



U.S. DEPARTMENT OF
ENERGY



SOLAR DECATHLON



blue

UNIVERSITY OF KENTUCKY

COLLEGE OF DESIGN • COLLEGE OF ENGINEERING • COLLEGE OF AGRICULTURE



Our project is a solar housing prototype that serves as a catalyst for bringing renewable energy, solar and sustainability-oriented architecture and construction to the region and to the state and challenges the Commonwealth to "live light" – not only how we live and how we build, but how we design and educate. This collaborative project presented here, represents the applied research of six colleges and sixteen centers at the University of Kentucky aimed at solving real-world issues that dynamically relate to partnerships with industry leaders and other academic institutions throughout the Commonwealth and beyond. Designed as a LEED Platinum home, this 800-sqft house generates its own power through a single-axis tracking photovoltaic roof and BIPV (Building Integrated Photovoltaic) façade system. Integrated with both passive and active design elements and structured with high performance materials and assemblies that achieve resistance values up to R75, many of the systems are custom-designed and produced by students and faculty at the University. These innovations challenge conventional norms of inhabitation and reduce the stress on the environment caused by today's energy-consuming homes by presenting an efficient and adaptable living environment. Our primary goal, to achieve a net-zero and marketable solar house targets Kentucky's aging-in-place community and helps round out our internal design operations.

The University of Kentucky's Solar Decathlon Team is committed to exploring a range of concepts related to the aging-in-place community in Kentucky based upon "Living under the Sun" in the twenty-first century. We believe that investigating our relationship to light is not only important to meet the technical realities of the competition, but necessary to reveal its poetic potential in delineating our inhabitation for our target market – young professionals, baby-boomers, and empty-nesters. In this regard, the generative power of the sun is synonymous with light in directing our creative approach to a structure built to meet the needs of both the Kentucky climate and that of Washington DC, which share a 38 degree North Latitude orientation.

The team seeks equally to harness the power of the sun's energy and to reveal the poetics of its light. Our ethos, to engage "passive first, then integrate simple, smart, and active solutions" that create a dialectical range between horizontal and vertical surfaces—resulted in an adaptable and dynamically-angled, linear East-West stretching roof plane that floats above a thermal volume which allows for natural ventilation so that the westerly winds cool the house during the summer months. This volume mediates a series of perforated elevations on three sides and an energy-generating southern façade where photovoltaic cells and solar thermal collectors weave into its design. The resulting composition makes a clear reference to the Kentucky vernacular breezeway plan between the front and rear porches where the living area of the house creates a sequence of defined interlocking living spaces with shared boundaries. The channeled thermal living space internally organizes around a floor-to-ceiling articulated mechanical and bathroom core that forms the syntactic hearth of our home to spatially define and anchor the house compositionally. Rooms that contain the house's daily activities form spatial bookends based upon the rising and setting of the sun with the East wing devoted to private activities—the light of the rising sun awakens the occupants, filtering in through the solar thermal window wall; and the West wing with its public activities framing the building's sustainable landscape to form view corridors from which to watch the setting sun. The entry of the house is from the west through an intentionally low surfboard-like threshold, whose purpose is to create a defined entryway into the house. Once inside, the main circulation axis of the house continues along the southern façade. The experiential and spatial sequence of the house allows for a dramatic diagonal view and spatial release through the living area extending the visitor's sense of arrival throughout the living area where the kitchen opens onto the living space through an adaptable dining room environment. In this regard, the resulting public functions of entertainment and dining form the foundation of an adaptable core positioned between the bedroom and living room areas.

The University of Kentucky s.ky blue solar house team is one of 20 international teams invited to participate in the 2009 Solar Decathlon. This competition requires schools to design, build, and transport a net-zero, energy efficient solar house to the National Mall in Washington DC in October 2009 for exhibit and competition.

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FLOORING SYSTEMS

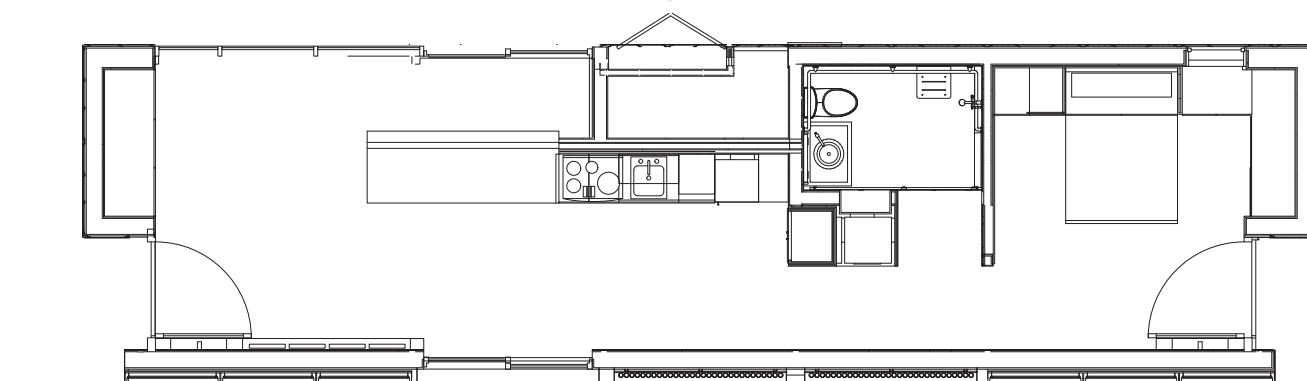
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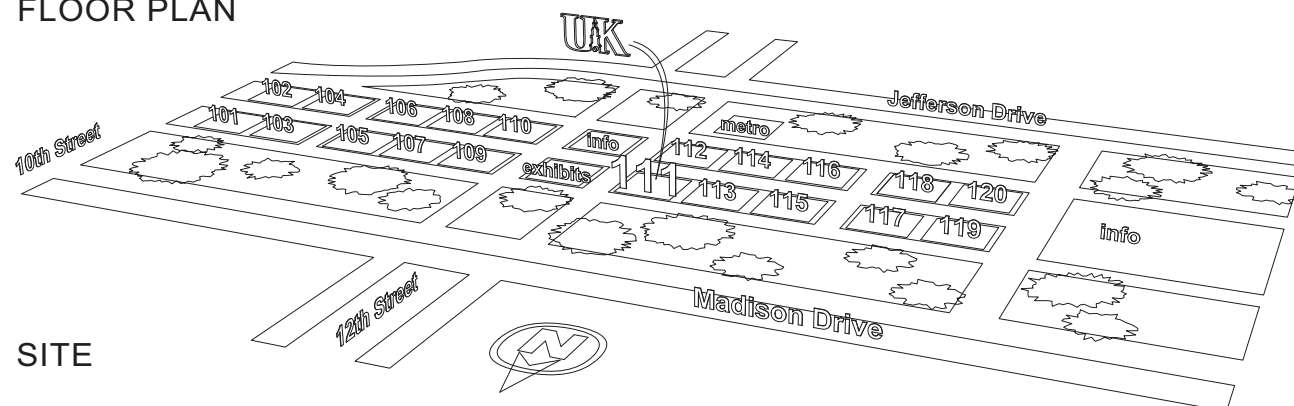
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CONSTRUCTION DOCUMENTS • 02 JUNE 2009







FLOOR PLAN



SITE

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E	G-000	Cover Sheet	S-100	General Notes	A-312	Sections-Longitudinal Building Section	
	G-001	Drawing Sheet List	S-101	Loading Summary	A-313	Sections-Building Cross-Section-Living Room	
	G-002	Drawing Sheet List	S-102	Chasis Framing Plan	A-314	Sections-Building Cross-Section-Dining Room	
	G-003	General Symbols and Notes	S-103	Floor Framing Plan	A-315	Sections-Building Cross-Section-Kitchen	
	G-004	General Symbols and Notes	S-104	Roof Structure Framing Plan	A-316	Sections-Building Cross-Section-Core at Washer and Dryer	
	G-005	General Abbreviations	S-105	PV Rack Plan			
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	G-901	Rendering-Cloudy Day-South	S-201	N-S Elevations	A-402	Sections-Wall Section	
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	G-904	Rendering-Nighttime-West	S-302	Roof Framing Section	A-405	Sections- Wall Sections	
	G-905	Rendering-Cloudy Day-North	S-501	W12 x 26 Connection Details	A-406	Sections-Wall Sections	
	G-906	Rendering-Nighttime-North	S-502	HSS 4x4x1/4 Connection Details	A-407	Sections-Wall Sections	
D	G-907	Rendering-Cloudy Day-East	S-503	Floor Joist Connection Details	A-408	Sections-Wall Sections	
	G-908	Rendering-Nighttime-East	S-504	Floor Joist Connection Details	A-409	Sections-Wall Sections	
	G-909	Rendering-Sunny June 21	S-505	C Channels Connection Details	A-501	Framing Plan Details	
	G-910	Rendering-Sunny December 21	S-506	Bump Out Details	A-502	Framing Plan Details	
	G-911	Rendering-Comfortable Day	S-507	Cross Bracing Details	A-503	Framing Plan Details	
	G-912	Rendering-Rainy Day	S-508	Removable Cross Bracing Details	A-504	Framing Plan Details	
	G-913	Rendering-Hot Day	S-509	Thermal Break Details	A-505	Framing Plan Details	
	G-914	Rendering-Cold Day	S-510	Foundation Pad Details	A-506	Framing Plan Details	
			S-511	PV Rack Details	A-507	Framing Plan Details	
			S-901	Structure Isometric	A-508	Framing Plan Details	
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	C-101	Site-National Mall, Site 111	A-115	Plans-Footprint Area and Condition Space	A-515	Details-Siding	
	C-102	Site-National Mall, Site 111-Survey and Solar Envelope	A-116	Plans-Reflected Ceiling Plan	A-516	Details-South Wall	
	C-103	Site-National Mall, Site 111-Solar Envelope-North	A-117	Plans-Framing Plan	A-517	Details-Entry	
	C-104	Site-National Mall, Site 111-Solar Envelope-South	A-118	Plans-Ceiling Framing Plan	A-519	Details-Bedroom	
	C-105	Site-National Mall, Site 111-Solar Envelope-East	A-119	Plans-Pitched Roof Framing Plan	A-520	Details-Wall Connections	
	C-106	Site-National Mall, Site 111-Solar Envelope-West	A-201	Elevations-North Elevation and Rendering	A-521	Details- Wall Connections	
	C-111	Alternative Site	A-202	Elevations-South Elevation and Rendering	A-522	Details-Wall Connections	
	C-112	Alternative Site- Paving	A-203	Elevations-East Elevation and Rendering	A-523	Details-Wall Connections	
	C-113	Alternative Site- Utilities	A-204	Elevations-West Elevation and Rendering	A-524	Details-Kitchen	
			A-211	Elevations- North	A-525	Details- Bathroom	
			A-212	Elevations-South	A-526	Details-Bathroom	
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B	L-001	Landscape Symbols and Notes	A-215	Elevations-Image and Perforation Details	A-602	Schedule-Window/Skylight	
	L-002	Landscape Symbols and Notes	A-216	Elevations-South Elevation and Perforation Detail	A-603	Schedule-Window	
	L-101	Landscape Deck Plan	A-217	Elevations-East Elevation and Perforation Detail	A-604	Schedule-Window	
	L-102	Landscape-Irrigation Plan	A-218	Elevations-North Elevation and Perforation Detail	A-605	Schedule-Window and Door- Elevations	
	L-103	Landscape-Lighting Plan	A-219	Elevations-West Elevation and Perforation Detail			
	L-104	Landscape-Planting Plan	A-220	Elevations-Rendered Axonometric and Perspectives			
	L-105	Landscape-Site Plan	A-221	Elevations-Rendered Axonometric and Perspectives			
	L-106	Landscape- Deck to Ground Contact	A-311	Sections-Longitudinal Building Section			
	L-301	Landscape- Planter Sections					
	L-302	Landscape- Planter Sections					
	L-601	Landscape - Schedule - Material Selection					
A							



2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
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www.uky.edu/solarhouse

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COMMENTS





SHEET TITLE:

Drawing Sheet List

G- 001

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	1	2	3	4	5	6	7
E	I-101	Enlarged Plan-Living Room	M-100	Symbols and Notes		T-101	Schematic Plan
	I-102	Enlarged Plan-Living Room-Reflected Ceiling Plan	M-101	Mechanical Plan Overview		T-102	Wiring Diagram
	I-111	Enlarged Plan-Dining Room/Kitchen/Mechanical Room	M-102	Mechanical Equipment Plan			
	I-112	Enlarged Plan-Dining Room/Kichen/Mechanical Room-Reflected Ceiling Plan	M-103	Cooling Plan			
			M-104	Ventilation Plan		R-001	Resources Symbols and Notes
	I-121	Enlarged Plan-Bedroom	M-105	Solar Thermal Supply Plan		R-101	Client Site Plans
	I-122	Enlarged Plan-Bedroom-Reflected Ceiling Plan	M-106	Solar Thermal Return Plan		R-901	Client Site Plans
	I-131	Enlarged Plan-Core	M-107	RCC - Hydronic Supply Plan			
			M-108	RCC - Hydronic Return Plan			
	I-132	Enlarged Plan-Core-Reflected Ceiling Plan	M-109	Condensate Lines			
			M-110	Heat Pump Plan		X-001	Other Disciplines Symbols and Notes
	I-201	Enlarged Plan-Living Room-South Elevaton	M-111	Mechanical Room Plan and Elevation		X-101	Site Accesibility - ADA Tour Plan
D	I-202	Enlarged Plan-Living Room-West Elevation	M-112	Mechanical Sensors Location Plan		X-102	ADA Standards
	I-211	Enlarged Plan-Dining Room/Kitchen-North Elevation	M-113	Mechanical Sensors Conduit Plan		X-103	ADA Standards
	I-212	Enlarged Plan-Dining Room/Kitchen-East Elevation	M-114	Mechanical Sensors Output Plan		X-110	Public Exhibit Plans
	I-213	Enlarged Plan-Dining Room/Kitchen-West Elevation	M-401	Panel and Tube Layout		X-201	Public Exhibit Elevations
	I-221	Enlarged Plan-Bedroom-North Elevation	M-402	Installation Instructions		X-202	Public Exhibit Elevations
	I-222	Enlarged Plan-Bedroom-South Elevation	M-403	Manifold Instructions		X-203	Public Exhibition Elevations
	I-223	Enlarged Plan-Bedroom-East Elevation	M-601	Schematic Diagram Heating Mode		X-501	Public Exhibit Mock-ups
	I-224	Enlarged Plan-Bedroom-West Elevation	M-602	Schematic Diagram Cooling Mode		X-502	Public Exhbit Mock-ups
	I-231	Enlarged Plan-Core-North Elevation	M-603	Schematic Diagram Ventilation		X-503	Public Exhibit Details
	I-232	Enlarged Plan-Core-South Elevation	M-604	Mechanical Equipment Schedule		X-601	Accesibility Schedules
	I-233	Enlarged Plan-Core-East Elevation	M-902	Solar Thermal Isometric		X-901	Public Exhibit Renderings
	I-234	Enlarged Plan-Core-West Elevation				X-902	Public Exhibit Renderings
C	I-601	Schedule-Finishing	E-001	Electrical Legend			
	I-901	Renderings-Interior Elevations-Living Room	E-002	Codes and Calculations			
	I-902	Renderings-Interior Elevations-Living Room	E-003	Codes and Calculations			
	I-911	Renderings-Interior Elevations-Dining Room/Kitchen	E-004	Codes and Calculations		Z-501	Details - Millwork - Living Room
	I-912	Renderings-Interior Elevations-Dining Room/Kitchen	E-101	Power Plan Motor Locations		Z-502	Details - Millwork - Living Room
	I-921	Renderings-Interior Elevations-Bedroom	E-102	Power Plan Motor Conduit		Z-503	Details - Millwork - Living Room
	I-922	Renderings-Interior Elevations-Bedroom	E-103	Power Plan		Z-511	Details - Millwork - Dining Room/Kitchen
	I-931	Renderings-Interior Elevations-Core	E-104	AC Circuit Layout		Z-512	Details - Millwork - Dining Room/Kitchen
			E-105	Power Plan Conduit		Z-513	Details - Millwork - Dining Room/Kitchen
			E-106	Lighting Plan		Z-521	Details - Millwork - Bedroom
			E-107	Lighting Plan Conduit		Z-522	Details - Millwork - Bedroom
			E-201	Inverter Locations		Z-523	Details - Millwork - Bedroom
B	F-101	Detection, Alarm, and Extinguisher Plan	E-501	Stretcher Wiring Detail		Z-524	Details - Millwork - Bedroom
			E-502	PV Connection Detail		Z-601	Details - Millwork - Schedule
			E-503	PV Connection Detail			
			E-504	PV Connection Detail			
			E-505	PV Connection Detail			
	P-100	Plumbing Symbols and Notes	E-506	Terminal Box Detail			
	P-101	Water Supply and Removal	E-507	PV Panel Detail			
	P-102	Cold Water Supply	E-508	Stretcher Assembly Detail		O-001	Operations Symbols and Notes
	P-103	Hot Water Supply	E-601	Light Fixture Schedule		O-101	Arrival Sequence
	P-104	Drain Waste and Vent	E-602	Electrical Panel Schedule		O-102	Arrival Sequence
	P-601	Plumbing Schedule	E-603	Grid Connection Wiring Diagram		O-103	Departure Sequence
	P-602	Sanitary Waste and Vent Schematic	E-604	PV Wiring Diagram		O-104	Departure Sequence
A	P-603	Domestic Hot and Cold Water Supply Schematic	E-605	Mechanical Controls Diagram		O-601	Construction Equipment Details
	P-901	Cold and Hot Water Riser	E-606	Mechanical Controls Diagram			
	P-902	Sanitary and Vent Riser	E-607	Inverter Wiring Diagram			



2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
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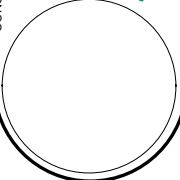




Drawing Sheet List

G-002

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	1	2	3	4	5	6	7
E	Rule #	Rule Description	Content Requirement(s)		Drawing Sheet(s)		Coordinates
	4-2	Construction Equipment	Drawing(s) showing the assembly and disassembly sequences and the movement of heavy machinery on the competition site		Assembly: O-101--O-102, O-601 Disassembly: O-103--O-104		
	4-2	Construction Equipment	Specs for heavy machinery		Caterpillar TH407 http://www.macallister.com/155/mid_5/fid_480/pid_17429613/caterpillar-th407		
	4-3	Ground Penetration	Drawing(s) showing the locations and depths of all ground penetrations on the competition site		Not Necessary		
	4-4	Impact on the Turf	Drawing(s) showing the location, contact area, and soil bearing pressure of every component resting directly on the turf		P-101- In addition to the loads given in the structures page - Three tanks shown at 5C on P101 these will weigh approximately 80 pounds /sq ft		C5
	4-5	Generators	Specifications for generators		O-101ref- Generators - use a Briggs and Stratton #30335 4000 Watt \$1048		
D	4-6	Spill Containment	Drawing(s) showing the locations of all equipment, tanks, and pipes that will contain fluids at any point during the event		L-201- Spill Containment - Generator will be located near temporary entrance panel located near NW corner of deck.		D1
	4-6	Spill Containment	Specifications for all equipment, tanks, and pipes that will contain fluids at any point during the event		Specifications Section 22		
	4-7	Lot Conditions	Calculations showing that structural design remains compliant even if 18 in. (45.7 cm) of vertical elevation change exists		Does not apply - Survey of plot done Jan 2009		
	4-7	Lot Conditions	Drawing(s) showing shimming methods and materials to be used if 18 in. (45.7 cm) of vertical elevation change exists on the lot		S-510- Up to 18" in lot elevations can be handled by adjusting screws in foundation pad (5-D pn S-510)		D5
	5-2	Solar Envelope Dimensions	Drawing(s) showing the location of all house and site components relative to the solar envelope		C-102-C-106		
	5-2	Solar Envelope Dimensions	List of, or marking on, all sheets in the complete electronic Construction Documents that have been or will be stamped by the structural engineer in the hard-copy, stamped structural submission; the stamped submission shall consist entirely of sheets or pages that also appear in the complete electronic construction document set		S-101-901; L-201-206		
C	6-1	Structural Design Approval	List of solar envelope exemption requests accompanied by justifications and drawing references		N/A		A1, A3
	6-2	Maximum Architectural Footprint	Drawing(s) showing all information needed by the Rules Officials to measure the architectural footprint electronically		A-115		
	6-2	Maximum Architectural Footprint	Drawing(s) showing all movable components that may increase the footprint if operated during contest week		n/a		
	6-2	Maximum Architectural Footprint	Shading calculations and/or diagrams for components that DO NOT shade the building above its finished floor height between 9 a.m. and 5 p.m. EDT on October 1 (shading calculations and/or diagrams are not necessary for components that are either shorter than finished floor height or obviously do not shade the building)		A-114		
	6-3	Minimum Conditioned Space	Drawing(s) showing space conditioning means in primary living spaces		A-115		
	6-4	Entrance and Exit Routes	Drawing(s) showing the accessible public tour route and the ground surface area that will be covered by organizer-provided walkway material		X-101		
B	7-1	Placement	Drawing(s) showing the location of all vegetation and, if applicable, the movement of vegetation designed as part of an integrated mobile system		L-104, L-105		
	7-2	Watering Restrictions	Drawings showing the layout and operation of greywater irrigation systems		L-102, P-901		

1 CODE COMPLIANCE
SCALE: NTS



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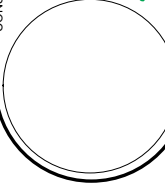




General Symbols
and Notes

G-003

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	1	2	3	4	5	6	7
E	8-1	PV Technology Limitations	Specifications for photovoltaic components			Specifcations Secion 48	
	8-1	PV Technology Limitations	Retail price quote for photovoltaic components			Project Manual Retail PV Price Quotes	
	8-3	Thermal Energy Storage	Drawing(s) showing the location of thermal energy storage components			M-105-Hot water heater - see spec for AO Smith 120 gal; 25 gal tank included with reverse cycle chiller;500 gal tank	D3-4
	8-3	Thermal Energy Storage	Specifications for thermal energy storage components			Project Manual Spec Section 22	
	8-3	Thermal Energy Storage	Shading calculations and/or diagrams for thermal energy storage components (if necessary)			n/a	
D	8-4	Batteries	Drawing(s) showing the location(s) and quantity of stand-alone, PV-powered devices			n/a	
	8-4	Batteries	Specifications for all stand-alone, PV-powered devices			n/a	
	8-5	Desiccant Systems	Drawing(s) describing the operation of the desiccant system			n/a	
	8-5	Desiccant Systems	Specifications for desiccant system components			n/a	
	8-6	Village Grid	Completed Interconnection Application form.			E-004	C2
C	8-6	Village Grid	Drawing(s) showing the locations of the photovoltaics, inverter(s), terminal box, meter housing, service equipment, and grounding means			E-201, E-503, E-603, E-607	
	8-6	Village Grid	Specifications for the photovoltaics, inverter(s), terminal box, meter housing, service equipment, and grounding means			see project manual for spec sheets- and E-002	
	8-6	Village Grid	One-line electrical diagram			E-604	
	8-6	Village Grid	Calculation of service/feeder net computed load per NEC 220			E-004 Calcs.	
	8-6	Village Grid	Site plan showing the house, decks, ramps, tour paths, and terminal box			A-101, L-101, X-101	
B	8-6	Village Grid	Elevation(s) showing the terminal box, meter housing, main utility disconnect, and other service equipment			E-506	
	9-4	Rainwater Collection	Drawing(s) showing the layout and operation of rainwater collection systems			L-102	
	9-6	Thermal Mass	Drawing(s) showing the locations of water-based thermal mass systems			Thermal mass is in thermal storage tank D3-4 pg M105 and in hot water tank C2-M111	D3-4 C2
	9-6	Thermal Mass	Specifications for components of water-based thermal mass systems			n/a	
	10-2	Event Sponsor Recognition	Drawing(s) showing the dimensions, materials, artwork, and content of all communications materials, including signage			X-504	
A	10-3	Team Sponsor Recognition	Drawing(s) showing the dimensions, materials, artwork, and content of all communications materials, including signage			X-504	
	11-4	Public Exhibit	Interior and exterior plans showing entire accessible tour route			X-101--X-104	
	11-4	Public Exhibit	Drawing(s) showing the dimensions, materials, artwork, and content of the handout			UKY_Final Comm Plan_2009-06-02.pdf-Appendixes	
	11-4	Public Exhibit	Drawing(s) showing the artwork and content of the team uniform			UKY_Final Comm Plan_2009-06-02.pdf-Appendixes	

1 CODE COMPLIANCE
SCALE: NTS



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SHEET TITLE:

General Symbols
and Notes

G-004

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	1	2	3	4	5	6	7
E		Abbreviation	Term		Abbreviation	Term	
		AFC	above finished counter		LAM GL	laminated glass	
		AFF	above finished floor		LED	light emitting diode	
		ACS DR	access door		LCD	linear ceiling diffuser	
		ACS PNL	access panel		MECH RM	mechanical room	
		ACC	accessible		MTLF	metal flashing	
		ADH	adhesive		MIN	minimum	
		ADJ	adjacent		MOD BIT	modified bitumen	
		AGGR	aggregate		PVG	paving	
		ALUM	aluminum		PERF	perforated	
		ANSI	American national standards institute		PEC	photoelectric cell	
		L	angle		PLYWD	plywood	
		ANOD	anodize		PREFAB	prefabricate	
		AD	area drain		PL	property line	
		BKG	backing		QTY	quantity	
		BLW CLG	below ceiling		QT	quarry tile	
		BI FLD DR	bifolding doors		QTB	quarry tile base	
		BITUM	bituminous		QTF	quarry tile floor	
		BD FT	board feet (foot)		RAB	rabbeted	
		BLT IN	built-in		REC	recessed	
		CAB	cabinet		RCP	reflected ceiling plan	
		CIP	cast-in-place		RC	reinforced concrete	
		CLG HT	ceiling height		RAD	return air duct	
		CLDG	cladding		SHTHG	sheathing	
		CR	closet rod		SDG	siding	
		CFMF	cold-formed metal framing		SIM	similar	
		CMPST	composite		SKLT	skylight	
		CJ	control joint		SD	smoke detector	
		CP	control panel		SF	square foot	
		CNTR	counter		SQ YD	square yard	
		CSK	counter sunk		SST	stainless steel	
		CU FT	cubic feet		STL JST	steel joist	
		CU YD	cubic yard		STL TB	steel tube	
		dB	decibel		STRUCT STL	structural steel	
		DIAG	diagonal		SUB FL	subfloor	
		DIFF	diffuser		TMPD GL	tempered glass	
		DMR	dimmer		THK	thickness	
		DCP	dimmer control panel		T&G	tongue and groove	
		DW	dishwasher		TO	top of _	
		DISTR PNL	distribution panel		TFF	top of finish floor	
		DR	door		TOS	top of steel	
		DR FR	door frame		TOW	top of wall	
		EA	each		VAR	varies	
		EPDM	ethylene propylene diene monomer		VNR	veneer	
		FOS	Face of stud		VRFY	verify	
		FAS	fascia		VIF	verify in field	
		---	fiberboard		VIT	vitreous	
		FE	fire extinguisher		W CAB	wall cabinets	
		FRA	fire rated assembly		WH	wall hung	
		FLUOR FIX	fluorescent fixture		WC	water closet	
		FR GL	fritted glass		WPM	waterproof membrane	
		GSM	galvanized sheet metal		WDW	window	
		GLZ	glazing		W/	with	
		GYP BD	gypsum board		W/O	without	
		INSUL	insulation		WB	wood base	
		J-BOX	junction box		WBL	wood blocking	

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COMMENTS

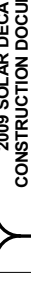
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General Abbreviations


G-005

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SHEET TITLE:

Target Market Descriptions

G-101

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Functionality

The s.ky blue team has made every effort to facilitate and increase the quality of life of the homeowner both inside and outside of the house. The flooring selections are sustainable and natural and have been certified by the Asthma and Allergy Foundation of America as asthma & allergy friendly.™ The building envelope uses a combination of electrically tinted glazing, super-insulated windows with sufficient UV protection, and passive solar design to eliminate the potential for damage or degradation to the interior materials and artwork. The exterior rainscreen cladding deflects most of the rain and the ventilated cavity carries away moisture and therefore reduces humidity. The air circulating on the exterior of the building increases the efficiency of the insulation, which according to our target market research, equates to the highest possible insulation wall value while maintaining an immediate return on an initial investment. The team has also integrated walk-off mats at both the east and west end doors to help limit dirt and debris from entering the building. In an effort to maximize usable space, a system of Shaker-like, building-integrated storage units have been designed into the building. These integrated units include storage for dining room chairs, clothes, books, entertainment equipment, plates, pots, pantry, and cutlery storage, linens and toiletries, and utility closet functions.

Flexibility

The inner workings of the house and infrastructure are geared to adaptability and flexibility. As such, the entire electrical system is run through an integrated system of conduit, allowing for immediate and easy replacement of wiring and systems when technological advances occur in the future.

Safety

Every effort was made to design and integrate a safe environment for the general public during the competition and for the homeowners after the competition.

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SHEET TITLE:

Target Market Descriptions

G-102

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1 RENDER-CLOUDY DAY- SOUTH
SCALE: NTS

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COMMENTS

SHEET TITLE:

Rendering-Cloudy
Day-South

G-901

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1 RENDER- NIGHTTIME- SOUTH
SCALE: NTS



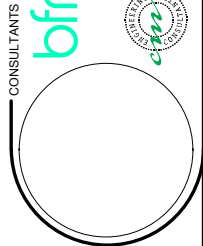
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COMMENTS			

SHEET TITLE:

Rendering-Nighttime-South

G-902

MARK	DATE	DESCRIPTION	
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1 RENDER- CLOUDY DAY- WEST
SCALE: NTS

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COMMENTS

SHEET TITLE:

Rendering-Cloudy
Day-West

G-903

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1 RENDER-NIGHTTIME- WEST
SCALE: NTS

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COMMENTS

SHEET TITLE:

Rendering-Nighttime-West

G-904

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1 RENDER-CLOUDY DAY- NORTH
SCALE: NTS

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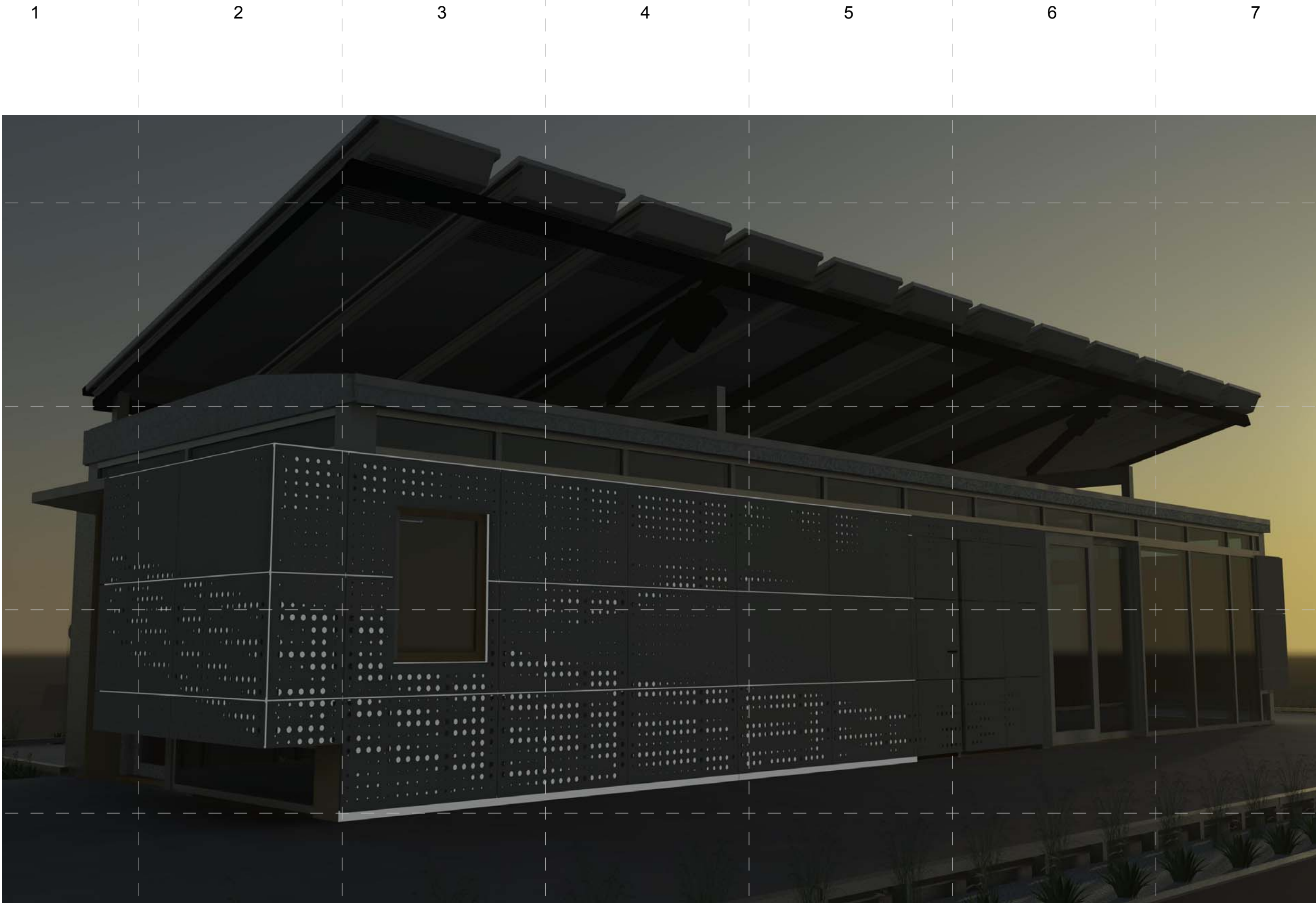
COMMENTS

SHEET TITLE:

Rendering-Cloudy
Day-North

G-905

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1 RENDER- NIGHTTIME -NORTH
SCALE: NTS

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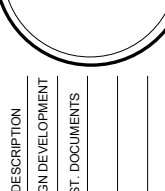
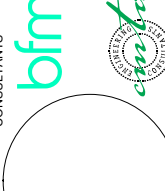
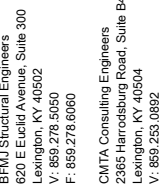
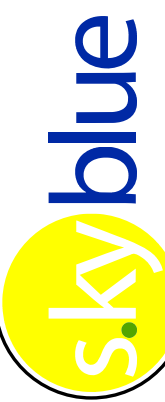

Rendering-Nighttime-North

G-906

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1 RENDER - CLOUDY DAY- EAST
SCALE: NTS



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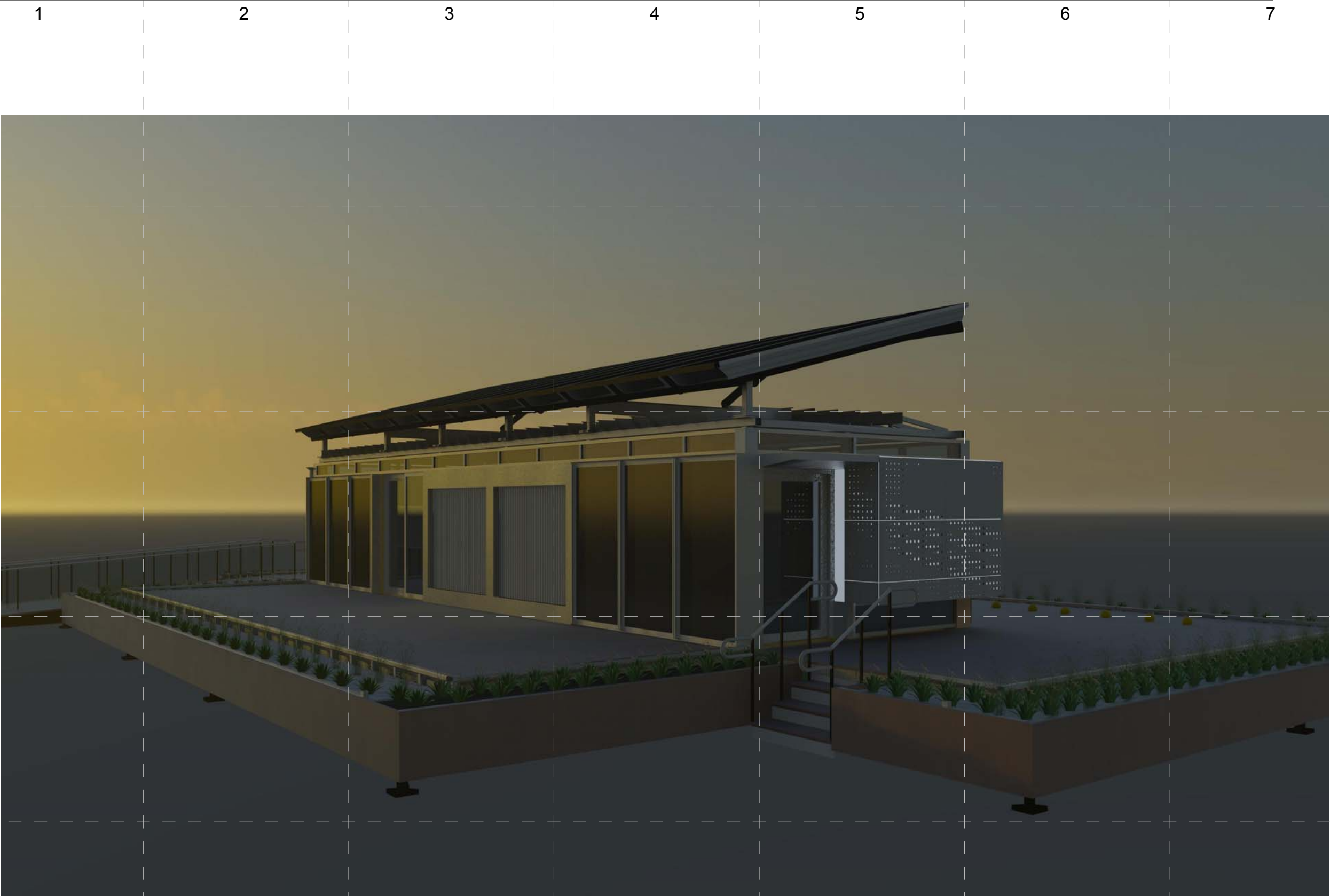
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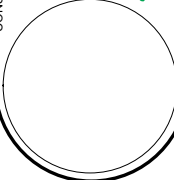




Rendering-Cloudy
Day-East

G-907

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1 RENDER- NIGHTTIME- EAST
SCALE: NTS



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SHEET TITLE:

Rendering-Nighttime-East

G-908

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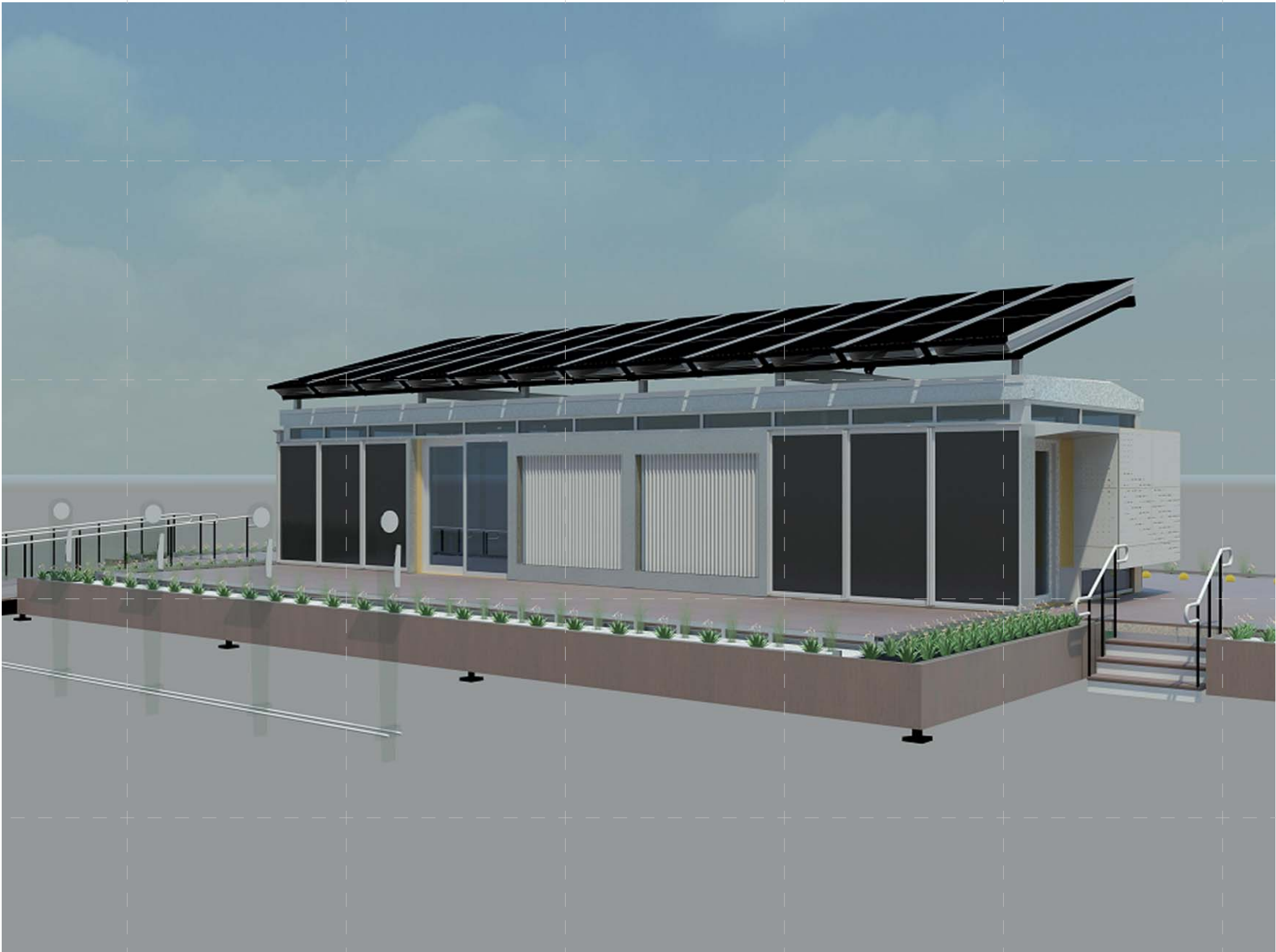
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1 RENDER- SUNNY JUNE 21
SCALE: NTS

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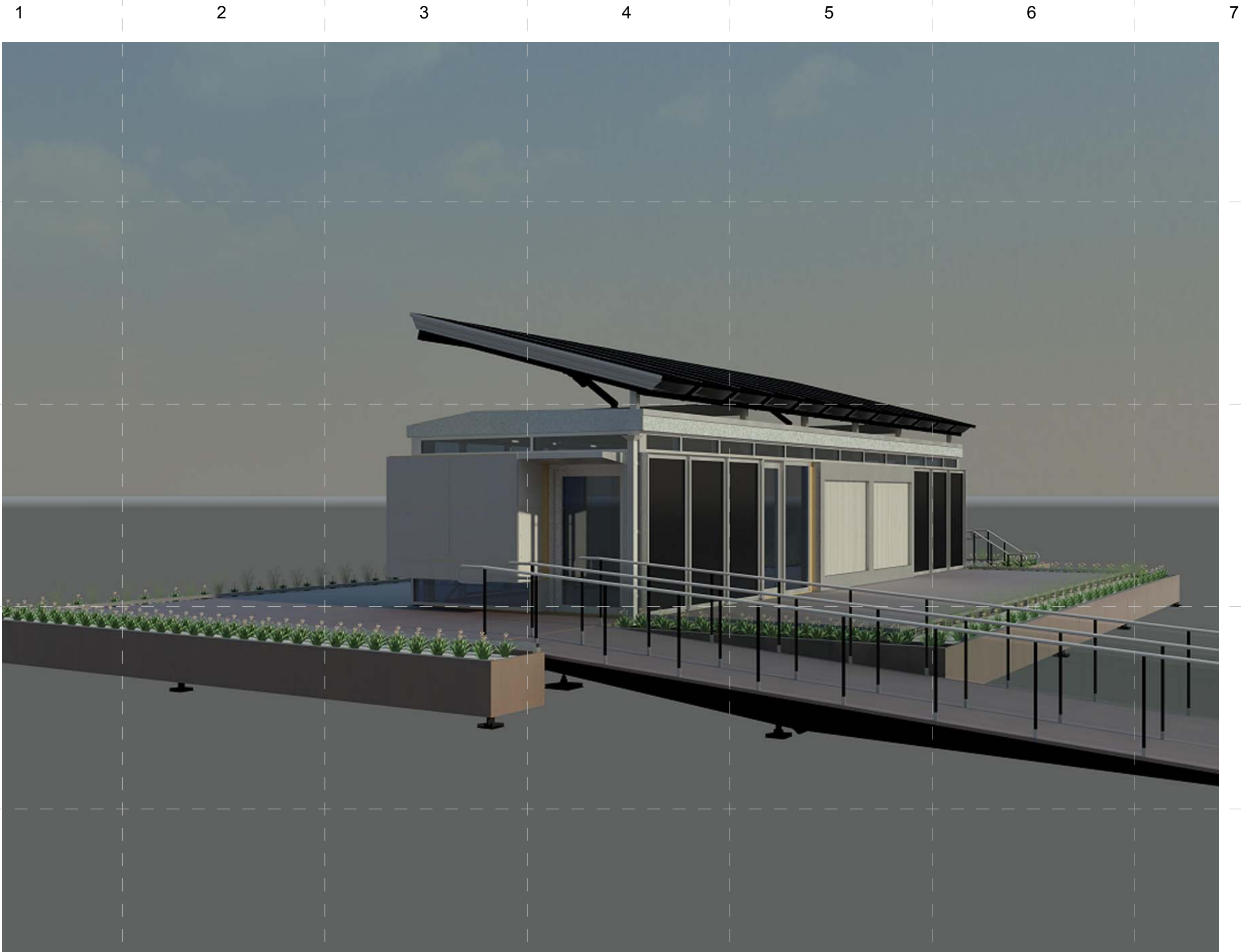
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SHEET TITLE:

Rendering-Sunny
June 21

G-909

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1 RENDER- SUNNY DECEMBER 21
SCALE: NTS

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SHEET TITLE:

Rendering-Sunny
December 21





G-910

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1 RENDER- COMFORTABLE DAY
SCALE: NTS



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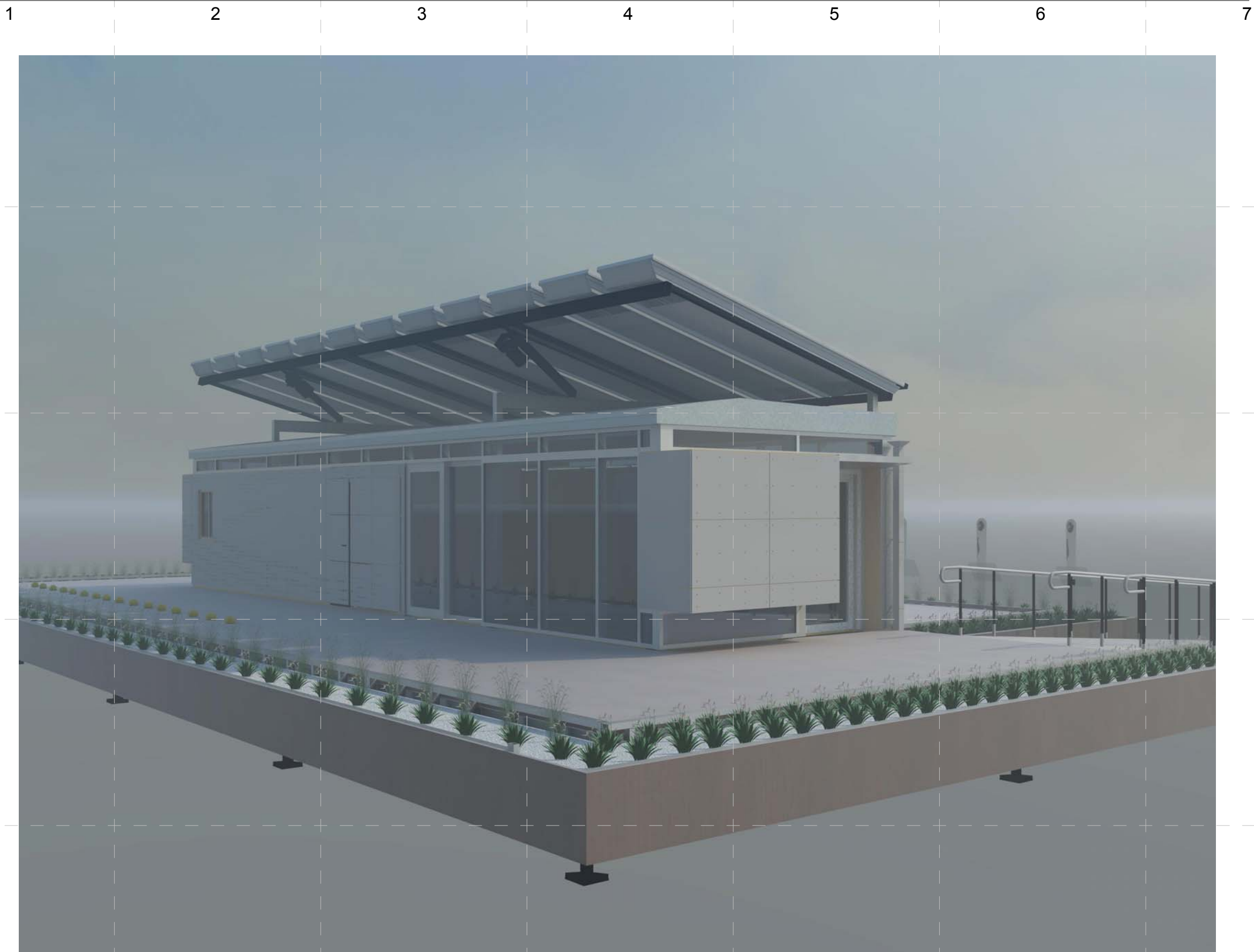
COMMENTS

SHEET TITLE:





Rendering-Comfortable Day

G-911

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1 RENDER- RAINY DAY
SCALE: NTS



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COMMENTS

SHEET TITLE:

Rendering-Rainy Day

G-912

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1 RENDER- HOT DAY
SCALE: NTS

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COMMENTS	

SHEET TITLE:

Rendering-Hot Day

G-913

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1 RENDER- COLD DAY
SCALE: NTS

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SHEET TITLE:

Rendering-Cold Day

G-914

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1
CIVIL ENGINEERING GENERAL NOTES

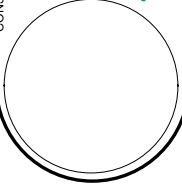




2
NATIONAL MALL CIVIL GENERAL NOTES:

- E 1. INSTALL PROTECTIVE PADS ALONG TRUCK ROUTE
2. ALL WORK SHALL COMPLY WITH SOLAR DECATHLON RULES AND BUILDING CODES

3
ALTERNATIVE SITE CIVIL GENERAL NOTES:

- D 1. INDICATED AREAS OF SITE AND THE EXISTING TOPOGRAPHIC AND SITE INFORMATION SHOWN HAS BEEN PREPARED BY PHOTOSCIENCE GEOSPATIAL SOLUTIONS AND THE UNIVERSITY OF KENTUCKY. REFER TO THE ATTACHED SURVEY, AERIAL PHOTOGRAPHS AND PREVIOUS MAPPINGS FOR ADDITIONAL INFORMATION. THE INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE OF THE CONTRACTO R AND THE LANDSCAPE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN THEREON.
2. THE CONTRACT DRAWINGS SHOW THE APPROXIMATE LOCATION OF EXISTING AND PROPOSED SUBSURFACE UTILITY LINES. THESE LINES HAVE BEEN IDENTIFIED AND LOCATED AS ACCURATELY AS POSSIBLE USING AVAILABLE INFORMATION; THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ACTUAL LOCATIONS.
3. NO GRADING, STRIPPING, EXCAVATION, FILLING OR OTHER DISTURBANCE OF THE NATURAL GROUND COVER SHALL TAKE PLACE PRIOR TO APPROVAL OF AN EROSION CONTROL PLAN.
4. SURROUND ALL DRAINAGE INLET STRUCTURES WITH STRAW BALES OR TEMPORARY SILT FENCE FOR SILT CONTROL. MAINTAIN IN GOOD OPERATING CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
5. ALL LANDSCAPING AND SCREENING IMPROVEMENTS SHALL COMPLY WITH LFUCG ZOING REGULATIONS.
6. TEMPORARY ACCESS DRIVEWAYS FOR CONSTRUCTION VEHICLES SHALL BE GRAVELED OR ROCKED FOR A DISTANCE OF 30 FEET INTO THE SITE AND MAINTAINED IN GOOD CONDITION THROUGH THE CONSTRUCTION PERIOD.
7. THE EXISTING ACCESS ROAD TO THE SITE SHALL BE MAINTAINED BY THE CONTRACTOR TO MINIMIZE THE ACCUMULATION OF MUD, DIRT, DUST, AND OTHER DEBRIS CAUSED BY THE CONTRACTOR'S OPERATIONS. THE ROAD SHALL BE CHECKED DAILY AND CLEANED BY THE CONTRACTOR AS REQUIRED TO MAINTAIN THIS CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
C 8. FOR SIMPLICITY SOME FINISHED ELEVATIONS HAVE THE BEEN SHOWN AS RELATIVE TO 100'.
9. ELEVATIONS SHOWN FOR TOPS OF SITE DRAINAGE STRUCTURES ARE APPROXIMATE AND MUST BE SET TO MATCH FINISH GRADES.
10. THE DRIVEWAY AND PARKING AREAS SHOWN TO BE GRAVEL ON SHEET C-113 HAVE SURFACE ELEVATIONS 3" BELOW THOSE SHOWN ON THIS PLAN. TAPER THE GRAVEL WHERE INDICATED TO MATCH THE PERVIOUS CONCRETE SURFACE GRADE WHERE THE PERVIOUS CONCRETE PAVEMENT ENDS.
11. STORMWATER MANAGEMENT AND SANITARY SEWERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT DIVISION OF ENGINEERING MANUALS.
12. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED LFUCG SPECIFICATIONS AND STANDARD DETAILS.
13. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
B 14. THE CITY ENGINEER'S OFFICE SHALL BE NOTIFIED 24 HOURS PRIOR TO STARTING EACH PHASE OF CONSTRUCTION.
15. PRIOR TO ANY CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR/DEVELOPER SHALL NOTIFY THE ARCHITECT AND LANDSCAPE ARCHITECT. ANY CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RESTORED TO ORIGINAL CONDITIONS USING THE FOLLOWING REQUIREMENTS:
a. ALL TREES IMPACTED BY CONSTRUCTION SHALL BE REPLACED WITH THE SAME SIZE AND TYPE OF TREE AT A LOCATION DETERMINED BY THE CITY;
b. ALL IRRIGATION SYSTEMS SHALL BE RESTORED TO FULLY FUNCTIONING STATUS. ANY IRRIGATION LOCATED BENEATH PERVIOUS CONCRETE SHALL BE SLEEVED WITH SCHEDULE 40 PVC TWO (2) NOMINAL SIZES LARGER;
c. THE AREA OF CONSTRUCTION SHALL BE TREATED WITH PRE-EMERGENT HERBICIDE;
d. THE STREET DIVISION SHALL BE CONTACTED TO INSPECT ALL WORK BEFORE A CONDITIONAL ACCEPTANCE IS ISSUED;
e. THE CONTRACTOR/DEVELOPER SHALL MAINTAIN THE AREA FOR NINETY (90) DAYS AFTER CONDITIONAL ACCEPTANCE. AFTER 90 DAYS THE CITY ENGINEER SHALL BE CONTACTED FOR FINAL ACCEPTANCE AND ASSUMPTION OF MAINTENANCE.
A 16. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE CITY ENGINEER AND/OR ALL WORK AND M ATERIAL NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT.

17. THE CONTRACTOR SHALL UNCOVER ALL EXISTING LINES BEING TIED INTO TO VERIFY THEIR LOCATION. THE CONTRACTOR SHALL LOCATE OR HAVE LOCATED ALL EXISTING UNDERGROUND UTILITIES (ELECTRIC, TELEPHONE, PIPELINES, ETC.) AND STRUCTURES IN ADVANCE OF CONSTRUCTION AND SHALL ELIMINATE ALL CONFLICTS PRIOR TO START OF CONSTRUCTION.
18. THE CITY OF LEXINGTON AND LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGES TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.
19. NO FINAL ACCEPTANCE SHALL BE ISSUED UNTIL 4 REPRODUCIBLE "AS-BUILT" PLANS CERTIFIED AND SEALED BY A REGISTERED CIVIL ENGINEER, HAVE BEEN SUBMITTED AND ACCEPTED BY THE CITY ENGINEER.
20. BACKFILLING SHALL NOT BE STARTED UNTIL LINES ARE APPROVED BY THE CITY ENGINEER.
21. ALL BACKFILL SHALL BE INSTALLED IN ACCORDANCE WITH LFUCG STANDARDS.
22. CONSTRUCTION OF CONCRETE OR PAVING ITEMS SHALL NOT COMMENCE UNTIL ALL UNDERGROUND WORK HAS BEEN INSPECTED AND TESTED.
23. DISPOSAL OF AND STOCKPILING OF EXCESS MATERIAL WITHIN THE CITY OF LEXINGTON LIMITS OR PLANNING AREA SHALL BE DONE IN SUCH A WAY THAT WILL NOT CREATE A NUISANCE. THE PLACING OF MATERIAL ON PRIVATE PROPERTY OF ANOTHER REQUIRES WRITTEN AUTHORIZATION. EARTHWORK STOCKPILES ARE NOT TO EXCEED 6 FEET IN HEIGHT. SLOPES ON ALL SIDES OF THE STOCKPILE SHALL NOT EXCEED A 1 TO 2 RATIO OF HEIGHT TO LENGTH. ANY EARTHWORK STOCKPILE, EVEN LESS THAN 6 FEET, MUST BE REMOVED WITHIN 7 DAYS OF CITY NOTIFICATION IF DUST SUPPRESSION EFFORTS FAIL TO MAINTAIN SATISFACTORY AIRBORNE CONTAMINANT CONTROL.
24. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE LFUCG TRAFFIC BARRICADE REGULATIONS.
25. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST, AND TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT ALL ROADS ARE MAINTAINED IN A CLEAN, MUD AND DUST-FREE CONDITION AT ALL TIMES.
26. APPLICATIONS FOR STREET CUT PERMITS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO APPROVAL OF IMPROVEMENT PLANS. ALL PAVEMENT REPLACEMENT SHALL BE EITHER FULL-DEPTH OF A.B.C. OR A.B.C. SLURRY BACKFILL IN ACCORDANCE WITH CITY OF LEXINGTON AND LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT STANDARD SPECIFICATIONS.
27. AN APPROVED SET OF PLANS SHALL BE MAINTAINED ON THE JOB SITE AT ALL TIMES THAT WORK IS IN PROGRESS. DEVIATION FROM THE PLANS SHALL NOT BE ALLOWED WITHOUT AN APPROVED PLAN REVISION.
28. A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET IS REQUIRED BETWEEN SEWER SERVICES AND WATER OR FIRELINE SERVICES. A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET IS REQUIRED BETWEEN RECLAIMED WATER SERVICES AND SEWER, WATER, OR FIRELINE SERVICES.
29. SETBACKS FOR UTILITY POLES, STRUCTURES, AND OTHER SIMILAR FACILITIES GREATER THAN 18 INCHES IN HEIGHT SHALL BE 5.5 FEET BACK OF CURB. IN CASES WHERE THE FACILITIES ARE ADJACENT TO A DECELERATION LANE, THE SETBACK CAN BE REDUCED TO 2.5 FEET BACK OF CURB.
30. ANY PROPOSED RETAINING WALLS, OR COMBINATION RETAINING/SCREEN WALLS, SHALL BE CONSTRUCTED, AND THE RETAINING WALL AS-BUILT CERTIFICATION SIGNED BY THE REGISTERED CIVIL/STRUCTURAL ENGINEER, BEFORE ANY IMPROVEMENTS ARE ACCEPTED, OR CONDITIONALLY ACCEPTED, BY THE CITY ENGINEER.
31. ANY CONSTRUCTION DETOURS WILL REQUIRE AN ALL-WEATHER SURFACE PER CITY OF LEXINGTON AND LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT AIR QUALITY REQUIREMENTS.



2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02 JUNE 2009
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DATE CREATED: 02/06/09

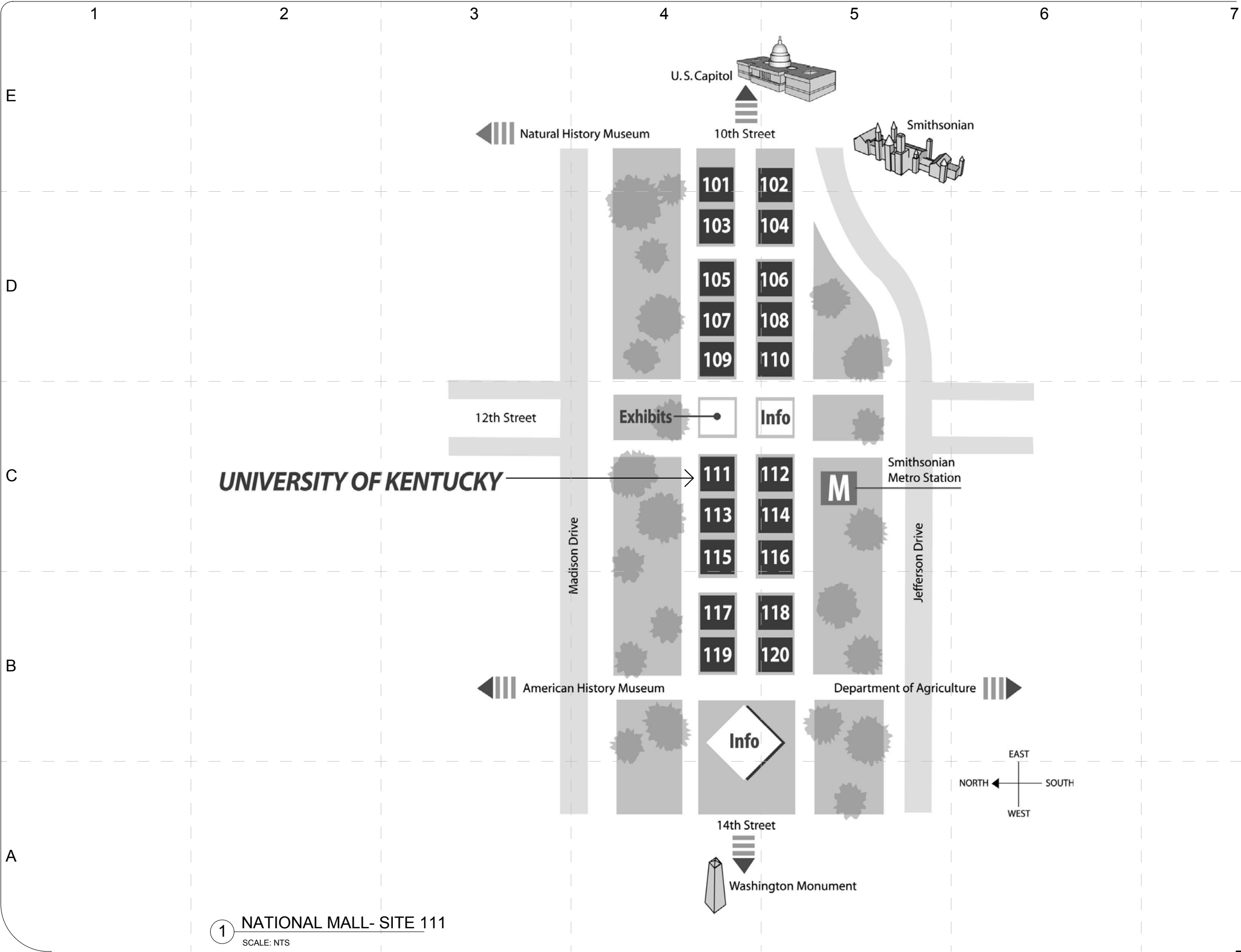
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SHEET TITLE:

Civil Engineering
Symbols and Notes

C-001

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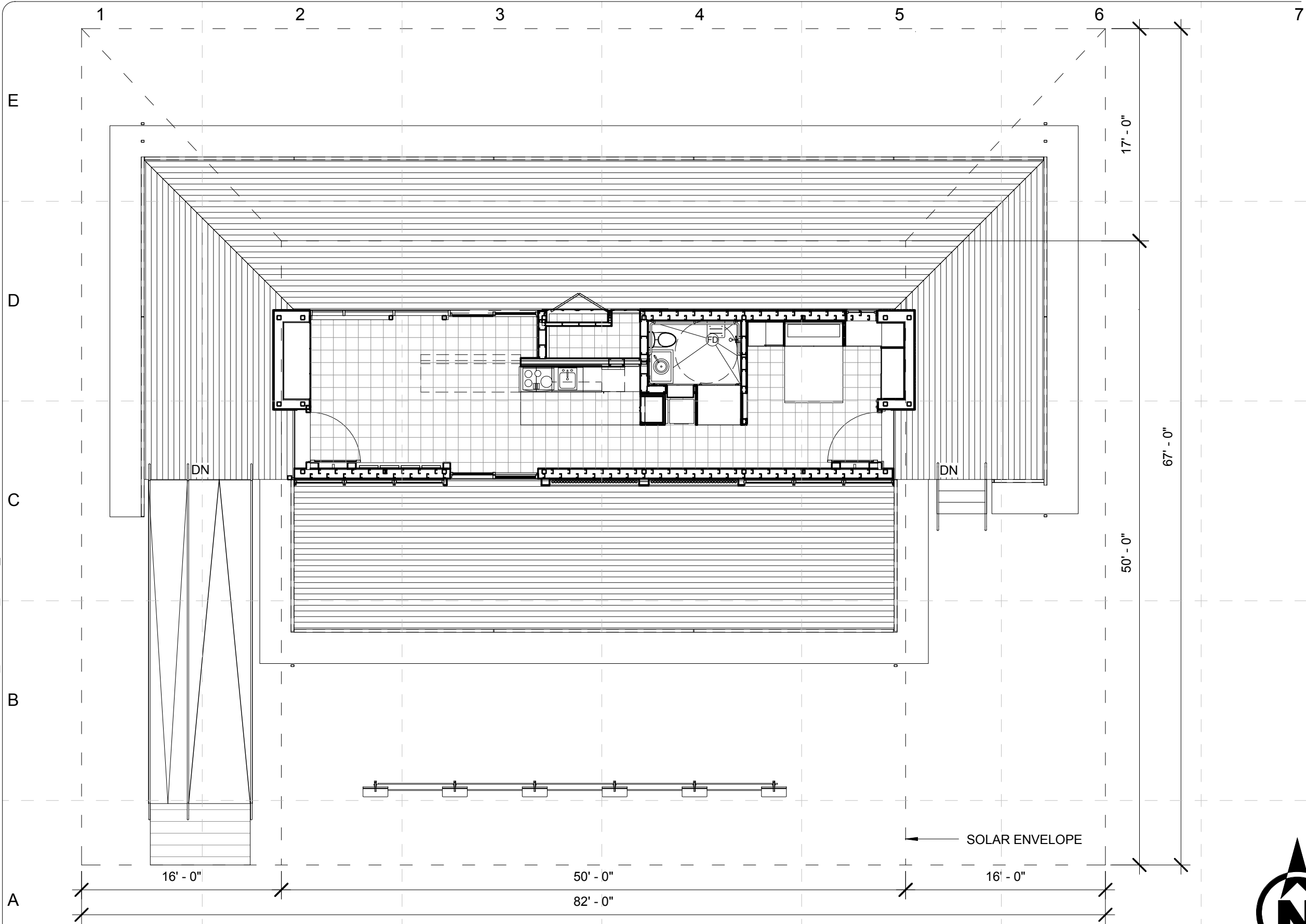
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SHEET TITLE:

Site-National Mall,
Site 111

C-101

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1 ARCHITECTURAL FOOTPRINT AND AREA CALCULATIONS
SCALE: 1/8" = 1'-0"

TOTAL AREA CONDITION SPACE 590 SQ. FT.
ARCHITECTURAL FOOTPRINT 786 SQ. FT.



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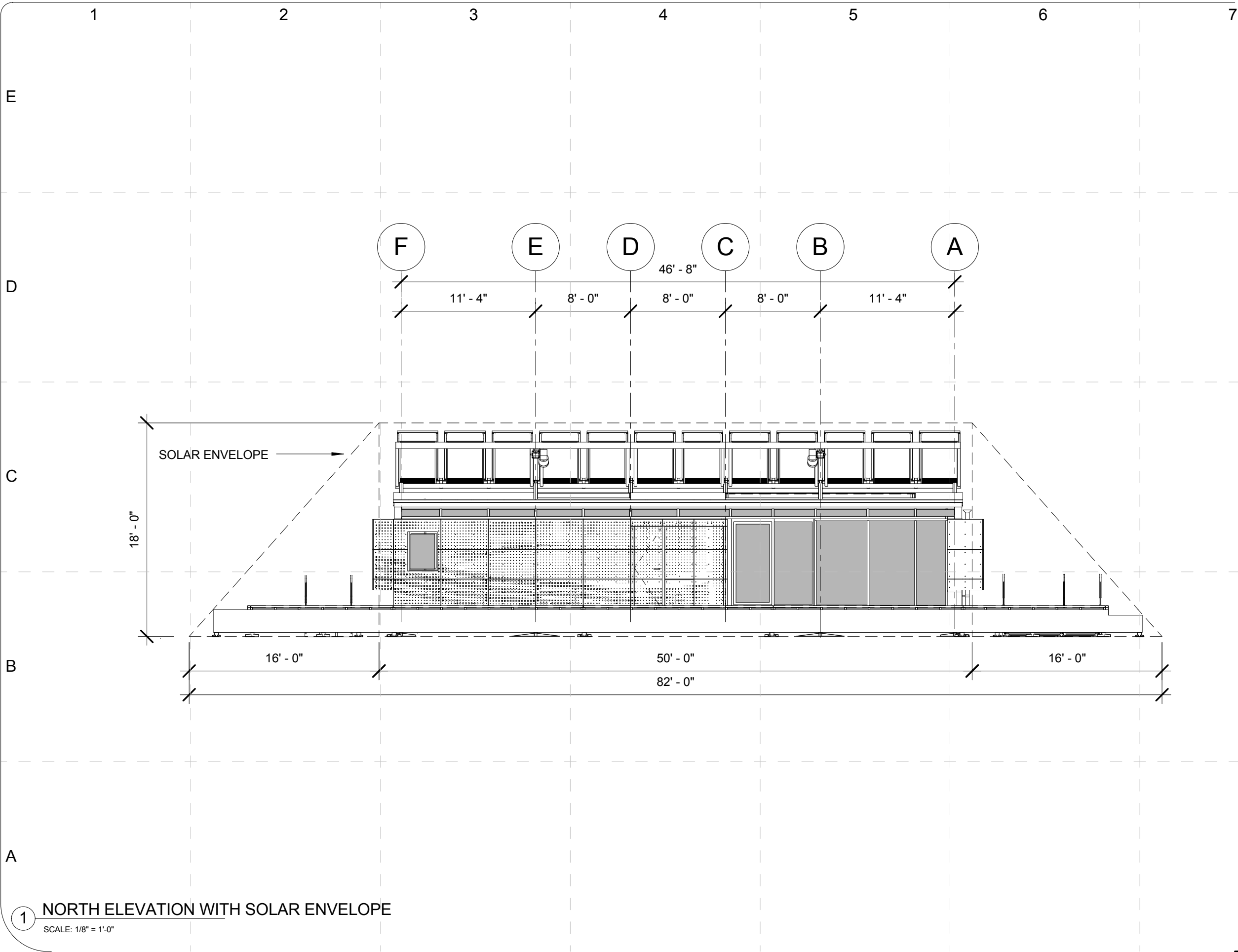
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SHEET TITLE:

Site-National Mall,
Site 111-Survey
and Solar Envelope

C-102

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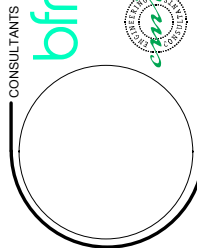


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SHEET TITLE:

Site-National Mall,
Site 111-Solar
Envelope-North

C-103



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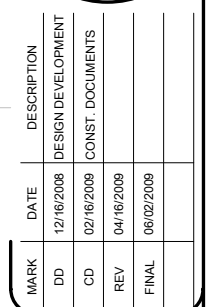
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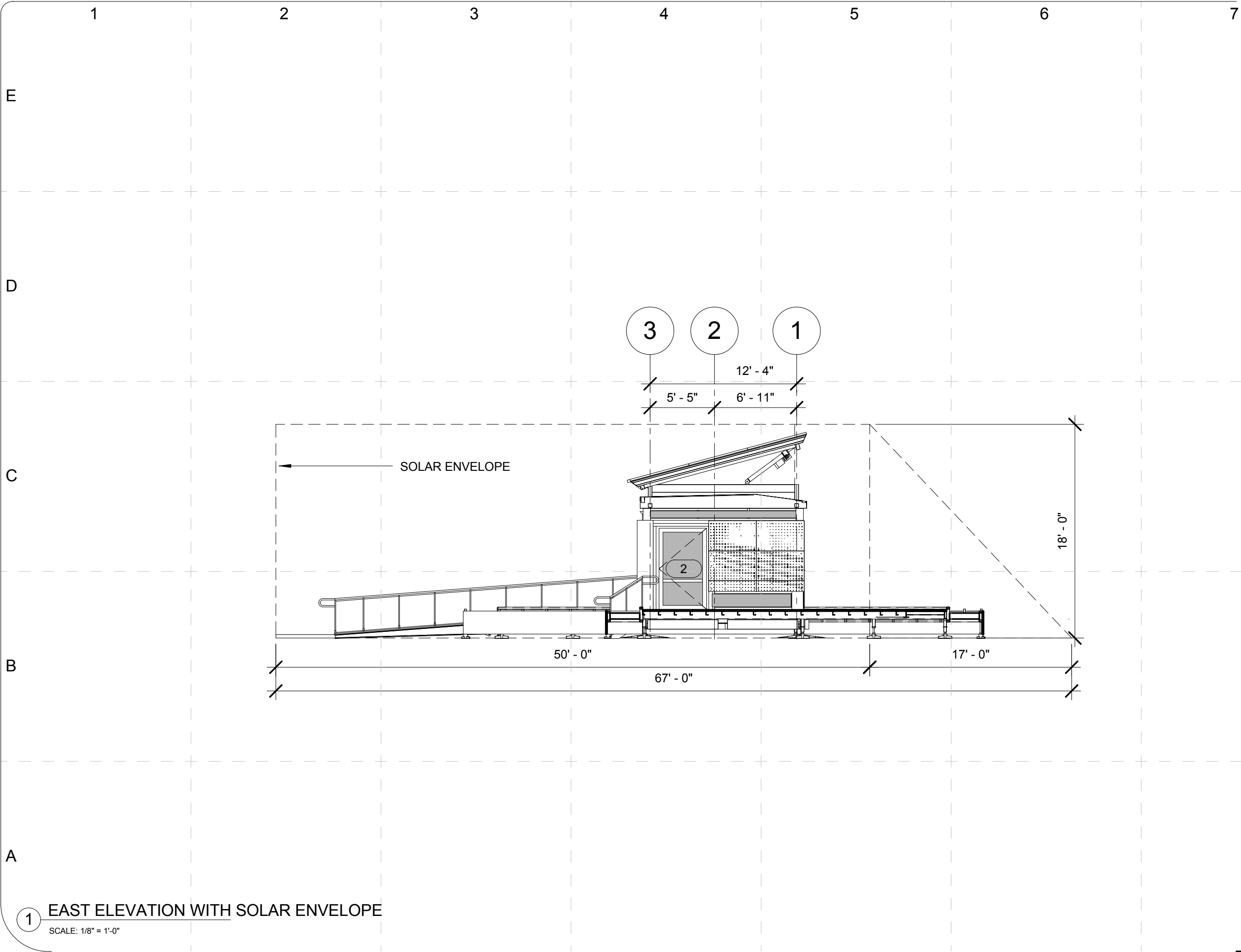
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APPROVED BY: _____ GL
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DATE RECEIVED: 09/13/08
COMMENTS: _____

SHEET TITLE:

Site-National Mall,
Site 111-Solar
Envelope-South

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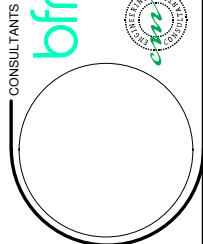
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APPROVED BY
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Author
05/15/09
Approver
05/15/09

SHEET TITLE:

Site-National Mall,
Site 111-Solar
Envelope-East

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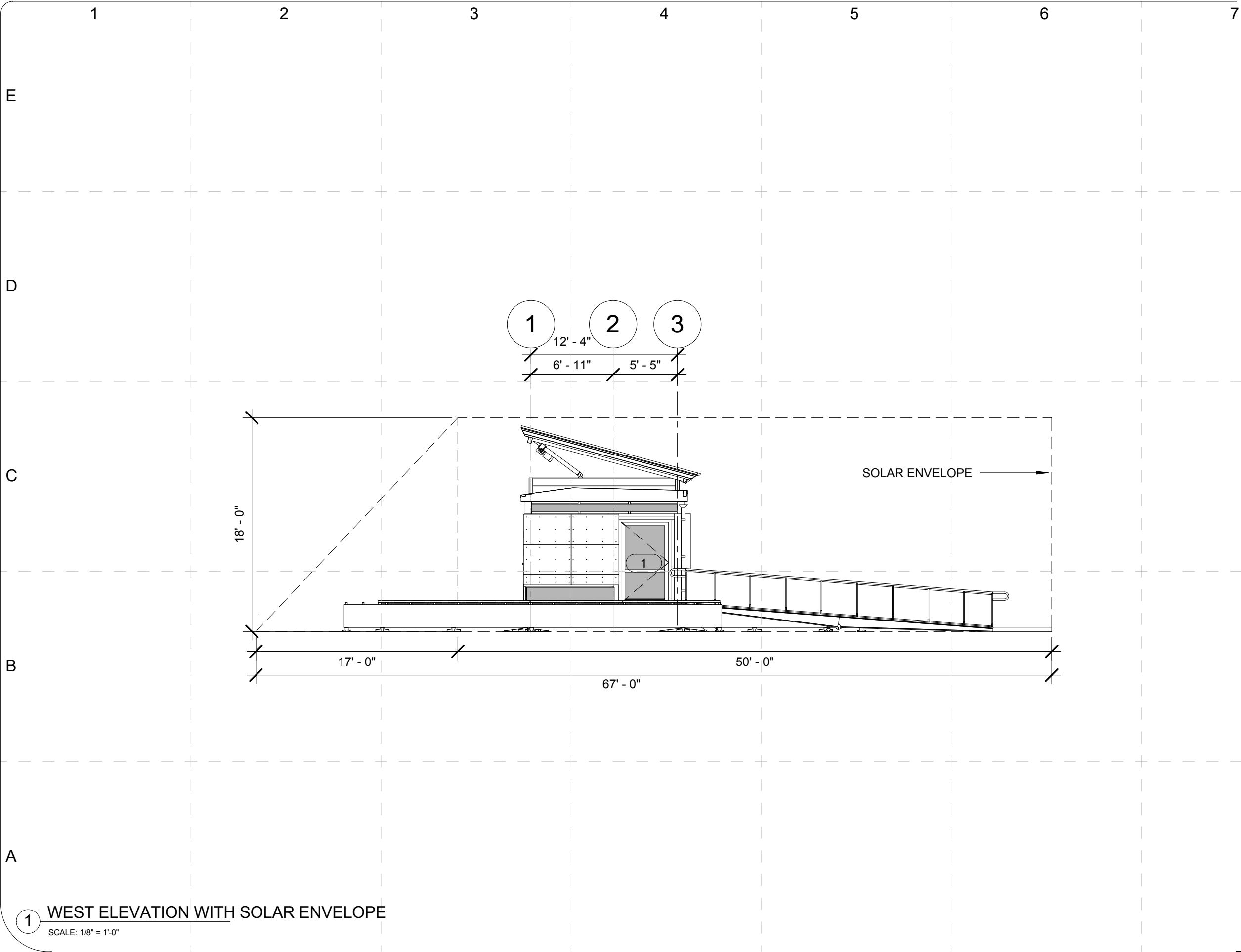
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1 WEST ELEVATION WITH SOLAR ENVELOPE
SCALE: 1/8" = 1'-0"

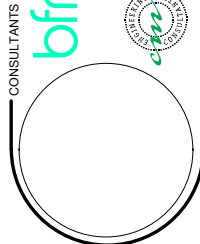
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SHEET TITLE:

Site-National Mall,
Site 111-Solar
Envelope-West

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SHEET TITLE:

Alternative Site

C-111

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1 Alternative Site - Contours
SCALE: NTS



Alternative Site

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SHEET TITLE:

Alternative Site-Paving

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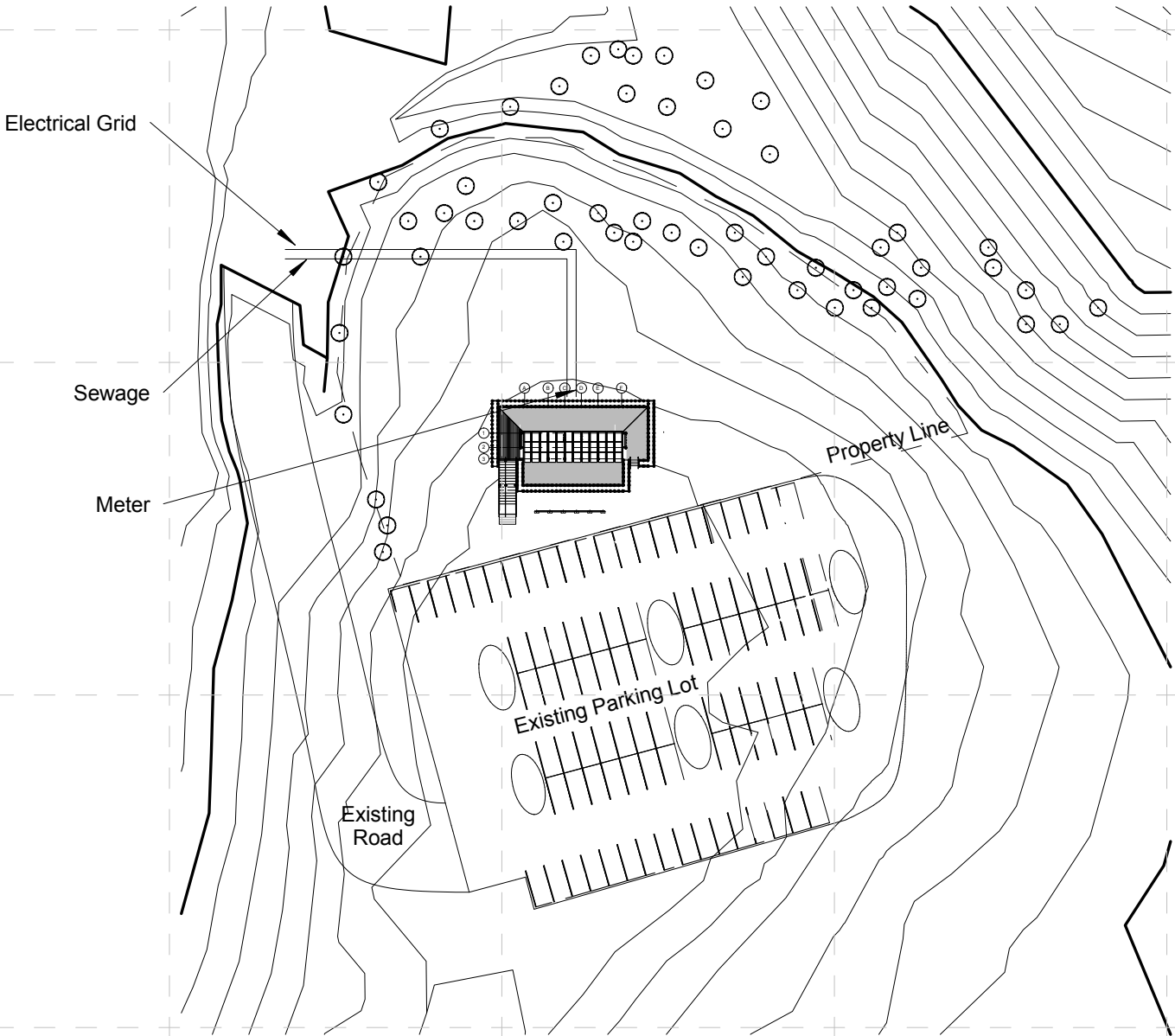
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1 Alternative Site - Utilities

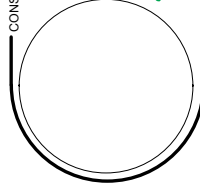
SCALE: 1" = 80'-0"




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DATE CREATED: 02/06/09	DATE RECEIVED: 02/06/09	DATE RECEIVED: 02/06/09	DATE RECEIVED: 02/06/09
COMMENTS			

SHEET TITLE:


Alternative Site-
Utilities



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LANDSCAPE GENERAL NOTES

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- REQUIREMENTS FOR THE MEASUREMENT, BRANCHING, GRADING, BALLING AND BURLAPPING OF PLANTS IN THE PLANT LIST GENERALLY FOLLOWS OR EXCEEDS A CODE OF STANDARDS CURRENTLY RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN THE AMERICAN STANDARD FOR NURSERY STOCK. SEE THE PLANT LIST FOR OTHER REQUIREMENTS.
- ALL PLANTS SHALL HAVE A WELL FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.
- CONTAINERIZED TAXUS OR TAXUS WITH SAND BALLS ARE NOT PERMITTED. TAXUS MUST BE SUPPLIED BALLED AND BURLAPPED WITH A CLAY LOAM SOIL SIMILAR TO THAT FOUND ON THE SITE.
- PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM INSECTS, PESTS, PLANT DISEASES AND INJURIES. ALL PLANTS SHALL EQUAL OR EXCEED THE MEASUREMENTS SPECIFIED IN THE PLANT LIST WHICH ARE MINIMUM ACCEPTABLE SIZES. THEY SHALL BE MEASURED BEFORE PRUNING.
- SYNTHETIC BURLAP SHALL NOT BE USED IN BALLING AND BURLAPPING ANY PLANTS ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THIS REQUIREMENT IS MET.
- WATER. THE OWNER SHALL PROVIDE, AT NO EXPENSE, AN ADEQUATE SUPPLY OF WATER TO MEET THE NEEDS OF THIS CONTRACT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY HOSES, EQUIPMENT, ATTACHMENTS AND ACCESSORIES FOR THE ADEQUATE IRRIGATION OF PLANTED AREAS AS MAY BE REQUIRED TO COMPLETE THE WORK AS SPECIFIED.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS IN THIS PROJECT. THE ENGINEER OR OWNER'S REPRESENTATIVE SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION OF VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO OPENING ANY PLANTING PITS.
- SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PAN, UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS. OTHERWISE THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE FOR PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.
- IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF SELECTED HOLES WITH SIX (6) INCHES OF WATER. THIS WATER SHOULD PERCOLATE OUT WITHIN A TWENTY-FOUR (24) HOUR PERIOD. THE OWNER'S REPRESENTATIVE SHALL VERIFY ACCURACY AND EFFECT OF PERCOLATION TESTING. IF THE SOIL AT A GIVEN AREA DOES NOT DRAIN PROPERLY, A PVC DRAIN OR GRAVEL SUMP SHALL BE INSTALLED OR THE PLANTING RELOCATED.
- TOPSOIL SHALL BE ORIGINAL SURFACE LOAM OBTAINED FROM WELL-DRAINED AREAS FROM WHICH TOPSOIL HAS NOT BEEN REMOVED PREVIOUSLY, EITHER BY EROSION, CLEARING AND REMOVAL OF TREES OR MECHANICAL MEANS. IT SHALL NOT CONTAIN SUBSOIL MATERIAL AND SHALL BE CLEAN AND FREE OF CLAY LUMPS, ROOTS, STONES OR SIMILAR SUBSTANCES MORE THAN 1" IN DIAMETER, DEBRIS, DISCARDED FRAGMENTS OF BUILDING MATERIALS OR WEEDS AND WEED SEEDS. TOPSOIL SHALL BE CLASSIFIED AS A LOAM, SILT LOAM, CLAY LOAM OR A COMBINATION THEREOF, AS DETERMINED FROM THE BUREAU OF PLANT INDUSTRY SOILS AND AGRICULTURAL ENGINEERING, U.S.D.A. TRIANGULAR SOIL TEXTURE CHART. IT SHALL BE RICH, FRIABLE LOAM CONTAINING NOT LESS THAN THREE (3) PERCENT NOR MORE THAN TEN (10) PERCENT, BY WEIGHT, OF ORGANIC MATTER.
- PLANTING PITS FOR TREES AND SHRUBS NOTED WITH AN ASTERISK () SHALL BE DUG AS SHOWN ON THE PLANTING DETAIL. BACKFILL AROUND THESE PLANTS WITH SOIL FOUND AT THESE PITS. ANY HEAVY CLAY OR OTHER SOIL UNSUITABLE FOR PLANTING ENCOUNTERED IN THE HOLES SHALL BE REMOVED FROM THE SITE. THE LANDSCAPE SUBCONTRACTOR SHALL FURNISH NEW TOPSOIL FOR BACK FILL AROUND THESE TREES AND SHRUBS.

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- WHERE THE LANDSCAPE SUBCONTRACTOR INSTALLS NEW TOPSOIL AROUND THE BUILDING OR IN PLANTING ISLANDS IN OR ADJACENT TO PARKING LOT, THE LANDSCAPE SUBCONTRACTOR SHALL BACKFILL PLANTS INSTALLED IN THESE AREAS WITH THIS NEW TOPSOIL.
- ALL EXCAVATIONS MADE WITH AN AUGER SHALL HAVE THE ENTIRE SIDE OF THE PLANTING PIT SCARIFIED TO A MINIMUM DEPTH OF ONE (1) INCH.
- NO EXCAVATION OR PLANTING PIT SHALL BE LEFT UNATTENDED OR OPEN OVERNIGHT.
- PLANT BEDS AND TREE SAUCERS SHALL BE TREATED WITH PRE-EMERGENT HERBICIDE BY THE LANDSCAPE CONTRACTOR BEFORE MULCH IS APPLIED.
- SHREDDED HARDWOOD BARK MULCH SHALL BE APPLIED TO ALL SHRUB BEDS, TREE PITS AND OTHER AREAS DESIGNATED, BY THE LANDSCAPE CONTRACTOR. MULCH SHALL BE AN APPROVED, CLEAN, SHREDDED HARDWOOD BARK OF UNIFORM SIZE NOT TO EXCEED A LENGTH OF THREE (3) INCHES OR A THICKNESS OF ONE-HALF (1/2) INCH. IT SHALL BE DECAY AND FIRE RESISTANT, NON-TOXIC TO PLANT MATERIAL AND BE SCREENED TO REMOVE SAWDUST AND FINE SHAVINGS AND AGED TO OBTAIN A DARK BROWN COLOR. A SAMPLE OF MULCH SHALL BE PRESENTED TO THE OWNER FOR APPROVAL.
- NO STAKING OF TREES WILL BE REQUIRED. WRAPPING SHALL NOT BE REQUIRED. ALL CORDS AND BINDINGS SHALL BE CUT FROM PLANTS PRIOR TO PLANTING. BURLAP AND WIRE BASKET SHALL BE REMOVED FROM THE TOP (1/2) OF ALL TREE BALLS.
- THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE SITE IN A REASONABLY NEAT AND CLEAN STATE THROUGHOUT THE INSTALLATION PROCESS. STREETS AND PAVED AREAS SHALL BE CLEANED REGULARLY TO REMOVE DEBRIS RESULTING FROM WORK ON THIS PROJECT.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED MAINTENANCE UNTIL ALL PLANTINGS ARE FORMALLY ACCEPTED. ALL PLANTS SHALL BE WATERED AT TIME OF INSTALLATION AND AS OFTEN THEREAFTER AS NECESSARY TO MAINTAIN THEM IN A HEALTHY, VIGOROUS CONDITION UNTIL COMPLETION OF WORK AND ACCEPTANCE BY OWNER.
- PRUNING AND REPAIR. ALL PRUNING AND REPAIR WORK MUST BE COMPLETED WITHIN A TEN-DAY PERIOD AFTER PLANTING. THE AMOUNT OF PRUNING INCLUDED UNDER THE WORK OF THIS SECTION SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS AND BRANCHES AS A RESULT OF TRANSPLANTING OPERATIONS.
- THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE AFTER THE PLANTINGS ARE FORMALLY ACCEPTED DURING THE ONE (1) YEAR GUARANTEE PERIOD. THE LANDSCAPE CONTRACTOR SHALL PROVIDE TO THE OWNER WRITTEN INSTRUCTIONS FOR THE CARE OF THE PLANTINGS DURING THE WARRANTY PERIOD. FINAL PAYMENT WILL NOT BE MADE UNTIL THESE INSTRUCTIONS HAVE BEEN SUBMITTED.
- ALL PLANTS ARE TO BE ALIVE, HEALTHY AND VIGOROUS AT THE TIME OF THE FINAL INSPECTION. ANY PLANT THAT DOES NOT MEET THIS CONDITION SHALL BE REINSTALLED IMMEDIATELY OR AS SOON AS WEATHER CONDITIONS PERMIT AT NO EXPENSE TO THE OWNER.
- PLANTS SHALL BE GUARANTEED FOR THE DURATION OF ONE (1) FULL YEAR AFTER THE FORMAL ACCEPTANCE OF THE PLANTING BY THE OWNER AND SHALL BE ALIVE AND IN SATISFACTORY CONDITION AT THE END OF THE GUARANTEE PERIOD. ANY PLANT NOT IN A HEALTHY AND VIGOROUS STATE AT THE END OF THE GUARANTEE PERIOD SHALL BE REPLACED AT NO COST TO THE OWNER. PLANTS SEVERELY DAMAGED THROUGH VANDALISM ARE NOT SUBJECT TO REPLACEMENT BY THIS CONTRACTOR.
- THE CONTRACTOR SHALL CHECK THE PLANTINGS REGULARLY. SHOULD THE CONTRACTOR FIND THE PLANT MATERIAL IS NOT RECEIVING THE PROPER MAINTENANCE AT ANY TIME PRIOR TO THE END OF THE GUARANTEE PERIOD, HE SHOULD ADVISE THE ENGINEER AND THE OWNER IMMEDIATELY IN WRITING SO CORRECTIVE MEASURES MAY BE INITIATED.
- ANY PLANT THAT HAS DIE-BACK OR OTHERWISE LOSES OVER 30% OR MORE OF ITS BRANCHES, AS EXISTING AND LIVING TO REMOVAL FROM THE NURSERY FIELD SHALL BE REPLACED.

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SHEET TITLE:

Landscape
Symbols and Notes

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A

B

C

D

E

- C.
- SHOULD ANY PLANT MATERIAL DIE DURING THE WARRANTY PERIOD THE OWNER SHALL PHOTOGRAPH THE MATERIAL AND ADVISE THE LANDSCAPE CONTRACTOR AND LANDSCAPE ARCHITECT OF ITS CONDITION. THE LANDSCAPE CONTRACTOR SHALL BE GIVEN ONE WEEK IN WHICH TO INSPECT THE MATERIAL. THE OWNER MAY AFTER THE TIME PERIOD NOTED REMOVE PLANT MATERIAL FROM THE SITE.
- D.
- THE LANDSCAPE CONTRACTOR SHALL REPLACE SUCH MATERIAL AT THE END OF THE WARRANTY PERIOD DURING THE PLANTING SEASON OF MARCH 15 - APRIL 15.
- E.
- REPLACEMENT OF DEAD OR UNSATISFACTORY MATERIAL SHALL BE MADE AS SPECIFIED IN THE PLANT LIST. THE OWNER OR LANDSCAPE ARCHITECT SHALL INSPECT REPLACED PLANTS WHEN ALL REPLACEMENTS HAVE BEEN MADE. REPLACEMENTS ARE TO BE ALIVE AND IN A HEALTHY CONDITIONS. PLANTS SHALL BE ALIVE, HEALTHY AND IN VIGOROUS CONDITION WHEN THE REPLACEMENT IS COMPLETE, BUT THEY SHALL NOT BE SUBJECT TO A ONE (1) YEAR GUARANTEE. THE LANDSCAPE CONTRACTOR SHALL REMOVE THE STAKING AT THE TIME OF FINAL INSPECTION.
- F.
- ANY DECIDUOUS PLANT INSTALLED AS A REPLACEMENT WHEN IT IS DORMANT MUST LEAF OUT FULLY AND BE VIGOROUS AND HEALTHY IN THE SPRING FOLLOWING ITS INSTALLATION.
- G.
- SHOULD THE LANDSCAPE CONTRACTOR NOT MAKE REPLACEMENTS IN A SATISFACTORY AND TIMELY FASHION IN ACCORD WITH THE PLANTING NOTES, THE OWNER AFTER PROPER NOTIFICATION TO THE LANDSCAPE CONTRACTOR, MAY UTILIZE THE FUNDS OF RETAINAGE TO HAVE REPLACEMENTS MADE IN ACCORD WITH THE PLANTING NOTES, THE LANDSCAPE CONTRACTOR.

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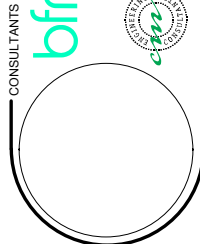
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SHEET TITLE:

Landscape
Symbols and Notes

L - 002

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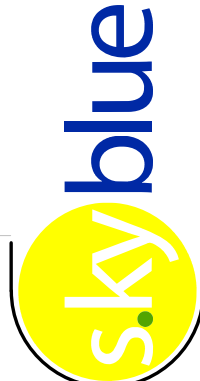
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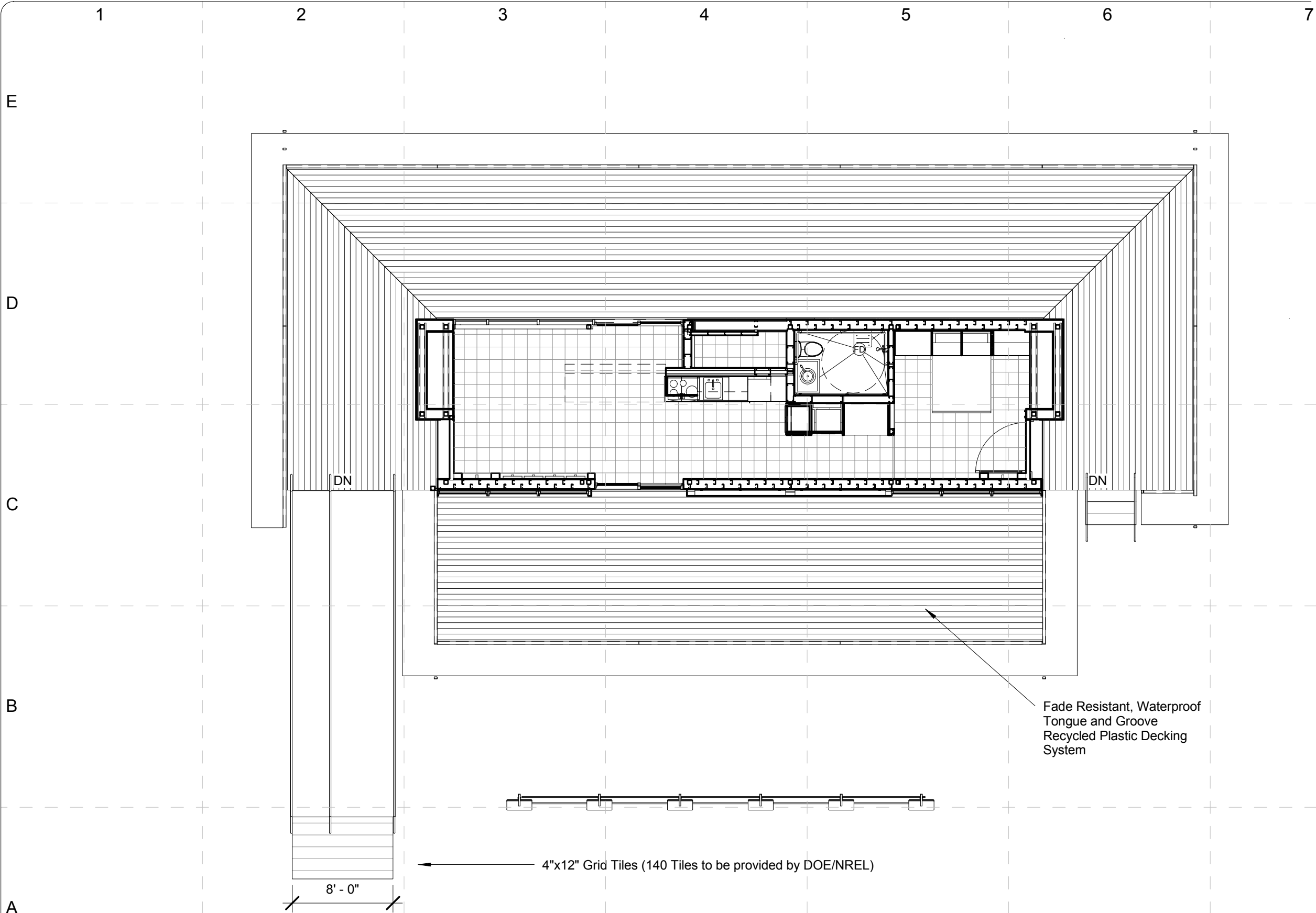
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1 DECK PLAN
SCALE: 1/8" = 1'-0"

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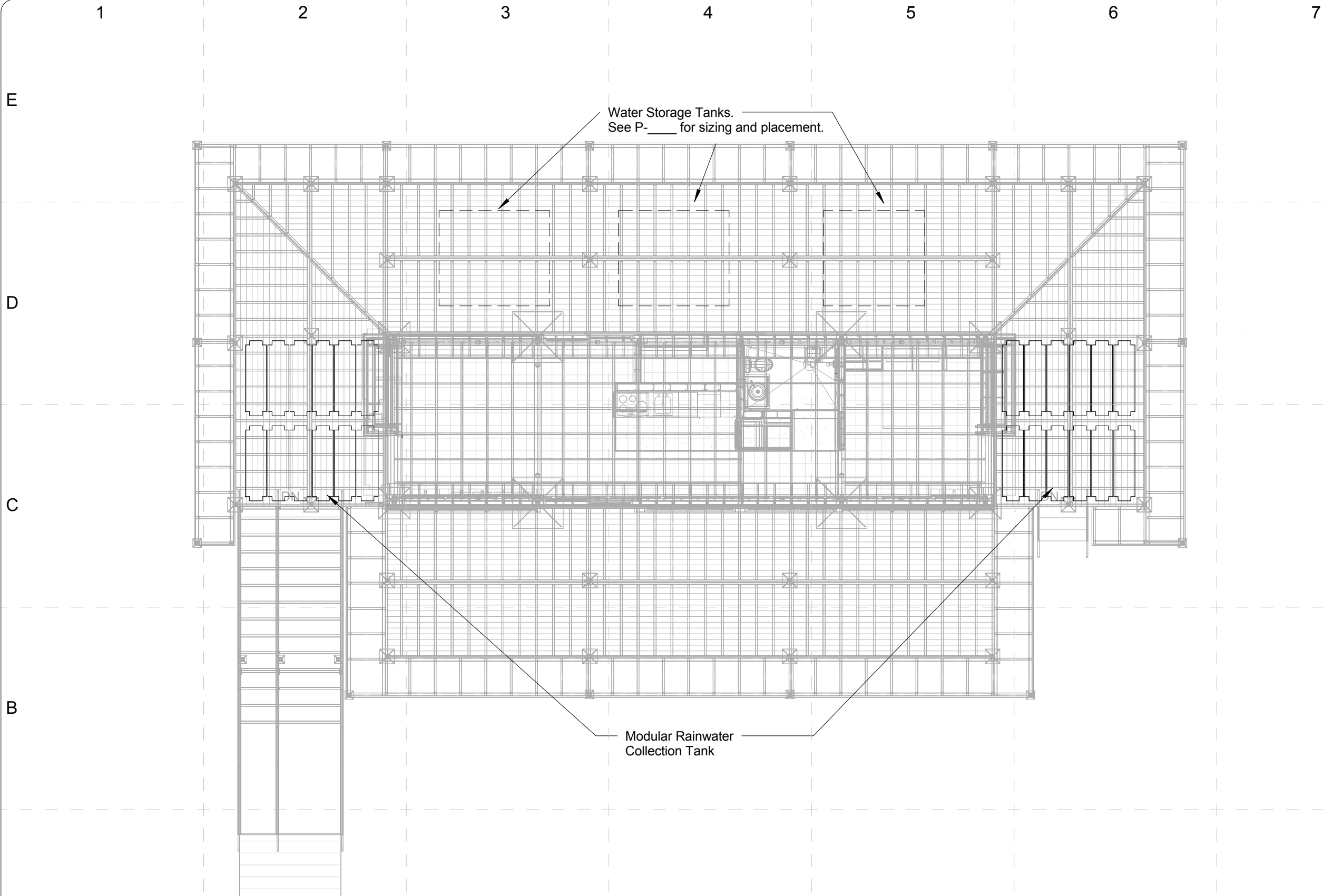
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SHEET TITLE:

Landscape Deck Plan

L - 101

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1

IRRIGATION PLAN

SCALE: 1/8" = 1'-0"

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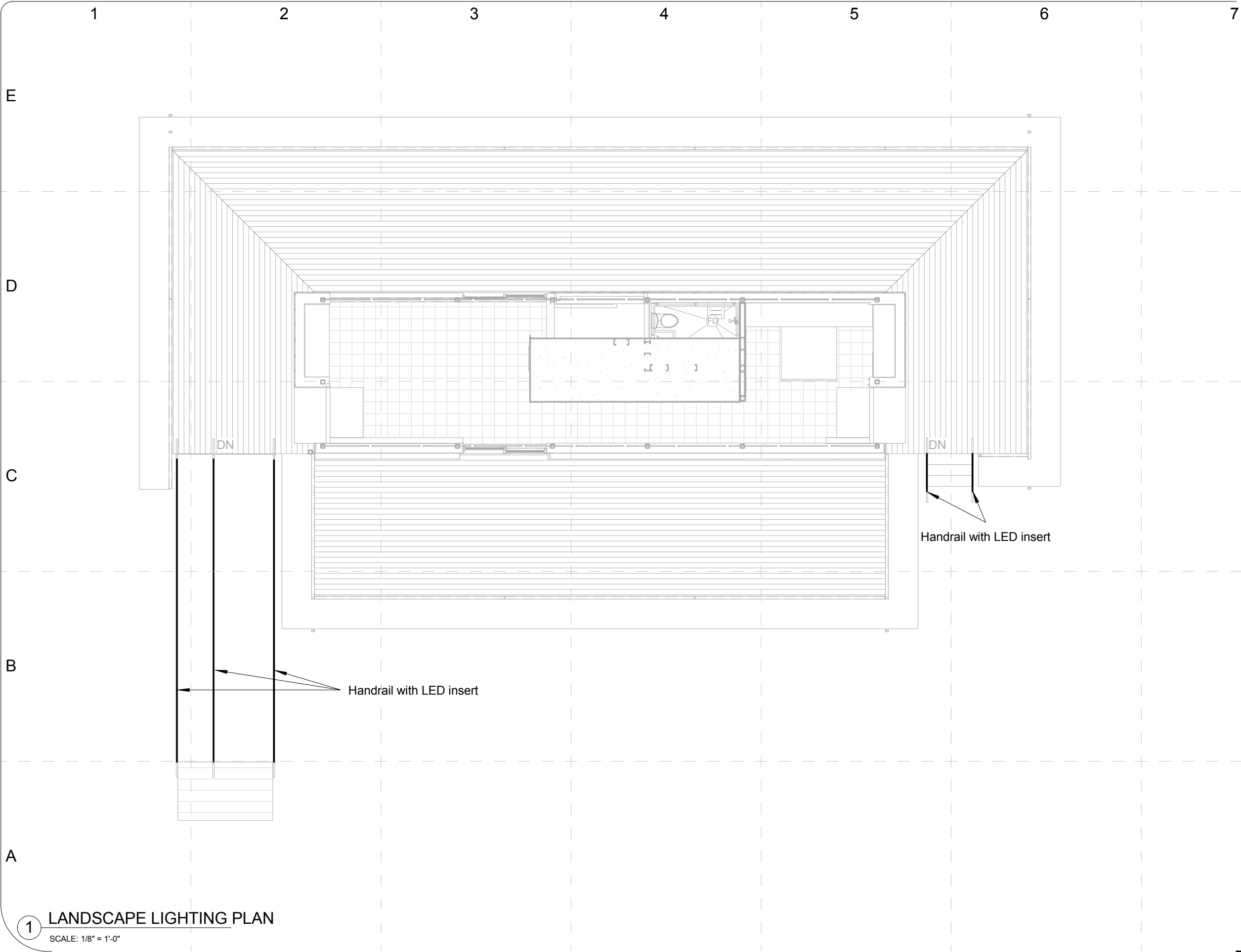
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SHEET TITLE:

Landscape-Irrigation
Plan

L - 102

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1 LANDSCAPE LIGHTING PLAN
SCALE: 1/8" = 1'-0"

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Landscape-Lighting
Plan

L - 103

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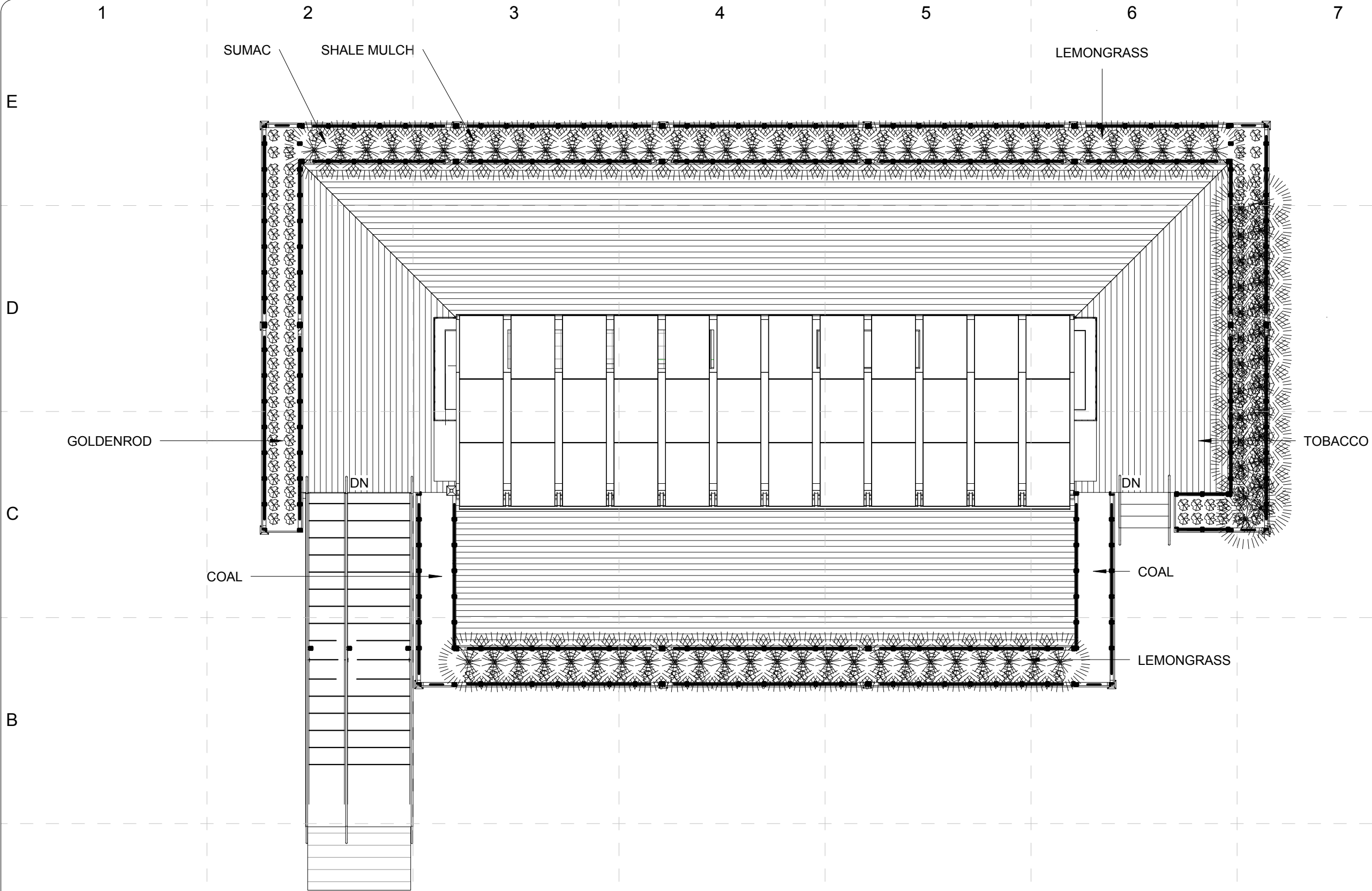
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1 LANDSCAPE PLANTING PLAN
SCALE: 1/8" = 1'-0"

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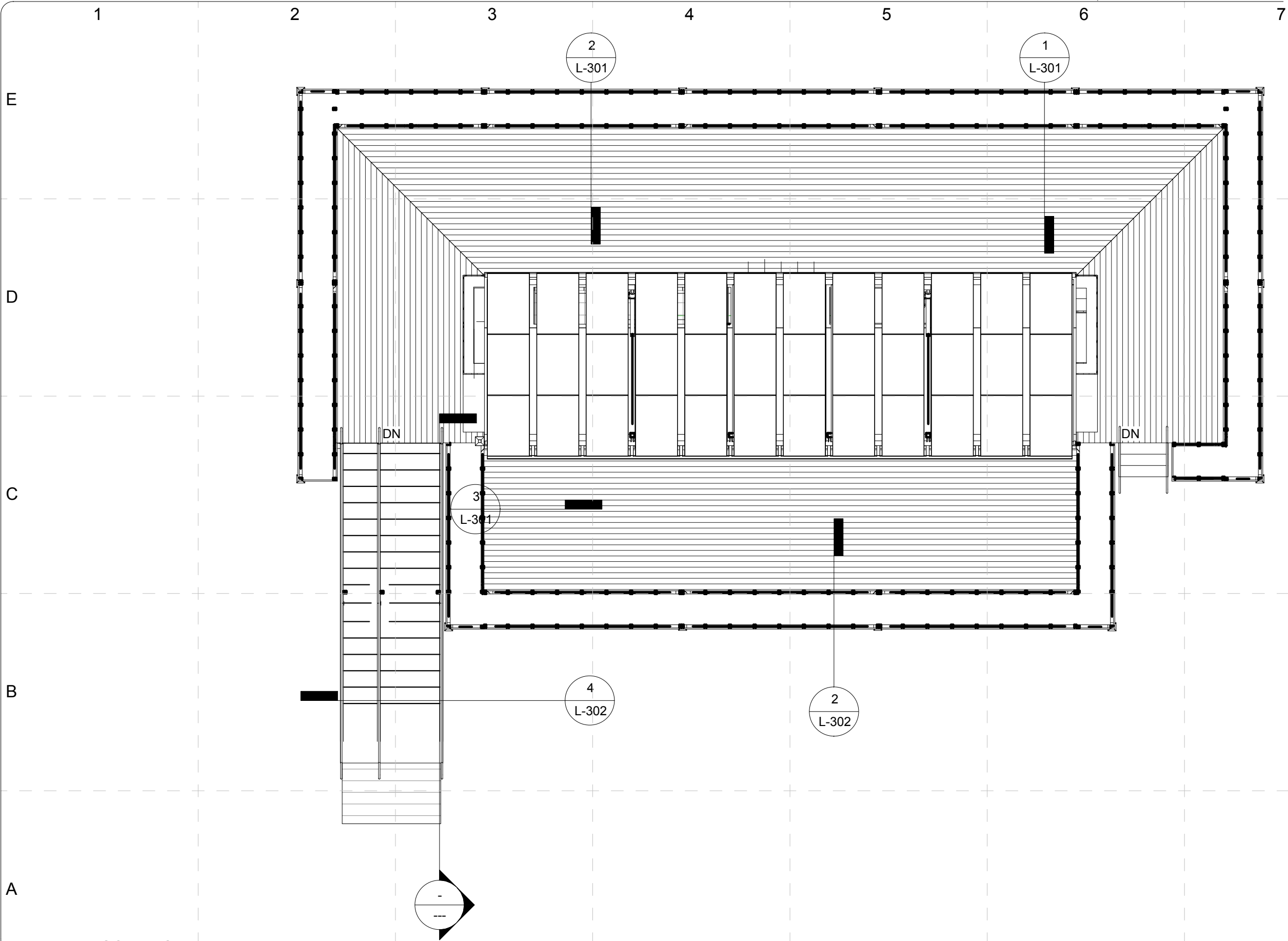
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SHEET TITLE:

Landscape-Planting
Plan

L - 104

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1 LANDSCAPE SITE PLAN
SCALE: 1/8" = 1'-0"

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SHEET TITLE:

Landscape-Site Plan

L - 105

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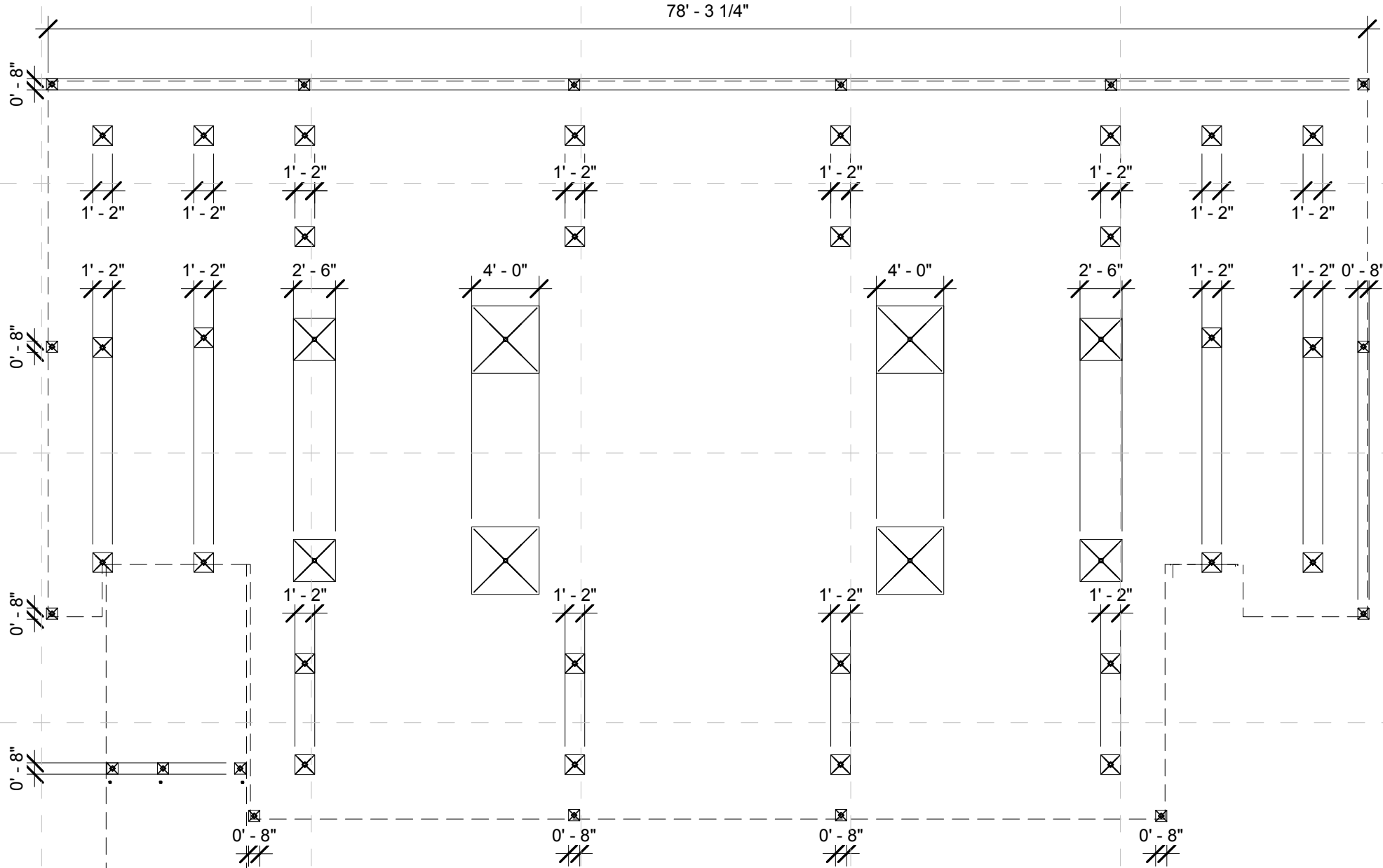
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1

DECK TO GROUND CONTACT AREAS

SCALE: 1/8" = 1'-0"



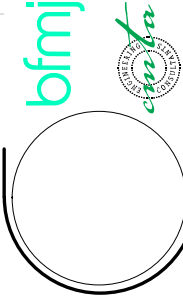
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06/02/09
06/02/09

SHEET TITLE:

Landscape- Deck to
Ground Contact

L - 106

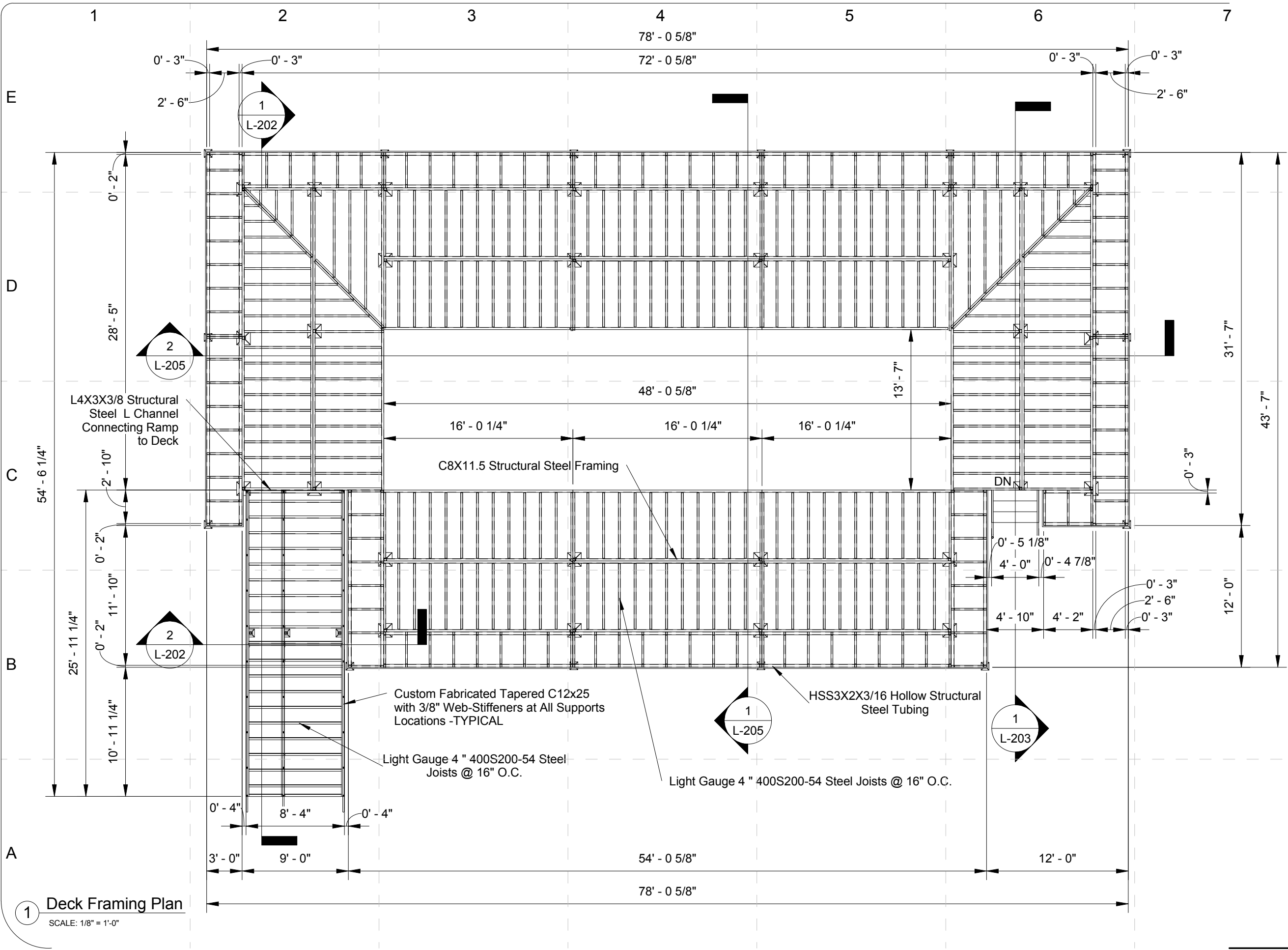


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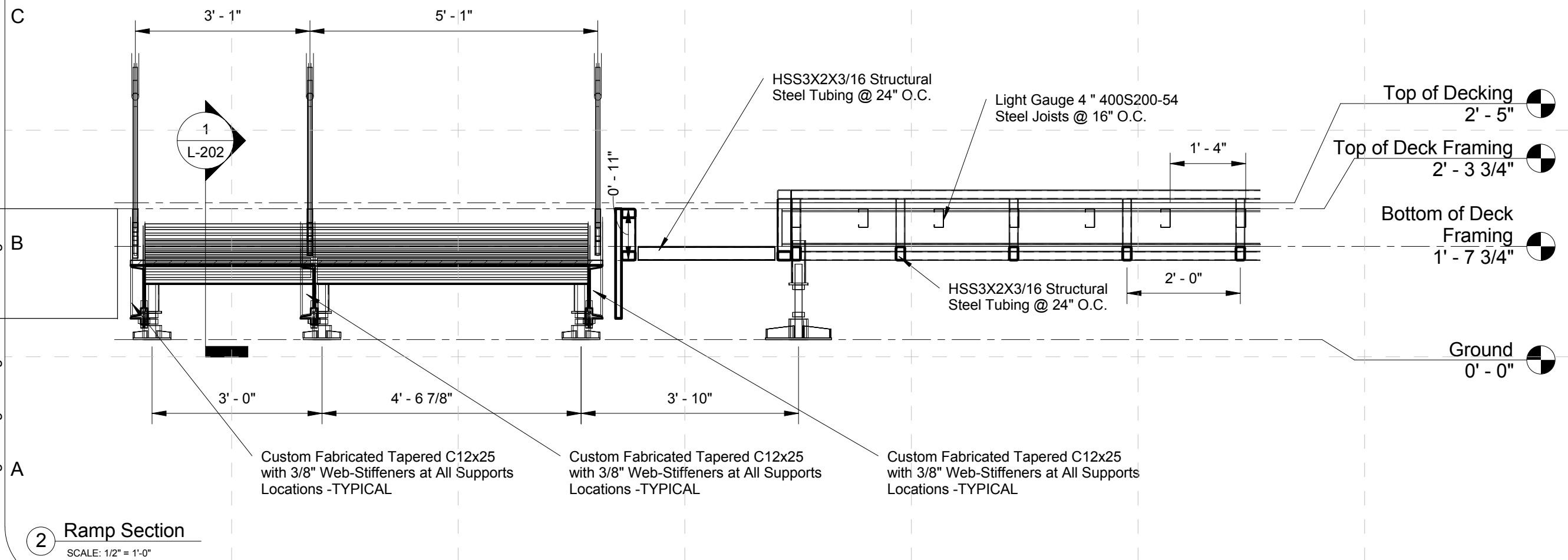
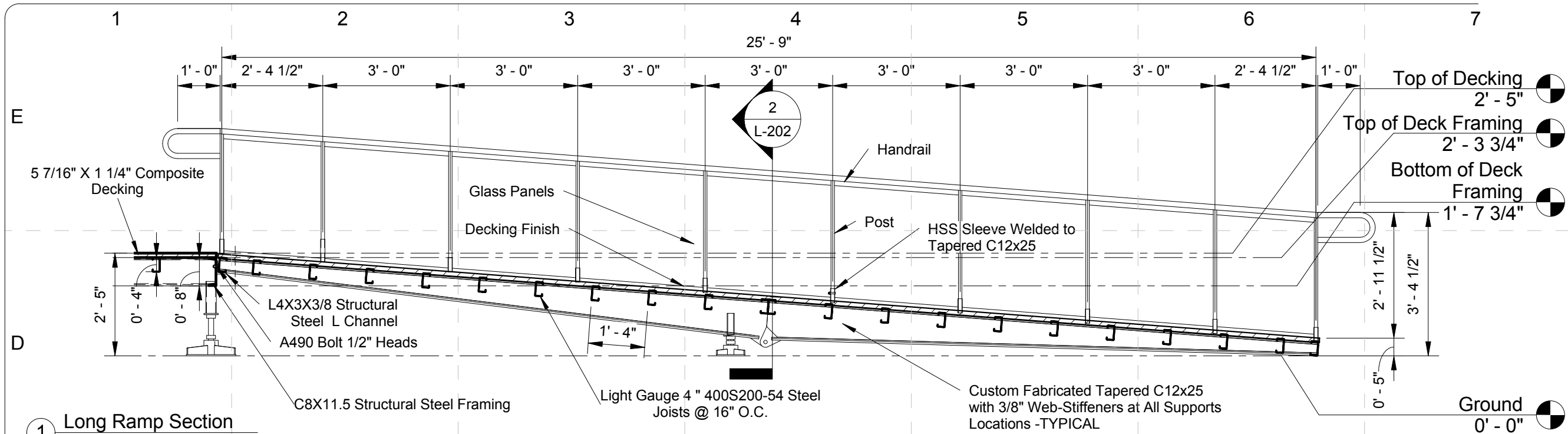
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SHEET TITLE:

Deck Framing Plan

L-201

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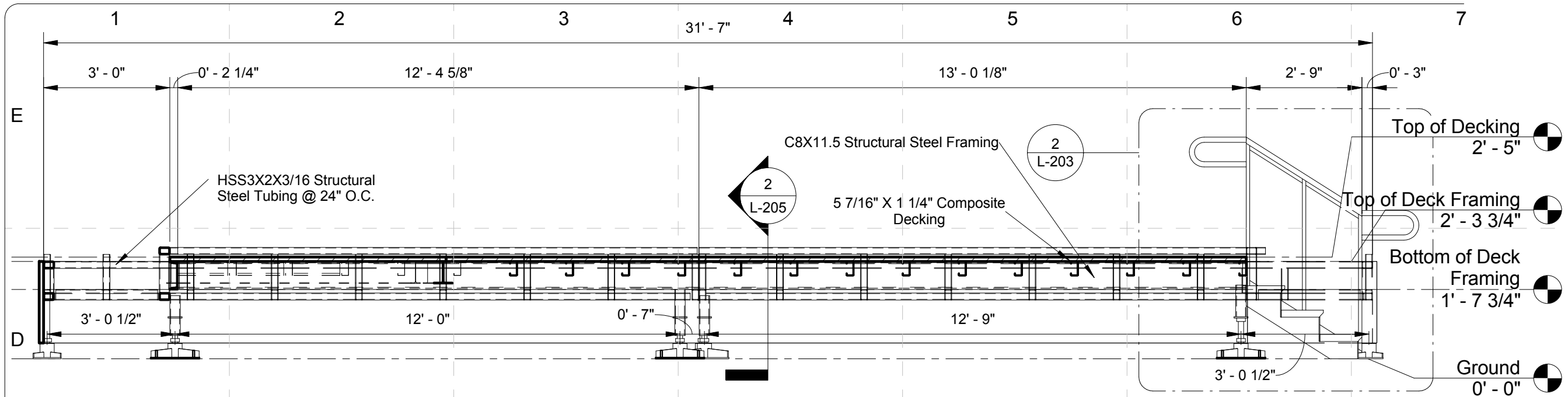
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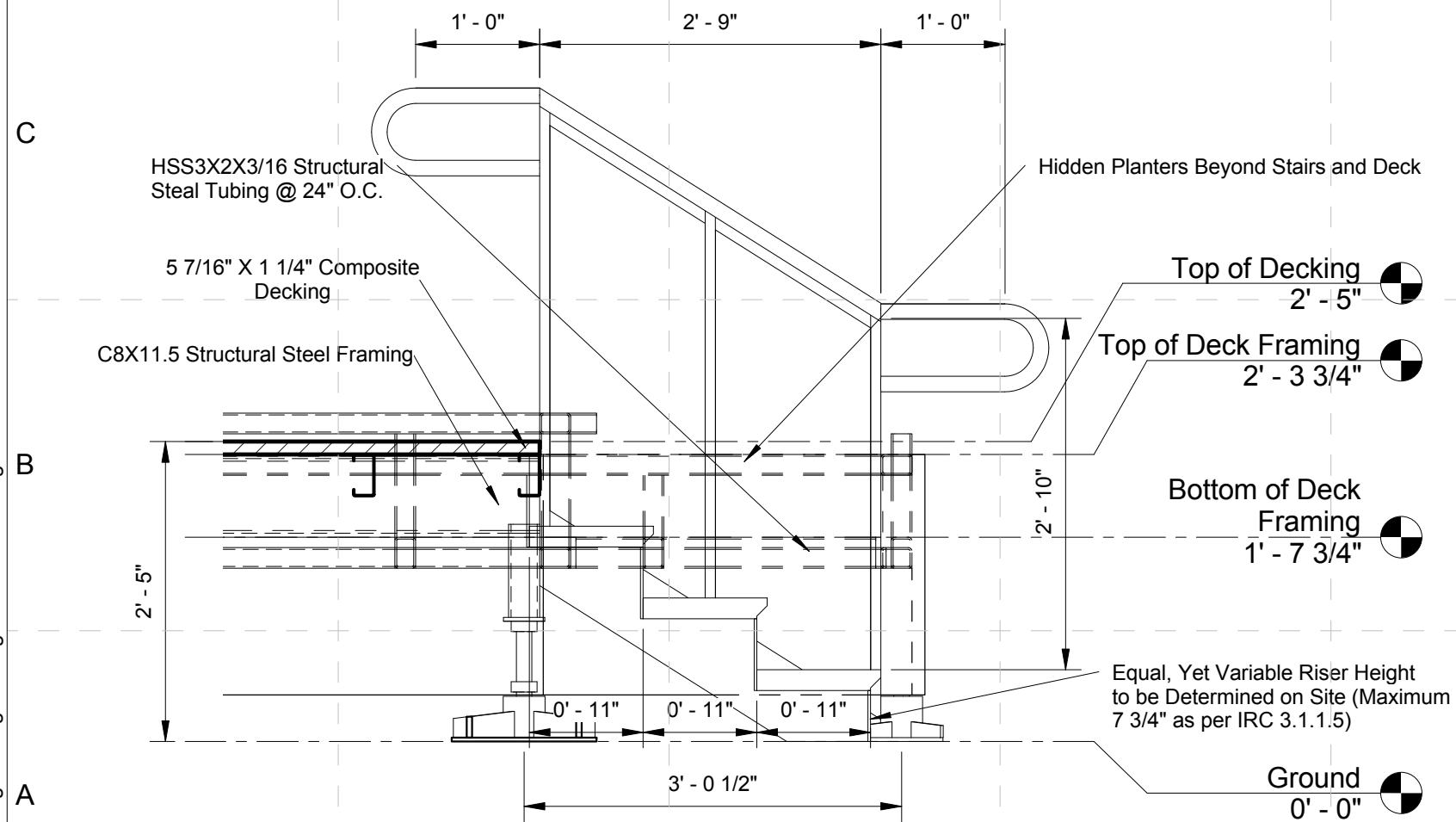
SHEET TITLE:
Section of Deck Ramp

L-202

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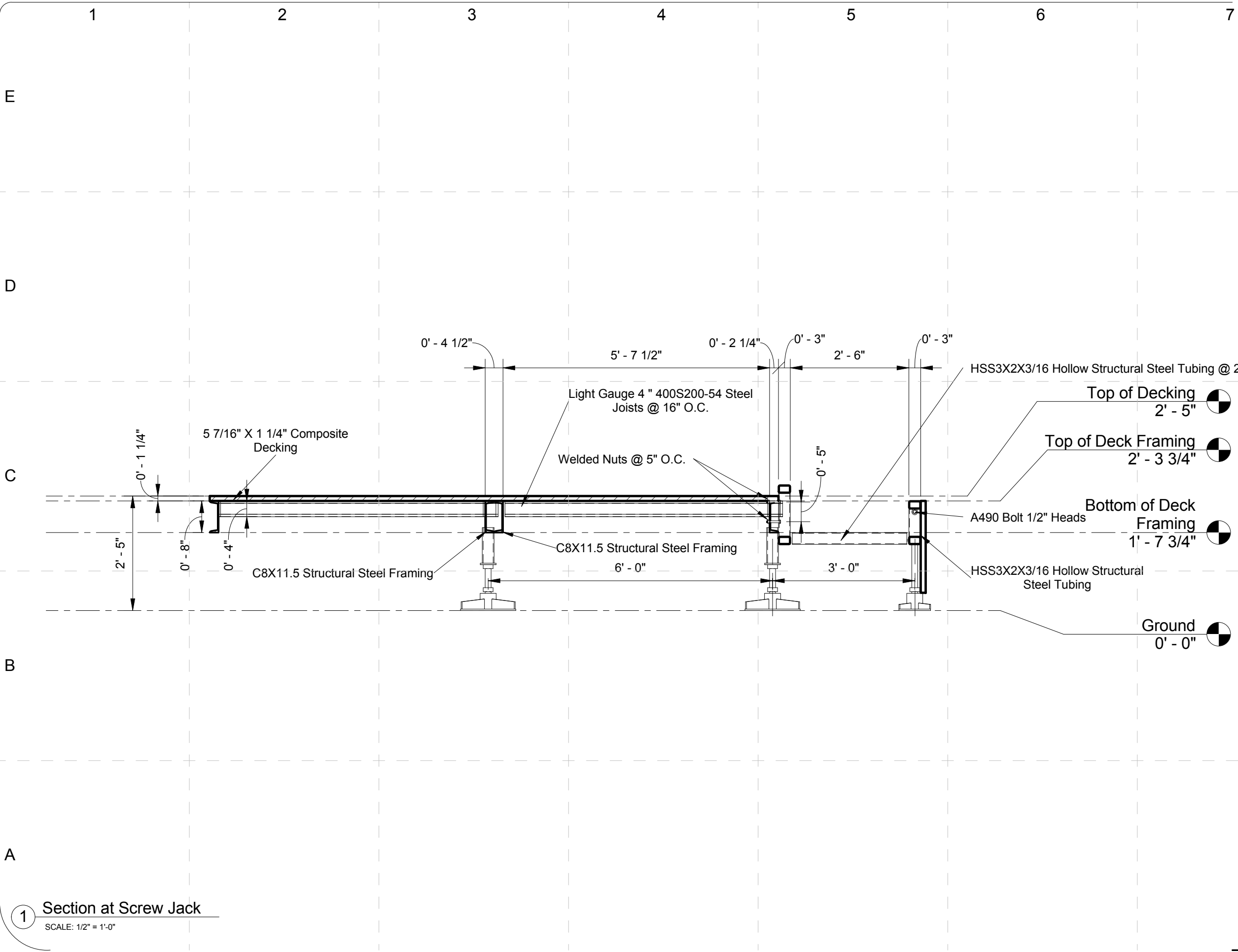




1 Section Through East Stairs and Deck
SCALE: 3/8" = 1'-0"



2 Detail of East Deck Stairs
SCALE: 3/4" = 1'-0"


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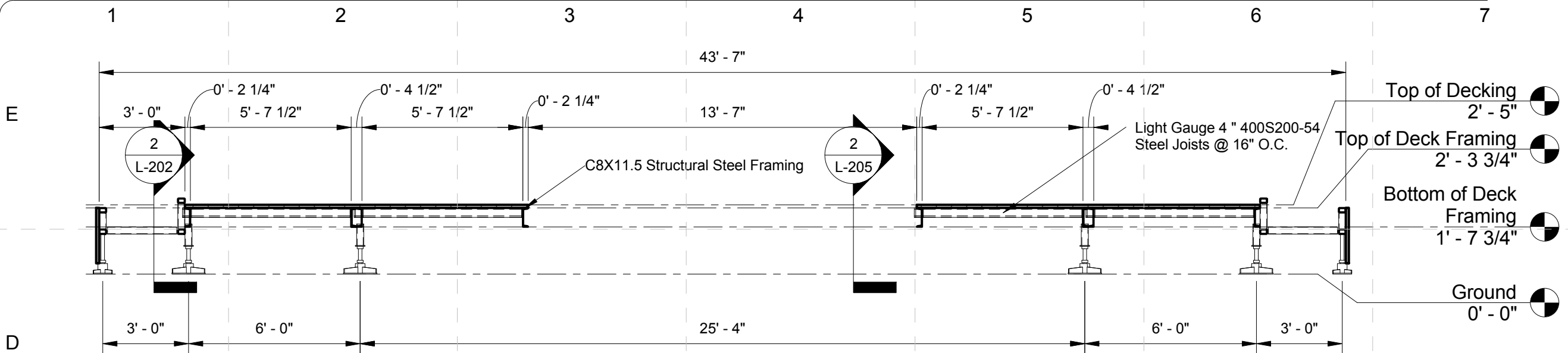
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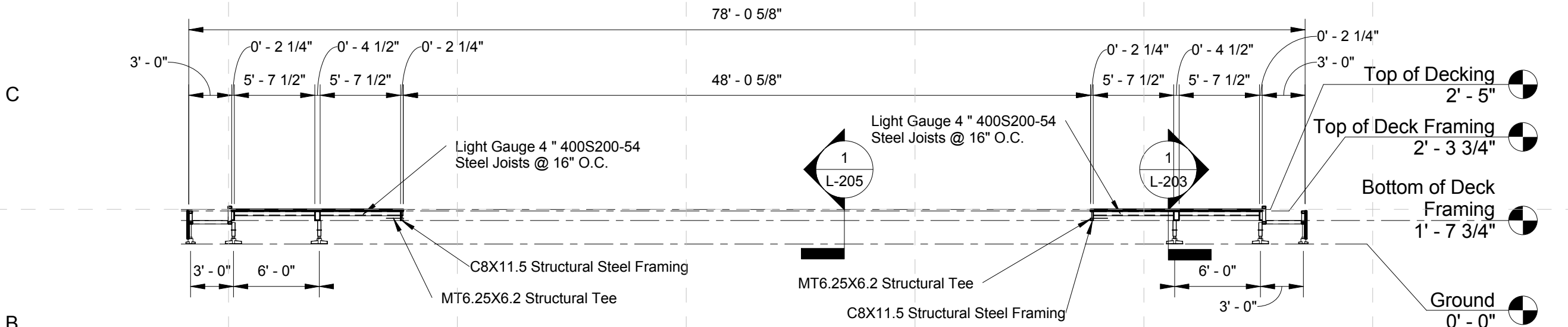
Section at Screw Jack

L-204

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1 North-South Deck Section
SCALE: 1/4" = 1'-0"



2 East-West Deck Section
SCALE: 1/8" = 1'-0"

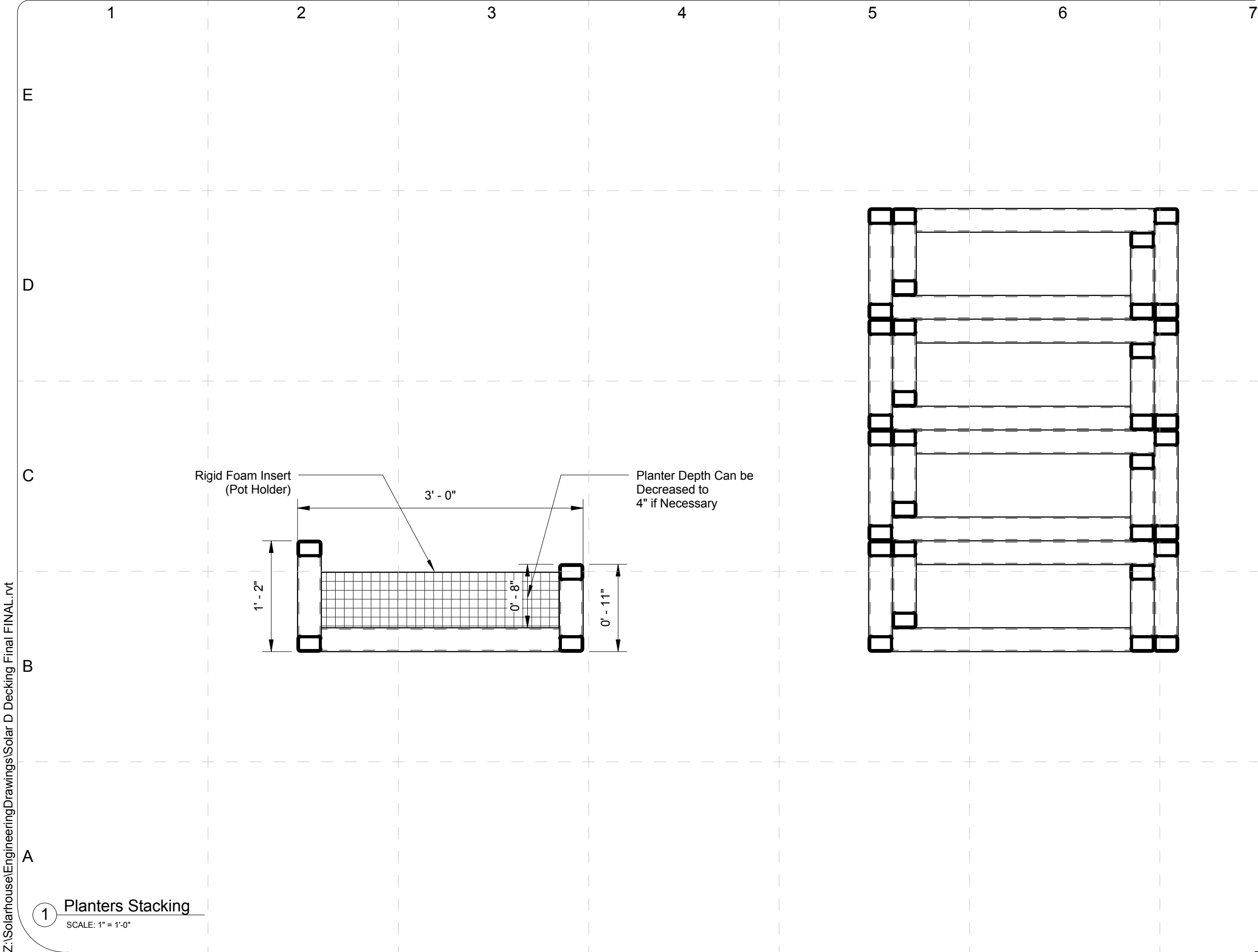
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SHEET TITLE:

East West / North
South Sections
Through Deck

L-205



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1 Planters Stacking

SCALE: 1" = 1'-0"

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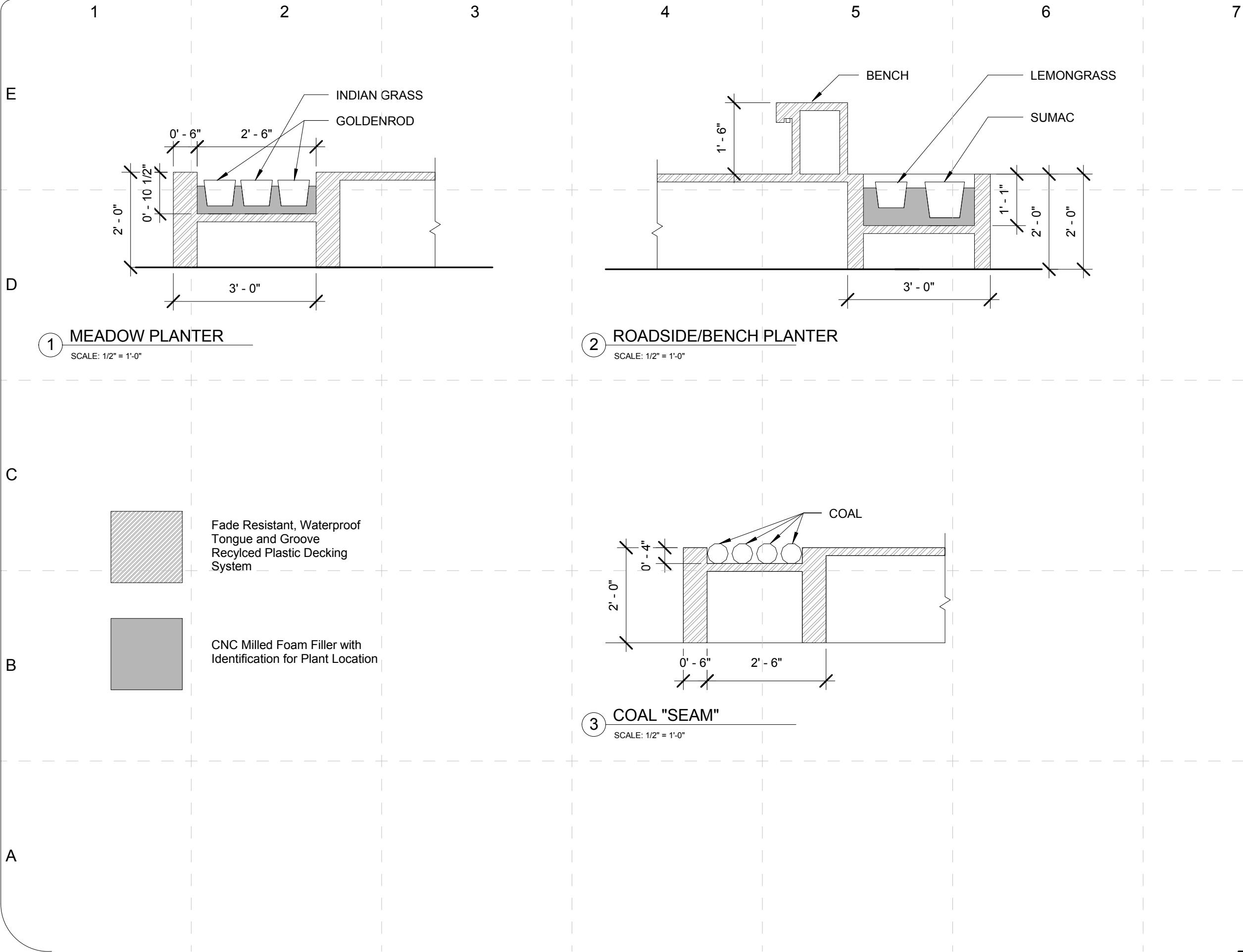
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SHEET TITLE:

Planter Stacking

L-206

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SHEET TITLE:

Landscape- Planter Sections

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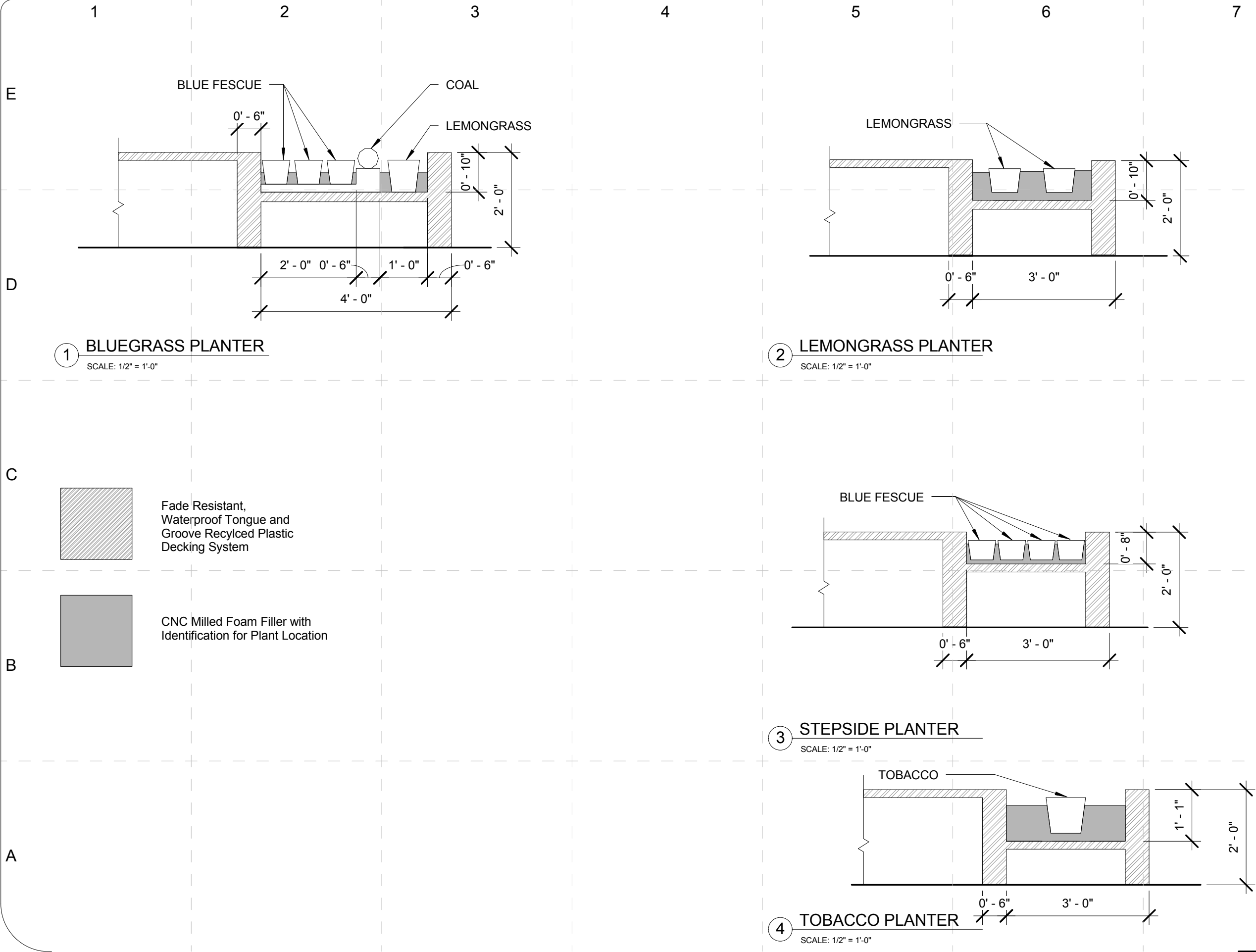
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Landscape- Planter Sections

L - 302

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POTTED PLANTS

GOLDENROD



LEMONGRASS



BLUE FESCUE



SUMAC



INDIAN GRASS



TOBACCO



PLANTERS

Sun angles allow for plants to be strictly trimmed due to shadow they might cast

1 PLANT IDENTIFICATIONS

SCALE: NTS

PLANT SCHEDULE

COMMON NAME	BOTANICAL NAME	FAMILY	POT SIZE	QUANTITY
Goldenrod	Solidago virgaurea	Asteraceae	8.5" W X 8.5" H (1.66 gal)	70 pots
Indian grass	Sorghastrum Nash	Poaceae	8.5" W x 8.5" H (1.66 gal)	35 pots
Blue fescue	Festuca glauca	Poaceae	6" W x 7" H (1.1 gal)	155 pots
Lemon grass	Cymbopogon	Poaceae	8.5" x 8.5" (1.66 gal)	70 pots
Tobacco	Nicotiana tabacum	Solanaceae	11" W x 10" H (3 gal)	10 pots
Sumac	Rhus	Anacardiaceae	11" W x 10" H (3 gal)	16 pots
MISCELLANEOUS				
Material	Quantity			
Coal	175 SQ. FT./ 90 cubic ft			
Shale	210 SQ. FT./ 53 cubic ft			
Mulch	56 cubic ft			

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2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY_SD2009
DRAWN BY: Author	APPROVED BY: Approver
DATE CREATED: 01/18/09	DATE RECEIVED: 01/18/09
COMMENTS	

SHEET TITLE:

Landscape -
Schedule - Material
Selection

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General Structure Notes

A. NOTES TO THE CONTRACTOR:

- 1.DRAWINGS REPRESENT THE DESIRED RESULT OF CONSTRUCTION. BIDDERS SHALL USE COMPLETE SETS OF BIDDING DOCUMENTS IN PREPARING BIDS; NEITHER THE ENGINEER, OWNER NOR ARCHITECT ASSUMES RESPONSIBILITY FOR ERRORS OR MISINTERPRETATIONS RESULTING FROM THE USE OF INCOMPLETE SETS OF BIDDING DOCUMENTS.
- 2.THE METHODS OF CONSTRUCTION AND THE RISKS INVOLVED DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN THE BUILDING'S STRUCTURAL INTEGRITY AT ALL STAGES OF CONSTRUCTION.
- 3.CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS DURING CONSTRUCTION AND REPORT TO THE ARCHITECT/ENGINEER DURING CONSTRUCTION ANY DISCREPANCIES.
- 4.CONTRACTOR'S PROPOSED SUBSTITUTIONS SHALL BE APPROVED BY THE ARCHITECT/ENGINEER PRIOR TO COMMENCING ANY PERTINENT WORK.

B.SPECIAL INSPECTION:

SPECIAL INSPECTION IS NOT REQUIRED FOR THIS PROJECT.

C. DESIGN CRITERIA

THIS STRUCTURE HAS BEEN DESIGNED ACCORDING TO THE MORE EXTREME OF THE 2007 KENTUCKY BUILDING CODE OR THE 2009 SOLAR DECATHLON BUILDING CODE AND FOR THE SPECIFIC LOADS THAT ARE LISTED BELOW.

1. ROOF LOADS

- a. DEAD LOAD = 15 PSF + STRUCTURAL FRAMING
- b. MECHANICAL, CEILING, LIGHTING = 10 PSF
- c. LIVE LOAD = 20 PSF
- d. SNOW LOADS:
 - GROUND SNOW LOAD (Pg) = 15 PSF
 - FLAT-ROOF SNOW LOAD (Pf) = 20 PSF
 - EXPOSURE FACTOR (Ce) = 1.0
 - IMPORTANCE FACTOR (IS) = 1.0
 - THERMAL FACTOR (Ct) = 1.1
- e. MECHANICAL EQUIPMENT LOADS AND LOCATIONS USED FOR DESIGN ARE AS INDICATED ON THE (STRUCTURAL /MECHANICAL /ARCHITECTURAL) DRAWINGS. ACTUAL EQUIPMENT LOADS AND LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR AND SHALL BE INDICATED ON THE STRUCTURAL SHOP DRAWINGS SUBMITTED FOR APPROVAL.

2. FIRST FLOOR LOADS

- a. DEAD LOAD = 45 PSF
- b. LIVE LOAD = 100 PSF

3. EXTERIOR DECK FLOOR LOADS

- a. DEAD LOAD = 10 PSF
- b. LIVE LOAD = 100 PSF

4. LATERAL LOADS

- 1) WIND LOADS:
 - BASIC WIND SPEED = 90 MPH
 - IMPORTANCE FACTOR (Iw) = 1
 - BUILDING CATEGORY = II
 - EXPOSURE = C
 - MAIN WINDFORCE DESIGN PRESSURE (P) = 15.9 PSF

COMPONENTS AND CLADDING DESIGN PRESSURE

FOR ROOF COMPONENTS AND CLADDING SEE STRUCTURAL CALCULATION FOR ROOF AT 15 DEGREES TO 40 DEGREES PAGES 231 AND 364 OF THE 2009 SOLAR DECATHLON UKY FINAL STRUCTURAL CALCULATION

FOR WALL PRESSURE AS C&C SEE BELOW, PER ASCE 7-05 FIGURE 6-3

- ZONE 4 = +12.4 PSF or -13.6 PSF
- ZONE 5 = +12.4 PSF or -15.1 PSF

2) SEISMIC LOADS:

AN EARTHQUAKE DESIGN ANALYSIS WAS NOT PERFORMED ON THE BUILDING STRUCTURE DUE TO THE STRUCTURE NOT BEING SITE SPECIFIC. THE SEISMIC FORCES WILL BE DETERMINED, ONCE THE POST-EVENT SITE FOR THE STRUCTURE IS ESTABLISHED. DUE TO THE RELATIVE LIGHT WEIGHT OF THE STRUCTURE HOWEVER, THE DESIGN SEISMIC FORCES MOST PROBABLY WOULD NOT CONTROL THE LATERAL DESIGN OF THE BUILDING STRUCTURE. UNLESS THE PERMANENT SOIL SITE CLASS IS EXTERMLY BAD.

D. FOUNDATION, FILLING, AND EXCAVATION

- 1. THE FOLLOWING DESIGN INFORMATION HAS BEEN OBTAINED FROM THE 2009 SOLAR DECATHLON BUILDING CODE.
 - SOIL BEARING CAPACITY:

- a. ISOLATED FOOTINGS = 1500 PSF
- b. CONTINUOUS FOOTINGS = 1500 PSF

- 2. FOR INFORMATION ON FILLING AND EXCAVATION AND BACKFILLING, SEE FUTURE GEOTECHNICAL REPORT FOR A PERMANENT SITE.

E. STRUCTURAL STEEL

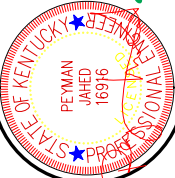
- 1. ALL STRUCTURAL STEEL WIDE-FLANGE SECTIONS TO BE ASTM A992 GRADE 50, CHANNELS ANGLES, PLATES, AND BARS TO BE ASTM A36.
- 2. ALL STRUCTURAL STEEL HOLLOW-STRUCTURAL (HSS) RECTANGULAR SECTIONS SHALL CONFORM TO ASTM A500 Gr. B, Fy=46 KSI, HSS ROUND SECTIONS SHALL CONFORM TO ASTM A500 Gr. B, Fy=42 KSI
- 3. ALL BOLTS FOR STEEL BEAM CONNECTIONS SHALL BE HIGH STRENGTH, A325-N BEARING TYPE AND 3/4" IN DIAMETER, UNLESS NOTED OTHERWISE.
- 4. ALL WELDS TO BE MADE WITH E70XX AND WELDING IS TO CONFORM TO LATEST AWS CODE.
- 5. CONNECTIONS: BEAM CONNECTIONS SHALL BE AS DETAILED. AT ANY CONNECTION THAT IS NOT DETAILED, USE A SIMILAR TYPE OF CONNECTION AS SHOWN IN THE DRAWINGS. DETAILS MUST BE SUBMITTED IN WRITING AND ACCEPTED BY THE ENGINEER OF RECORD BEFORE SUBMITTING SHOP DRAWINGS. [A REGISTERED PROFESSIONAL ENGINEER LICENSED TO DO BUSINESS IN KENTUCKY MUST STAMP SUBMITTAL OF PROPOSED CHANGES. SUBMITTAL SHALL INCLUDE AS A MINIMUM, A COMPLETE DETAIL, LOAD CAPACITY OF CONNECTION, AND LOCATION OF WHERE THE DETAIL IS TO BE USED AND COST SAVINGS TO THE OWNER. THE CONTRACTOR SHALL REIMBURSE THE ENGINEER OF RECORD ON A TIME AND MATERIAL BASIS FOR CHECKING ALL PROPOSED CHANGES.] SEE SPECIFICATION FOR ADDITIONAL DETAILS.

F. LIGHT GAUGE STEEL

- 1. SEE MANUFACTURER SPECIFICATIONS INCLUDED IN THE STRUCTURAL CALCULATIONS



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SHEET TITLE:

General Notes

S - 100

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Loading Summary

Dead Load

In Washington/ Lexington		[psf]	Total [lbs]
	Structure*		12470
	Floor (additional)	15	8700
	Roof (additional)	15	8700
	Solar Panels		3600
	Total		33470
During Transport			Total [lbs]
	Less Solar Panels		-3600
	Less Windows/Doors		-1400
	Total		28470

Live Load

	[psf]
Roof	20
Floor	(50.0 or 100.0)**
Snow	20
Wind	See Table A

**Live Load is 100 psf along the corridor between two doors and 50 psf at the rest of the floor area.

- 1) Refer to "2009 Solar Decathlon UKY Final Structural Calculations for detailed calculations for members when house is located in Washington/Lexington
- 2) Wind Exposure Class: C
- 3) Occupancy Category II: Importance 1.0
- 4) Basic Wind Speed = 90 mph (as per contet building code)
- 5) Structural Calculations indicated no tie-downs were needed to avoid overturning or sliding at wind design conditions. See "2009 Solar Decathlon UKY Final Structural Calculations"

*estimate from Bentley RAM Advanse Model

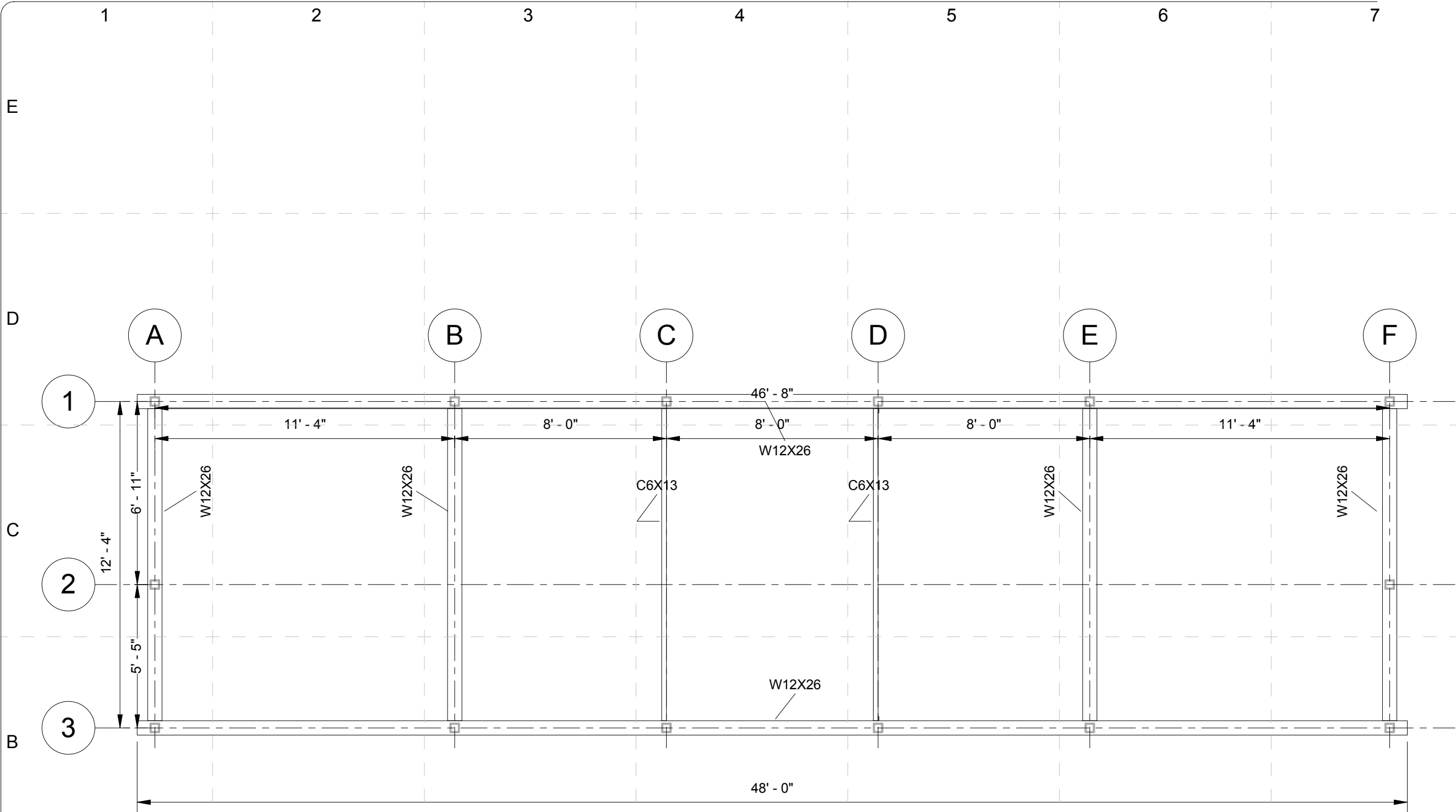
TABLE A	Position [ft]	WIND from NORTH [psf]			WIND from SOUTH [psf]			WIND from EAST/WEST [psf]		
North Wall	L=0 to 48	10.20	10.20	10.20	-6.40	-6.40	-6.40	-8.90	-8.90	-8.90
South Wall	L=0 to 48	-6.40	-6.40	-6.40	10.20	10.20	10.20	-8.90	-8.90	-8.90
West Wall	L=0 to 12	-8.90	-8.90	-8.90	-8.90	-8.90	-8.90	10.20	10.20	10.20
East Wall	L=0 to 12	-8.90	-8.90	-8.90	-8.90	-8.90	-8.90	-2.60	-2.60	-2.60
Roof	W=0 to 6 (N)			-16.60			-8.90			
Roof	W=6 to 12 (S)			-8.90			-16.60			
Roof Rack*	upper half	-18.90	-28.40		-12.20	5.40				
Roof Rack*	lower half	-24.30	-14.90		10.80	27.00				
Roof	L=0 to 12									-11.50
Roof	L=12 to 24									-6.40
Roof	L=24 to 48									-3.80
Roof Rack*	L=0 to 18							-16.20	6.80	
Roof Rack*	L=18 to 36							-12.20	6.80	
Roof Rack*	L=36 to 48							-8.10	4.10	

*Structure is divided into two parts, lower part (Walls and Roof) analyzed as enclosed building with flat (0 degrees) roof and upper part (Roof Rack) analyzed as monoslope free roof at 40 degrees.

Note:

1. All loading and calculations are per ASCE 7-05
2. Plus and minus signs signify pressures acting towards and away from the surfaces, respectively. For the roof surface, plus and minus signs signify pressures acting toward or away from the top roof surface respectively.
3. pW and pL denote wind pressures for windward and leeward half of roof surface, respectively.

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1 Chasis Framing Plan
1/4" = 1'-0"

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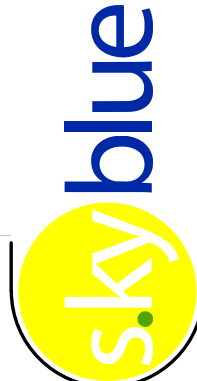
COMMENTS

SHEET TITLE:
Chasis Framing Plan

S - 102

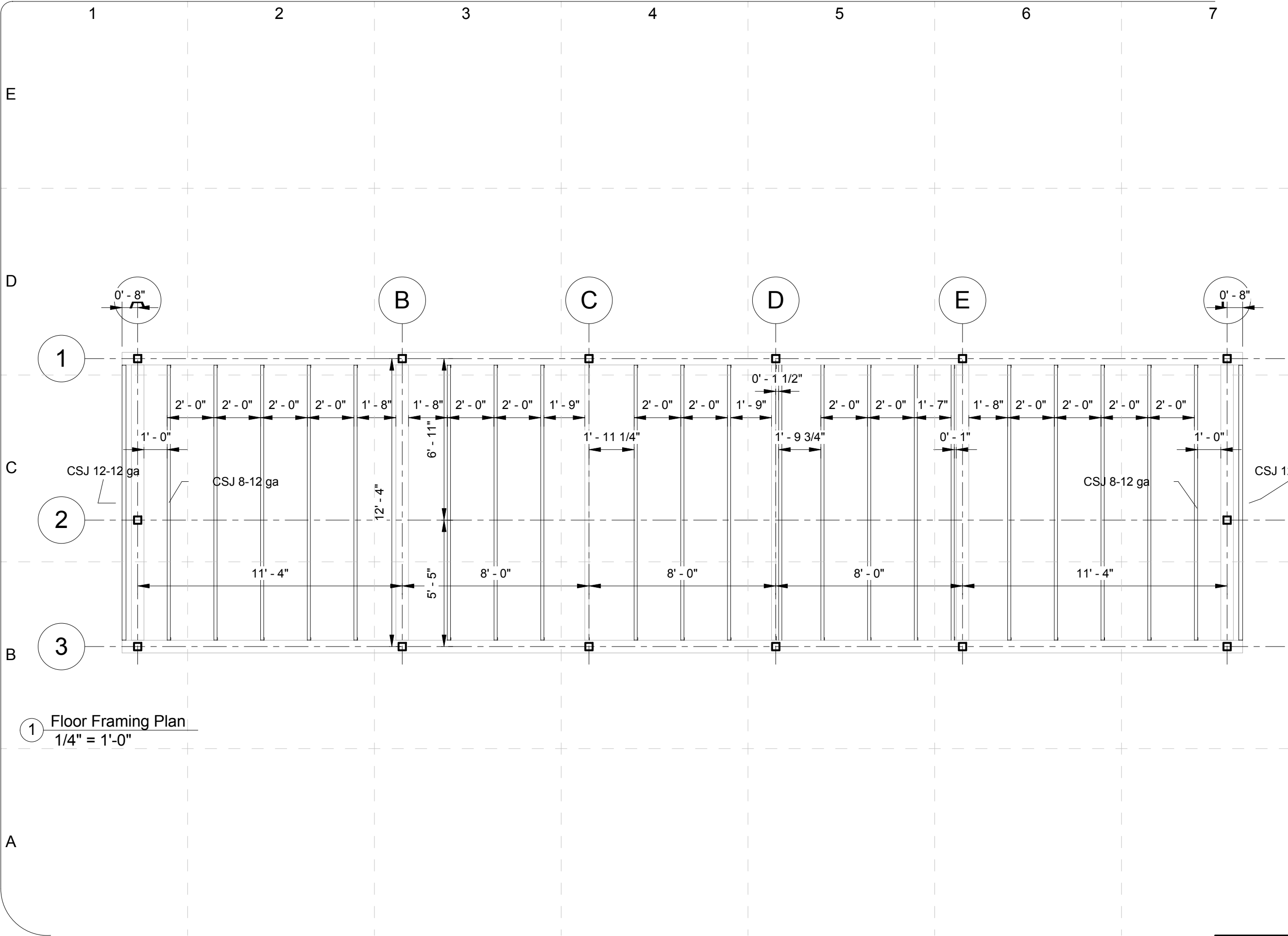


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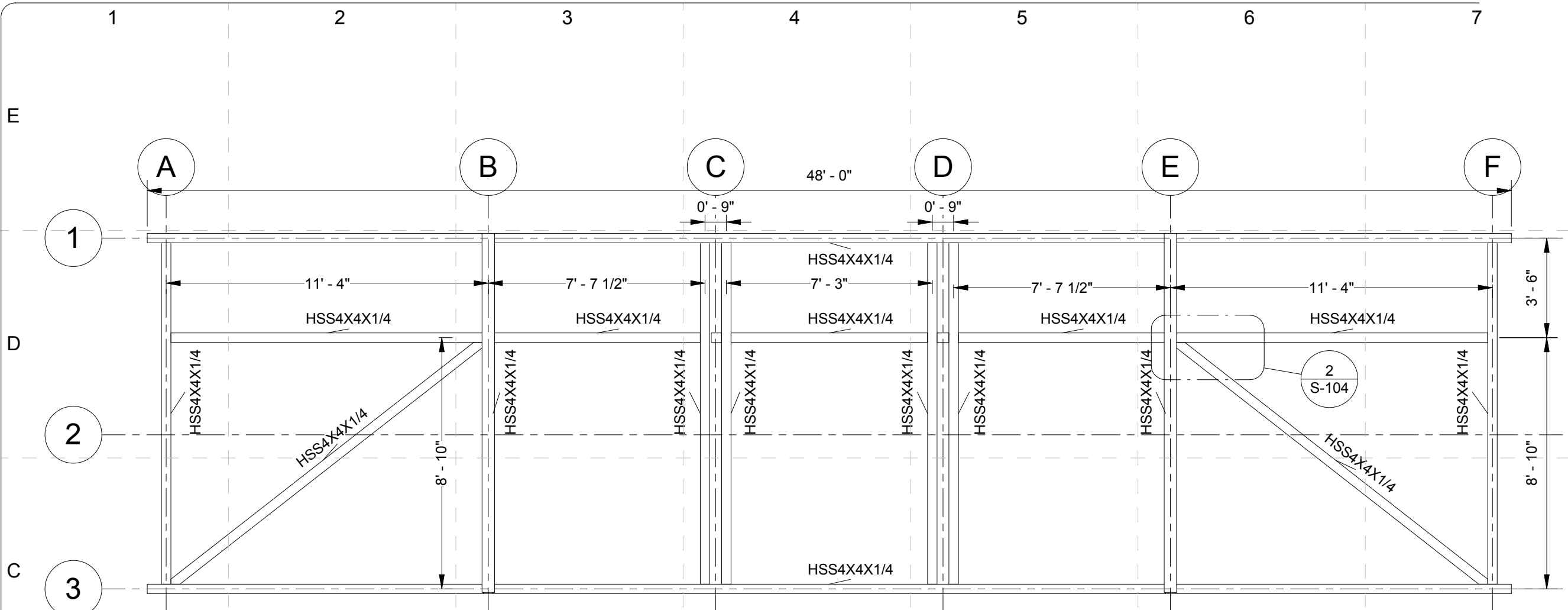
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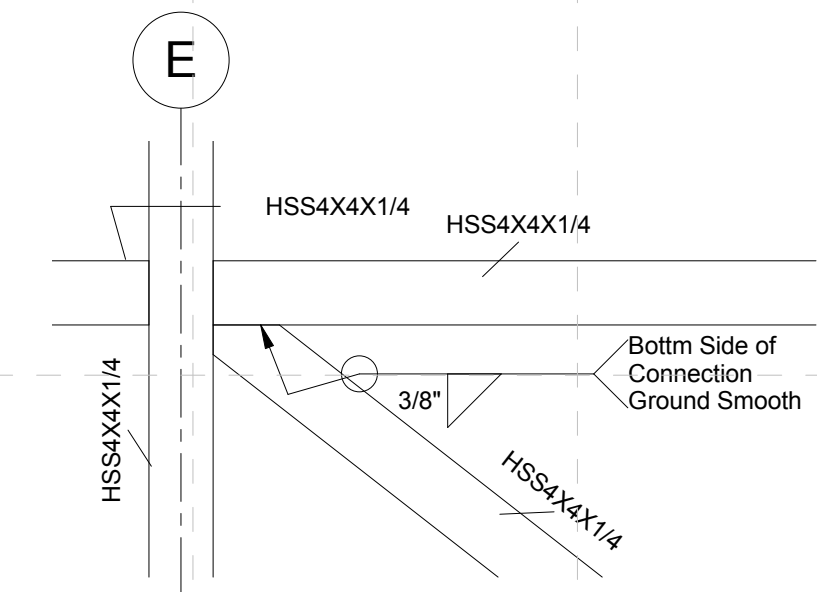
Floor Framing Plan

S-103

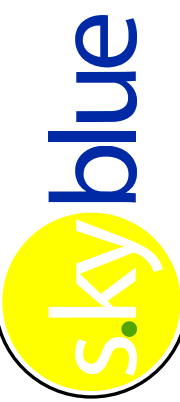

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1 Roof Structure Framing Plan
1/4" = 1'-0"

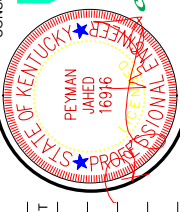


2 Callout of Roof Structure Framing Plan
1" = 1'-0"



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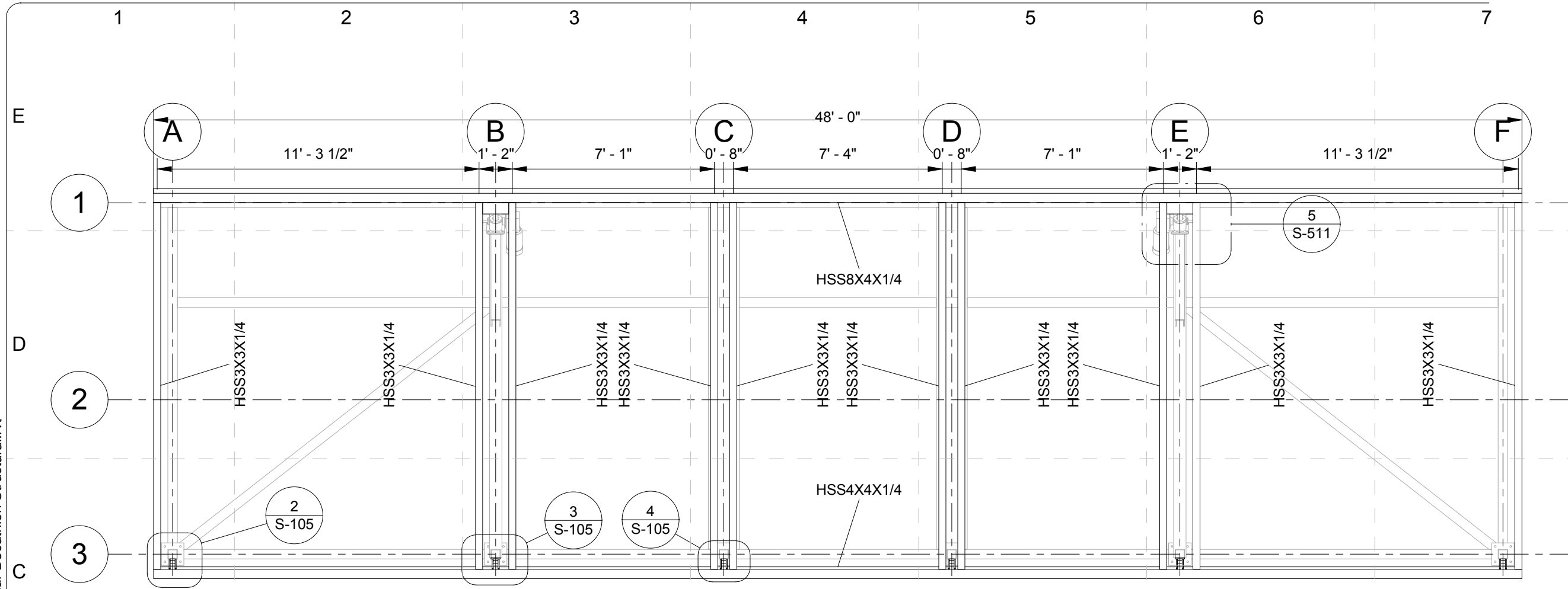
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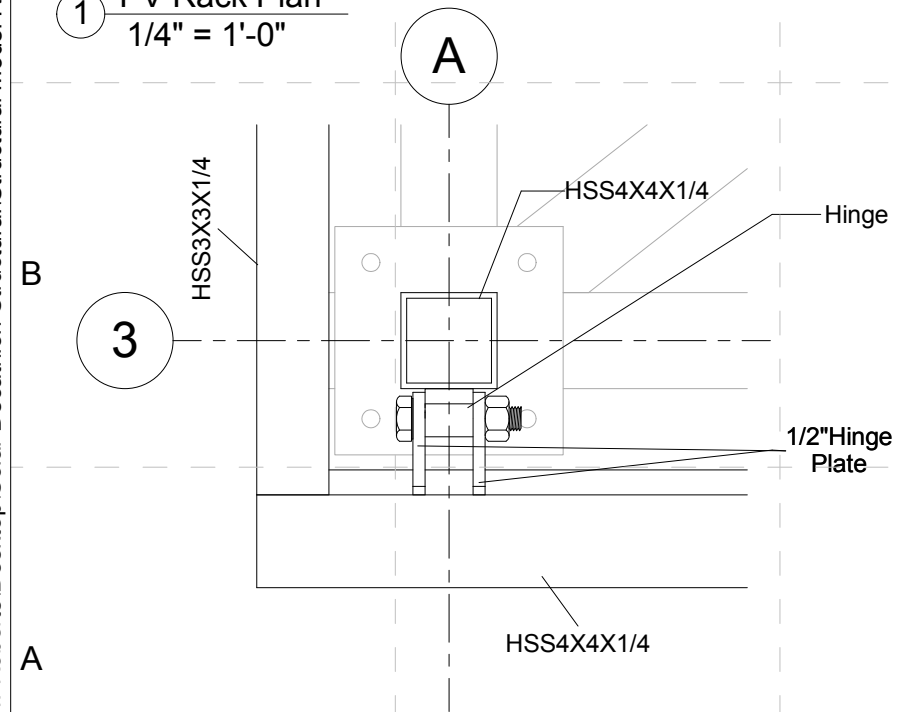
Roof Structure Framing Plan

S - 104

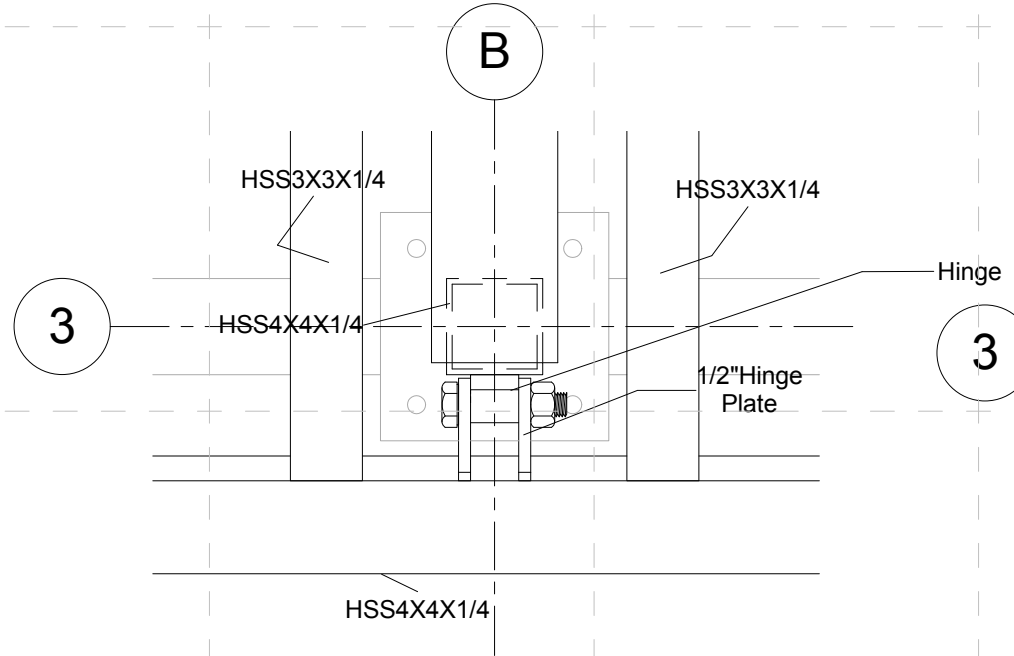
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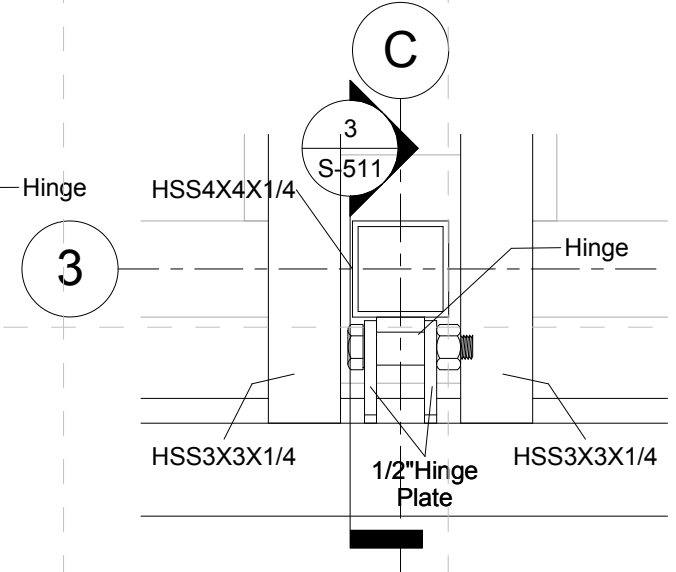
1 PV Rack Plan
1/4" = 1'-0"



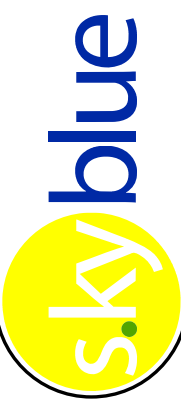

2 Callout (1) of PV Rack Plan
1 1/2" = 1'-0"



3 Callout (2) of PV Rack Plan
1 1/2" = 1'-0"



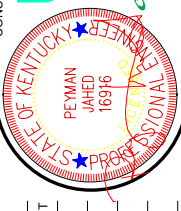
4 Callout (3) of PV Rack Plan
1 1/2" = 1'-0"



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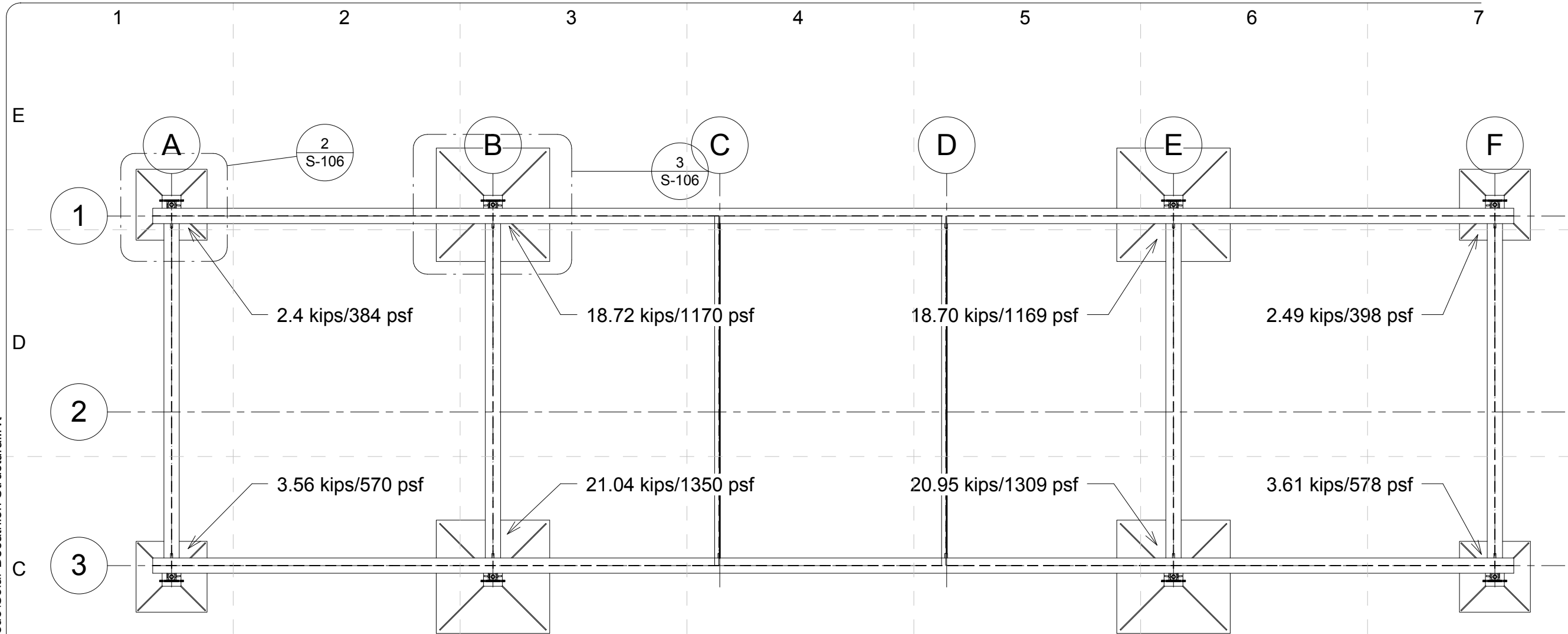
COMMENTS

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PV Rack Plan

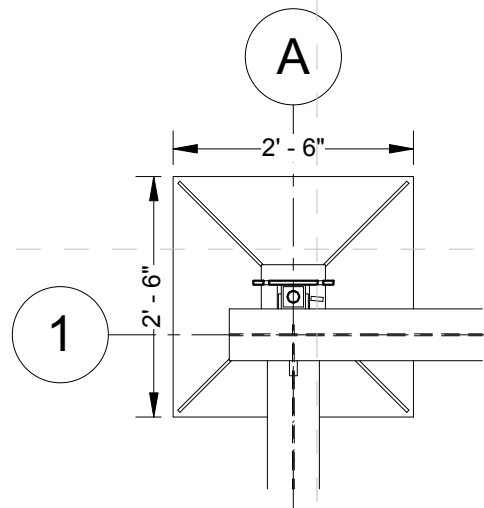
S-105

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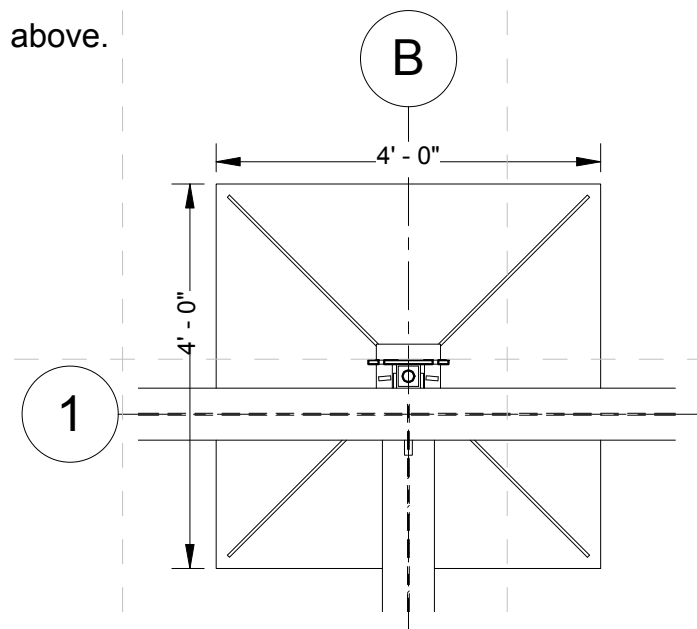


1 Foundation Plan
1/4" = 1'-0"

- 1) Soil bearing shown as: Point Load [kips]/Pressure [psf]
- 2) Refer to "2009 Solar Decathlon UKY Final Structural Calculations" for point load calculations which are displayed above.
- 3) Allowable soil bearing pressure on the National Mall is 1500 psf



2 Callout (1) of Foundation Plan
1/2" = 1'-0"



3 Callout (2) of Foundation Plan
1/2" = 1'-0"

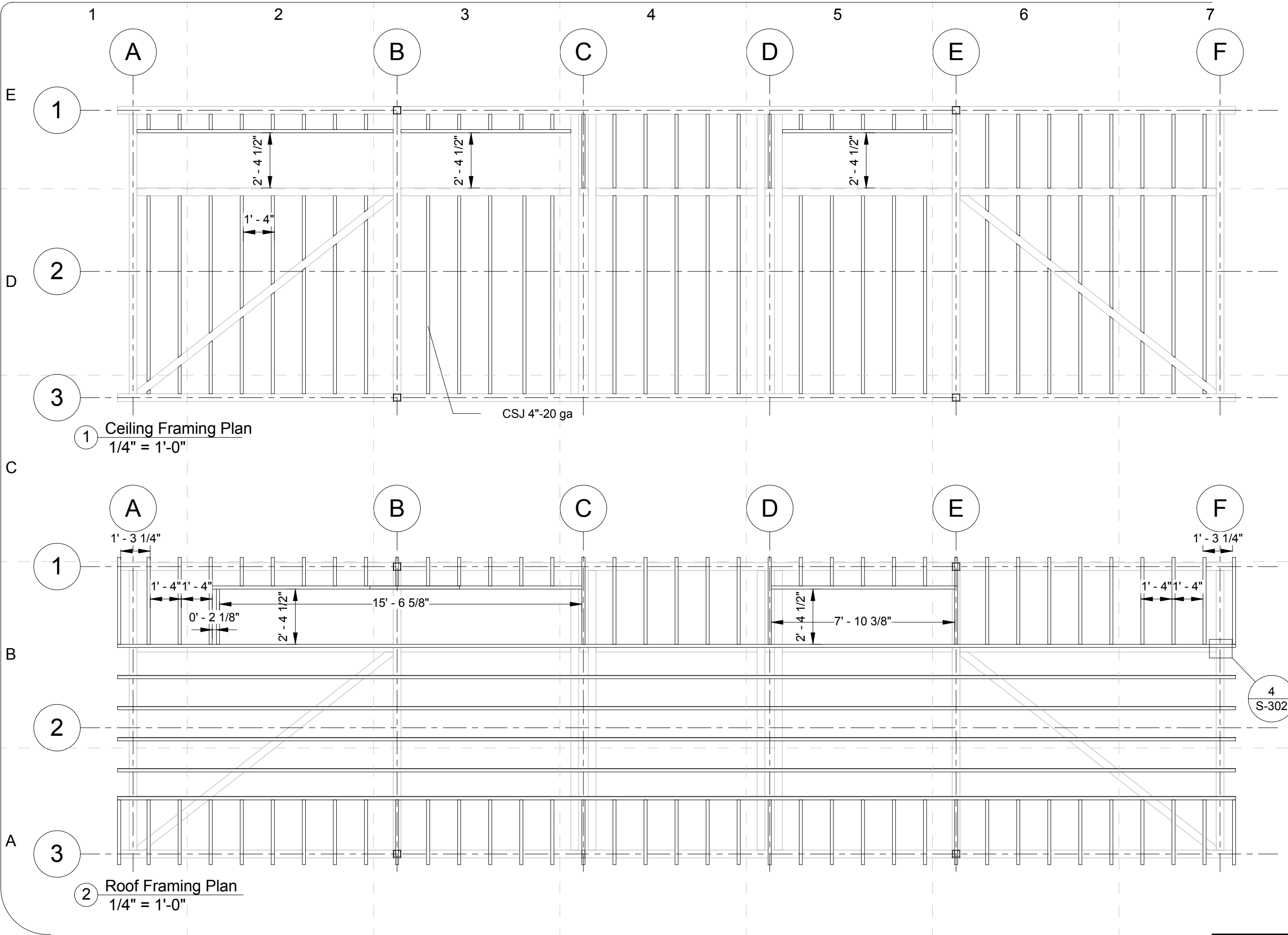
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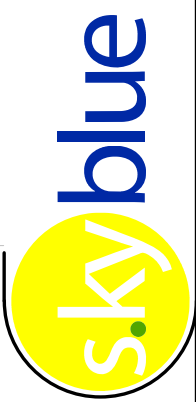

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SHEET TITLE:

Foundation Pad
Plan

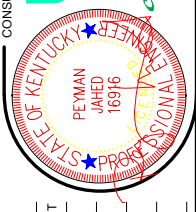
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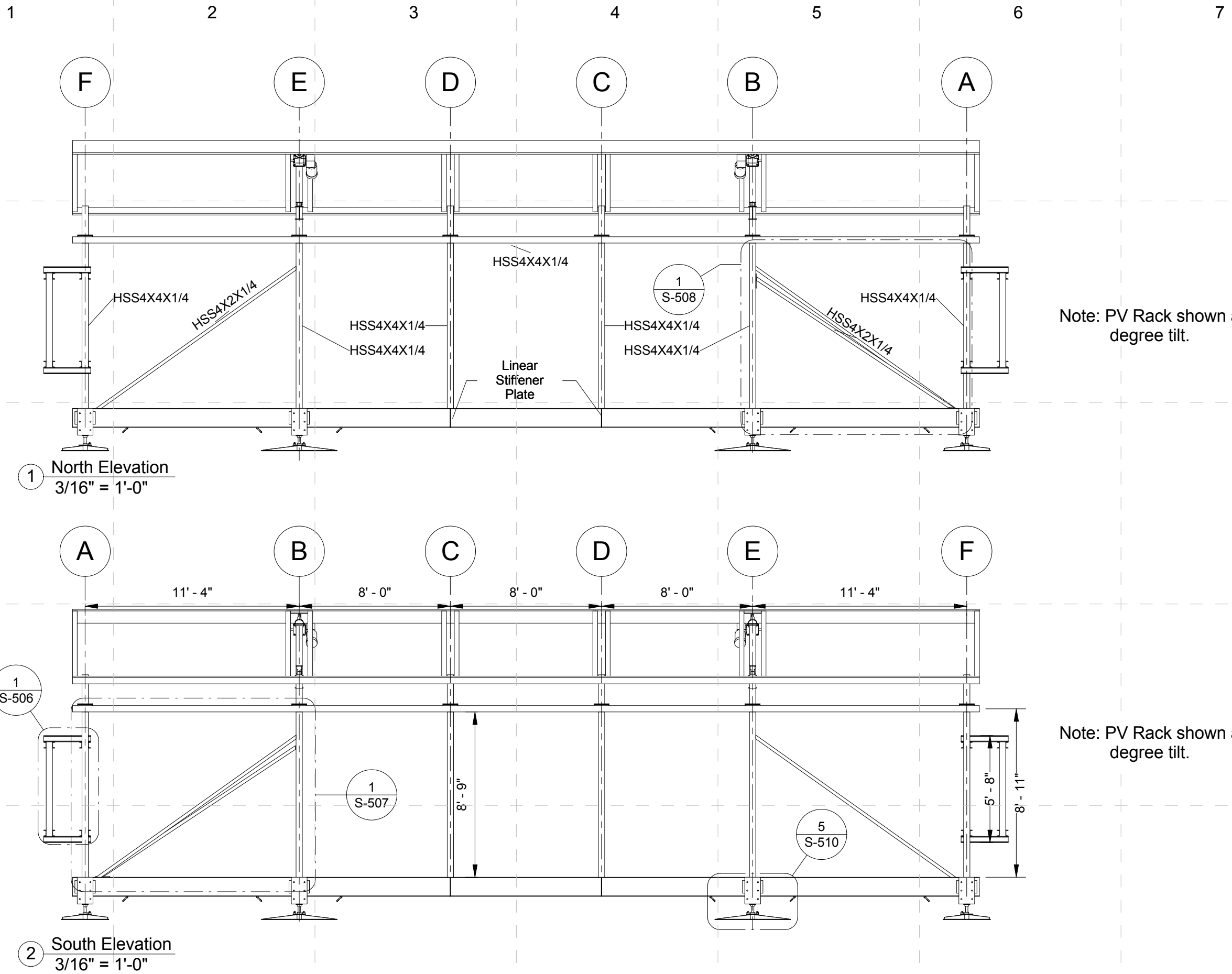
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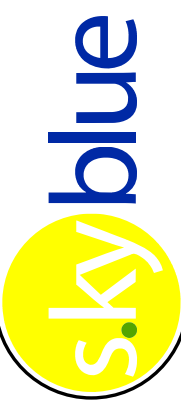

SHEET TITLE:

Roof/Ceiling Framing Plan

S-107

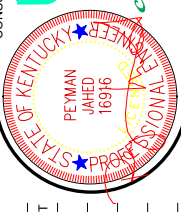
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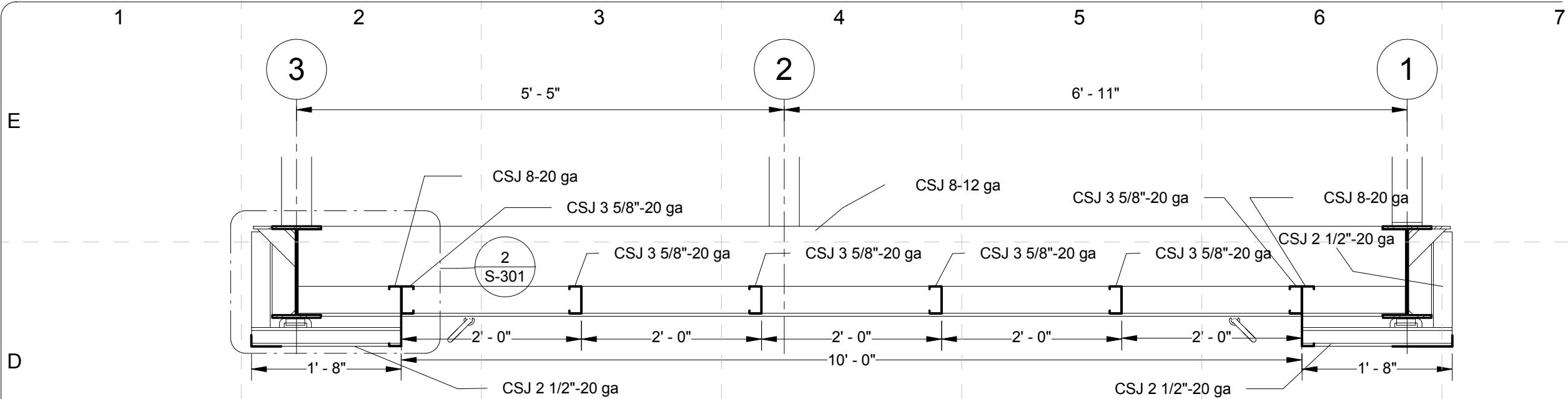
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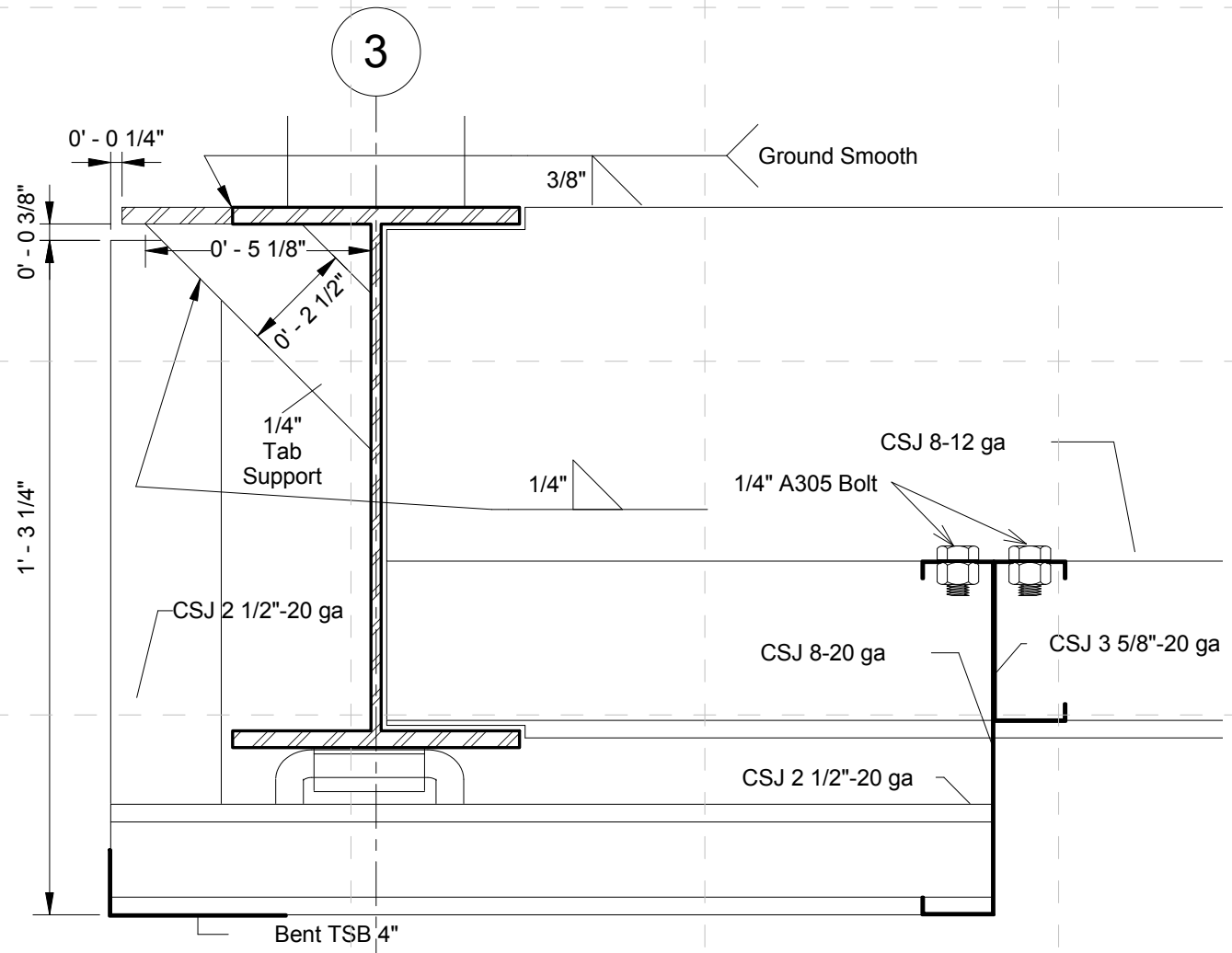
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S-201

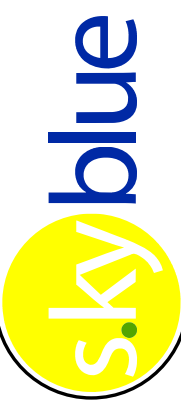

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1 Skirting Framing Section
3/4" = 1'-0"

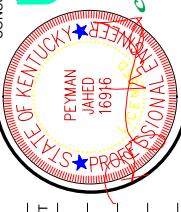


2 Callout of Skirting Framing Section
3" = 1'-0"



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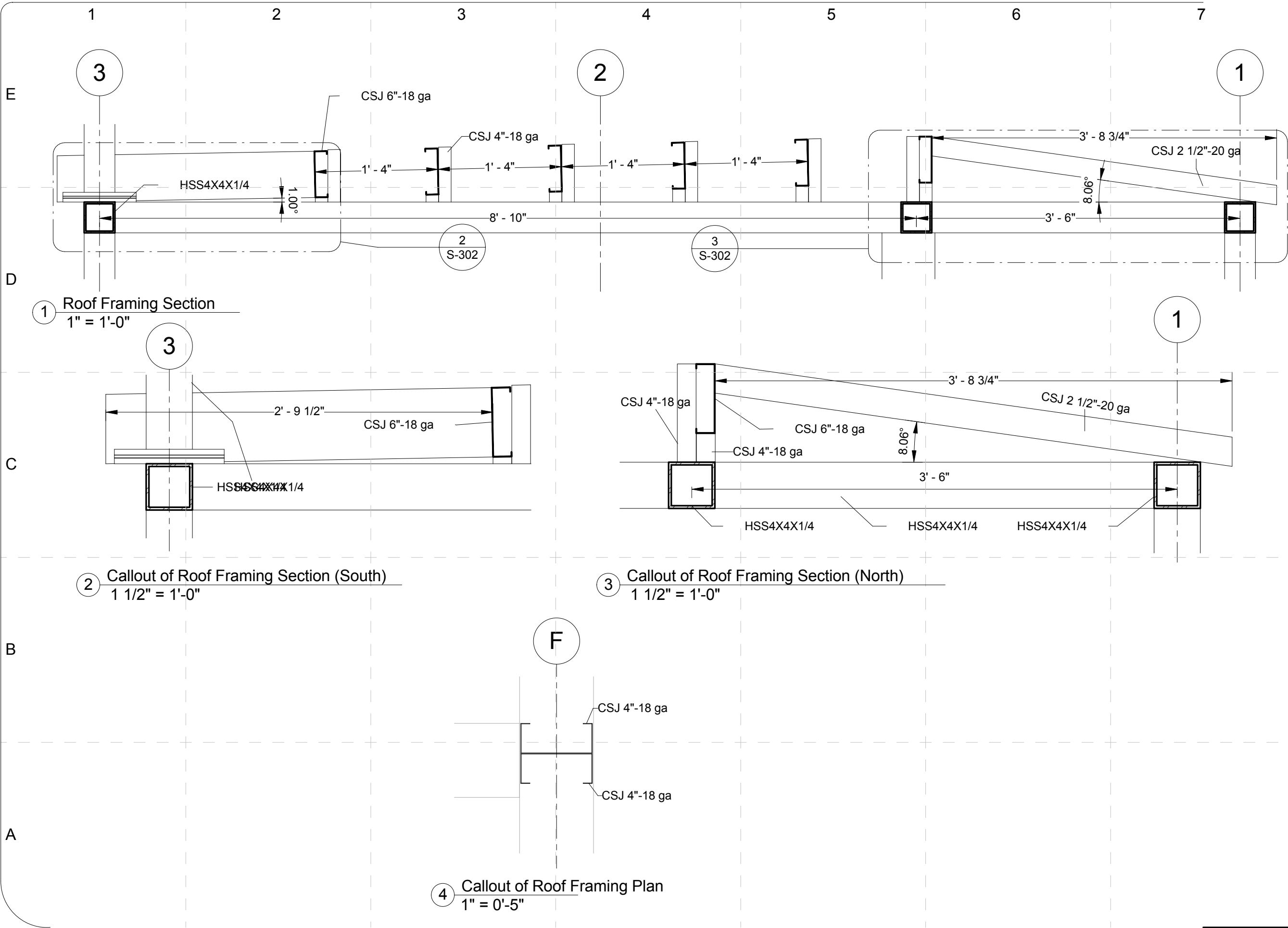
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SHEET TITLE:

Skirting Framing
Section

S - 301


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PROJECT NO: UKY_SJ2009
DRAWN BY: JAR
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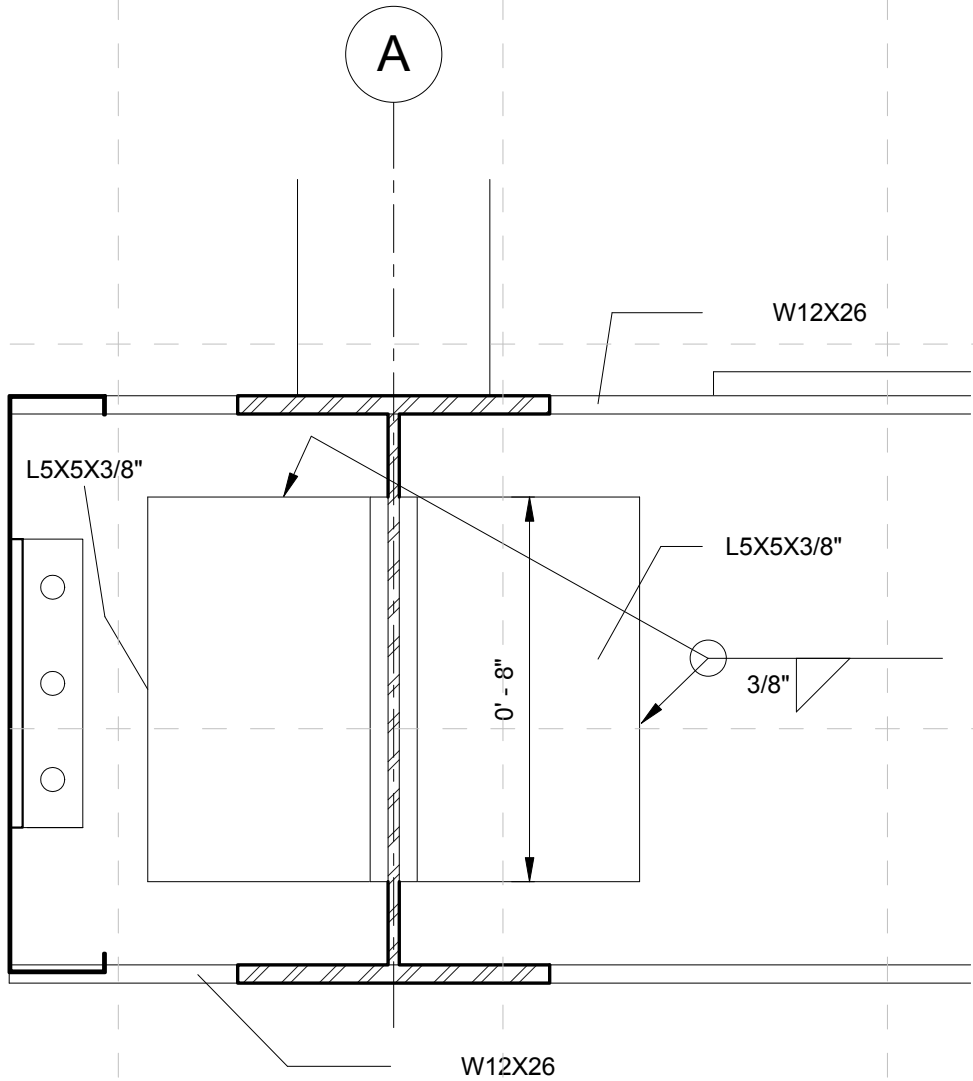
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Roof Framing
Section

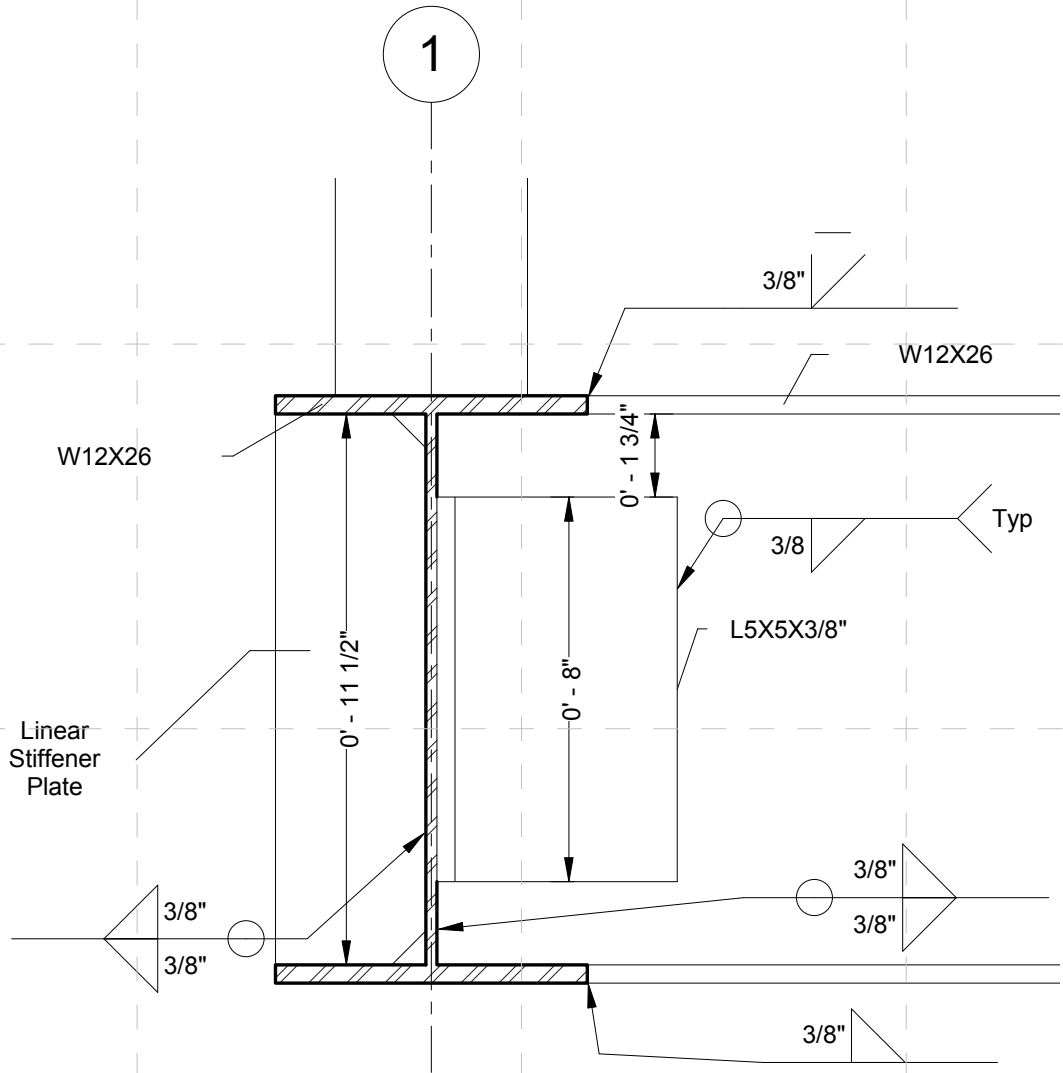
S - 302

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1 W 12x26 Connection Detail 1
3" = 1'-0"



2 W 12x26 Connection Detail 2
3" = 1'-0"



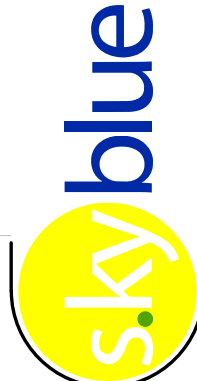
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PROJECT NO: UKY_S02/2009
DRAWN BY: JAR
APPROVED BY: DSC
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COMMENTS:

SHEET TITLE:
W 12x26
Connection Details

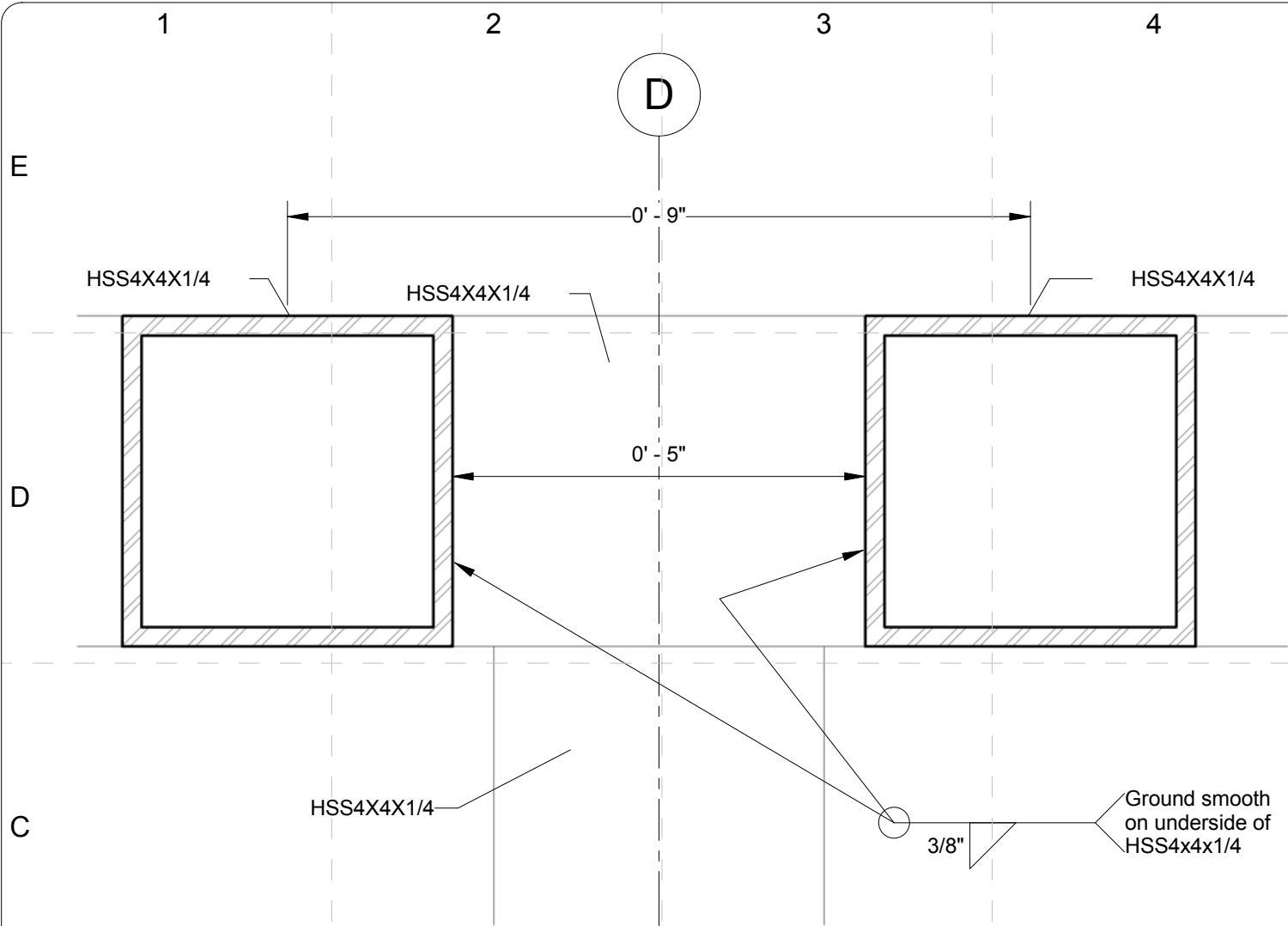
S-501



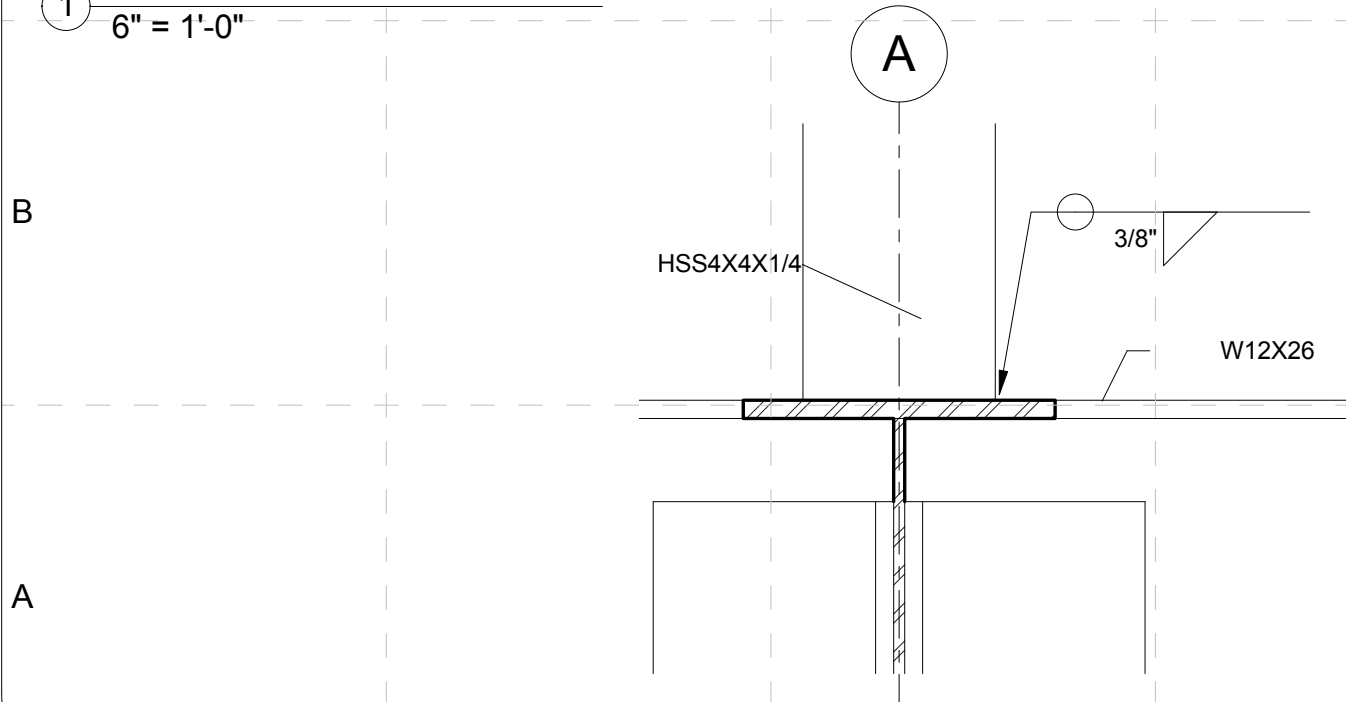
CONSULTANT
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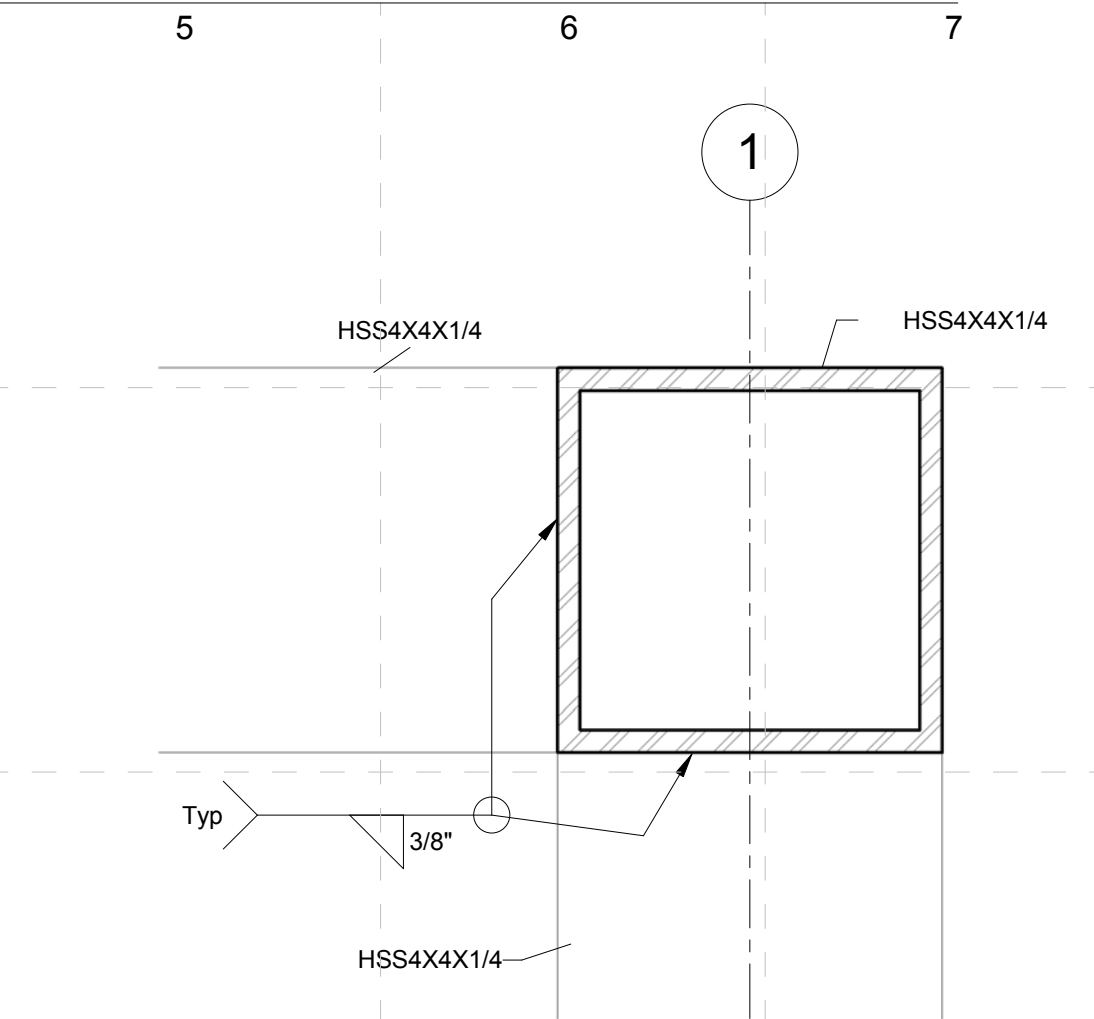
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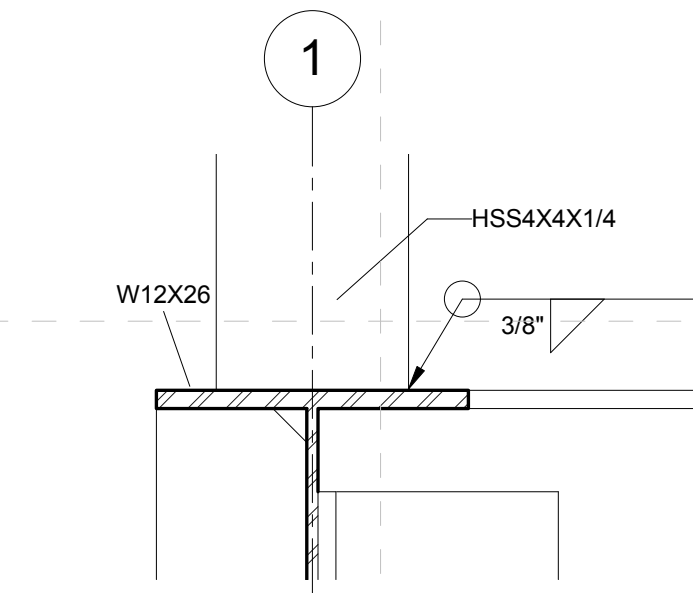
① HSS4x4x1/4 Connection Detail 1
6" = 1'-0"



③ Column Connection Detail 1
3" = 1'-0"



② HSS4x4x1/4 Connection Detail 2
6" = 1'-0"



④ Column Connection Detail 2
3" = 1'-0"

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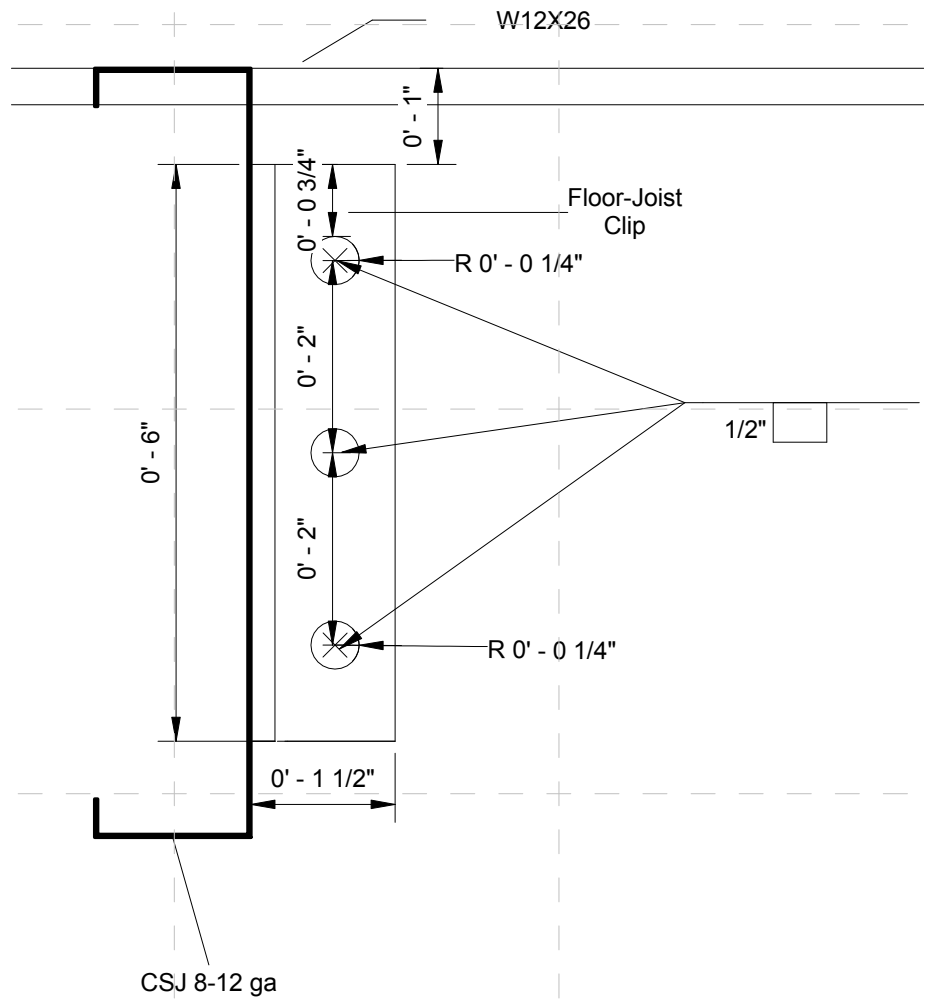
2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _S2009 DRAWN BY: JAR APPROVED BY: DSC DATE CREATED: 05/30/09 DATE RECEIVED: 05/30/09
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SHEET TITLE:

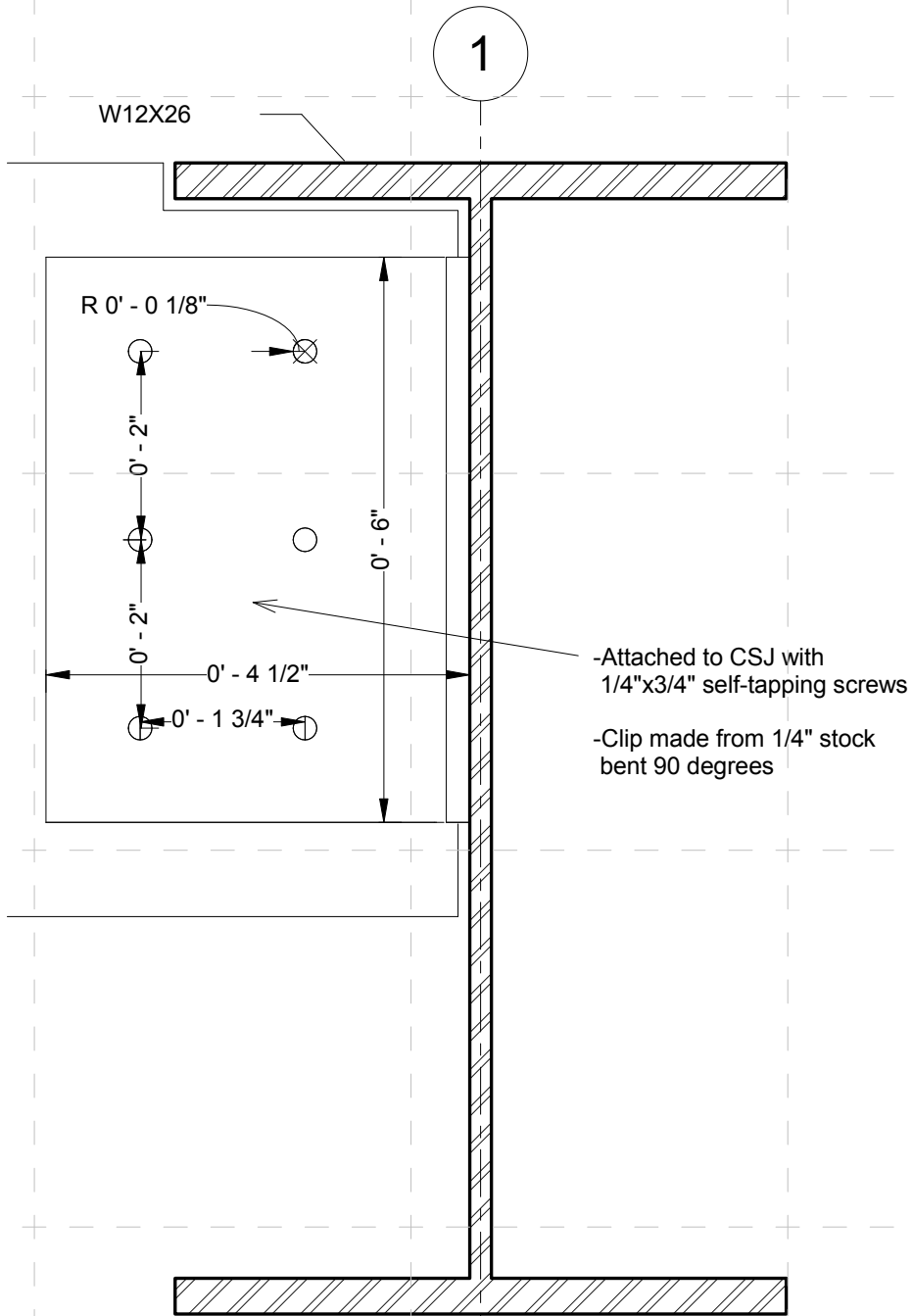
HSS4x4x1/4
Connection Details

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1 Typical Floor-Joist Detail 1
6" = 1'-0"



2 Typical Floor-Joist Detail 2
6" = 1'-0"



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COMMENTS

SHEET TITLE:
Floor-Joist
Connection Details

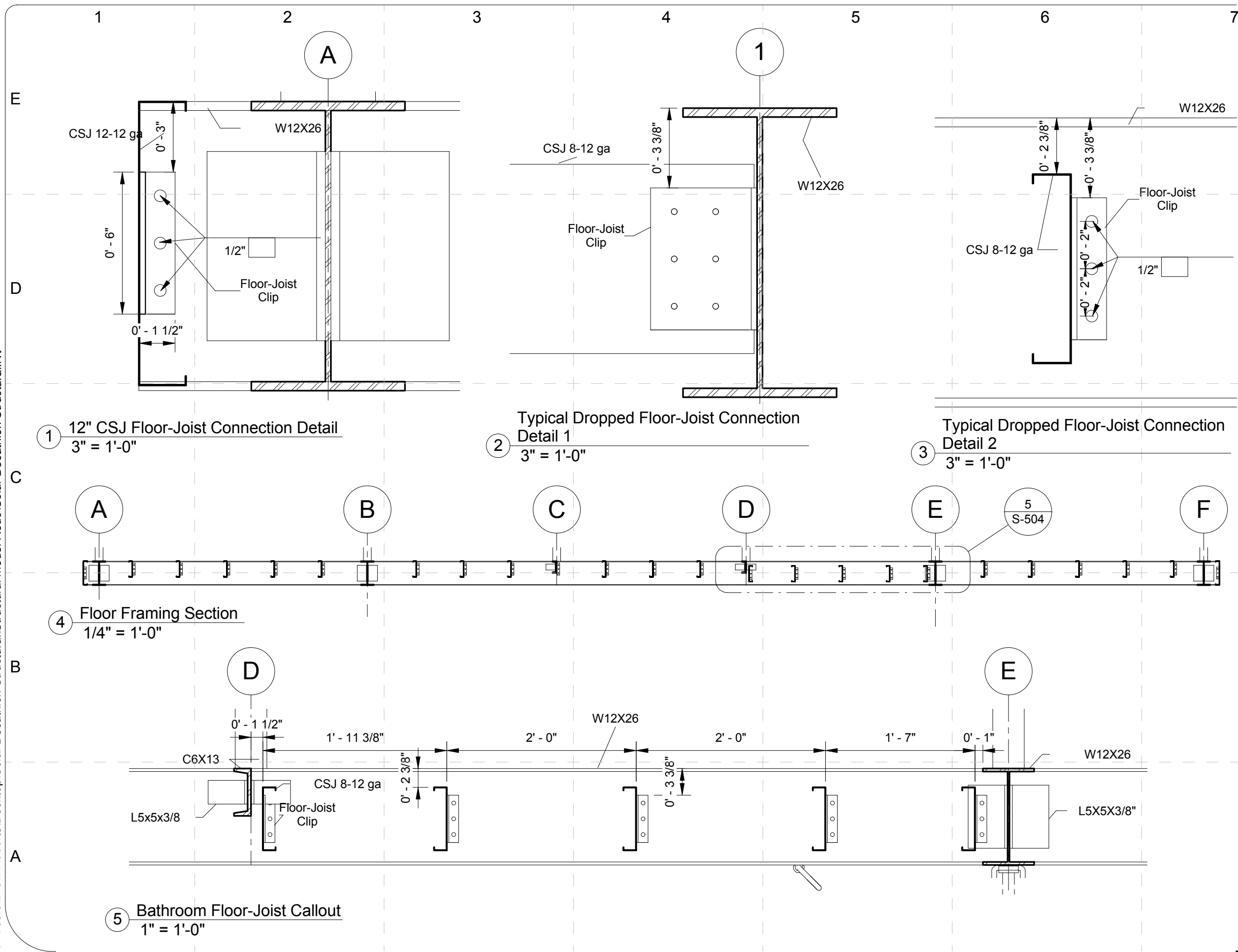
S-503



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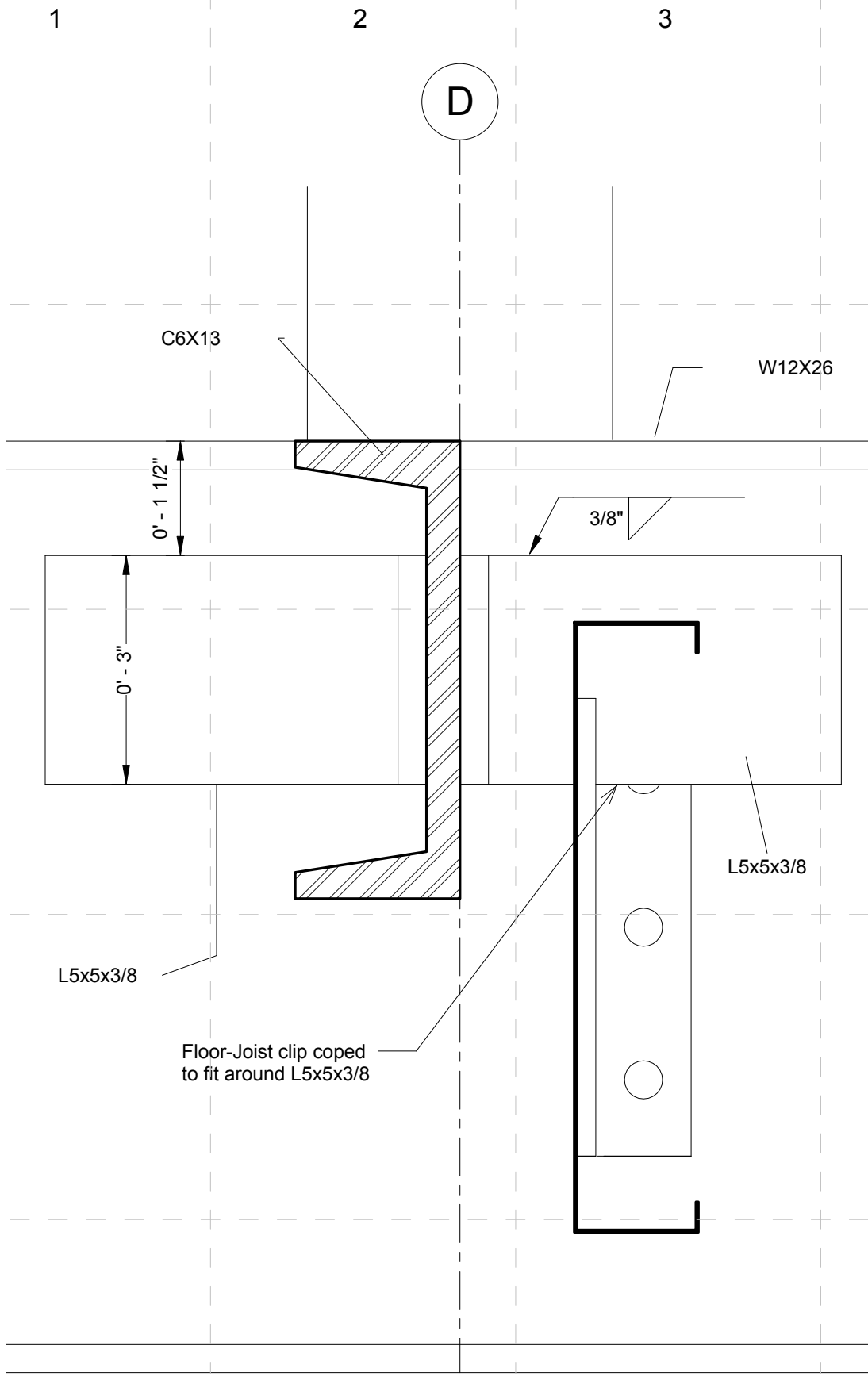
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Floor-Joist Details
Cont'd

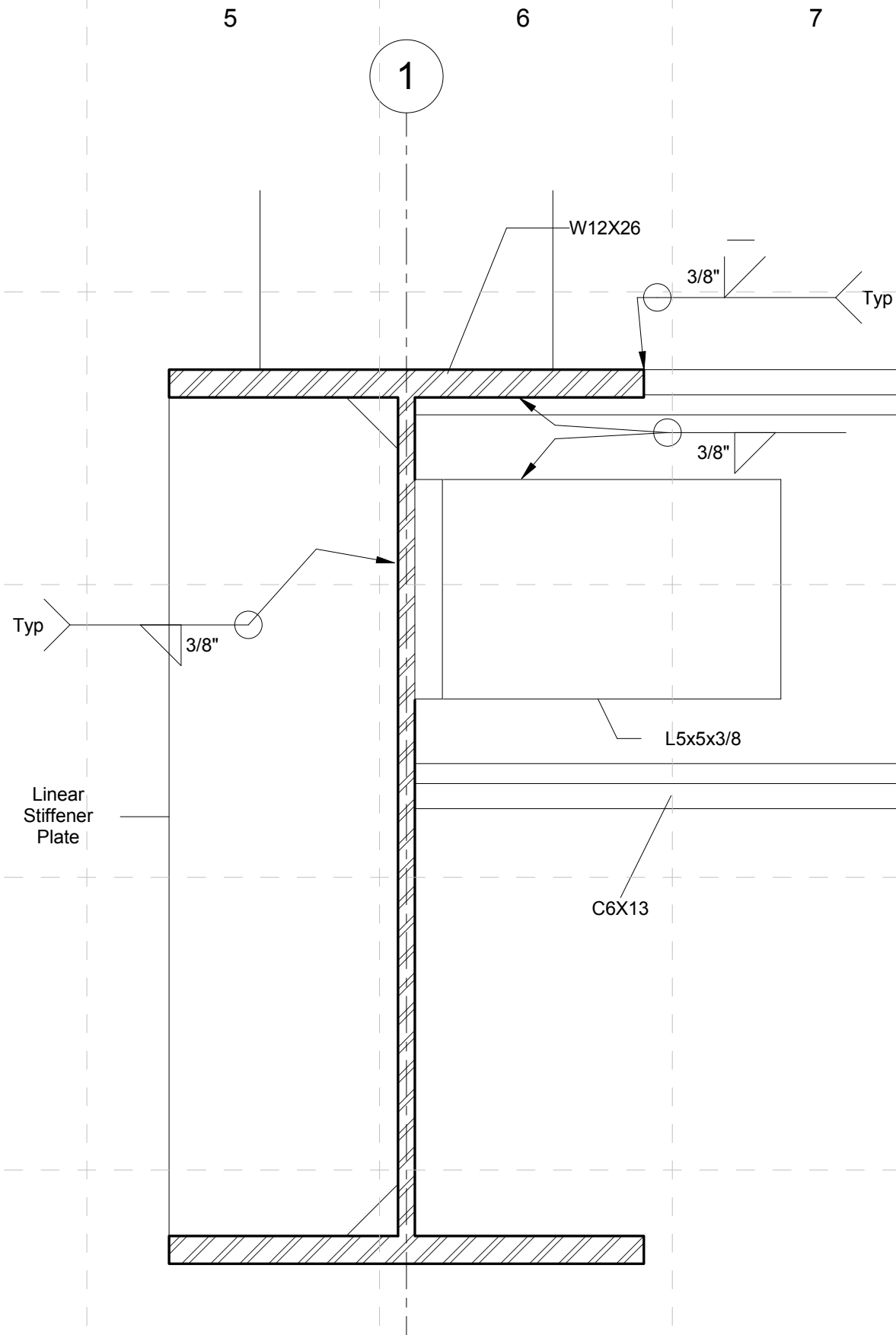
S - 504

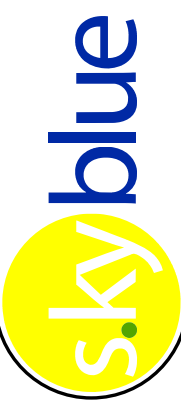

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1 C Channel Connection Detail 1
6" = 1'-0"



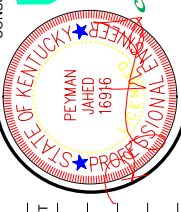
2 C Channel Connection Detail 2
6" = 1'-0"





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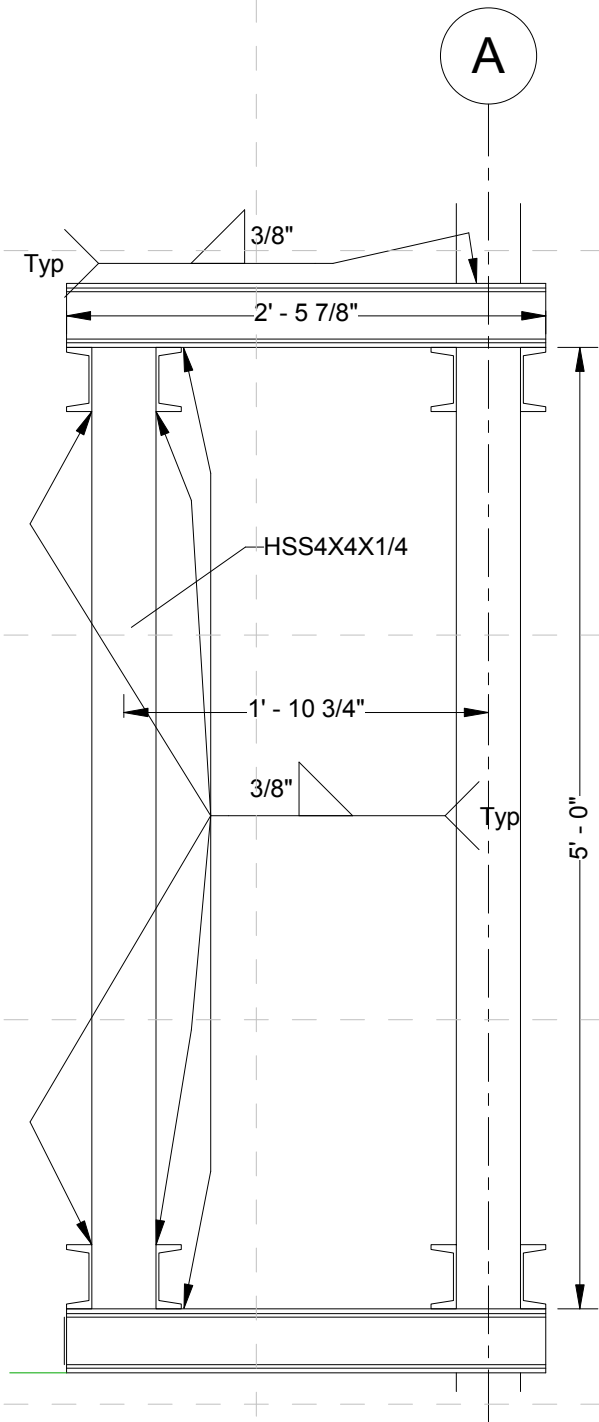
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C Channel
Connection Details

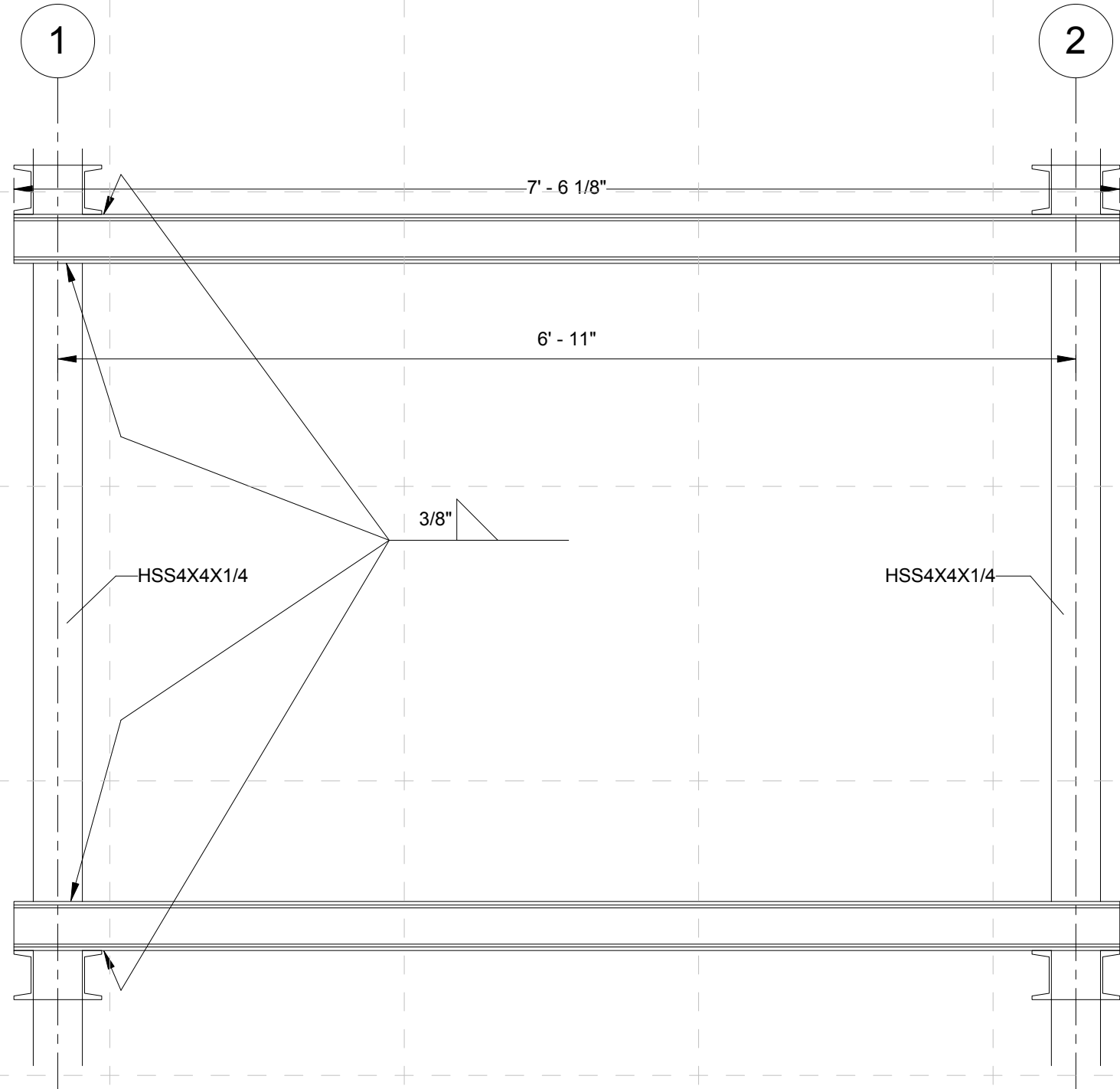
S - 505

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1 Bumpout Callout 1
1" = 1'-0"



2 Bumpout Callout 2
1" = 1'-0"



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COMMENTS

SHEET TITLE:
Bumpout Details

S - 506

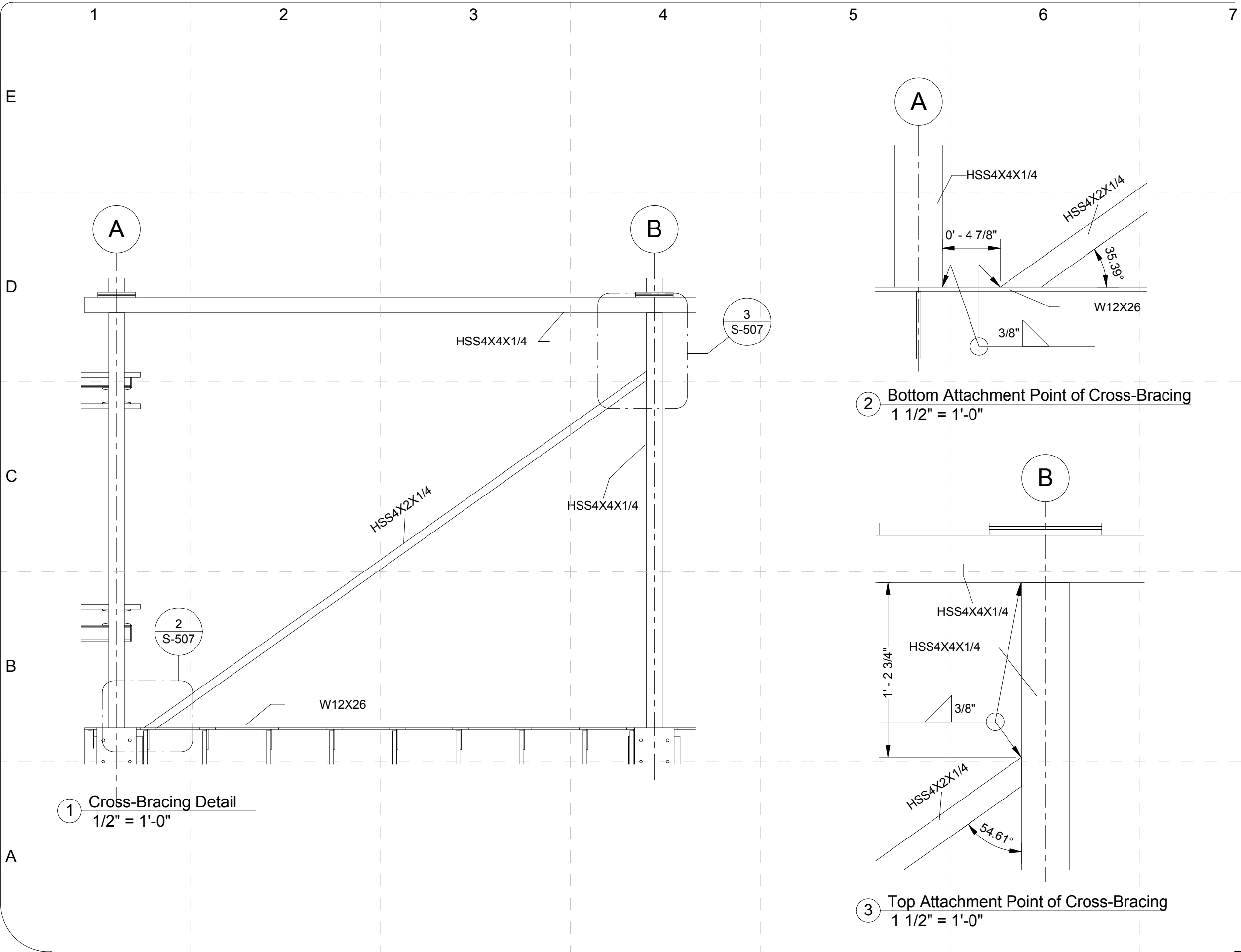


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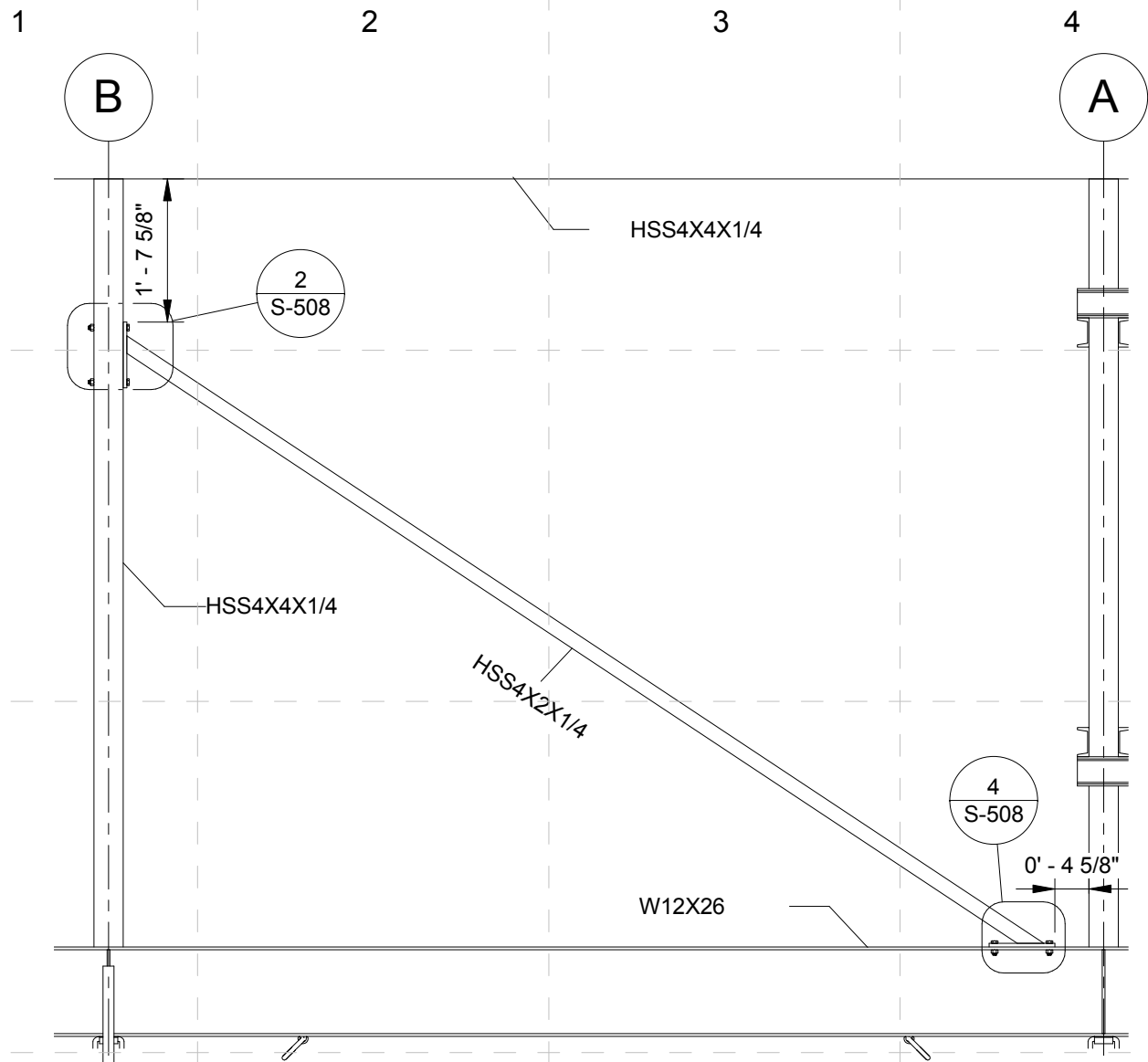
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DRAWN BY: JAR
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DATE CREATED: 04/22/09
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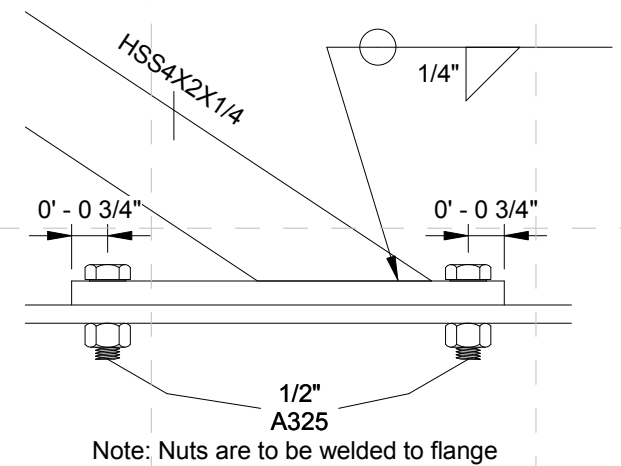
Cross-Bracing
Details

S - 507

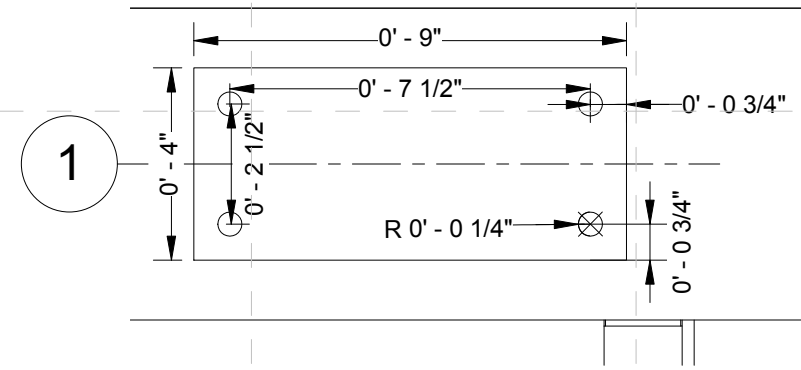
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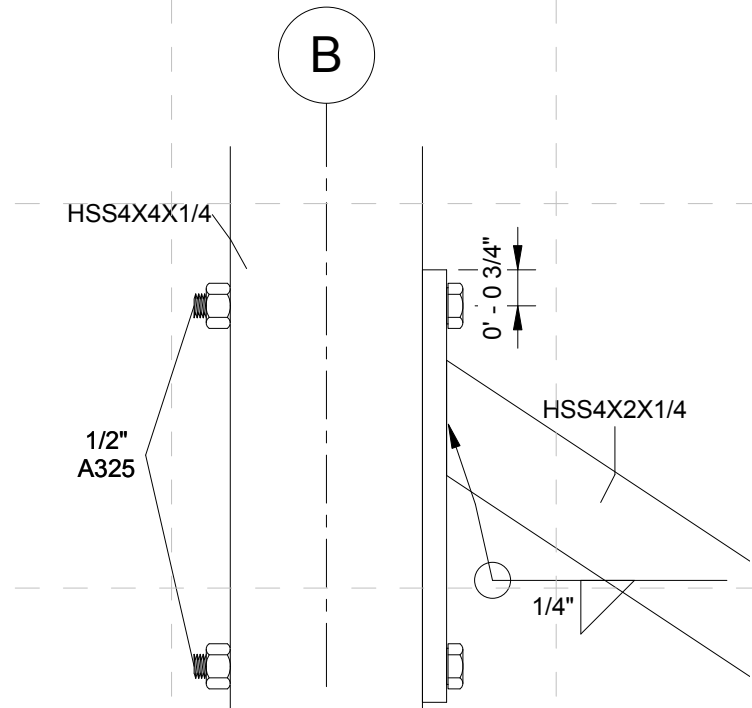
1 Removable Bracing Detail
1/2" = 1'-0"



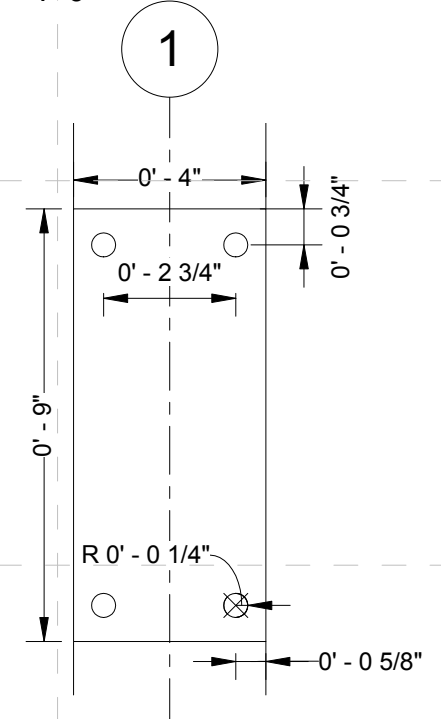
4 Bottom Attachment Point of Removable Bracing
3" = 1'-0"



5 Bottom Removable Cross-Bracing Plate Detail
3" = 1'-0"



2 Top Attachment Point of Removable Bracing
3" = 1'-0"



3 Top Removable Cross-Bracing Plate Detail
3" = 1'-0"

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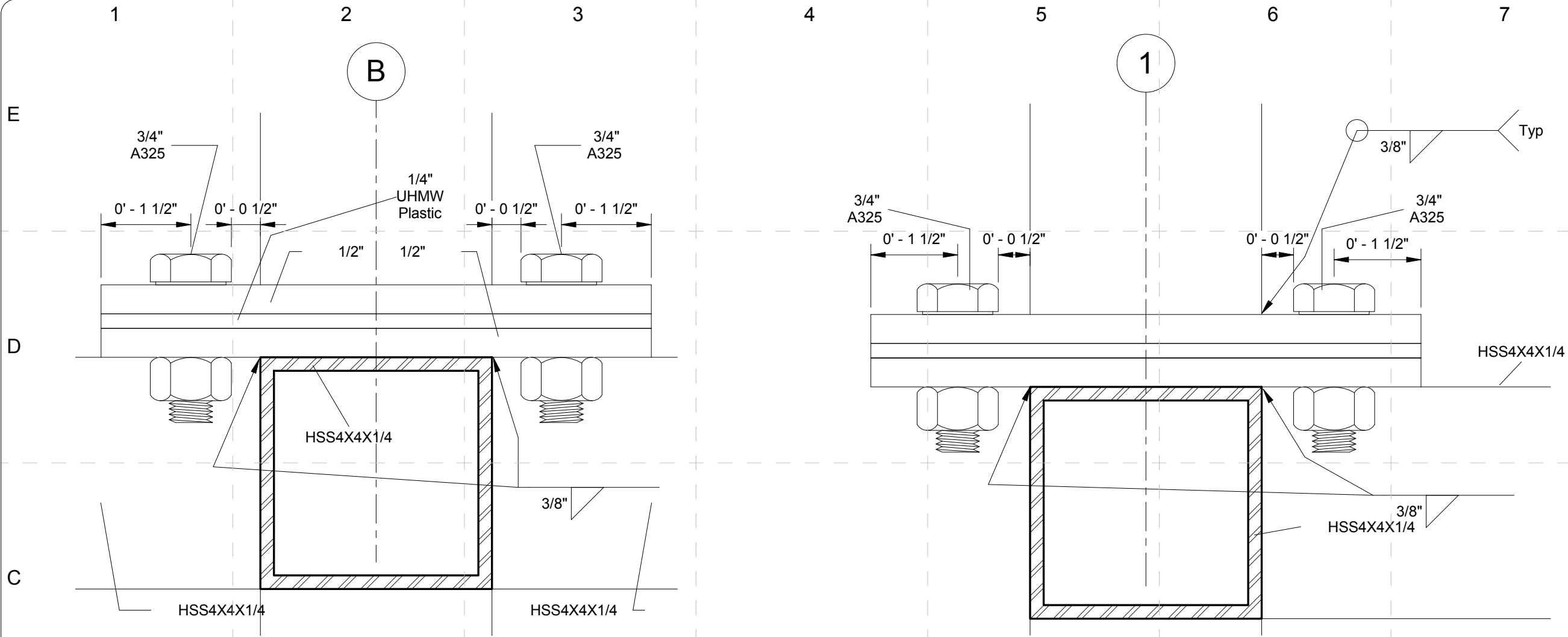
PROJECT NO: UKY_S122009
DRAWN BY: JAR
APPROVED BY: DSC
DATE CREATED: 05/26/09
DATE RECEIVED: 05/26/09

SHEET TITLE:

Removable
Cross-Bracing
Detail

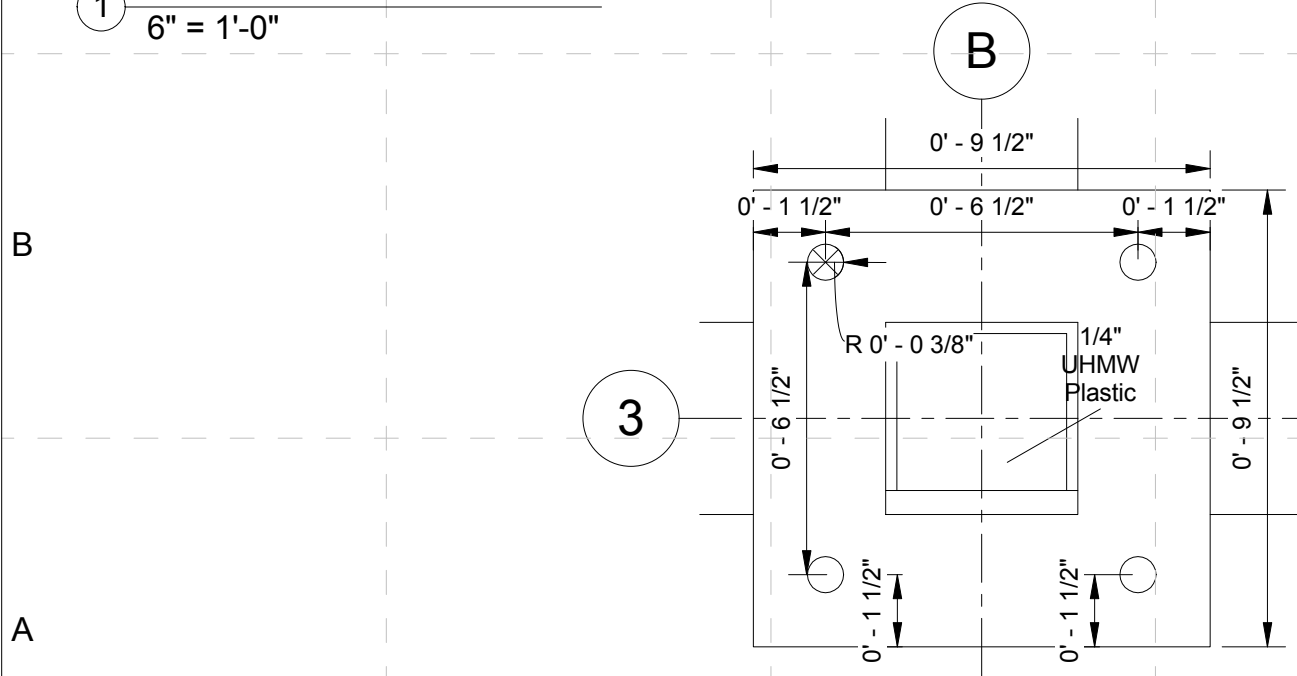
S - 508

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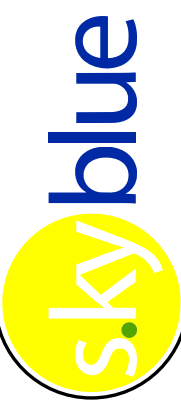






1 Thermal Break Detail Section 1
6" = 1'-0"

2 Thermal Break Detail Section 2
6" = 1'-0"



3 Thermal Break Plan Detail
3" = 1'-0"





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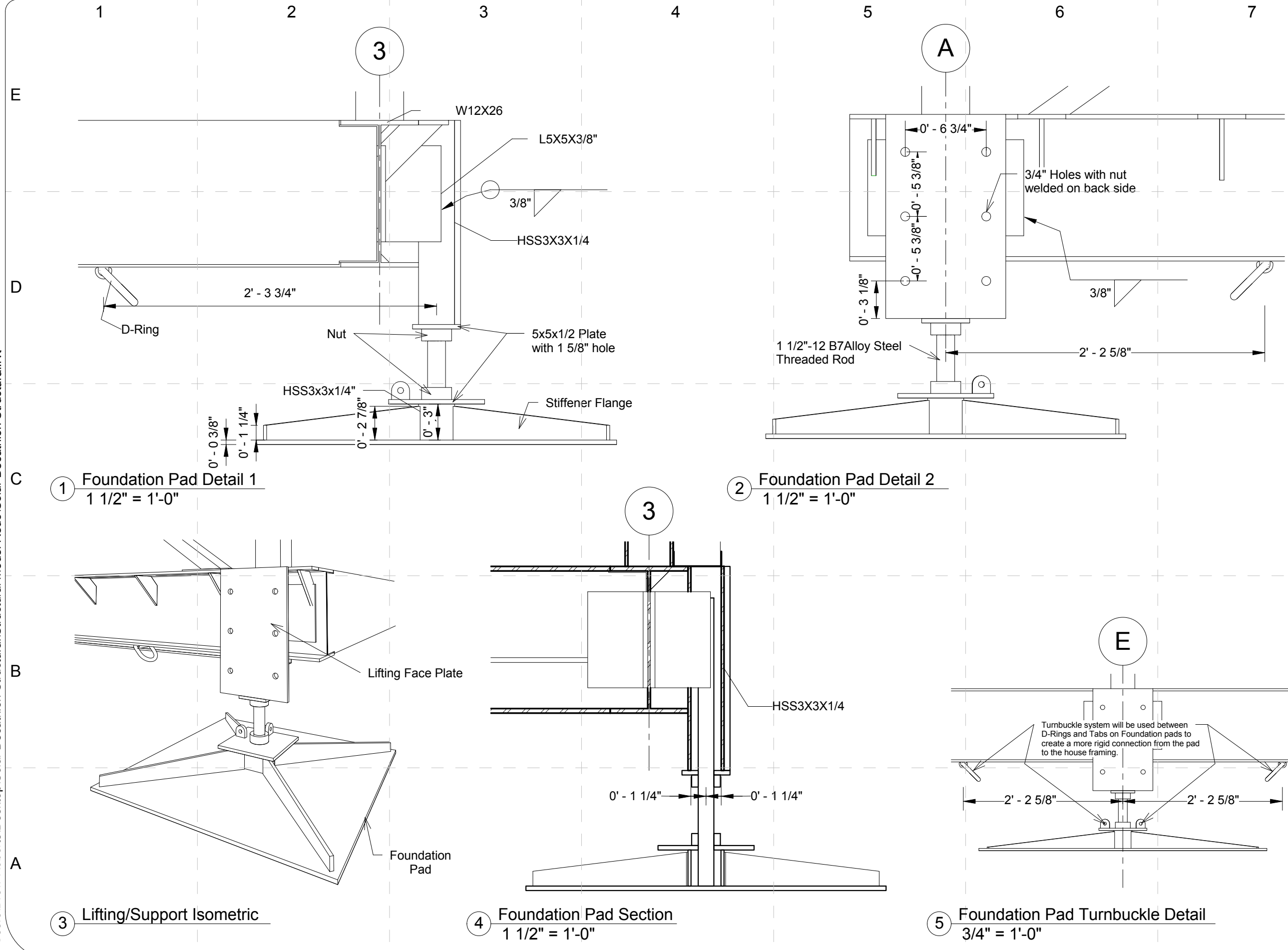
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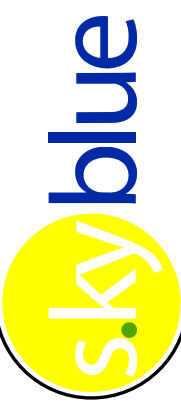

SHEET TITLE:

Thermal Break
Details

S - 509

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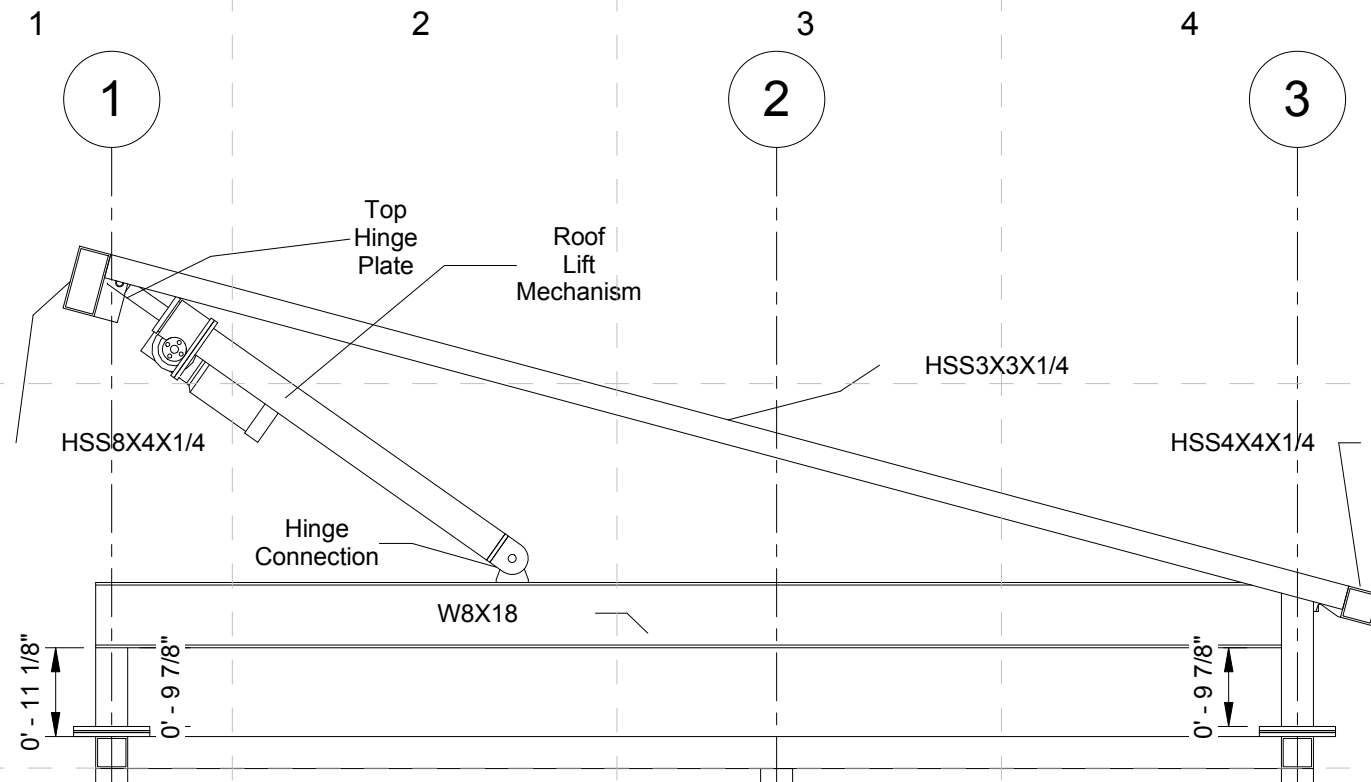
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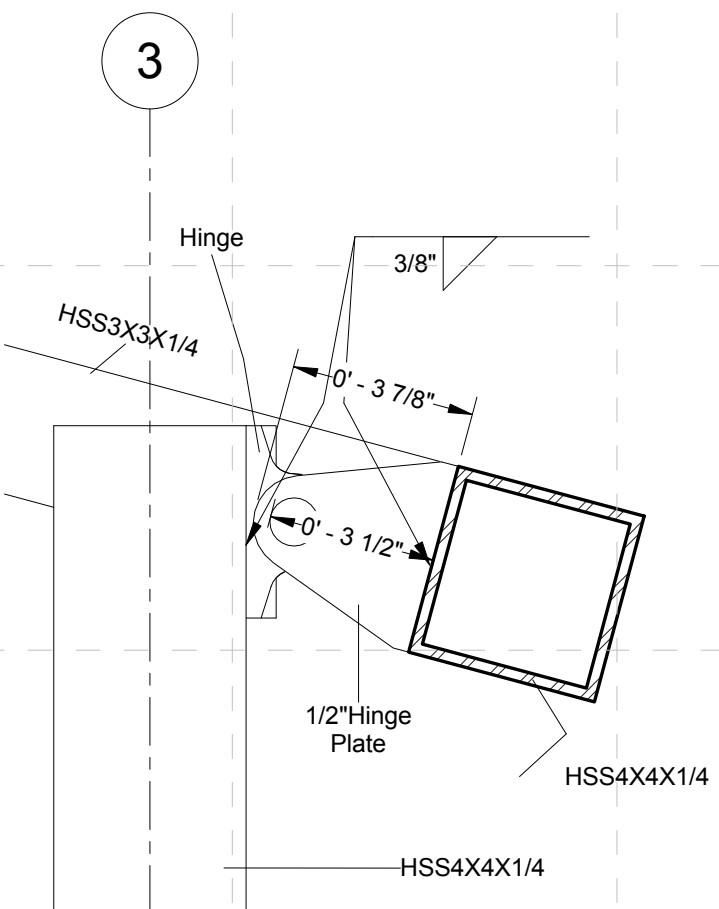
SHEET TITLE:
Foundation Pad
Details

S-510

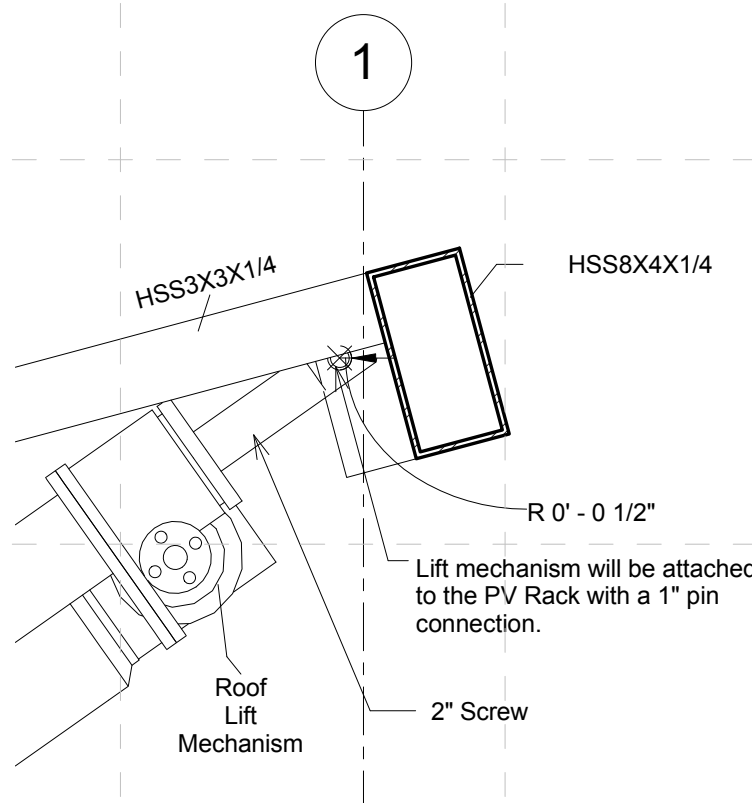
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1 PV Rack Detail
1/2" = 1'-0"

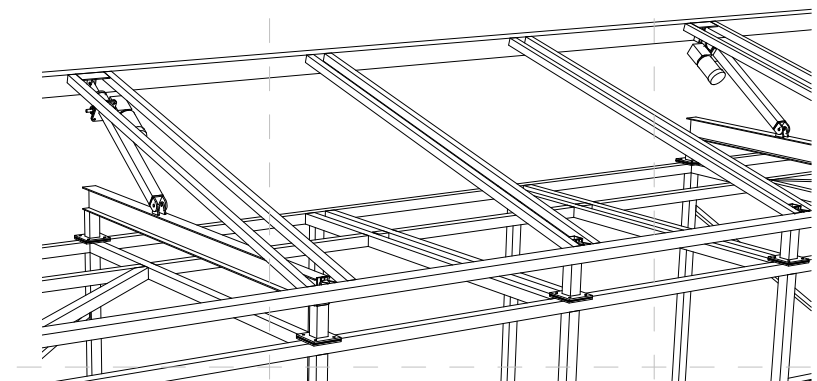


3 PV Rack Hinge Point Detail
3" = 1'-0"

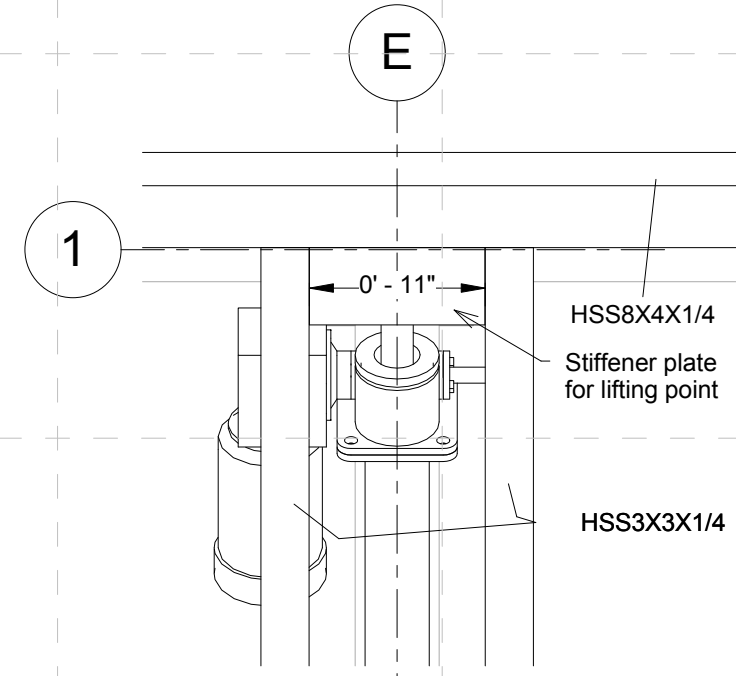


4 Lift Mechanism Hinge Point Detail
1 1/2" = 1'-0"



1) Roof Lift Mechanism is a Duff-Norton 10 ton machine screw acuator. 100:1 gear reduction to allow for 1/4 hp 115 V AC motor with shaft mounted encoder.



2 Lifting Point Isometric





5 Callout (4) of PV Rack Plan
1" = 1'-0"

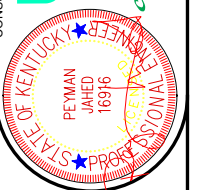


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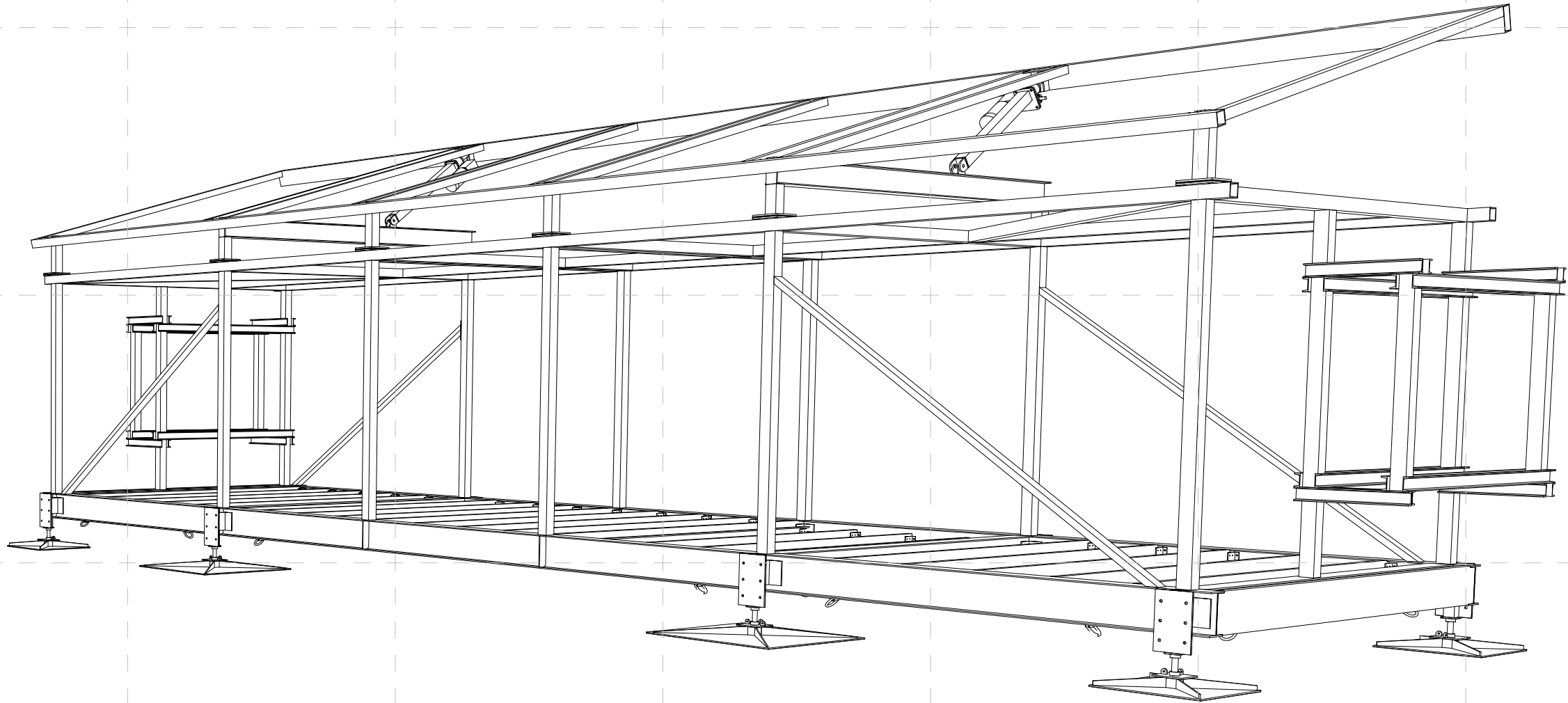
SHEET TITLE:

PV Rack Details

S-511

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1 3D View (From South-East)

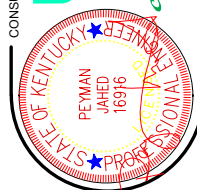


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SHEET TITLE:

Structure Isometric

S-901



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1	2	3	4	5	6	7
E	BUILDING CODES CODES: INTERNATIONAL RESIDENTIAL CODE 2006 2009 SOLAR DECATHLON RULES 2009 SOLAR DECATHLON BUILDING CODE					CONTINUOUS WOOD FRAMING AND BLOCKING
	GENERAL ARCHITECTURAL NOTES					WOOD-FINISH
						BATT INSULATION
D	A. GENERAL					PLYWOOD (ROUGH OR FOR ARCHITECTURAL WOODWORK)
						INSULATED GLAZING
						TOILET ACCESSORIES OR EQUIPMENT INDICATOR
C	1. NO WORK SHALL COMMENCE WITHOUT FIRST OBTAINING ANY REQUIRED PERMITS OR APPROVALS FROM APPLICABLE REGULATING AGENCIES OF THE STATE OF KENTUCKY, FAYETTE COUNTY, AND THE CITY OF LEXINGTON. 2. ALL WORK SHALL COMPLY WITH THE FOLLOWING BUILDING CODES: INTERNATIONAL RESIDENTIAL CODE (IRC 2006) AND THE 2009 SOLAR DECATHLON BUILDING CODE AND ANY OTHER APPLICABLE LOCAL REGULATIONS. 3. ALL WORK SHALL COMPLY WITH THE ZONING LAW OF THE CITY OF LEXINGTON, KENTUCKY AND THE 2009 SOLAR DECATHLON RULES AND 2009 SOLAR DECATHLON BUILDING CODE AND ANY OTHER APPLICABLE LOCAL REGULATIONS. 4. ALL WORK RELATING TO WATER DISPOSAL SHALL BE APPROVED BY THE LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT DEPARTMENT OF HEALTH AND SHALL COMPLY WITH ALL APPLICABLE REGULATIONS. 5. ALL WORK SHALL BE PERFORMED BY CONTRACTORS AND SUBCONTRACTORS LICENSED TO WORK IN THE STATE OF KENTUCKY INCLUDING, BUT NOT LIMITED TO THE FOLLOWING TRADES: GENERAL CONTRACTING, SURVEYING, SITE WORK, CONCRETE ERECTION, STEEL FABRICATION AND ERECTION, GENERAL ELECTRICAL, GENERAL PLUMBING, AND MECHANICAL EQUIPMENT INSTALLATION. 6. ALL CONTRACTORS AND SUBCONTRACTORS SHALL CARRY GENERAL LIABILITY AND WORKER'S COMPENSATION INSURANCE AS REQUIRED BY THE UNIVERSITY OF KENTUCKY, THE STATE OF KENTUCKY, THE CITY OF LEXINGTON, AND THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT AND OTHER REGULATING AGENCIES. CONTRACTORS AND SUBCONTRACTORS SHALL PROVIDE CERTIFICATES OF INSURANCE TO THE OWNER, THE ARCHITECT, AND THE UNIVERSITY OF KENTUCKY AS INSURES. 7. PHOTO SCIENCE GEOSPATIAL SOLUTIONS, 2670 WILHITE DRIVE, LEXINGTON, KY 40503 AND THE UNIVERSITY OF KENTUCKY-PHYSICAL PLANT DEPARTMENT, LEXINGTON, KY40506 HAVE PROVIDED SITE SURVEY INFORMATION. 8. WASTE WATER DISPOSAL SPECIFICATIONS HAVE BEEN PROVIDED BY THE 2009 SOLAR DECATHLON RULES AND THE 2009 SOLAR DECATHLON BUILDING CODE AND THE UNIVERSITY OF KENTUCKY. 9. BFMJ, INC. CONSULTING STRUCTURAL ENGINEERS, 620 EUCLID AVENUE, LEXINGTON, KY 40502 HAVE PROVIDED STRUCTURAL STEEL AND CONCRETE INFORMATION. 10. ALL NECESSARY PROVISIONS FOR INSTALLATION OF PRIMARY ELECTRICAL SERVICE SHALL BE MADE IN CONJUNCTION WITH AND TO THE REQUIRED SPECIFICATION OF THE 2009 SOLAR DECATHLON RULES AND THE 2009 SOLAR DECATHLON BUILDING CODE, THE UNIVERSITY OF KENTUCKY, AND KENTUCKY UTILITIES. 11. MAXIMUM GRADE OF THE NEW DRIVEWAYS SHALL NOT EXCEED 12%. 12. ALL MATERIALS FOR CONSTRUCTION LOCATED ON SITE SHALL BE SEGREGATED AND NEATLY STORED OUT OF THE PATH OF CONSTRUCTION OPERATIONS AND SHALL BE PROTECTED FROM DAMAGE BY ALL HAZARDS INCLUDING WEATHER, GROUND MOISTURE, AND CONSTRUCTION ACTIVITIES UNTIL USE. 13. ALL SPOT ELEVATIONS ARE TRUE. 14. THE CONTRACTOR SHALL VISIT THE SITE AND BE KNOWLEDGEABLE OF CONDITIONS THEREON, COMPLY WITH SPECIFICATION SECTIONS IN DIVISION 1 AND DIVISION 2 FOR SPECIFIC REQUIREMENTS FOR SURVEY OF EXISTING SITE CONDITIONS AND CONDUCT OF EXCAVATION AND ENSUING CONSTRUCTION ACTIVITIES PRIOR TO PROCEEDING WITH THE WORK. 15. THE CONTRACTOR SHALL VERIFY ACCURACY OF SURVEY INFORMATION, AND SHALL PERFORM ADDITIONAL SITE SURVEYS TO INSURE ACCURATE PLACEMENT OF THE BUILDING ON THE SITE. 16. ALL DIMENSIONS SHALL HAVE PREFERENCE OVER SCALE. DO NOT SCALE THESE DRAWINGS. 17. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO PROCEEDING WITH THE WORK. THE ARCHITECT SHALL BE NOTIFIES OF ANY DISCREPANCIES. 18. PLANE DIMENSIONS ARE SHOWN TO CENTERLINE OF COLUMNS AND TO THE FINISHED FACE OF WALLS UNLESS NOTED OTHERWISE. ELEVATION AND SECTION DIMENSIONS ARE SHOWN RELATIVE TO FINISH FLOOR LEVELS WHICH ARE REFERENCED TO BUILDING ELEVATION ABOVE SEA LEVEL. 19. WHERE DISCREPANCIES EXIST BETWEEN DRAWINGS OF VARIOUS DISCIPLINES, ARCHITECTURAL DRAWINGS SHALL BE ASSUMED TO GOVERN. CONSULT ARCHITECT BEFORE PROCEEDING WITH WORK IN ANY AREA REQUIRING CLARIFICATION. 20. DETAILS SHOWN ARE INTENDED TO DESCRIBE SCOPE AND PROFILE. WHERE DETAILS HAVE NOT BEEN PROVIDED, THE WORK IS INTENDED TO BE SIMILAR IN CHARACTER TO THOSE AREAS DETAILED. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT ARCHITECT PRIOR TO PROCEEDING WITH THE WORK. 21. THE WORK IN THESE DRAWINGS IS INTENDED TO SHOW SCOPE OF PENETRATIONS, SLAB, AND WALL OPENINGS REQUIRED TO ACCOMMODATE MECHANICAL, ELECTRICAL, AND PLUMBING TRADES. HO3WEVR, THE CONTRACTOR SHALL COORDINATE ALL PENETRATIONS, SLAB, AND WALL OPENINGS REQUIRED BY THESE TRADES BEFORE PROCEEDINGS WITH THE WORK. 22. ALL PIPES, BUS DUCTS, RISERS, AND OTHER ELEMENTS THAT PENETRATE FLOOR SLABS SHALL BE INSTALLED IN A MANNER THAT WILL PRESERVE FIRE RESISTIVE AND STRUCTURAL INTEGRITY OF THE BUILDING.					KEYED NOTE AND SPECIFICATION REFERENCE
						WINDOW INDICATOR
						B
SECTION MARK						
ENLARGED DETAIL INDICATOR						
A	1. ALL CONSTRUCTION SHALL COMPLY WITH DISABLED ACCESS REQUIREMENT OF THE STATE OF KENTUCKY, THE 2006 INTERNATIONAL RESIDENTIAL CODE, AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADA). 2. THE MAXIMUM SLOPE OF A RAMP THAT SERVES ANY EXIT WAY, PROVIDES ACCESS FOR PERSONS WITH DISABILITIES, OR IS IN THE PATH OF TRAVEL SHALL BE 1 INCH OF RISE PER 12 INCHES OF HORIZONTAL RUN.					NEW DOOR, FRAME, AND HARDWARE
						CALLOUT HEAD
						ROOM TAG

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DRAWN BY: MR.G

APPROVED BY: Approver

DATE CREATED: 01/18/09



DATE RECEIVED: 01/18/09

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SHEET TITLE:

Architectural Symbols and Notes



A-001



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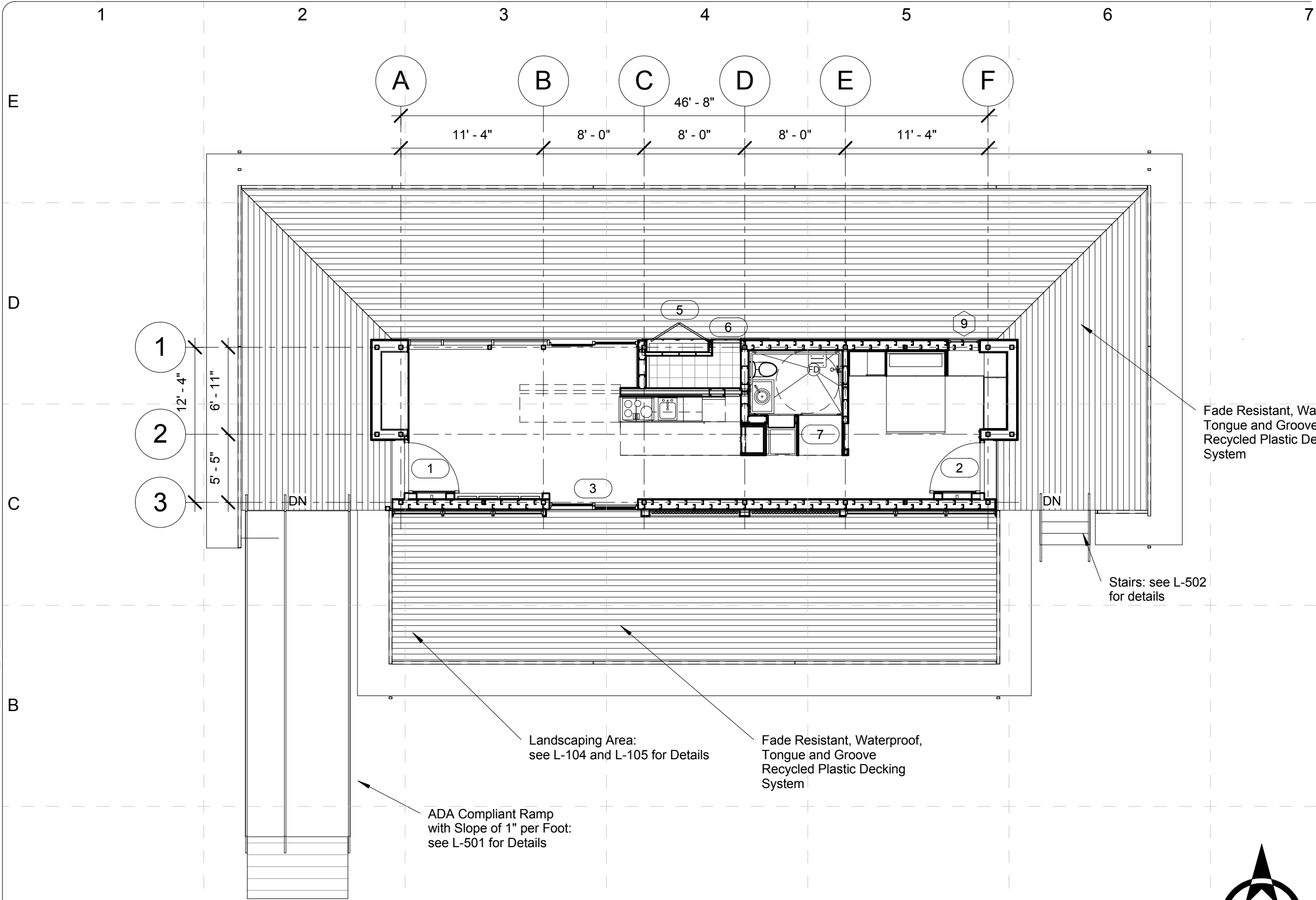
COMMENTS

SHEET TITLE:

Architectural
Symbols and Notes

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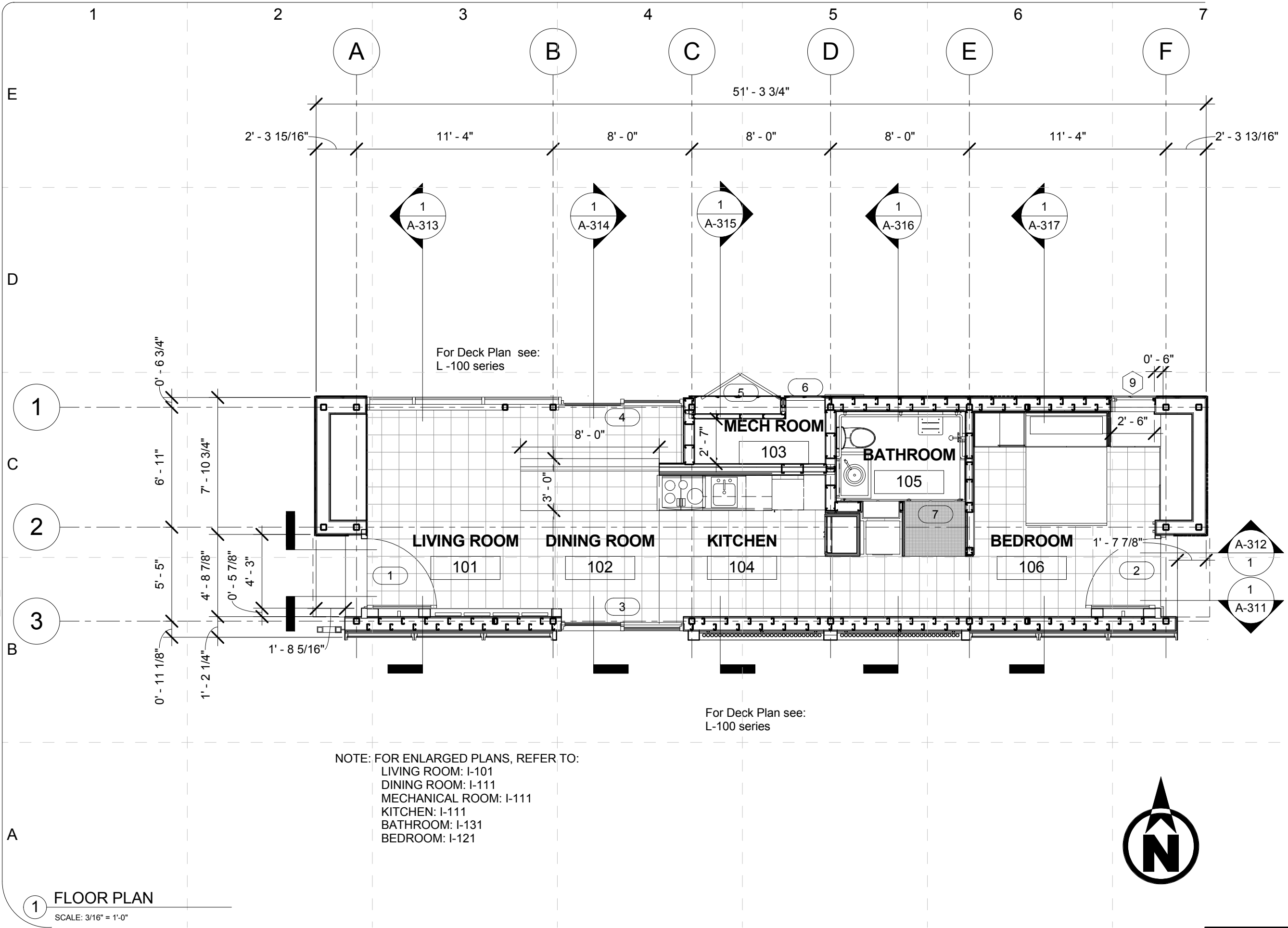
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SHEET TITLE:

Plans-Site Plan

A-101

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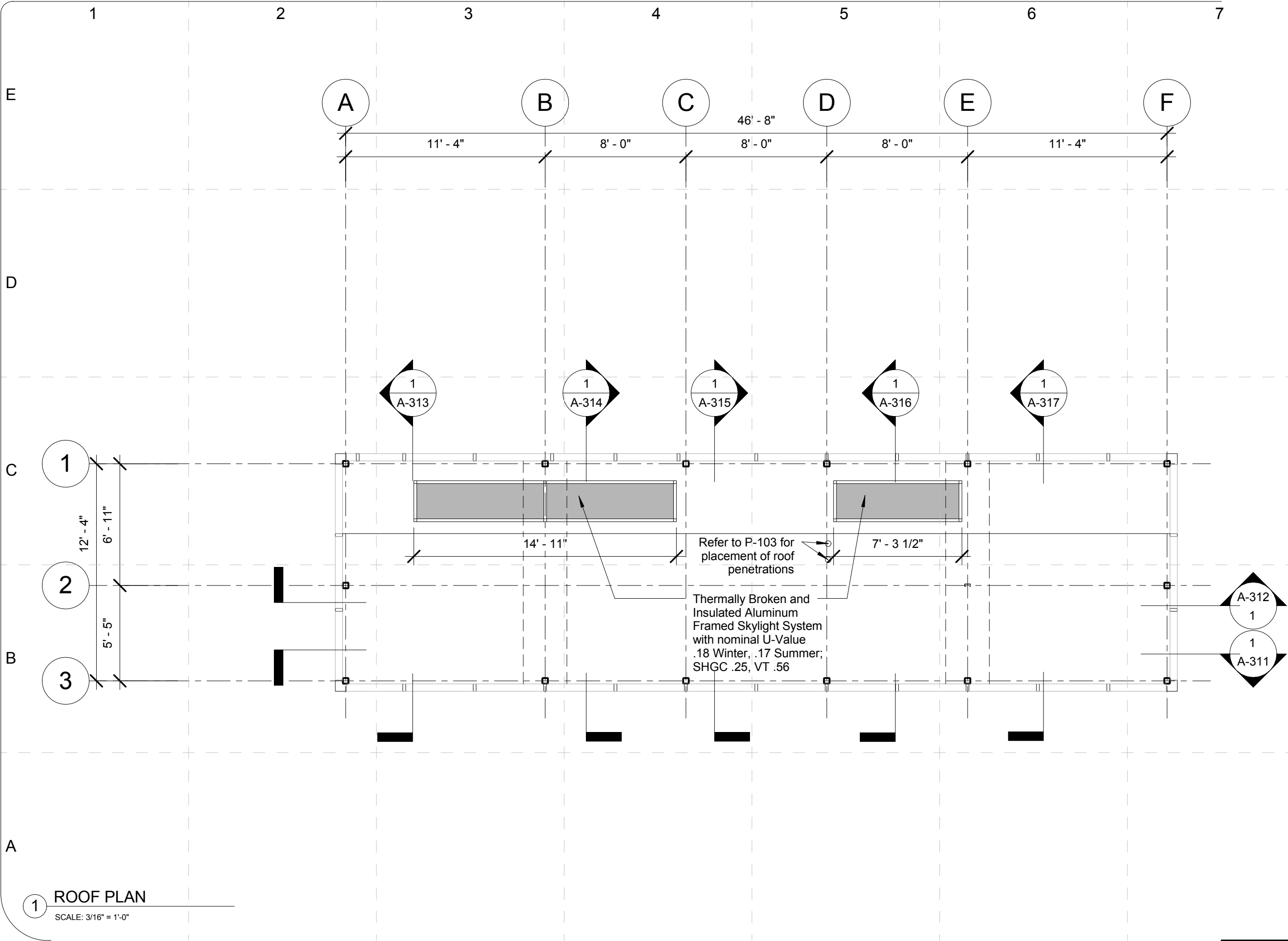


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SHEET TITLE:
Plans-Floor Plan

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1 ROOF PLAN
SCALE: 3/16" = 1'-0"

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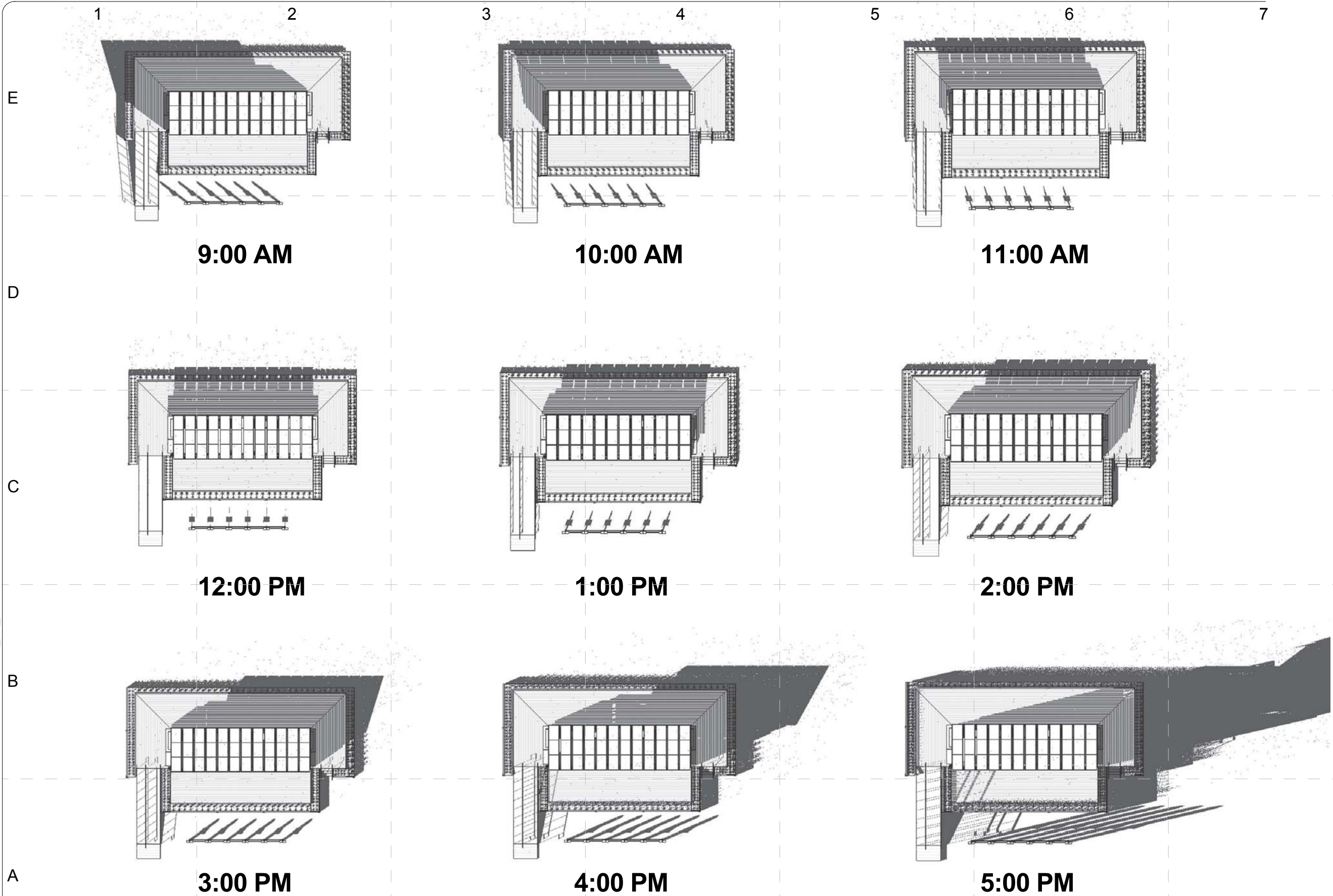
COMMENTS

SHEET TITLE:

Plans-Roof Plan

A-112

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1 ANGLES AS PER SOLAR TIME, OCTOBER 1st, 900AM-500PM
SCALE: NTS

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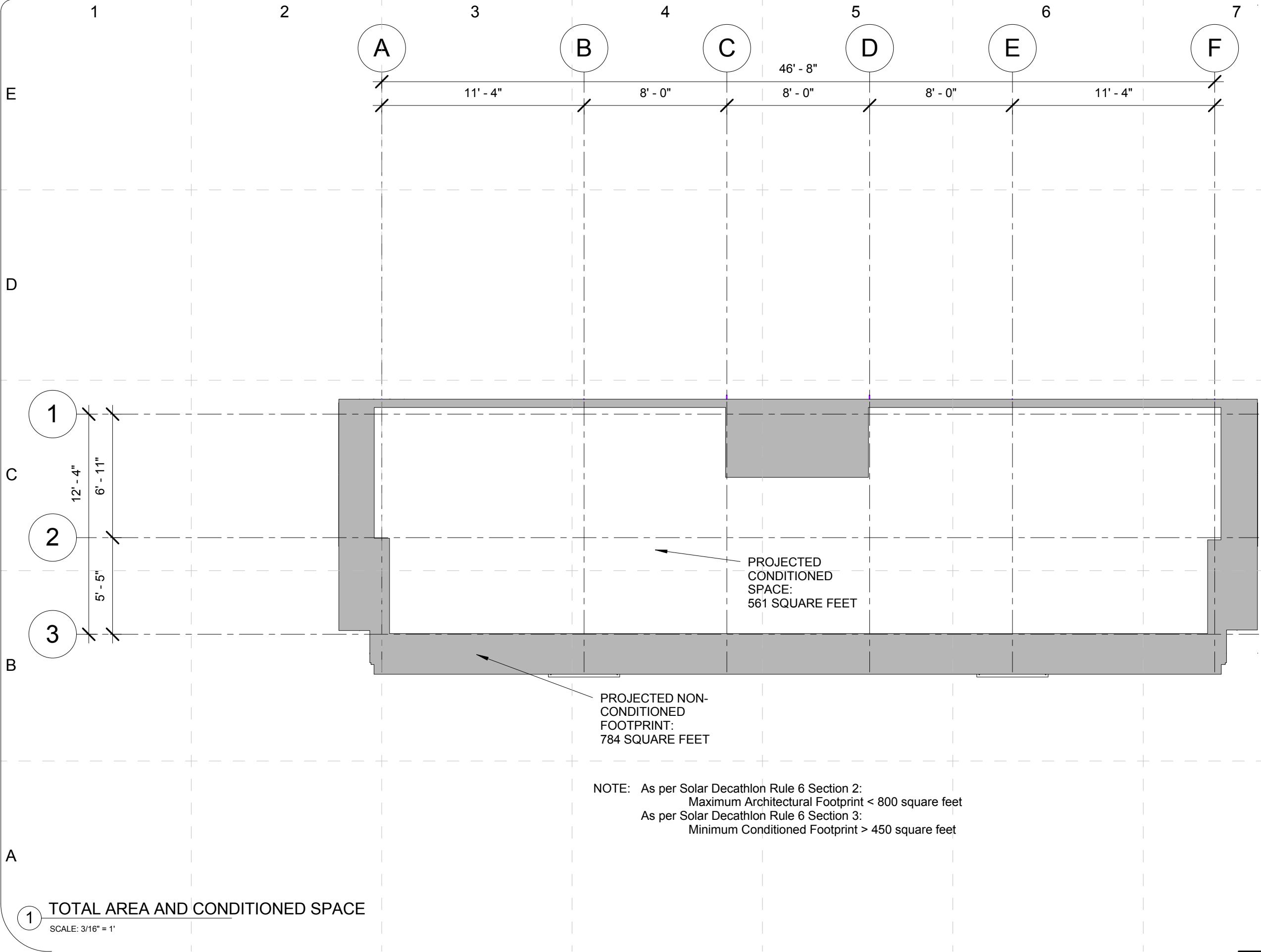
COMMENTS

SHEET TITLE:

Plans-Shading

A-114

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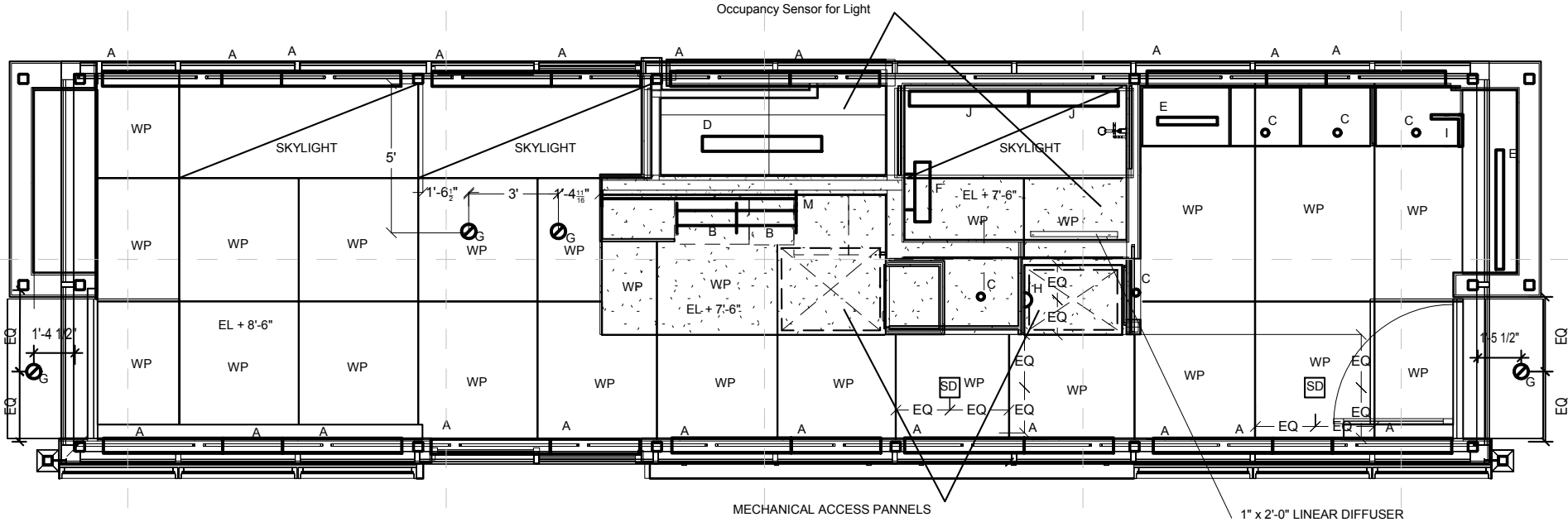
Plans-Footprint
Area and Condition
Space

A-115

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LIGHT FIXTURE SCHEDULE								
TYPE	DESCRIPTION	MODEL	LAMPS	BALLAST	VOLTAGE	HEIGHT	LOAD (W)	QUANTITY
A	COVE LIGHTING. 2',3',4' INCREMENT INDIRECT COVE LIGHT.	PEERLESS HOT-5	2', 3', 4' T5 SECTIONS 2'(14w), 3'(21W), 4'(28W)	ECO10 BALLAST	120V	CEILING	473	4-2' SECTIONS 5-3' SECTIONS 17-4' SECTIONS
B	UNDERCABINET LIGHTING. 2' INCREMENT DIRECT ASYMMETRIC UNDERCABINET FIXTURE.	ALKCO ARIS 21-40	2' INCREMENT (21W)	ECO10 BALLAST	120V	24" ABOVE KITCHEN COUNTER	84	4
C	ACCENT LIGHTING. 2-1/2" RECESSED LED PUCK LIGHT.	BRUCK LEDRA 12 / CONTECH	1 LED (9W)	ECO10 BALLAST	120V	CEILING	45	5
D	MECH ROOM LIGHTING. 4' DIRECT/INDIRECT	BRUNO BY PEERLESS	1 T5 (28W)	ECO10 BALLAST	120V	CEILING	25	3
E	CLOSET LIGHTING. 2',3',4' INCREMENT CLOSET RAIL LED LIGHTING	ARDEE BY PHILIPS	8W PER FOOT	ECO10 BALLAST	120V	CEILING	48	1-2' SECTION 1-4' SECTION
F	BATHROOM MIRROR LIGHT	AAMSCO MIRROR-LUX 6002	2 T5 (14W)	ECO10 BALLAST	120V	WALL MOUNT	28	1
G	ENTRY/DINING LIGHT	GOETHAM ECSR	1 (30W) LED	ECO10 BALLAST	120V	CEILING	30	4
H	LED STEP LIGHT	HG-ST08M BY JESCO	1 LED	ECO10 BALLAST	12V	24" AFF	5	1
I	COMPUTER SWING ARM LIGHTING	KONCEPT Z-BAR	1 LED	ECO10 BALLAST	120V	24" ABOVE COMP DESK	10	1
J	BATHROOM SKYLIGHT FIXTURE	VISA ADVANTUS	2', 3' T5 SECTIONS 2'(14w), 3'(21W)	ECO10 BALLAST	120V	SKYLIGHT	35	1-2' SECTION 1-3' SECTION
K	COUNTER BACKSPLASH	ELUMA BY ELEMENT DESIGNS	LED	ECO10 BALLAST	12V	KITCHEN COUNTER	50	1
L	OUTDOOR RAIL LIGHTING	LITE BRITE BY OSRAM SYLVANIA	LED	ECO10 BALLAST	120V	RAIL MOUNTED	97.92	3-30' STRIPS 3-4' STRIPS
M	BACKGROUND LIGHTING FOR WALL SCENE	LITE BRITE BY OSRAM SYLVANIA	LED	ECO10 BALLAST	120V	BUILDING HEIGHT	288	40- 7.5' STRIPS
HOUSE LOADS (W)								
INTERIOR LIGHTING LOAD		884						
EXTERIOR LIGHTING LOAD		386						
OS	OCCUPANCY SENSOR							2
LTG SYSTEM	LUTRON QUANTUM SYSTEM (INCLUDING SWITCHES AND MONITORING SYSTEM)							1

1 Reflected Ceiling Plan
SCALE: 3/16" = 1'-0"



LEGEND

- WOOD PANNEL WP
SMOKE DECTOR SD

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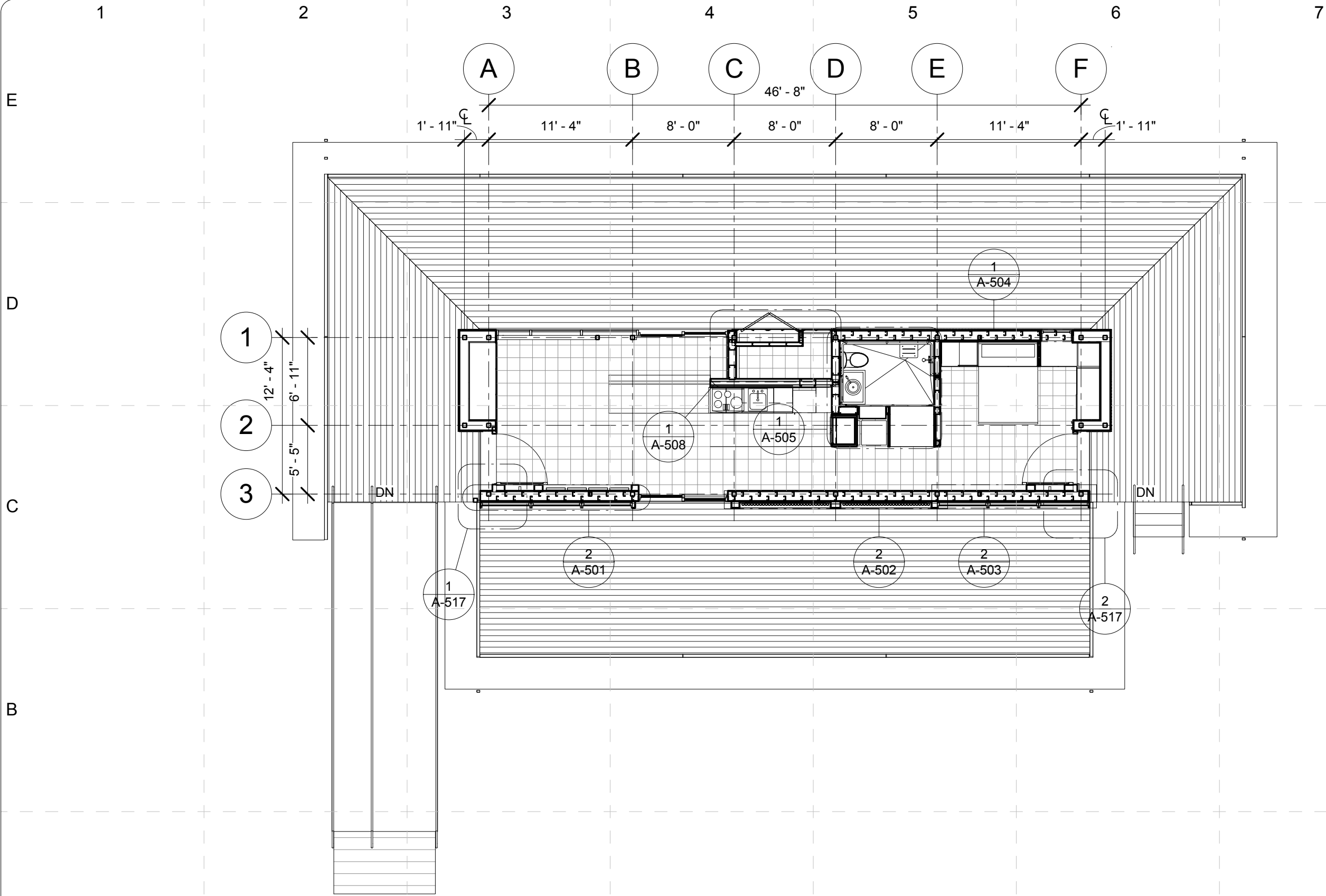
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Plans-Reflected
Ceiling Plan

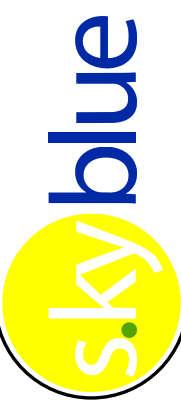

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2 FLOOR PLAN - FRAMING
SCALE: 1/8" = 1'-0"



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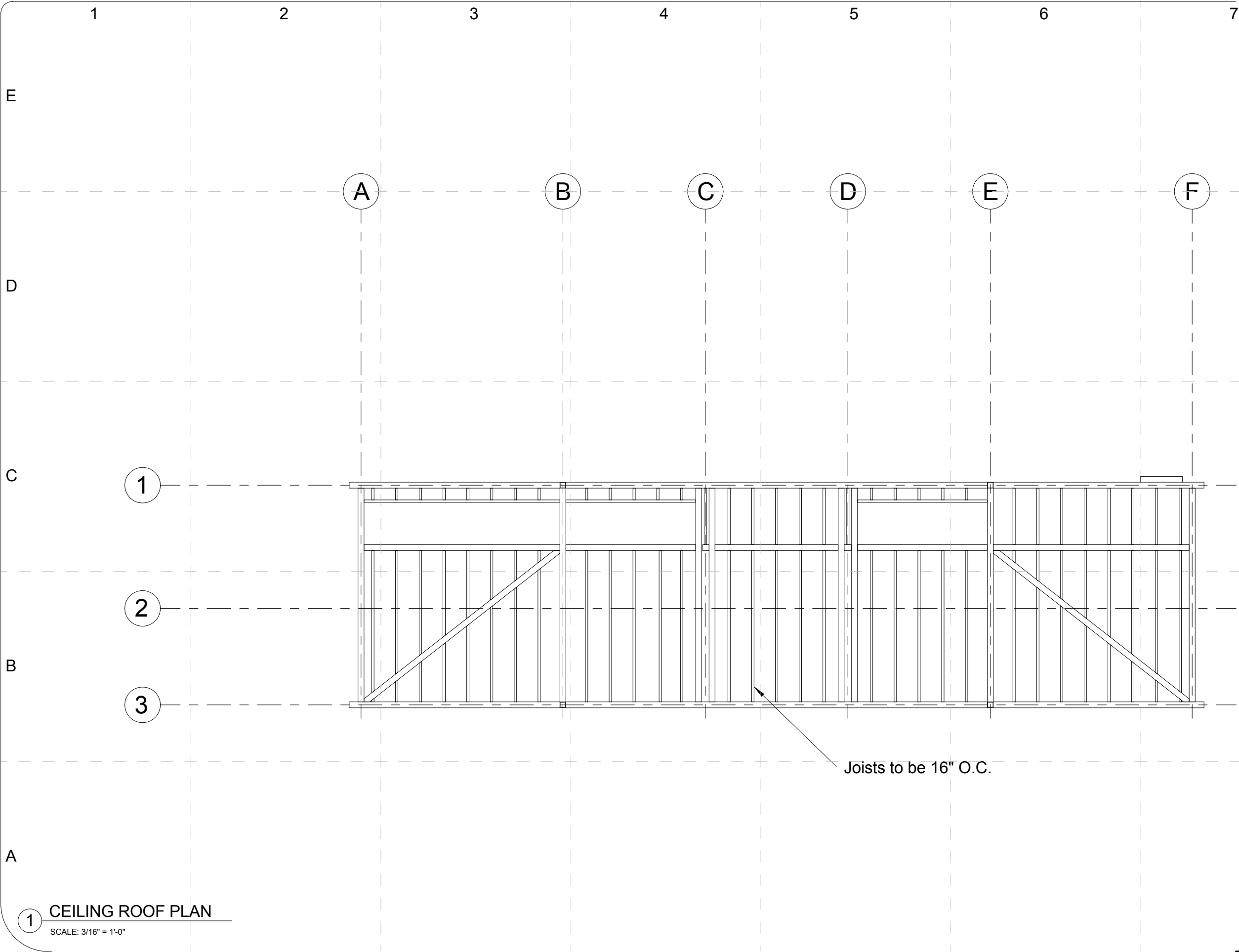
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SHEET TITLE:

Plans-Framing Plan

A-117

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1 CEILING ROOF PLAN
SCALE: 3/16" = 1'-0"

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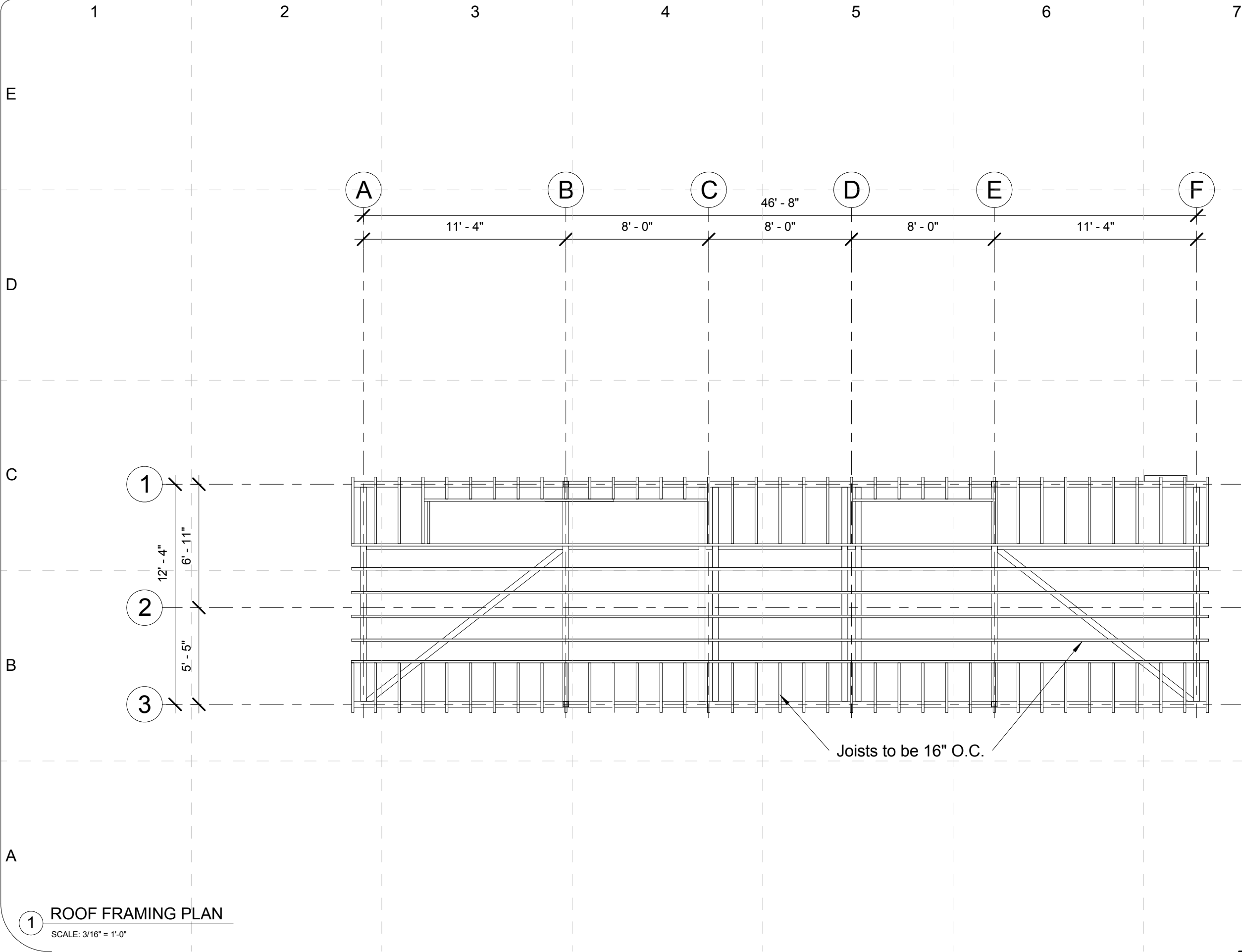
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Plans-Ceiling
Framing Plan





A-118

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1 ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"



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SHEET TITLE:
Plans-Pitched Roof
Framing Plan

A-119

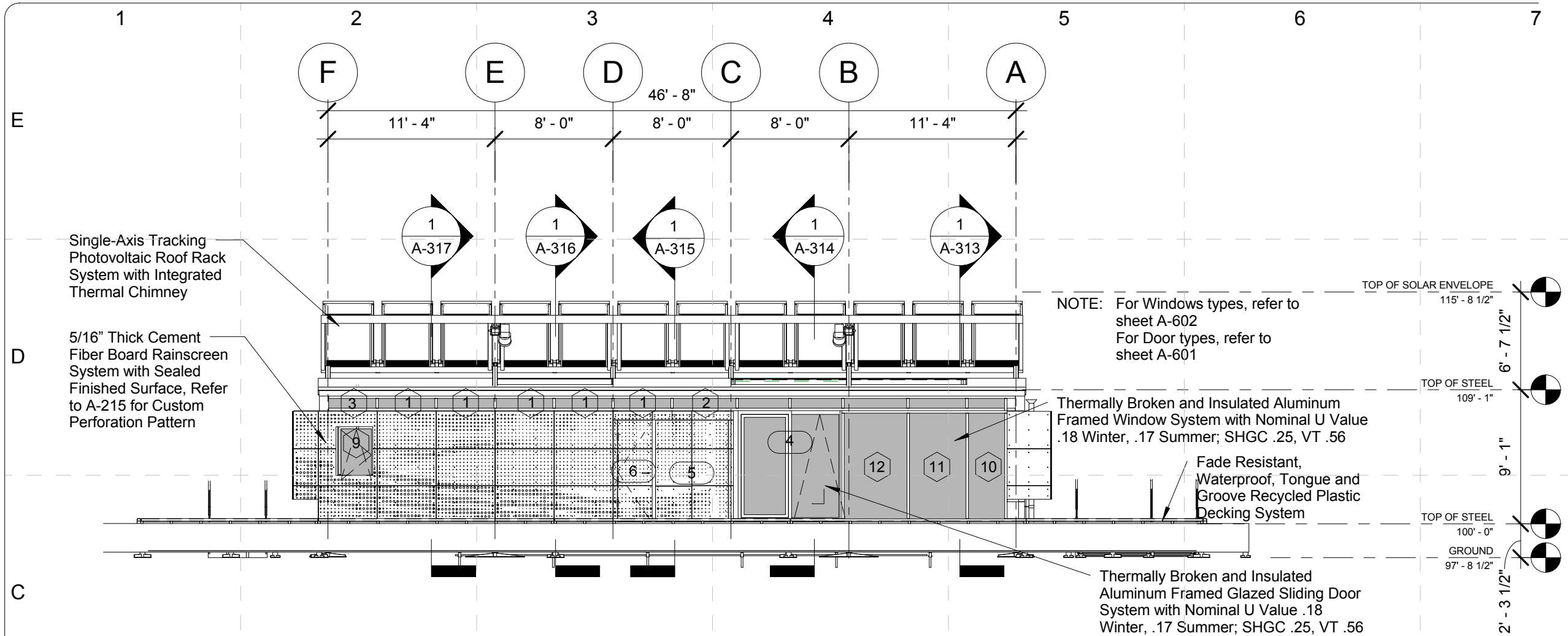
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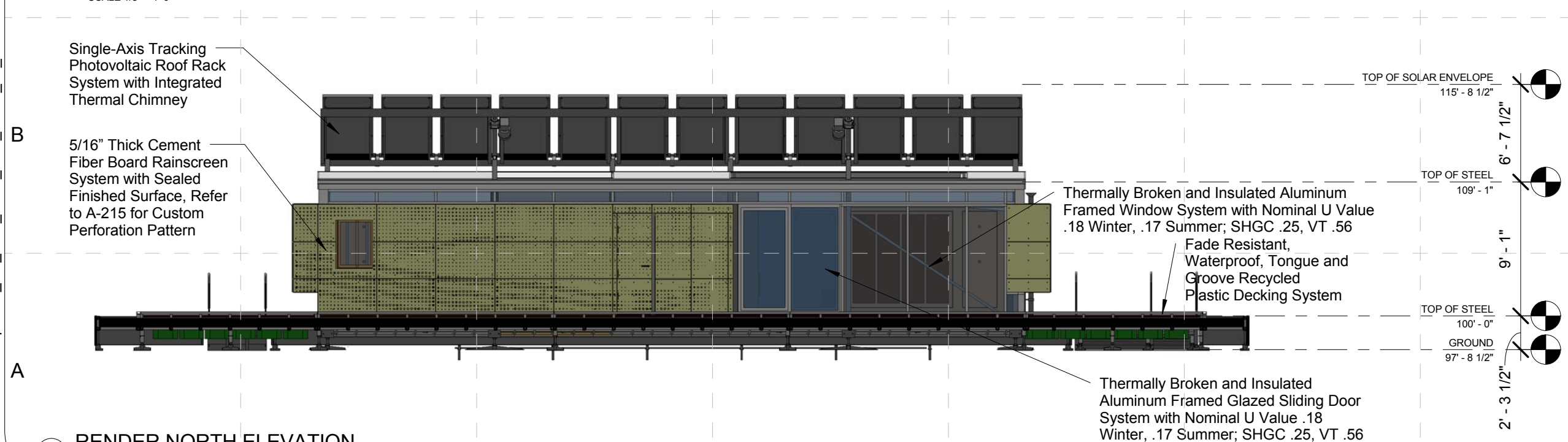
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1 NORTH ELEVATION AT PLANE OF WALL BEHIND RAINSCREEN
SCALE 1/8" = 1'-0"



2 RENDER NORTH ELEVATION
SCALE 1/8" = 1'-0"

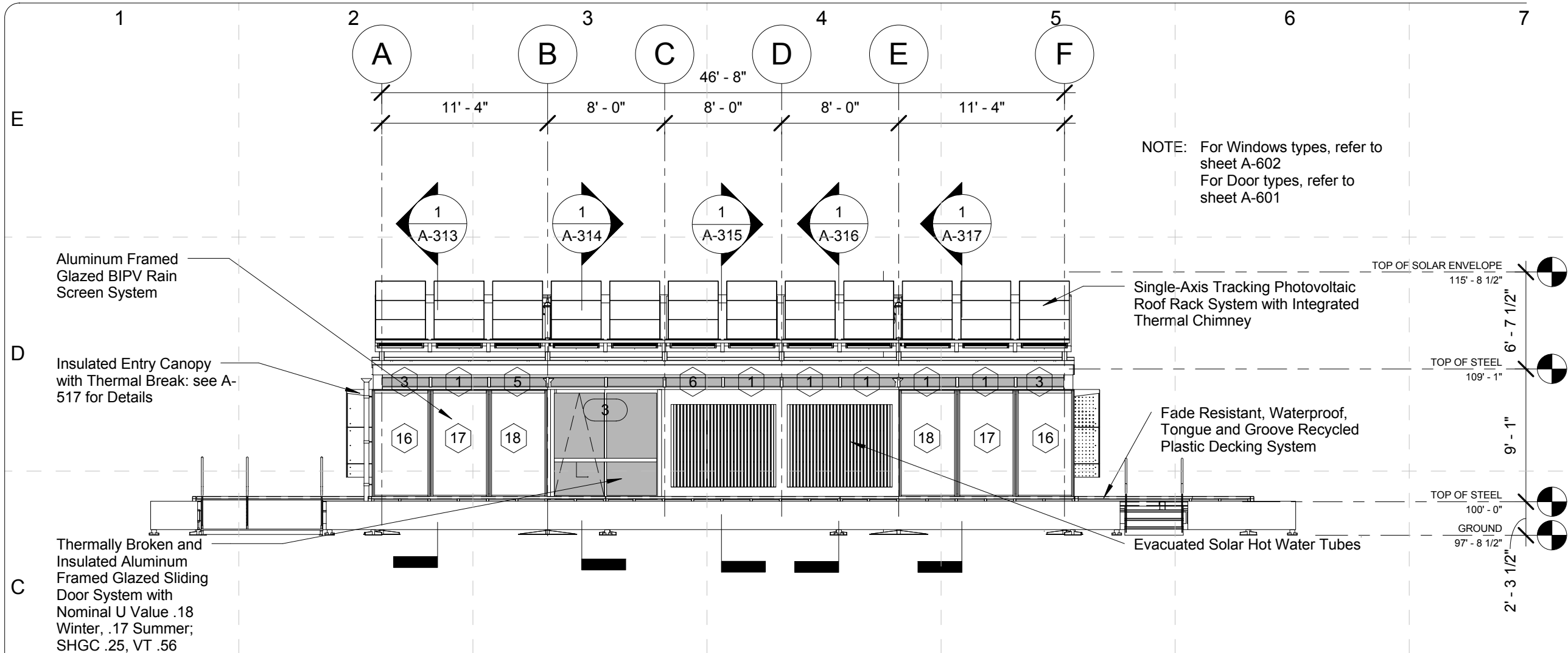
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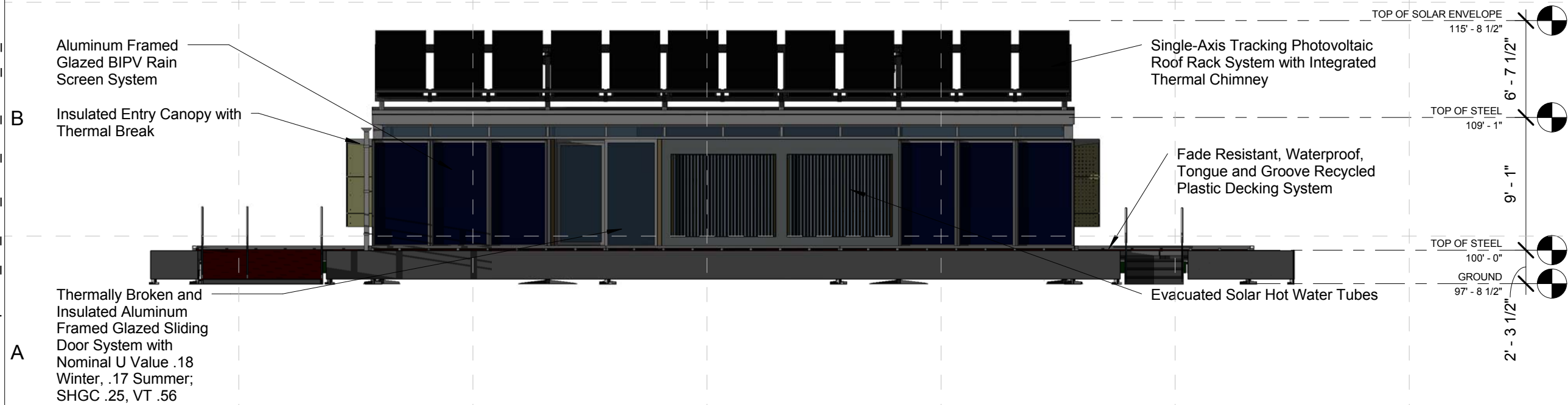
SHEET TITLE:

Elevations-North
Elevation and
Rendering

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1 SOUTH ELEVATION
SCALE 1/8" = 1'-0"



2 RENDER SOUTH ELEVATION
SCALE 1/8" = 1'-0"

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SHEET TITLE:
Elevations-South Elevation and Rendering

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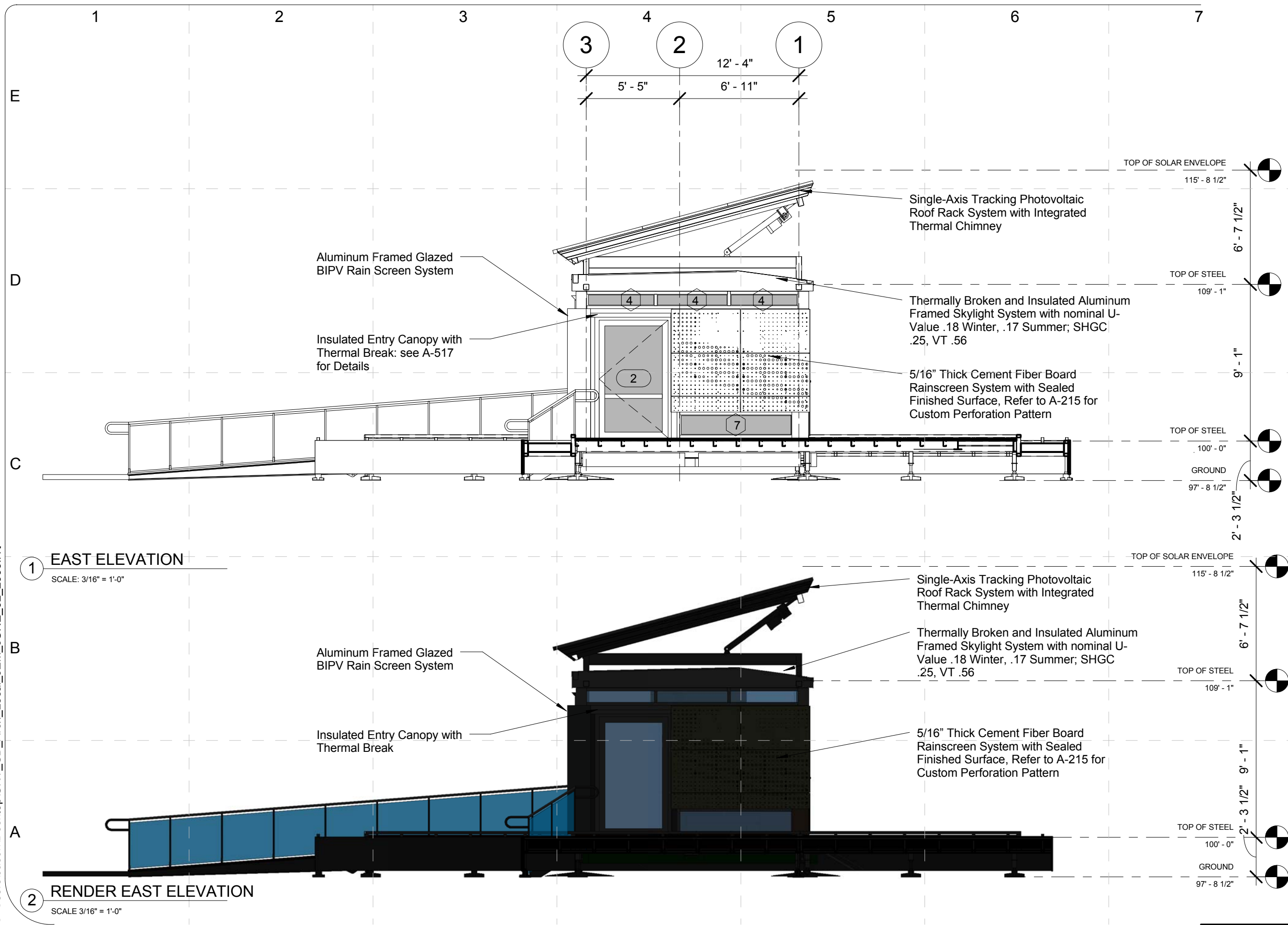
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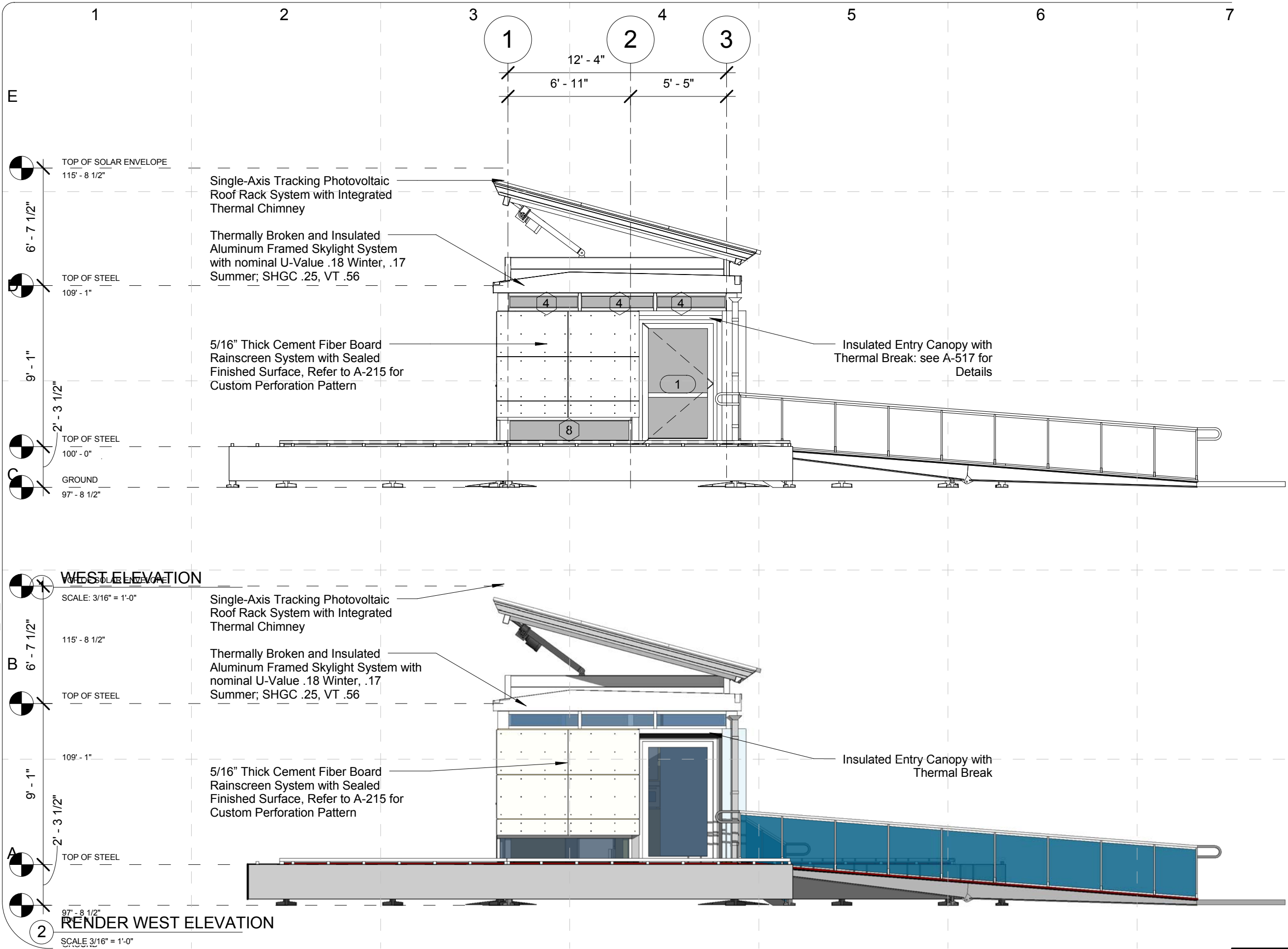
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SHEET TITLE:

Elevations-East
Elevation and
Rendering



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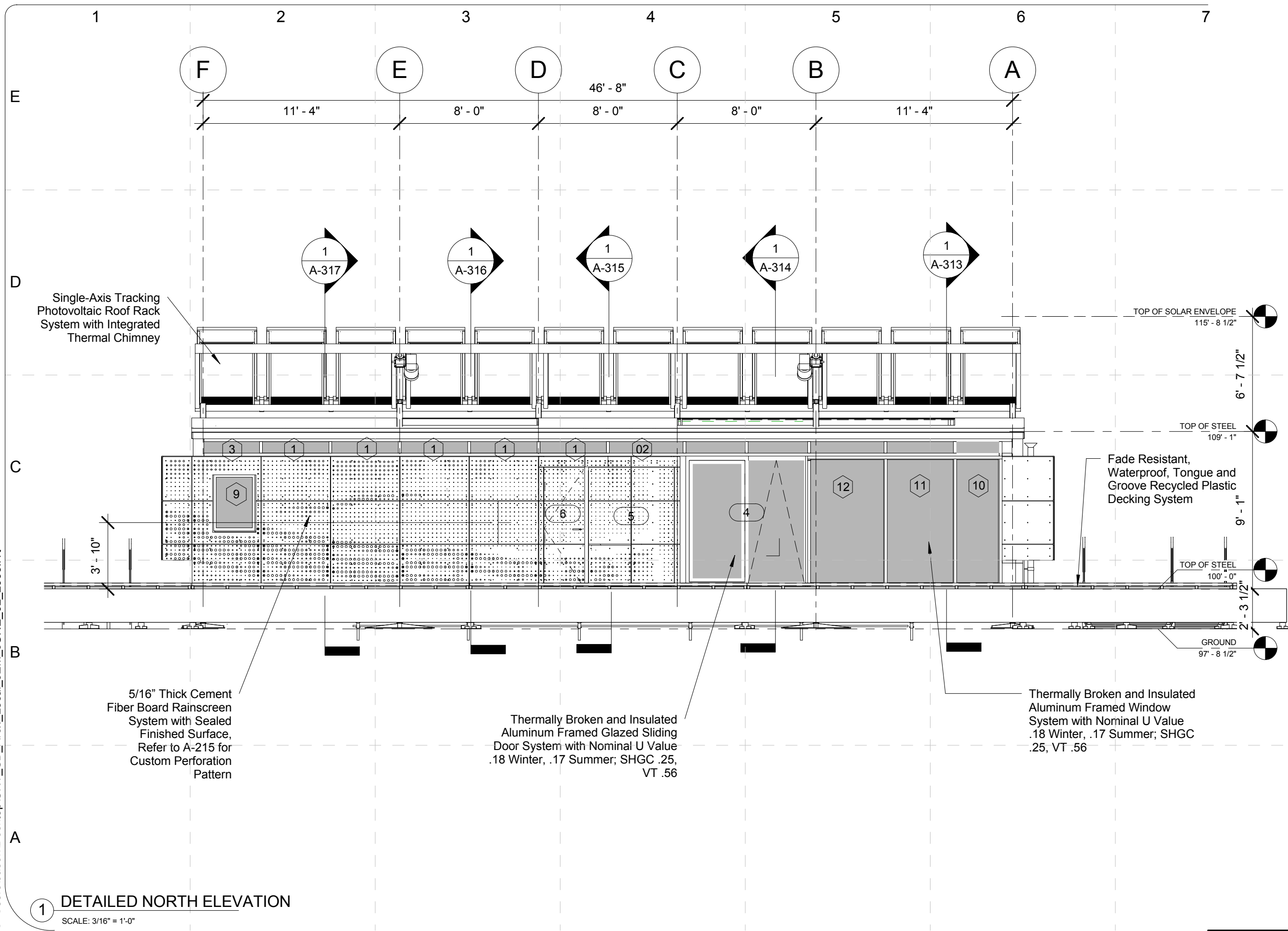
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CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _SD2009
DRAWN BY: Author	APPROVED BY: Approver
DATE CREATED: 02/06/09	DATE RECEIVED: 02/06/09
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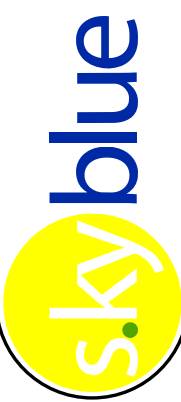

SHEET TITLE:

Elevations-West
Elevation and
Rendering

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1 DETAILED NORTH ELEVATION
SCALE: 3/16" = 1'-0"



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REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02.JUNE.2009
www.uky.edu/solarhouse

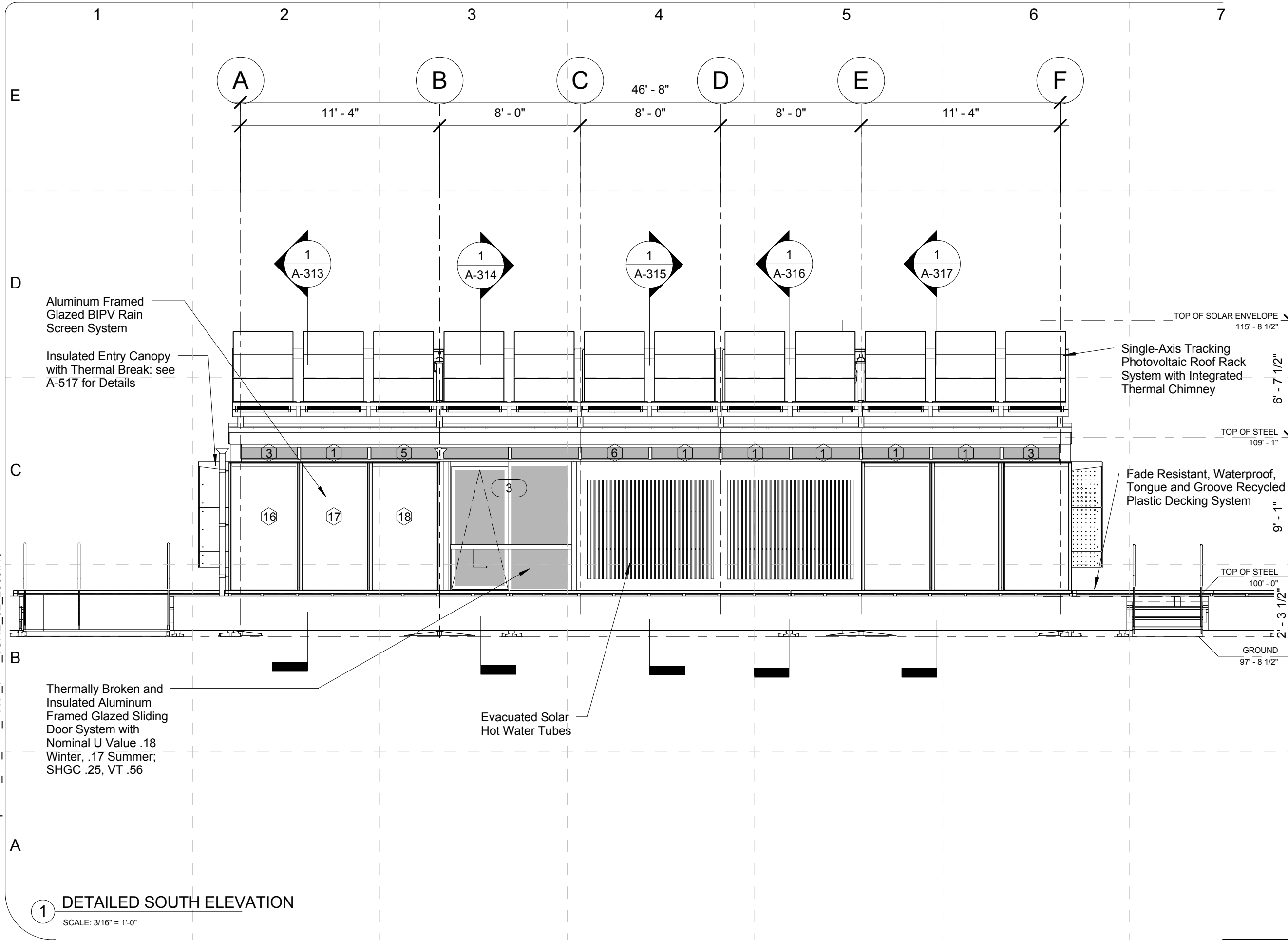
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APPROVED BY: JEM
DATE CREATED: 09/13/08
DATE RECEIVED: 09/13/08
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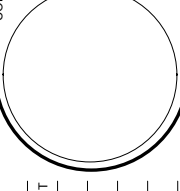
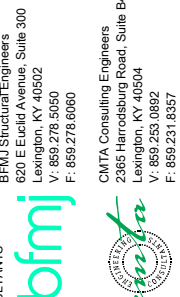
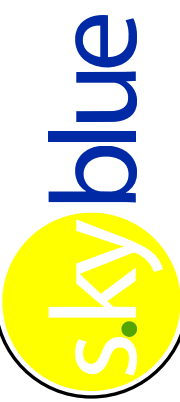

Elevations- North

A-211

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1 DETAILED SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



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CONSTRUCTION DOCUMENTS
02 JUNE 2009
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PROJECT NO: UKY _SD2009
DRAWN BY: JEM
APPROVED BY: GL
DATE CREATED: 09/13/08
DATE RECEIVED: 09/13/08

SHEET TITLE:
Elevations-South

A-212

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PROJECT NO: UKY_SD2009

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DATE CREATED: 12/10/08

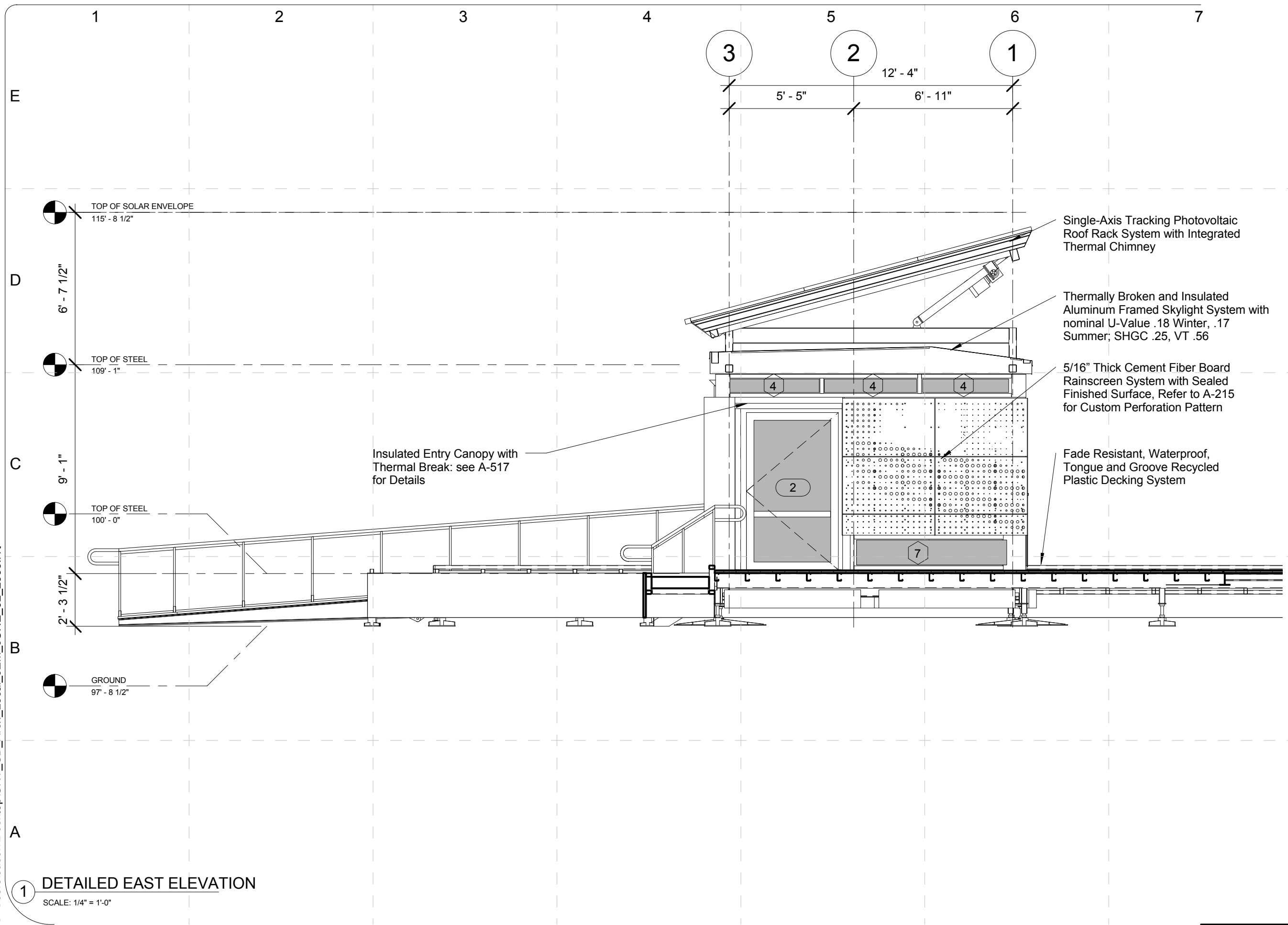
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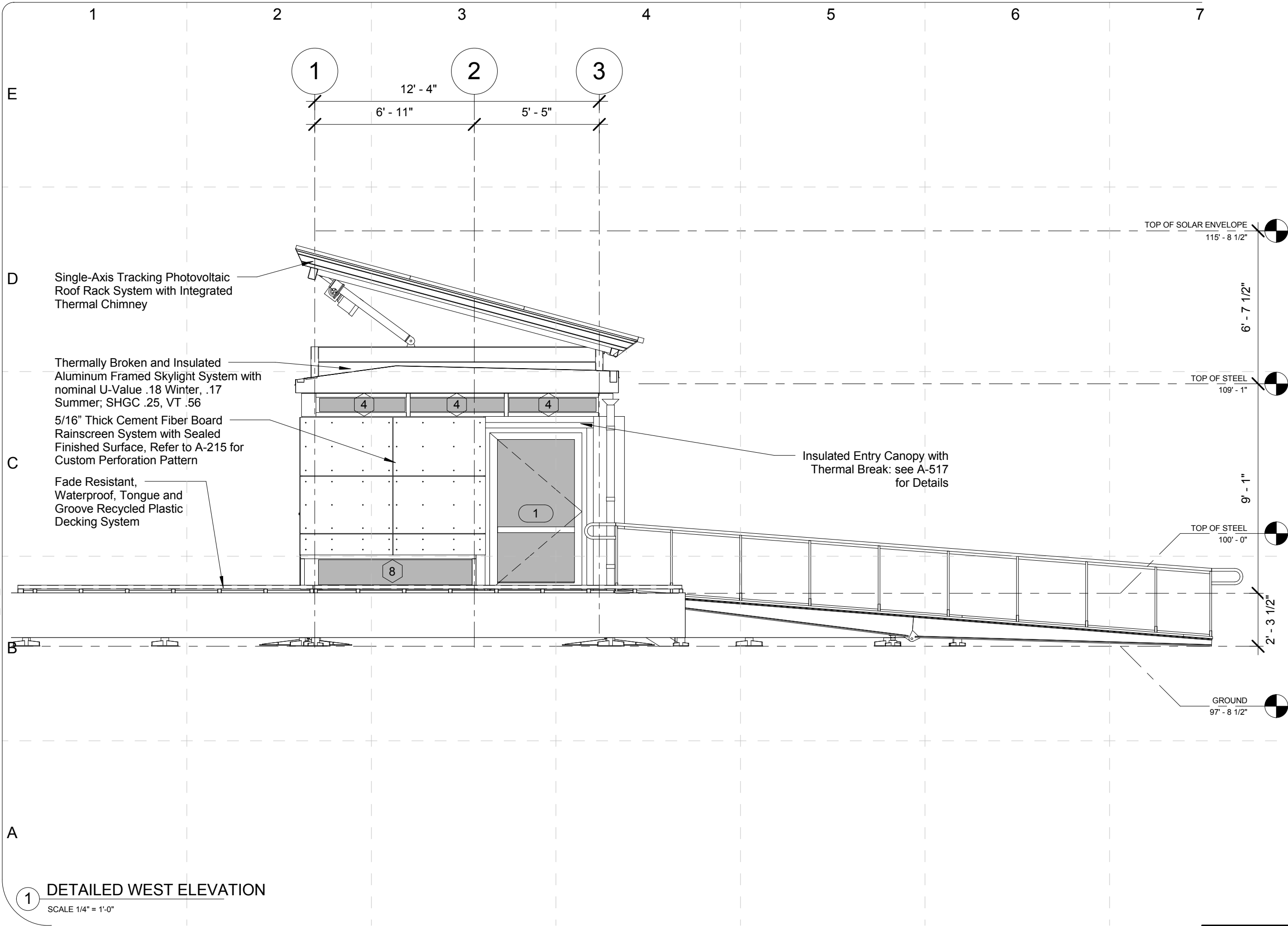
SHEET TITLE:



Elevations-East

A-213



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FINAL	06/02/2009	

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02 JUNE 2009
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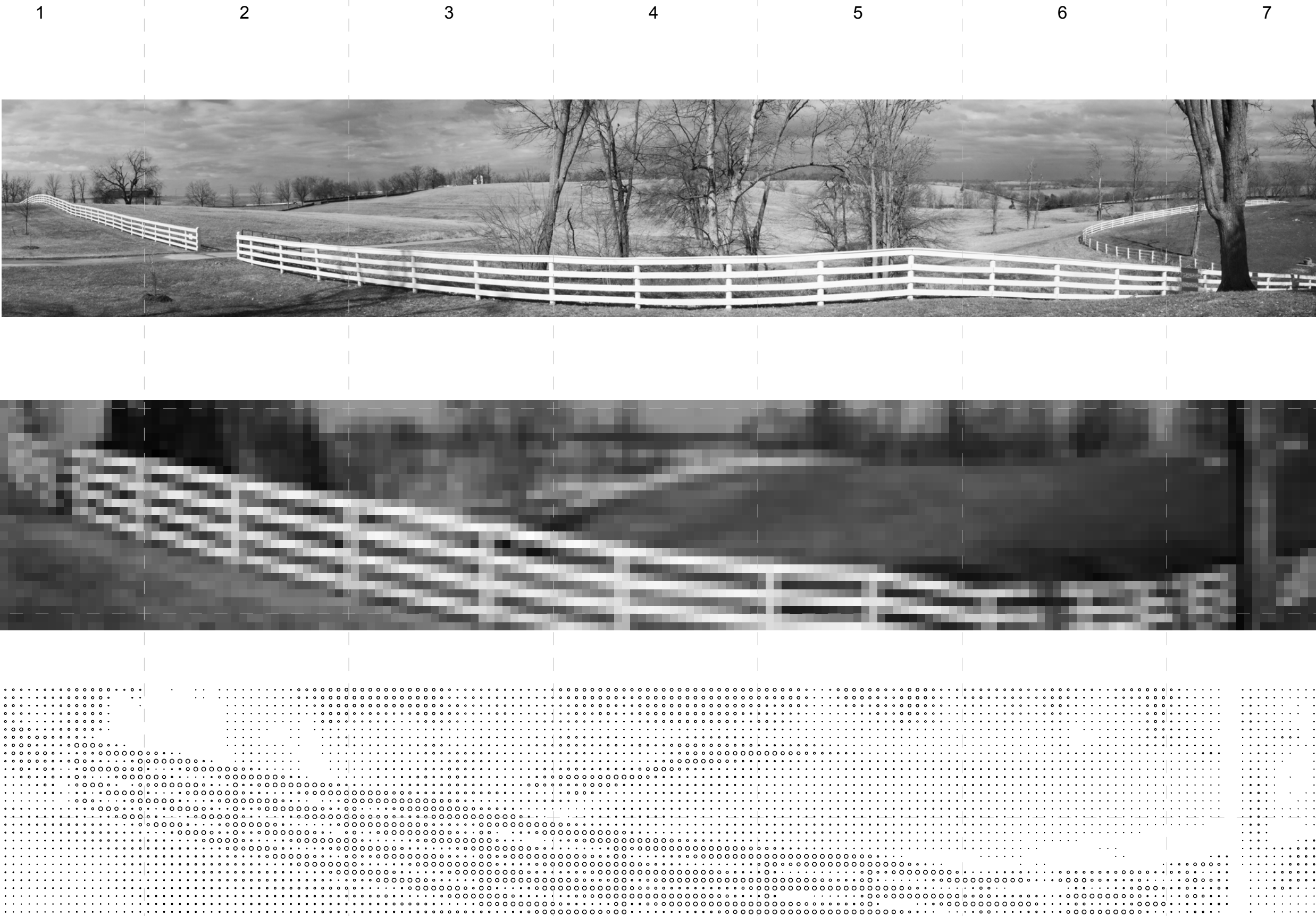
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DATE RECEIVED: 12/10/08
COMMENTS:

SHEET TITLE:

Elevations-West

A-214

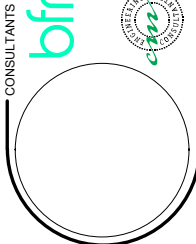
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1 Perforation Pictures and Pattern Progression
SCALE: NTS

2009 SOLAR DECATHLON	
CONSTRUCTION DOCUMENTS	
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PROJECT NO: UKY_SD2009	JEM
DRAWN BY: JEM	Approver
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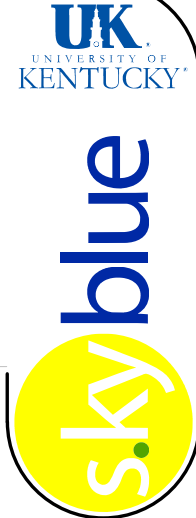
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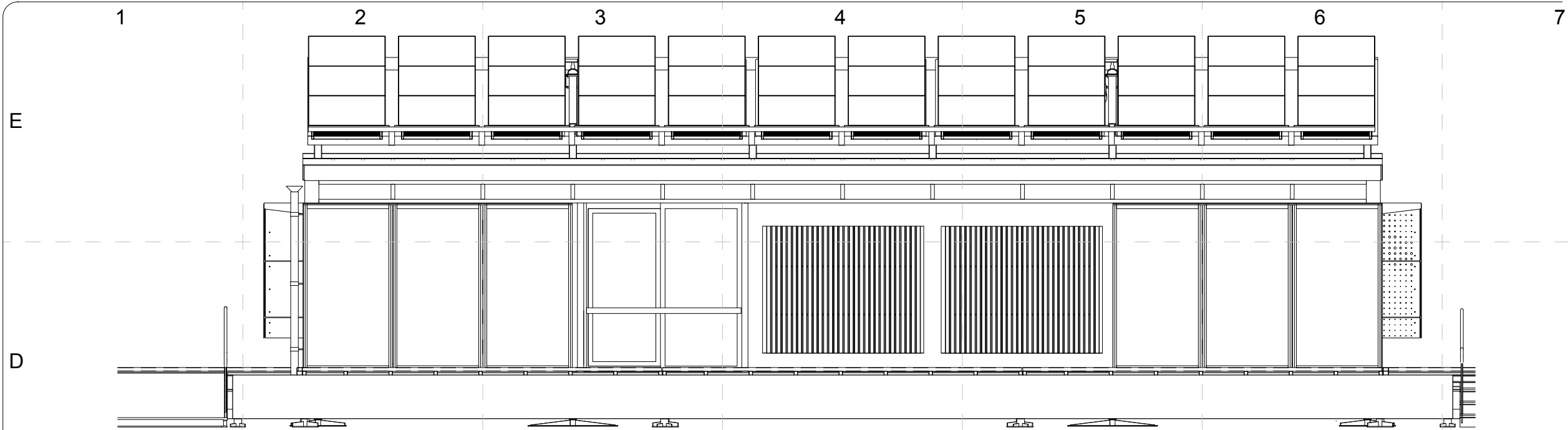
cmta
CMTA Consulting Engineers
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F: 859.231.8357



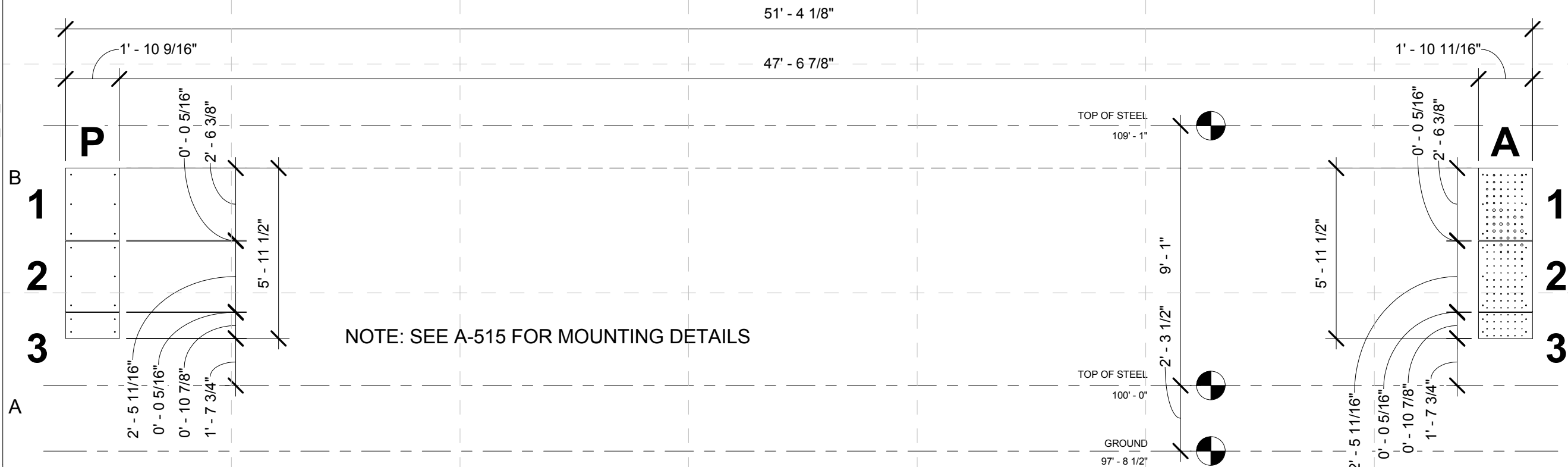
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Elevations-Image
and Perforation
Details

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1 SOUTH ELEVATION PANEL ATTACHMENT
3/16" = 1'-0"



2 SOUTH ELEVATION PERFORATED CEMENT FIBERBOARD PANELS
1/4" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN/DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
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FINAL	06/02/2009	

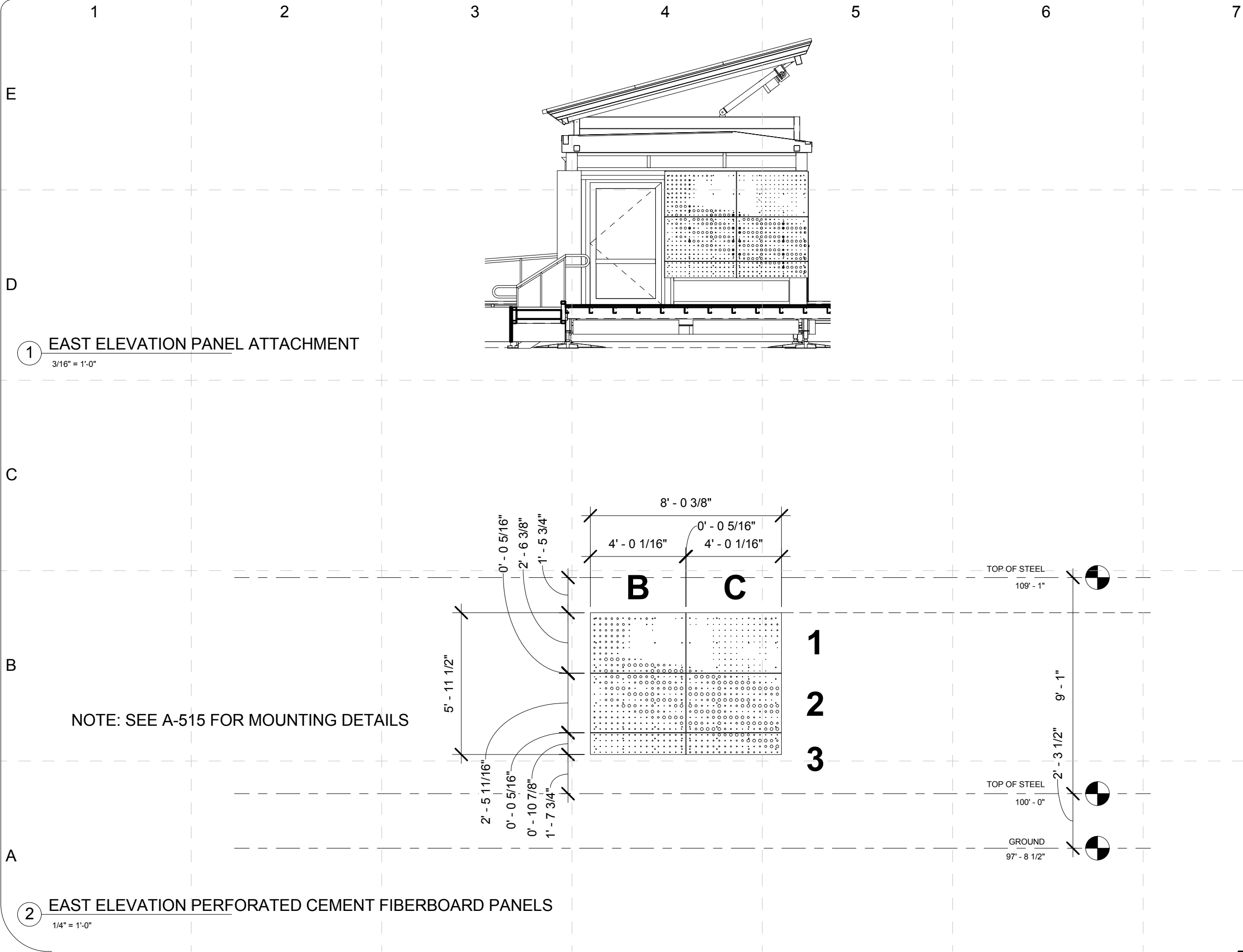
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DRAWN BY: Author	APPROVED BY: Approver
DATE CREATED: 05/26/09	DATE RECEIVED: 05/26/09
COMMENTS	

SHEET TITLE:

Elevations-South
Elevation and
Perforation Detail

A-216

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DRAWN BY:

APPROVED BY:

DATE CREATED: 01/18/09

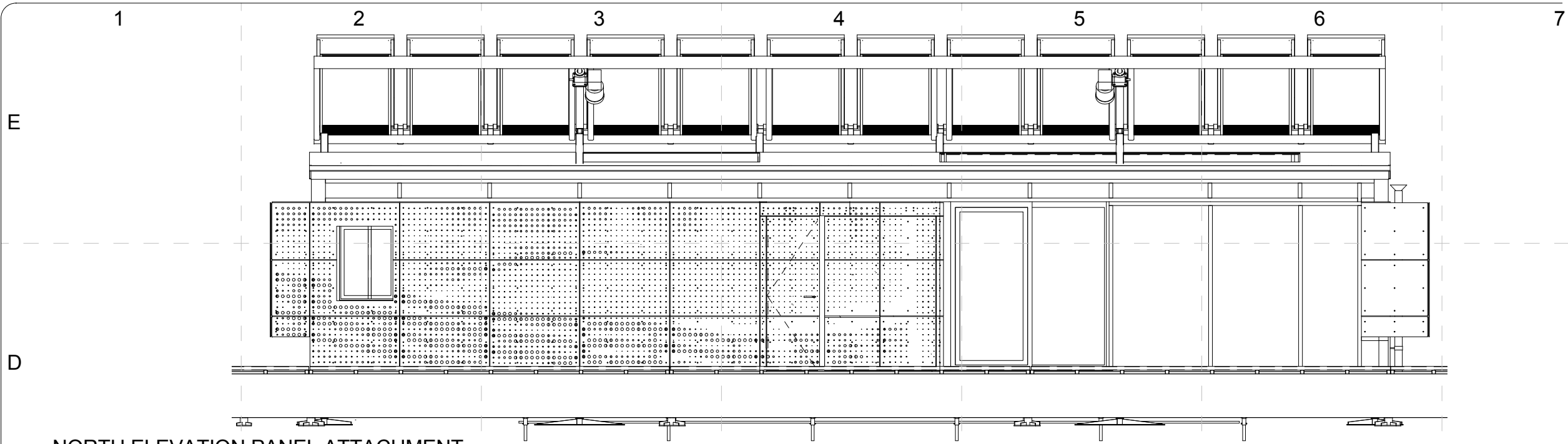
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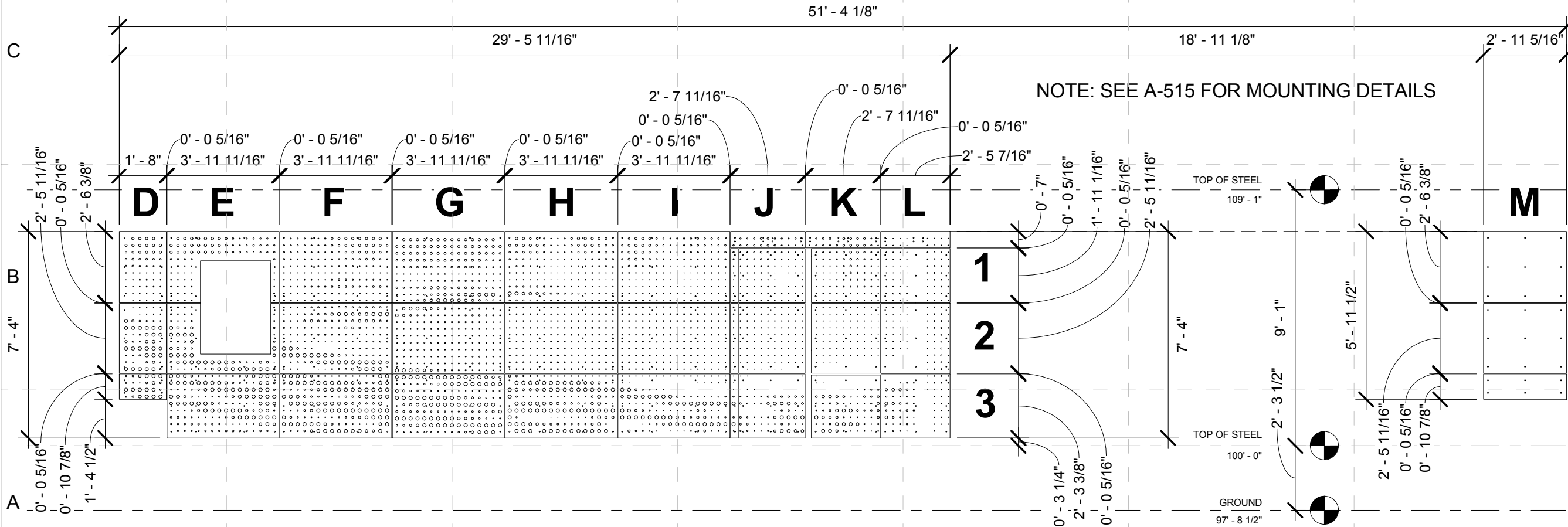
Elevations-East
Elevation and
Perforation Detail

A-217

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1 NORTH ELEVATION PANEL ATTACHMENT
3/16" = 1'-0"



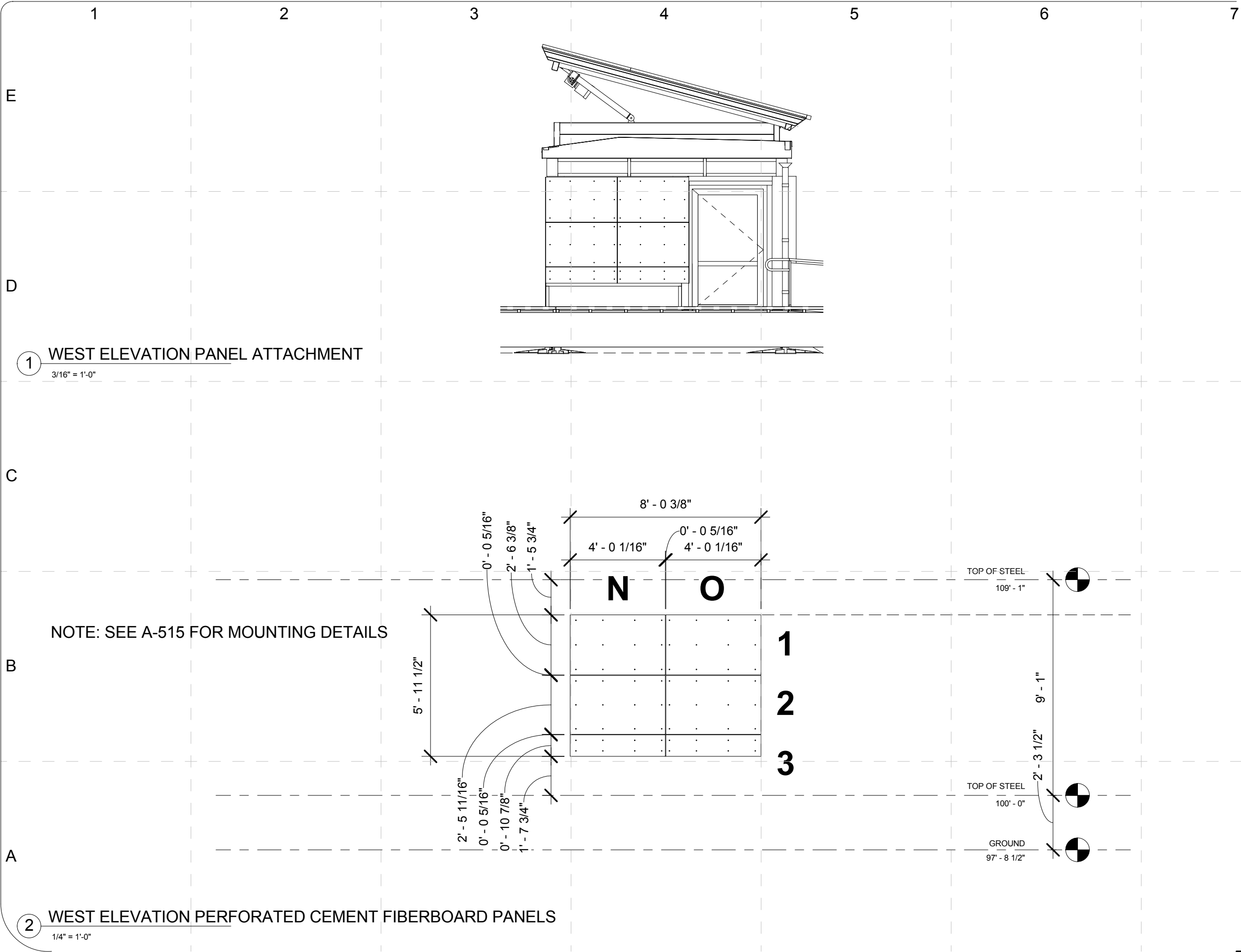
2 NORTH ELEVATION PERFORATED CEMENT FIBERBOARD PANELS
1/4" = 1'-0"

MARK	DATE	DESCRIPTION
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CD	02/16/2009	CONST. DOCUMENTS
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FINAL	06/02/2009	

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SHEET TITLE:
Elevations-North Elevation and Perforation Detail

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cmta

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FINAL	06/02/2009	

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DRAWN BY: Author
APPROVED BY: Approver
DATE CREATED: 05/26/09
DATE RECEIVED: 05/26/09

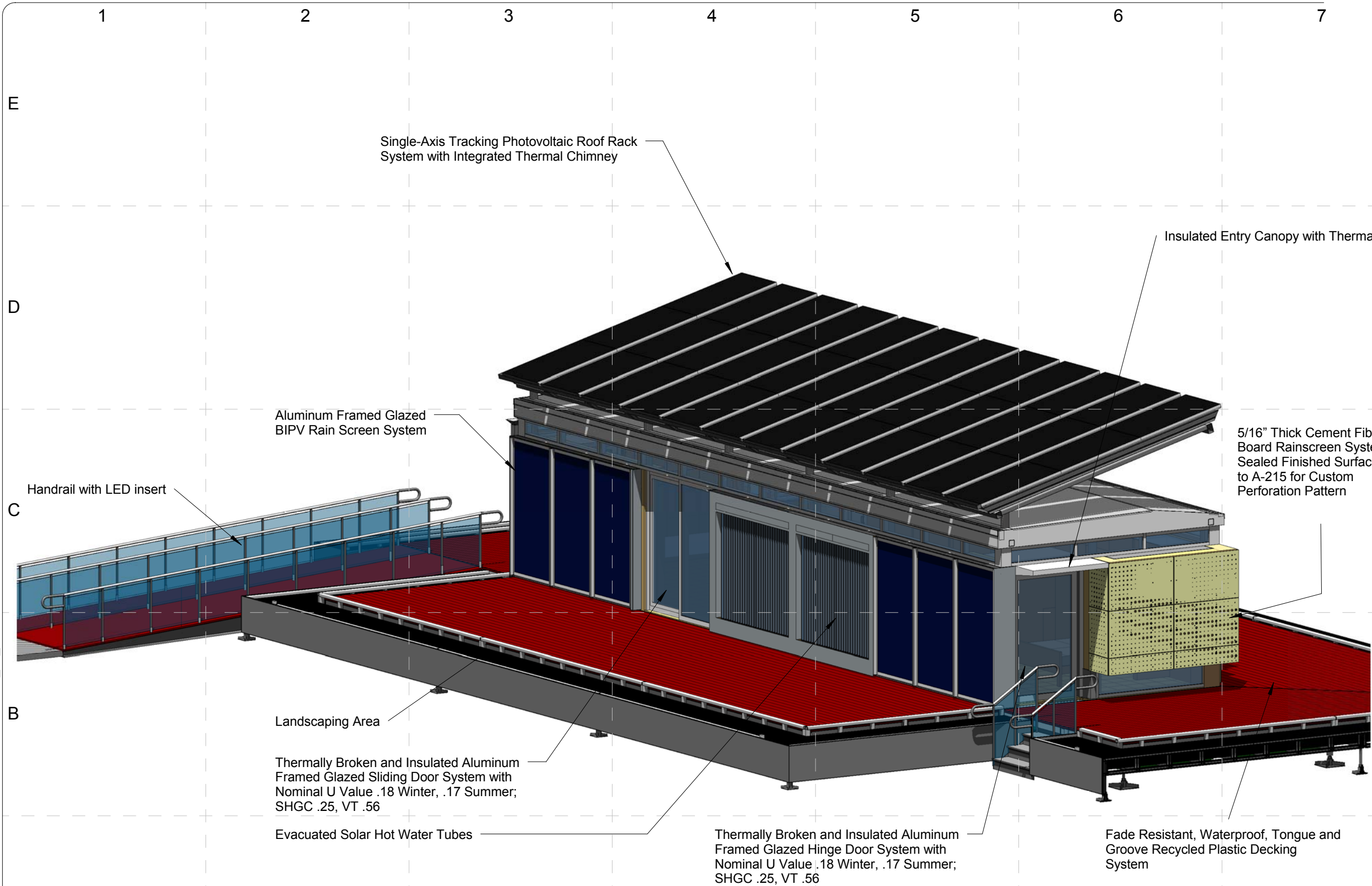
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SHEET TITLE:

Elevations-West
Elevation and
Perforation Detail

A-219

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FINAL	06/02/2009	

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DATE CREATED	02/04/09
DATE RECEIVED	02/04/09

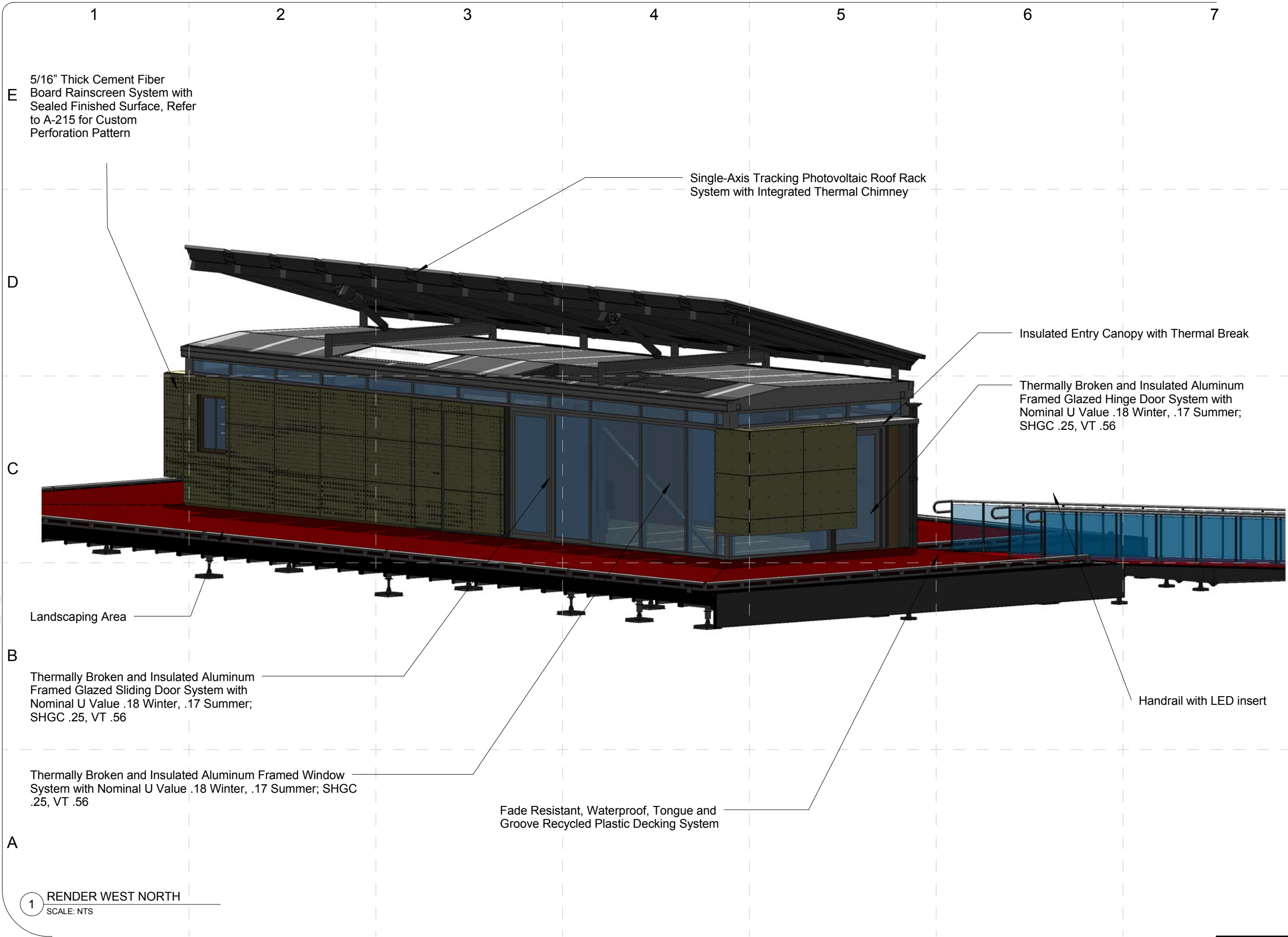
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SHEET TITLE:

Elevations-Rendered
Axonometric and
Perspectives

A-220

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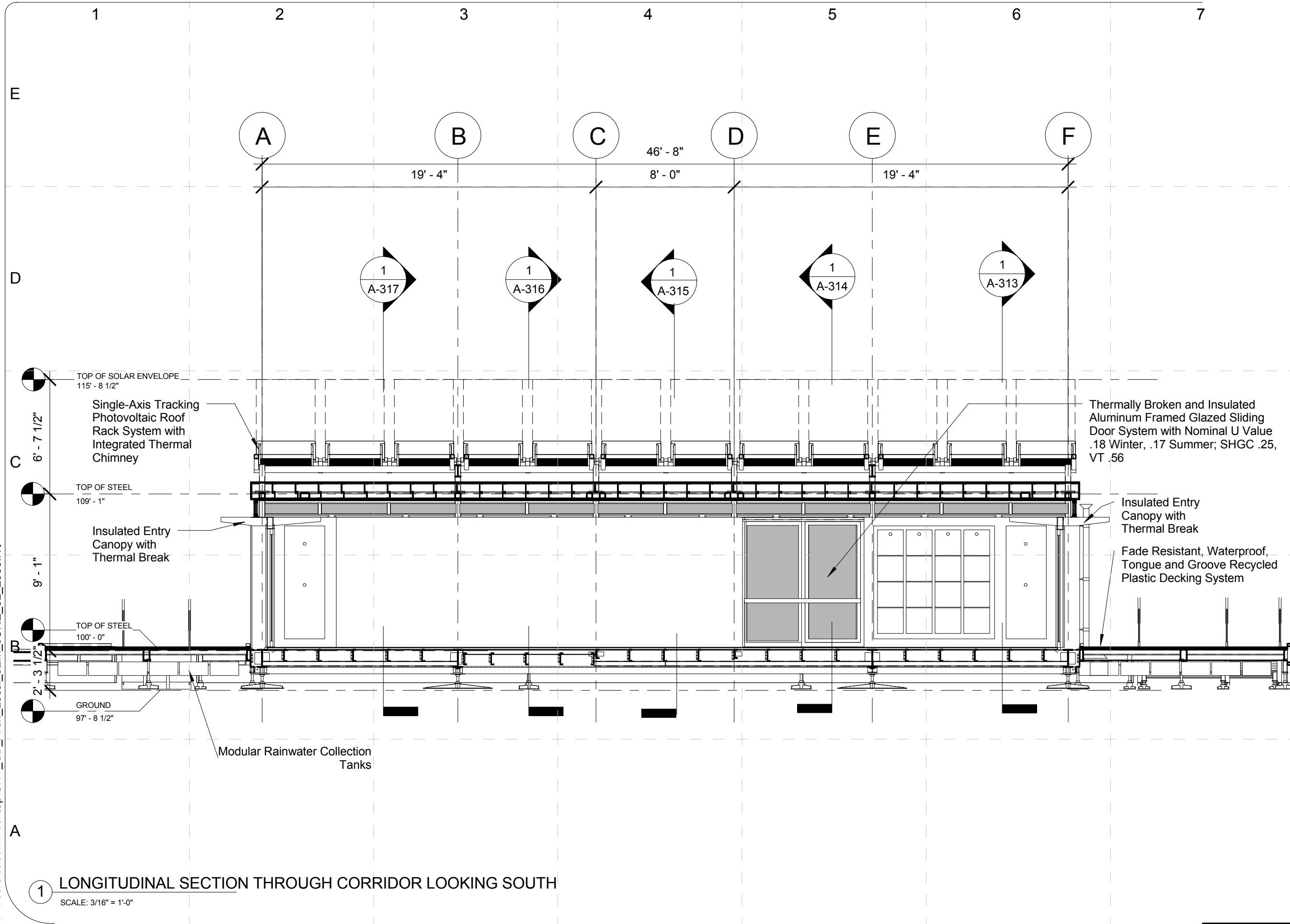
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SHEET TITLE:

Elevations-Rendered
Axonometric and
Perspectives

A-221

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02 JUNE 2009
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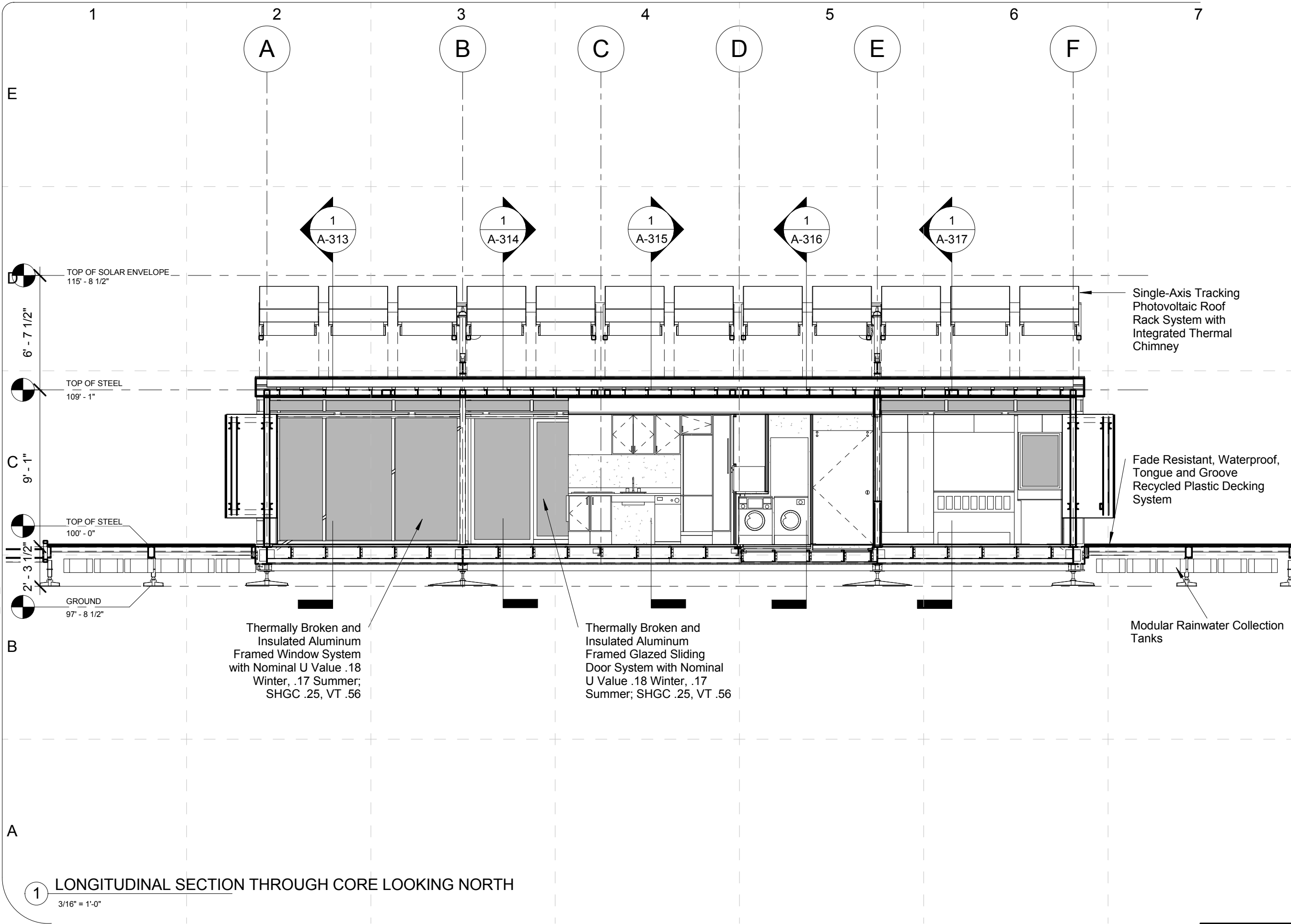
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DATE CREATED: 09/14/08
DATE RECEIVED: 09/14/08
COMMENTS:

SHEET TITLE:

Sections-Longitudinal Building Section

A-311

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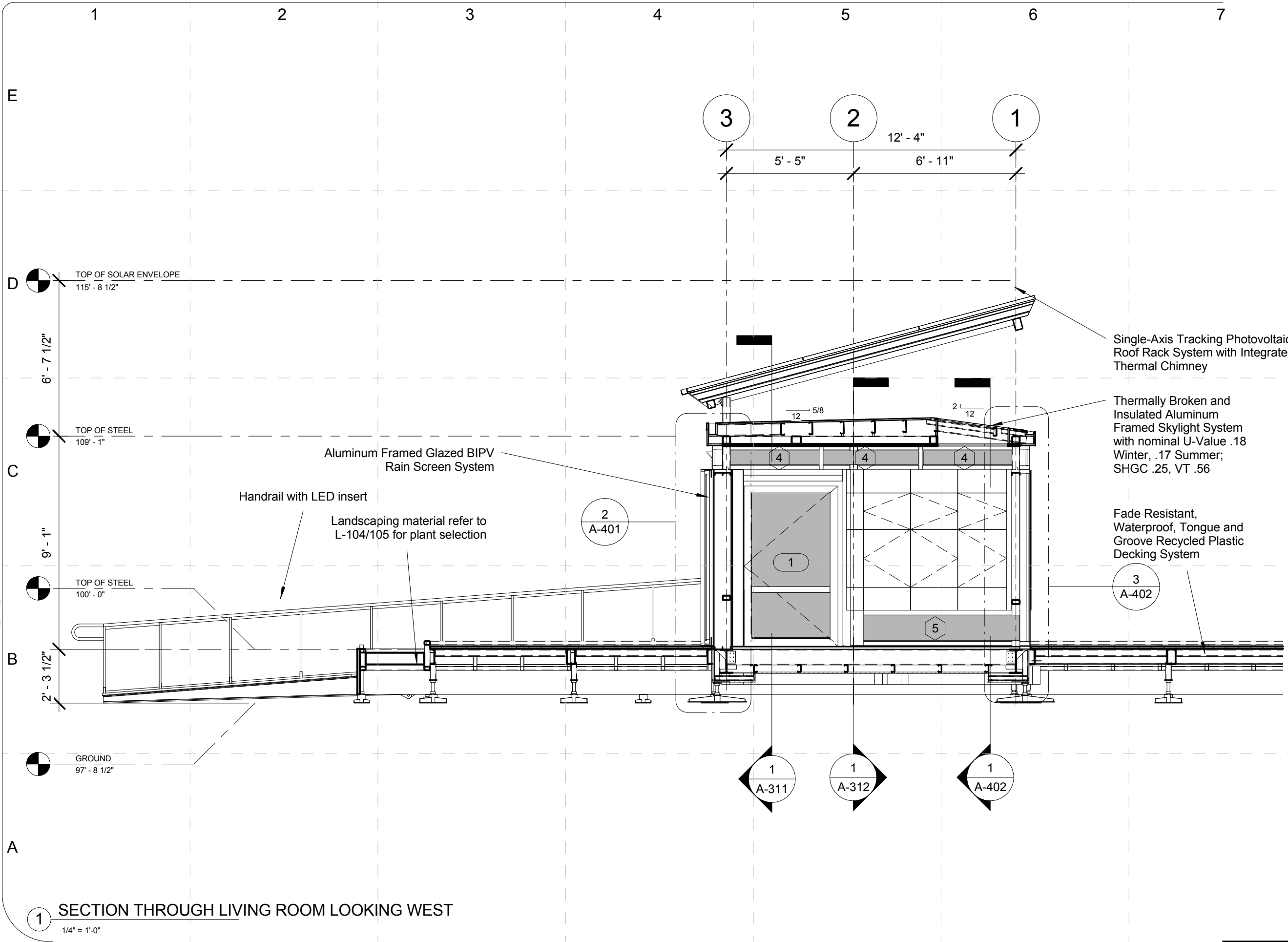
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PROJECT NO: UKY _SD2009
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APPROVED BY: GL
DATE CREATED: 09/14/08
DATE RECEIVED: 09/14/08
COMMENTS:

SHEET TITLE:

Sections-Longitudinal
Building Section

A-312

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1 SECTION THROUGH LIVING ROOM LOOKING WEST
1/4" = 1'-0"

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SHEET TITLE:

Sections-Building
Cross-Section-Living
Room

A-313

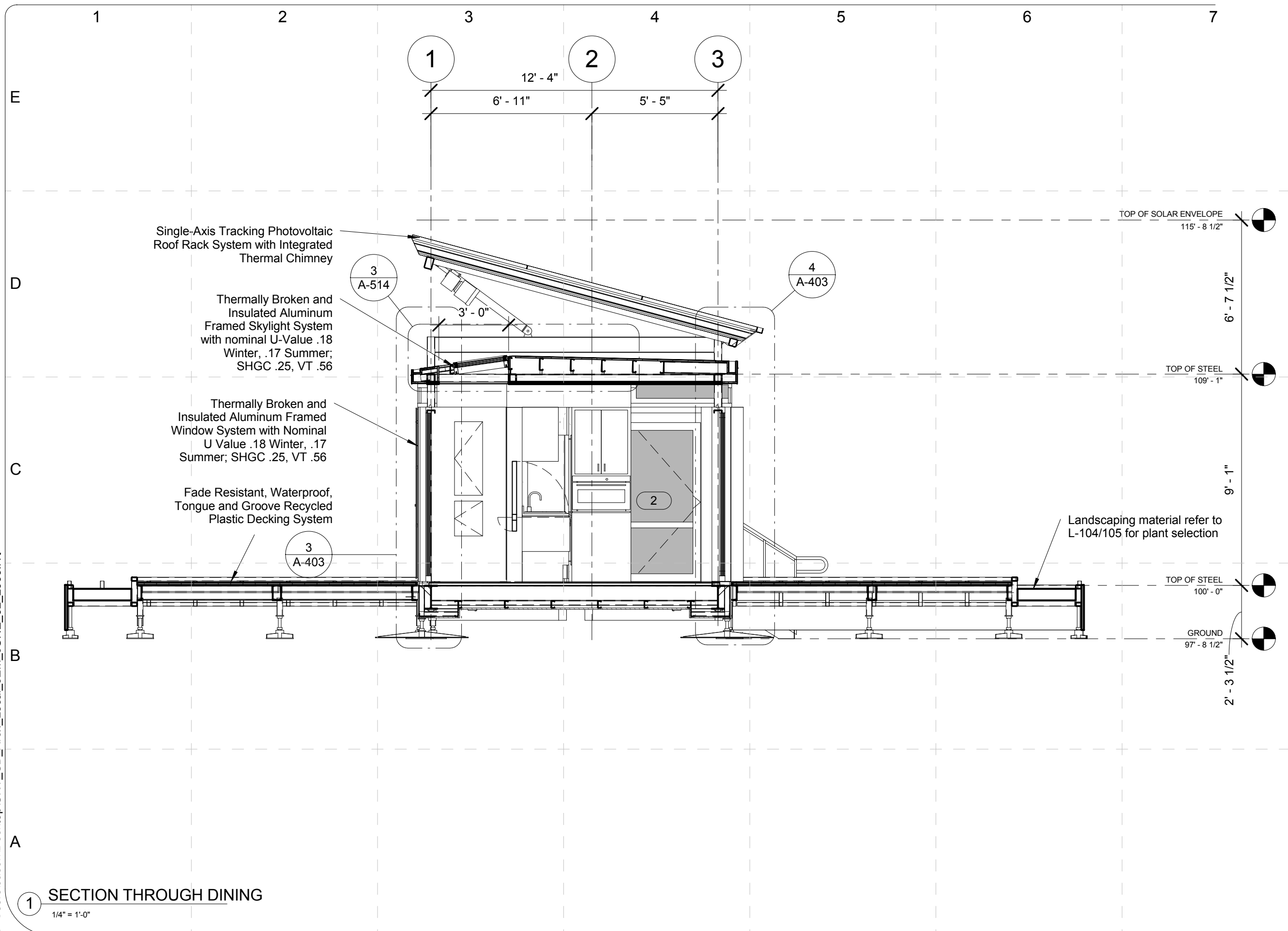
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DATE CREATED 01/18/09
DATE RECEIVED 01/18/09
COMMENTS _____

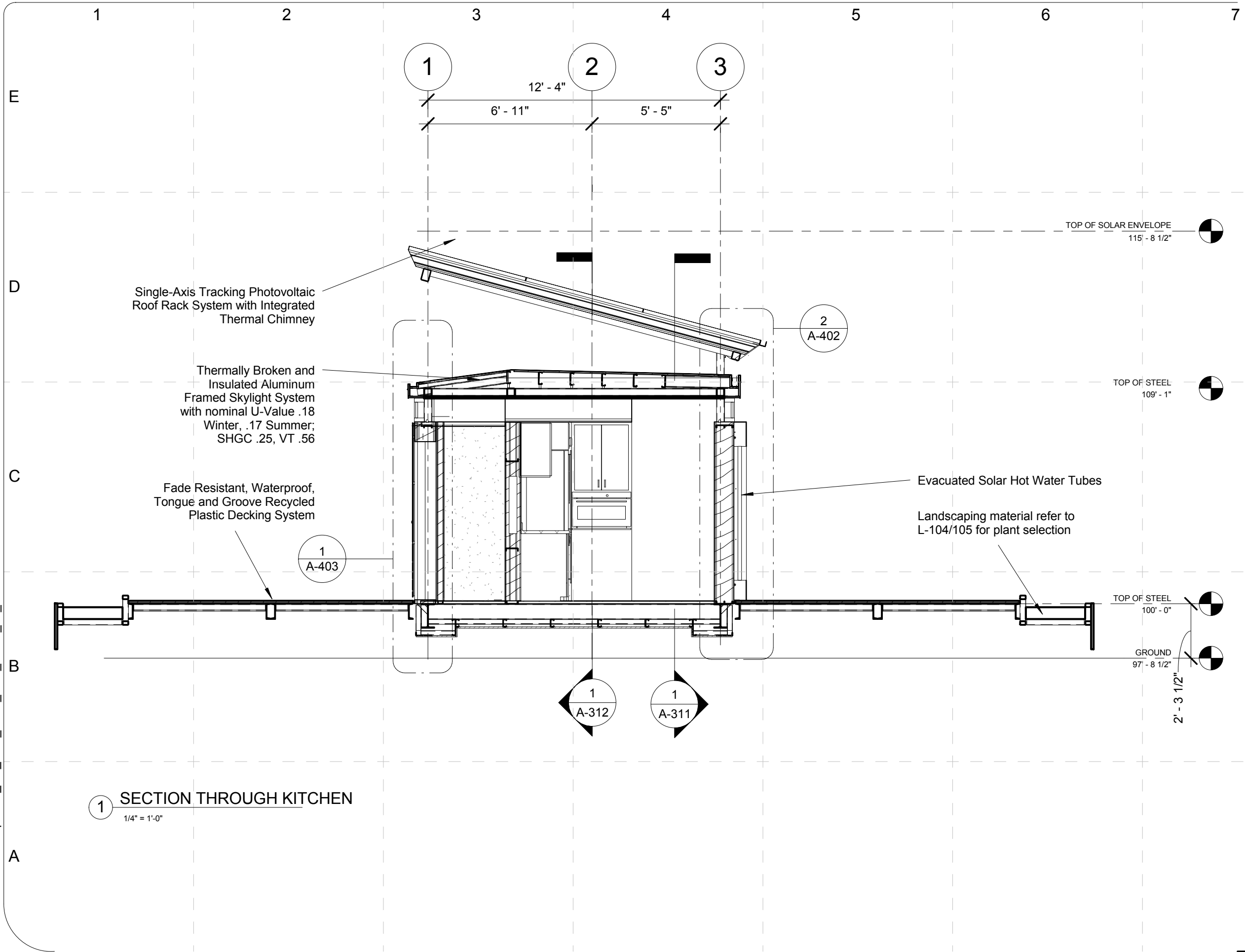
SHEET TITLE:

Sections-Building
Cross-Section-Dining
Room

A-314



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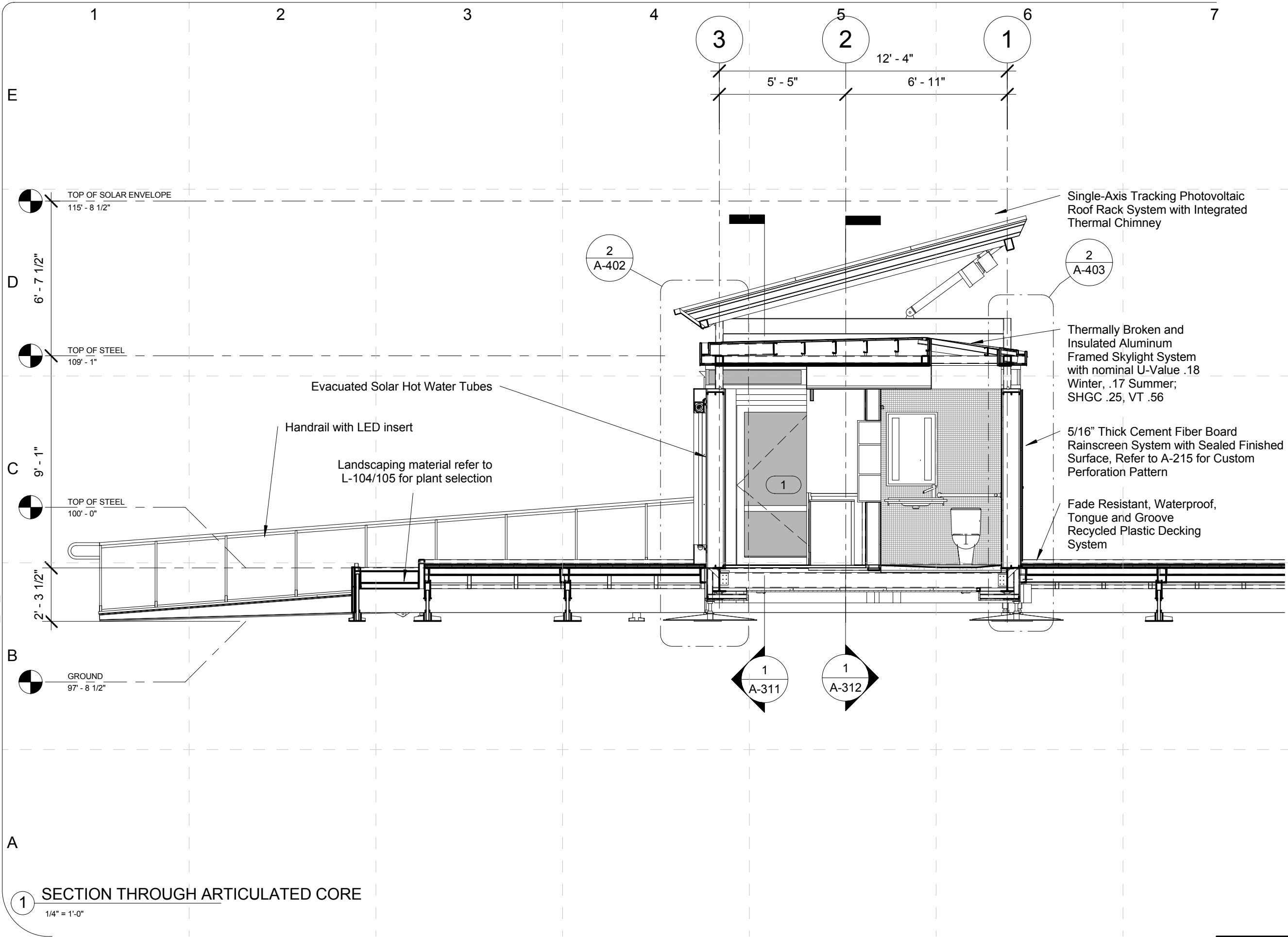
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SHEET TITLE:

Sections-Building
Cross-Section-Kitchen

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APPROVED BY: GL
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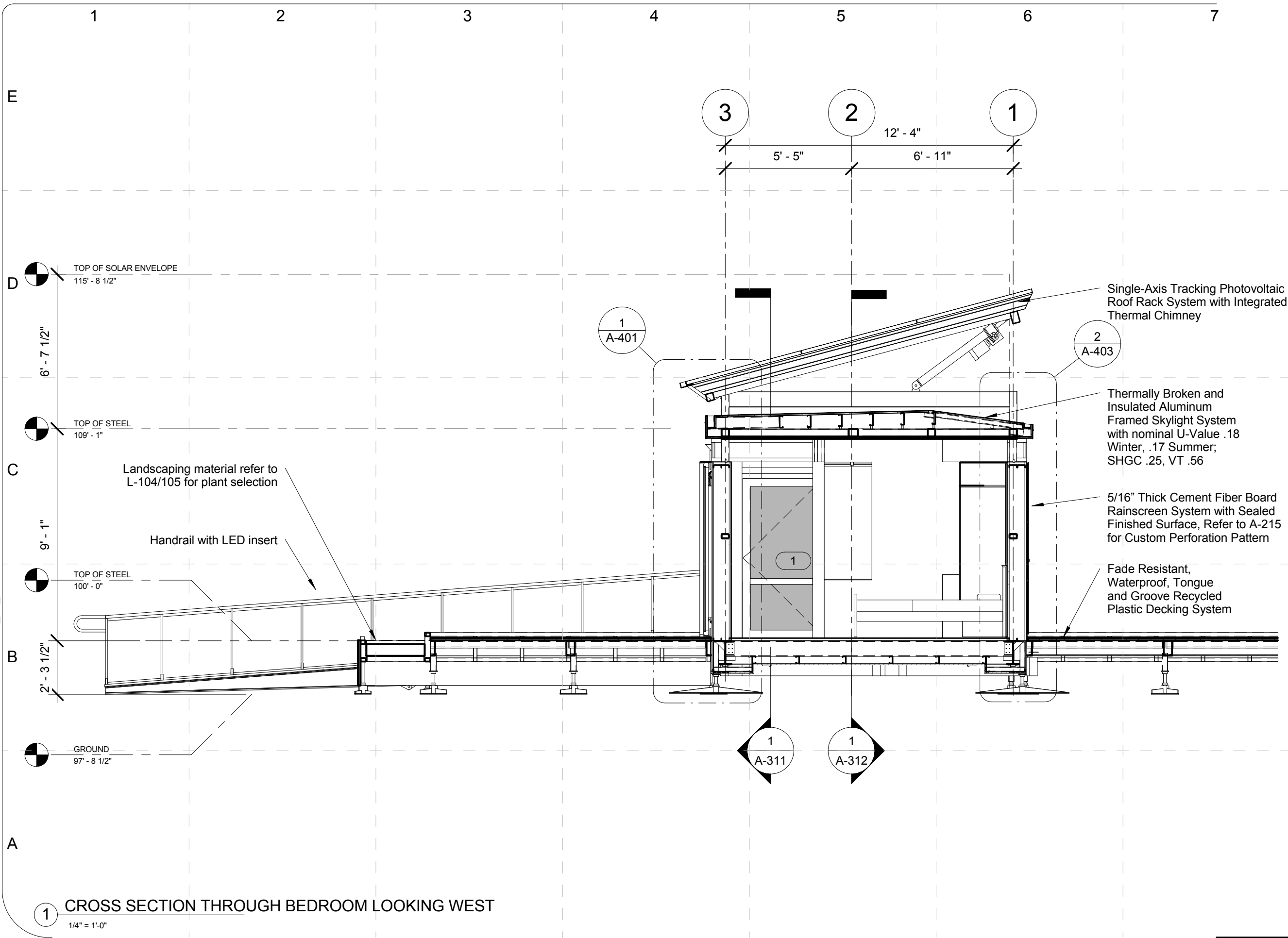
COMMENTS

SHEET TITLE:

Sections-Building
Cross-Section-Core
at Washer and
Dryer

A-316

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1 CROSS SECTION THROUGH BEDROOM LOOKING WEST
1/4" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

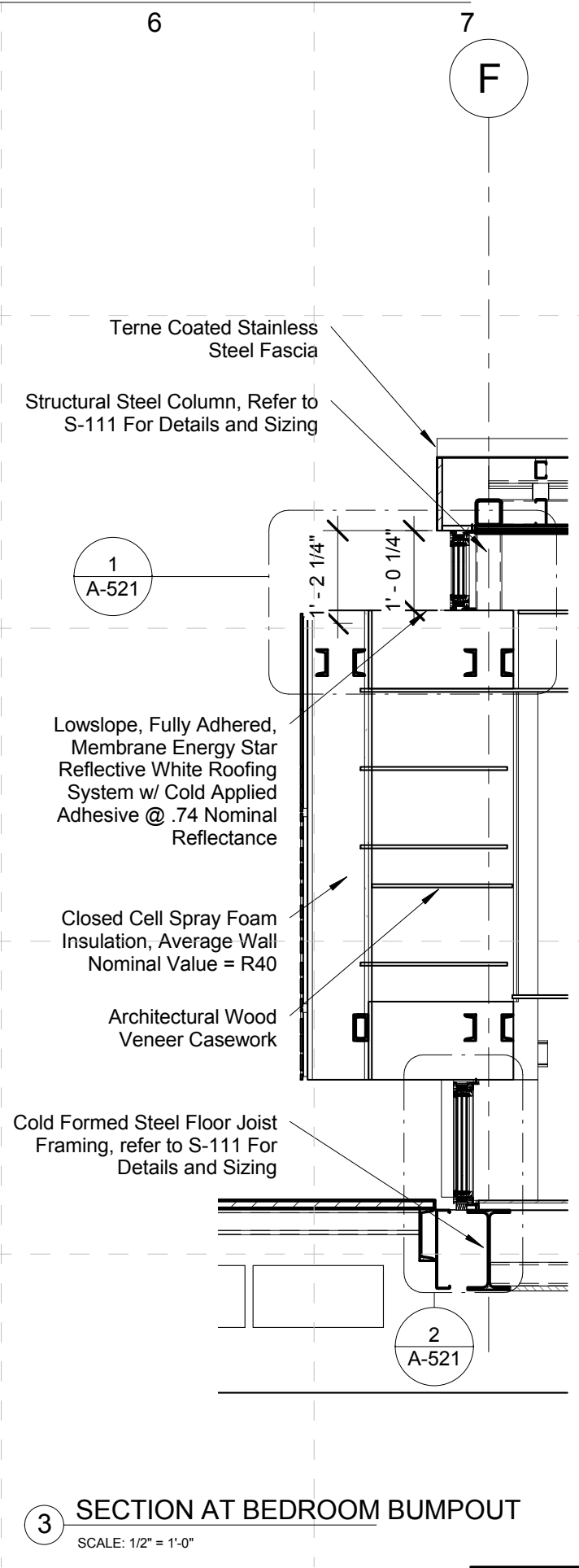
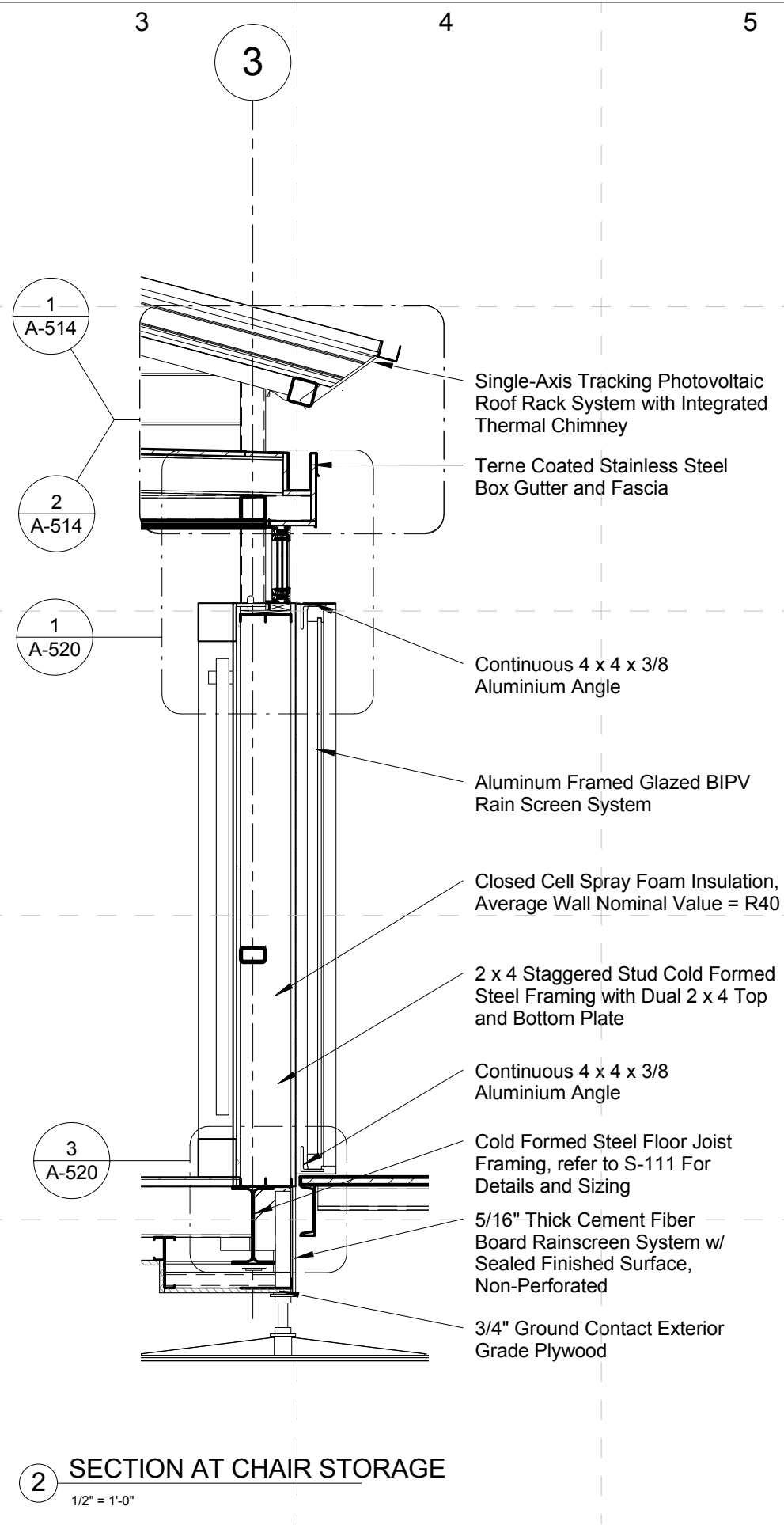
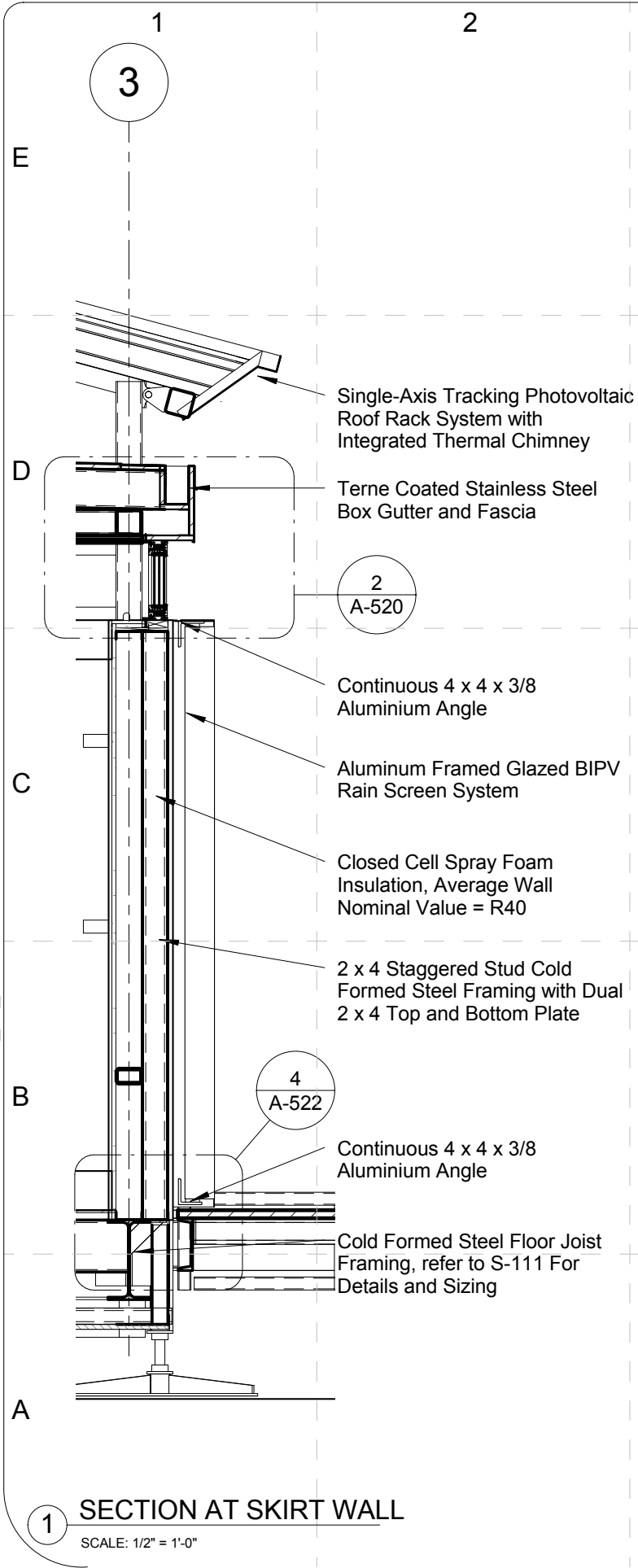
2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _SD2009 DRAWN BY: JEM APPROVED BY: GL DATE CREATED: 09/14/08 DATE RECEIVED: 09/14/08
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SHEET TITLE:

Sections-Building
Cross-Section-Bedroom

A-317

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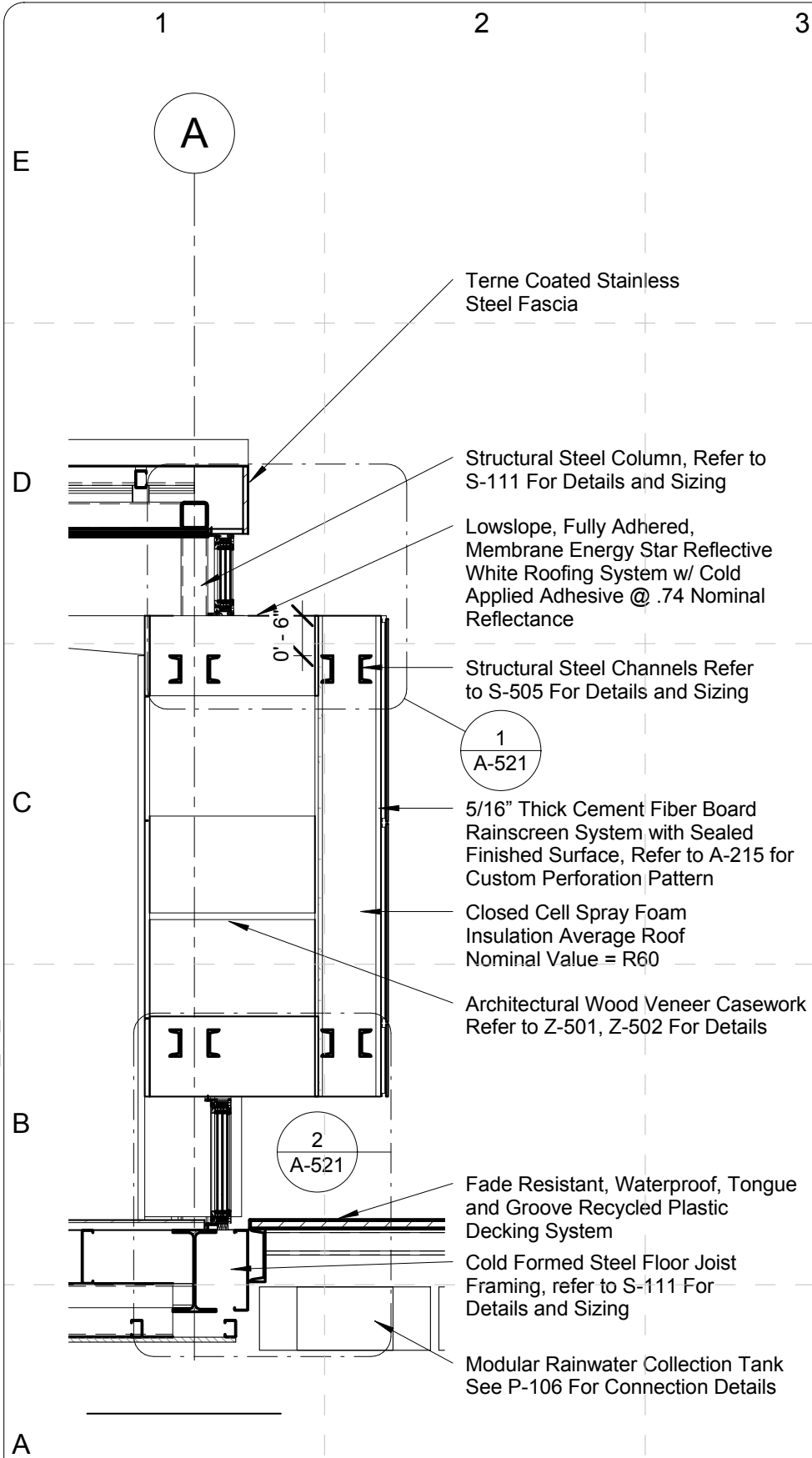
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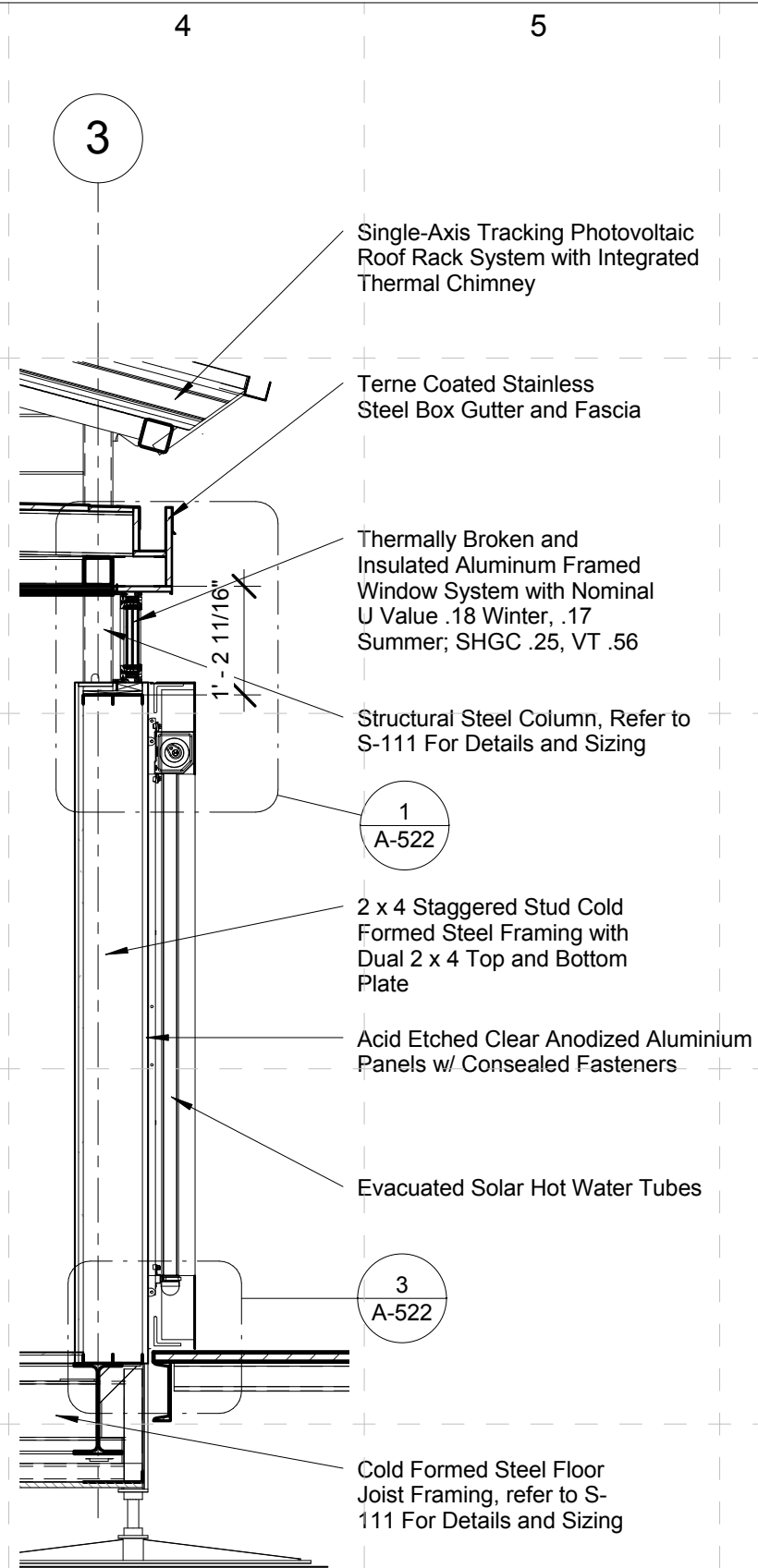
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Sections-Wall
Section

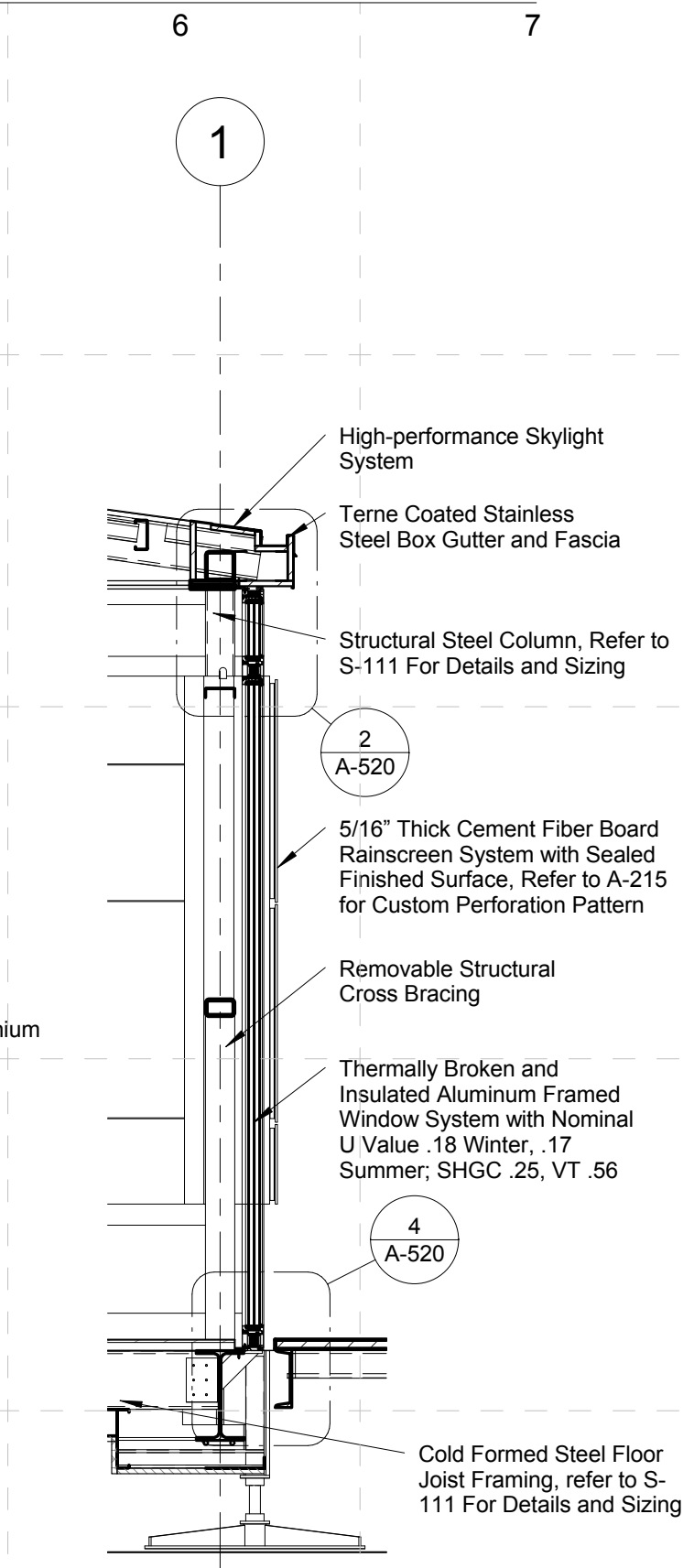
C:\Users\Jason\Desktop\UKY_SD_Arch_Local_JEM_JUNE_02_2009.rvt



1 SECTION- ENTERTAINMENT CENTER BUMPOUT
SCALE: 1/2" = 1'-0"



2 SECTION THROUGH EVACUATED TUBES
SCALE: 1/2" = 1'-0"



3 SECTION THROUGH LIVING ROOM WINDOW
SCALE: 1/2" = 1'-0"

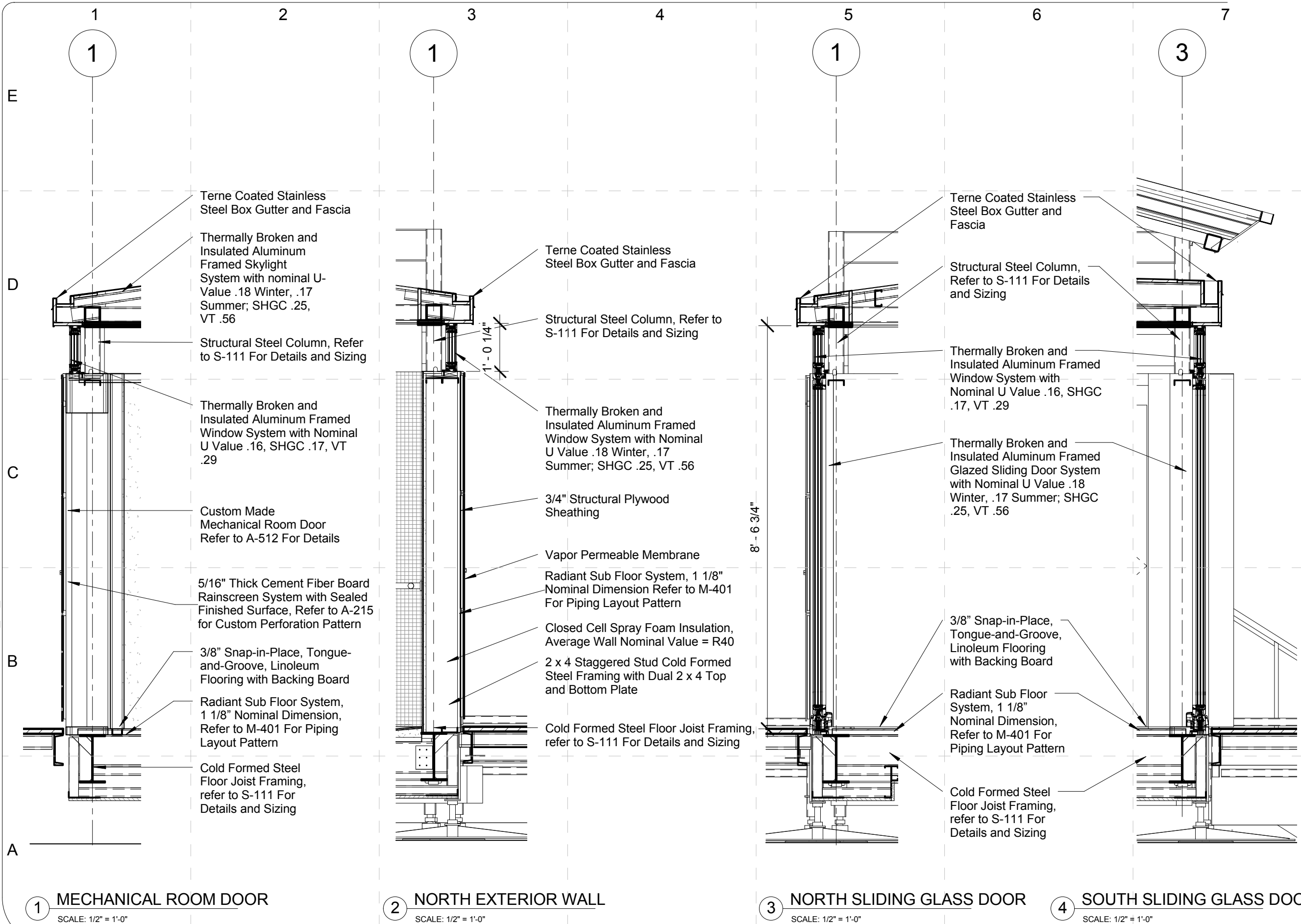
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REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _SD2009 DRAWN BY: ROL/MRG APPROVED BY: DATE CREATED: 09/13/08 DATE RECEIVED: 09/13/08	COMMENTS
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SHEET TITLE:

Sections-Wall
Section

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DRAWN BY: JEM
APPROVED BY: JEM
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SHEET TITLE:
Sections-Wall
Sections

A-403

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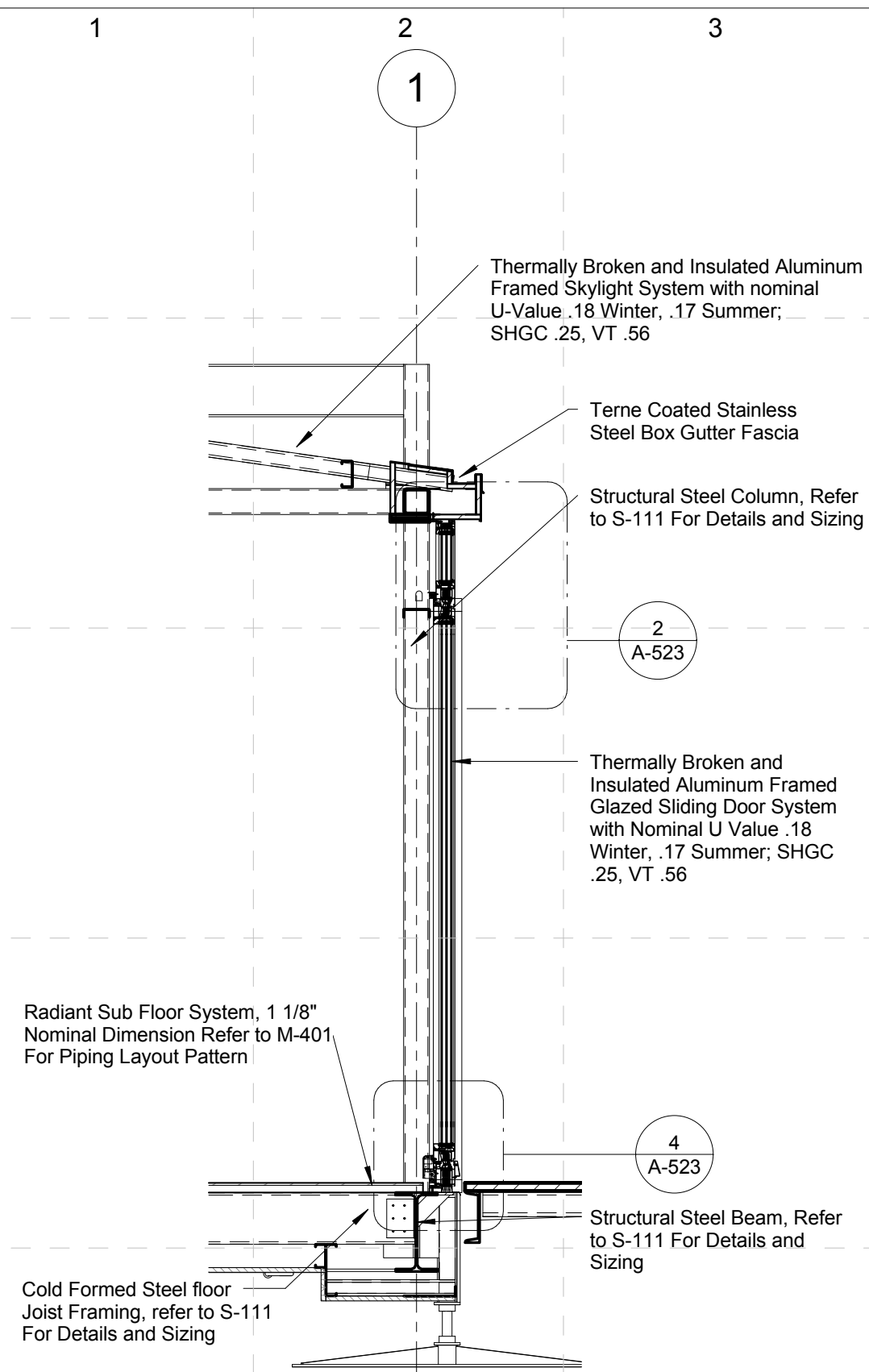
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APPROVED BY		
DATE CREATED	02/20/09	
DATE RECEIVED	02/20/09	
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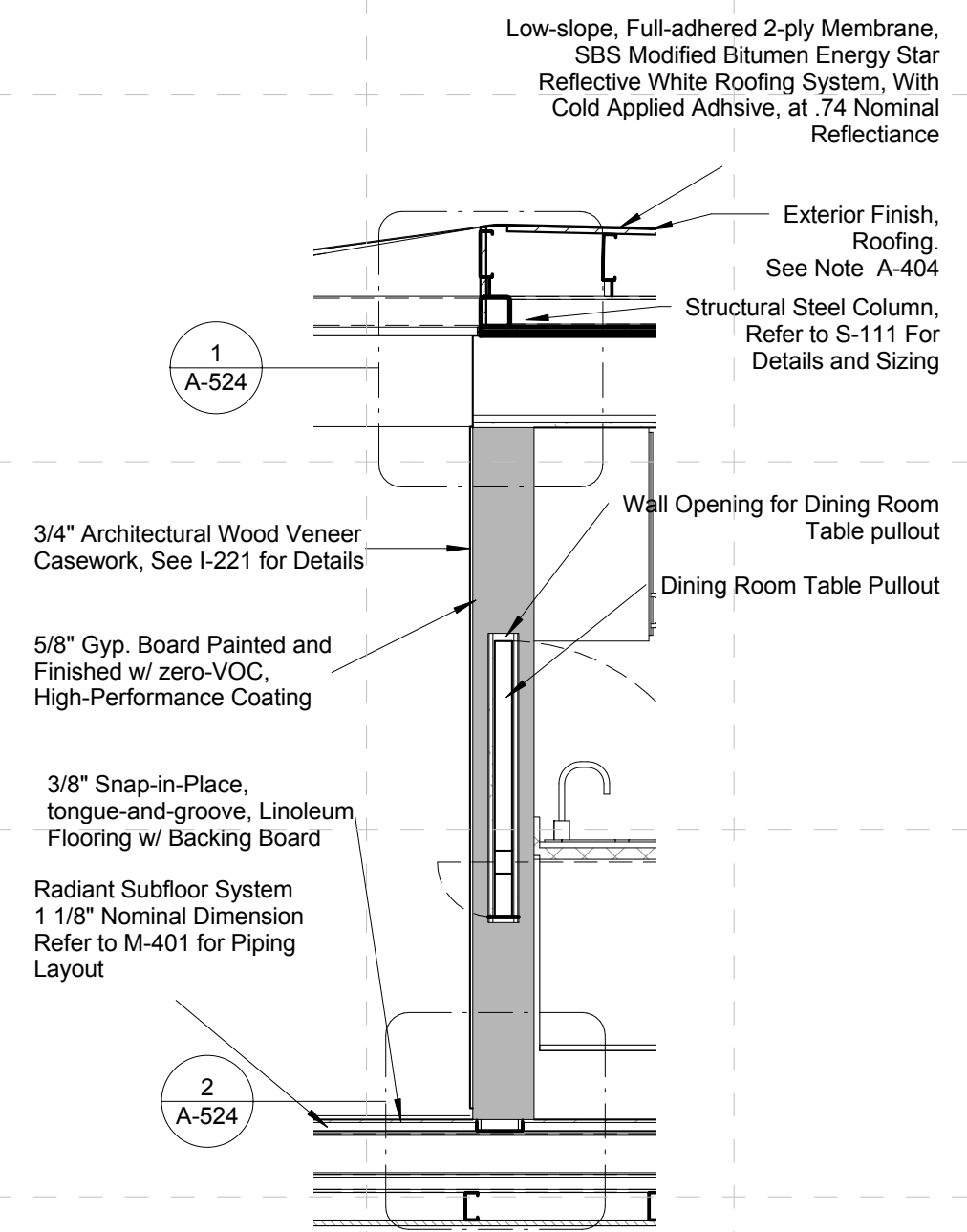
Sections-Wall Sections

A - 404



1 SECTION AT NORTH WALL DOOR

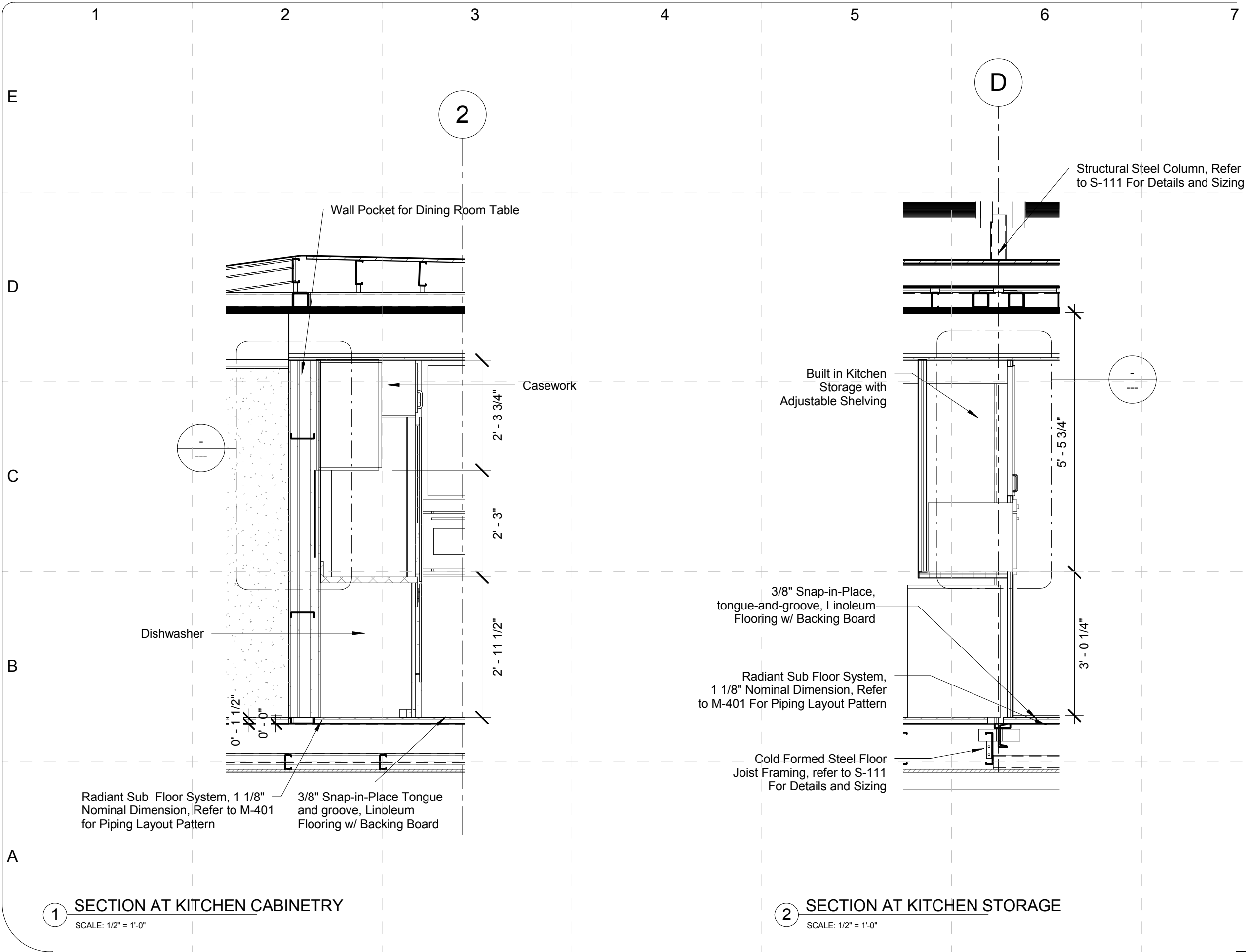
SCALE: 1/2" = 1'-0"



2 SECTION AT DINING ROOM TABLE WALL

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

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1 SECTION AT KITCHEN CABINETRY
SCALE: 1/2" = 1'-0"

2 SECTION AT KITCHEN STORAGE
SCALE: 1/2" = 1'-0"

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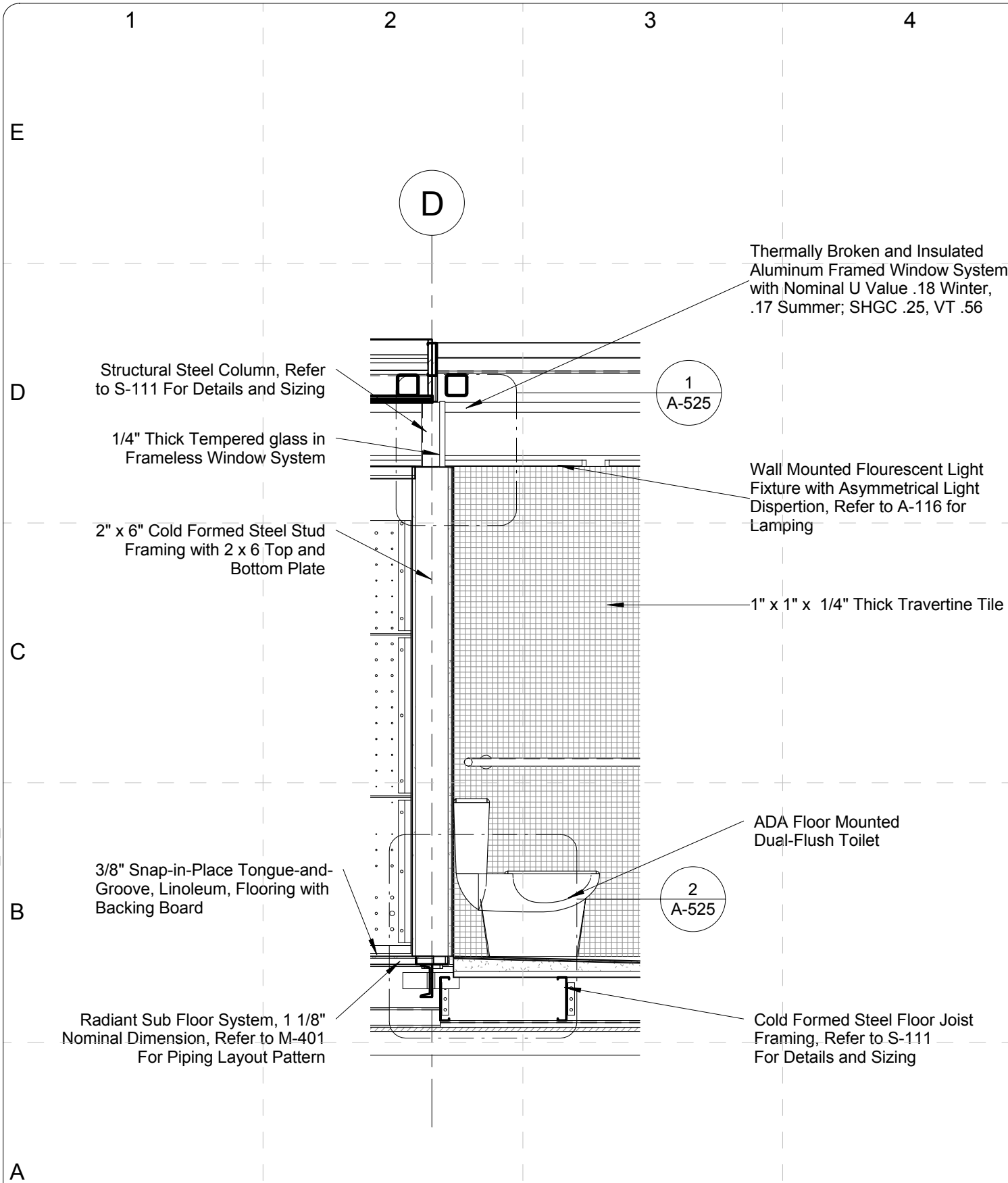
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APPROVED BY: _____
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DATE RECEIVED: 05/13/09
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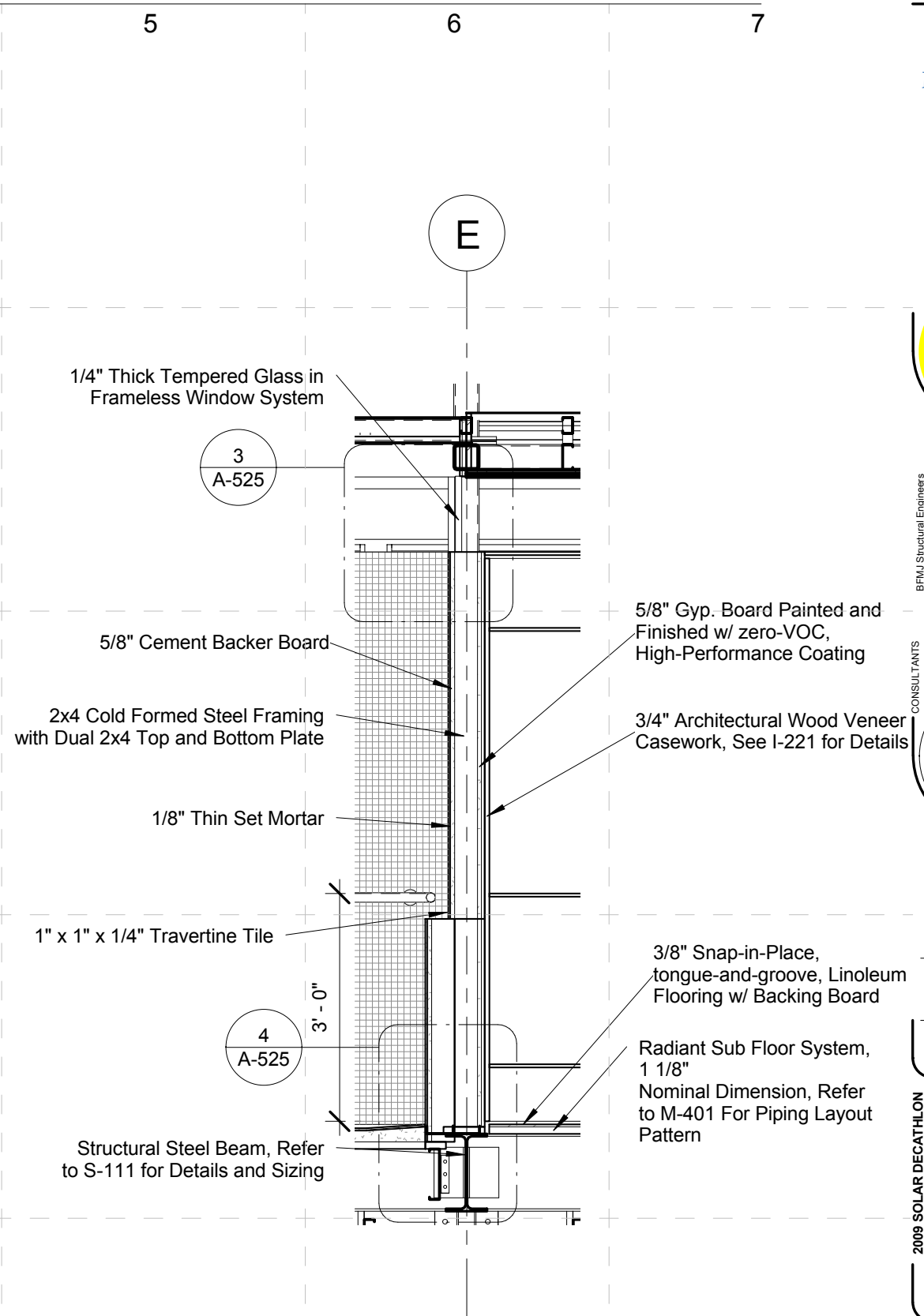
Sections- Wall
Sections

A-405



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1 SECTION THROUGH TOILET
SCALE: 1/2" = 1'-0"



2 SECTION THROUGH SHOWER WALL
SCALE: 1/2" = 1'-0"



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COMMENTS

SHEET TITLE:
Sections-Wall
Sections

A-406

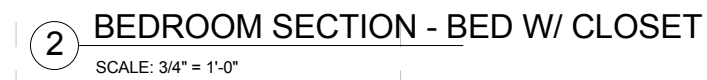
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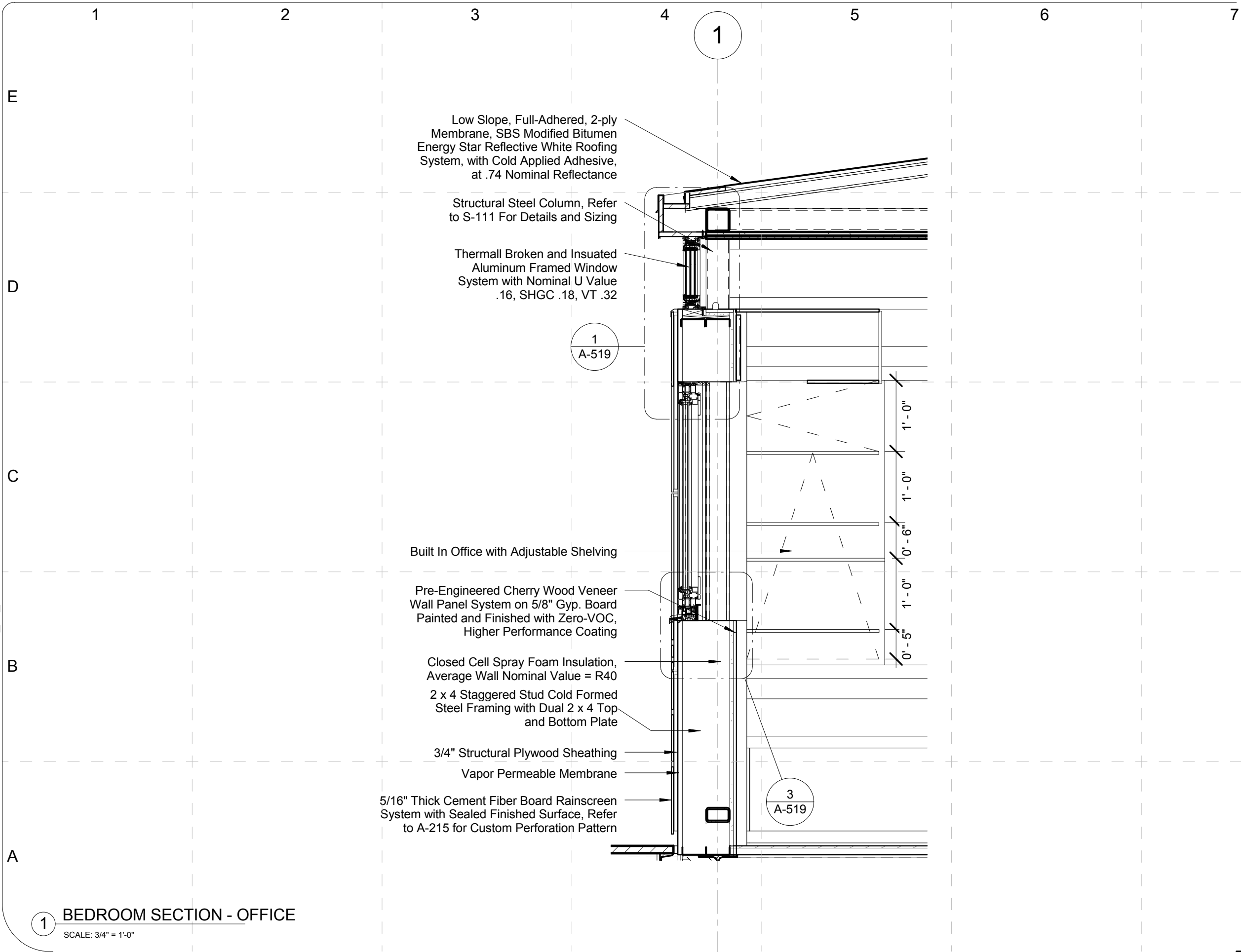
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DATE RECEIVED: 12/01/08
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Sections-Wall Sections



A - 407



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1 BEDROOM SECTION - OFFICE
SCALE: 3/4" = 1'-0"



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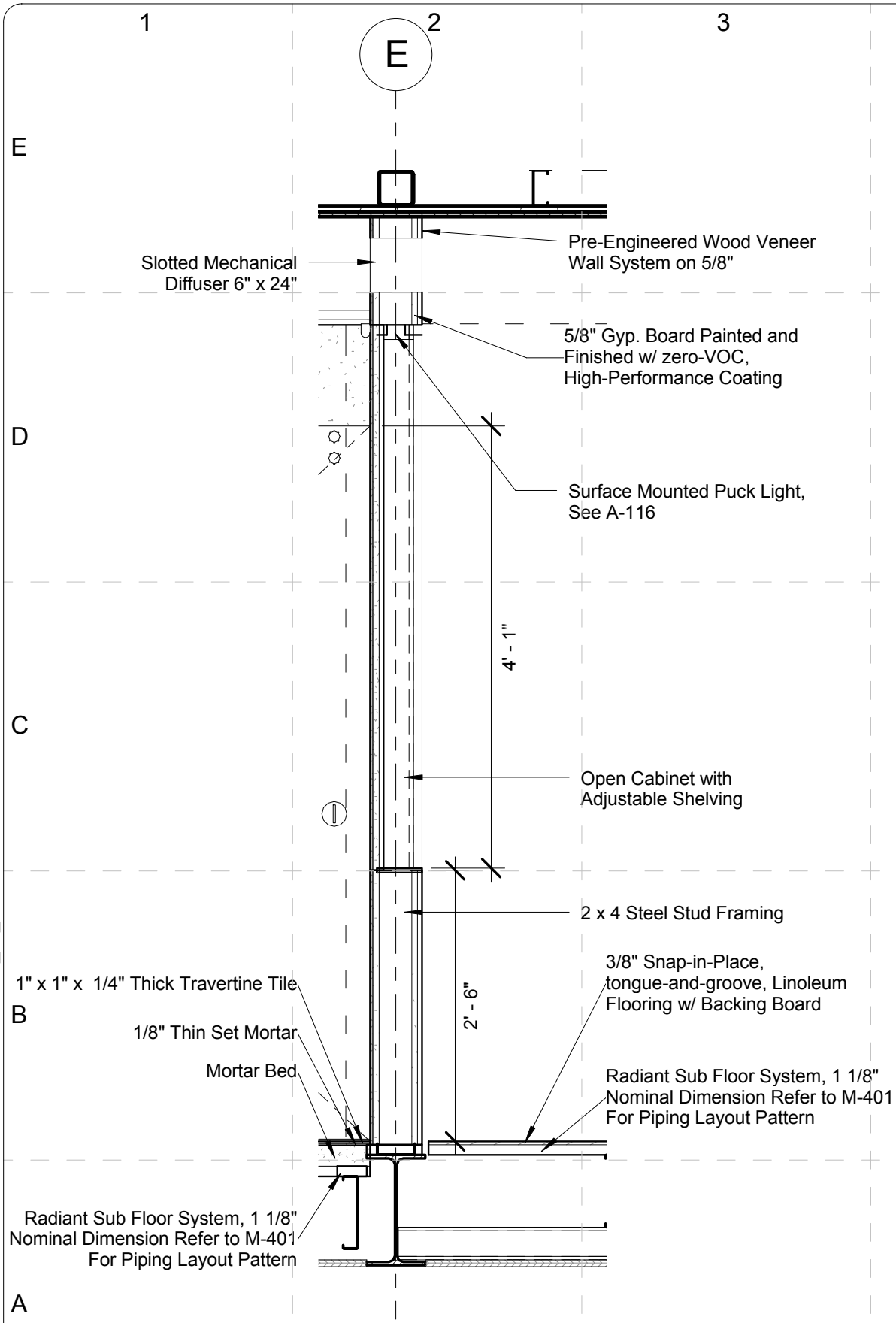
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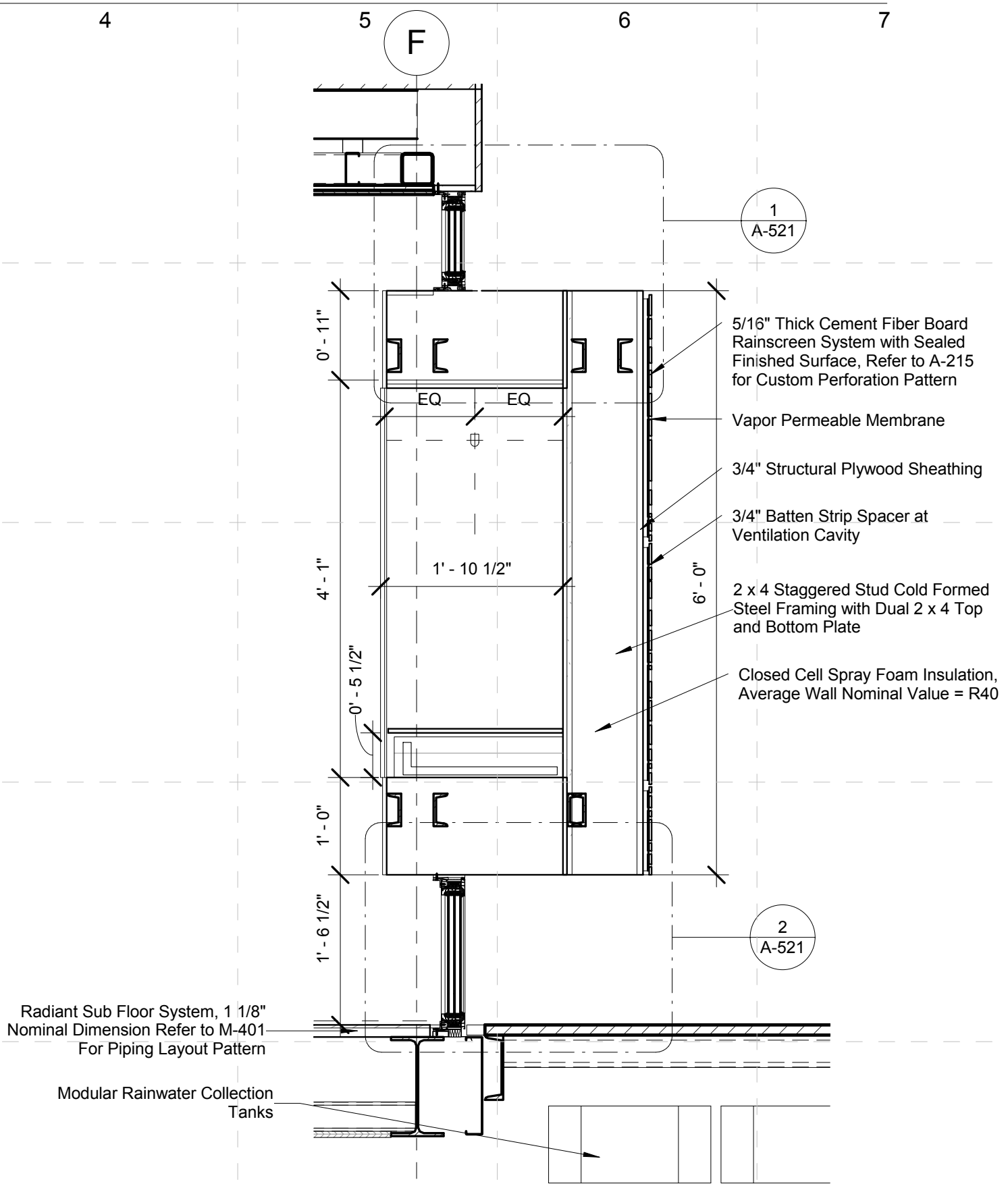
Sections-Wall
Sections

A-408

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1 BEDROOM SECTION - BED SYSTEM1
SCALE: 3/4" = 1'-0"



2 BEDROOM SECTION - BED SYSTEM2
SCALE: 3/4" = 1'-0"

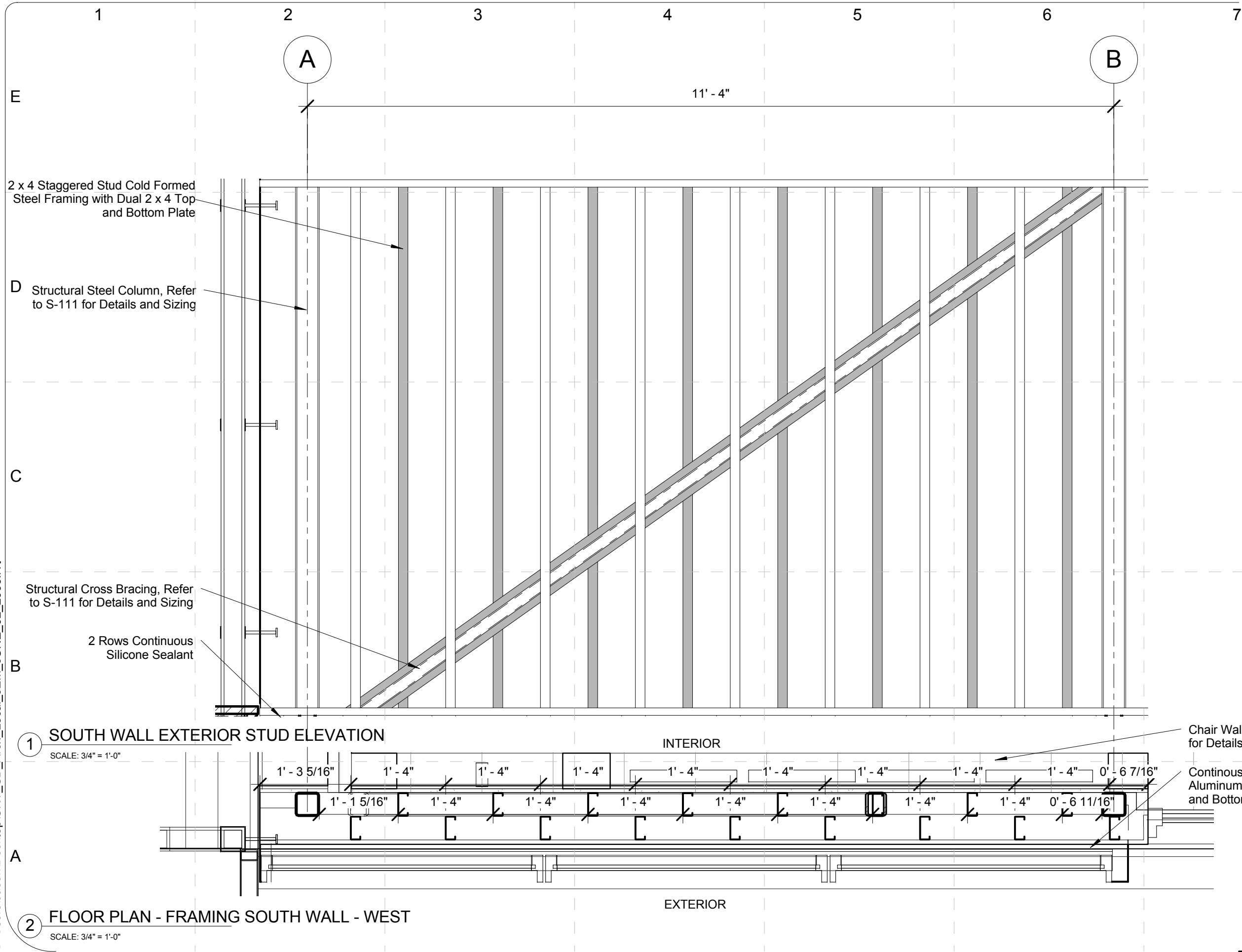
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SHEET TITLE:

Sections-Wall
Sections

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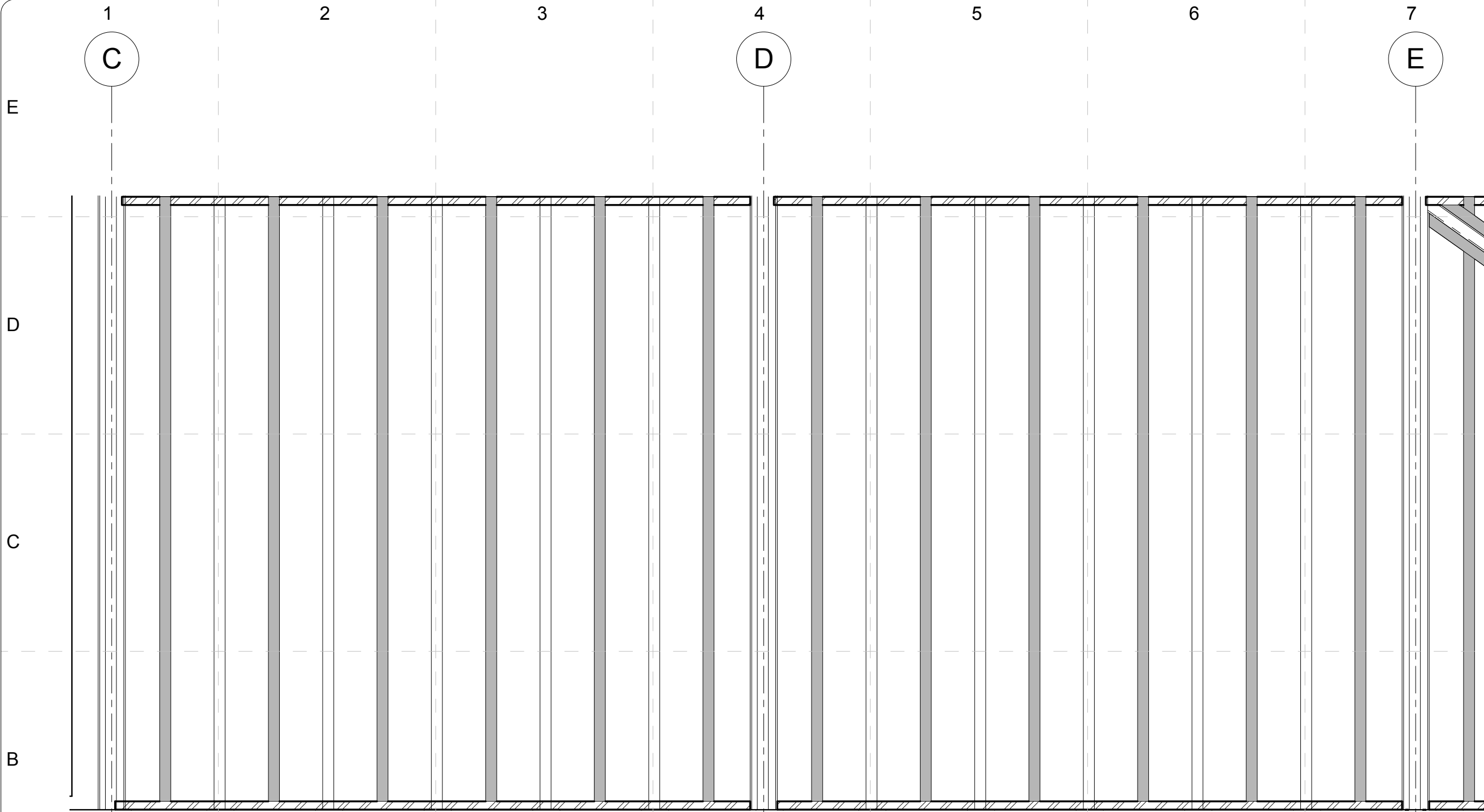
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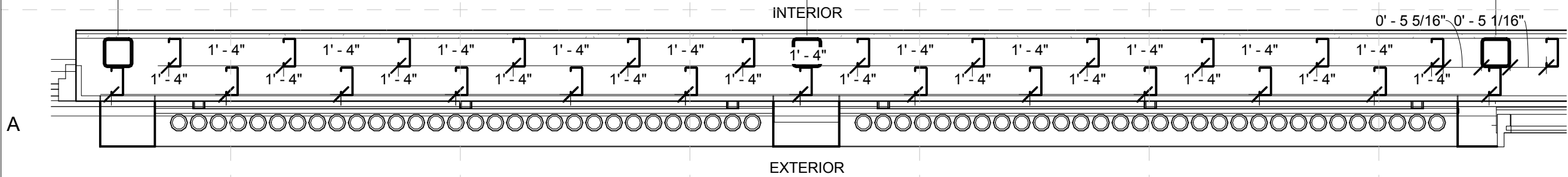
Framing Plan
Details

A-501



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1 SOUTH WALL EXTERIOR STUD ELEVATION 2
SCALE 3/4" = 1'-0"



2 FLOOR PLAN - FRAMING SOUTH WALL - CENTRAL
SCALE: 3/4" = 1'-0"



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APPROVED BY: [Signature]

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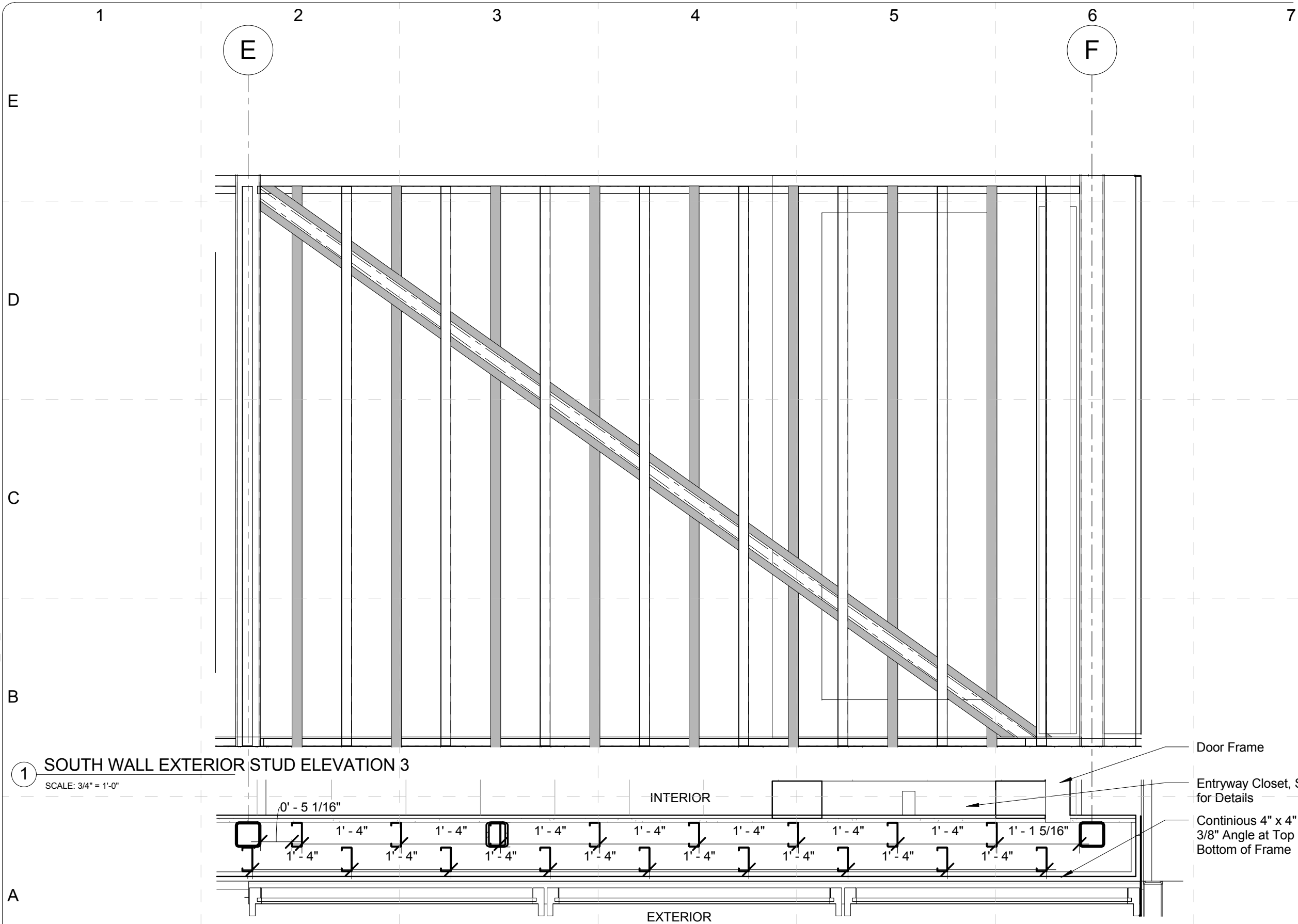
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Framing Plan
Details

A-502

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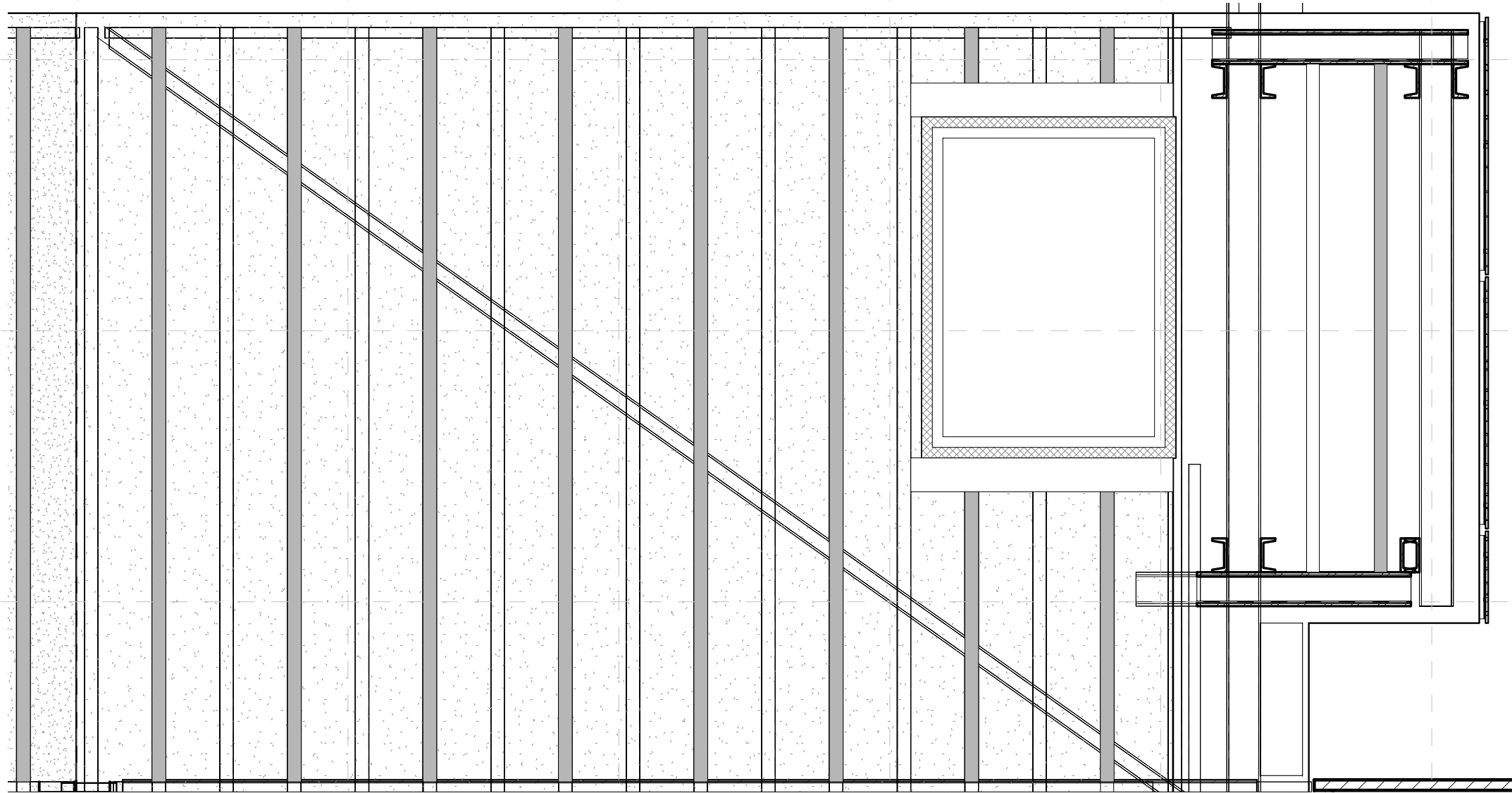
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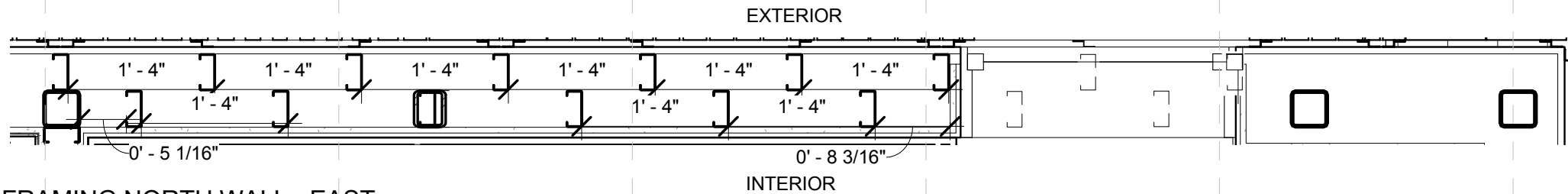
Framing Plan
Details

A-503

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2 NORTH WALL EXTERIOR STUD ELEVATION
SCALE: 3/4" = 1'-0"



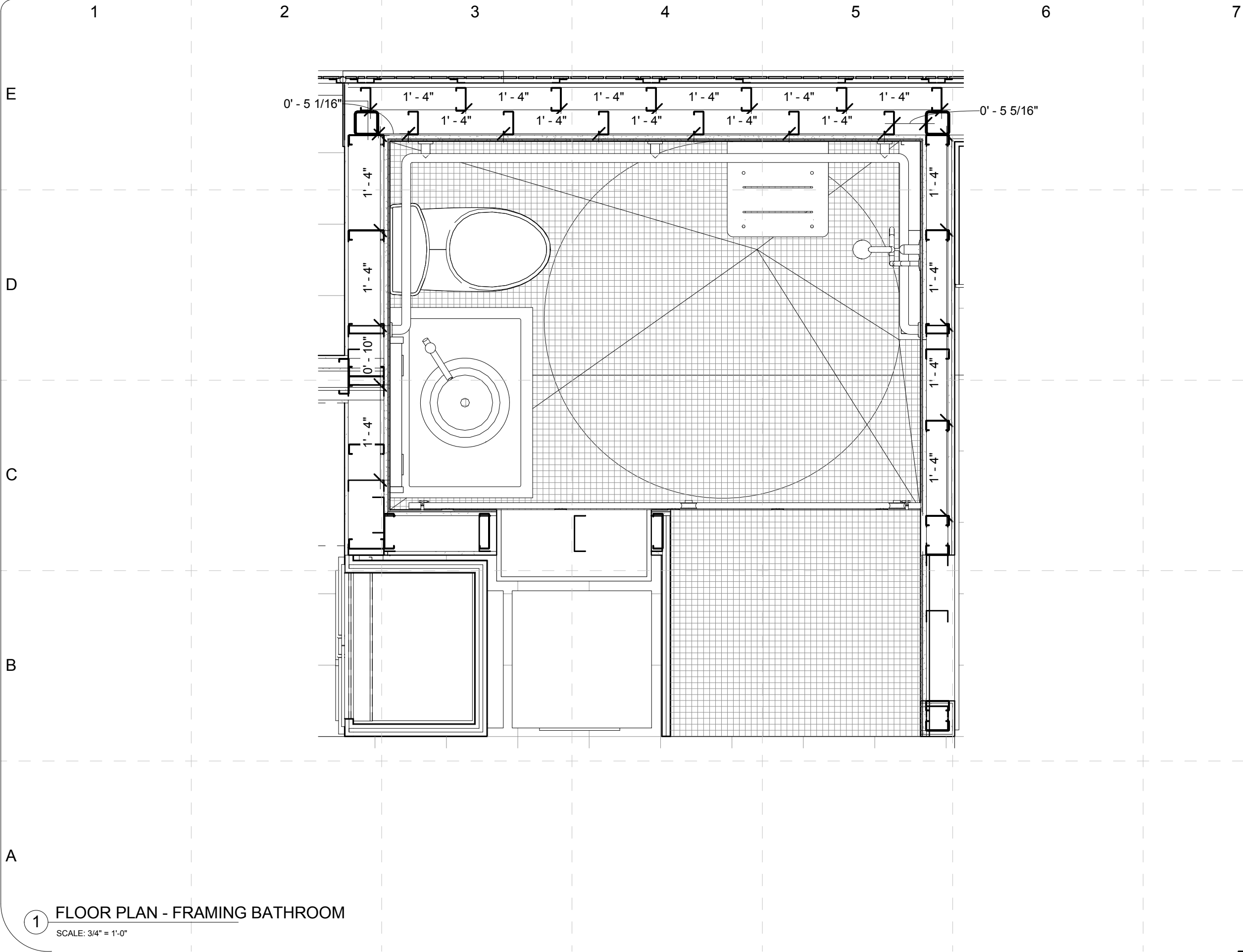
1 FLOOR PLAN - FRAMING NORTH WALL - EAST
SCALE: 3/4" = 1'-0"

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1

FLOOR PLAN - FRAMING BATHROOM
SCALE: 3/4" = 1'-0"

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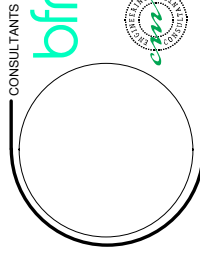
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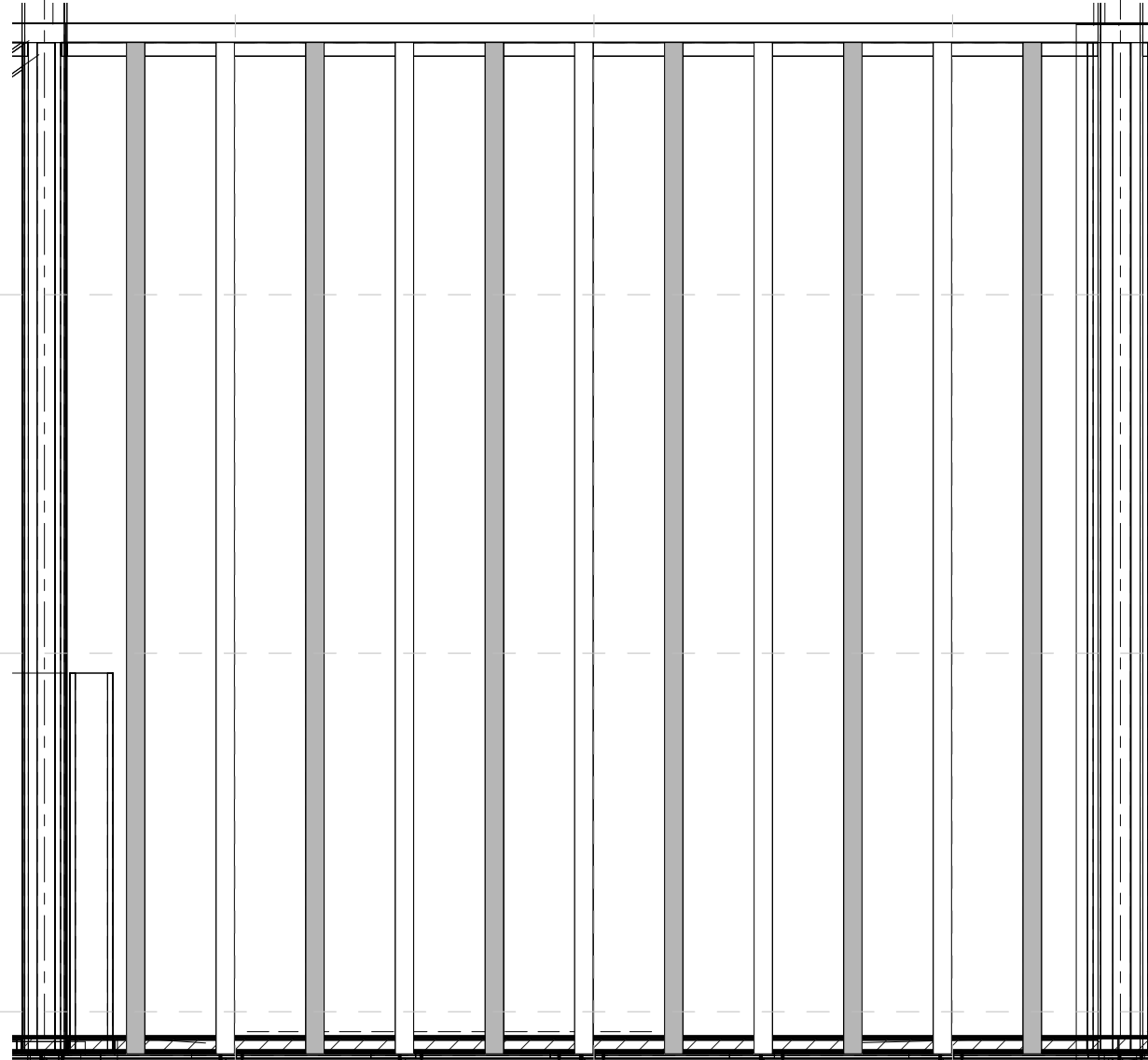
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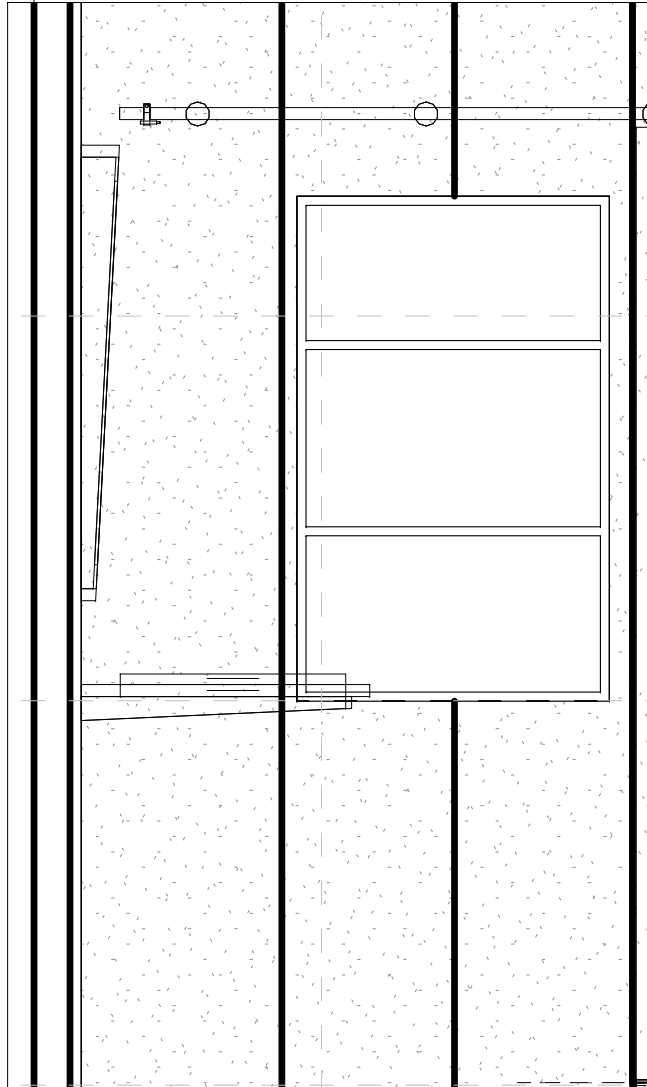
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1 BATHROOM- NORTH WALL STUD ELEVATION
3/4" = 1'-0"

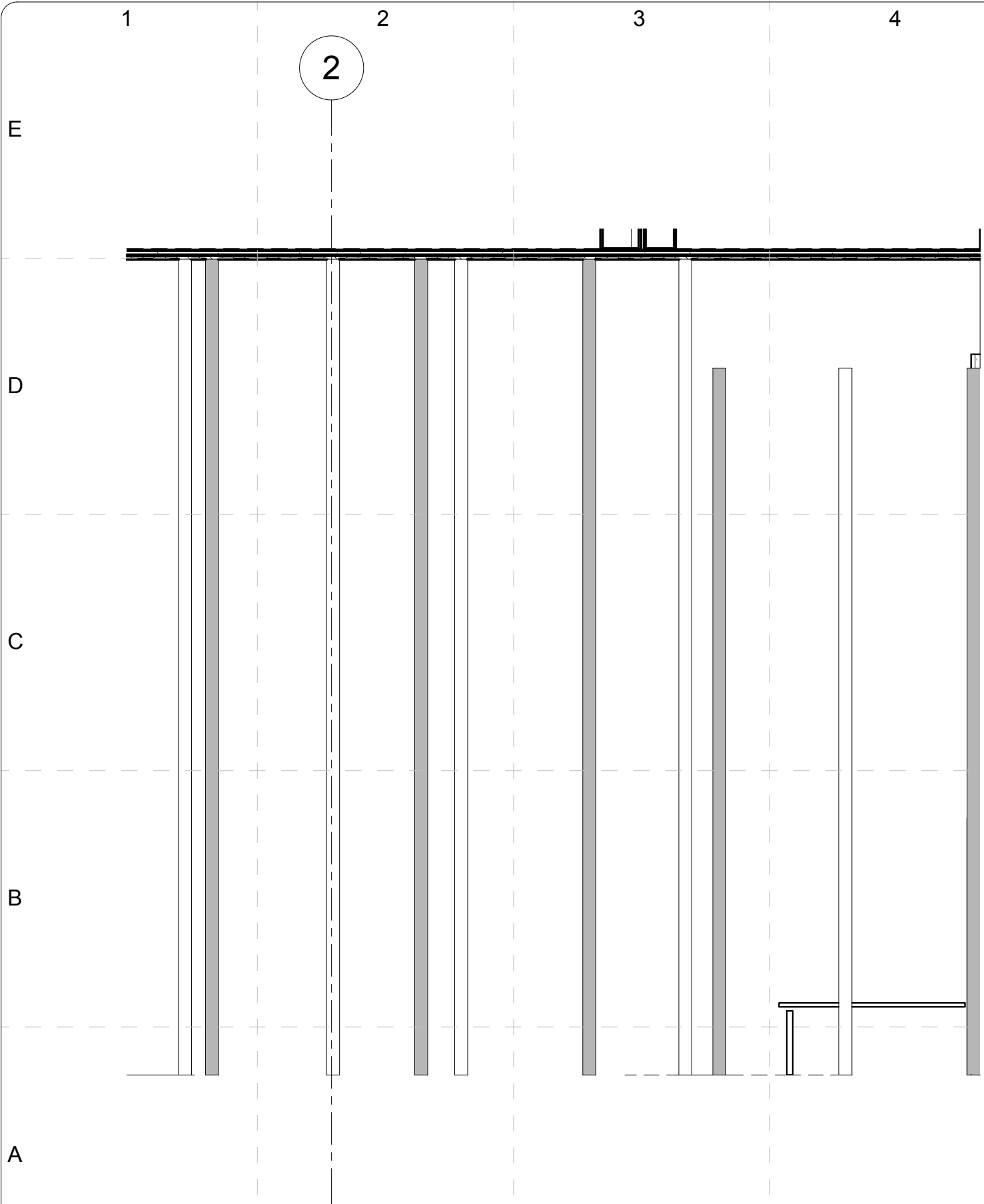


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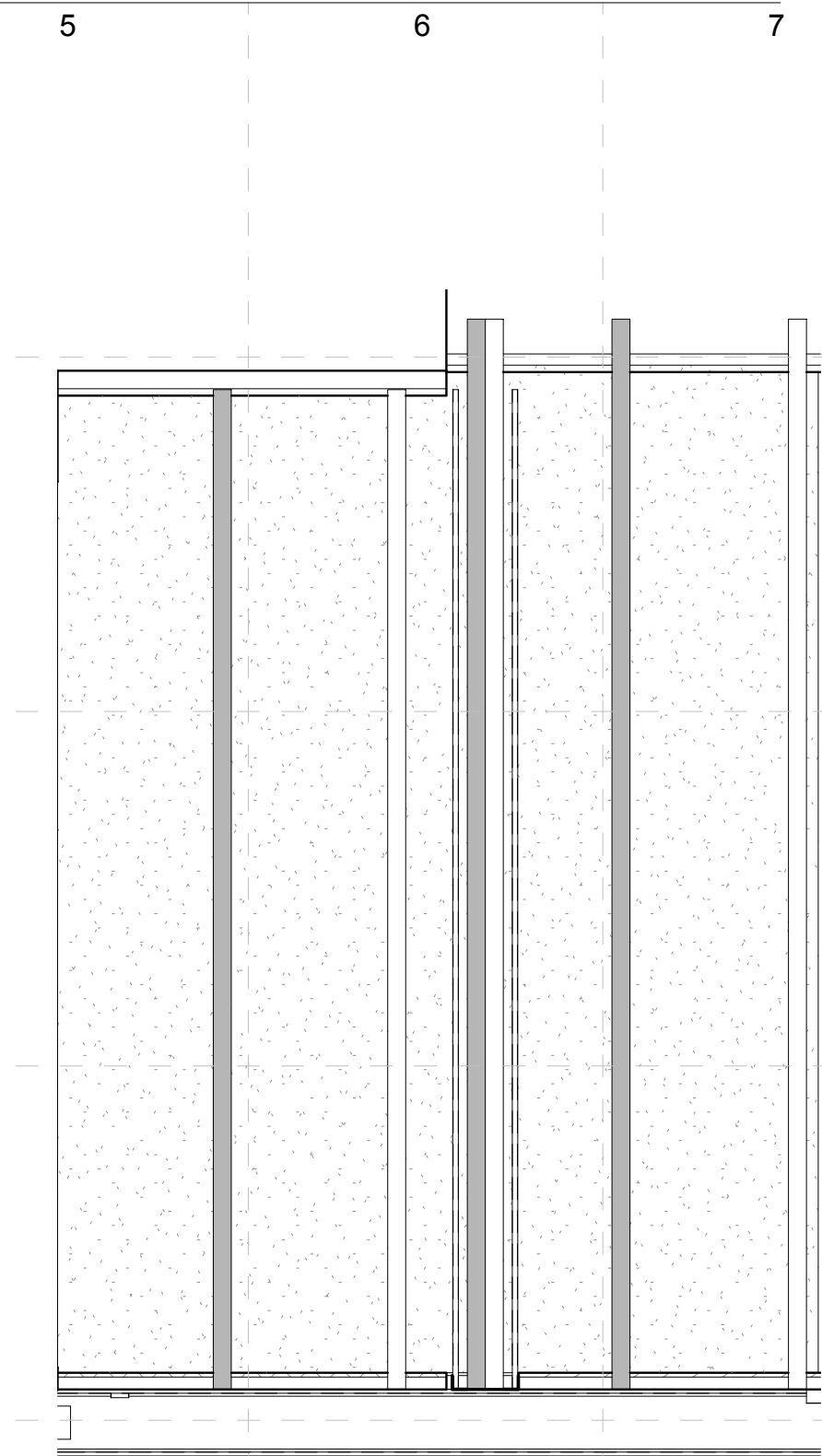
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1 BATHROOM- EAST WALL STUD ELEVATION
3/4" = 1'-0"



2 BATHROOM- WEST WALL STUD ELEVATION
3/4" = 1'-0"

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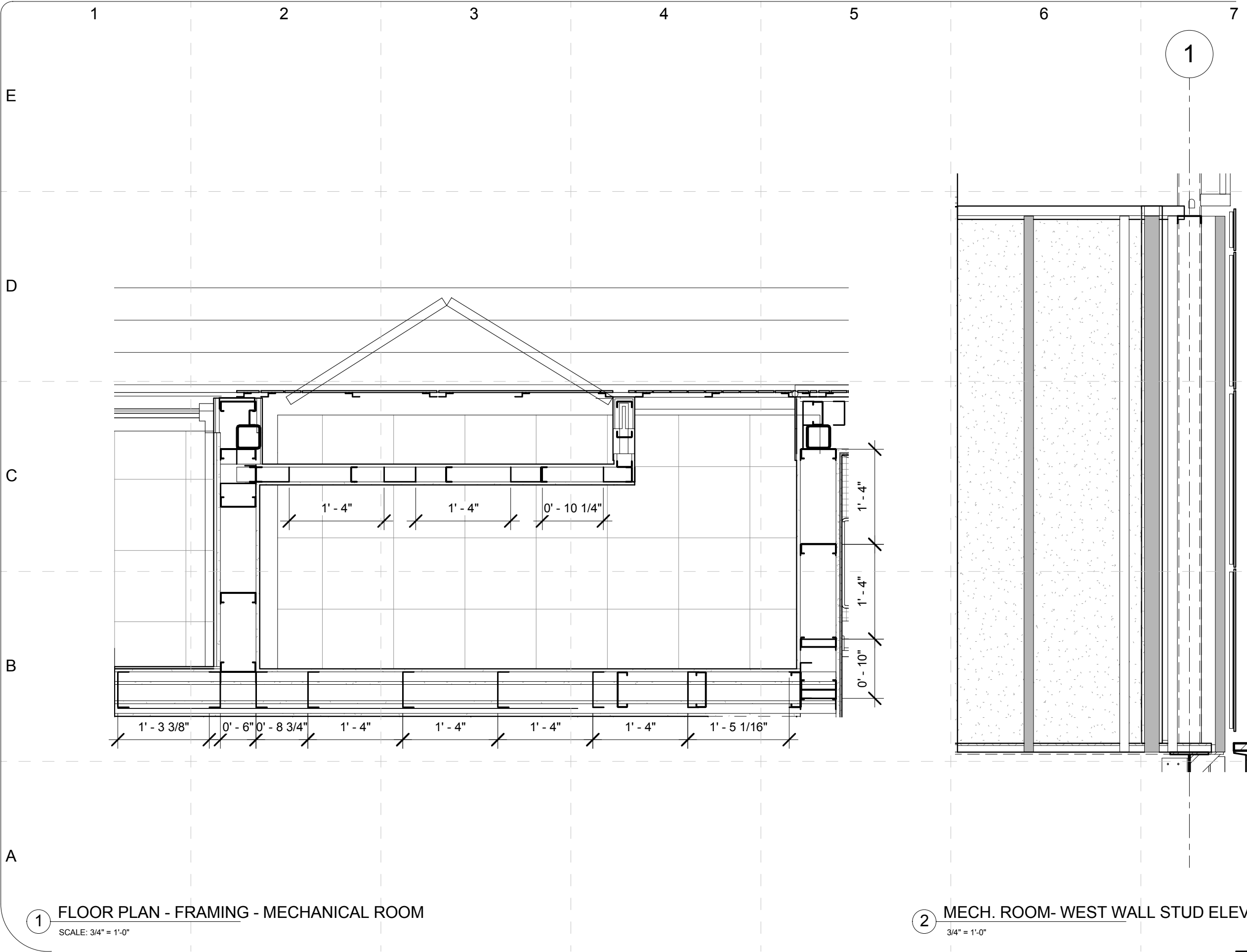
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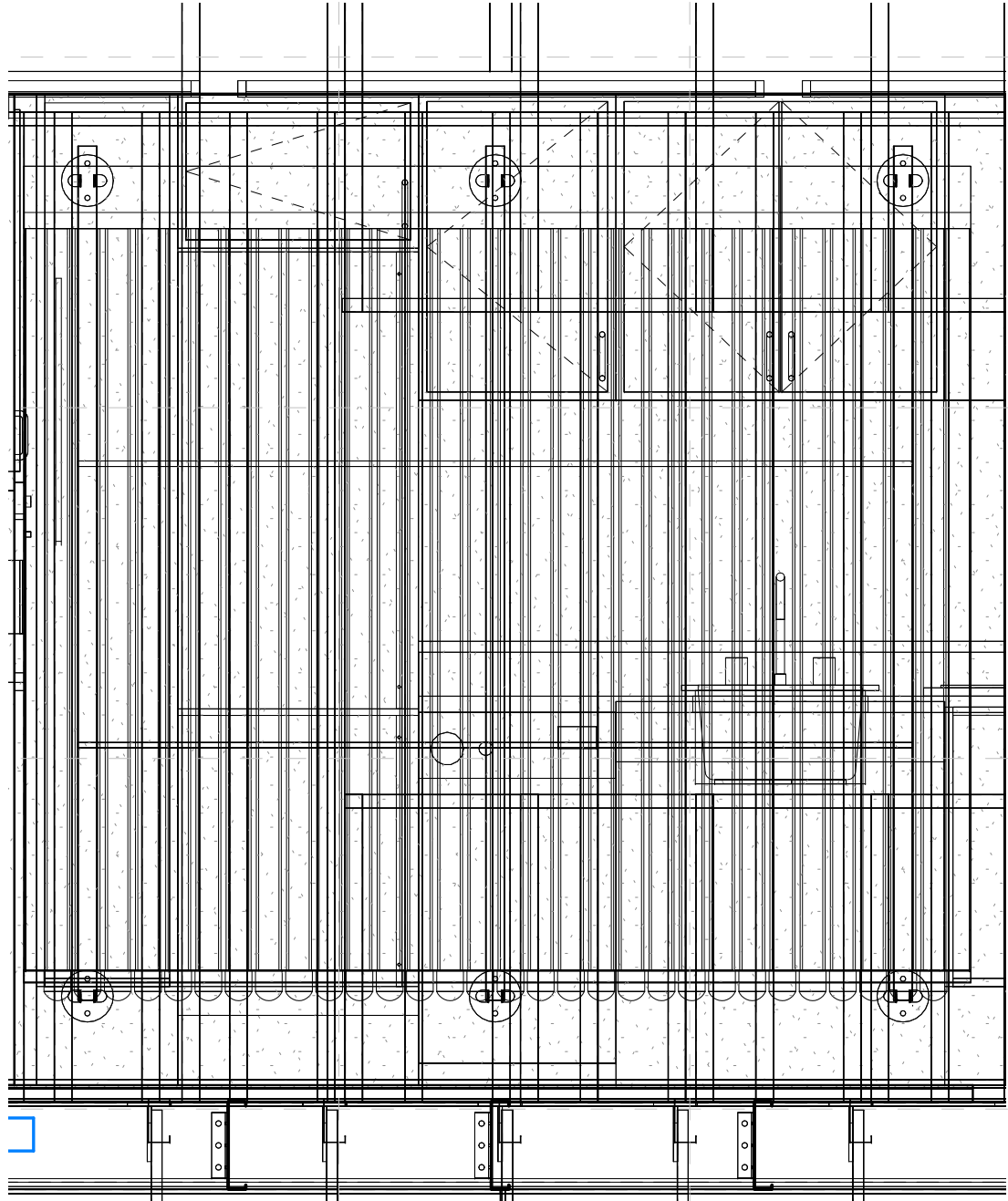
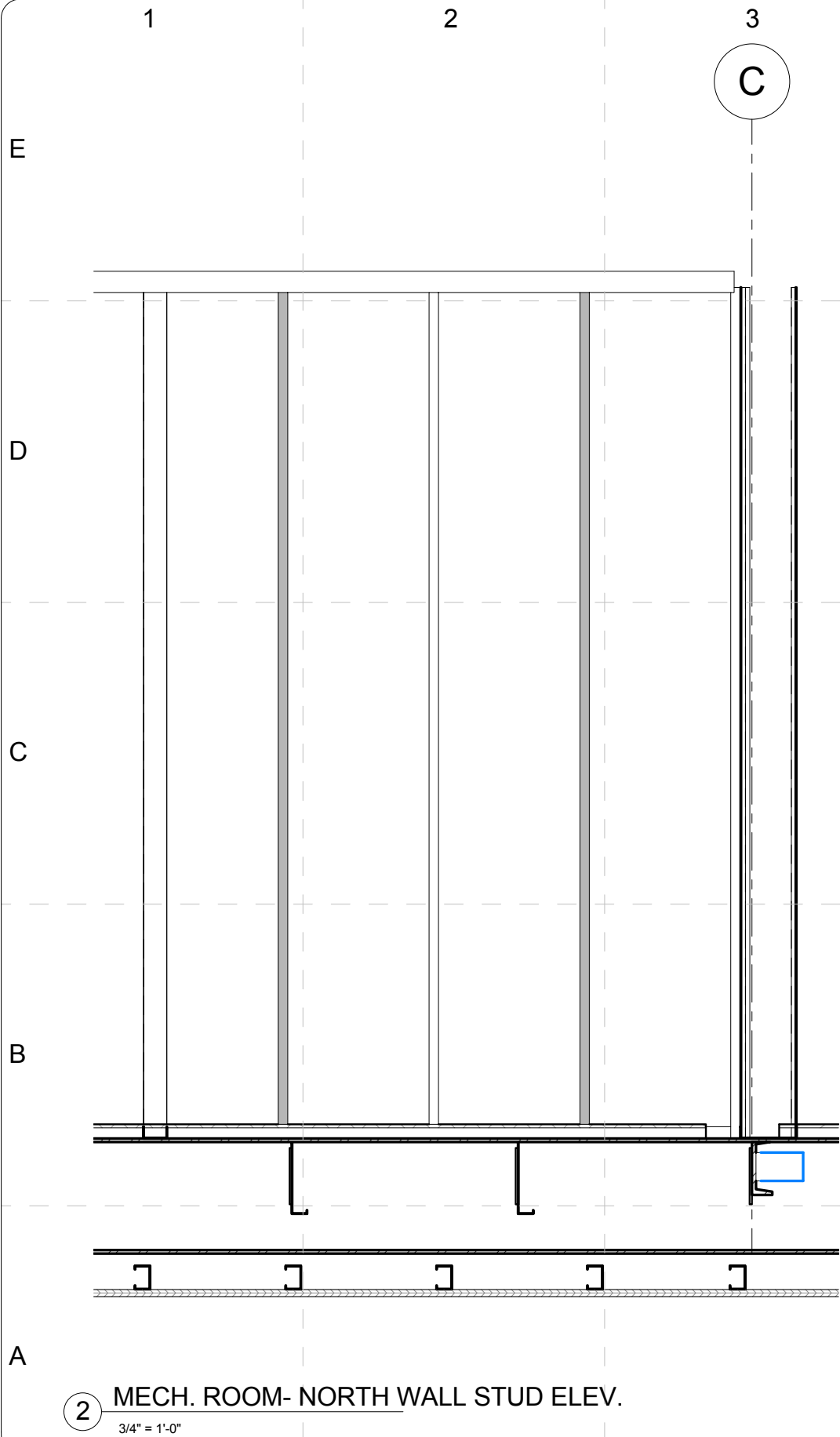
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APPROVED BY:

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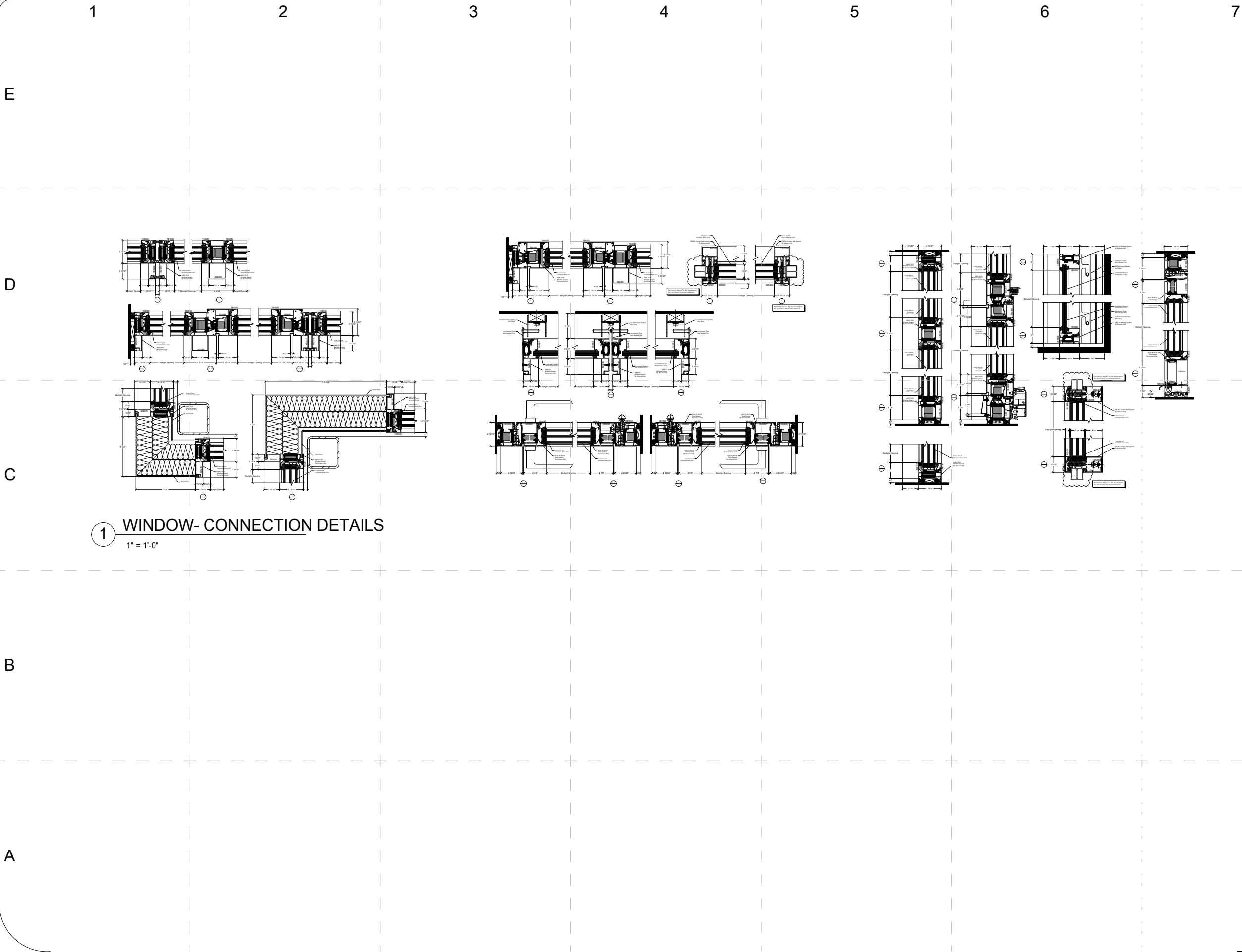
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SHEET TITLE:
Details-Window

A-511

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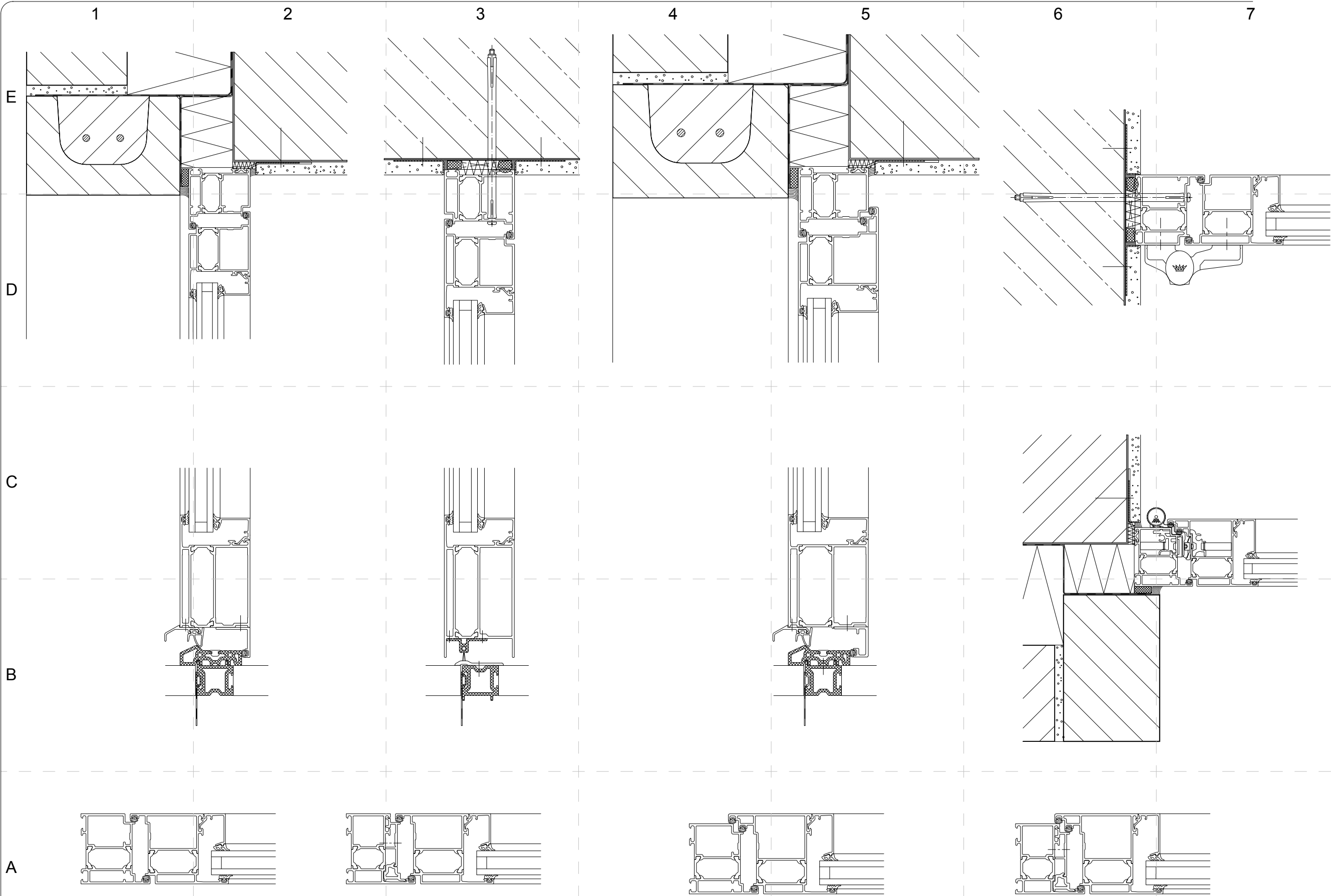
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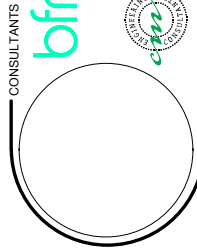


1 ADS 75 SL.SI SWING DOOR DETAILS
SCALE: NTS

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SHEET TITLE:
Details-Door

A-512



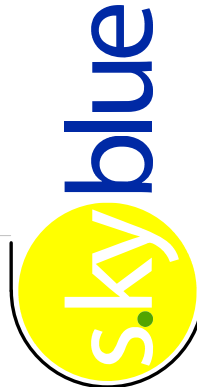
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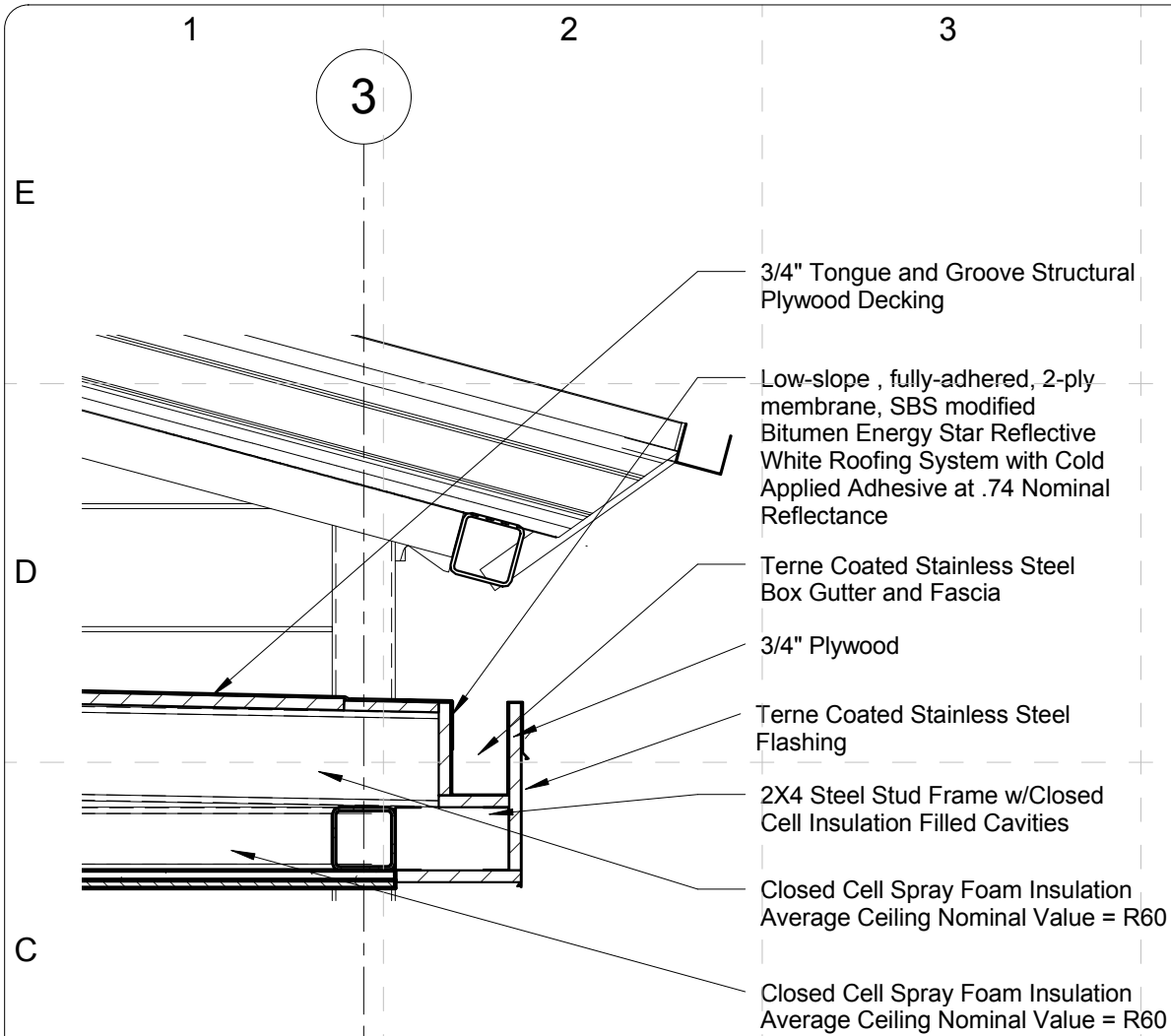
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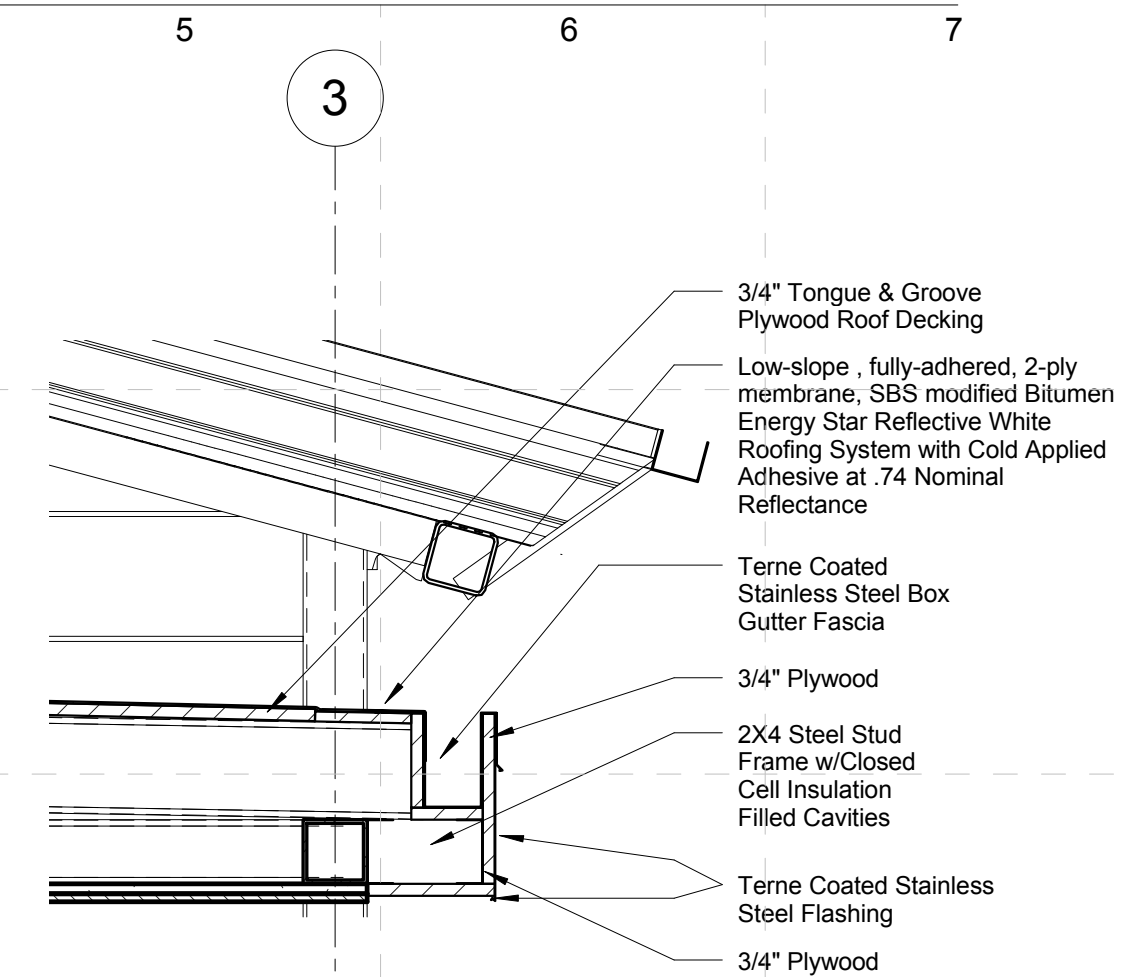
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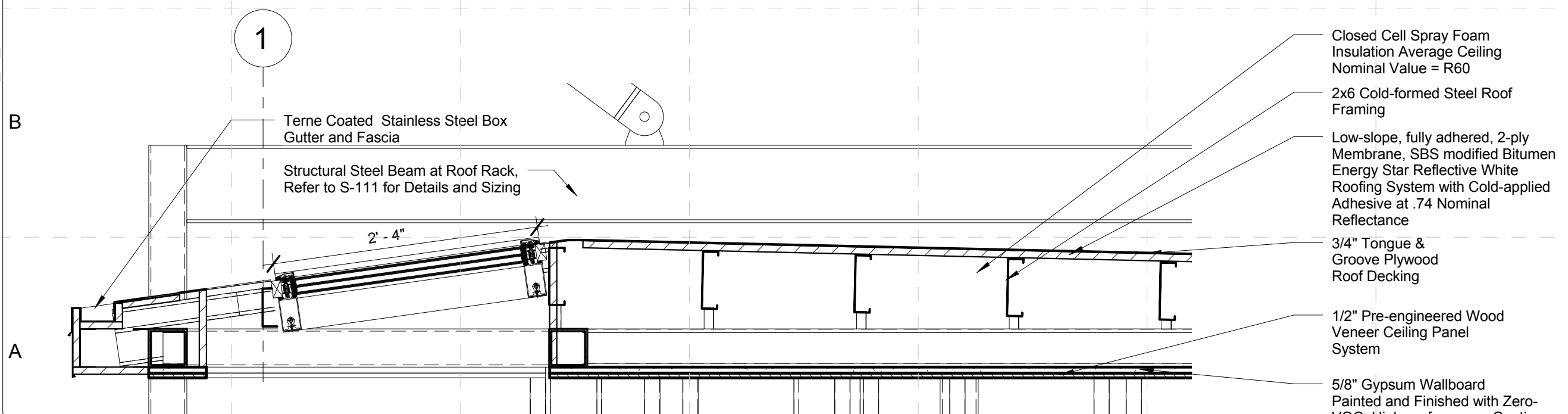
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1 SECTION AT COLUMN THERMAL BREAK
SCALE: 1" = 1'-0"



2 SECTION AT BOX GUTTER
SCALE: 1" = 1'-0"



3 SECTION AT SKYLIGHT RIDGE
1" = 1'-0"

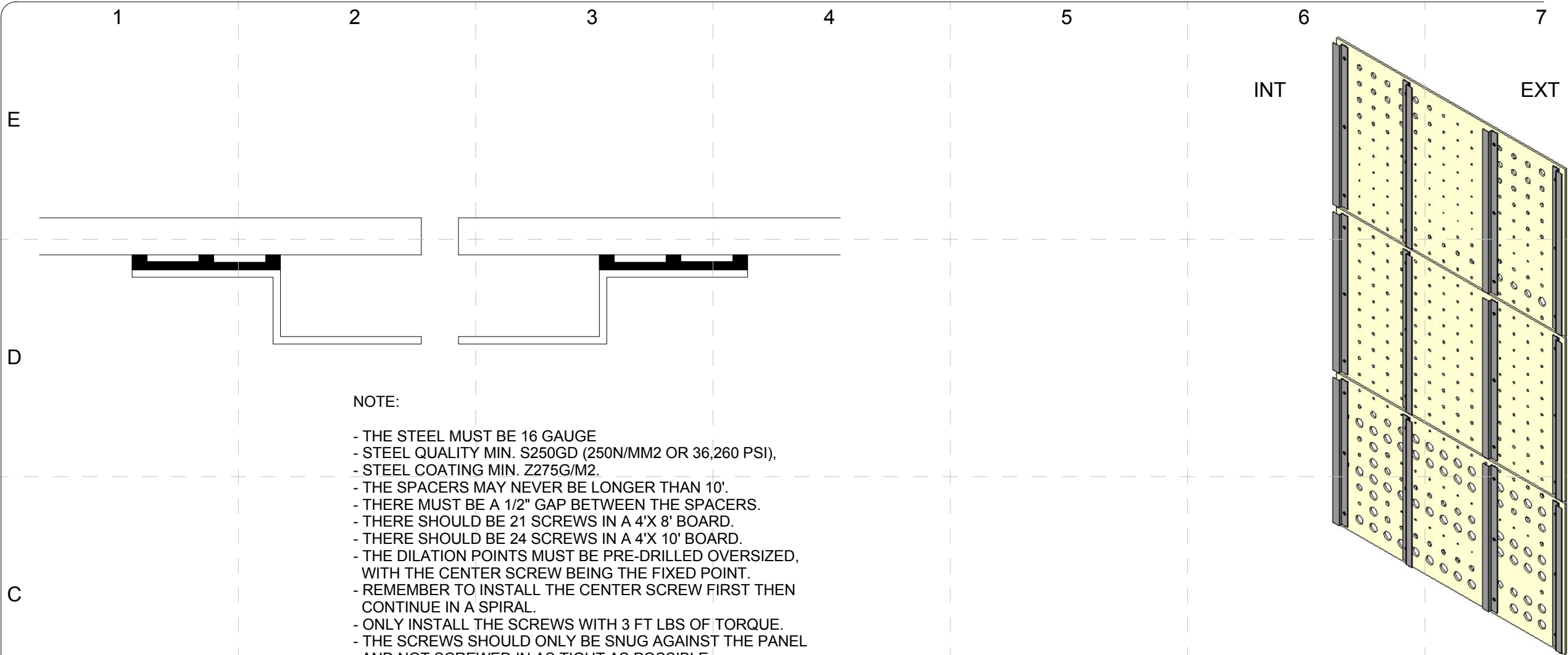
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN/DEVELOPMENT
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FINAL	06/02/2009	

2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _SD2009 DRAWN BY: RJA/MRG APPROVED BY: 12/10/08 DATE RECEIVED: 12/10/08
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SHEET TITLE:

Details-Roof

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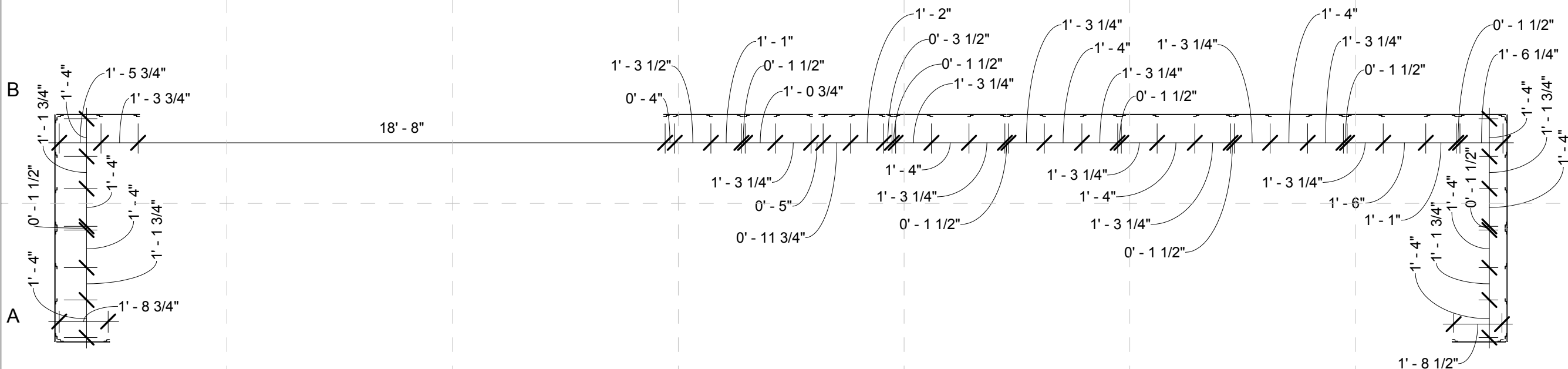


NOTE:


- THE STEEL MUST BE 16 GAUGE
- STEEL QUALITY MIN. S250GD (250N/MM2 OR 36,260 PSI),
- STEEL COATING MIN. Z275G/M2.
- THE SPACERS MAY NEVER BE LONGER THAN 10'.
- THERE MUST BE A 1/2" GAP BETWEEN THE SPACERS.
- THERE SHOULD BE 21 SCREWS IN A 4'X 8' BOARD.
- THERE SHOULD BE 24 SCREWS IN A 4'X 10' BOARD.
- THE DILATION POINTS MUST BE PRE-DRILLED OVERSIZED, WITH THE CENTER SCREW BEING THE FIXED POINT.
- REMEMBER TO INSTALL THE CENTER SCREW FIRST THEN CONTINUE IN A SPIRAL.
- ONLY INSTALL THE SCREWS WITH 3 FT LBS OF TORQUE.
- THE SCREWS SHOULD ONLY BE SNUG AGAINST THE PANEL AND NOT SCREWED IN AS TIGHT AS POSSIBLE.
- OVERTIGHTENING THE SCREWS WILL RESTRICT MOVEMENT, AND DESTROY THE BOARD.

1 Perf Plan 2
SCALE: 12" = 1'-0"

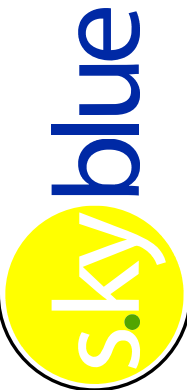
2 Cement Fiber Board Mounting Detials
SCALE: NTS



3 Perf Plan
SCALE: 1/4" = 1'





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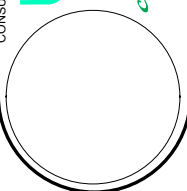


skyblue

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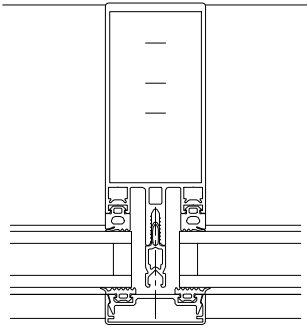
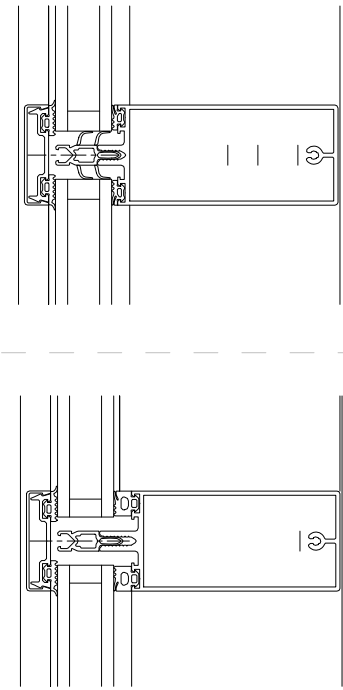
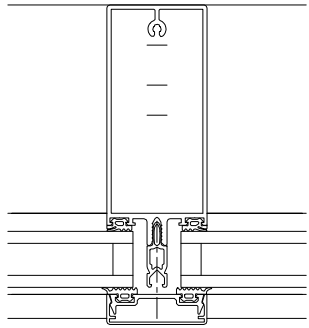
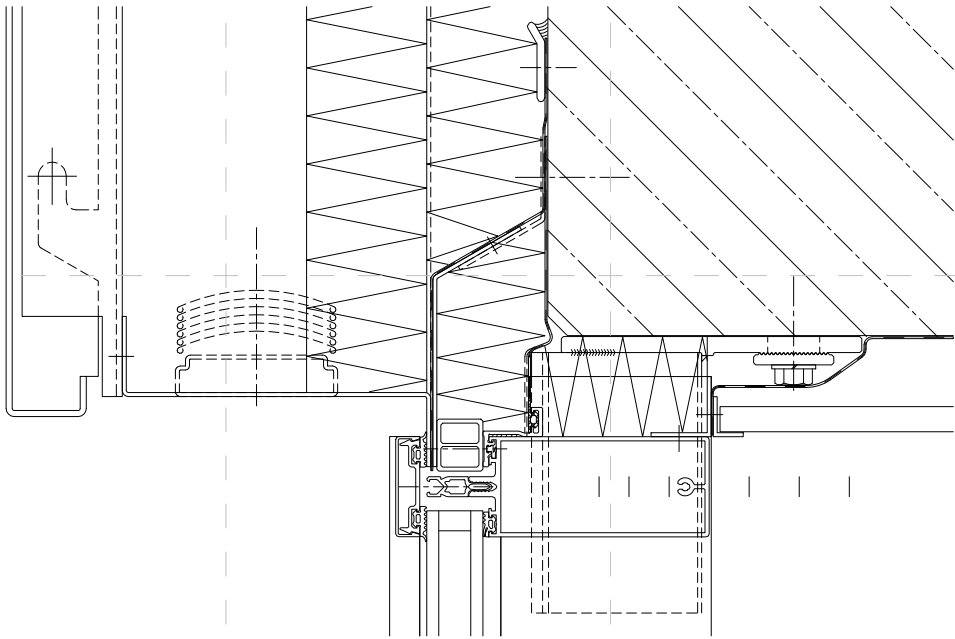
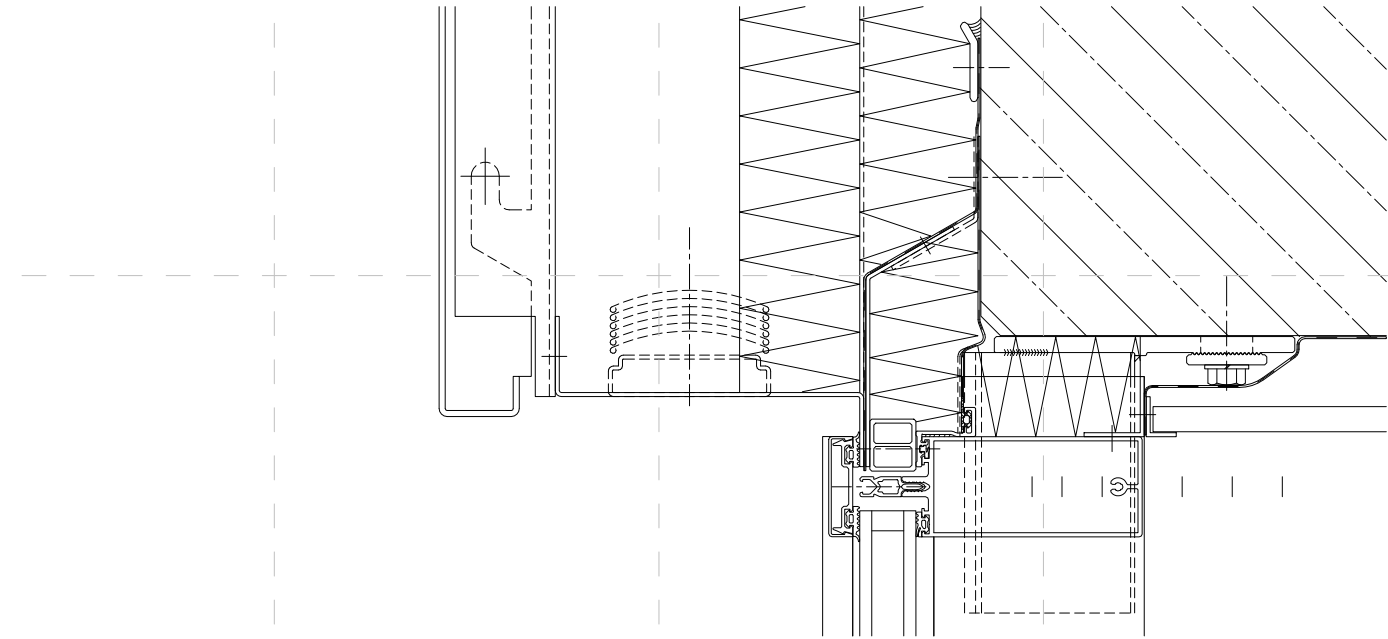
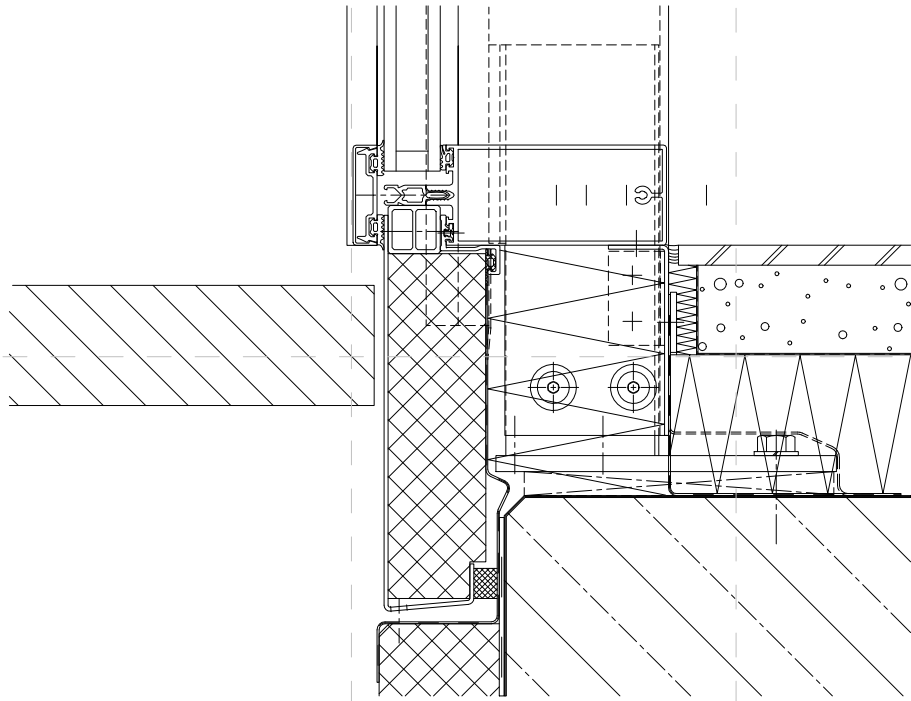
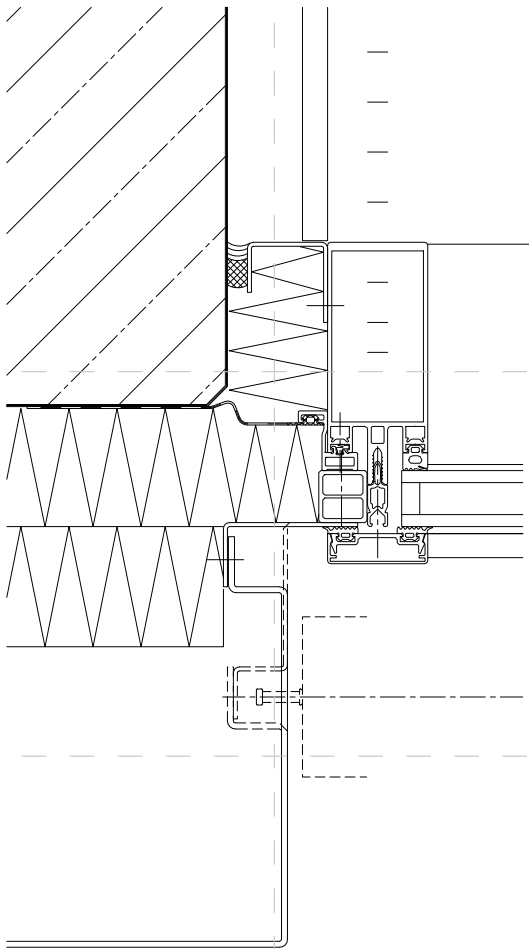
COMMENTS

SHEET TITLE:

Details-Siding

A-515

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1 FW 50+ CURTAIN WALL DETAILS
SCALE: NTS

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SHEET TITLE:

Details-South Wall

A-516

MARK	DATE	DESCRIPTION
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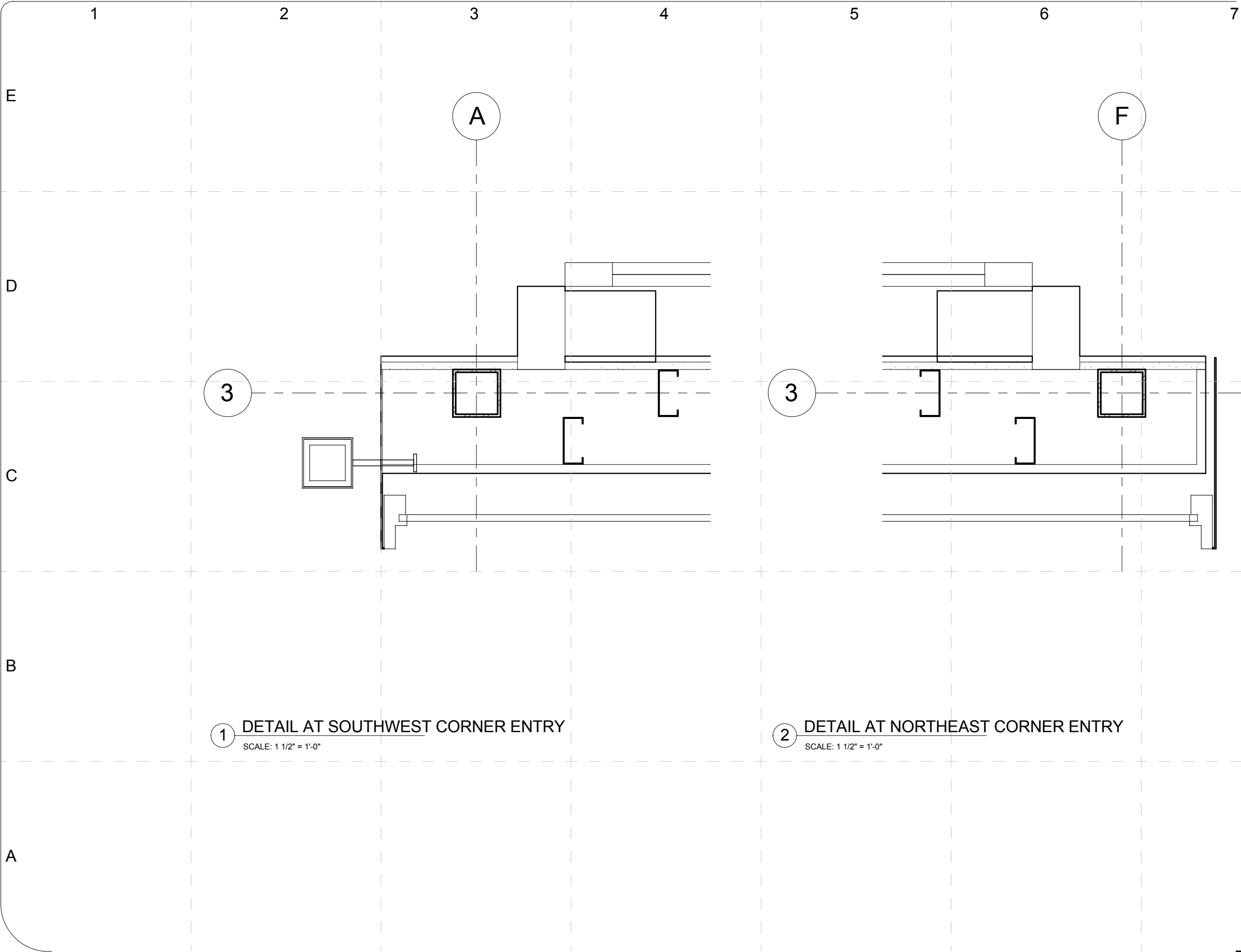
cmta

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1 DETAIL AT SOUTHWEST CORNER ENTRY
SCALE: 1 1/2" = 1'-0"

2 DETAIL AT NORTHEAST CORNER ENTRY
SCALE: 1 1/2" = 1'-0"

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COMMENTS


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DATE

DESCRIPTION


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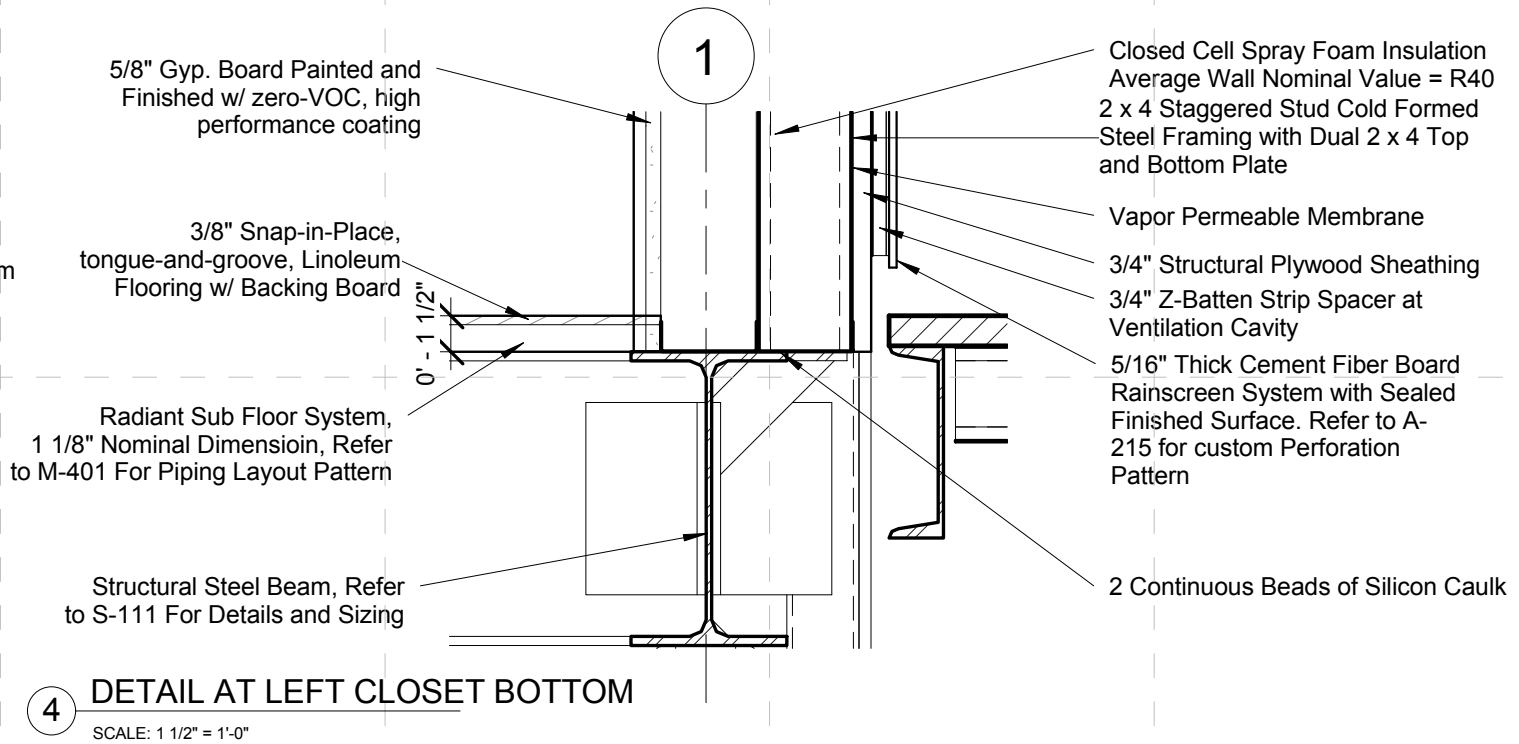
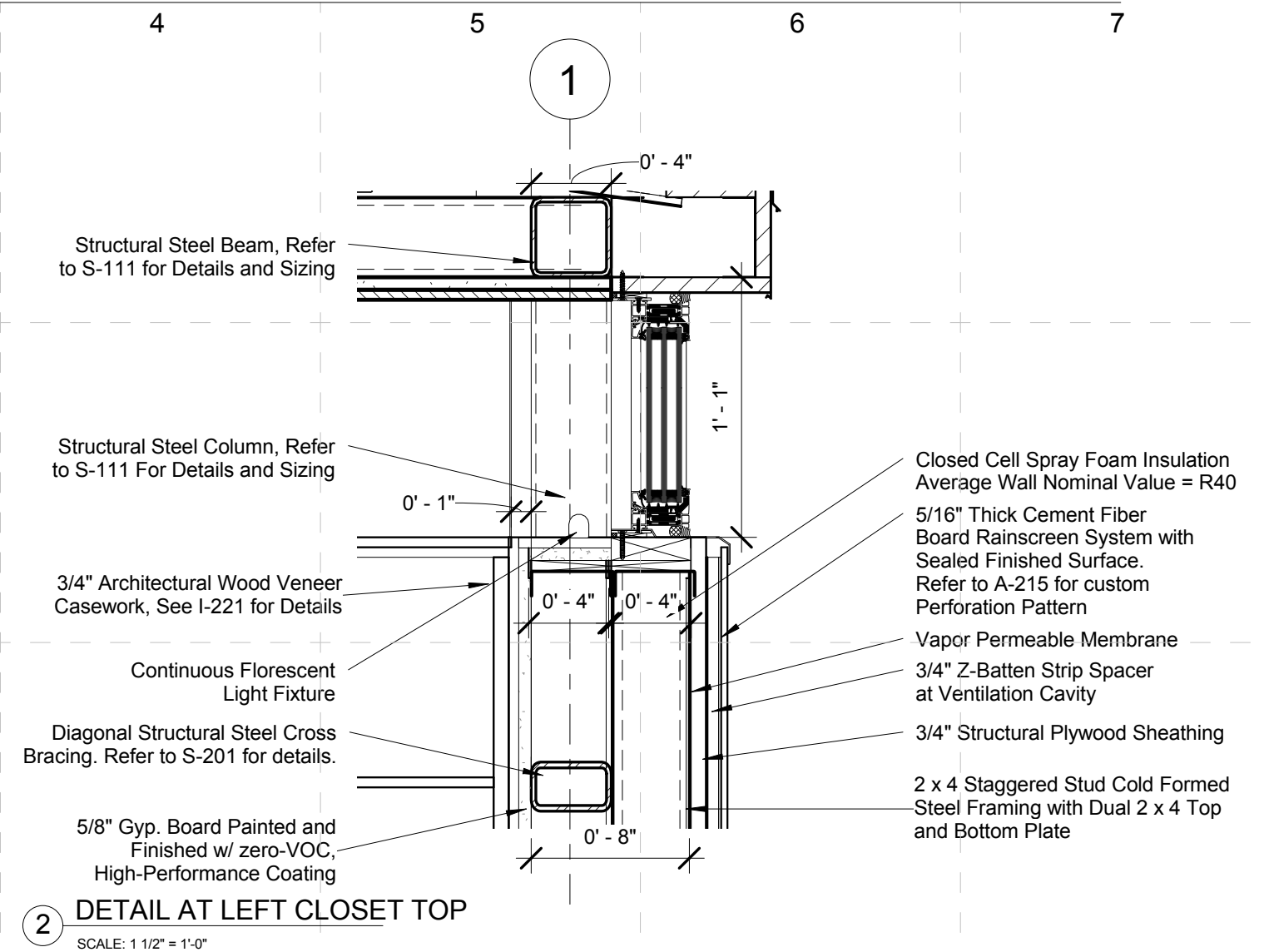
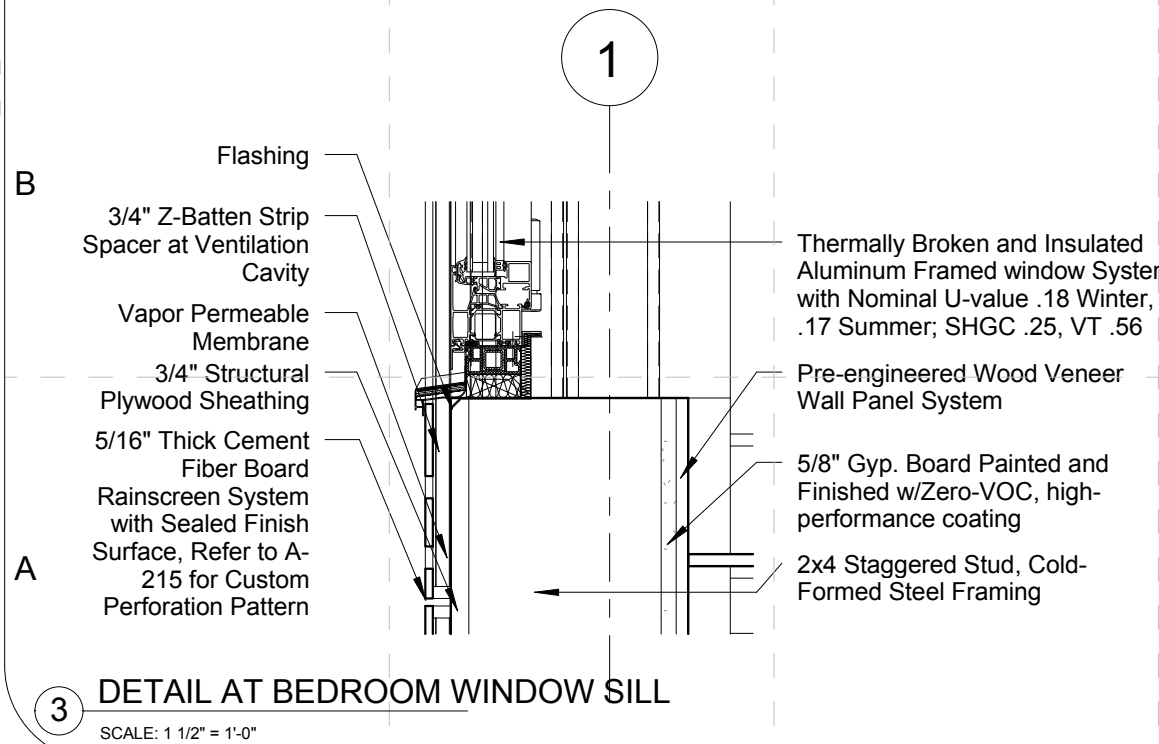
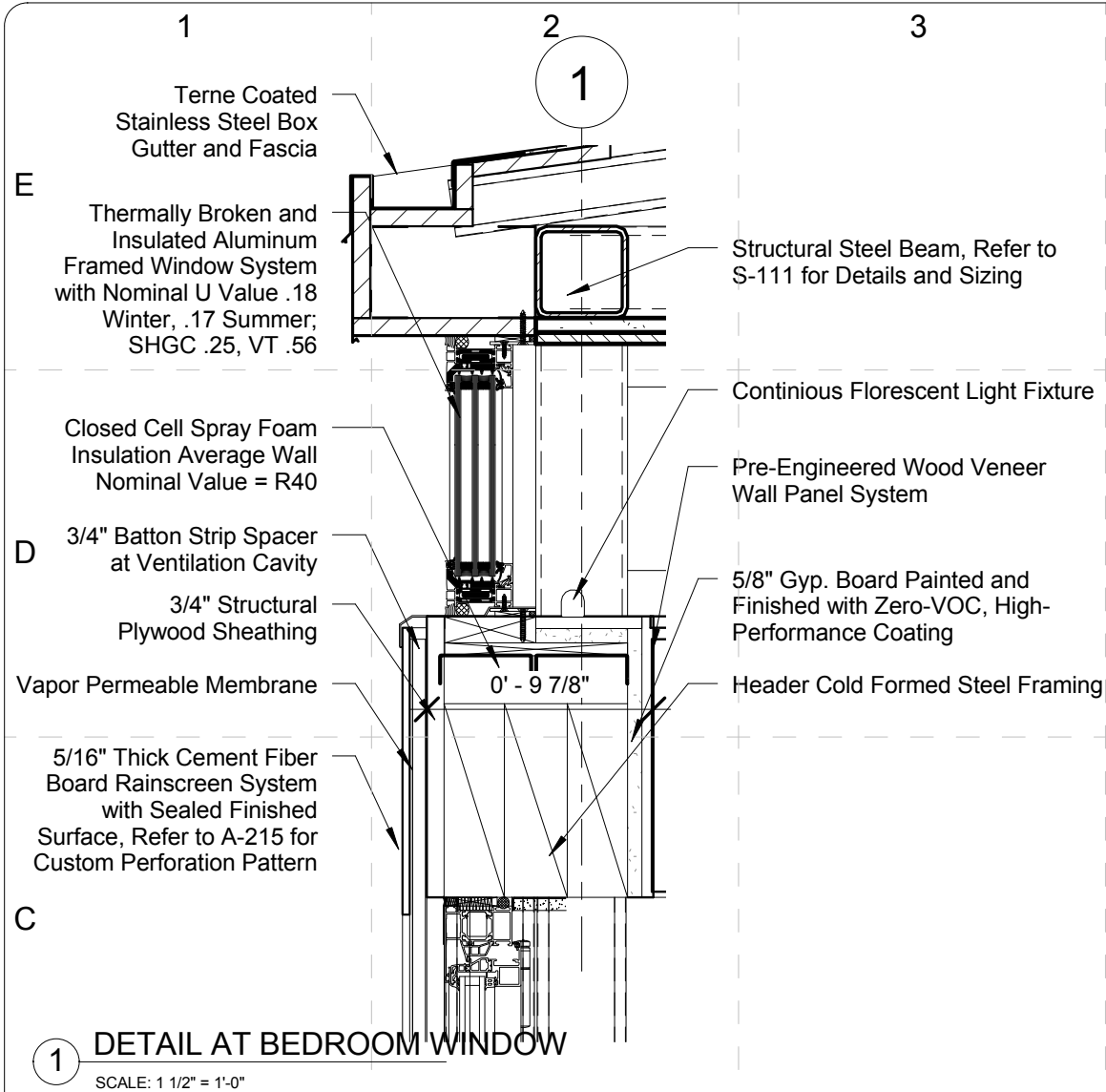

skyblue

SHEET TITLE:

Details-Entry

A-517

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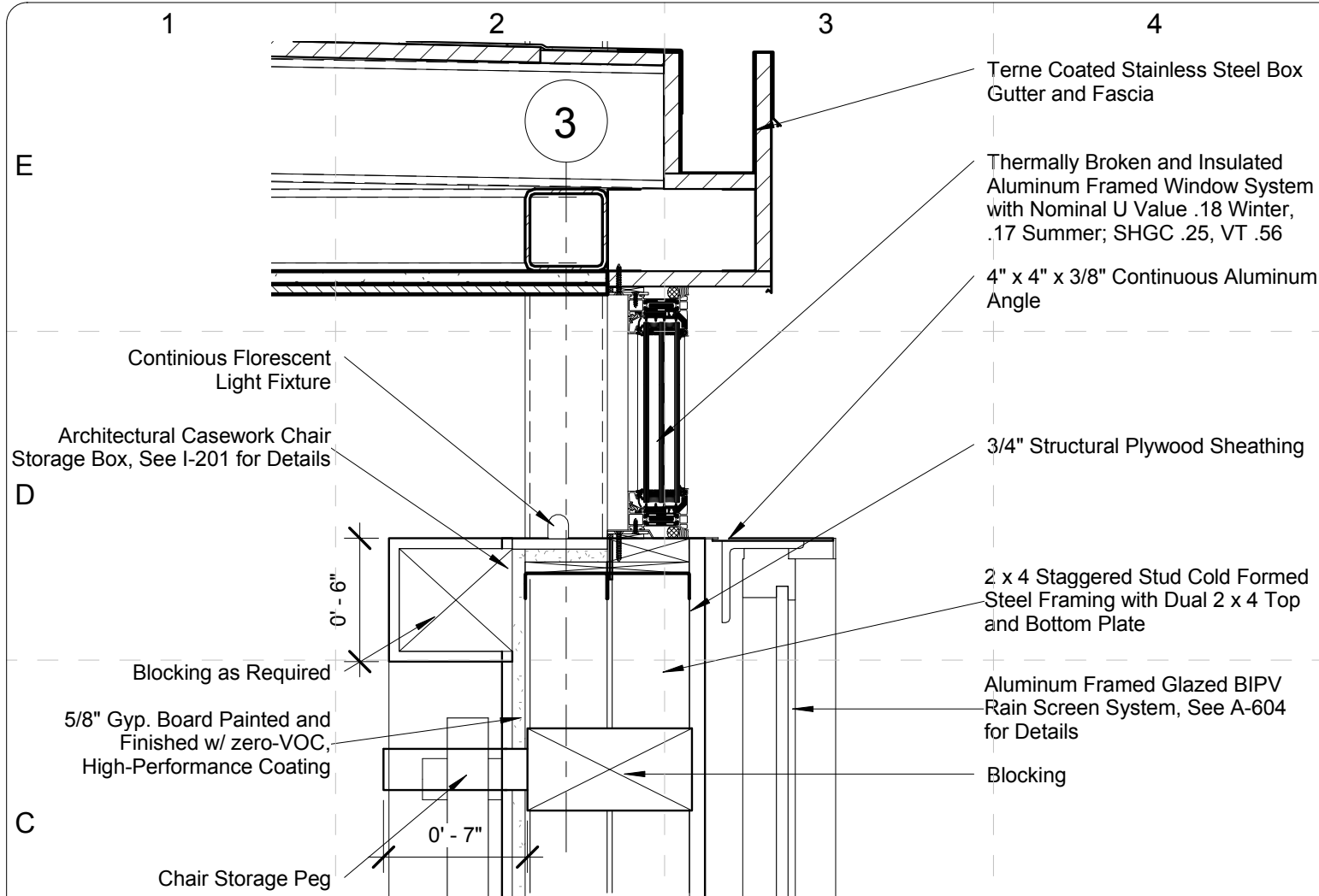


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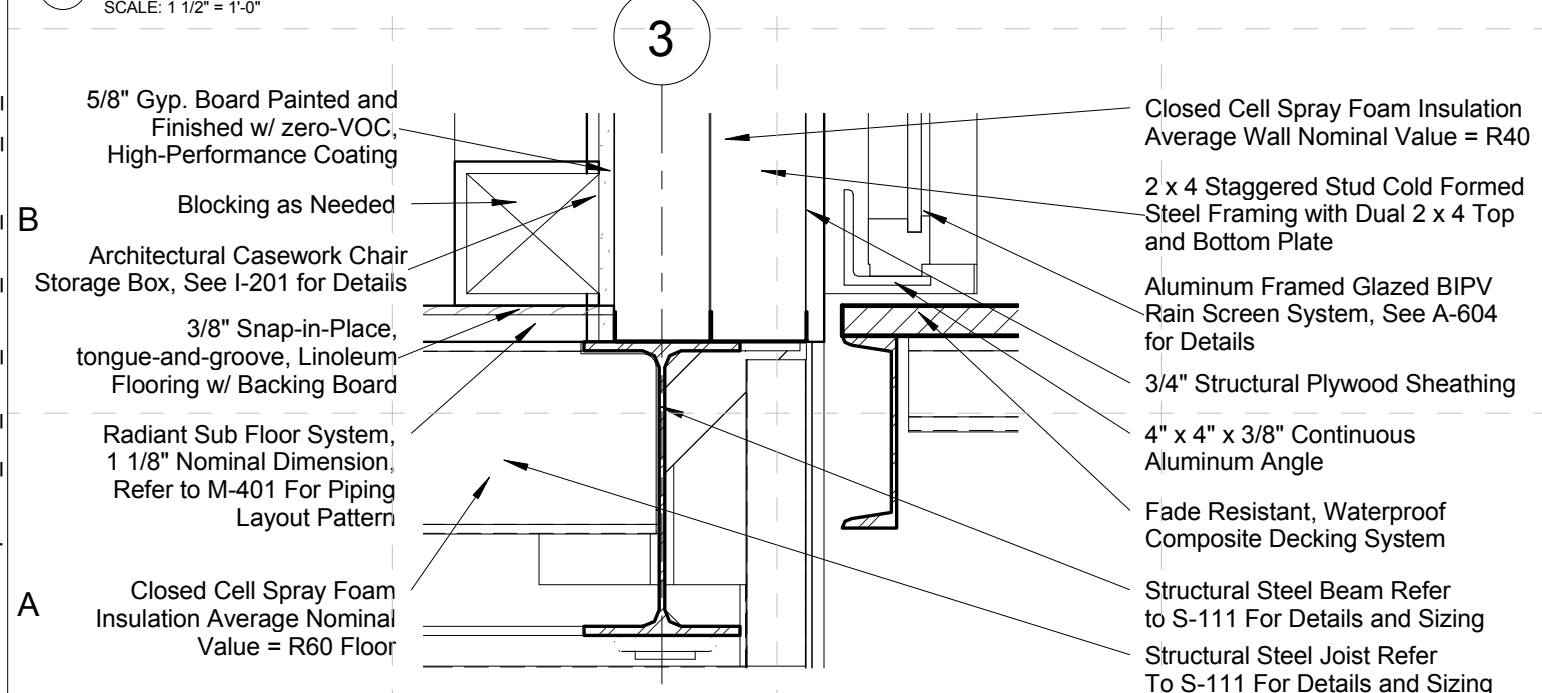
2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY _S12209 DRAWN BY: RAJ.MRG APPROVED BY: [Signature] DATE CREATED: 02/22/09 DATE RECEIVED: 02/22/09
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SHEET TITLE:
Details-Bedroom

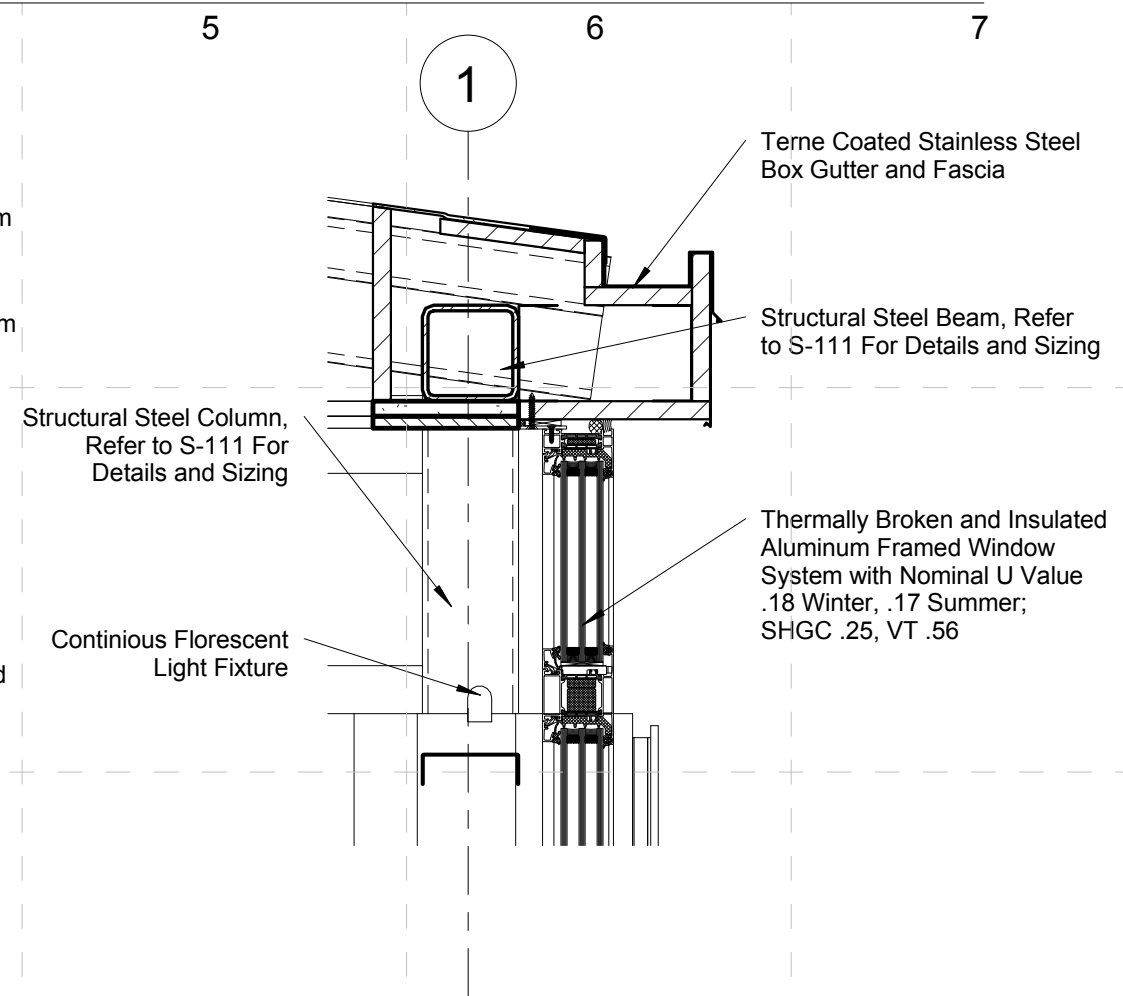
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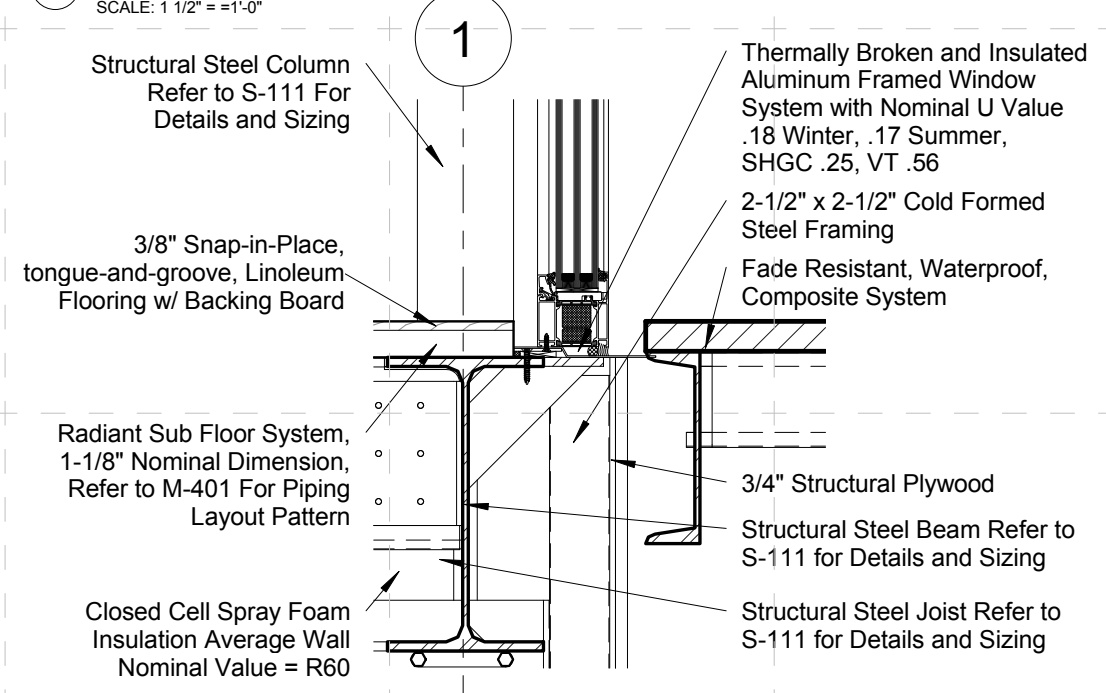
1 DETAIL OF SECTION AT CHAIRWALL TOP
SCALE: 1 1/2" = 1'-0"



3 DETAIL OF SECTION AT BASE OF CHAIRWALL
SCALE: 1 1/2" = 1'-0"



2 DETAIL OF SECTION AT BRACING TOP
SCALE: 1 1/2" = 1'-0"



4 DETAIL OF SECTION AT BRACING BASE
SCALE: 1 1/2" = 1'-0"

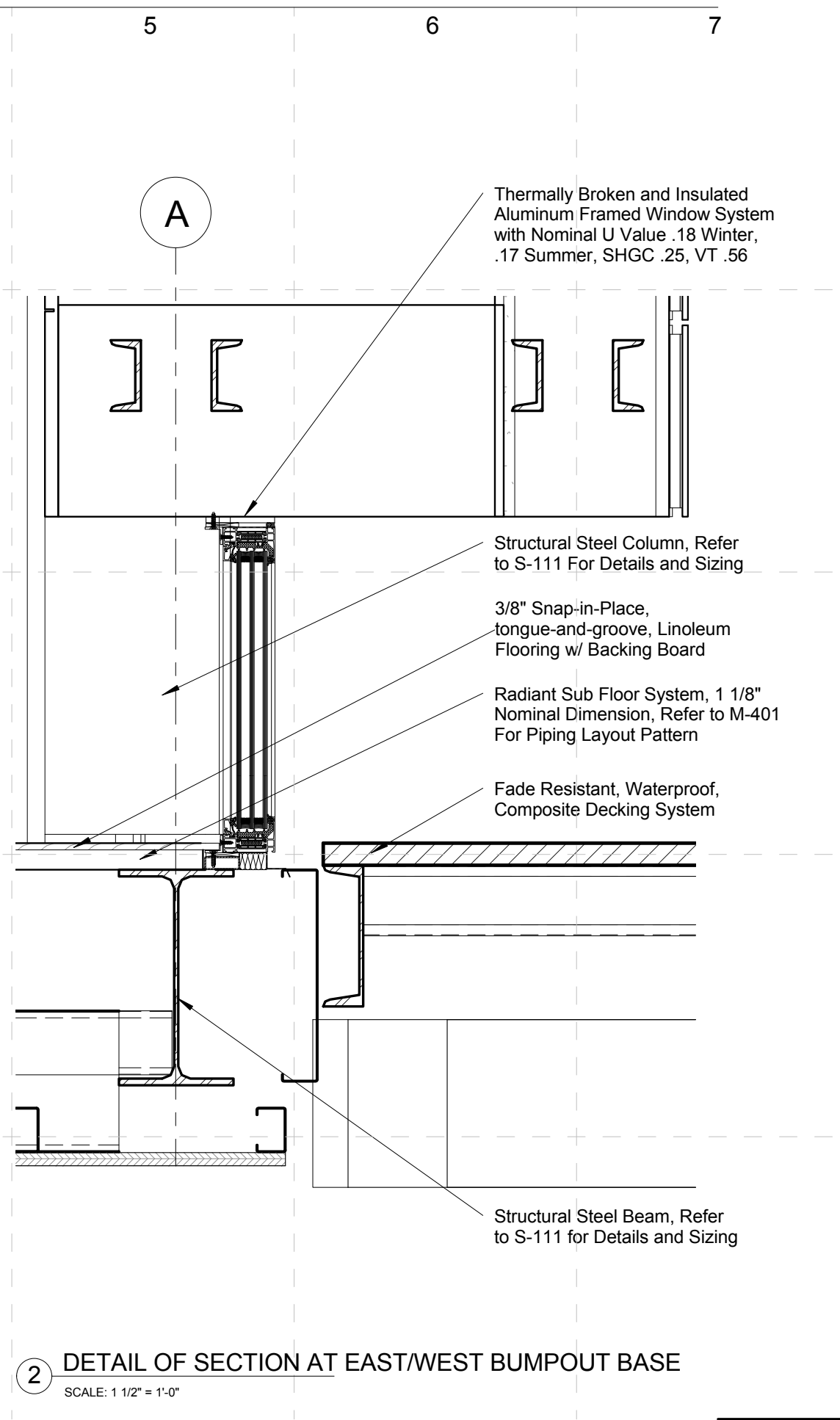
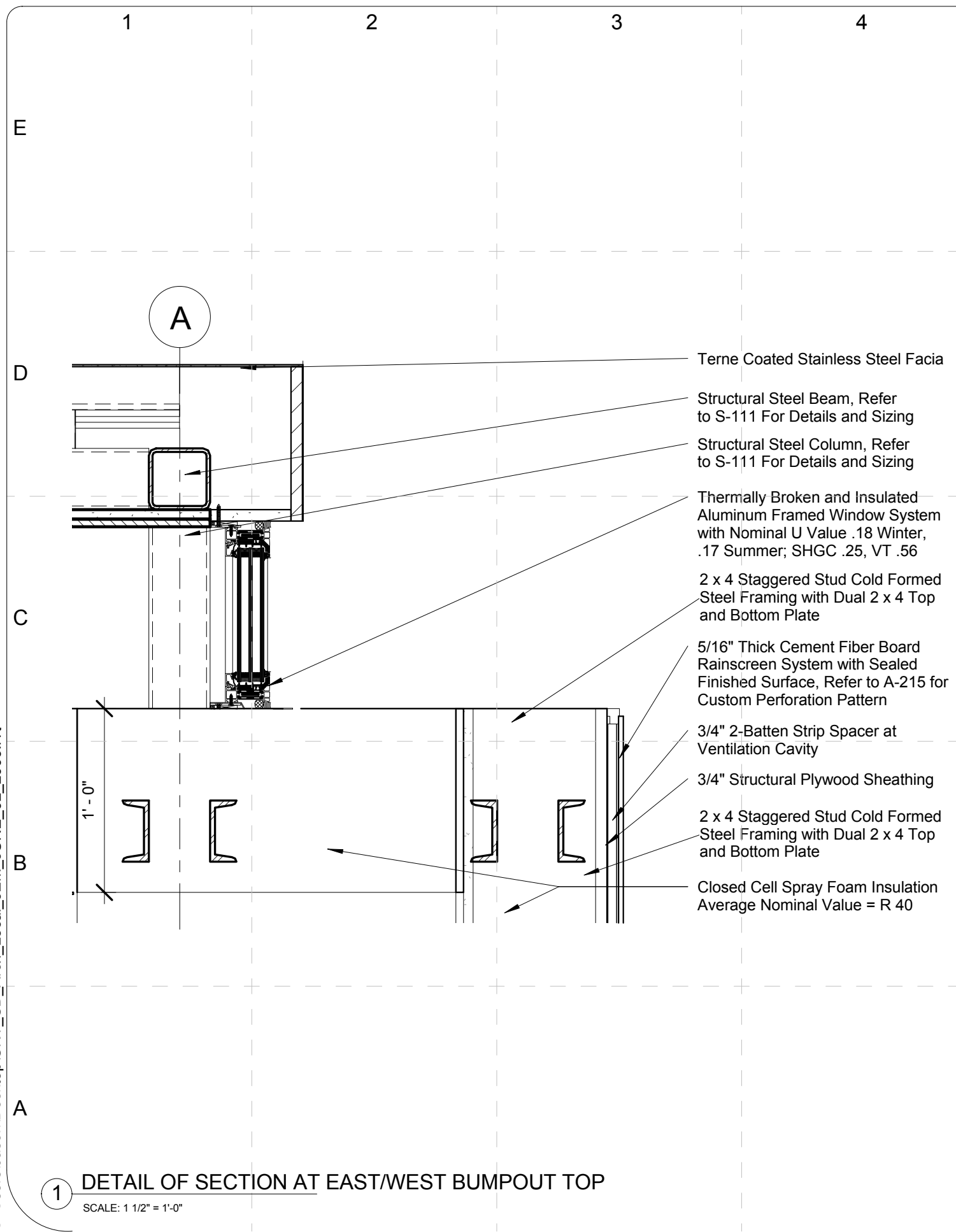
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SHEET TITLE:

Details-Wall
Connections

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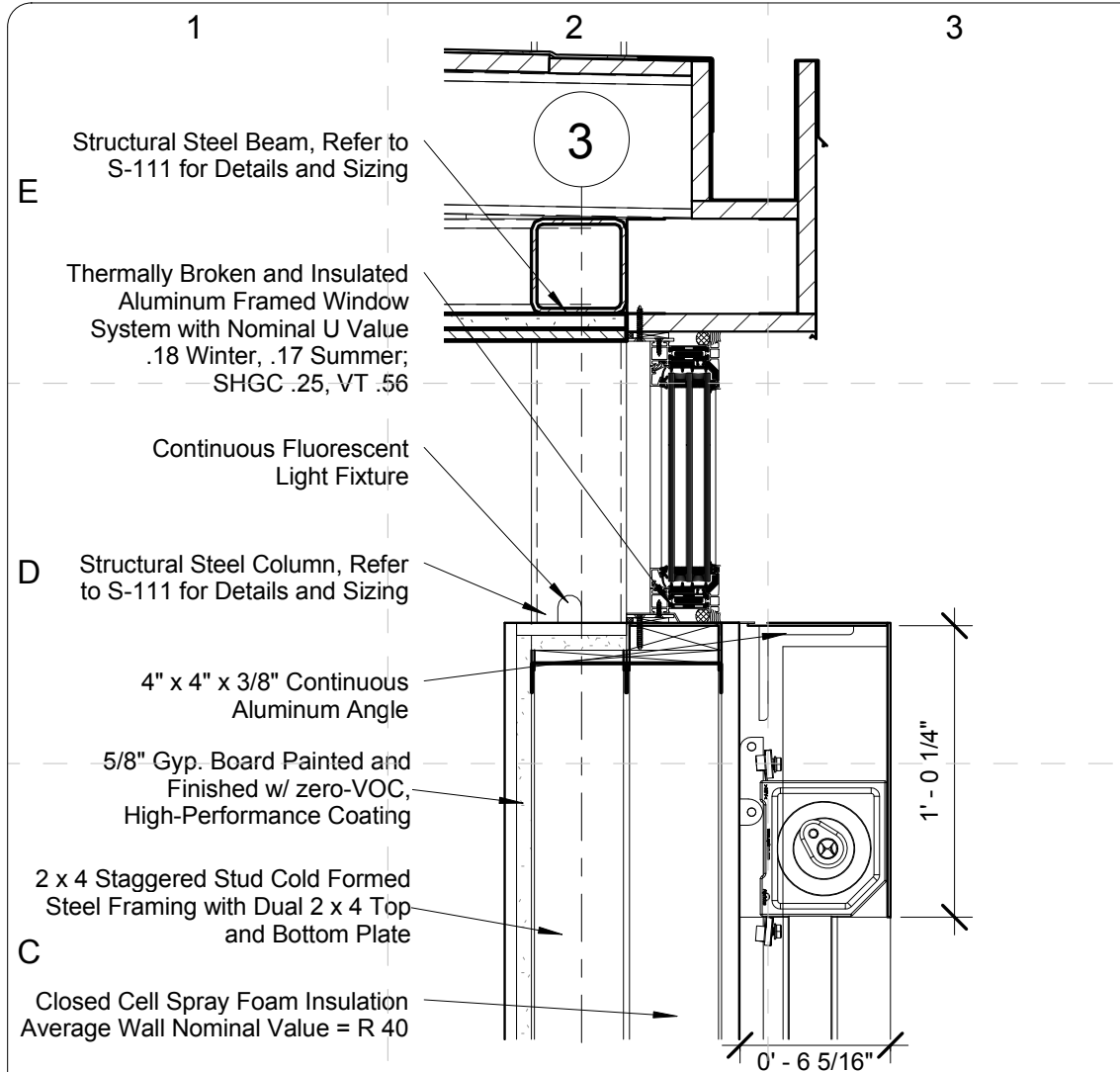
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DRAWN BY: RJA/MRG
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DATE CREATED: 05/13/09
DATE RECEIVED: 05/13/09

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Details- Wall Connections

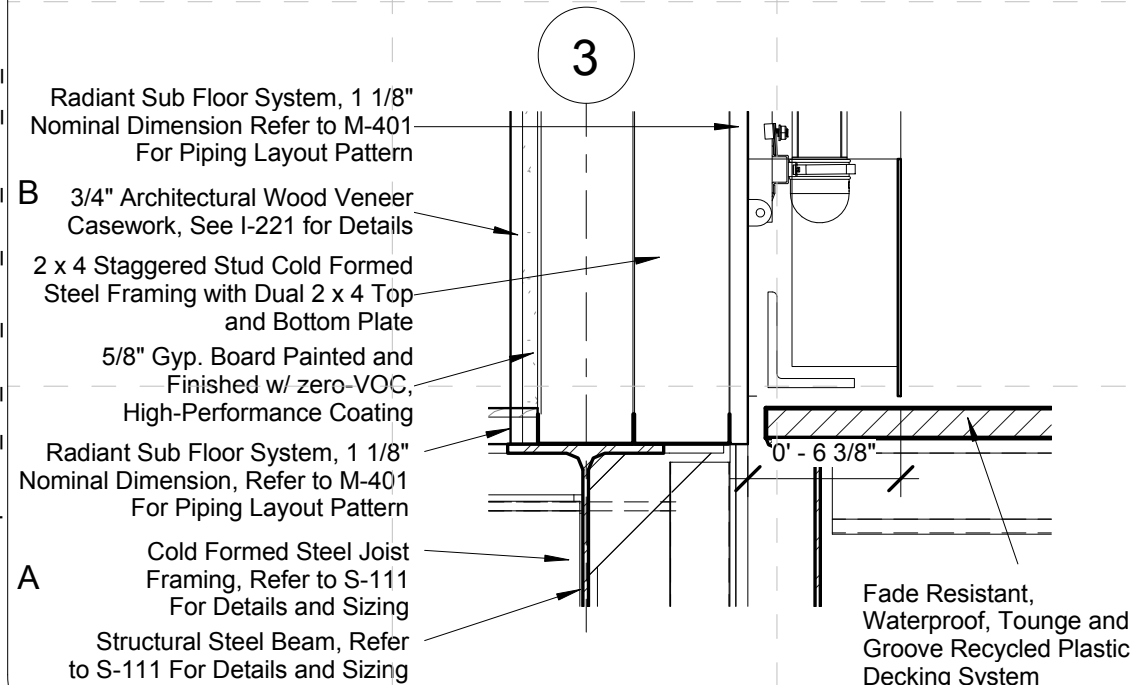
A-521

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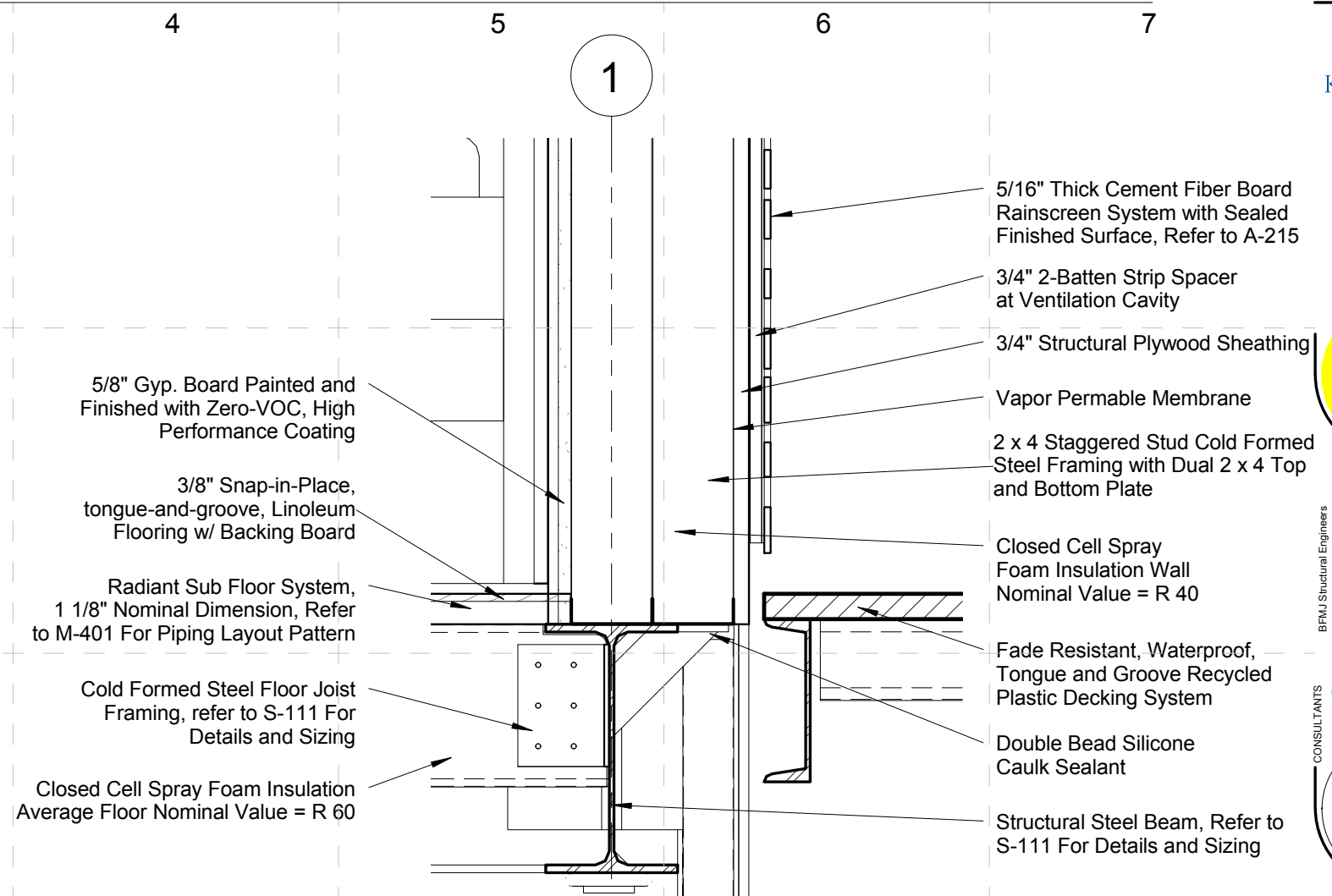
1 DETAIL OF SECTION AT SOLARTUBES TOP

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



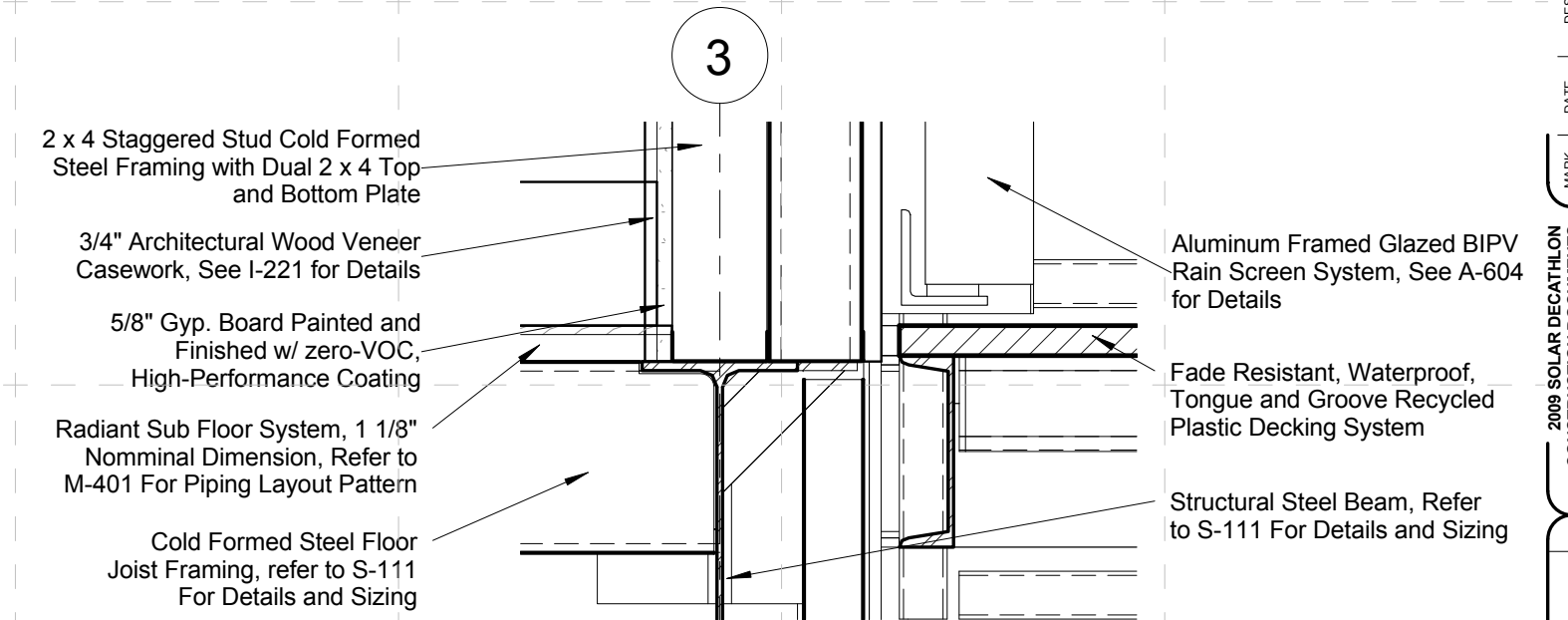
3 DETAIL OF SECTION AT SOLARTUBES BASE

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



2 DETAIL AT BED W/ CLOSET BOTTOM

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



4 DETAIL OF SECTION AT SKIRT WALL BASE

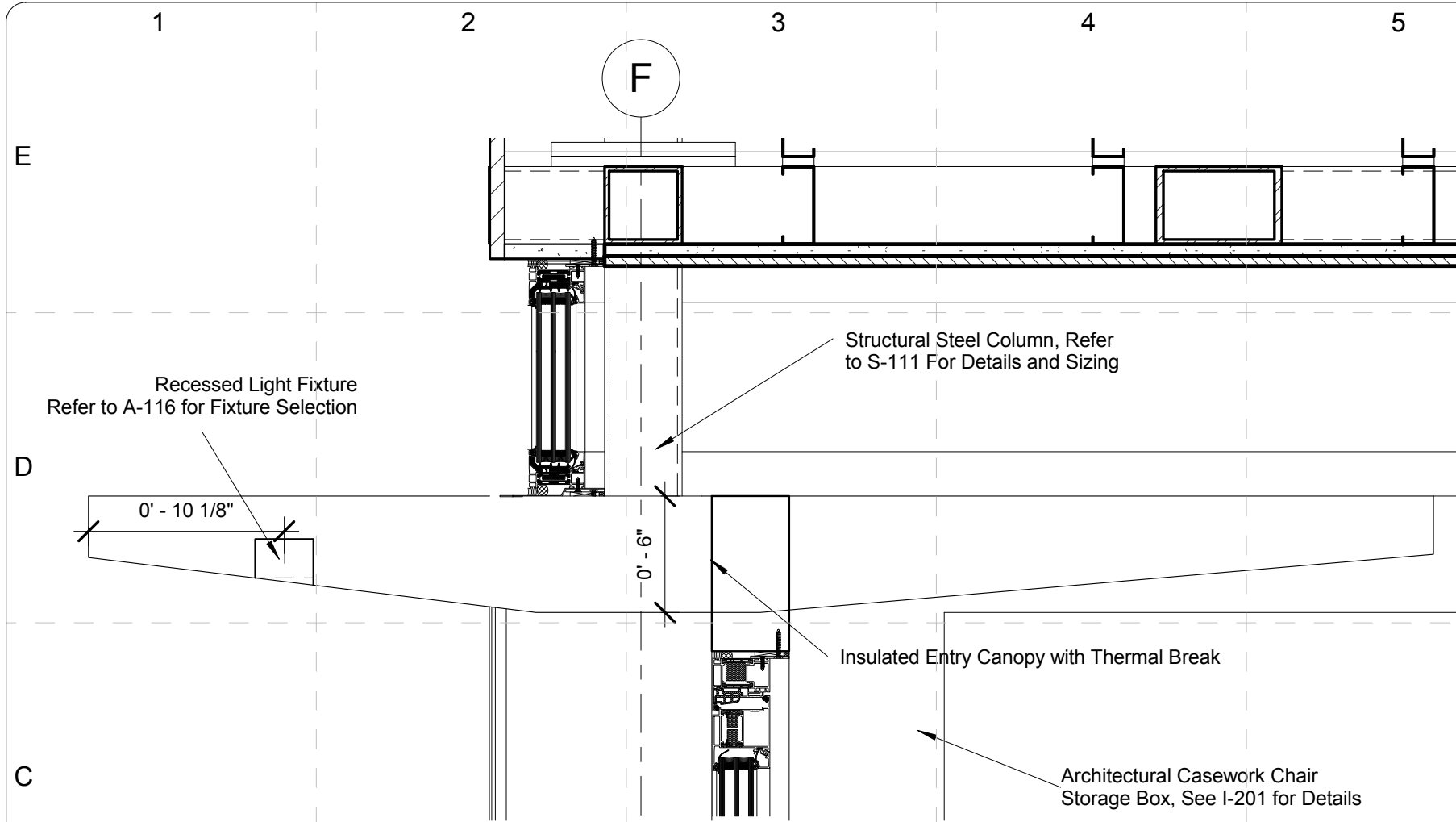
SCALE: 1 1/2" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

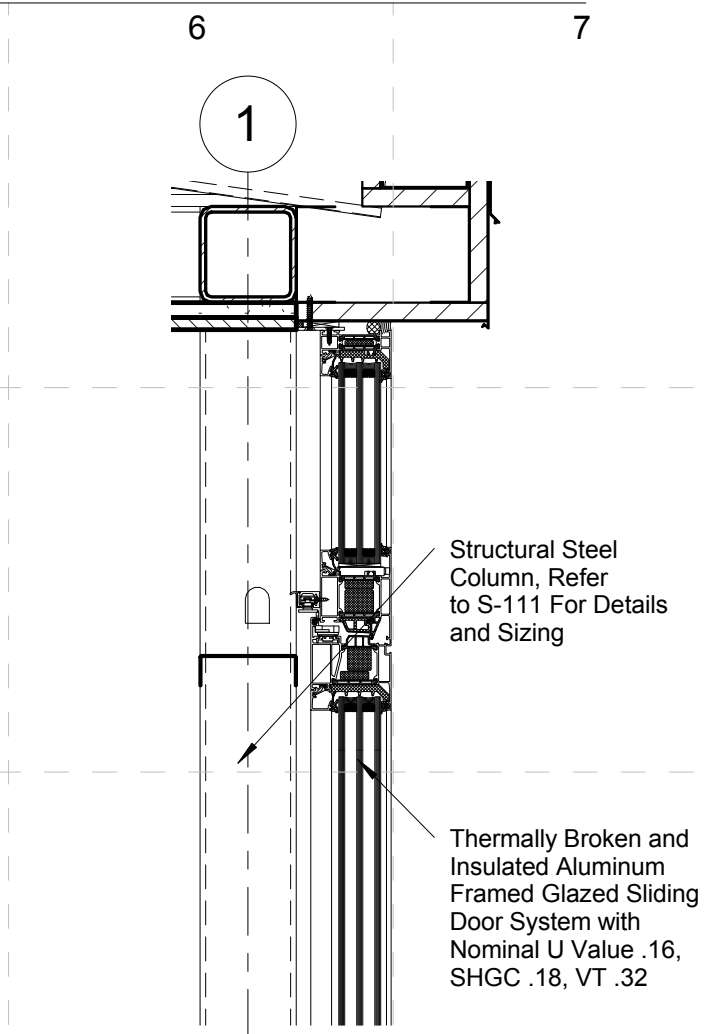
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Details-Wall Connections

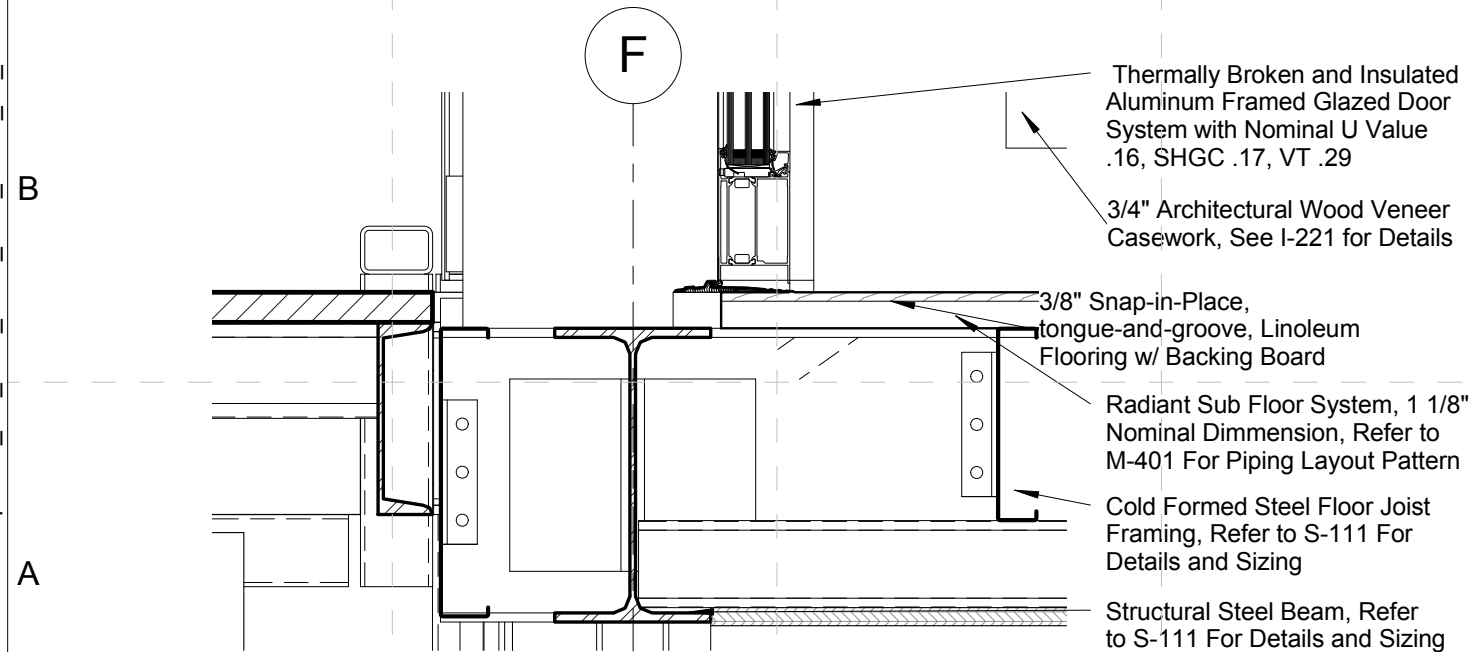
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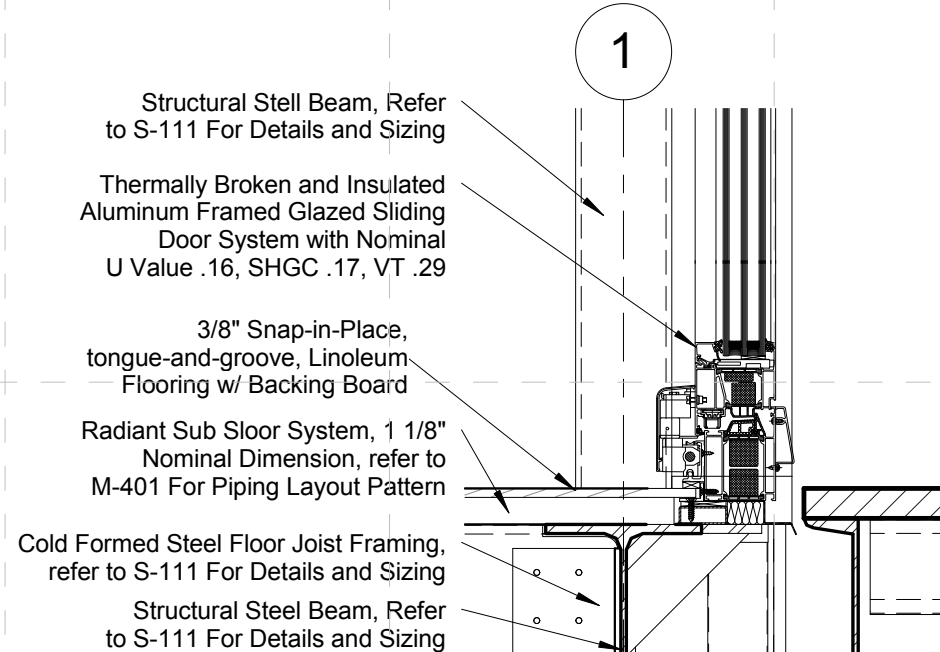
1 DETAIL AT EAST/WEST DOOR THRESHOLD TOP
SCALE: 1 1/2" = 1'-0"



2 DETAIL AT NORTH DOOR THRESHOLD TOP
SCALE: 1 1/2" = 1'-0"



3 DETAIL AT EAST/WEST DOOR THRESHOLD BASE
SCALE: 1 1/2" = 1'-0"



4 DETAIL AT NORTH DOOR THRESHOLD BASE
SCALE: 1 1/2" = 1'-0"

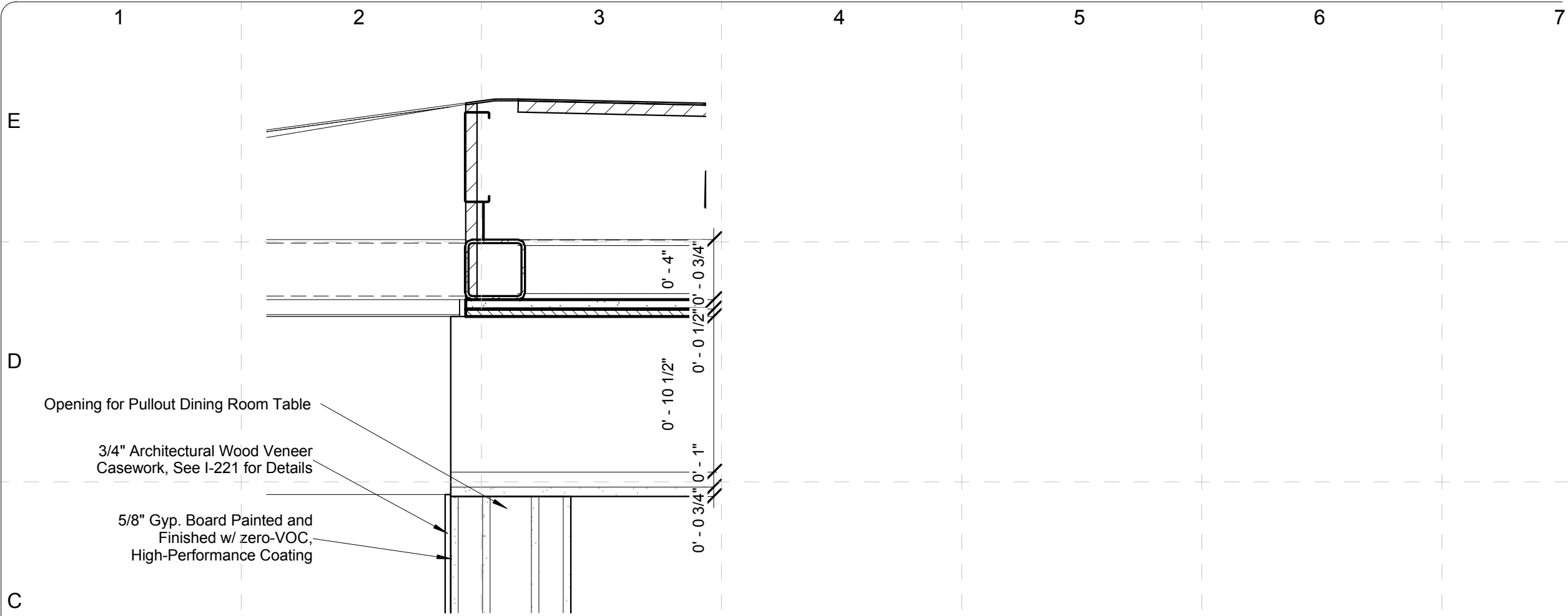
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DATE CREATED: 02/20/09
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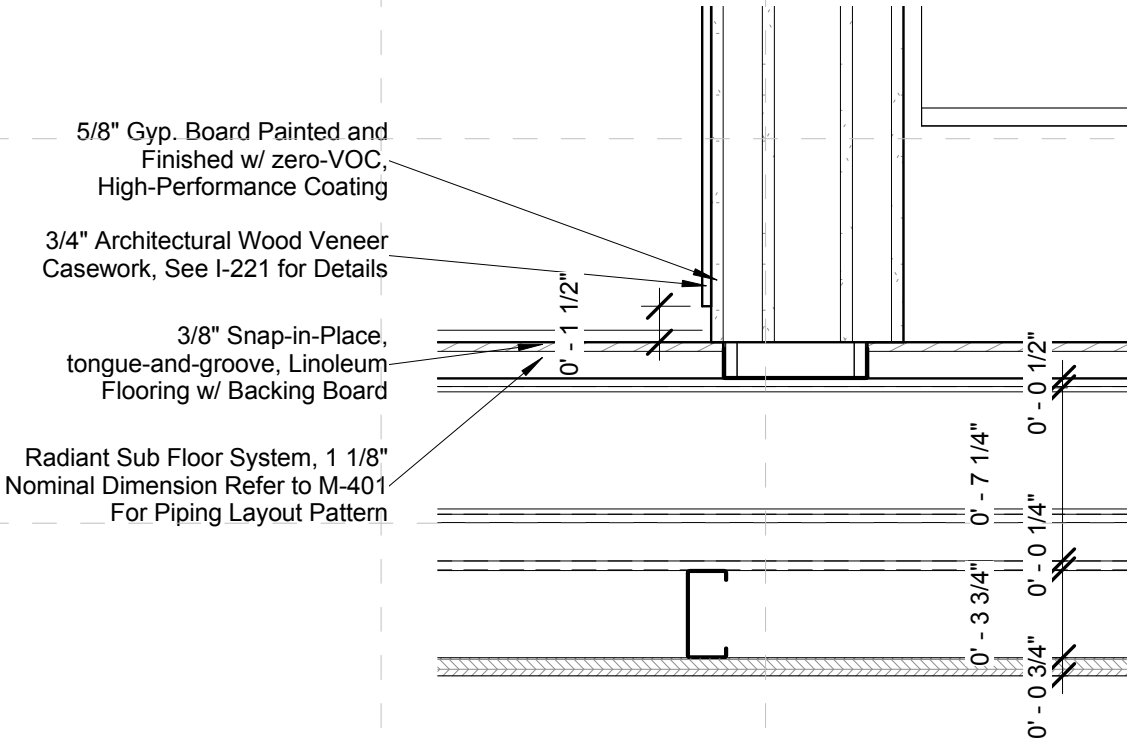
SHEET TITLE:

Details-Wall
Connections



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1 DETAIL AT DINING ROOM TABLE WALL TOP
SCALE: 1 1/2" = 1'-0"





2 DETAIL AT DINING ROOM TABLE WALL BASE
SCALE: 1 1/2" = 1'-0"



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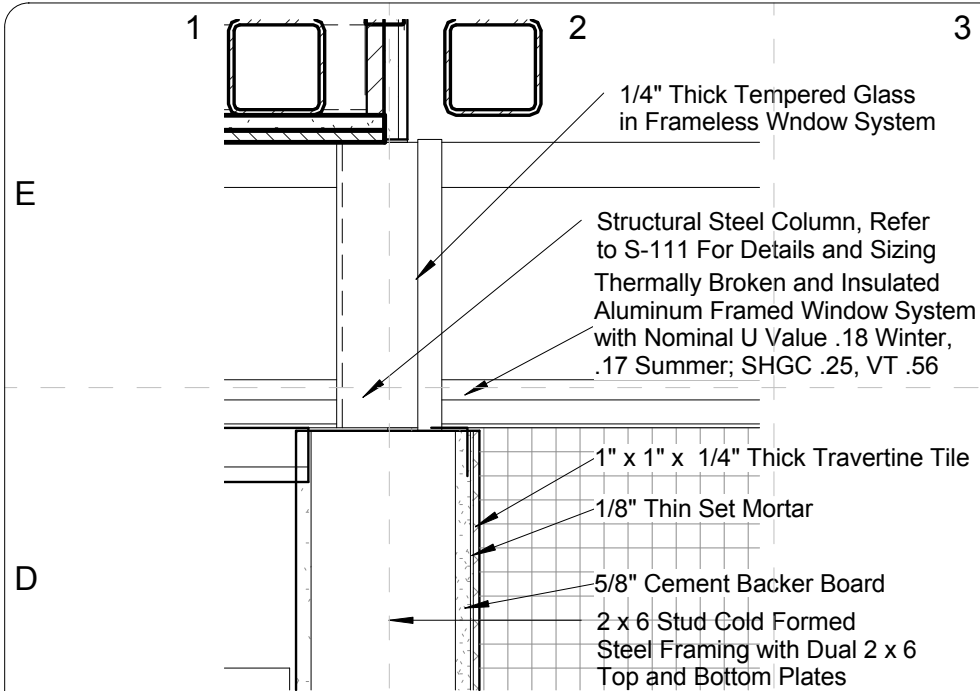
COMMENTS

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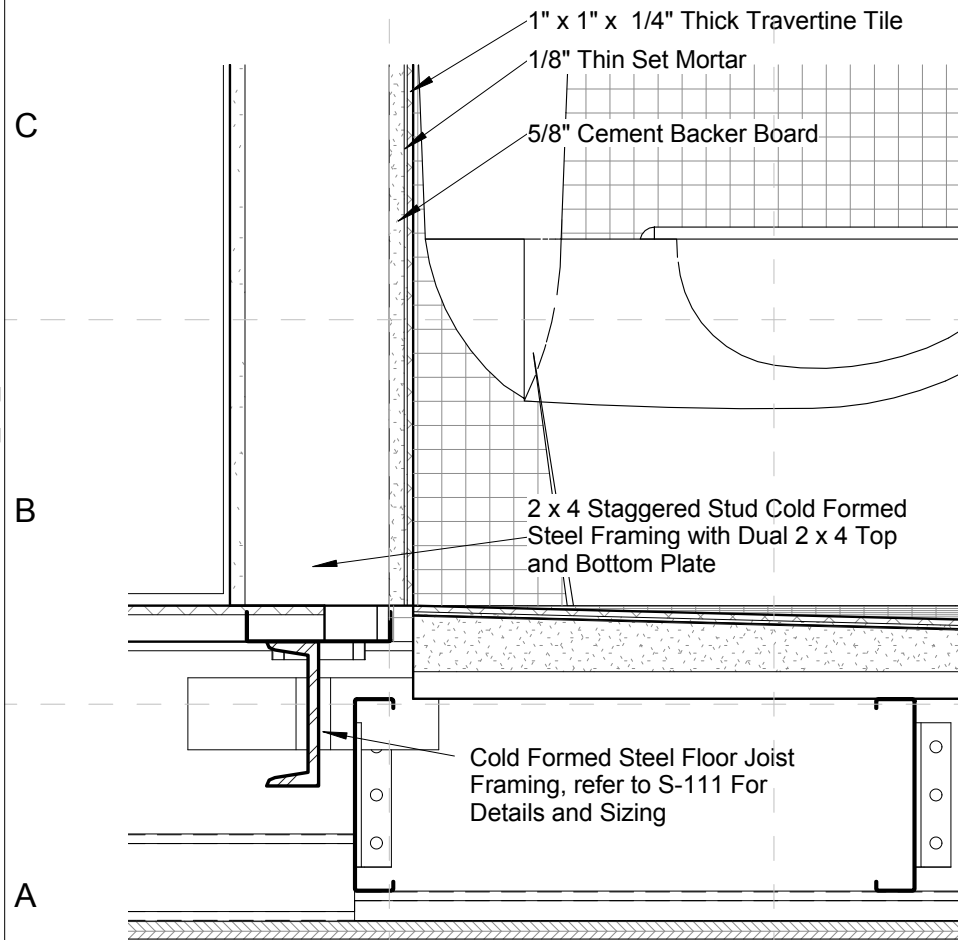
Details-Kitchen

A-524

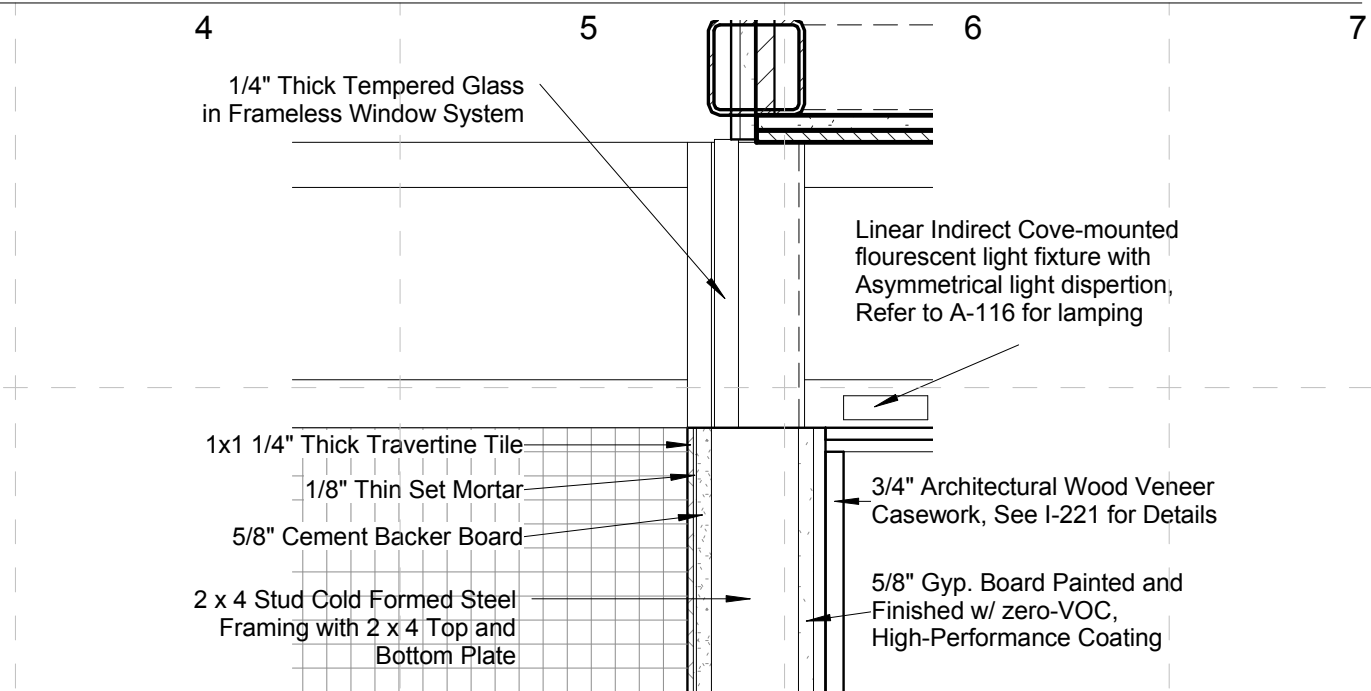
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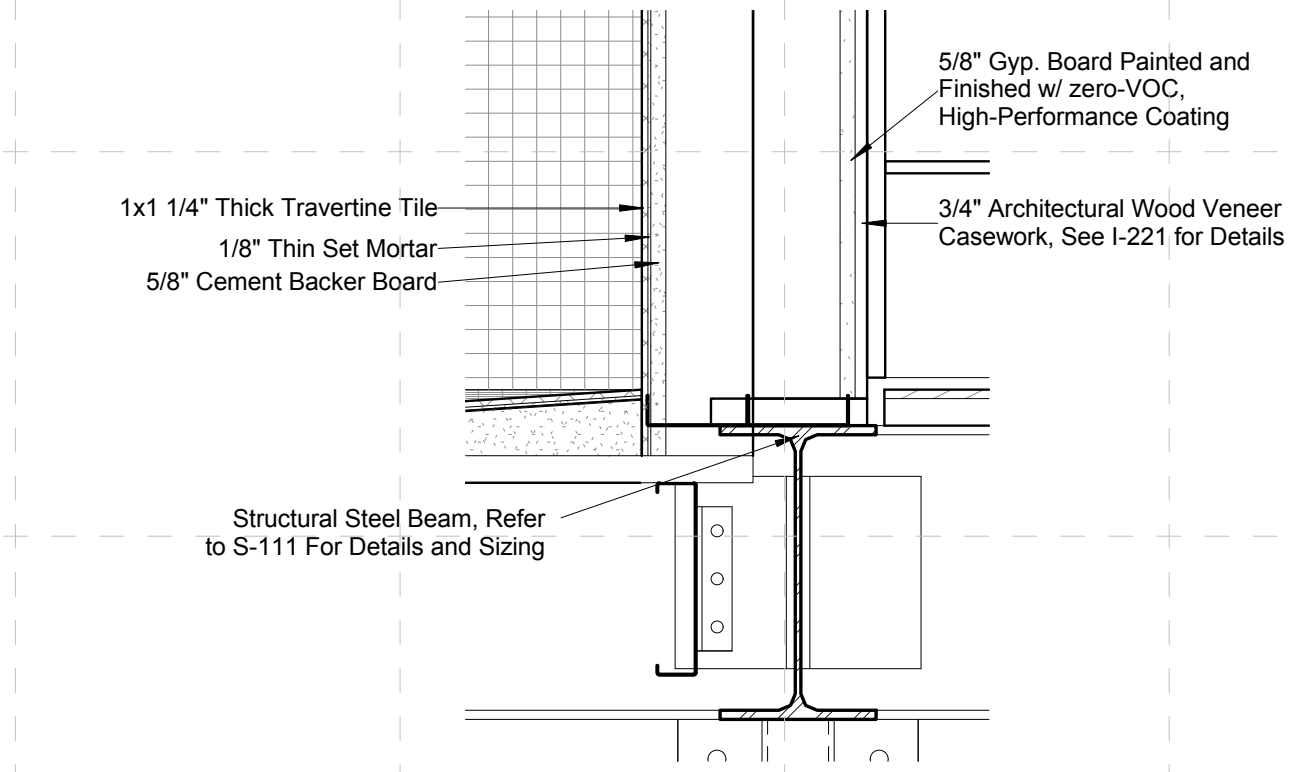
1 DETAIL AT TOILET WALL TOP
SCALE: 1 1/2" = 1'-0"



2 DETAIL AT TOILET WALL BASE
SCALE: 1 1/2" = 1'-0"



3 DETAIL AT SHOWER WALL CLERESTORY
SCALE: 1 1/2" = 1'-0"



4 DETAIL AT SHOWER WALL BASE
SCALE: 1 1/2" = 1'-0"

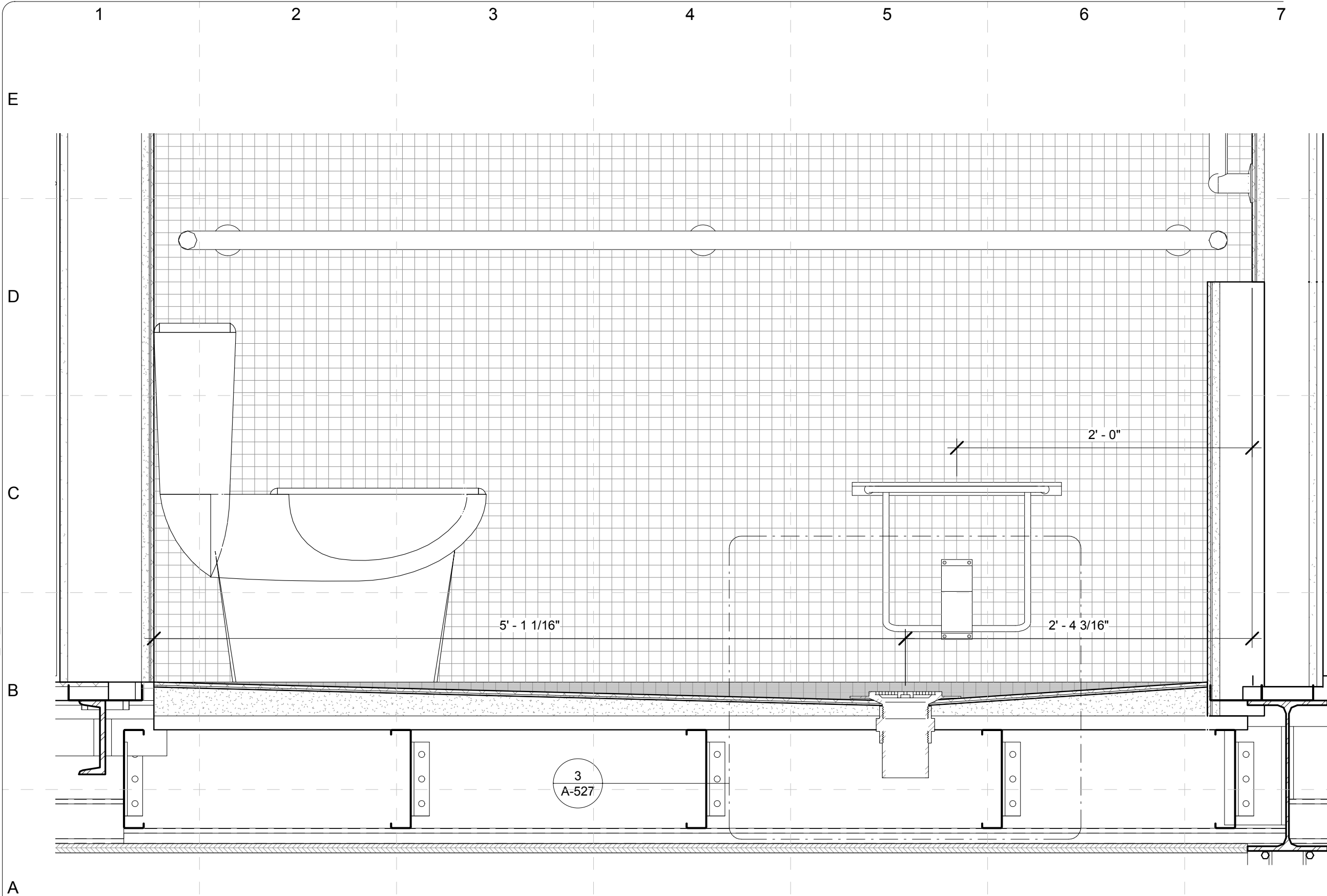
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DATE CREATED: 06/02/09	DATE RECEIVED: 06/02/09
COMMENTS:	

SHEET TITLE:

Details- Bathroom

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1 SECTION OF CORE - NORTH ELEVATION
SCALE: 1 1/2" = 1'-0"

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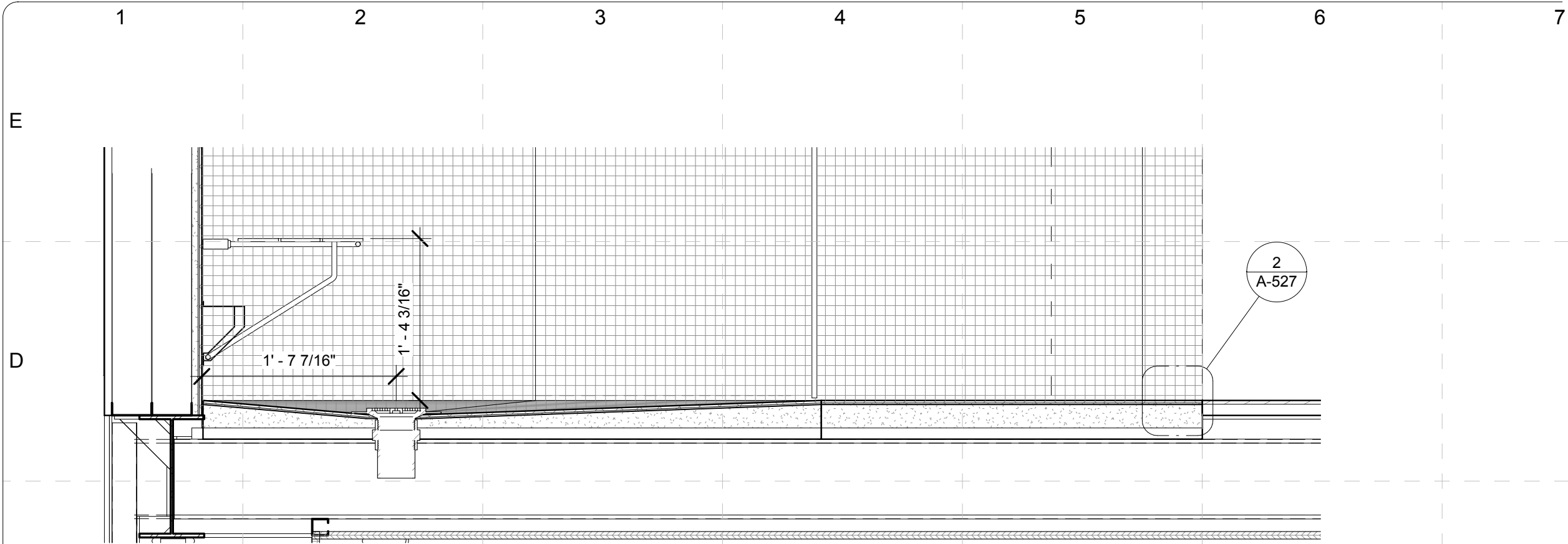
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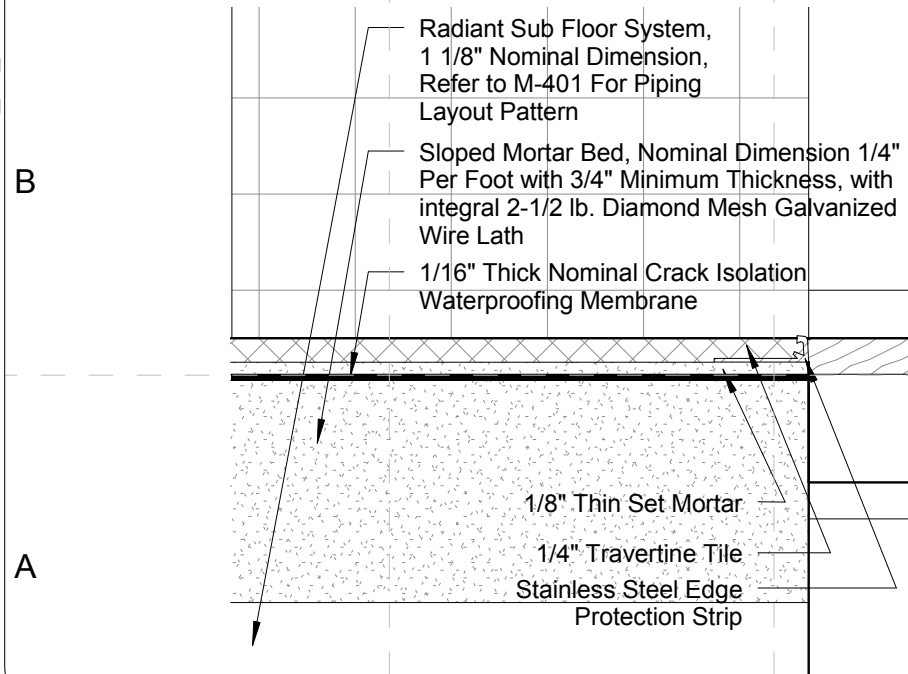
Details-Bathroom

A-526

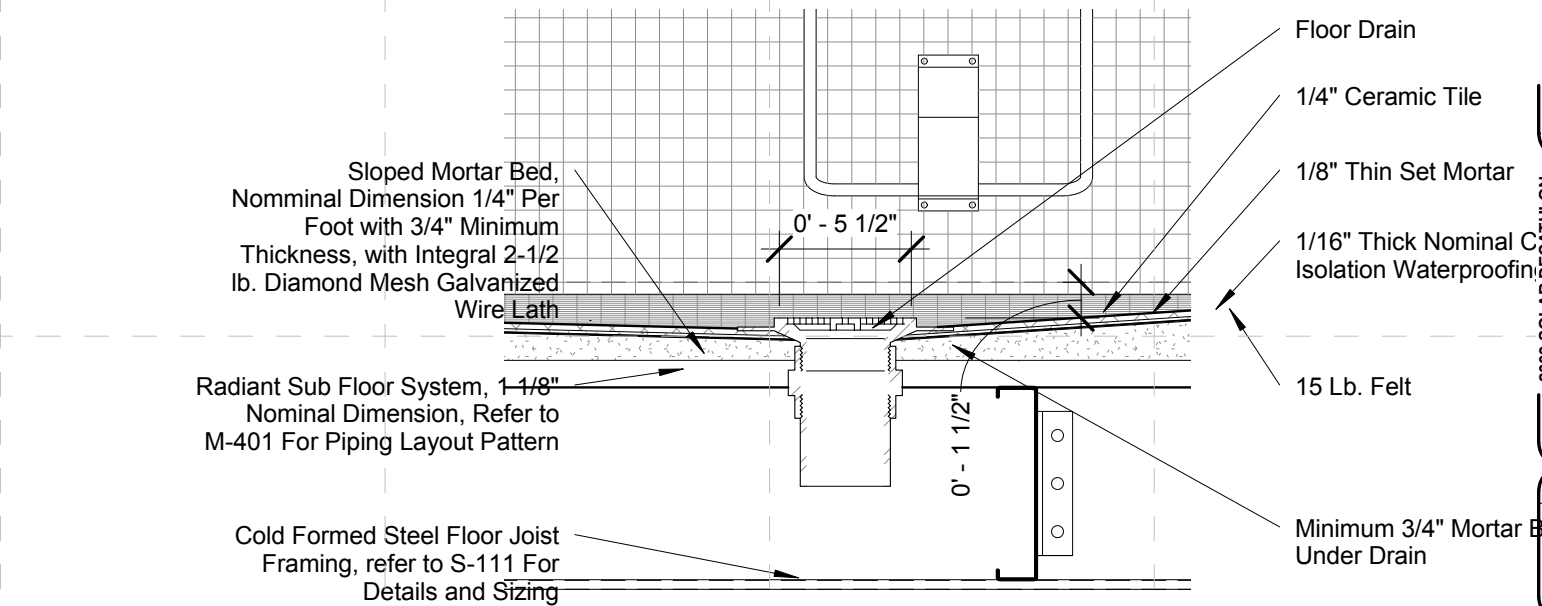
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1 SECTION OF CORE FLOOR THRESHOLD
SCALE: 1" = 1'-0"



2 DETAIL AT BATHROOM THRESHOLD
SCALE: 6" = 1'-0"





3 DETAIL AT BATHROOM DRAIN
SCALE: 1 1/2" = 1'-0"



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COMMENTS:

SHEET TITLE:

Details-Bathroom

A-527

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2 DOOR SCHEDULE

SCALE: NTS

1 DOOR TYPES

SCALE: 3/16" = 1'-0"

DOOR AND FRAME SCHEDULE																		
Mark	DOOR					DETAIL												
	Size			Material	Elevation	Glazing	Louver		Material	Frame Elev.	Glazing	Head	Jamb	Sill	Fire Rating Label	HARDWARE		Notes
	Width	Height	Thickness				Width	Height								Set Number	Keyside Room Number	
1	3' - 10 3/16"	6' - 10 11/16"	0' - 2"	Glass	First Floor	1-1/2" Insulated safety glass, Electrochromic, Tempered	N/A	N/A	Aluminum	-	Triple paned with argon gas, insulated, electrochromic, safety glass, tempered	6' - 10"	2"	0' - 0"	-	-	101	See E-602 for Electrical Panel Schedulewiring
2	3' - 10 3/16"	6' - 10 11/16"	0' - 2"	Glass	First Floor	1-1/2" Insulated safety glass, Electrochromic, Tempered	N/A	N/A	Aluminum	-	Triple paned with argon gas, insulated, electrochromic, safety glass, tempered	6' - 10"	2"	0' - 0"	-	-	106	See E-602 for Electrical Panel Schedulewiring
3	7' - 0-3/8"	8' - 5"	0' - 2 15/16"	Tilt & Slide Sliding Glass	First Floor	1-1/2" Insulated safety glass, Electrochromic, Tempered	N/A	N/A	Aluminum	-	Triple paned with argon gas, insulated, electrochromic, safety glass, tempered	7' - 6"	2"	0' - 0"	-	-	102	See E-602 for Electrical Panel Schedulewiring
4	7' - 0-3/8"	8' - 5"	0' - 2 15/16"	Tilt & Slide Sliding Glass	First Floor	1-1/2" Insulated safety glass	N/A	N/A	Aluminum	-	Triple paned with argon gas, insulated, electrochromic, safety glass, tempered	7' - 6"	2"	0' - 0"	-	-	102	N/A
5	5' - 0"	6' - 8"	0' - 1-1/2"	Metal, CBF	First Floor	N/A	Full Height Perf. Panel	Full Height Perf. Panel	Aluminum	-	N/A	6' - 8"	2"	0' - 0"	-	-	103	Clad in cement fiber board
6	2' - 3"	6' - 8"	0' - 1'-1/2"	Metal, CBF	First Floor	N/A	Full Height Perf. Panel	Full Height Perf. Panel	Aluminum	-	N/A	6' - 8"	2"	0' - 0"	-	-	103	Clad in cement fiber board
7	3' - 0"	7' - 0"	0' - 0-3/8"	Glass	First Floor	Acid Etched, Tempered	Full Height Perf. Panel	Full Height Perf. Panel	Stainless Steel	-	Acid Etched, Tempered	7' - 0"	N/A	0' - 0"	-	-	105	See I-131 for hardware

SHEET TITLE:

Schedule-Door and Frame

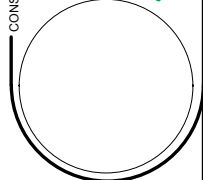
A-601

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009
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PROJECT NO: UKY _SD2009	DESIGNED BY: GEL DB
DRAWN BY: UKY _SD2009	APPROVED BY: GEL
DATE CREATED: 12/10/08	DATE RECEIVED: 12/10/08

COMMENTS



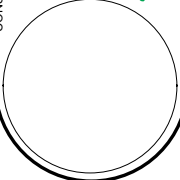




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WINDOW/SKYLIGHT SCHEDULE													
Mark	Size		Type	Material	Glazing	Fire Rating	Detail					Notes	
	Width	Height					Head	Jamb	Sill	Horizontal Mullion	Vertical Mullion		
E	1	3'-11"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	2	4'-5 1/16"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	3	3'-3 1/2"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
D	4	4'-1"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	5	4'-5 1/16"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	6	4'-5 1/16"	11"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-604	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
C	7	6'-2 1/2"	1'-5"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-511	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	8	6'-5 1/4"	1'-5"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-521	A-511	A-521	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	9	2'-5"	3'-9"	Tilt and Turn	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-519	N/A	A-519	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
B	10	2'-7 3/4"	8'-5"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-402	A-603	A-402	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	11	3'-11 1/2"	8'-5"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-402	A-603	A-402	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
	12	4'-5 5/16"	8'-5"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-402	A-603	A-402	N/A	N/A	Low-E, Triple Insulated, Tempered Safety Glass with UV Protection and Argon Gas
A	16	3'-11 1/2"	7'-5 7/16"	Fixed	Aluminum	11 MM BIPV Laminated Glass	N/A	A-513	A-513	A-513	N/A	N/A	BIPV PROSOL Solar Element Type A, 5mm HS Glass Low Iron; 2mm Resin with Solar Cells; 4mm HS Glass Clean
	17	3'-11 1/2"	7'-5 7/16"	Fixed	Aluminum	11 MM BIPV Laminated Glass	N/A	A-513	A-513	A-513	N/A	N/A	BIPV PROSOL Solar Element Type A, 5mm HS Glass Low Iron; 2mm Resin with Solar Cells; 4mm HS Glass Clean
	18	3'-11 1/2"	7'-5 7/16"	Fixed	Aluminum	11 MM BIPV Laminated Glass	N/A	A-513	A-513	A-513	N/A	N/A	BIPV PROSOL Solar Element Type A, 5mm HS Glass Low Iron; 2mm Resin with Solar Cells; 4mm HS Glass Clean
	21	14'-11"	1'-9"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-514	N/A	A-514	N/A	N/A	Skylight, Low-E Argon Filled Triple Insulated Tempered Glass Over Laminated Glass with UV Protection
	18	7'-3 1/2"	1'-9"	Fixed	Aluminum	1 1/2" Cardinal 366 (2) Clear Triple Insulated	N/A	A-514	N/A	A-514	N/A	N/A	Skylight, Low-E Argon Filled Triple Insulated Tempered Glass Over Laminated Glass with UV Protection



2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
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PROJECT NO: UKY _SD2009
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APPROVED BY: Approver
DATE CREATED: 03/11/09
DATE RECEIVED: 03/11/09

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CD
REV
FINAL

DATE
12/16/2008
02/16/2009
04/16/2009
06/02/2009

DESCRIPTION
DESIGN/DEVELOPMENT
CONST. DOCUMENTS

COMMENTS

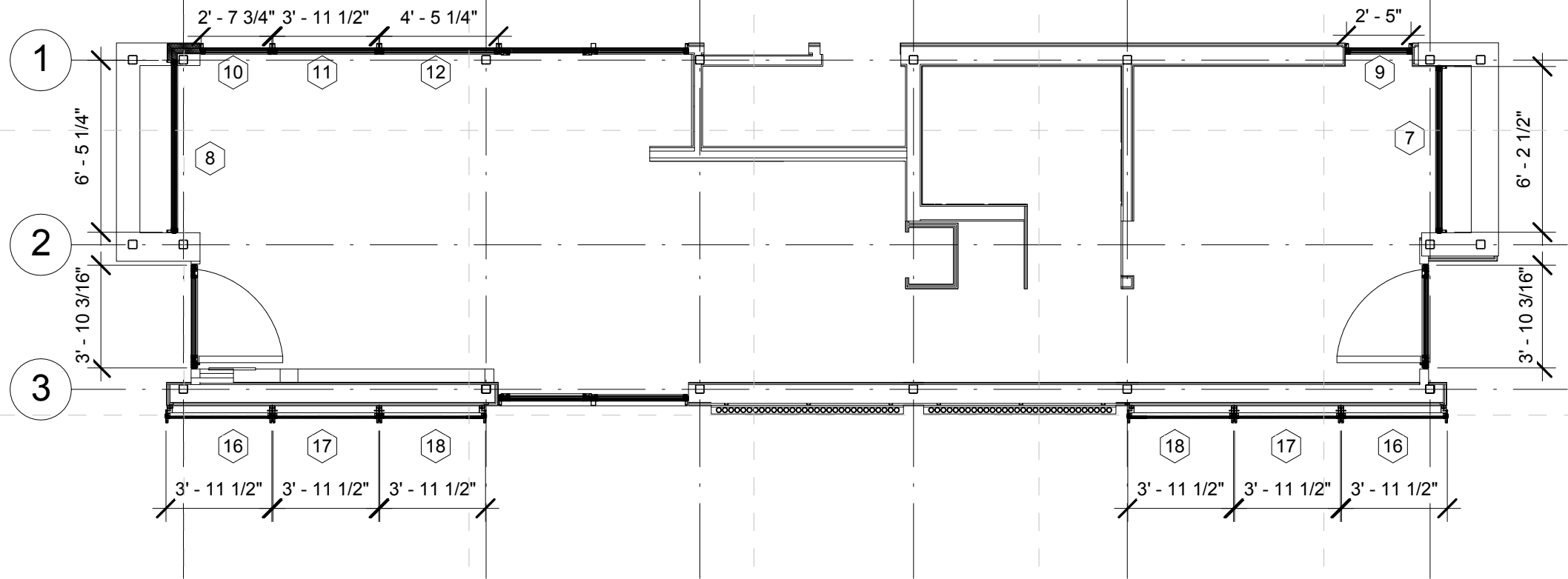
SHEET TITLE:
Schedule-Window/Skylight

A-602

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1 FENESTRATION- MAINLEVEL PLAN

SCALE: 3/16" = 1'-0"

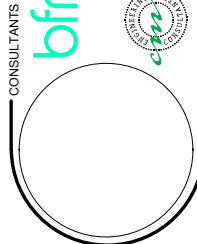


2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02.JUNE.2009
www.uky.edu/solarhouse
PROJECT NO: UKY _SD2009
DRAWN BY: Author
APPROVED BY: Approver
DATE CREATED: 03/11/09
DATE RECEIVED: 03/11/09
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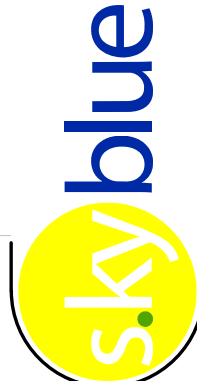
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Schedule-Window

A-603

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FINAL	06/02/2009	

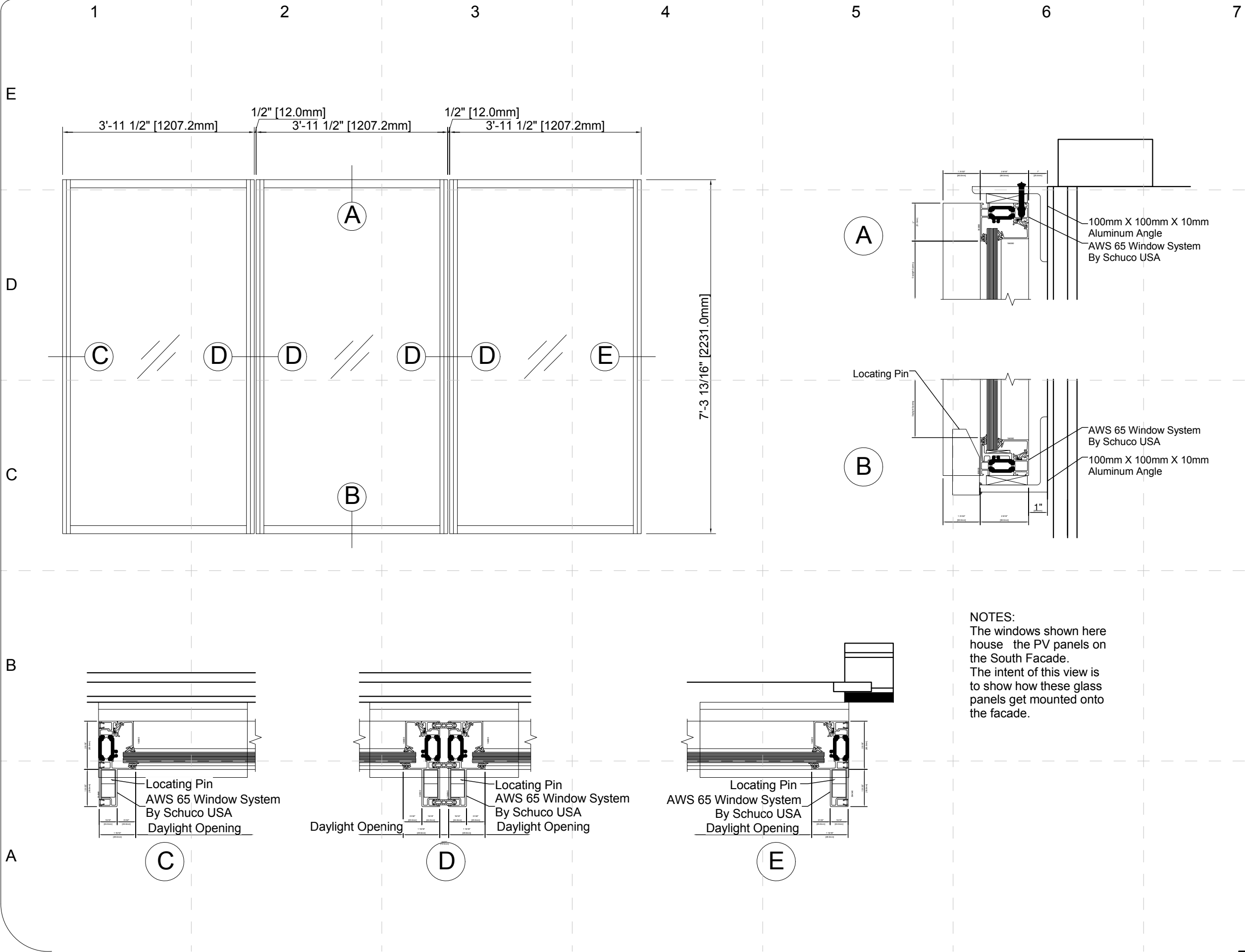


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NOTES:
The windows shown here
house the PV panels on
the South Facade.
The intent of this view is
to show how these glass
panels get mounted onto
the facade.

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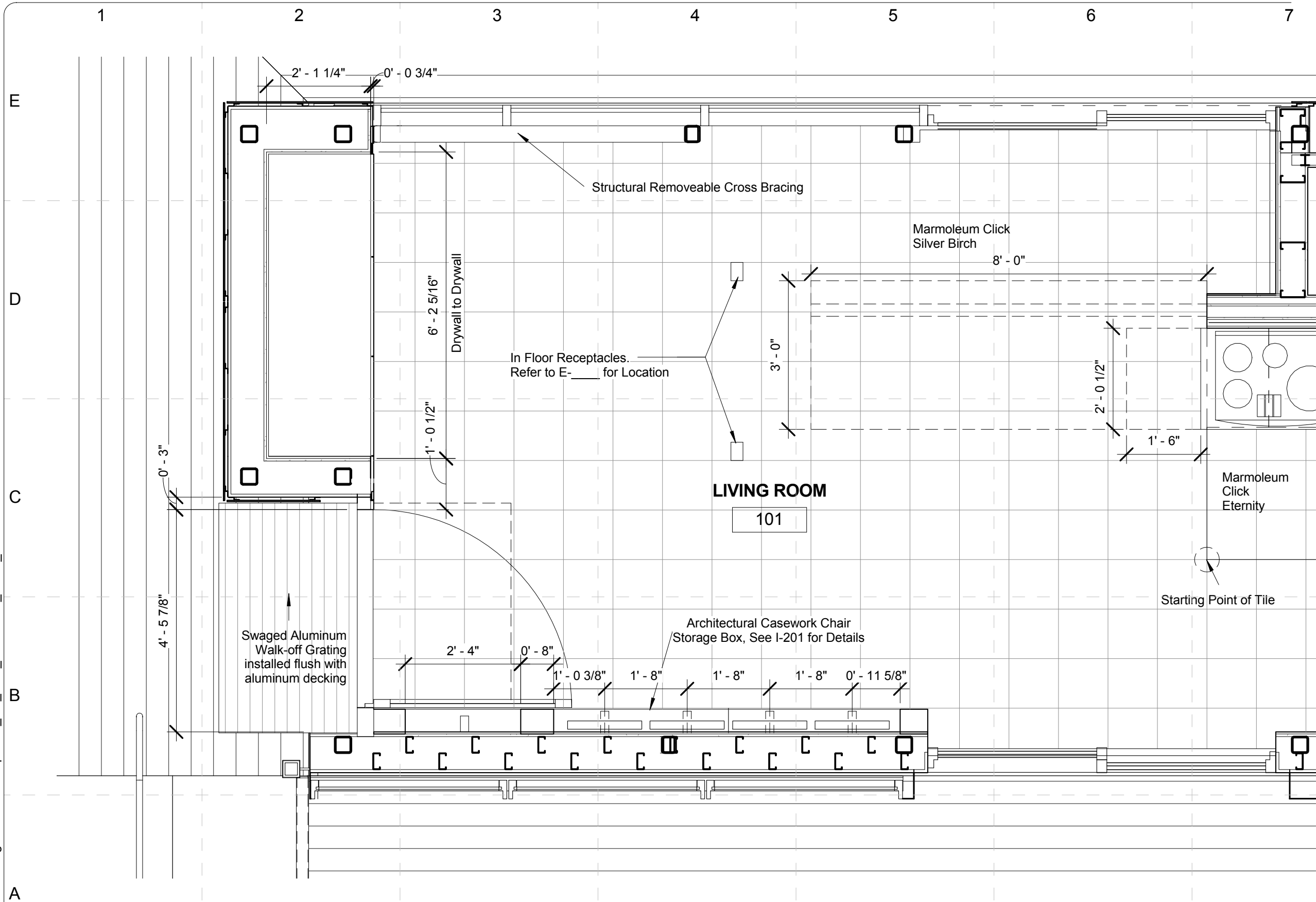
PROJECT NO: UKY _SD2009
DRAWN BY: Author
APPROVED BY: Approver
DATE CREATED: 04/01/09
DATE RECEIVED: 04/01/09

SHEET TITLE:

Details- PV
Mounting

A-606

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1 LIVING ROOM ENLARGED
SCALE: 1/2" = 1'-0"

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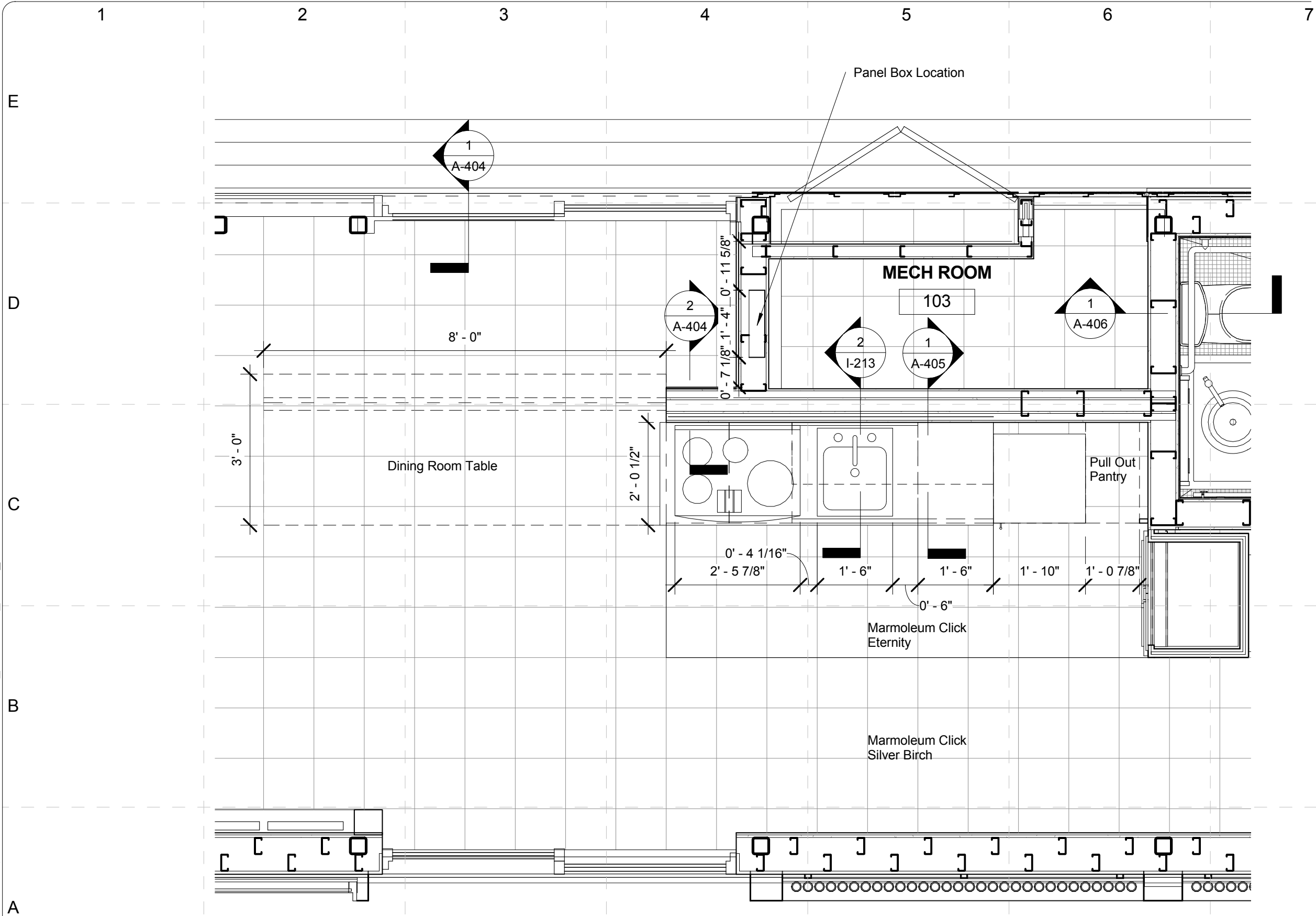
Enlarged
Plan-Living Room

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CONSTRUCTION DOCUMENTS
02 JUNE 2009
www.uky.edu/solarhouse
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 DATE CREATED: 02/06/09
 COMMENTS:

Enlarged
Plan-Living
Room-Reflected
Ceiling Plan



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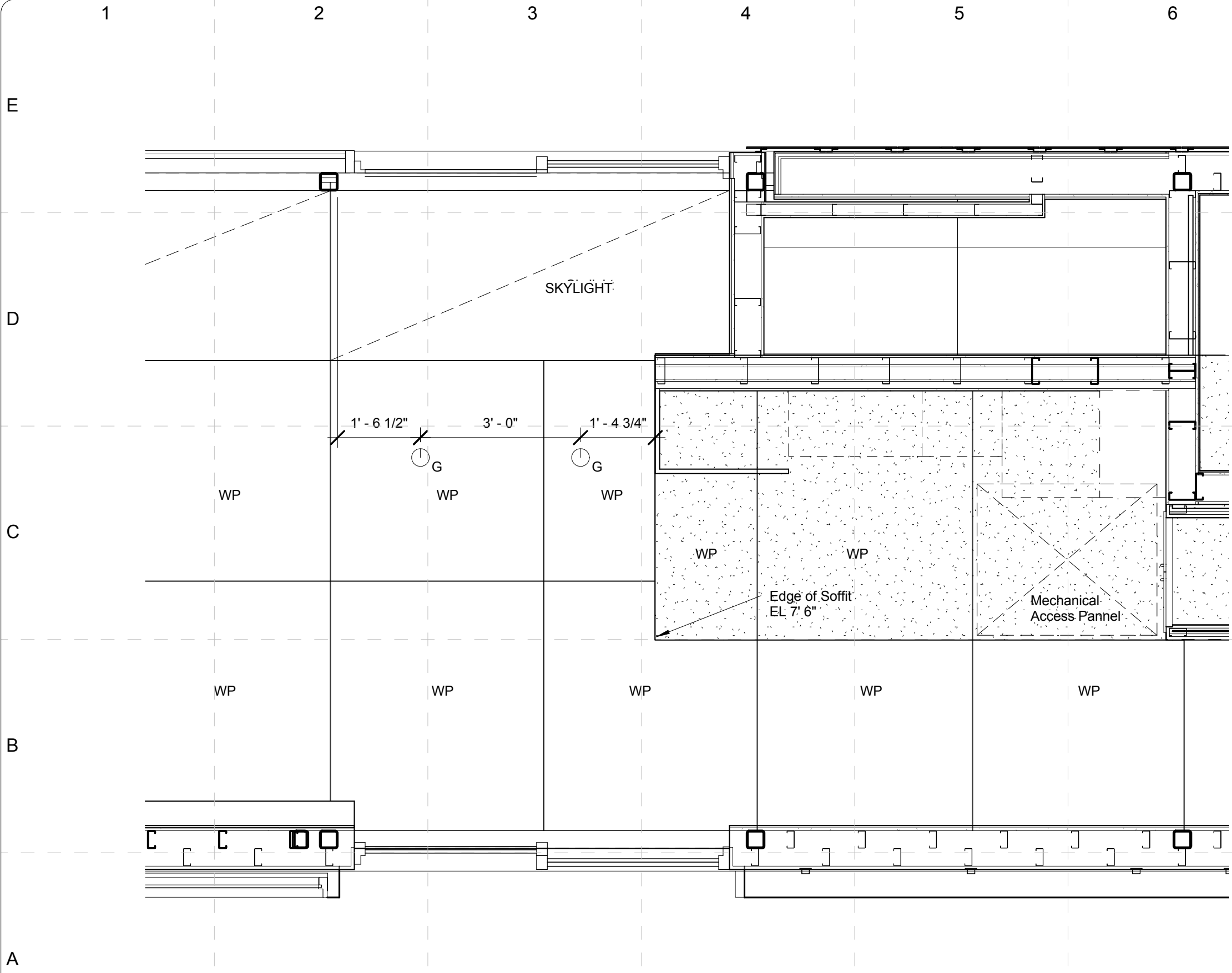
1 DINING ROOM/KITCHEN PLAN
SCALE: 1/2" = 1'-0"

MARK	DATE	DESCRIPTION
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CD	02/16/2009	CONST. DOCUMENTS
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FINAL	06/02/2009	

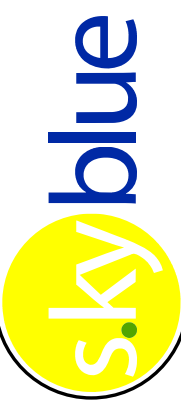

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SHEET TITLE:
Enlarged Plan-Dining Room/Kitchen/Mechanical Room



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1 KITCHEN/DINING ROOM REFLECTED CEILING PLAN ENLARGED
SCALE: 1/2" = 1'-0"



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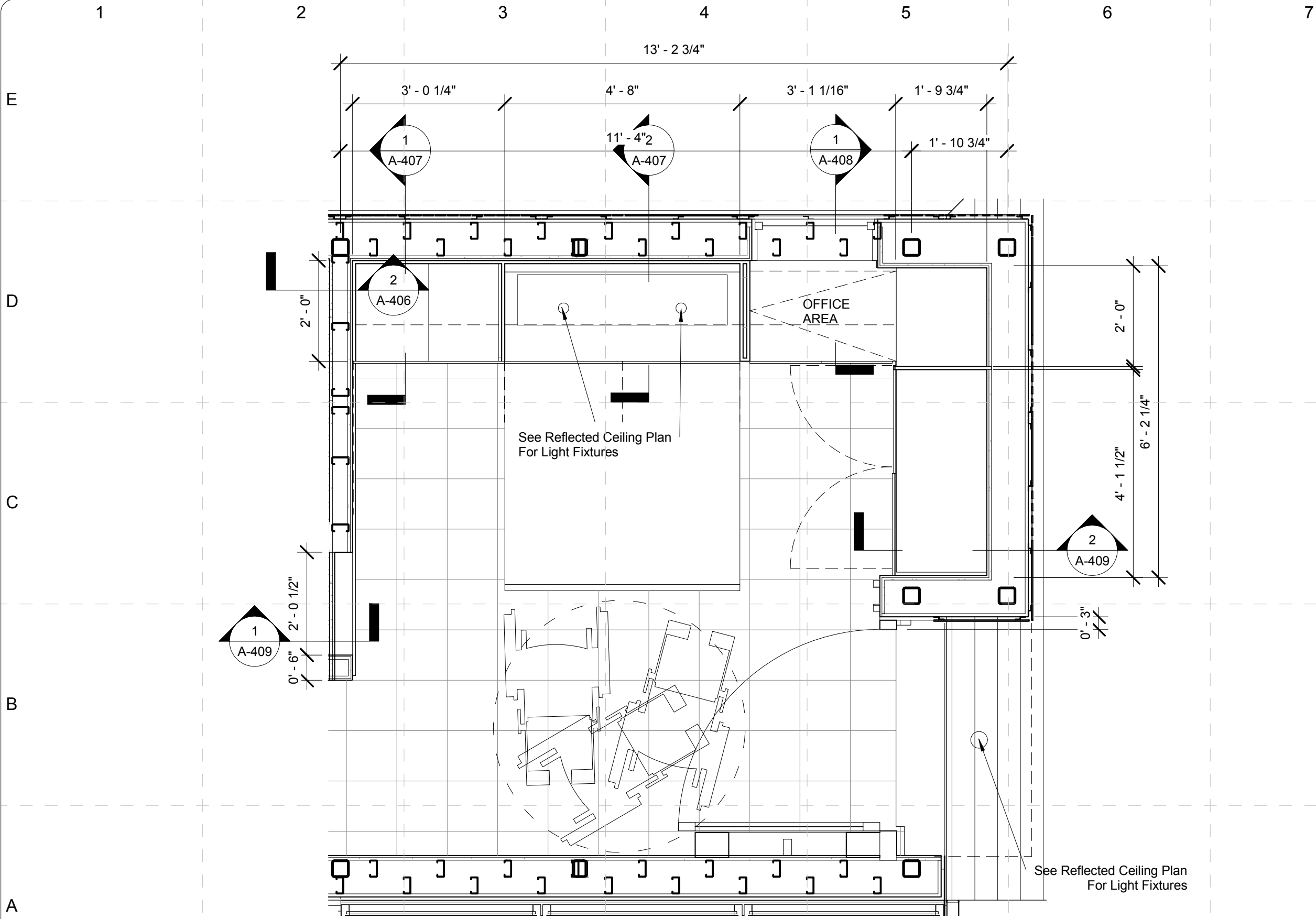
Enlarged
Plan-Dining
Room/Kichen/Mechanical
Room-Reflected
Ceiling Plan

1 - 112

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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1 BEDROOM PLAN
SCALE: 1/2" = 1'-0"

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PROJECT NO: UKY_SD2009
DRAWN BY: RCU
APPROVED BY: GL
DATE CREATED: 11/24/08
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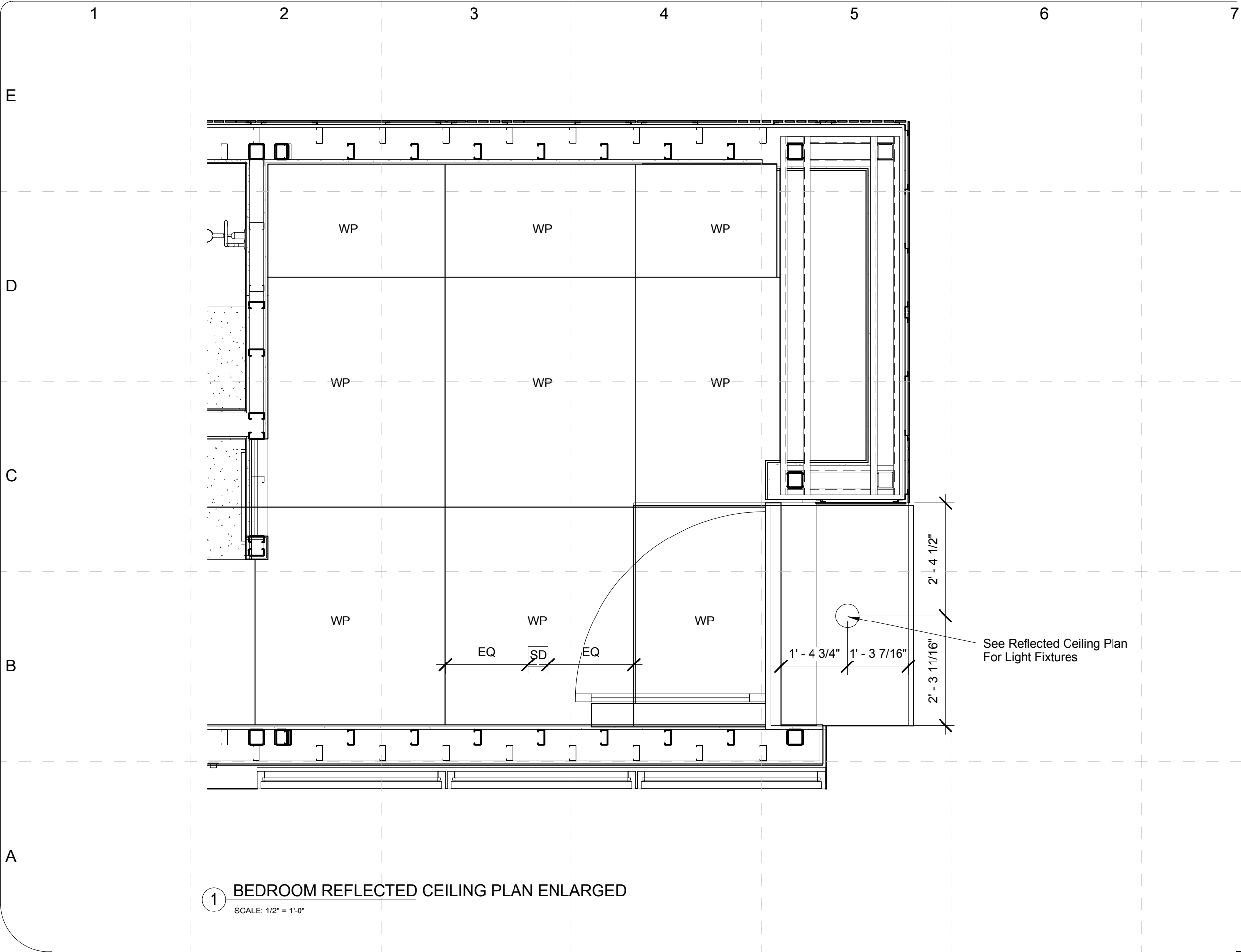
COMMENTS

SHEET TITLE:

Enlarged
Plan-Bedroom

1 - 121

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DATE CREATED: 02/06/09	DATE RECEIVED: 02/06/09	DATE RECEIVED: 02/06/09	DATE RECEIVED: 02/06/09
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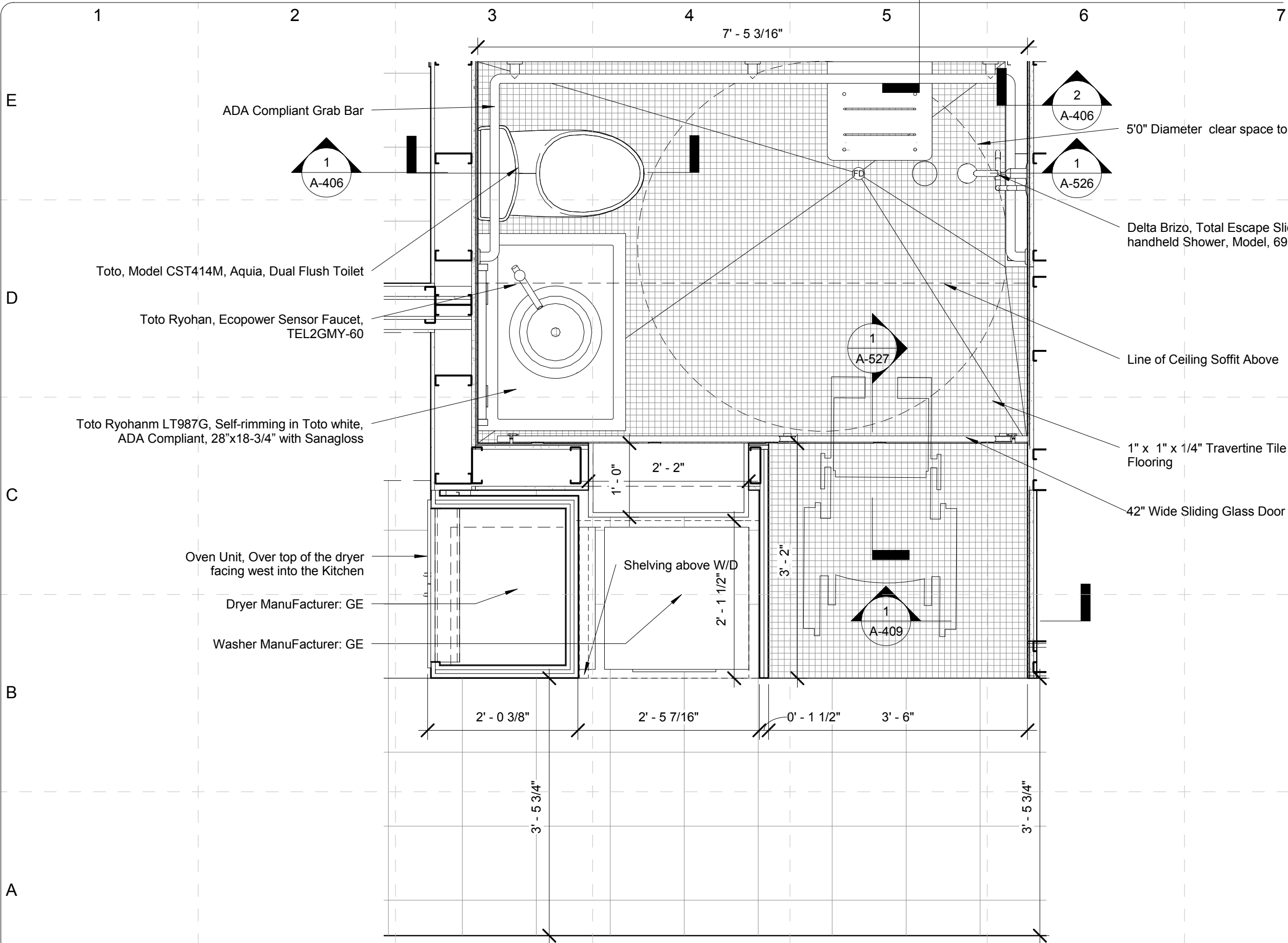
SHEET TITLE:
Enlarged
Plan-Bedroom-Reflected
Ceiling Plan

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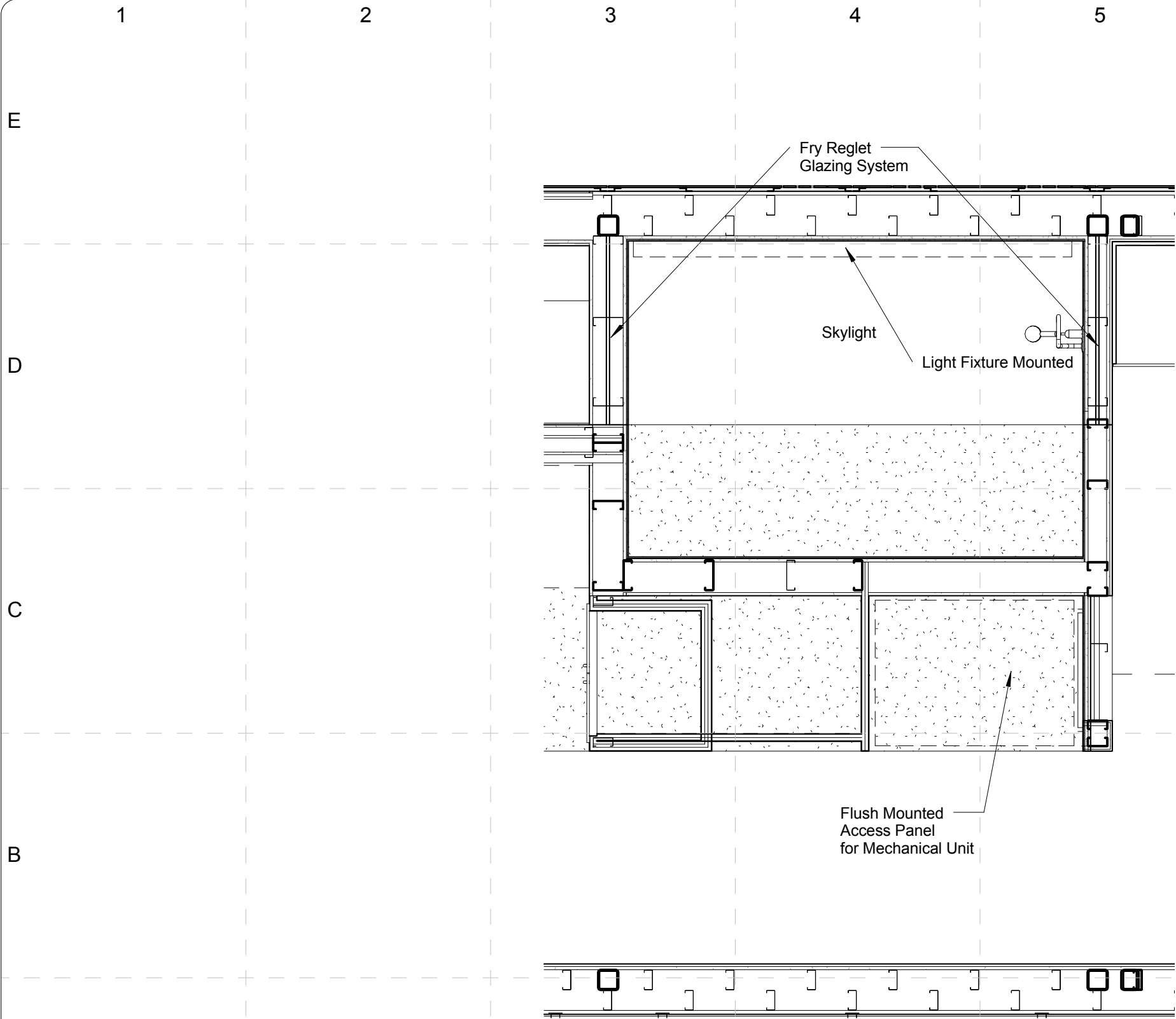
1 DETAILED CORE PLAN
SCALE: 3/4" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN/DEVELOPMENT
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FINAL	06/02/2009	

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COMMENTS	

SHEET TITLE:
Enlarged Plan-Core

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1 CORE REFLECTED CEILING PLAN ENLARGED
SCALE: 1/2" = 1'-0"

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DRAWN BY: Author

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DATE CREATED: 02/06/09

DATE RECEIVED: 02/06/09

COMMENTS

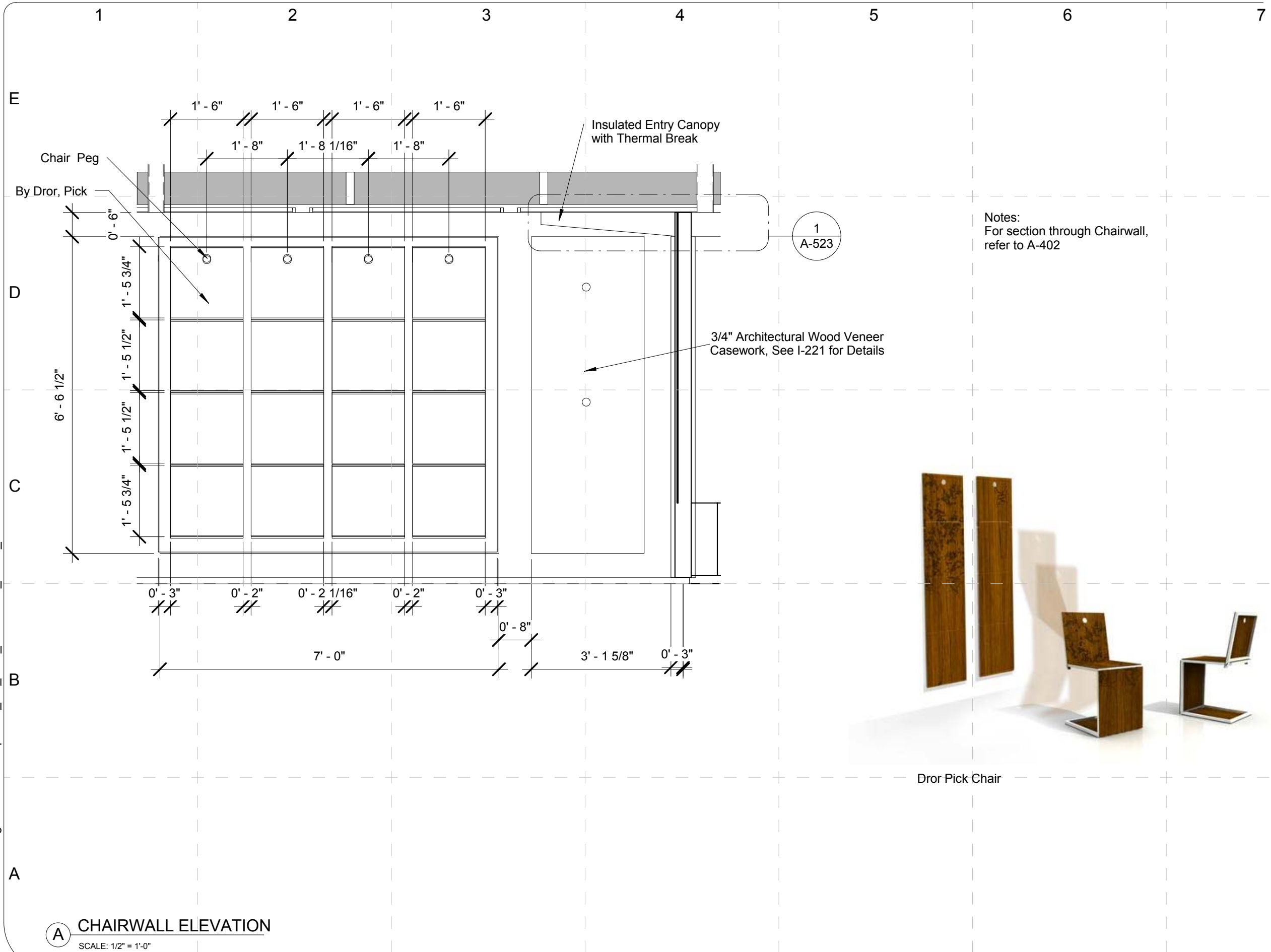
SHEET TITLE:

Enlarged
Plan-Core-Reflected
Ceiling Plan

I - 132

MARK	DATE	DESCRIPTION
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CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

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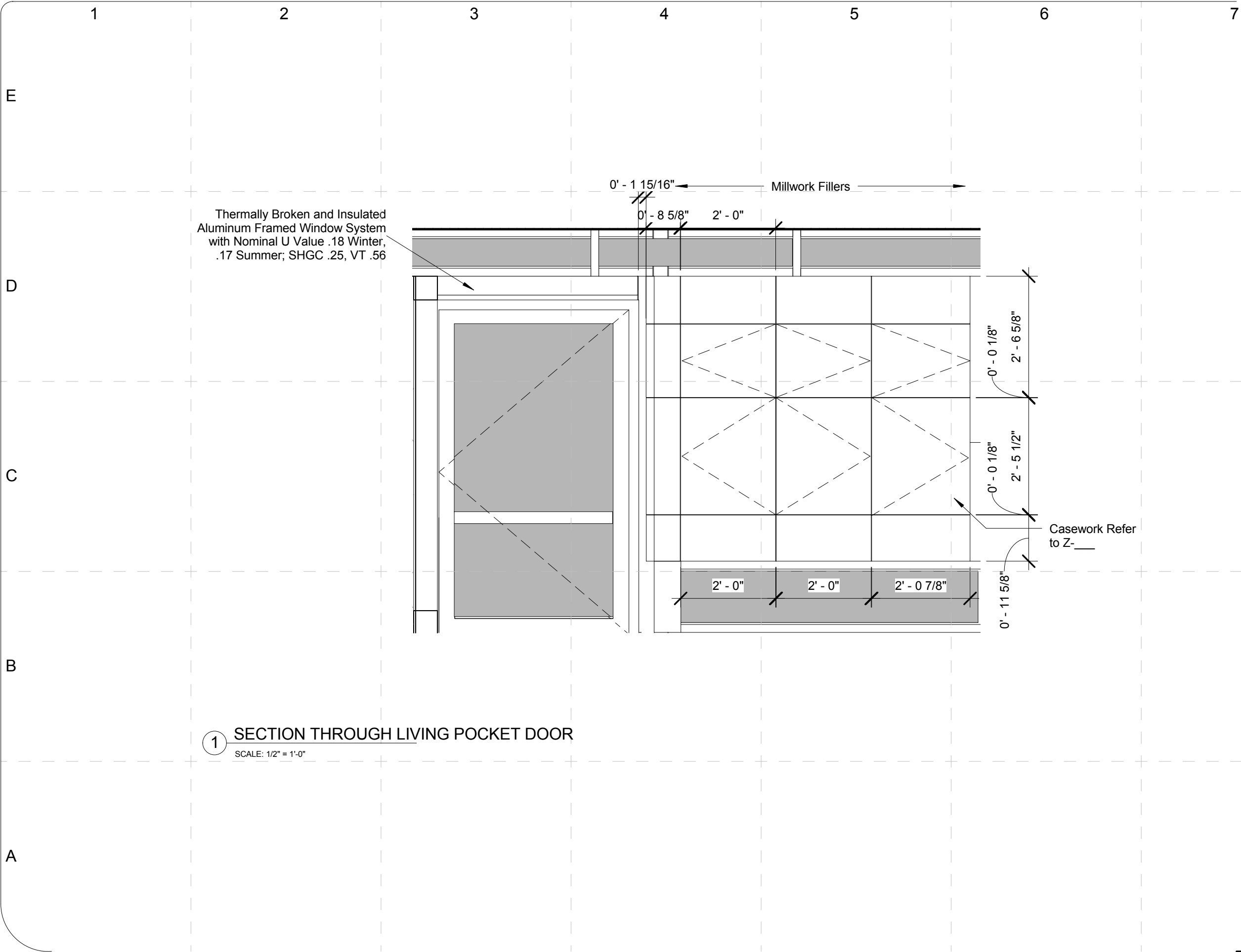


A CHAIRWALL ELEVATION
SCALE: 1/2" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN/DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

PROJECT NO: UKY_SD_2009	PROJECT NAME: 2009 SOLAR DECATHLON
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APPROVED BY: GL	CHECKED BY: GL
DATE CREATED: 12/09/08	DATE RECEIVED: 12/09/08
COMMENTS	

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1 SECTION THROUGH LIVING POCKET DOOR
SCALE: 1/2" = 1'-0"

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2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
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PROJECT NO: UKY_SD_2009

DRAWN BY: JLD, CG

APPROVED BY: GL

DATE CREATED: 12/07/08

DATE RECEIVED: 12/07/08

COMMENTS

MARK

DATE

DESCRIPTION

DD

12/16/2008

DESIGN DEVELOPMENT

CD

02/16/2009

CONST. DOCUMENTS

REV

04/16/2009

FINAL

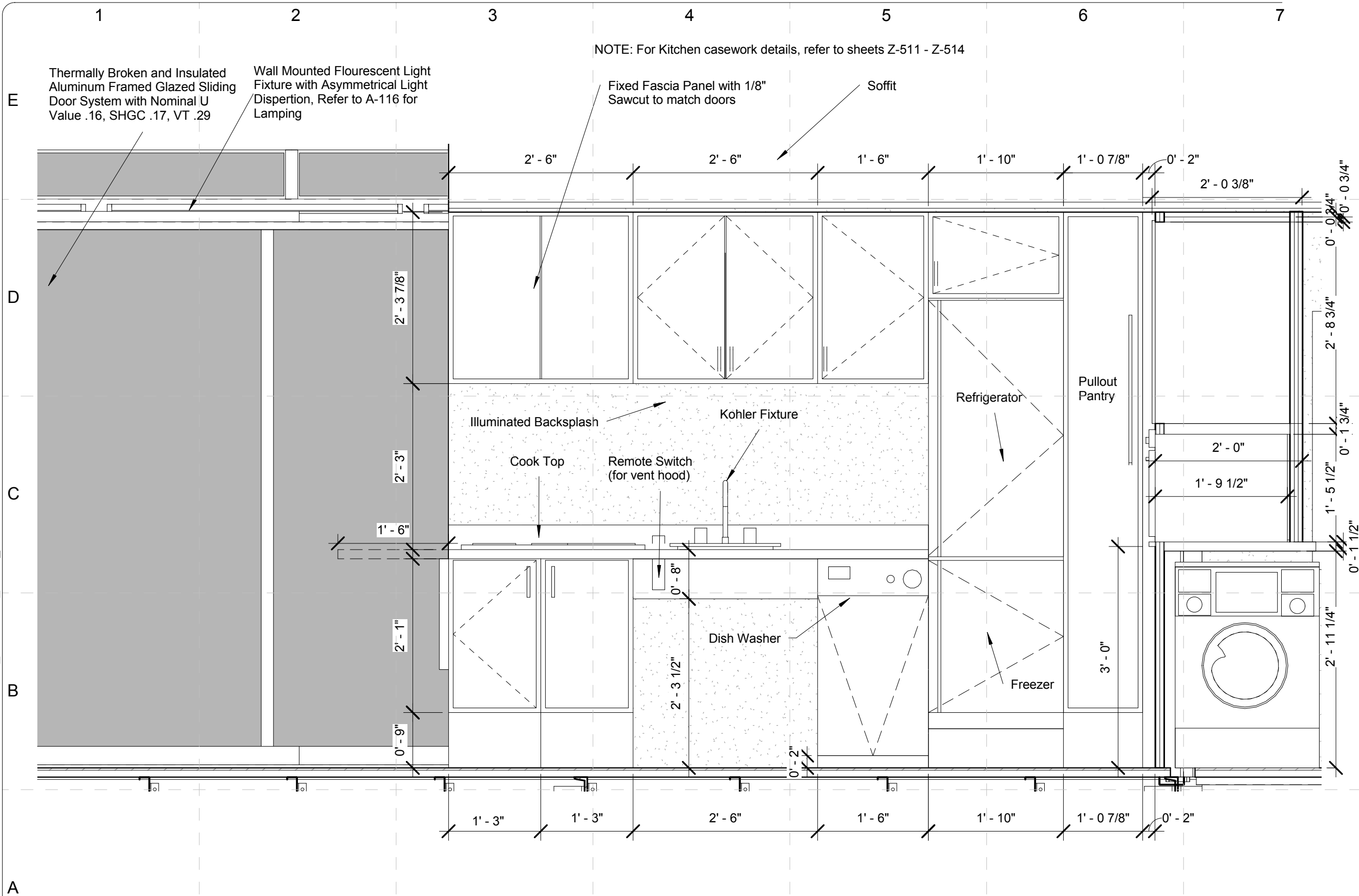
06/02/2009

SHEET TITLE:

Enlarged
Plan-Living
Room-West
Elevation

I - 202

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1 KITCHEN/DINING NORTH ELEVATION
SCALE: 3/4" = 1'-0"

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FINAL	06/02/2009	

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PROJECT NO: UKY_SD2009

DRAWN BY: Author

APPROVED BY: Approver

DATE CREATED: 01/18/09

DATE RECEIVED: 01/18/09

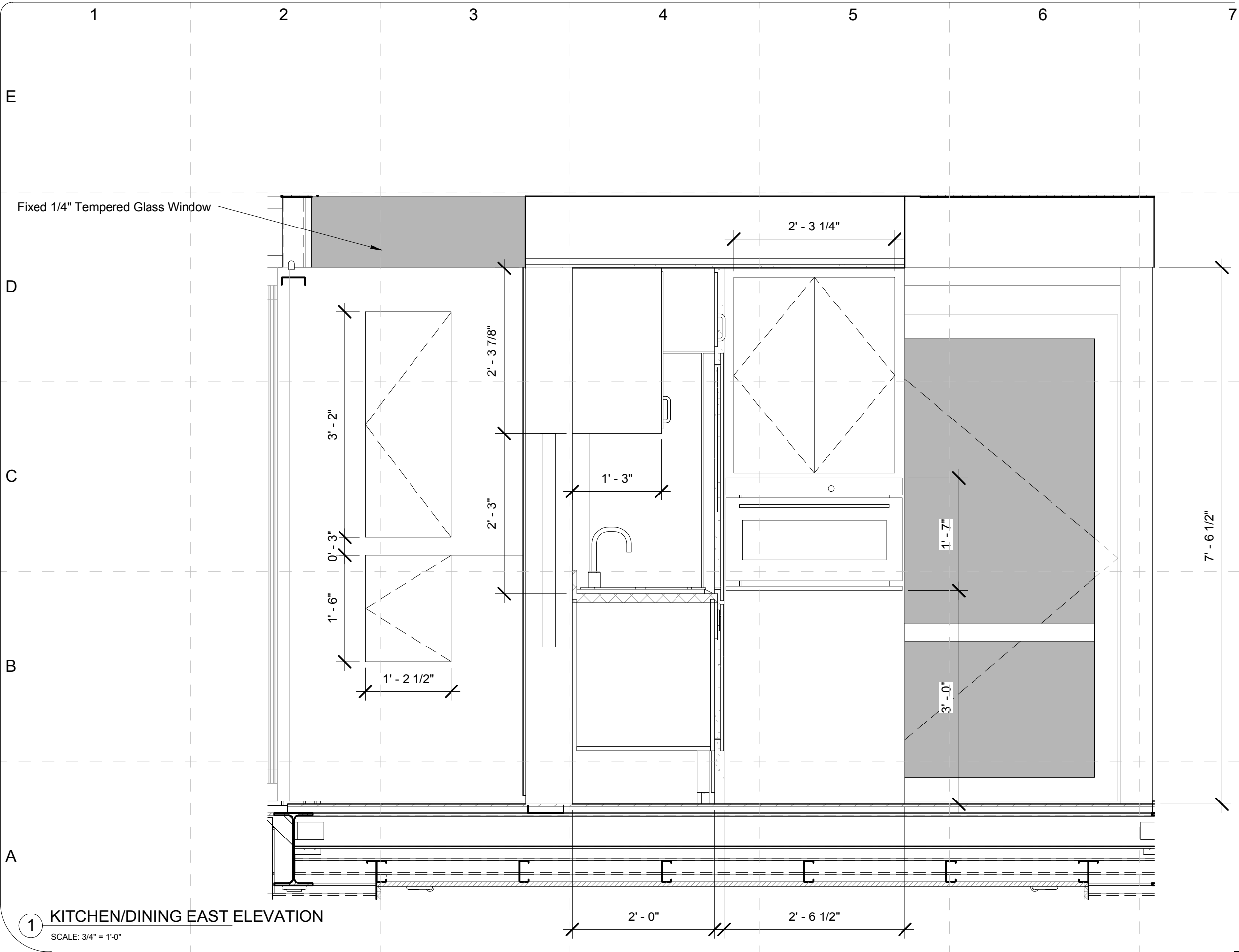
COMMENTS:

SHEET TITLE:

Enlarged
Plan-Dining
Room/Kitchen-North
Elevation

I -211

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1 KITCHEN/DINING EAST ELEVATION
SCALE: 3/4" = 1'-0"

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2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02.JUNE.2009
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PROJECT NO: UKY_SD2009

DRAWN BY: Author

APPROVED BY: Approver

DATE CREATED: 01/18/09

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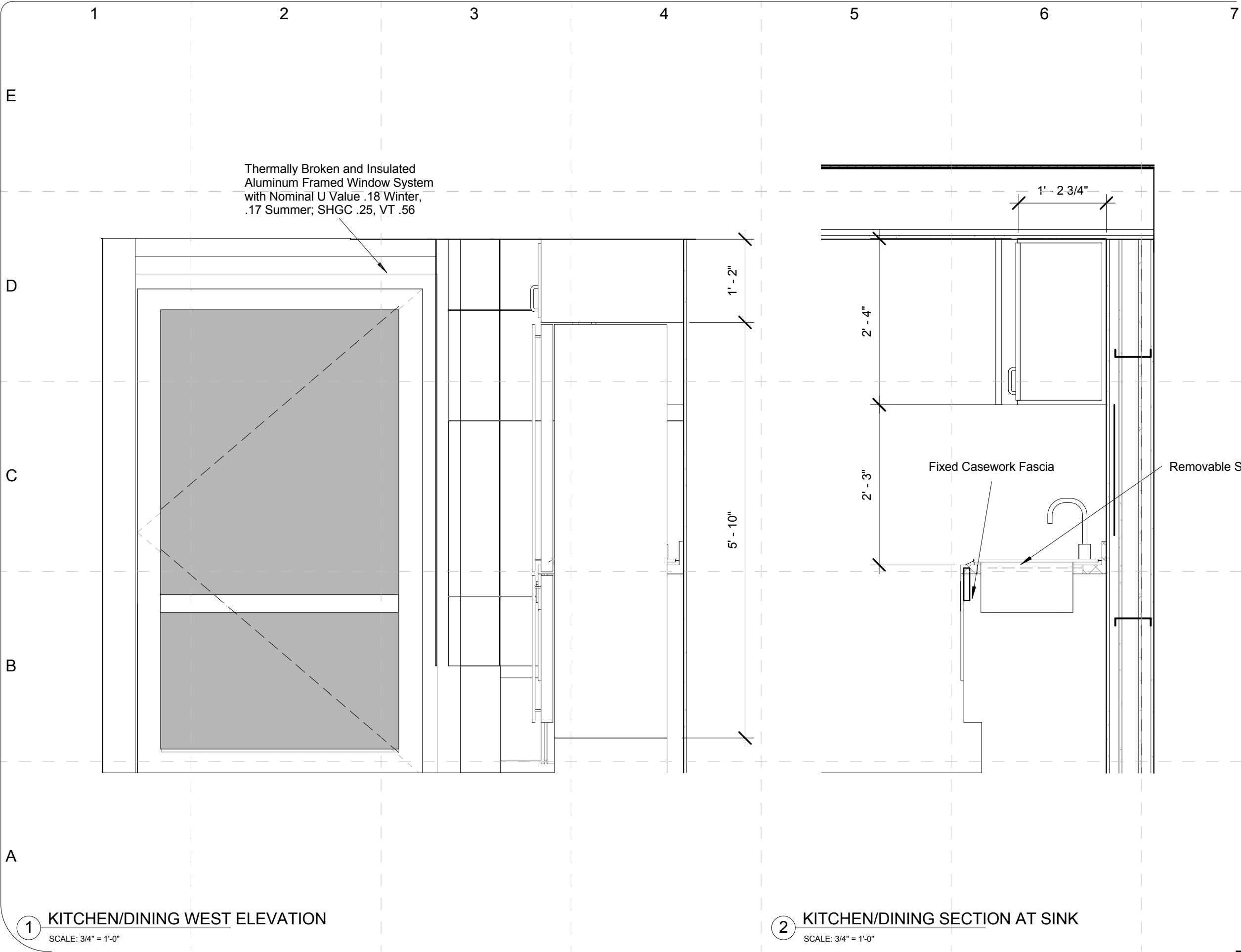
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FINAL	06/02/2009	

SHEET TITLE:

Enlarged
Plan-Dining
Room/Kitchen-East
Elevation

1 - 212

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1 KITCHEN/DINING WEST ELEVATION
SCALE: 3/4" = 1'-0"

2 KITCHEN/DINING SECTION AT SINK
SCALE: 3/4" = 1'-0"

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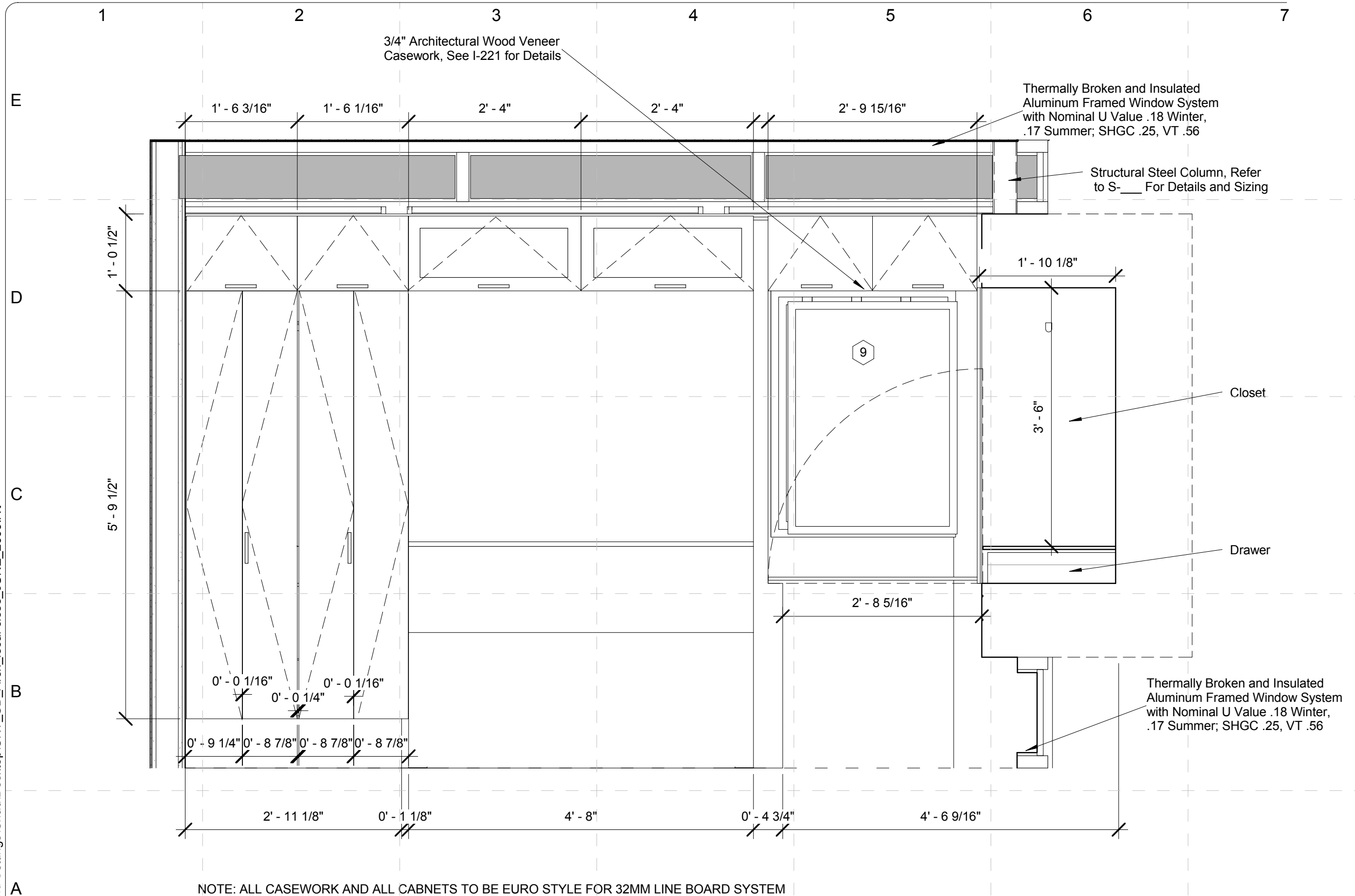
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REV	04/16/2009	
FINAL	06/02/2009	

SHEET TITLE:

Enlarged
Plan-Dining
Room/Kitchen-West
Elevation

1 - 213

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1 BEDROOM ELEVATION - NORTH WALL
SCALE: 3/4" = 1'-0"

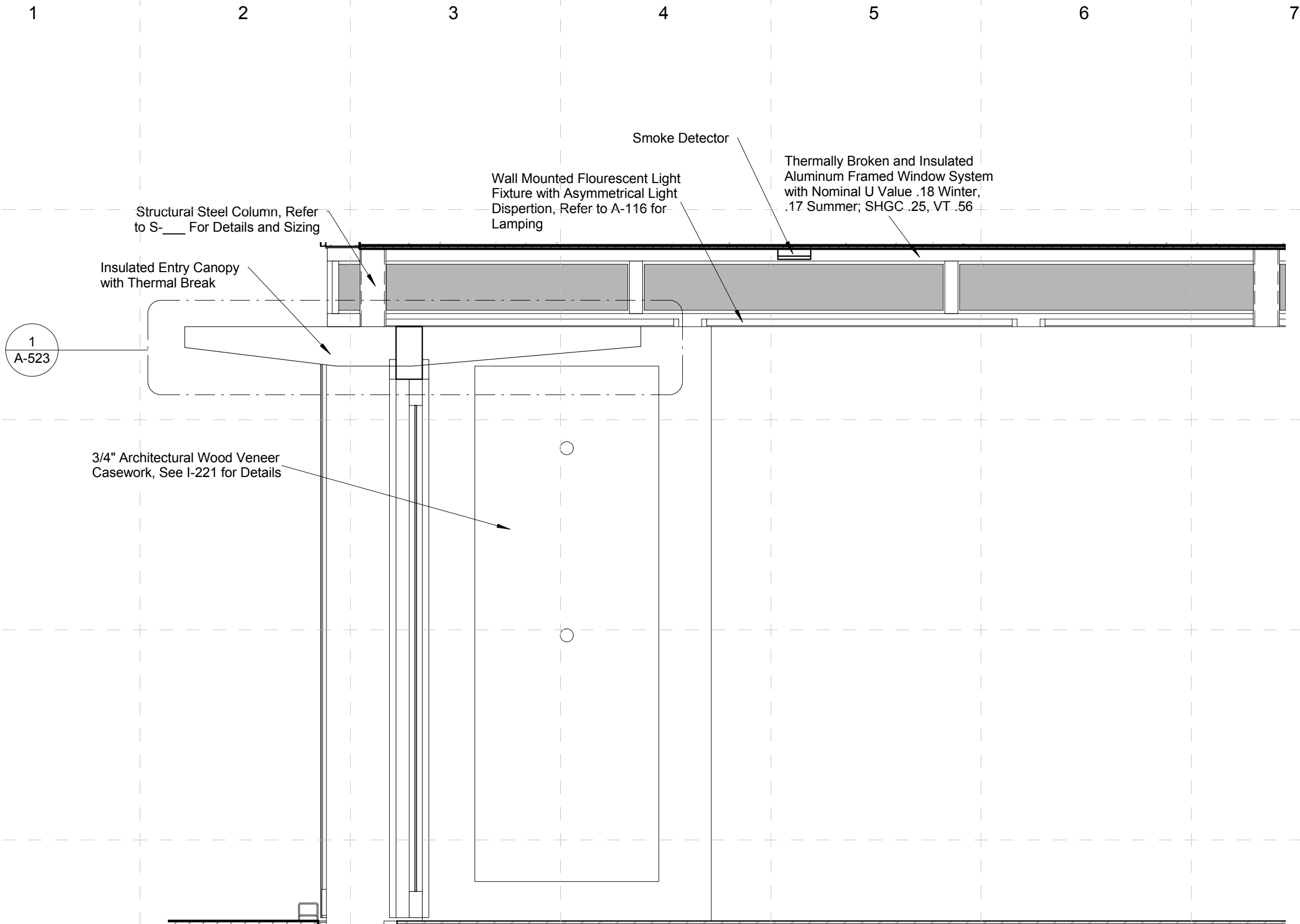
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SHEET TITLE:

Enlarged
Plan-Bedroom-North
Elevation

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1 BEDROOM ELEVATION - SOUTH WALL
SCALE: 3/4" = 1'-0"

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DATE CREATED: 11/24/08

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SHEET TITLE:

Enlarged
Plan-Bedroom-South
Elevation

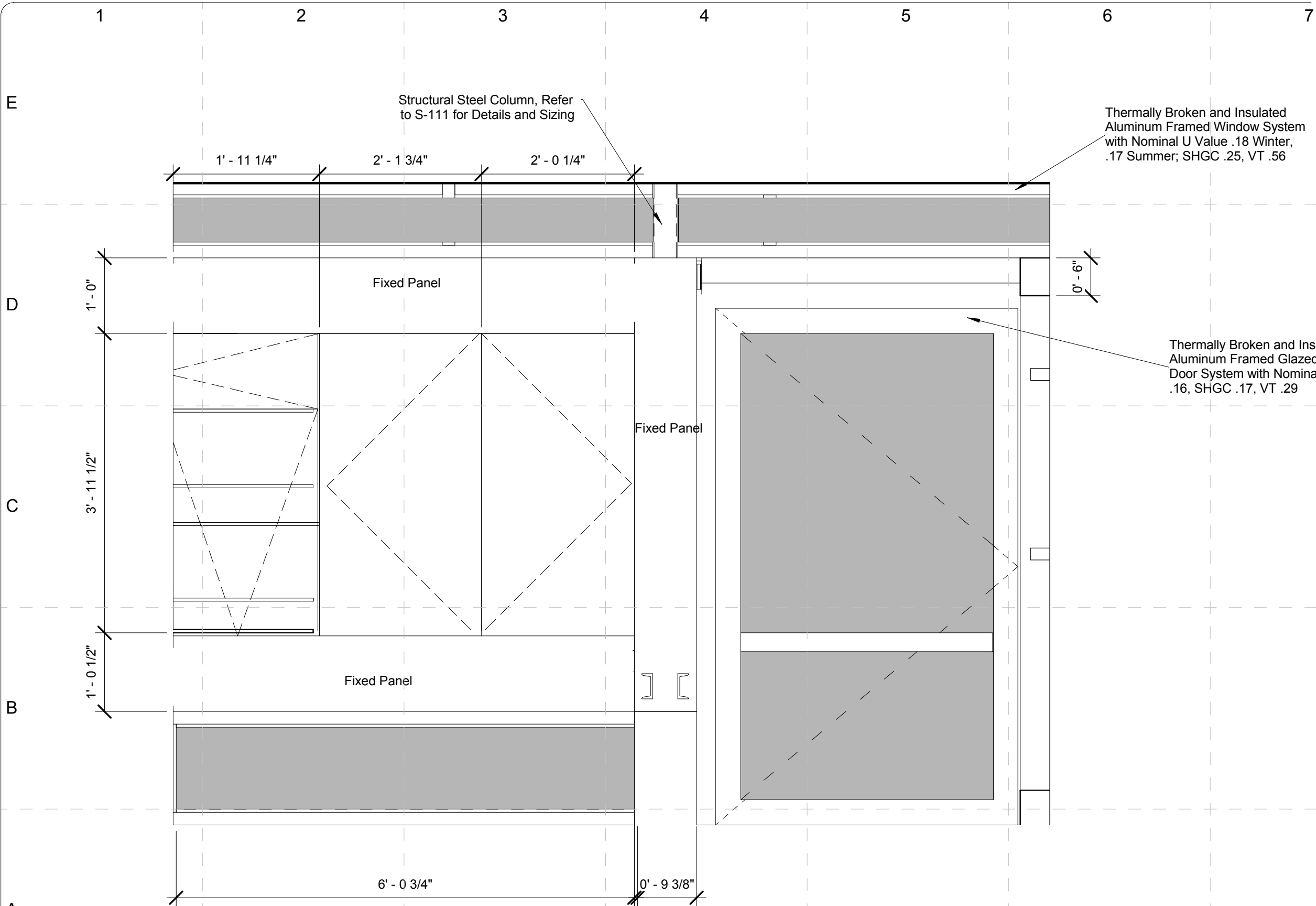
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1 BEDROOM ELEVATION - EAST WALL
SCALE: 3/4" = 1'-0"

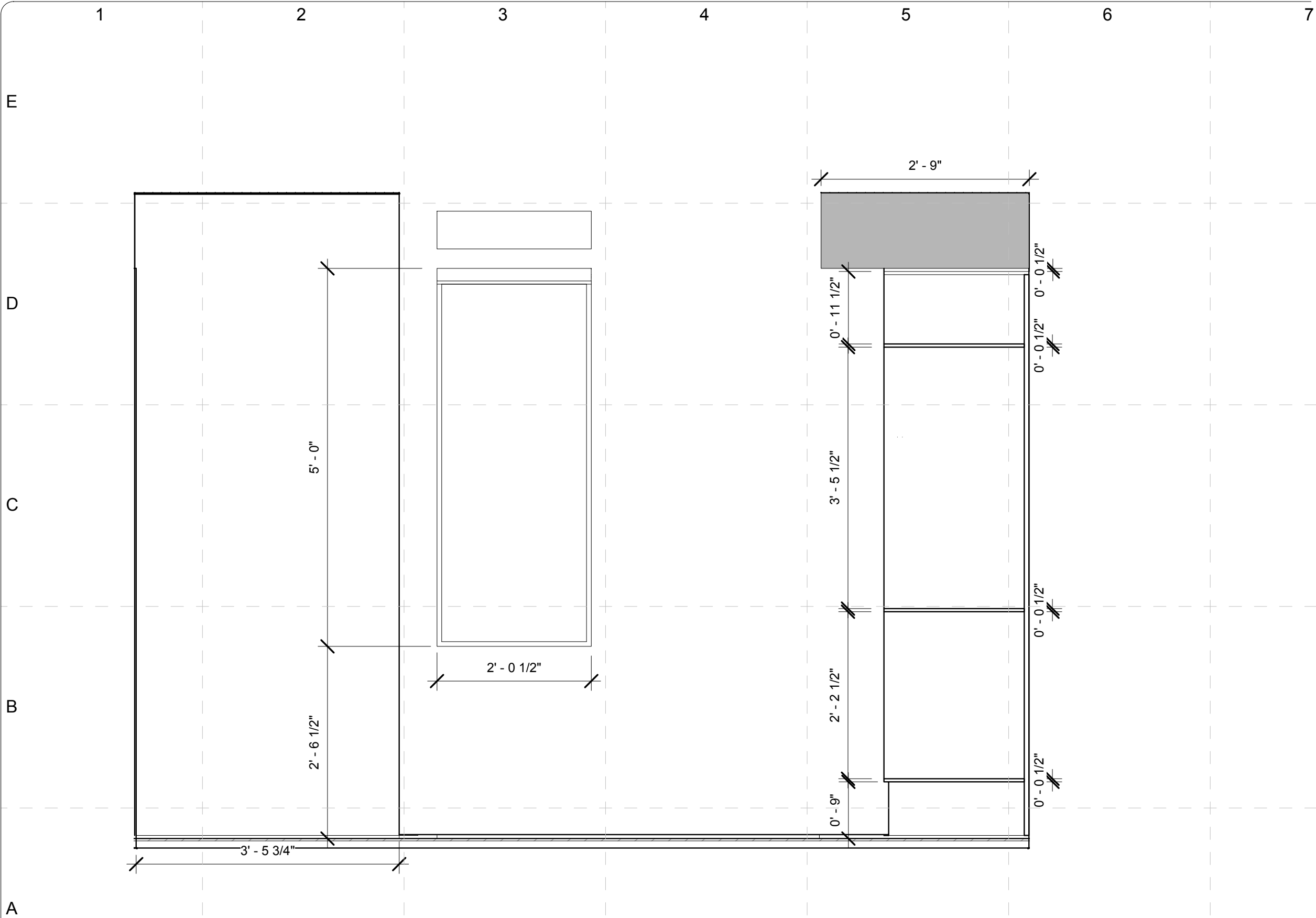
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Enlarged
Plan-Bedroom-East
Elevation

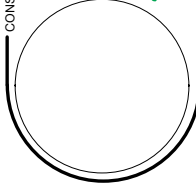
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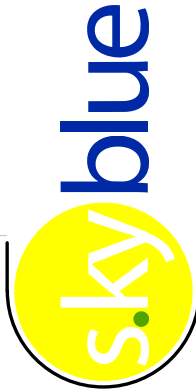
1 BEDROOM ELEVATION - WEST WALL
SCALE: 3/4" = 1'-0"

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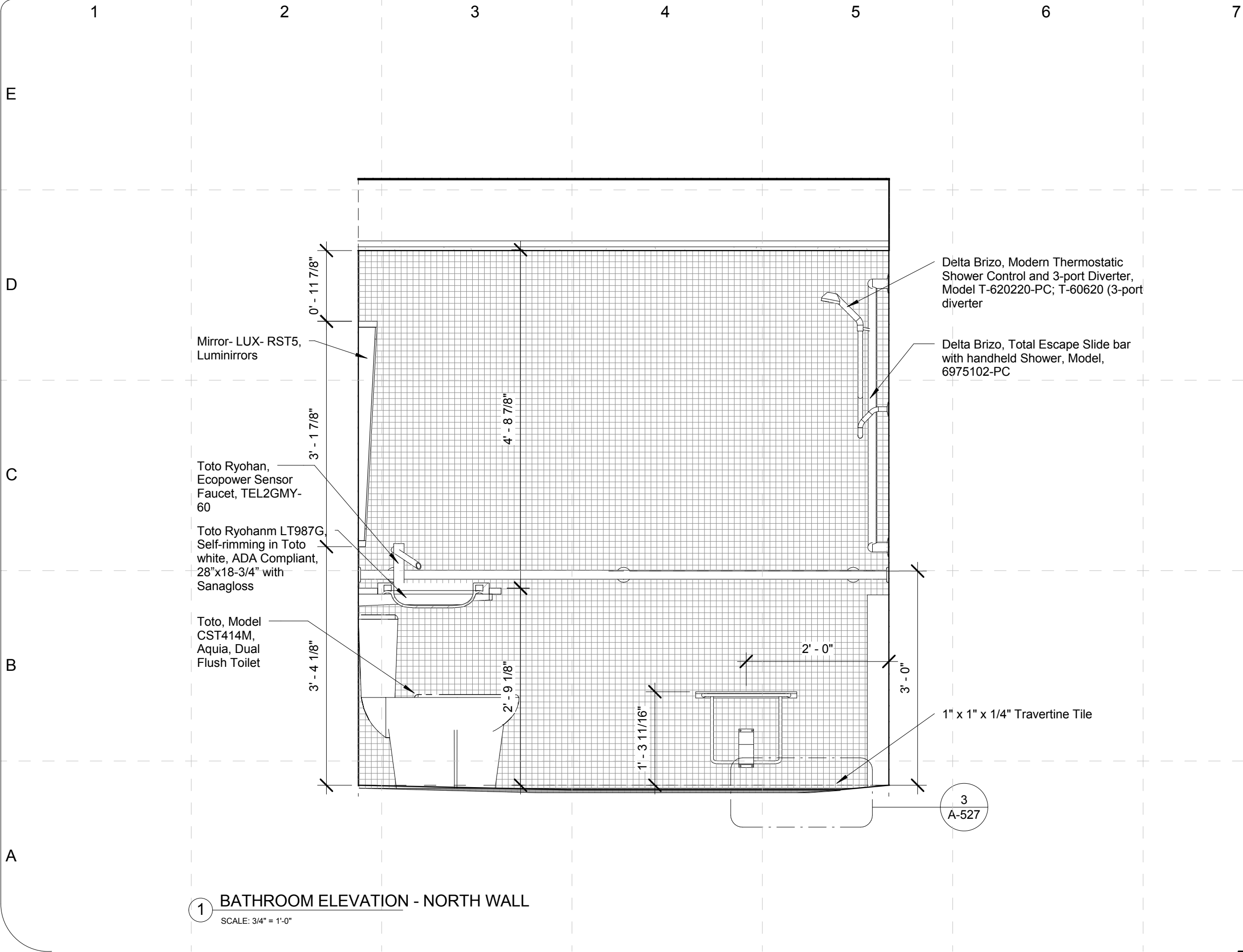
SHEET TITLE:
Enlarged
Plan-Bedroom-West
Elevation



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1 BATHROOM ELEVATION - NORTH WALL
SCALE: 3/4" = 1'-0"

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SHEET TITLE:

Enlarged
Plan-Core-North
Elevation

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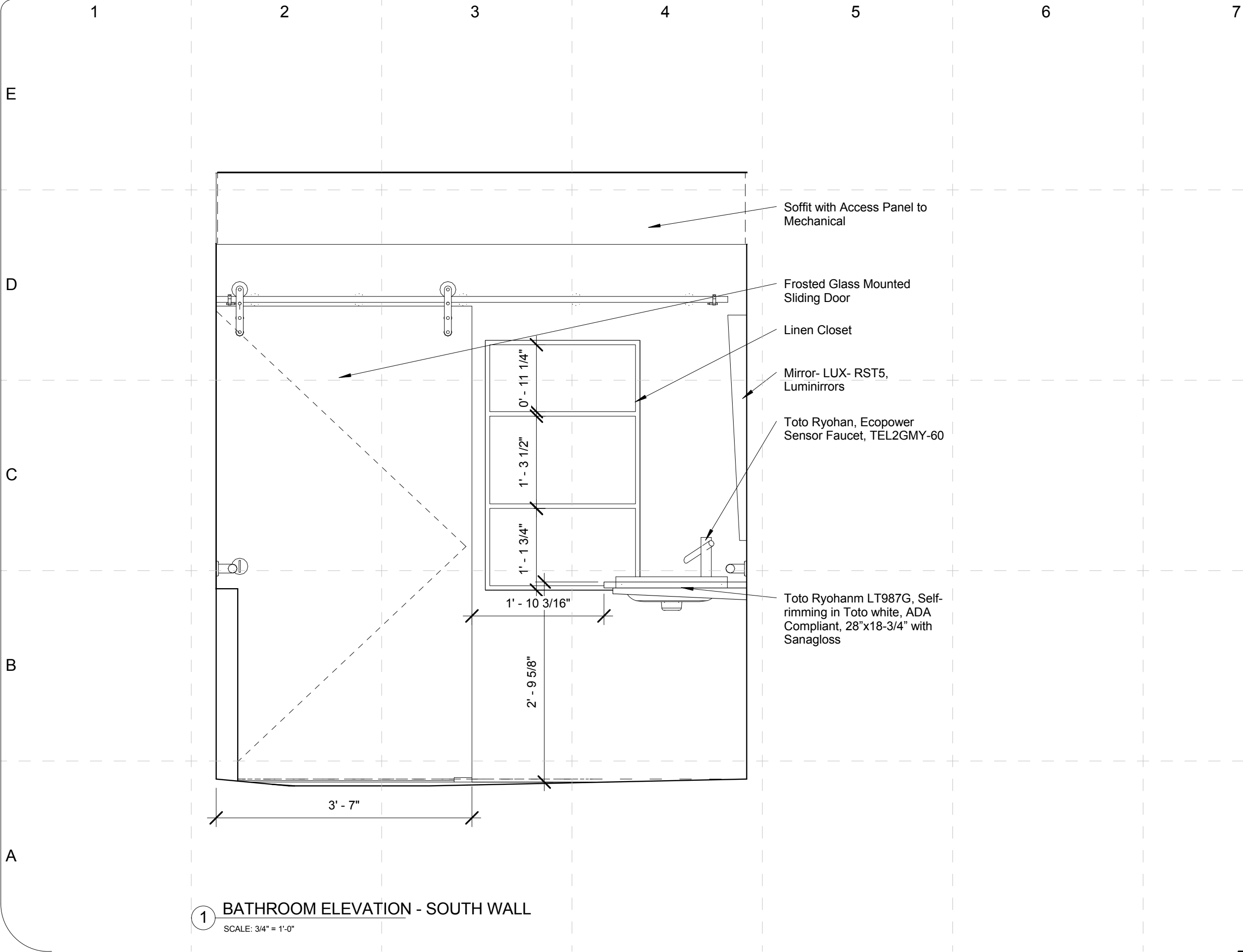
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1 BATHROOM ELEVATION - SOUTH WALL
SCALE: 3/4" = 1'-0"

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SHEET TITLE:

Enlarged
Plan-Core-South
Elevation

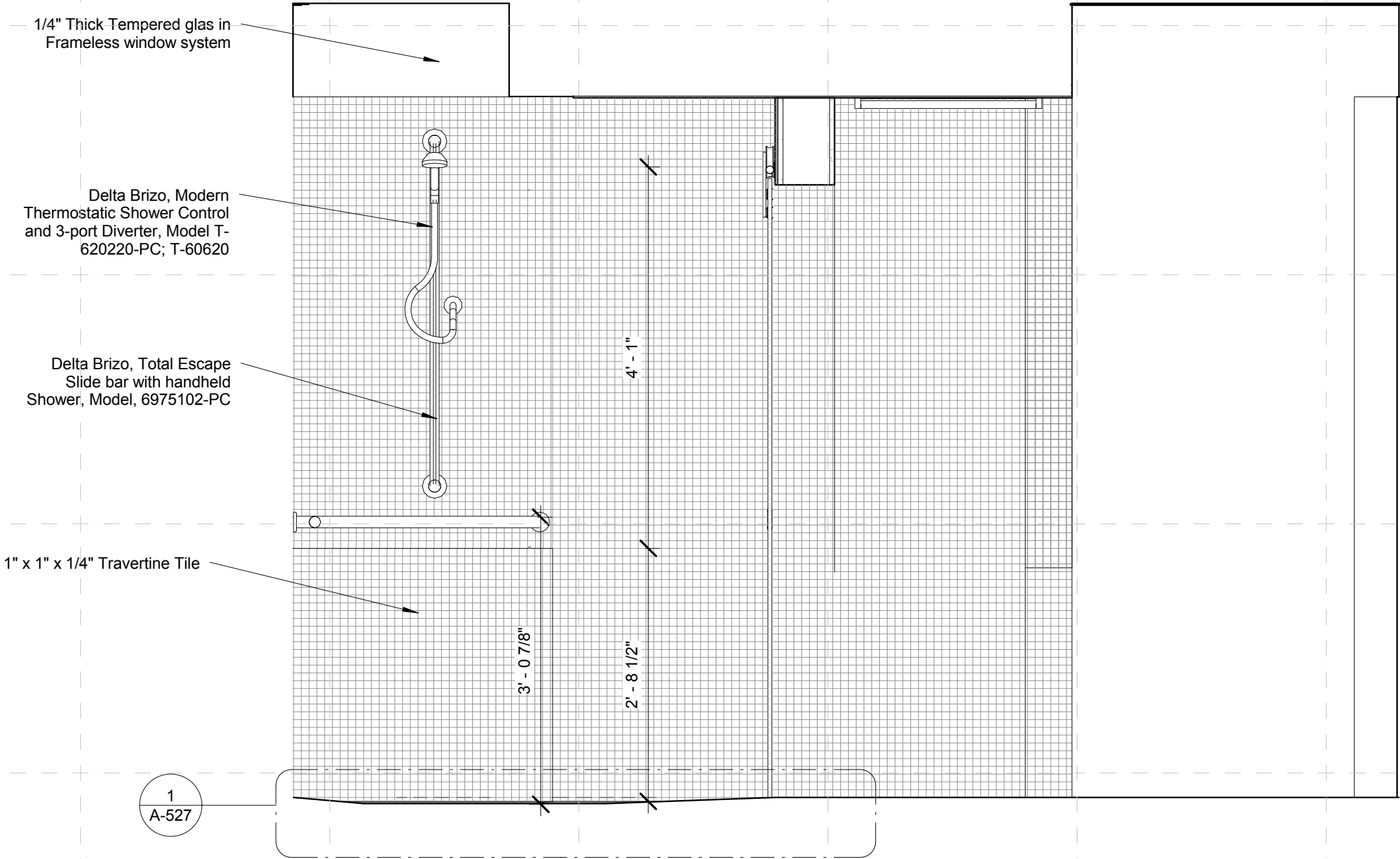
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1

BATHROOM ELEVATION - EAST WALL

SCALE: 3/4" = 1'-0"

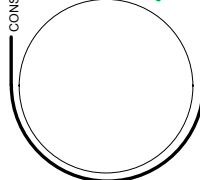


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DATE CREATED: 12/01/08	DATE RECEIVED: 12/01/08	COMMENTS:	

SHEET TITLE:	
Enlarged Plan-Core-East Elevation	

I -233

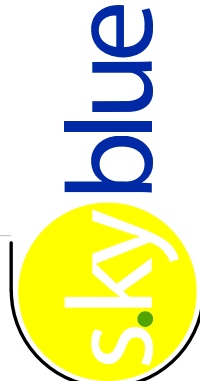
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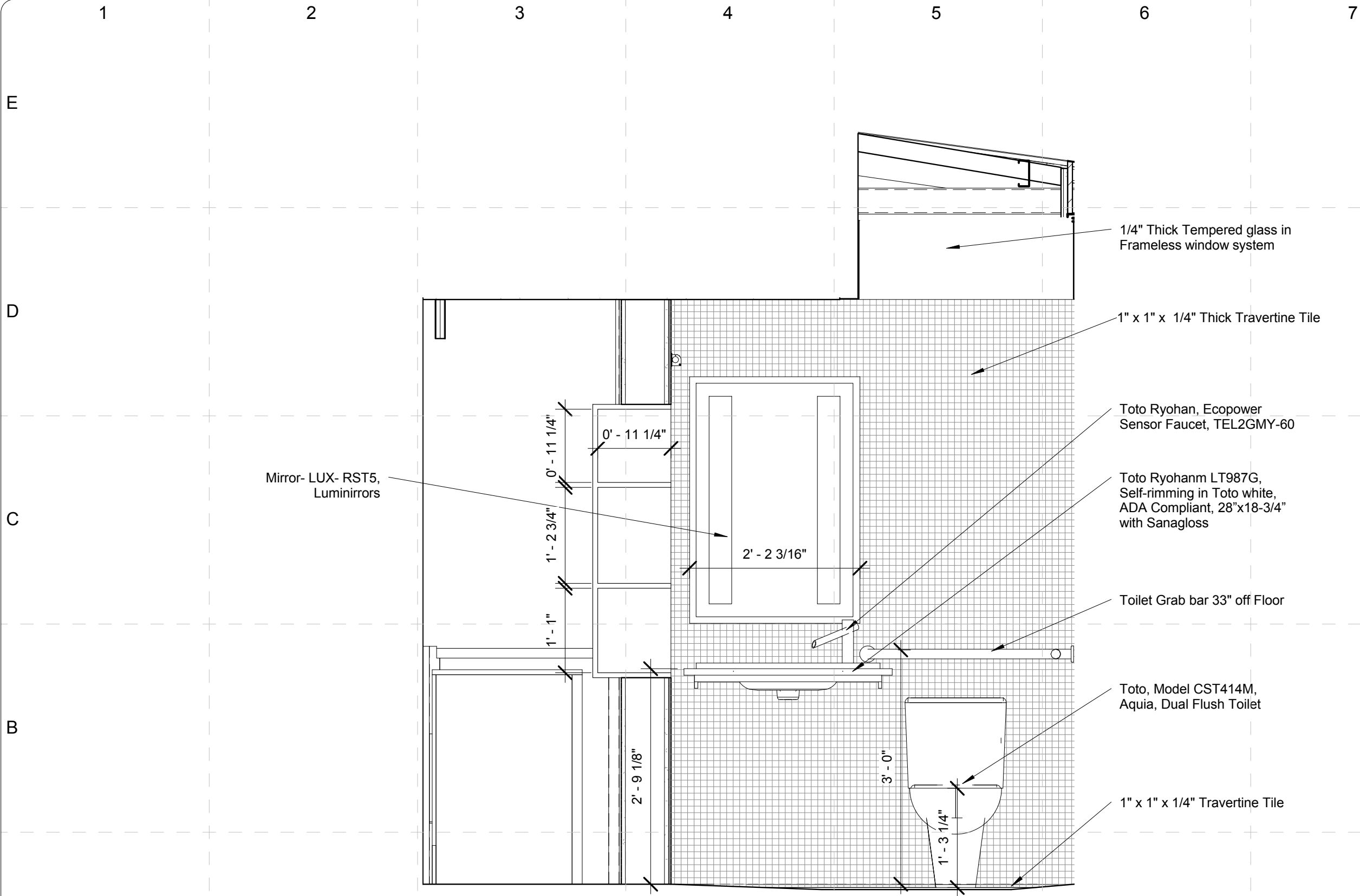
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2 BATHROOM ELEVATION - WEST WALL
SCALE: 3/4" = 1'-0"

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CONSTRUCTION DOCUMENTS
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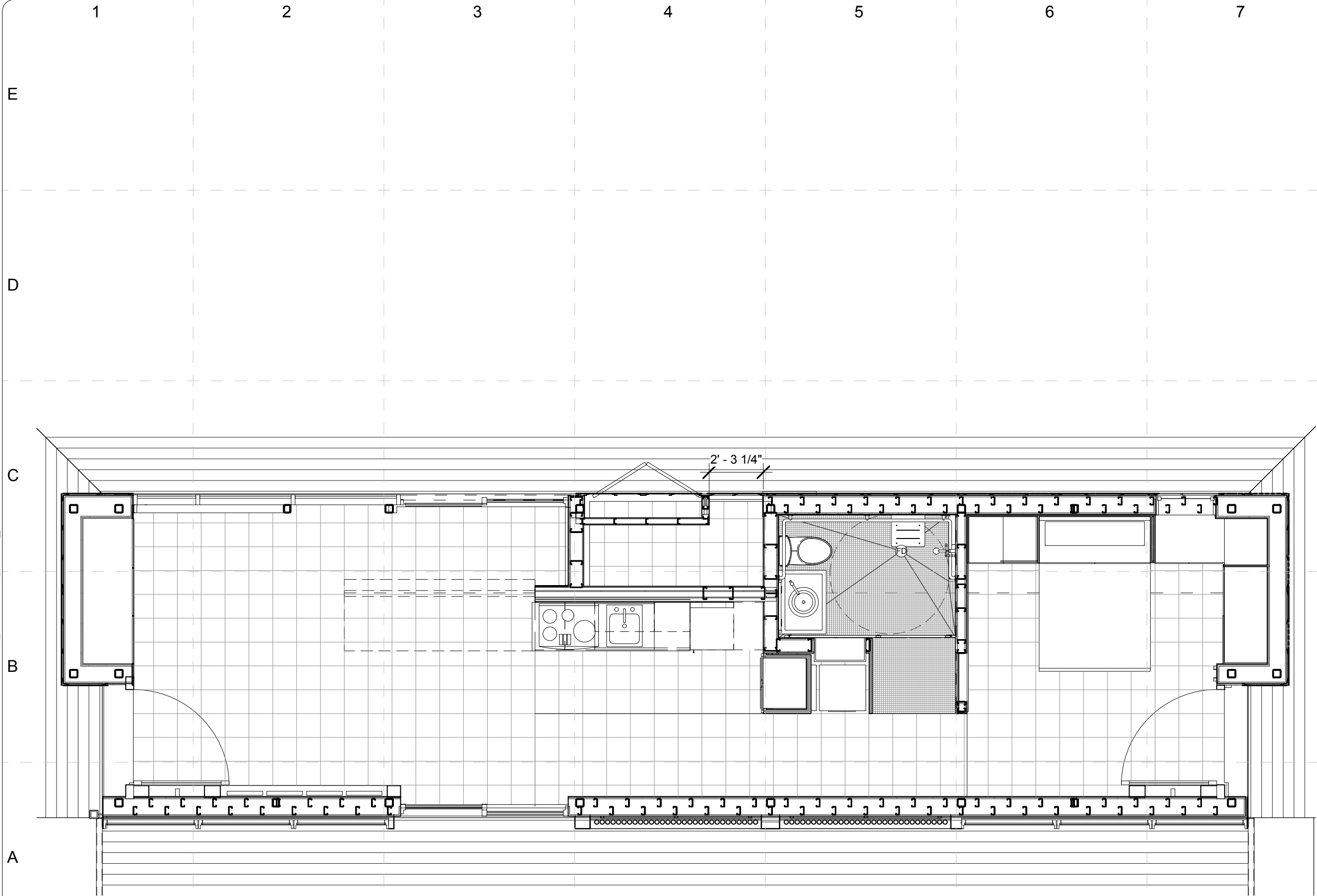
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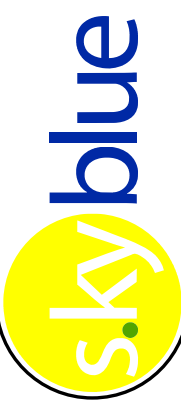

Enlarged
Plan-Core-West
Elevation

I - 234



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1 FINISH FLOOR PLAN
SCALE: 1/4" = 1'-0"



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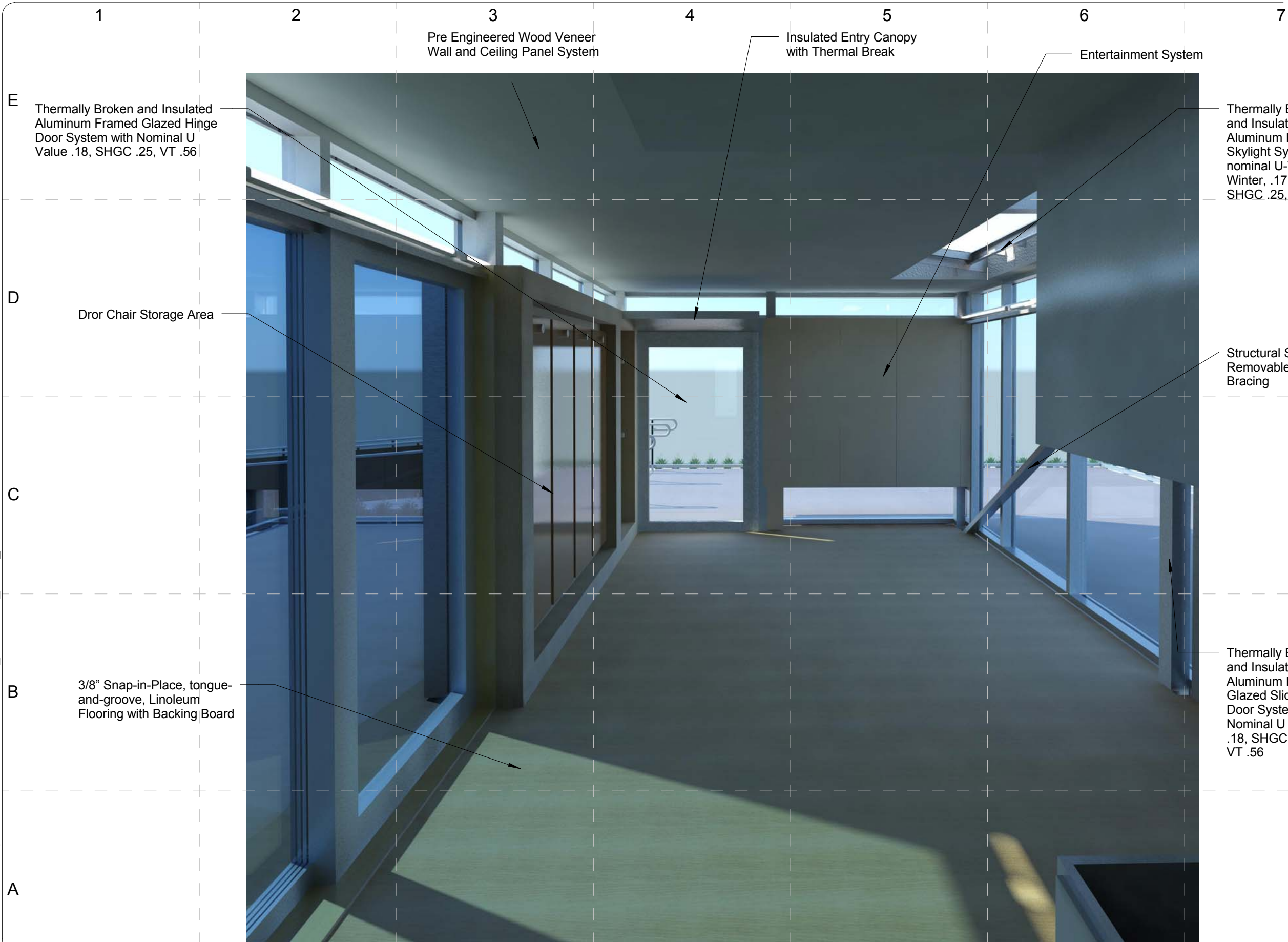
COMMENTS

SHEET TITLE:

Schedule-Finishing

I - 601

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E Thermally Broken and Insulated Aluminum Framed Glazed Hinge Door System with Nominal U Value .18, SHGC .25, VT .56

D Dror Chair Storage Area

B 3/8" Snap-in-Place, tongue-and-groove, Linoleum Flooring with Backing Board

3 Pre Engineered Wood Veneer Wall and Ceiling Panel System

5 Insulated Entry Canopy with Thermal Break

6 Entertainment System

Thermally Broken and Insulated Aluminum Framed Skylight System with nominal U-Value .18 Winter, .17 Summer; SHGC .25, VT .56

Structural Steel Removable Cross Bracing

Thermally Broken and Insulated Aluminum Framed Glazed Sliding Door System with Nominal U Value .18, SHGC .25, VT .56

1 RENDER LIVING ROOM LOOKING WEST
SCALE: NTS

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SHEET TITLE:

Renderings-Interior
Elevations-Living
Room

I -901

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1 RENDER LIVING ROOM LOOKING EAST
SCALE: NTS

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SHEET TITLE:

Renderings-Interior
Elevations-Living
Room

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1 RENDER KITCHEN LOOKING NORTH
SCALE: NTS



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SHEET TITLE:
Renderings-Interior
Elevations-Dining
Room/Kitchen

I - 911

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GE Monogram
Built-In Oven
with Advantium
Speedcook
technology-
120V

Grohe, Minta High
Profile, Pulldown-Spra y
Watercase Faucet

Lansen Sink,
Undermount Single
Bowl

GE Profile Monogram/SS
30" Induction

2-3/4" Thick Insulated High-performance
Translucent Window System

Thermally Broken and Insulated
Aluminum Framed Window System
with Nominal U Value .18, SHGC
.25, VT .56

3/8" Snap-in-Place, tongue-and-groove,
Linoleum Flooring with Backing Board

1 RENDER KITCHEN LOOKIN SOUTH
SCALE: NTS

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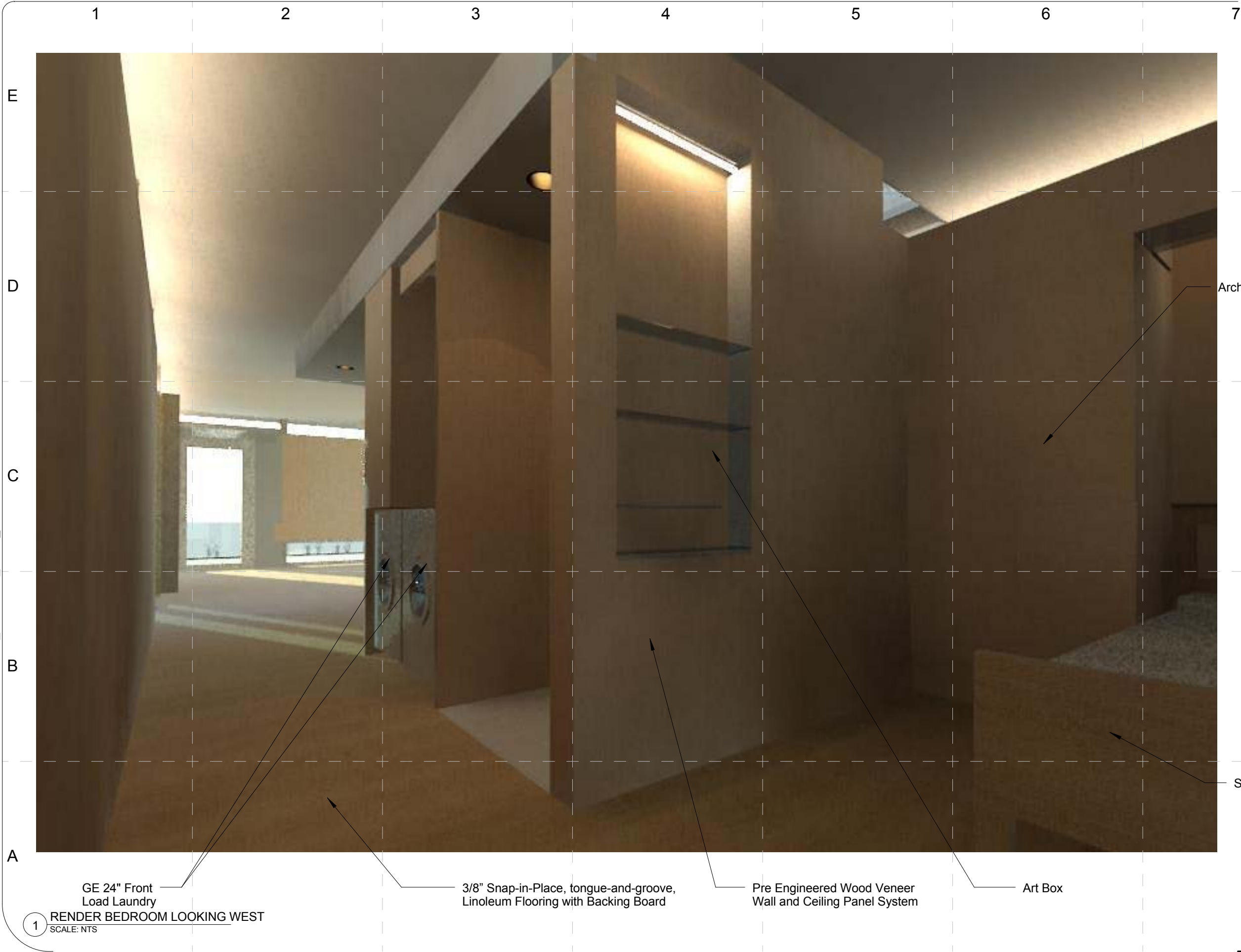
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SHEET TITLE:

Renderings-Interior
Elevations-Dining
Room/Kitchen

I -912

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1 RENDER BEDROOM LOOKING WEST
SCALE: NTS

GE 24" Front Load Laundry

3/8" Snap-in-Place, tongue-and-groove, Linoleum Flooring with Backing Board

Pre Engineered Wood Veneer Wall and Ceiling Panel System

Art Box

Shaker Bed

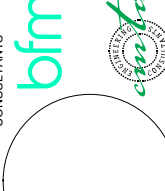
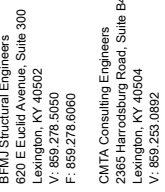
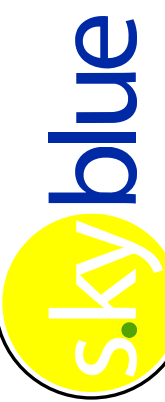

Architectural Closet

2009 SOLAR DECATHLON
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SHEET TITLE:

Renderings-Interior Elevations-Bedroom

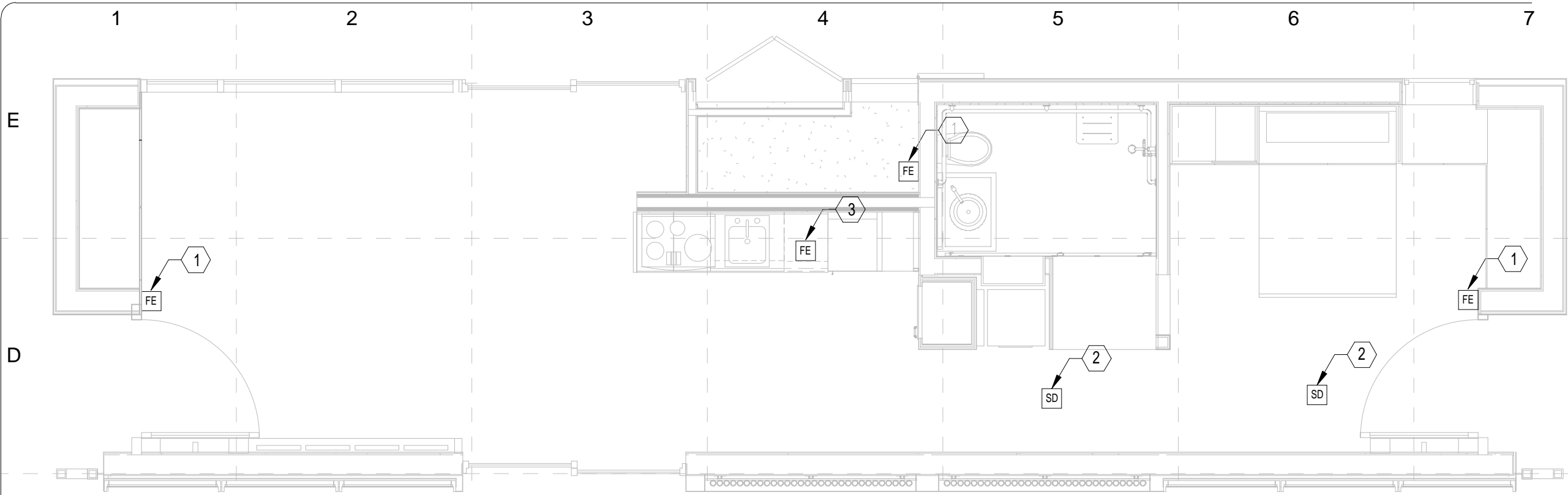
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G:\MEP Models\Revit Model MEP.rvt



TAGGED POWER NOTES:

1. FIRE PROTECTION EQUIPMENT (FIRE EXTINGUISHER) FOR LIVING AREAS.
2. FIRE PROTECTION EQUIPMENT (FIRE EXTINGUISHER) FOR KITCHEN.
3. REFER TO SHEET E603 FOR AC CONNECTION.

LEGEND

SMOKE DETECTOR

SD

FIRE EXTINGUISHER KIT

FE

PRODUCT DATA

FIRE EXTINGUISHER (KITCHEN)- KIDDE FX10K - UL RATED 10-B:C.

FIRE EXTINGUISHER (LIVING AREA) - KIDDE FX210R - UL RATED 2-A:
10-B:C. MEETS NFPA RECOMMENDATIONS FOR PRIMARY HOME PROTECTION

SMOKE ALARM - FIKE 2495W - 120 VAC WITH BATTERY BACKUP. UNIT
SHALL MEET UL217 AND NFPA72 REQUIREMENTS.

PRODUCT	INDICATOR NUMBER	DESCRIPTION	MANUFACTURER	MODEL NUMBER	PROVIDER	SIZE	REMARKS
SMOKE DETECTOR	20-130-111	LIVING AREAS HORN/STROBE	FIKE	2495W	FIKE	MOUNTS TO 4"x4"x1/2" BACK BOX	LIVING AREAS HORN/STROBE
FIRE EXTINGUISHER	21005770	LIVING AREAS	KIDDE	FX210R	KIDDE	HT=4.5" DIAM=16.07	LIVING AREAS
FIRE EXTINGUISHER	21005753	KITCHEN	KIDDE	FX10K	KIDDE	HT=13.75" DIAM=13.25	KITCHEN

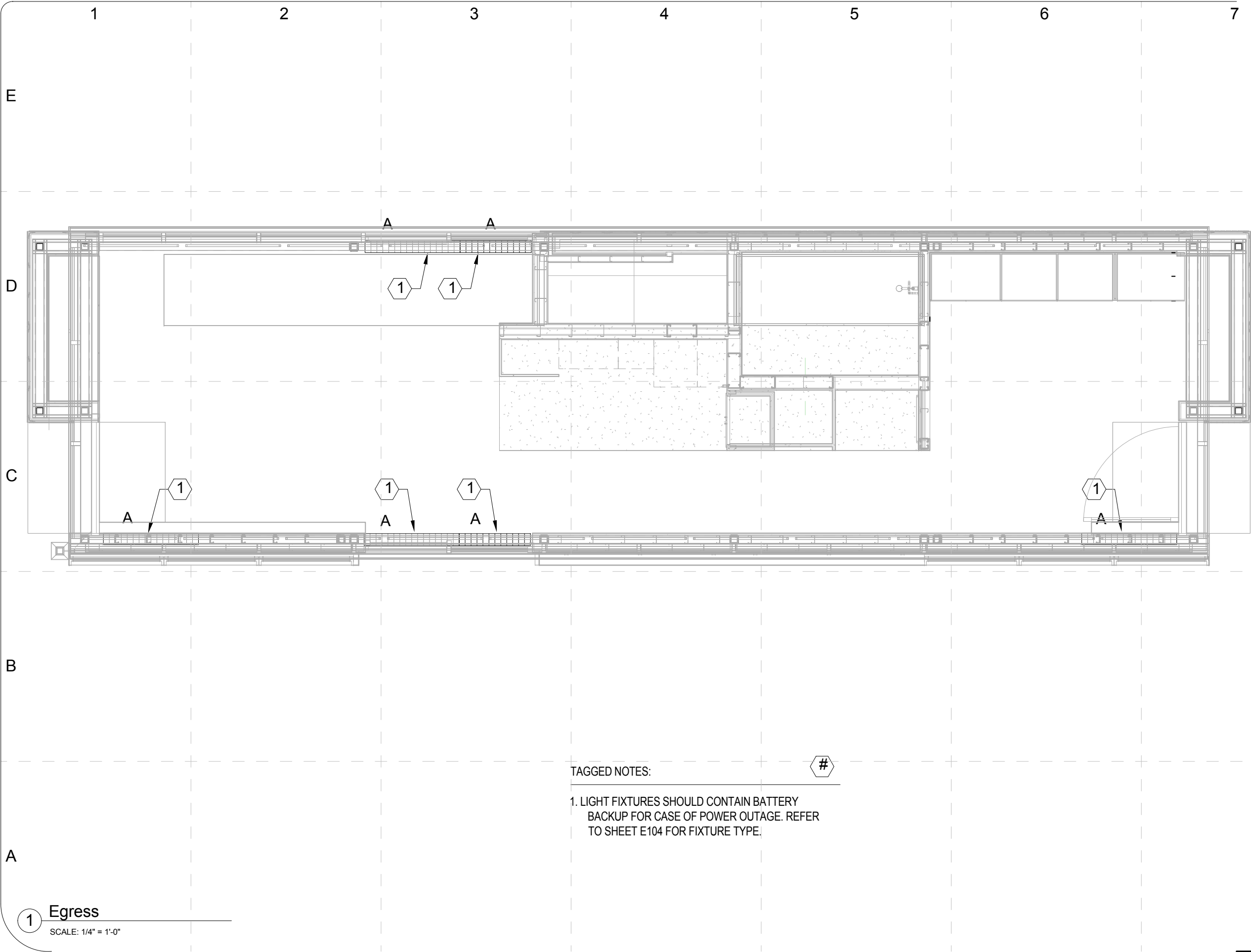
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SHEET TITLE:

Fire Protection Plan

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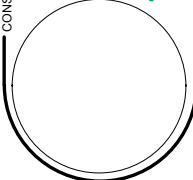


TAGGED NOTES:

1. LIGHT FIXTURES SHOULD CONTAIN BATTERY
BACKUP FOR CASE OF POWER OUTAGE. REFER
TO SHEET E104 FOR FIXTURE TYPE.

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APPROVED BY: <u>Approver</u>	
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DATE RECEIVED: 02/06/09	
COMMENTS	

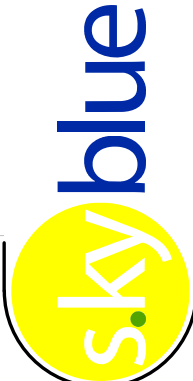
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	



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PV SYSTEM OVERVIEW

THE ARRAY OF SOLAR PANELS ON THE ROOF CONSISTS OF 12 PANELS (P1-P12). EACH PANEL HAS THREE SUNPOWER 305 MODULES CONTAINING 96 CELLS EACH. THE THREE MODULES ARE WIRED IN SERIES AND HAVE A HIGH BREAKING CAPACITY SWITCH WHICH CAN BE LEFT OPEN UNTIL ALL FIELD CONNECTIONS ARE COMPLETED IN SERIES. TWO PANELS ARE WIRED TOGETHER IN SERIES IN THE FIELD AT JUNCTION BOXES (JB1-JB6) TO PRODUCE 6 PANEL-PAIRS (PP1-PP6)

THE OUTPUT FROM THE SIX PANEL-PAIRS ARE CONNECTED TO TWO THREE-POLE ROOF MOUNTED DISCONNECT SWITCHES(DS1-DS2). THE OUTPUTS FROM THE DISCONNECT SWITCHES THEN PENETRATE THE ROOF AND ARE CONNECTED TO THE XANTREX 3.8 INVERTERS MOUNTED ON THE OUTSIDE UTILITY ROOM WALL.

GENERAL NOTES (APPLICABLE TO ALL WORK AND DOCUMENTS) :

1. EACH CONTRACTOR, PROPOSER, SUPPLIER AND/OR MANUFACTURER SHALL REFER TO ALL DOCUMENTS PERTAINING TO THIS PROJECT AND COORDINATE ACCORDINGLY SO AS TO INSURE ADEQUACY OF FIT, COMPLIANCE WITH SPECIFICATIONS, PROPER VOLTAGE AND CURRENT CHARACTERISTICS TO AVOID CONFLICT WITH ANY OTHER BUILDINGS SYSTEMS. VERIFY SAME WITH SHOP DRAWINGS.
2. ALL OFFSETS, TURNS, FITTINGS, TRIM, DETAIL, ETC., MAY NOT BE INDICATED, BUT SHALL BE PROVIDED AS REQUIRED. ADDITIONAL ALLOWANCES SHALL BE INCLUDED FOR SAME AT EACH PROPOSERS DISCRETION.
3. EARTH GROUNDING PER NEC 250 AND NPS REQUIREMENTS.
4. OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS THAT MAY APPLY TO THIS WORK. (CITY, COUNTY, LOCAL, STATE, FEDERAL, MUNICIPALITY, UTILITY COMPANY, OSHA, ETC.)
5. INSTALL EQUIPMENT, MATERIALS, ETC., IN STRICT ACCORD WITH MANUFACTURERS' RECOMMENDATIONS AND DIRECTIONS. IF IN CONFLICT WITH THE DESIGN INDICATED IN CONTRACT DOCUMENTS, ADVISE THE ENGINEERS PRIOR TO INSTALLATION FOR CLARIFICATION.
6. DO NOT RECESS PANELBOARD TUBS OR OTHER FLUSH-MOUNTED EQUIPMENT IN WALLS THAT HAVE A FIRE RATING, AS REQUIRED BY CODES. NO INSTALLATION SHALL DIMINISH OR VOID FIRE RESISTIVE RATINGS IN ANYWAY.
7. THE PURPOSE AND INTENT OF ALL OF THE DOCUMENTS PERTAINING TO THIS PROJECT IS TO PROVIDE A COMPLETE, FUNCTIONAL, SAFE, LIKE NEW FACILITY. ANYTHING LESS SHALL BE UNACCEPTABLE.
8. ALL SYSTEMS, EQUIPMENT AND MATERIALS ARE TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. WORK NOT MEETING THIS CRITERION SHALL BE REMOVED AND REINSTALLED SATISFACTORILY. FINAL DETERMINATION OF THE ACCEPTABILITY OF THE QUALITY OF WORK RESIDES WITH THE ENGINEER.
9. ALL WORK, MATERIALS, EQUIPMENT, ETC., SHALL BE FULLY GUARANTEED FOR ONE FULL CALENDAR YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION AS DOCUMENTED BY THE ENGINEERS, UNLESS LONGER WARRANTY PERIODS FOR EQUIPMENT ARE SPECIFIED.
10. UNLESS OTHERWISE SPECIFIED OR INDICATED, ALL EQUIPMENT AND/OR MATERIALS WITHIN OCCUPIED SPACES OR EXPOSED TO VIEW ON THE BUILDING EXTERIOR SHALL BE PRIMED AND FINISHED SO AS TO COMPLEMENT ADJACENT SURFACE, UNLESS OTHERWISE NOTED. COORDINATE WORK WITH ARCHITECT.
11. WHERE PENETRATING NEW/EXISTING ROOFING MEMBRANE OR OTHER MATERIALS USED FOR WEATHERPROOFING THE BUILDING, MAKE SUCH PENETRATION IN A WAY THAT WILL NOT VOID OR DIMINISH THE ROOFING WARRANTY OR INTEGRITY IN ANYWAY. COORDINATE ALL SUCH PENETRATIONS WITH THE ROOFING INSTALLER/ARCHITECT.
12. COORDINATE WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS AND CASEWORK DETAILS FOR LOCATION OF RECEPTACLES, UTILITY OUTLETS, ELECTRICAL DEVICES, ETC.
13. UNLESS OTHERWISE SPECIFIED OR INDICATED, INSTALL LIGHT FIXTURES, SMOKE DETECTORS, SPEAKERS AND OTHER CEILING MOUNTED APPURTENANCES IN THE CEILING IN A SYMMETRICAL PATTERN, UNLESS SPECIFICALLY INDICATED OTHERWISE.
14. ANY VIBRATING, OSCILLATING OR OTHER NOISE OR MOTION PRODUCING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER. NOISY OR STRUCTURALLY DAMAGING INSTALLATIONS SHALL BE SATISFACTORILY REPLACED OR REPAIRED AT THE INSTALLING CONTRACTORS' EXPENSE. THE FINAL DECISION ON THE SUITABILITY OF A PARTICULAR INSTALLATION'S ACCEPTABILITY SHALL BE THAT OF THE ENGINEER.
15. PROVIDE DETAILED SHOP DRAWINGS TO ENGINEERS PRIOR TO PURCHASING AND INSTALLING ANY EQUIPMENT.
16. DEVIATIONS IN SIZES, CAPACITIES, FIT, FINISH, ETC., FOR EQUIPMENT FROM THAT PRIME SPECIFIED SHALL BE THE RESPONSIBILITY OF THE PURCHASER OF THAT EQUIPMENT. ANY PROVISIONS REQUIRED TO ACCOMMODATE A DEVIATION, WHETHER APPROVED BY THE ENGINEERS OR NOT, SHALL BE THE RESPONSIBILITY OF THE PURCHASER.
17. WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEMS, CONTACT THE ENGINEERS BEFORE AFFECTING INSTALLATION. REFER ALSO TO ARCHITECTURAL WALL INTERIOR AND EXTERIOR WALL ELEVATIONS, CEILING HEIGHTS, AND OTHER DETAILS OF THESE DOCUMENTS, AS APPLICABLE.
18. WHERE FIRE RATED CEILING ASSEMBLIES ARE NOTED, PROVIDE RATED, APPROVED GYPSUM BOARD ENCLOSURES ABOVE LIGHT FIXTURES, CEILING DEVICES, ETC., IN OR ON CEILING, TO MAINTAIN CEILING RATINGS.
19. COORDINATE THE LOCATION OF DRAINS, ELECTRICAL OUTLETS, GAS OUTLETS, ETC., WITH ALL CASEWORK, KITCHEN EQUIPMENT, MECHANICAL ROOM EQUIPMENT, ETC., PRIOR TO COMMENCING INSTALLATION. WORK NOT SO COORDINATED SHALL BE REMOVED AND PROPERLY INSTALLED AT THE EXPENSE OF THE RESPONSIBLE CONTRACTOR(S).

THE ARRAY OF BIPV PANELS ON THE FRONT FACADE CONSISTS OF TWO PANELS CONSISTING OF 3 SCHUCO 375W MODULES EACH PANEL CONTAINS A MANUAL DISCONNECT SWITCH. WIRES ARE THEN RUN BELOW THE FLOOR LEVEL TO A SINGLE XANTREX GT 2.8 INVERTER MOUNTED ON THE OUTSIDE UTILITY ROOM WALL.

20. ALL ELECTRICAL COMPONENTS OR EQUIPMENT SHALL BE LABELED BY UNDERWRITER'S LABORATORIES OR OTHER APPROVED LISTING AGENCY. APPROVED AND LABELING OF INDIVIDUAL COMPONENTS ON AN ASSEMBLY IS NOT ACCEPTABLE AS MEETING THIS REQUIREMENT. UNLESS WAIVED BY THE ENGINEER IN WRITING.
21. ALL WIRING SYSTEMS SHALL BE INSTALLED WITH A MINIMUM OF SPLICES. CONDUCTORS, WHETHER SINGLE OR MULTI-PAIR SHALL BE INSTALLED CONTINUOUS INsofar AS POSSIBLE FROM TERMINAL POINT TO TERMINAL POINT.
22. ALL CONTRACTORS SHALL EXERCISE EXTREME CARE IN THE COURSE OF THEIR WORK SO AS TO INSURE THAT THEY DO NOT INTERRUPT ANY EXISTING SERVICE OR SUB-SERVICE FOR SAFETY PURPOSES, PAY PARTICULAR ATTENTION TO THIS PRECAUTION RELATIVE TO NATURAL GAS AND ELECTRICAL LINES. VERIFY THE LOCATION, SIZE, TYPE, ETC., OF EACH UNDERGROUND OR OVERHEAD UTILITY. ALL WORK SHALL BE PERFORMED IN ACCORD WITH ALL FEDERAL, STATE AND/OR LOCAL RULES, REGULATIONS, STANDARD AND SAFETY REQUIREMENTS. UTILITIES SHALL BE INSTALLED IN ACCORD WITH THE APPLICABLE MUNICIPALITY OR UTILITY COMPANY STANDARDS. IN ALL CASES, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
23. ALL SUPPORTS FOR EQUIPMENT, DEVICES OR FIXTURES SHALL BE UNIQUE FROM THE BUILDING STRUCTURE. DO NOT SUPPORT WORK FROM OTHER TRADES, EQUIPMENT OR SUPPORTS WITHOUT WRITTEN PERMISSION FROM THE ENGINEER AND CONSENT OF THE OTHER TRADE, IN WRITING. SUPPORTING FROM CROSS BRACING OR ROOF DECK WILL NOT BE ALLOWED.
24. WHERE INTERRUPTING AN EXISTING UTILITY OR SERVICE DELIBERATELY OR ACCIDENTALLY, THE RESPONSIBLE CONTRACTOR SHALL WORK CONTINUOUSLY AS NEEDED TO RESTORE SAME, PROVIDING PREMIUM TIME AS NEEDED.
25. REFER TO ARCHITECTURAL WALL ELEVATIONS (WHERE GIVEN) FOR HEIGHTS AND MOUNTING RELATIONSHIP OF OUTLETS AND EQUIPMENT. IF IN DOUBT, CONTACT THE ENGINEER FOR DIRECTION PRIOR TO INSTALLING WORK.
26. FLUSH OR PEDESTAL - TYPE FLOOR OUTLETS, AS INDICATED ON PLAN SHALL BE LOCATED BY DIMENSIONS PROVIDED BY THE ARCHITECT, UNLESS OTHERWISE SHOWN ON PLANS. IF IN DOUBT, CONTACT THE ENGINEER PRIOR TO ROUGHING-IN ANY WORK.
27. AS APPLICABLE, REFER TO ARCHITECTURAL PHASING PLANS AND PHASING BOUNDARIES ON THESE DRAWINGS FOR SEQUENCING OF WORK, FULL EXTENT OF AREA INVOLVED, EXTENT OF CEILING WORK, ETC. PROVIDE TEMPORARY CONNECTIONS FOR CIRCUITS AND WORK AS REQUIRED TO MAINTAIN SEQUENCE OF THE WORK FROM PHASE TO PHASE.
28. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR HIS/HER WORK. ALL CUTTING AND PATCHING SHALL BE IN ACCORD WITH THE ARCHITECTS STANDARDS FOR SUCH WORK. ALL WORK SHALL BE CONCEALED UNLESS SPECIFICALLY INDICATED TO BE EXPOSED, OR REQUIRED TO BE EXPOSED. IF IN DOUBT, CONTACT THE ENGINEERS FOR CLARIFICATIONS PRIOR TO INSTALLING ANY SUCH WORK.
29. INTERRUPTION OF ANY EXISTING SERVICES SHALL BE COORDINATED WITH THE CONTRACTOR, UTILITY COMPANY AS NECESSARY, AND THE ARCHITECT, AT LEAST TWO WEEKS IN ADVANCE OF THE ANTICIPATED INTERRUPTION. A SCHEDULE FOR THESE OUTAGES SHALL BE DEVELOPED AND AGREED UPON BETWEEN THE PARTIES MENTIONED, TO AVOID UNNECESSARY INCONVENIENCE TO THE OWNER OR ANY AFFECTED PARTY. NOTIFY THE UTILITY COMPANY OF ANY ANTICIPATED SERVICES REQUIRED TWO WEEKS IN ADVANCE, IN WRITING. IF UTILITY COMPANY REQUIRES A LONGER NOTIFICATION PERIOD, SO PROVIDE.
30. WHERE EXIT SIGNS OR EMERGENCY BATTERY PACKS ARE PROVIDED THEY SHALL BE CONNECTED TO AN UNSWITCHED LINE.
31. ALL LIGHTING FIXTURE LENSES, PARABOLIC LOUVERS, HANDLED WITH COTTON GLOVES DURING INSTALLATION AND LAMPING TO AVOID FINGERPRINTS OR DIRT DEPOSITS. IT IS PREFERRED THAT FIXTURES BE SHIPPED AND INSTALLED WITH CLEAR PLASTIC BAGS TO PROTECT LOUVERS. AT CLOSE OF PROJECT REMOVE BAGS. ANY LOUVER OR CONE SHOWING DIRT OR FINGER PRINTS SHALL BE CLEANED WITH SOLVENT RECOMMENDED BY THE MANUFACTURER, OR REPLACED AS NECESSARY IN ORDER TO TURN OVER TO THE OWNER NEW FIXTURES AT OCCUPANCY.
32. REFER TO ARCHITECTURAL DETAILS AS APPLICABLE FOR RECESSED SOFFIT FLUORESCENT FIXTURES. ADJUST FIXTURE LENGTHS BY FIELD MEASUREMENT OF SOFFIT, AS NECESSARY.
33. WHERE OUTLETS ARE LOCATED APPROXIMATELY BACK-TO-BACK ON OPPOSITE SIDES OF A PARTY WALL, THE OUTLETS SHALL NOT BE INSTALLED IN THE SAME STUD SPACE, BUT SHALL BE SEPARATED BY A MINIMUM OF ONE STUD.
34. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODES, NATIONAL FIRE CODES OF THE NATIONAL FIRE PROTECTION ASSOCIATION, THE REQUIREMENTS OF LOCAL UTILITY COMPANIES, AND WITH THE REQUIREMENTS OF ALL GOVERNMENTAL AGENCIES OR DEPARTMENTS HAVING JURISDICTION. IF ANY CONFLICTS OR DISCREPANCIES OCCUR THE MOST STRINGENT SHALL APPLY.
35. ALL WORK SHALL BE CONCEALED UNLESS SPECIFICALLY INDICATED TO BE EXPOSED, OR REQUIRED TO BE EXPOSED, IF IN DOUBT, CONTACT THE ENGINEERS FOR CLARIFICATION PRIOR TO INSTALLING ANY SUCH WORK.
36. DO NOT SCALE FROM DRAWINGS, AS PRINTING DISTORTS SCALE. WORK SHALL BE LAID OUT FROM DIMENSIONED DRAWINGS, OR DIMENSIONS SUPPLIED TO THE CONTRACTOR.
37. IF FLEXIBLE LIGHTING WIRING SYSTEMS ARE USED ELECTRICAL CONTRACTOR IS TO SUPPORT WIRING FROM STRUCTURE WITH APPROVED CLIPS. CABLE MAY NOT LAY ON CEILING PADS.
38. ALL CURRENT CARRYING CONDUCTORS SHALL BE COPPER.

LEGEND

AC LOAD CENTER

UTILITY METER / NET METER

ELECTRIC MOTOR

CONDUIT CONCEALED IN WALLS OR IN ABOVE CEILING: ARROW(S) INDICATE(S) HOME RUN & # OF CIRCUITS: HASHMARKS INDICATE # OF CONDUCTORS

FLOOR BOX (1 POWER / 1 VOICE / 1 DATA)

DUPLEX RECEPTACLE

ABOVE COUNTER GFI RECEPTACLE

GFI RECEPTACLE

SMOKE DETECTOR

WATERPROOF GFI RECEPTACLE

INVERTER

FIRE EXTINGUISHER

CABLE TV JACK

1 DATA

JUNCTION BOX

1 VOICE

COMBINATION 1V/1D

OCCUPANCY SENSOR

ABBREVIATIONS

AFF

SS

DS

PP

JB

INV

ABOVE FINISHED FLOOR

SAFETY SWITCH

DISCONNECT SWITCH

PANEL PAIR

JUNCTION BOX

INVERTER

G:\MEP Model\MEP Models\Revit Model MEP.rvt

	1	2	3	4	5	6	7	
E								
D			<div>Electrical Calculations</div> <div>System Overview The array of solar panels on the roof consists of 12 panels P1 - P12. Each panel consists of three Sunpower 305 modules each containing 96 cells. The three modules are wired in series and have a high breaking capacity switch that can be left open until all field connections are completed.</div> <div>Two panels are wired in together in series in the field at JB1 - JB6 to produce six panel-pairs PP1 - PP6.</div> <div>The output from the six panel-pairs are connected to two roof mounted disconnect switches DS1 - DS2. The outputs from the disconnect switches penetrate the roof and are connected to three Xantrex GT 3.8 inverters, which are mounted in the outer utility room.</div>					
C			<div>Sunpower 305 Solar Panel</div> <div><div><div>1. Pmax = 305 W</div><div>2. VOC = 64.2 V</div><div>3. ISC = 5.96 A</div><div>4. Vmp = 54.7 V</div><div>5. Imp = 5.58 A</div><div>6. Temperature Coefficients<div><div>a. Power: -0.38 % / oC</div><div>b. Voltage (VOC): -176.6 mV / oC</div><div>c. Current (ISC): 3.5 mA / oC</div></div></div></div></div>	<div>Constants</div>	<div><div>3. Input Characteristics:<div><div>a. Maximum array VOC: 600 VDC</div><div>b. MPPT voltage range: [195 - 550] VDC</div><div>c. Maximum input current: 20.8 ADC</div></div></div><div>Xantrex GT2.8 Inverter</div><div><div>1. Max AC power output: 2800 W</div><div>2. Output Characteristics:<div><div>a. Voltage: 240 VAC [211 - 264]</div><div>b. Frequency: 60 Hz [59.3 - 60.5]</div><div>c. Maximum continuous output current: 11.7 A</div><div>d. Maximum output over-current protection: 15 A</div><div>e. Total harmonic distortion: <3 %</div><div>f. Power factor: >0.99 %</div><div>g. Characteristics: Current Source, True Sine Wave</div></div></div></div></div>			
B			<div>Custom Schuco Panels</div> <div><div><div>1. Pmax = 375.4 W</div><div>2. V-OC = 95 V</div><div>3. ISC = 5.4 A</div><div>4. Vmp = 77.7 V</div><div>5. Imp = 4.8 A</div></div></div>		<div><div>3. Input Characteristics:<div><div>a. Maximum array VOC: 600 VDC</div><div>b. MPPT voltage range: [195 - 550] VDC</div><div>c. Maximum input current: 15.4 ADC</div></div></div><div>Environmental Conditions:</div><div><div>1. Maximum temperature: 120 oF = 49 oC</div><div>2. Minimum temperature: -20 oF = -29 oC</div></div></div>			
A			<div>Xantrex GT3.8 Inverter</div> <div><div><div>1. Max AC power output: 3800 W</div><div>2. Output Characteristics:<div><div>a. Voltage: 240 VAC [211 - 264]</div><div>b. Frequency: 60 Hz [59.3 - 60.5]</div><div>c. Maximum continuous output current: 15.8 A</div><div>d. Maximum output over-current protection: 20 A</div><div>e. Total harmonic distortion: <3 %</div><div>f. Power factor: >0.99 %</div><div>g. Characteristics: Current Source, True Sine Wave</div></div></div></div></div>					

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2009 SOLAR DECATHLON

CONSTRUCTION DOCUMENTS

02.JUNE.2009

www.uky.edu/solarhouse

PROJECT NO: UKY 522009

DRAWN BY: DS

APPROVED BY: DGC

DATE CREATED: 06/02/09

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Codes and Calculations

E - 002



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	1	2	3	4	5	6	7
E	Roof PV System				South Wall PV System		
	Maximum Values As per NEC 690.7(A), the maximum system voltage of one panel pair-six modules in series-is calculated as follows with a 1.25 temperature correction factor. This complies with NEC 690.7(C). As per NEC 690.8(A), the maximum system current of one panel pair is calculated as follows.				Maximum Values As per NEC 690.7(A), the maximum system voltage of one panel-three modules in series-is calculated as follows with a 1.25 temperature correction factor: This complies with NEC 690.7(C). As per NEC 690.8(A), the maximum system current of one panel is calculated as follows.		
	Conductor Sizing As per NEC 690.8(B)(1) the panel pair output circuits are sized to 125% of the maximum current. As per NEC 310.15(B)(2) and Table 310.16, these conductors must be AWG #10 THWN-2 wire.				Conductor Sizing As per NEC 690.8(B)(1) the south wall PV string output circuits are sized to 125% of the maximum current. Although these circuits could be much smaller (NEC 310), they are AWG #10 in order to reduce conductor resistance. These conductors will be THWN-2 type wire.		
D	Overcurrent Protection 20 amp overcurrent protection is provided within the Xantrex GT 3.8 inverters. Additional manual disconnects are located on the north side of the roof and within each panel.				Overcurrent Protection 15 amp overcurrent protection is provided within the Xantrex GT 2.8 inverter. Additional manual disconnects are located near the panels.		
	Conduit In accordance with NEC 690.7(D) all output circuits from the roof panel pairs are contained within conduit and run along the roof and through the mechanical closet. 1-inch EMT runs along the south edge of the roof containing a maximum of 9 AWG #10 conductors. A combination of 1½-inch EMT and MC containing a maximum of 13 AWG #10 conductors runs back across the depth of the roof to the disconnect switches. 1½-inch LFNC connects the roof junction box to the mechanical closet and passes through the roof penetration. These conduit sizes were derived from NEC Annex C. Portions of these conduit runs may be exposed to weather and sunlight and are specified accordingly.				Conduit The three conductors running from each panel are contained within ½-inch flexible MC that runs to a junction box on the south side of the house opposite the mechanical closet. This conduit size was derived from NEC table C.3. ¾-inch EMT runs back across the depth of the house and up to inverter 4. Portions of these conduit runs may be exposed to weather and sunlight and are specified accordingly.		
	Grounding As per NEC 690.45 the PV equipment grounding is AWG #10 wire. Because the equipment grounds are combined across the entire array, the sum of overcurrent device ratings is 60 amps.				Grounding As per NEC 690.45 the PV equipment grounding is AWG #10 wire. This is larger than what the code requires.		
C	Inverters				Load Center		
	Maximum Values As per NEC 690.8(A)(3) the inverter maximum output current is the inverter continuous output current rating. This value is 15.8 amps for the Xantrex GT3.8 inverters and 11.7 amps for the Xantrex GT2.8 inverter.				Overcurrent Protection The load center is rated for 225 amps, but contains a 150 amp main service breaker. The load center contains a 20 amp 2-pole breaker for each GT3.8 inverter and a 15 amp 2-pole breaker for the GT2.8 inverter.		
	Conductor Sizing As per NEC 690.8(B)(1) the circuits connecting the Xantrex inverters to the load center are sized to 125% of the maximum current. Although NEC 310.15 and NEC 310.16 allow for AWG #12, these conductors are AWG #10 THWN-2 wires.				Load-side Connection As per 690.64(A) and (B)(2), the PV does not produce sufficient current to warrant a supply side connection.		
B	Conduit As per NEC Table C.1, the 12 AWG #10 conductors connecting the inverters to the load center are contained in two ¾-inch EMT conduits. Portions of these conduit runs may be exposed to weather and sunlight and are specified accordingly.				Conductors Although NEC table 310.15(B)(6) permits an AWG #1 conductor for the 150 amp main service breaker. The load center is connected to the utility meter using AWG 1/O wire.		
	Grounding As per NEC 690.45 the inverter equipment grounding is AWG #10 wire. This is larger than what the code requires.				Conduit The majority of the conductors that exit the load center go to an enclosure located immediately below the load center via 4 ¾-inch EMT, 2 1-inch EMT, and 2 1¼-inch EMT. The housing circuits are distributed from this enclosure via a mix of EMT and MC. The conductors that do not go through the distribution enclosure are the PV equipment grounds, the utility meter ground, and the main grounding conductor.		
					Grounding As per NEC 250.66, the load center's grounding strip connects to the grounding rod with an AWG #6 wire.		
A							



CONSULTANTS



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2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02.JUNE.2009

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APPROVED BY: DGC

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Codes and Calculations

E - 003

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E

Utility Meter
Conductors

The conductors connecting the utility meter to the grid interconnect and the utility meter to UK1 are 1/O wire based on NEC 310.16.

Based on NEC table 250.122 the equipment ground conductor must be at least AWG #6 wire.

Conduit

As per NEC table C.1, the conductors connecting the utility meter to the terminal box are contained in 2-inch EMT until they penetrate the deck after which they are contained in 2-inch schedule 40 PVC.

D

Solar Decathlon
Interconnection Application Form

The University of Kentucky (111)

C

PV SYSTEMS

Module Manufacturer	Short Description of Array	DC Rating of Array (W)
Sunpower	6 strings in parallel of 6 modules in series	10980 W
Schuco	2 strings in parallel of 3 modules in series	2252.4 W

Total DC power of all arrays is 13.2 kW

INVERTERS

Inverter Manufacturer	Model Number	Voltage	Rating (kW)	Quantity
Xantrex	GT 3.8	240	3.8	3
Xantrex	GT 2.8	240	2.8	1

Total AC power of all inverters is 14.2 kW

B

A

Load Calculations

The following load calculations are in accordance with NEC 220.82. NEC 220.82(B)

Lighting Load = 3 * 800 = 2400 VA
General Receptacles = 3 * 800 = 2400 VA
Small Appliance Branch Circuit = 6 * 1500 = 9000 VA
Advanteum = 6400 VA
Dryer = 5000 VA
Cooktop = 3700 VA
Pumps = 1600 VA
Roof Motors = 700 VA
Hot Water Heater = 4500 VA

Total = 35700
Calculated load = 10000 + 0.4*25700 = 20280 VA

NEC 220.82(C)(1)
Reverse Cycle Chiller = 4000VA
Fans and Intakes = 1200 VA
Air Handlers = 300 VA

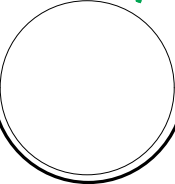
NEC 220.82(C)(2)
Heat Pump 1 = 1800 VA
Heat Pump 2 = 3800 VA

Calculated load = 5500 VA

Therefore, the total calculated service load is:

Service Load = 25780 VA

Service Amps = 25780 VA / 240 V = 109A



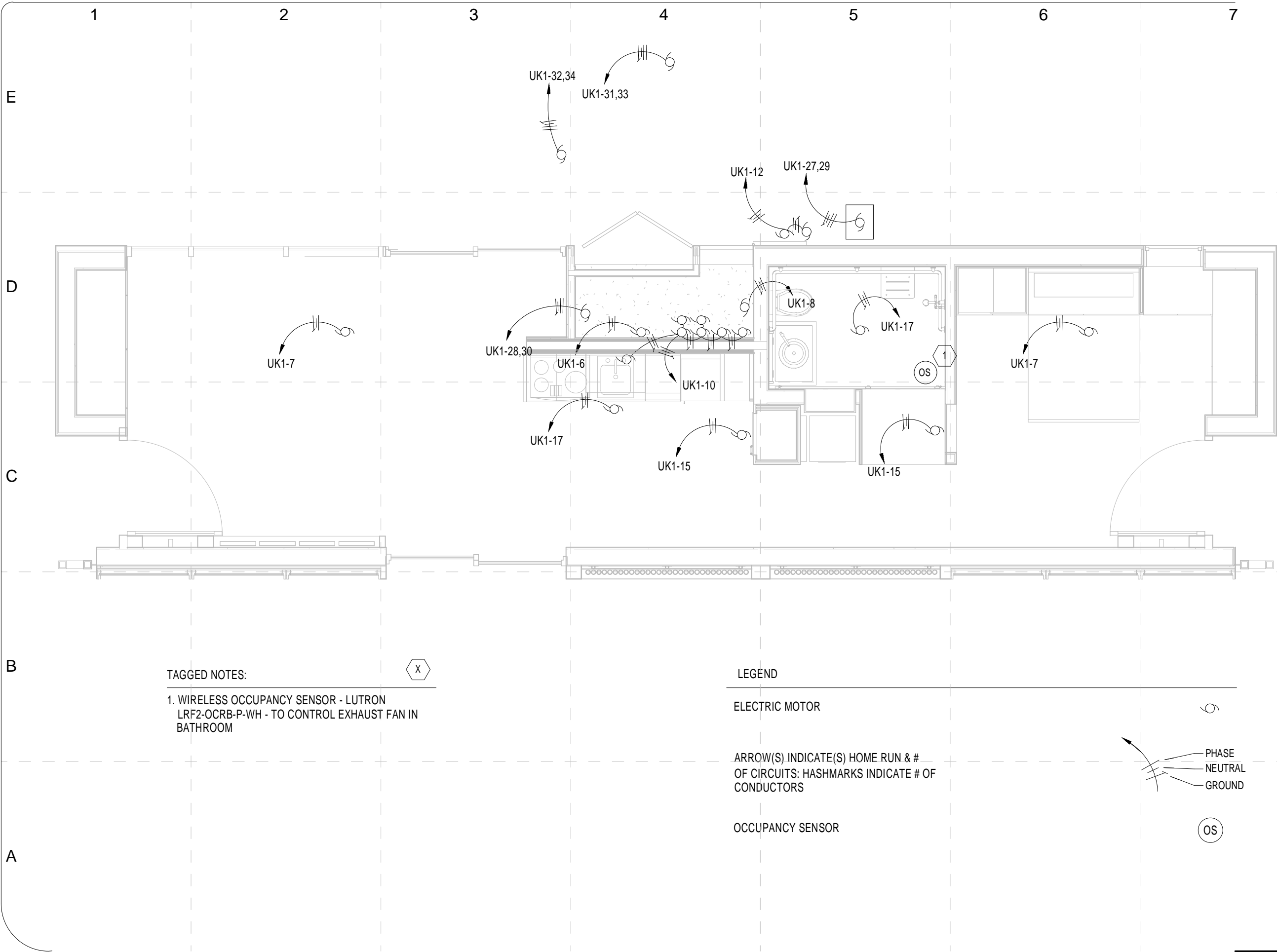
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SHEET TITLE:

Codes and
Calculations

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TAGGED NOTES:

1. WIRELESS OCCUPANCY SENSOR - LUTRON
LRF2-OCRB-P-WH - TO CONTROL EXHAUST FAN IN
BATHROOM

LEGEND


ELECTRIC MOTOR

ARROW(S) INDICATE(S) HOME RUN & #
OF CIRCUITS: HASHMARKS INDICATE # OF
CONDUCTORS

OCCUPANCY SENSOR



PHASE
NEUTRAL
GROUND

OS



skyblue

CONSULTANTS



2009 SOLAR DECATHLON
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02 JUNE 2009
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DATE CREATED 06/02/09

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COMMENTS

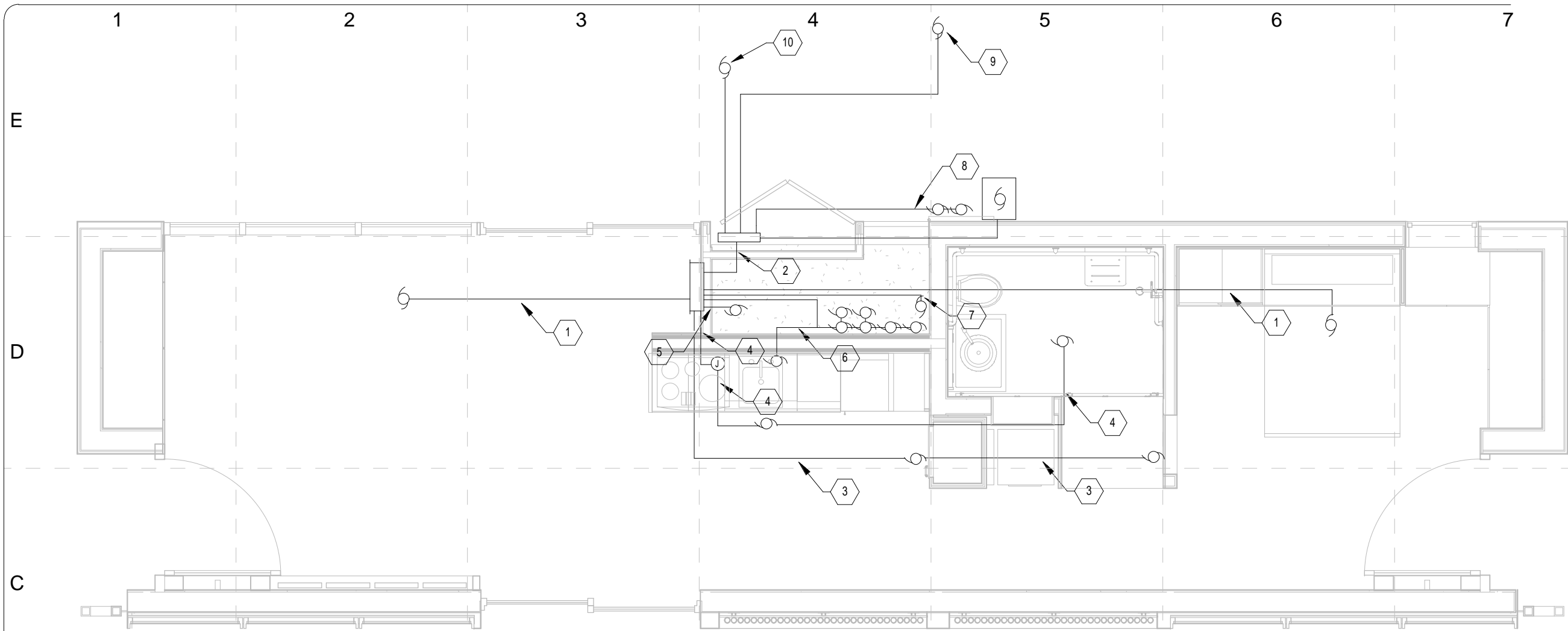
SHEET TITLE:

Power Plan-Motor
Locations

E - 101

BFMJ Structural Engineers
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TAGGED POWER NOTES:

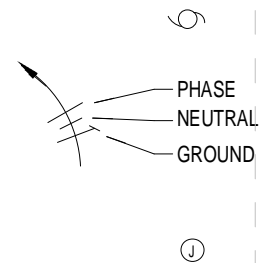
1. CIRCUIT UK1-7: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN 3/4" EMT CONDUIT TO EDGE OF HOUSE, THEREAFTER LFNC TO LOAD.
2. CIRCUIT UK1-12,27,29,31,32,33,34: PROVIDE 7 #10 HOT, 3 #10 NEUTRAL, 3 #10 GROUND, 2 #12 HOT, 1 #12 NEUTRAL, 1 #12 GROUND IN 1 1/4" EMT CONDUIT TO EDGE OF HOUSE, THEREAFTER 3/4" LFNC TO LOADS 8,9,10,11.
3. CIRCUIT UK1-15: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
4. CIRCUIT UK1-17: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
5. CIRCUIT UK1-28,30: PROVIDE 2#10 HOT, 1#10 NEUTRAL, AND 1#10 GROUND IN MC CONDUIT.
6. CIRCUIT UK1-10: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
7. CIRCUIT UK1-8: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
8. CIRCUIT UK1-12: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN 3/4" EMT CONDUIT TO EDGE OF HOUSE, THEREAFTER LFNC TO LOAD.
9. CIRCUIT UK1-31,33: PROVIDE 2#10 HOT, 1#10 NEUTRAL, AND 1#10 GROUND IN 3/4" EMT CONDUIT. LOCATION OF HEAT PUMP OUTSIDE OF DECKING.
10. CIRCUIT UK1-32,34: PROVIDE 2#10 HOT, 1#10 NEUTRAL, AND 1#10 GROUND IN 3/4" EMT CONDUIT. LOCATION OF HEAT PUMP UNDER DECK.
11. CIRCUIT UK1-27,29: PROVIDE 2#10 HOT, 1#10 NEUTRAL, AND 1#10 GROUND IN 3/4" EMT CONDUIT TO EDGE OF HOUSE, THEREAFTER LFNC TO LOAD.

LEGEND

ELECTRIC MOTOR

ARROW(S) INDICATE(S) HOME RUN & # OF CIRCUITS: HASHMARKS INDICATE # OF CONDUCTORS

JUNCTION BOX



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DD	12/16/2008	DESIGN DEVELOPMENT
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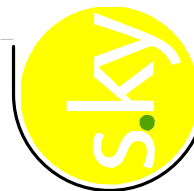
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Power Plan Motor
Conduit

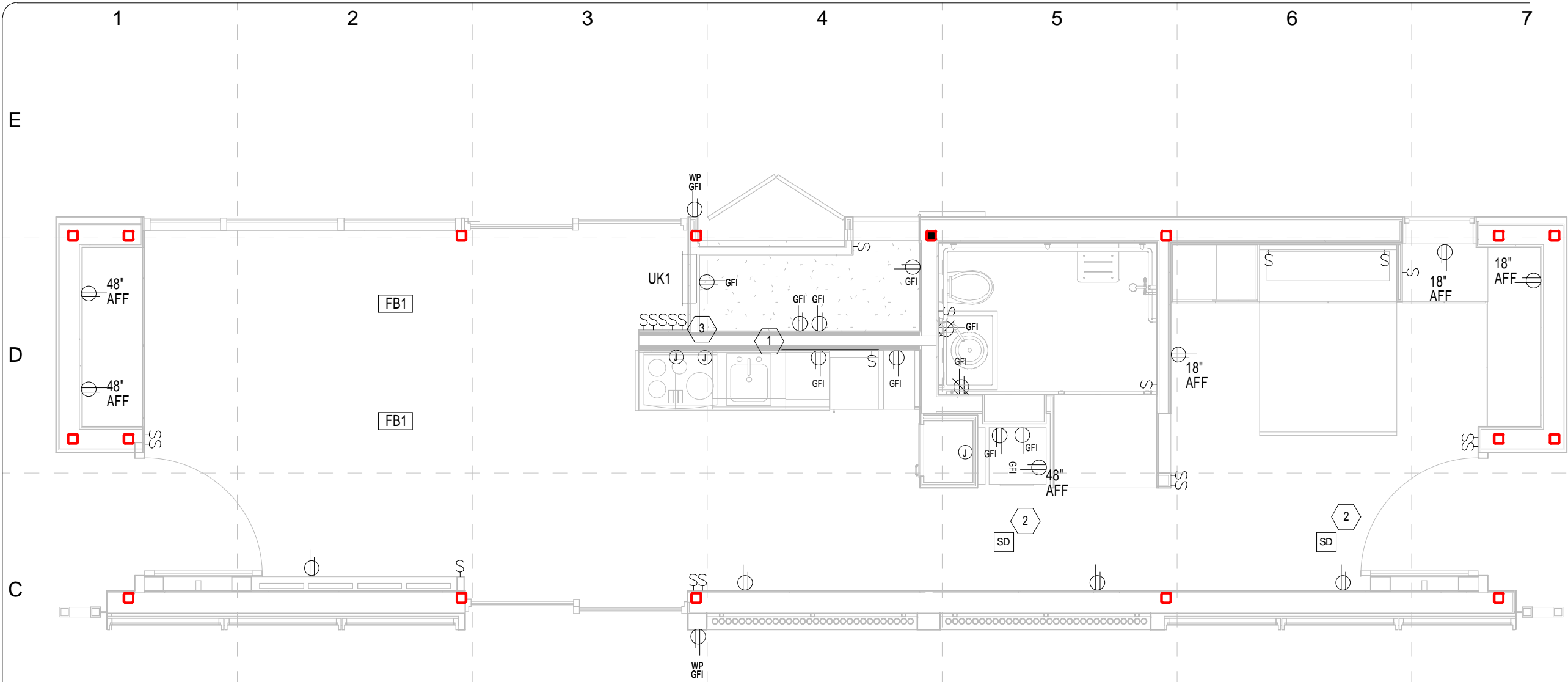
E-102

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LEGEND

FLOOR BOX

FB1

DUPLEX RECEPTACLE



RECESSED PANEL



ABOVE COUNTER GFI RECEPTACLE



TWO-WAY SWITCH



GFI RECEPTACLE



SMOKE DETECTOR



WATERPROOF GFI RECEPTACLE



TAGGED POWER NOTES:

1. RECEPTACLE STRIP ON KITCHEN COUNTER.
2. 120 V POWER FOR SMOKE DETECTORS
3. SWITCHES FOR PHANTOM LOADS (2)



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SHEET TITLE:	
Power Plan	

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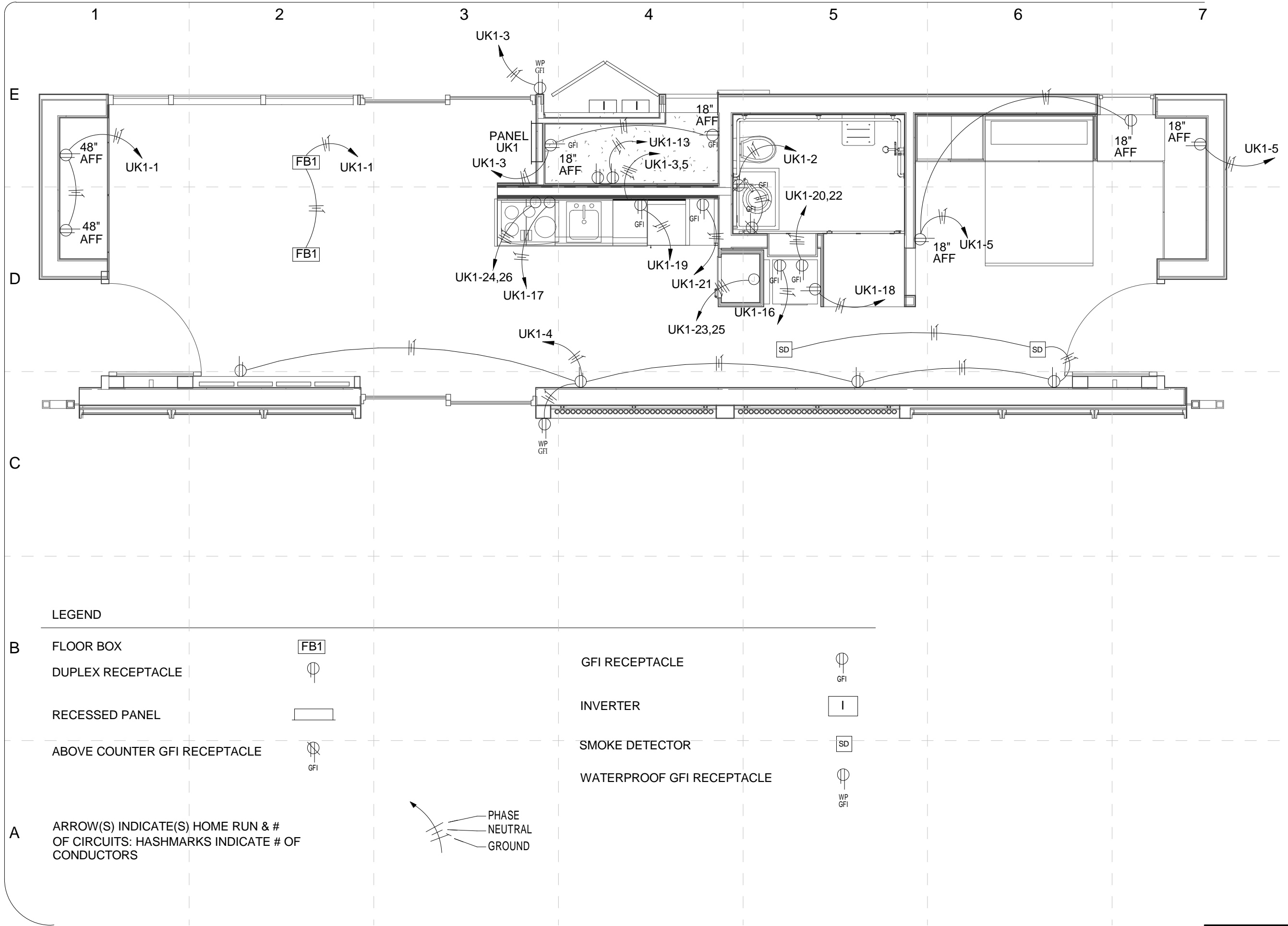
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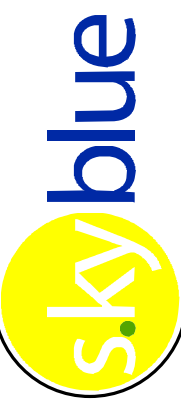

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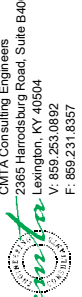
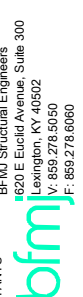
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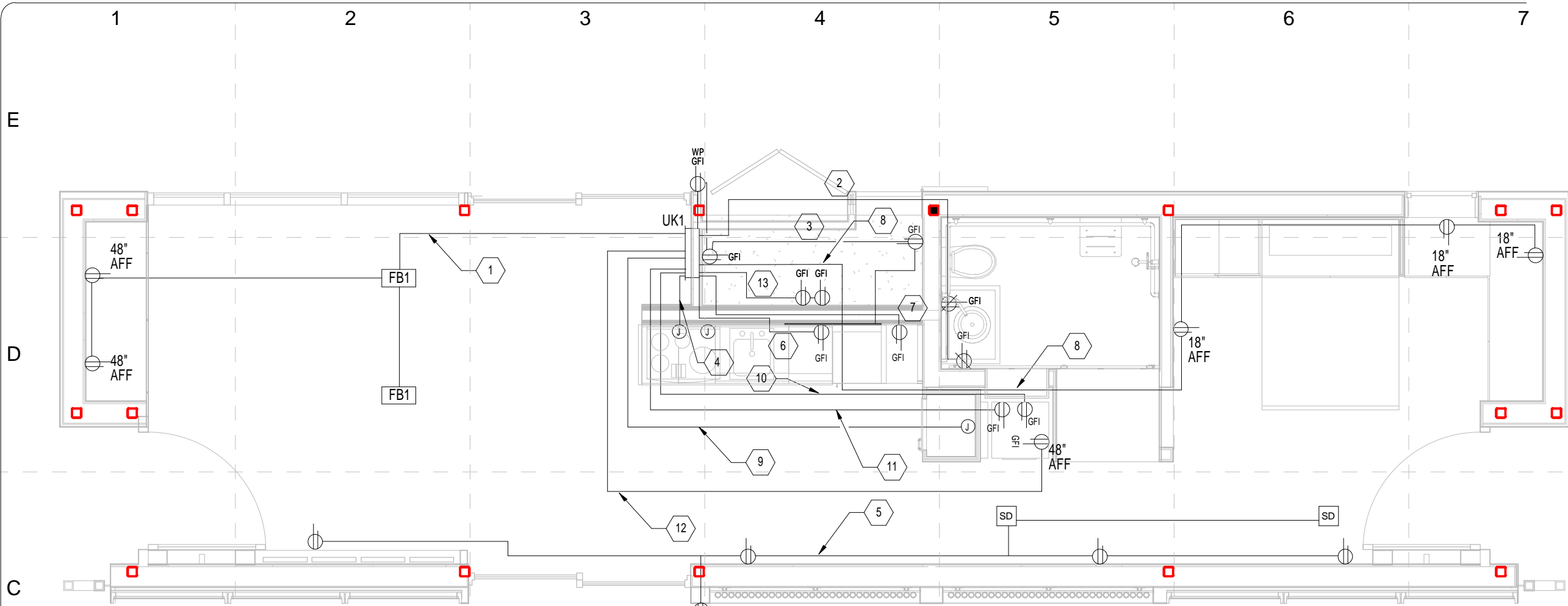
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SHEET TITLE:

AC Circuit Layout

E - 104

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TAGGED POWER NOTES:

1. CIRCUIT UK1-1: PROVIDE 1 #12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
2. CIRCUIT UK1-13: PROVIDE 1 #12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
3. CIRCUIT UK1-3: PROVIDE 1 #12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
4. CIRCUIT UK1-24,26: PROVIDE 2#8 HOT, 1#8 NEUTRAL, AND 1#8 GROUND IN MC CONDUIT.
5. CIRCUIT UK1-4: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
6. CIRCUIT UK1-19: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
7. CIRCUIT UK1-21: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
8. CIRCUIT UK1-5: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
9. CIRCUIT UK1-23,25: PROVIDE 2#8 HOT, 1#8 NEUTRAL, AND 1#8 GROUND IN MC CONDUIT.
10. CIRCUIT UK1-20,22: PROVIDE 2#10 HOT, 1#10 NEUTRAL, AND 1#10 GROUND IN MC CONDUIT.
11. CIRCUIT UK1-16: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
12. CIRCUIT UK1-18: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.
13. CIRCUIT UK1-2: PROVIDE 1#12 HOT, 1#12 NEUTRAL, AND 1#12 GROUND IN MC CONDUIT.

LEGEND

FLOOR BOX

DUPLEX RECEPTACLE

RECESSED PANEL

ABOVE COUNTER GFI RECEPTACLE

FB1

GFI

GFI RECEPTACLE

SMOKE DETECTOR

WATERPROOF GFI RECEPTACLE

GFI

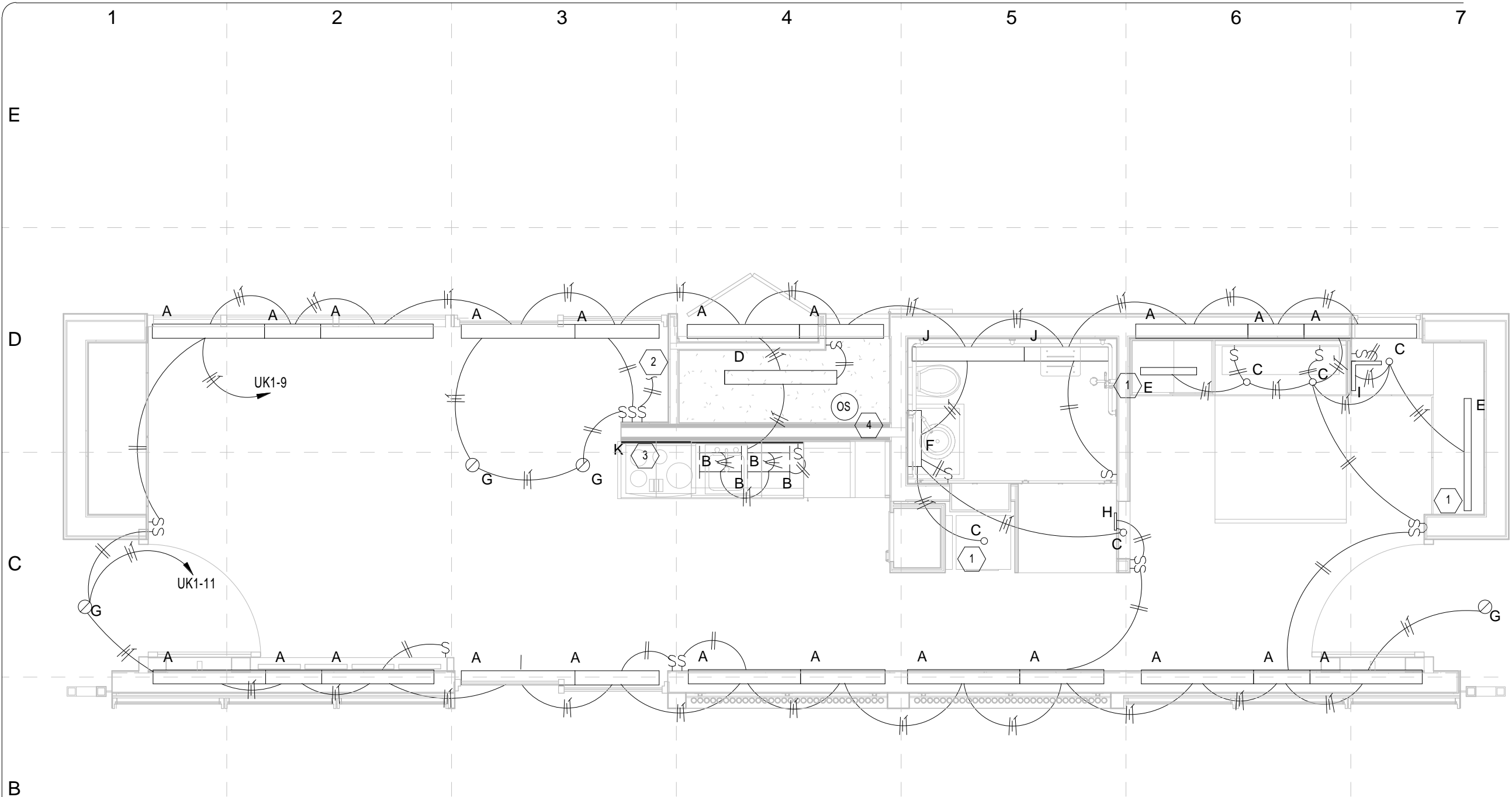
SD

WP GFI

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COMMENTS					

SHEET TITLE:	
Power Plan Conduit	

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TAGGED NOTES:

1. FIXTURE ON JAM SWITCH
2. TO EXTERIOR BENCH, RAIL, AND BACKDROP LED'S. CIRCUIT TO UK1-14
3. COUNTER BACKDROP LED LIGHT
4. WIRELESS OCCUPANCY SENSOR - LUTRON LRF2-OCRB-P-WH - TO CONTROL LIGHT IN MECHANICAL ROOM

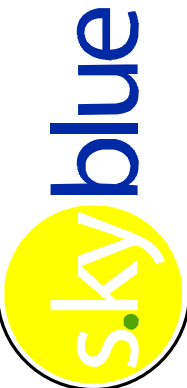

GENERAL NOTES:

SEE SHEET E-601 FOR LIGHT FIXTURE SCHEDULE


LEGEND

OCCUPANCY SENSOR


OS



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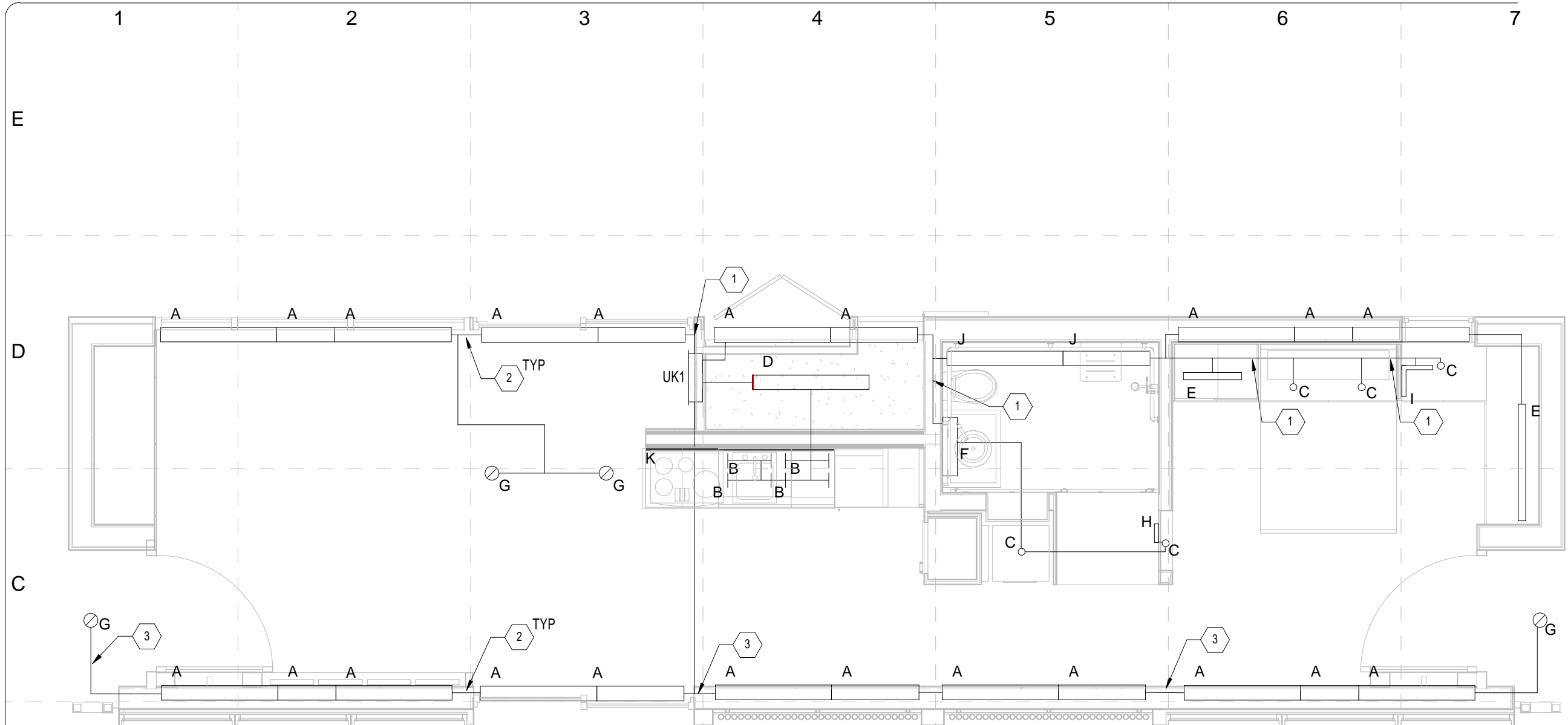
PROJECT NO: UKY	502009
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SHEET TITLE:

Lighting Plan

E-106

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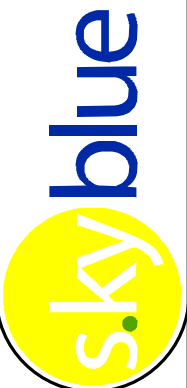




TAGGED NOTES:

1. CIRCUIT UK1-9: 1 #12 HOT, 1#12 NEUTRAL AND 1#12 GROUND IN MC CONDUIT
2. RELOCK WIRING BETWEEN FIXTURES FOR POWER AND CONTROL.
3. CIRCUIT UK1-11: 1#12 HOT, 1#12 NEUTRAL AND 1 #12 GROUND IN MC CONDUIT


GENERAL NOTES:

SEE SHEET E-601 FOR LIGHT FIXTURE SCHEDULE





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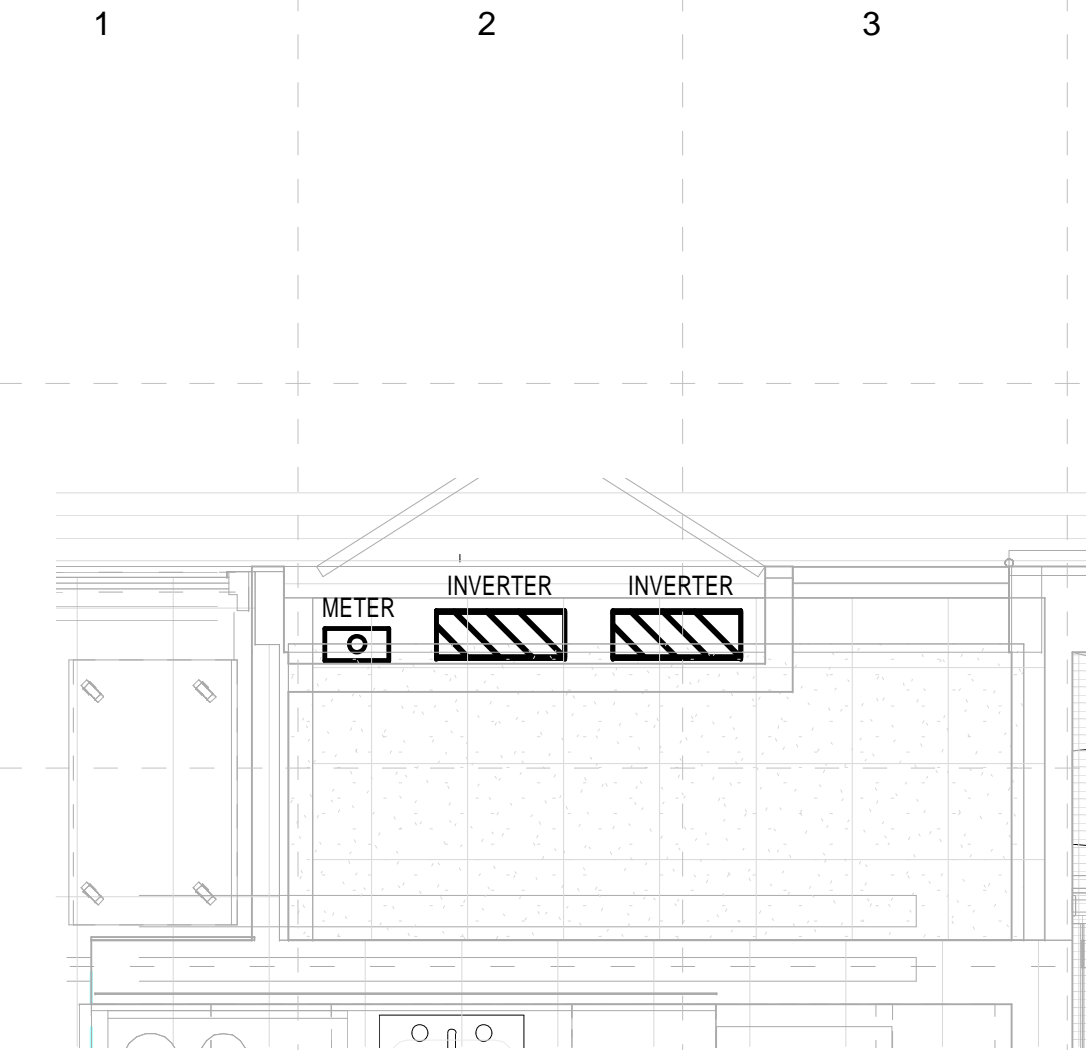
DATE RECEIVED 06/02/09

COMMENTS

SHEET TITLE:
Lighting Plan
Conduit

E-107

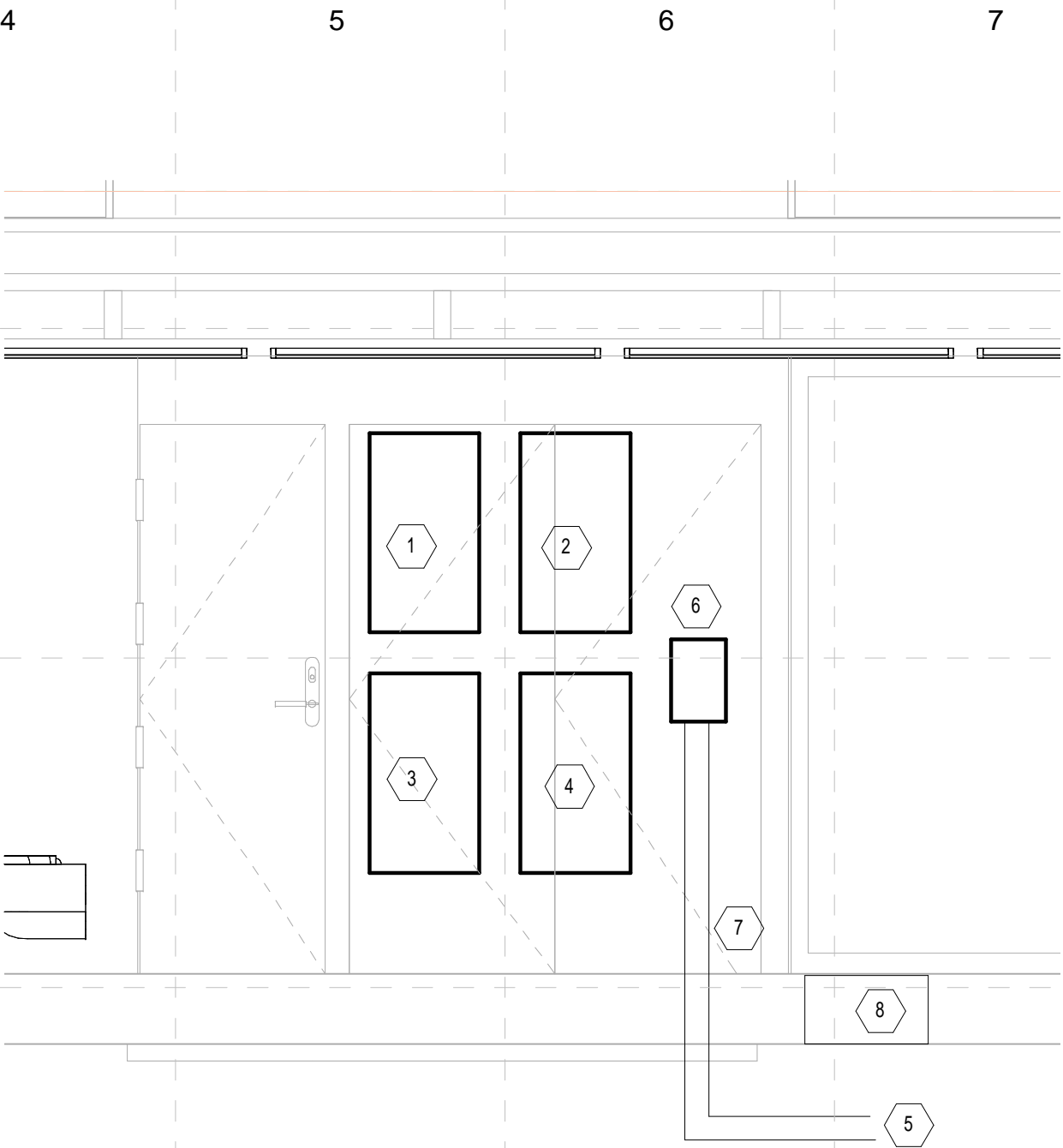
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1 Inverter Plan View
1/2" = 1'-0"

TAGGED POWER NOTES:

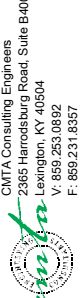
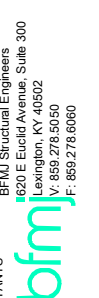
1. INVERTER 1 WIRED TO UK1 CIRCUITS 35 AND 37
2. INVERTER 2 WIRED TO UK1 CIRCUITS 36 AND 38
3. INVERTER 3 WIRED TO UK1 CIRCUITS 39 AND 41
4. INVERTER 4 WIRED TO UK1 CIRCUITS 40 AND 42
5. 2.5" SCHEDULE 40 PVC CONDUIT TO TERMINAL BOX.
2 #1/0 HOT, 1#1/0 NEUTRAL FROM METER BASE TO TERMINAL BOX.
6. METER BASE - SQUARE D MODEL #UTRS202B. MOUNT 5.0' ABOVE DECK.
7. 2" EMT TO EDGE OF HOUSE, THEREAFTER IN 2" SCHEDULE 40 PVC.
8. ENCLOSURE FOR LFNC ATTACHMENTS



2 Inverter Elevation
1/2" = 1'-0"



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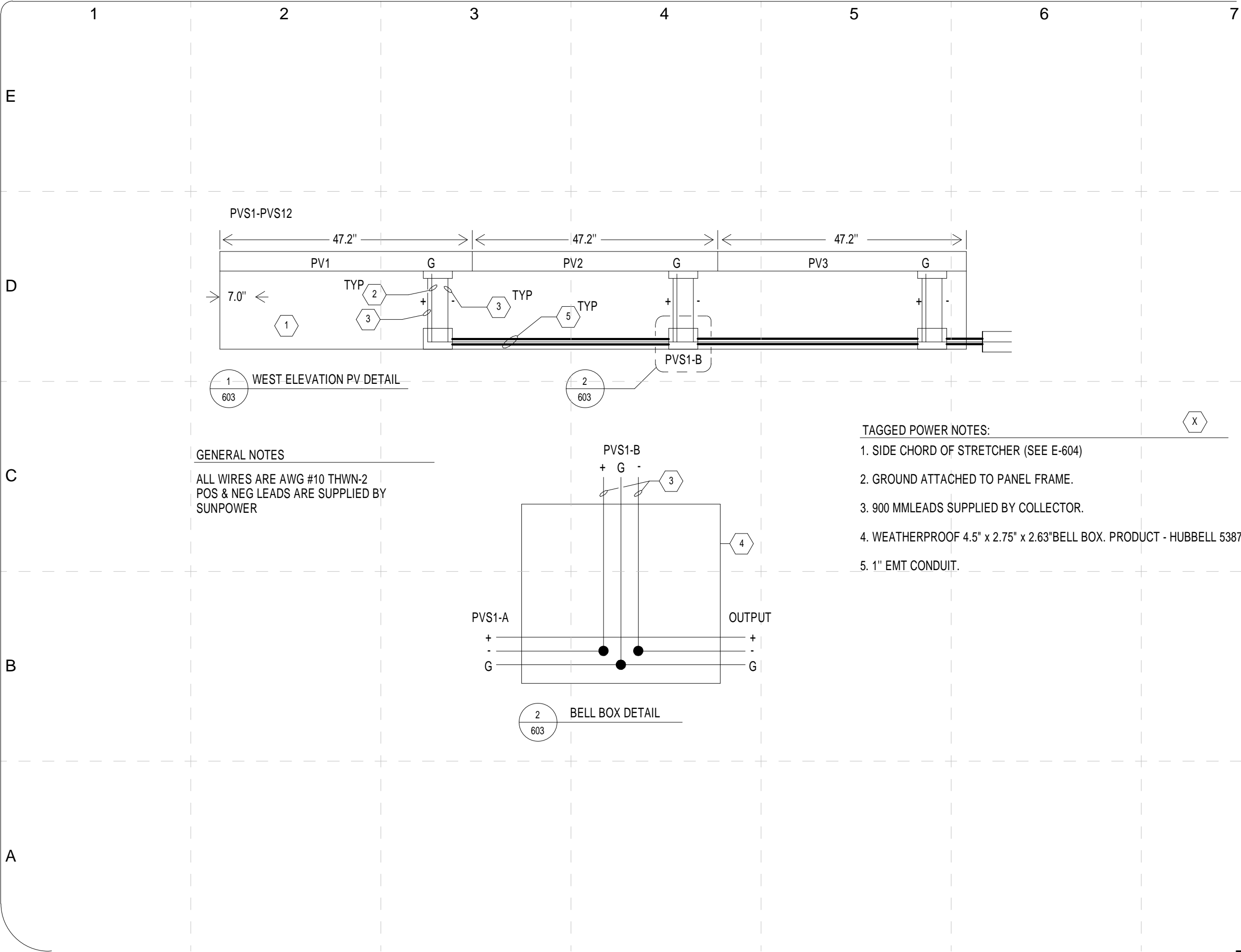
COMMENTS

SHEET TITLE:

Inverter Locations

E - 201

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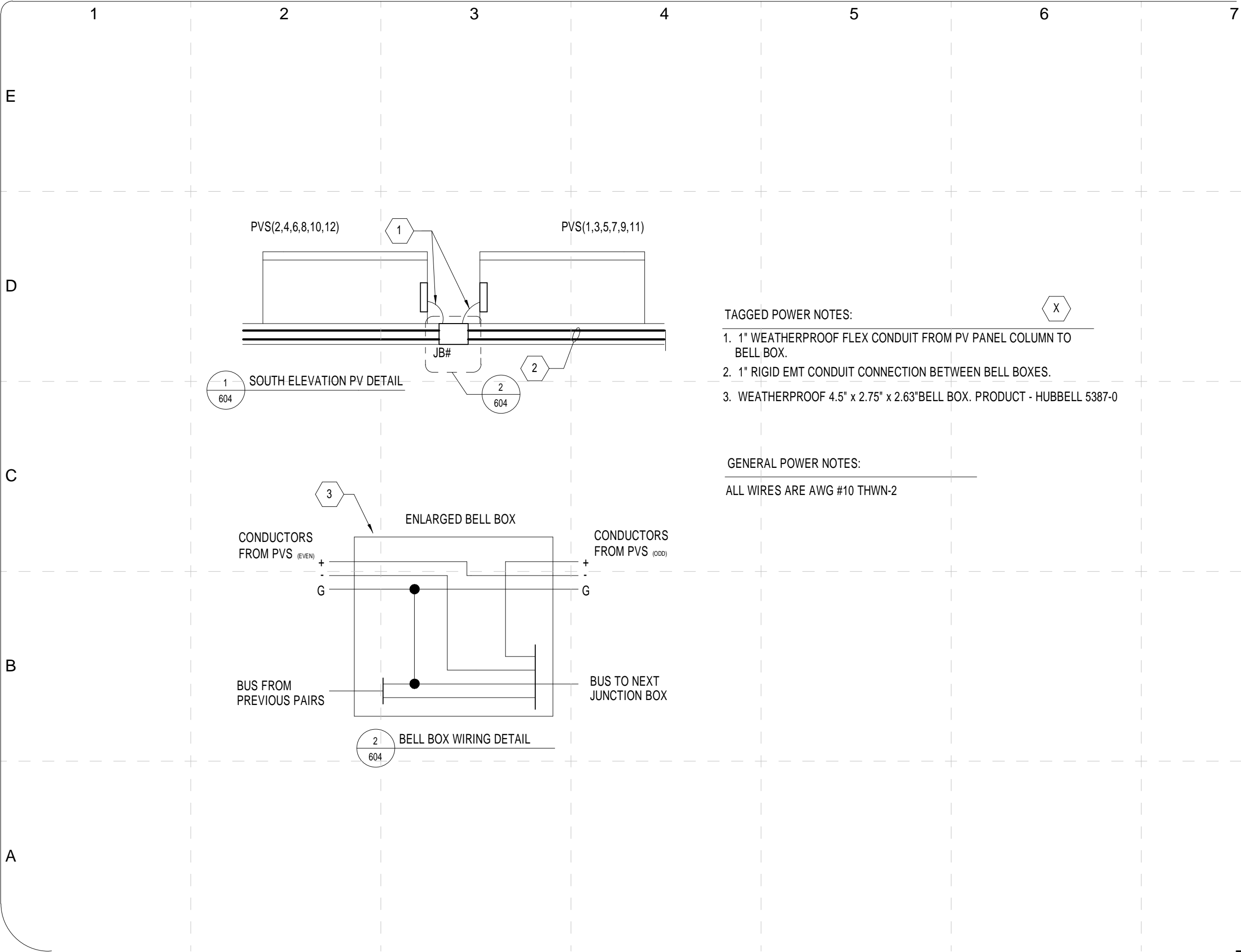
COMMENTS

SHEET TITLE:

Wiring Inside
Stretchers Detail

E - 501

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TAGGED POWER NOTES:

1. 1" WEATHERPROOF FLEX CONDUIT FROM PV PANEL COLUMN TO BELL BOX.
2. 1" RIGID EMT CONDUIT CONNECTION BETWEEN BELL BOXES.
3. WEATHERPROOF 4.5" x 2.75" x 2.63"BELL BOX. PRODUCT - HUBBELL 5387-0


GENERAL POWER NOTES:

ALL WIRES ARE AWG #10 THWN-2





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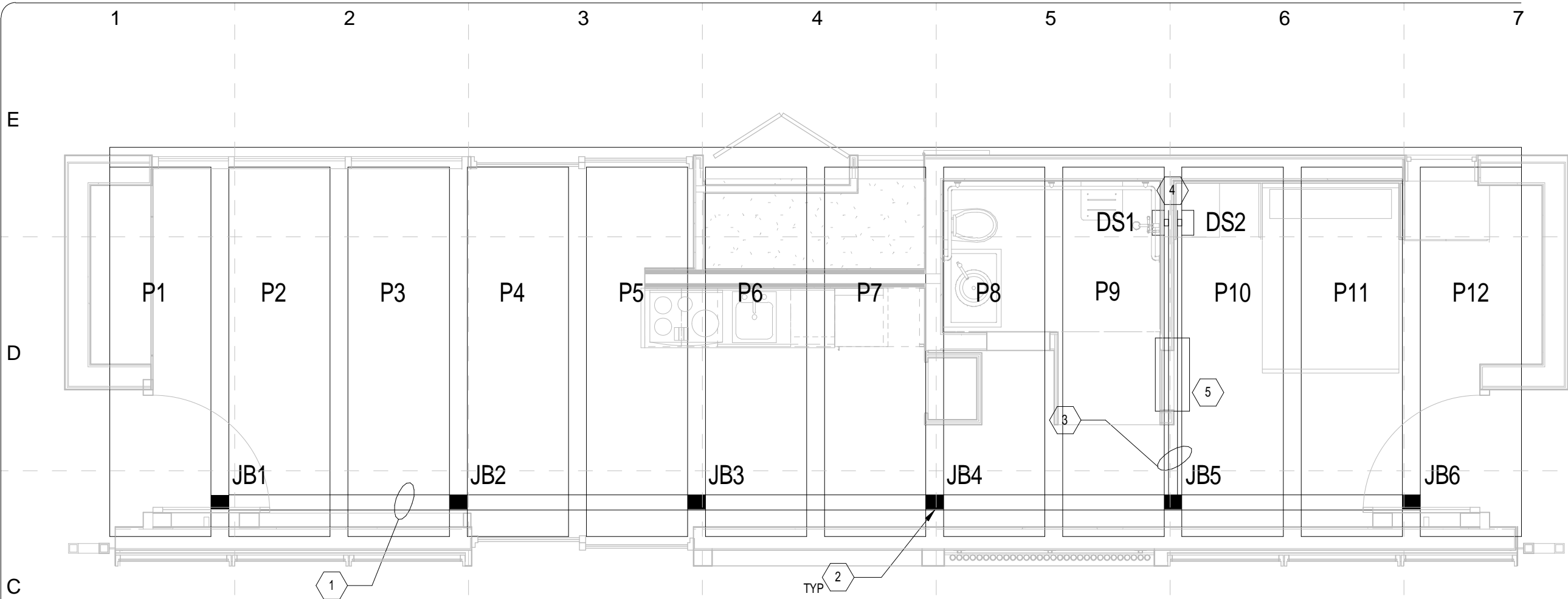
COMMENTS

SHEET TITLE:

PV Connection
South View Detail

E - 502

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- TAGGED POWER NOTES:
- 1. 1" RIGID EMT CONDUIT CONNECTION BETWEEN JUNCTION BOXES.
 - 2. WEATHERPROOF BELL BOXES - 4.5" x 2.75" x 2.63". PRODUCT: HUBBELL 5387-0
 - 3. 1.5" CONDUIT CONTAINING 13 #10 THWN CONDUCTORS (POSITIVE AND NEGATIVE FOR EACH PV PAIR(JUNCTION BOX) AND ONE COMMON GROUND)
 - 4. TWO SQUARE D - MODEL # H361RB 3-POLE DISCONNECTS
 - 5. TERMINAL STRIPS (3) - IDEAL #89-206 - CONTAINED INSIDE NEMA 3R ENCLOSURE - WEIGMANN RSCG060624.



GENERAL POWER NOTES:

THE FUSE DISCONNECT SWITCHES (FDS) ARE MOUNTED NEAR THE NORTH SIDE OF THE HOUSE ON THE SIDE OF A HORIZONTAL RAIL. SQUARE D MODEL # H361RB.

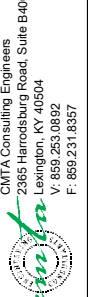
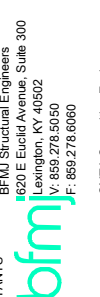
1" RIGID EMT CONDUIT RUNS ALONG EAST/WEST 4x4 OF PV RACK AND 1.5" EMT ALONG THE NORTH/SOUTH HORIZONTAL W5x15.

ALL ROOF WIRES ARE AWG #10 THWN-2.

AS CONDUIT REACHES EACH JUNCTION BOXES ANOTHER PAIR OF #10 WIRES IS PULLED WITH PREVIOUS WIRES AND GROUNDS ARE CONNECTED.



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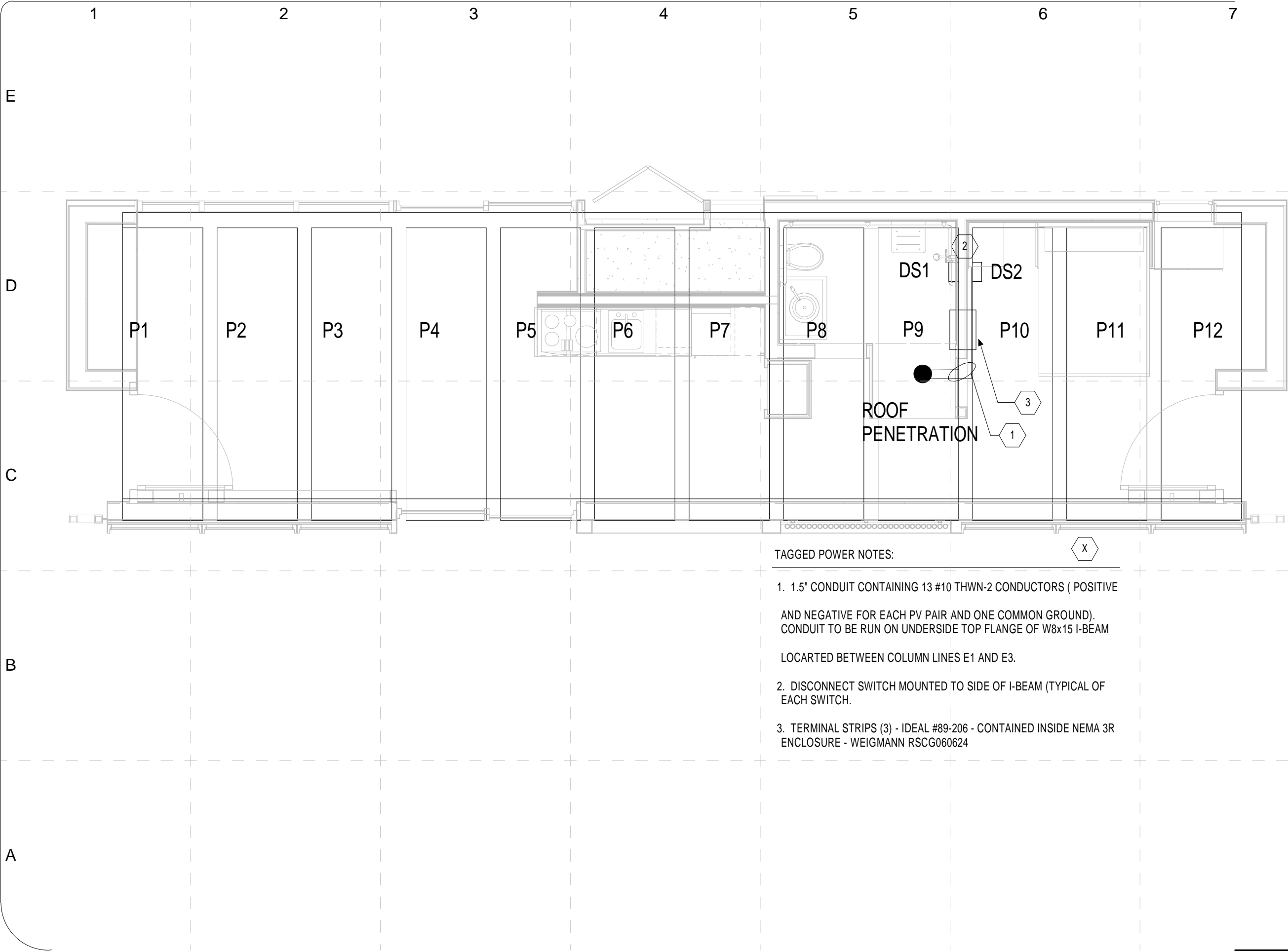
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SHEET TITLE:

PV Conductors From Stretchers to Fused Disconnects Detail

E - 503

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TAGGED POWER NOTES:

1. 1.5" CONDUIT CONTAINING 13 #10 THWN-2 CONDUCTORS (POSITIVE AND NEGATIVE FOR EACH PV PAIR AND ONE COMMON GROUND). CONDUIT TO BE RUN ON UNDERSIDE TOP FLANGE OF W8x15 I-BEAM LOCARTED BETWEEN COLUMN LINES E1 AND E3.
2. DISCONNECT SWITCH MOUNTED TO SIDE OF I-BEAM (TYPICAL OF EACH SWITCH).
3. TERMINAL STRIPS (3) - IDEAL #89-206 - CONTAINED INSIDE NEMA 3R ENCLOSURE - WEIGMANN RSCG060624

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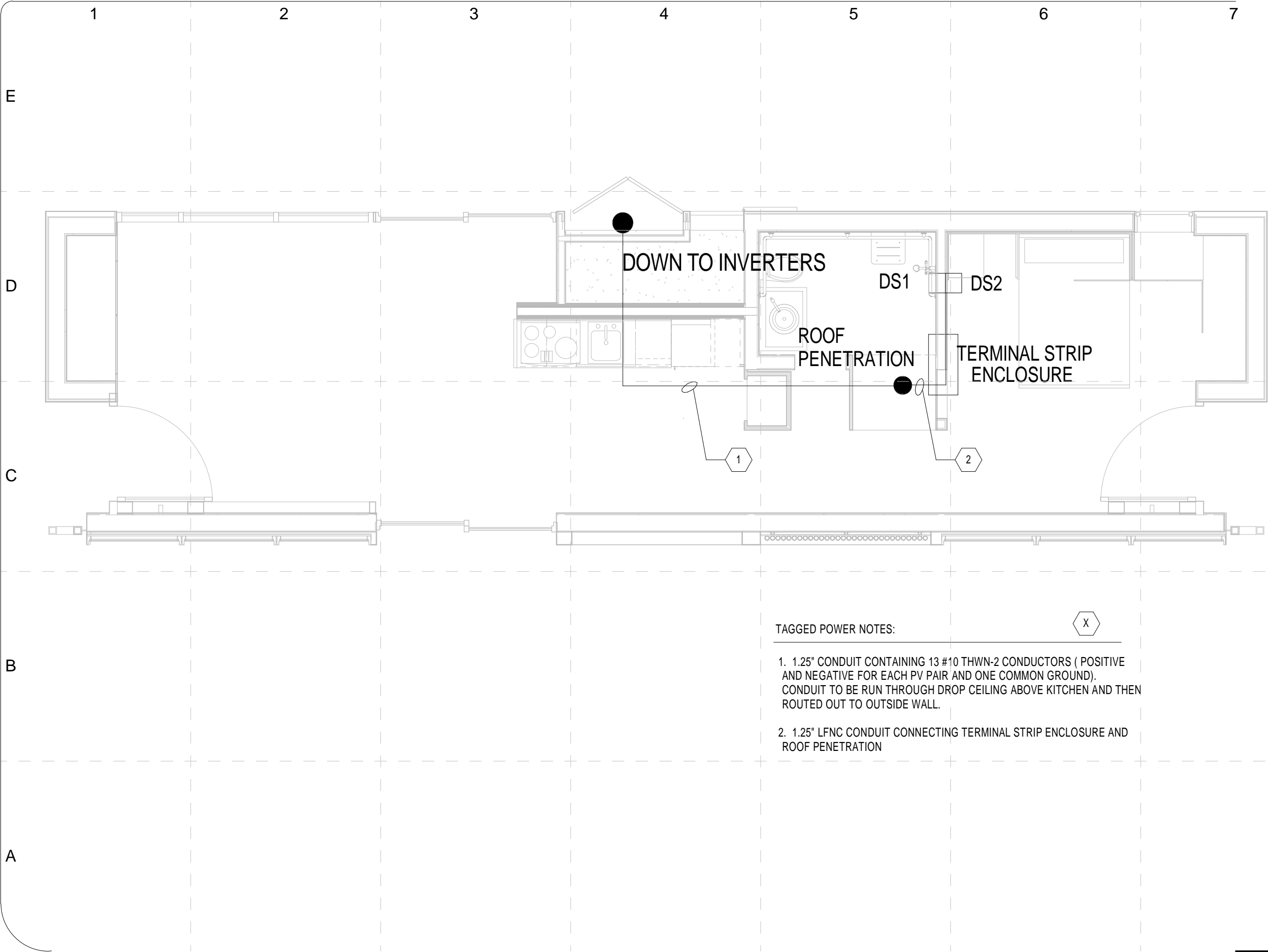
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SHEET TITLE:

PV Conductors
From Disconnect to
Roof Penetration
Detail



E - 504

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TAGGED POWER NOTES:

1. 1.25" CONDUIT CONTAINING 13 #10 THWN-2 CONDUCTORS (POSITIVE AND NEGATIVE FOR EACH PV PAIR AND ONE COMMON GROUND). CONDUIT TO BE RUN THROUGH DROP CEILING ABOVE KITCHEN AND THEN ROUTED OUT TO OUTSIDE WALL.
2. 1.25" LFNC CONDUIT CONNECTING TERMINAL STRIP ENCLOSURE AND ROOF PENETRATION



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SHEET TITLE:

PV Conductors
Through Ceiling
Space Detail

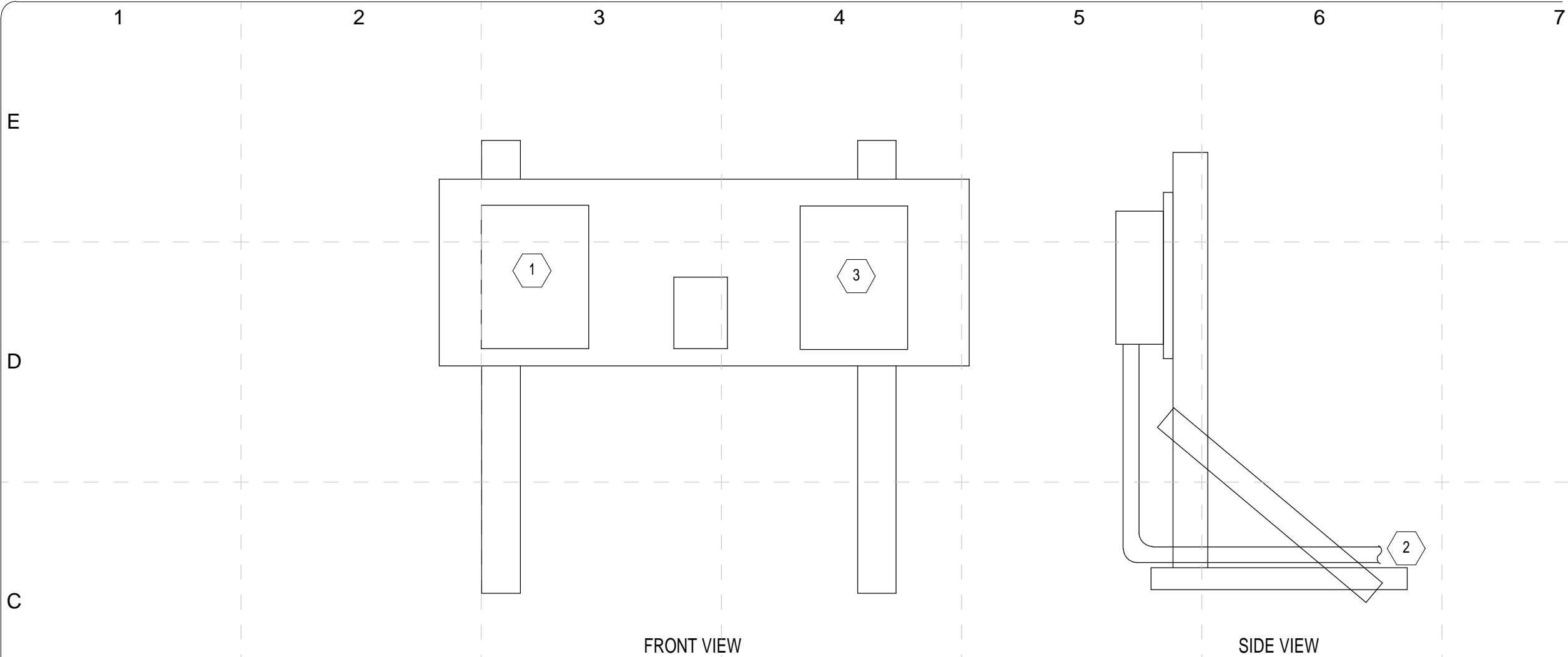
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- TAGGED POWER NOTES:
1. TERMINAL BOX FOR COMPETITION - PULL 2#1/0 HOT AND 1#1/0 NEUTRAL TO BOX FOR CONNECTION OF COMPETITION GRID.
 2. 2" SCHEDULE 40 PVC TO METER BASE FROM TERMINAL BOX. CONTAINS 2#1/0 HOT AND 1#1/0 NEUTRAL.
 3. DATA LOGGER ENCLOSURE.

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SHEET TITLE:

Terminal Box Detail

E - 506

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CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

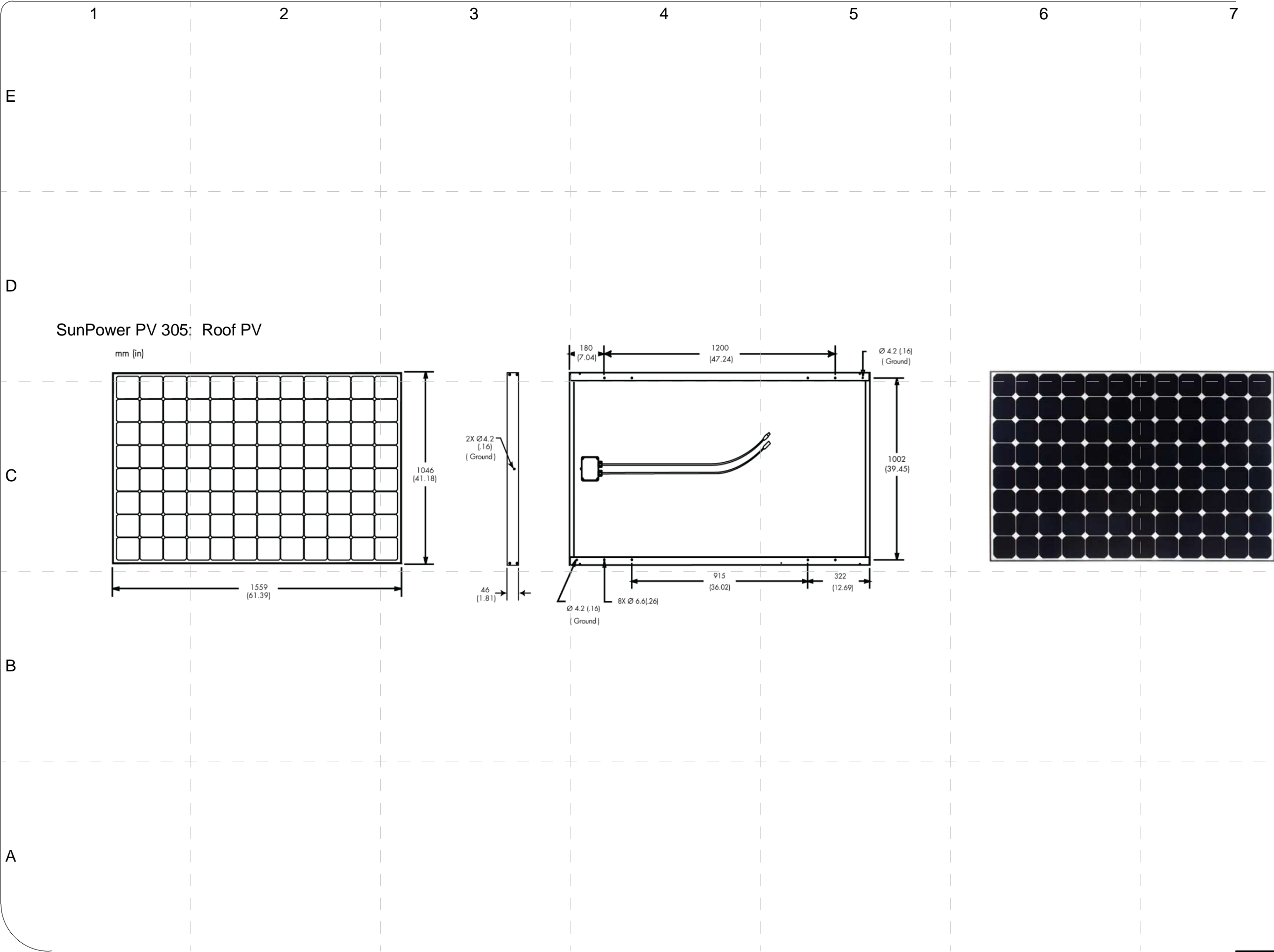
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2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02.JUNE.2009
www.uky.edu/solarhouse

PROJECT NO: UKY 522009

DRAWN BY: AA

APPROVED BY: GL

DATE CREATED: 05/14/09

DATE RECEIVED: 05/14/09

COMMENTS

MARK

DATE

DESCRIPTION

DD	12/16/2008	DESIGN DEVELOPMENT
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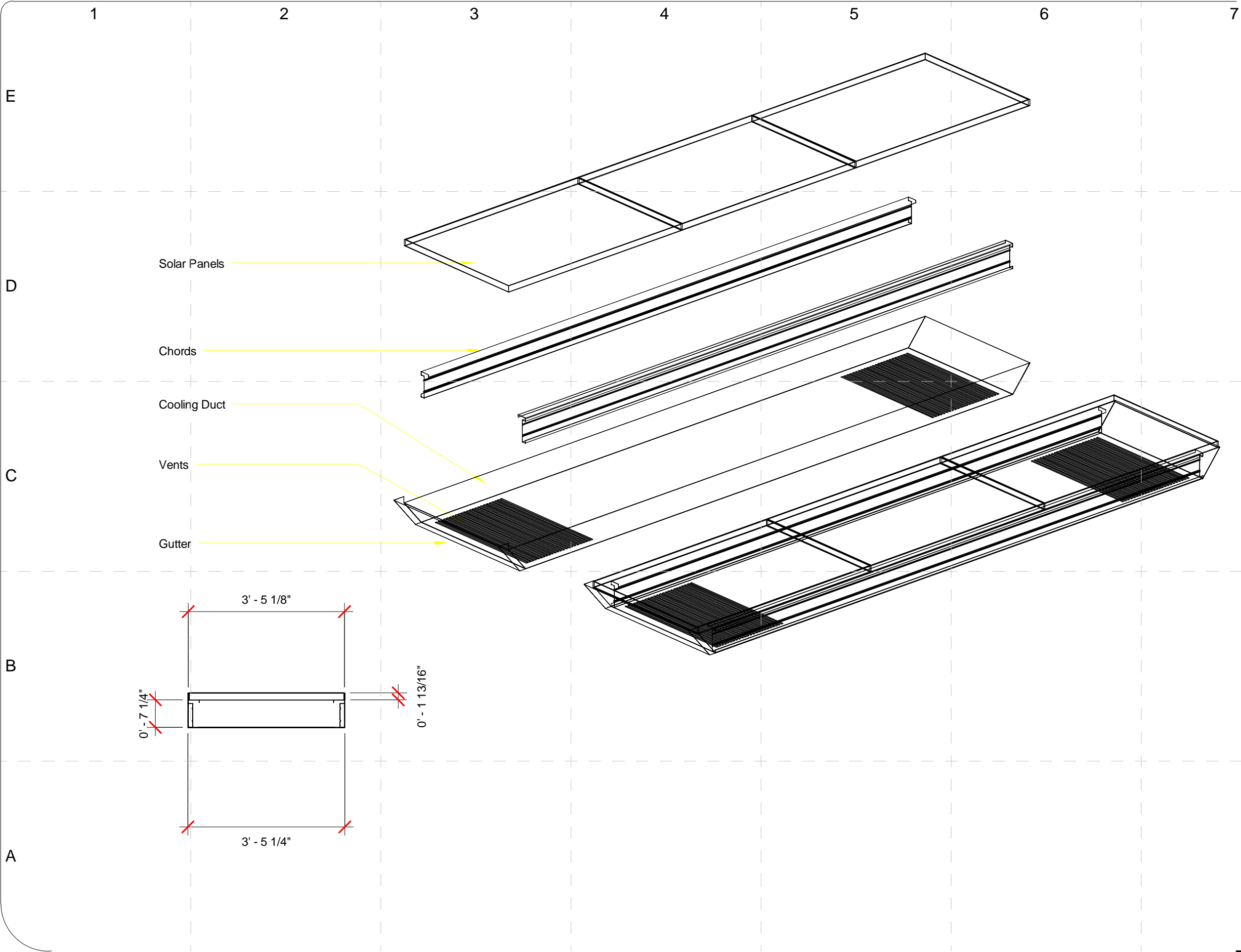
skyblue

SHEET TITLE:

PV Panel Detail

E - 507

G:\MEP Model\MEP Models\Revit Model MEP.rvt



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sky

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FINAL	06/02/2009	

2009 SOLAR DECATHLON

CONSTRUCTION DOCUMENTS

02 JUNE 2009

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PROJECT NO.	UKY	52209
DRAWN BY	JS	DGC
APPROVED BY		
DATE CREATED	06/02/09	
DATE RECEIVED	06/02/09	



SHEET TITLE:

Stretchers Assembly
Detail


E - 508

G:\MEP Model\MEP Models\Revit Model MEP.rvt


E	1	2	3	4	5	6	7
						I	



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2009 SOLAR DECATHLON
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PROJECT NO: UKY 522009

DRAWN BY: JBS

APPROVED BY: DGC

DATE CREATED: 06/02/09

DATE RECEIVED: 06/02/09

COMMENTS

SHEET TITLE:

Light Fixture
Schedule

E - 601

G:\MEP Model\MEP Models\Revit Model MEP.rvt

E	LOADCENTER AND WIRING SCHEDULE																	XXXX										
	PANELBOARD:		UK1		AMPERES:		150A		VOLTAGE:		120/240		PHASE:		2		WIRE:		3		MANUF.:		SQUARE D		TYPE:		QO	
	GND	CON	LOAD		DESIGNATION		WIRE		BKR		CKT			CKT	BKR		WIRE		DESIGNATION		LOAD		CON		GND			
			A	B												A	B											
	12	MC	0.8		ENT / FLOOR RCP **		12	20/1	1		2	20/1		12	BATHROOM RCP *		0.4		MC	12								
	12	MC		1.5	MECH/KITCHEN/EXT *		12	20/1	3		4	20/1		12	SOUTH WALL/EXT RCP ***			1.0	MC	12								
	12	MC	1.5		BEDROOM/KITCHEN ***		12	20/1	5		6	20/1		12	PUMP 2		0.3		MC	12								
	12	3/4		0.7	ROOF MOTORS		12	20/1	7		8	20/1		12	MANIFOLD			0.2	MC	12								
	12	MC	1.2		INTERIOR LIGHTING **		12	20/1	9		10	20/1		12	PUMPS 3-8 / DISPOSAL		0.8		MC	12								
	12	MC		1.2	INTERIOR LIGHTING **		12	20/1	11		12	20/1		12	PUMP 1 / SEWAGE PUMP			0.5	3/4	12								
12	MC	0.4		EC GLASS		12	20/1	13		14	20/1			12	EXTERIOR LIGHTING		0.4		MC	12								
12	MC		0.3	AHU-1 / AHU-2 **		12	20/1	15		16	20/1			12	WASHER			1.5	MC	12								
D	12	MC	1.2		FANS AND INTAKES **		12	20/1	17		18	20/1		12	GENERAL LAUNDRY *		1.5		MC	12								
	12	MC		1.5	DISHWASHER		12	20/1	19		20	30/2		10	DRYER			2.5	MC	10								
	12	MC	1.5		REFRIGERATOR		12	20/1	21		22			10	--		2.5		MC									
	8	MC		2.6	ADVANTEUM		8	40/2	23		24	40/2		8	COOKTOP			2.0	MC	8								
		MC	2.6		--		8		25		26			8	--		2.0		MC									
	10	3/4		2.0	RCC		10	30/2	27		28	30/2		10	HOT WATER HEATER			2.3	MC	10								
		3/4	2.0		--		10		29		30			10	--		2.3		MC									
	10	3/4		0.9	HP-1 (AIR TO WATER)		10	30/2	31		32	30/2		10	HP-2 (WATER TO WATER)			1.9	3/4	10								
		3/4	0.9		--		10		33		34			10	--		1.9		3/4									
	10	3/4			INVERTER 1		10	20/2	35		36	20/2		10	INVERTER 2				3/4	10								
C		3/4			--		10		37		38			10	--				3/4									
	10	3/4			INVERTER 3		10	20/2	39		40	15/2		10	INVERTER 4				3/4	10								
		3/4			--		10		41		42			10	--				3/4									
			12.1	10.7	SUB-TOTAL		KVA						KVA	SUB-TOTAL		12.1	11.9											
													KVA	GROSS-TOTAL		24.2	22.6	46.8										
	EMERGENCY POWER:								MAIN BREAKER:				150A				MAIN FRAME RATING:				225A							
	BRANCH:								MAIN LUGS:				N/A				MAIN TRIP SETTING:				150A							
	* GFI Protection Required ** ARC Fault Protection Required *** Arc Fault Breaker / GFI Receptacle																											



E

D



C

B

A



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2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS

02 JUNE 2009

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PROJECT NO: UKY 522009

DRAWN BY: JBS

APPROVED BY: DGC

DATE CREATED: 06/02/09

DATE RECEIVED: 06/02/09

SHEET TITLE:

Electrical Panel Schedule

MARK

DATE

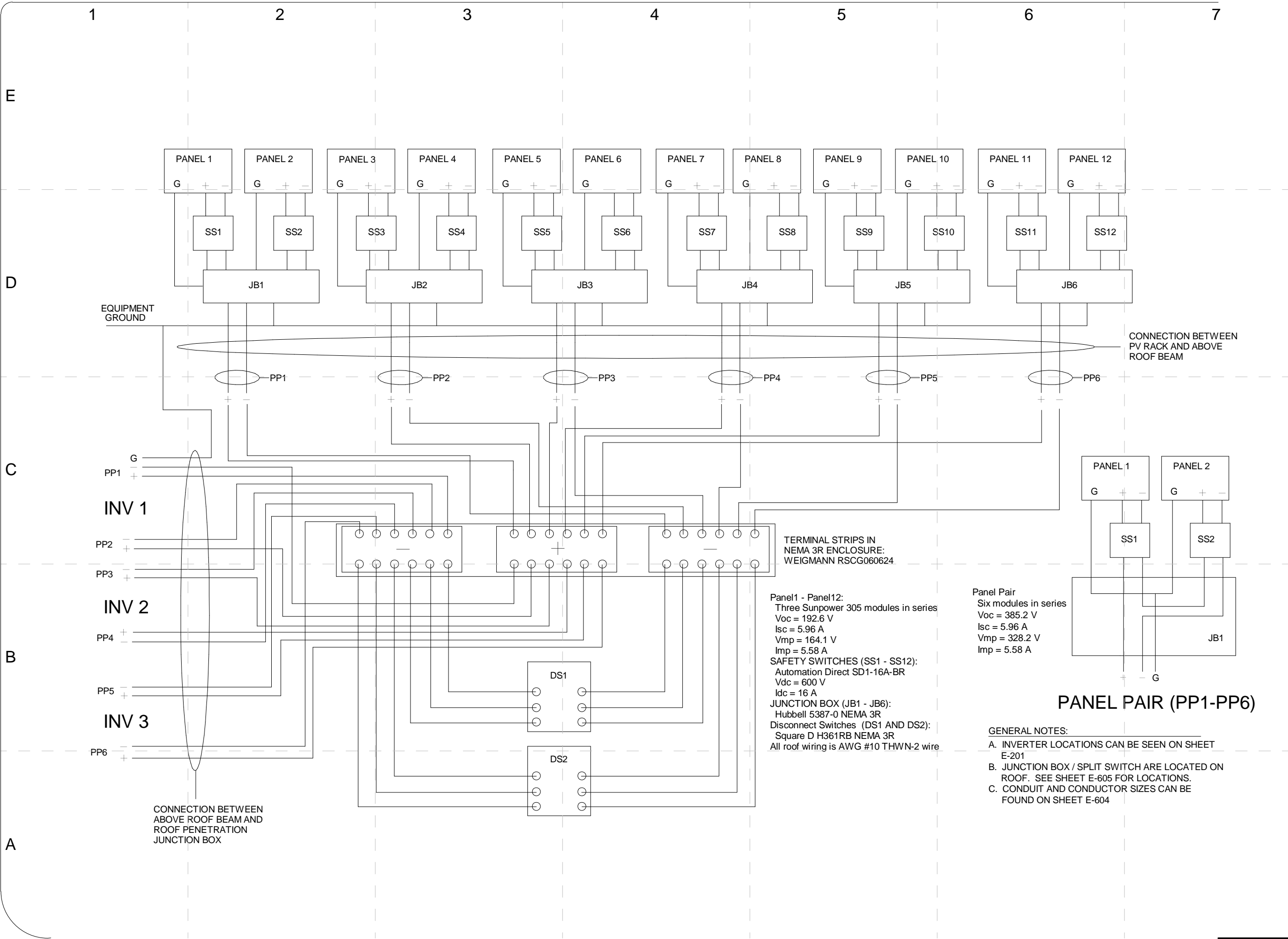
DESCRIPTION



DD	12/16/2008	DESIGN DEVELOPMENT
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Comments

E - 602

G:\MEP Model\MEP Models\Revit Model MEP.rvt





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REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02 JUNE 2009
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PROJECT NO.	UKY	SD2009	SS	DGC
DRAWN BY	UKY	SD2009	SS	DGC
APPROVED BY	UKY	SD2009	SS	DGC
DATE CREATED	06/02/09			
DATE RECEIVED	06/02/09			

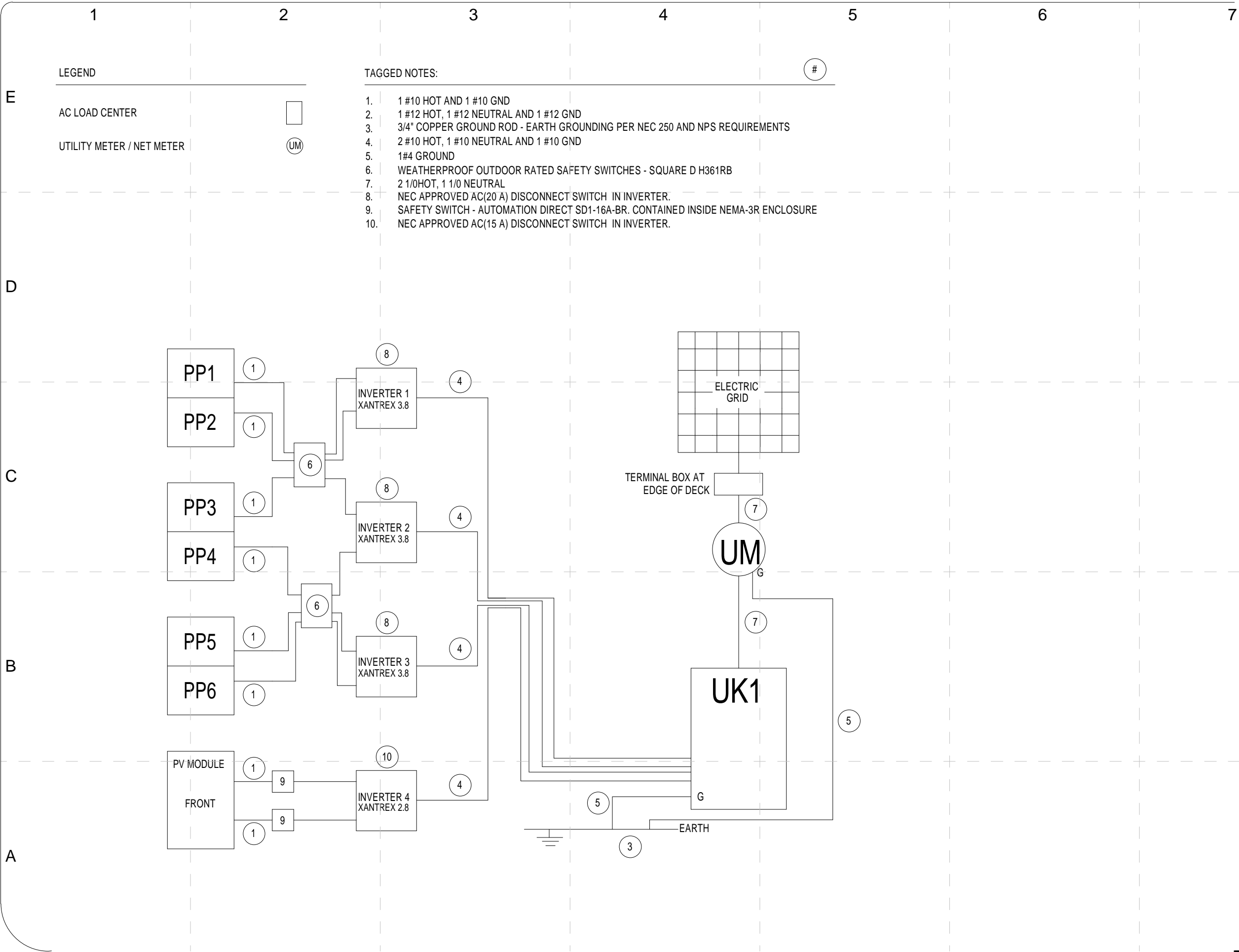
COMMENTS

SHEET TITLE:

Electrical Grid
Connection Wiring
Diagram

E - 603

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PROJECT NO: UKY 522009

DRAWN BY: JBS
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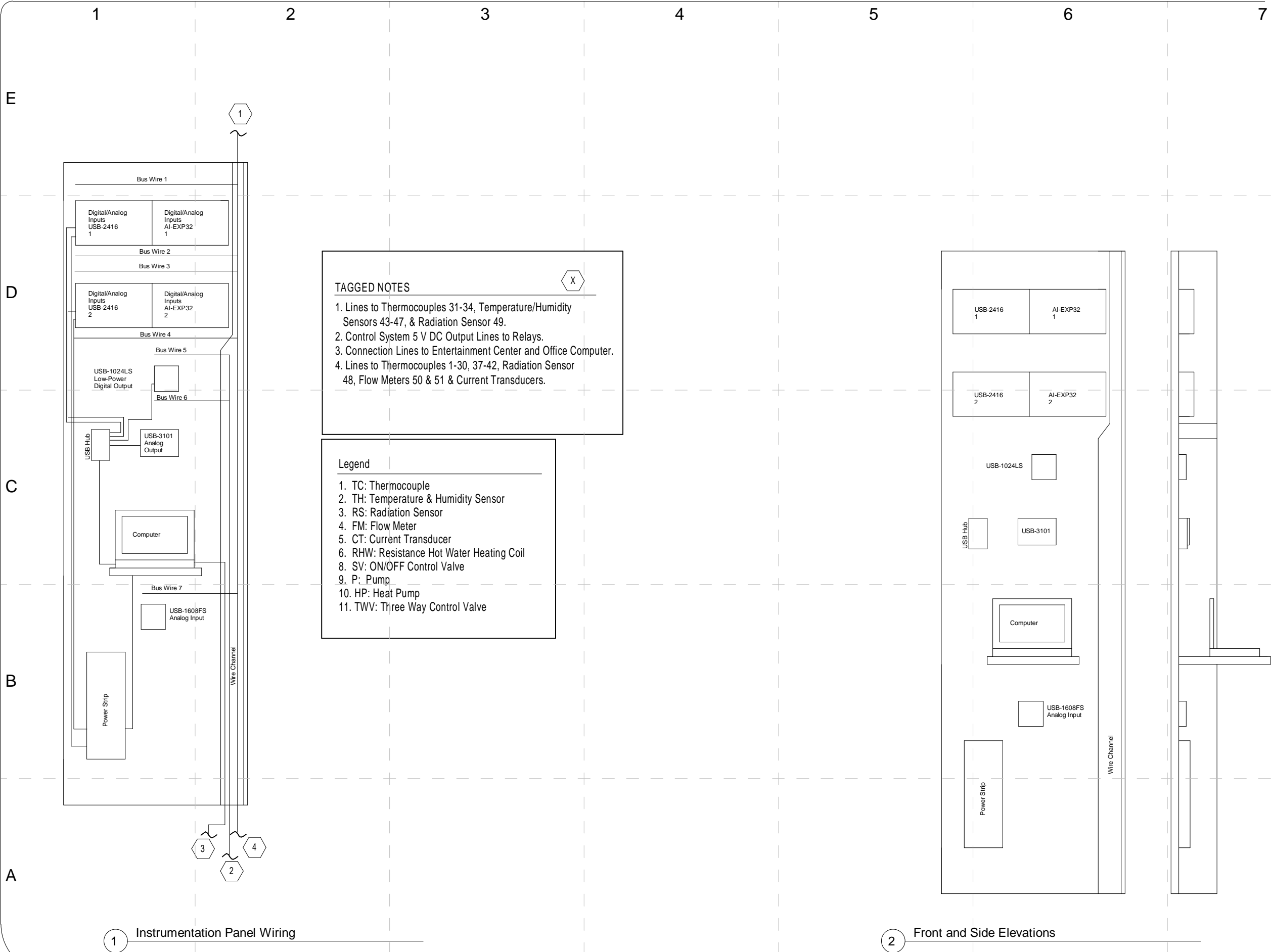
DATE CREATED: 06/02/09
DATE RECEIVED: 06/02/09



COMMENTS

SHEET TITLE:



PV Wiring Diagram

E - 604





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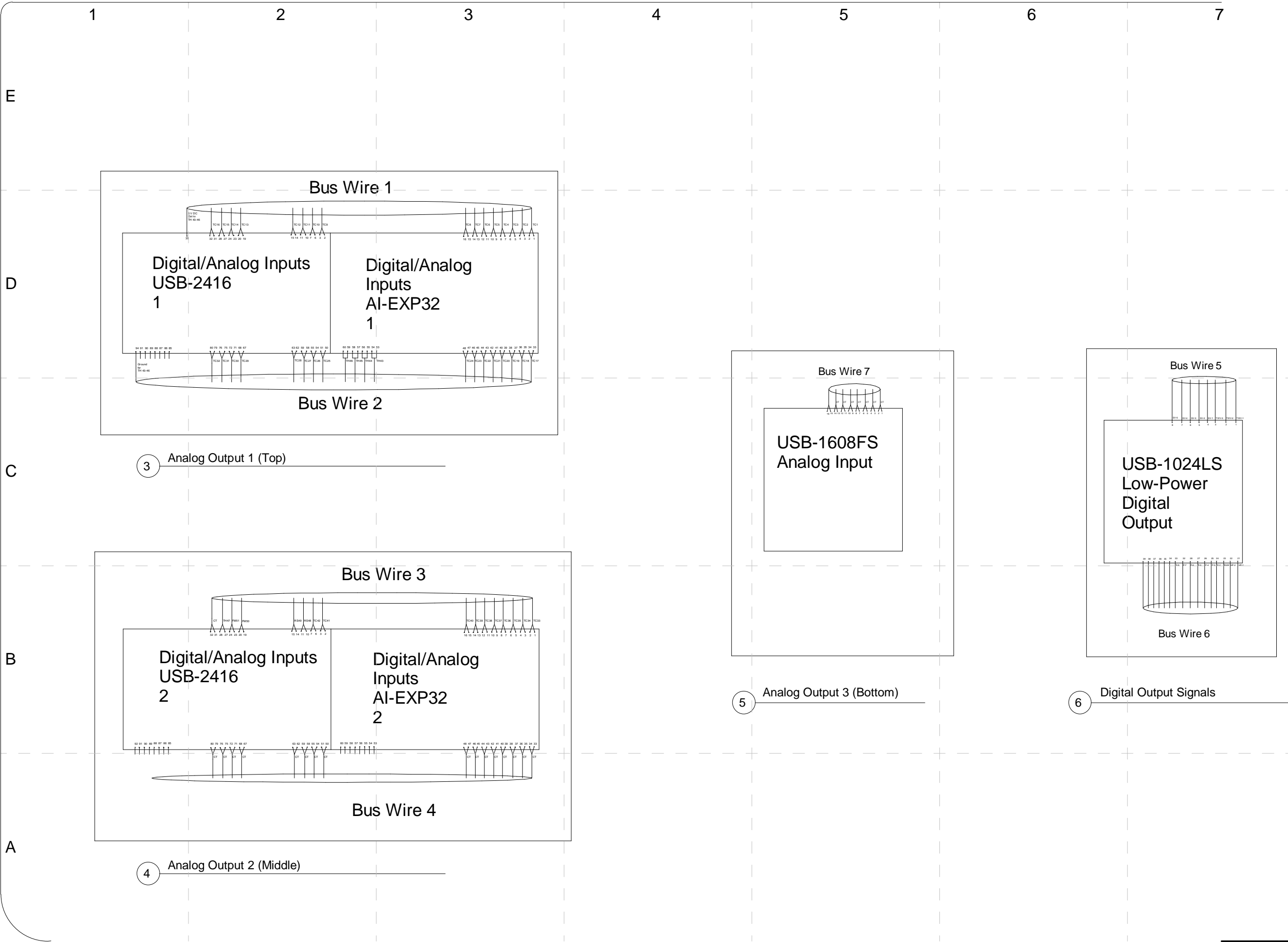
PROJECT NO: UKY 522009
DRAWN BY: JBS
APPROVED BY: DGC
DATE CREATED: 06/02/09
DATE RECEIVED: 06/02/09

COMMENTS

SHEET TITLE:
Mechanical
Controls Panel
Diagram

E - 605

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PROJECT NO. UKY	522009	BS	DGC
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APPROVED BY			
DATE CREATED	06/02/09		
DATE RECEIVED	06/02/09		

SHEET TITLE:

Mechanical
Controls Diagram

E - 606

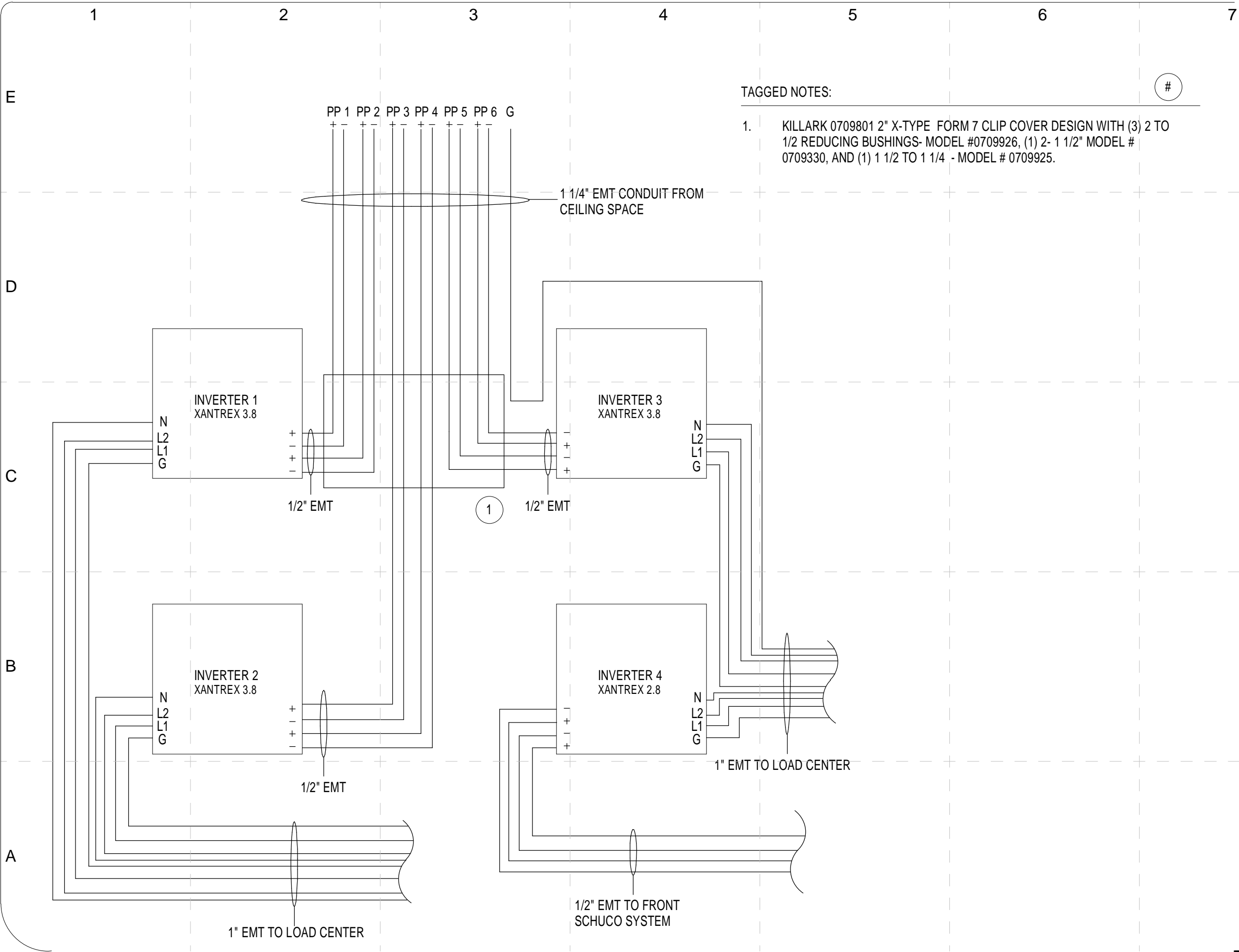
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TAGGED NOTES:

1. KILLARK 0709801 2" X-TYPE FORM 7 CLIP COVER DESIGN WITH (3) 2 TO 1/2 REDUCING BUSHINGS- MODEL #0709926, (1) 2- 1 1/2" MODEL # 0709330, AND (1) 1 1/2 TO 1 1/4 - MODEL # 0709925.

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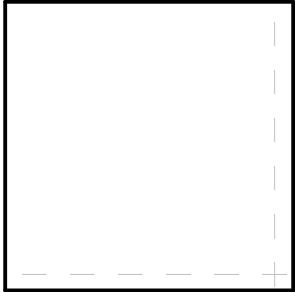




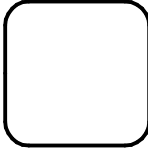
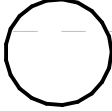
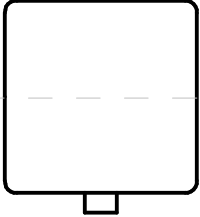


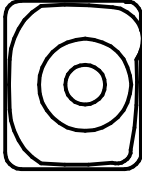



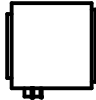









COMMENTS

SHEET TITLE:

Inverter Wiring
Diagram

E - 607

G:\MEP Model\MEP Models\Revit Model MEP.rvt

	1	2	3	4	5	6	7
E	Water Supply Tank - WST		Return Grille - R#		Flat Plate Heat Exchanger - FPEX		
			Supply Diffuser - S#		Pressure & Temp. Relief Valve - T&P		
D	Sanitary Tank - ST		Hot Water Tank - HWT		<div>NOTES:</div> <div>1.) 1" INSULATION ON SOLAR THERMAL LINES.</div> <div>2.) SOLAR THERMAL LINES 1" COPPER.</div> <div>3.) WATER TANK FILL AND REMOVAL PORT LOCATED VIA DECK ACCESS HOLES ABOVE THE TANKS.</div> <div>4.) HYDRONIC LINES 3/4" PEX. WITH 1" OF INSULATION.</div> <div>5.) R-10 INSULATION AROUND HT2.</div> <div>6.) FILL AND BLEED VALVES LOCATED IN MECH. CLOSET PRIOR TO PUMP TO FOR SOLAR THERMAL SYSTEM.</div>		
	Heat Tank 2 - HT2		3 Way Motor Control Valve - TWV				
			Solenoid Valve - SV				
C	Reverse Cycle Chiller - RCC		Apricus Solar Water Unit - AP				
			Heat Desipators-HD				
			Wall Exhaust - EF				
B	Horizontal Concealed Fan Coil - FC#		Outside Air Fan - OAF				
	Bladder Tank - BT		Inline Water Pump- IWP				
	Sewage Pump - SP		Heat Pump - HP#				
A	Balancing Valve-BLV		Plumbing Manifold				
	Flowbar Diffuser - S#		Heating and Cooling Manifold - HCM				

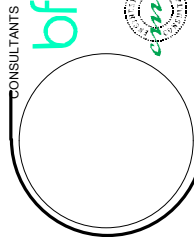
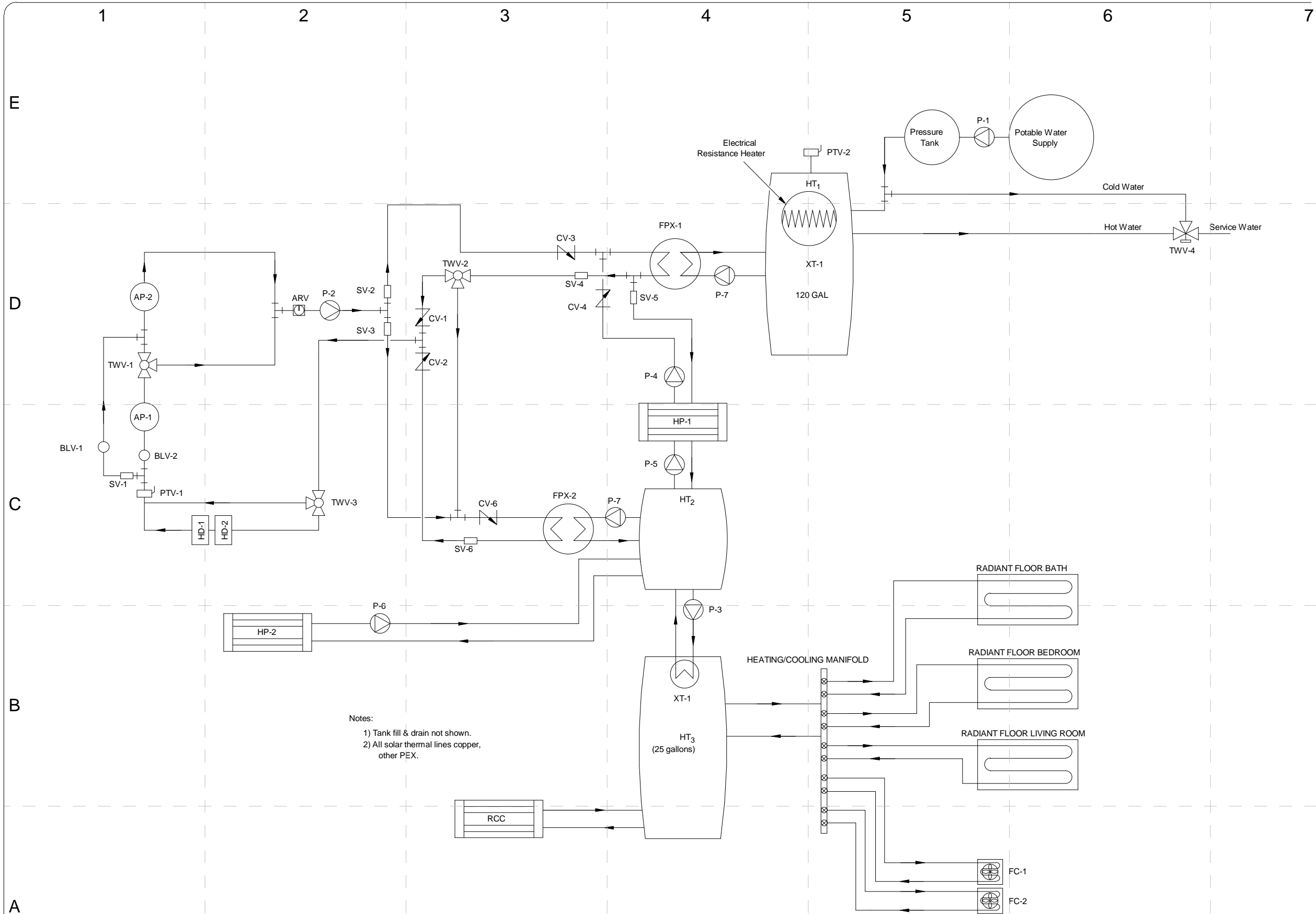
 Mechanical Symbols and Notes
1/4" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
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PROJECT NO: UKY 522009	BDH	DGC
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APPROVED BY		
DATE CREATED	06/02/09	
DATE RECEIVED	06/02/09	

SHEET TITLE:

Symbols and Notes



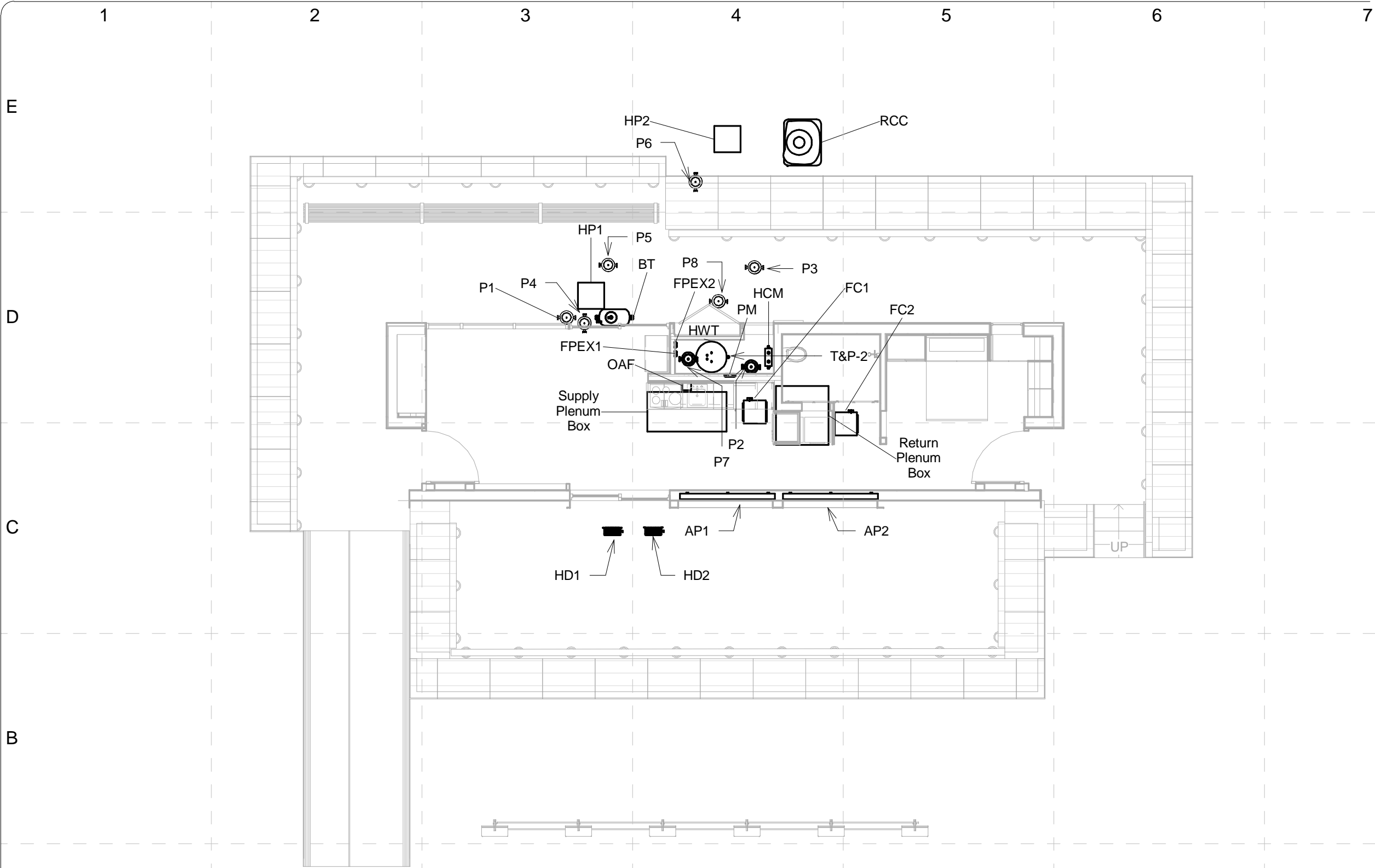
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

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COMMENTS	



SHEET TITLE:

Mechanical Plan
Overview



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1 Mechanical Equipment Plan
1/8" = 1'-0"



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PROJECT NO: UKY 52009

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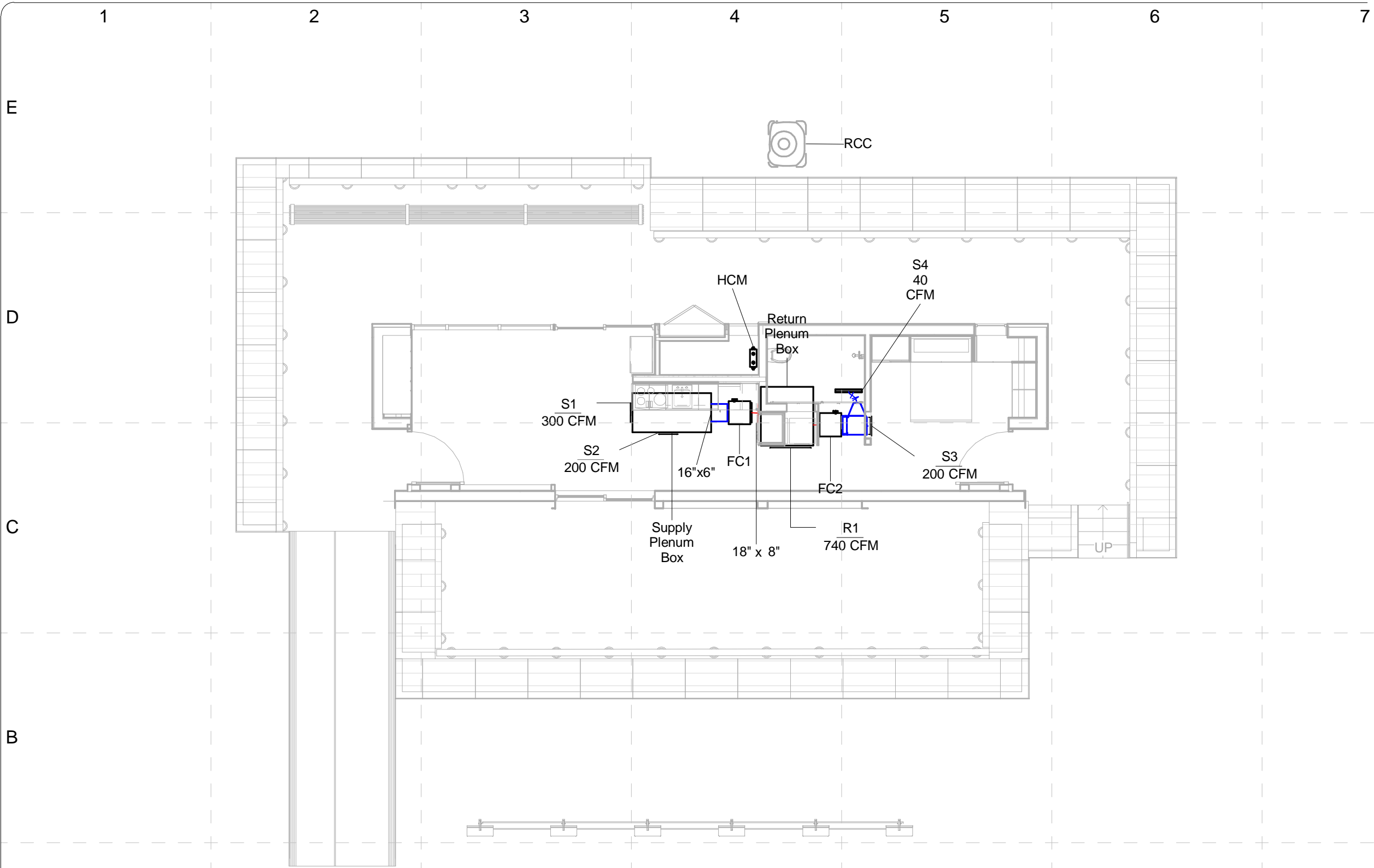
COMMENTS

SHEET TITLE:

Mechanical
Equipment Plan

M-102

G:\MEP Model\MEP Models\Revit Model MEP.rvt



1 Cooling Plan
1/8" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
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DATE CREATED	06/02/09
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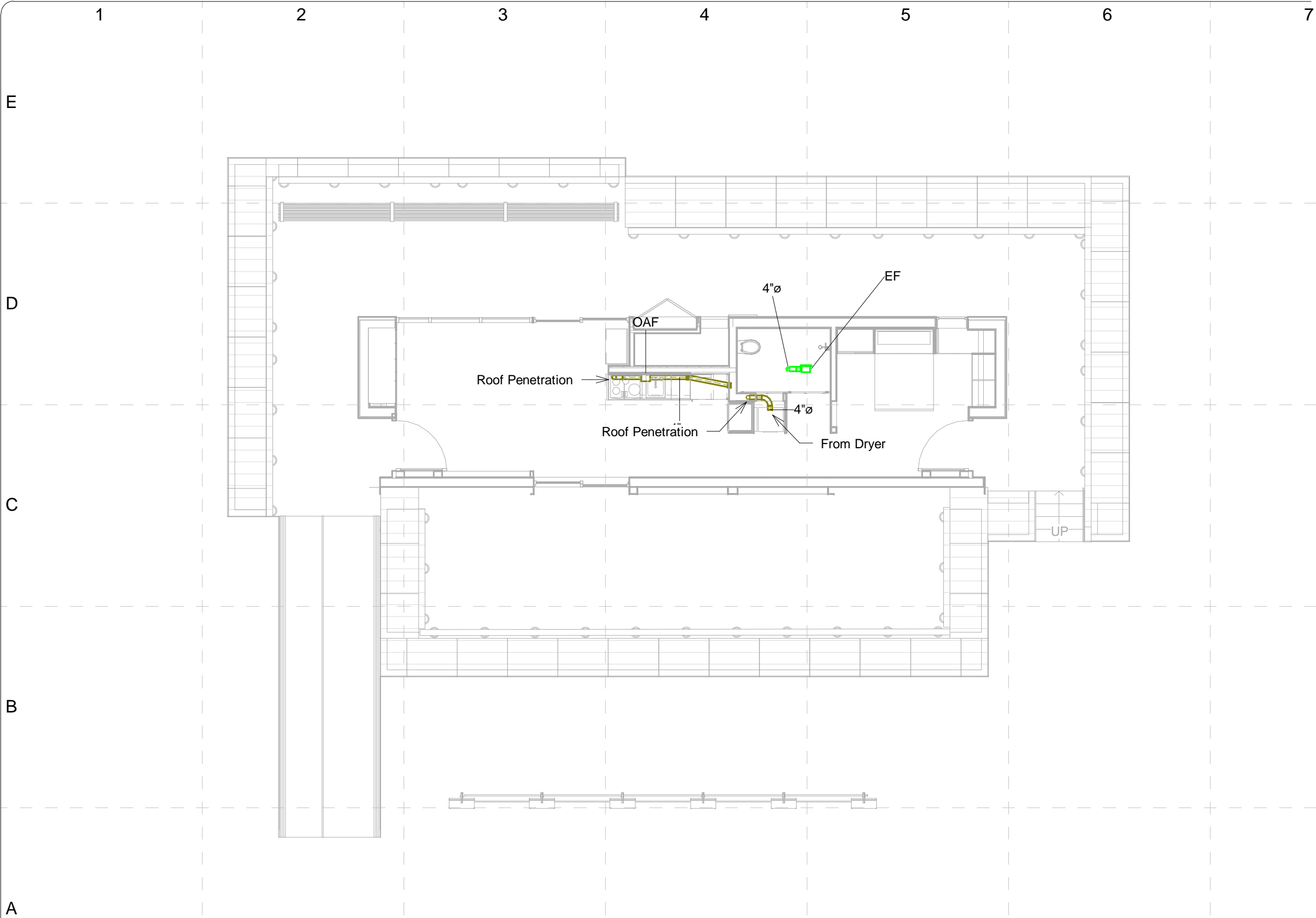
SHEET TITLE:
Cooling Plan



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1 Ventilation Plan
1/8" = 1'-0"

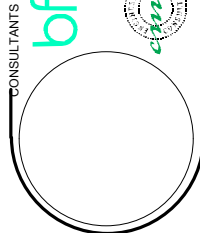
2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS			
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www.uky.edu/solarhouse			
PROJECT NO. UKY	SD2009	BDH	DGC
DRAWN BY	BDH	DGC	
APPROVED BY			
DATE CREATED	06/02/09		
DATE RECEIVED	06/02/09		

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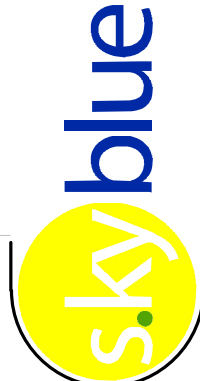
Ventilation Plan

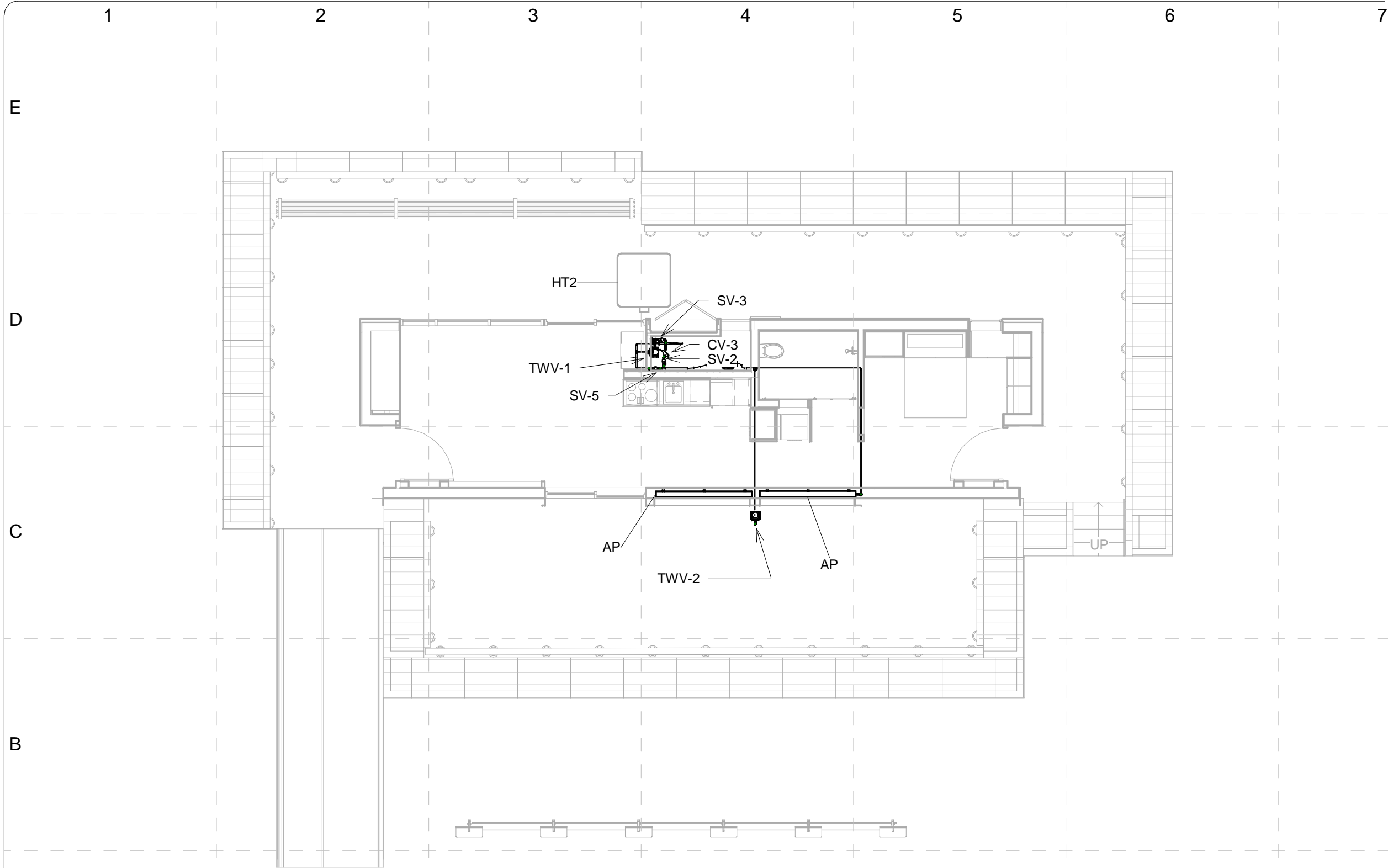
M-104

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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NOTES:
1.) LINES LOCATED BELOW FLOOR

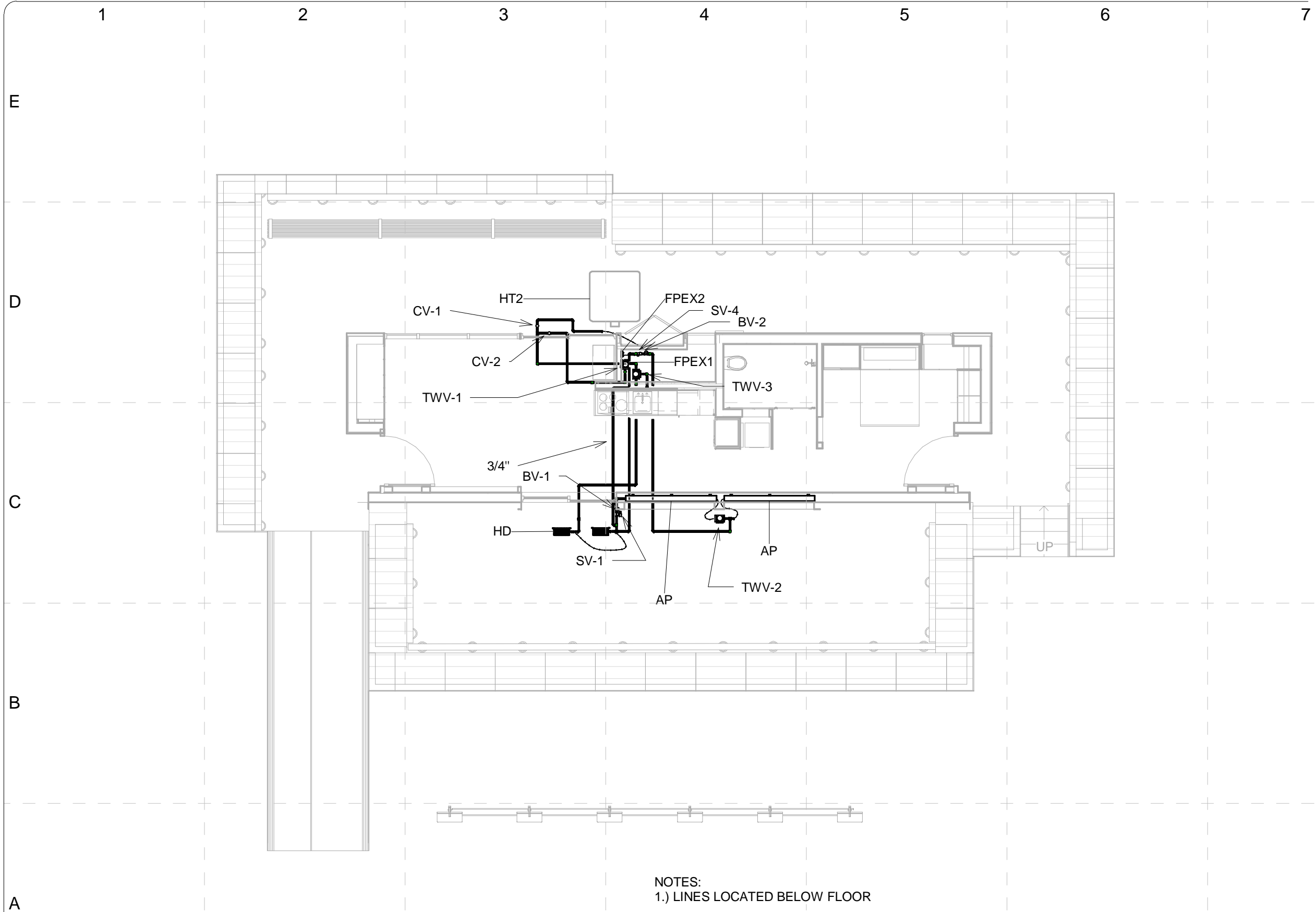
1 Solar Thermal Supply Plan
1/8" = 1'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
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APPROVED BY	
DATE CREATED 06/02/09	
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COMMENTS	

SHEET TITLE:

Solar Thermal
Supply Plan



MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
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DATE CREATED: 06/02/09	
DATE RECEIVED: 06/02/09	
COMMENTS	

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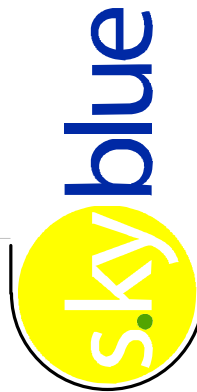
Solar Thermal
Return Plan

M-106

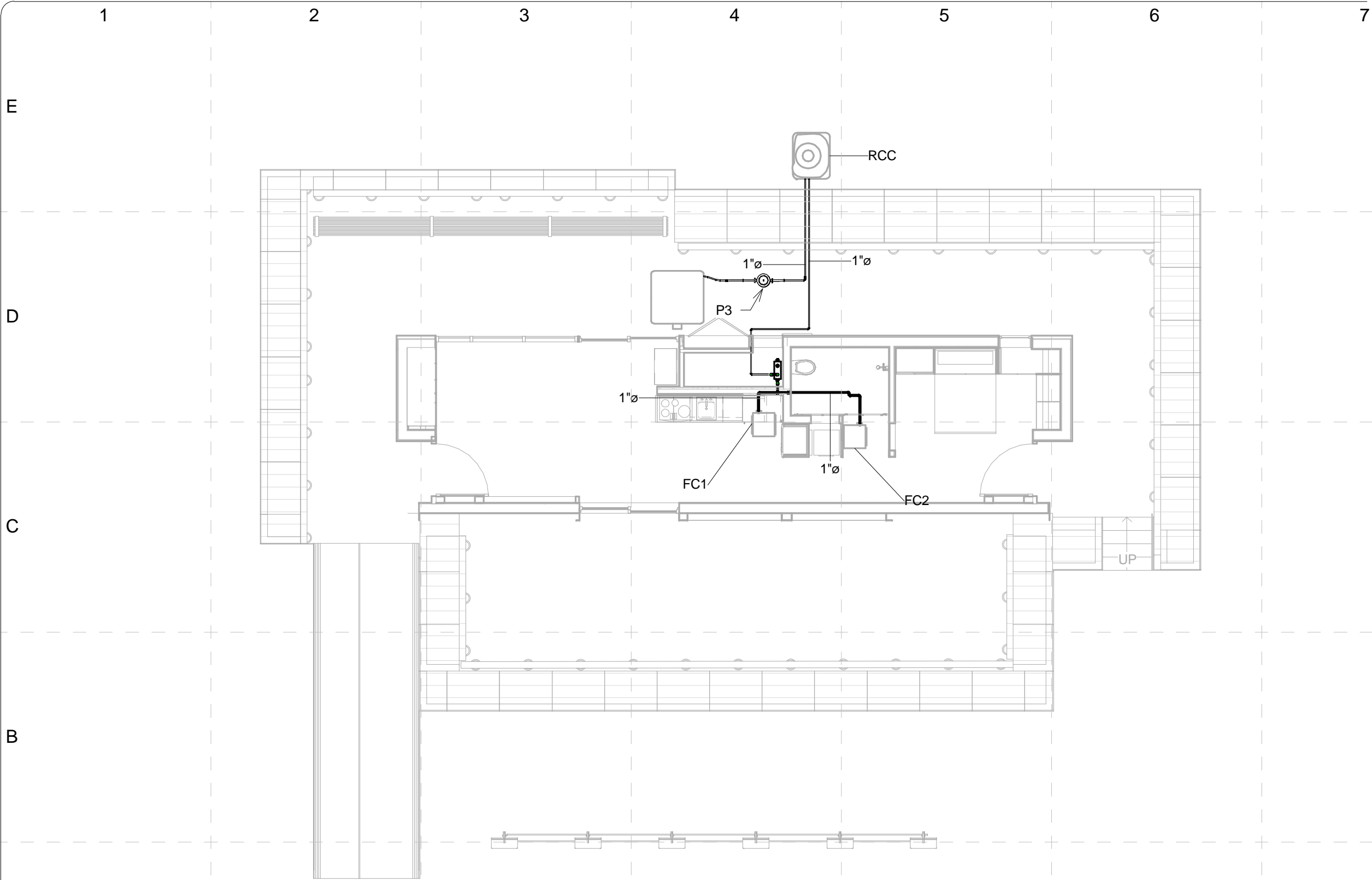
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G:\MEP Model\MEP Models\Revit Model MEP.rvt



1 RCC Hydronic Supply Plan
1/8" = 1'-0"



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2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02 JUNE 2009
www.uky.edu/solarhouse

PROJECT NO: UKY 52009

DRAWN BY

EDH

DGC

DATE CREATED

06/02/09

06/02/09

DATE RECEIVED

06/02/09

REVISIONS

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

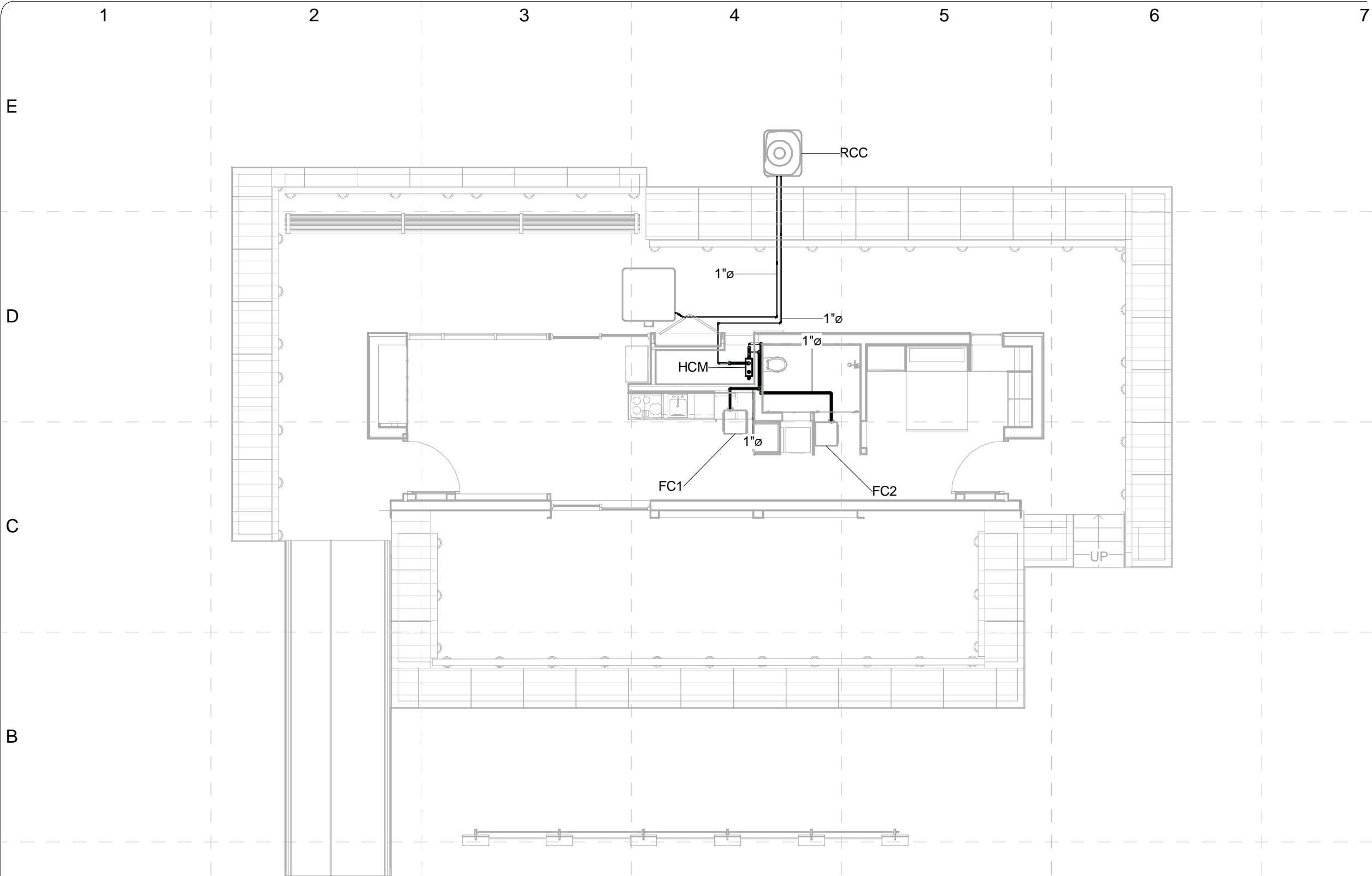
SHEET TITLE:

RCC-Hydronic
Supply Plan

M-107

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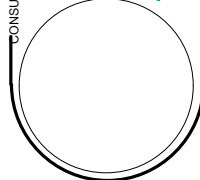
1 RCC Hydronic Return Plan
1/8" = 1'-0"

2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS			
02_JUNE 2009			
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PROJECT NO: UKY	SD2009	BDH	DGC
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APPROVED BY			
DATE CREATED	06/02/09		
DATE RECEIVED	06/02/09		

SHEET TITLE:	
RCC-Hydronic Return Plan	

M-108

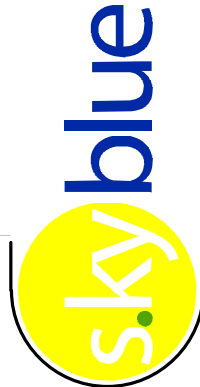
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

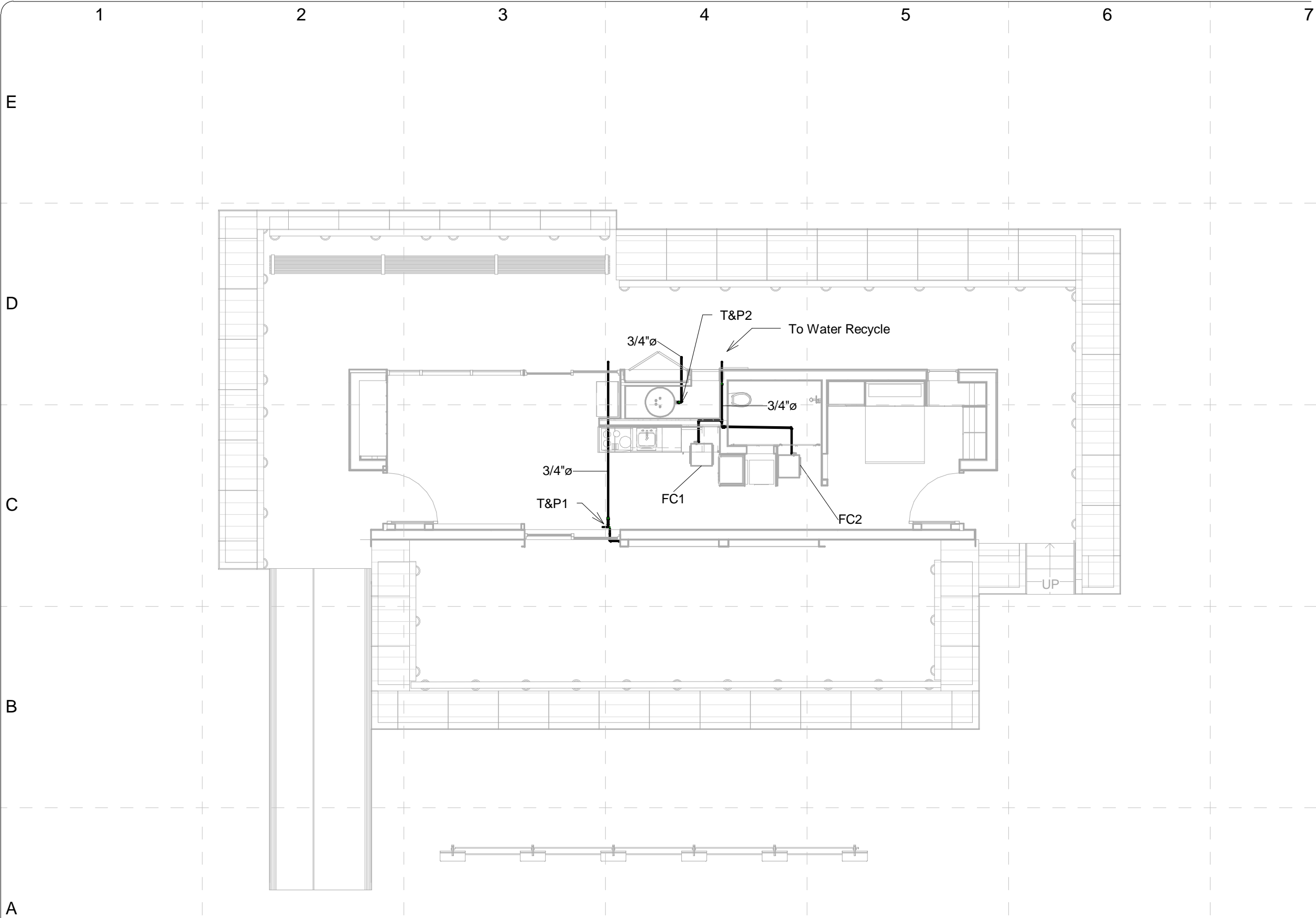


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1 Condensate Line
1/8" = 1'-0"



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CONSTRUCTION DOCUMENTS
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06/02/09

COMMENTS

SHEET TITLE:

Condensate Lines

M-109

MARK

DATE

DESCRIPTION

DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

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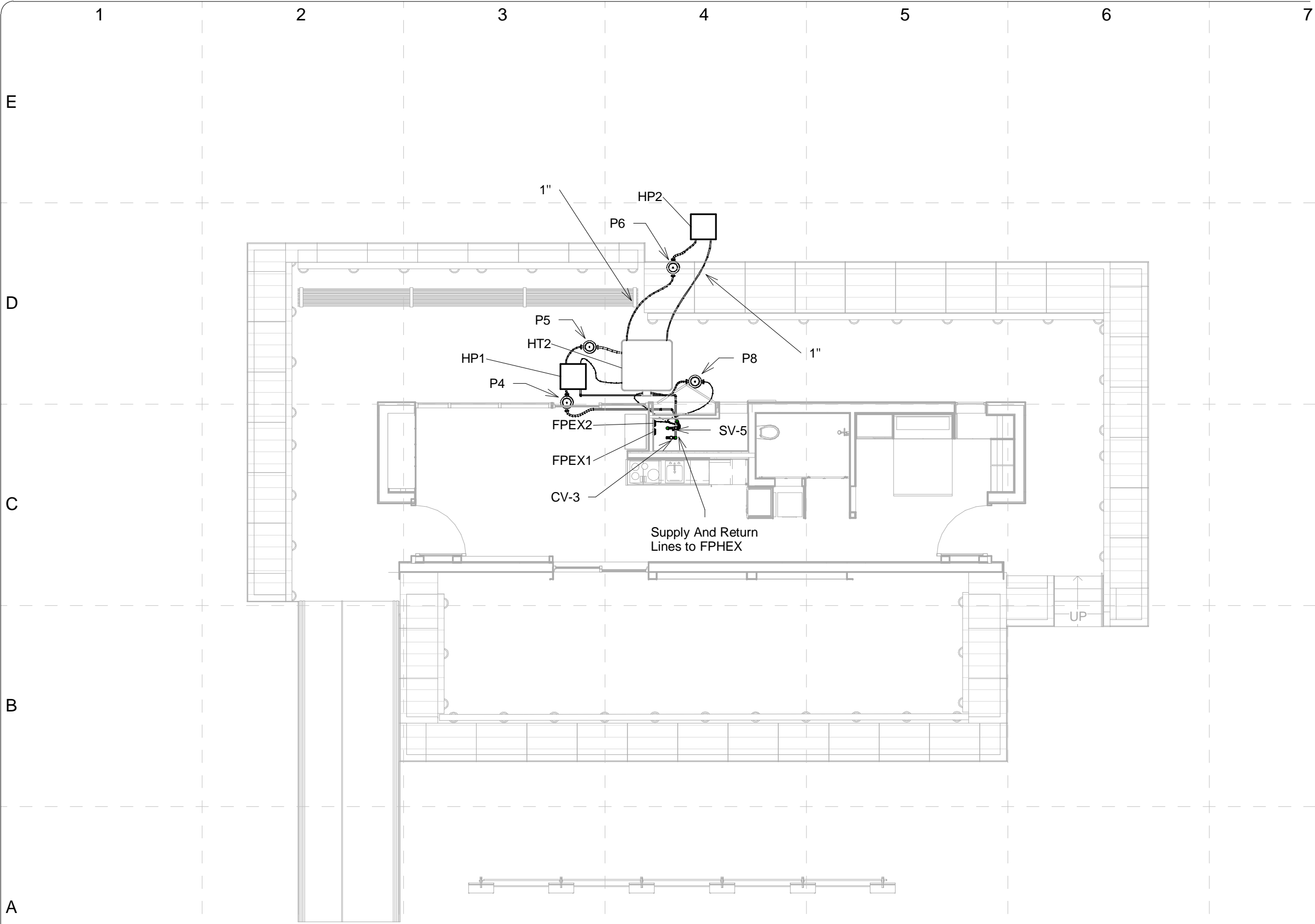
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1 Heat Pump Plan
1/8" = 1'-0"





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PROJECT NO: UKY 52209
DRAWN BY: BDH
APPROVED BY: DGC
DATE CREATED: 06/02/09
DATE RECEIVED: 06/02/09

COMMENTS

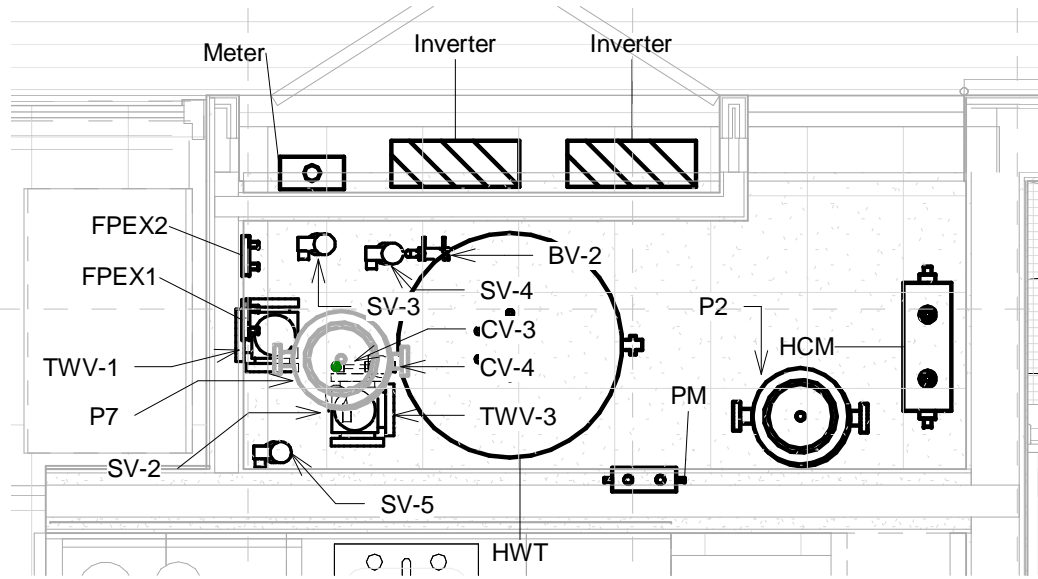
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

SHEET TITLE:

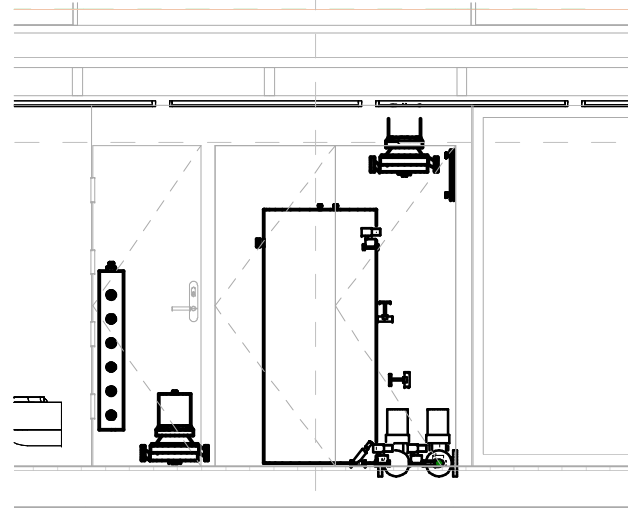
Heat Pump Plan

M-110

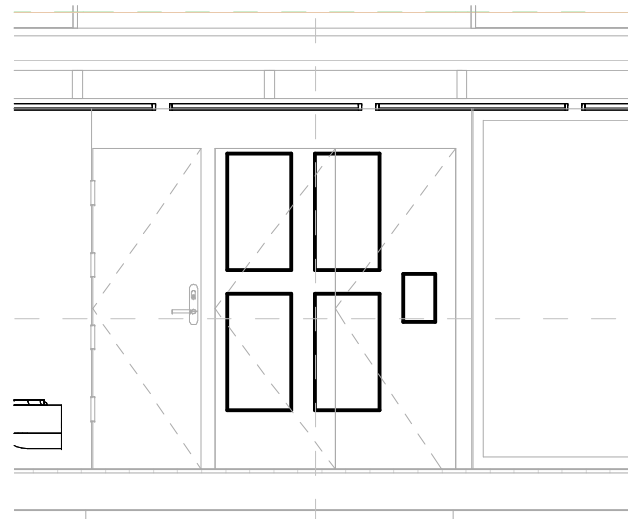
1 Callout of Mechanical Room Layout
1/2" = 1'-0"



2 Mechanical Room Elevation
1/4" = 1'-0"



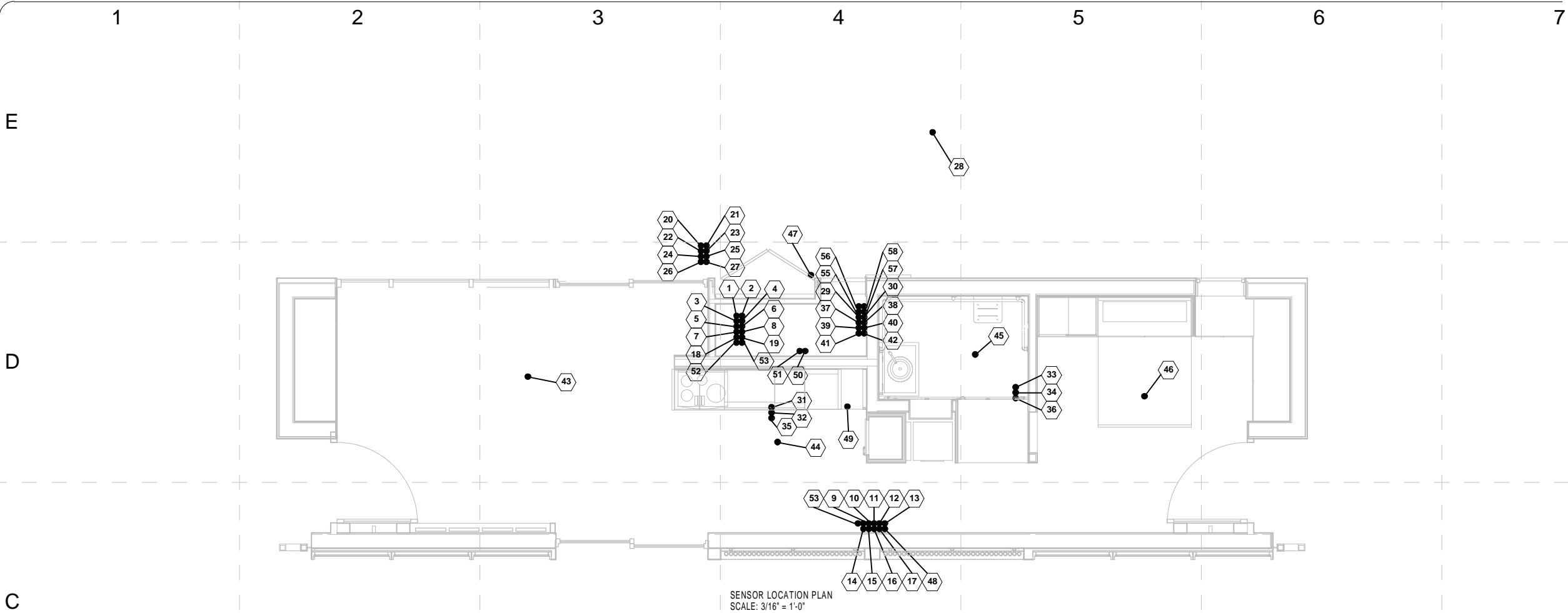
3 Mechanical Room Elevation of Inverters
1/4" = 1'-0"



MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

SHEET TITLE:
Mechanical Room
Plan and Elevation



TAGGED NOTES	
<div>1. THERMOCOUPLE LOCATED ON POTABLE WATER SUPPLY LINE TO HT-1 AT THE ENTRANCE TO HT-1.</div> <div>2. THERMOCOUPLE LOCATED ON THE HOT WATER SUPPLY LINE JUST AFTER HT-1.</div> <div>3. THERMOCOUPLE LOCATED ON HT-1 NEAR TOP OF TANK,</div> <div>4. THERMOCOUPLE LOCATED ON HT-1 NEAR BOTTOM OF TANK.</div> <div>5. THERMOCOUPLE LOCATED ON OUTPUT END OF XT-1 THAT FEEDS INTO HT-1.</div> <div>6. THERMOCOUPLE LOCATED ON INPUT END OF XT-1 THAT COMES IN FROM HT-1.</div> <div>7. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM JUST PRIOR TO ENTERING XT-1.</div> <div>8. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM JUST AFTER EXITING XT-1.</div> <div>9. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM JUST PRIOR TO THE THREE WAY VALVE THAT COULD SEND FLOW TO XT-3.</div> <div>10. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM JUST PRIOR TO SV-2, SV-3.</div> <div>11. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM BEFORE ENTRANCE TO THE HEAT DISSIPATER.</div> <div>12. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM AFTER EXITING HEAT DISSIPATER.</div> <div>13. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM IMMEDIATELY AFTER AP-2.</div> <div>14. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM IMMEDIATELY PRIOR TO AP-2.</div> <div>15. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM IMMEDIATELY AFTER AP-1.</div> <div>16. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM IMMEDIATELY PRIOR TO AP-1.</div> <div>17. THERMOCOUPLE LOCATED ON THE CLOSED LOOP OF THE HOT WATER SYSTEM IMMEDIATELY BEFORE THE VALVE WHICH DETERMINES OF THE SOLAR THERMAL COLLECTORS RUN IN PARALLEL OR SERIES.</div> <div>18. THERMOCOUPLE LOCATED AT THE INLET OF XT-2.</div> <div>19. THERMOCOUPLE LOCATED AT THE EXIT OF XT-2.</div> <div>20. THERMOCOUPLE LOCATED AT THE INLET FOR HP-1 FROM HT-2.</div> <div>21. THERMOCOUPLE LOCATED AT THE EXIT FOR HP-1 INTO HT-2.</div> <div>22. THERMOCOUPLE LOCATED ON THE CLOSED LOOP HOT WATER SYSTEM JUST PRIOR TO ENTERING XT-3.</div> <div>23. THERMOCOUPLE LOCATED ON THE CLOSED LOOP HOT WATER SYSTEM JUST AFTER EXITING XT-3.</div> <div>24. THERMOCOUPLE LOCATED ON THE INPUT TO HP-2 JUST AFTER HT-2.</div> <div>25. THERMOCOUPLE LOCATED ON THE EXIT FROM HP-2 JUST PRIOR TO ENTERING HT-2.</div> <div>26. THERMOCOUPLE LOCATED ON HT-2 NEAR THE TOP.</div> <div>27. THERMOCOUPLE LOCATED ON HT-2 NEAR THE BOTTOM.</div> <div>28. THERMOCOUPLE LOCATED INSIDE TANK 3.</div>	<div>29. THERMOCOUPLE LOCATED ON INLET FOR RADIANT FLOOR HEADER.</div> <div>30. THERMOCOUPLE LOCATED ON EXIT FOR RADIANT FLOOR HEADER.</div> <div>31. THERMOCOUPLE LOCATED ON INLET OF REFRIGERANT ENTERING FC-1.</div> <div>32. THERMOCOUPLE LOCATED ON EXIT OF REFRIGERANT LEAVING FC-1.</div> <div>33. THERMOCOUPLE LOCATED ON INLET OF REFRIGERANT ENTERING FC-2.</div> <div>34. THERMOCOUPLE LOCATED ON EXIT OF REFRIGERANT LEAVING FC-2.</div> <div>35. FLOW METER LOCATED PRIOR TO FC-1.</div> <div>36. FLOW METER LOCATED PRIOR TO FC-2.</div> <div>37. THERMOCOUPLE LOCATED ON EXIT OF WATER LEAVING LIVING ROOM RADIANT FLOOR.</div> <div>38. THERMOCOUPLE LOCATED ON INLET OF WATER ENTERING LIVING ROOM RADIANT FLOOR.</div> <div>39. THERMOCOUPLE LOCATED ON EXIT OF WATER LEAVING BEDROOM RADIANT FLOOR.</div> <div>40. THERMOCOUPLE LOCATED ON INLET OF WATER ENTERING BEDROOM RADIANT FLOOR.</div> <div>41. THERMOCOUPLE LOCATED ON EXIT OF WATER LEAVING BATH RADIANT FLOOR.</div> <div>42. THERMOCOUPLE LOCATED ON INLET OF WATER ENTERING BATH RADIANT FLOOR.</div> <div>43. TEMPERATURE/HUMIDITY SENSOR LOCATED IN LIVING ROOM.</div> <div>44. TEMPERATURE/HUMIDITY SENSOR LOCATED IN KITCHEN.</div> <div>45. TEMPERATURE/HUMIDITY SENSOR LOCATED IN BATH.</div> <div>46. TEMPERATURE/HUMIDITY SENSOR LOCATED IN BEDROOM.</div> <div>47. TEMPERATURE/HUMIDITY SENSOR LOCATED OUTSIDE.</div> <div>48. RADIATION SENSOR LOCATED NEAR SOLAR THERMAL TUBES.</div> <div>49. RADIATION SENSOR LOCATED ON ROOF TOP.</div> <div>50. FLOW METER LOCATED ON POTABLE WATER SUPPLY LINE CONNECTED TO DAQ.</div> <div>51. FLOW METER LOCATED ON HOT WATER SUPPLY LINE CONNECTED TO DAQ.</div> <div>52. FLOW METER LOCATED ON THE CLOSED LOOP HOT WATER SYSTEM JUST PRIOR TO HT1.</div> <div>53. FLOW METER LOCATED ON THE CLOSED LOOP HOT WATER SYSTEM JUST PRIOR TO HT2.</div> <div>54. FLOW METER LOCATED ON THE CLOSED LOOP HOT WATER SYSTEM JUST PRIOR TO THE VALVE THAT DETERMINES IF THE SOLAR THERMAL WATER COLLECTORS RUN IN PARALLEL OR SERIES.</div> <div>55. FLOW METER LOCATED ON THE OUTPUT LINE TO THE RADIANT FLOOR HEADER.</div> <div>56. FLOW METER LOCATED ON THE INPUT TO THE BATH RADIANT FLOOR.</div> <div>57. FLOW METER LOCATED ON THE INPUT OF THE BEDROOM RADIANT FLOOR.</div> <div>58. FLOW METER LOCATED ON THE INPUT TO THE LIVING ROOM RADIANT FLOOR.</div>

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2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS

02_JUNE 2009

www.uky.edu/solarhouse

PROJECT NO: UKY 522009

DRAWN BY: JMK

APPROVED BY: DGC

DATE CREATED: 06/02/09

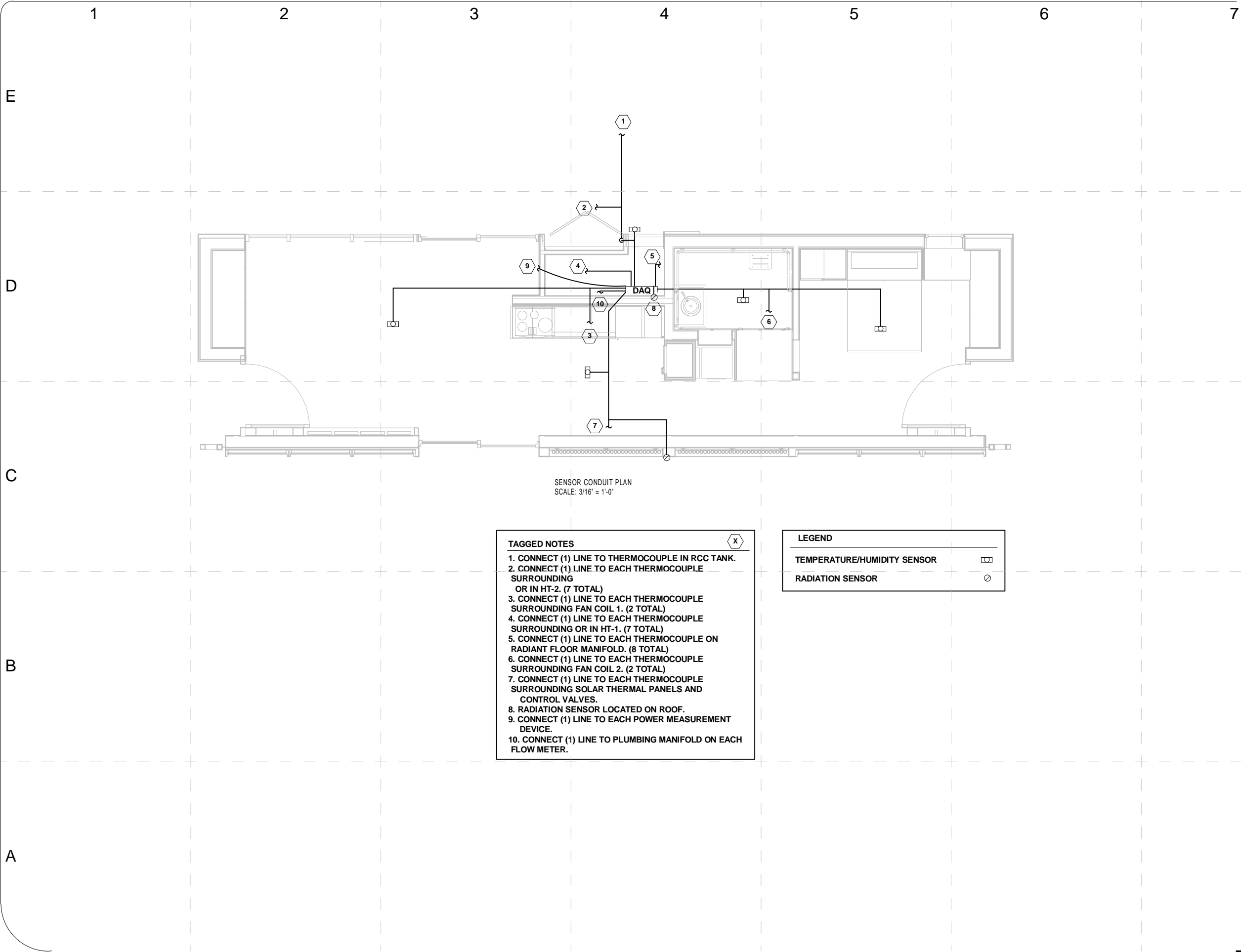
DATE RECEIVED: 06/02/09

COMMENTS

SHEET TITLE:

Mechanical Sensors Locations Plan

M-112



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2009 SOLAR DECATHLON

CONSTRUCTION DOCUMENTS

02 JUNE 2009

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PROJECT NO: UKY

DRAWN BY: SDZ/09

APPROVED BY: BDH

DATE CREATED: 06/02/09

DATE RECEIVED: 06/02/09

COMMENTS:

SHEET TITLE:

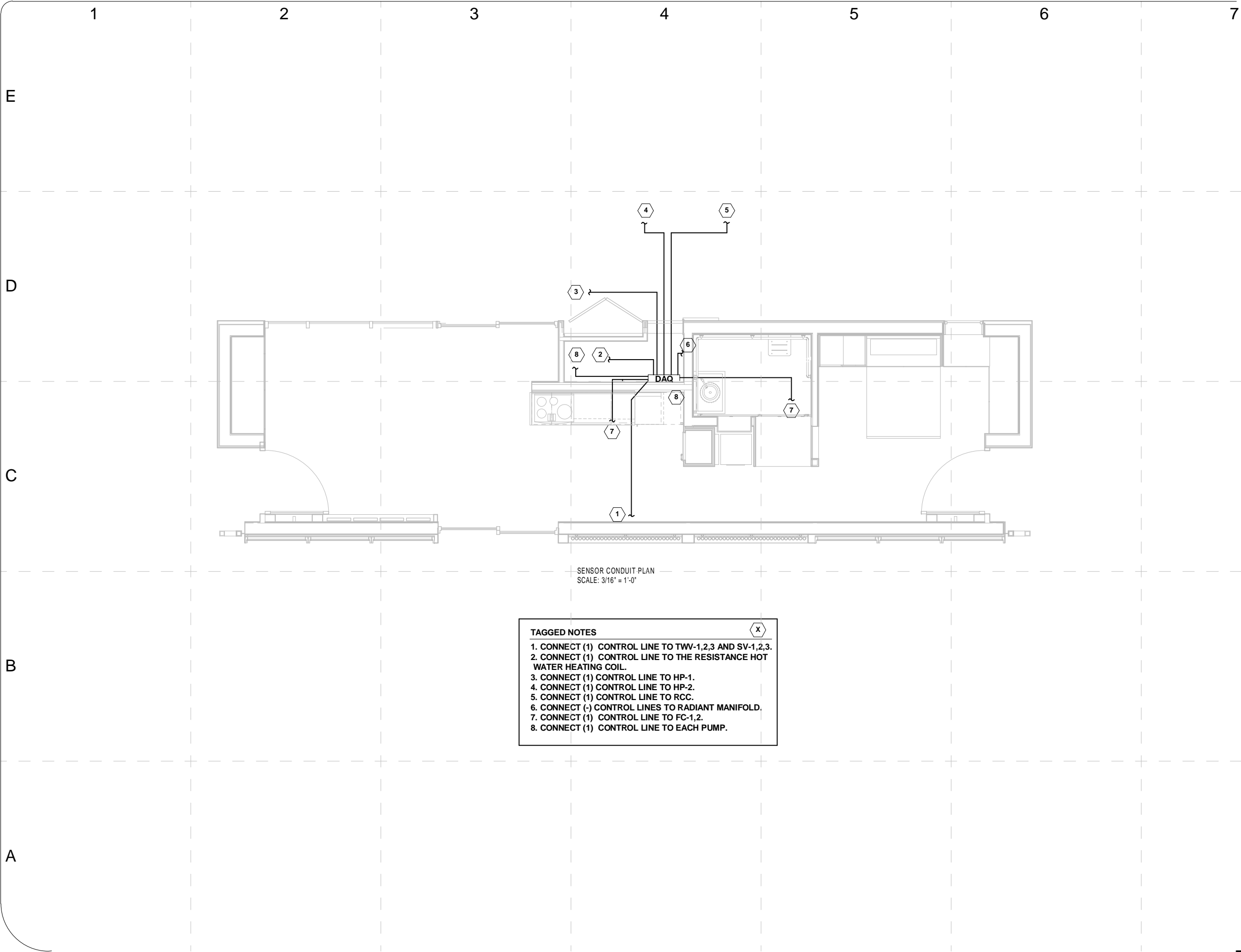
Mechanical

Sensors Conduit

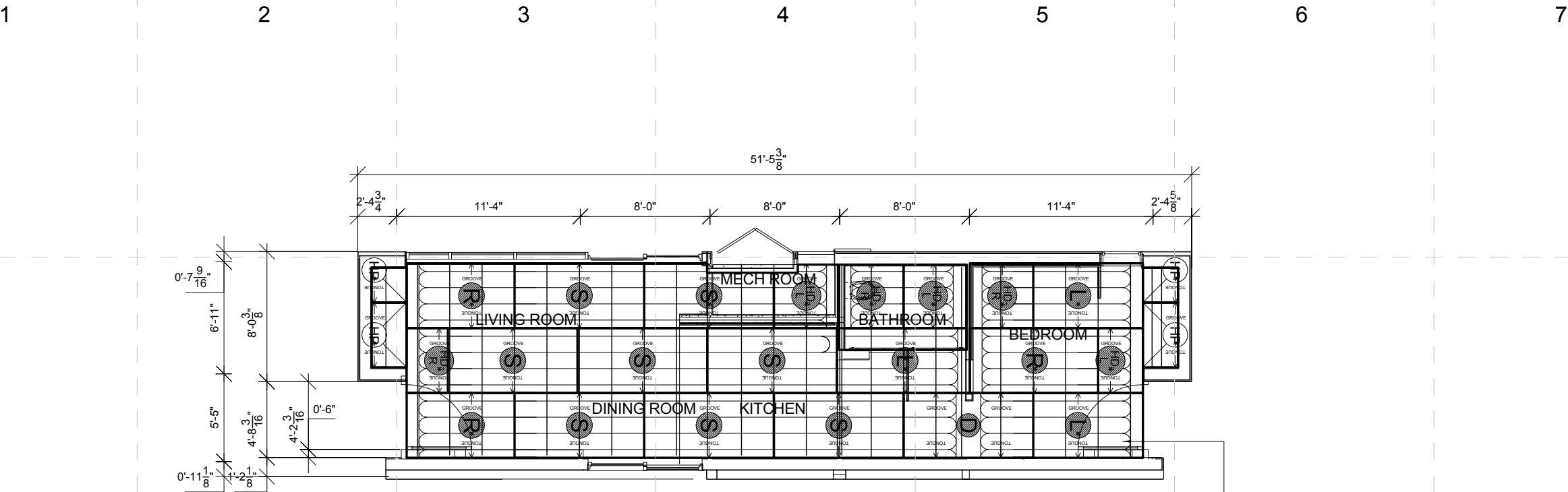
Plan

M-113

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DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
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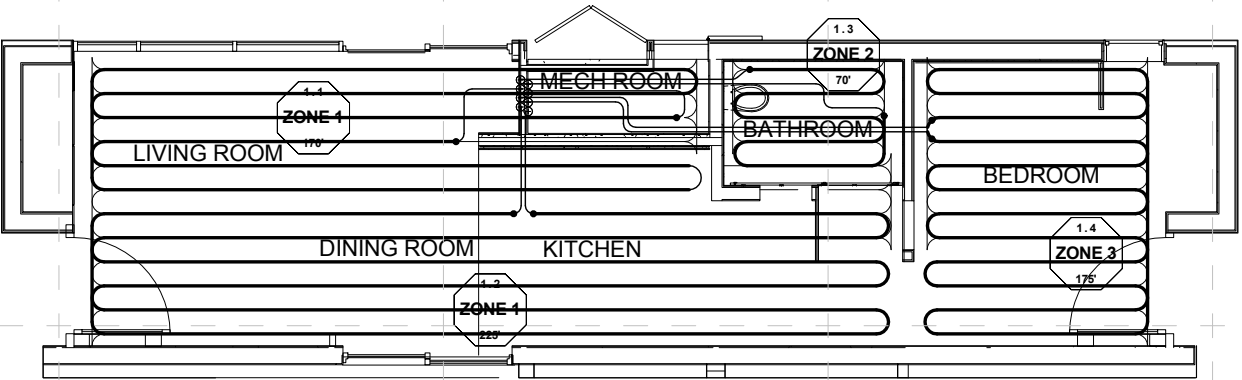
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MAIN FLOOR PANEL LAYOUT

SCALE: NTS

PANEL LAYOUT FOR THIS SECTION STARTS HERE.



MAIN FLOOR TUBING LAYOUT

SCALE: NTS

MANDATORY

INSTALLING CONTRACTOR IS RESPONSIBLE TO VERIFY ALL MEASUREMENTS PRIOR TO ANY WARMBOARD INSTALLATION.

FOLLOW ALL WARMBOARD INSTALLATION INSTRUCTIONS AND RPA GUIDELINES.

USE ONLY WARMBOARD APPROVED TUBING.

USE AN APPROPRIATELY WEIGHTED ROLLER TO PRESS TUBING INTO CHANNELS.

QUESTIONS? FOR IMMEDIATE ASSISTANCE
1-877-338-5493 (8am - 5pm PST)

PANEL SCHEDULE

TYPE	QUANTITY	COMMENTS
S	8	(1)
L	3	(1)
R	3	(1)
D	4	(1) (2)
P	0	(3)

(1) ANY PANELS IN THE DRAWING THAT ARE MARKED WITH AN ASTERISK (*) INDICATE A PANEL THAT IS TO BE TRIMMED. A CAREFUL MEASUREMENT SHOULD BE MADE TO GUARANTEE A CORRECT INSTALLATION.

(2) DOUBLE PANELS WILL CONSIST OF A "HALF DOUBLE-LEFT" PANEL AND A "HALF DOUBLE-RIGHT" PANEL. ON THE PANEL LAYOUT, YOU MAY SEE A PANEL MARKED AS "HD-L" OR "HD-R." THIS MEANS THAT YOU CUT ONE OF THESE DOUBLE PANELS IN HALF AND USE THE APPROPRIATE SIDE AS MARKED FOR THE INSTALLATION.

(3) CONVENTIONAL TONGUE AND GROOVE PLYWOOD PANELS USED TO FILL IN EMPTY SPACES WHERE WARMBOARD MAY NOT BE APPROPRIATE.

WARMBOARD LEGEND

STRAIGHT PANEL	TUBING
LEFT TURN PANEL	BURIED TUBING
RIGHT TURN PANEL	JOIST
DOUBLE TURN PANEL	CUSTOM GROOVE
HALF DOUBLE PANEL-RIGHT TURN	
HALF DOUBLE PANEL-LEFT TURN	
CONVENTIONAL PLYWOOD PANEL	

MANIFOLD	LOOP
ZONE 1	ZONE
LENGTH	SUPPLY
	RETURN
	MANIFOLD

IMPORTANT NOTE: INSULATION BELOW WARMBOARD IS MANDATORY FOR PROPER PERFORMANCE. AN ASTERISK "*" DENOTES A TRIMMED PANEL.

ESTIMATED CUSTOM ROUTES

TURN	1
TOTAL LINEAR LENGTH OF STRAIGHT ROUTES	0"

LOOP SCHEDULE

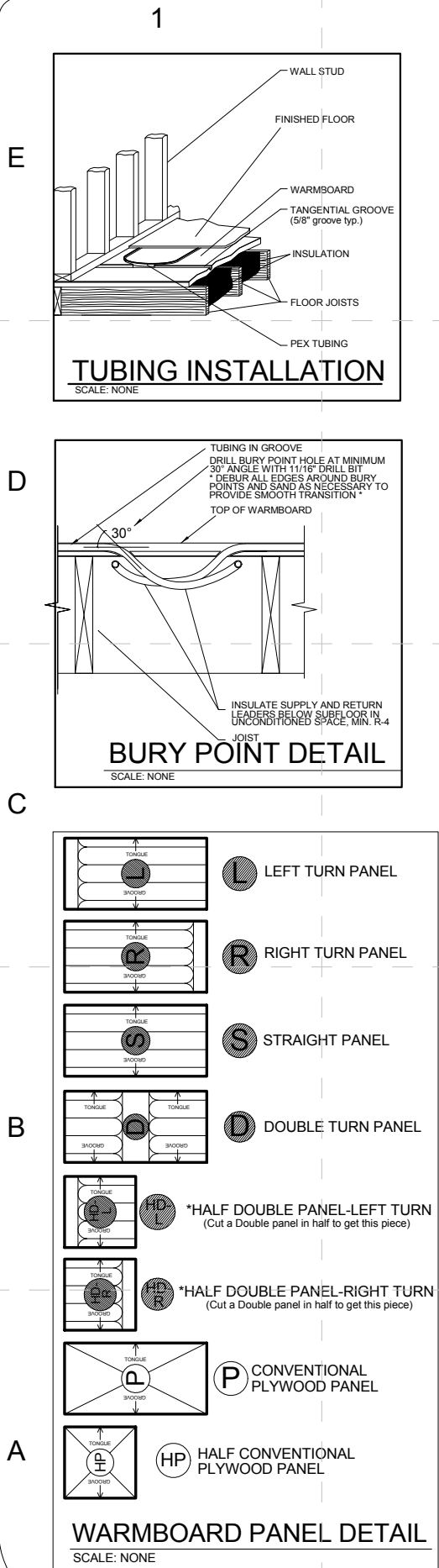
ZONE	MANIFOLD	LOOP	LENGTH
ZONE 1	1	1	170'
ZONE 1	1	2	225'
ZONE 2	1	3	70'
ZONE 3	1	4	175'
TOTAL			640'-0"

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN/DEVELOPMENT
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REV	04/16/2009	
FINAL	06/02/2009	

SHEET TITLE:

Panel and Tube
Layout

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WARMBOARD INSTALLATION NOTES - MANDATORY:

WHEN IN DOUBT, ASK!

The contractor(s) responsible for the installation of the Warmboard panels, as well as any hydronic tubing supplied by others, shall review these plans for accuracy and completeness. These contractors will also be responsible to verify all measurements prior to any Warmboard installations. Any discrepancy between these plans and the framing of the project for which they apply shall be brought to the immediate attention of Warmboard, Inc.

Please review all installation instructions. If there are any questions or need for technical assistance call: 1 877 338-5493

A. GENERAL INFORMATION

1. WARMBOARD IS ONE COMPONENT OF A HYDRONIC SYSTEM. THIS CONCEPTUAL PLAN COVERS ONLY PANEL AND TUBING LAYOUTS AND DOES NOT CONSTITUTE A COMPLETE INSTALLATION GUIDE FOR A HYDRONIC SYSTEM. Installation of a hydronic system employing Warmboard panels requires a combination of carpentry and plumbing skills. The general contractor shall be responsible for the skills, training, and experience of the installers. Warmboard refers to floor framing information supplied by the customer. Deviations should be brought to the immediate attention of Warmboard, Inc. The hydronic contractor shall follow the tubing layout plan and tubing installation instructions supplied. They shall also be responsible for providing an accurate heat loss analysis and the installation of the hydronic system as a whole in accordance with Radiant Panel Association (RPA) guidelines. Design floor and supply water temperatures for a given floor covering will follow RPA guidelines and the Warmboard recommended water temperatures chart.
2. It is the installer's responsibility to assure the system functions properly, safely, and meets all local, state, and regional codes.
3. The installer is to supply and install all materials shown on this plan; as well as all other materials needed to complete this hydronic system and any incidental work not shown or specified, which can be reasonably inferred as belonging to the work necessary to provide the complete system.
4. Warmboard makes no guarantee for any material to be installed in this hydronic system other than the Warmboard panels.

B. WARMBOARD INSTALLATION

1. WARMBOARD shall verify the compatibility of their layout with the attached floor framing plan. Special attention shall be given to the compatibility of Warmboard panels and joist layout.
2. All supply and return tubing below subfloor in unconditioned space shall be insulated with R-4.0 pipe insulation.
3. Custom grooves shall be routed as indicated on the plans using supplied router templates, a properly sized router equipped with a template guide, and the supplied 5/8" core box router bit. All router use shall conform to supplied instructions, and all safety instructions provided by manufacturer of the router you plan to use.
4. When applicable, installation contractor shall coordinate with the plumbing contractor so as to have all plumbing stubbed out 12" above sub-floor prior to installation.
5. Alignment pins shall be used for proper alignment of panels.
6. Any excess adhesive that may interfere with tubing installation shall be removed.
7. All burrs left by custom routing and on angle holes shall be removed.
8. Refer to manufacturer's installation manual for additional guidelines for this product.

C. TUBING INSTALLATION

1. Holes for routing below sub-floor shall be drilled using an $\frac{1}{16}$ " bit at the correct location and in the appropriate direction, so that the end of the tube can be passed from the groove to under the floor area in the right direction, leading to the appropriate manifold location or the boiler panel.
2. All grooves shall be inspected and cleaned of any debris prior to tubing installation.
3. Tubing for radiant floor heating shall be $\frac{1}{2}$ " PEX-AL-PEX (Pex-Aluminum-Pex) as listed by ICBO.
4. Tubing shall be and remain pressurized immediately following installation into the panel diaphragm for the duration of all construction.
5. Installer is responsible for protecting tubing from freezing during construction. Should climactic conditions occur, this would require adding antifreeze and corrosion inhibiting fluids upon completion of work.
6. Installer to record length of every pipe and photograph completed installation.
7. Special note for carpeted areas: Short pieces of PEX tubing (typically offcuts) shall be pressed into any unused groove areas. This provides support for the pad & carpet.

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2009 SOLAR DECATHLON
CONSTRUCTION DOCUMENTS
02 JUNE 2009
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PROJECT NO: UKY _SD2009

DRAWN BY: JAL

APPROVED BY: [Signature]

DATE CREATED: 06/02/09

DATE RECEIVED: 06/02/09

COMMENTS

SHEET TITLE:

Installation
Instruction

M-402

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THIS WARMBOARD DESIGN CONSIST OF: SPECIFYING PANELS, TUBING, AND MANIFOLDS ONLY.

WARMBOARD SHOP DRAWINGS DO NOT INCLUDE THE FOLLOWING:

ROOM BY ROOM HEAT LOSS CALCULATIONS
PROPER DESIGN OF FLOW RATES AND REQUIRED WATER TEMPERATURES
SIZING OF CIRCULATIONS AND DISTRIBUTION LINES
SIZING AND SPECIFYING HEAT SOURCE AND MECHANICAL BOILER TRIM
COMPLETE ELECTRONIC CONTROL STRATEGY

WARMBOARD INC HIGHLY RECOMMENDS CONSULTING WITH A QUALIFIED RADIANT DESIGNER OR MECHANICAL CONTRACTOR FOR DOCUMENTATION.

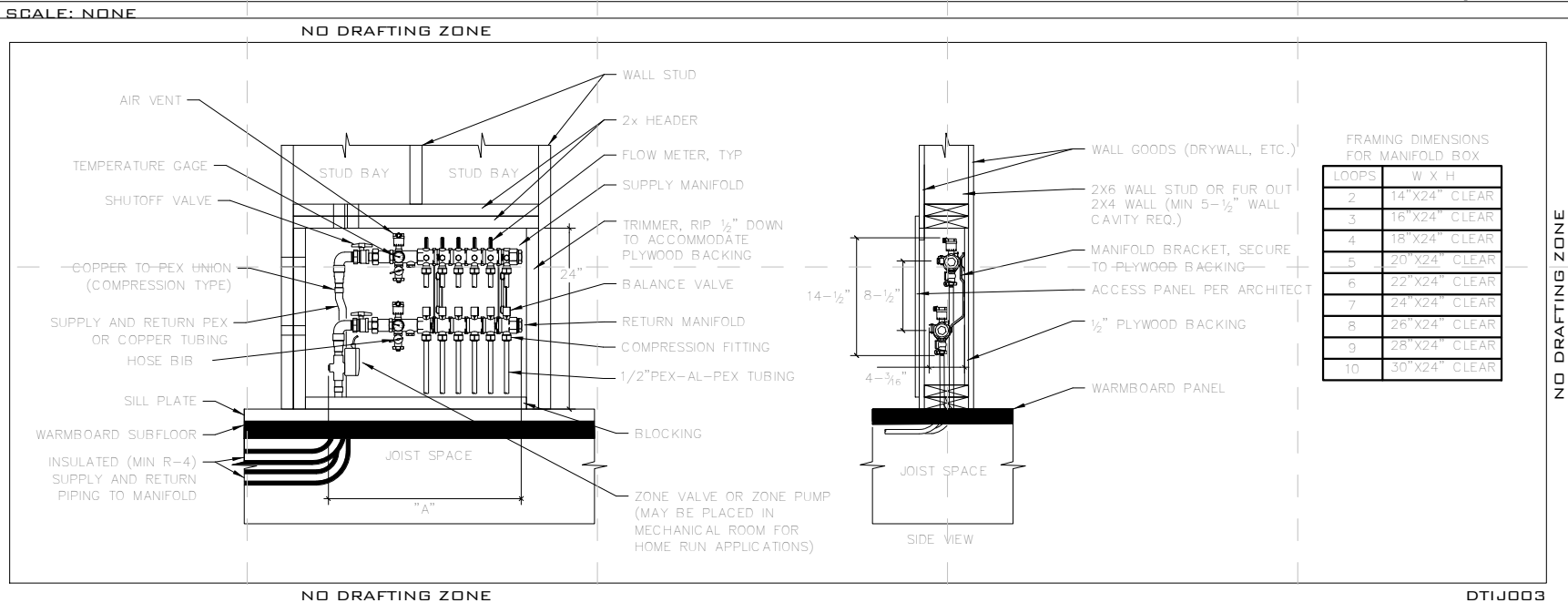
WHEN IN DOUBT, ASK!

Please review all installation instructions. If there are any questions or need for technical assistance call: 1 877 338-5493

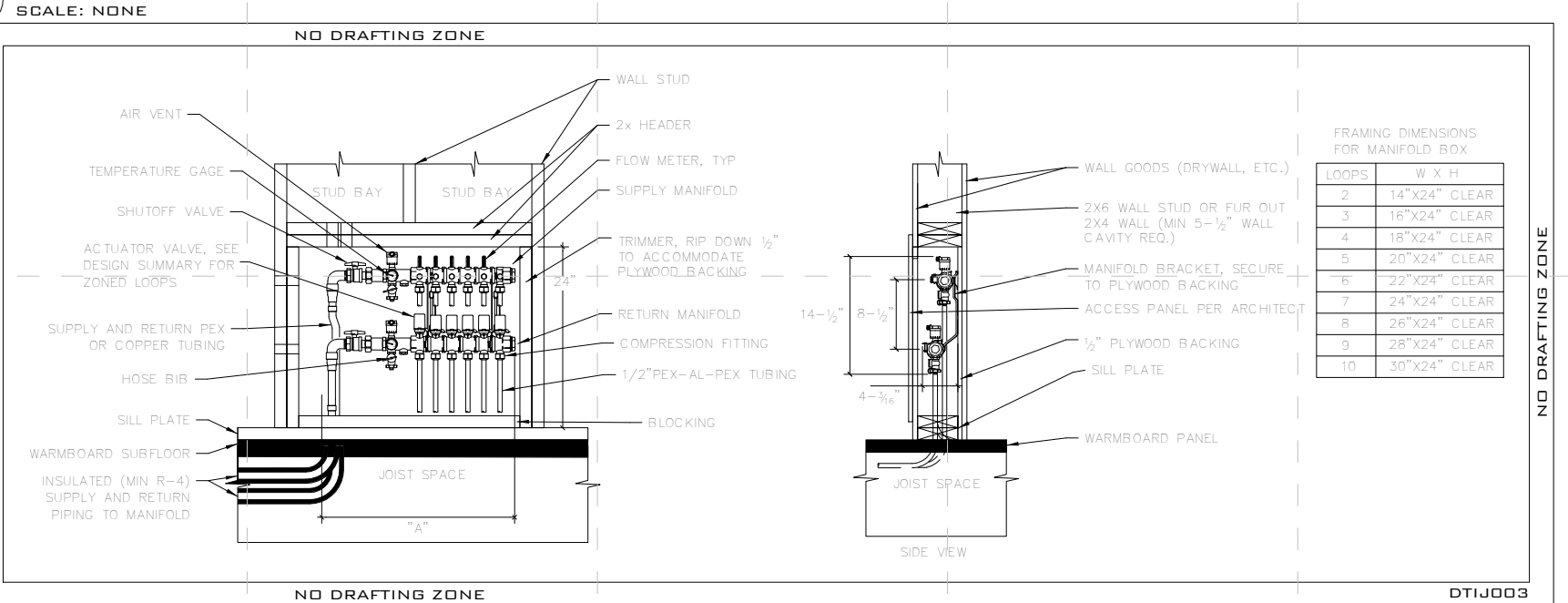
MANIFOLD & TUBING MATERIALS LIST

QTY	DESCRIPTION	NOTES
	1000' X 1/2" PEX AL PEX ROLL	
1	500' X 1/2" PEX AL PEX ROLL	[1.1,1.3,1.4]
1	300' X 1/2" PEX AL PEX ROLL	[1.2]
	2 PORT SUPPLY & RETURN MANIFOLD KIT	
	3 PORT SUPPLY & RETURN MANIFOLD KIT	
1	4 PORT SUPPLY & RETURN MANIFOLD KIT	3 ZONES
	5 PORT SUPPLY & RETURN MANIFOLD KIT	
	6 PORT SUPPLY & RETURN MANIFOLD KIT	
	7 PORT SUPPLY & RETURN MANIFOLD KIT	
	8 PORT SUPPLY & RETURN MANIFOLD KIT	
	9 PORT SUPPLY & RETURN MANIFOLD KIT	
	10 PORT SUPPLY & RETURN MANIFOLD KIT	
4 prs.	1/2" COMPRESSION FITTINGS	
4	24 VOLT ACTUATORS	

1 SINGLE ZONE MANIFOLD INSTALLATION-NO ACTUATORS REQUIRED



2 MULTI ZONE MANIFOLD INSTALLATION- ACTUATORS REQUIRED



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02 JUNE 2009
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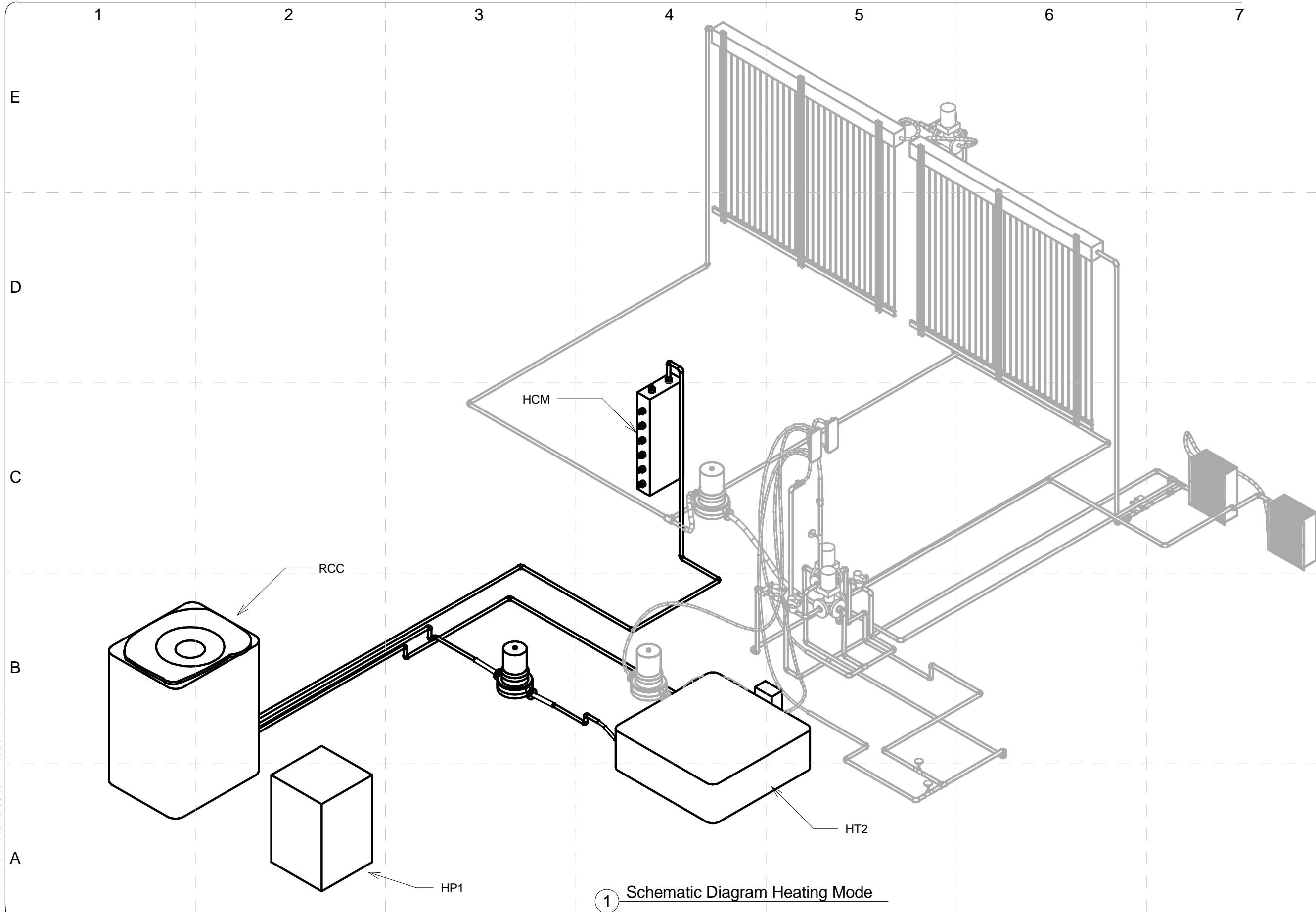
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COMMENTS

SHEET TITLE:

Manifold
Instructions

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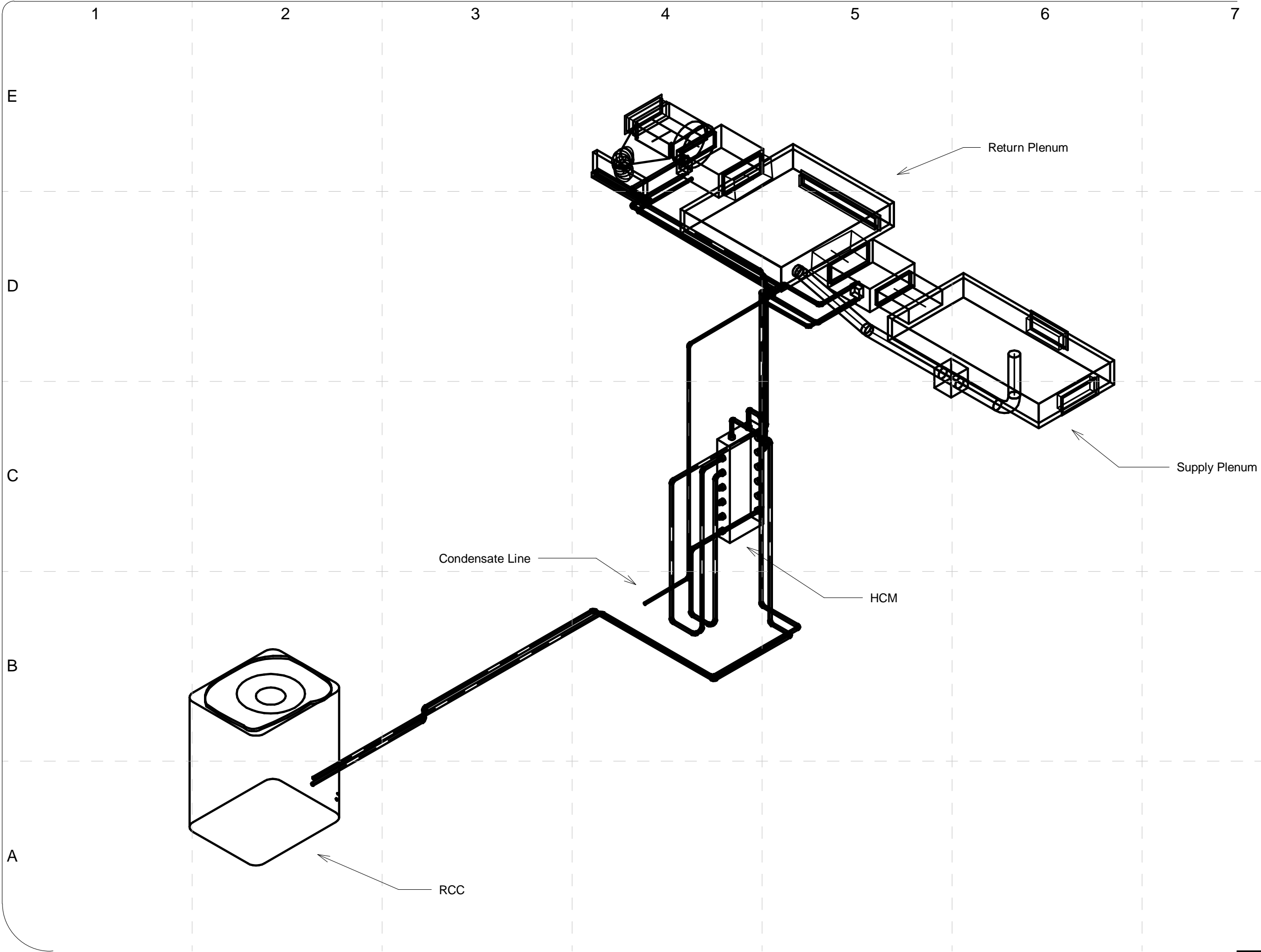
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SHEET TITLE:

Schematic Diagram
Heating Mode



M-601

MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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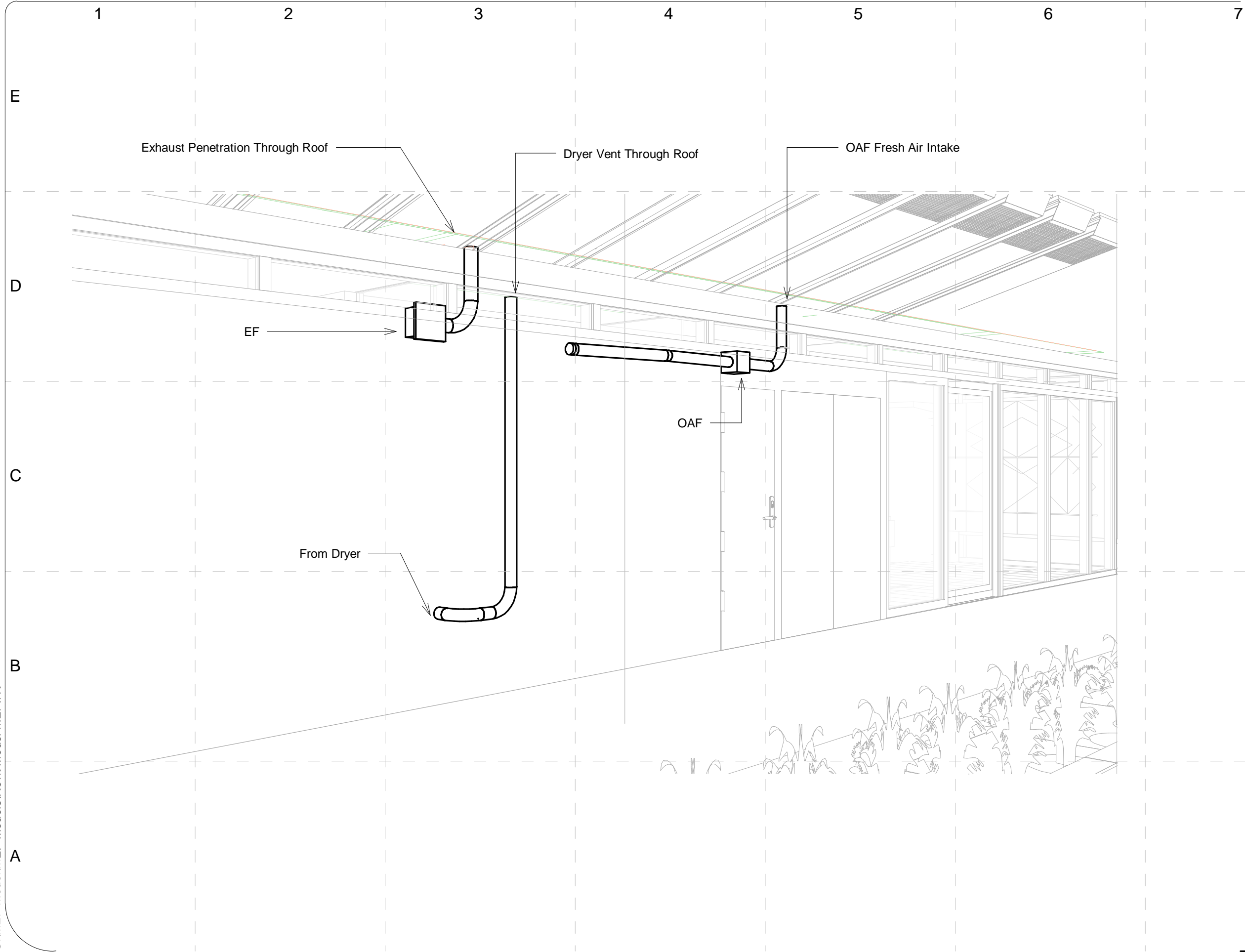
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SHEET TITLE:

Schematic Diagram
Cooling Mode

M-602



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SHEET TITLE:

Schematic Diagram
Ventilation

M-603

MARK	DATE	DESCRIPTION
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A

B

C

D

E

SPLIT REVERSE CYCLE CHILLER SYSTEM SCHEDULE																				
INDOOR AIR HANDLING UNITS										HEAT PUMP OUTDOOR UNIT										
MARK	MANUF./MODEL	WT. (LBS)	INDOOR BLOWER				COOLING MBH		REMARKS	MARK	MANUF./MODEL	WT. (LBS.)	COOLING MBH	HEATING MBH	SEER	MCA	MAOP	VOLT/PHASE	REMARKS	
			HP	CFM	ESP	VOLT/PH	SENS.	TOTAL					TOTAL	TOTAL						
FC-1	TRANE FCCB022	81	.08	260	0.6	—	208/1	6.2	8.7		RCC	YORK RSC-036A-S1A	400	34.8	19.3	18.0	20.75	40	208-230/1	1
FC-2	TRANE FCCB062	139	.24	725	0.6	—	208/1	16.8	23.9											

1. COOLING MBH FOR HP-1 TAKEN AT 95° FAHRENHEIT AND HEATING MBH TAKEN AT 10° FAHRENHEIT.

EXHAUST AIR FAN SCHEDULE									
MARK	MANUFACTURER	MODEL #	CFM	SONES/NC	ESP	RPM	WATTS	VOLT/PH/HZ	REMARKS
EF	BROAN	HD50	50	1.5	.1	1070	30	120/1/60	—

HVAC FAN SCHEDULE									
MARK	MANUFACTURER	MODEL #	CFM	SONES/NC	ESP	RPM	WATTS	VOLT/PH/HZ	REMARKS
OAF	SUNCOURT	DB204	55	—	.01	—	36	120/1/60	—

GRILLE REGISTER & DIFFUSER SCHEDULE									
MARK	MANUF./MODEL	MATERIAL/TYPE	NECK SIZE	PANEL SIZE	RUNOUT SIZE	CFM	AIR PATTERN	MOUNTING	REMARKS
S-1	TITUS TBD-10	ALUM. FLOWBAR	6" ø	—	SEE PLANS	50	—	SEE REMARKS	1
S-2	TITUS 300RS-HD	ALUM. ADJUSTABLE LOUVER FACE	14X6	—	SEE PLANS	240	2-WAY ADJUSTABLE	SEE REMARKS	1
S-3	TITUS 300RS-HD	ALUM. ADJUSTABLE LOUVER FACE	16X6	—	SEE PLANS	285	2-WAY ADJUSTABLE	SEE REMARKS	1
S-4	TITUS 300RS-HD	ALUM. ADJUSTABLE LOUVER FACE	24X6	—	SEE PLANS	440	2-WAY ADJUSTABLE	SEE REMARKS	1
S-4	TITUS 300RS-HD	ALUM. ADJUSTABLE LOUVER FACE	30X10	—	SEE PLANS	1000	2-WAY ADJUSTABLE	SEE REMARKS	1

REMARKS:
1. PROVIDE DUCT TO THROAT TRANSITION AS REQUIRED.

PUMP SCHEDULE									
MARK	MANUFACTURER	MODEL #	GPM	TOTAL HEAD	HP	RPM	CONTROL BY	VOLT/PH	REMARKS
SP	LITTLE GIANT	ES50D1-20	10	52 FT.	4/10	1750	—	115/1	
P-1	GRUNDFOS	MQ3-35	22	139 FT.	3/4	—	R2	115/1	
P-2	TACO	1400-50	60	51 FT.	1/2	3450	R1	115/1	
P-3	TACO	007-F5	23	10 FT.	1/25	3250	R1	115/1	
P-4	TACO	008-F6	15	16 FT.	1/25	3250	R1	115/1	
P-5	TACO	0010-F3	33	10 FT.	1/8	3250	R1	115/1	
P-6	TACO	1400-70	125	15 FT.	1/2	3450	R2	115/1	
P-7	TACO	005-F2	20	9 FT.	1/35	3250	R1	115/1	
P-8	TACO	005-F2	20	9 FT.	1/35	3250	R1	115/1	

HEAT PUMPS				
MARK	MANUFACTURER	MODEL #	MCA	VOLT/PH/HZ
HP-1	TRANE	WPWD024	14.3	230/1/60
HP-2	AQUACAL	T35	19.4	230/1/60

MOTORIZED VALVES						
MARK	MANUFACTURER	MODEL #	CV	DE-ENERGIZED POSITION	PIPE CONNECTION	CONTROL BY
SV-1	HONEYWELL	V4043A	8.0	NORMALLY CLOSED	3/4"	R1
SV-2	HONEYWELL	V4043B	3.5	NORMALLY OPENED	1/2"	R1
SV-3	HONEYWELL	V4043A	8.0	NORMALLY CLOSED	3/4"	R1
SV-4	HONEYWELL	V4043A	8.0	NORMALLY CLOSED	3/4"	R1
SV-5	HONEYWELL	V4043B	3.5	NORMALLY OPENED	1/2"	R1
TWV-1	HONEYWELL	4044A	7.0	PORT A NORM CLOSED	3/4"	R1
TWV-2	HONEYWELL	4044A	7.0	PORT A NORM CLOSED	3/4"	R1
TWV-3	HONEYWELL	4044A	7.0	PORT A NORM CLOSED	3/4"	R1

TANKS						
MARK	MANUFACTURER	MODEL #	DIMENSIONS(FT.)	CAPACITY	INLET	OUTLET
WST	AIRE INDUSTRIAL	951-00-7502	8'X10'-6"X18"	750 GAL.	4"	4"
ST	AIRE INDUSTRIAL	951-01-5001	8'-6"X11'-8"X18"	1500 GAL.	4"	4"
HT2	AIRE INDUSTRIAL	951-00-5001	6'X9'X18"	500 GAL.	4"	4"

RELAYS						
MARK	MANUFACTURER	MODEL #	VOLT/MAX AMP	CONTROL VOLTAGE	QUANTITY	REMARKS
R1	OPTO 22	120D3	120VAC/3AMPS	5V DC	13	
R2	OPTO 22	120D10	120VAC/10AMPS	5V DC	2	
R3	OPTO 22	240D45	240VAC/45AMPS	5V DC	3	1

REMARKS:
1. USED TO CONTROL HP-1, HP-2, AND ELECTRIC RESISTANCE HOT WATER COIL

DATA AQISITION AND CONTROL CENTERS						
MARK	MANUFACTURER	MODEL #	# ANALOG INPUTS	# DIGITAL I/O	# ANALOG OUTPUTS	QUANTITY
ANA11	MEASUREMENT COMPUTING	USB-1608FS	8	8	0	1
ANA01	MEASUREMENT COMPUTING	USB-3101	0	8	4	1
DO1	MEASUREMENT COMPUTING	USB-1024LS	0	24	0	1
ANA12	MEASUREMENT COMPUTING	USB-2416	32	8	0	2
ANA1E	MEASUREMENT COMPUTING	AI-EXP32	32	16	0	2

TRANSDUCERS					
MARK	MANUFACTURER	MODEL #	NAME	MEASUREMENT	QUANTITY
TC	OMEGA	SA1-K-SRTC	TYPE K THERMOCOUPLE	TEMPERATURE	10
TH	CAMPBELL SCIENTIFIC	HMP50L	TEMP AND HUMIDITY PROBE	TEMP AND HUMIDITY	1
R	LI-COR	LI-210SA	PHOTOMETER	RADIATION	2
CT	ACUAMP	ACT050-10-F	CURRENT TRANSDUCER	AC CURRENT	24
TH	SENSIRION	SHT7x	TEMP AND HUMIDITY PROBE	TEMP AND HUMIDITY	4
FM1	OMEGA	FTB 8007A-PR	FLOWMETER	FLOWRATE	1
FM2	OMEGA	FTB 4707	FLOWMETER	FLOWRATE	1

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SHEET TITLE:

Mechanical
Equipment
Schedule

M-604

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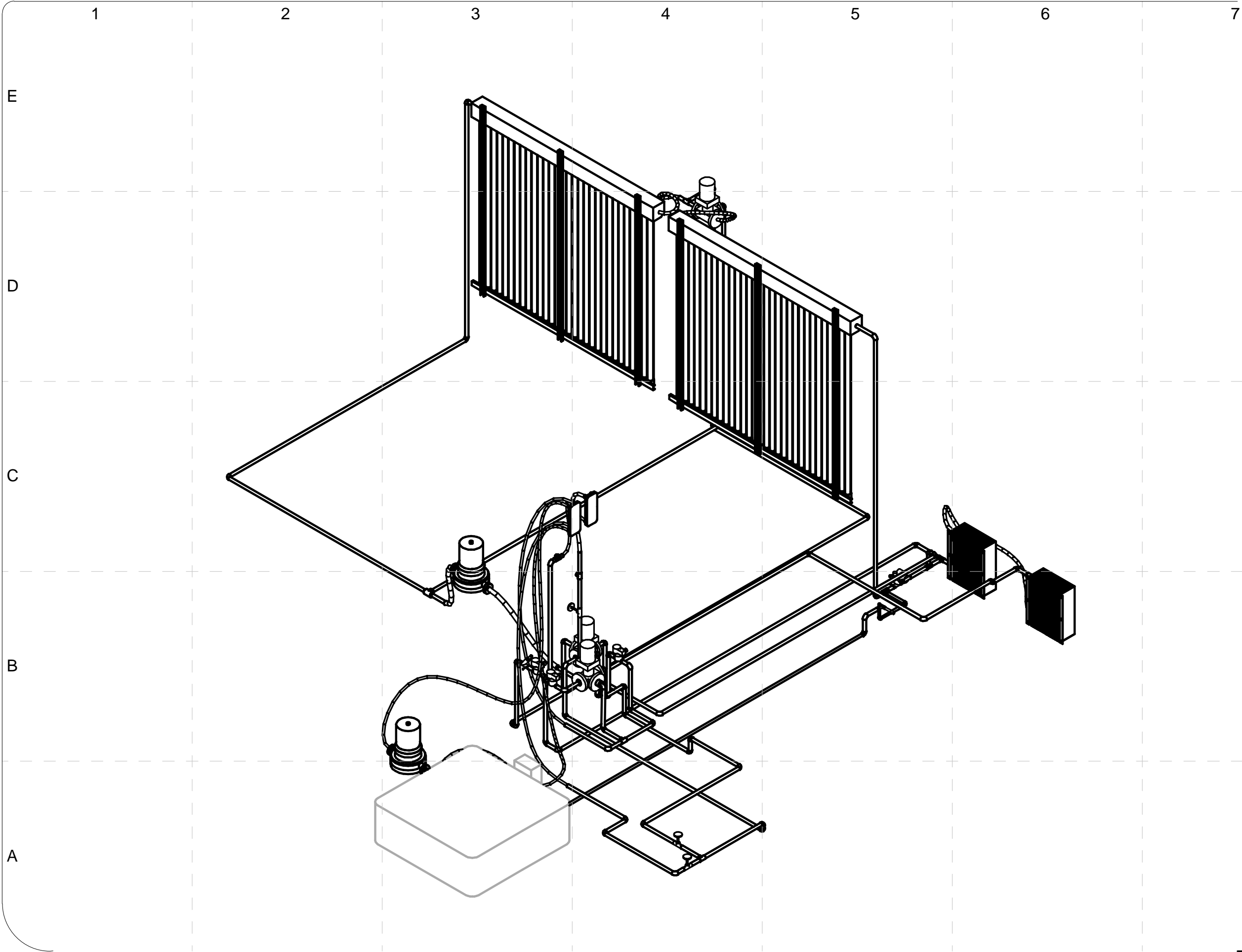
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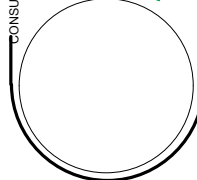
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SHEET TITLE:

Solar Thermal
Isometric

M-902

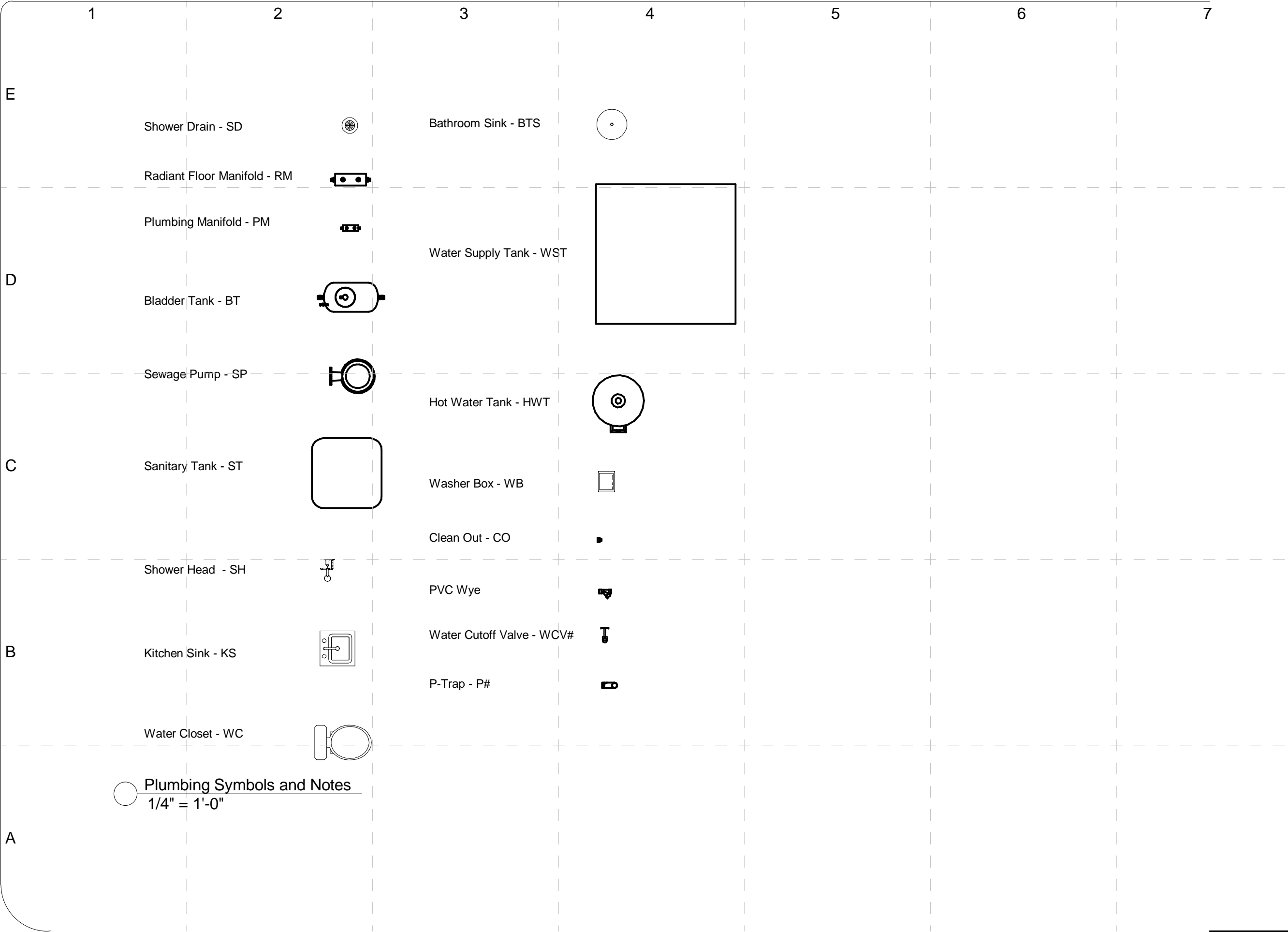
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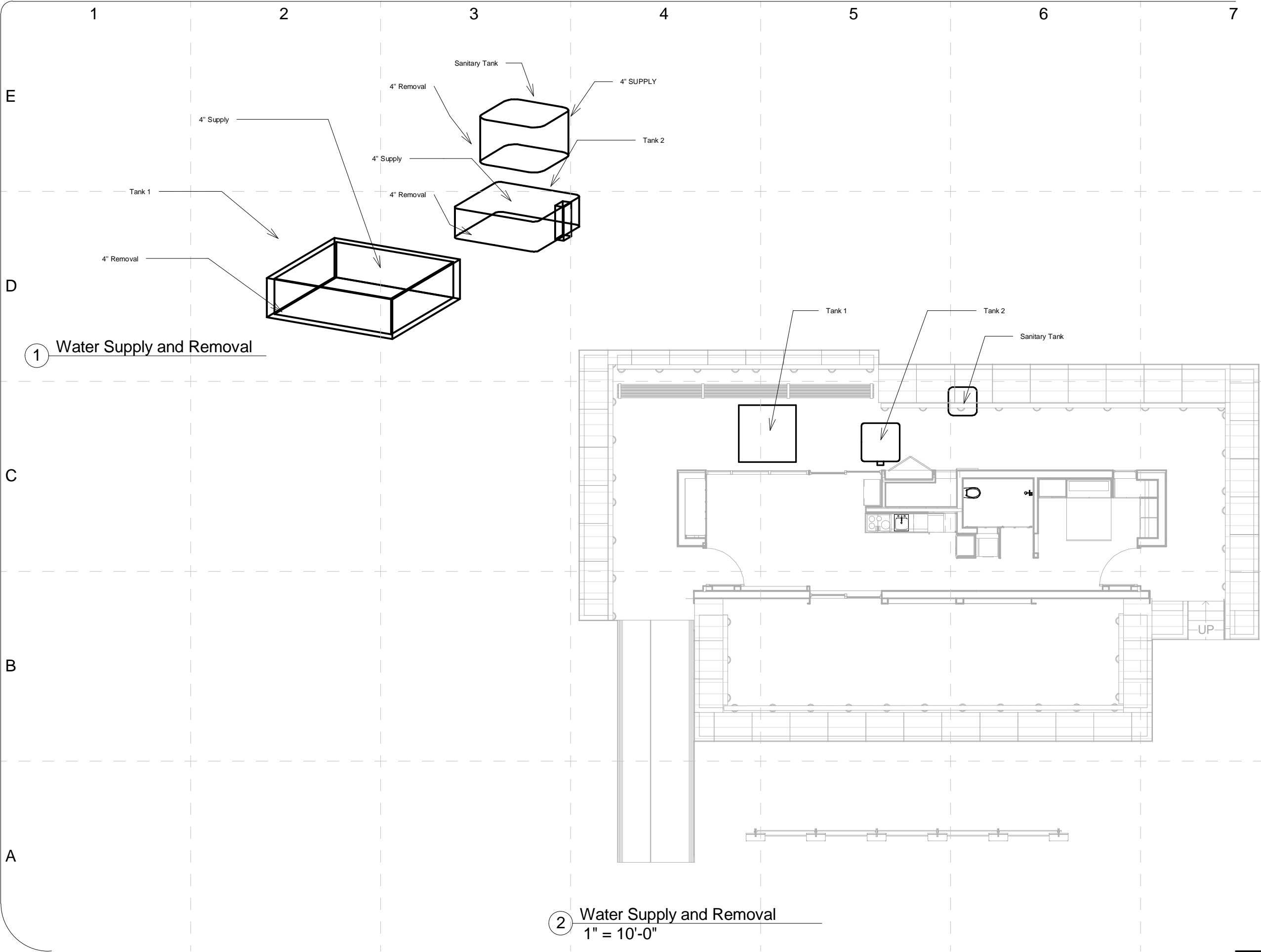
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SHEET TITLE:

Plumbing Symbols
and Notes

P - 100

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1 Water Supply and Removal

2 Water Supply and Removal
1" = 10'-0"

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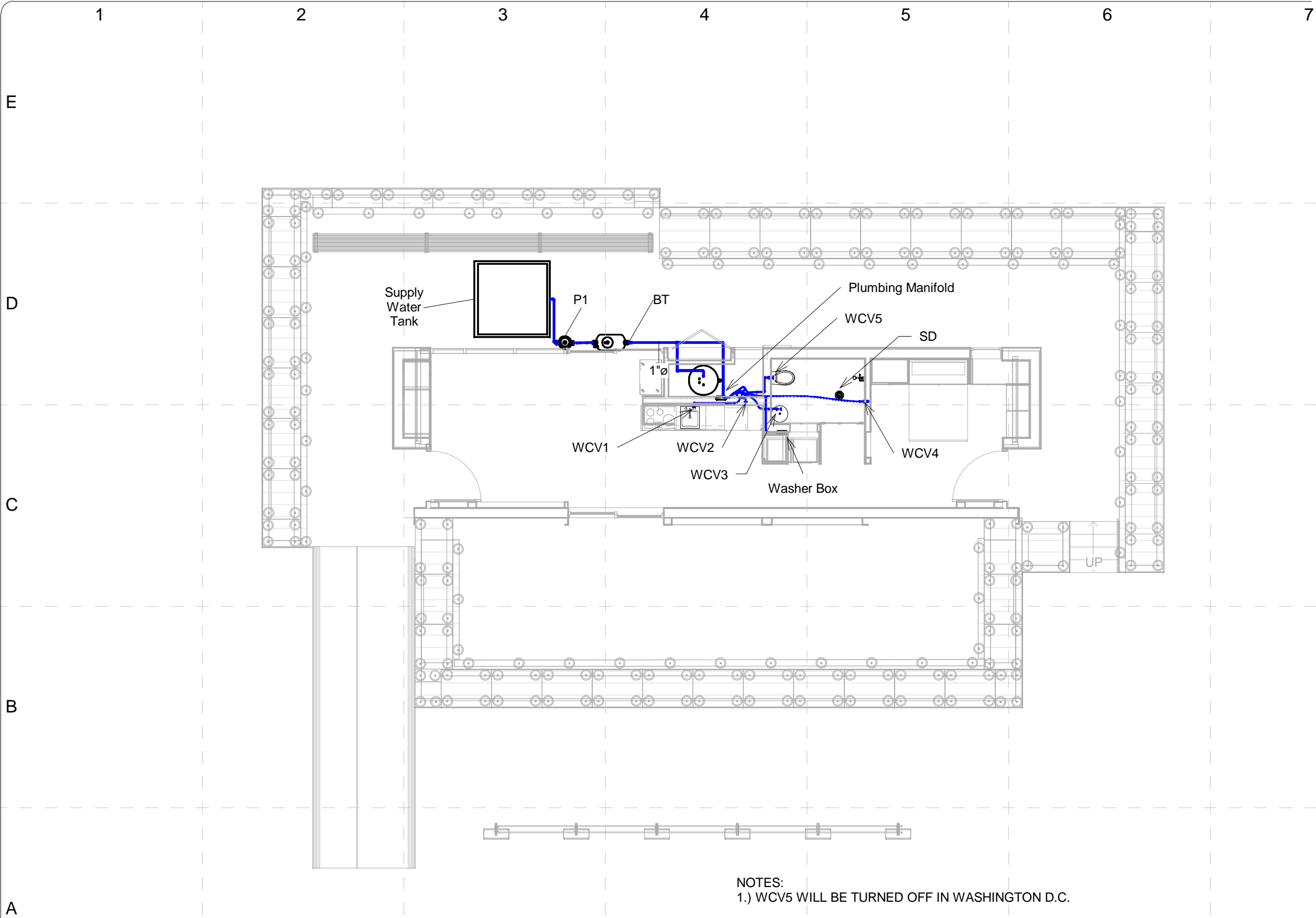
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SHEET TITLE:

Water Supply and Removal

P - 101

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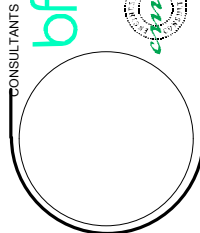


1 Cold Water Supply
1/8" = 1'-0"

NOTES:
1.) WCV5 WILL BE TURNED OFF IN WASHINGTON D.C.

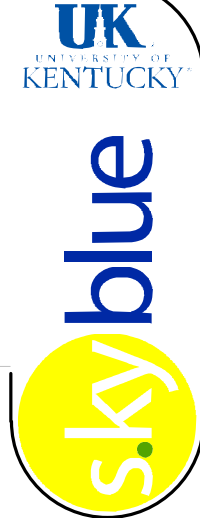
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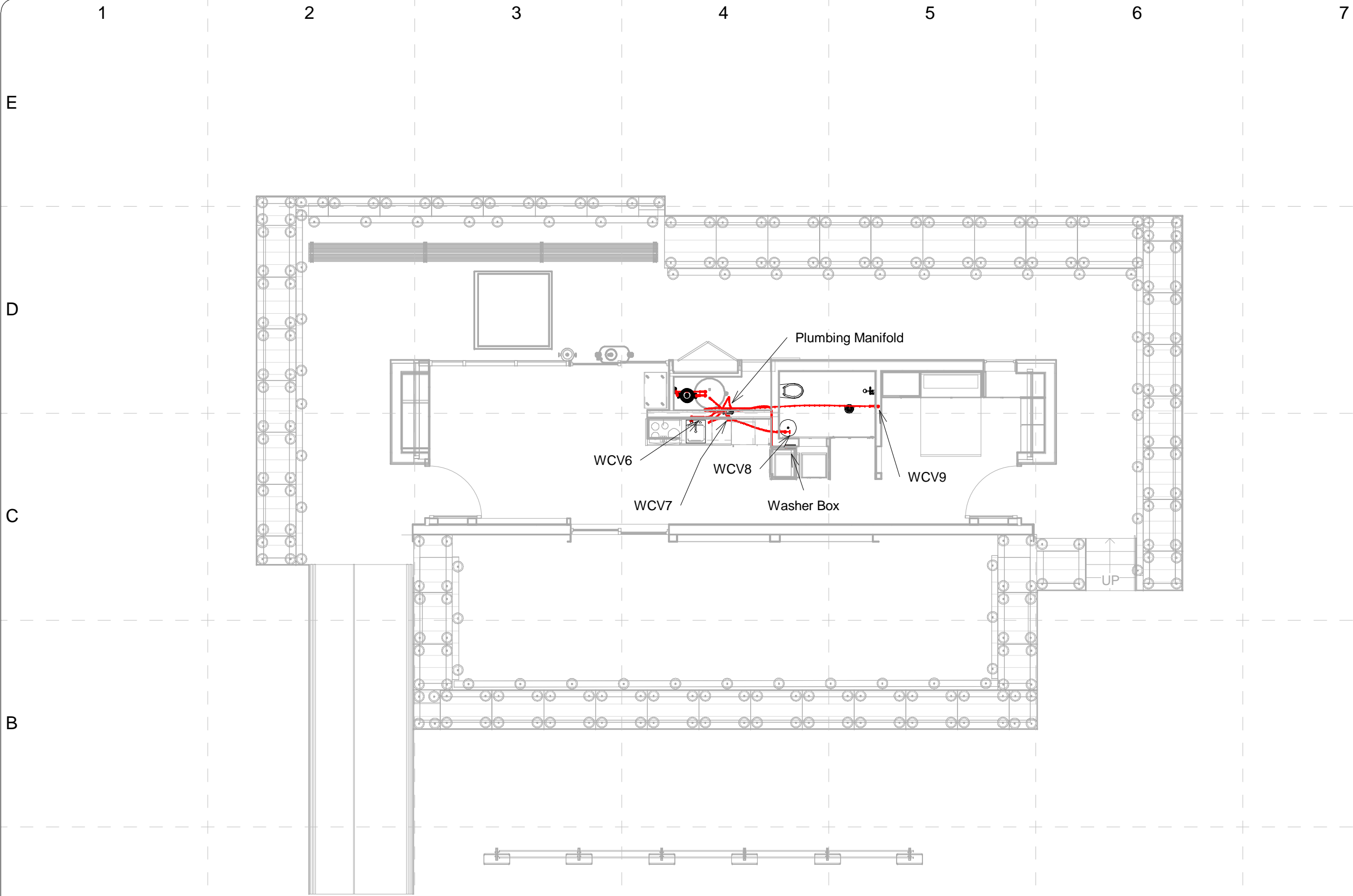


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SHEET TITLE:
Cold Water Supply



1 Hot Water Supply
1/8" = 1'-0"

NOTES:
1.) WCV9 WILL BE TURNED OFF IN WASHINGTON D.C.

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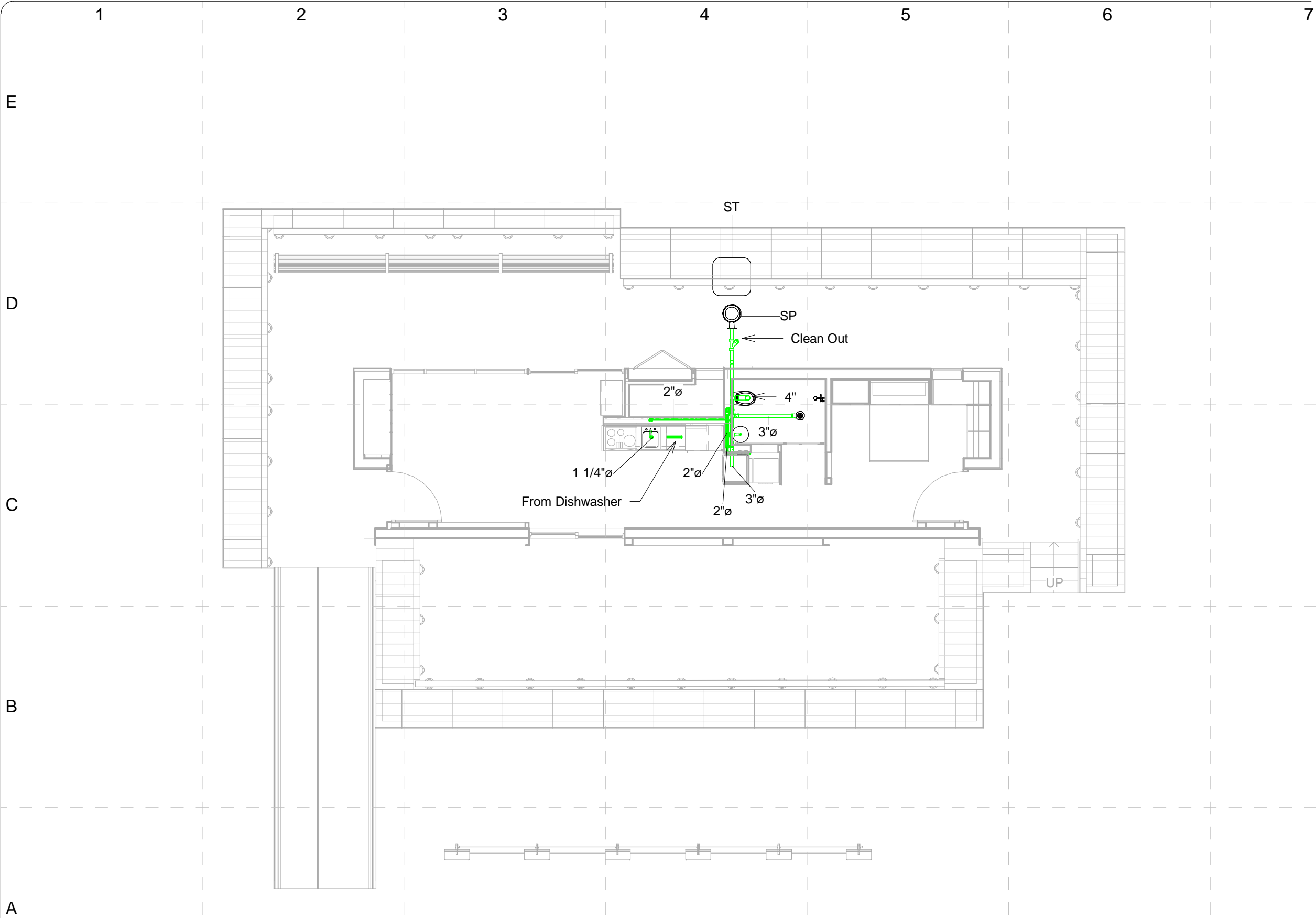
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SHEET TITLE:

Hot Water Supply

P - 103



1 Sanitary and Waste Vent
1/8" = 1'-0"

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SHEET TITLE:

Drain Waste and Vent

P-103

A

B

C

D

E

1

2

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7

PLUMBING PUMP SCHEDULE									
MARK	MANUFACTURER	MODEL #	GPM	TOTAL HEAD	HP	RPM	-	VOLT/PH	REMARKS
SP	LITTLE GIANT	ES50D1-20	10	52 FT.	4/10	1750	-	115/1	-

WATER HEATER SCHEDULE							
MARK	MANUFACTURER	MODEL #	VOLTS	PHASE	KW	RECOVERY @ 90 F	REMARKS
HWT	AO SMITH	SUN-120	240	1	4.5	21	-

PLUMBING FIXTURE SCHEDULE						
MARK	MANUFACTURER	MODEL #	SONES/NC			
			CW	HW	WASTE	VENT
KS	HOUZER	C7S-2300	1/2"	1/2"	2"	2"
SHW	BROAN	6975102	1/2"	1/2"	3"	3"
WCL	BROAN	CST41411	1/2"	1/2"	3"	3"
LAV	BROAN	LT987G	1/2"	1/2"	1-1/4"	1-1/4"

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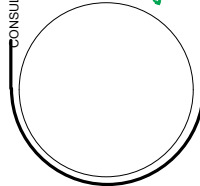
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SHEET TITLE:

Plumbing Schedule

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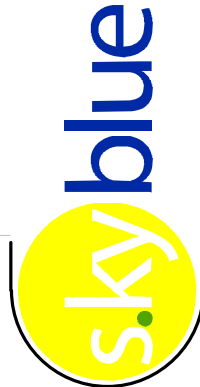
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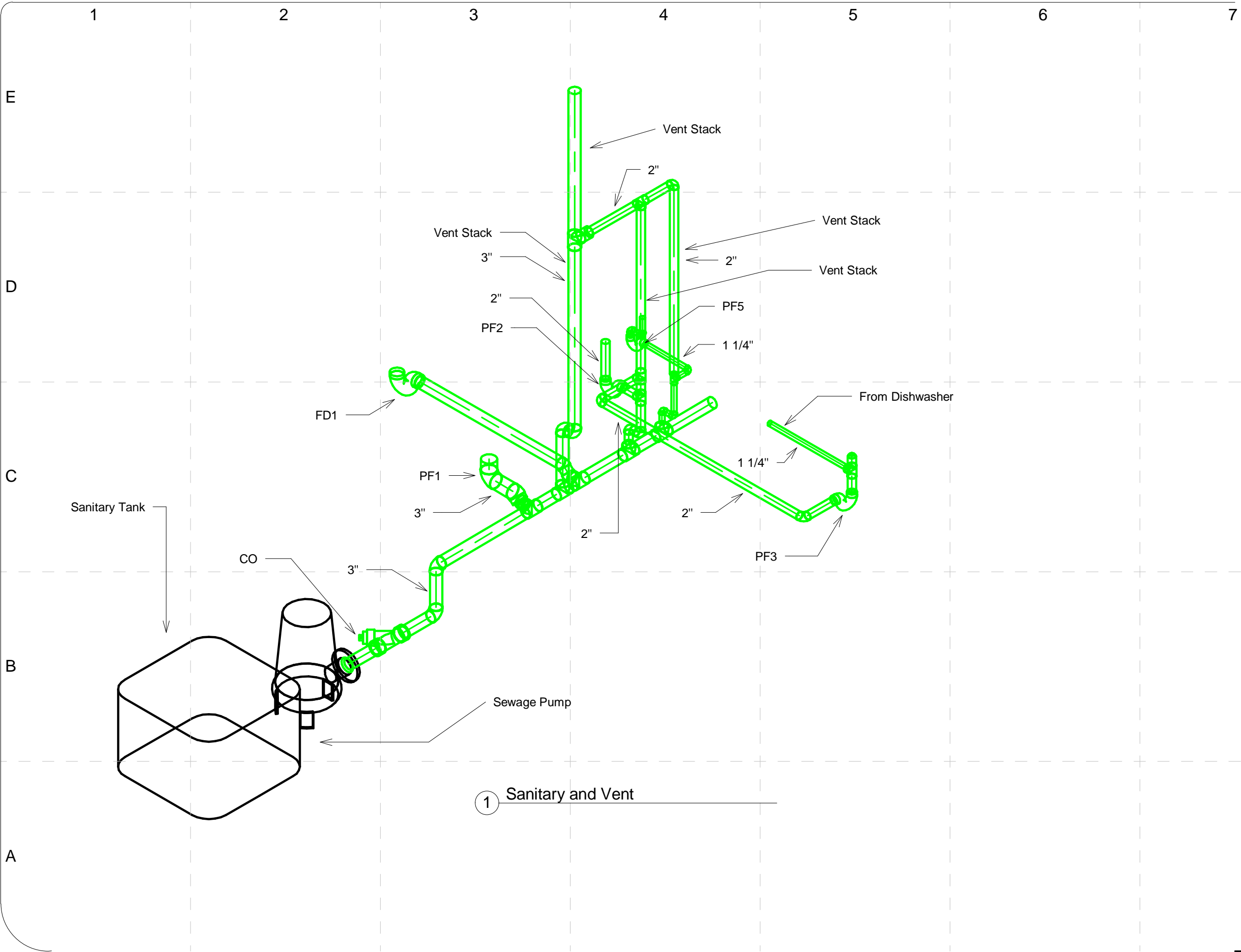
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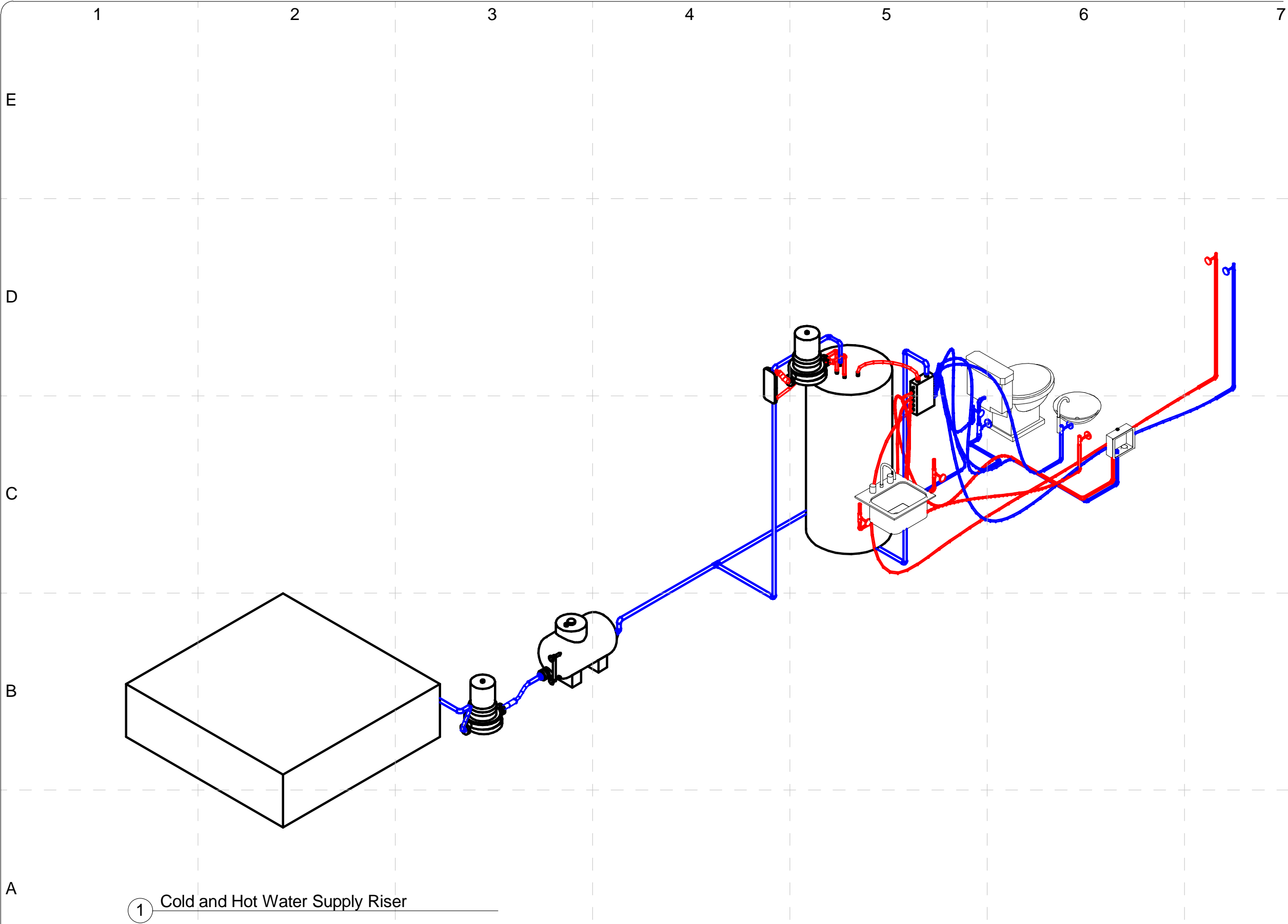
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SHEET TITLE:

Sanitary Waste and Vent Schematic

P-602



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SHEET TITLE:

Domestic Hot and Cold Water Supply Schematic



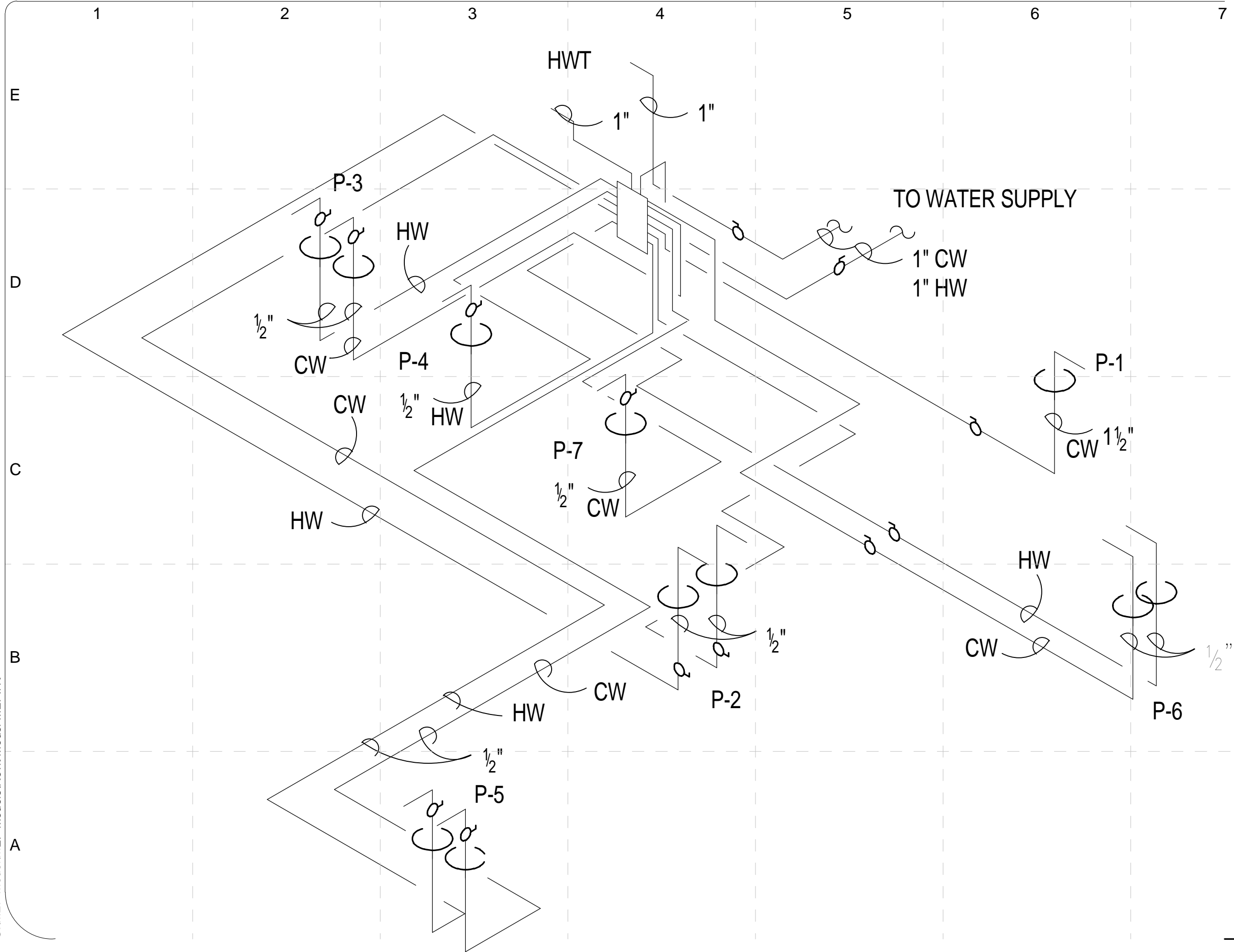
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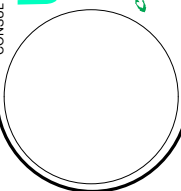




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DGC

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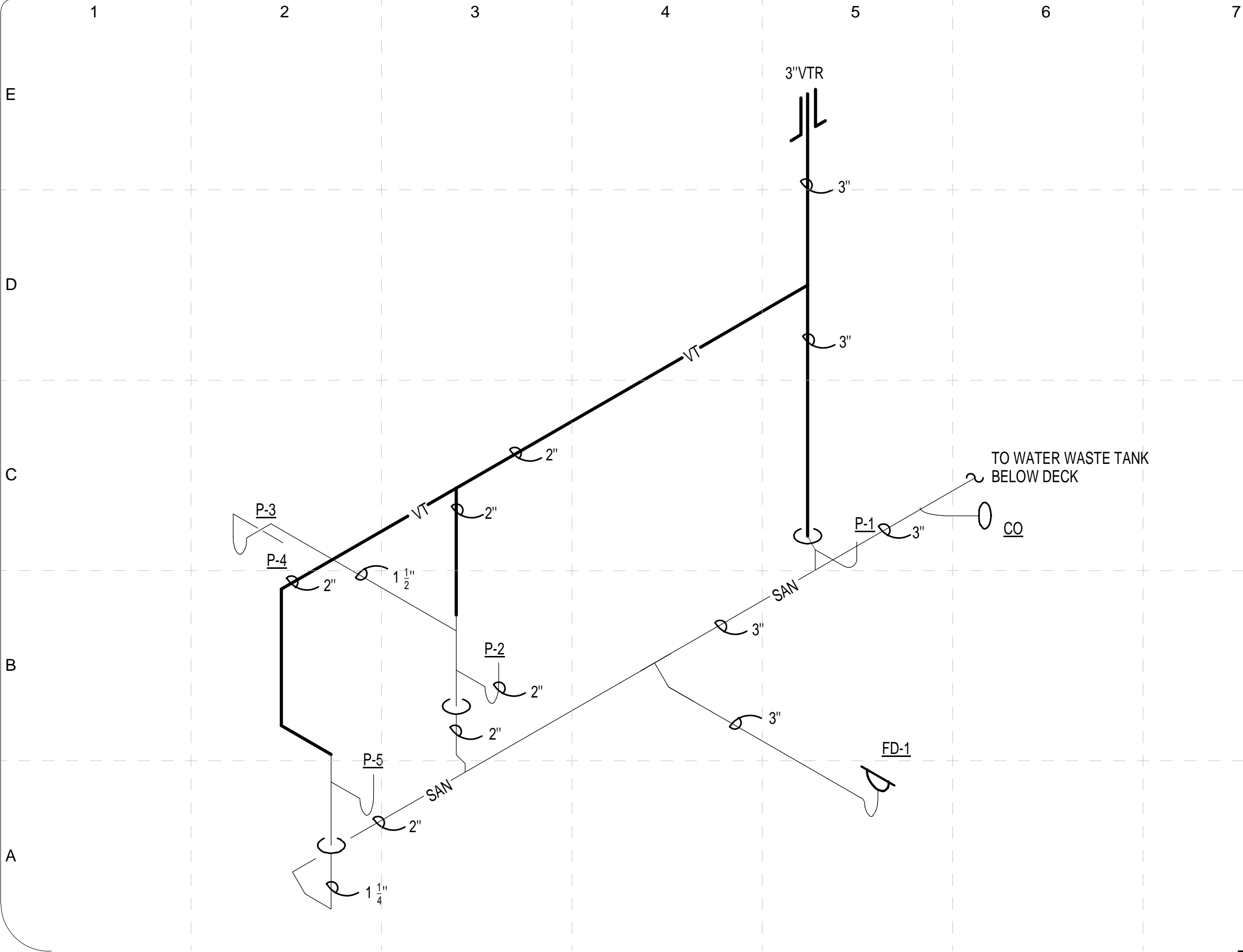
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SHEET TITLE:

Cold And Hot Water
Riser

P - 901

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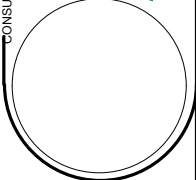


P-902

SHEET TITLE:
Sanitary and Vent
Riser

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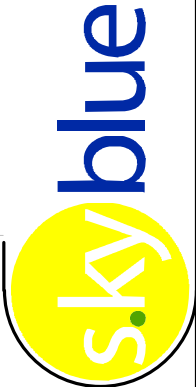
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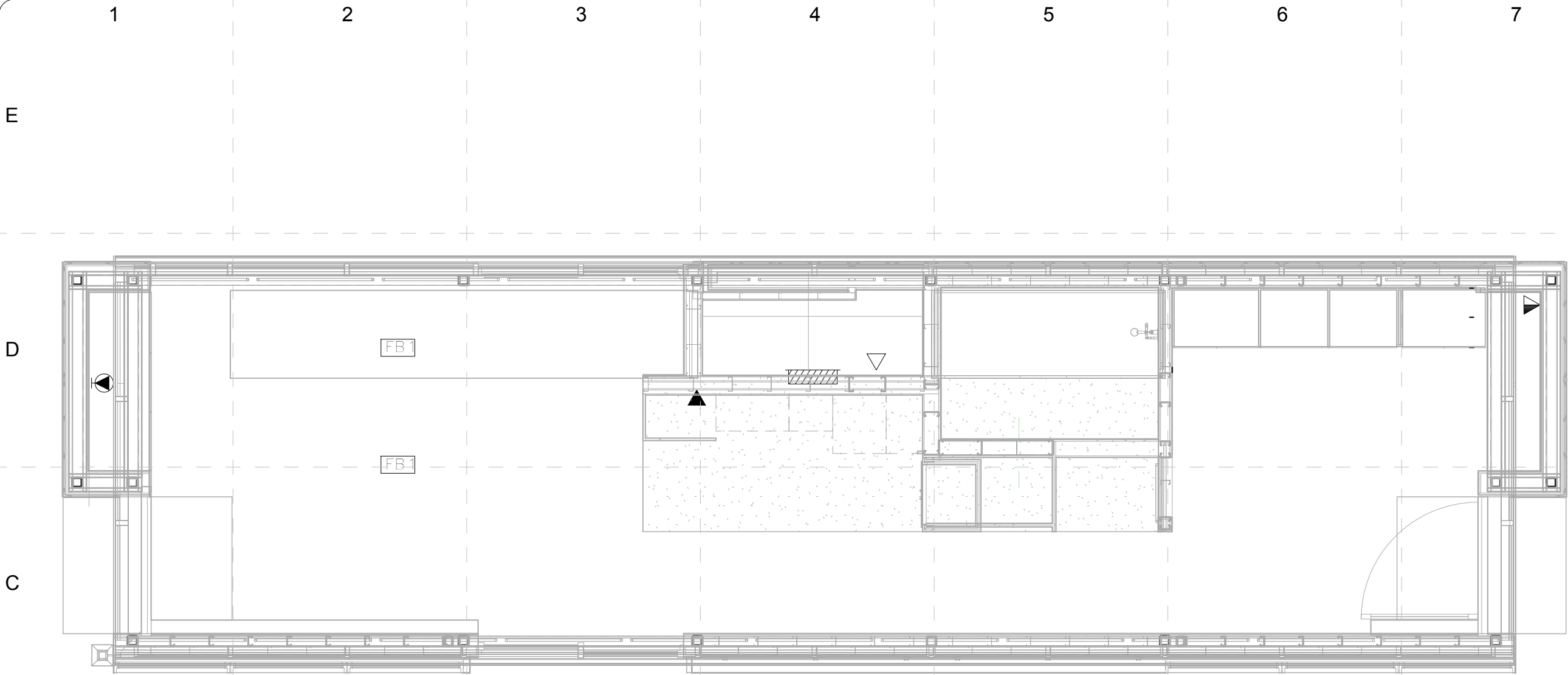
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1 SCHEMATIC PLAN
SCALE: 1/4" = 1'-0"

LEGEND

- 1 DATA/1 VOICE
- FLOOR BOXES (1D/1V)
- 1 VOICE
- CABLE TV JACK
- 1 DATA



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SHEET TITLE:
Schematic Plan

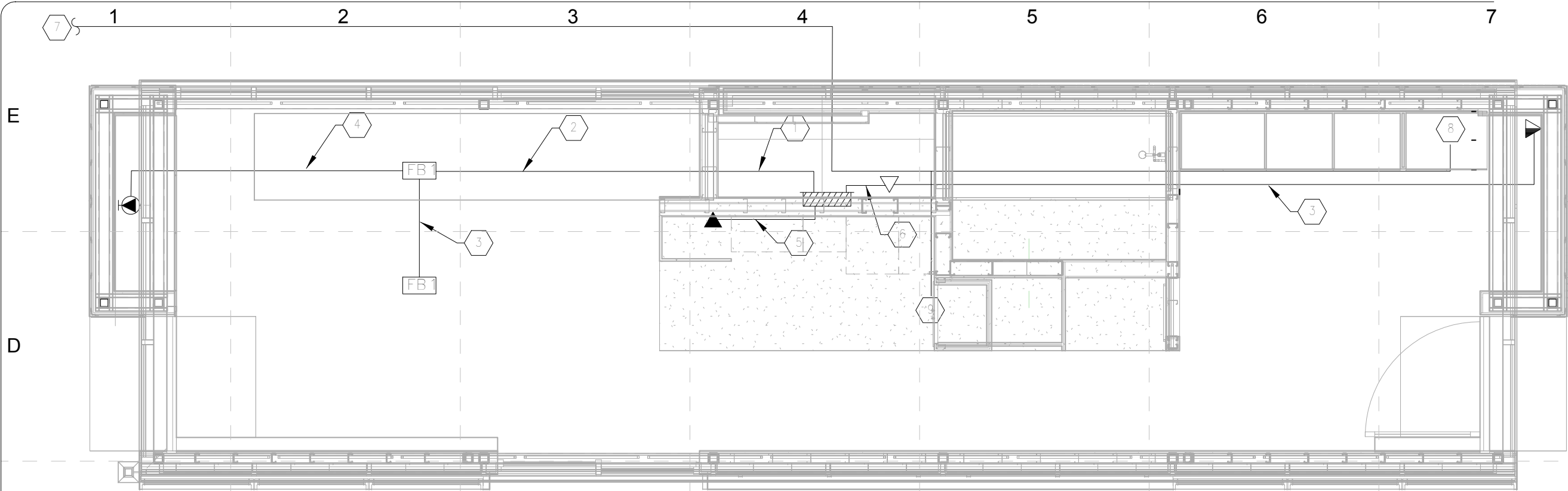
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TAGGED NOTES:

1. PANEL CONTAINS CONNECTION PORTS FOR CABLE, VOICE, AND DATA LINES TO THE HOUSE
2. PROVIDE 2 CAT5 DATA CABLES, 2 CAT5 VOICE CABLES AND 1 RG6 CABLE IN 3/4" CONDUIT.
3. PROVIDE 1 CAT5 DATA CABLES, 1 CAT5 VOICE CABLE IN 3/4" CONDUIT.
4. PROVIDE 1 RG6 CABLE IN 3/4" CONDUIT.
5. PROVIDE 1 CAT5 VOICE CABLE IN 3/4" CONDUIT.
6. PROVIDE 2 CAT5 DATA CABLES, 1 CAT5 VOICE CABLES 3/4" CONDUIT.
7. CONNECT CONTROL WIRES NEEDED FOR COMPETITION IN 1" PVC CONDUIT TO DATALINK RECEIVING BOX.
8. EXTEND 1" PVC CONDUIT WITH PULL STRING TO COMPUTER DESK FOR LIGHT METER.
9. EXTEND 1" PVC CONDUIT WITH PULL STRING TO STUB OUT FOR METERING COMPETITIONS IN THIS AREA.

LEGEND

- 1 DATA/1 VOICE
- FLOOR BOXES (1D/1V)
- 1 VOICE
- CABLE TV JACK
- 1 DATA

1 WIRING DIAGRAM

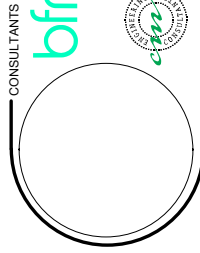
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SHEET TITLE:

Wiring Diagram



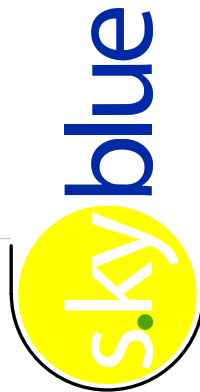
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R-001

SHEET TITLE:

Resources Symbols
and Notes

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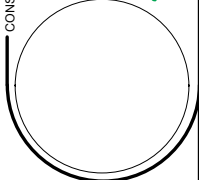
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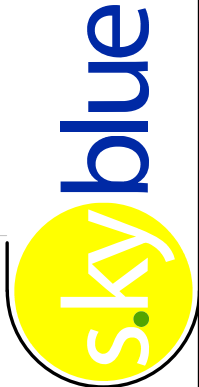
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R-901

SHEET TITLE:

Client Site Plans

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Other Disciplines
Symbols and Notes

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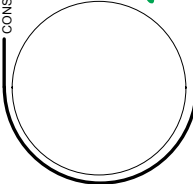
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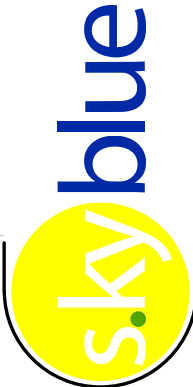
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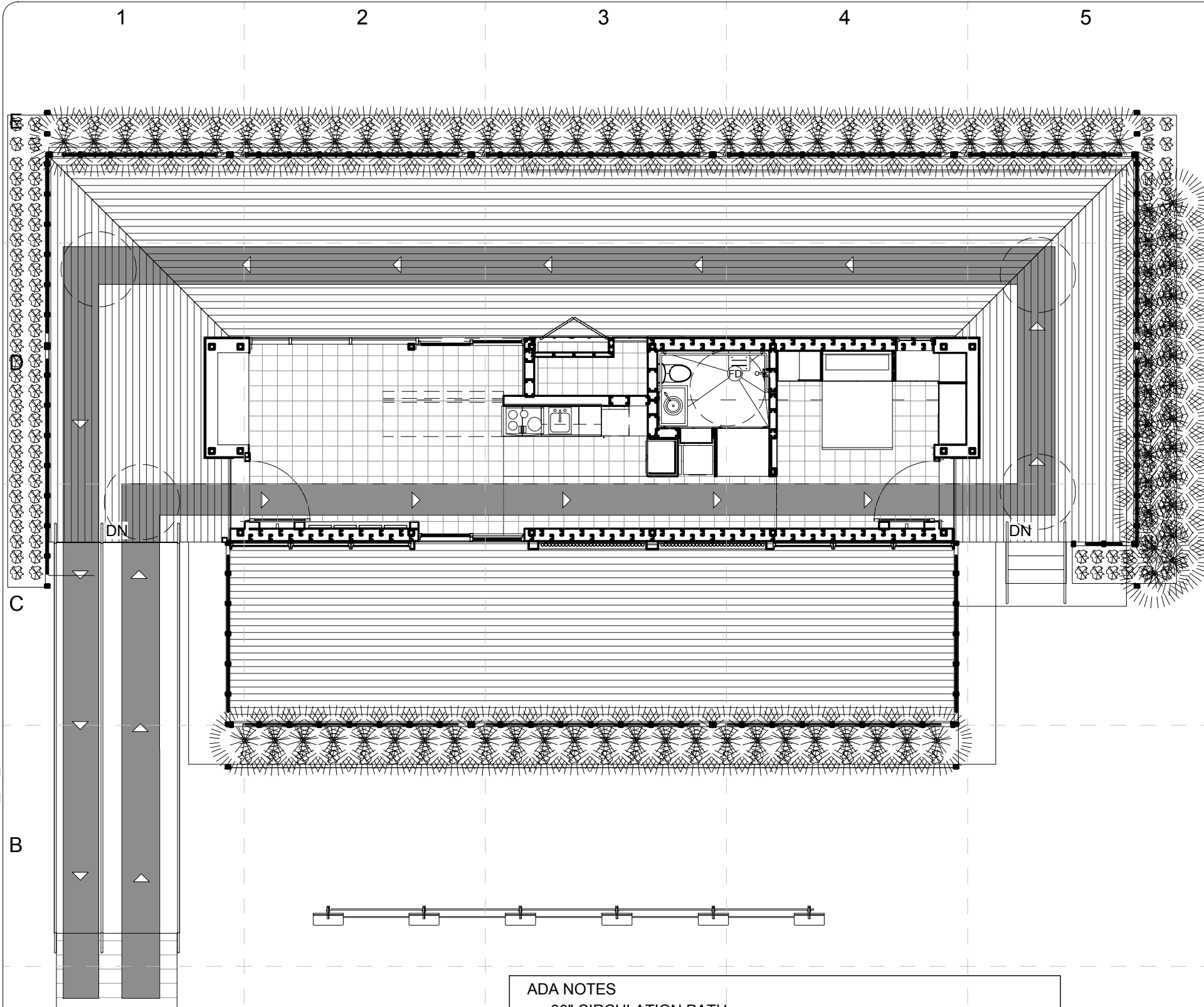
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- ADA NOTES**
- 30" CIRCULATION PATH
 - WIDTH OF ALL CORRIDORS, DOORWAYS AND ENTRIES \geq 36"
 - 5' TURNAROUND CIRCLES PROVIDED IN 45° TURNING POINTS, BATHROOM, AND BACK ENTRANCE WAY
 - 7' WIDTH SLOPED DECKPATH UNDER A 1:20 SLOPE FOR 2-WAY CIRCULATION

1 ADA TOUR PLAN
SCALE: 1/8" = 1'-0"

2 ADA NOTES
SCALE: 1/8" = 1'-0"

INTERNATIONAL RESIDENTIAL CODE
SECTION R311 MEANS OF EGRESS

R311.3 HALLWAYS
THE MINIMUM WIDTH OF A HALLWAY SHALL BE NOT LESS THAN 3' (914 MM).

R311.4 DOORS
R311.4.1 EXIT DOOR REQUIRED
NOT LESS THAN ONE EXIT DOOR CONFORMING TO THIS SECTION SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE REQUIRED EXIT DOOR SHALL PROVIDE FOR DIRECT ACCESS FROM THE HABITABLE PORTIONS OF THE DWELLING TO THE EXTERIOR WITHOUT REQUIRING TRAVEL THROUGH A GARAGE. ACCESS TO HABITABLE LEVELS NOT HAVING AN EXIT IN ACCORDANCE WITH THIS SECTION SHALL BE BY A RAMP IN ACCORDANCE WITH SECTION R311.6 OR A STAIRWAY IN ACCORDANCE WITH SECTION R311.5



R311.4.2 DOOR TYPE AND SIZE
THE REQUIRED EXIT DOOR SHALL BE A SIDE-HINGED DOOR NOT LESS THAN 3' (914 MM) IN WIDTH AND 6' 8" (2032MM) IN HEIGHT. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS.

R311.4.3 LANDINGS AT DOORS
THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF EACH EXTERIOR DOOR. THE FLOOR OR LANDING AT THE EXTERIOR DOOR SHALL NOT BE MORE THAN 1.5 INCHES (38 MM) LOWER THAN THE TOP OF THE THRESHOLD. THE LANDING SHALL BE PERMITTED TO HAVE A SLOPE NOT TO EXCEED 0.25 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT).

R311.6 RAMPS
R311.6.1 MAXIMUM SLOPE
RAMPS SHALL HAVE A MAXIMUM SLOPE OF ONE UNIT VERTICAL IN TWELVE UNITS HORIZONTAL (8.3-PERCENT SLOPE)

R311.6.2 LANDINGS REQUIRED
A MINIMUM 3-FOOT-BY-3-FOOT LANDING SHALL BE PROVIDED:
1. AT THE TOP AND BOTTOM OF RAMPS
2. WHERE DOORS OPEN ONTO RAMPS
3. WHERE RAMPS CHANGE DIRECTION

R311.6.3 GABDRAILS REQUIRED
HANDRAILS SHALL BE PROVIDED ON AT LEAST ONE SIDE OF ALL RAMPS EXCEEDING A SLOPE OF ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL.
R311.6.3.1 HEIGHT-- HANDRAIL HEIGHT, MEASURED ABOVE THE FINISHED SURFACE OF THE RAMP SHALL BE NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES.
R311.6.3.2 HANDRAIL GRIP SIZE--HANDRAILS ON RAMPS SHALL COMPLY WITH SECTION R311.5.6.3
R311.6.3.3 CONTINUITY-- HANDRAILS WHERE REQUIRED ON RAMPS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE RAMP. HANDRAIL ENDS SHALL BE RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1.5 INCHES BETWEEN WALL AND HANDRAILS.



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SHEET TITLE:

Site Accessibility -
ADA Tour Plan

X-101

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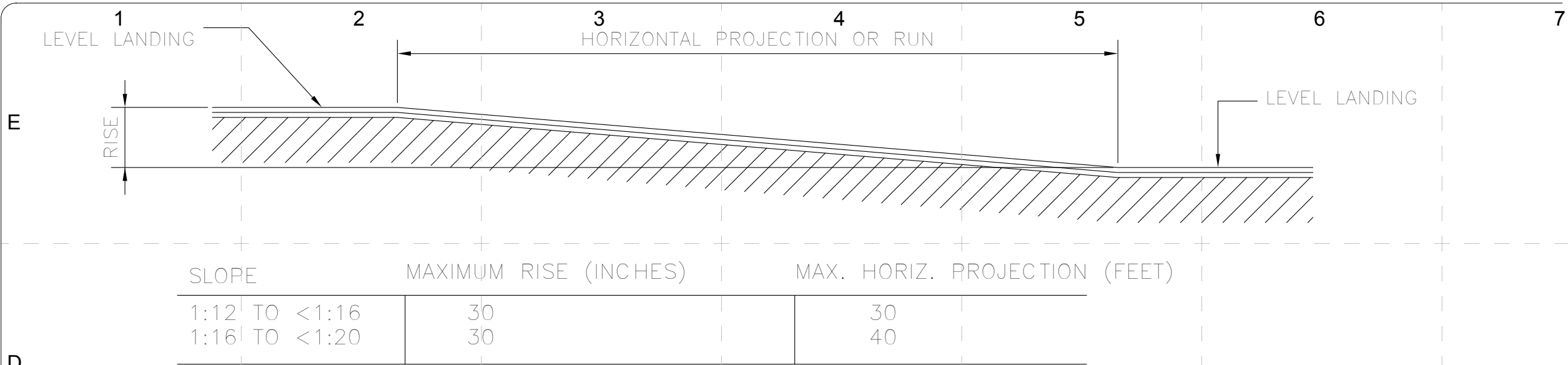
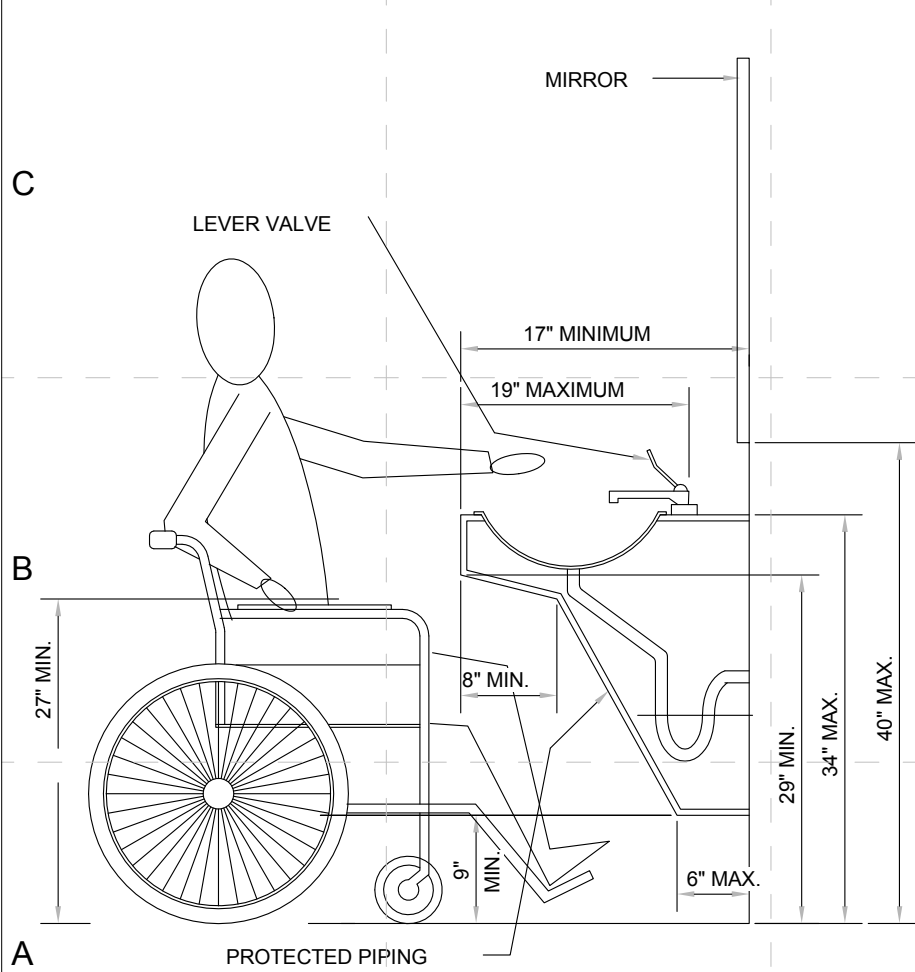
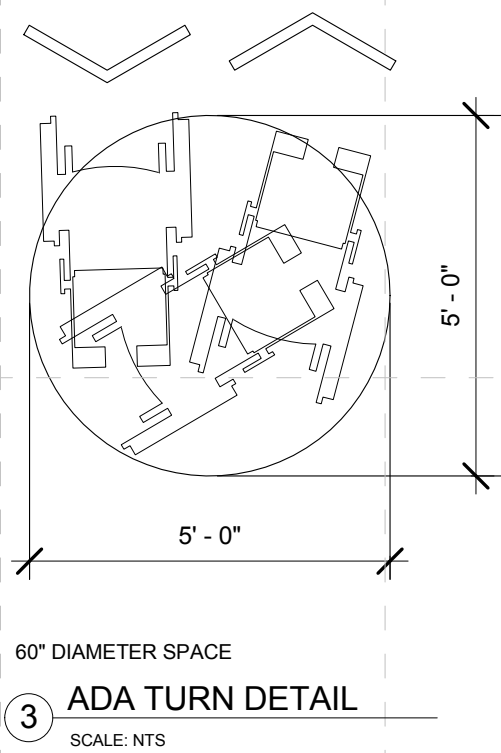


FIG. 16
COMPONENTS OF A SINGLE RAMP AND SAMPLE RAMP DIMENSIONS

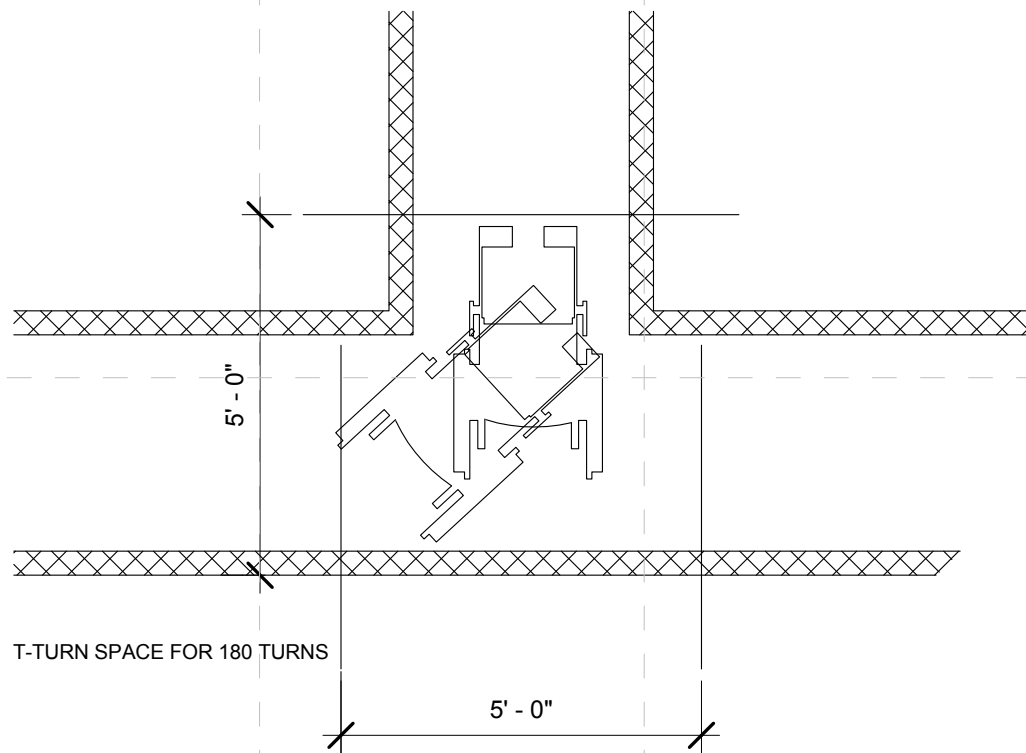
1 ADA RAMP STANDARDS
SCALE: NTS



2 ADA LAV STANDARDS
SCALE: NTS



3 ADA TURN DETAIL
SCALE: NTS



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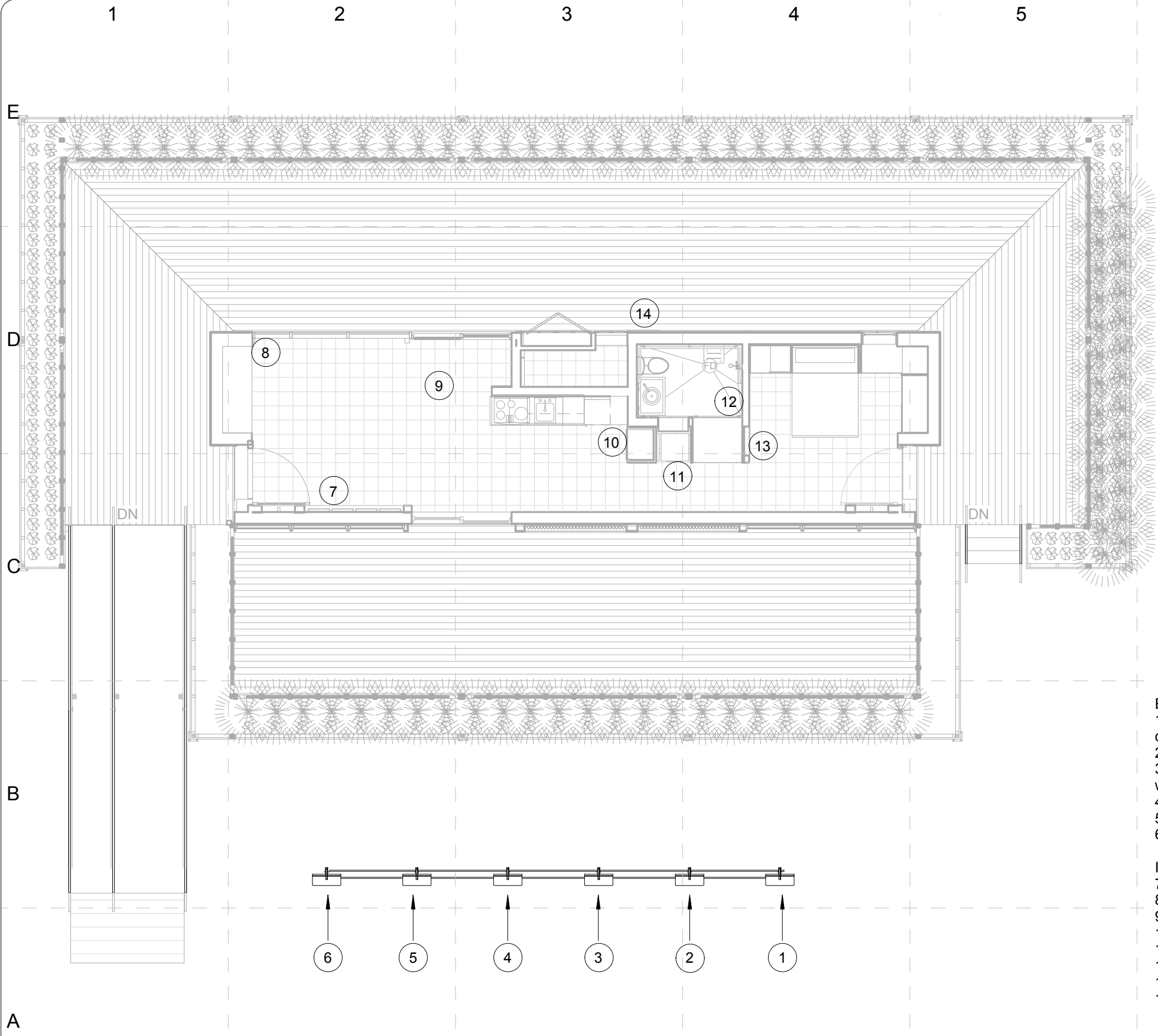
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COMMENTS

SHEET TITLE:



ADA Standards

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1 EXHIBIT FLOOR PLAN
SCALE: 1/8" = 1'-0"

- Exterior Displays
- 1. What does it mean to live under the sun: design concept and goals
 - 2. Sustainability in the design
 - 3. Creating energy with PV panels, integration with the design
 - 4. The house changing for the resident's needs
 - 5. Kentucky Landscaping
 - 6. Key details to look for, floor and tour plan
- Interior Displays
- 7. Entrance
 - 8. Entertainment Center and Living Space
 - 9. Dining Area
 - 10. Kitchen
 - 11. Washer/Drier
 - 12. Bathroom
 - 13. Bedroom
 - 14. Mechanical Room (systems)



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SHEET TITLE:

Public Exhibit Plans

X-110

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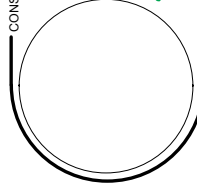


1 EXHIBIT SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



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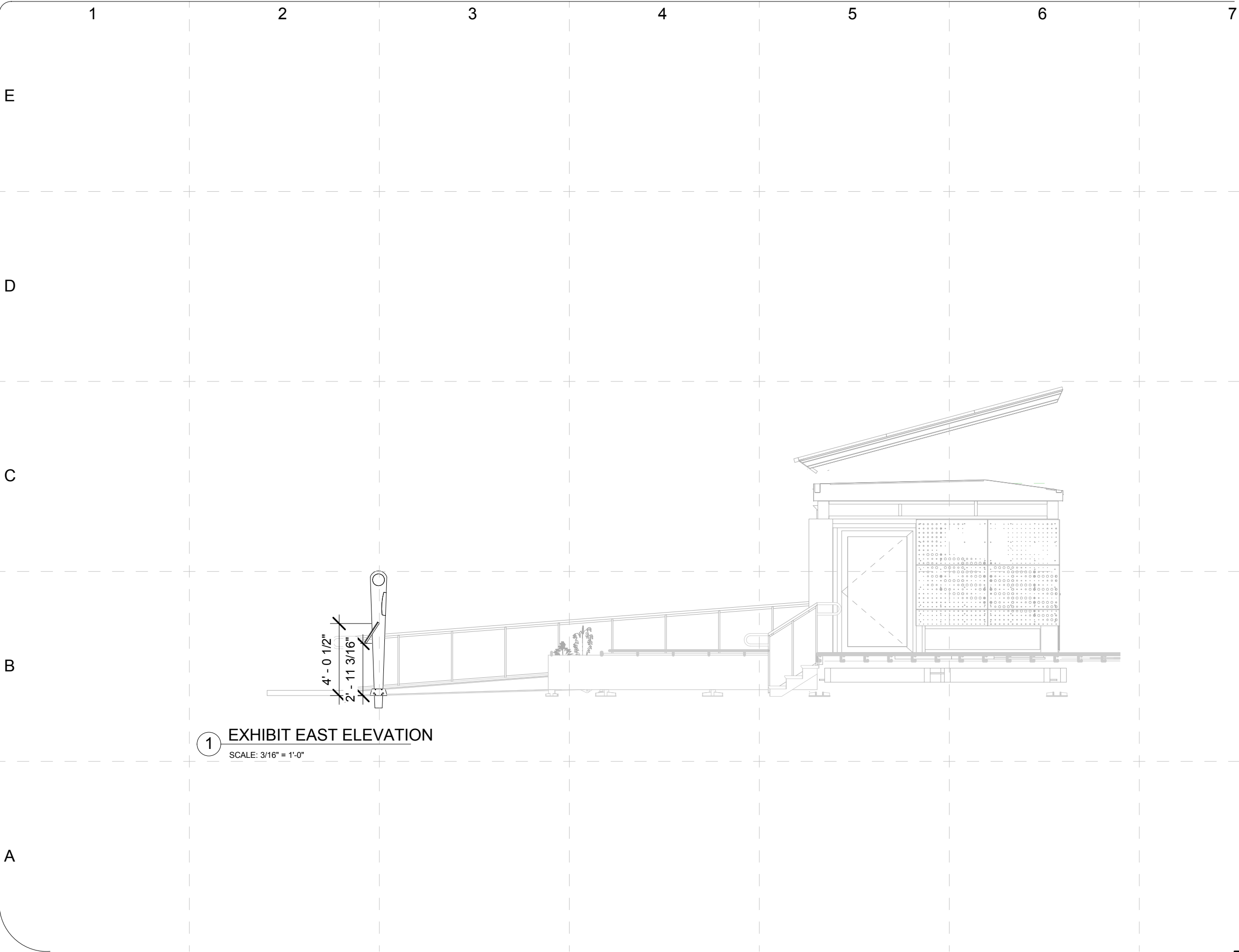
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Public Exhibit
Elevations

X-201

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1 EXHIBIT EAST ELEVATION
SCALE: 3/16" = 1'-0"

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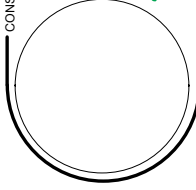
Public Exhibit
Elevations


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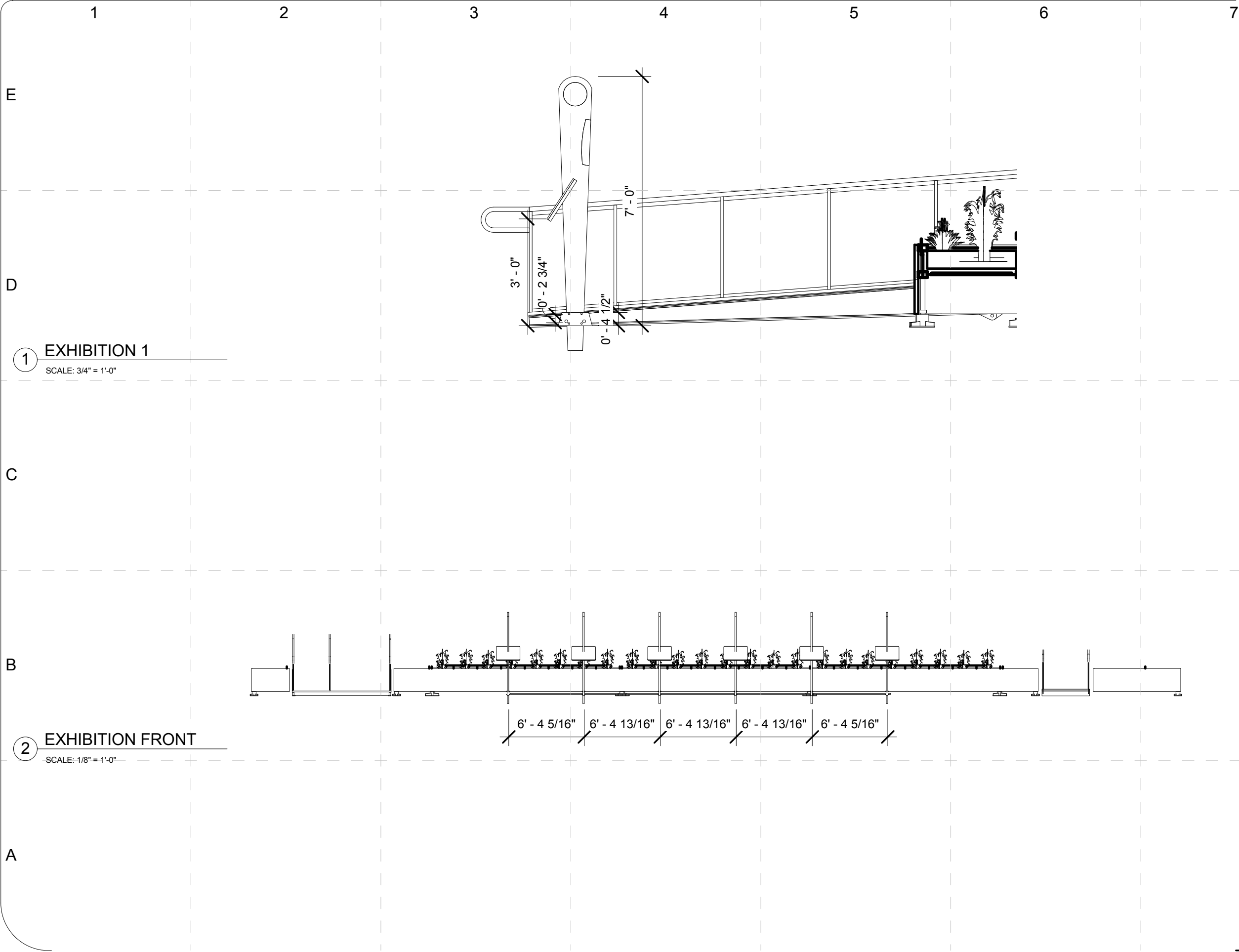

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1 EXHIBITION 1
SCALE: 3/4" = 1'-0"

2 EXHIBITION FRONT
SCALE: 1/8" = 1'-0"

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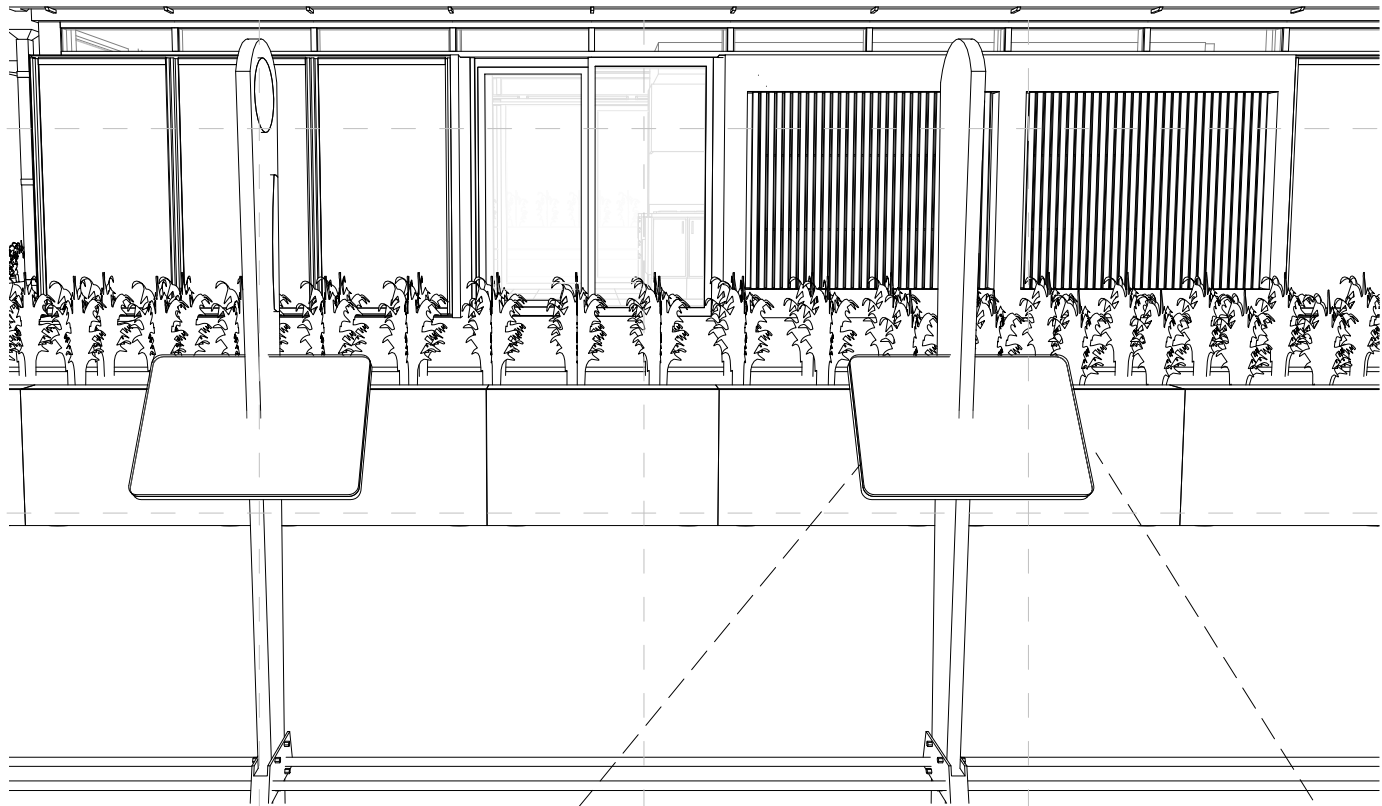
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1 PUBLIC EXHIBIT DISPLAY BOARD



EVACUATED SOLAR HOT WATER TUBES

UKY SOLAR DECTHALON

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All structures, signage, and props located in our house or on our lot will help to identify the house, extend the brand of the UKY project, and recognize the Solar Decathlon, its sponsors and UKY sponsors. In addition, the items would also serve an informational objective: Explain the UKY project to visitors before they enter the house.

The UKY team plans to display the following communication items:

- Samples of materials used for constructing the house strategically placed for visitors to interact with while waiting in line to enter and view the house.
- An informational board at the entrance of the home where the parts will be displayed as a whole
- In an effort to generate leads, the team will set up drop off boxes in strategic parts of the house for collecting business cards or contact information from visitors who need additional information about the UKY project
- A guerrilla promotional item (prop) placed somewhere on the lot to identify the house as a Kentucky production

The role of these signage posts is meant to educate the guests waiting in line, but as important, these posts place the decathlon guests in locations where there will discover something more about the building. The design team refers to these locations as view corridors.

Front and Side View Corridors

Front and side view corridors: these locations are specific to for general passerbys and guests waiting in line. The images on these panels will describe the student design and integration process and describe key details about the building that could be best understood from a distance to the project. The information gathered from these distance view corridors become increasingly more specialized and specific to our solarhouse.

Inside the Solarhouse

This learning path continues inside of the building. Upon entry distinct relationships unfold that depict the evolution of the transportation box into a solar machine for living. Once inside the signage transforms from banners to artwork. This artwork focuses specifically on the UKY team's approach to understanding the team concept of "Living under the Sun" today. In these more contemporary methods of representation, the team is designing sequential animations that depict the holistic systems approach to the design and engineering of the house. We anticipate one artwork per "room" – living room, dining room, kitchen, bathroom, bedroom, and office.

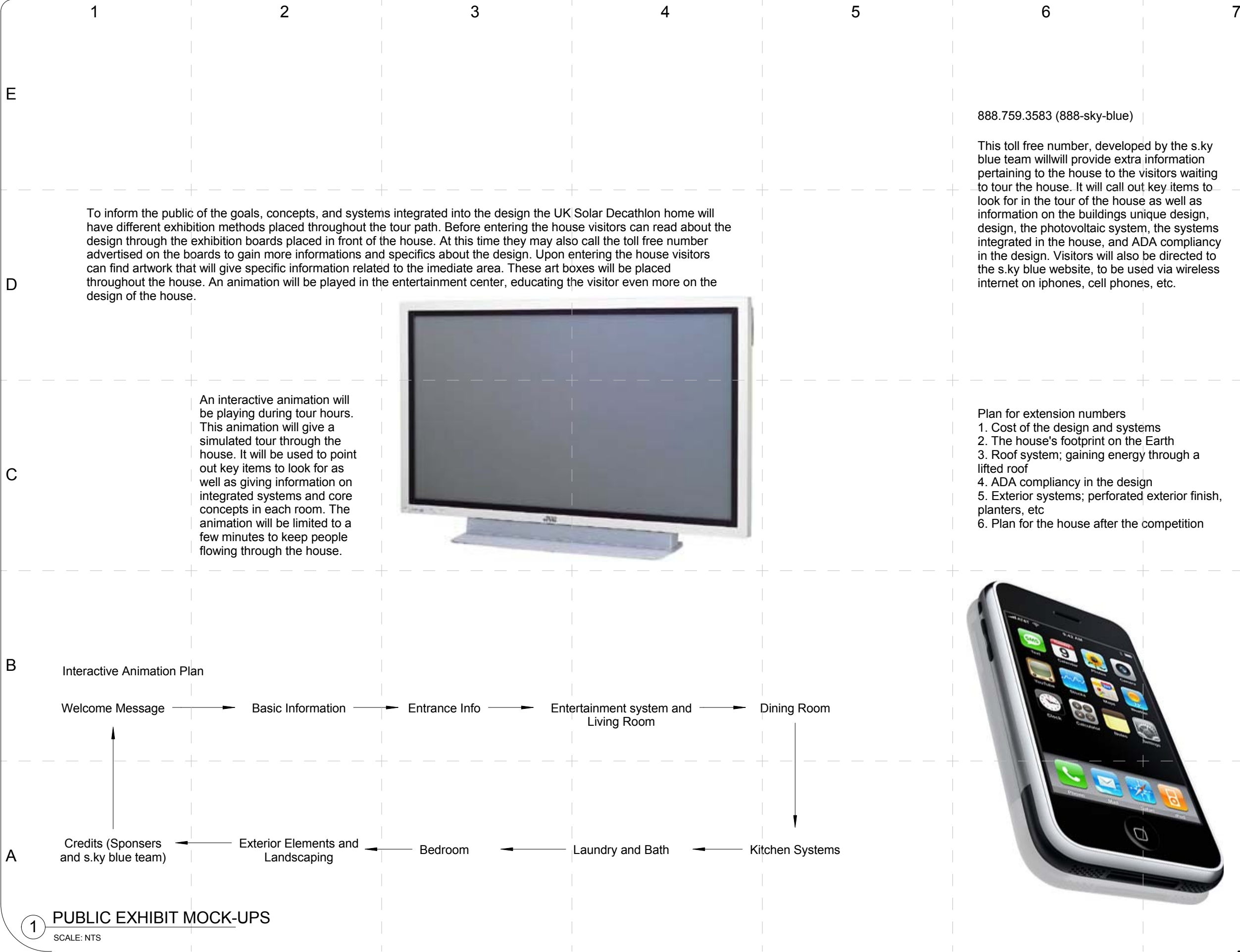
Systems Exhibit

The exhibition route continues around the north side of the building to the mechanical room (which is accessed from the exterior of the building). The mechanical room doors open 180 degrees and pocket into the façade. We are anticipating using the doors themselves as display surfaces that depict the overall systems of the house ranging from photovoltaics, radiant heating, our innovations in HVAC, and daylighting strategies.

Northern Benches

The exhibit concludes upon living the northern bench area, which offer a retreat like setting and looks back on the perforated sunscreen s of the house's northwestern facade. It is determined that upon gathering all of this data, it was necessary to create a moment of repose where our building could serve as the foreground to understanding the solar village. After a moment of rest, the exiting portions of the exhibition offer thanks and gratitude to our sponsors and address the herculean efforts of our student teams.

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MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
CD	02/16/2009	CONST. DOCUMENTS
REV	04/16/2009	
FINAL	06/02/2009	

2009 SOLAR DECATHLON
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02 JUNE 2009
www.uky.edu/solarhouse

PROJECT NO: UKY _SD2009

DRAWN BY: Author

APPROVED BY: Approver

DATE CREATED: 02/06/09

DATE RECEIVED: 02/06/09

COMMENTS:

SHEET TITLE:

Public Exhibit
Mock-ups

X-502

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A

This section will inform the viewers about Photovoltaic panels, how they create energy with the sun, and how the team has integrated them into the design.

B


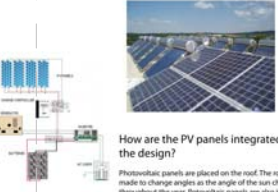
Photovoltaic Panels

How do Photovoltaic Panels work?

Light strikes the solar cells and causes electrons to move. This creates an electric current. The more light that strikes the solar cells, the more electricity is produced.

How are the PV panels integrated in the design?

Photovoltaic panels are placed on the roof. The roof is made to change angles as the angle of the sun changes throughout the year. Photovoltaic panels are also integrated into the facade of the building to allow the building to achieve net zero.



C

This section will inform people of the original concepts and goals that the UK Solar Decathlon team used in their designing schemes for the house

Living Under the Sun

Design concepts and Goals

Goals in designing the University of Kentucky Solar Decathlon house:

- achieving net zero with optimizing Photovoltaic solar intake and using energy efficient appliances
- creating a design that is intriguing as well as functional
- showing the Kentucky vernacular through material choices, landscaping, building design, and incorporated furniture.
- creating a completely livable environment that is self-servicing and able to adapt to the resident's needs.

In designing the Solar Decathlon home, the University of Kentucky SD team worked towards creating a self-sufficient home that was accessible to all while also answering the question "what does it mean to live under the sun?" The team hoped to achieve this by creating a home that used the sun's energy in the most efficient way possible and creating an environment that used the sun to light the space inside through a sun roof and clerestory windows.



D

This section will speak of the integrated systems throughout the house and their purpose in making the house livable and enjoyable to the residents.

Systems to look for

ADA Compliance in the Kitchen

Self lowering shelves: the cabinet shelving for dining area and food storage with a push of a button to make it easier to reach.

Counter design: counters are placed at a height of 34" and 48" to allow for wheelchair access.

Stairs: Ramps and stairs are placed at a height of 34" and 48" to allow for wheelchair access.

Bathroom Design

Open Shower: the shower was designed as open to the rest of the bathroom. Creating off the shower would have created an issue in ADA compliance. The floor of the bathroom is therefore sloped to allow drainage of the shower water.



Water: shower floor is made of a non-slip material to prevent slipping.

Bedroom

Shower: the shower was designed as open to the rest of the bathroom. Creating off the shower would have created an issue in ADA compliance. The floor of the bathroom is therefore sloped to allow drainage of the shower water.

Laundry Area

The area for the washer and dryer was designed to be hidden from sight when company was around. The cabinets above the washer and dryer contain storage as well as a pull out hanging shelf for hanging clothes.




Sustainability

What is sustainability?

Sustainability is the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.

How is sustainability integrated into the design?

In the University of Kentucky Solar Decathlon house the team worked hard to integrate sustainability into the house as much as possible while also keeping an eye on their budget. Much of the sustainability can be found in the chosen mechanical systems throughout the house. The systems have been thoroughly studied to see what uses the least amount of energy while also being efficient and getting the job done. Use of water was also studied. The team chose appliances that were 5 star and saved water. These appliances range from the washer to the toilet. Another sustainable application used in the design is the materials chosen. The team elected to use either recyclable materials or materials that are categorized as sustainable throughout the house.



This section will inform the viewers of the Kentucky landscaping used during the competition and how the plants relate to Kentucky.

Kentucky Landscaping

Goldenrod

The Goldenrod is a native plant of Kentucky. It is a hardy plant that grows in a variety of soils. It is a yellow flower that grows in a cluster.

Blue Fescue

Blue Fescue is a native plant of Kentucky. It is a hardy plant that grows in a variety of soils. It is a blue flower that grows in a cluster.

Indian Grass


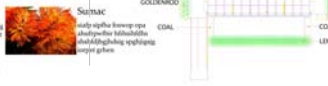
Indian Grass is a native plant of Kentucky. It is a hardy plant that grows in a variety of soils. It is a yellow flower that grows in a cluster.

Spartan

Spartan is a native plant of Kentucky. It is a hardy plant that grows in a variety of soils. It is a yellow flower that grows in a cluster.

Kentucky Coffee Tree


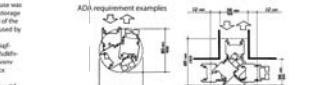
The Kentucky Coffee Tree is a native plant of Kentucky. It is a hardy plant that grows in a variety of soils. It is a yellow flower that grows in a cluster.



The Design Changing for the Resident

One of the main goals in the UK solar decathlon house was to make a completely ADA compliant house. While some major spaces are unavailable for those in wheelchairs, all of the important appliances are made to be reached and used by the disabled.

Another goal of the design was to make the house accessible to all. The team worked hard to make the house accessible to all. The team worked hard to make the house accessible to all. The team worked hard to make the house accessible to all.



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UK
UNIVERSITY OF
KENTUCKY

skyblue

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X-601

Accessibility
Schedules

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2009 SOLAR DECATHLON
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02.JUNE.2009
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APPROVED BY:

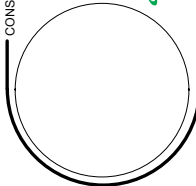
Approver

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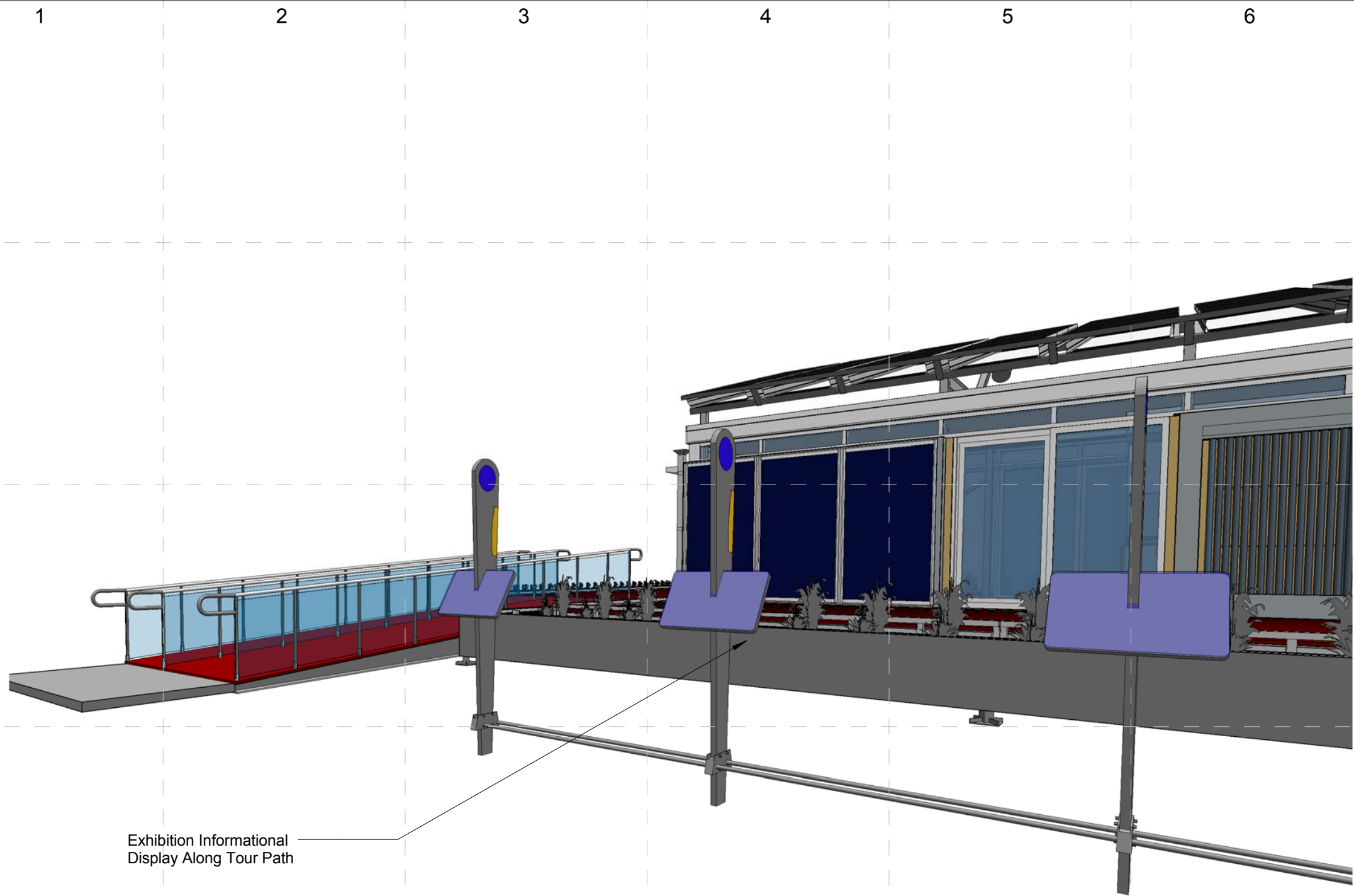
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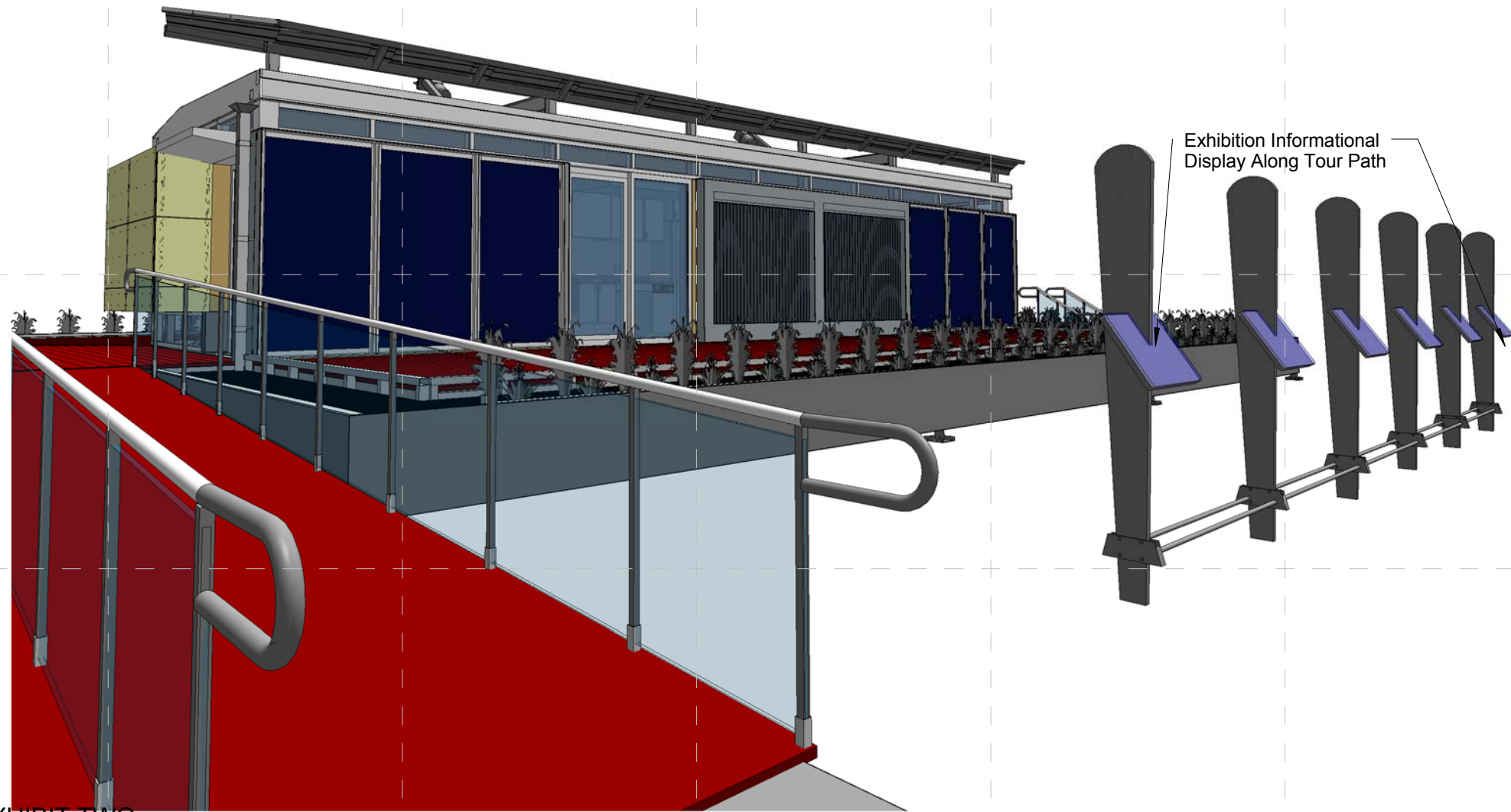
COMMENTS

SHEET TITLE:

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Renderings

X-901

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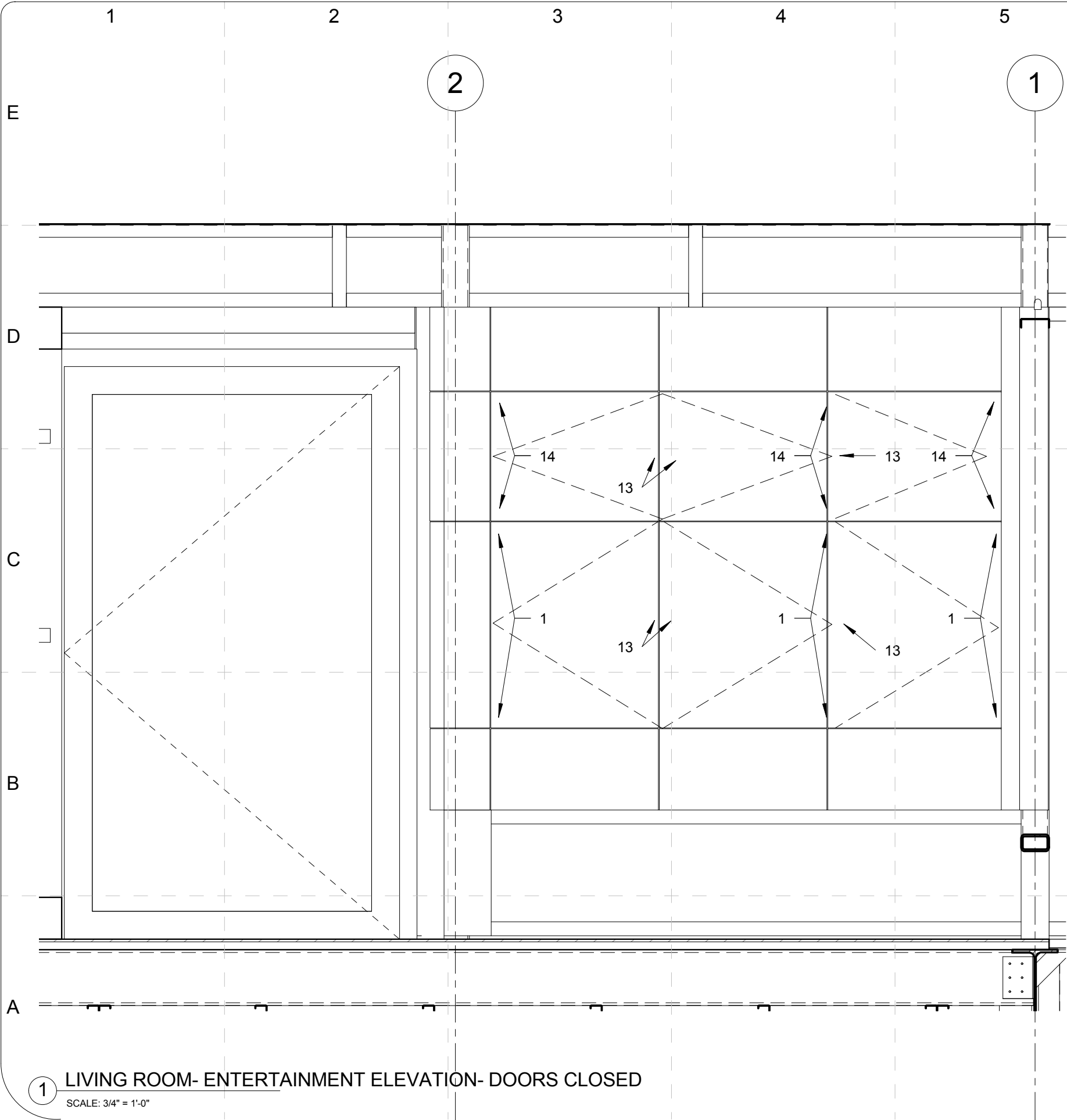
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SCHEDULE A - LIVING ROOM - WEST ELEVATION-DOORS CLOSED

1	Pocket Door	Accuride	CB123
13	Pull Handle	Hafele	903.00.403
14	Concealed Hinges	Hafele	C2PPA99

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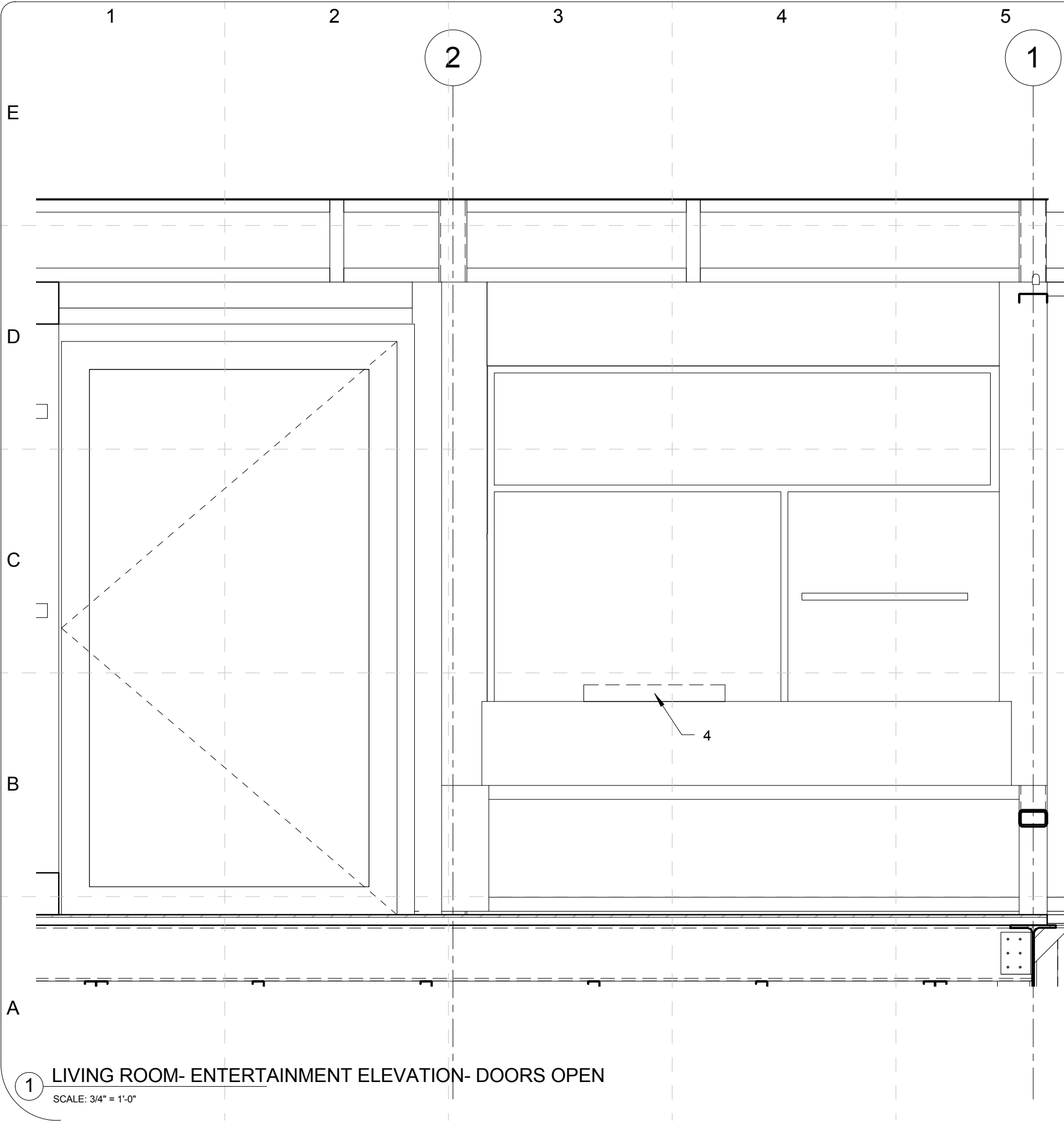
COMMENTS

SHEET TITLE:

Details - Millwork -
Living Room

Z - 501

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1 LIVING ROOM- ENTERTAINMENT ELEVATION- DOORS OPEN

SCALE: 3/4" = 1'-0"

SCHEDULE B- LIVING ROOM- WEST ELEVATION-DOORS OPEN

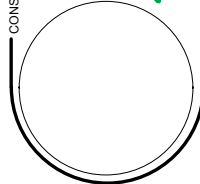
4 Shelf Unit Accuride CBMAC-50

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PROJECT NO: UKY _SD2009	DESIGNED BY: JEM	DATE: 09/14/08	DATE RECEIVED: 09/14/08
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COMMENTS			

SHEET TITLE:

Details - Millwork -
Living Room

Z - 502



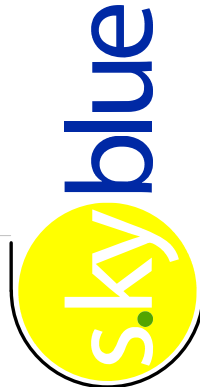
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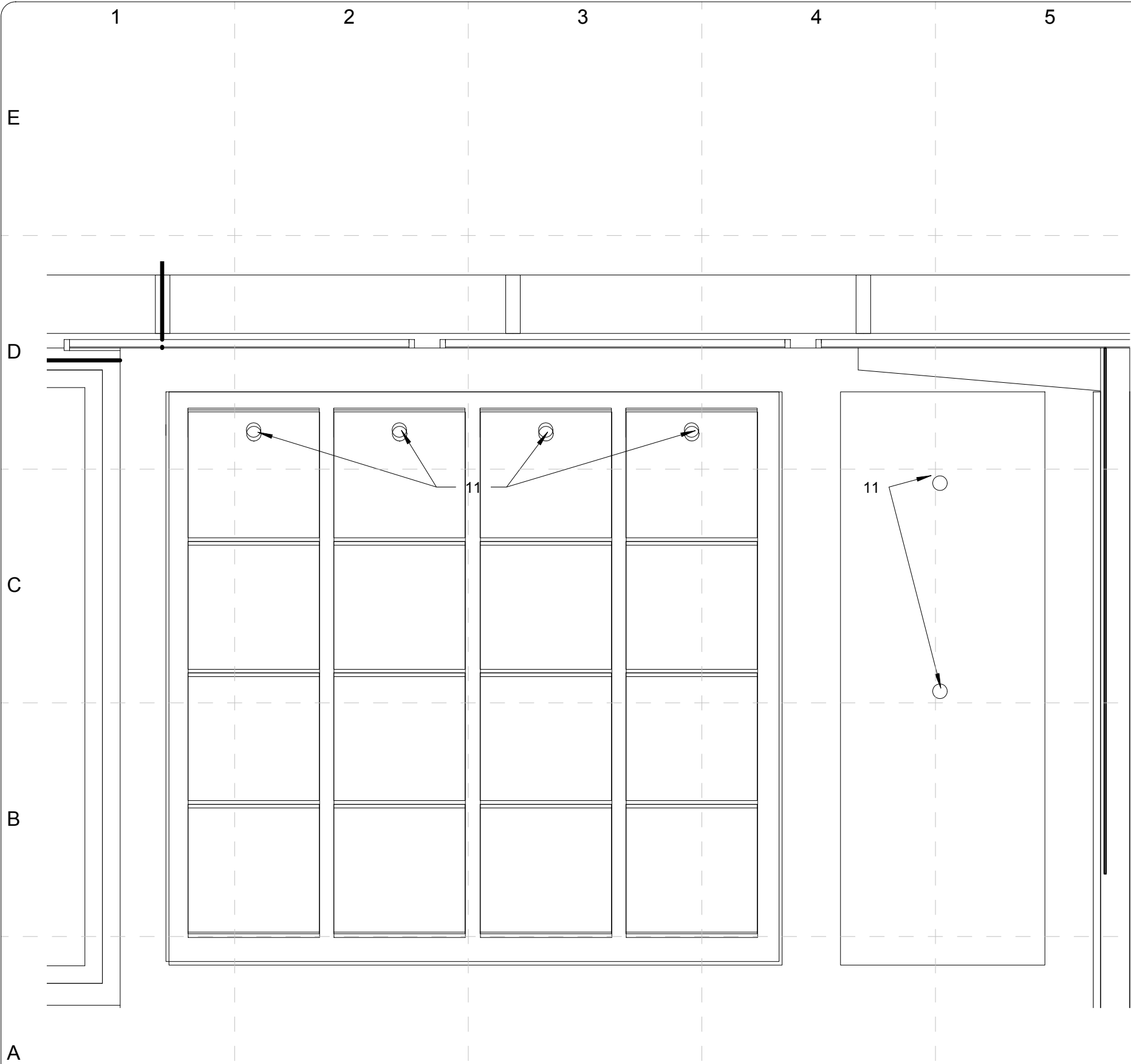
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1 LIVING ROOM- CHAIRWALL ELEVATION
SCALE: 3/4" = 1'-0"

SCHEDULE C - LIVING ROOM- SOUTH ELEVATION- CHAIR WALL

11 Button Coat Hook Mockett CH23

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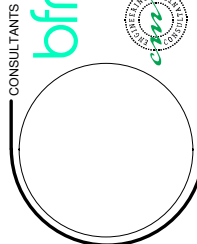
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SHEET TITLE:

Details - Millwork -
Living Room

Z - 503

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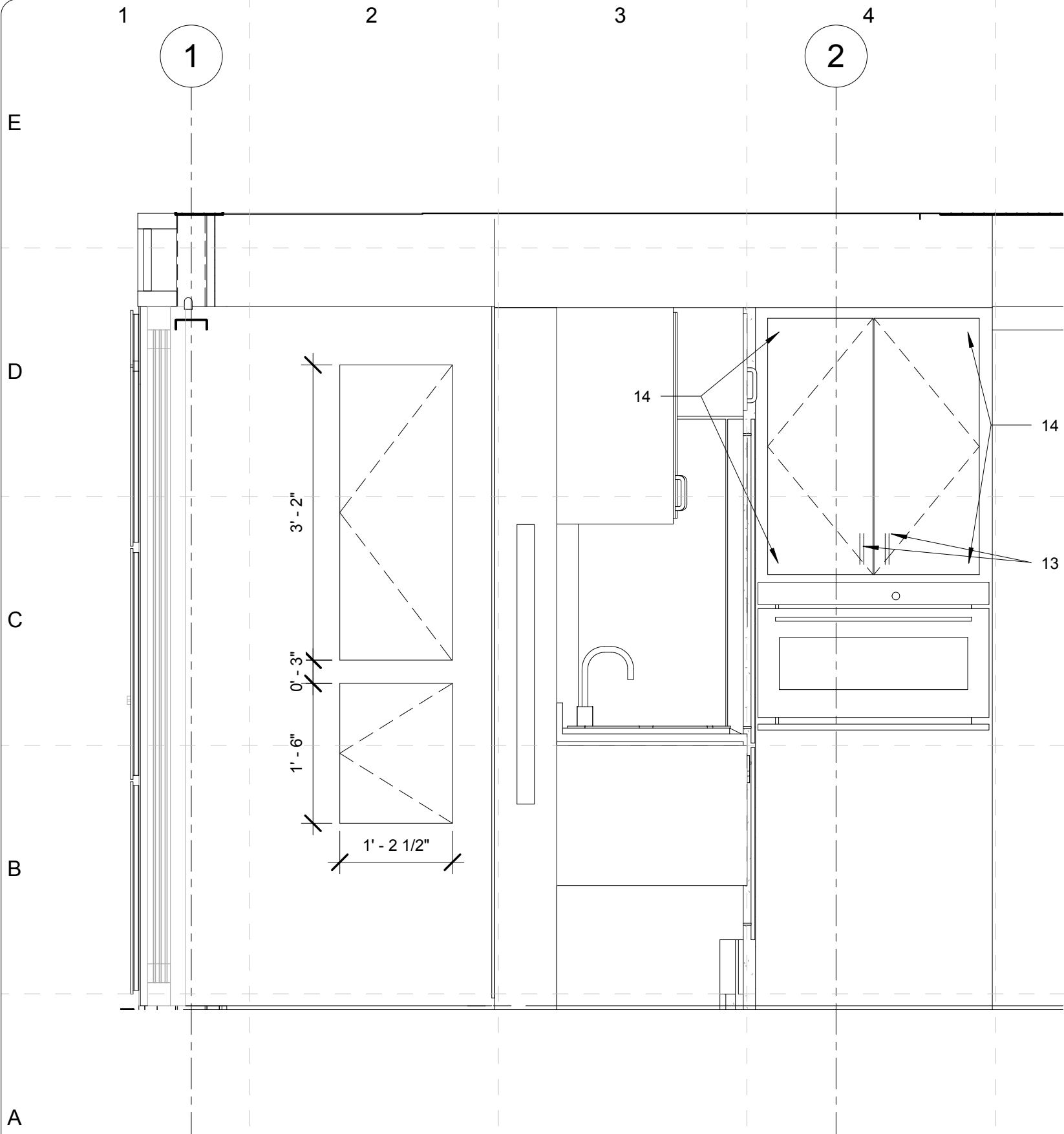


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1

KITCHEN/DINING ROOM- EAST ELEVATION

SCALE: 3/4" = 1'-0"



SCHEDULE D- KITCHEN/DINING ROOM- EAST ELEVATION

13	Pull Handle	Hafele	903.00.403
14	Concealed Hinges	Hafele	C2PPA99

SHEET TITLE:

Details - Millwork - Dining Room/Kitchen

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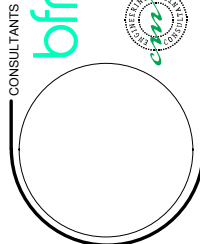
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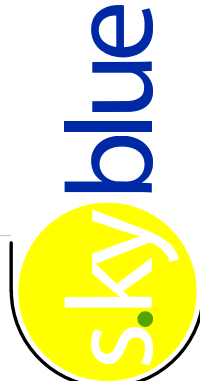
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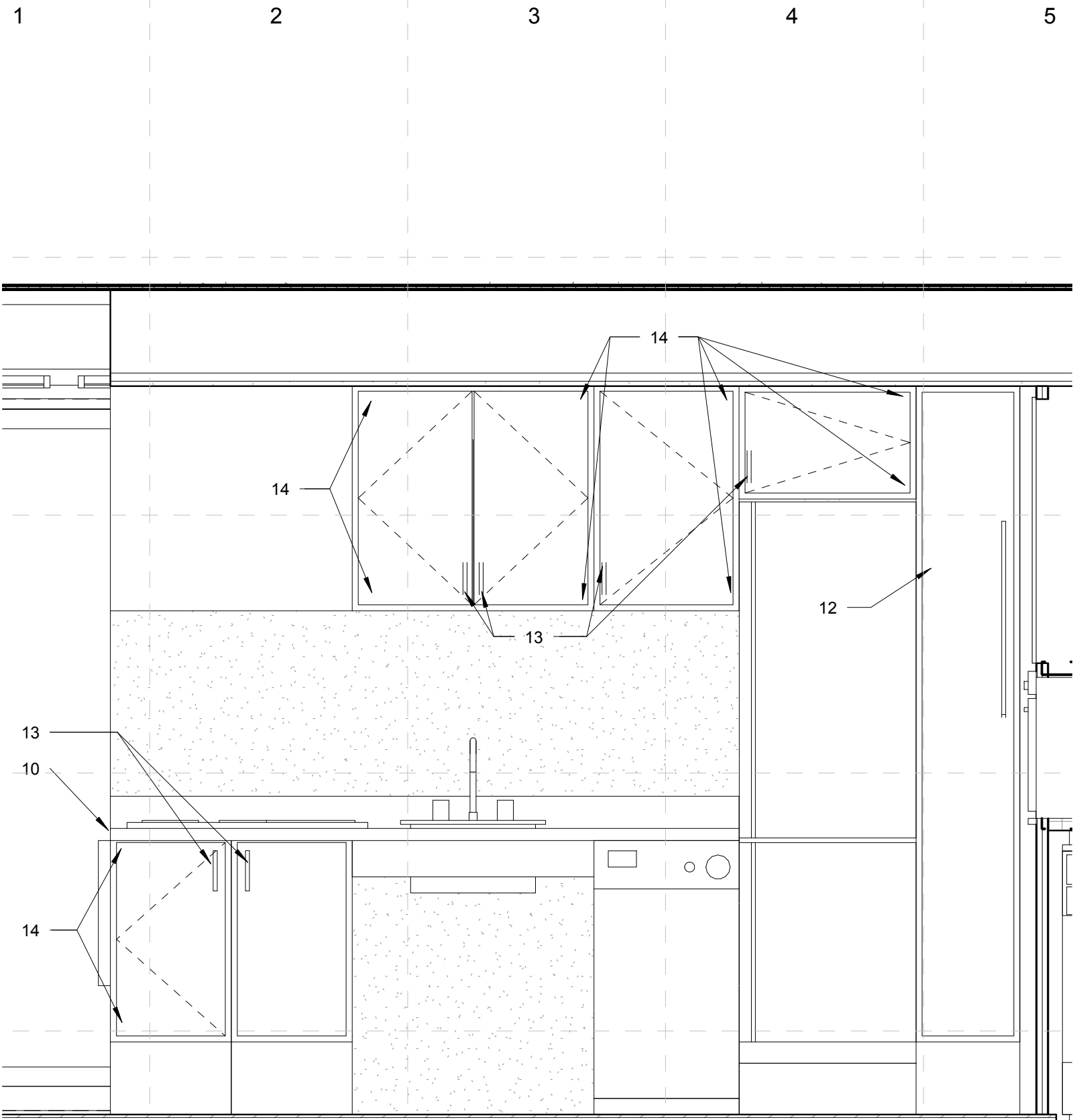
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1 KITCHEN/DINING ROOM- NORTH ELEVATION- DOORS CLOSED
SCALE: 3/4" = 1'-0"

SCHEDULE E- DINING ROOM/ KITCHEN NORTH ELEVATION

10	Table Hardware Hinges	Hafele	642.70.515
12	Pull Handle	Hafele	903.00.406
13	Pull Handle	Hafele	903.00.403
14	Concealed Hinges	Hafele	C2PPA99



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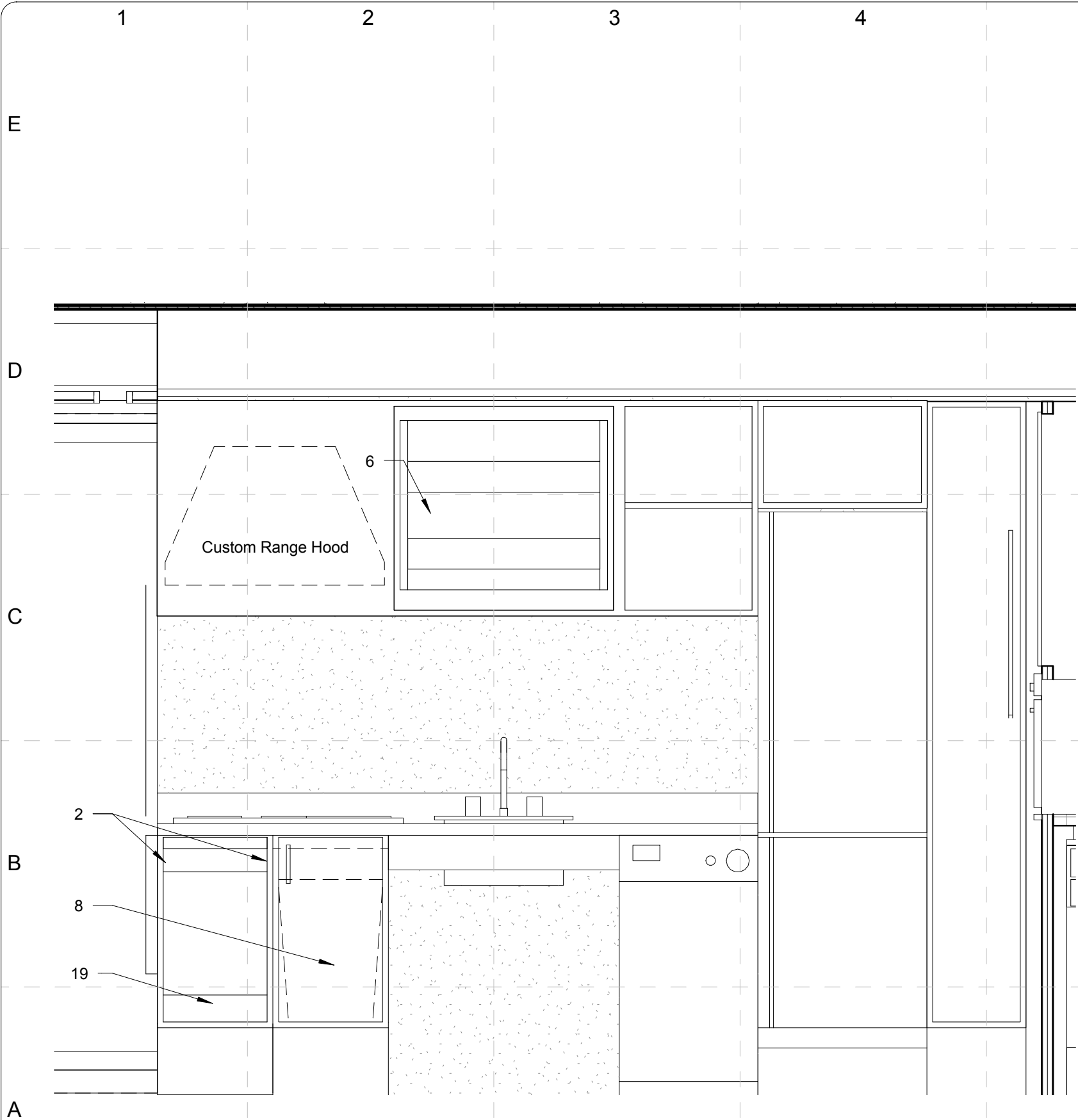
COMMENTS

SHEET TITLE:

Details - Millwork -
Dining
Room/Kitchen

Z - 512

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1 KITCHEN/DINING ROOM- NORTH ELEVATION- DOORS OPEN
SCALE: 3/4" = 1'-0"

SCHEDULE F- DINING ROOM/ KITCHEN NORTH ELEVATION

2	Drawer	Accuride	3832TR
6	Pull Down Shelf	Hafele	504.58.200
8	Waste/Recycling Bins	Knap & Vogt	PSW15-2-35-C
19	Pot and Pans Tray		

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COMMENTS:

SHEET TITLE:

Details - Millwork -
Dining
Room/Kitchen

Z - 513

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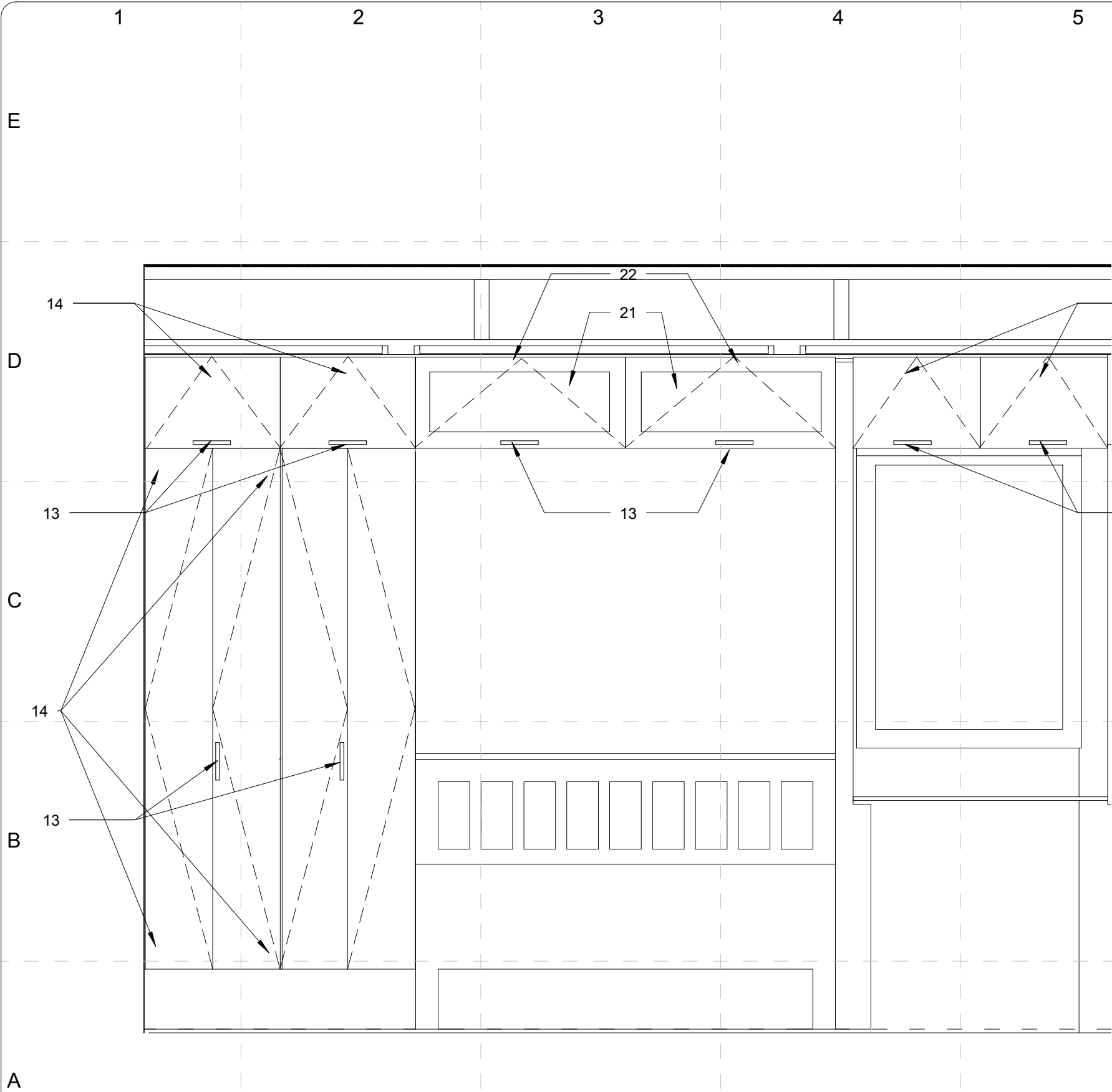
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1 BEDROOM- NORTH WALL ELEVATION- DOORS CLOSED
SCALE: 3/4" = 1'-0"

SCHEDULE G- BEDROOM-NORTH ELEVATION-DOORS CLOSED

13	Pull Handle	Hafele	903.00.403
14	Concealed Hinges	Hafele	C2PPA99
21	Quick Door Alum. Frames	Hafele	563.26.901
22	H-series Hinges	Hafele	563.25.940

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COMMENTS

SHEET TITLE:

Details - Millwork -
Bedroom

Z - 521

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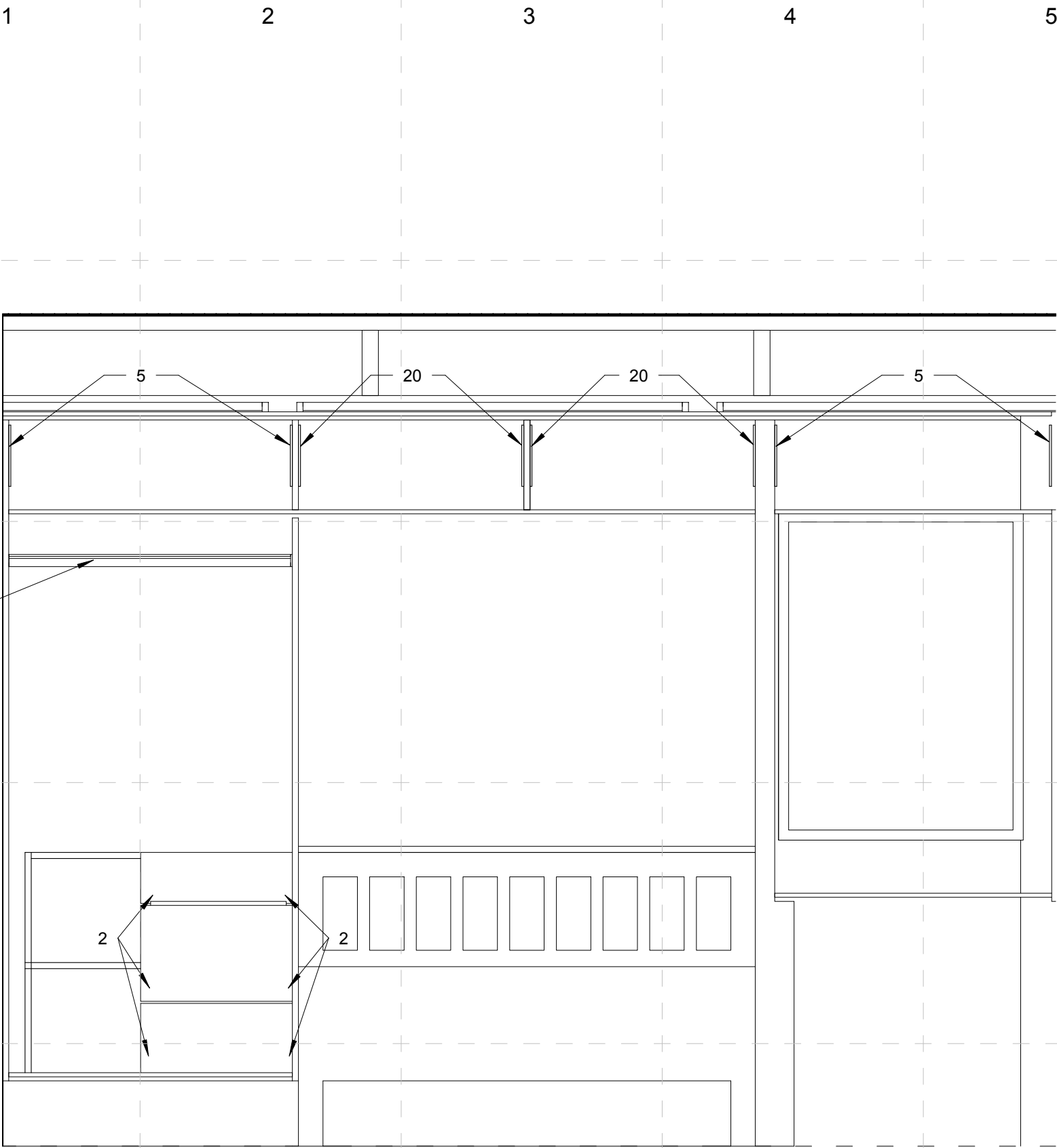
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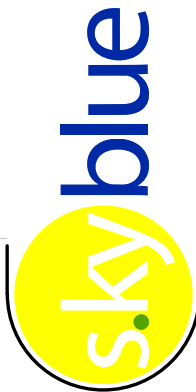
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1 BEDROOM- NORTH WALL ELEVATION- DOORS OPEN
SCALE: 3/4" = 1'-0"

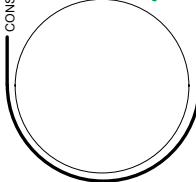
SCHEDULE H- BEDROOM- NORTH ELEVATION-DOORS OPEN

2	Drawer	Accuride	3832TR
5	Hydraulic Support Arms	Hafele	373.71.901
16	Light Closet Rod	Richelieu	430.100.10
20	Swing up lid stay	Hafele	372.46.700



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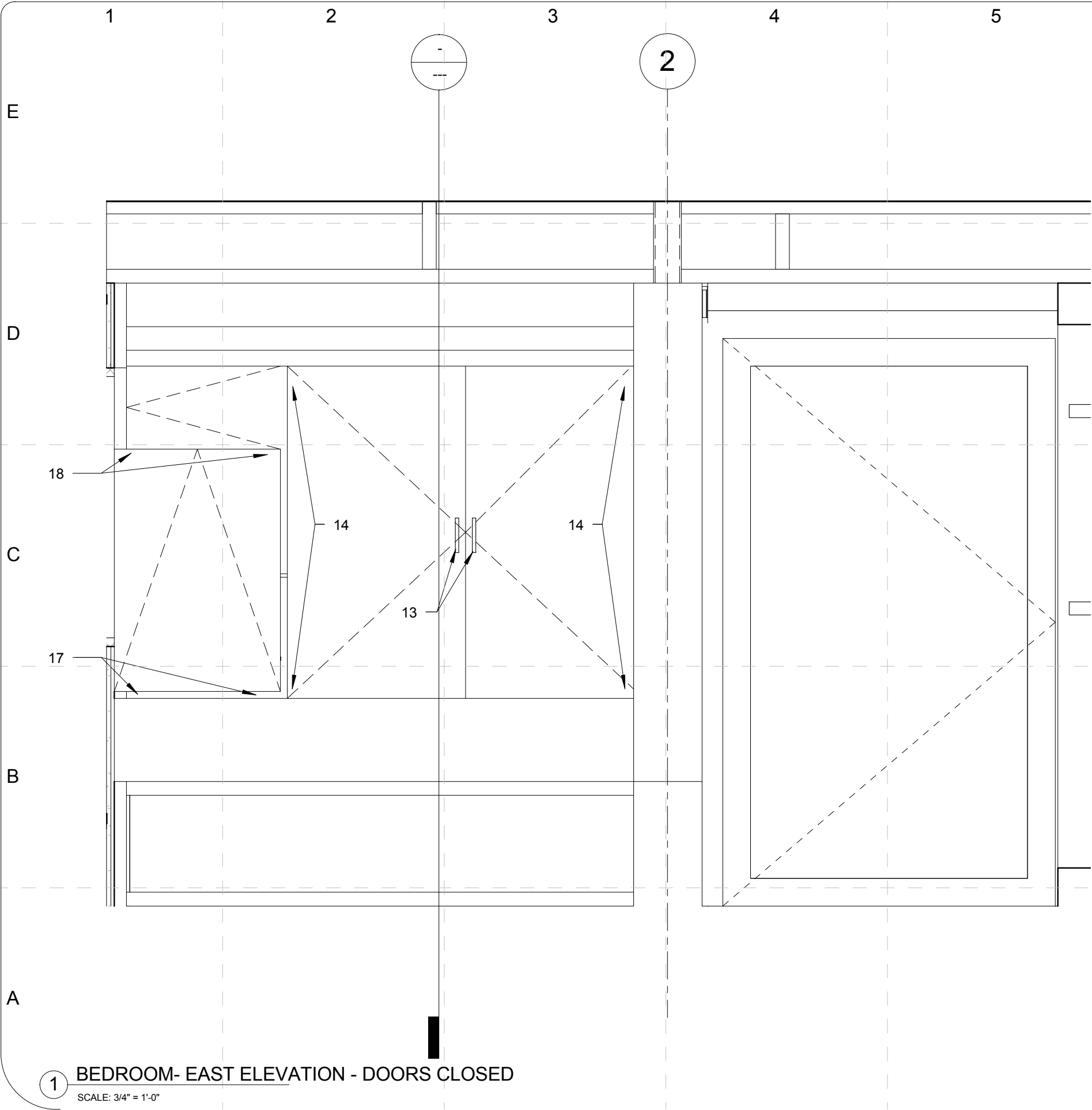
COMMENTS

SHEET TITLE:

Details - Millwork -
Bedroom

Z - 522

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1 BEDROOM- EAST ELEVATION - DOORS CLOSED
SCALE: 3/4" = 1'-0"

SCHEDULE I- BEDROOM- EAST ELEVATION-DOORS CLOSED

13	Pull Handle	Hafele	903.00.403
14	Concealed Hinges	Hafele	C2PPA99
17	Flat Hinges		
18	Magnetic Latch		

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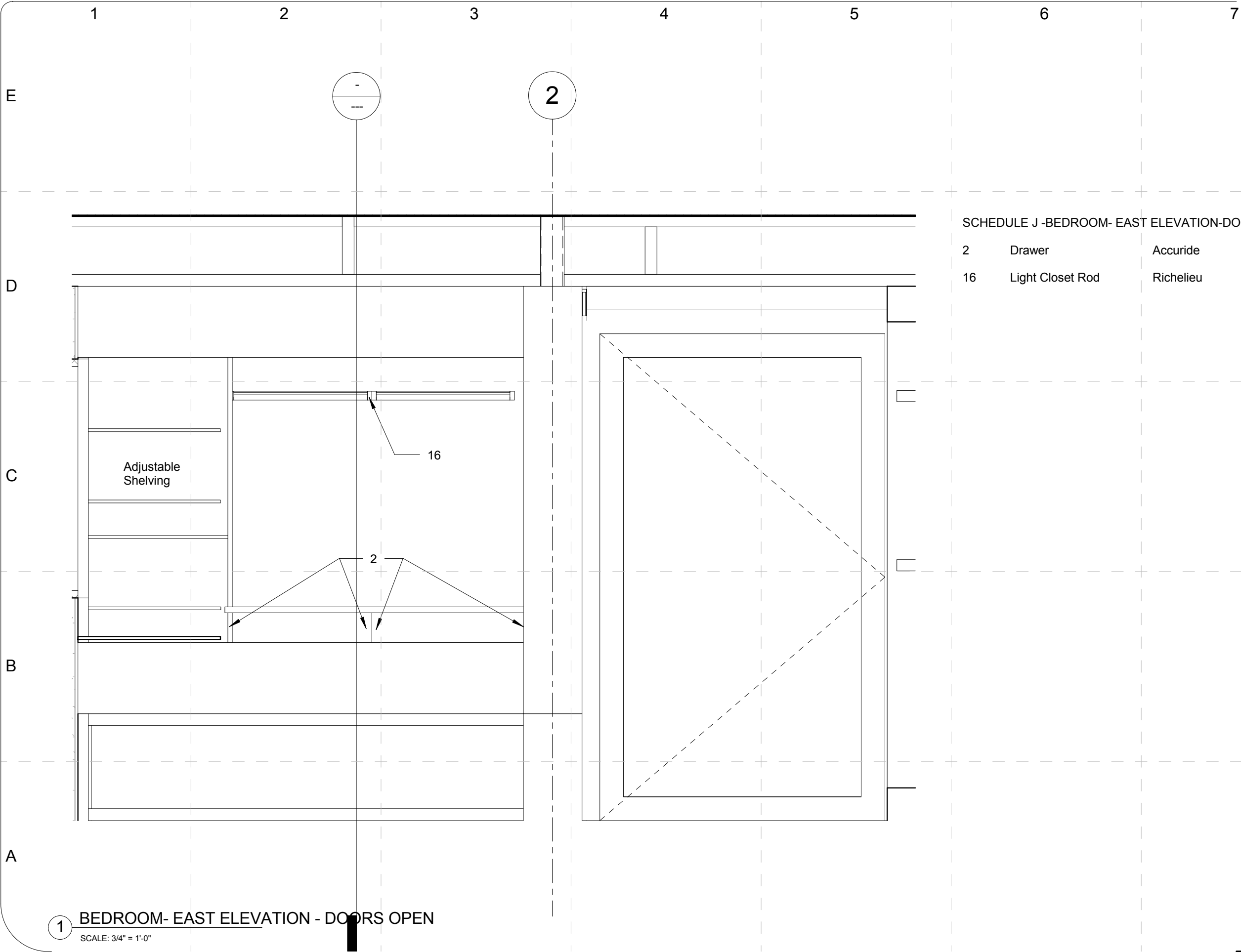
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SHEET TITLE:

Details - Millwork -
Bedroom

Z - 523



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1 BEDROOM- EAST ELEVATION - DOORS OPEN
SCALE: 3/4" = 1'-0"

SCHEDULE J -BEDROOM- EAST ELEVATION-DOORS OPEN

2	Drawer	Accuride	3832TR
16	Light Closet Rod	Richelieu	430.100.10



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SHEET TITLE:

Details - Millwork -
Bedroom

Z - 524

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	1	2	3	4	5	6	7
E	MARK	TYPE	MANUFACTURE	PRODUCT NUMBER	QTY	LOCATION	NOTES
	1	Cabinet Door	Accuride	CB123	4	Living Room	Swing and Slide
	2	Drawer	Accuride	3832TR	20	Kitchen/ Living Room/ Bedroom	Touch Release
	3	Pantry Support	Hafele	421.48.580	1	Kitchen	
	4	Shelf Unit	Accuride	CBMAC-50	1	Living Room	
	5	Hydraulic Support Arms	Hafele	373.71.901	8	Bedroom	
D	6	Pull Down Shelf	Hafele	504.58.200	3	Kitchen	
	7	Anti-Rack Cable System	Accuride	1432	2	Bedroom	
	8	Waste and Recycling Bins	Knape & Vogt	PSW15-2-35-C	1	Kitchen	
	9	Shoe Rack	Hafele	805.87.200	4	Bedroom	
	10	Table Hardware Hinges	Hafele	642.70.515	6	Kitchen/Dining Room	
	11	Button Coat Hook	Mockett	CH23	5	Living Room	In Closet Behind Front Door
	12	Pull Handle	Hafele	903.00.406	1	Kitchen	Pull Out Pantry 23 5/8"
C	13	Pull Handle	Hafele	903.00.403	29	Kitchen/ Living Room/ Bedroom	Regular Cabinet 11 13/16"
	14	Concealed Hinges	Hafele	329.64.631	38	Kitchen/ Living Room/ Bedroom	Typical Hinge
	14	Concealed Hinges	Hafele	329.17.800	38	Kitchen/ Living Room/ Bedroom	Typical Hinge
	15	Casters	Mockett	CA35PA-23	4	Kitchen	
	16	Light Closet Rod	Richelieu	430.100.10	2	Bedroom	Light rod-Fluorescent
				430.150.10	2	Bedroom	Light rod-LED
B	17	Flat Hinges	Richelieu	51435180-14	2	Bedroom	
	18	Lock	NLC	8053-26	1	Bedroom	
	19	Pot and Pans Tray			1.00000	Kitchen	
	20	Swing up lid stay	Hafele	372.46.700	4.00000	Bedroom	
	21	Quick Door Alum. Frames	Hafele	563.26.901	2.00000	Bedroom	
A	22	H-series Hinges	Hafele	563.25.940	4.00000	Bedroom	

1

HARDWARE SCHEDULE



SCALE: NTS



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SHEET TITLE:

Details - Millwork -
Schedule

Z - 601



1 O-001 Image
SCALE: NTS

Operations Symbols
and Notes


SHEET TITLE:

O-001


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1

Site Operations Plan
Revised 11.28.08

E This Site Operations Plan covers the following areas, to the best of our knowledge at this point:

Vehicles
House Arrival and Assembly Timeline
House Disassembly and Departure Timeline
Special Equipment Required
Disposal or Recycling of Materials
PPE Requirements

1. VEHICLES

D Two Vehicles: one for delivery of the house and other for delivery of support materials and equipment. All will enter together, house first and support truck.

Truck One:
A semi-truck will deliver a house on the lowboy trailer.

C The overall dimensions of the house truck are:
Trailer + house = Trailer + 14'-6" (wide) by 48'-6" (long) x 14'- 6" (high). The overall weight of this truck is approximately; Trailer + 40,000 pounds.

Truck Two and Three:
Two box-trucks will bring all additional materials and equipment:
Truck Two will contain:
Tie straps
Foundation pads
Decking panels, substructure, railing and planters
All tools
Water tanks and water harvesting system
Solar panels and evacuated tubes
Rain screen panels
Scaffolding
Furniture, appliances and household articles
Exhibition design panels
Generators and spill container
Truck Three will contain:
All glass used on the house
Trucks will arrive on site after the house is lowered onto the permanent footing. It will stay onsite until the house is completely assembled.

A The dimensions of the Box-Truck are: 26' (long) by 8' (wide) by 8' (high). Its weight is approximately: 20,000 pounds.

2

2. HOUSE DEPLOYMENT TIMELINE

3

Stage One-Arrival-All Teams working together (17HRS)
Stage Two-Three Separate Team working (18HRS)
Stage Three-Final Checkups (8HRS)

Stage One-Arrival-All Teams working together (17HRS)

The house will arrive in one approximately 14'x 48' module, weighing about 35,000 pounds. All other components are stored on the additional truck.

Arrival (1HR)
The caravan will enter Washington DC at midnight and proceed to staging area and then to a building site at the mall. The house will be inspected for any visible damage making sure if any repairs needed.

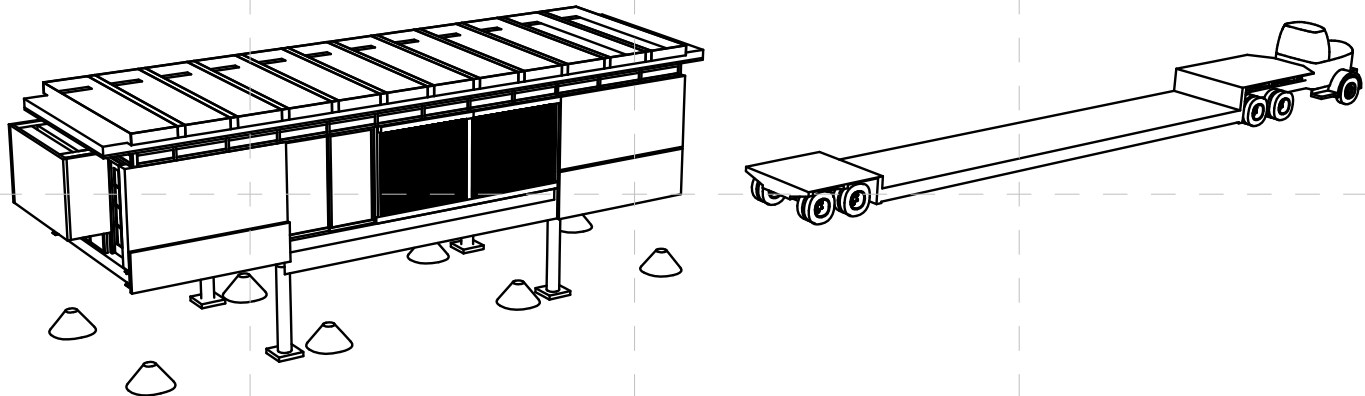
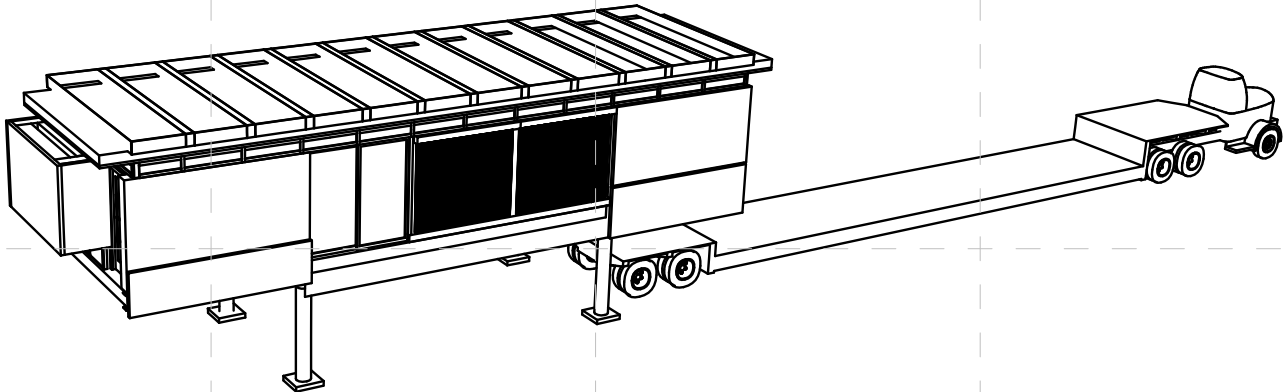
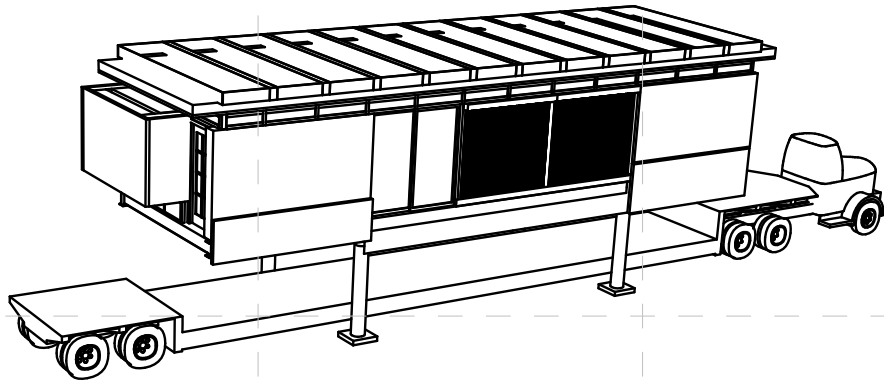
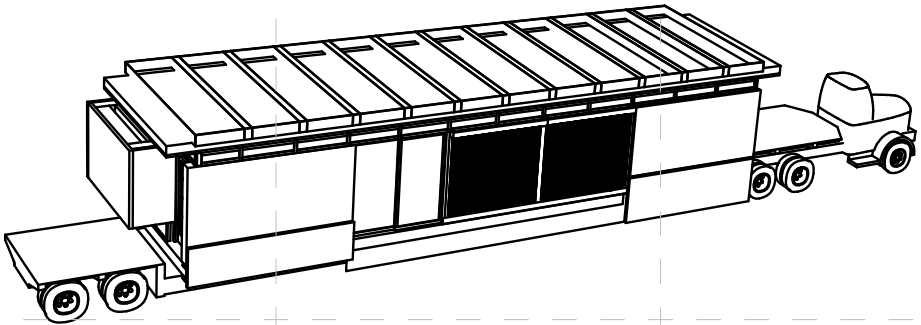
Site (1HR)
The site is surveyed to ensure that it is cleared and ready to receive house. Protec-tive pads are place on ground along truck route. Location of corner piers is identified.

House Arrival, Deployment and Leveling (4HR)
A semi-truck with a house on the lowboy trailer will enter the site first and the trailer will be properly positioned. The house will be untied and all legs of the hydraulic jacking system will be lowered onto the supporting pads. After all necessary checks hydraulic jacking system will be activated and the house will be evenly raised high enough for the lowboy to be pulled out from underneath. The house will be lowered to a set elevation, leveled and rested on the permanent footing array. The hydraulic system will be retracted. The delivery truck will be located off site for the duration of the competition. Testing of the screw mechanism of the PV rack will take place after it has been raised to its initail position.

Solar Panel Array Installation (12HRS)
A rolling lift mechanism (similar to boat movers) will be used to lift the assembled PV/Duct panels at the end of the house and travel E-W to the location where the PV is to be attached to the rack. It will then be anchored onto the PV rack and plugged in. The process will be used for each of the 12 PV assemblies. Estimate approximately 1 hour per PV assembly.

Rain Screen Installation (6HRS)
Installation of Rain Screen can take place after 1/2 of PV panels have been installed.

Deck Installation (6HRS)
The decking footing array will be properly place-d and the sub-frame will be set and leveled. Preassembled decking panels will be unloaded from the truck and inserted onto the sub-frame. Ramp and railing elements will be installed at this time. Deck landscaping should be installed at a later time to protect plants from material movement.



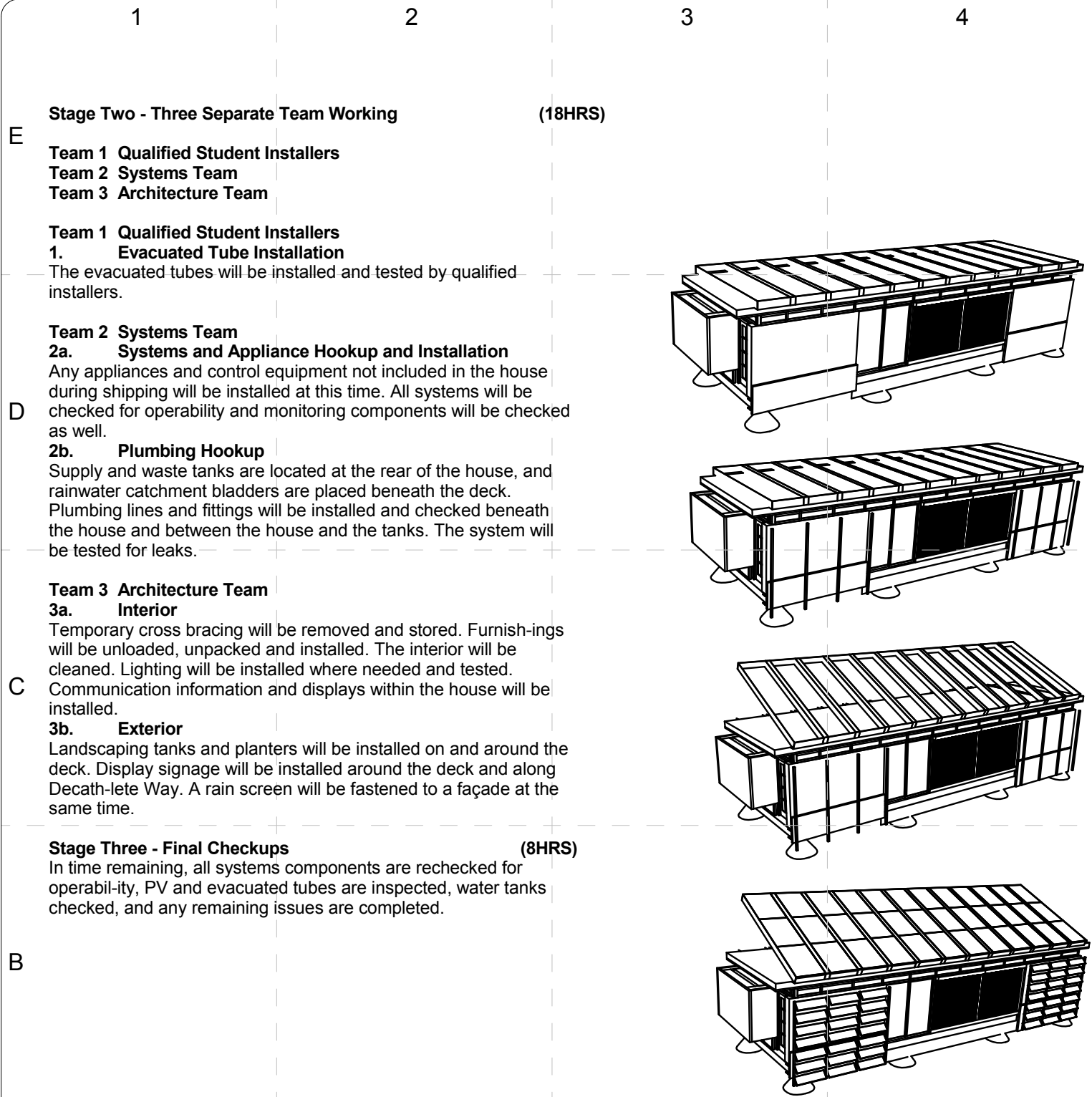
MARK	DATE	DESCRIPTION
DD	12/16/2008	DESIGN DEVELOPMENT
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2009 SOLAR DECATHLON CONSTRUCTION DOCUMENTS 02 JUNE 2009 www.uky.edu/solarhouse	PROJECT NO: UKY_S10209 DRAWN BY: OS APPROVED BY: GL DATE CREATED: 09/14/08 DATE RECEIVED: 09/14/08
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SHEET TITLE:

Arrival Sequence

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Stage Two - Three Separate Team Working (18HRS)

- Team 1 Qualified Student Installers
- Team 2 Systems Team
- Team 3 Architecture Team

Team 1 Qualified Student Installers
1. Evacuated Tube Installation

The evacuated tubes will be installed and tested by qualified installers.

Team 2 Systems Team
2a. Systems and Appliance Hookup and Installation

Any appliances and control equipment not included in the house during shipping will be installed at this time. All systems will be checked for operability and monitoring components will be checked as well.

2b. Plumbing Hookup

Supply and waste tanks are located at the rear of the house, and rainwater catchment bladders are placed beneath the deck. Plumbing lines and fittings will be installed and checked beneath the house and between the house and the tanks. The system will be tested for leaks.

Team 3 Architecture Team

3a. Interior

Temporary cross bracing will be removed and stored. Furnish-ings will be unloaded, unpacked and installed. The interior will be cleaned. Lighting will be installed where needed and tested. Communication information and displays within the house will be installed.

3b. Exterior

Landscaping tanks and planters will be installed on and around the deck. Display signage will be installed around the deck and along Decath-lete Way. A rain screen will be fastened to a façade at the same time.

Stage Three - Final Checkups (8HRS)

In time remaining, all systems components are rechecked for operabil-ity, PV and evacuated tubes are inspected, water tanks checked, and any remaining issues are completed.

Summary of Arrival Schema

Day	Time	Time Required	Activity
Thursday			
1	00:01	2:00	Arrive on Site – place truck protective pads, position house, unfasten from trailer, attach lifting jack, position foundation jacks
1	02:00	5:00	House deployment, removal of trailer, leveling of house, detachment of lifting jacks, assemble PV lifting mechanism, unload panels
1	07:00	1:00	Deploy PV rack and test
1	08:00	12:00	Solar panel placement (start after daybreak)
1	08:00	2:00	Removal of temporary internal crossbracing (A team)
1	10:00	2:00	Storefront window installation
1	12:00	8:00	Assembly of east saddlebag (concurrent with PV placement)
1	20:00		End first workday
Friday			
2	07:00	9:00	Back Deck & Water tanks installation (E1 team)
2	07:00	9:00	Front deck installation (E2 team)
2	07:00	6:00	Clerestory window installation (A team)
2	13:00	1:00	Bedroom window installation (A team)
2	14:00	2:00	Testing of web and controls communication
2	14:00	2:00	North sliding glass door installation (A team)
2	16:00	2:00	South sliding glass door installation (A team)
2	16:00	1:00	Back deck railings installed (E1 team)
2	16:00	1:00	Front railing installed (E2 team)
2	18:00		End second workday
Saturday			
3	07:00	4:00	Teams working concurrently
3	07:00	4:00	Solar water heater installation
3	07:00	6:00	South vertical PV installation
3	07:00	6:00	HVAC systems installation
3	07:00	6:00	Assembly of rainscreen on back
3	11:00	4:00	Plumbing and waste systems hookup and tested
3	13:00	6:00	Internal finishing installation
3	18:00	1:00	Lighting tested
3	19:00		End third workday
Sunday			
4	07:00	6:00	Internal finishing installation
4	12:00	1:00	Inspections
Monday			
5	07:00		Check operations
5	08:00		Clean up
5	10:00		Install grounding means at 45 degree angle
5	10:00		Grid-tie
5	10:00		Water delivery
Tuesday			
6	07:00	4:00	Landscaping installed
6	11:00	4:00	Display signage installed

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2009 SOLAR DECATHLON
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02 JUNE 2009
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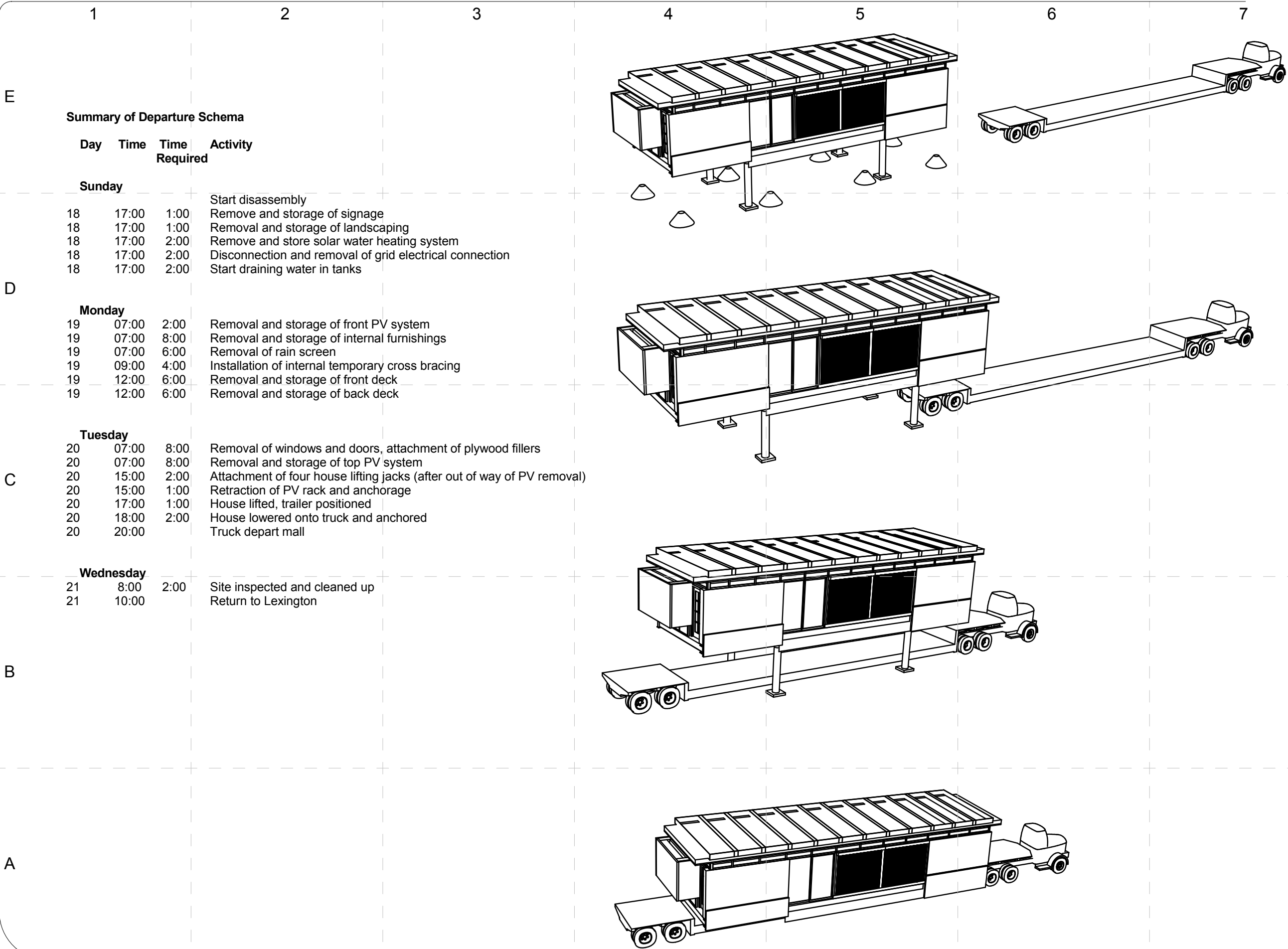
SHEET TITLE:
Arrival Sequence

O-102

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	1	2	3	4	5	6	7
	3. HOUSE DISASSEMBLY TIMELINE AND ACTIVITIES		Team 3 Architecture Team				
E	Stage One-Disassembly-Three Separate Teams (8HRS)		3a. Interior				
	Stage Two-Departure-All Teams working together (10HRS)		Temporary cross bracing will be reinstalled. Furnishings will be loaded into the truck.				
	The disassembly will be the reverse of the assembly plan. Due to a nature of the procedure, disassembly will take far less time than deployment.		3b. Exterior				
			Landscaping elements and planters will be returned to the truck. Landscaping is returned to the truck. Rain screen panels of the house will be removed at this time also.				
	Stage One - Disassembly, Three Separate Teams (8HRS)		Stage Two-Departure-All Teams working together (10HRS)				
	Team 1 Qualified Student Installers		Deck Removal (3HRS)				
	Team 2 Systems Team		All railings and remaining decking landscaping elements will be removed. The ramps will be disassembled. Deck panels will be removed and loaded followed by the sub-frame. The decking footing array will be removed and loaded.				
	Team 3 Architecture Team		PV Array Disassembly (4HRS)				
D	Team 1 Qualified Student Installers		Scaffolding will be erected around the house. All panels will be detached and removed from the roof. PV sub-frame will be lowered and secured on the roof for transportation.				
	1. Evacuated Tube Removal		House Movement Preparation (2HRS)				
	The evacuated tubes will be removed by qualified installers and the system will be drained into a sealed storage container.		The house will be inspected to assure safe lifting and mounting onto the lowboy trailer and the hydraulic system will be prepared to be deployed. The house will be elevated with the hydraulic jacking system high enough for the lowboy trailer to be placed beneath it. The footing array will be removed and loaded on truck. A semi-truck will place the lowboy position properly beneath the raised house. The house will be lowered with the hydraulic jacking system back onto the trailer and jack legs retracted. After all necessary checks the house will be secured for transport. The delivery truck will drive away from the competition site.				
	Team 2 Systems Team		Site (.5HR)				
	2a. Systems and Appliance Removal		Site will be inspected for remaining debris.				
	Any appliances and control equipment not included in the house during shipping will be removed at this time.		Departure (.5HR)				
	2b. Plumbing Disconnect		The trucks exit the Mall.				
C	The system will be drained into the waste tank. Plumbing lines and fittings then will be disconnected. All tanks and rainwater catchment bladders installed during deployment will be uninstalled and loaded for transportation.		DISPOSAL OR RECYCLING OF MATERIALS				
			Small scraps				
			The house will need minimal onsite assembly and most of the additional and temporary materials and components will be reused and loaded back for transport. As a result very little onsite material waste will be generated that will have to be disposed.				

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Summary of Departure Schema

Day	Time	Time Required	Activity
Sunday			
18	17:00	1:00	Start disassembly
18	17:00	1:00	Remove and storage of signage
18	17:00	2:00	Removal and storage of landscaping
18	17:00	2:00	Remove and store solar water heating system
18	17:00	2:00	Disconnection and removal of grid electrical connection
18	17:00	2:00	Start draining water in tanks
Monday			
19	07:00	2:00	Removal and storage of front PV system
19	07:00	8:00	Removal and storage of internal furnishings
19	07:00	6:00	Removal of rain screen
19	09:00	4:00	Installation of internal temporary cross bracing
19	12:00	6:00	Removal and storage of front deck
19	12:00	6:00	Removal and storage of back deck
Tuesday			
20	07:00	8:00	Removal of windows and doors, attachment of plywood fillers
20	07:00	8:00	Removal and storage of top PV system
20	15:00	2:00	Attachment of four house lifting jacks (after out of way of PV removal)
20	15:00	1:00	Retraction of PV rack and anchorage
20	17:00	1:00	House lifted, trailer positioned
20	18:00	2:00	House lowered onto truck and anchored
20	20:00		Truck depart mall
Wednesday			
21	8:00	2:00	Site inspected and cleaned up
21	10:00		Return to Lexington

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Departure Sequence

O-104

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A

B

C

D

E

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7

SPECIAL EQUIPMENT

Forklift

Forklift with turf tires for deck segment placement will be used.

Scaffolding

Scaffolding that can be disassembled for transport and incorporate the necessary fall protection will be used. This will be used to install the roof PV array and rain screen.

Generator

Generators conforming to noise restrictions will be used during the full power construction phase.

PPE REQUIREMENTS

Personal equipment, team equipment

Every team member will be required to wear properly fitting PPE at all times while on site, including steel toe boots, goggles, long pants, short sleeves at a minimum and hard hats. Also, onsite will be provided protection equipment for various activities: fall protection, noise and hand protection, electrical protection and any other necessary for a certain task or a job.

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Author

Approver

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Construction Equipment Details

O-601