNEL. COOPER B-LINE DB-5

OR EQUAL. INSTALL AT

RUBBER CHANNEL

6'O.C.

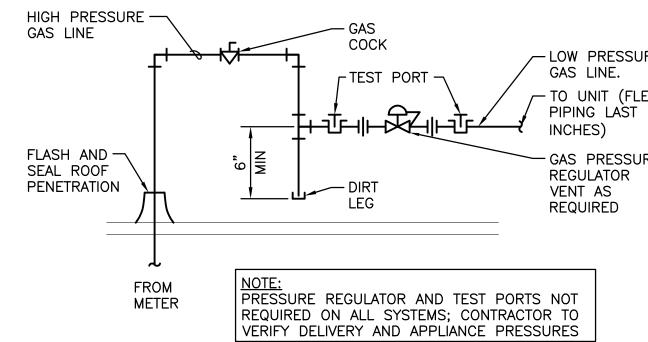
CLAMP TO -BLOCK

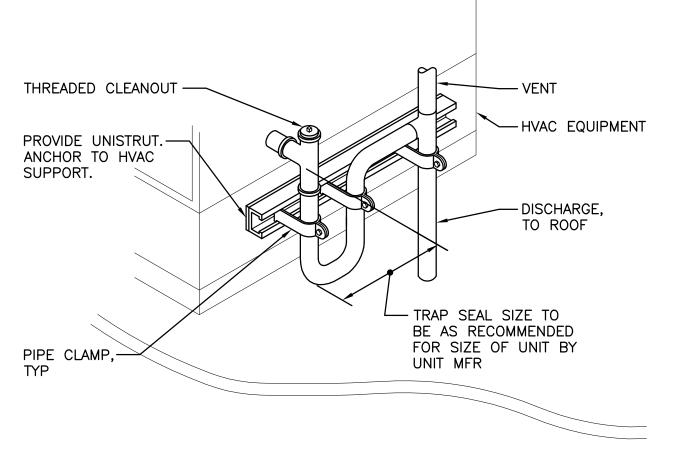
SUPPORT

ROOF-

MO.1 NOT TO SCALE

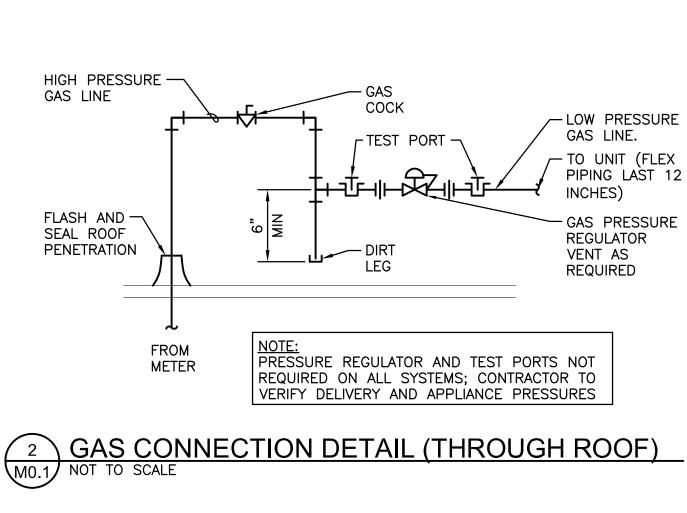
3 PIPE SUPPORT DETAIL

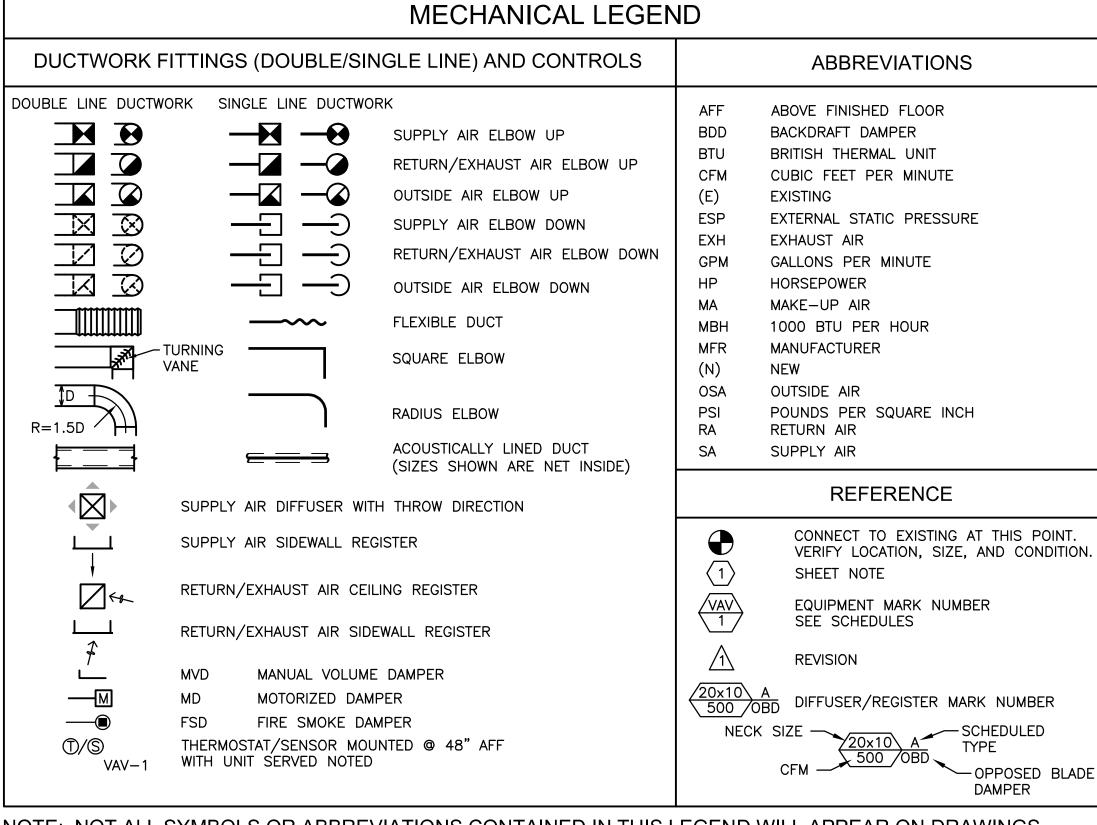




- NOTES:
 TRAP PIPING TO BE SAME SIZE AS AC UNIT DRAIN. PROVIDE TWO TRAPS (ONE EACH SIDE) ON UNITS. 20 TONS AND LARGER.
- 2. COPPER DRAIN PIPING ONLY. PVC PIPING IS NOT

4 CONDENSATE TRAP DETAIL
MO.1 NOT TO SCALE





NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS CONTAINED IN THIS LEGEND WILL APPEAR ON DRAWINGS.

| MARK NUMBER | RTU 1 | $\frac{\langle RTU \rangle}{2}$ | $\frac{\langle RTU \rangle}{3}$ | RTU 4 | RTU 5 | $\frac{\langle RTU \rangle}{6}$ |
|-------------------------|----------------------|---------------------------------|---------------------------------|----------------------|----------------------|---------------------------------|
| SYSTEM | CLASSROOM | CLASSROOM | CLASSROOM | CLASSROOM | BATHROOM | LIBRARY |
| TYPE | GAS/ELEC | GAS/ELEC | GAS/ELEC | GAS/ELEC | GAS/ELEC | GAS/ELEC |
| FAN SECTION | | | | | | |
| AIRFLOW (CFM) | 1000 | 1000 | 1000 | 1150 | 750 | 1000 |
| MIN OSA (CFM) | 465 | 475 | 475 | 475 | 350 | 605 |
| E.S.P. ("H20) | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| MOTOR (BHP) | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| DISCHARGE DIRECTION | VERTICAL | VERTICAL | VERTICAL | VERTICAL | VERTICAL | VERTICAL |
| HEATING | | | | | | |
| FUEL TYPE | NAT. GAS | NAT. GAS | NAT. GAS | NAT. GAS | NAT. GAS | NAT. GAS |
| INPUT (MBH) | 65 | 65 | 65 | 65 | 65 | 65 |
| OUTPUT (MBH) | 53 | 53 | 53 | 53 | 53 | 53 |
| MIN. EFF. (AFUE %) | 80 | 80 | 80 | 80 | 80 | 80 |
| COOLING | | | | | | |
| NOMINAL CAPACITY (TONS) | 3 | 3 | 3 | 3 | 3 | 3 |
| MIN. EFF. (SEER) | 16 | 16 | 16 | 16 | 16 | 16 |
| CONTROLLED BY | DDC | DDC | DDC | DDC | DDC | DDC |
| ECONOMIZER TYPE | SEE NOTES | SEE NOTES | SEE NOTES | SEE NOTES | SEE NOTES | SEE NOTES |
| ELECTRICAL (V-PH) | 208-1 | 208-1 | 208-1 | 208-1 | 208-1 | 208-1 |
| DESIGN WEIGHT (LBS) | 649 | 649 | 649 | 649 | 649 | 649 |
| NOTES | 1. | 1. | 1. | 1. | 1. | 1. |
| MANUFACTURER/ MODEL | CARRIER/ 48GCDM04 | CARRIER/ 48GCDM04 | CARRIER/ 48GCDM04 | CARRIER/ 48GCDM04 | CARRIER/ 48GCDM04 | CARRIER/ 48GCDM04 |

- I. PROVIDE WITH 0-100% FULLY MODULATING ECONOMIZER WITH BAROMETRIC RELIEF, STAINLESS STEEL HEAT EXCHANGER, 14" HIGH SEISMIC RATED ROOF CURB, FLUE DISCHARGE DEFLECTOR, , HINGED ACCESS PANELS, CONDENSATE OVERFLOW SWITCH,
- 2-STAGE COMPRESSOR, UNPOWERED CONVENIENCE OUTLET AND NON-FUSED DISCONNECT.

DRAWING LIST

MO.1 MECHANICAL LEGEND, SCHEDULES AND DETAILS

M1.1 ROOF PLAN - MECHANICAL

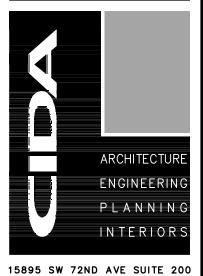
M2.1 MECHANICAL SPECIFICATIONS M2.2 MECHANICAL SPECIFICATIONS

> ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.



3 5 -

ENGINEERING, INC 9615 S.W. Allen Blvd., Suite 107 Beaverton, Oregon 97005 Phone: (503) 726-3319 Fax: (503) 726-3326 E-mail: rweng@rweng.com Project No.: 382.120.001 Contact: Kristin Trone



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TEL: 503.226.1285 FAX: 503.226.1670 www.cidainc.com

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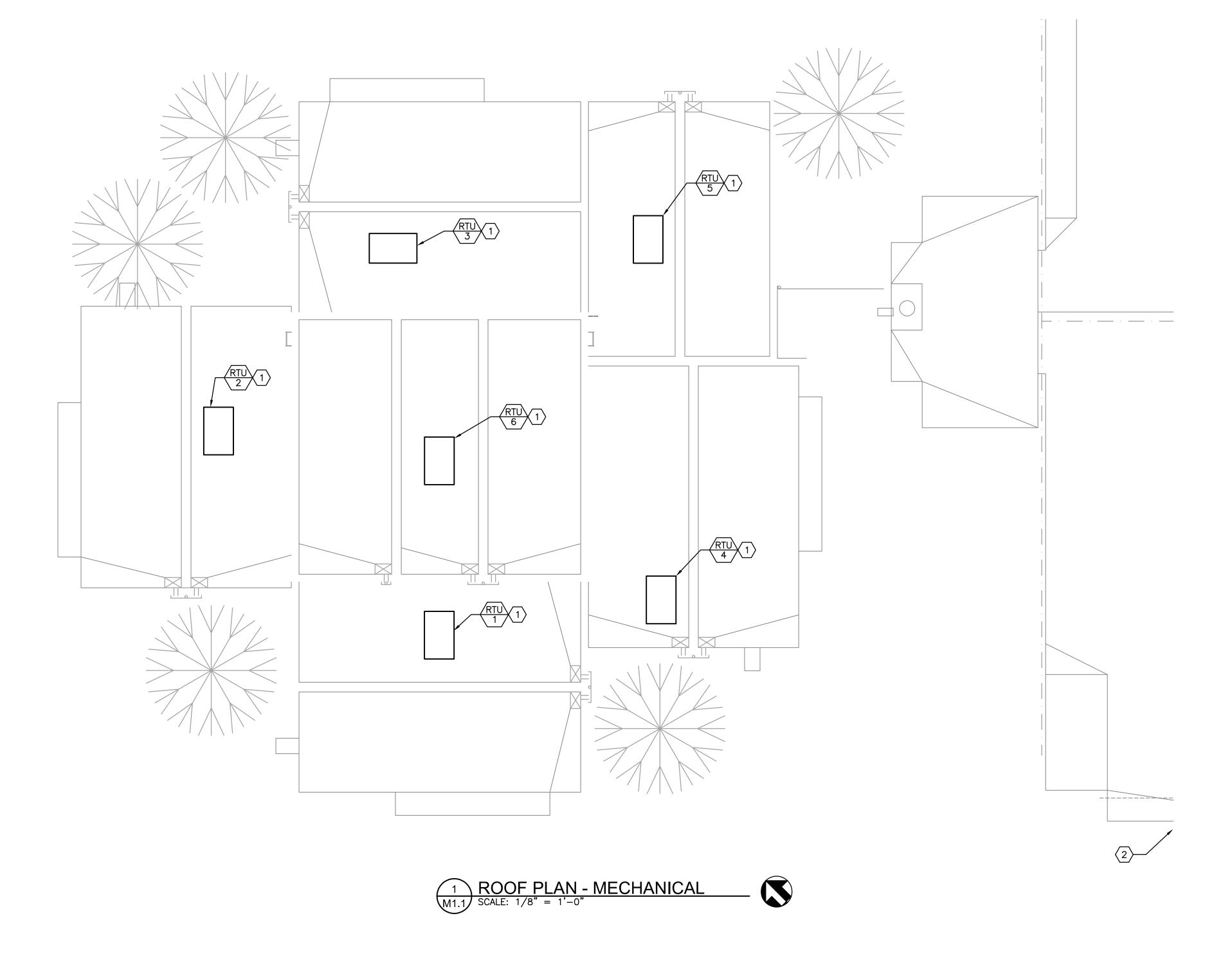
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18100 SW EAVERTON,

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MECHANICAL LEGEND, SCHEDULES AND DETAILS **MO.1**

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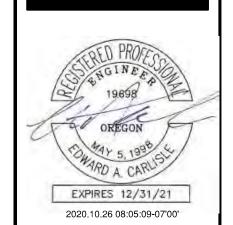


GENERAL NOTES

- A. CONDITIONS SHOWN ON THE PLANS RELATIVE TO THE WORK BEING PERFORMED ARE BASED ON THE BEST INFORMATION AVAILABLE BUT ARE SUBJECT TO VERIFICATION. VERIFY LOCATIONS AND ELEVATIONS OF DUCTS, PIPING AND OTHER COMPONENTS TO BE CROSSED OR CONNECTED PRIOR TO BEGINNING NEW INSTALLATIONS. CORRECT DEFICIENCIES CAUSED BY FAILURE TO PERFORM SUCH VERIFICATIONS AT NO COST TO OWNER, IMMEDIATELY NOTIFY OWNER OF CONDITIONS IN CONFLICT WITH DETAILS/PLANS.
- B. MODIFICATIONS TO THE CONTROL SYSTEM MUST BE PERFORMED BY A BEAVERTON SCHOOL DISTRICT APPROVED CONTROLS CONTRACTOR.
- C. TESTING AND BALANCING SHALL BE COMPLETED BY AN INDEPENDENT AGENCY.
- D. PRETEST AIRFLOWS PRIOR TO DEMOLITION. SET AIRFLOWS TO PRE-DEMOLITION SETTINGS AFTER INSTALLATION.
- E. EQUIPMENT START-UP SHALL BE PERFORMED BY A FACTORY AUTHORIZED CONTRACTOR. FACTORY START-UP DOCUMENTS SHALL BE DELIVERED TO THE SCHOOL DISTRICT AFTER COMPLETION.

NOTES THIS SHEET

- DISCONNECT GAS PIPING, CONTROL WIRING AND DUCTWORK AND REMOVE ROOFTOP UNIT, ROOF CURB AND ALL RELATED COMPONENTS IN PREPARATION FOR NEW INSTALLATION. PROVIDE NEW ROOF CURB AND MOUNT NEW UNIT ON CURB. MODIFY, EXTEND AND CONNECT EXISTING DUCTWORK AND CONTROL WIRING TO NEW UNIT. PROVIDE NEW CONDENSATE DRAIN PIPING AND MODIFY, EXTEND AND CONNECT GAS PIPING. MAINTAIN ALL CODE REQUIRED AND MANUFACTURER RECOMMENDED CLEARANCES. SEE DETAILS 1/MO.1, 2/MO.1, 3/MO.1 AND
- 2 VERIFY GAS MAIN LOCATION SERVING RTU-1 THROUGH RTU-6 WITHIN BOILER ROOM. PROVIDE NEW GAS SHUT-OFF VALVE INSIDE BOILER ROOM FOR GAS MAIN SERVING ROOFTOP UNITS RTU-1 THROUGH RTU-6. PRESSURE TEST PIPING SERVED BY THIS MAIN BEFORE PUTTING BACK INTO SERVICE.



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Project No.: 382.120.001 Contact: Kristin Trone



15895 SW 72ND AVE SUITE 200 PORTLAND, OREGON 97224

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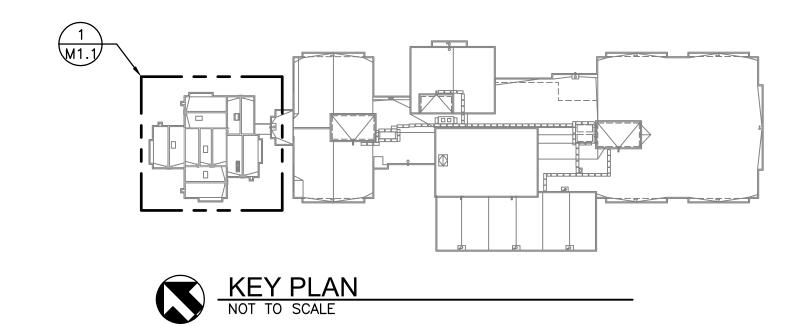
BEAVERTON, 18100

ERROL HASSELL ELEM. **BSD**

ROOF PLAN — MECHANICAL

M1.1 JOB NO. 20Y082.02

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ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.

1 GENERAL

1.1 WORK INCLUDED:

Provide all equipment, material and labor to install complete and operable mechanical systems. B. Drawings are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the

space provided. Do not scale drawings for roughing—in measurements, nor use as shop drawings. Make field measurements and prepare shop drawings as required. Coordinate work with shop drawings of other trades. Provide any bends, offsets and elbows where required by local conditions from measurements taken at the Building (subject to approval) and without additional cost to the Project. The right is reserved to make any reasonable changes in outlet location prior to roughing—in.

C. Obtain and pay for all permits, licenses, fees and taxes applicable to this project as required by law and governing authorities.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: 1. All work, installations, materials and equipment shall comply with the provision of the following codes, standards and regulations, except where more stringent requirements are shown or specified:

a. Current Edition of State of Oregon Plumbing Specialty Code (OPSC). b. Current Edition of State of Oregon International Mechanical Code (IMC)

c. Current Edition of State of Oregon Structural Specialty Code (IBC). National Electrical Code (NEC).

National Fire Protection Agency (NFPA). All City, County, State and Federal applicable laws and regulations.

Regulations and standards set forth by ASME, ASHRAE, SMACNA, AGA and ARI. Where two or more codes or regulations apply, the more stringent of the two shall be exercised.

Electrical products shall bear the U.L. label. B. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents. Workmanship: All materials shall be installed in a neat and workmanlike manner.

1.3 SUBMITTALS

A. Shop Drawings and Product Data: Submit all equipment drawings and product data for Work of Division 23 in accordance with Beaverton School District requirements and together in a single group, with each item field under a tab, and labeled with its respective specification section number, article and paragraph, and mark if applicable.

1.4 OPERATIONS AND MAINTENANCE DATA: A. Prior to final inspection, provide one (1) electronic copy of manufacturer's maintenance manuals for each piece of equipment or items requiring service. Manual shall include manufacturer's operation and maintenance instruction manuals and parts list for each piece of equipment or item requiring servicing. Include in the manual manufacturer's service data, wiring diagrams and parts lists for all major items of equipment, valve charts, balancing data, final control diagrams showing final set points and any additional

equipment added by contract modification. Comply with provisions of Section 01700 where applicable.

Prepare project cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of file

Internally subdivide the file contents with section dividers, logically organized with electronic bookmarks. D. Provide one (1) final copy of manual in electronic pdf format through owner's eBuilder Closeout Process system after approval of

1.5 PROJECT RECORD (AS-INSTALLED) DRAWINGS:

A. Keep Drawings clean, undamaged and up to date. B. Make Drawings available when requested by Architect for his review.

1.6 PROJECT CONDITIONS: A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site and include all

factors which may affect the execution of this work. Include all related costs in the initial bid proposal. B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Make changes as directed by Owner.

A. Provide a written guaranty covering the work of this Division for a period of one calendar year from the date of acceptance of the entire project as required by the General Provisions.

2 PRODUCTS

2.1 QUALITY ASSURANCE

A. Provide products which are compatible with other portions of the work and provide products with the proper and correct power and fuel burner characteristics and similar adaptations for the project.

2.2 PIPE SLEEVES:

A. Interior Wall Sleeves: 12 gage galvanized steel, flush with wall on both sides.

Interior Floor Sleeves: 12 gage galvanized steel and extend 2—inches above finished floor Exterior Wall Sleeves: Cast iron, flush with wall on both sides.

On Grade Floor Sleeves: Same as exterior wall sleeves.

2.3 FLOOR, WALL AND CEILING ESCUTCHEONS A. Furnish stamped split type plates as follows: Floor, wall and ceiling: Cast brass, chromium plated.

2.4 STARTERS AND SWITCHES

A. General: Provide each motor with starter or switch as approved and recommended by manufacturer of motor or equipment of

which motor is a part. Magnetic Starters: Provide for 1/2 horsepower and larger motors, and for smaller motors on automatic control or with interlock

switch. Include pilot lights, reset, trip-free relay on each phase, Hand-Off-Auto switch in cover, and devices for coordination with control system (including transformer for control circuit, verify holding coil voltage requirements with control system design). Provide automatic ambient temperature compensation for starter heaters.

Manual Switches: Provide on motors 1/3 horsepower and smaller except where automatic control or interlock is indicated. Include pilot light. Provide overload protection where not protected by panelboard circuit breaker or fused disconnect switch.

Manufacturers: General Electric, ITE, Allen Bradley, Arrow—Hart, Cutler—Hammer, Square D or accepted substitute.

2.5 IDENTIFICATION MARKERS

A. Pipe Markers: Adhesive pipe markers of width, letter size and background color conforming to ANSI A13.1 and UPC 601.2.1 and 602.2.2.

Acceptable Manufacturers: Brady B350 with banding tape or similar Seaton, Zeston, Porter, Tnemel. Nameplates:

Engraved nameplates, 1/16 inches thick, laminated 3-ply plastic, center ply white, outer ply black, letters formed by exposing

Size: 3 inches by 5 inches nameplates with 1/4 inch high letters. 3. Acceptable Manufacturers: Lamicoid.

3 EXECUTION

3.1 MECHANICAL EQUIPMENT WIRING

A. Provide all mechanical equipment motors, automatic temperature, limit, float and similar control devices required, with wiring complete from power source indicated on Electrical Drawings.

B. Equipment and systems shown on the Drawings and/or specified, are based upon requirements of specific manufacturers which are intended as somewhat typical of several makes which may be approved. Provide all field wiring and/or devices necessary for a complete and operable system including controls for the actual selected equipment/system.

C. Provide all starters for mechanical motors. Review Electrical Specifications and Drawings to determine which mechanical motor starters will be provided under the Electrical Specification Sections and provide all others.

A. Piping System: Indicate each pipe system by its generic name (abbreviated) as shown; except vent and drainage piping. Comply with ANSI A13.1 for marker locations, letter sizes, and colors. Include arrows to show direction of flow and "Electric Traced" signs to identify heat cable wrapped piping.

B. Each new piece of equipment shall bear a permanently attached identification plate, listing the manufacturer's name, capacities, sizes and characteristics. In addition to the manufacturer's identification plate, provide nameplates of black phenolic resin laminate and identify new equipment by name and number 1/2" high letters.

3.3 CLEANING

A. General: Clean mechanical and plumbing equipment, fixtures, piping and ductwork of stampings and markings (except those required by codes), iron cuttings, and other refuse.

3.4 LAYOUT AND COORDINATION

A. Site Examination: Before starting work, carefully examine site and all contract Drawings so as to become thoroughly familiar with conditions governing work on this project. Verify all indicated elevations, building measurements, roughing—in dimensions and equipment locations before proceeding with any of the work. B. The existence of any wires, conduits, pipes, ducts or other service facilities are shown in a general way only. It will be the duty

of the Contractor to visit the site and make exact determination of the existence of any such facilities prior to submitting a bid.

It is understood that the Contractor will be responsible for making the exact determination of the location and condition of these

C. Sleeves, Insets, Cast-in-Place Work: provide sleeves, inserts, anchoring devices, cast-in-place work, etc. which must be set in concrete sequenced at the proper time for the project schedule. D. Discrepancies: Report immediately any error, conflict or discrepancy in Plans, Specifications and/or existing conditions.

A. Record Drawings: Submit record set of drawings and Submittals as previously specified in this Section. B. Closeout Equipment/Systems Operations: Operate each item of equipment and each system in a test run of appropriate duration with the Architect present, and with the Owner's operating personnel present, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters,

excessively worn parts and similar expendable items of the work. Operation and Instruction: Provide eight (8) hours of on—site training to Owner's personnel on all mechanical systems and equipment. Training shall include maintenance, lubrication, troubleshooting and repair. Contractor shall provide necessary written manuals and training aides explaining operational diagrams, emergency and alarm provisions, sequencing requirements, séasonal provisions, security, safety and similar features of the installed system.

SECTION 23 0600 - PIPE AND PIPE FITTINGS

1.1 WORK INCLUDED A. Provide all pipe, piping fittings and all related components required for complete piping system.

2.1 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53 or A120, schedule 40 black. Fittings: ANSI/ASME B16.3, malleable iron, or ASTM A234, forged steel welding type. Joints: Screwed for pipe two inches and under; ANSI/AWS D1.1, welded for pipe over two inches.

A. Copper Tubing: ASTM B88, Type L, hard drawn. Fittings: ANSI/ASTM B16.22, cast brass, or ANSI/ASME B16.29 solder wrought copper. Joints: ASTM B32, solder, Grade 95TA or ANSI/AWS A5.8, BCuP silver braze.

3 EXECUTION

A. Ream pipe and tube ends. Remove burrs or bevel plain end ferrous pipe. B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

A. Provide non-conducting dielectric connections wherever jointing dissimilar metals. Route piping in orderly manner, maintain gradient and conceal all piping unless otherwise indicated. Provide clearance for installation of insulation and access to valves and fittings.

Slope water piping and arrange to drain at low points and provide drain valve. E. Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients.

Pitch vent piping at 1/4 inch per 10 feet minimum. G. Escutcheons: Install on all exposed pipes passing through wall or floors and on fixture stops and waste connections to

A. Gas piping: Blow clear of debris with nitrogen or oil free air. Clean all low point strainers and pockets.

3.4 TEST

A. Natural gas piping: One half hour minimum air at 60 psig for 2 psig gas, and 15 minutes at 10 psig for 7 inch water gauge natural gas or as approved and certified by serving utility

SECTION 23 0650 - VALVES

1.1 WORK INCLUDED

A. The requirements of this Section apply to the valving for the systems specified elsewhere in Division 23.

2 PRODUCTS

2.1 BALL VALVES A. Natural Gas:

1. 5 psig or less, 2 inches and smaller ball valves, Watts 6000UL. Threaded, 250 psi, 2 piece, bronze. 2. 5 psig or less, 2-1/2 inches and larger, 125 psi, all bronze or cast iron body/bronze trim. AGA approved.

2.2 GAS PRESSURE REGULATORS

A. Size and capacity as required for connected load. Style and model as approved by gas supplier. B. Manufacturers: Maxitrol, Rockwell, Fisher, Reliance, or accepted substitute.

3 EXECUTION

A. Provide clearance for installation of insulation and access to valves and fittings.

B. Provide access where valves and fittings are not exposed. Coordinate size and location of access door with Section

C. Install valves with stems upright or horizontal, not inverted.

SECTION 230900 - SUPPORTS AND ANCHORS

1 GENERAL

1.1 WORK INCLUDED

A. Provide pipe and equipment hanger, support, anchors and all related items for complete systems.

A. Supports for sprinkler piping and standpipes: In conformance with NFPA 13 and 14.

Provide pre-manufactured horizontal piping and ductwork hangers, clamps, hanger rod, shields, supports, etc. C. Seismic Requirements: Provide seismic restraints in accord with the following Seismic Hazard Levels (SHL) as recommended in the "Seismic Restraint Manual: Guidelines for Mechanical Systems," latest edition, SMACNA. 1. SHL "B": All seismic zone "3" (UBC Chapter 16) and all occupancy categories "1" and "II" (UBC Chapter 16) in seismic zone "2B".

2. SHL "C": All occupancy categories "III" and "IV" in seismic zone "2B".

3 EXECUTION

3.1 INSTALLATION OF HANGERS AND SUPPORTS

A. General: Proceed with the installation of hangers, supports and anchors only after the required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including (but not limited to) the proper placement of inserts, anchors and other building structural attachments.

1. Prevent electrolysis in the support of copper tubing by the use of hangers and supports which are copper plated, or by other recognized industry methods. Support fire sprinkler piping independently of other piping and in accordance with NFPA Pamphlet 13. 3. Install hangers and supports to provide the indicated pipe slopes, and so that maximum pipe deflections allowed

by ANSI B31 are not exceeded. Comply with the following installation requirements: a. Insulated Pipe Supports: Insulated pipe supports shall be supplied and installed on all insulated pipe and

b. Load Rating: All insulated pipe supports shall be load rated by the manufacturer based upon testing and analysis in conformance with ASME B31.1, MSS SP-58, MSS SP-69 and MSS SP-89. Support Type: Manufacturer's recommendations, hanger style and load shall determine support type.

d. Insulated Piping Supports: Where insulated piping with continuous vapor barrier or where exposed to view in finished areas is specified, install hard maple wood insulation shields (Elcen Fig. 216) or steel pipe covering protection shields (MSS type 39) at each hanger.

FLEXIBLE DUCT CONNECTION (FDC)

C. Neoprene loaded vinyl material or neoprene loaded canvas with vapor barrier. Flame spread rating of 25 or less and a smoke spread rating of 50 or less, per ASTM E84. Not affected by temperatures as low as minus 10F or as high as

D. Flexible Connections: Ventglass manufactured by Ventfabrics, Amatex or accepted substitute.

SECTION 23 0700 - MECHANICAL INSULATION

1 GENERAL

A. Provide piping, ductwork and equipment insulation including jacketing, adhesive and all related accessories for complete insulated system.

2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Insulating Manufacturers: JohnsManville, Knauf, Armstrong, Owens-Corning, Pabco, IMCOA or Certain Teed.

B. Adhesive Manufacturers: Benjamin Foster, 3M, Borden, Kingco or Armstrong. C. JohnsManville products are listed unless indicated otherwise.

2.2 PIPING INSULATION, JACKETING AND ACCESSORIES

A. Insulation: 1. Pipe system to minus 10 to 55 deg. F: Flexible, preformed, pre-slit, self-sealing elastomeric, thermal conductivity of 0.27 Btu/hr. sq. ft./in. at 75 deg. F and vapor transmission rating of 0.2 perms/inch. Apply in

thickness necessary to prevent condensation on the surface. JohnsManville "AEROTUBEII". Piping Systems 55 to 600 deg. F: Glass fiber preformed pipe insulation with a minimum K-value of 0.23 at 75

deg. F, a minimum density of 3.5 pounds per cubic foot. JohnsManville "Micro-Lok." B. Jackets:

1. Interior Applications: a. Vapor Barrier Jackets: Kraft reinforced foil or vinyl vapor barrier with self—sealing adhesive joints or pressure sensitive seal. JohnsManville "Micro-Lok."

b. PVC Jackets: One piece, premolded type. JohnsManville "Zeston 1200." 2. Exterior Applications:

a. Aluminum Jackets: ASTM B209; 0.016 inch thick; smooth finish. JohnsManville weatherproof "Micro-Lok."

A. Insulation: 2 inch flexible glass fiber; ANSI/ASTM C612; commercial grade; 'k' value of 0.3 at 75 degrees F.

JohnsManville "Microlite".

B. Jacketina: Indoor Jacket: Foil-Skrim-Kraft.

Outdoor Jacket: Coated glass fiber sheet, 30 lb/sq yd. Lagging Adhesive: Fire resistive to ASTM E84, NFPA 255, and UL 723.

Impale Anchors: Galvanized steel, 12 gauge, self—adhesive pad. Joint Tape: Glass fiber cloth, open mesh.

Tie Wire: Annealed steel, 16 gauge (1.5 mm). C. Fire Wrap: Listed and labeled duct wrap compliant with ASTM E 2336 and installed per manufacturer's recommendations. Thickness as required to maintain required fire rating. Thermal Ceramics FireMaster Duct Wrap or approved.

3 EXECUTION

A. Install materials after piping, ductwork and equipment has been tested and approved.

3.2 PIPING INSULATION INSTALLATION

A. Install materials in accordance with manufacturer's instructions. B. Continue insulation with vapor barrier through penetrations.

In exposed piping, locate insulation and cover seams in least visible locations.

D. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or other heavy density insulating material suitable for the planned temperature range. Factory fabricated inserts may be used.

E. Piping Insulation Schedule:

PIPE SIZE INSULATION THICKNESS (IN.) 1/2 Domestic Cold

and Recirculating/Heating 2" and Smaller 1-1/2 F. Handicapped Lavatory Insulation Kit: ASTM: P-traps, hot water and cold water insulating guards. Molded closed cell vinyl with nylon fasteners, paintable. Thermal conductivity: K=1.17 (BTU/in)/(hr/sq.ft./deg. F) at 75F mean temperature. Provide accessories as required for complete installation. Color white. Truebro Inc. Model 102. McGuire, ProWrap, Brocar

barrier is required.

E. Duct Insulation Schedule

Supply and Return Duct

Trap Wrap or accepted substitute.

Domestic Hot/Tempered

3.3 DUCTWORK INSULATION INSTALLATION A. Install materials in accordance with manufacturer's instructions.

B. Exterior Insulation Application:

Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point

All 1-1/2" Thick Flexible Fiberglass Insulation

C. Continue insulation with vapor barrier through penetrations.

D. Internally Lined Ductwork: Where internally lined ductwork is indicated on the Drawings or specified, no exterior insulation is required. Carefully lap the ends of the exterior insulation a minimum of 6 inches past the interior insulation unless otherwise shown. Seal the end of vapor barrier jacket to the duct with mastic where the vapor

insulation around access doors and damper operators to allow operation without disturbing wrapping.

19.698 OREGON B. MAY EXPIRES 12/31/21

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3 2 -ENGINEERING. INC 9615 S.W. Allen Blvd., Suite 107 Beaverton, Oregon 97005 Phone: (503) 726-3319 Fax: (503) 726-3326 E-mail: rweng@rweng.com

Project No.: 382.120.001

Contact: Kristin Trone



PORTLAND, OREGON 97224 TEL: 503.226.1285 FAX: 503.226.1670 W W W . C I D A I N C . C O N

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MECHANICAL SPECIFICATIONS

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JOB NO. 20Y082.02 (C) 2020 CIDA, P.C./CIDA ALL RIGHTS RESERVED

ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.

1 GENERAL

1.1 DESCRIPTION

A. The requirements of this section apply to the Heating, Cooling and Ventilating Equipment.

2 PRODUCTS

2.1 PACKAGED ROOFTOP AIR CONDITIONING UNITS (3-20 TONS)

- A. Manufacturers: Trane, Carrier, Daikin, Luxaire, Lennox or approved substitution.
- B. Performance: Unit shall be selected within +/-5% of cooling and heating capacity scheduled. Unit shall be provide EER, IPLV, fan BHP efficiencies at or better than scheduled values.
- C. Unit: Single piece packaged rooftop combination heating and cooling unit. Unit factory assembled, piped, charged with refrigerant, wired and tested. Factory run tested to include the operation of all fans, compressors, heat exchangers, and control sequences. Factory adhere labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.
- D. Cabinet: Zinc coated galvanized steel to be finished with weather—resistant enamel finish. Unit surface shall withstand 600 hours in a salt spray test in compliance with ASTM B117. Unit to have downflow supply and return with duct connections made fully inside roof curb. The unit base shall have provisions for crane lifting lugs. Unit to include outside air intake hood. Roof panels shall be sloped to provide positive drainage of rain water / melting snow away from the cabinet.
- E. Service Access: Access panels shall be hinged or quick lift out with no more than two screws, and provide a water and air tight seal.
- F. Supply Fan: Forward curved, double width, double inlet, centrifugal type supply fan with self—aligning, grease lubricated ball or sleeve bearings with permanent lubrication fittings. Provide thermal overload protection on motor.
- G. Exhaust Fan: Units 6 tons and larger shall be provided with exhaust fan to assist in controlling building static pressure. Exhaust fan is for duct installation on horizontal discharge units. Exhaust fan shall be mounted and integrally wired on downflow units. Exhaust fan shall be on whenever outside air damper is greater that 25 percent. Barometric Relief: Units below 6 tons, which have economizers, shall have barometric relief hood.
- H. Gas Heating Section: Completely assembled and wired gas fired heating system with stainless steel heat exchanger, electronic ignition, centrifugal combustion blower, continuous flame safety, automatic gas valve and manual gas shut-off valve. Designed and tested for use constant airflow with entering air down to 45 degrees. Two-stage natural gas heating when heating output is greater than 140 MBH.
- Refrigeration System: Direct drive hermetic scroll compressors with centrifugal type oil pumps. All compressors to include internal temperature and current—sensitive motor overloads. Crankcase heaters to be included on units 6-tons and above. Compressors shall be isolated from casing with suitable vibration isolation. Direct drive propeller condenser fans to include permanently lubricated bearings and built-in thermal overload protection. Aluminum fin DX cooling coil with moisture carryover management system. Condensate pan shall be sloped & pitched with not standing water. Condenser coil with plate type aluminum fin, maximum 16 fins per inch for cleanability. Refrigeration system suitable for ambient operation down to 0 degrees F in case of economizer failure. Refrigeration system suitable for ambient operation up to 125 deg F. Evaporator and condenser coils leak tested to 600psi.
- J. Economizer: Provide a fully integrated 100% modulating outside air economizer with return and outside air dampers. Damper operator shall be spring return and close outside air damper on power loss. Economizer controls shall utilize outdoor dry bulb temperature to enable economizer operation. Outside air shall be locked out during unoccupied and morning warmup conditions. Provide adjustable minimum position control.
- K. Electrical: Units shall be UL listed and label as a complete assembly. Provide single control panel with weatherproof control panel, single point electrical connection, suitable overload protection for each branch circuit. contactors for each motor & compressor, fused control power transformer. Provide wiring diagrams, affixed to access door.
- L. Controls: Factory mounted controls to include devices and wiring necessary for unit operation on a standalone basis for service checkout and operation before control installation is complete. This system shall consist of contactors, transformers, two minute supply fan anticycle timer, compressor min ON and OFF anticycle timers, condenser fan anticycle timers, heat anticycle timers, and refrigeration safeties factory wired and tested. Controls shall provide fully integrated, dry bulb initiated, economizer control that allows compressor operation to supplement free cooling. Unit control shall interface with thermostat or controller specified under division 23 0933.

M. Unit Options:

- 1. Roof Curb: 14 inch high galvanized steel curb with gaskets and nailer strip, manufactured in accordance with the National Roofing Contractors Association guidelines for rooftop equipment support.
- 2. Filters: Filter rack with MERV 8 filters minimum. MERV 13 filters optional, see schedule.

3 EXECUTION

- 3.1 EQUIPMENT INSTALLATION
- A. Install in accordance with manufacturer's instructions and applicable code
- B. Lubricate all moving and rotating parts in accordance with manufacturer's recommendation prior to start—up.
- C. All roof mounted mechanical equipment shall be supported and seismically anchored on leveled, flashed and counterflashed curbs anchored to resist seismic forces and suitable for the roof construction. Minimum curb height shall be 12 inches above the roof unless otherwise noted.
- D. Make all electrical and duct penetrations for each equipment within the curb unless shown otherwise on the Drawings. Piping and electrical conduit routed above and across the roof shall be supported on flashed and counterflashed curbs with pipe guides anchored to the curbs in "pitch pockets." Submit shop drawings on other arrangements for approval.
- E. Secure fans with lag bolts on each side. Seal with mastic mount on level curb.

SECTION 23 8900 - AIR DISTRIBUTION

1 GENERAL

- 1.1 WORK INCLUDED
- A. Provide air distribution equipment as specified herein and shown.
- B. Equipment capacity and size shall be as shown.

2 PRODUCTS

2.1 DUCTWORK

- A. Galvanized steel sheet metal: Metal gauges, joints and reinforcement in accordance with mechanical Code, ASHRAE and SMACNA tables and recommendations.
- B. Spiral Seam Duct: Round and flat oval spiral seam duct shall be manufacture of galvanized steel sheet metal with spiral lock seam. Matching fittings shall be manufactured of galvanized steel with spot welded seams. United Sheet Metal, Semco, Rolock, Metco or accepted substitute.

2.3 DUCT SEALING

- A. Aluminum bonded to aluminized mylar reinforced with fiberglass mesh backing an elastomeric pressure sensitive adhesive specifically formulated for adhesion to galvanized metal. Hardcast "AFG-1402" with "HD-181" degreaser or accepted substitute.
- B. Two-part sealing system with woven fiber, mineral gypsum impregnated tape and non-flammable adhesive. Hardcast "DT-5300 tape and "RTA-50" adhesive or United "Uni-Cast" system or accepted substitute.
- C. Duct Joints for Sheet Metal Ducts: "Ductmate System" by Ductmate Industries, Inc., for making transverse rectangular and round duct joints. Ward Duct Connectors, Inc., Lockformer TDC or accepted substitutes.

2.4 ACCESSORIES

A. Manual Volume Dampers: Construct of material two gauges heavier than duct in which installed; single plate up to 12 inches wide; multiple over 12 inches wide. Hem both edges 1/2 inch and flange sides 1/2 inch. Provide regulator extension through sheet rock ceiling with concealed adjustable cover. Use Young, DuroDyne or accepted substitue damper accessories.

3 EXECUTION

3.1 INSTALLATION

- A. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- B. Provide manual volume dampers at points on low pressure supply, return, and exhaust systems where branches are taken from larger ducts for air balancing. Use splitter dampers only where shown. Location of all volume dampers are not necessarily shown on the drawings.
- C. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.
- D. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where shown.
- Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 12 inches x 12 inches size for hand access, 18 inches x 24 inches size for shoulder access and as indicated. Install necessary access openings and covers for cleaning, wiring or servicing motors, fire dampers, filters, fans, both entering and leaving air sides of coils, and to other equipment located within or blocked by ductwork.
- F. Support: Install ductwork with 1 inch wide 16 gauge cradle hangers not more than 8 feet c/c or as required by code. Support terminal units independent of adjacent ductwork. Attach to available building construction as per good practices for materials involved. Exposed ductwork shall be supported by closed cradle strap suspended from 3/8 inch threaded rod.
- G. Connection Fittings: Round connections to rectangular ducts manufactured sheet metal "spin—in" fittings. Genflex, Wiremold, Thermaflex, Glassflex, Clevepak, Manville, or accepted substitute.
- H. Elbows and Fittings: Construct elbows with throat radius equal to duct width in plane or turn or make them square and provide double wall, air foil turning vanes.
- I. Sleeves: Provide galvanized sheet metal plaster ring around ductwork penetrating exposed finished walls. Sleeve and flash all duct penetrations through exterior walls in an air tight and weatherproof manner.
- J. Plenums: Construct sheet metal plenums and partitions of not lighter than 18 gauge galvanized steel and reinforce with 1-1/2 inch by 1/2 inch by 1/8 inch angles as required to prevent drumming or breathing.
- K. Acoustical Duct Lining: Acoustically line all outside air ducts and plenums, all fan unit intake and discharge plenums, all ductwork indicated as lined on the Drawings.
- L. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.2 ADJUSTING AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

SECTION 23 8000 - TESTING, ADJUSTING, AND BALANCING

1 GENERAL

1.1 WORK INCLUDED

- A. After completion of the work of installation, test and regulate all components of the ventilating systems to verify air flow rates shown.
- B. Measurement of final operating condition of mechanical systems.
- C. Provide written report documenting testing, adjusting and balancing results.

2 PRODUCTS

2.1 EQUIPMENT

A. Provide all necessary personnel, equipment and services.

3 EXECUTION

3.1 EXAMINATION

- A. Before commencing work, verify that systems are complete and operable. Ensure the following: Equipment is operable and in a safe and normal condition. Temperature control systems are installed complete and operable. Proper thermal overload protection is in place for electrical equipment. Final filters are clean and in place. If required, install temporary media in addition to final filters. Duct systems are clean of debris. Correct fan rotation. Fire and volume dampers are in place and open. Coil fins have been cleaned and combed. Access doors are closed and duct end caps are in place. Air outlets are installed and connected. Duct system leakage has been
- B. Report any defects or deficiencies noted during performance of services to Architect.
- C. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect to facilitate spot checks during testing.

3.3 INSTALLATION TOLERANCES

- A. Adjust air handling systems to plus or minus 10 percent for supply, return and exhaust systems
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

3.4 ADJUSTING

- A. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.5 AIR SYSTEM PROCEDURE

conditions.

- A. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of
- Measure air quantities at air inlets and outlets.
- Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and
- D. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required.
- Vary branch air quantities by damper regulation. E. Measure static air pressure conditions on air supply units, including filter and coil pressure drops,
- and total pressure across the fan. F. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design
- G. Measure temperature conditions across outside air, return air, and exhaust dampers to check
- H. Where modulating dampers are provided, take measurements and balance at extreme conditions.
- Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure near the building entries.

3.6 VERIFICATION OF CONTRACTOR'S PERFORMANCE

- A. Balancing data may be spot checked with instruments similar to that used by the balancing firm.
- B. If, in the judgment of the Architect, the discrepancies warrant additional adjustment readjust and rebalance the systems at no ad

SECTION 23 9330 - CONTROLS

1 GENERAL

1.1 SYSTEM DESCRIPTION

- A. Provide a system of low voltage electrical controls that is compatible with and can fully integrate with existing direct digital control building management system. Work must be performed by a Beaverton School District approved controls contractor.
- B. Wiring: Shall be as required for a complete operating control system, per state and National Electric Code. Provide necessary relays, transformers, fusing, switches and pilot lights. Interlocks and control power from nearest panel.

2 PRODUCTS

2.1 ROOM THERMOSTATS AND SENSORS

A. Match existing controls.

2.2 SMOKE DETECTORS

A. Dual chamber ionization type with duct sampling tubes. UL approved with adjustable sensitivity. Arrange to stop associated fan on presence of smoke. Provide in return duct upstream of outside air connection and filters for all fan systems above 2000 CFM.

2.3 TRANSFORMERS

A. Transformers selected and sized for appropriate VA capacity and installed and fused according to applicable codes. Provide wiring to nearest suitable power source as required.

3 EXECUTION

3.1 SEQUENCE OF OPERATION

A. Rooftop Units:

- 1. Operate during occupied hours set by owner's schedule.
- 2. Modulate heating, cooling and economizer to maintain set point. Coordinate initial setpoints with BSD staff.
- 3. Ventilation: Demand control ventilation based on CO2 in space.
- 4. Night set back and morning warm up. Close outside air dampers and operate heating or cooling as required to reach set point.
- 5. Alarms: At a minimum provide alarms for high space temperature, low space temperature, and all unit generated alarms.
- 6. Intergrate smoke detectors with existing fire alarm system.

19.698 OREGON EXPIRES 12/31/21 2020.10.26 08:04:34-07'00

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ENGINEERING. INC 9615 S.W. Allen Blvd., Suite 107 Beaverton, Oregon 97005 Phone: (503) 726-3319 Fax: (503) 726-3326 E-mail: rweng@rweng.com Project No.: 382.120.001 Contact: Kristin Trone



15895 SW 72ND AVE SUITE 20 PORTLAND, OREGON 97224 TEL: 503.226.1285 FAX: 503.226.1670 W W W . C I D A I N C . C O N

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MECHANICAL **SPECIFICATIONS**

JOB NO. 20Y082.02

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ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.

BSD HITEON ELEMENTARY SCHOOL: 2021 RE-ROOF

CITY OF BEAVERTON, OR (AHJ)

BEAVERTON SCHOOL DISTRICT

OWNER

16550 SW MERLO ROAD BEAVERTON, OR 97003 (T): (503) 356-4318 CONTACT: MEGAN FINCH

TO BE DETERMINED

CONTRACTOR

CCB #:----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200 PORTLAND, OREGON 97224 (T): (503) 226-1285 (F): (503) 226-1670 CONTACT: DUSTIN JOHNSON

RDH BUILDING SCIENCE

ROOFING CONSULTANT

5331 S. MACADAM AVE, #314 PORTLAND, OREGON 97239 (T): (503) 867-8591 CONTACT: SCOTT MECALIS

SITE INFORMATION

 TAX LOT:
 100

 TAX MAP:
 1S128CA

 ZONE:
 R7

 SITE AREA:
 12.22 ACRES (532,303.2 SF)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC)

OCCUPANCY: E (EDUCATION)

CONSTRUCTION TYPE: V-B (SPRINKLERED)

BUILDING AREA: 78,587 SF

PROJECT DESCRIPTION

57,261.5 SF ROOFING SYSTEM TEAR-OFF/NEW ROOFING SYSTEM. EXISTING ROOFING SYSTEM IS BUILT-UP ROOFING WITH PEA GRAVEL WEAR SURFACE. OVERLAY ROOFING SYSTEM TO BE 25-YEAR SINGLE-PLY TPO ROOFING SYSTEM OVER NEW SUBSTRATE BOARD AND RIGID INSULATION. SEE PLANS AND SPECIFICATIONS FOR FULL SCOPE.

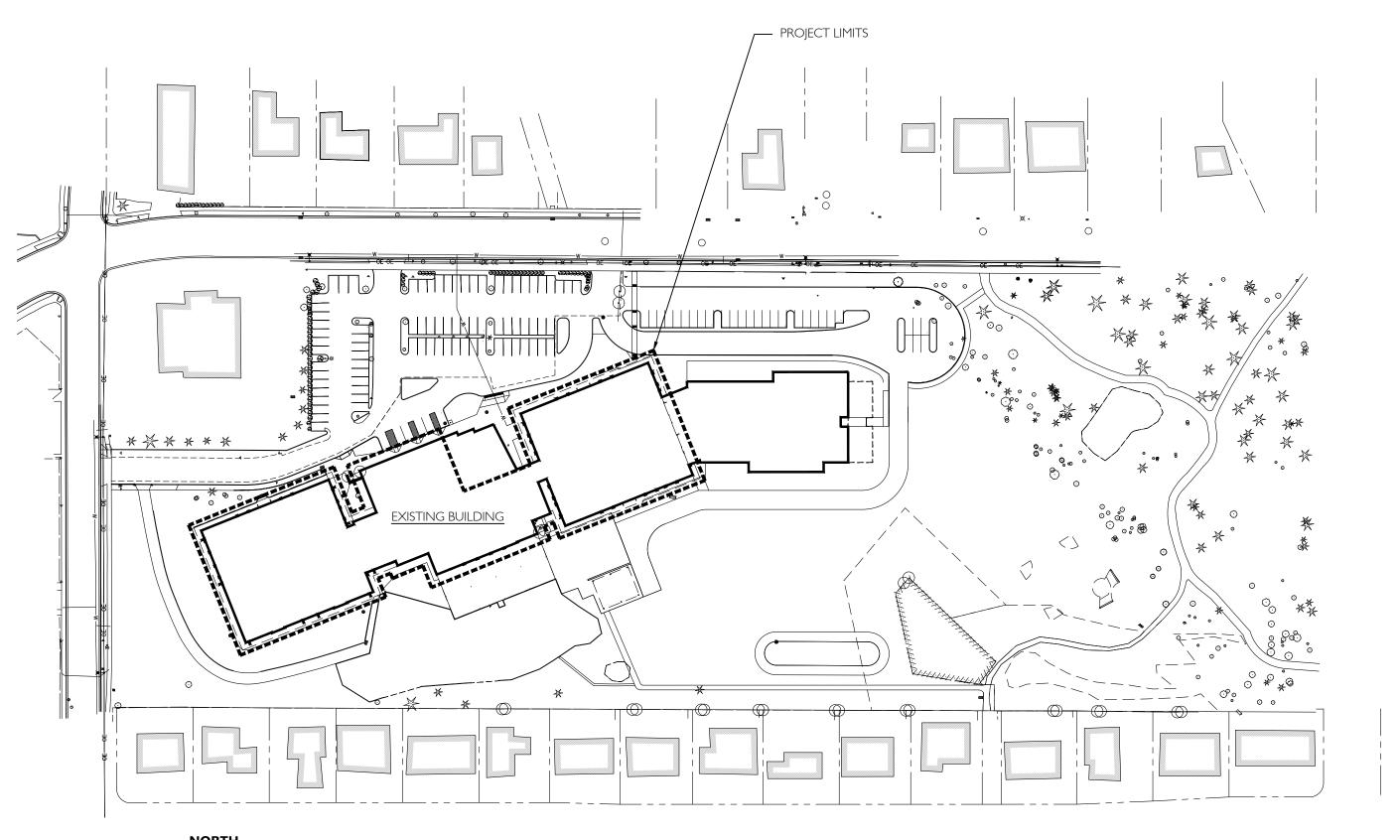
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R&W ENGINEERING MECHANICAL ENGINEER/COST CONSULTANT

9715 SW ALLEN BLVD, #117 BEAVERTON, OREGON 97005 (T): (503) 292-6000 CONTACT: ED CARLISLE







2 SITE PLAN - FOR REFERENCE ONLY CS1 |"=|00"

DUSTIN JOHNSON
SAINT HELENS, OR
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SD SET 08.05.2020
DD SET 09.16.2020
80% CONST. DOCS 10.07.2020
BID SET RELEASE 10.28.2020



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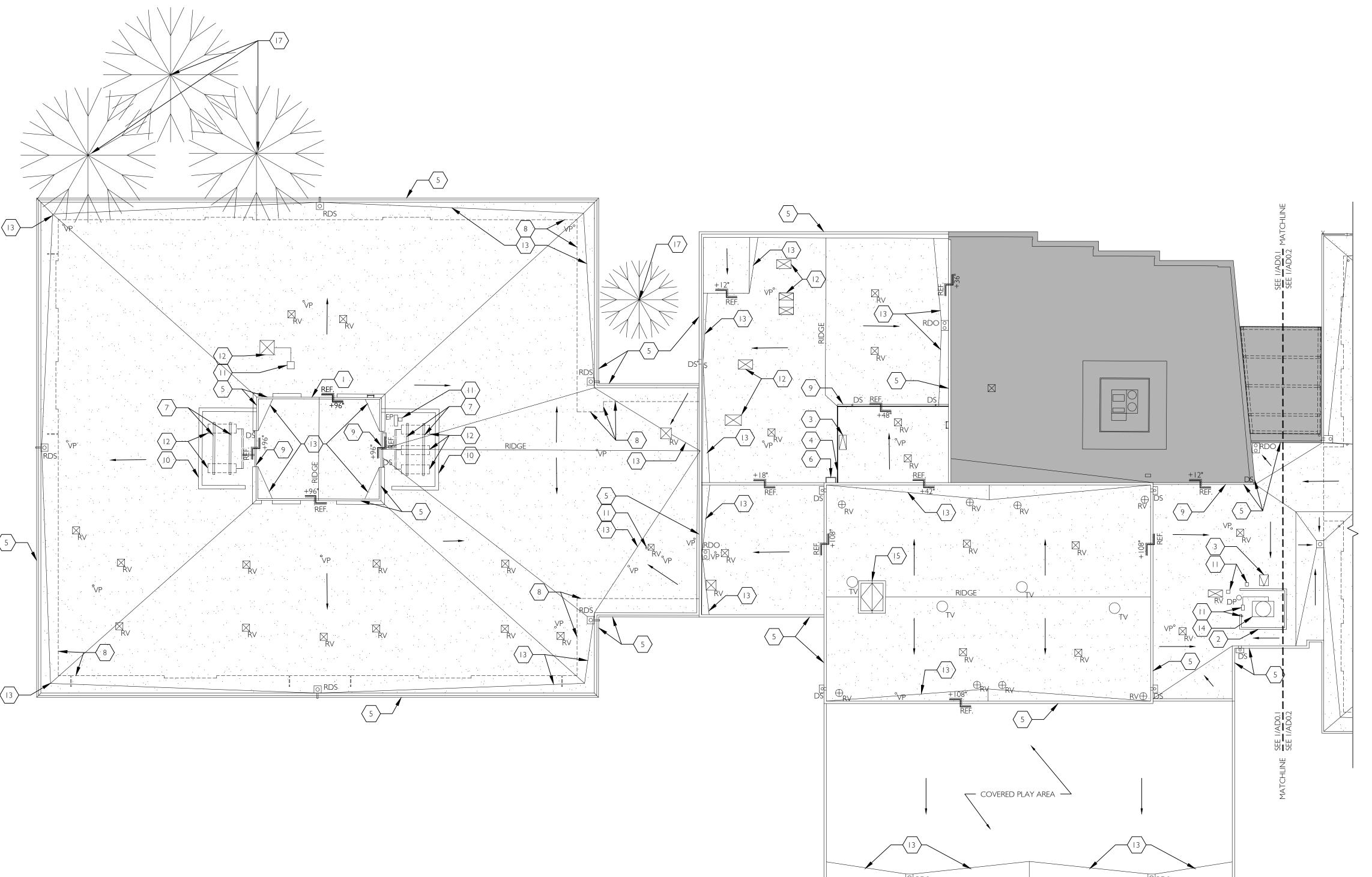
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COVER SHEET

JOB NO. 20Y082.03



1 EXISTING COND. ROOF PLAN AD0.1 |/|6" = |'-0"



- CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS
 PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
 SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR
 ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO FIELD VERIFY PLACEMENT BENEATH UNIT.

 4. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS NON-CURBED CONDITION.

EXST. CONDITIONS ROOF PLAN LEGEND

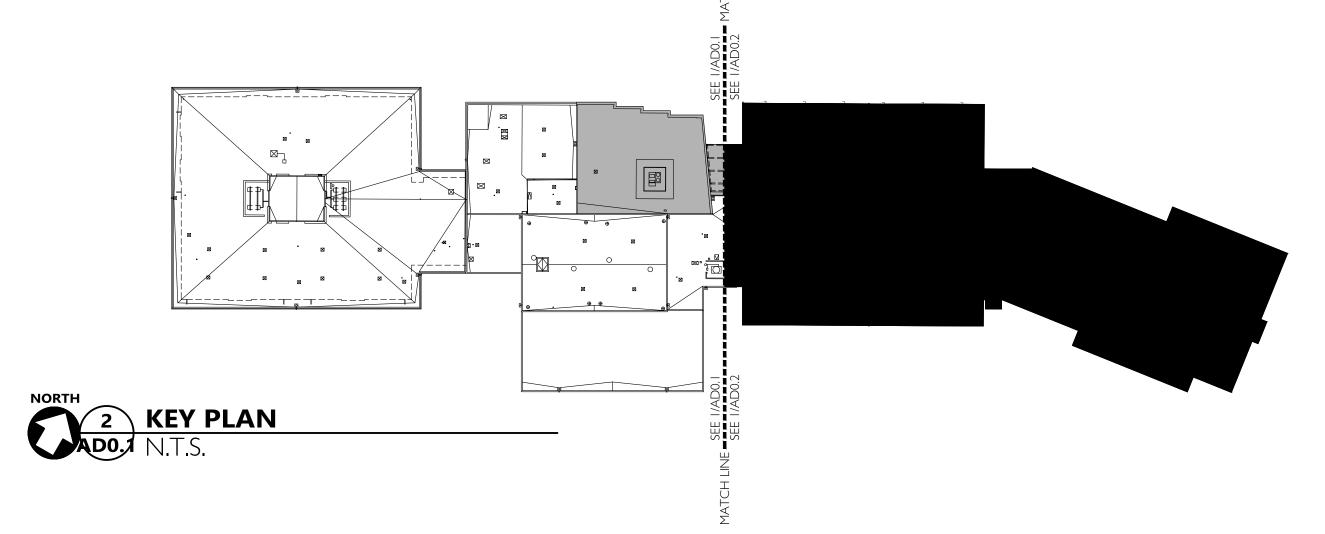
| RV | - (E) CURB MOUNTED ROOF VENT | | - (E) W/ - (E) NA | | OW GAS LINE |
|-----------------|---|---|----------------------|-------------------------------|--|
| °VP | - (E) VENT PIPE PENETRATION | —— E ——— | - (E) ELE | ECTRIC. | AL LINE |
| \bigcirc_{TV} | - (E) CURB MOUNTED TURBINE VENT | | - AREA | OUTSIE | DE SCOPE OF WORK |
| DS | - (E) DOWNSPOUT AND SCUPPER | | | | |
| °DS | - (E) DOWNSPOUT | | - (E) PE/ | - (E) PEA GRAVEL BUILT-UP ROO | |
| OORDO | - (E) ROOF DRAIN AND OVERFLOW DRAIN | | - DIREC | TION (| DF DRAINAGE |
| RDS | - (E) ROOF DRAIN WITH SCUPPER OVERFLOW | <u>ABBREVIATIONS</u> | | | |
| EP | - (E) ELECTRICAL PANEL | (E) -EXISTING (N) -NEW TYPTYPICAL | | DP RV RDO | -DUCT PENETRATION -ROOF VENT -ROOF DRAIN |
| \circ_{DP} | - (E) NON- CURB MOUNTED DUCT PENETRATION | SIMSIMILAR RTU -ROOFTOP VP -VENT PIPE | UNIT | RDS | OVERFLOW -ROOF DRAIN SCUPPER |
| REF | REFERENCE PLANEVERTICAL EDGEELEVATION RELATIVETO REFERENCE PLANE | DS -DOWNSPC S -SCUPPER | DUT | TV EP | -TURBINE VENT -ELECTRICAL PANEL |

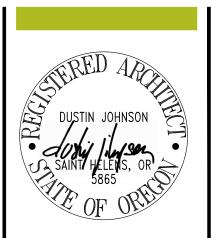
| EXS | T. CONDITIONS ROOF PLAN KEYNOTES |
|-------------------------------|--|
| | (E) MECHANICAL PENTHOUSE |
| $\langle 2 \rangle$ | (E) MECHANICAL SCREEN WITH REMOVABLE SUPPORT IN PERMANENT PIPE SLEEVES |
| $\langle 3 \rangle$ | (E) ROOF HATCH |
| 4 | (E) DRIP EDGE WITH GRAVEL STOP |
| 5 | (E) PARAPET |
| $\left\langle 6\right\rangle$ | (E) FIXED LADDER |
| $\overline{7}$ | (E) EQUIPMENT CURB |
| 8 | LINE OF (E) EXTERIOR WALL BELOW, TYP. |

- (E) SHEET METAL GUTTER
- (E) MECHANICAL SCREEN WITH NON-REMOVABLE SUPPORTS (E) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION
- (E) CURB MOUNTED MECHANICAL EQUIPMENT
- (E) CRICKET, TYP.
- (E) COOLING TOWER

VERTICAL ELEVATION CHANGE

- (E) SMOKE VENT
- (E) FLOOD LIGHT
 (E) TREE





PORTLAND, OREGON 9722 T E L : 5 0 3 . 2 2 6 . I 2 8 FAX: 503.226.1670

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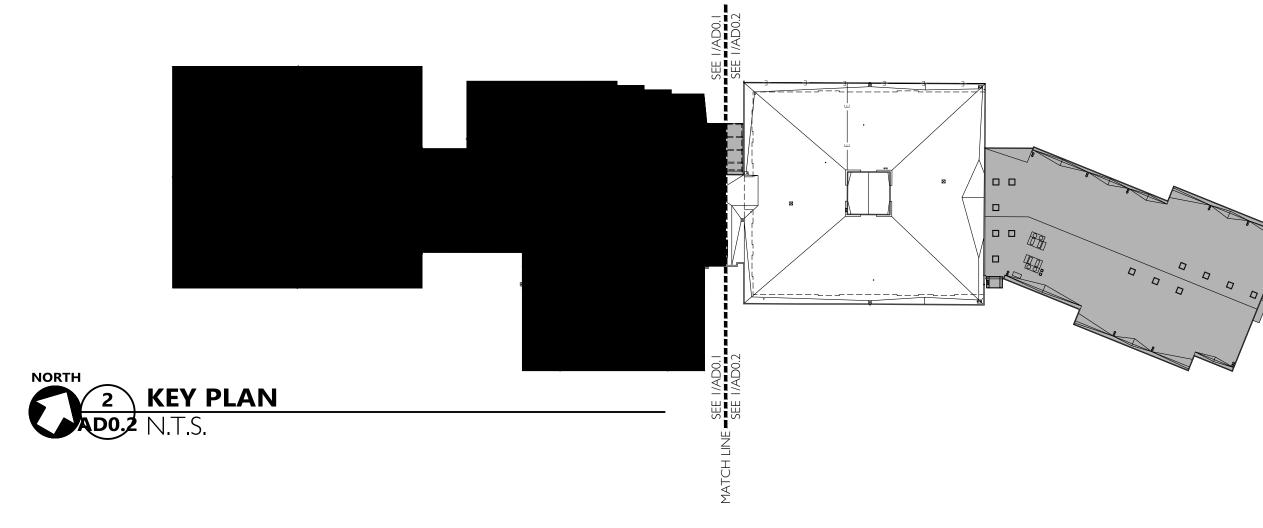
HITEON ELEM. SCHOOL

13800 SW BROCKMAN RD BEAVERTON, OR 97008

EXISTING CONDITIONS ROOF PLAN- WEST

AD0.1 JOB NO. 20Y082.03 ©2020 CIDA, P.C./CIDA ALL RIGHTS RESERVE

1 EXISTING COND. ROOF PLAN AD0.2 |/|6" = |'-0"



EXST. CONDITIONS ROOF PLAN GENERAL NOTES

SEE GENERAL NOTES ON AD0.1

EXST. CONDITIONS ROOF PLAN LEGEND

| | - (E) CURB MOUNTED ROOF | | - (E) W | 'ALL BEI | LOW |
|-----------------|--|--|----------|----------|--|
| RV | VENT | —— G——— G—— | - (E) NA | ATURAI | L GAS LINE |
| °VP | - (E) VENT PIPE PENETRATION | —— E ——— | - (E) EL | ECTRIC | AL LINE |
| \bigcirc_{TV} | - (E) CURB MOUNTED TURBINE VENT | | - AREA | . OUTSII | DE SCOPE OF WORK |
| DS | - (E) DOWNSPOUT AND SCUPPER | | | | |
| °DS | - (E) DOWNSPOUT | | - (E) PE | A GRAV | VEL BUILT-UP ROOF |
| OORDO | - (E) ROOF DRAIN AND OVERFLOW DRAIN | | - DIREC | CTION (| OF DRAINAGE |
| RDS | - (E) ROOF DRAIN WITH SCUPPER OVERFLOW | <u>ABBREVIATIONS</u> | | | |
| EP | - (E) ELECTRICAL PANEL - (E) NON- CURB MOUNTED DUCT | (E) -EXISTING (N) -NEW TYPTYPICAL SIMSIMILAR | I IN UT | | -DUCT PENETRATION -ROOF VENT -ROOF DRAIN OVERFLOW |
| Di | PENETRATION | RTU -ROOFTOP VP -VENT PIPE | UNII | RDS | -ROOF DRAIN SCUPPER |
| REF. | REFERENCE PLANE VERTICAL EDGE | DS -DOWNSPC S -SCUPPER | DUT | TV EP | -TURBINE VENT -ELECTRICAL PANEL |
| +32" | ELEVATION RELATIVE TO REFERENCE PLANE | | | | |
| VERTICAL ELEVA | TION CHANGE | | | | |

EXST. CONDITIONS ROOF PLAN KEYNOTES

| (E) MECHANICAL PENTHOUSE |
|--|
| (E) MECHANICAL CORED IN A STUDEN ON A RUE CURRORT IN URED MANIENT RIPE CUEF. |

 \langle 2 \rangle (E) MECHANICAL SCREEN WITH REMOVABLE SUPPORT IN PERMANENT PIPE SLEEVES

(E) ROOF HATCH

(E) DRIP EDGE WITH GRAVEL STOP

(E) PARAPET

(E) FIXED LADDER

(E) EQUIPMENT CURB

LINE OF (E) EXTERIOR WALL BELOW, TYP.

(E) SHEET METAL GUTTER

(E) MECHANICAL SCREEN WITH NON-REMOVABLE SUPPORTS

(E) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION

(E) CURB MOUNTED MECHANICAL EQUIPMENT

(E) CRICKET, TYP.

(E) COOLING TOWER

(E) SMOKE VENT

(E) FLOOD LIGHT

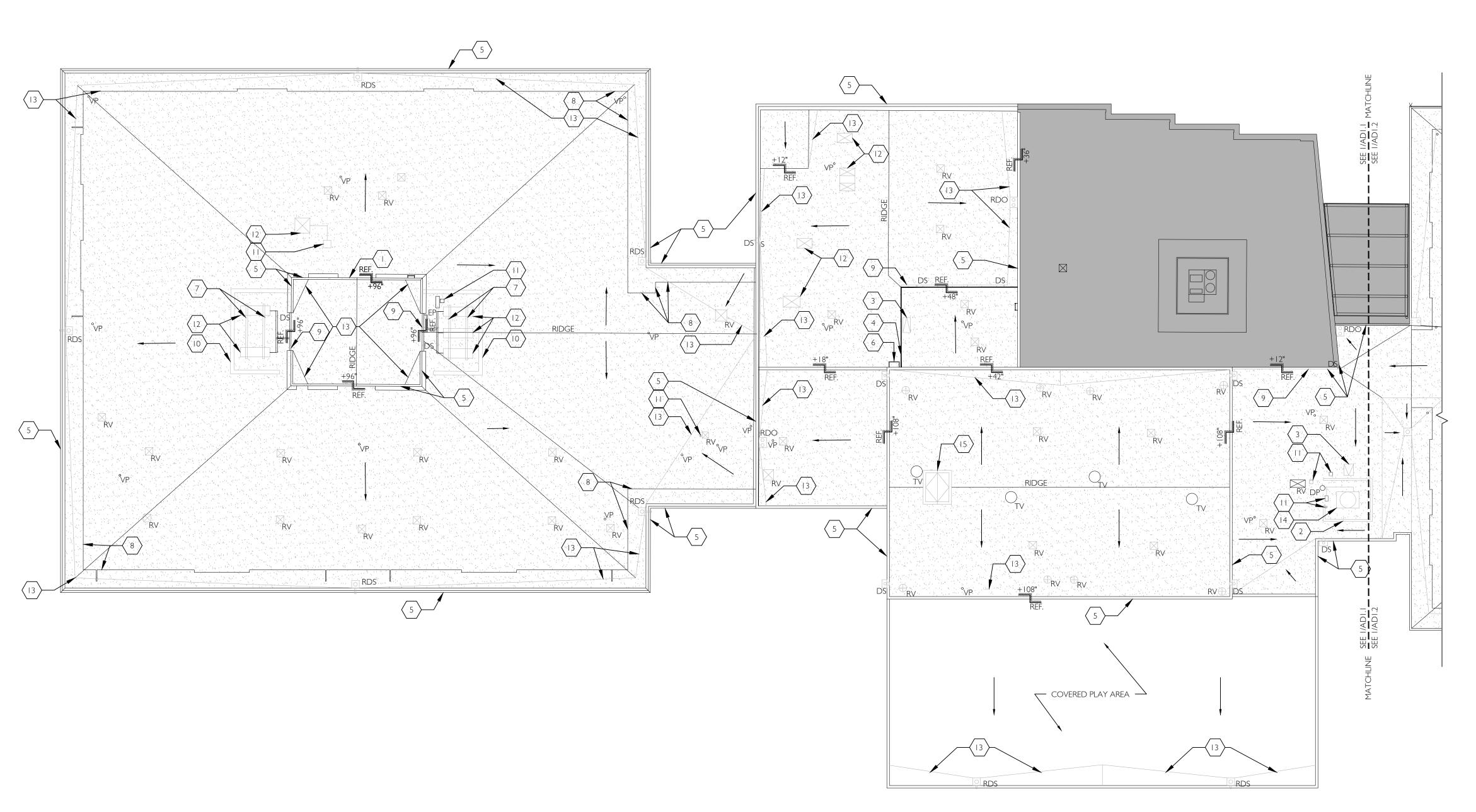
PORTLAND, OREGON 9722

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HITEON ELEM. SCHOOL 13800 SW BROCKMAN RD BEAVERTON, OR 97008

existing conditions roof plan-east

AD0.2 JOB NO. 20Y082.03





DEMO ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES. 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. APPLICABLE CODES: ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES. ALL CODE REFERENCES IN THE DRAWINGS AND SPECIFICATIONS SHALL MEAN, AND ARE INTENDED TO BE,
 - THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCED STANDARD IN EFFECT AS OF THE DATE OF THE CONTRACT DOCUMENTS. 4. FOR EXISTING FIXTURES AND EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED, CONTRACTOR TO
 - ADDITIONAL STORAGE REQUIREMENTS. 5. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC

STORE ON-SITE IN A WEATHER TIGHT LOCATION APPROVED BY THE DISTRICT. SEE SPEC SECTION -- FOR

- ONLY -- CONTRACTOR TO VERIFY ACTUAL PLACEMENT BENEATH UNIT.
- 6. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS
- 7. SEE ROOFING SPECIFICATION IN PROJECT MANUAL FOR ALL EXISTING ROOFING COMPONENTS AND ACCESSORIES TO BE REMOVED AND FOR OTHER PROCEDURES REQUIRED IN PREPARATION OF INSTALLING
- 8. UNLESS NOTED OTHERWISE, ROOF CURBS AT EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED SHALL REMAIN IN PLACE.
- 9. DISCONNECT AND RECONNECT CONTROLS AS REQUIRED TO MOVE ROOFTOP MECHANICAL EQUIPMENT TO COMPLETE THE ROOFING PROJECT. ALL CONTROL WORK WILL BE COMPLETED IN COMPLIANCE WITH BSD STANDARDS AND BY A BSD APPROVED DDC CONTROLS SUB-CONTRACTOR (JOHNSON CONTROLS, INC., NORTHWEST CONTROL CONTRACTORS, OR SELECTED JOHNSON CONTROLS INC.). ALL CONTROLS, DEVICES, WIRING, AND PROGRAMMING SHALL BE JOHNSON CONTROLS (JCI) ONLY, NO SUBSTITUTES.
- 10. CONTRACTOR TO SCHEDULE ON-SITE OBSERVATION WITH A/E AND DISTRICT UPON REMOVAL OF EXISTING ROOFING SYSTEM AND EXPOSURE OF EXISTING STRUCTURAL DECK.
- II. CONTRACTOR TO REMOVE AND REPLACE EXISTING STRUCTURAL ROOF SHEATHING WHERE OBSERVED TO BE COMPROMISED -- SEE 'SCHEDULE OF UNIT PRICES' IN SPECIFICATION SECTION 011200 'UNIT PRICES' FOR ADDITIONAL INFORMATION.
- 12. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

DEMO ROOF PLAN LEGEND

| RV | - (E) CURB MOUNTED ROOF VENT TO BE TEMPORARILY REMOVED | | | - (E) WA | ALL BEI | LOW | | |
|-----------------|--|------------------------------|---|------------------------|--|--|--|--|
| °VP | - (E) VENT PIPE PENETRATION | | | - (E) NATURAL GAS LINE | | | | |
| VP | TO REMAIN | | | - (E) ELE | ECTRIC | AL LINE | | |
| TV | - (E) CURB MOUNTED TURBINE VENT TO BE TEMPORARILY REMOVED | | | - AREA | OUTSII | DE SCOPE OF WORK | | |
| DS | - (E) DOWNSPOUT AND SCUPPER TO BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION | (i + 1) 1 | | . , | | EL BUILT-UP - ROOFING | | |
| °DS | - (E) DOWNSPOUT TO BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION | 1 % 1 1 1 % | | GRAVEL | SYSTEM TO REMAIN REMOVE GRAVEL BALLAST AND DECOMMISSION MEMBRANE PER SPI | | | |
| RDO | -E) ROOF DRAIN AND PIPED OVERFLOW REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED REFER | ABBR | <u>EVIATIONS</u> | - DIREC | TION (| OF DRAINAGE | | |
| П | TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. | (E) (N) TYP. | -EXISTING -NEW -TYPICAL | | VS RV | -VENT STACK -ROOF VENT -ROOF DRAIN | | |
| RDS | -(E) ROOF DRAIN WITH SCUPPER OVERFLOW REMOVE SCUPPER AND ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. | SIM. RTU VP DS S | -SIMILAR -ROOFTOP U -VENT PIPE -DOWNSPOU -SCUPPER | | RDS TV EP | OVERFLOW -ROOF DRAIN SCUPPER -TURBINE VENT -ELECTRICAL PANEL | | |
| EP | - (E) ELECTRICAL PANEL | REF. | | EFERENC ERTICAL | | NE | | |
| O _{VS} | - (E) VENT STACK TO REMAIN | + | - | LEVATIO O REFER | | = | | |
| | | VERT | TICAL ELEVATION | ON CHAI | NGE | | | |

DEMO ROOF PLAN KEYNOTES

(E) MECHANICAL PENTHOUSE TO REMAIN

(E) MECHANICAL SCREEN -- TEMPORARILY REMOVE SCREEN AND SUPPORTS TO ACCOMMODATE RE-ROOF - THROUGH-ROOF PIPE SLEEVES TO REMAIN IN PLACE AND EXTENDED ABOVE DECK AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING

(E) ROOF HATCH-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION

REMOVE (E) GRAVEL STOP AND EDGE FLASHINGS

(E) PARAPET--REMOVE SHEET METAL COPING, COUNTER FLASHING AND BASE FLASHING

(E) FIXED LADDER TO REMAIN

(E) EQUIPMENT CURB TO REMAIN-- REMOVE CAP AND COUNTER FLASHINGS

LINE OF (E) EXTERIOR WALL BELOW, TYP.

REMOVE (E) SHEET METAL GUTTER

(E) MECHANICAL SCREEN AND SUPPORTS-- TEMPORARILY REMOVE AND STORE FOR MODIFICATION/ RÉ-INSTALLATION

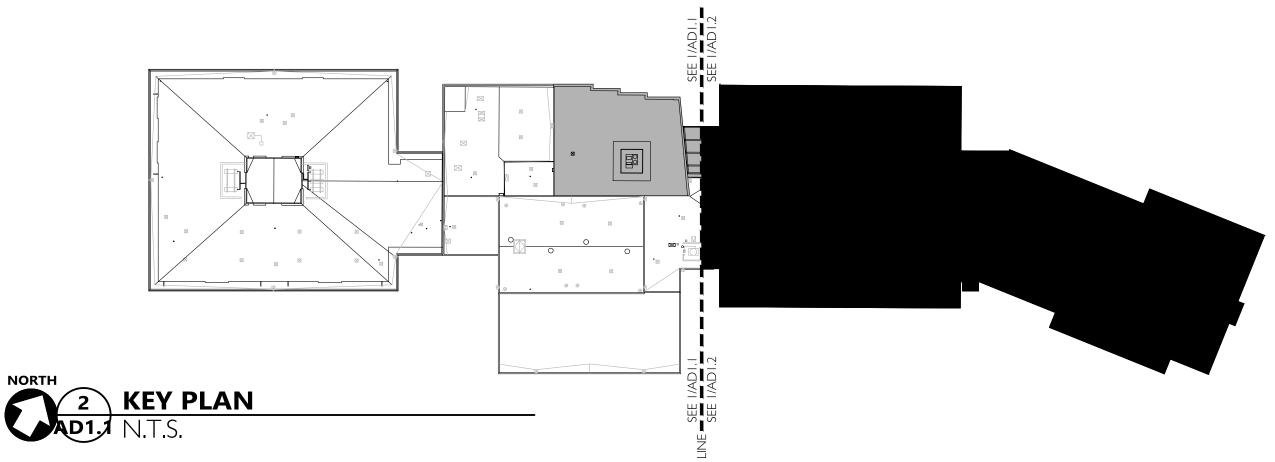
(E) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION TO BE REMOVED

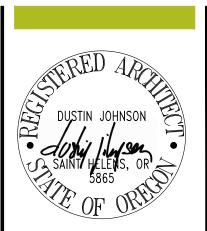
(E) CURB MOUNTED MECHANICAL EQUIPMENT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION REMOVE (E) CRICKET

(E) COOLING TOWER-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION--DISCONNECT AND RECONNECT PIPING AS REQUIRED TO MOVE COOLING TOWER TO COMPLETE THE ROOFING PROJECT. PROTECT COOLING TOWER, INCLUDING FILL MEDIA, AND PIPING FROM DAMAGE DURING THE MOVING PROCESS. REPLACE ANY COMPONENTS DAMAGED IN MOVING. RECONNECT PIPING USING EXISTING JOINING METHODS. AT CONTRACTORS OPTION FOR COPPER PIPING UNDER 4 INCHES 'PRO PRESS' IS

(E) SMOKE VENT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION

(E) FLOOD LIGHT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION





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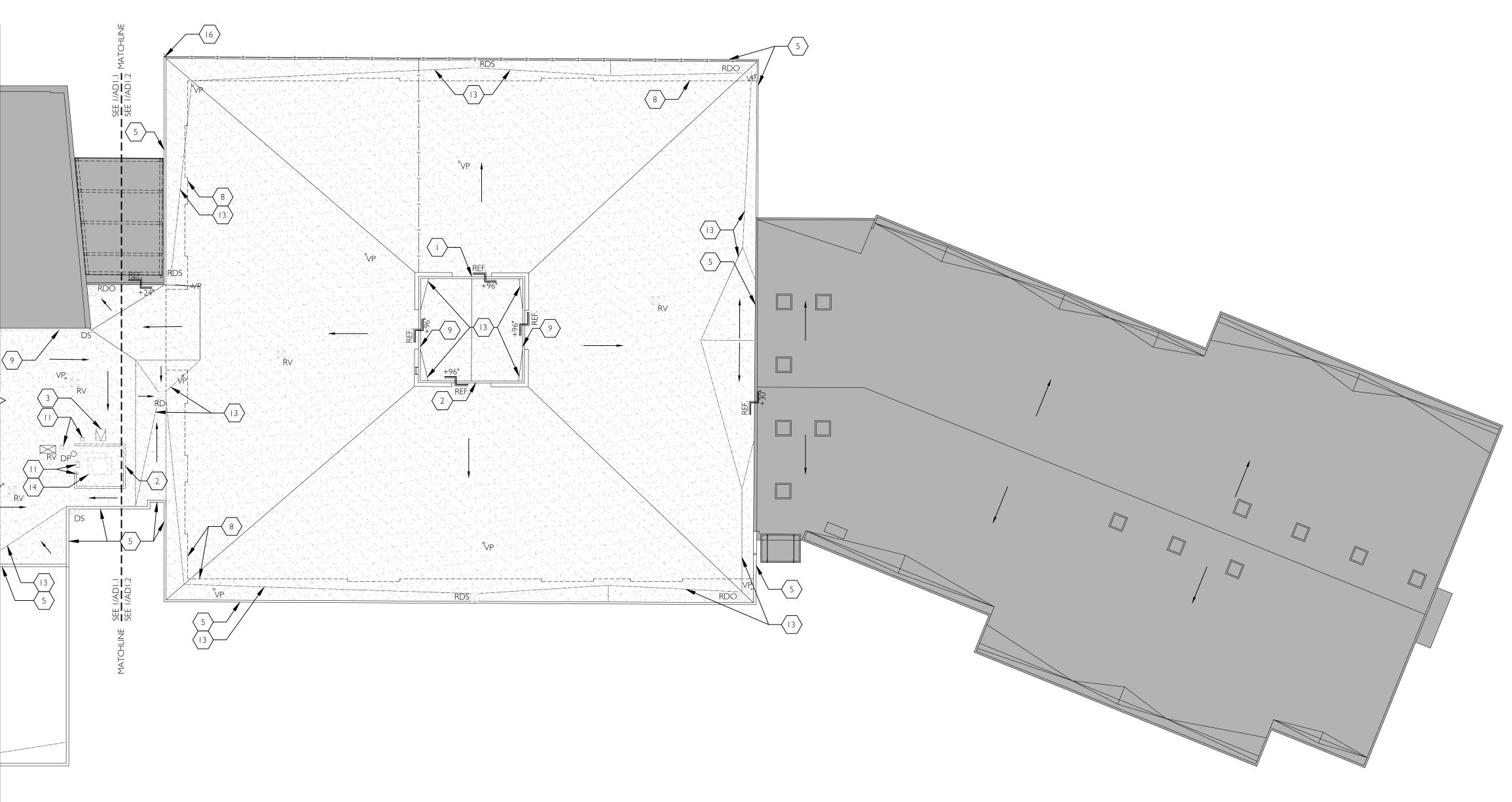


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DEMO ROOF PLAN-WEST

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DEMO ROOF PLAN GENERAL NOTES

SEE AD I. I FOR GENERAL NOTES.

DEMO ROOF PLAN LEGEND

| 5.7 | | | |
|-------------------|--|--------------------------------------|--------------------|
| RV | - (E) CURB MOUNTED ROOF VENT TO BE TEMPORARILY REMOVED | | - (E) |
| °VP | - (E) VENT PIPE PENETRATION TO REMAIN | —— G——— G——— | - (E) - (E) |
| (_) _{TV} | - (E) CURB MOUNTED TURBINE VENT TO BE TEMPORARILY REMOVED | | - ARI |
| DS | - (E) DOWNSPOUT AND SCUPPER TO BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION | | -(E) F |
| DS | - (E) DOWNSPOUT TO BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION | | SYST GRA DEC |
| [O] RDO | -E) ROOF DRAIN AND PIPED OVERFLOW REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. | ABBREVIATIONS (E) -EXISTING (N) -NEW | - DIR |
| RDS | -(E) ROOF DRAIN WITH SCUPPER OVERFLOW REMOVE SCUPPER AND ROOF DRAIN ASSEMBLY (DRAIN) | TYPTYPICAL SIMSIMILAR RTU -ROOFTOP U | INIT |

ROOF DRAIN ASSEMBLY (DRAIN

BOWL TO REMAIN UNLESS DAMAGED DS -DOWNSPOUT -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. - (E) ELECTRICAL PANEL

- (E) VENT STACK TO REMAIN

--- - (E) WALL BELOW

- (E) NATURAL GAS LINE - (E) ELECTRICAL LINE

- AREA OUTSIDE SCOPE OF WORK

-(E) PEA GRAVEL BUILT-UP - ROOFING SYSTEM TO REMAIN -- REMOVE GRAVEL BALLAST AND DECOMMISSION MEMBRANE PER SPEC

- DIRECTION OF DRAINAGE

VS -VENT STACK RV -ROOF VENT RDO -ROOF DRAIN **OVERFLOW** RDS -ROOF DRAIN VP -VENT PIPE SCUPPER TV -TURBINE VENT

-SCUPPER EP -ELECTRICAL PANEL REFERENCE PLANE
VERTICAL EDGE +32" ELEVATION RELATIVE TO REFERENCE PLANE

VERTICAL ELEVATION CHANGE

DEMO ROOF PLAN KEYNOTES

- (E) MECHANICAL PENTHOUSE TO REMAIN
- (E) MECHANICAL SCREEN -- TEMPORARILY REMOVE SCREEN AND SUPPORTS TO ACCOMMODATE RE-ROOF - THROUGH-ROOF PIPE SLEEVES TO REMAIN IN PLACE AND EXTENDED ABOVE DECK AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING
- (E) ROOF HATCH-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION
- REMOVE (E) GRAVEL STOP AND EDGE FLASHINGS
- (E) PARAPET--REMOVE SHEET METAL COPING, COUNTER FLASHING AND BASE FLASHING
- (E) FIXED LADDER TO REMAIN
- (E) EQUIPMENT CURB TO REMAIN-- REMOVE CAP AND COUNTER FLASHINGS
- LINE OF (E) EXTERIOR WALL BELOW, TYP.
- REMOVE (E) SHEET METAL GUTTER
- (E) MECHANICAL SCREEN AND SUPPORTS-- TEMPORARILY REMOVE AND STORE FOR MODIFICATION/
- (E) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION TO BE REMOVED
- (E) CURB MOUNTED MECHANICAL EQUIPMENT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION
- (E) COOLING TOWER-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION
- (E) SMOKE VENT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION
- (E) FLOOD LIGHT-- TEMPORARILY REMOVE AND STORE FOR RE-INSTALLATION



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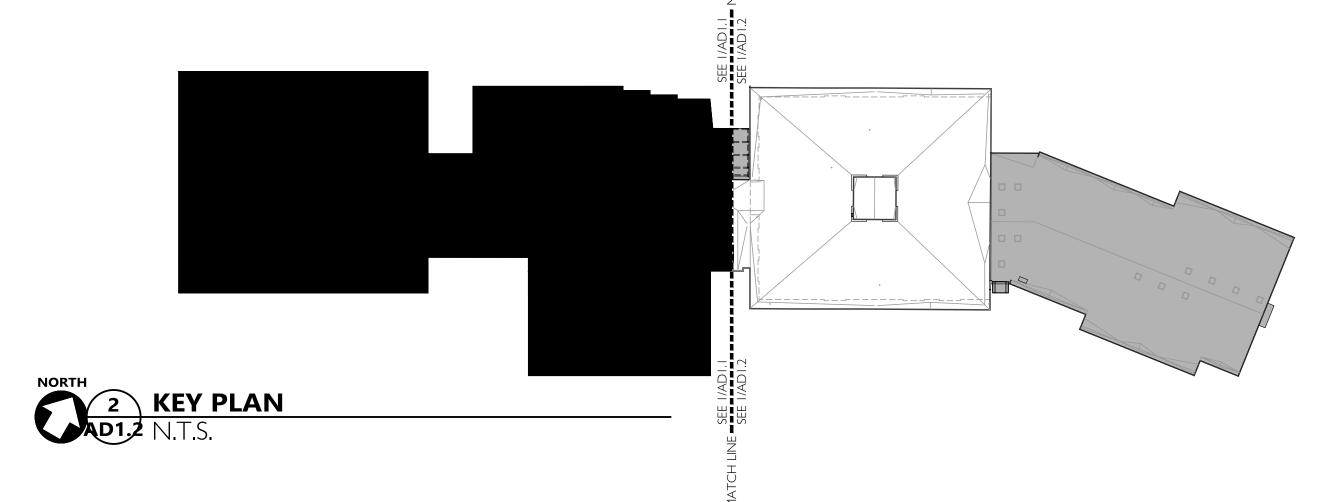
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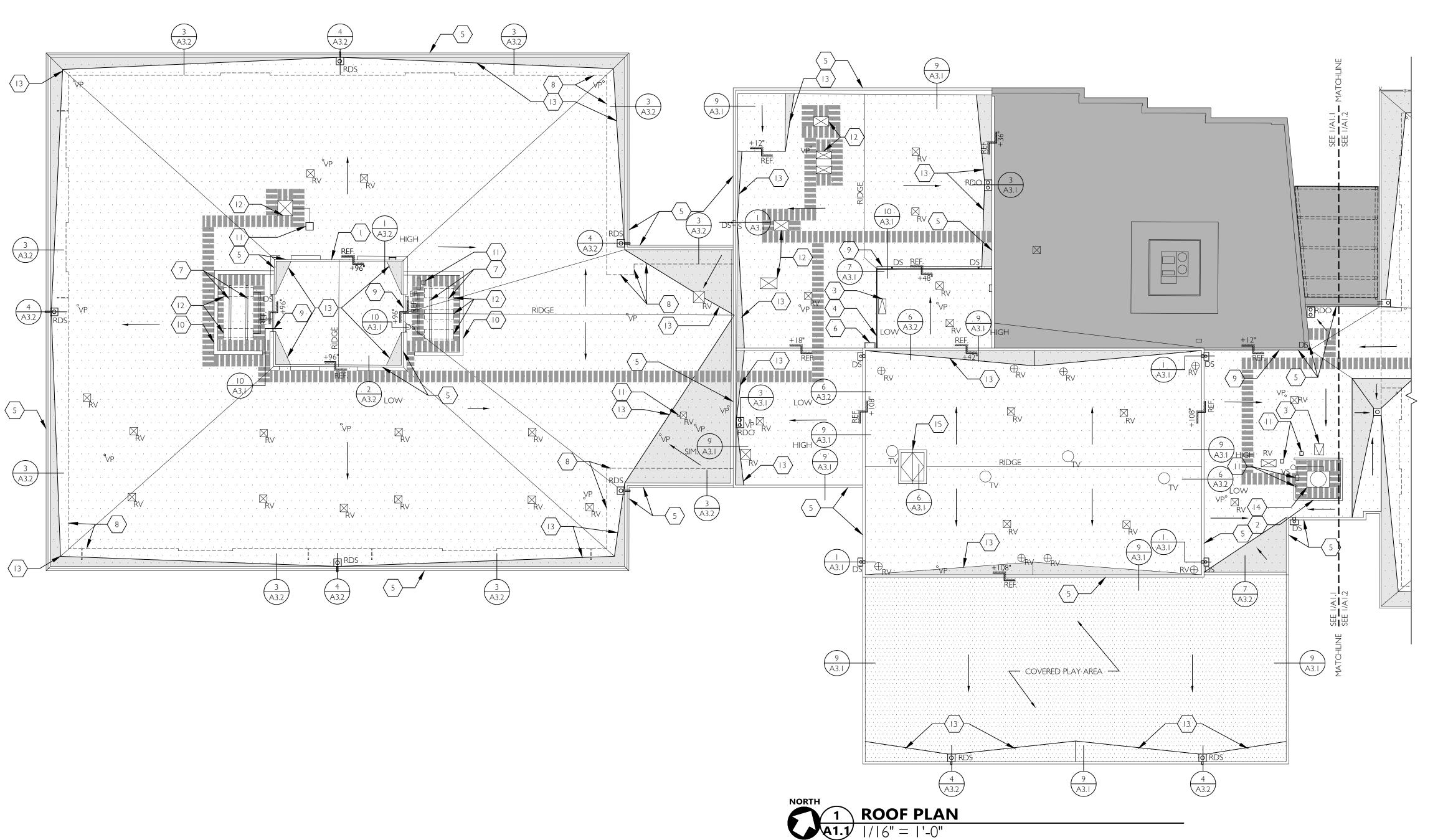
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DEMO ROOF PLAN-EAST

AD1.2 JOB NO. 20Y082.03

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ROOF PLAN GENERAL NOTES

- CONTRACTOR TO VERIFY (E) CONDITIONS SHOWN OR IMPLIED AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
 SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR
- ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS PLAN.

 3. ALL ROOFING REPAIR WORK TO BE PREFORMED BY ROOFING CONTRACTOR CERTIFIED BY ROOFING
- MANUFACTURER AND AS REQUIRED TO MEET INSTALLATION REQUIREMENTS OF SPECIFIED ROOFING SYSTEM WARRANTY.
- 4. ALL ROOFING REPAIR WORK IS SUBJECT TO INSPECTION AND APPROVAL BY ROOFING MANUFACTURER FIELD REPRESENTATIVE. CONTRACTOR TO SCHEDULE ROOFING INSPECTION AT INTERVALS DETERMINED BY MANUFACTURER FOR ROOFING SYSTEM WARRANTY.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION OF FINAL ROOF PENETRATIONS TO AVOID CONFLICT WITH EXISTING STRUCTURE AND BUILDING SYSTEMS.
 WHERE PATCH AND REPAIR WORK IS INDICATED, CONTRACTOR SHALL PATCH AFFECTED AREAS TO MATCH
- ADJACENT FINISHES AND CONDITIONS FOR 'LIKE NEW' APPEARANCE UNLESS OTHERWISE NOTED. SEE SPECIFICATION SECTION 017329 'CUTTING AND PATCHING' FOR ADDITIONAL INFORMATION.

 7. SEE STRUCTURAL DRAWINGS FOR BRACING REQUIREMENTS AT MECHANICAL SCREEN SUPPORTS.
- 8. CONTRACTOR TO PROVIDE CRICKETING AT MECH EQUIPMENT CURBS, PARAPETS, ROOF DRAINS AND OTHER LOCATIONS AS REQUIRED TO MAINTAIN POSITIVE SLOPE TO POINT OF ROOF DRAINAGE
- FOR INSIDE AND OUTSIDE CORNER REINFORCEMENT SEE DETAILS 4&5/A3.1
 TAPERED INSULATION SHOWN IS DIAGRAMMATIC ONLY AND IS CONSIDERED A DELEGATED DESIGN SYSTEM

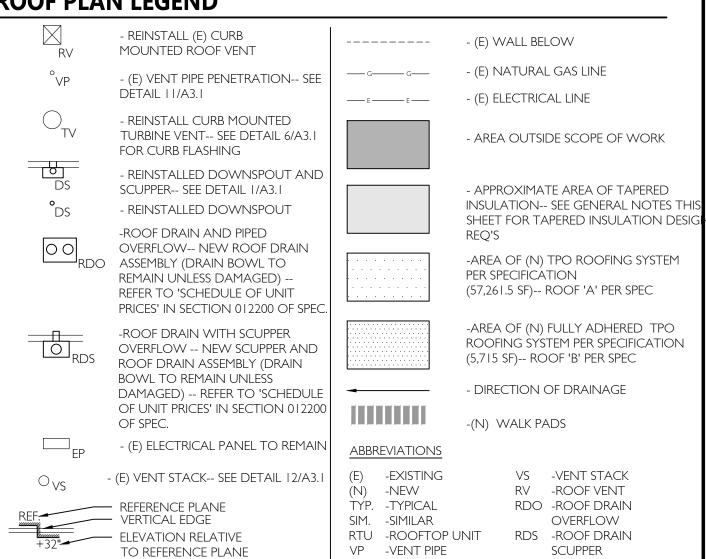
 CONTRACTOR IS RESPONSIBLE FOR SUBMITTING TAPERED INSULATION SHOP DRAWINGS PREPARED BY
- QUALIFIED TAPERED INSULATION DESIGNER FOR A/E REVIEW, PER SPEC.

 11. CONTRACTOR TO SUBMIT WEATHER PROTECTION PLAN FOR A/E & DISTRICT APPROVAL PER SPEC DIVISION 7.

 12. CONTRACTOR TO CONNECT ALL NEW AND RE-INSTALLED EQUIPMENT TO SUPPORTING UTILITIES (NATURAL
- GAS, ELECTRICAL, LOW VOLTAGE, ETC...).

 13. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

ROOF PLAN LEGEND



ROOF PLAN KEYNOTES

VERTICAL ELEVATION CHANGE

(E) MECHANICAL PENTHOUSE

RE-INSTALL (E) MECHANICAL SCREEN -- EXTEND THROUGH-ROOF PIPE SLEEVES AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 12/A3.1

RE-INSTALL (E) ROOF HATCH -- EXTEND CURB AWAY FROM DECK AS REQUIRED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING

DS -DOWNSPOUT

S -SCUPPER

TV -TURBINE VENT

EP -ELECTRICAL PANEL

NSTALL NEW GRAVEL STOP AND DRIP EDGE FLASHINGS

(E) PARAPET-- INSTALL NEW SHEET METAL COPING -- MATCH EXISTING COLOR AND PROFILE

(E) FIXED LADDER

(E) EQUIPMENT CURB TO REMAIN -- REMOVE CAP AND COUNTER FLASHINGS

LINE OF (E) EXTERIOR WALL BELOW, TYP.

(N) SHEET METAL GUTTER

RE-INSTALL (E) MECHANICAL SCREEN AND SUPPORTS -- SEE STRUCTURAL FOR MODIFICATIONS TO MECHANICAL SCREEN/SUPPORTS AND BRACING REQUIREMENTS -- PATCH AND REPAIR ROOF DECK PER SPEC PRIOR TO RE-ROOF SCOPE -- SEE DETAIL 5/A3.2

(N) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION -- SEE DETAIL 8/A3.1

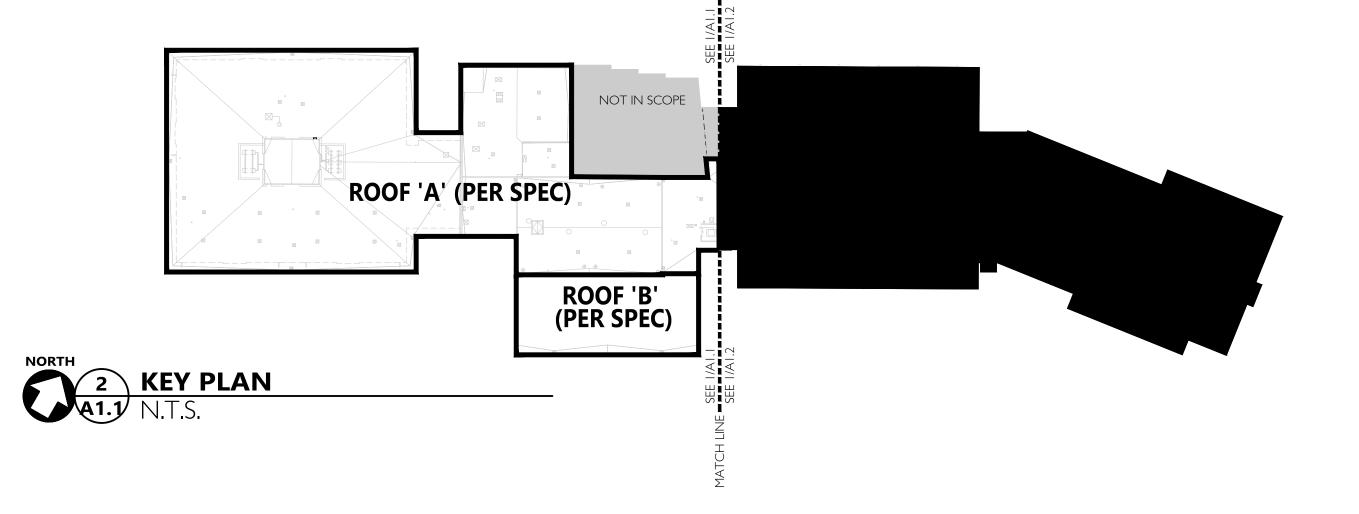
RE-INSTALL CURB-MOUNTED MECHANICAL EQUIPMENT -- EXTEND (E) CURB AWAY FROM DECK AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 6/A3.1

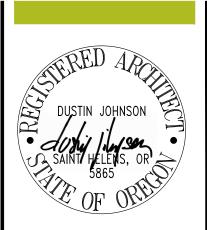
TAPERED INSULATION CRICKET

RE-INSTALL (E) COOLING TOWER -- SEE KEYNOTE 14 ON AD1.1 FOR CONNECTION REQUIREMENTS

RE-INSTALL (E) SMOKE VENT -- EXTEND CURB AS REQUIRED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 6/A3.1

RE-INSTALL (E) FLOOD LIGHT





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ARCHITECTUR

15895 SW 72ND AVE SUITE 200 PORTLAND, OREGON 9722-TEL: 503.226.128 FAX: 503.226.1670

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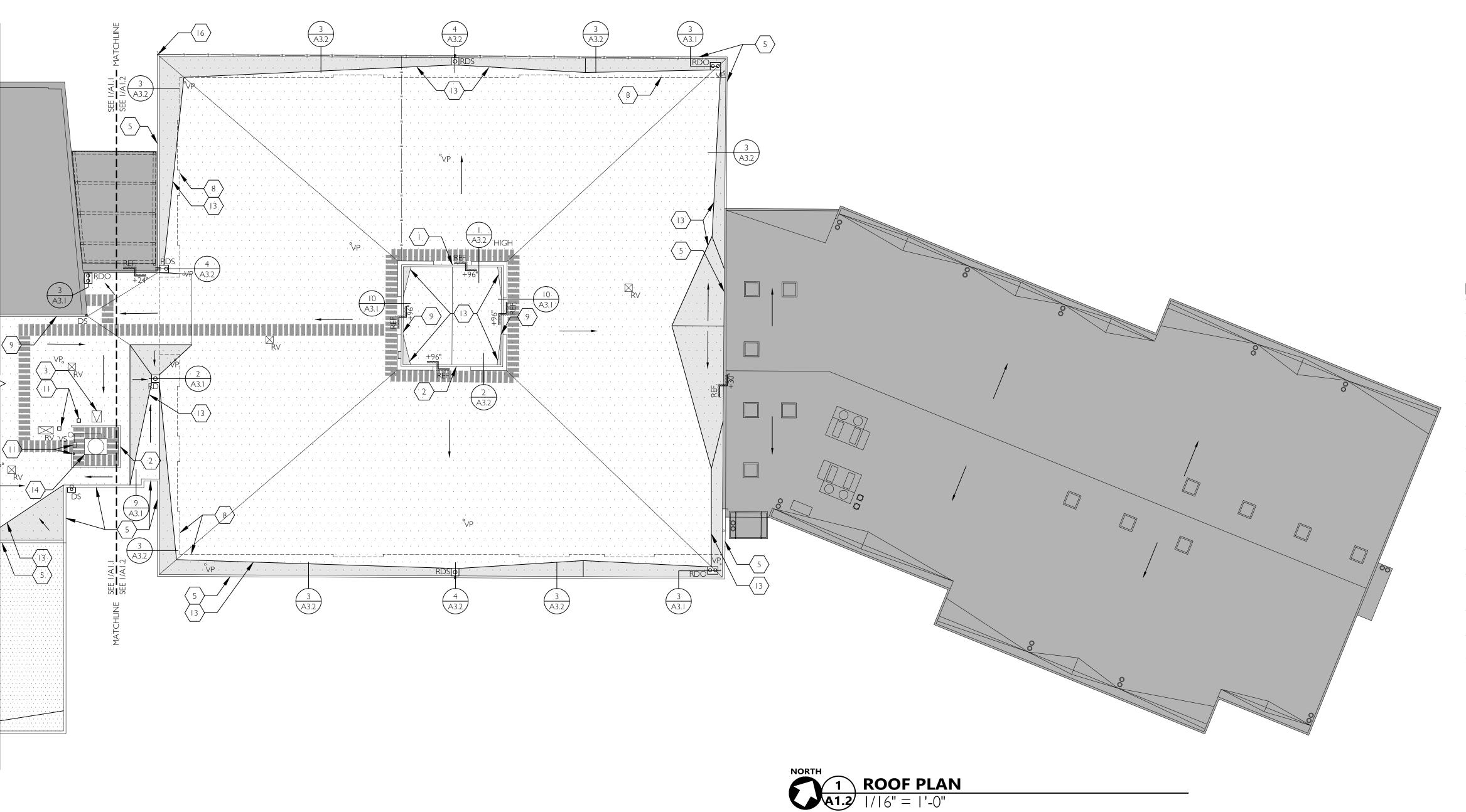
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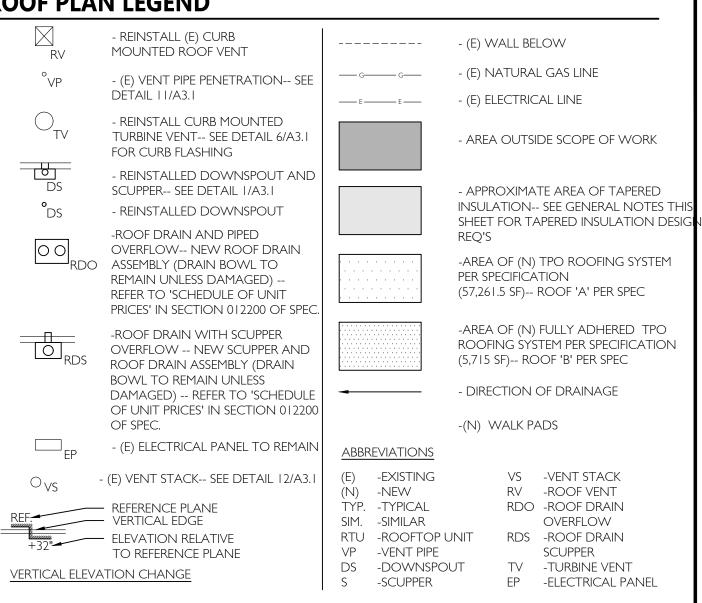
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ROOF PLAN GENERAL NOTES

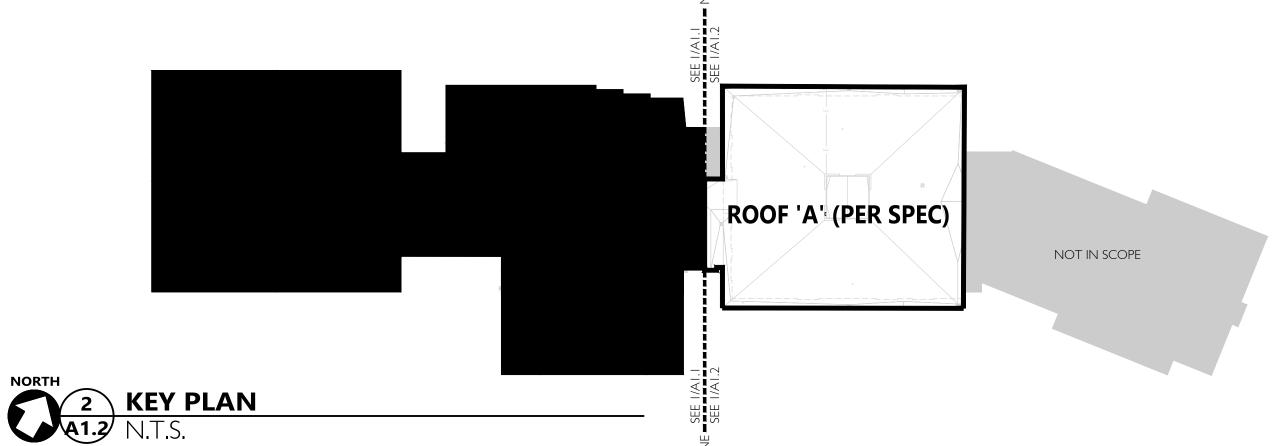
SEE A1.1 FOR GENERAL NOTES.

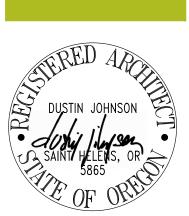
ROOF PLAN LEGEND



ROOF PLAN KEYNOTES

- (E) MECHANICAL PENTHOUSE
- RE-INSTALL (E) MECHANICAL SCREEN -- EXTEND THROUGH-ROOF PIPE SLEEVES AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 12/A3.1 FOR FLASHING
- RE-INSTALL (E) ROOF HATCH -- EXTEND CURB AWAY FROM DECK AS REQUIRED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING
- INSTALL NEW GRAVEL STOP AND DRIP EDGE FLASHINGS
- (E) PARAPET-- INSTALL NEW SHEET METAL COPING -- MATCH EXISTING COLOR AND PROFILE
- (E) FIXED LADDER
- (E) EQUIPMENT CURB TO REMAIN -- REMOVE CAP AND COUNTER FLASHINGS
- LINE OF (E) EXTERIOR WALL BELOW, TYP.
- (N) SHEET METAL GUTTER
- RE-INSTALL (E) MECHANICAL SCREEN AND SUPPORTS -- SEE STRUCTURAL FOR MODIFICATIONS TO MECHANICAL SCREEN/SUPPORTS AND BRACING REQUIREMENTS -- PATCH AND REPAIR ROOF DECK PER SPEC PRIOR TO RE-ROOF SCOPE -- SEE DETAIL 5/A3.2
- (N) PITCH POCKET WITH THROUGH-ROOF UTILITY PENETRATION -- SEE DETAIL 8/A3.1
- RE-INSTALL CURB-MOUNTED MECHANICAL EQUIPMENT -- EXTEND (E) CURB AWAY FROM DECK AS NEEDED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 6/A3.1-- SEE STRUCTURAL FOR
- TAPERED INSULATION CRICKET -- COORDINATE WITH ROOFING SYSTEM MANUFACTURER FOR CRICKET
- RE-INSTALL (E) COOLING TOWER -- SEE CONNECTION REQUIREMENTS IN GENERAL NOTES THIS SHEET
- RE-INSTALL (E) SMOKE VENT -- EXTEND CURB AS REQUIRED TO ACCOMMODATE NEW ROOFING SYSTEM AND FLASHING -- SEE DETAIL 6/A3. I
- RE-INSTALL (E) FLOOD LIGHT





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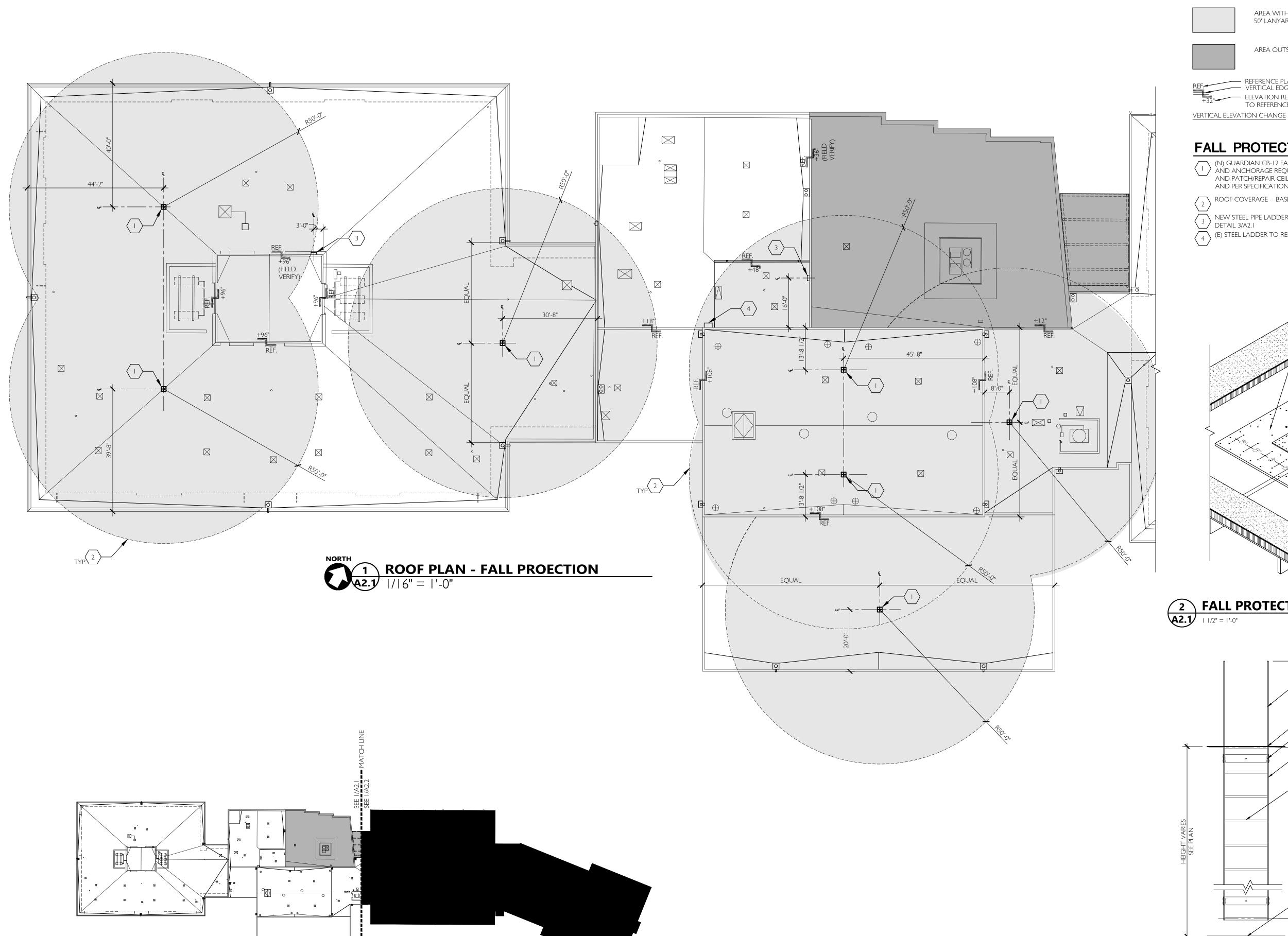
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ROOF PLAN-EAST

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XEY PLAN

A2.1 N.T.S.

FALL PROTECTION GENERAL NOTES

I. FALL PROTECTION INDICATED IS BASED ON 'FALL RESTRAINT SAFETY' METHOD.

FALL PROTECTION LEGEND

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR --SEE 2/A2.1 FOR ANCHORAGE TO ROOF

AREA WITHIN ROOF COVERAGE (BASED ON 50' LANYARD)

AREA OUTSIDE SCOPE OF WORK

REFERENCE PLANE
VERTICAL EDGE ELEVATION RELATIVE TO REFERENCE PLANE

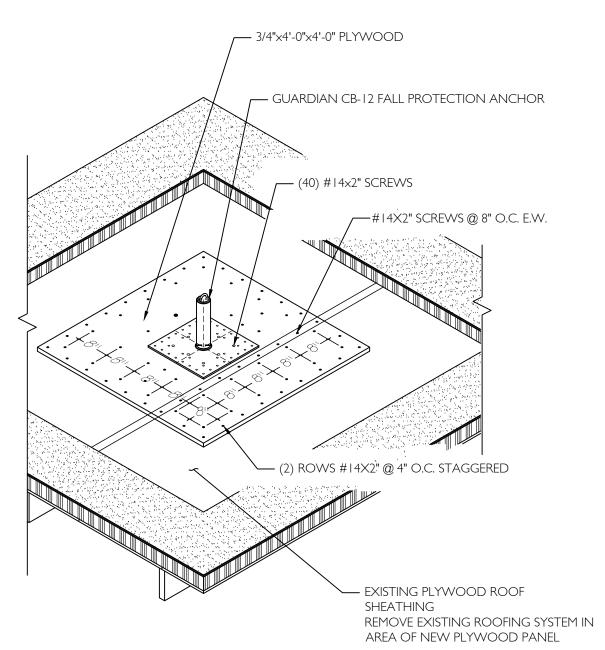
FALL PROTECTION KEYNOTES

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR BLOCKING AND ANCHORAGE REQUIREMENTS -- INSTALL BLOCKING FROM INTERIOR SIDE AND PATCH/REPAIR CEILING TO MATCH EXISTING CONDITION AND FINISH, AND PER SPECIFICATION.

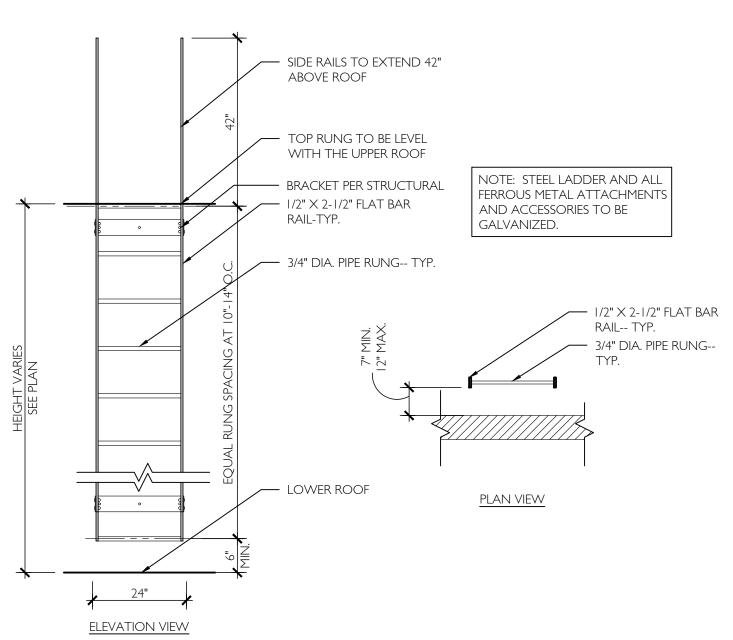
ROOF COVERAGE -- BASED ON 50' LANYARD.

NEW STEEL PIPE LADDER -- CONTRACTOR TO FIELD VERIFY HEIGHT, TYP. -- SEE DETAIL 3/A2. I

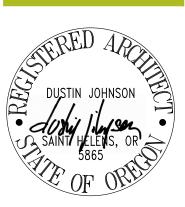
 $\left\langle \begin{array}{c} 4 \end{array} \right\rangle$ (E) STEEL LADDER TO REMAIN.



FALL PROTECTION ANCHOR AT PLYWOOD SHEATHING







- ∨ ₽ 4

PLANNIN

PORTLAND, OREGON 9722 T E L: 5 0 3 . 2 2 6 . I 2 8 FAX: 503.226.1670

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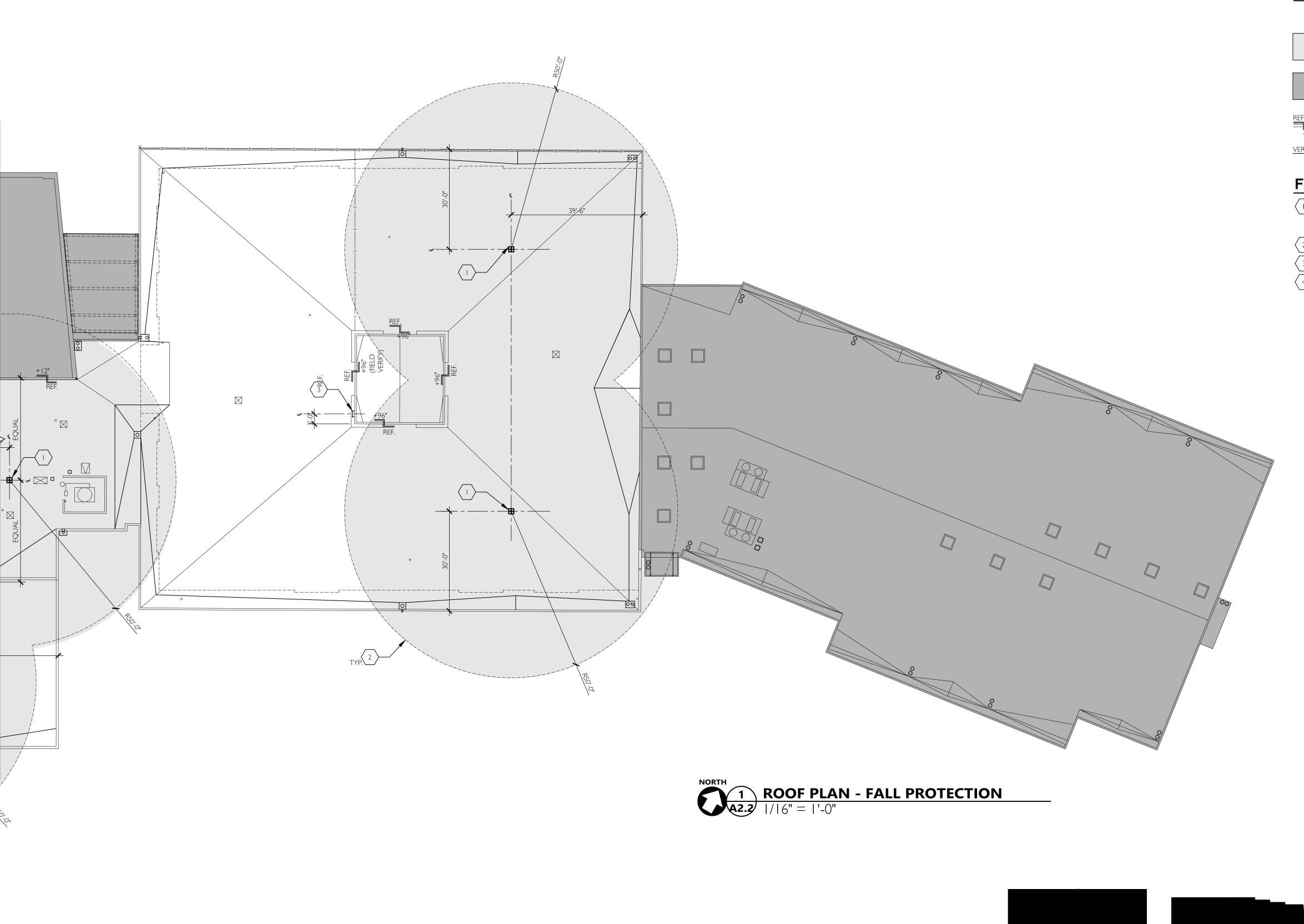
SCHOOL HITEON ELEM.

13800 SW BROCKMAN RD BEAVERTON, OR 97008 **BSD**

FALL PROTECTION- WEST

A2.1 JOB NO. 20Y082.03

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FALL PROTECTION GENERAL NOTES

I. FALL PROTECTION INDICATED IS BASED ON 'FALL RESTRAINT SAFETY' METHOD.

FALL PROTECTION LEGEND

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR --SEE 2/A2.1 FOR ANCHORAGE TO ROOF



AREA WITHIN ROOF COVERAGE (BASED ON 50' LANYARD)



AREA OUTSIDE SCOPE OF WORK





REF. REFERENCE PLANE
VERTICAL EDGE

+32"

REFERENCE PLANE
VERTICAL EDGE

TO REFERENCE PLANE

VERTICAL ELEVATION CHANGE

FALL PROTECTION KEYNOTES

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR BLOCKING AND ANCHORAGE REQUIREMENTS -- INSTALL BLOCKING FROM INTERIOR SIDE AND PATCH/REPAIR CEILING TO MATCH EXISTING CONDITION AND FINISH, AND PER SPECIFICATION.



NEW STEEL PIPE LADDER -- CONTRACTOR TO FIELD VERIFY HEIGHT, TYP. -- SEE DETAIL 3/A2. I

 $\binom{4}{4}$ (E) STEEL LADDER TO REMAIN.



2 2 **4**

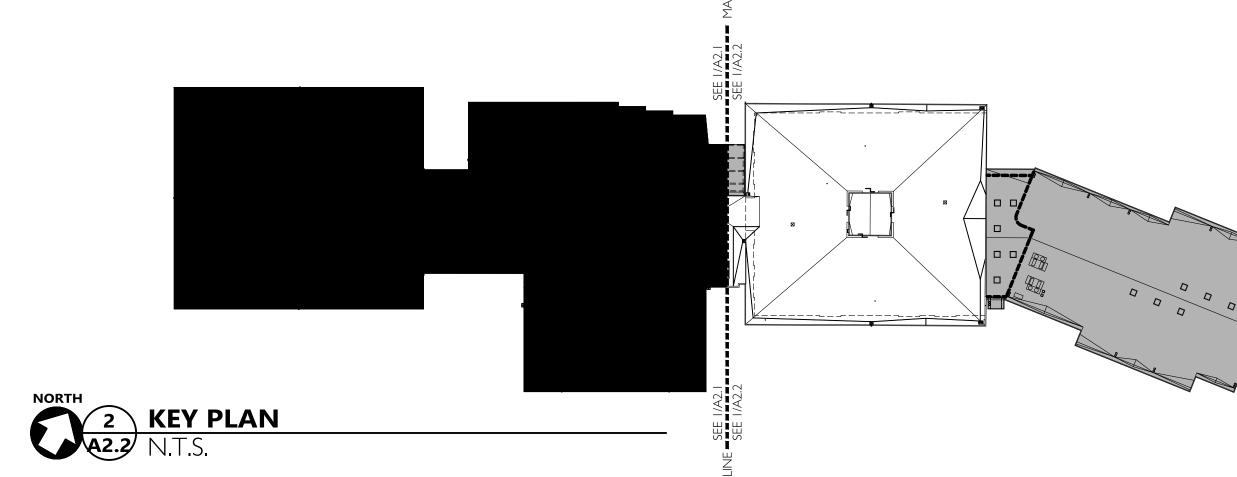
PORTLAND, OREGON 9722

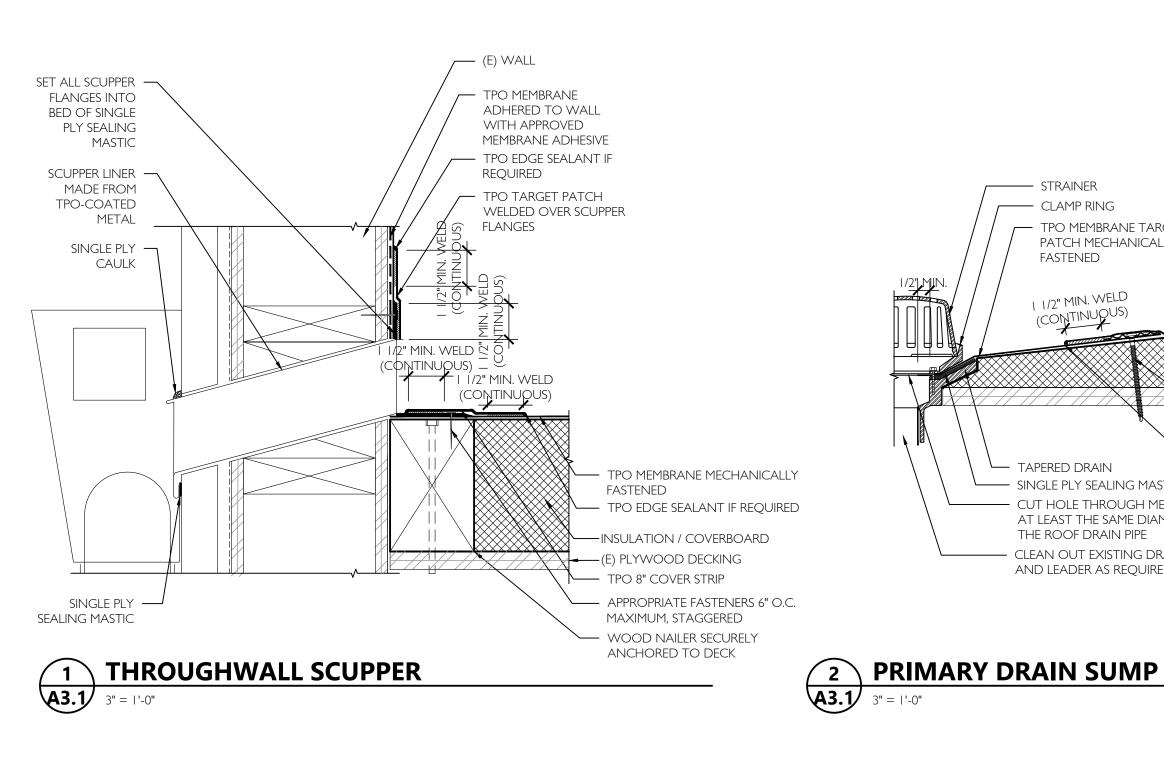
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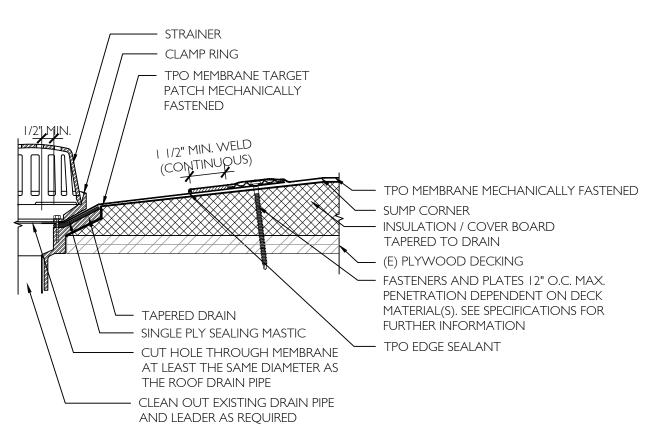
HITEON ELEM. SCHOOL 13800 SW BROCKMAN RD BEAVERTON, OR 97008

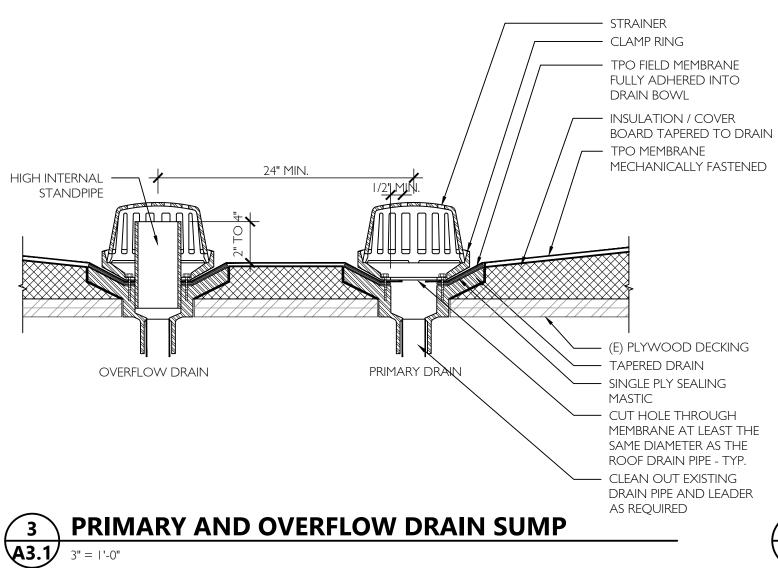
A2.2 JOB NO. 20Y082.03

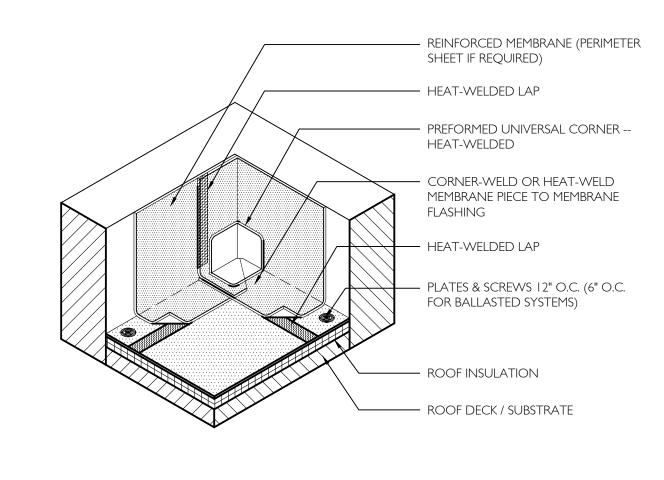
FALL PROTECTION- EAST











INSIDE CORNER REINFORCEMENT A3.1

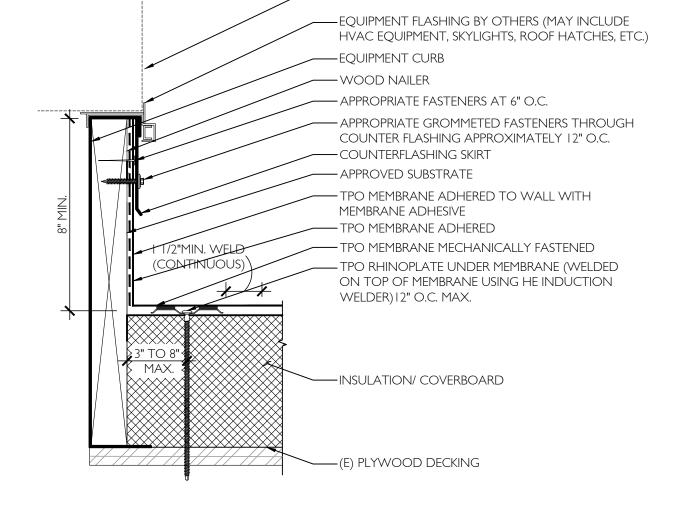
NOTE: AT CONTRACTOR'S OPTION WHERE CONDITION

PERMITS & WHERE SPECIFIED WARRANTY CAN BE

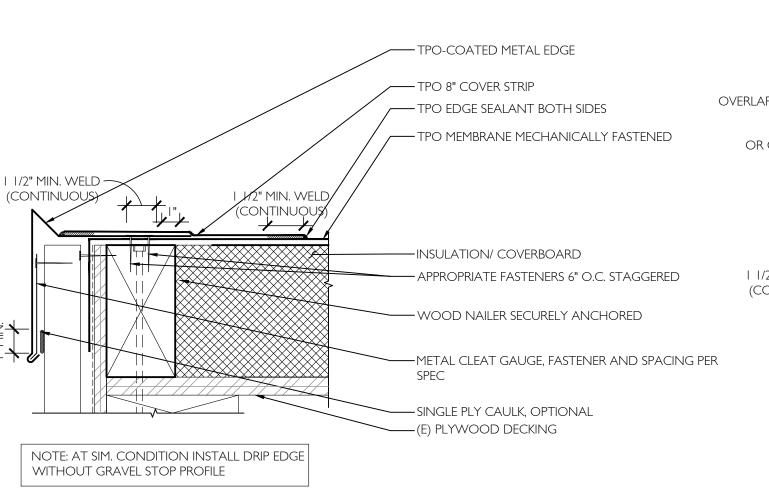
-REFER TO PARAPET AND WALL DETAIL FOR TERMINATION -HEAT-WELDED LAP REINFORCED MEMBRANE (PERIMETER SHEET IF REQUIRED) PREFORMED CORNER -HEAT-WELDEDLAP

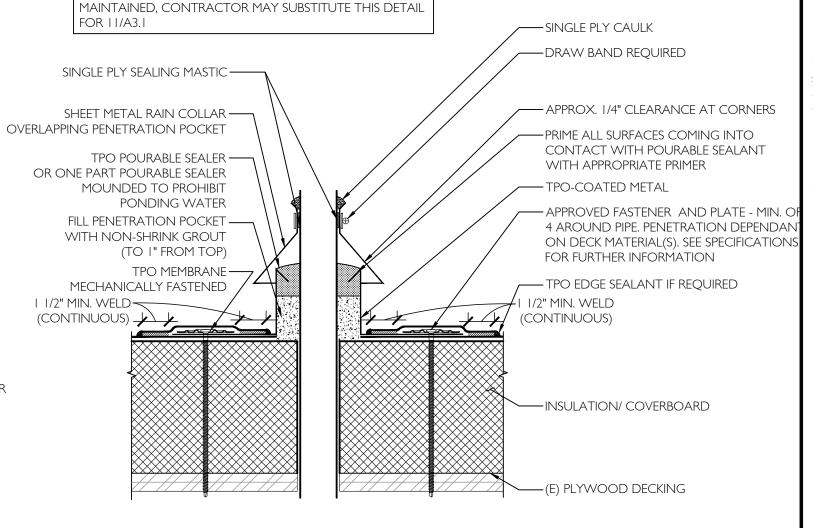
ALTERNATE WALL /CURB

ATTACHMENT



——EQUIPMENT PER PLAN







10 GUTTER EDGE

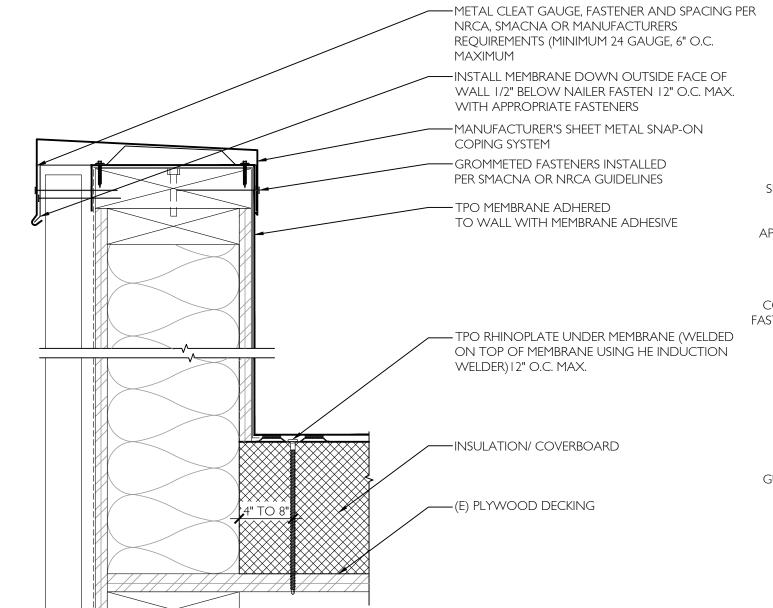
A3.1



11 VENT BOOT FLASHING DETAIL

A3.1 N.T.S.

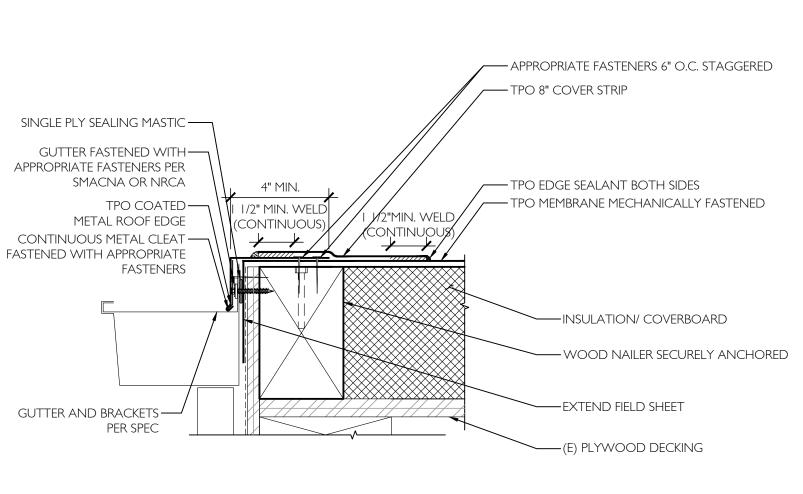


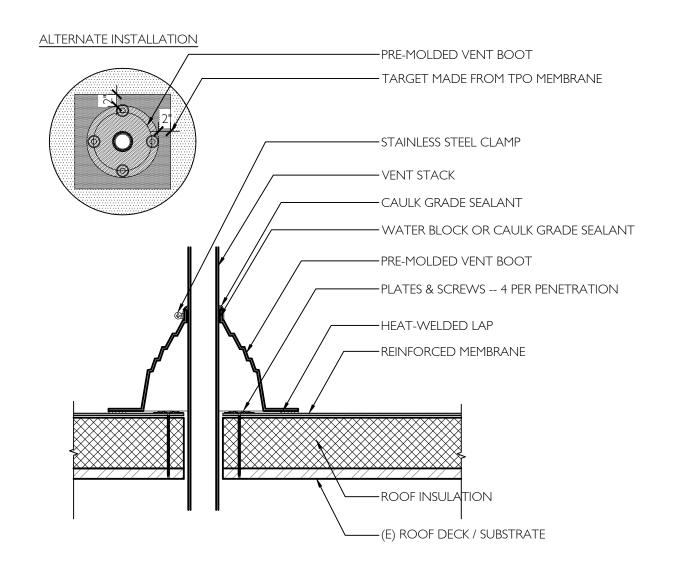


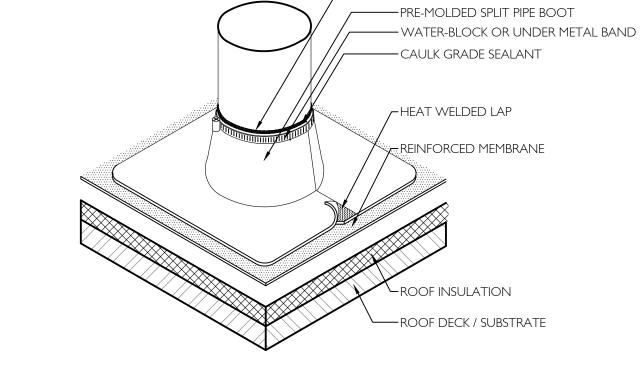
5 OUTSIDE CORNER REINFORCEMENT

9 PARAPET

A3.1 3" = 1'-0"







- CONTINUOUS PENETRATION

12 SPLIT-PIPE BOOT DETAIL

ENGINEERIN

PLANNIN

INTERIOR

15895 SW 72ND AVE SUITE 20

PORTLAND, OREGON 9722

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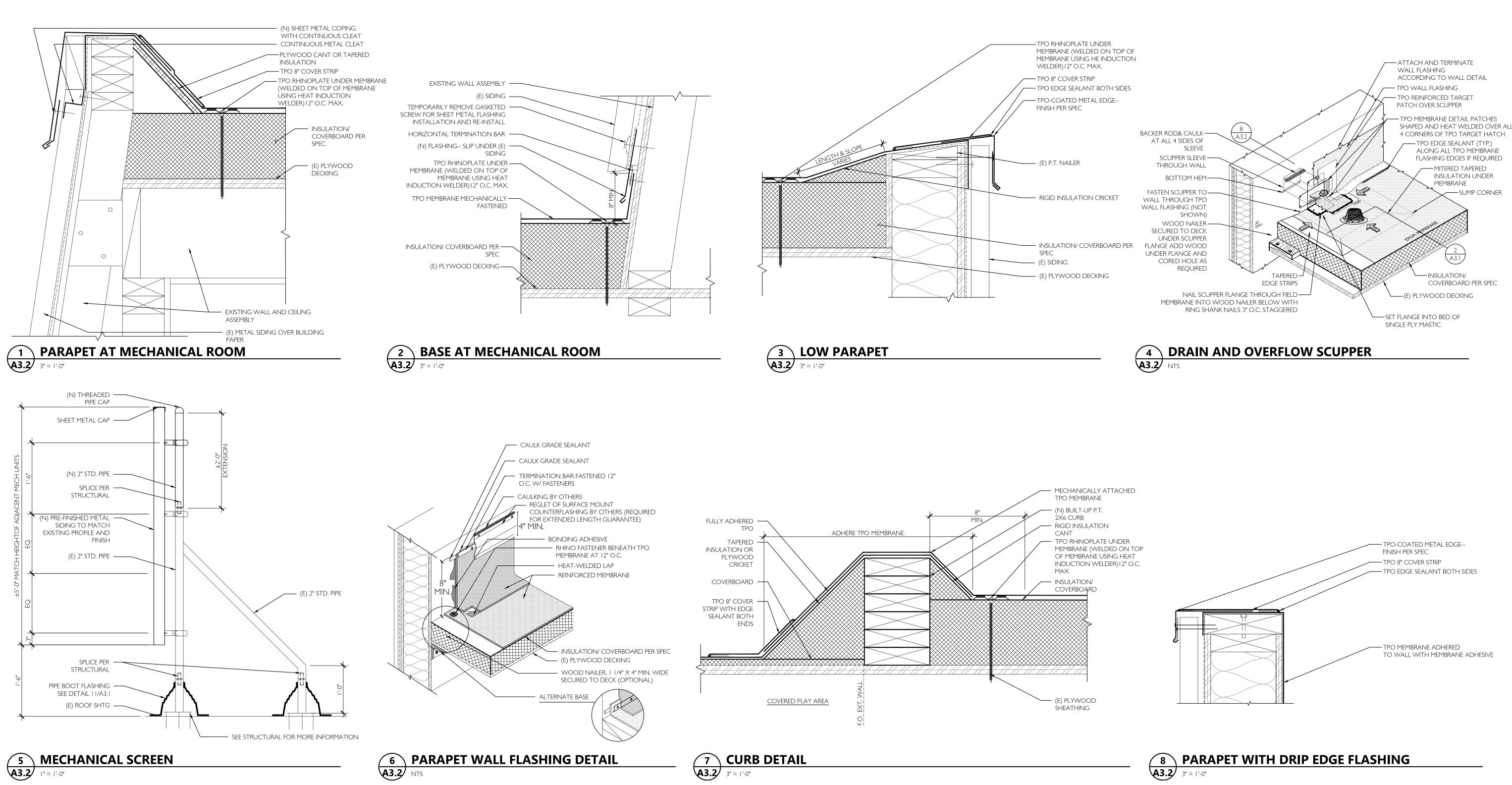
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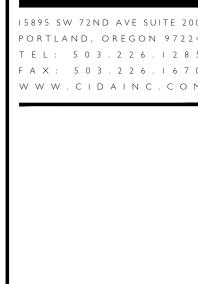
AN RD

13800 SW

DETAILS

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PLANNIN

SD DD 80%

SSUE 7 7 4

SCHOOL HITEON ELEM.

13800 SW BROCKMAN RD BEAVERTON, OR 97008 **BSD**

DETAILS

A3.2 JOB NO. 20Y082.03

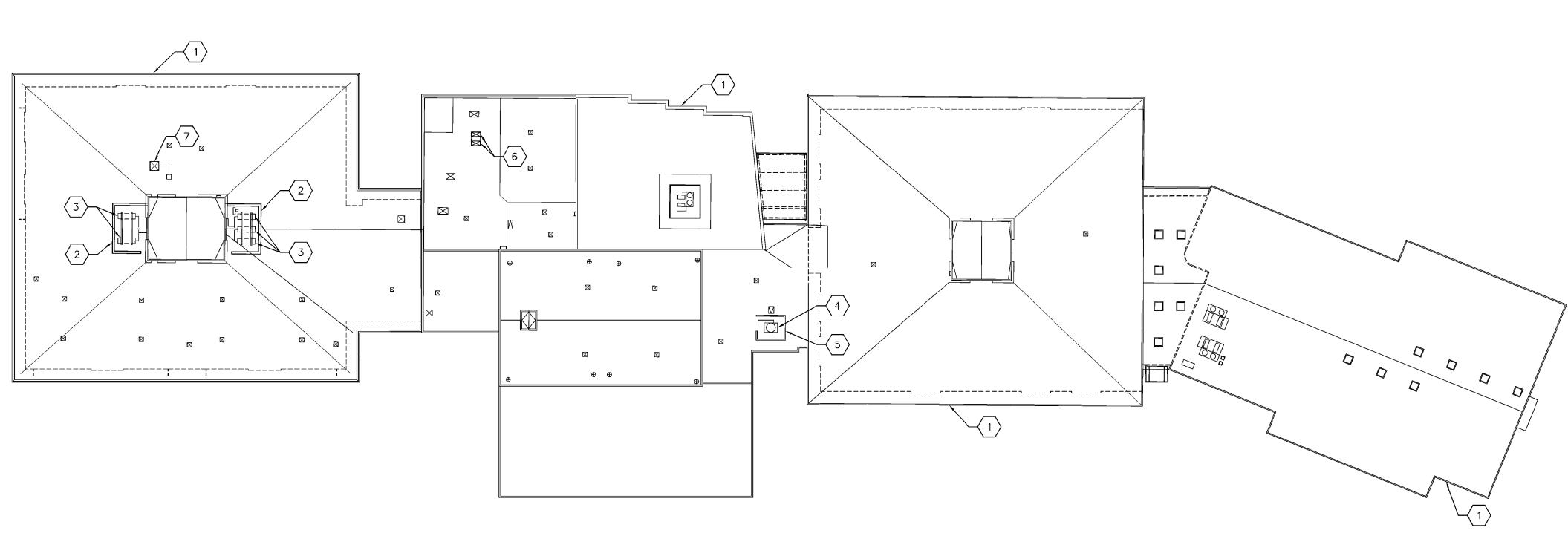
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NOTE: ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ AT

LIKE CONDITIONS.

ROOF PLAN KEYNOTES

- EXISTING ROOF STRUCTURE, TYPICAL
- EXTEND EXISTING 3-SIDED MECHANICAL SCREEN PER 1/S1.2
- EXISTING CONDENSER UNIT ON WOOD SLEEPERS, REMOVE AND RE-INSTALL PER 2/S1.2
- EXISTING EVAPORATOR UNIT ON WOOD SLEEPERS, REMOVE AND RE-INSTALL PER 3/S1.2
- EXISTING MECHANICAL SCREEN, REMOVE AND RE-INSTALL PER 4/S1.2
- AS NECESSARY FOR ROOFING WORK
- EXISTING CONSDENSER UNITS ON WOOD PLATFORM, REMOVE AND RE-INSTALL PER 5/S1.2
- EXISTING HEAT PUMP ON WOOD PLATFORM, REMOVE AND RE-INSTALL PER 5/S1.2





CODE

2019 OREGON STRUCTURAL SPECIALTY CODE (2019 OSSC)

DESIGN CRITERIA

WIND LOADS: BASIC WIND SPEED (3 SECOND GUST) = 103 MPH (LRFD) EXPOSURE CATEGORY = B F = 25 PSF (LRFD)F(UPLIFT) = 19.7 PSF (LRFD)

EARTHQUAKE: SEISMIC PARAMETERS: RISK CATEGORY III IMPORTANCE FACTOR = 1.0MAPPED: Ss = 0.86 SITE CLASS: D DESIGN: SDS = 0.688 SEISMIC DESIGN CATEGORY = D FORCE RESISTING SYSTEMS:

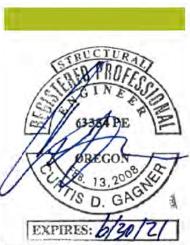
Fp=0.35*WT FOR NON-SPRING ISOLATED AIR SIDE HVAC EQUIPMENT MECHANICAL EQUIPMENT: Fp=1.03*WT FOR SPRING ISOLATED HVAC EQUIPMENT

GENERAL

- 1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE A/E SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH
- 3. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- 4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
- ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- 6. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE
- WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL
- ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE
- 9. ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ LIKE CONDITIONS
- 10. AVAILABLE AS-BUILT DOCUMENTATION IS LIMITED. VERIFY EXISTING CONDITIONS INDICATED, REPORT ANY DISCREPANCIES TO ARCHITECT/ENGINEER.

METALS

- MISCELLANEOUS STRUCTURAL STEEL TO BE ASTM A36, FY=36 KSI, UNLESS NOTED
- 2. BOLTS TO BE ASTM A307, UNLESS NOTED OTHERWISE.
- 3. WELDING TO BE BY CERTIFIED WELDERS USING E70XX ELECTRODES IN ACCORDANCE WITH AWS STANDARDS.
- 4. ALL EXTERIOR STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED OR STAINLESS U.N.O.
- 5. STEEL WASHERS TO BE USED AT ALL BOLTED CONDITIONS.
- 6. LATEST AISC, SJI, AND AWS CODES APPLY. ALL CONSTRUCTION PER LATEST AISC



SD SD 80% 80% BID

- 2 B 4



15895 SW 72ND AVE SUITE 200 PORTLAND, OREGON 97224 T E L: 5 0 3 . 2 2 6 . 1 2 8 5 FAX: 503.226.1670 W W W . CIDAINC. COM

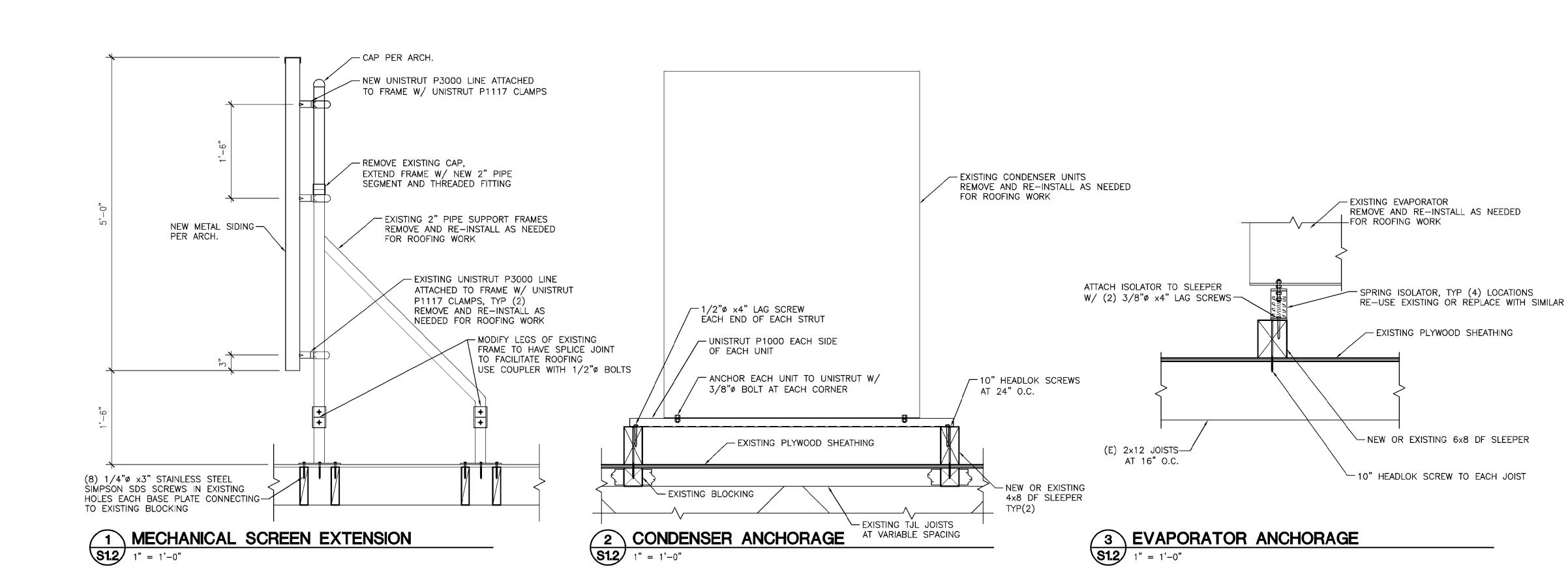
SCHOOL

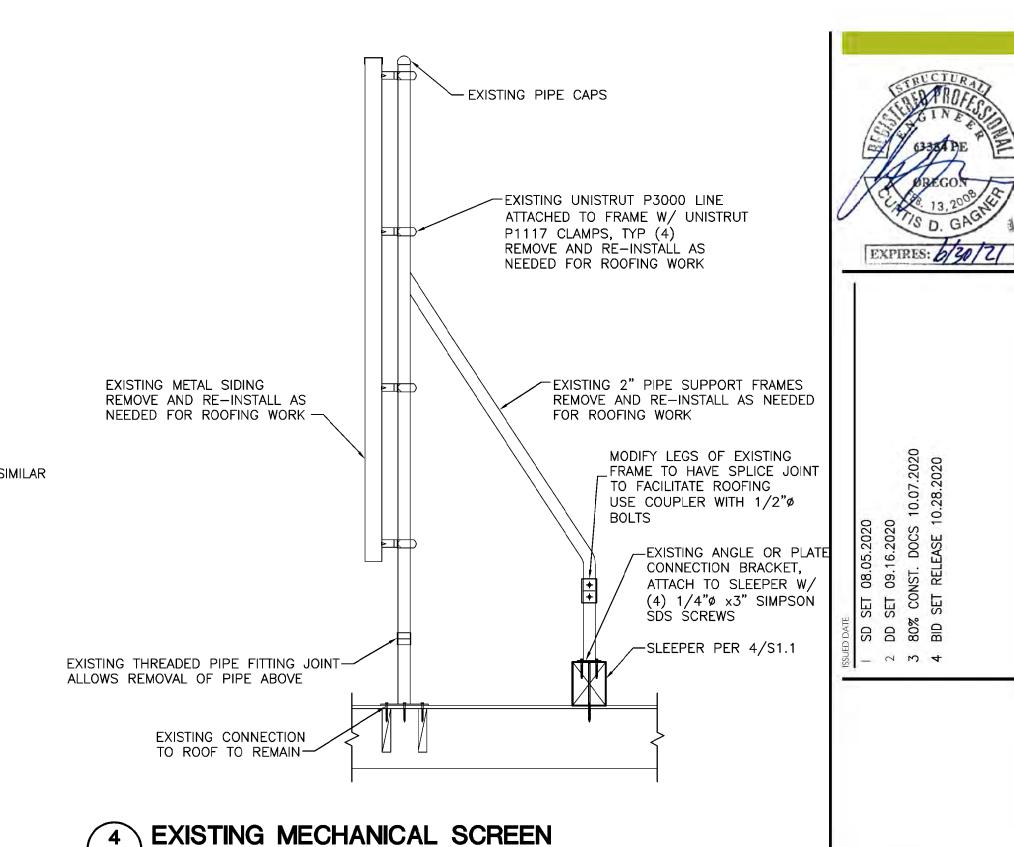
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ROOF PLAN

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\$1.2 1" = 1'-0"

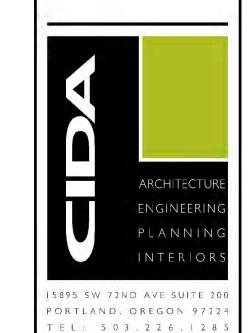
CONDENSER UNIT OR HEAT PUMP 225 LB MAX WEIGHT √1 5/8" SUPERSTRUT EA. SIDE OF HEAT PUMP ATTACH TO UNIT W/ 3/8" Ø BOLTS _L3x3x1/4x0'-5" EA. STRUT TO BOX--ATTACH W/ 3/8"ø BOLT TO EA. SUPERSTRUT AND (2) #10x1 1/2" WOOD SCREW TO PLATFORM 2x12 EACH SIDE OF UNIT--NAIL CORNERS W/ (3) 16d MIN. -SIMPSON A34 EACH SIDE OF PLATFORM
USE #8 SCREWS INSTEAD OF NAILS

19/32" PLYWOOD PLATFORM——
NAIL TO 2x W/ 10d AT 6" O.C. ALL EDGES

EXISTING ROOF FRAMING

5 CONDENSER UNIT / HEAT PUMP ANCHORAGE S2.1 1" = 1'-0"

- EXISTING BLOCKING



FAX: 503.226.1670

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SCHOOL ELEM.

HITEON

BSD

MECHANICA_ ANCHORAGE DETAILS

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BSD JACOB WISMER ELEMENTARY SCHOOL: 2021 RE-ROOF

WASHINGTON COUNTY, OR (AHJ)

BEAVERTON SCHOOL DISTRICT

OWNER

16550 SW MERLO ROAD BEAVERTON, OR 97003 (T): (503) 356-4318 CONTACT: MEGAN FINCH

TO BE DETERMINED

CONTRACTOR

CCB #:----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200 PORTLAND, OREGON 97224 (T): (503) 226-1285 (F): (503) 226-1670 CONTACT: DUSTIN JOHNSON

RDH BUILDING SCIENCE

ROOFING CONSULTANT

5331 S. MACADAM AVE, #314 PORTLAND, OREGON 97239 (T): (503) 867-8519 CONTACT: SCOTT MECALIS

R&W ENGINEERING

COST CONSULTANT

9715 SW ALLEN BLVD, #117 BEAVERTON, OREGON 97005 (T): (503) 292-6000 CONTACT: ED CARLISLE

SITE INFORMATION

 TAX LOT:
 06700

 TAX MAP:
 IN121BB

 ZONE:
 R-6

 SITE AREA:
 8.37 ACRES (364597.2 SF)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC)

OCCUPANCY: E (EDUCATION)

CONSTRUCTION TYPE: V-B (SPRINKLERED)

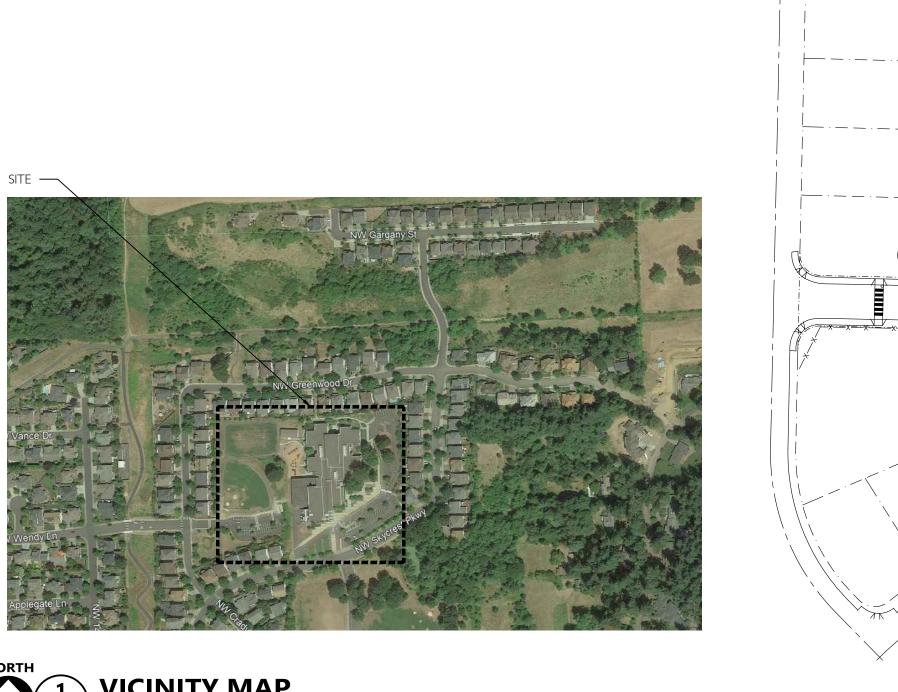
BUILDING AREA: 52,,647 SF

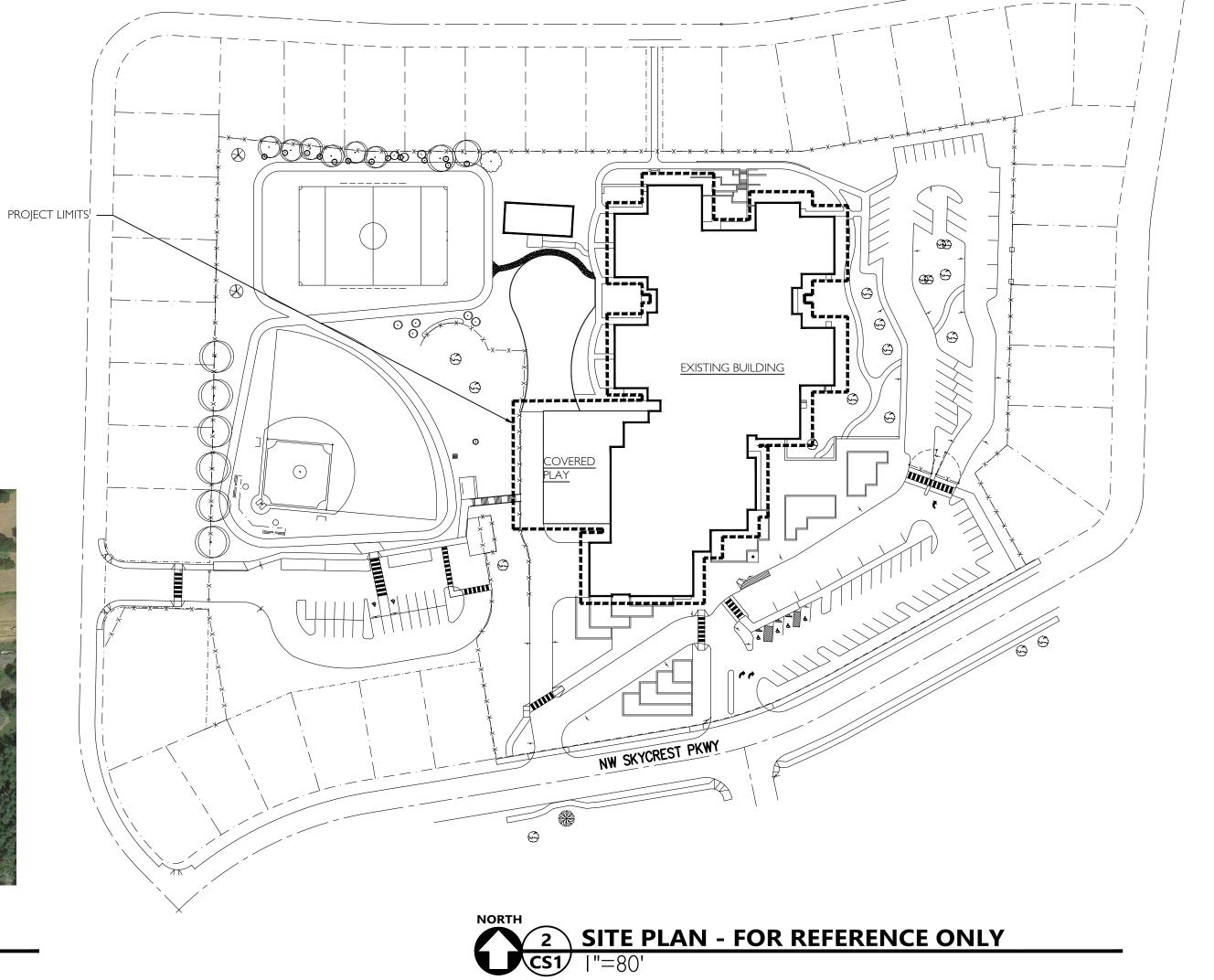
PROJECT DESCRIPTION

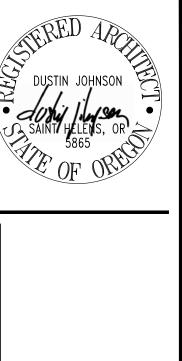
57,594 SF ROOFING SYSTEM RECOVER. EXISTING ROOFING SYSTEM IS BUILT-UP ROOFING WITH PEA GRAVEL WEAR SURFACE.

OVERLAY ROOFING SYSTEM TO BE 30-YEAR SINGLE-PLY EPDM ROOFING SYSTEM OVER NEW SUBSTRATE BOARD. SEE PLANS AND SPECIFICATIONS FOR FULL SCOPE.

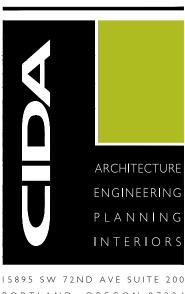
| 4 | 13 | 12 | 11 | 01 | 6 | 8 | 7 | 9 | 5 | 4 BID SET RELEASE 10.28.2020 | 3 80% CONST. DOCS 10.07.2020 | 2 DD SET 09.16.2020 | I SD SET 08.05.2020 | RELEASES |
|------------|------|------|------|------|-------|---------|-------|----|--------------|------------------------------|------------------------------|---------------------|---------------------|-------------------------------------|
| | | | | | | | | | | | | | | COVER SHEET |
| <i> </i> | 1111 | 1111 | | //// | 1111 | 1111 | | | 1111 | • | | • | • | CSI COVER SHEET |
| | | | | | | | | | H | Ť | Ť | Ť | H | CST COVER STREET |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | ARCHITECTURAL |
| | //// | "" | | " | ,,,,, | 1111 | ,,,,, | | , | • | • | • | • | AD0.1 EXISTING CONDITIONS ROOF PLAN |
| | | | | | | | | | | • | • | • | • | AD I. I DEMO ROOF PLAN |
| | | | | | | | | | | • | • | • | • | AI.I ROOF PLAN |
| | | | | | | | | | | • | • | • | • | A2.1 FALL PROTECTION PLAN |
| | | | | | | | | | | • | • | • | • | A3.1 DETAILS |
| | | | | | | | | | _ | | _ | • | Ш | A3.2 DETAILS |
| <i></i> | | 1111 | //// | ,,,, | m | <i></i> | //// | | <i>*****</i> | 1/1/ | 1// | <i>////</i> | | |
| | | | | | | | | | | | | | | STRUCTURAL |
| | | | | | | | | | | • | • | • | | SI.I ROOF PLAN |
| | | | | | | | | | | • | • | • | | S1.2 DETAILS |
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| | | | | | | | | | | | | | | MECHANICAL |
| " | "", | "", | ,,,, | ,,,, | ,,,, | ,,,, | ,,,,, | "" | 7777 | • | • | • | ,,,,, | MI.I ROOF PLAN-MECHANICAL |
| | | | | | | | | | T | • | • | • | П | M2.1 MECHANICAL SPECIFICATIONS |
| | | | | | | | | | | • | • | • | П | M2.2 MECHANICAL SPECIFICATIONS |







SD SET 08.05.2020DD SET 09.16.202080% CONST. DOCS 10.07.20204 BID SET RELEASE 10.28.2020



INTERIOR

15895 SW 72ND AVE SUITE 20

PORTLAND, OREGON 9722

TEL: 503.226.128

FAX: 503.226.167

WWW.CIDAINC.CO

IER ELEM. SCHOOL

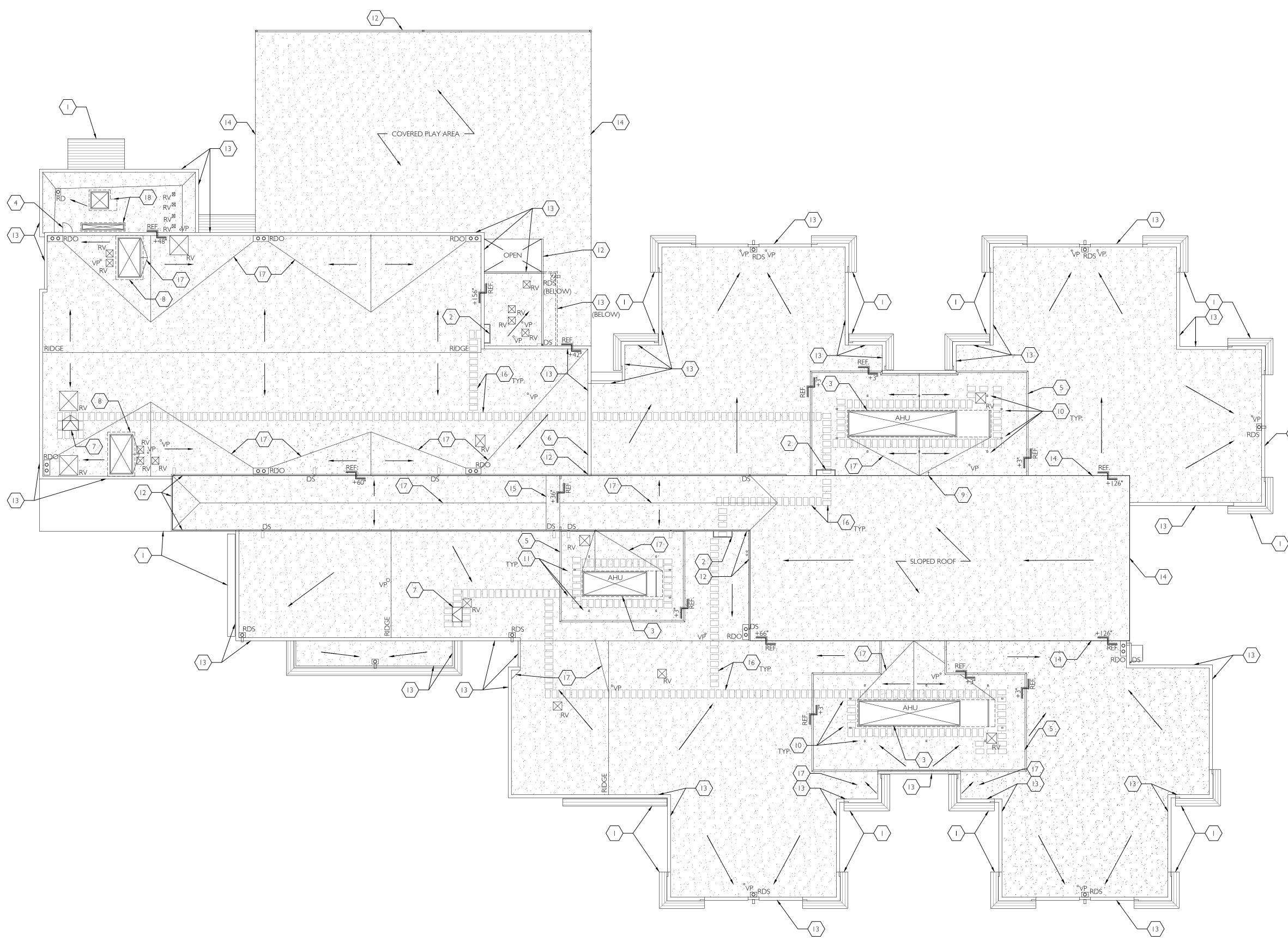
JACOB WISMER ELE
5477 NW SKYCREST PK

COVER SHEET

CS 1

JOB NO. 20Y082.02



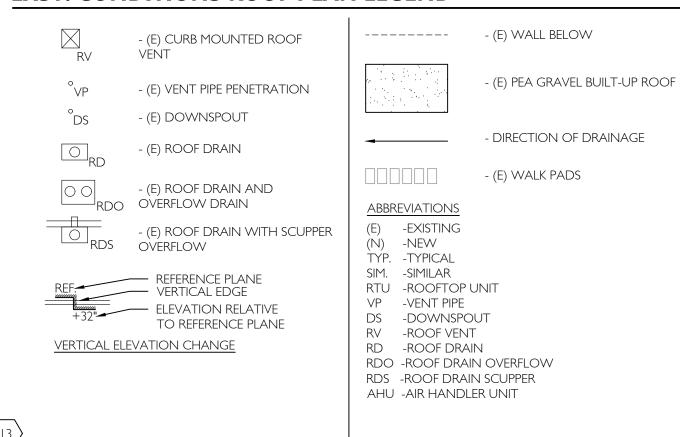




EXST. CONDITIONS ROOF PLAN GENERAL NOTES

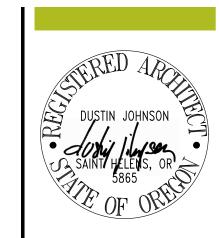
- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO FIELD VERIFY PLACEMENT BENEATH UNIT.
- 4. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS NON-CURBED CONDITION.

EXST. CONDITIONS ROOF PLAN LEGEND



EXST. CONDITIONS ROOF PLAN KEYNOTES

- (E) CANOPY BELOW
- $\langle 2 \rangle$ (E) FIXED LADDER
- (E) AIR HANDLER UNIT
- (E) SIDEWALL ROOF ACCESS
- (E) CONCRETE ISOLATION PAD (BENEATH ROOFING)
- (E) FIRE WALL PARAPET
- (E) ROOF HATCH
- (E) CURBED OPENING WITH SHEET METAL COVER
- (E) ANCHOR POINTS FOR RTU-- (10) LOCATIONS AT EACH RTU
- (E) ANCHOR POINTS FOR RTU-- (8) LOCATIONS AT RTU
- (E) SHEET METAL GUTTER
- (E) PARAPET, TYP.
- (E) DRIP EDGE WITH GRAVEL STOP
- (E) FIRE SHUTTER HOUSING
- (E) WALK PAD
- (E) CRICKET
- (E) CURB-MOUNTED MECHANICAL EQUIPMENT



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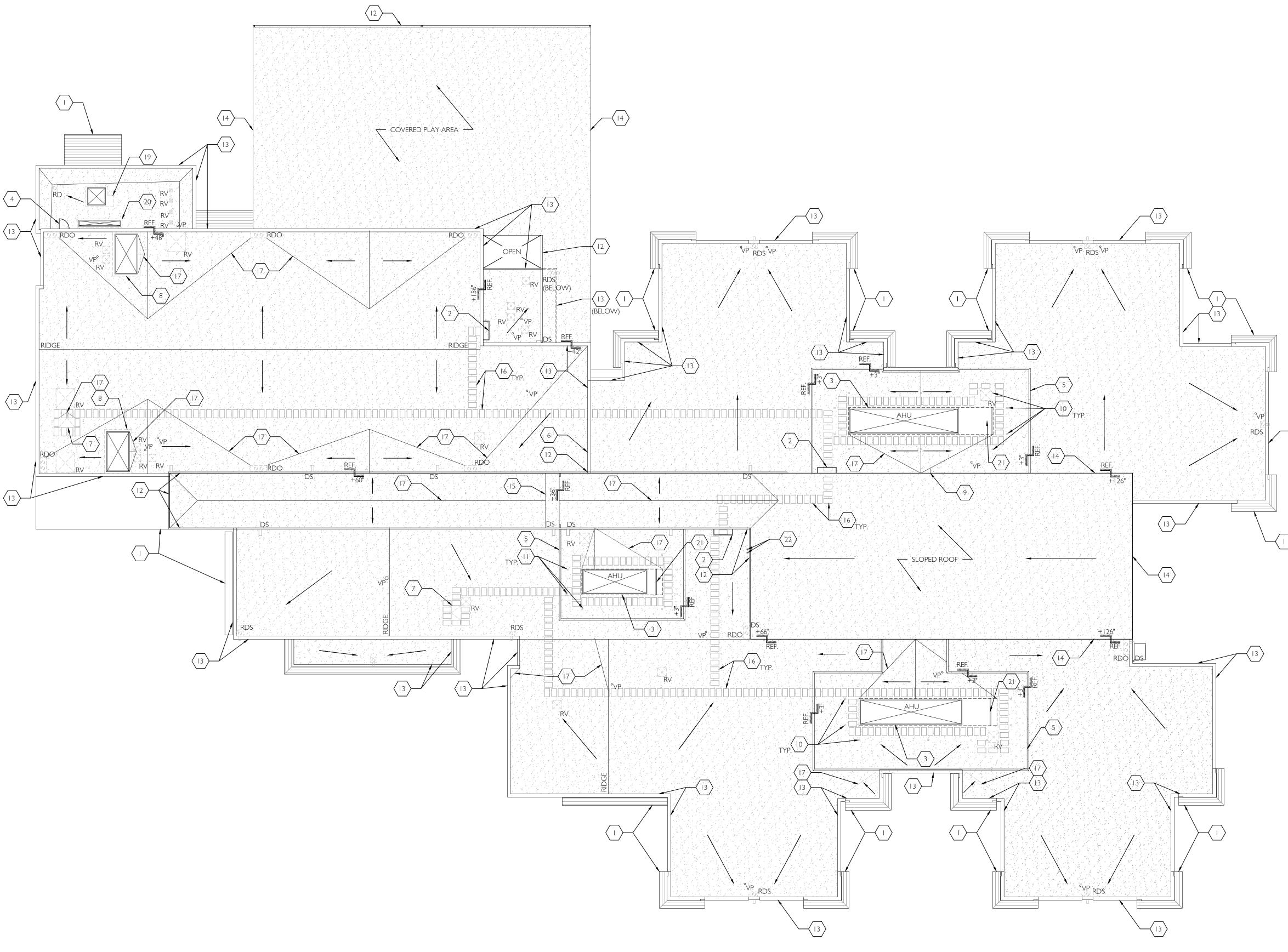
PORTLAND, OREGON 9722

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EXISTING CONDITIONS ROOF PLAN

AD0.1 JOB NO. 20Y082.02

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DEMO ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. APPLICABLE CODES: ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES. ALL CODE REFERENCES IN THE DRAWINGS AND SPECIFICATIONS SHALL MEAN, AND ARE INTENDED TO BE, THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCED STANDARD IN EFFECT AS OF THE
- DATE OF THE CONTRACT DOCUMENTS. 4. SEE MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT TO BE REMOVED AND FOR SIZES OF NEW OR REVISED CEILING PENETRATIONS.
- 5. FOR EXISTING MATERIALS AND EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED, CONTRACTOR TO STORE ON-SITE IN A WEATHER TIGHT LOCATION OR OTHERWISE PROTECT AGAINST WEATHER --
- COORDINATE LOCATION APPROVAL WITH DISTRICT. 6. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO FIELD VERIFY PLACEMENT BENEATH UNIT.
- 7. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN
- FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS NON-CURBED CONDITION. 8. SEE ROOFING SPECIFICATION IN PROJECT MANUAL FOR ALL EXISTING ROOFING COMPONENTS AND
- ACCESSORIES TO BE REMOVED AND FOR OTHER PROCEDURES REQUIRED IN PREPARATION OF INSTALLING 9. UNLESS OTHERWISE NOTED, ROOF CURBS AT EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED SHALL
- REMAIN IN PLACE. 10. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

DEMO ROOF PLAN LEGEND

| - (E) CURB MOUNTED ROOF VENT TO BE TEMPORARILY REMOVED AND | - (E) WAL |
|---|---------------------|
| STORED FOR REINSTALLATION | -(E) PEA G |
| - (E) VENT PIPE PENETRATION TO REMAIN | ROOFING REMOVE (|
| - (E) DOWNSPOUT TO BE TEMPORARILY REMOVED AND | ROOFING |

STORED FOR REINSTALLATION - (E) ROOF DRAIN-- REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

- (E) ROOF DRAIN AND PIPED RDO OVERFLOW-- REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

-(E) ROOF DRAIN WITH SCUPPER RDS OVERFLOW -- REMOVE SCUPPER AND RD -ROOF DRAIN ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) RDS -ROOF DRAIN SCUPPER -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

--- REFERENCE PLANE VERTICAL EDGE +37" ELEVATION RELATIVE TO REFERENCE PLANE VERTICAL ELEVATION CHANGE

ALL BELOW

GRAVEL BUILT-UP -IG SYSTEM TO REMAIN --GRAVEL BALLAST AND E SURFACE FOR NEW ROOFING SYSTEM PER SPEC.

- DIRECTION OF DRAINAGE

- (E) WALK PADS TO BE REMOVED

(E) -EXISTING (N) -NEW TYP. -TYPICAL SIM. -SIMILAR

RTU -ROOFTOP UNIT VP -VENT PIPE

DS -DOWNSPOUT RV -ROOF VENT RDO -ROOF DRAIN OVERFLOW

AHU -AIR HANDLER UNIT

DEMO ROOF PLAN KEYNOTES

 $\langle \ | \ \rangle$ (E) CANOPY BELOW-- NOT IN SCOPE

(E) FIXED LADDER TO REMAIN

(E) AIR HANDLER UNIT TO REMAIN IN PLACE DURING RE-ROOF

(E) SIDEWALL ROOF ACCESS TO REMAIN

(E) CONCRETE ISOLATION PAD (BENEATH ROOFING) TO REMAIN

(E) FIRE WALL PARAPET-- REMOVE SHEET METAL COPING, COUNTER FLASHING AND BASE FLASHING

(E) ROOF HATCH-- TEMPORARILY REMOVE AND STORE FOR REINSTALLATION

(E) CURBED OPENING WITH SHEET METAL COVER -- TEMPORARILY REMOVE COVER AND STORE FOR

(E) HOSE BIB TO REMAIN

(E) ANCHOR POINTS FOR RTU TO BE REMOVED -- (10) LOCATIONS AT EACH RTU -- REMOVE CABLE

TEMPORARILY AND STORE FOR REINSTALLATION

(E) ANCHOR POINTS FOR RTU TO BE REMOVED -- (8) LOCATIONS AT RTU -- REMOVE CABLE TEMPORARILY AND STORE FOR REINSTALLATION

(E) SHEET METAL GUTTER TO BE REMOVED AND REPLACED

(E) PARAPET-- REMOVE SHEET METAL COPING, SHEET METAL COUNTER FLASHING AND BASE FLASHING

(E) DRIP EDGE WITH GRAVEL STOP-- REMOVE GRAVEL STOP AND EDGE FLASHINGS

REMOVE (E) FIRE SHUTTER ENCLOSURE

(E) WALK PAD TO BE REMOVED

(E) CRICKET TO REMAIN

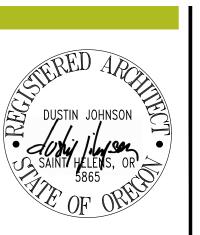
(18) NOT USED

(E) CURB MOUNTED MECHANICAL EQUIPMENT-- TEMPORARILY REMOVE AND STORE FOR

(E) MAKE-UP AIR UNIT TO BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION-- SEE SHEET A1.1 KEYNOTE I I FOR BID ALTERNATE

(E) WOOD CURB -- TEMPORARILY REMOVE STEEL BEAM SUPPORT AND REPLACE WITH TEMPORARY REMOVABLE SUPPORT -- REMOVE SHEET METAL CAP AND MEMBRANE FLASHINGS AND PREP AREA FOR NEW FLASHINGS -- SEE SHEET A1.1 FOR ADDITIONAL INFO.

(E) ABANDONED WEATHER STATION TO BE REMOVED



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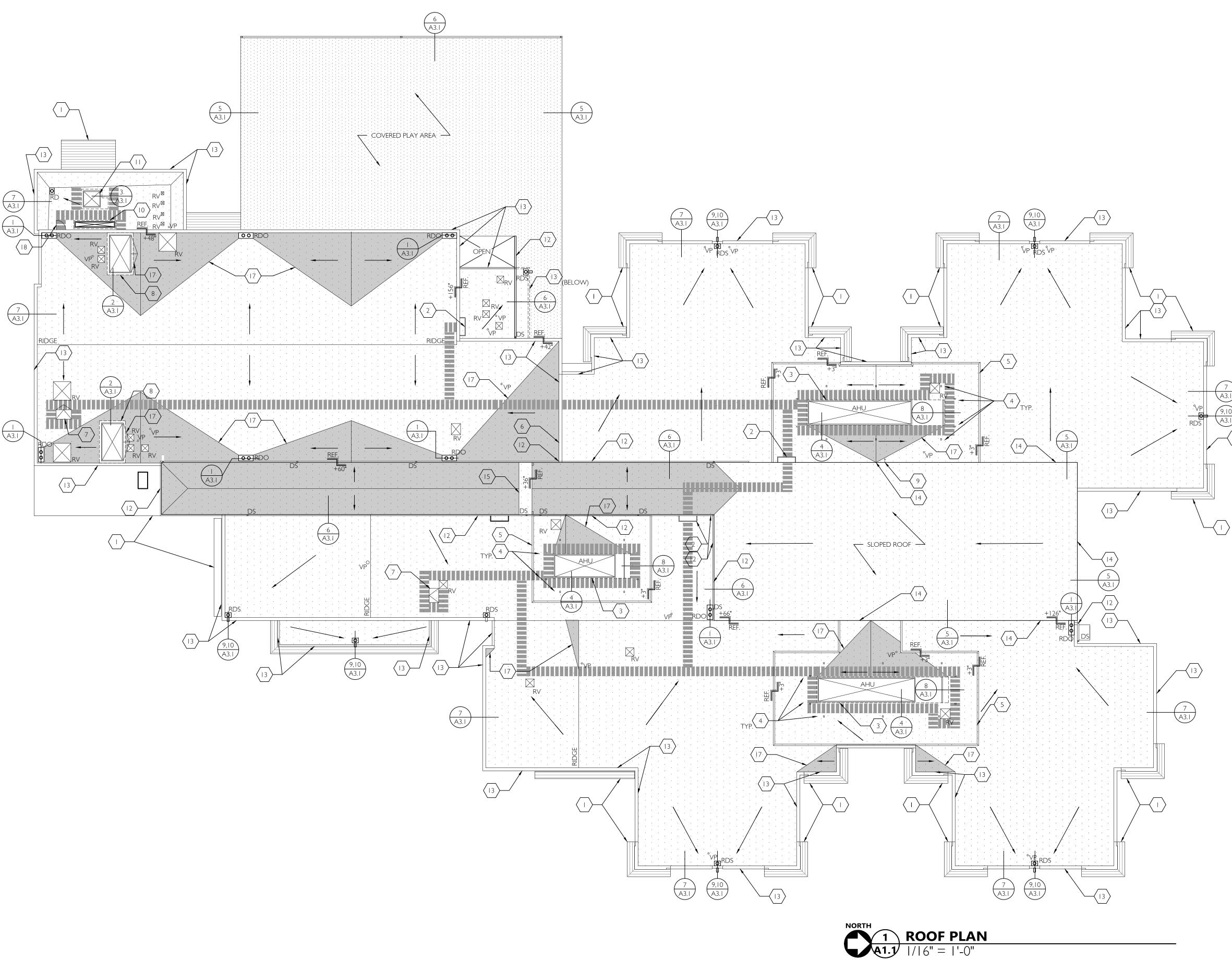
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DEMO ROOF PLAN

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ROOF PLAN GENERAL NOTES

- I. CONTRACTOR TO VERIFY (E) CONDITIONS SHOWN OR IMPLIED AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. ALL ROOFING REPAIR WORK TO BE PREFORMED BY ROOFING CONTRACTOR CERTIFIED BY ROOFING
- MANUFACTURER AND AS REQUIRED TO MEET INSTALLATION REQUIREMENTS OF SPECIFIED ROOFING SYSTEM 4. ALL ROOFING REPAIR WORK IS SUBJECT TO INSPECTION AND APPROVAL BY ROOFING MANUFACTURER FIELD
- REPRESENTATIVE. CONTRACTOR TO SCHEDULE ROOFING INSPECTION AT INTERVALS DETERMINED BY MANUFACTURER FOR ROOFING SYSTEM WARRANTY.
- 5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION OF NEW ROOF PENETRATIONS TO AVOID
- CONFLICT WITH EXISTING STRUCTURE AND BUILDING SYSTEMS. 6. CONTRACTOR TO CONFIRM ROOF PENETRATION SIZES AND EQUIPMENT CURB DIMENSIONS WITH
- MECHANICAL DRAWINGS. 7. WHERE PATCH AND REPAIR WORK IS INDICATED, CONTRACTOR SHALL PATCH AFFECTED AREAS TO MATCH ADJACENT FINISHES AND CONDITIONS FOR 'LIKE NEW' APPEARANCE UNLESS OTHERWISE NOTED. SEE
- SPECIFICATION SECTION 017329 'CUTTING AND PATCHING' FOR ADDITIONAL INFORMATION SEE STRUCTURAL DRAWINGS FOR BRACING REQUIREMENTS AT NEW ROOFTOP MECHANICAL EQUIPMENT.
- 9. CONTRACTOR TO MAINTAIN SURFACE DRAINAGE PATTERNS OF EXISTING ROOF WITH SLOPE OF NOT LESS
- 10. CONTRACTOR TO PROVIDE CRICKETING AT MECH EQUIPMENT CURBS, PARAPETS, ROOF DRAINS AND OTHER LOCATIONS AS REQUIRED TO MAINTAIN POSITIVE SLOPE TO POINT OF ROOF DRAINAGE.
- 11. CONTRACTOR TO CONNECT ALL NEW AND RE-INSTALLED EQUIPMENT TO SUPPORTING UTILITIES (NATURAL
- GAS, ELECTRICAL, LOW VOLTAGE, ECT...) 12. CONTRACTOR TO SUBMIT TAPERED INSULATION SHOP DRAWINGS FOR A/E APPROVAL..
- 13. CONTRACTOR TO SUBMIT WEATHER PROTECTION PLAN FOR A/E & DISTRICT APPROVAL, PER SPEC DIVISION 7.
- 14. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

ROOF PLAN LEGEND

-REINSTALLED CURB MOUNTED ROOF VENT - (E) VENT PIPE PENETRATION --SEE DETAIL 11/A3.1 - REINSTALLED DOWNSPOUT --INSTALL (N) SPLASH BLOCKS -ROOF DRAIN-- NEW ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO

'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. -ROOF DRAIN AND PIPED RDO OVERFLOW-- NEW ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO

'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. -ROOF DRAIN VILIT 3COLLE..

OVERFLOW -- NEW SCUPPER AND
POOF DRAIN ASSEMBLY (DRAIN BO) ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) --REFER TO 'SCHEDULE OF UNIT PRICES'

IN SECTION 012200 OF SPEC. VERTICAL ELEVATION CHANGE

- (E) WALL BELOW ------AREA OF (N) MECHANICALLY FASTENED EPDM ROOFING SYSTEM

> -AREA OF (N) FULLY ADHERED EPDM ROOFING SYSTEM OVERLAY PER SPECIFICATION (6,742 SF)

OVERLAY PER SPECIFICATION (50,852

-AREA OF TAPERED INSULATION

- DIRECTION OF DRAINAGE

- (N) WALK PADS PER DETAIL 12/A3.1

(E) -EXISTING RD -ROOF DRAIN

(N) -NEW RDO -ROOF DRAIN **OVERFLOW** SIM. -SIMILAR RDS -ROOF DRAIN RTU -ROOFTOP UNIT SCUPPER VP -VENT PIPE AHU -AIR HANDLER

DS -DOWNSPOUT RV -ROOF VENT

— ELEVATION RELATIVE TO REFERENCE PLANE

ROOF PLAN KEYNOTES

(E) CANOPY BELOW -- NOT IN SCOPE

(E) FIXED LADDER TO REMAIN

(E) AIR HANDLER UNIT-- SEE DETAIL 4&8/A3.1

(N) ANCHORS PER STRUCTURAL -- SEE 11/A3.1 FOR FLASHING -- REINSTALL CABLE TIES

(E) CONCRETE ISOLATION PAD (BENEATH ROOFING).

(E) FIRE WALL PARAPET TO REMAIN -- INSTALL NEW SHEET METAL COPING -- PROFILE AND FINISH TO

RE-INSTALL (E) ROOF HATCH AT SAME LOCATION AND ORIENTATION. -- SEE DETAIL 2/A3.1 FOR FLASHING

RE-INSTALL SHEET METAL COVER ON (E) CURBED OPENING

(E) HOSE BIB

RE-INSTALL (E) MAKE-UP AIR UNIT-- SEE DETAIL 2/A3.1 FOR FLASHING CONDITION. <u>ALT#1: REPLACE (E) MAKE-UP AIR UNIT AND EQUIPMENT CURB WITH NEW PER MECH. DRAWINGS-- SEE 3/A3.1 FOR FLASHING CONDITION-- SEE SPEC SECTION 012300 'ALTERNATES' FOR ADDITIONAL INFO.</u>

RE-INSTALL (E) CURB MOUNTED EQUIPMENT -- SEE DETAIL 2/A3.1 FOR FLASHING

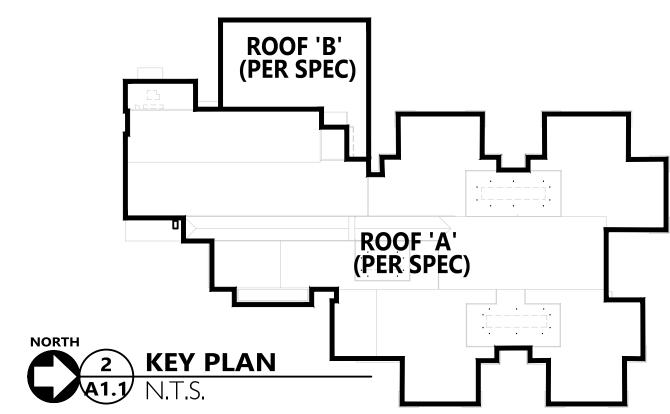
(N) SHEET METAL GUTTER -- PROFILE AND FINISH TO MATCH EXISTING-- SEE DETAIL 6/A3. I

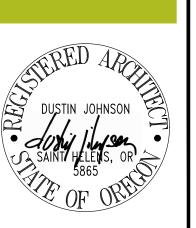
(E) PARAPET-- INSTALL NEW SHEET METAL COPING WITH PROFILE AND FINISH TO MATCH EXISTING-- SEE

(N) DRIP EDGE AND GRAVEL STOP-- -- INSTALL NEW DRIP EDGE FLASHING PER SPEC-- SEE DETAIL 5/A3.1

(N) FIRE SHUTTER ENCLOSURE-- SEE DETAIL 10/A3.1 LOCATION OF (N) WALK PAD -- SEE DETAIL 12/A3.1.

(E) SIDEWALL ROOF ACCESS.





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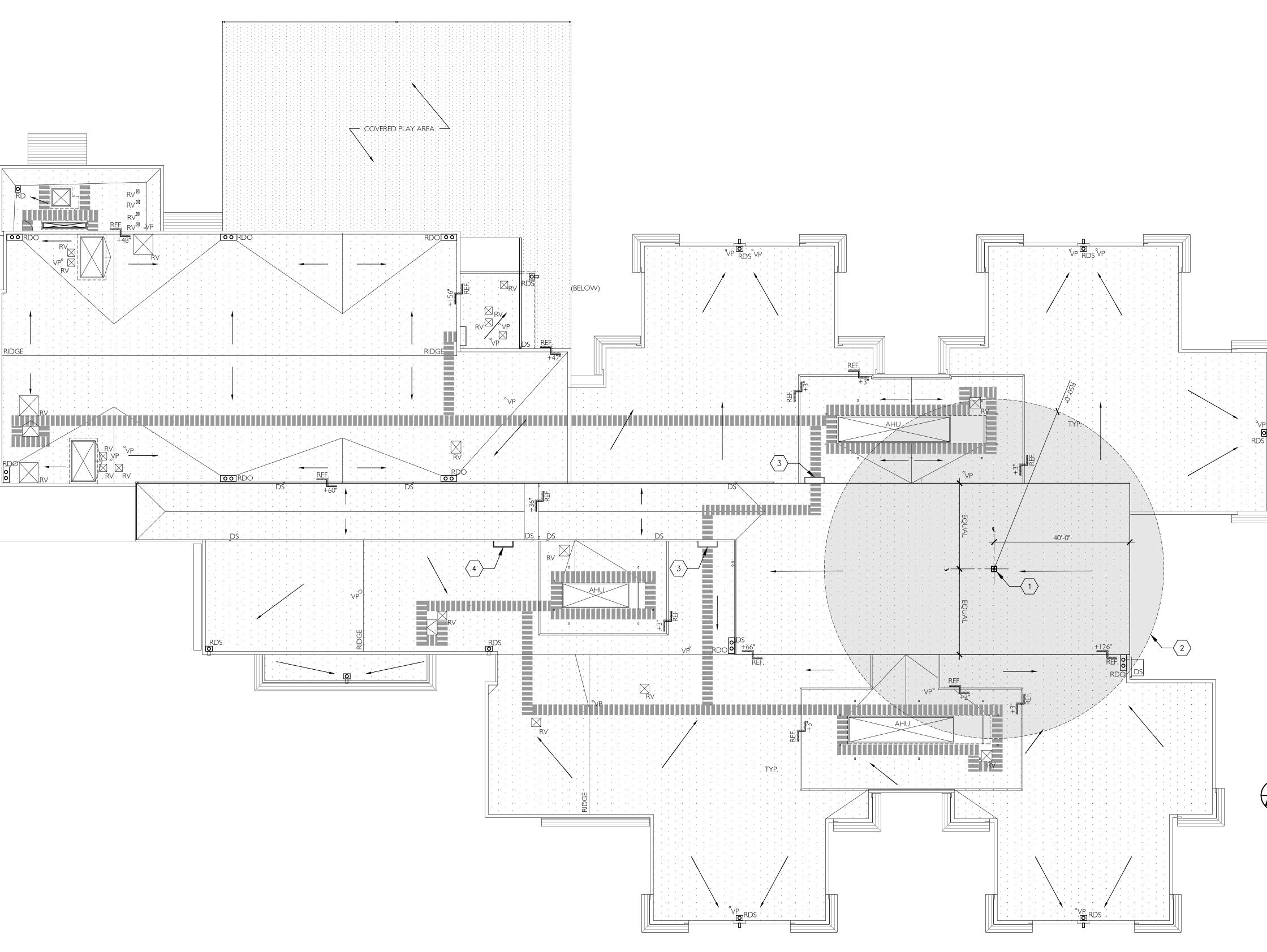
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ROOF PLAN

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FALL PROTECTION PLAN GENERAL NOTES

I. FALL PROTECTION INDICATED IS BASED ON 'FALL RESTRAINT' SAFETY METHOD.

FALL PROTECTION PLAN LEGEND

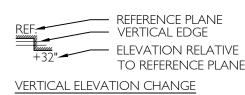
(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR ANCHORAGE TO ROOF



AREA WITHIN ROOF COVERAGE (BASED ON 50' LANYARD)

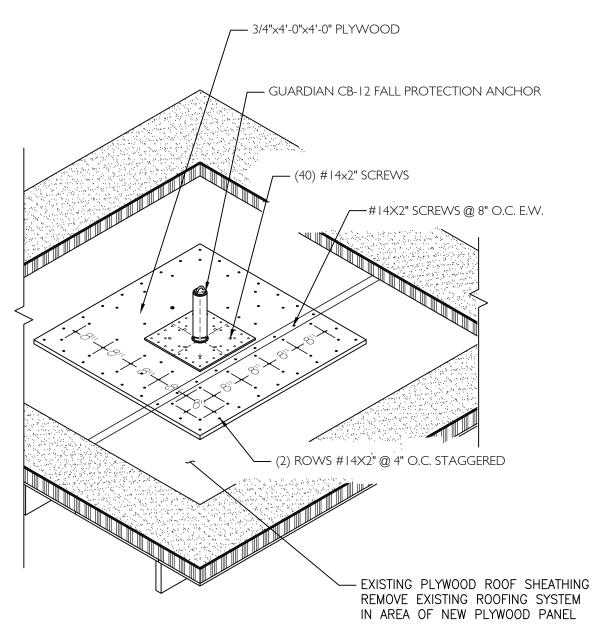


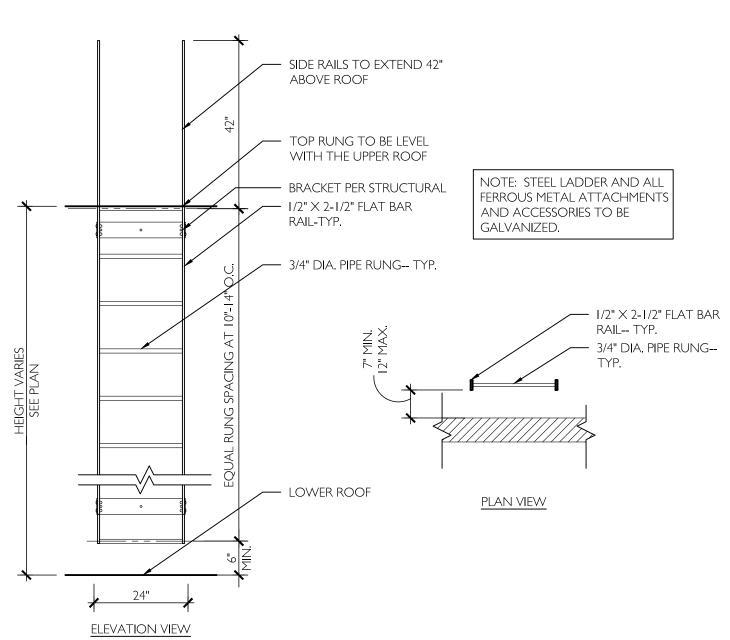
AREA OUTSIDE SCOPE OF WORK



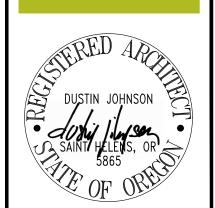
FALL PROTECTION PLAN KEYNOTED

- (N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR BLOCKING AND $\begin{pmatrix} 1 \end{pmatrix}$ anchorage requirements -- install blocking from interior side and PATCH/REPAIR CEILING TO MATCH EXISTING CONDITION AND FINISH, AND PER
- 2 ROOF COVERAGE -- BASED ON 50' LANYARD.
- $\left\langle 3\right\rangle$ (E) STEEL LADDER TO REMAIN.
- NEW STEEL PIPE LADDER -- CONTRACTOR TO FIELD VERIFY HEIGHT, TYP. -- SEE DETAIL 3/A2. I









PLANNIN

PORTLAND, OREGON 9722

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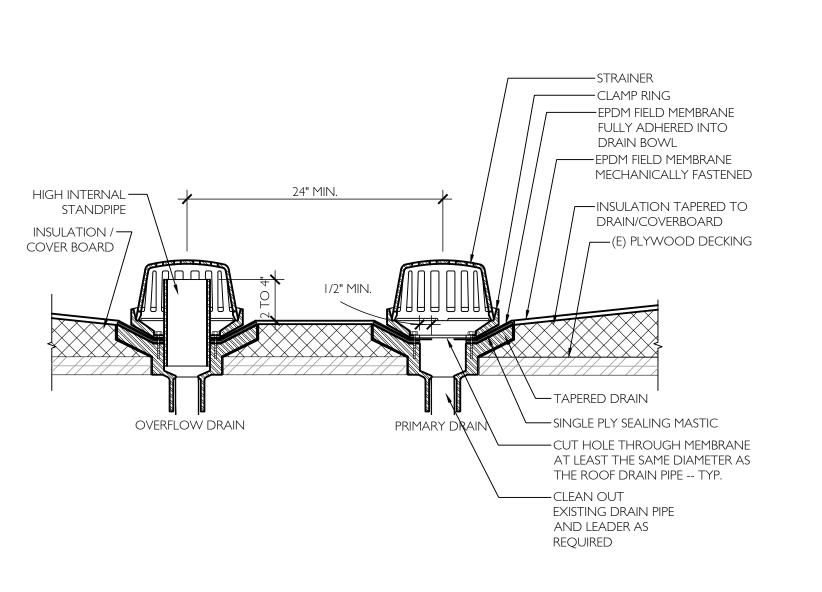
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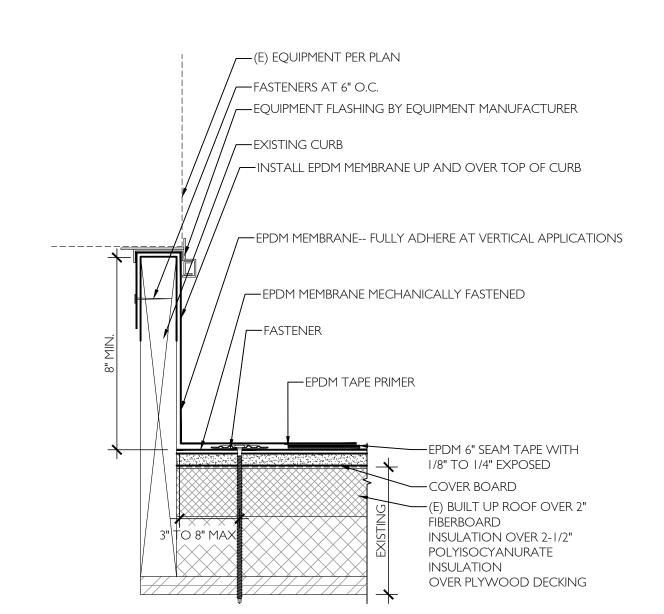
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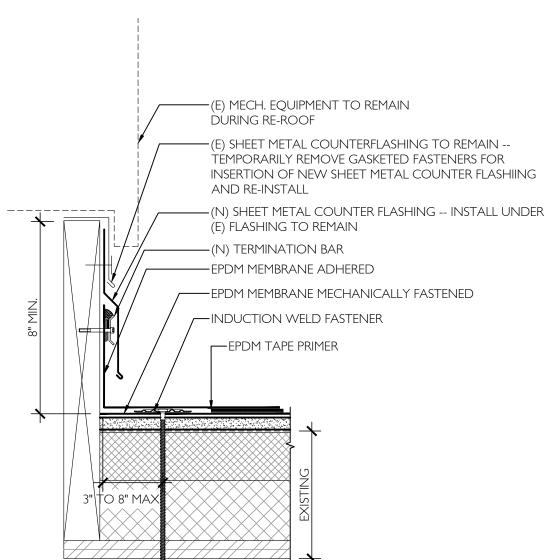
FALL PROTECTION PLAN

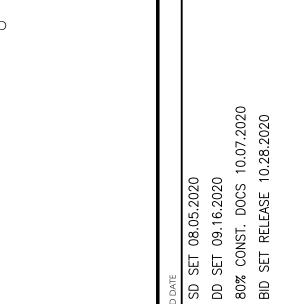
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—EQUIPMENT PER MECHANICAL DRAWINGS —INSULATED METAL CURB —2X4 WOOD NAILER —EQUIPMENT FLASHING BY EQUIPMENT MANUFACTURER — APPROPRIATE FASTENERS AT 12" O.C. - APPROPRIATE GROMMETED FASTENERS THROUGH COUNTER FLASHING APPROXIMATELY 12" O.C. (IF — COUNTERFLASHING SKIRT — APPROVED SUBSTRATE -EPDM MEMBRANE-- FULLY ADHERE AT VERTICAL **APPLICATIONS** -ALTERNATE CURB FLASHING METHOD IS TO USE EPDM PRE-TAPED CURB FLASHING 18" & 24" - EPDM MEMBRANE MECHANICALLY FASTENED -EPDM 3" SEAM TAPE WITH 1/8" TO 1/4" EXPOSED -EPDM TAPE PRIMER -COVER BOARD (E) BUILT UP ROOF OVER 2" FIBERBOARD INSULATION OVER 2-1/2" POLYISOCYANURATE INSULATION OVER PLYWOOD DECKING





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PLANNIN

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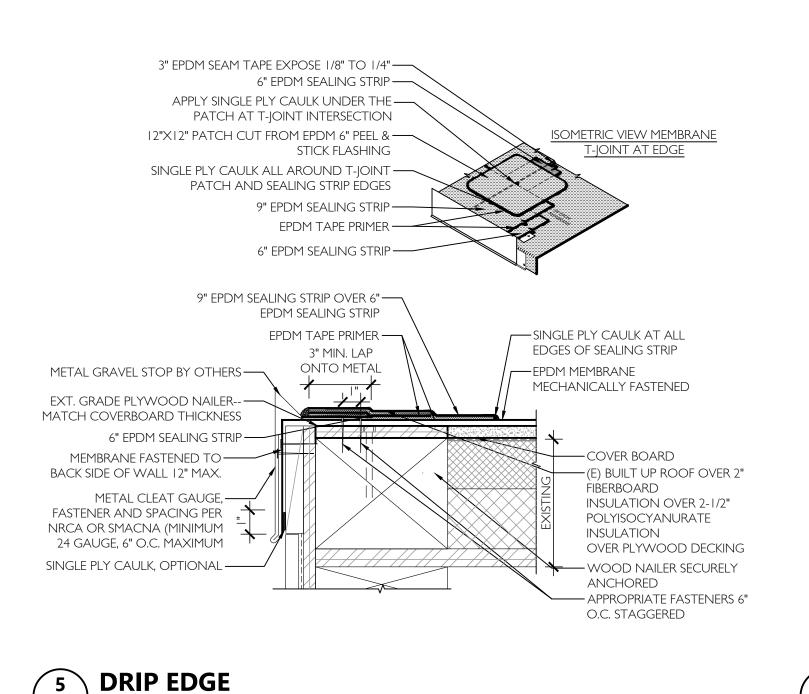
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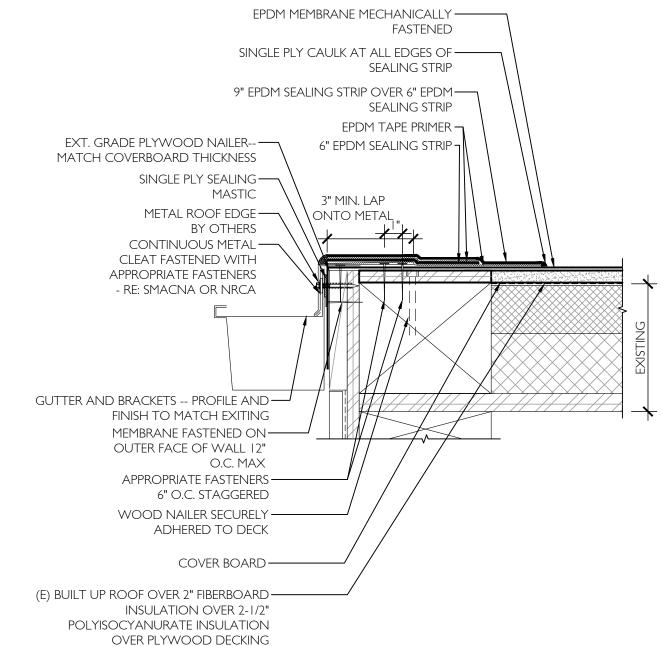
AND,

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4 EXISTING WOOD CURB TO REMAIN

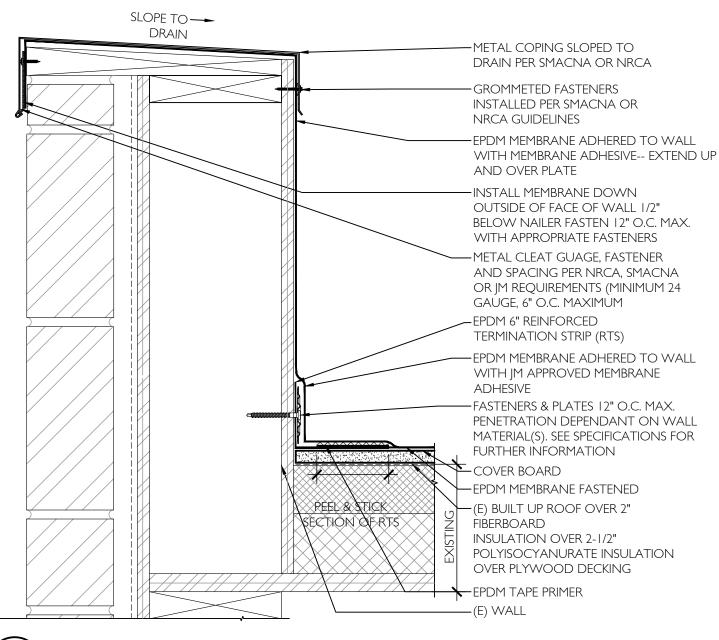
OVERFLOW DRAIN





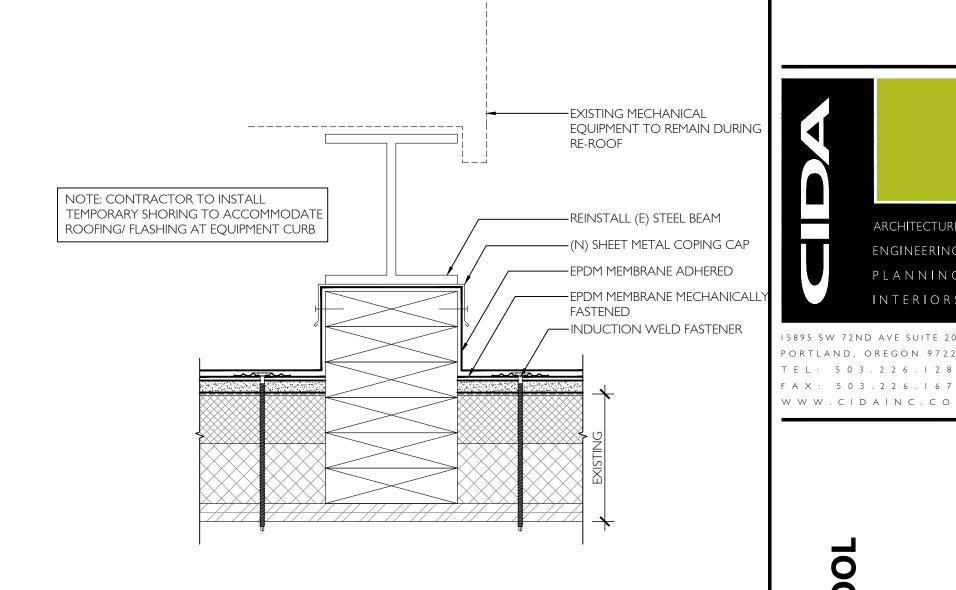
WOOD CURB BASE FLASHING

GUTTER & METAL EDGE



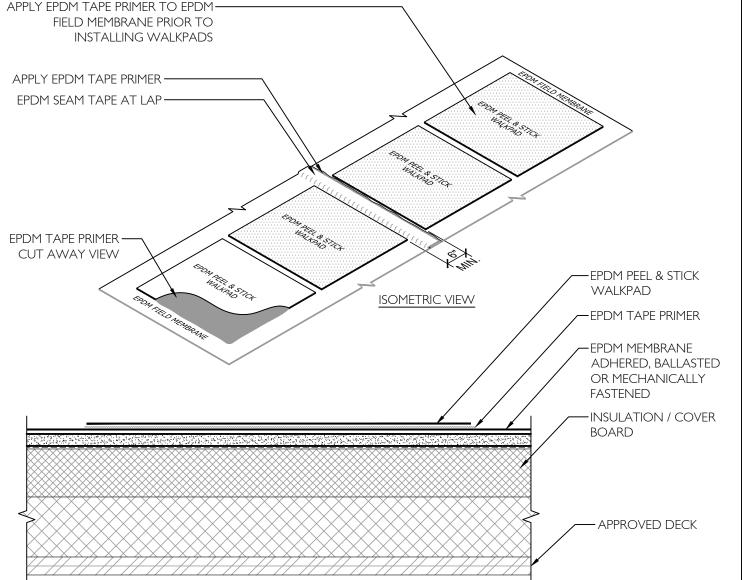
PREFABRICATED METAL CURB BASE FLASHING

A3.1 3" = | '-0"



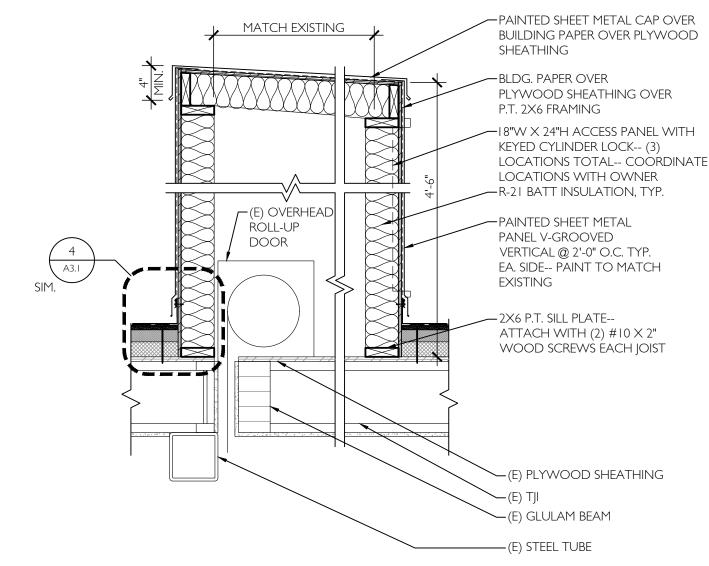
EPDM BASE & WALL FLASHING WITH COPING A3.1 3" = | '-0"

8 EXISTING CURB TO REMAIN





WALL FLASHING ACCORDING TO WALL DETAIL - EPDM WALL FLASHING --- EPDM PEEL & STICK FLASHING OVER SCUPPER ——EPDM PEEL & STICK FLASHING PATCHES OVER ALL 4 CORNERS OF SCUPPER BACKER ROD& CAULK — AT ALL 4 SIDES OF EDGES IF REQUIRED SCUPPER SLEEVE --MITERED TAPERED THROUGH WALL INSULATION UNDER MEMBRANE BOTTOM HEM-SUMP CORNER FASTEN SCUPPER TO— WALL THROUGH EPDM WALL FLASHING (NOT SHOWN) WOOD NAILER -SECURED TO DECK UNDER SCUPPER FLANGE ADD WOOD UNDER FLANGE AND CORED HOLE AS REQUIRED TAPERED -**EDGE STRIPS**



-SINGLE PLY CAULK (AT TOP OF CLAMP - SLOPED TO SHED WATER) - SINGLE PLY SEALING MASTIC (BETWEEN PIPE AND NECK OF BOOT) -S.S. CLAMP AND SCREW -EPDM PEEL & STICK PIPE BOOT — APPROVED FASTENER AND PLATE MINIMUM OF (4) AROUND VENT PIPE PENETRATION DEPENDANT ON DECK MATERIAL(S). SEE SPECIFICATIONS FOR FURTHER INFORMATION -EPDM TAPE PRIMER - EPDM MEMBRANE MECHANICALLY **FASTENED** — COVERBOARD (E) BUILT UP ROOF OVER 2" **FIBERBOARD** INSULATION OVER 2-1/2" POLYISOCYANURATE INSULATION OVER PLYWOOD DECKING

11 VENT PIPE

—SINGLE PLY CAULK ALONG EPDM MEMBRANE FLASHING NAIL SCUPPER FLANGE THROUGH FIELD — MEMBRANE INTO WOOD NAILER BELOW WITH RING SHANK NAILS 3" O.C. STAGGERED-- SET

--- ATTACH AND TERMINATE

9 DRAIN AND OVERFLOW SCUPPER

FLANGE INTO BED OF SINGLE PLY MASTIC

A3.1 6" = 1'-0"

10 DETAIL

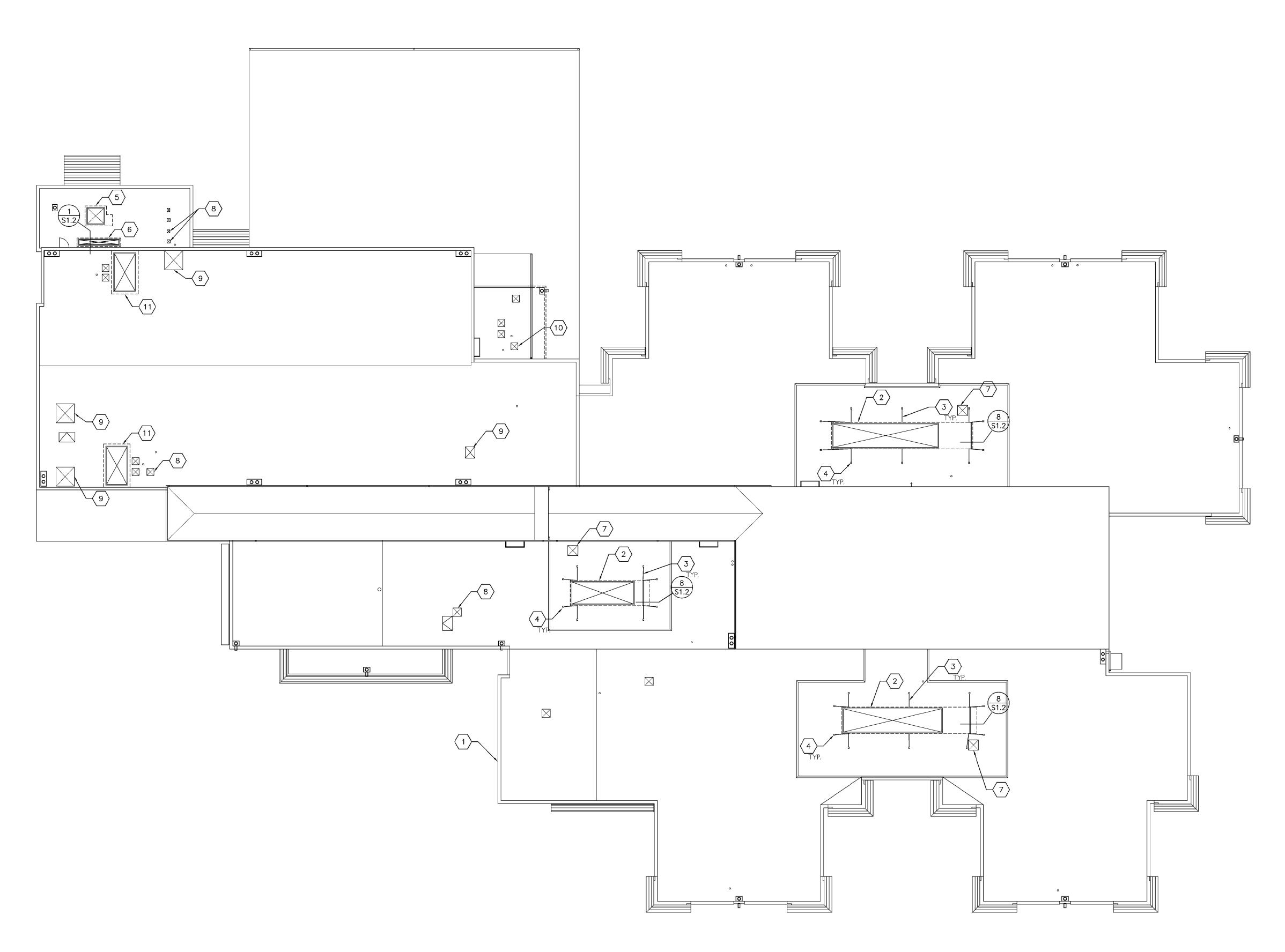
3/4"=1'-0"

APPLY EPDM TAPE PRIMER TO EPDM-

A3.1

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DETAILS





SPECIAL INSPECTION PROGRAM

| ITEM | CONTINUOUS (3) | PERIODIC (3) | REFERENCED STANDARD | COMMENTS |
|-----------------------------------|----------------|--------------|---------------------|------------------------------|
| CONCRETE | | | | |
| 1) MECHANICAL ANCHOR INSTALLATION | _ | X | | PER ICC-ES REPORT FOR ANCHOR |
| | | | | |

PROGRAM FOOTNOTES:

- (1.) THE ITEMS CHECKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH 2019 OSSC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO THE MATERIAL SAMPLING AND TESTING SECTION, THE PROJECT SPECIFICATIONS AND THE SPECIFIC GENERAL NOTES SECTIONS. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ARCHITECT, ENGINEER, CONTRACTORS AND BUILDING OFFICIAL ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. SPECIAL TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS.
- (2.) CONTINUOUS SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON THE SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION (2019 OSSC 1704.3). PERIODIC SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT ALL WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE.

CODE

2019 OREGON STRUCTURAL SPECIALTY CODE (2019 OSSC)

DESIGN CRITERIA

WIND LOADS:

BASIC WIND SPEED (3 SECOND GUST) = 110 MPH (LRFD)

EXPOSURE CATEGORY = B

F = 35.02 PSF (LRFD)

F(UPLIFT) = 27.65 PSF (LRFD)

EARTHQUAKE:

SEISMIC PARAMETERS:

OCCUPANCY CAT. III IMPORTANCE FACTOR = 1.0

MAPPED: Ss = 0.913 SITE CLASS: D

DESIGN: SDs = 0.73 SEISMIC DESIGN CATEGORY = D

FORCE RESISTING SYSTEMS:

MECHANICAL EQUIPMENT: Fp=0.37*WT FOR NON-SPRING

ISOLATED AIR SIDE HVAC EQUIPMENT

GENERAL

- 1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE A/E SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH
- CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- 4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
- 5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- 6. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE ALL DETAILS.
- 7. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN
- 8. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON
- 9. ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ LIKE CONDITIONS

METALS

- MISCELLANEOUS STRUCTURAL STEEL TO BE ASTM A36, FY=36 KSI, UNLESS NOTED OTHERWISE.
- 2. TUBES TO BE ASTM A500, FY=46 KSI; PIPES ASTM A501, FY=36 KSI.
- 3. BOLTS TO BE ASTM A307, UNLESS NOTED OTHERWISE.
- 4. WELDING TO BE BY CERTIFIED WELDERS USING E70XX ELECTRODES IN ACCORDANCE WITH AWS STANDARDS.
- 5. ALL EXTERIOR EXPOSED METALS TO BE GALVANIZED
- 6. STEEL WASHERS TO BE USED AT ALL BOLTED CONDITIONS.

ROOF PLAN KEYNOTES

- (E) BUILDING PERIMETER
- (E) McQUAY AIR HANDLER UNIT TO REMAIN IN PLACE DURING RE-ROOF

 --TEMPORARILY SHORE END OF UNIT ON RAIL TO ALLOW FOR RAIL
 REMOVAL AND REINSTALLATION
- (E) SPLAY CABLE FOR UNIT ANCHORAGE -- REMOVE AND REINSTALL
- (E) SPLAY CABLE ANCHOR POINT——REPLACE WITH TALLER ANCHOR POINT PER 7/S1.2 IN SAME LOCATION
- (E) AAON 4-TON UNIT TO BE REMOVED AND REINSTALLED PER 6/S1.2
- (E) REZNOR MAU (NOTED AS 2,000LB ON FRAMING PLAN) TO BE REMOVED AND RE-INSTALLED BID ALTERNATE: REPLACE WITH NEW 870LB REZNOR UNIT OF EQUIVALENT SIZE IN SAME LOCATION
- $\langle 7 \rangle$ (E) FAN UNIT TO BE REMOVED AND REINSTALLED PER 3/S1.2
- \rangle (E) FAN UNIT TO BE REMOVED AND REINSTALLED PER 2/S1.2
- (E) GRAVITY RELIEF HOOD TO BE REMOVED AND REINSTALLED PER 4/S1.2
- (E) SMALL FAN UNIT OR VENT UNDER 50LB MAX WT TO BE REMOVED AND REINSTALLED PER 5/S1.2
- (E) ROOF HATCH OR ACCESS HOLE WITH SHEET METAL CAP——REMOVE AND REINSTALL TO MATCH EXISTING CONDITION AS REQUIRED

GREGON

STRUCTURAL

FROM

GREGON

B. 13, 200 Hz

FROM

EXPIRES: b/20/2/

DD SET 09.16.2020 80% CONST. DOCS 10.07.2020 RID SET RELEASE 10.28.2020

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ARCHITECTURE ENGINEERING PLANNING INTERIORS

5895 SW 72ND AVE SUITE 200 PORTLAND, GREGON 97224 TEL: 503.226.1285 FAX: 503.226.1670 WWW.CIDAINC.CON

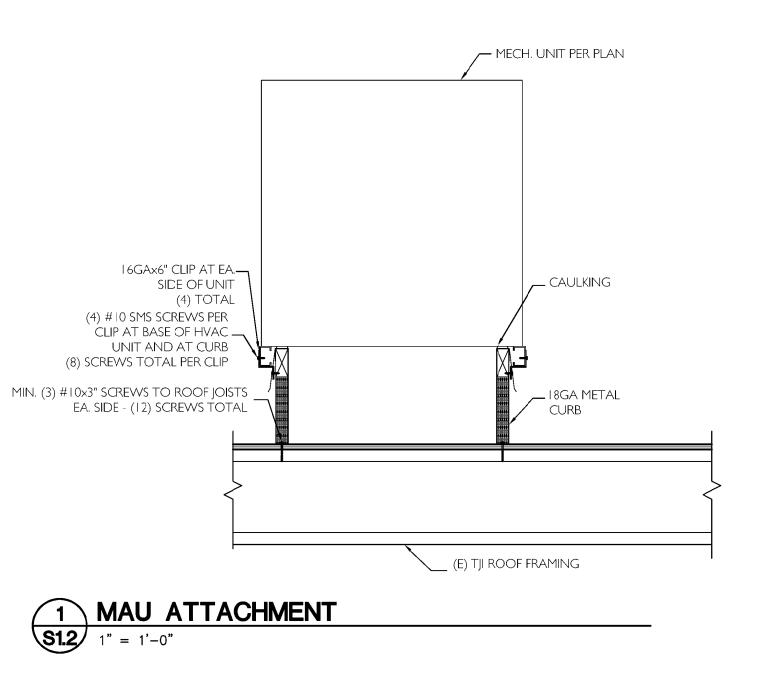
ELEM. SCHOOL

OB WISMER ELEM 5477 NW SKYCREST PKW PORTLAND, OR 97229

BSD JAC

ROOF PLAN

S1.1



__ (E) FAN UNIT TO BE

(E) TJI FRAMING —

RÉ-INSTALLED 60LB MAX

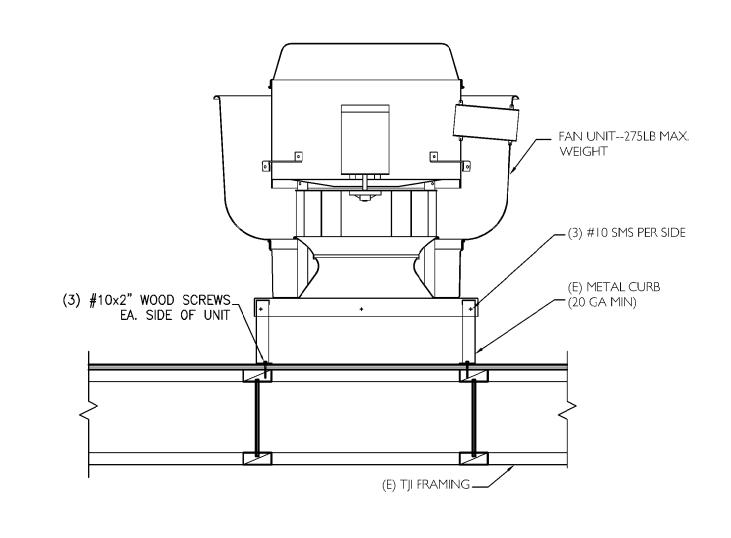
MINIMUM

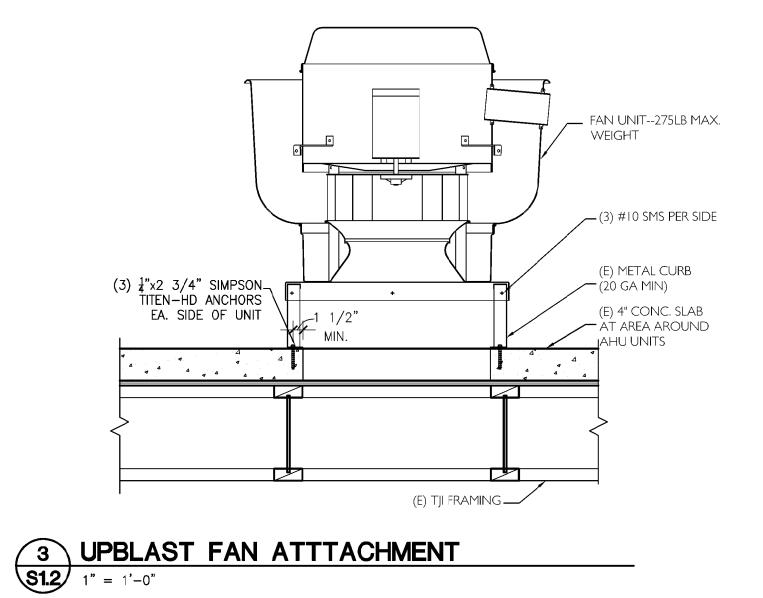
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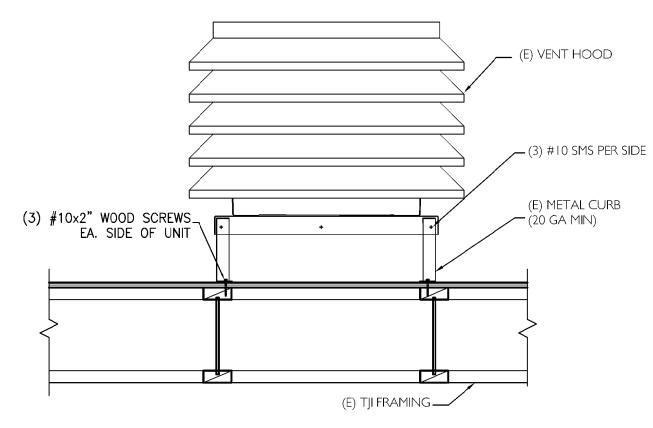
UNIT TO CURB--(8) SCREWS TOTAL

METAL CURB PER UNIT SUPPLIER (18GA

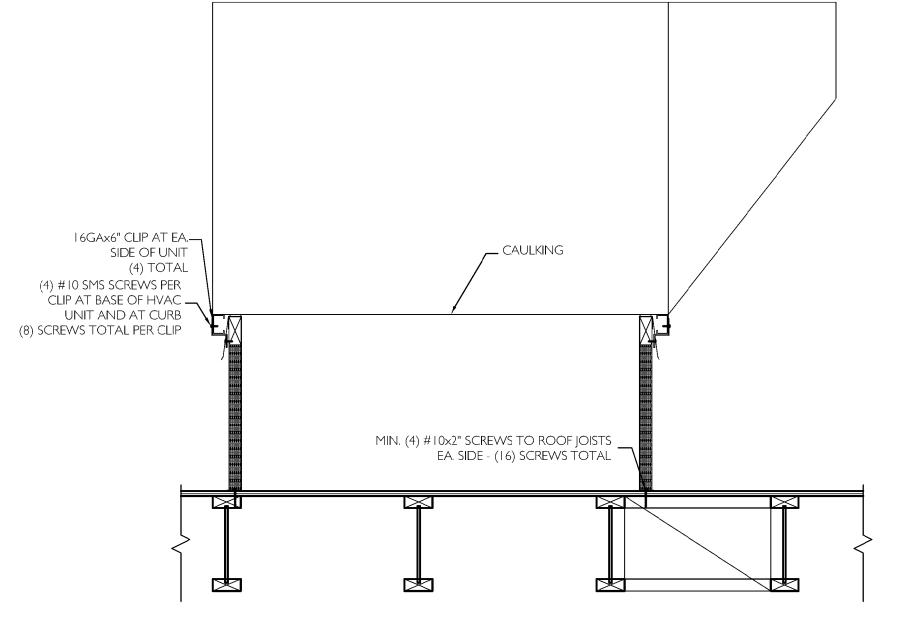
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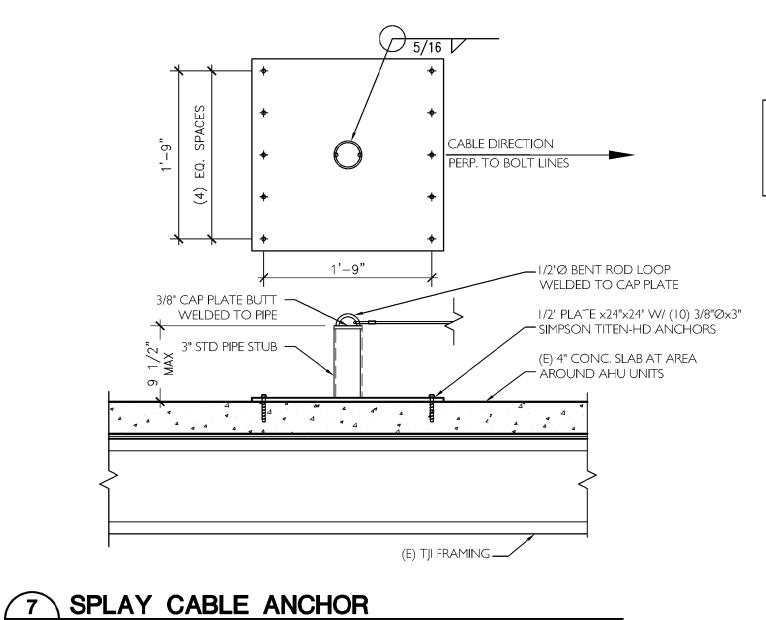


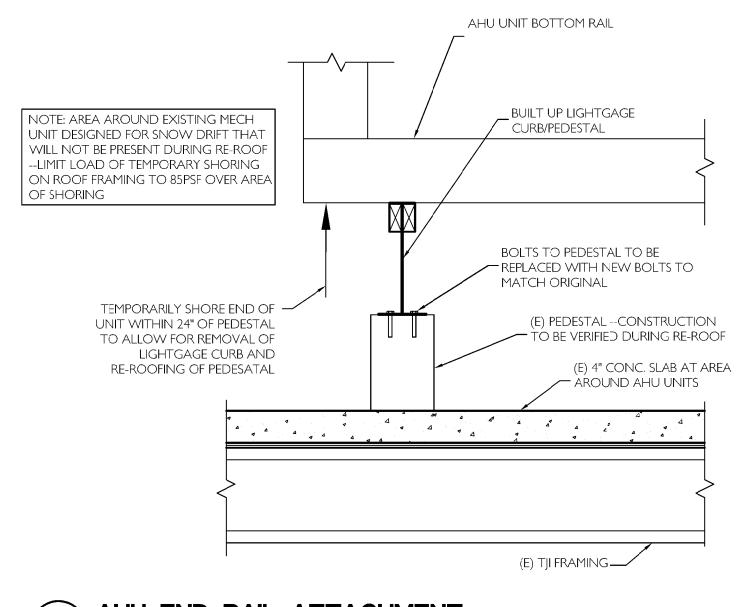






2 UPBLAST FAN ATTTACHMENT 1" = 1'-0"







5 FAN UNIT ATTACHMENT S1.2 1" = 1'-0"

6 RTU ATTACHMENT
1" = 1'-0"

SCHOOL 5477 NW SKYCREST PKWY PORTLAND, OR 97229 JACOB WISMER ELEM.

BSD

EXPIRES: 6/20/21

- 4 w 4

ENGINEERIN

PLANNIN

5895 SW 72ND AVE SUITE 20

ORTLAND, OREGON 9722

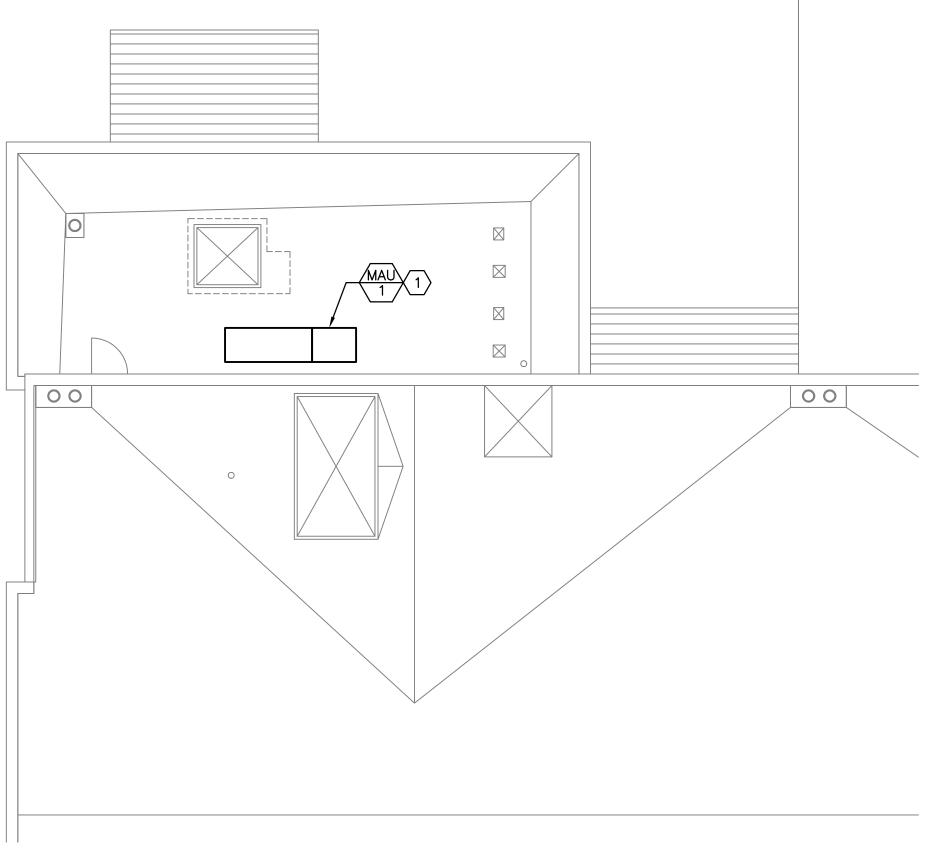
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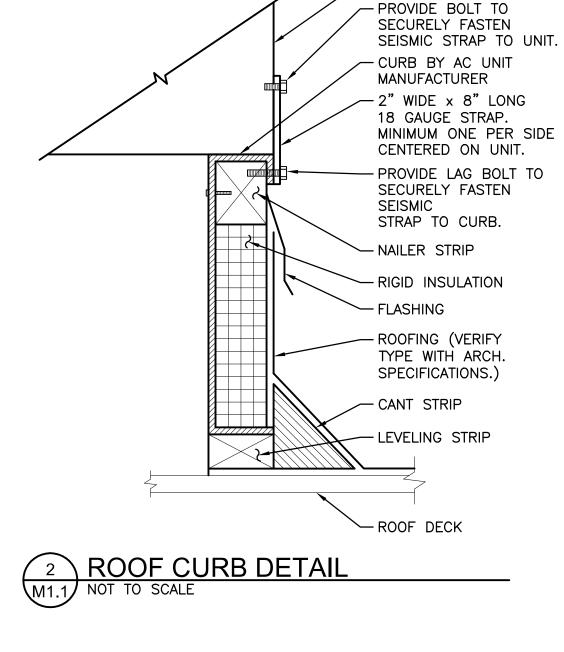
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DETAILS **S1.2**

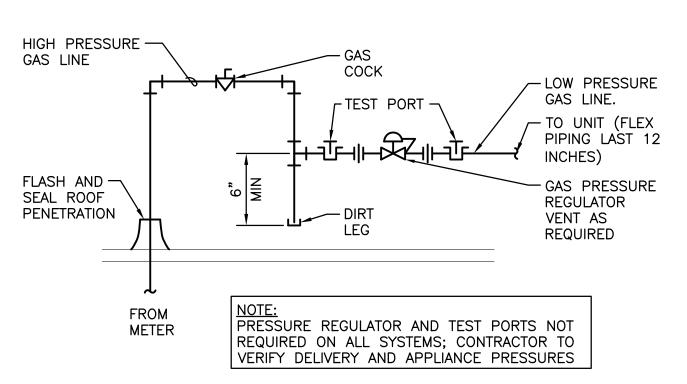
JOB NO. 20Y082.02 2020 CIDA, P.C./CIDA ALL RIGHTS RESERVE



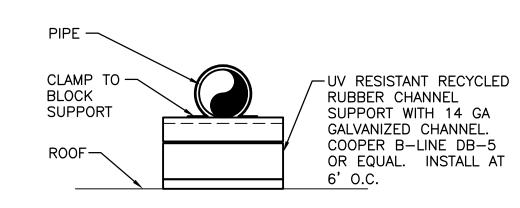




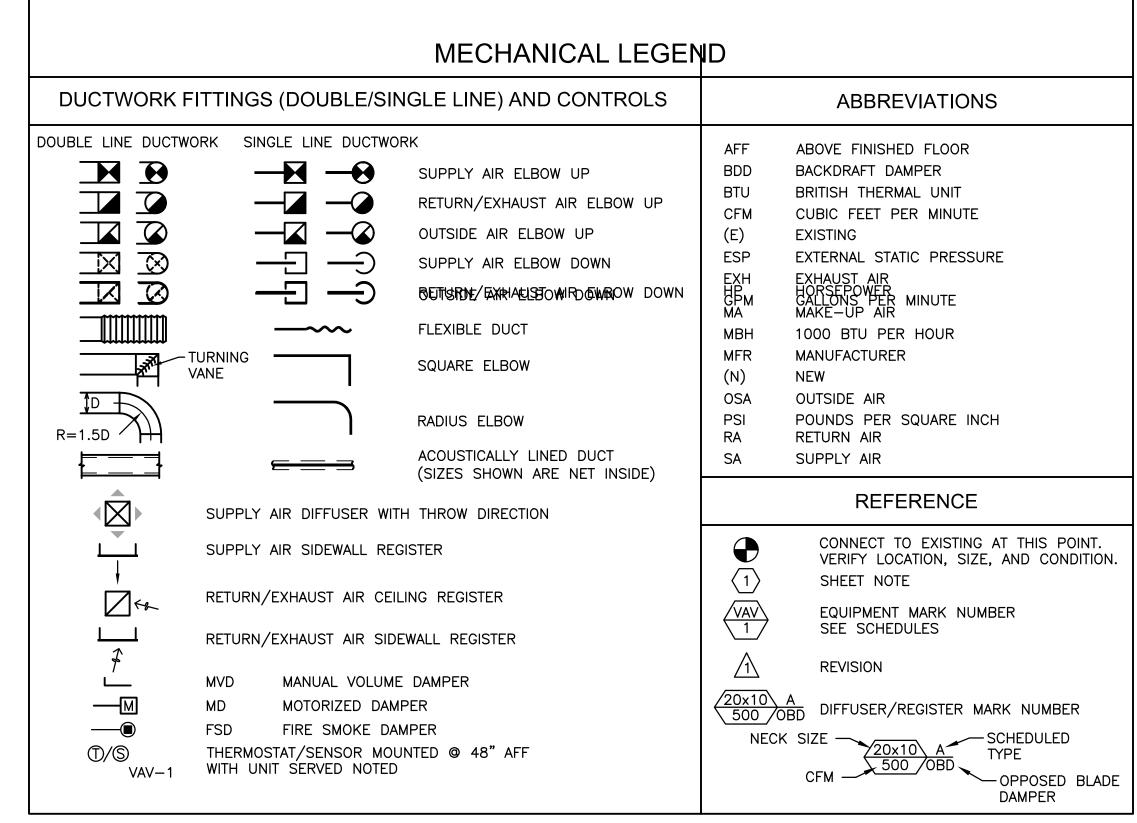
— AC UNIT







4 PIPE SUPPORT DETAIL
NOT TO SCALE



NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS CONTAINED IN THIS LEGEND WILL APPEAR ON DRAWINGS.

GENERAL NOTES

- A. CONDITIONS SHOWN ON THE PLANS RELATIVE TO THE WORK BEING PERFORMED ARE BASED ON THE BEST INFORMATION AVAILABLE BUT ARE SUBJECT TO VERIFICATION. VERIFY LOCATIONS AND ELEVATIONS OF DUCTS, PIPING AND OTHER COMPONENTS TO BE CROSSED OR CONNECTED PRIOR TO BEGINNING NEW INSTALLATIONS. CORRECT DEFICIENCIES CAUSED BY FAILURE TO PERFORM SUCH VERIFICATIONS AT NO COST TO OWNER, IMMEDIATELY NOTIFY OWNER OF CONDITIONS IN CONFLICT WITH DETAILS/PLANS.
- B. MODIFICATIONS TO THE CONTROL SYSTEM MUST BE PERFORMED BY A BEAVERTON SCHOOL DISTRICT APPROVED CONTROLS CONTRACTOR.
- C. TESTING AND BALANCING SHALL BE COMPLETED BY AN INDEPENDENT AGENCY.
- D. PRETEST AIRFLOWS PRIOR TO DEMOLITION. SET AIRFLOWS TO PRE-DEMOLITION SETTINGS AFTER INSTALLATION.
- E. EQUIPMENT START—UP SHALL BE PERFORMED BY A FACTORY AUTHORIZED CONTRACTOR. FACTORY START—UP DOCUMENTS SHALL BE DELIVERED TO THE SCHOOL DISTRICT AFTER COMPLETION.

NOTES THIS SHEET

DISCONNECT GAS PIPING, CONTROL WIRING AND DUCTWORK AND REMOVE MAKEUP AIR UNIT, GAS VENT, ROOF CURB AND ALL RELATED COMPONENTS IN PREPARATION FOR NEW INSTALLATION. PROVIDE NEW ROOF CURB AND MOUNT NEW UNIT ON CURB. MODIFY, EXTEND AND CONNECT EXISTING DUCTWORK, CONTROL WIRING AND GAS PIPING TO NEW UNIT. MAINTAIN ALL CODE REQUIRED AND MANUFACTURER RECOMMENDED CLEARANCES. SEE DETAILS 2/M1.1, 3/M1.1 AND 4/M1.1.

| MAKEUP AIR UNIT SCHEDULE | | | | | | | |
|--------------------------|--------------------|--|--|--|--|--|--|
| MARK NUMBER | MAU\ 1 | | | | | | |
| SYSTEM | KITCHEN | | | | | | |
| TYPE | PWR VNTD. | | | | | | |
| AIRFLOW (CFM) | 1300 | | | | | | |
| OSA (CFM) | 1300 | | | | | | |
| T.S.P. ("H20) | 2 | | | | | | |
| FAN MOTOR (HP) | 1.5 | | | | | | |
| HEATING | | | | | | | |
| TYPE | INDIRECT | | | | | | |
| FUEL | NAT GAS | | | | | | |
| INPUT MBH | 150 | | | | | | |
| OUTPUT MBH | 120 | | | | | | |
| MIN. EFF. (AFUE %) | 80 | | | | | | |
| DESIGN WEIGHT (LBS) | 890 | | | | | | |
| INTERLOCK WITH | EF-7 | | | | | | |
| ELECTRICAL (V-PH) | 208-3 | | | | | | |
| NOTES | 1. | | | | | | |
| MANUFACTURER/ MODEL | REZNOR/ RPB-150 | | | | | | |

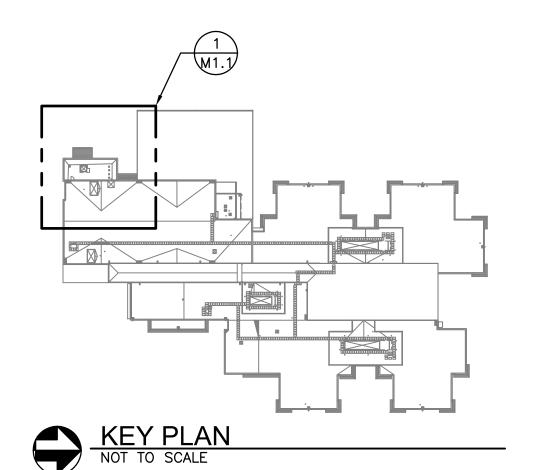
DRAWING LIST

M1.1 MECHANICAL LEGEND, DETAILS, SCHEDULE AND PARTIAL ROOF PLAN

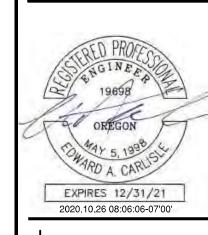
MOTORIZED INLET DAMPER AND

14" HIGH SEISMIC RATED ROOF CURB.

M2.1 MECHANICAL SPECIFICATIONS M2.2 MECHANICAL SPECIFICATIONS



ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.



ET 09.16.2020 CONST. DOCS. 10/07/2020 SET RELEASE 10/22/2020

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PORTLAND, OR 97

229

ROOF PLAN -MECHANICAL

BSD

1.1 WORK INCLUDED:

- Provide all equipment, material and labor to install complete and operable mechanical systems. B. Drawings are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the space provided. Do not scale drawings for roughing—in measurements, nor use as shop drawings. Make field measurements and prepare shop drawings as required. Coordinate work with shop drawings of other trades. Provide any bends, offsets and elbows where required by local conditions from measurements taken at the Building (subject to approval) and without additional cost to
- the Project. The right is reserved to make any reasonable changes in outlet location prior to roughing—in. C. Obtain and pay for all permits, licenses, fees and taxes applicable to this project as required by law and governing authorities.
- 1.2 QUALITY ASSURANCE A. Regulatory Requirements:
- 1. All work, installations, materials and equipment shall comply with the provision of the following codes, standards and regulations, except where more stringent requirements are shown or specified:
- a. Current Edition of State of Oregon Plumbing Specialty Code (OPSC).
- b. Current Edition of State of Oregon International Mechanical Code (IMC) c. Current Edition of State of Oregon Structural Specialty Code (IBC).
- d. National Electrical Code (NEC).
- National Fire Protection Agency (NFPA). All City, County, State and Federal applicable laws and regulations.
- Regulations and standards set forth by ASME, ASHRAE, SMACNA, AGA and ARI. Where two or more codes or regulations apply, the more stringent of the two shall be exercised.
- Electrical products shall bear the U.L. label.
- B. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents. Workmanship: All materials shall be installed in a neat and workmanlike manner.

1.3 SUBMITTALS

A. Shop Drawings and Product Data: Submit all equipment drawings and product data for Work of Division 23 in accordance with Beaverton School District requirements and together in a single group, with each item field under a tab, and labeled with its respective specification section number, article and paragraph, and mark if applicable.

1.4 OPERATIONS AND MAINTENANCE DATA:

- A. Prior to final inspection, provide one (1) electronic copy of manufacturer's maintenance manuals for each piece of equipment or items requiring service. Manual shall include manufacturer's operation and maintenance instruction manuals and parts list for each piece of equipment or item requiring servicing. Include in the manual manufacturer's service data, wiring diagrams and parts lists for all major items of equipment, valve charts, balancing data, final control diagrams showing final set points and any additional
- equipment added by contract modification. Comply with provisions of Section 01700 where applicable.

 B. Prepare project cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of file
- Internally subdivide the file contents with section dividers, logically organized with electronic bookmarks. D. Provide one (1) final copy of manual in electronic pdf format through owner's eBuilder Closeout Process system after approval of
- 1.5 PROJECT RECORD (AS-INSTALLED) DRAWINGS:
- A. Keep Drawings clean, undamaged and up to date. B. Make Drawings available when requested by Architect for his review.
- 1.6 PROJECT CONDITIONS: A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site and include all
- factors which may affect the execution of this work. Include all related costs in the initial bid proposal. B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Make changes as directed by Owner.

A. Provide a written guaranty covering the work of this Division for a period of one calendar year from the date of acceptance of the entire project as required by the General Provisions.

2 PRODUCTS

2.1 QUALITY ASSURANCE

A. Provide products which are compatible with other portions of the work and provide products with the proper and correct power and fuel burner characteristics and similar adaptations for the project.

2.2 PIPE SLEEVES:

- A. Interior Wall Sleeves: 12 gage galvanized steel, flush with wall on both sides. B. Interior Floor Sleeves: 12 gage galvanized steel and extend 2—inches above finished floor
- C. Exterior Wall Sleeves: Cast iron, flush with wall on both sides.
- D. On Grade Floor Sleeves: Same as exterior wall sleeves.

2.3 FLOOR, WALL AND CEILING ESCUTCHEONS

A. Furnish stamped split type plates as follows: Floor, wall and ceiling: Cast brass, chromium plated.

2.4 STARTERS AND SWITCHES

A. General: Provide each motor with starter or switch as approved and recommended by manufacturer of motor or equipment of B. Magnetic Starters: Provide for 1/2 horsepower and larger motors, and for smaller motors on automatic control or with interlock

switch. Include pilot lights, reset, trip-free relay on each phase, Hand-Off-Auto switch in cover, and devices for coordination with

Provide automatic ambient temperature compensation for starter heaters. C. Manual Switches: Provide on motors 1/3 horsepower and smaller except where automatic control or interlock is indicated. Include

control system (including transformer for control circuit, verify holding coil voltage requirements with control system design).

pilot light. Provide overload protection where not protected by panelboard circuit breaker or fused disconnect switch. D. Manufacturers: General Electric. ITE. Allen Bradley, Arrow—Hart, Cutler—Hammer, Sauare D or accepted substitute.

2.5 IDENTIFICATION MARKERS

- A. Pipe Markers: Adhesive pipe markers of width, letter size and background color conforming to ANSI A13.1 and UPC 601.2.1 and 602.2.2. 2. Acceptable Manufacturers: Brady B350 with banding tape or similar Seaton, Zeston, Porter, Tnemel.
- B. Nameplates: 1. Engraved nameplates, 1/16 inches thick, laminated 3-ply plastic, center ply white, outer ply black, letters formed by exposing
- 2. Size: 3 inches by 5 inches nameplates with 1/4 inch high letters. 3. Acceptable Manufacturers: Lamicoid.

3 EXECUTION

- 3.1 MECHANICAL EQUIPMENT WIRING
- A. Provide all mechanical equipment motors, automatic temperature, limit, float and similar control devices required, with wiring
- complete from power source indicated on Electrical Drawings. B. Equipment and systems shown on the Drawings and/or specified, are based upon requirements of specific manufacturers which are intended as somewhat typical of several makes which may be approved. Provide all field wiring and/or devices necessary for a
- complete and operable system including controls for the actual selected equipment/system. C. Provide all starters for mechanical motors. Review Electrical Specifications and Drawings to determine which mechanical motor starters will be provided under the Electrical Specification Sections and provide all others.

3.2 MECHANICAL SYSTEM IDENTIFICATION

- A. Piping System: Indicate each pipe system by its generic name (abbreviated) as shown; except vent and drainage piping. Comply with ANSI A13.1 for marker locations, letter sizes, and colors. Include arrows to show direction of flow and "Electric Traced" signs to identify heat cable wrapped piping.
- B. Each new piece of equipment shall bear a permanently attached identification plate, listing the manufacturer's name, capacities, sizes and characteristics. In addition to the manufacturer's identification plate, provide nameplates of black phenolic resin laminate and identify new equipment by name and number 1/2" high letters.

3.3 CLEANING

A. General: Clean mechanical and plumbing equipment, fixtures, piping and ductwork of stampings and markings (except those required by codes), iron cuttings, and other refuse.

3.4 LAYOUT AND COORDINATION

- A. Site Examination: Before starting work, carefully examine site and all contract Drawings so as to become thoroughly familiar with conditions governing work on this project. Verify all indicated elevations, building measurements, roughing—in dimensions and
- equipment locations before proceeding with any of the work. B. The existence of any wires, conduits, pipes, ducts or other service facilities are shown in a general way only. It will be the duty of the Contractor to visit the site and make exact determination of the existence of any such facilities prior to submitting a bid. It is understood that the Contractor will be responsible for making the exact determination of the location and condition of these
- C. Sleeves, Insets, Cast-in-Place Work: provide sleeves, inserts, anchoring devices, cast-in-place work, etc. which must be set in concrete sequenced at the proper time for the project schedule.
- D. Discrepancies: Report immediately any error, conflict or discrepancy in Plans, Specifications and/or existing conditions.

3.5 MECHANICAL WORK CLOSEOUT

- A. Record Drawings: Submit record set of drawings and Submittals as previously specified in this Section. B. Closeout Equipment/Systems Operations: Operate each item of equipment and each system in a test run of appropriate duration with the Architect present, and with the Owner's operating personnel present, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters, excessively worn parts and similar expendable items of the work.
- C. Operation and Instruction: Provide eight (8) hours of on—site training to Owner's personnel on all mechanical systems and equipment. Training shall include maintenance, lubrication, troubleshooting and repair. Contractor shall provide necessary written manuals and training aides explaining operational diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety and similar features of the installed system.

SECTION 23 0600 - PIPE AND PIPE FITTINGS

1.1 WORK INCLUDED A. Provide all pipe, piping fittings and all related components required for complete piping system.

2.1 NATURAL GAS PIPING, ABOVE GRADE

- A. Steel Pipe: ASTM A53 or A120, schedule 40 black. Fittings: ANSI/ASME B16.3, malleable iron, or ASTM A234, forged steel welding type. Joints: Screwed for pipe two inches and under; ANSI/AWS D1.1, welded for pipe over two inches.
- 2.2 EQUIPMENT AND COOLING COIL DRAINS AND OVERFLOWS
- A. Copper Tubing: ASTM B88, Type L, hard drawn. Fittings: ANSI/ASTM B16.22, cast brass, or ANSI/ASME B16.29 solder wrought copper. Joints: ASTM B32, solder, Grade 95TA or ANSI/AWS A5.8, BCuP silver braze.

3 EXECUTION

- Ream pipe and tube ends. Remove burrs or bevel plain end ferrous pipe. B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- 3.2 INSTALLATION
- A. Provide non-conducting dielectric connections wherever jointing dissimilar metals. Route piping in orderly manner, maintain gradient and conceal all piping unless otherwise indicated.
- Provide clearance for installation of insulation and access to valves and fittings. Slope water piping and arrange to drain at low points and provide drain valve.
- Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients. Pitch vent piping at 1/4 inch per 10 feet minimum.
- G. Escutcheons: Install on all exposed pipes passing through wall or floors and on fixture stops and waste connections to

water gauge natural gas or as approved and certified by serving utility

A. Gas piping: Blow clear of debris with nitrogen or oil free air. Clean all low point strainers and pockets.

3.4 TEST

A. Natural gas piping: One half hour minimum air at 60 psig for 2 psig gas, and 15 minutes at 10 psig for 7 inch

SECTION 23 0650 - VALVES

- 1 GENERAL
- 1.1 WORK INCLUDED
- A. The requirements of this Section apply to the valving for the systems specified elsewhere in Division 23.
- 2 PRODUCTS
- 2.1 BALL VALVES
- A. Natural Gas: 1. 5 psig or less, 2 inches and smaller ball valves, Watts 6000UL. Threaded, 250 psi, 2 piece, bronze.

2. 5 psig or less, 2-1/2 inches and larger, 125 psi, all bronze or cast iron body/bronze trim. AGA approved.

2.2 GAS PRESSURE REGULATORS

- A. Size and capacity as required for connected load. Style and model as approved by gas supplier.
- B. Manufacturers: Maxitrol, Rockwell, Fisher, Reliance, or accepted substitute.
- 3 EXECUTION
- A. Provide clearance for installation of insulation and access to valves and fittings.
- B. Provide access where valves and fittings are not exposed. Coordinate size and location of access door with Section
- C. Install valves with stems upright or horizontal, not inverted.

SECTION 230900 - SUPPORTS AND ANCHORS

1 GENERAL

- 1.1 WORK INCLUDED
- A. Provide pipe and equipment hanger, support, anchors and all related items for complete systems.
- A. Supports for sprinkler piping and standpipes: In conformance with NFPA 13 and 14.
- B. Provide pre-manufactured horizontal piping and ductwork hangers, clamps, hanger rod, shields, supports, etc. C. Seismic Requirements: Provide seismic restraints in accord with the following Seismic Hazard Levels (SHL) as recommended in the "Seismic Restraint Manual: Guidelines for Mechanical Systems," latest edition, SMACNA. 1. SHL "B": All seismic zone "3" (UBC Chapter 16) and all occupancy categories "1" and "II" (UBC Chapter 16) in seismic zone "2B".
- 2. SHL "C": All occupancy categories "III" and "IV" in seismic zone "2B".

protection shields (MSS type 39) at each hanger.

3 EXECUTION

- 3.1 INSTALLATION OF HANGERS AND SUPPORTS
- A. General: Proceed with the installation of hangers, supports and anchors only after the required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including (but not limited to) the proper placement of inserts, anchors and other building structural attachments.
 - or by other recognized industry methods. Support fire sprinkler piping independently of other piping and in accordance with NFPA Pamphlet 13.
- Install hangers and supports to provide the indicated pipe slopes, and so that maximum pipe deflections allowed by ANSI B31 are not exceeded. Comply with the following installation requirements:

1. Prevent electrolysis in the support of copper tubing by the use of hangers and supports which are copper plated,

- a. Insulated Pipe Supports: Insulated pipe supports shall be supplied and installed on all insulated pipe and b. Load Rating: All insulated pipe supports shall be load rated by the manufacturer based upon testing and
- analysis in conformance with ASME B31.1, MSS SP-58, MSS SP-69 and MSS SP-89. c. Support Type: Manufacturer's recommendations, hanger style and load shall determine support type. d. Insulated Piping Supports: Where insulated piping with continuous vapor barrier or where exposed to view in

finished areas is specified, install hard maple wood insulation shields (Elcen Fig. 216) or steel pipe covering

FLEXIBLE DUCT CONNECTION (FDC)

- C. Neoprene loaded vinyl material or neoprene loaded canvas with vapor barrier. Flame spread rating of 25 or less and a smoke spread rating of 50 or less, per ASTM E84. Not affected by temperatures as low as minus 10F or as high as
- D. Flexible Connections: Ventglass manufactured by Ventfabrics, Amatex or accepted substitute.

SECTION 23 0700 - MECHANICAL INSULATION

1 GENERAL

A. Provide piping, ductwork and equipment insulation including jacketing, adhesive and all related accessories for complete insulated system.

2 PRODUCTS

- 2.1 ACCEPTABLE MANUFACTURERS
- A. Insulating Manufacturers: JohnsManville, Knauf, Armstrong, Owens—Corning, Pabco, IMCOA or Certain Teed.
- B. Adhesive Manufacturers: Benjamin Foster, 3M, Borden, Kingco or Armstrong.
- C. JohnsManville products are listed unless indicated otherwise.

2.2 PIPING INSULATION, JACKETING AND ACCESSORIES

- A. Insulation: 1. Pipe system to minus 10 to 55 deg. F: Flexible, preformed, pre—slit, self—sealing elastomeric, thermal conductivity of 0.27 Btu/hr. sq. ft./in. at 75 deg. F and vapor transmission rating of 0.2 perms/inch. Apply in
- thickness necessary to prevent condensation on the surface. JohnsManville "AEROTUBEII". Piping Systems 55 to 600 deg. F: Glass fiber preformed pipe insulation with a minimum K-value of 0.23 at 75
- deg. F, a minimum density of 3.5 pounds per cubic foot. JohnsManville "Micro-Lok." B. Jackets:
- 1. Interior Applications: a. Vapor Barrier Jackets: Kraft reinforced foil or vinyl vapor barrier with self—sealing adhesive joints or
- pressure sensitive seal. JohnsManville "Micro-Lok." b. PVC Jackets: One piece, premolded type. JohnsManville "Zeston 1200."

Aluminum Jackets: ASTM B209; 0.016 inch thick; smooth finish. JohnsManville weatherproof "Micro-Lok."

2. Exterior Applications:

- A. Insulation: 2 inch flexible glass fiber; ANSI/ASTM C612; commercial grade; 'k' value of 0.3 at 75 degrees F JohnsManville "Microlite".
- B. Jacketing:
- Indoor Jacket: Foil-Skrim-Kraft.
- Outdoor Jacket: Coated glass fiber sheet, 30 lb/sq yd. Lagging Adhesive: Fire resistive to ASTM E84, NFPA 255, and UL 723.
- Impale Anchors: Galvanized steel, 12 gauge, self—adhesive pad. Joint Tape: Glass fiber cloth, open mesh.
- 6. Tie Wire: Annealed steel, 16 gauge (1.5 mm). C. Fire Wrap: Listed and labeled duct wrap compliant with ASTM E 2336 and installed per manufacturer's

3 EXECUTION

approved.

- A. Install materials after piping, ductwork and equipment has been tested and approved
- 3.2 PIPING INSULATION INSTALLATION

Domestic Hot/Tempered

E. Duct Insulation Schedule

Supply and Return Duct

- A. Install materials in accordance with manufacturer's instructions.
- B. Continue insulation with vapor barrier through penetrations. In exposed piping, locate insulation and cover seams in least visible locations.
- D. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or other heavy density insulating material suitable for the planned

recommendations. Thickness as required to maintain required fire rating. Thermal Ceramics FireMaster Duct Wrap or

temperature range. Factory fabricated inserts may be used.

E. Piping Insulation Schedule: PIPE SIZE INSULATION THICKNESS (IN.) 1/2 Domestic Cold

and Recirculating/Heating 2" and Smaller 1-1/2F. Handicapped Lavatory Insulation Kit: ASTM: P-traps, hot water and cold water insulating guards. Molded closed cell vinyl with nylon fasteners, paintable. Thermal conductivity: K=1.17 (BTU/in)/(hr/sq.ft./deg. F) at 75F mean temperature. Provide accessories as required for complete installation. Color white. Truebro Inc. Model 102. McGuire, ProWrap, Brocar

Trap Wrap or accepted substitute.

- 3.3 DUCTWORK INSULATION INSTALLATION A. Install materials in accordance with manufacturer's instructions.
- B. Exterior Insulation Application:

All 1-1/2" Thick Flexible Fiberglass Insulation

Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point

insulation around access doors and damper operators to allow operation without disturbing wrapping.

- C. Continue insulation with vapor barrier through penetrations.
- D. Internally Lined Ductwork: Where internally lined ductwork is indicated on the Drawings or specified, no exterior insulation is required. Carefully lap the ends of the exterior insulation a minimum of 6 inches past the interior insulation unless otherwise shown. Seal the end of vapor barrier jacket to the duct with mastic where the vapor barrier is required.

19.698 OREGON EXPIRES 12/31/21

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3 2 -ENGINEERING, INC 9615 S.W. Allen Blvd., Suite 10 Beaverton, Oregon 97005 Phone: (503) 726-3319 Office: (503) 292-6000 E-mail: rweng@rweng.com

Project No : 382.120.001

Contact: Kristin Trone



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MECHANICAL **SPECIFICATIONS**

JOB NO. 20Y082.02

ALL WORK ON THIS SHEET

IS AN ALTERNATE. SEE

ARCHITECTURAL FOR

BASE BID.

1.1 DESCRIPTION

A. The requirements of this section apply to the Heating, Cooling and Ventilating Equipment.

2 PRODUCTS

2.1 MAKE-UP AIR UNIT

- A. General: The unit shall be packaged supply unit.
- B. Supply Fan: The supply fan shall be of the belt driven, forward curved, double width, double inlet type mounted on rubber vibration isolators. The fan bearings shall be sealed type ball bearings and be pre-lubricated requiring no further lubrication or attention.
- C. Filters: The unit shall be provided with 2 inch 30% efficient fiberglass throwaway filters mounted in a v-bank and supported by internal slides
- D. Casing: All casing components shall be constructed of 18 gauge galvanized steel. Access panels shall be provided on both sides of the unit. The access panels on the control center side shall be provided with door handles and lift and turn type latches. Unit finish is to be enamel paint. The unit interior shall be insulated with 1 inch coated fiberglass on heating and cooling sections and the supply fan section.
- E. Indirect Fired Gas Heat: Heating section provided shall be indirect fired gas with A.G.A. rated and UL listed controls. The unit shall be listed by Underwriter's Laboratories. Components shall include, but not be limited to, stainless steel burner, heat exchanger and drip pan, Maxitrol Services 14 electronic modulating discharge temperature control, as well as indoor thermostat input systems, manual reset high limit switch, main gas and pilot gas solenoid valves, leak test valve, main and pilot shut off valves, outside air controller, electronic ignition system with flame rod and flame safety relay. Unit shall be capable of 4 to 1 turndown ratio. All controls shall be accessible through easily removable side panel, with lift and turn latches.
- F. Motorized Supply Air Inlet Damper: Motorized inlet damper shall be parallel blade type. Blades to be minimum 16 gauge galvanized metal with polyurethane edge seals. Linkage shall be fully adjustable and all bearings shall be self lubricating bronze. The damper motor shall be electric, two-position spring return type. Motor to open upon signal from supply fan mag starter. Upon interruption of power, damper motor shall automatically close via spring return action. The damper motor shall be capable of exerting 50 lb./in maximum operating torque. H. Manufacturers: Gaylord, Reznor, Weatherrite or accepted substitute.
- G. Manufacturers: Reznor, Sterling, Greenheck or accepted substitute.

3 EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Install in accordance with manufacturer's instructions and applicable code.
- B. Lubricate all moving and rotating parts in accordance with manufacturer's recommendation prior to start—up.
- C. All roof mounted mechanical equipment shall be supported and seismically anchored on leveled, flashed and counterflashed curbs anchored to resist seismic forces and suitable for the roof construction. Minimum curb height shall be 12 inches above the roof unless otherwise noted.
- D. Make all electrical and duct penetrations for each equipment within the curb unless shown otherwise on the Drawings. Piping and electrical conduit routed above and across the roof shall be supported on flashed and counterflashed curbs with pipe guides anchored to the curbs in "pitch pockets." Submit shop drawings on other arrangements for approval.
- E. Secure fans with lag bolts on each side. Seal with mastic mount on level curb.

SECTION 23 8900 - AIR DISTRIBUTION

1 GENERAL

1.1 WORK INCLUDED

- A. Provide air distribution equipment as specified herein and shown.
- B. Equipment capacity and size shall be as shown.

2 PRODUCTS

2.1 DUCTWORK

- A. Galvanized steel sheet metal: Metal gauges, joints and reinforcement in accordance with mechanical Code, ASHRAE and SMACNA tables and recommendations.
- B. Spiral Seam Duct: Round and flat oval spiral seam duct shall be manufacture of galvanized steel sheet metal with spiral lock seam. Matching fittings shall be manufactured of galvanized steel with spot welded seams. United Sheet Metal, Semco, Rolock, Metco or accepted substitute.

2.3 DUCT SEALING

- A. Aluminum bonded to aluminized mylar reinforced with fiberalass mesh backing an elastomeric pressure sensitive adhesive specifically formulated for adhesion to galvanized metal. Hardcast "AFG-1402" with "HD-181" degreaser or accepted substitute.
- B. Two-part sealing system with woven fiber, mineral gypsum impregnated tape and non-flammable adhesive. Hardcast "DT-5300 tape and "RTA-50" adhesive or United "Uni-Cast" system or accepted substitute.
- C. Duct Joints for Sheet Metal Ducts: "Ductmate System" by Ductmate Industries, Inc., for making transverse rectangular and round duct joints. Ward Duct Connectors, Inc., Lockformer TDC or accepted substitutes.

2.4 ACCESSORIES

A. Manual Volume Dampers: Construct of material two gauges heavier than duct in which installed; single plate up to 12 inches wide; multiple over 12 inches wide. Hem both edges 1/2 inch and flange sides 1/2 inch. Provide regulator extension through sheet rock ceiling with concealed adjustable cover. Use Young, DuroDyne or accepted substitue damper accessories.

3 EXECUTION

3.1 INSTALLATION

- A. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- B. Provide manual volume dampers at points on low pressure supply, return, and exhaust systems where branches are taken from larger ducts for air balancing. Use splitter dampers only where shown. Location of all volume dampers are not necessarily shown on the drawings.
- C. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.
- D. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where shown.
- E. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 12 inches x 12 inches size for hand access, 18 inches x 24 inches size for shoulder access and as indicated. Install necessary access openings and covers for cleaning, wiring or servicing motors, fire dampers, filters, fans, both entering and leaving air sides of coils, and to other equipment located within or blocked by ductwork.
- F. Support: Install ductwork with 1 inch wide 16 gauge cradle hangers not more than 8 feet c/c or as required by code. Support terminal units independent of adjacent ductwork. Attach to available building construction as per good practices for materials involved. Exposed ductwork shall be supported by closed cradle strap suspended from 3/8 inch threaded rod.
- G. Connection Fittings: Round connections to rectangular ducts manufactured sheet metal "spin—in" fittings. Genflex, Wiremold, Thermaflex, Glassflex, Clevepak, Manville, or accepted substitute.
- H. Elbows and Fittings: Construct elbows with throat radius equal to duct width in plane or turn or make them square and provide double wall, air foil turning vanes.
- I. Sleeves: Provide galvanized sheet metal plaster ring around ductwork penetrating exposed finished walls. Sleeve and flash all duct penetrations through exterior walls in an air tight and weatherproof manner.
- J. Plenums: Construct sheet metal plenums and partitions of not lighter than 18 gauge galvanized steel and reinforce with 1-1/2 inch by 1/2 inch by 1/8 inch angles as required to prevent drumming or breathing.
- K. Acoustical Duct Lining: Acoustically line all outside air ducts and plenums, all fan unit intake and discharge plenums, all ductwork indicated as lined on the Drawings.
- L. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.2 ADJUSTING AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

SECTION 23 8000 - TESTING, ADJUSTING, AND BALANCING

1 GENERAL

1.1 WORK INCLUDED

- A. After completion of the work of installation, test and regulate all components of the ventilating systems to verify air flow rates shown.
- B. Measurement of final operating condition of mechanical systems.
- C. Provide written report documenting testing, adjusting and balancing results.

2 PRODUCTS

2.1 EQUIPMENT

A. Provide all necessary personnel, equipment and services.

3 EXECUTION

3.1 EXAMINATION

- A. Before commencing work, verify that systems are complete and operable. Ensure the following: Equipment is operable and in a safe and normal condition. Temperature control systems are installed complete and operable. Proper thermal overload protection is in place for electrical equipment. Final filters are clean and in place. If required, install temporary media in addition to final filters. Duct systems are clean of debris. Correct fan rotation. Fire and volume dampers are in place and open. Coil fins have been cleaned and combed. Access doors are closed and duct end caps are in place. Air outlets are installed and connected. Duct system leakage has been
- B. Report any defects or deficiencies noted during performance of services to Architect.
- C. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect to facilitate spot checks during testing.

3.3 INSTALLATION TOLERANCES

- A. Adjust air handling systems to plus or minus 10 percent for supply, return and exhaust systems
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

3.4 ADJUSTING

- A. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.5 AIR SYSTEM PROCEDURE

- A. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of
- Measure air quantities at air inlets and outlets.
- Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and
- D. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- E. Measure static air pressure conditions on air supply units, including filter and coil pressure drops,
- and total pressure across the fan. F. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design
- conditions. G. Measure temperature conditions across outside air, return air, and exhaust dampers to check
- H. Where modulating dampers are provided, take measurements and balance at extreme conditions.
- Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure near the building entries.

3.6 VERIFICATION OF CONTRACTOR'S PERFORMANCE

- A. Balancing data may be spot checked with instruments similar to that used by the balancing firm.
- B. If, in the judgment of the Architect, the discrepancies warrant additional adjustment readjust and rebalance the systems at no ad

SECTION 23 9330 - CONTROLS

1 GENERAL

1.1 SYSTEM DESCRIPTION

- A. Provide a system of low voltage electrical controls that is compatible with and can fully integrate with existing direct digital control building management system. Work must be performed by a Beaverton School District approved controls contractor.
- B. Wiring: Shall be as required for a complete operating control system, per state and National Electric Code. Provide necessary relays, transformers, fusing, switches and pilot lights. Interlocks and control power from nearest panel.

2 PRODUCTS

2.1 ROOM THERMOSTATS AND SENSORS

A. Match existing controls.

2.2 SMOKE DETECTORS

A. Dual chamber ionization type with duct sampling tubes. UL approved with adjustable sensitivity. Arrange to stop associated fan on presence of smoke. Provide in return duct upstream of outside air connection and filters for all fan systems above 2000 CFM.

2.3 TRANSFORMERS

A. Transformers selected and sized for appropriate VA capacity and installed and fused according to applicable codes. Provide wiring to nearest suitable power source as required.

3 EXECUTION

3.1 SEQUENCE OF OPERATION

A. Makeup Air Units:

- 1. Operate during occupied hours set by owner's schedule.
- 2. Modulate heating to maintain set point. Coordinate initial setpoints with BSD staff.
- 3. Ventilation: Open outside air dampers and provide 100% ventilation air whenever Kitchen Hood Exhaust Fan EF-7 operates.
- 4. Night set back and morning warm up. Operate heating as required to reach set point.
- 5. Alarms: At a minimum provide alarms for high space temperature, low space temperature, and all unit generated alarms.
- 6. Integrate smoke detectors with existing fire alarm system.

19.698 OREGON EXPIRES 12/31/21

3 2 -

ENGINEERING, INC 9615 S.W. Allen Blvd., Suite 10 Beaverton, Oregon 97005 Phone: (503) 726-3319 Office: (503) 292-6000 E-mail: rweng@rweng.con Project No.: 382.120.001 Contact: Kristin Trone



15895 SW 72ND AVE SUITE 200 PORTLAND, OREGON 97224 TEL: 503.226.1285 FAX: 503.226.1670 WWW.CIDAINC.COM

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MECHANICAL **SPECIFICATIONS** M2.2

JOB NO. 20Y082.02

ALL WORK ON THIS SHEET IS AN ALTERNATE. SEE ARCHITECTURAL FOR BASE BID.

BSD MONTCLAIR ELEMENTARY SCHOOL: 2021 RE-ROOF

CITY OF BEAVERTON, OR (AHJ)

BEAVERTON SCHOOL DISTRICT

OWNER

16550 SW MERLO ROAD BEAVERTON, OR 97003 (T): (503) 356-4318 CONTACT: MEGAN FINCH

TO BE DETERMINED

CONTRACTOR

CCB #:----

CIDA, INC.

ARCHITECT/ STRUCTURAL ENGINEER

15895 SW 72ND AVE, SUITE 200 PORTLAND, OREGON 97224 (T): (503) 226-1285 (F): (503) 226-1670 CONTACT: DUSTIN JOHNSON

RDH BUILDING SCIENCE

ROOFING CONSULTANT

5331 S. MACADAM AVE, #314 PORTLAND, OREGON 97239 (T): (503) 867-8519 CONTACT: SCOTT MECALIS

R&W ENGINEERING MECHANICAL ENGINEER/COST CONSULTANT

9715 SW ALLEN BLVD, #117 BEAVERTON, OREGON 97005 (T): (503) 292-6000 CONTACT: ED CARLISLE





SITE INFORMATION

 TAX LOT:
 08900

 TAX MAP:
 IS124AB

 ZONE:
 R7

 SITE AREA:
 7.26 ACRES (316245.6 SF)

BUILDING CODE INFORMATION

DESIGN CODE: 2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) 2019 OREGON ZERO ENERGY READY COMMERCIAL CODE

OCCUPANCY: E (EDUCATION)

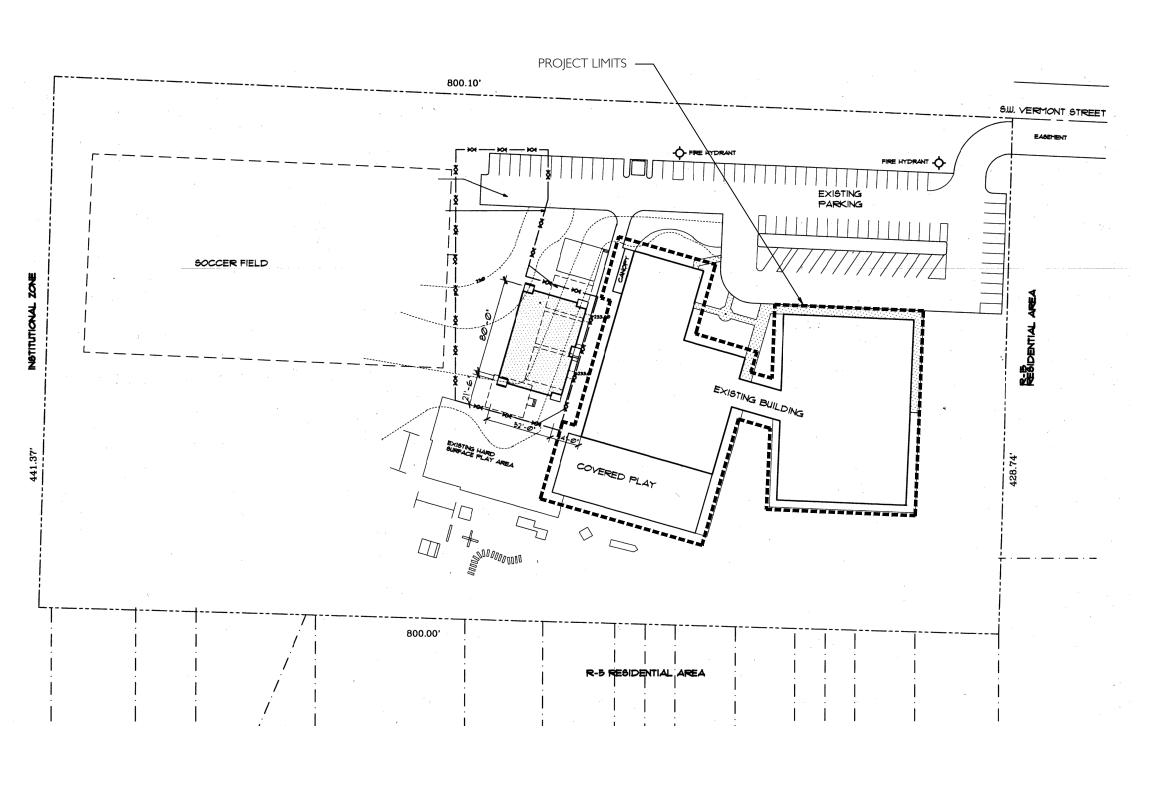
CONSTRUCTION TYPE: V-B (SPRINKLERED)

BUILDING AREA: 38,631 SF

PROJECT DESCRIPTION

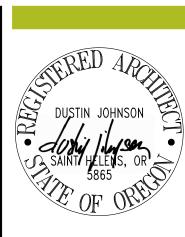
45,97 I SF ROOFING SYSTEM TEAR-OFF/NEW ROOFING SYSTEM. EXISTING ROOFING SYSTEM IS BUILT-UP ROOFING WITH PEA GRAVEL WEAR SURFACE. NEW ROOFING SYSTEM TO BE YEAR SINGLE-PLY EPDM ROOFING SYSTEM OVER NEW COVERBOARD AND RIGID INSULATION TO MATCH CURRENT ENERGY CODE REQUIREMENTS. SEE PLANS AND SPECIFICATIONS FOR FULL SCOPE

| | | | | | | | | | BID SET RELEASE 10.28.2020 | + | DD SFT 09 16 2020 | SD SET 08.05.2020 | RELEASES |
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| | + | \dashv | | | | | | + | • | +- | ┿ | +- | A3.1 DETAILS |
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2 SITE PLAN - FOR REFERENCE ONLY

CS1/ |"=80"



SD SET 08.05.2020
DD SET 09.16.2020
80% CONST. DOCS 10.07.2020
BID SET RELEASE 10.28.2020



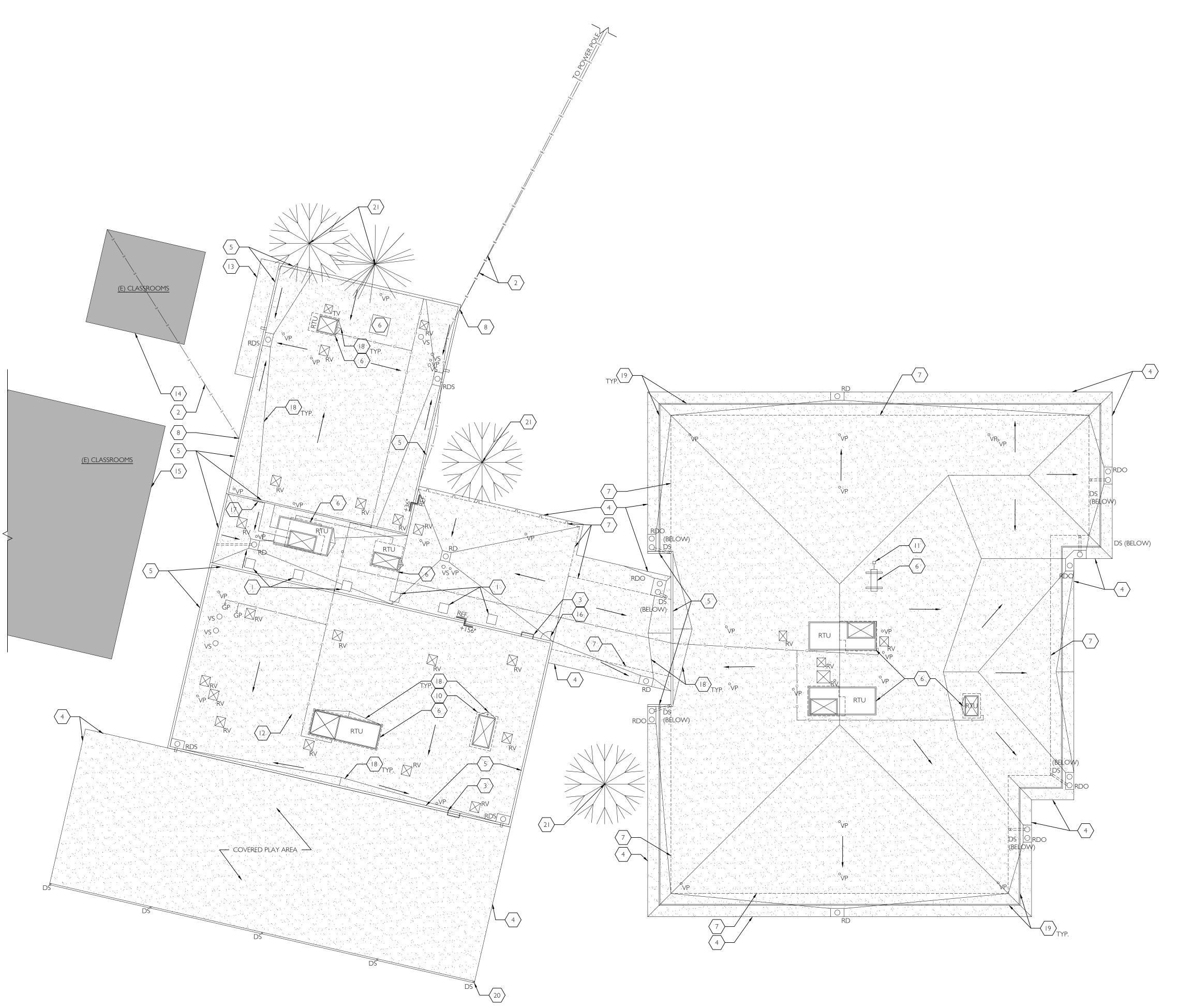
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LEM. SCHOOL

7250 SW VERMONT S

COVER SHEET

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1 EXISTING COND. ROOF PLAN AD0.1 |/|6" = |'-0"

EXST. CONDITIONS ROOF PLAN GENERAL NOTES

- CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS
 PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
 SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR
 ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 4. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS NON-CURBED CONDITION.

EXST. CONDITIONS ROOF PLAN LEGEND

| | - (E) CURB MOUNTED ROOF VENT | <u>ABBREVIATIONS</u> |
|--------------------|---|--|
| RV °VP | - (E) VENT PIPE PENETRATION | (E) -EXISTING (N) -NEW |
| °DS | () | TYPTYPICAL RTU -ROOFTOP UNIT |
| DS | - (E) DOWNSPOUT | VP -VENT PIPE DS -DOWNSPOUT |
| RD | - (E) ROOF DRAIN W/ N OVERFLOW | S -SCUPPER VS -VENT STACK |
| O O RDO | - (E) ROOF DRAIN WITH OVERFLOW | RV -ROOF VENT RD -ROOF DRAIN |
| RDS | - (E) ROOF DRAIN WITH SCUPPER OVERFLOW | RDO -ROOF DRAIN OVERFLO RDS -ROOF DRAIN SCUPPER GP -GAS PIPE |
| \circ_{VS} | - (E) VENT STACK | |
| °GP | - (E) GAS PIPE PENETRATION | |
| +32" VERTICAL ELEV | REFERENCE PLANE VERTICAL EDGE ELEVATION RELATIVE TO REFERENCE PLANE ATION CHANGE | |
| | - (E) WALL BELOW | |
| G G | - (E) NATURAL GAS LINE | |
| —— E ——— E —— | - (E) ELECTRICAL LINE | |
| | - AREA OUTSIDE SCOPE OF WORK | |
| | - (E) PEA GRAVEL BUILT-UP ROOF | |

EXST. CONDITIONS ROOF PLAN KEYNOTES

- DIRECTION OF DRAINAGE

| () (E) CURBED SKYLIGHT | $\langle \perp \rangle$ | (E) CURBED SKYLIGHT | |
|-------------------------|-------------------------|---------------------|--|
|-------------------------|-------------------------|---------------------|--|

 $\left\langle 2\right\rangle$ (E) OVERHEAD ELECTRICAL LINE

(E) FIXED LADDER

(E) DRIP EDGE

(E) PARAPET

(E) CURB MOUNTED MECHANICAL EQUIPMENT

LINE OF (E) EXTERIOR WALL BELOW, TYP.

PARAPET-MOUNTED GUY ANCHOR

9 NOT USED

(E) CURB WITH SHEET METAL COVER

(E) PITCH POCKET WITH SHEET METAL HOOD

(E) LOW-VOLTAGE LINE SERVICING ROOF TOP UNIT

(E) CANOPY BELOW

(E) PORTABLE CLASSROOMS

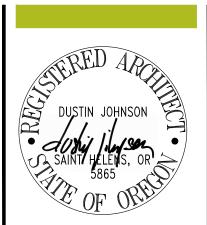
(E) MODULAR CLASSROOMS

(E) SIDEWALL ROOF ACCESS

(E) ABANDONED SIDEWALL DUCT PENETRATION WITH SHEET METAL COVER

(E) CANTED EDGE OF (E) INSULATION (BELOW MEMBRANE)

(E) TREE



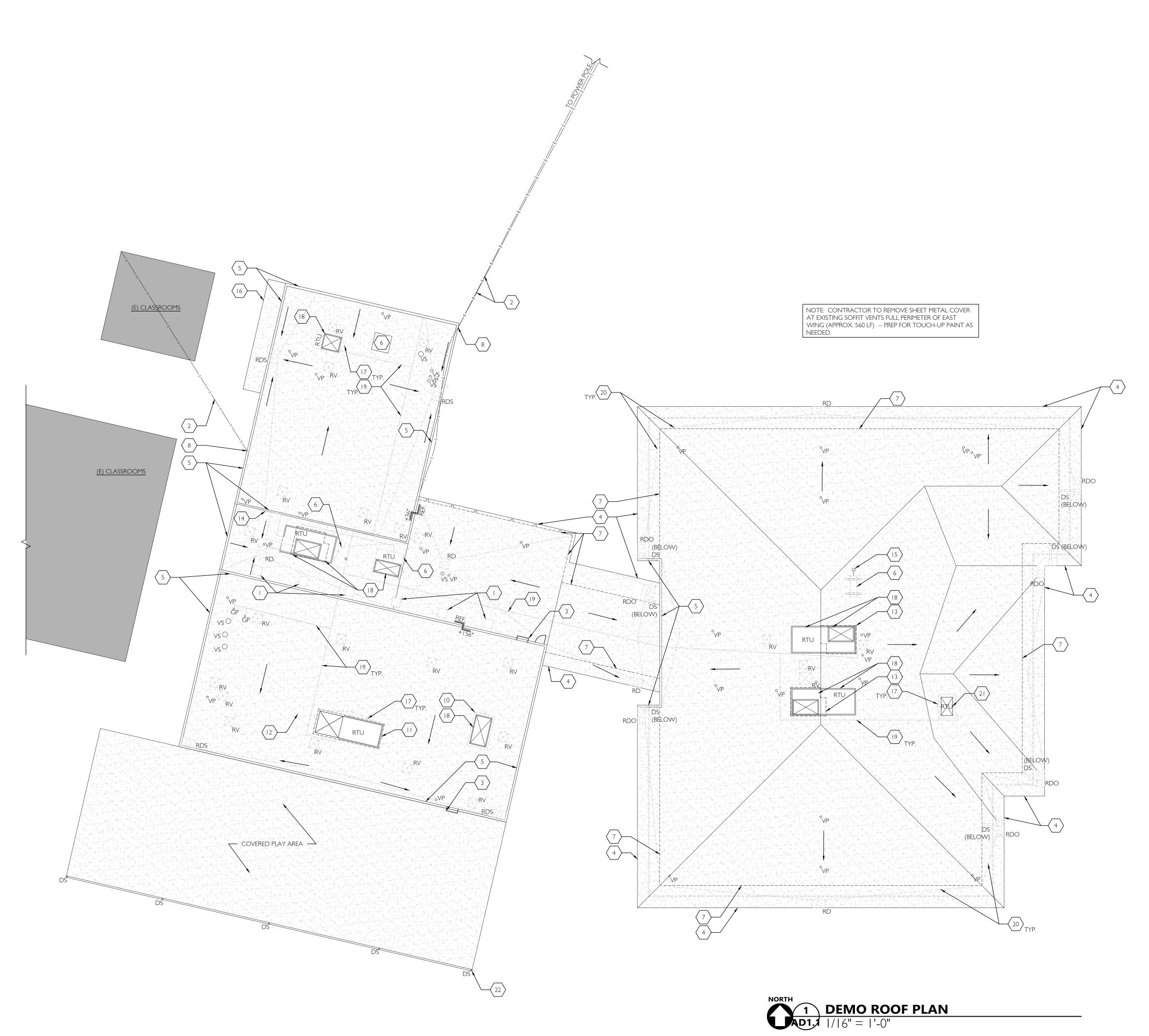


PORTLAND, OREGON 9722 T E L : 5 0 3 . 2 2 6 . I 2 8 F A X : 5 0 3 . 2 2 6 . I 6 7 0 W W W . C I D A I N C . C O I

EXISTING CONDITIONS ROOF PLAN

AD0.1 JOB NO. 20Y082.02

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DEMO ROOF PLAN GENERAL NOTES

- I. CONTRACTOR SHALL VERIFY AND CONFIRM EXISTING CONDITIONS SHOWN OR IMPLIED ON DRAWINGS PRIOR TO START OF CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.
- 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS
- 3. APPLICABLE CODES: ALL WORK SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES. ALL CODE REFERENCES IN THE DRAWINGS AND SPECIFICATIONS SHALL MEAN, AND ARE INTENDED TO BE, THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCED STANDARD IN EFFECT AS OF THE
- DATE OF THE CONTRACT DOCUMENTS. 4. SEE MECHANICAL DRAWINGS FOR ALL MECHANICAL EQUIPMENT TO BE REMOVED AND FOR SIZES OF NEW OR REVISED CEILING PENETRATIONS.
- 5. FOR EXISTING EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED, CONTRACTOR TO STORE ON-SITE IN A WEATHER TIGHT LOCATION APPROVED BY THE DISTRICT. SEE SPEC SECTION -- FOR ADDITIONAL STORAGE
- REQUIREMENTS. 6. EXISTING ROOF PENETRATIONS AND CURBS INDICATED BENEATH MECH. EQUIPMENT ARE DIAGRAMMATIC ONLY -- CONTRACTOR TO FIELD VERIFY ACTUAL PLACEMENT BENEATH UNIT.
- 7. EXISTING EQUIPMENT CURBS, CRICKETS AND ROOF PENETRATIONS AT SMALL EQUIPMENT ARE NOT SHOWN FOR DRAWING CLARITY. REFER TO LEGEND AND KEYNOTES FOR INDICATION OF CURBED VERSUS
- NON-CURBED CONDITION. 8. SEE ROOFING SPECIFICATION IN PROJECT MANUAL FOR ALL EXISTING ROOFING COMPONENTS AND ACCESSORIES TO BE REMOVED AND FOR OTHER PROCEDURES REQUIRED IN PREPARATION OF INSTALLING
- NEW ROOFING SYSTEM. 9. CONTRACTOR TO REMOVE AND REPLACE EXISTING STRUCTURAL ROOF DECKING WHERE OBSERVED TO BE
- COMPROMISED -- SEE 'SCHEDULE OF UNIT PRICES' IN SPECIFICATION SECTION 012200 'UNIT PRICES' FOR
- 10. UNLESS OTHERWISE NOTED, ROOF CURBS AT EQUIPMENT INDICATED TO BE TEMPORARILY REMOVED SHALL REMAIN IN PLACE.
- II. CONTRACTOR TO SCHEDULE ON-SITE OBSERVATION WITH A/E AND DISTRICT UPON REMOVAL OF EXISITING ROOFING SYSTEM AND EXPOSURE OF EXISTING STRUCTURAL DECK.
- 12. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.

DEMO ROOF PLAN LEGEND

- (E) CURB MOUNTED ROOF VENT TO BE TEMPORARILY REMOVED - (E) VENT PIPE PENETRATION TO REMAIN - (E) DOWNSPOUT TO BE TEMPORARILY DS REMOVED AND STORED FOR REINSTALLATION - (E) VENT STACK TO REMAIN - (E) GAS PIPE PENETRATION TO REMAIN

- (E) ROOF DRAIN-- REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. - (E) ROOF DRAIN AND PIPED OVERFLOW--

REMOVE ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC. -(E) ROOF DRAIN WITH SCUPPER OVERFLOW --

RÉMOVE SCUPPER AND ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

-AREA OF (E) PEA GRAVEL BUILT-UP ROOFING SYSTEM TO BE REMOVED -- PREP SHEATHING PER SPEC FOR INSTALLATION OF NEW ROOFING SYSTEM, INCLUDING REPLACEMENT OF COMPROMISED SHEATHING

ABBREVIATIONS (E) -EXISTING

(N) -NEW TYP. -TYPICAL RTU -ROOFTOP UNIT VP -VENT PIPE

DS -DOWNSPOUT S -SCUPPER VS -VENT STACK

RV -ROOF VENT RD -ROOF DRAIN RDO -ROOF DRAIN OVERFLOW

RDS -ROOF DRAIN SCUPPER GP -GAS PIPE

> - (E) WALL BELOW - (E) NATURAL GAS LIN

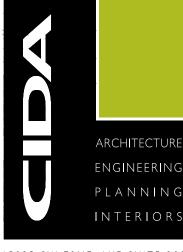
> > - (E) ELECTRICAL LINE

- REFERENCE PLANE VERTICAL EDGE +32" ELEVATION RELATIVE TO REFERENCE PLANE

VERTICAL ELEVATION CHANGE

- AREA OUTSIDE SCOPE OF WORK

- DIRECTION OF DRAINAGE



15895 SW 72ND AVE SUITE 2 PORTLAND, OREGON 97224 T E L : 5 0 3 . 2 2 6 . I 2 8 A X : 5 0 3 . 2 2 6 . I 6 7 0 W W W . C I D A I N C . C O

DEMO ROOF PLAN KEYNOTES

(E) CURBED SKYLIGHT TO BE REMOVED--PATCH AND REPAIR TO MATCH ADJACENT ROOF CONDITION-- SEE STRUCTURAL FOR INFILL

(E) OVERHEAD ELECTRICAL LINE -- PROVIDE TEMPORARY SUPPORT TO ACCOMMODATE CONTINUITY OF SERVICE DURING WORK-- COORDINATE WITH UTILITY

(E) FIXED LADDER TO REMAIN

(E) DRIP EDGE-- REMOVE SHEET METAL GRAVEL STOP AND DRIP EDGE FLASHING

(E) PARAPET-- REMOVE SHEET METAL COPING CAP, COUNTER FLASHING AND BASE FLASHING, TYP..

(E) CURB-MOUNTED MECH. EQUIPMENT-- TEMPORARILY REMOVE AND STORE FOR NEW ROOFING INSTALLATION

LINE OF (E) EXTERIOR WALL BELOW, TYP.

PARAPET-MOUNTED GUY ANCHOR TO REMAIN TO BE REMOVED AND REPLACED

NOT USED

(E) CURB WITH SHEET METAL COVER -- TEMPORARILY REMOVE AND STORE FOR NEW ROOFING INSTALLATION

(E) ROOF TOP UNIT, PLATFORM AND CURB/CRICKET TO BE REMOVED-- INFILL EXISTING ROOF PENETRATION AS REQUIRED TO ACCOMMODATE NEW UNIT -- SEE MECHANICAL DRAWINGS FOR EQUIPMENT INFO. (E) LOW-VOLTAGE LINE SERVICING ROOF TOP UNIT TO BE REMOVED

(E) ROOFTOP MECH. UNIT TO REMAIN IN PLACE DURING RE-ROOF

(E) SHEET METAL CAP AT ABANDONED SIDEWALL PENETRATION TO BE REMOVED-- PREP OPENING

(E) PITCH POCKET WITH SHEET METAL HOOD

(E) CANOPY BELOW

(E) CRICKET TO BE REMOVED

(E) CURB TO REMAIN

(E) ABOVE-ROOF GAS LINE TO BE REMOVED AND STUBBED FOR POST-RE-ROOF TIE-IN

REMOVE (E) PLYWOOD CRICKET AND 4X BLOCKING

(E) TRANE RTU-- TEMPORARILY REMOVE AND STORE FOR REINSTALLATION -- LIFT UNIT AS NECESSARY FOR ROOFING TO BE COMPLETED. USE ONLY MANUFACTURER SUPPLIED LIFTING LUGS FOR LIFTING. ONCE THE UNIT IS RESET AND BEFORE STARTING THE UNIT PROVIDE THE SERVICES OF TRANE FACTORY AUTHORIZED SERVICE TECHNICIAN O REVIEW THE UNIT, ESPECIALLY THE HEATING BURNER, TO ASSURE ALL ARE IN PROPI WORKING ORDER AND SAFE TO OPERATE

(E) SHEET METAL GUTTER AND EDGE FLASHING TO BE REMOVED



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7250

DEMO ROOF PLAN

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ROOF PLAN GENERAL NOTES I. CONTRACTOR TO VERIFY (E) CONDITIONS SHOWN OR IMPLIED AND NOTIFY ARCHITECT AND ENGINEER OF 2. SEE ROOF INSPECTION REPORT BY A-TECH/NW INC. DATED 03/16/2020 (LOCATED IN PROJECT MANUAL) FOR ADDITIONAL INFORMATION REGARDING EXISTING CONDITIONS WHICH MAY NOT BE REFLECTED ON THIS 3. ALL ROOFING REPAIR WORK TO BE PERFORMED BY ROOFING CONTRACTOR CERTIFIED BY ROOFING MANUFACTURER AND AS REQUIRED TO MEET INSTALLATION REQUIREMENTS OF SPECIFIED ROOFING SYSTEM 4. ALL ROOFING REPAIR WORK IS SUBJECT TO INSPECTION AND APPROVAL BY ROOFING MANUFACTURER FIELD REPRESENTATIVE, CONTRACTOR TO SCHEDULE ROOFING INSPECTION AT INTERVALS DETERMINED BY MANUFACTURER FOR ROOFING SYSTEM WARRANTY. 5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION OF NEW ROOF PENETRATIONS TO AVOID CONFLICT WITH EXISTING STRUCTURE AND BUILDING SYSTEMS. 6. CONTRACTOR TO CONFIRM ROOF PENETRATION SIZES AND EQUIPMENT CURB DIMENSIONS WITH MECHANICAL DRAWINGS. 7. WHERE PATCH AND REPAIR WORK IS INDICATED, CONTRACTOR SHALL PATCH AFFECTED AREAS TO MATCH ADJACENT FINISHES AND CONDITIONS FOR 'LIKE NEW' APPEARANCE UNLESS OTHERWISE NOTED. SEE SPECIFICATION SECTION 017329 'CUTTING AND PATCHING' FOR ADDITIONAL INFORMATION. 8. SEE STRUCTURAL DRAWINGS FOR BRACING REQUIREMENTS AT NEW ROOFTOP MECHANICAL EQUIPMENT. 9. CONTRACTOR TO MAINTAIN EXISTING SURFACE DRAINAGE PATTERNS OF ROOF WITH SLOPE OF NOT LESS 10. CONTRACTOR TO PROVIDE CRICKETING AT MECH EQUIPMENT CURBS, PARAPETS, ROOF DRAINS AND OTHER LOCATIONS AS REQUIRED TO MAINTAIN POSITIVE SLOPE TO POINT OF ROOF DRAINAGE. 11. CONTRACTOR TO CONNECT ALL NEW AND USED EQUIPMENT TO SUPPORTING UTILITIES (NATURAL GAS, ELECTRICAL, LOW VOLTAGE, ECT...). 12. TAPERED INSULATION SHOWN IS DIAGRAMMATIC ONLY AND IS CONSIDERED A DELEGATED DESIGN SYSTEM -- CONTRACTOR IS RESPONSIBLE FOR SUBMITTING TAPERED INSULATION SHOP DRAWINGS PREPARED BY QUALIFIED TAPERED INSULATION DESIGNER FOR A/E REVIEW, PER SPEC. 13. CONTRACTOR TO SUBMIT WEATHER PROTECTION PLAN FOR A/E & DISTRICT APPROVAL, PER SPEC DIVISION 7. 14. ALL SHEET METAL GUTTERS AND DOWNSPOUTS SHALL BE TEMPORARILY REMOVED AND STORED FOR REINSTALLATION UNLESS DEEMED UNFIT FOR CONTINUED USE.. (E) CLASSROOMS (E) CLASSROOMS

REF.

COVERED PLAY AREA -

A3.2

1 ROOF PLAN A1.1 |/|6" = |'-0"

ROOF PLAN LEGEND

- REINSTALL CURB MOUNTED ROOF VENT --SEE DETAIL 2/A3.I

- (E) VENT PIPE PENETRATION EXTEND PIPE AS

NEEDED TO FLASH -- SEE DETAIL 11/A3.1 - REINSTALLED DOWNSPOUT

- (E) VENT STACK -- SEE DETAIL 10/A3.1

- (E) GAS PIPE PENETRATION -- SEE DETAIL 11/A3.1

-ROOF DRAIN-- NEW ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) --REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

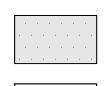
-ROOF DRAIN AND PIPED OVERFLOW-- NEW ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.



-ROOF DRAIN WITH SCUPPER OVERFLOW --NEW SCUPPER AND ROOF DRAIN ASSEMBLY (DRAIN BOWL TO REMAIN UNLESS DAMAGED) -- REFER TO 'SCHEDULE OF UNIT PRICES' IN SECTION 012200 OF SPEC.

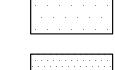


- AREA OUTSIDE SCOPE OF WORK



-APPROXIMATE AREA OF TAPERED INSULATION-- SEE GENERAL NOTES THIS SHEET FOR TAPERED INSULATION DESIGN REQUIREMENTS

-AREA OF (N) MECHANICALLY ATTACHED EPDM ROOFING SYSTEM (39,510 SF)-- ROOF



'A' PER SPEC -AREA OF (N) FULLY ADHERED EPDM ROOFING SYSTEM (7,164 SF)-- ROOF 'B' PER

- DIRECTION OF DRAINAGE

<u>ABBREVIATIONS</u>

(E) -EXISTING

(N) -NEW TÝP. -TYPICAL

RTU -ROOFTOP UNIT VP -VENT PIPE DS -DOWNSPOUT

S -SCUPPER VS -VENT STACK

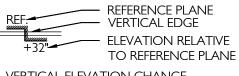
GP -GAS PIPE

RV -ROOF VENT RD -ROOF DRAIN RDO -ROOF DRAIN OVERFLOW RDS -ROOF DRAIN SCUPPER

- (E) WALL BELOW - (N) NATURAL GAS

LINE--ROUTE SAME AS EXISTING-- INSTALL ON PIPE **SUPPORTS**

- ELECTRICAL LINE --RE-ATTACH TO PARAPET ANCHORS AND REMOVE TEMPORARY SUPPORT



VERTICAL ELEVATION CHANGE

- (N) WALK PADS-- SEE DETAIL 5/A3.2

ROOF PLAN KEYNOTES

INSTALL NEW NATURAL GAS LINE ON SUPPORTS PER DETAIL 3/A3.2

(E) OVERHEAD ELECTRICAL LINE -- ATTACH TO PARAPET-MOUNTED GUY ANCHOR.

(E) FIXED LADDER

DRIP EDGE WITH GRAVEL STOP PER DETAIL 5/A3.1

(E) PARAPET-- INSTALL NEW SHEET METAL COPING CAP AND COUNTER FLASHING

PER SPEC-- SEE DETAIL 7/A3.1 (E) CURB-MOUNTED EQUIPMENT REINSTALL AT SAME LOCATION

7 LINE OF (E) EXTERIOR WALL BELOW, TYP.

(N) PARAPET-MOUNTED GUY ANCHOR.

(N) ROOF TOP UNIT PER MECHANICAL DRAWINGS.

(N) CRICKET.

NOT USED.

NOT USED.

 $\left\langle \begin{array}{c} -13 \end{array} \right\rangle$ NOT USED.

(E) MECHANICAL UNITS.

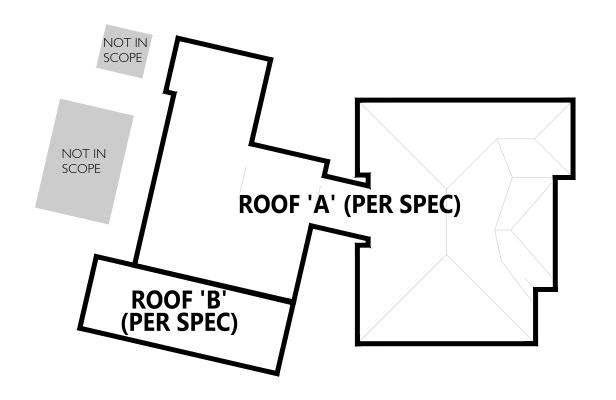
RE-INSTALL (E) SMOKE VENT -- SEE DETAIL 2/A3.1

NOT USED

(E) ABANDONED SIDEWALL DUCT PENETRATION -- INFILL AND FINISH TO MATCH ADJACENT

ROUTE NEW OVERFLOW THROUGH SOFFIT -- TERMINATE I" BELOW FINISHED SOFFIT TO MATCH

ROUTE NEW OVERFLOW TIGHT TO EXTERIOR WALL -- TERMINATE THROUGH WALL WITH BRASS COW TONGUE 18" ABOVE FINISHED GRADE -- COORDINATE ROUTE WITH EXISTING STRUCTURE AND OPENINGS -- FINAL ROUTE SUBJECT TO DISTRICT / ARCHITECT APPROVAL-- SEE DETAIL 4/A3.2







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T E L : 5 0 3 . 2 2 6 . I 2 8 A X : 5 0 3 . 2 2 6 . I 6 7 0 W W W . C I D A I N C . C O

BS

ROOF PLAN

JOB NO. 20Y082.02

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FALL PROTECTION PLAN GENERAL NOTES

I. FALL PROTECTION INDICATED IS BASED ON 'FALL RESTRAINT' SAFETY METHOD.

FALL PROTECTION PLAN LEGEND

(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR ANCHORAGE TO ROOF

AREA WITHIN ROOF COVERAGE (BASED ON 50' LANYARD)



AREA OUTSIDE SCOPE OF WORK

REFERENCE PLANE
VERTICAL EDGE ELEVATION RELATIVE

VERTICAL ELEVATION CHANGE

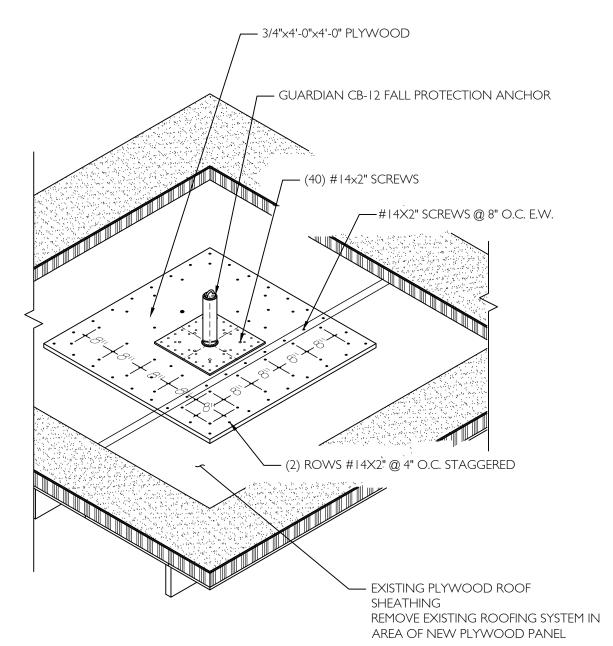
FALL PROTECTION PLAN KEYNOTES

TO REFERENCE PLANE

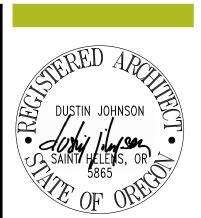
(N) GUARDIAN CB-12 FALL PROTECTION ANCHOR -- SEE 2/A2.1 FOR BLOCKING AND ANCHORAGE REQUIREMENTS -- INSTALL BLOCKING FROM INTERIOR SIDE AND PATCH/REPAIR CEILING TO MATCH EXISTING CONDITION AND FINISH, AND PER SPECIFICATION.

ROOF COVERAGE -- BASED ON 50' LANYARD.

 $\frac{-}{3}$ (E) STEEL LADDER TO REMAIN.



PALL PROTECTION ANCHOR AT PLYWOOD SHEATHING A2.1 | |/2" = |'-0"





PORTLAND, OREGON 97224 T E L : 5 0 3 . 2 2 6 . I 2 8 5 F A X : 5 0 3 . 2 2 6 . I 6 7 0 W W W . C I D A I N C . C O M

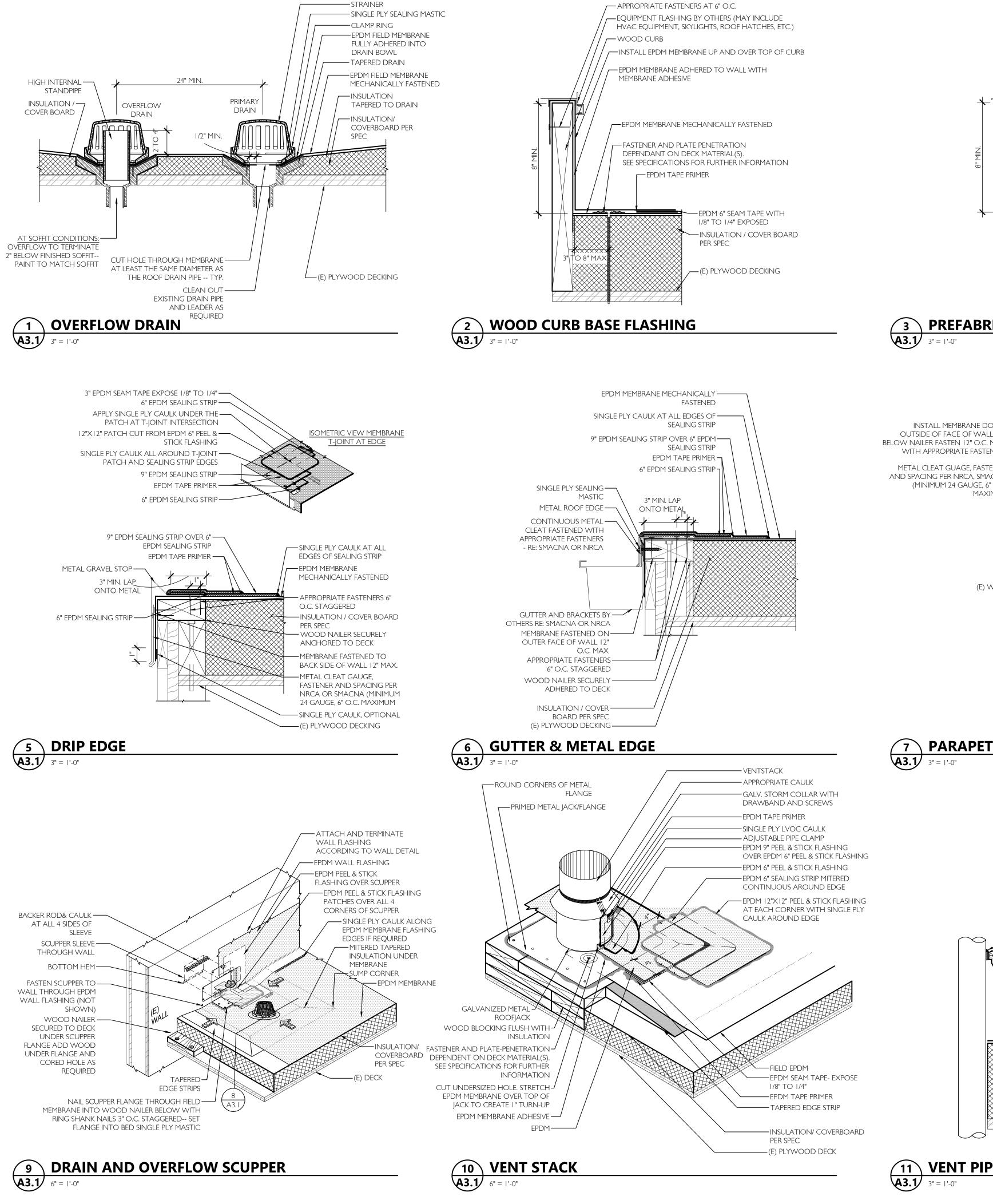
ELEM.

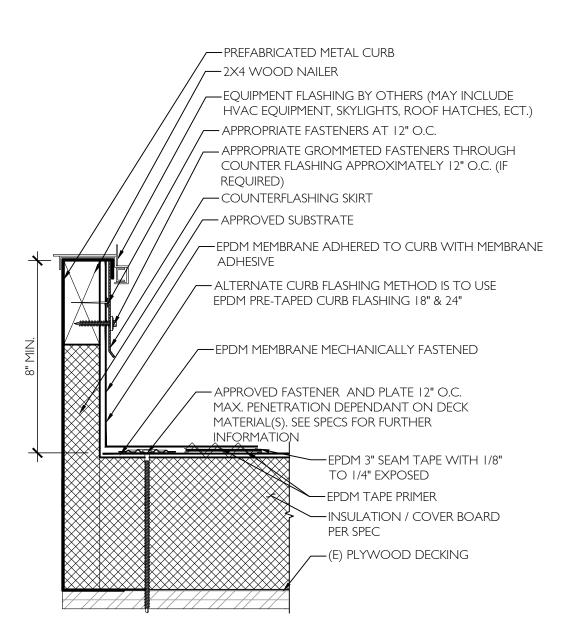
7250 SW

FALL PROTECTION PLAN

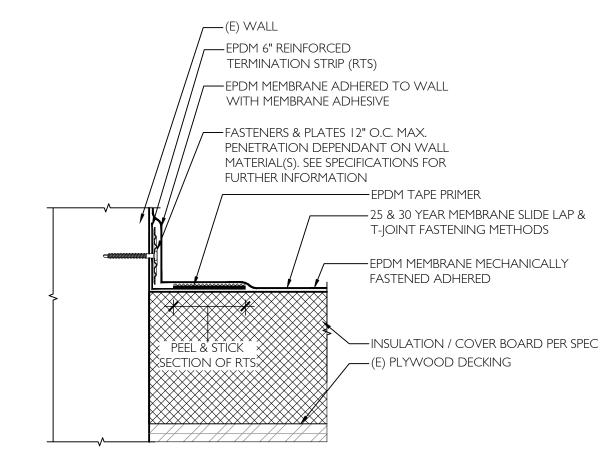
A2.1

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PREFABRICATED METAL BASE FLASHING



BASE FLASHING WITH VERTICAL TERMINATION STRIP

- SINGLE PLY SEALING MASTIC

-CUT HOLE THROUGH MEMBRANE AT LEAST THE

SAME DIAMETER AS THE ROOF DRAIN PIPE-TYP.

-strainer

—CLAMP RING

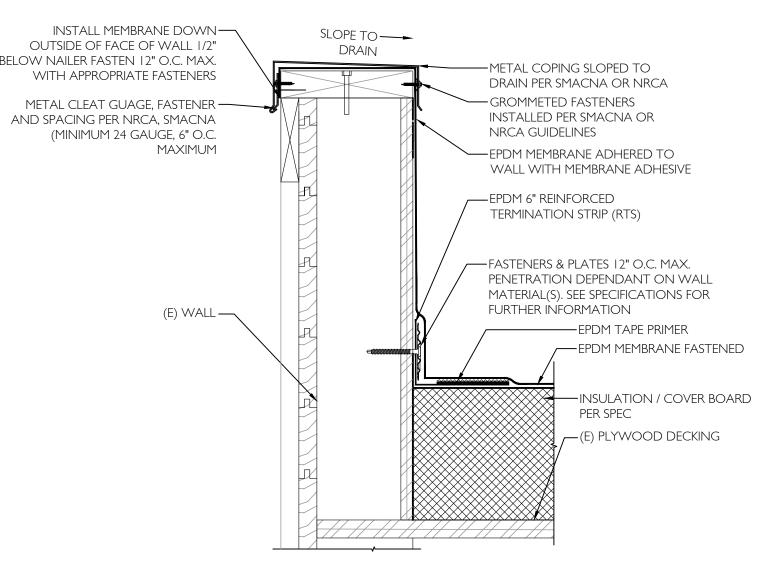
-EPDM NON REINFORCED

-INSULATION TAPERED 18" Ø

MEMBRANE ADHERED

— (E) PLYWOOD DECKING

AROUND DRAIN



8 ROOF DRAIN

-SINGLE PLY CAULK (AT TOP OF — APPROVED CONCRETE MASONRY CLAMP - SLOPED TO SHED WATER) SUBSTRATE (WATERPROOF) -SINGLE PLY SEALING MASTIC —SINGLE PLY CAULK OR (BETWEEN PIPE AND NECK OF COMPATIBLE SEALANT -S.S. CLAMP AND SCREW — TERMINATION BAR -EPDM PEEL & STICK PIPE BOOT FASTENED 12" O.C. MAX. — APPROVED FASTENER AND PLATE MINIMUM OF (4) WITH APPROPRIATE FASTENERS AROUND VENT PIPE PENETRATION DEPENDANT —SINGLE PLY SEALING MASTIC ON DECK MATERIAL(S). SEE SPECIFICATIONS FOR — TERMINATION BAR 1/4" FURTHER INFORMATION GAP BETWEEN SECTIONS -EPDM TAPE PRIMER - REGLET COUNTERFLASHING - EPDM MEMBRANE MECHANICALLY -EPDM MEMBRANE ADHERED TO WALL WITH MEMBRANE **ADHESIVE** --- INSULATION/COVERBOARD PER — (E) PLYWOOD DECKING NOTE: SEE 4/A3.1 FOR BASE FLASHING.

11 VENT PIPE

12 EPDM INTERMEDIATE TERMINATION

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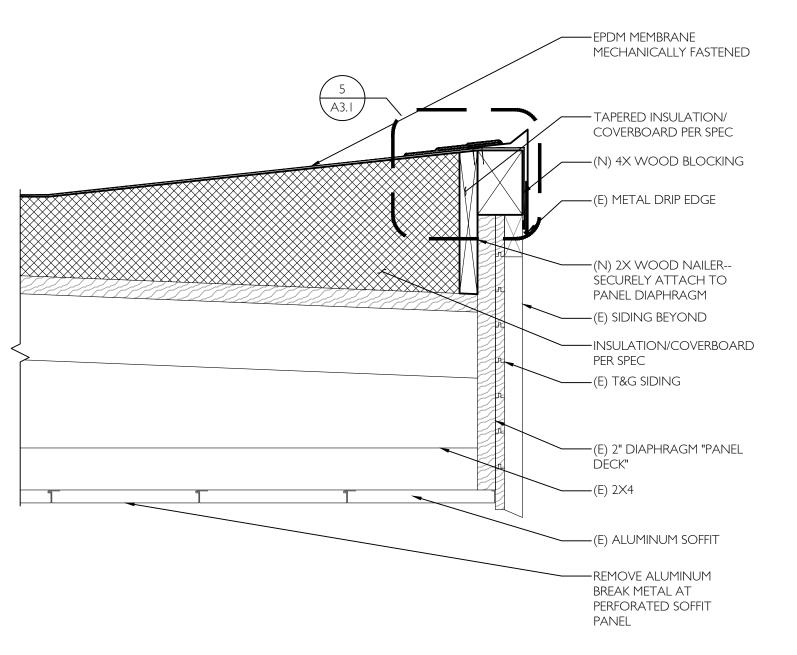
ENGINEERIN PLANNIN

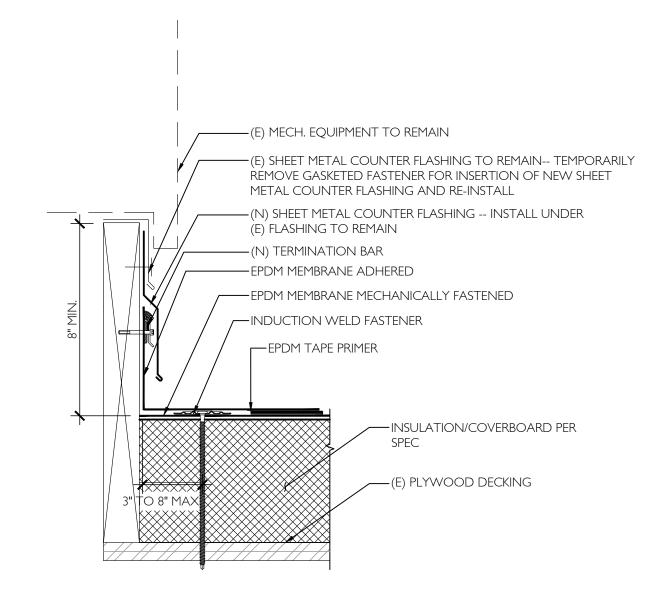
15895 SW 72ND AVE SUITE 2 PORTLAND, OREGON 9722 T E L : 5 0 3 . 2 2 6 . 1 2 8 F A X : 5 0 3 . 2 2 6 . I 6 7 $\mathsf{W} \ \mathsf{W} \ \mathsf{W} \ . \ \mathsf{C} \ \mathsf{I} \ \mathsf{D} \ \mathsf{A} \ \mathsf{I} \ \mathsf{N} \ \mathsf{C} \ . \ \mathsf{C} \ \mathsf{O}$

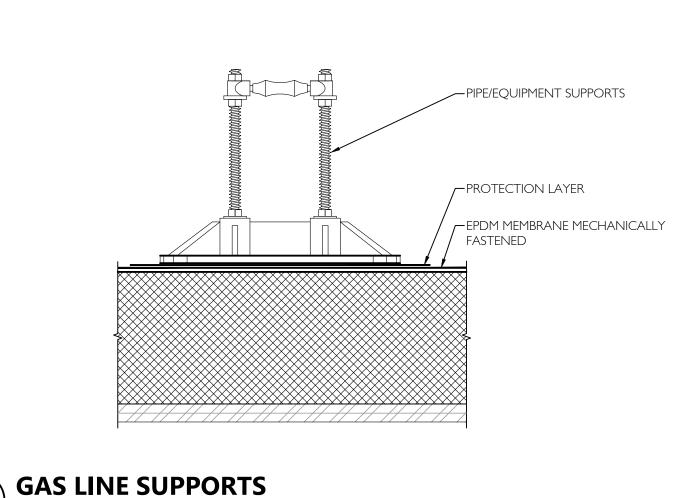
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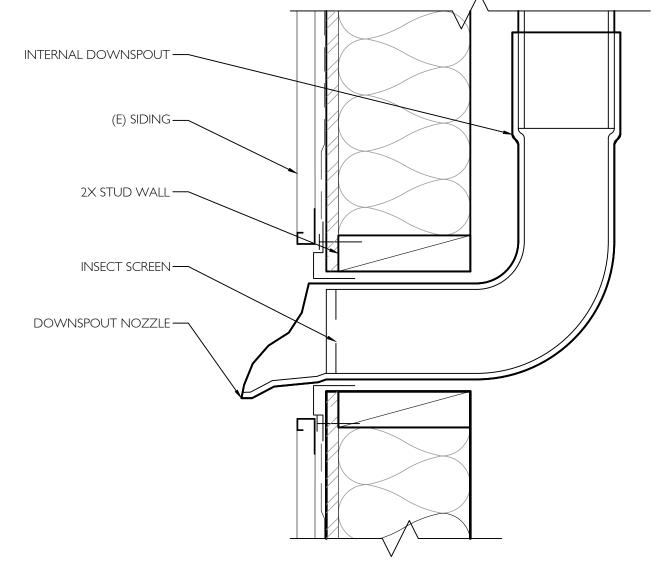
DETAILS **A3.1**

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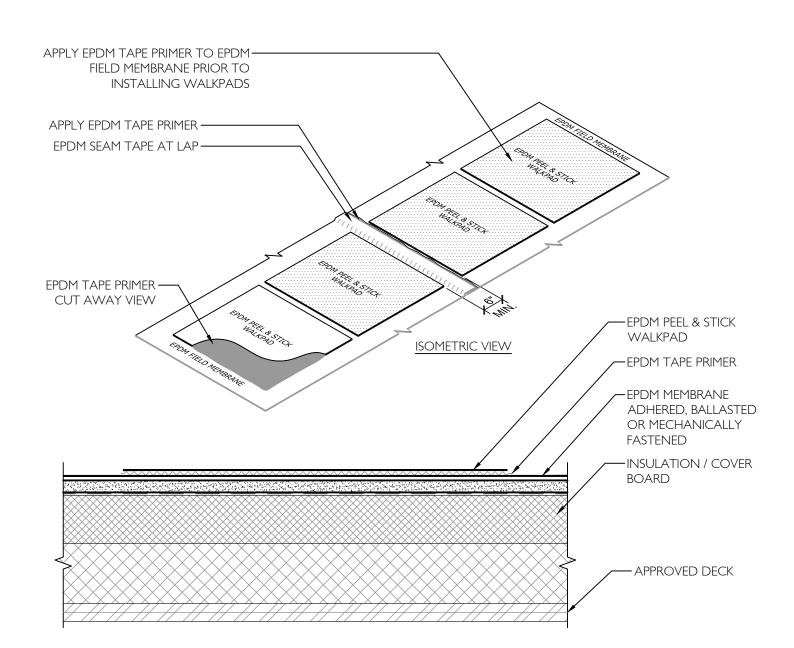




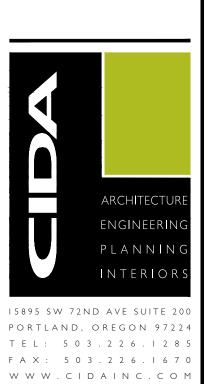
4 ROOF DRAIN AT GROUND CONDITION
A3.2 3" = 1'-0"

1 FASCIA AT EAST WING

2 EXISTING WOOD CURB TO REMAIN



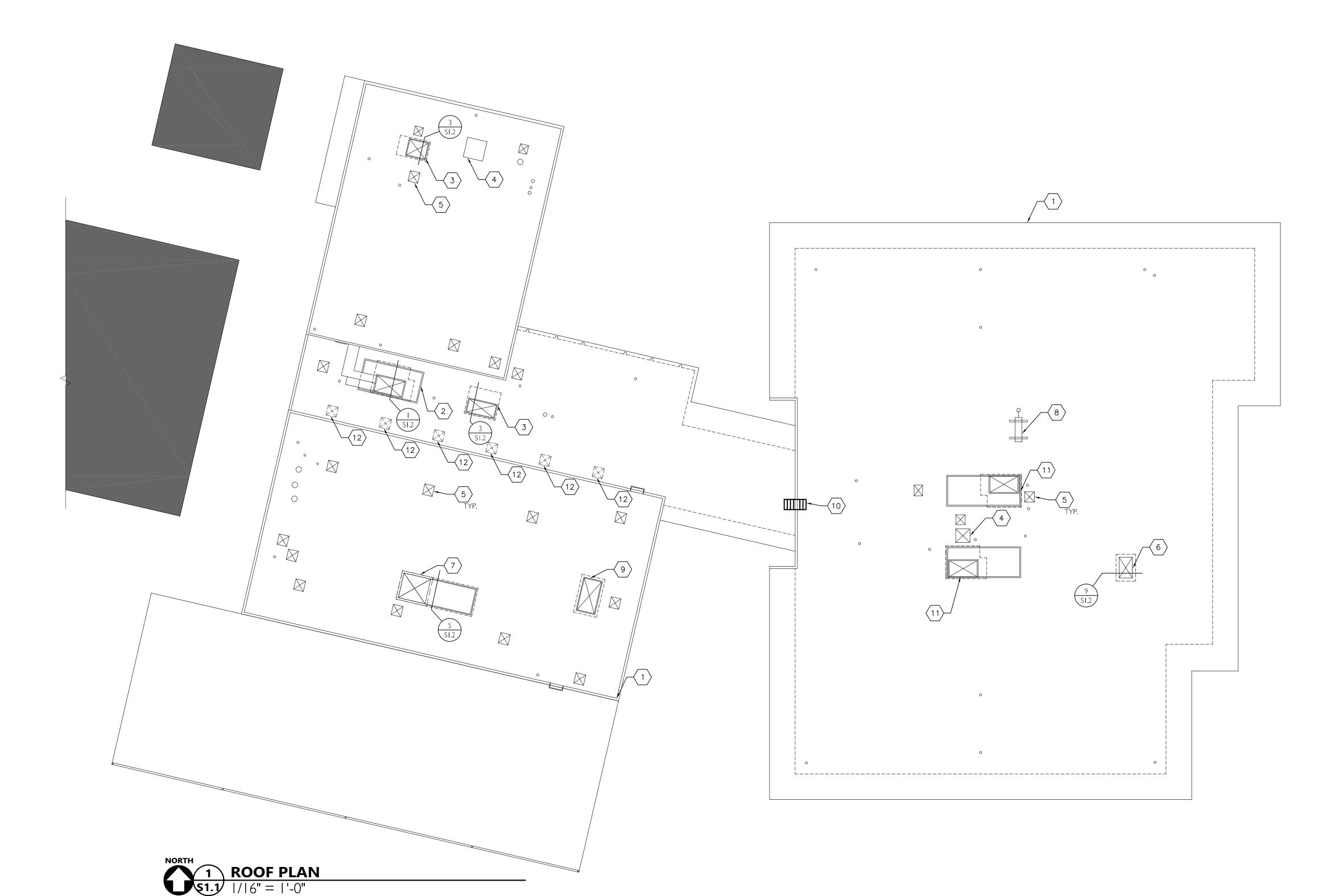
5 EPDM WALKPADS A3.2 3" = 1'-0"



2 2 4

7250 SW VERMONT ST. PORTLAND, OR 97223 **BSD MONTCLAIR ELEM.**

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CO

2019 OREGON STRUCTURAL SPECIALTY CODE (2019 OSSC)

DESIGN CRITERIA

WIND LOADS:

BASIC WIND SPEED (3 SECOND GUST) = 105 MPH (LRFD)

EXPOSURE CATEGORY = B

F = 31.9 PSF (LRFD)

F(UPLIFT) = 25.2 PSF (LRFD)

EARTHQUAKE:

SEISMIC PARAMETERS:

OCCUPANCY CAT. III

IMPORTANCE FACTOR = 1.0

MAPPED: Ss = 0.885 SITE CLASS: D

DESIGN: Sps = 0.708 SEISMIC DESIGN CATEGORY = D

FORCE RESISTING SYSTEMS:

MECHANICAL EQUIPMENT: Fp=0.353*WT FOR NON-SPRING

ISOLATED AIR SIDE HVAC EQUIPMENT

Fp=1.06*WT FOR SPRING ISOLATED

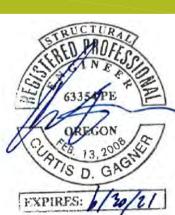
AIR SIDE HVAC EQUIPMENT

GENERAL

- I. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE A/E SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION, RESOLVE ANY DISCREPANCY WITH
- 3. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
- 4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
- 5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
- 6. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE ALL DETAILS.
- 7. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN
- 8. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON
- 9. ALL DETAIL CUTS SHOULD BE CONSIDERED TYPICAL @ LIKE CONDITIONS

ROOF PLAN KEYNOTES

- (E) BUILDING PERIMETER
- (E) --AAON UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 1/S1.2
- $\left\langle 3 \right\rangle$ (E) --AAON UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 3/S I.2
- (E) --ROOF VENT AND CURB TO BE RE-INSTALLED ON ROOF PER 7/S1.2
- $\left\langle 5\right\rangle$ (E) --VENT FAN UNIT AND CURB TO BE RE-INSTALLED ON ROOF PER 6/S1.2
- $\left\langle 6\right\rangle$ (E) --TRANE UNIT ON CURB TO BE REMOVED AND RE-INSTALLED PER 9/S I.2
- (E) --LENNOX UNIT AND CURB TO BE REPLACED WITH NEW 3,900LB UNIT ON NEW 1,000LB CURB PER 5/S1.2
- (E) --CONDENSER UNIT ON SLEEPERS TO BE REPLACE SLEEPERS WITH WOOD PLATFORM AND RE-INSTALLED ON ROOF PER 8/S I.2
- (E) CAPPED ROOF OPENING --REINISTALL CAP AFTER NEW FLASHING/ROOFIN
- (E) CAPPED ROOF OPENING --REINSTALL CAP AFTER NEW FLASHING/ROOFING IS COMPLETE
- NEW ACCESS LADDER OVER PARAPET BETWEEN ROOF LEVELS
- (E) --AAON UNIT AND CURB TO REMAIN IN PLACE DURING RE-ROOF
- (E) SKYLIGHT TO BE REMOVED. INFILL OPENING WITH 5/8" PLYWOOD SHEATHING, ADD 2x6 BLOCKING AT EDGES OF EXISTING OPENING TO SUPPORT NEW PLYWOOD INFILL NAIL SHEATHING WITH 8d AT 6" O.C. EACH EDGE



50 SET 09.16.2020 BD SET 09.16.2020 80% CONST. DOCS 10.07.2020 BID SET RELEASE 10.28.2020

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ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS

15895 SW 72ND AVE SUITE 200
PORTLAND, OREGON 97224
TEL: 503.226.1285
FAX: 503.226.1670
WWW.CIDAINC.COM

M. SCHOOL

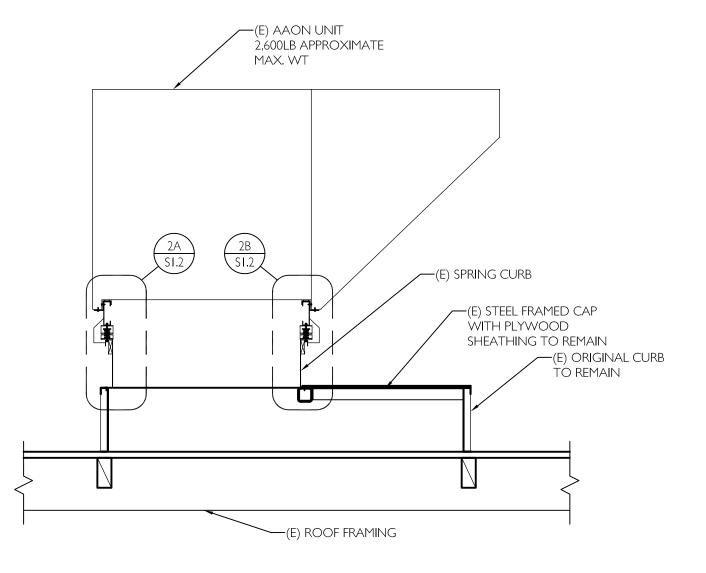
CLAIR ELEM. S SW VERMONT ST. (TLAND, OR 97223

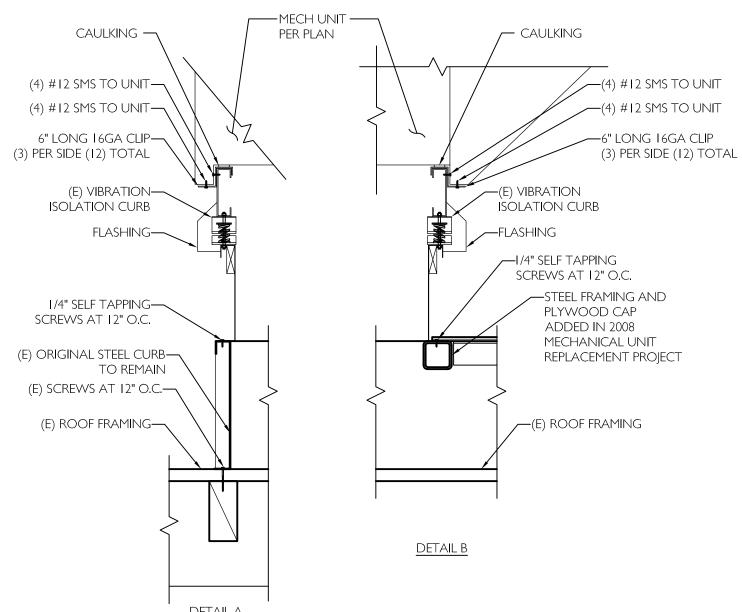
MONTCLAIR

ROOF PLAN

JOB NO. 20Y082.02

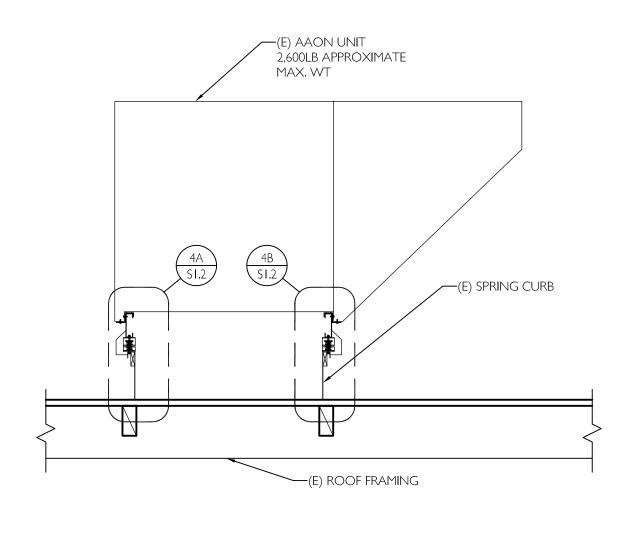
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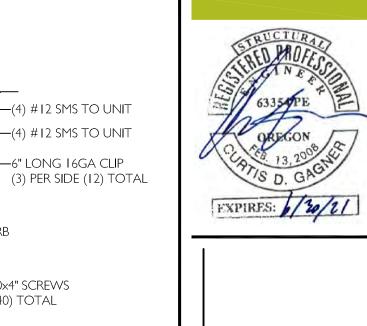




2 ISOLATION CURB DETAIL

\$1.2 | " = | '-0"





----MECH UNIT ----

/ CAULKING

—(E) VIBRATION

—FLASHING

DETAIL B

ISÓLATION CURB

MIN. (10) #10x4" SCREWS

EACH SIDE (40) TOTAL

NOTE: WOOD BOX SHOWN REPLACES EXISTING 6X6 SLEEPERS

/STANDARD ANGLE BRACKETS--ATTACH W/ (I) 3/8"Ø BOLT TO SUPERSTRUT AND (I) #12x1 3/4" SCREW TO

(E) SIMPSON HGA10 CLIP EACH SIDE OF PLATFORM (4) TOTAL

(E) CONDENSER UNIT TO BE RE-INSTALLED

ATTACH TO UNIT W/ 3/8"Ø BOLTS

WOOD PLATFORM

2×12 EACH SIDE OF UNIT--

/NAIL CORNERS W/ (3) 16d MIN.

1 5/8" SUPERSTRUT EA. SIDE

(4) #12 SMS TO UNIT

—(4) #12 SMS TO UNIT

—6" LONG 16GA CLIP

PER PLAN

CAULKING —

(4) #12 SMS TO UNIT—

(4) #12 SMS TO UNIT—

6" LONG 16GA CLIP—

ISOLÁTION CURB

(E) ROOF FRAMING—

(E) VIBRATION—

FLASHING—

<u>DETAIL A</u>

4 ISOLATION CURB DETAIL

19/32" PLYWOOD PLATFORM--

NAIL TO 2× W/ 10d AT 6" O.C.

ALL EDGES

(E) 2× DECKING—

8 CONDENSER UNIT ATTACHMENT TO ROOF

(3) PER SIDE (12) TOTAL

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ENGINEERIN PLANNIN

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W W W . C I D A I N C . C O

SCHOOL

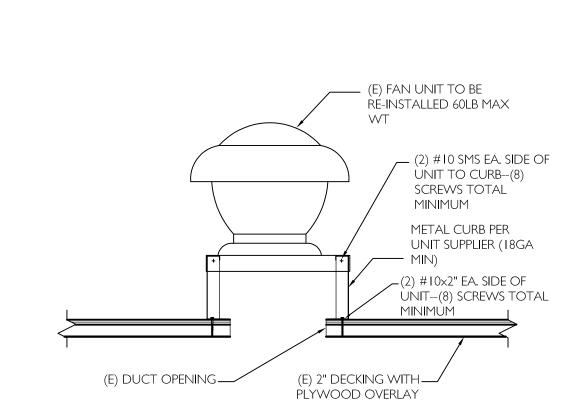
7250 SW VERMONT ST. PORTLAND, OR 97223 ELEM.

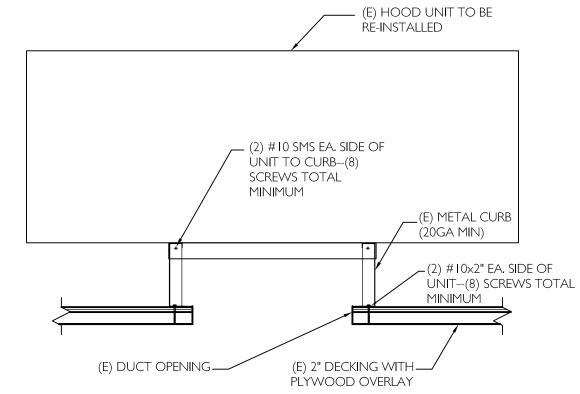
MONTCLAIR **BSD**

DETAILS

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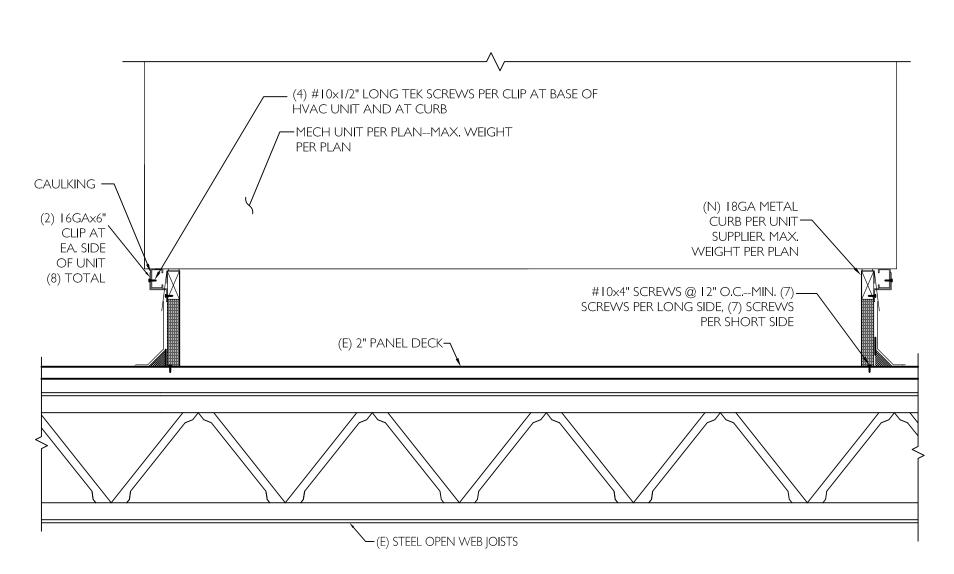


6 FAN UNIT ATTACHMENT \$1.2

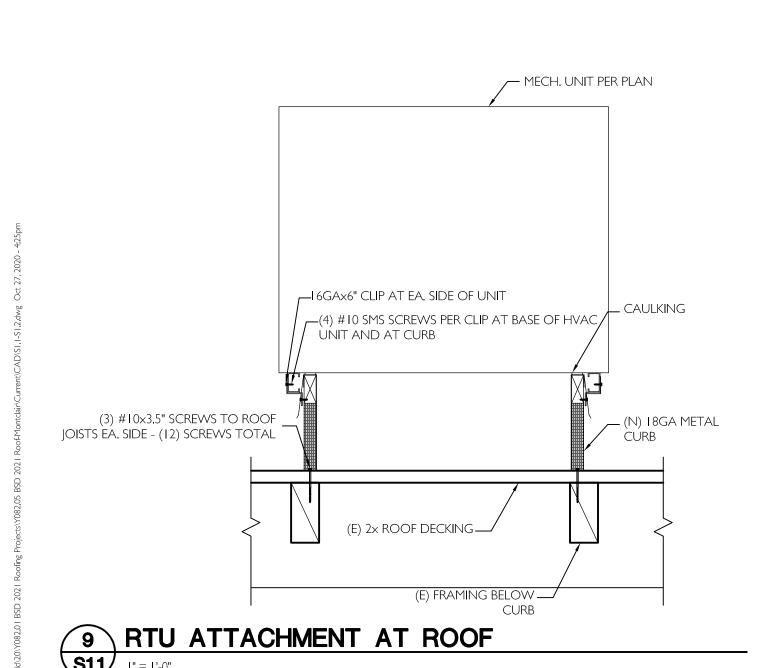


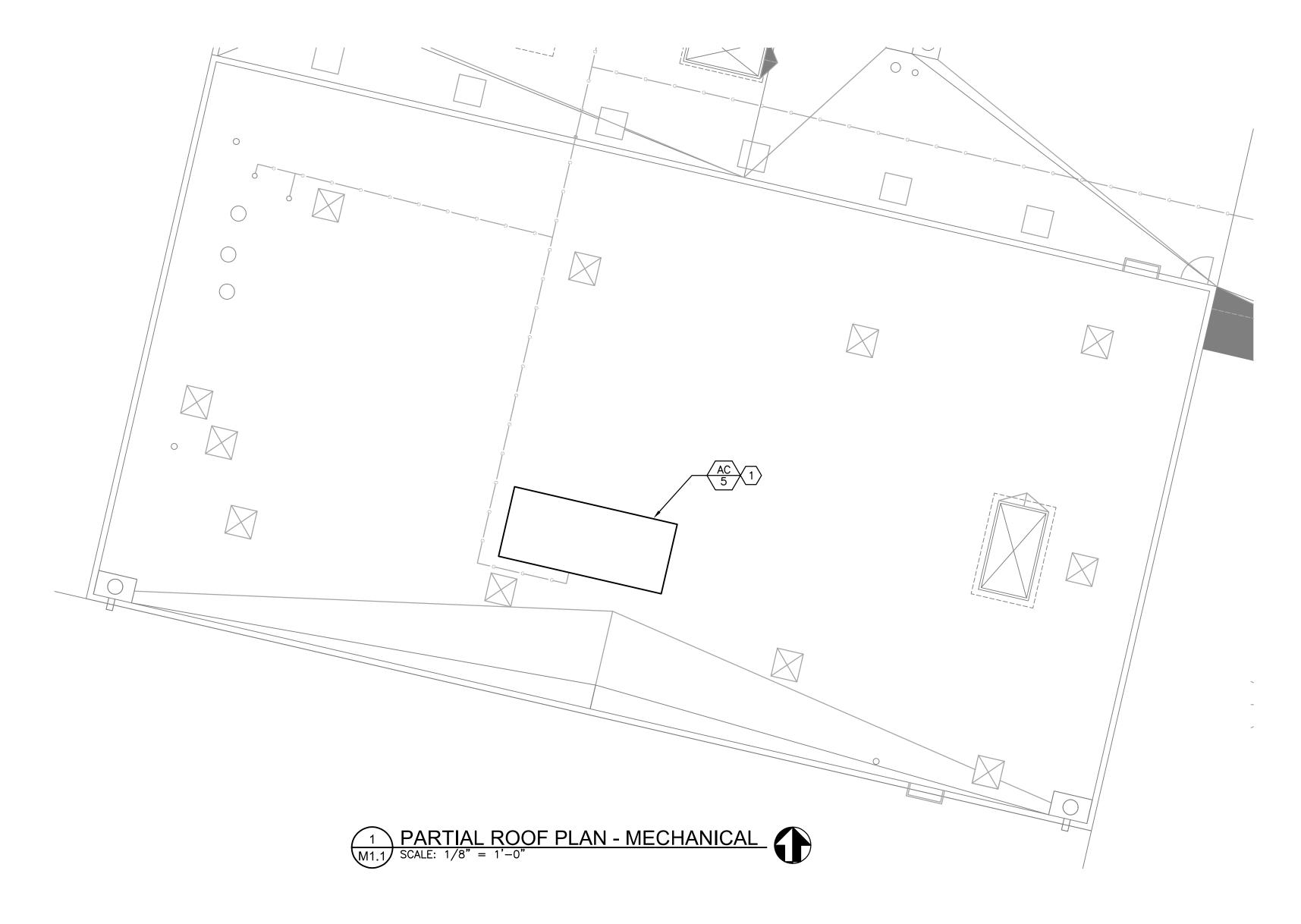
3 SECTION AT AC-3 UNIT

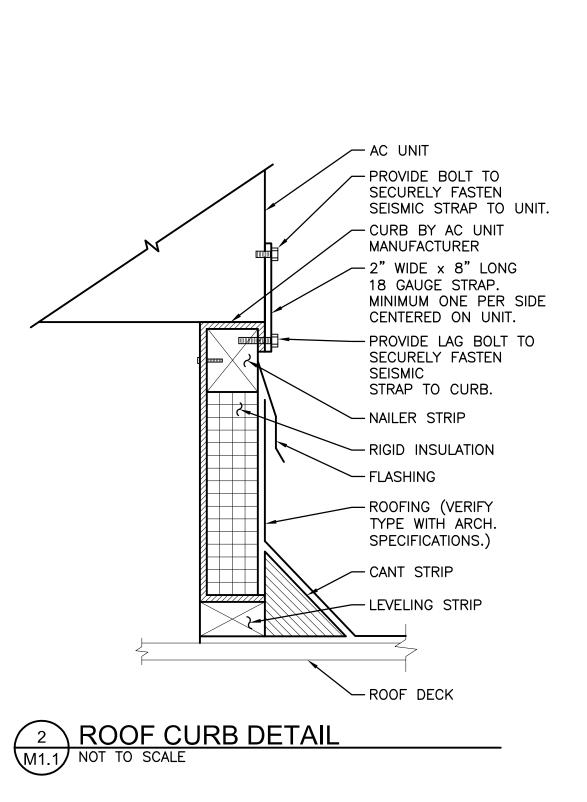
S1.2 1/2" = 1'-0"

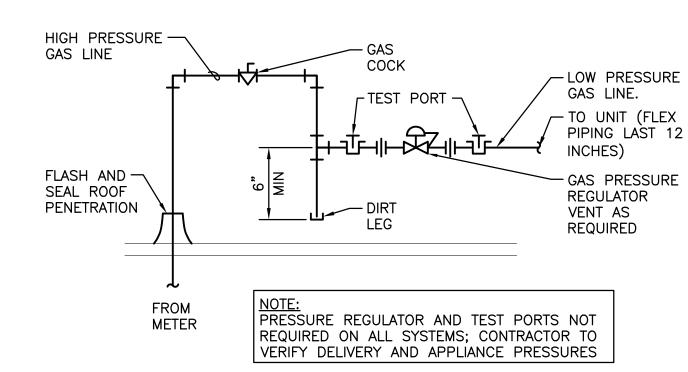




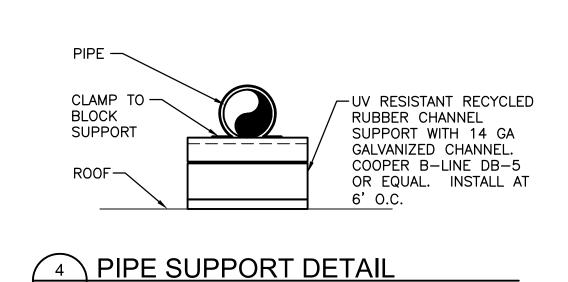




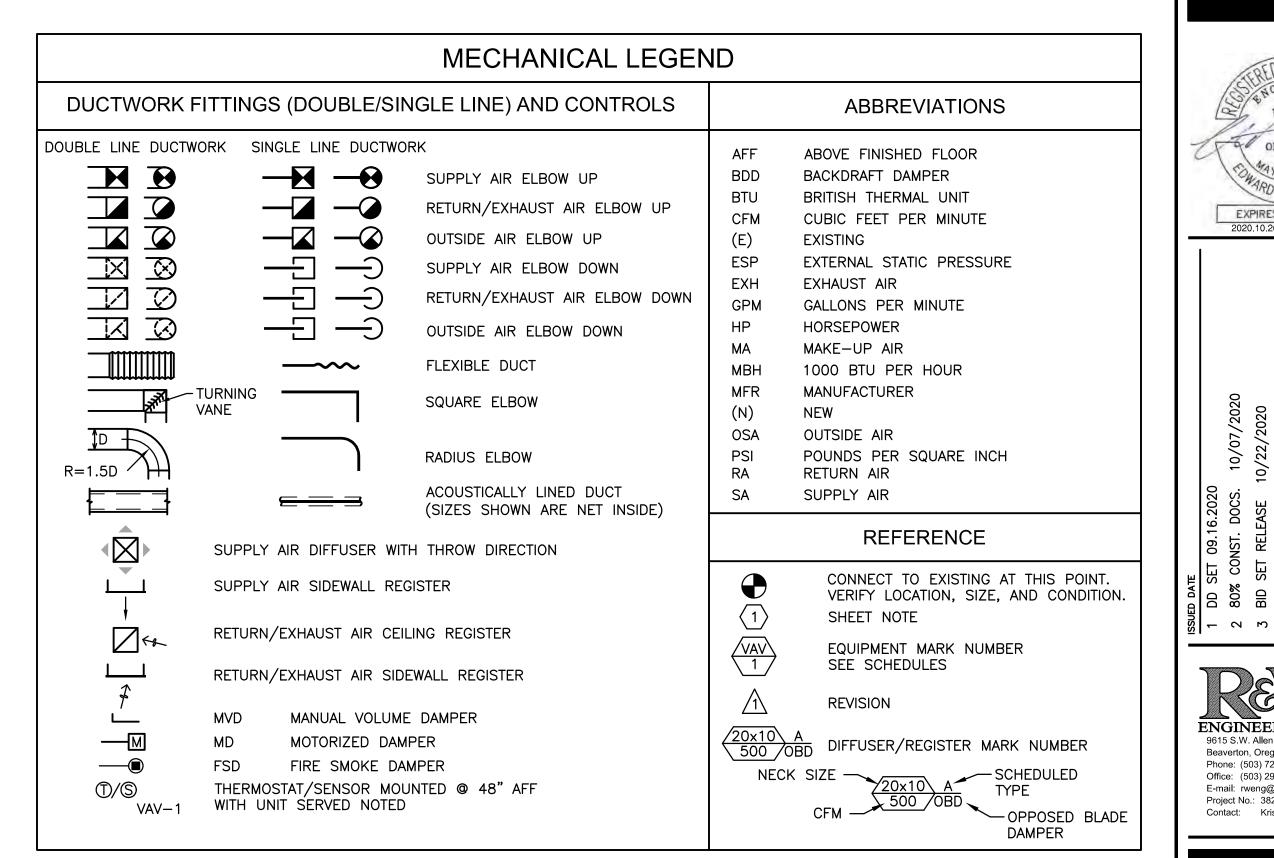




3 GAS CONNECTION DETAIL (THROUGH ROOF)



M1.1 NOT TO SCALE



NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS CONTAINED IN THIS LEGEND WILL APPEAR ON DRAWINGS.

GENERAL NOTES

- A. CONDITIONS SHOWN ON THE PLANS RELATIVE TO THE WORK BEING PERFORMED ARE BASED ON THE BEST INFORMATION AVAILABLE BUT ARE SUBJECT TO VERIFICATION. VERIFY LOCATIONS AND ELEVATIONS OF DUCTS, PIPING AND OTHER COMPONENTS TO BE CROSSED OR CONNECTED PRIOR TO BEGINNING NEW INSTALLATIONS. CORRECT DEFICIENCIES CAUSED BY FAILURE TO PERFORM SUCH VERIFICATIONS AT NO COST TO OWNER, IMMEDIATELY NOTIFY OWNER OF CONDITIONS IN CONFLICT WITH DETAILS/PLANS.
- B. MODIFICATIONS TO THE CONTROL SYSTEM MUST BE PERFORMED BY A BEAVERTON SCHOOL DISTRICT APPROVED CONTROLS CONTRACTOR.
- C. TESTING AND BALANCING SHALL BE COMPLETED BY AN INDEPENDENT AGENCY.
- D. PRETEST AIRFLOWS PRIOR TO DEMOLITION. SET AIRFLOWS TO PRE-DEMOLITION SETTINGS AFTER INSTALLATION.
- E. EQUIPMENT START-UP SHALL BE PERFORMED BY A FACTORY AUTHORIZED CONTRACTOR. FACTORY START-UP DOCUMENTS SHALL BE DELIVERED TO THE SCHOOL DISTRICT AFTER COMPLETION.

NOTES THIS SHEET

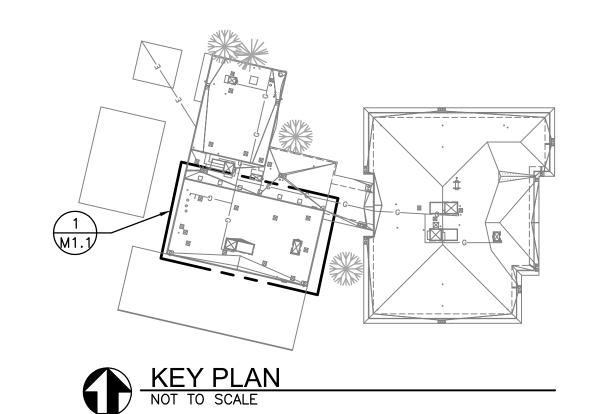
(1) DISCONNECT GAS PIPING, CONTROL WIRING AND DUCTWORK AND REMOVE ROOFTOP UNIT, ROOF CURB AND ALL RELATED COMPONENTS IN PREPARATION FOR NEW INSTALLATION. PROVIDE NEW ROOF CURB AND MOUNT NEW UNIT ON CURB. MODIFY, EXTEND AND CONNECT EXISTING DUCTWORK, GAS PIPING AND CONTROL WIRING TO NEW UNIT. MAINTAIN ALL CODE REQUIRED AND MANUFACTURER RECOMMENDED CLEARANCES. SEE DETAILS 2/M1.1, 3/M1.1, AND 4/M1.1.

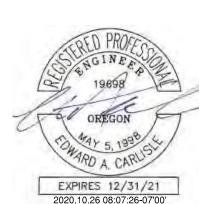
| ROOFTOP UNIT SCHEDULE | | | | | | |
|--|------------------------|--|--|--|--|--|
| MARK NUMBER | AC 5 | | | | | |
| SYSTEM | GYM | | | | | |
| TYPE | HTG ONLY MULTI—ZONE | | | | | |
| AIRFLOW (CFM) | 9000 | | | | | |
| MIN OSA (CFM) | 1540 | | | | | |
| E.S.P. ("H20) | 1 | | | | | |
| FAN MOTOR (HP) | | | | | | |
| HEATING | | | | | | |
| TYPE | INDIRECT | | | | | |
| FUEL | NAT GAS | | | | | |
| INPUT MBH | 500 | | | | | |
| OUTPUT MBH | 400 | | | | | |
| MIN. EFF. (AFUE %) | 80 | | | | | |
| DESIGN WEIGHT (LBS) | 4900 | | | | | |
| INTERLOCK WITH | EF-1/EF-2 | | | | | |
| ELECTRICAL (V-PH) | 208-3 | | | | | |
| NOTES | 1. | | | | | |
| MANUFACTURER/ MODEL | SSM/ CUSTOM | | | | | |
| NOTES: 1. PROVIDE WITH MOTORIZED INLET DAMPE | RS | | | | | |

. PROVIDE WITH MOTORIZED INLET DAMPERS AND 14" HIGH SEISMIC RATED ROOF CURB. MATCH CURRENT UNIT CONFIGURATION.

DRAWING LIST

M1.1 ROOF PLAN - MECHANICAL M2.1 MECHANICAL SPECIFICATIONS M2.2 MECHANICAL SPECIFICATIONS





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Contact: Kristin Trone

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ROOF PLAN -MECHANICAL **M1.1**

BS

1.1 WORK INCLUDED:

Provide all equipment, material and labor to install complete and operable mechanical systems. B. Drawings are diagrammatic. They do not show every offset, bend, tee, or elbow which may be required to install work in the space provided. Do not scale drawings for roughing—in measurements, nor use as shop drawings. Make field measurements and prepare shop drawings as required. Coordinate work with shop drawings of other trades. Provide any bends, offsets and elbows

the Project. The right is reserved to make any reasonable changes in outlet location prior to roughing-in. C. Obtain and pay for all permits, licenses, fees and taxes applicable to this project as required by law and governing authorities.

where required by local conditions from measurements taken at the Building (subject to approval) and without additional cost to

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: 1. All work, installations, materials and equipment shall comply with the provision of the following codes, standards and regulations, except where more stringent requirements are shown or specified:

a. Current Edition of State of Oregon Plumbing Specialty Code (OPSC). b. Current Edition of State of Oregon International Mechanical Code (IMC) c. Current Edition of State of Oregon Structural Specialty Code (IBC).

National Electrical Code (NEC).

National Fire Protection Agency (NFPA). All City, County, State and Federal applicable laws and regulations.

Workmanship: All materials shall be installed in a neat and workmanlike manner.

Regulations and standards set forth by ASME, ASHRAE, SMACNA, AGA and ARI. Where two or more codes or regulations apply, the more stringent of the two shall be exercised.

Electrical products shall bear the U.L. label. B. Work shall be of good quality, free of faults and defects and in conformance with the Contract Documents.

1.3 SUBMITTALS

A. Shop Drawings and Product Data: Submit all equipment drawings and product data for Work of Division 23 in accordance with Beaverton School District requirements and together in a single group, with each item field under a tab, and labeled with its respective specification section number, article and paragraph, and mark if applicable.

1.4 OPERATIONS AND MAINTENANCE DATA: A. Prior to final inspection, provide one (1) electronic copy of manufacturer's maintenance manuals for each piece of equipment or items requiring service. Manual shall include manufacturer's operation and maintenance instruction manuals and parts list for each piece of equipment or item requiring servicing. Include in the manual manufacturer's service data, wiring diagrams and parts lists

for all major items of equipment, valve charts, balancing data, final control diagrams showing final set points and any additional

equipment added by contract modification. Comply with provisions of Section 01700 where applicable.

Prepare project cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of file

Internally subdivide the file contents with section dividers, logically organized with electronic bookmarks. D. Provide one (1) final copy of manual in electronic pdf format through owner's eBuilder Closeout Process system after approval of

1.5 PROJECT RECORD (AS-INSTALLED) DRAWINGS:

A. Keep Drawings clean, undamaged and up to date. B. Make Drawings available when requested by Architect for his review.

1.6 PROJECT CONDITIONS: A. Existing Conditions: Prior to bidding, verify and become familiar with all existing conditions by visiting the site and include all

factors which may affect the execution of this work. Include all related costs in the initial bid proposal. B. Coordinate exact requirements governed by actual job conditions. Check all information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work. Make changes as directed by Owner.

A. Provide a written guaranty covering the work of this Division for a period of one calendar year from the date of acceptance of the entire project as required by the General Provisions.

2 PRODUCTS

2.1 QUALITY ASSURANCE

A. Provide products which are compatible with other portions of the work and provide products with the proper and correct power and fuel burner characteristics and similar adaptations for the project.

2.2 PIPE SLEEVES:

A. Interior Wall Sleeves: 12 gage galvanized steel, flush with wall on both sides.

Interior Floor Sleeves: 12 gage galvanized steel and extend 2—inches above finished floor Exterior Wall Sleeves: Cast iron, flush with wall on both sides.

On Grade Floor Sleeves: Same as exterior wall sleeves.

2.3 FLOOR, WALL AND CEILING ESCUTCHEONS A. Furnish stamped split type plates as follows: Floor, wall and ceiling: Cast brass, chromium plated.

2.4 STARTERS AND SWITCHES

A. General: Provide each motor with starter or switch as approved and recommended by manufacturer of motor or equipment of which motor is a part.

Magnetic Starters: Provide for 1/2 horsepower and larger motors, and for smaller motors on automatic control or with interlock switch. Include pilot lights, reset, trip-free relay on each phase, Hand-Off-Auto switch in cover, and devices for coordination with control system (including transformer for control circuit, verify holding coil voltage requirements with control system design).

Provide automatic ambient temperature compensation for starter heaters. Manual Switches: Provide on motors 1/3 horsepower and smaller except where automatic control or interlock is indicated. Include

pilot light. Provide overload protection where not protected by panelboard circuit breaker or fused disconnect switch. Manufacturers: General Electric, ITE, Allen Bradley, Arrow—Hart, Cutler—Hammer, Square D or accepted substitute.

2.5 IDENTIFICATION MARKERS A. Pipe Markers:

Adhesive pipe markers of width, letter size and background color conforming to ANSI A13.1 and UPC 601.2.1 and 602.2.2. Acceptable Manufacturers: Brady B350 with banding tape or similar Seaton, Zeston, Porter, Tnemel.

Nameplates: Engraved nameplates, 1/16 inches thick, laminated 3-ply plastic, center ply white, outer ply black, letters formed by exposing

Size: 3 inches by 5 inches nameplates with 1/4 inch high letters. 3. Acceptable Manufacturers: Lamicoid.

3 EXECUTION

3.1 MECHANICAL EQUIPMENT WIRING

A. Provide all mechanical equipment motors, automatic temperature, limit, float and similar control devices required, with wiring complete from power source indicated on Electrical Drawings.

B. Equipment and systems shown on the Drawings and/or specified, are based upon requirements of specific manufacturers which are intended as somewhat typical of several makes which may be approved. Provide all field wiring and/or devices necessary for a complete and operable system including controls for the actual selected equipment/system.

C. Provide all starters for mechanical motors. Review Electrical Specifications and Drawings to determine which mechanical motor starters will be provided under the Electrical Specification Sections and provide all others.

A. Piping System: Indicate each pipe system by its generic name (abbreviated) as shown; except vent and drainage piping. Comply with ANSI A13.1 for marker locations, letter sizes, and colors. Include arrows to show direction of flow and "Electric Traced" signs to identify heat cable wrapped piping.

B. Each new piece of equipment shall bear a permanently attached identification plate, listing the manufacturer's name, capacities, sizes and characteristics. In addition to the manufacturer's identification plate, provide nameplates of black phenolic resin laminate and identify new equipment by name and number 1/2" high letters.

3.3 CLEANING

A. General: Clean mechanical and plumbing equipment, fixtures, piping and ductwork of stampings and markings (except those required by codes), iron cuttings, and other refuse.

3.4 LAYOUT AND COORDINATION

A. Site Examination: Before starting work, carefully examine site and all contract Drawings so as to become thoroughly familiar with conditions governing work on this project. Verify all indicated elevations, building measurements, roughing—in dimensions and equipment locations before proceeding with any of the work. B. The existence of any wires, conduits, pipes, ducts or other service facilities are shown in a general way only. It will be the duty

of the Contractor to visit the site and make exact determination of the existence of any such facilities prior to submitting a bid.

It is understood that the Contractor will be responsible for making the exact determination of the location and condition of these

C. Sleeves, Insets, Cast-in-Place Work: provide sleeves, inserts, anchoring devices, cast-in-place work, etc. which must be set in concrete sequenced at the proper time for the project schedule. D. Discrepancies: Report immediately any error, conflict or discrepancy in Plans, Specifications and/or existing conditions.

A. Record Drawings: Submit record set of drawings and Submittals as previously specified in this Section. B. Closeout Equipment/Systems Operations: Operate each item of equipment and each system in a test run of appropriate duration with the Architect present, and with the Owner's operating personnel present, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters,

excessively worn parts and similar expendable items of the work. Operation and Instruction: Provide eight (8) hours of on—site training to Owner's personnel on all mechanical systems and equipment. Training shall include maintenance, lubrication, troubleshooting and repair. Contractor shall provide necessary written manuals and training aides explaining operational diagrams, emergency and alarm provisions, sequencing requirements, séasonal provisions, security, safety and similar features of the installed system.

SECTION 23 0600 - PIPE AND PIPE FITTINGS

1.1 WORK INCLUDED A. Provide all pipe, piping fittings and all related components required for complete piping system.

2.1 NATURAL GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53 or A120, schedule 40 black. Fittings: ANSI/ASME B16.3, malleable iron, or ASTM A234, forged steel welding type. Joints: Screwed for pipe two inches and under; ANSI/AWS D1.1, welded for pipe over two inches.

A. Copper Tubing: ASTM B88, Type L, hard drawn. Fittings: ANSI/ASTM B16.22, cast brass, or ANSI/ASME B16.29 solder wrought copper. Joints: ASTM B32, solder, Grade 95TA or ANSI/AWS A5.8, BCuP silver braze.

3 EXECUTION

A. Ream pipe and tube ends. Remove burrs or bevel plain end ferrous pipe.

water gauge natural gas or as approved and certified by serving utility.

B. Remove scale and dirt, on inside and outside, before assembly. C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

A. Provide non-conducting dielectric connections wherever jointing dissimilar metals. Route piping in orderly manner, maintain gradient and conceal all piping unless otherwise indicated.

Provide clearance for installation of insulation and access to valves and fittings. Slope water piping and arrange to drain at low points and provide drain valve.

E. Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients.

Pitch vent piping at 1/4 inch per 10 feet minimum. G. Escutcheons: Install on all exposed pipes passing through wall or floors and on fixture stops and waste connections to

A. Gas piping: Blow clear of debris with nitrogen or oil free air. Clean all low point strainers and pockets.

3.4 TEST A. Natural gas piping: One half hour minimum air at 60 psig for 2 psig gas, and 15 minutes at 10 psig for 7 inch

SECTION 23 0650 - VALVES

1.1 WORK INCLUDED

A. The requirements of this Section apply to the valving for the systems specified elsewhere in Division 23.

2 PRODUCTS

2.1 BALL VALVES A. Natural Gas:

1. 5 psig or less, 2 inches and smaller ball valves, Watts 6000UL. Threaded, 250 psi, 2 piece, bronze. 2. 5 psig or less, 2-1/2 inches and larger, 125 psi, all bronze or cast iron body/bronze trim. AGA approved.

2.2 GAS PRESSURE REGULATORS

A. Size and capacity as required for connected load. Style and model as approved by gas supplier.

B. Manufacturers: Maxitrol, Rockwell, Fisher, Reliance, or accepted substitute.

3 EXECUTION

A. Provide clearance for installation of insulation and access to valves and fittings.

B. Provide access where valves and fittings are not exposed. Coordinate size and location of access door with Section

C. Install valves with stems upright or horizontal, not inverted.

SECTION 230900 - SUPPORTS AND ANCHORS

1 GENERAL

1.1 WORK INCLUDED

A. Provide pipe and equipment hanger, support, anchors and all related items for complete systems.

A. Supports for sprinkler piping and standpipes: In conformance with NFPA 13 and 14.

Provide pre-manufactured horizontal piping and ductwork hangers, clamps, hanger rod, shields, supports, etc. C. Seismic Requirements: Provide seismic restraints in accord with the following Seismic Hazard Levels (SHL) as recommended in the "Seismic Restraint Manual: Guidelines for Mechanical Systems," latest edition, SMACNA. 1. SHL "B": All seismic zone "3" (UBC Chapter 16) and all occupancy categories "1" and "II" (UBC Chapter 16) in seismic zone "2B".

2. SHL "C": All occupancy categories "III" and "IV" in seismic zone "2B".

3 EXECUTION

3.1 INSTALLATION OF HANGERS AND SUPPORTS

A. General: Proceed with the installation of hangers, supports and anchors only after the required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including (but not limited to) the proper placement of inserts, anchors and other building structural attachments.

1. Prevent electrolysis in the support of copper tubing by the use of hangers and supports which are copper plated, or by other recognized industry methods. 2. Support fire sprinkler piping independently of other piping and in accordance with NFPA Pamphlet 13. 3. Install hangers and supports to provide the indicated pipe slopes, and so that maximum pipe deflections allowed

by ANSI B31 are not exceeded. Comply with the following installation requirements: a. Insulated Pipe Supports: Insulated pipe supports shall be supplied and installed on all insulated pipe and

b. Load Rating: All insulated pipe supports shall be load rated by the manufacturer based upon testing and analysis in conformance with ASME B31.1, MSS SP-58, MSS SP-69 and MSS SP-89. c. Support Type: Manufacturer's recommendations, hanger style and load shall determine support type.

d. Insulated Piping Supports: Where insulated piping with continuous vapor barrier or where exposed to view in finished areas is specified, install hard maple wood insulation shields (Elcen Fig. 216) or steel pipe covering protection shields (MSS type 39) at each hanger.

FLEXIBLE DUCT CONNECTION (FDC)

C. Neoprene loaded vinyl material or neoprene loaded canvas with vapor barrier. Flame spread rating of 25 or less and a smoke spread rating of 50 or less, per ASTM E84. Not affected by temperatures as low as minus 10F or as high as

D. Flexible Connections: Ventglass manufactured by Ventfabrics, Amatex or accepted substitute.

SECTION 23 0700 - MECHANICAL INSULATION

1 GENERAL

A. Provide piping, ductwork and equipment insulation including jacketing, adhesive and all related accessories for complete insulated system.

2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Insulating Manufacturers: JohnsManville, Knauf, Armstrong, Owens-Corning, Pabco, IMCOA or Certain Teed.

B. Adhesive Manufacturers: Benjamin Foster, 3M, Borden, Kingco or Armstrong. C. JohnsManville products are listed unless indicated otherwise.

2.2 PIPING INSULATION, JACKETING AND ACCESSORIES

A. Insulation: 1. Pipe system to minus 10 to 55 deg. F: Flexible, preformed, pre-slit, self-sealing elastomeric, thermal conductivity of 0.27 Btu/hr. sq. ft./in. at 75 deg. F and vapor transmission rating of 0.2 perms/inch. Apply in

thickness necessary to prevent condensation on the surface. JohnsManville "AEROTUBEII". Piping Systems 55 to 600 deg. F: Glass fiber preformed pipe insulation with a minimum K-value of 0.23 at 75 deg. F, a minimum density of 3.5 pounds per cubic foot. JohnsManville "Micro-Lok."

B. Jackets:

1. Interior Applications: a. Vapor Barrier Jackets: Kraft reinforced foil or vinyl vapor barrier with self—sealing adhesive joints or pressure sensitive seal. JohnsManville "Micro-Lok."

b. PVC Jackets: One piece, premolded type. JohnsManville "Zeston 1200."

a. Aluminum Jackets: ASTM B209; 0.016 inch thick; smooth finish. JohnsManville weatherproof "Micro-Lok."

2. Exterior Applications:

A. Insulation: 2 inch flexible glass fiber; ANSI/ASTM C612; commercial grade; 'k' value of 0.3 at 75 degrees F.

JohnsManville "Microlite".

B. Jacketina: Indoor Jacket: Foil-Skrim-Kraft.

Lagging Adhesive: Fire resistive to ASTM E84, NFPA 255, and UL 723. Impale Anchors: Galvanized steel, 12 gauge, self—adhesive pad.

Outdoor Jacket: Coated glass fiber sheet, 30 lb/sq yd.

Joint Tape: Glass fiber cloth, open mesh. Tie Wire: Annealed steel, 16 gauge (1.5 mm).

C. Fire Wrap: Listed and labeled duct wrap compliant with ASTM E 2336 and installed per manufacturer's recommendations. Thickness as required to maintain required fire rating. Thermal Ceramics FireMaster Duct Wrap or approved.

3 EXECUTION

A. Install materials after piping, ductwork and equipment has been tested and approved.

2" and Smaller 1-1/2

3.2 PIPING INSULATION INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Continue insulation with vapor barrier through penetrations.

In exposed piping, locate insulation and cover seams in least visible locations.

D. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or other heavy density insulating material suitable for the planned temperature range. Factory fabricated inserts may be used.

E. Piping Insulation Schedule:

PIPE SIZE INSULATION THICKNESS (IN.) 1/2 Domestic Cold

F. Handicapped Lavatory Insulation Kit: ASTM: P-traps, hot water and cold water insulating guards. Molded closed cell vinyl with nylon fasteners, paintable. Thermal conductivity: K=1.17 (BTU/in)/(hr/sq.ft./deg. F) at 75F mean temperature. Provide accessories as required for complete installation. Color white. Truebro Inc. Model 102. McGuire, ProWrap, Brocar Trap Wrap or accepted substitute.

barrier is required.

E. Duct Insulation Schedule Supply and Return Duct

Domestic Hot/Tempered

and Recirculating/Heating

3.3 DUCTWORK INSULATION INSTALLATION A. Install materials in accordance with manufacturer's instructions.

B. Exterior Insulation Application: Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match

All 1-1/2" Thick Flexible Fiberglass Insulation

Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point

insulation around access doors and damper operators to allow operation without disturbing wrapping. C. Continue insulation with vapor barrier through penetrations.

D. Internally Lined Ductwork: Where internally lined ductwork is indicated on the Drawings or specified, no exterior insulation is required. Carefully lap the ends of the exterior insulation a minimum of 6 inches past the interior insulation unless otherwise shown. Seal the end of vapor barrier jacket to the duct with mastic where the vapor

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3 2 -ENGINEERING, INC 9615 S.W. Allen Blvd., Suite 10 Beaverton, Oregon 97005 Phone: (503) 726-3319

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SPECIFICATIONS

MECHANICAL

1.1 DESCRIPTION

A. The requirements of this section apply to the Heating, Cooling and Ventilating Equipment.

2 PRODUCTS

2.1 PACKAGED ROOFTOP AIR CONDITIONING UNITS (3-20 TONS)

- A. Manufacturers: Trane, Carrier, Daikin, Luxaire, Lennox, Scott Springfield Mfg., Inc. (SSM) or approved substitution.
- B. Performance: Unit shall be selected within +/-5% of cooling and heating capacity scheduled. Unit shall be provide EER, IPLV, fan BHP efficiencies at or better than scheduled values.
- C. Unit: Single piece packaged rooftop combination heating and cooling unit. Unit factory assembled, piped, charged with refrigerant, wired and tested. Factory run tested to include the operation of all fans, compressors, heat exchangers, and control sequences. Factory adhere labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.
- D. Cabinet: Zinc coated galvanized steel to be finished with weather—resistant enamel finish. Unit surface shall withstand 600 hours in a salt spray test in compliance with ASTM B117. Unit to have downflow supply and return with duct connections made fully inside roof curb. The unit base shall have provisions for crane lifting lugs. Unit to include outside air intake hood. Roof panels shall be sloped to provide positive drainage of rain water / melting snow away from the cabinet.
- E. Service Access: Access panels shall be hinged or quick lift out with no more than two screws, and provide a water and air tight seal.
- F. Supply Fan: Forward curved, double width, double inlet, centrifugal type supply fan with self—aligning, grease lubricated ball or sleeve bearings with permanent lubrication fittings. Provide thermal overload protection on motor.
- G. Exhaust Fan: Units 6 tons and larger shall be provided with exhaust fan to assist in controlling building static pressure. Exhaust fan is for duct installation on horizontal discharge units. Exhaust fan shall be mounted and integrally wired on downflow units. Exhaust fan shall be on whenever outside air damper is greater that 25 percent. Barometric Relief: Units below 6 tons, which have economizers, shall have barometric relief hood.
- H. Gas Heating Section: Completely assembled and wired gas fired heating system with stainless steel heat exchanger, electronic ignition, centrifugal combustion blower, continuous flame safety, automatic gas valve and manual gas shut—off valve. Designed and tested for use constant airflow with entering air down to 45 degrees. Two—stage natural gas heating when heating output is greater than 140 MBH.
- I. Electrical: Units shall be UL listed and label as a complete assembly. Provide single control panel with weatherproof control panel, single point electrical connection, suitable overload protection for each branch circuit, contactors for each motor & compressor, fused control power transformer. Provide wiring diagrams, affixed to access door.
- J. Controls: Factory mounted controls to include devices and wiring necessary for unit operation on a standalone basis for service checkout and operation before control installation is complete. This system shall consist of contactors, transformers, two minute supply fan anticycle timer, compressor min ON and OFF anticycle timers, condenser fan anticycle timers, heat anticycle timers, and refrigeration safeties factory wired and tested. Controls shall provide fully integrated, dry bulb initiated, economizer control that allows compressor operation to supplement free cooling. Unit control shall interface with thermostat or controller specified under division 23 0933.

K. Unit Options:

- 1. Roof Curb: 14 inch high galvanized steel curb with gaskets and nailer strip, manufactured in accordance with the National Roofing Contractors Association guidelines for rooftop equipment support.
- 2. Filters: Filter rack with MERV 8 filters minimum. MERV 13 filters optional, see schedule.

3 EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Install in accordance with manufacturer's instructions and applicable code.
- B. Lubricate all moving and rotating parts in accordance with manufacturer's recommendation prior to start—up.
- C. All roof mounted mechanical equipment shall be supported and seismically anchored on leveled, flashed and counterflashed curbs anchored to resist seismic forces and suitable for the roof construction. Minimum curb height shall be 12 inches above the roof unless otherwise noted.
- D. Make all electrical and duct penetrations for each equipment within the curb unless shown otherwise on the Drawings. Piping and electrical conduit routed above and across the roof shall be supported on flashed and counterflashed curbs with pipe guides anchored to the curbs in "pitch pockets." Submit shop drawings on other arrangements for approval.
- E. Secure fans with lag bolts on each side. Seal with mastic mount on level curb.

SECTION 23 8900 - AIR DISTRIBUTION

1 GENERAL

1.1 WORK INCLUDED

- A. Provide air distribution equipment as specified herein and shown.
- B. Equipment capacity and size shall be as shown.

2 PRODUCTS

2.1 DUCTWORK

- A. Galvanized steel sheet metal: Metal gauges, joints and reinforcement in accordance with mechanical Code, ASHRAE and SMACNA tables and recommendations.
- B. Spiral Seam Duct: Round and flat oval spiral seam duct shall be manufacture of galvanized steel sheet metal with spiral lock seam. Matching fittings shall be manufactured of galvanized steel with spot welded seams. United Sheet Metal, Semco, Rolock, Metco or accepted substitute.

2.3 DUCT SEALING

- A. Aluminum bonded to aluminized mylar reinforced with fiberglass mesh backing an elastomeric pressure sensitive adhesive specifically formulated for adhesion to galvanized metal. Hardcast "AFG—1402" with "HD—181" degreaser or accepted substitute.
- B. Two-part sealing system with woven fiber, mineral gypsum impregnated tape and non-flammable adhesive. Hardcast "DT-5300 tape and "RTA-50" adhesive or United "Uni-Cast" system or accepted substitute.
- C. Duct Joints for Sheet Metal Ducts: "Ductmate System" by Ductmate Industries, Inc., for making transverse rectangular and round duct joints. Ward Duct Connectors, Inc., Lockformer TDC or accepted substitutes.

2.4 ACCESSORIES

A. Manual Volume Dampers: Construct of material two gauges heavier than duct in which installed; single plate up to 12 inches wide; multiple over 12 inches wide. Hem both edges 1/2 inch and flange sides 1/2 inch. Provide regulator extension through sheet rock ceiling with concealed adjustable cover. Use Young, DuroDyne or accepted substitue damper accessories.

3 EXECUTION

3.1 INSTALLATION

- A. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- B. Provide manual volume dampers at points on low pressure supply, return, and exhaust systems where branches are taken from larger ducts for air balancing. Use splitter dampers only where shown. Location of all volume dampers are not necessarily shown on the drawings.
- C. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.
- D. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where shown.
- E. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 12 inches x 12 inches size for hand access, 18 inches x 24 inches size for shoulder access and as indicated. Install necessary access openings and covers for cleaning, wiring or servicing motors, fire dampers, filters, fans, both entering and leaving air sides of coils, and to other equipment located within or blocked by ductwork.
- F. Support: Install ductwork with 1 inch wide 16 gauge cradle hangers not more than 8 feet c/c or as required by code. Support terminal units independent of adjacent ductwork. Attach to available building construction as per good practices for materials involved. Exposed ductwork shall be supported by closed cradle strap suspended from 3/8 inch threaded rod.
- G. Connection Fittings: Round connections to rectangular ducts manufactured sheet metal "spin—in" fittings. Genflex, Wiremold, Thermaflex, Glassflex, Clevepak, Manville, or accepted substitute.
- H. Elbows and Fittings: Construct elbows with throat radius equal to duct width in plane or turn or make them square and provide double wall, air foil turning vanes.
- I. Sleeves: Provide galvanized sheet metal plaster ring around ductwork penetrating exposed finished walls. Sleeve and flash all duct penetrations through exterior walls in an air tight and weatherproof manner.
- J. Plenums: Construct sheet metal plenums and partitions of not lighter than 18 gauge galvanized steel and reinforce with 1-1/2 inch by 1/2 inch by 1/8 inch angles as required to prevent drumming or breathing.
- K. Acoustical Duct Lining: Acoustically line all outside air ducts and plenums, all fan unit intake and discharge plenums, all ductwork indicated as lined on the Drawings.
- L. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.2 ADJUSTING AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

SECTION 23 8000 - TESTING, ADJUSTING, AND BALANCING

1 GENERAL

1.1 WORK INCLUDED

- A. After completion of the work of installation, test and regulate all components of the ventilating systems to verify air flow rates shown.
- B. Measurement of final operating condition of mechanical systems.
- C. Provide written report documenting testing, adjusting and balancing results.

2 PRODUCTS

2.1 EQUIPMENT

A. Provide all necessary personnel, equipment and services.

3 EXECUTION

3.1 EXAMINATION

- A. Before commencing work, verify that systems are complete and operable. Ensure the following: Equipment is operable and in a safe and normal condition. Temperature control systems are installed complete and operable. Proper thermal overload protection is in place for electrical equipment. Final filters are clean and in place. If required, install temporary media in addition to final filters. Duct systems are clean of debris. Correct fan rotation. Fire and volume dampers are in place and open. Coil fins have been cleaned and combed. Access doors are closed and duct end caps are in place. Air outlets are installed and connected. Duct system leakage has been minimized.
- B. Report any defects or deficiencies noted during performance of services to Architect.
- C. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect to facilitate spot checks during testing.

3.3 INSTALLATION TOLERANCES

- A. Adjust air handling systems to plus or minus 10 percent for supply, return and exhaust systems from figures indicated.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

3.4 ADJUSTING

- A. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- B. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.5 AIR SYSTEM PROCEDURE

- A. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of
- B. Measure air quantities at air inlets and outlets.
- C. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and
- D. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- E. Measure static air pressure conditions on air supply units, including filter and coil pressure drops,
- and total pressure across the fan.

 F. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design
- conditions.
 G. Measure temperature conditions across outside air, return air, and exhaust dampers to check
- H. Where modulating dampers are provided, take measurements and balance at extreme conditions.
- I. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure near the building entries.

3.6 VERIFICATION OF CONTRACTOR'S PERFORMANCE

- A. Balancing data may be spot checked with instruments similar to that used by the balancing firm.
- B. If, in the judgment of the Architect, the discrepancies warrant additional adjustment, readjust and rebalance the systems at no ad

SECTION 23 9330 - CONTROLS

1 GENERAL

1.1 SYSTEM DESCRIPTION

- A. Provide a system of low voltage electrical controls that is compatible with and can fully integrate with existing direct digital control building management system. Work must be performed by a Beaverton School District approved controls contractor.
- B. Wiring: Shall be as required for a complete operating control system, per state and National Electric Code. Provide necessary relays, transformers, fusing, switches and pilot lights. Interlocks and control power from nearest panel.

2 PRODUCTS

2.1 ROOM THERMOSTATS AND SENSORS

A. Match existing controls.

2.2 SMOKE DETECTORS

A. Dual chamber ionization type with duct sampling tubes. UL approved with adjustable sensitivity. Arrange to stop associated fan on presence of smoke. Provide in return duct upstream of outside air connection and filters for all fan systems above 2000 CFM.

2.3 TRANSFORMERS

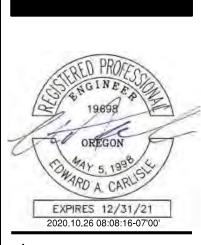
A. Transformers selected and sized for appropriate VA capacity and installed and fused according to applicable codes. Provide wiring to nearest suitable power source as required.

3 EXECUTION

3.1 SEQUENCE OF OPERATION

A. Rooftop Units:

- 1. Operate during occupied hours set by owner's schedule.
- 2. Modulate heating, cooling and economizer to maintain set point. Coordinate initial setpoints with BSD staff.
- 3. Ventilation: Demand control ventilation based on CO2 in space.
- 4. Night set back and morning warm up. Close outside air dampers and operate heating or cooling as required to reach set point.
- 5. Alarms: At a minimum provide alarms for high space temperature, low space temperature, and all unit generated alarms.
- 6. Intergrate smoke detectors with existing fire alarm system.



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MECHANICAL SPECIFICATIONS