METRO CENTRAL TRANSFER STATION
HOUSEHOLD HAZARDOUS WASTE FACILITY
GREEN ROOF PROJECT

MAY 24, 2011

PROJECT CONTACTS

CLIENT:	METRO 600 NE GRAND AVENUE PORTLAND, OREGON 97232-2736	CONTACT: PETE HILLMANN 503.797.1696 pete.hillmann@oregonmetro.gov
ARCHITECT:	ORANGEWALLstudios architecture + planning 240 N BROADWAY ST. | SUITE 202 PORTLAND, OR 97227	CONTACT: GARY HARTILL, AIA 503.227.8100 x101 garyh@orangewallstudios.com
STRUCTURAL ENGINEER:	CASCADE DESIGN PROFESSIONALS, Inc. 2780 SE HARRISON ST, SUITE 104 PORTLAND, OR 97222	CONTACT: PAUL KLUVERS, PE 503.652.9090 paulk@cascadedesign.net
LANDSCAPE ARCHITECT:	TERRA FLUXUS, LLC. 1111 E BURNSIDE ST., SUITE 302 PORTLAND, OR 97214	CONTACT: JASON KING, ASLA 503.481.7826 jason@terrafluxus.com
STRUCTURAL ENGINEER:	CASCADE DESIGN PROFESSIONALS, Inc. 2780 SE HARRISON ST., SUITE 104 PORTLAND, OR 97222	CONTACT: PAUL KLUVERS, PE, SE 503.652.9090 paulk@cascadedesign.net

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BUILDING DATA

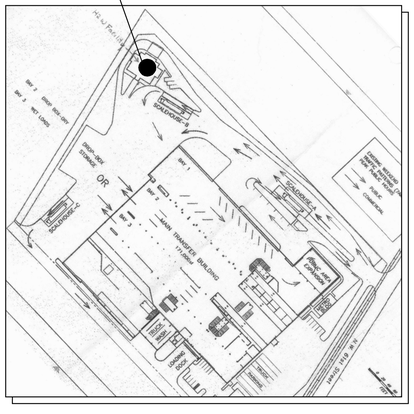
PROJECT ADDRESS:	6161 NW 61ST AVE. PORTLAND, OREGON 97210
BUILDING CODE EDITION:	2010 OREGON STRUCTURAL SPECIALTY CODE BASED ON THE 2006 INTERNATIONAL BUILDING CODE
CONSTRUCTION TYPE:	II-A
EXISTING BLDG. HEIGHT:	18'-6"
EXISTING STORIES:	1 STORY
EXISTING FLOOR AREA:	4,658 SQFT TOTAL
OCCUPANCY GROUPS:	H2
FIRE SPRINKLERS:	NFPA13
ROOF INSULATION:	R-19 MINIMUM
ROOF MEMBRANE:	CLASS 'A'

PROJECT SITE
HOUSEHOLD HAZARDOUS WASTE FACILITY

TRUE NORTH
PROJECT NORTH

ARIEL VIEW
SCALE: N.T.S.

PROJECT SITE
HOUSEHOLD HAZARDOUS WASTE FACILITY



TRUE NORTH
PROJECT NORTH

SITE MAP
SCALE: N.T.S.

PROJECT SITE
METRO CENTRAL TRANSFER STATION

TRUE NORTH
PROJECT NORTH

VICINITY MAP
SCALE: N.T.S.

PERMIT SET

METRO - CENTRAL TRANSFER STATION
HOUSEHOLD HAZARDOUS WASTE FACILITY
GREEN ROOF PROJECT

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- PART 1 - GENERAL

- CONTRACT CONDITIONS

- Work of this Section is bound by the Contract Conditions and Division 1, bound herewith, in addition to this Specification and accompanying Drawings.

- EXTENT OF WORK

- Apply at all Roof Decks.

- RELATED WORK SPECIFIED IN OTHER SECTIONS

- Sheet metal Flashing & Trim: Section 07620

- COORDINATION

- Coordinate with other Trades affecting or affected by Work of this Section.

- LAYOUT DRAWINGS

- Submit in accordance with Section 1340.
- Include Roof outline, Splice locations, Penetrations, and Edge Details.
- Include Membrane Manufacturer's approval of Drawings.

- REGULATORY AGENCY REQUIREMENTS

- Label Products indicating compliance with UL fire-resistance requirements specified in Building Code.
- Comply with Wind Uplift Requirements specified in Building Cods.

- PRODUCT DELIVERY, STORAGE, & HANDLING

- Protect against damage and discoloration.
- Do not overload Building Structure with stored Materials.

- MANUFACTURER'S CERTIFICATIONS

- Submit evidence of the following:
  - That Roofer is Manufacturer-trained and Manufacturer-approved to perform Work of this Section as follows:
    - To General Contractor with Subbid Proposal
    - To Architect prior to ordering Products
  - That Manufacturer has reviewed and approves this Specification as follows:
    - To Architect prior to ordering Products
- Immediately following Work completion, submit to Architect:
  - Certification that Manufacturer's Representative has inspected Work prior to, during, and after Work completion, and that Work complies with these Specifications and Manufacturer's instructions.

- PRE-INSTALLATION MEETING

- Prior to starting Work, and in accordance with Section 01310, Roofer shall arrange meeting to clarify any questions about Specifications, details, and other application requirements.
- Representatives of the following shall attend:
  - General Contractor
  - Roof Deck Subcontractor
  - Roofing Subcontractor
  - Roofing Manufacturer
  - General Sheetmetal Subcontractor
  - Roof-mounted Equipment Subcontractors
  - Roof-penetrating Equipment Subcontractors
  - Owner
  - Architect
  - Landscape Architect

- WEATHER REQUIRMENTS

- Comply with Manufacturer's recommendations.

- ADVANCE NOTICES

- Notify Architect and Roofing Manufacture at least 48 hours prior to starting Work.

- WORK WARRANTY

- Roofing and Flashings are subject to 20 year Warranty called for in Supplementary Conditions, Section 00800.

- Roofer is responsible for proper placement of Metalwork, which has been provided by other Trades, and is in contact with Roofing.

- MAINTENANCE WARRANTY

- Prior to Final Project Acceptance submit the following Warranties for inclusion in Owner's Maintenance Manual:
  - We, the undersigned, do hereby warrant TPO roofing system and related Flashing against failure under normal usage as may occur within the following time periods after Project Substantial Completion date, and defective Work will be repaired or replaced at no additional cost to Owner:
    - 20 Years: Defective Work including any resulting damage to Building Materials and/or Building Contents.

      ROOFER: _____
      By: _____
      GENERAL CONTRACTOR: _____
      By: _____

- PART 2 - PRODUCTS

- ROOFING MEMBRANE

- Manufacturer & Brand: Firestone 'UltraPly' TPO, Carlisle, Johns Manville or approved.
- Material: Fully adhered Thermolplastic Polyolefin (TPO)
- Minimum UL 790 Fire-resistiveness Class: A
- Color: White.
- Thickness: 60 Mil
- Sheet Size: Largest practicable

- ROOF DECK SHEATHING

- Manufacturer & Brand: Firestone 'DensDeck', or approved.
- Thickness: 3/8 inches
- Flame Spread Rating: 0
- Smoke Development Rating: 0
- Extent of Work: Provide over Metal Deck and Parapet Wall Surfaces to receive Roofing.

- JOINT REINFORCING TAPE

- Brand: MM 6125 RE-EV
- Thickness: 215 mils

- Extent of Work: Cover Joints between adjacent Sheathing Panels.

- VAPOR RETARDER

- Owens Corning Permastop, Fortifiber Vaporstop 298, Reef Griffolyn, or approved.

- CRICKET FORMING BOARD

- Material: Polyisocyanurate Insulation Board, or approved.
- Manufacturer: Contractor's choice
- Minimum Density: 1-1/2 pcf
- Shape: Tapered 1/2 per ft., minimum.
- Extent of Work: Provide where necessary to form Roof Slope Crickets.

- ADHESIVE, CEMENT, MASTIC, & SEALANT

- Furnished by Membrane Manufacturer.

- NAILING STRIPS, CURBS, & BLOCKING

- Materials: Recommended by Membrane Manufacturer for conditions of use
- Source: Furnished by Membrane Manufacturer

- FASTENERS

- Manufacturer & Type: Approved by Membrane Manufacturer
- Material: Non-corrosive
- Length: As required to satisfy conditions of use

- FLASHING MEMBRANE

- Manufacturer: Approved by Roofing Membrane Manufacturer
- Material: Match Membrane
- Color: Match Roofing Membrane
- Thickness: 60 mil.

- PROTECTION MAT

- Manufacturer & Brand: Firestone 'UltraPly' TPO Walkway Pad, or approved.

- Extent of Work: Provide between Roofing Membrane and Paver Pedestals and as defined in the drawings.
- PART 3 - EXECUTION

- EXISTING CONDITIONS

- Verify that Surfaces to receive Roofing System are clean, smooth, sound, dry, and free of sharp edges, fins, grease, oil, water, ice, frost, foreign matter, and other conditions that could adversely affect Roofing execution and permanence, and are otherwise properly prepared.
- Verify if existing roofing system utilizes perlite board underlayment. Reuse existing perlite board. If perlite board is wet or damaged, replace for dry, clean condition. Notify Architect of prior to replacing and perlite board or if conditions vary and prior to purchasing new material.
- Prior to starting Work notify General Contractor about defects requiring correction.
- Do not start Work until conditions are satisfactory.
- Do not start until other Work which penetrates Membrane is completed.

- PROTECTION

- Protect other Work against damage and discoloration caused by Work of this Section.
- Prevent Adhesive Solvent Fumes from being drawn into Building Ventilation System.

- SURFACE PREPARATION

- Prior to roofing, remove from Roof Deck any oil, grease, debris, obstruction, snow, ice, moisture, or projections which could damage System.

- SHEATHING INSTALLATION

- Mechanically fasten to Substrate in accordance with Regulatory Agency requirements.

- CRICKET BOARD INSTALLATION

- Form into shapes shown on Drawings.
- Secure Board to Roof Sheathing with Adhesive.
- Maintain 1/2 inch per ft. minimum slope at Cricket Valleys.

- VAPOR RETARDER INSTALLATION

- Apply, in accordance with Membrane Manufacturer's instructions, over Decks to

receive Thermal Insulation.
- Minimum Side Laps: 2 inches
- Minimum End Laps: 6 inches
- Seal Edge, Perimeter, and Penetration Laps with Adhesive.

- INSULATION INSTALLATION

- General:
  - Apply in dry condition in accordance with Manufacturer's instructions and Regulatory Agency requirements.
  - Apply in 2 or more layers to specified overall thickness.
  - Stagger Joints between adjacent Insulation layers at least 8 inches.
  - Maximum Open Space between adjacent Insulation Sheets: 1/8 inch
  - Position long sides of Insulation Sheets with Continuous Joints. Stagger adjacent Transverse Joints.
  - Neatly cut and fit Insulation at Roof Edges and at any Vertical Projections through Insulation. Fill Open Spaces with Edge Expansion Strips.
  - Miter Insulation at any Ridges.
  - Do not damage Insulation edges or faces during installation.
- At Sloping Insulation maintain the following:
  - 1/4 inch per ft. minimum slope.
  - Minimum specified thickness at Roof Drains.
  - Provide tapered Fiber Edge Strip at any exposed Insulation edges.
- At Roof Drains:
  - Taper top layer of Insulation for 24 inches around and downward toward Drain.

- MEMBRANE INSTALLATION

- Follow Manufacturer's instructions using Mechanically Attached method.
- Place Sheet in final position without stretching.
- Allow Sheets to relax 30 minutes minimum before making splices or anchoring to Substrate.
- Overlap adjacent Sheets at least 3 inches for splicing.
- Remove any Wrinkles or Air Pockets.
- Secure Membrane as instructed by Membrane Manufacturer.
- Make Seams and Penetrations watertight.
- Check Seam sealing for continuity and integrity.
- Prior to end of each Working Day, seal exposed Seam edges with Sealant.
- Flash Membrane perimeter and penetrations as instructed by Membrane Manufacturer.

- FLOOD TESTING

- Prior to covering Membrane, flood Roofing for to fully immerse roofing with Water for at least 48 hours.

- Repair any Leaks or, if so directed, replace Roofing, and repeat Test.

- PROTECTING COMPLETED WORK

- Prevent Water-flow beneath or behind any completed Work.
- Notify General Contractor to protect completed Work against damage and discoloration caused by workmen of other Trades.

- WASTE MANAGEMENT

- Collect Scrap Materials, and deposit where directed for recycling.

- CLEANING & REPAIRING

- Including Work of other Sections, clean, repair and touch-up, or replace when directed, Products which have been soiled, discolored, or damaged by Work of this Section.
- Remove debris from Project Site upon Work completion, or sooner if directed.

END OF SECTION

SET	DATE
CLIENT REVIEW 100% SD	04.21.11
95% CD SET	05.17.11
PERMIT SET	05.24.11

PERMIT SET

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ROOF MEMBRANE SPECIFICATION

METRO | H2W GREEN ROOF PROJECT
CENTRAL WASTE COLLECTION FACILITY
PORTLAND, OREGON

PORTLAND, OREGON

REGISTERED ARCHITECT
WILLIAM G. RYALS
PORTLAND, OR
3050
STATE OF OREGON

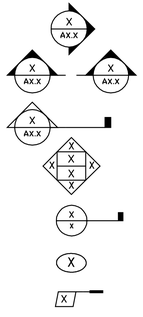
Job No.

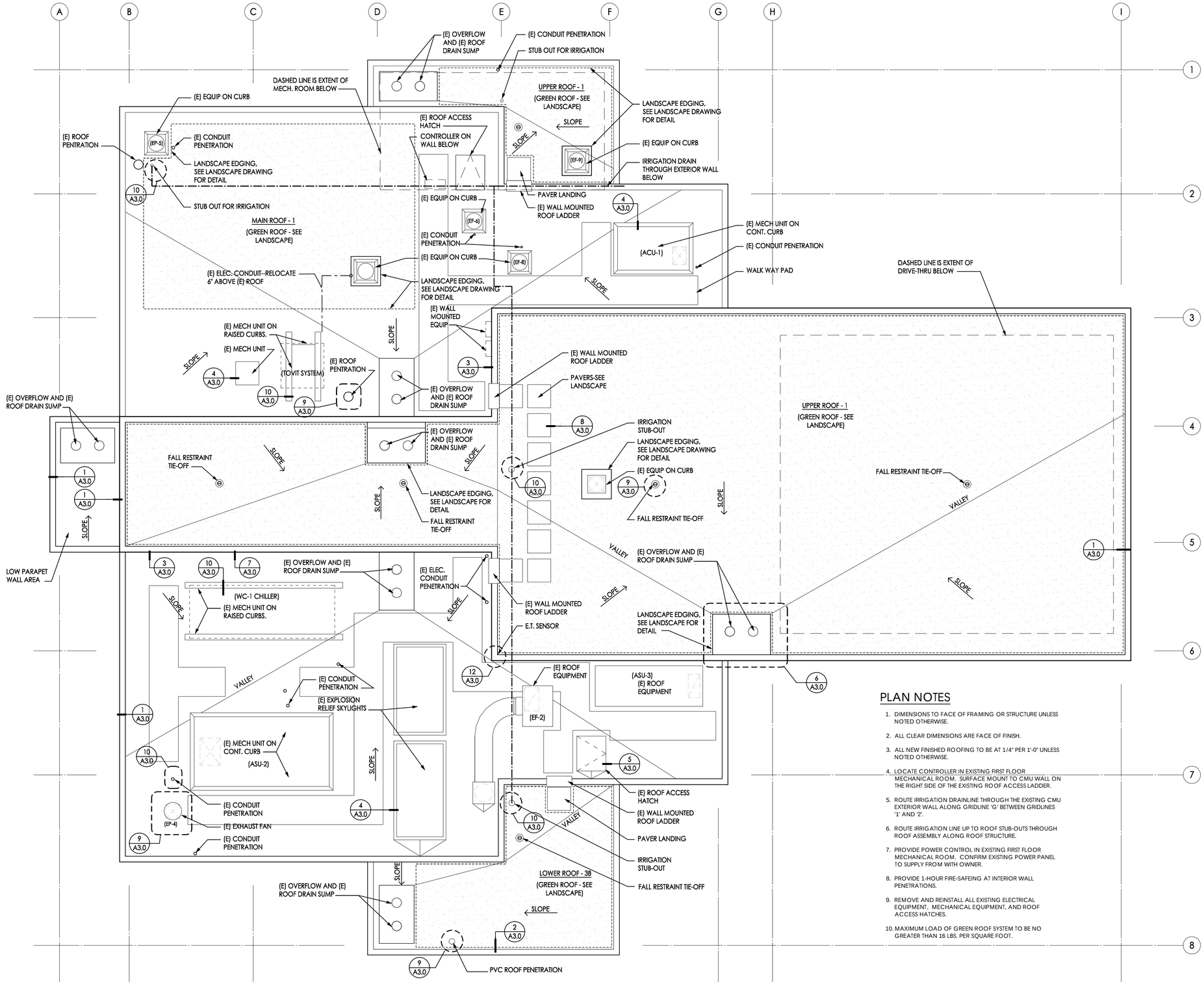
A0.1

ABBREVIATIONS LEGEND

L	ANGLE	INCL	INCLUDE
℄	CENTERLINE	INT	INTERIOR
d	PENNY		
PL	PLATE	JT	JOINT
Ø	ROUND, DIAMETER		
		L	LENGTH
AB	ANCHOR BOLT	LAM	LAMINATE(D)
ABV	ABOVE	LAV	LAVATORY
A/C	AIR CONDITIONING	LH	LEFT HAND
ACC	ACCESSIBLE		
ADD	ADDENDUM	MAX	MAXIMUM
ADJ	ADJACENT, ADJUSTABLE	MC	MEDICINE CABINET
AFF	ABOVE FINISH FLOOR	MECH	MECHANICAL
ALT	ALTERNATE	MED	MEDIUM
ALUM	ALUMINUM	MFR	MANUFACTURE(R)
APPROX	APPROXIMATE	MIN	MINIMUM
ARCH	ARCHITECT(URAL)	MIR	MIRROR
		MISC	MISCELLANEOUS
B/T	BETWEEN	MO	MASONRY OPENING
BLDG	BUILDING	MTL	METAL
BLKG	BLOCKING	MUL	MULLION
B.O.	BOTTOM OF		
		(N)	NEW
CAB	CABINET	N	NORTH
CJ	CONTROL JOINT	NIC	NOT IN CONTRACT
CLG	CEILING	NOM	NOMINAL
CLR	CLEAR(ANCE)	NTS	NOT TO SCALE
CMU	CONC. MASONRY UNIT		
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OFCI	OWNER FURN/CONTR. INS
CONST	CONSTRUCTION	OPP	OPPOSITE
CONT	CONTINUOUS		
CORR	CORRIDOR	PNT	PAINT(ED)
CPT	CARPET	PNL	PANEL
CSMT	CASEMENT	PTD	PAPER TOWEL DISPENSER
CT	CERAMIC TILE	PTR	PAPER TOWEL RECEPTACL
CTR	CENTER	PERF	PERFORATED
CVG	CLEAR VERTICAL GRAIN	PLAM	PLASTIC LAMINATE
		PLY	PLYWOOD
DIA	DIAMETER	PT	PRESSURE TREATED
DIAG	DIAGONAL	PVC	POLYVINYL CHLORIDE
DIM	DIMENSION	PROP	PROPERTY
DR	DOOR		
DS	DOWNSPOUT	RB	RUBBER BASE
DTL	DETAIL	RD	ROOF DRAIN
DWG	DRAWING	REF	REFERENCE
		REFR	REFRIGERATOR
(E)	EXISTING	REV	REVISION, REVISED
E	EAST	RH	RIGHT HAND
EA	EACH	RM	ROOM
EJ	EXPANSION JOINT	RO	ROUGH OPENING
EL	ELEVATION	ROW	RIGHT OF WAY
ELEC	ELECTRIC(AL)		
ELEV	ELEVATOR	S	SOUTH
ENCL	ENCLOSURE	SASM	SELF-ADHERED SHEET MEM
EQ	EQUAL	SC	SOLID CORE
EWC	ELECTRIC WATER COOLER	SCHED	SCHEDULE
EXP	EXPOSED	SHTH'G	SHEATHING
EXT	EXTERIOR	SIM	SIMILAR
		SOG	SLAB ON GRADE
FBO	FURNISHED BY OTHERS	SPEC	SPECIFICATION
FD	FLOOR DRAIN	SQ	SQUARE
FDC	FIRE DEPT. CONNECTION	STL	STEEL
FE	FIRE EXTINGUISHER	STOR	STORAGE
FEC	FIRE EXTINGUISHER CABINET	STRUCT	STRUCTURAL
FFE	FINISHED FLOOR ELEVATION	SYM	SYMMETRICAL
FG	FIBERGLASS		
FIN	FINISH(ED)	T&G	TONGUE AND GROOVE
FLR	FLOOR(ING)	TB	TOWEL BAR
FLSHG	FLASHING	TEL	TELEPHONE, TELECOM
FND	FOUNDATION	TO	TOP OF
FO	FACE OF	TPD	TOILET PAPER DISPENSER
FTG	FOOTING	TYP	TYPICAL
GA	GAUGE	UNO	UNLESS NOTES OTHERWISE
GALV	GALVANIZED		
GC	GENERAL CONTRACTOR	VB	VAPOR BARRIER
GL	GLASS, GLAZING	VERT	VERTICAL
GRB	GRAB BAR	VIF	VERIFY IN FIELD
GWW	GALV. WOVEN WIRE		
GYP	GYPSUM BOARD	W/	WITH
		W/O	WITHOUT
HB	HOSE BIB	WB	WOOD BASE
HC	HOLLOW CORE	WC	WATER CLOSET
HDR	HEADER	WD	WOOD
HOR	HORIZONTAL	WG	WIRED GLASS
HS	HOLLOW STEEL	WIN	WINDOW
HT	HEIGHT	WP	WATERPROOF(ING)
HVAC	HEATING/VENT/AC	WWM	WELD WIRE MESH

SYMBOLS LEGEND





PLAN NOTES

1. DIMENSIONS TO FACE OF FRAMING OR STRUCTURE UNLESS NOTED OTHERWISE.
2. ALL CLEAR DIMENSIONS ARE FACE OF FINISH.
3. ALL NEW FINISHED ROOFING TO BE AT 1/4" PER 1'-0" UNLESS NOTED OTHERWISE.
4. LOCATE CONTROLLER IN EXISTING FIRST FLOOR MECHANICAL ROOM. SURFACE MOUNT TO CMU WALL ON THE RIGHT SIDE OF THE EXISTING ROOF ACCESS LADDER.
5. ROUTE IRRIGATION DRAINLINE THROUGH THE EXISTING CMU EXTERIOR WALL ALONG GRIDLINE 'G' BETWEEN GRIDLINES '1' AND '2'.
6. ROUTE IRRIGATION LINE UP TO ROOF STUB-OUTS THROUGH ROOF ASSEMBLY ALONG ROOF STRUCTURE.
7. PROVIDE POWER CONTROL IN EXISTING FIRST FLOOR MECHANICAL ROOM. CONFIRM EXISTING POWER PANEL TO SUPPLY FROM WITH OWNER.
8. PROVIDE 1-HOUR FIRE-SAFEING AT INTERIOR WALL PENETRATIONS.
9. REMOVE AND REINSTALL ALL EXISTING ELECTRICAL EQUIPMENT, MECHANICAL EQUIPMENT, AND ROOF ACCESS HATCHES.
10. MAXIMUM LOAD OF GREEN ROOF SYSTEM TO BE NO GREATER THAN 16 LBS. PER SQUARE FOOT.

1 A2.0 ROOF PLAN
SCALE: 1/4" = 1'-0"

TRUE NORTH
PROJECT NORTH

PERMIT SET

SET	DATE
CLIENT REVIEW 100% SD	04.21.11
95% CD SET	05.17.11
PERMIT SET	05.24.11

SET	DATE

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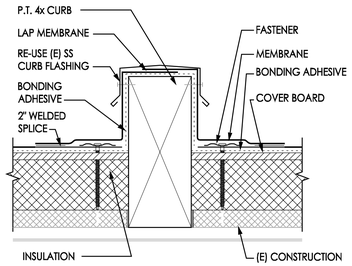
ROOF PLAN
METRO
H2W GREEN ROOF PROJECT
CENTRAL WASTE COLLECTION FACILITY
PORTLAND, OREGON

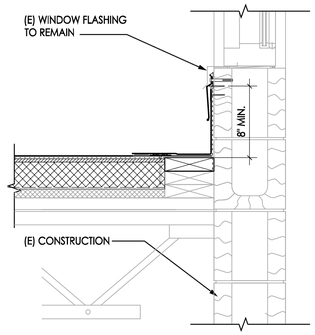
REGISTERED ARCHITECT
WILLIAM G. RYALS
PORTLAND, OR
3050
STATE OF OREGON

Job No.

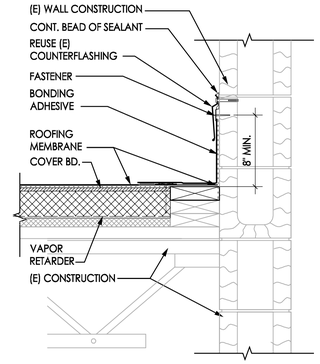
A2.0



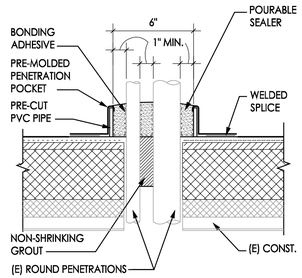
11 A3.0 DETAIL AT MECH CURB
SCALE: 3" = 1'-0"



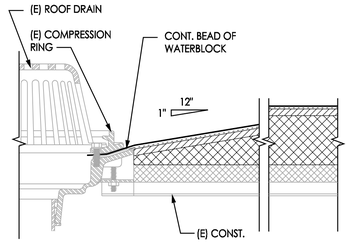
7 A3.0 DETAIL AT WINDOW SILL
SCALE: 1 1/2" = 1'-0"



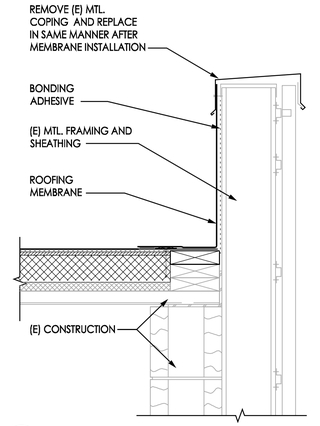
3 A3.0 DETAIL AT EXPOSED CONCRETE WALL
SCALE: 1 1/2" = 1'-0"



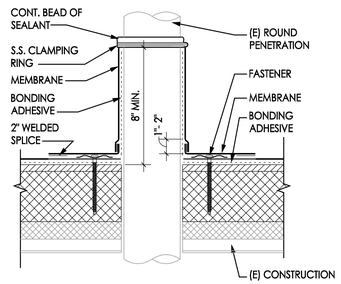
10 A3.0 DETAIL AT PENETRATION POCKET
SCALE: 3" = 1'-0"



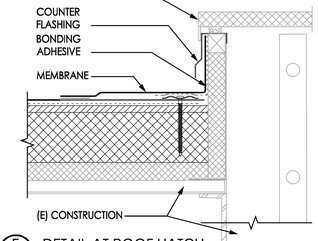
6 A3.0 DETAIL AT ROOF/OVERFLOW DRAIN
SCALE: 3" = 1'-0"



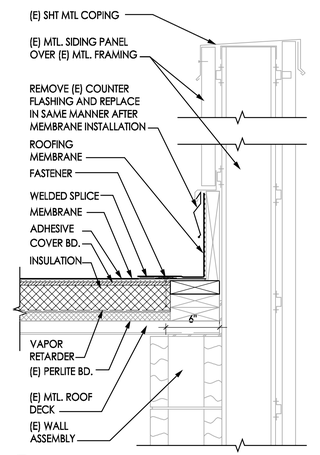
2 A3.0 TYPICAL SHORT PARAPET
SCALE: 1 1/2" = 1'-0"



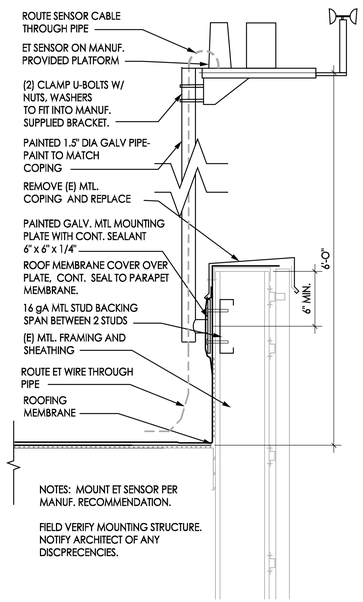
9 A3.0 DETAIL AT PIPE PENETRATION
SCALE: 3" = 1'-0"



5 A3.0 DETAIL AT ROOF HATCH
SCALE: 3" = 1'-0"



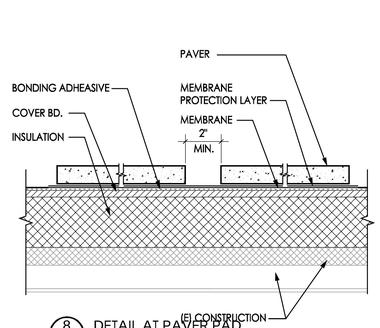
1 A3.0 TYPICAL TALL PARAPET
SCALE: 1 1/2" = 1'-0"



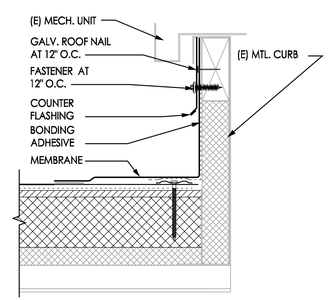
NOTES: MOUNT ET SENSOR PER MANUF. RECOMMENDATION.

FIELD VERIFY MOUNTING STRUCTURE. NOTIFY ARCHITECT OF ANY DISCPRECENCIES.

12 A3.0 ET SENSOR MOUNT AT PARAPET
SCALE: 1 1/2" = 1'-0"



8 A3.0 DETAIL AT PAVER PAD
SCALE: 3" = 1'-0"



4 A3.0 DETAIL AT MECHANICAL CURB
SCALE: 3" = 1'-0"

SET	DATE
CLIENT REVIEW 100% SD	04.21.11
95% CD SET	05.17.11
PERMIT SET	05.24.11

SET	DATE

PERMIT SET

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DETAILS

METRO
PORTLAND, OREGON

H2W GREEN ROOF PROJECT
CENTRAL WASTE COLLECTION FACILITY
PORTLAND, OREGON

REGISTERED ARCHITECT
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3050
STATE OF OREGON

Job No.

A3.0

J:\2011-108611 METRO METROGO\DWGS\DS-CD\PLOT SET - METRO.dwg, A3.0, 6/13/2011 12:00:42 PM, 1:1

NOTES:

1. GROWING MEDIA TYPE AND DEPTH NOT TO EXCEED 14 POUNDS PER SQUARE FOOT (PSF) WHEN FULLY SATURATED.

2. GREEN ROOF ASSEMBLY* INCLUDES :
   - A. PROTECTION/ROOT BARRIER
   - B. DRAINAGE MAT
   - C. GROWING MEDIA (2.5" DEPTH)
   - D. PLANTINGS (CUTTINGS @ 200 lbs/1000 s.f.)
   - E. IRRIGATION (SPRAY ROTORS)
   - F. 2.5" EDGING (ALUM.) & FILTER FABRIC
   - G. CONCRETE PAVERS (24" X 24")
   - H. GRAVEL BALLAST/EDGE ROCK (2" DEPTH)

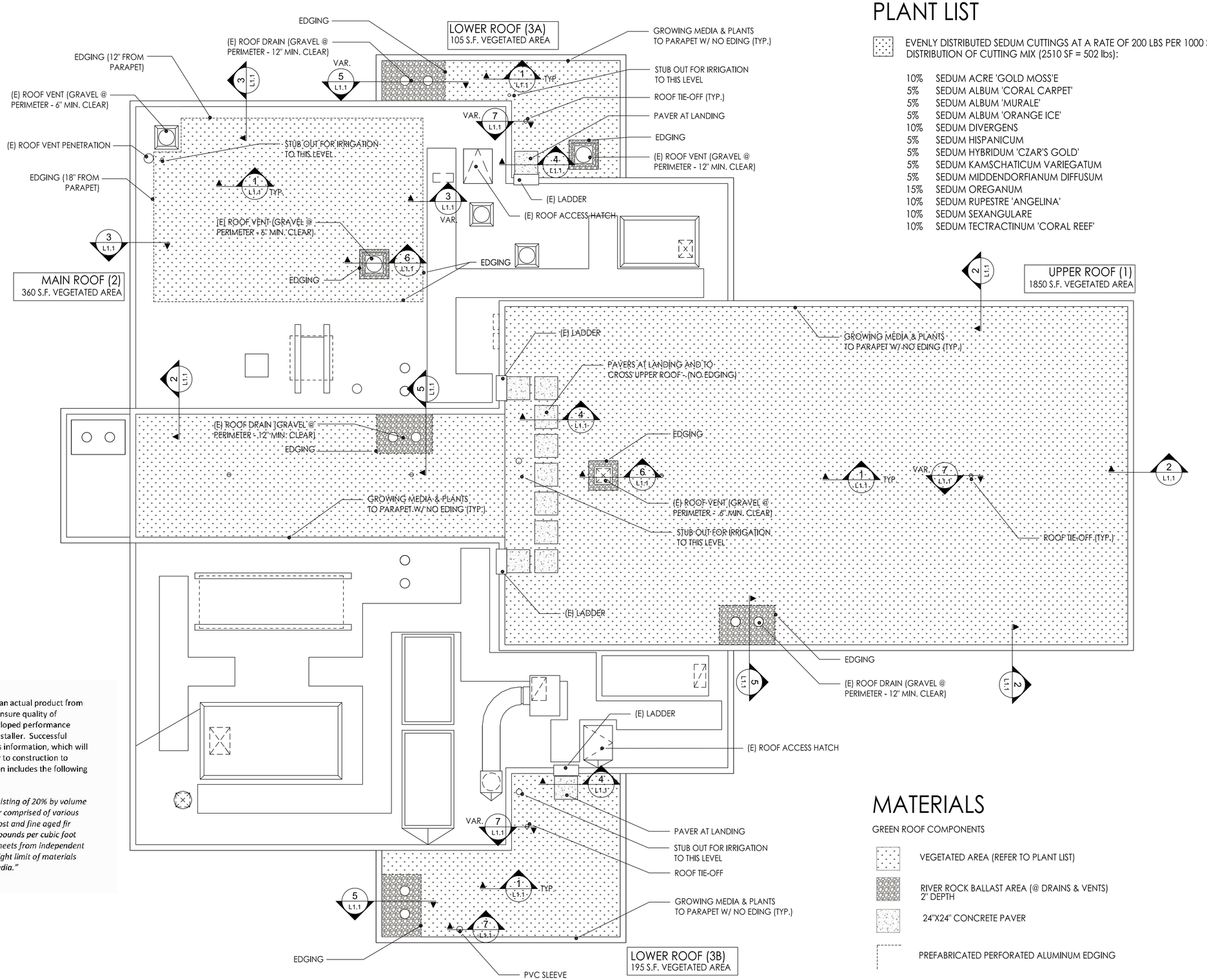
* ASSUMES TAPERED INSULATION UNDER NEW ROOFING MEMBRANE - PROTECTION/ROOT BARRIER PER MANUFACTURER'S WARRANTY REQUIREMENTS

SEE SECTION 02909 - GREEN ROOF SYSTEM FOR SPECIFICATION OF ELEMENTS

PLANT LIST

EVENLY DISTRIBUTED SEDUM CUTTINGS AT A RATE OF 200 LBS PER 1000 S.F. DISTRIBUTION OF CUTTING MIX (2510 SF = 502 lbs):

10%	SEDUM ACRE 'GOLD MOSS'E
5%	SEDUM ALBUM 'CORAL CARPET'
5%	SEDUM ALBUM 'MURALE'
5%	SEDUM ALBUM 'ORANGE ICE'
10%	SEDUM DIVERGENS
5%	SEDUM HISPANICUM
5%	SEDUM HYBRIDUM 'CZAR'S GOLD'
5%	SEDUM KAMSCHATICUM VARIEGATUM
5%	SEDUM MIDDENDORFIANUM DIFFUSUM
15%	SEDUM OREGANUM
10%	SEDUM RUPESTRE 'ANGELINA'
10%	SEDUM SEXANGULARE
10%	SEDUM TECTRACTINUM 'CORAL REEF'



Due to public bidding processes, we are unable to specify an actual product from a specific vendor and provide a specific composition. To ensure quality of growing media and long-term performance, we have developed performance characteristics in our specifications that must be met by installer. Successful bidder will submit for approval a specific mix based on this information, which will reviewed and approved during the submittal process prior to construction to ensure it meets appropriate composition. The specification includes the following information:

"Growing Media: Extensive Green Roof soil mix consisting of 20% by volume organic matter (no paper waste) with the remainder comprised of various grades of pumice. The organic matter is dairy compost and fine aged fir bark. Field Moisture Capacity should not exceed 65 pounds per cubic foot saturated – 13.54 psf @ 2.5" depth); Provide data sheets from independent testing lab to verify requirements and saturated weight limit of materials specified; Provide FLL test document for growing media."

MATERIALS

GREEN ROOF COMPONENTS

- VEGETATED AREA (REFER TO PLANT LIST)
- RIVER ROCK BALLAST AREA (@ DRAINS & VENTS) 2" DEPTH
- 24"X24" CONCRETE PAVER
- PREFABRICATED PERFORATED ALUMINUM EDGING

1 / L1.0 GREEN ROOF PLANTING PLAN
SCALE: 1/4" = 1'-0"

SET	DATE
CLIENT REVIEW 100% SD	04.21.11
95% CD SET	05.17.11
PERMIT SET	05.24.11

PERMIT SET

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GREEN ROOF PLAN

METRO | H2W GREEN ROOF PROJECT
CENTRAL WASTE COLLECTION FACILITY
PORTLAND, OREGON

REGISTERED LANDSCAPE ARCHITECT 537 JASON A. KING 11/21/03 OREGON

Job No.

L1.0

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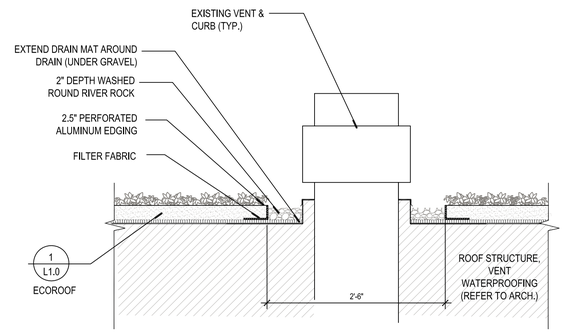
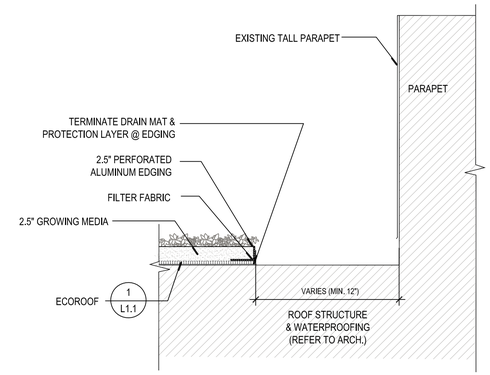


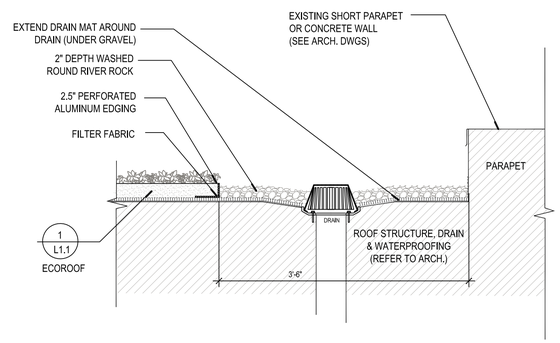
6 L1.1 GREEN ROOF @ VENT

SCALE: 1" = 1'-0"



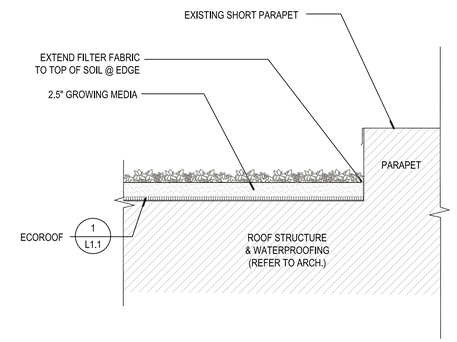
3 L1.1 GREEN ROOF @ TALL PARAPET

SCALE: 1" = 1'-0"



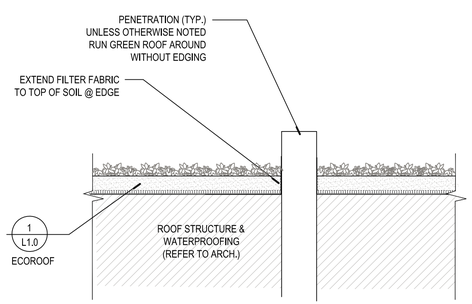
5 L1.1 GREEN ROOF @ DRAIN

SCALE: 1" = 1'-0"



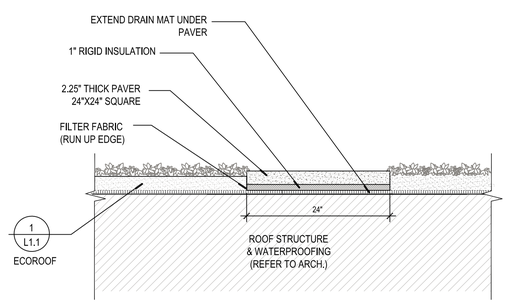
2 L1.1 GREEN ROOF @ LOW PARAPET

SCALE: 1" = 1'-0"



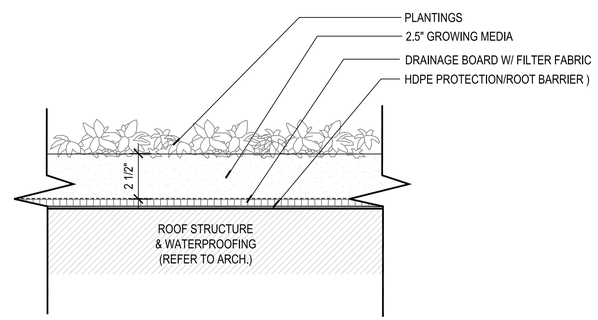
7 L1.1 GREEN ROOF @ PENETRATION

SCALE: 1" = 1'-0"



4 L1.1 GREEN ROOF @ PAVER

SCALE: 1" = 1'-0"



1 L1.1 TYPICAL GREEN ROOF X-SECTION

SCALE: 3" = 1'-0"

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GREEN ROOF DETAILS

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REGISTERED LANDSCAPE ARCHITECT
537
JASON A. KING
11/21/03
OREGON

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NOTES:

1. COORDINATE WATER SUPPLY FROM P.O.C. ROUTING, AND POINTS OF CONNECTION (ASSUMES WATER AT STUB-OUT IS IRRIGATION READY WITH APPROPRIATE BACKFLOW PREVENTION IN PLACE). COORDINATE WITH PLUMBING TO ENSURE PIPE SLOPES TO MAIN DRAIN.

2. SYSTEM OPERATION AND DESIGN IS BASED ON 50 POUNDS OF PRESSURE AND 20 GALLONS PER MINUTE AT THE P.O.C. FOR EACH ROOF LEVEL. THE CONTRACTOR SHALL VERIFY THE DESIGN PRESSURE AND VOLUME BEFORE INSTALLATION AND NOTIFY OWNER IF THERE IS A DISCREPANCY. MODIFICATIONS TO PRESSURE (REDUCTION/BOOSTING) AND ZONING SHOULD BE COORDINATED TO ACHIEVE OPTIMAL SYSTEM OPERATION.

3. CONTRACTOR SHALL REFERENCE PLANTING PLAN(S) PRIOR TO INSTALLATION OF ROOF-BASED IRRIGATION COMPONENTS.

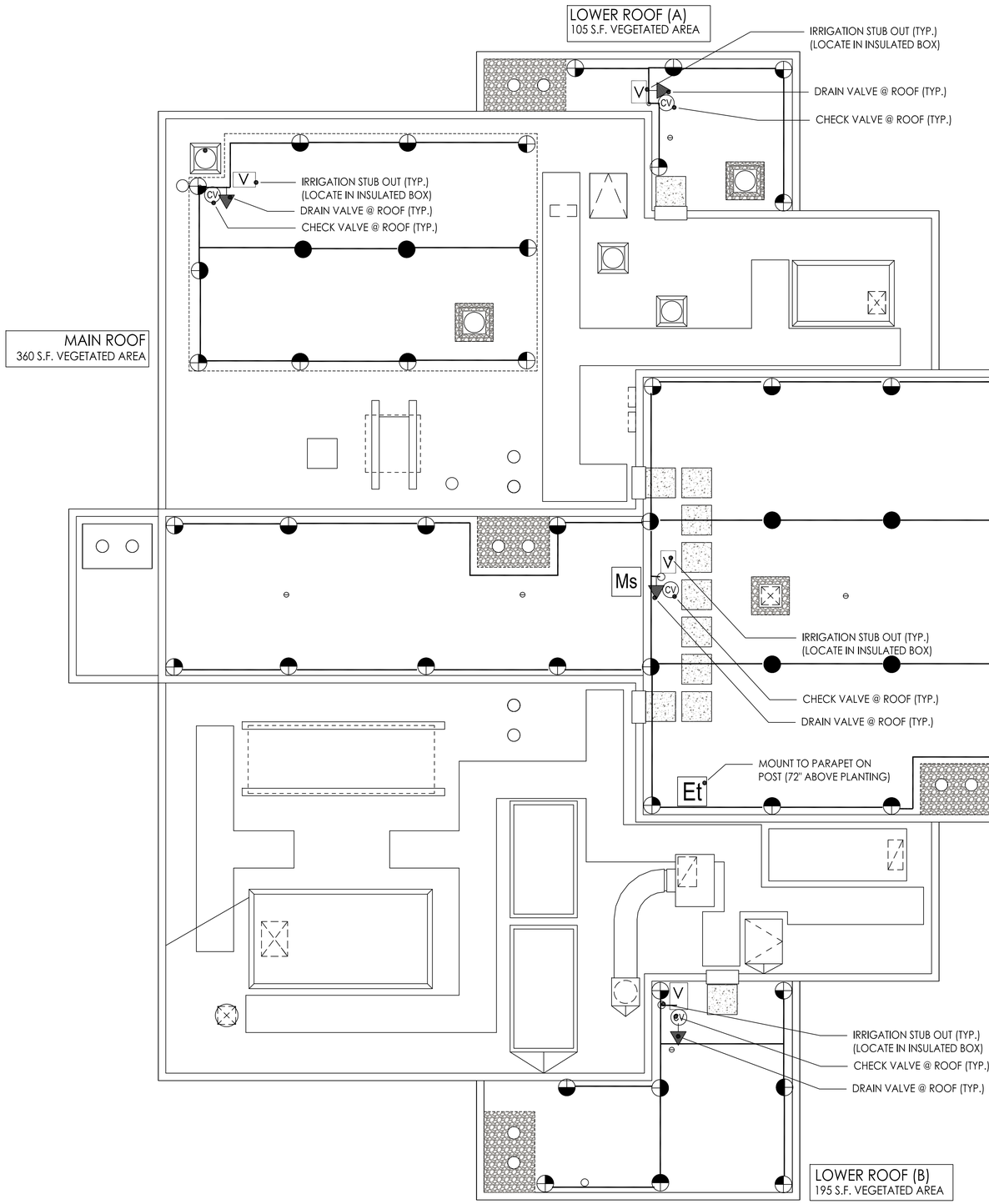
4. VALVE LOCATIONS SHALL BE LOCATED INSIDE BUILDING, AND SHOULD BE APPROVED BY ARCHITECT AND LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF NEW IRRIGATION SYSTEM.

5. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS AND LAYOUT OF ALL NEW PLANTING AREAS BEFORE STARTING WORK AND IMMEDIATELY NOTIFY OWNER OF ANY DEVIATIONS FROM PLAN.

6. THE CONTRACTOR SHALL INSTALL THE IRRIGATION CONTROLLER(S) AT THE LOCATION(S) SHOWN ON THE DRAWINGS, MOUNTED PER THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION WITH THE OWNER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL EXTEND CONTROL WIRE CONDUIT FROM CONTROLLER AND DAYLIGHT SIX INCHES INTO PLANTING BED (ON ROOF SURFACE) FOR INSTALLATION OF LOW-VOLTAGE WIRING. COORDINATE ROUTING TO MULTIPLE ROOF LEVELS FROM CONTROLLER LOCATION.

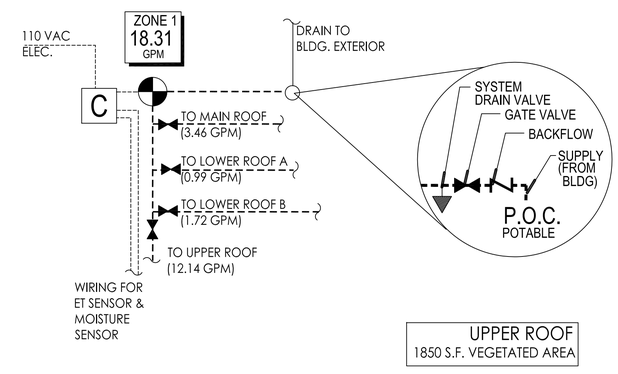
7. MAIN AND LATERAL LINES MAY BE SHOWN DIAGRAMMATICALLY FOR CLARITY. MAIN AND LATERAL LINES SHOWN IN PAVED AREAS SHALL BE PLACED IN ADJACENT PLANTING BEDS UNLESS SPECIFICALLY SHOWN AS PASSING UNDER PAVING IN SLEEVING (SEE LEGEND FOR SLEEVE SYMBOL). THE CONTRACTOR MUST OBTAIN THE LANDSCAPE ARCHITECT'S APPROVAL BEFORE MAKING CHANGES IN ROUTING OF PIPE OR LOCATION OF VALVES.

8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PROVIDING AN APPROPRIATE POWER SUPPLY TO THE IRRIGATION CONTROLLER LOCATION, AS WELL AS APPROPRIATE DRAINAGE, INTERIOR PIPE ROUTING, WIRING, CONDUIT, SLEEVING, TO MEET CODE AND SYSTEM PERFORMANCE.



POINT OF CONNECTION

LOCATE IN MECHANICAL ROOM - COORDINATE WITH ARCH.



UPPER ROOF
1850 S.F. VEGETATED AREA

LEGEND

USE FIXED SHRUB HEAD (NON-POP UP) BODIES
EXTEND MAX. 2" ABOVE PLANTING LEVEL

- SPRAY ROTOR - 10' HEAD (0.14 GPM) QUARTER - 90 DEG.
- SPRAY ROTOR - 10' HEAD (0.29 GPM) HALF - 180 DEG.
- SPRAY ROTOR - 10' HEAD (0.58 GPM) FULL - 360 DEG.
- C — 3 STATION - Et-ENABLED AUTOMATIC CONTROLLER)
- Et — EVAPOTRANSPIRATION/WEATHER STATION - TO CONTROLLER
- Ms — IN-SOIL MOISTURE SENSOR - CONNECT TO CONTROLLER
- CV — CHECK VALVE (AT EACH ROOF - TO PREVENT DRAINING)
- DRAIN VALVE (AT P.O.C. + EACH ROOF FOR WEATHERIZATION)
- V — INSULATED VALVE BOX (ON ROOF @ STUB OUT)
- BACKFLOW PREVENTION DEVICE
- GATE VALVE (AT P.O.C. + EACH LEVEL FOR ISOLATION)
- 1" AUTOMATIC CONTROL VALVE
- EXTERIOR IRRIGATION LATERAL LINE (3/4" PVC)
- INTERIOR IRRIGATION SUPPLY (BY OTHERS)

1 / L2.0 GREEN ROOF IRRIGATION PLAN
SCALE: 1/4" = 1'-0"

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