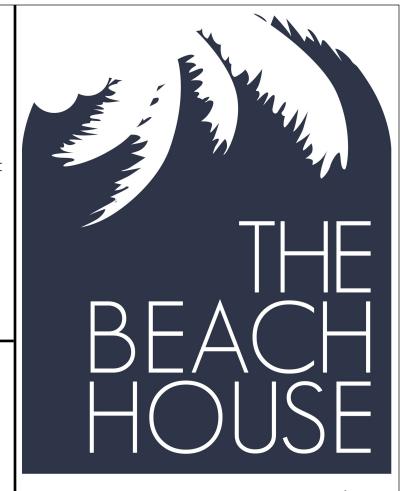
THE BEACH HOUSE





Team Daytona Beach



Team Name Address Team Daytona Beach 600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

Contact

teamdaytonabeach.com

Client

U.S. DEPARTMENT OF ENERGY SOLAR DECATHLON 2017 SOLARDECATHLON.GOV



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COVER SHEET

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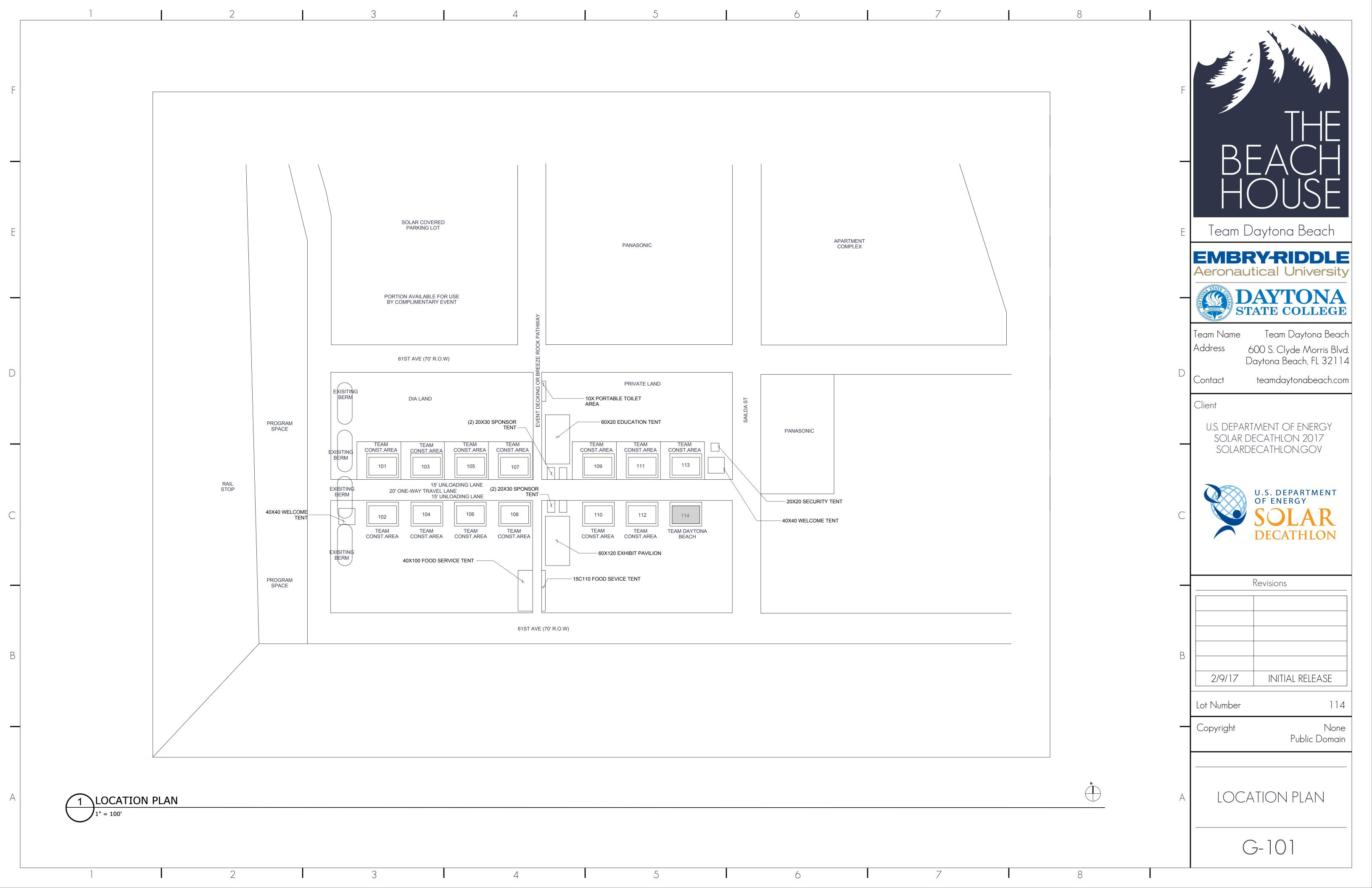
EMBRY-RIDDLE
Aeronautical University

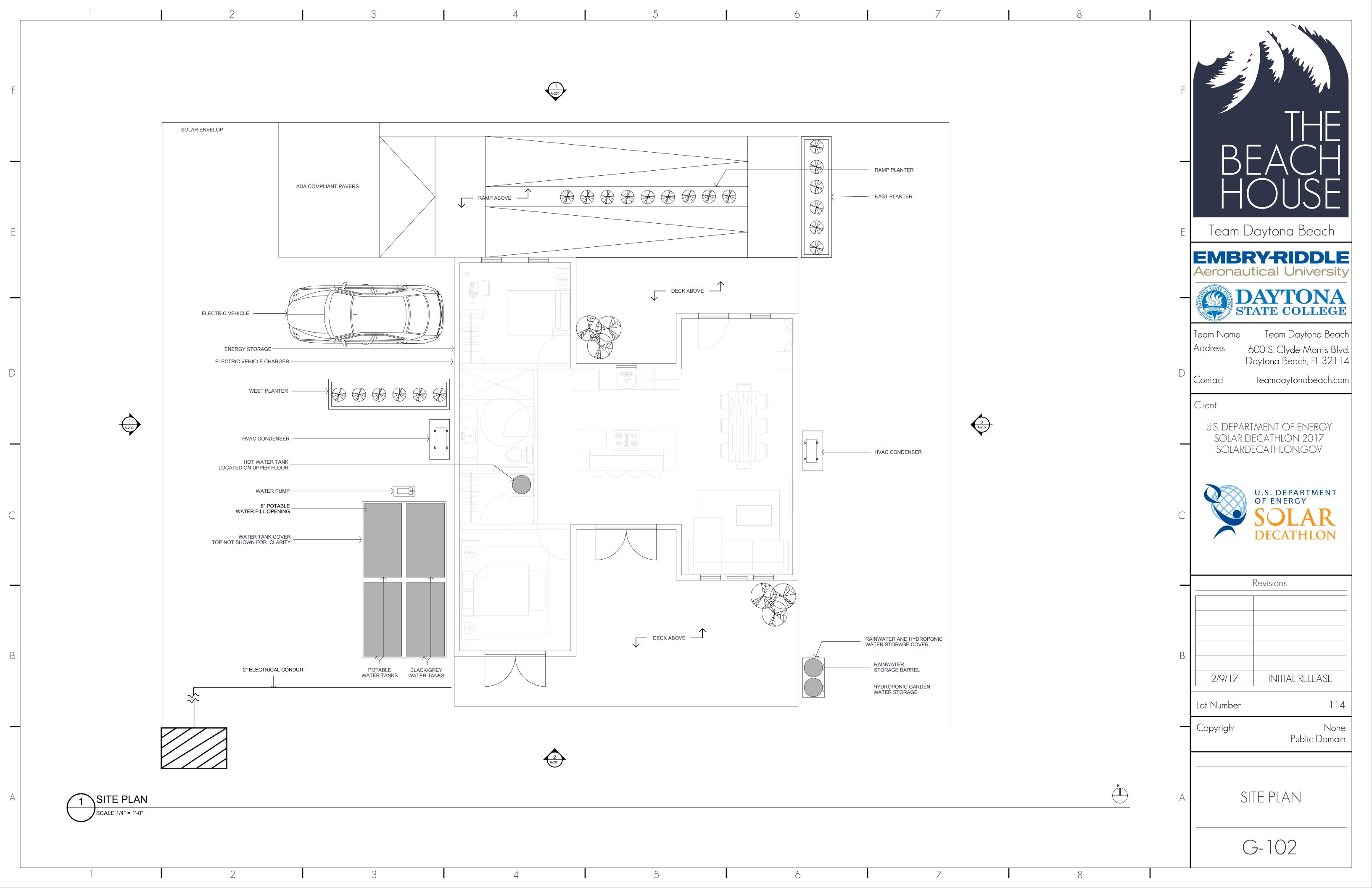


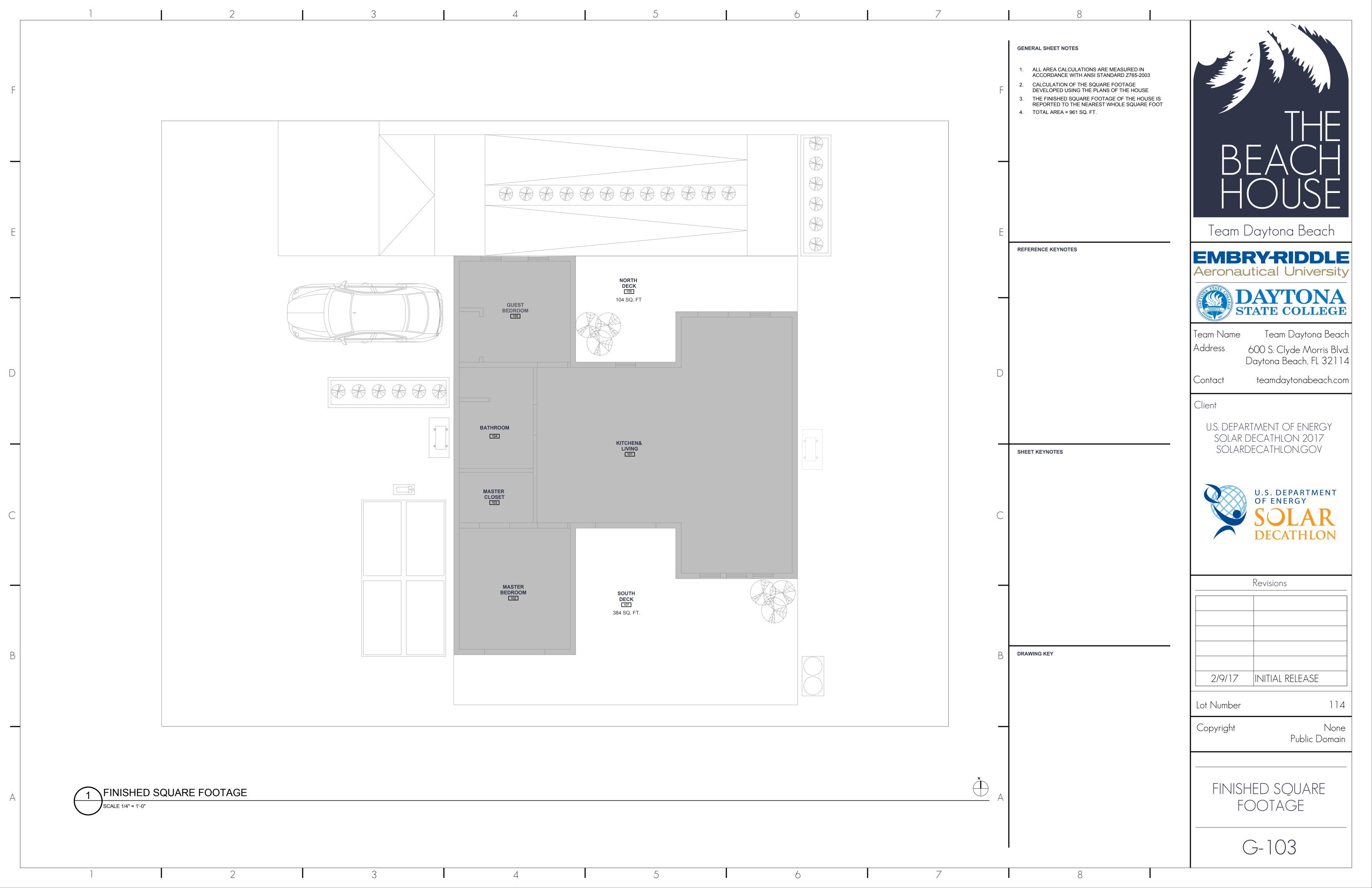


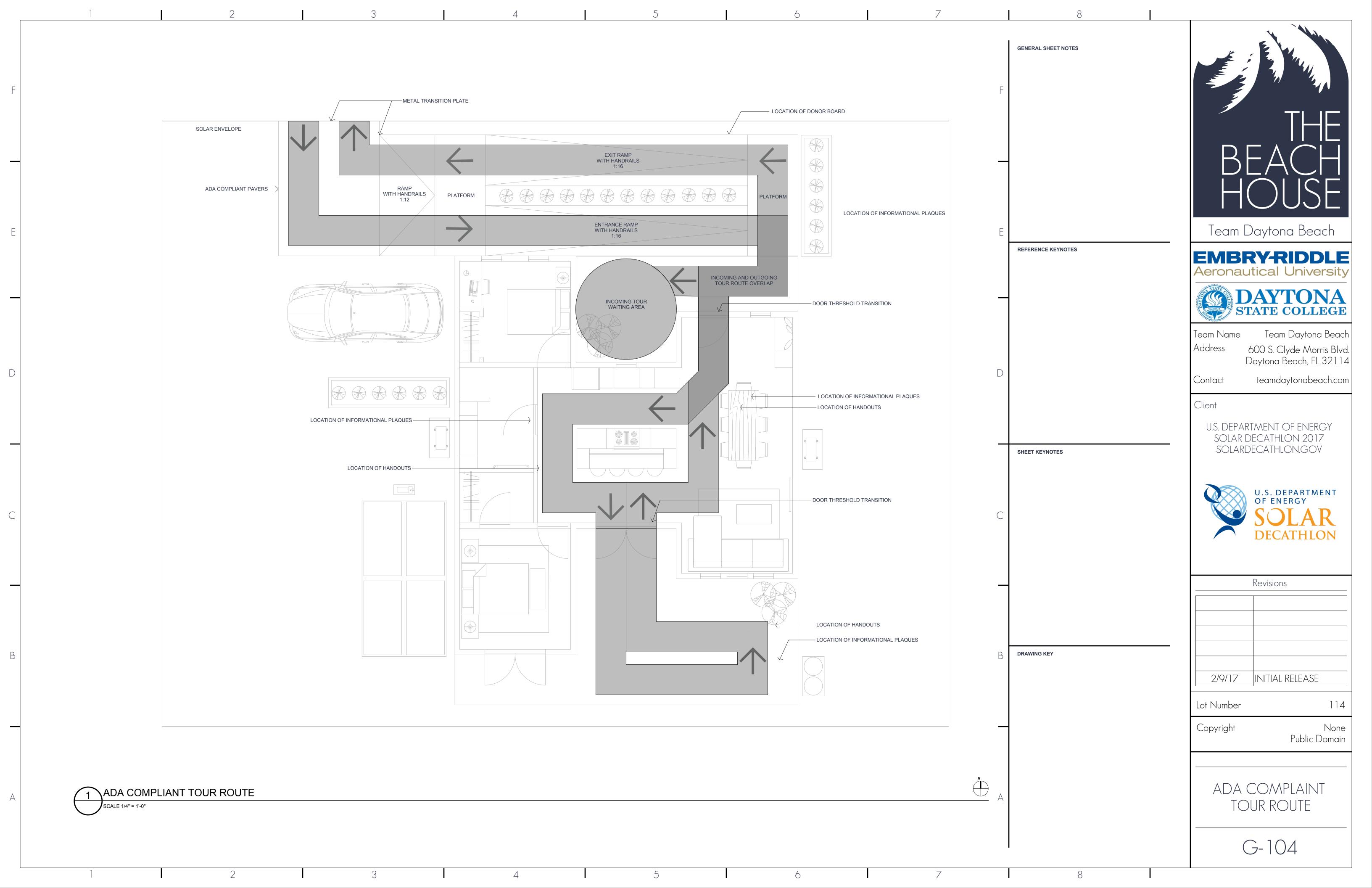


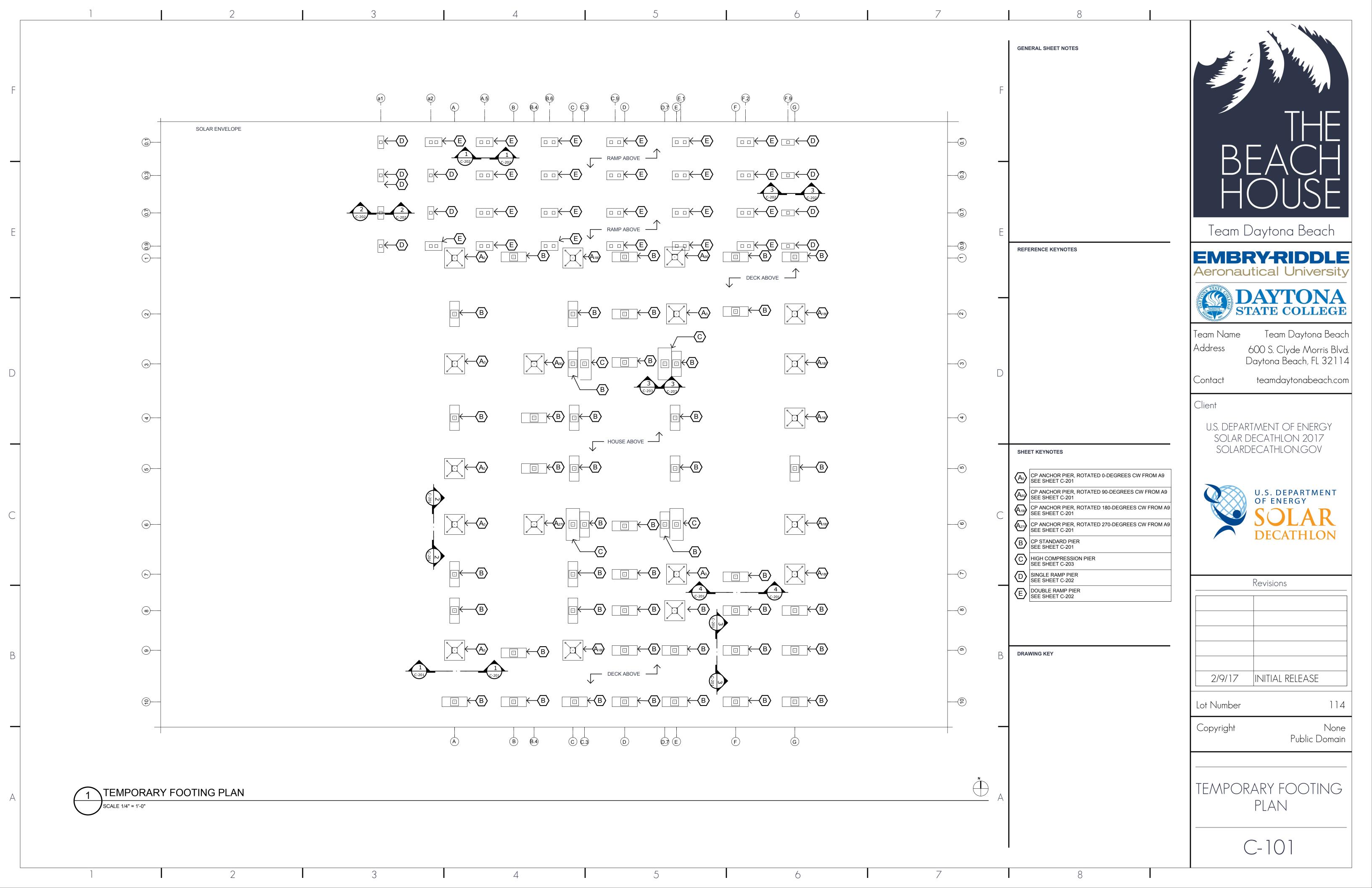


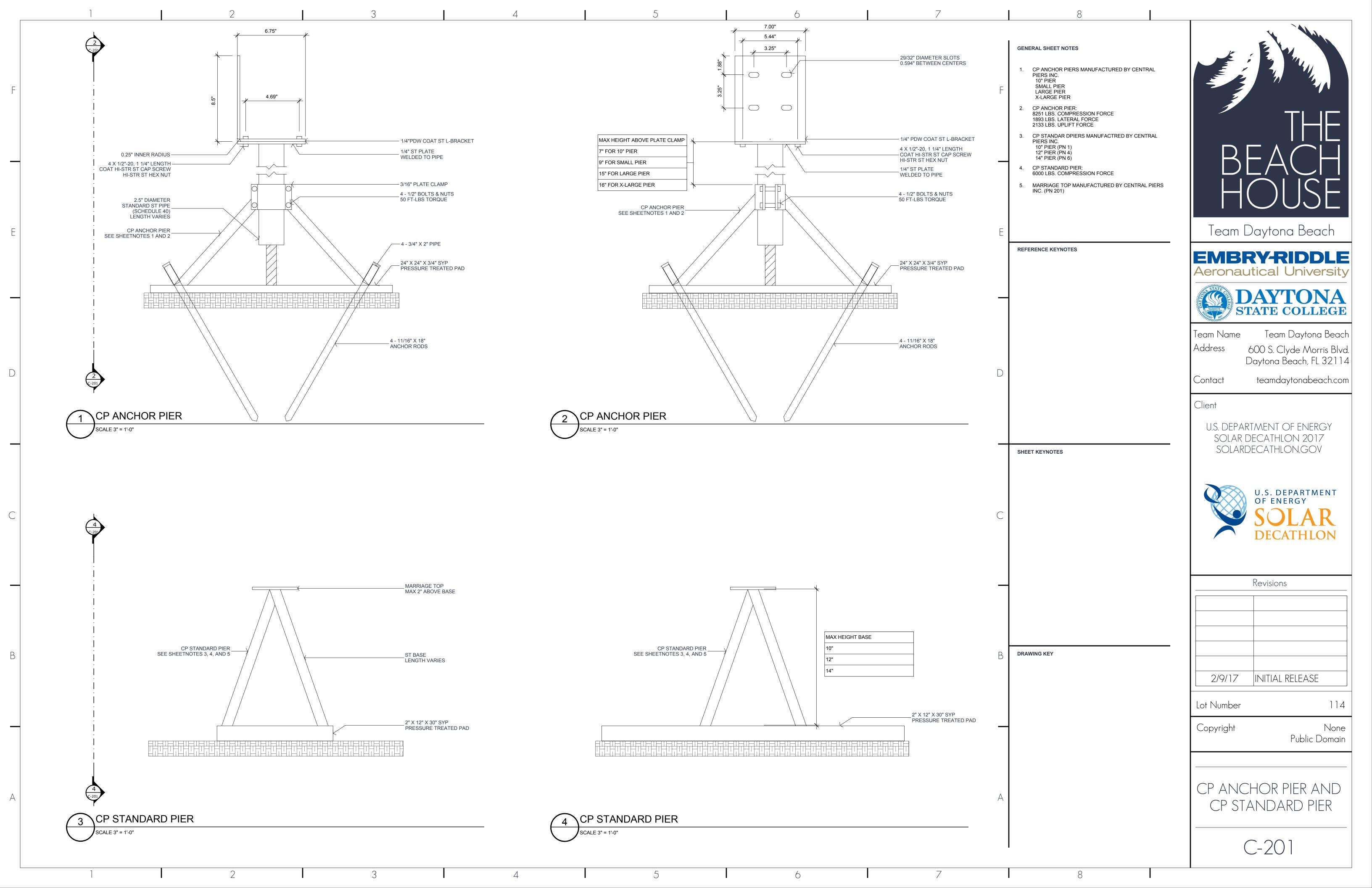


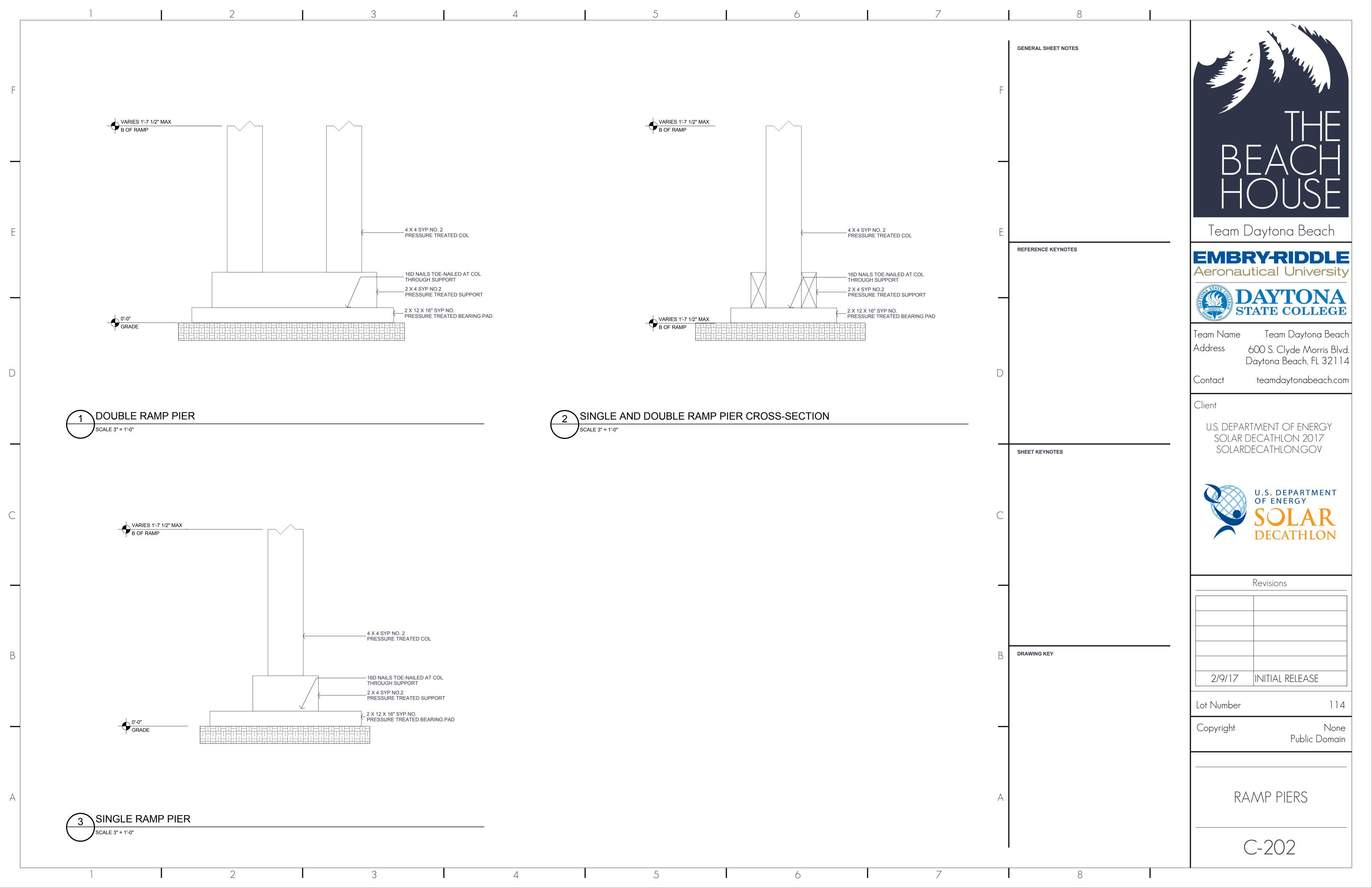


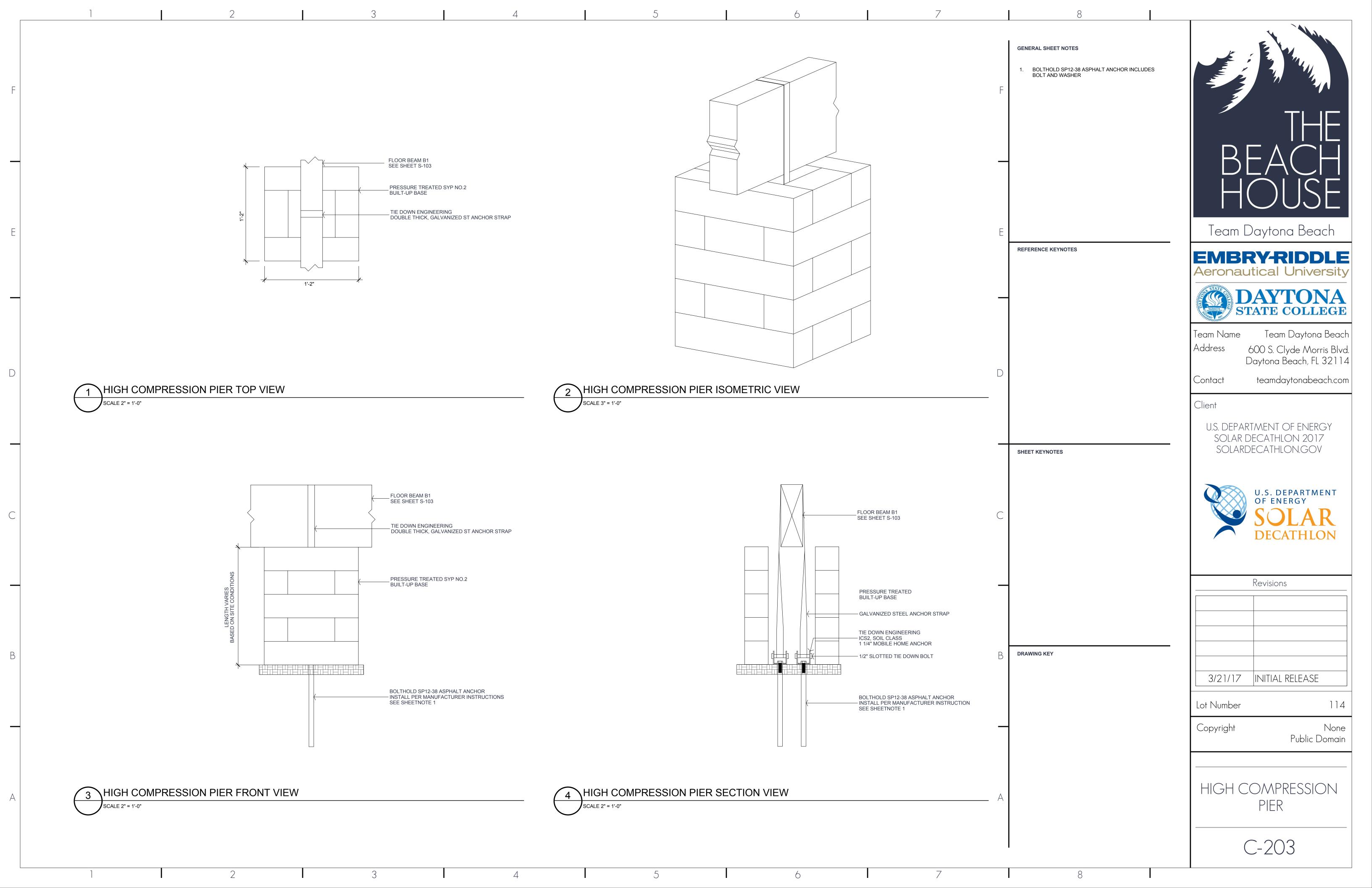


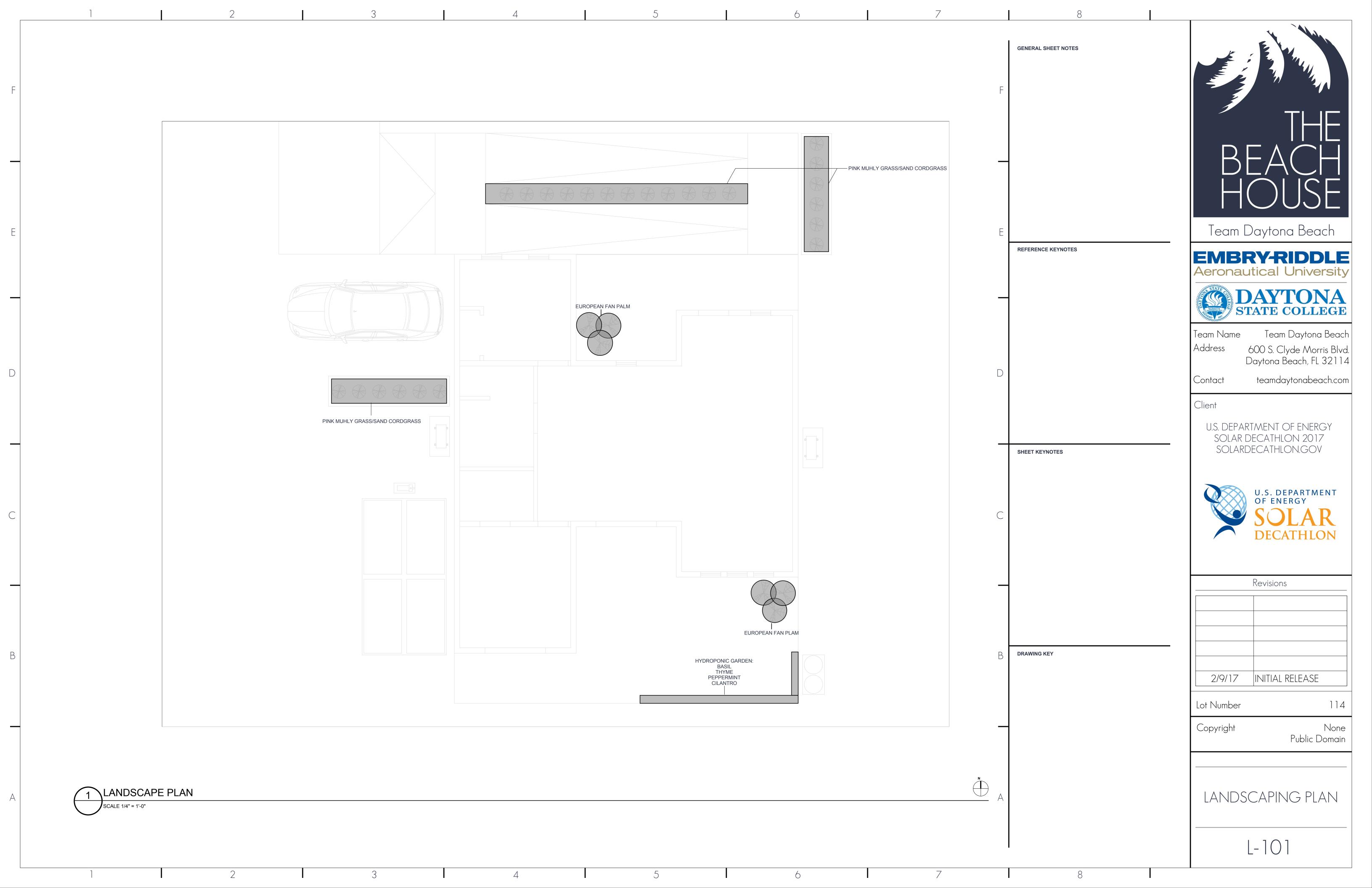


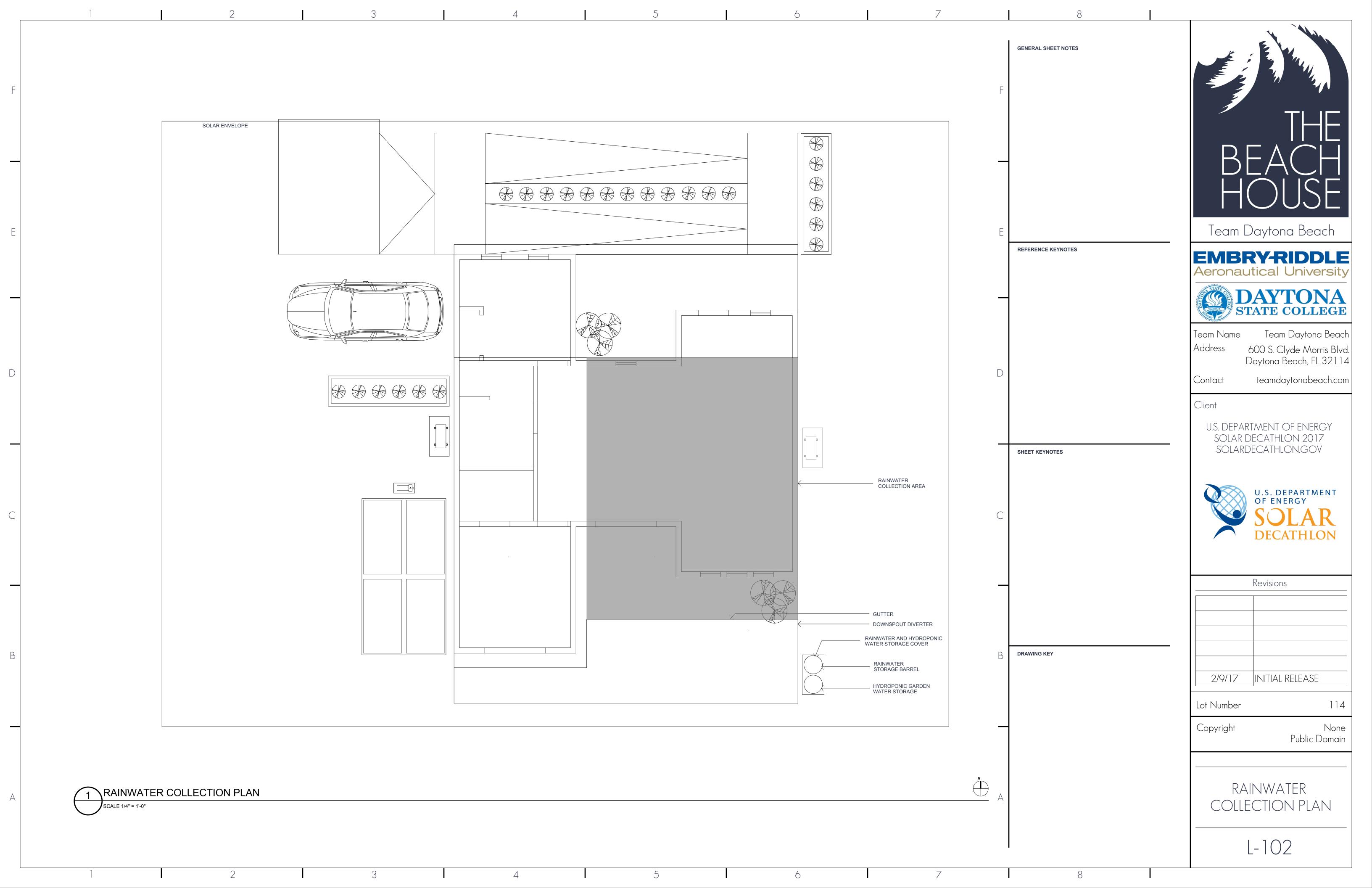


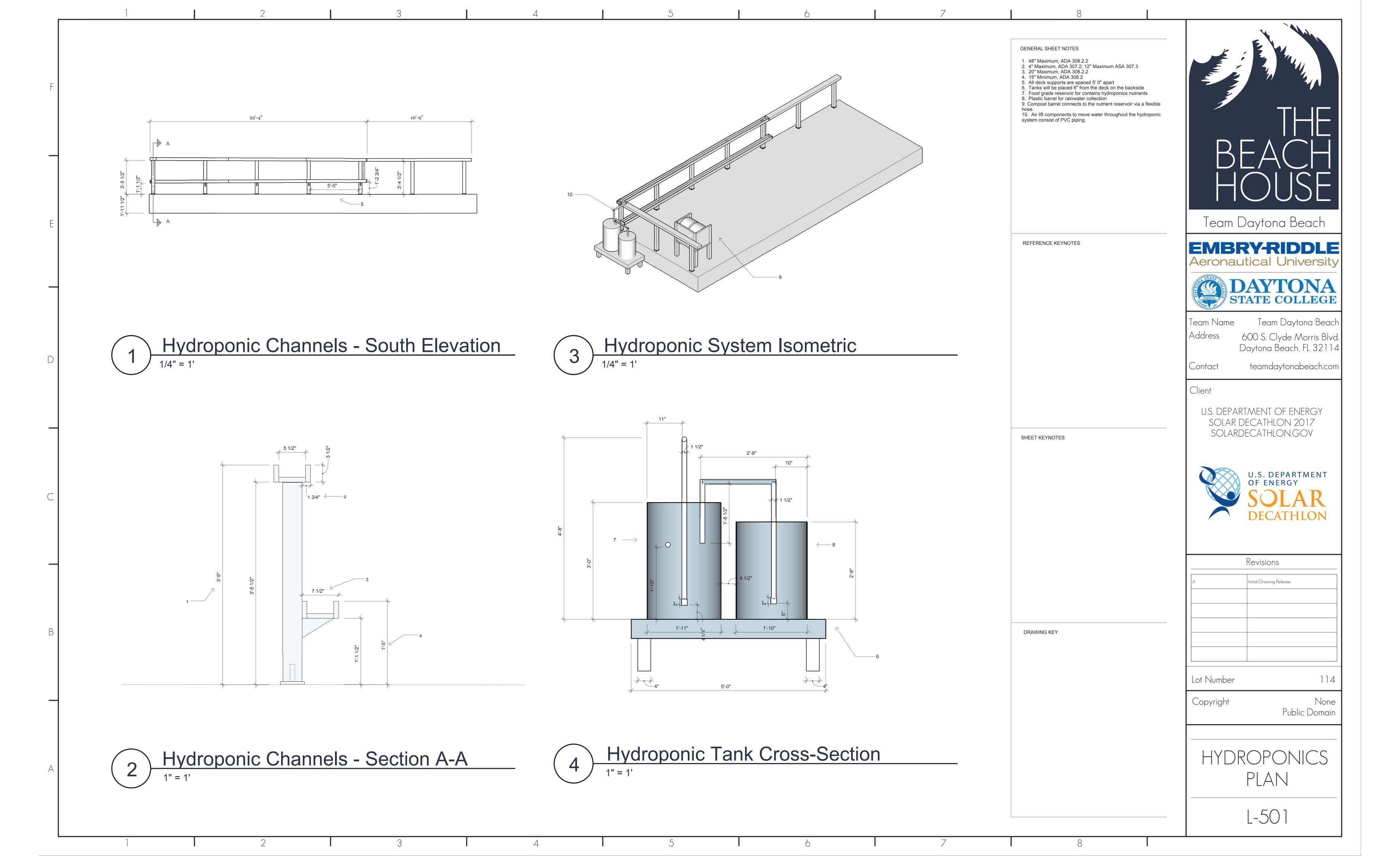


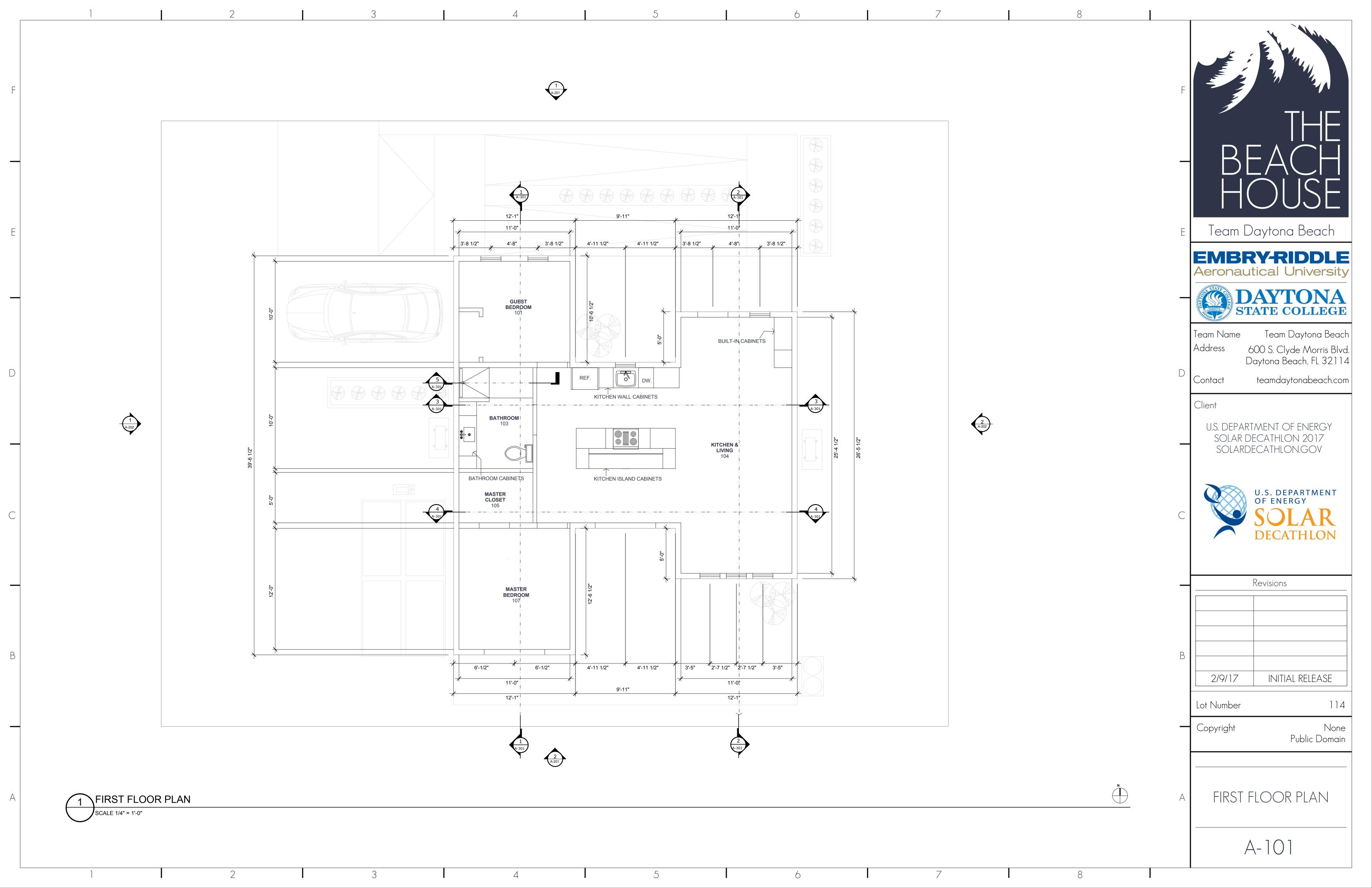


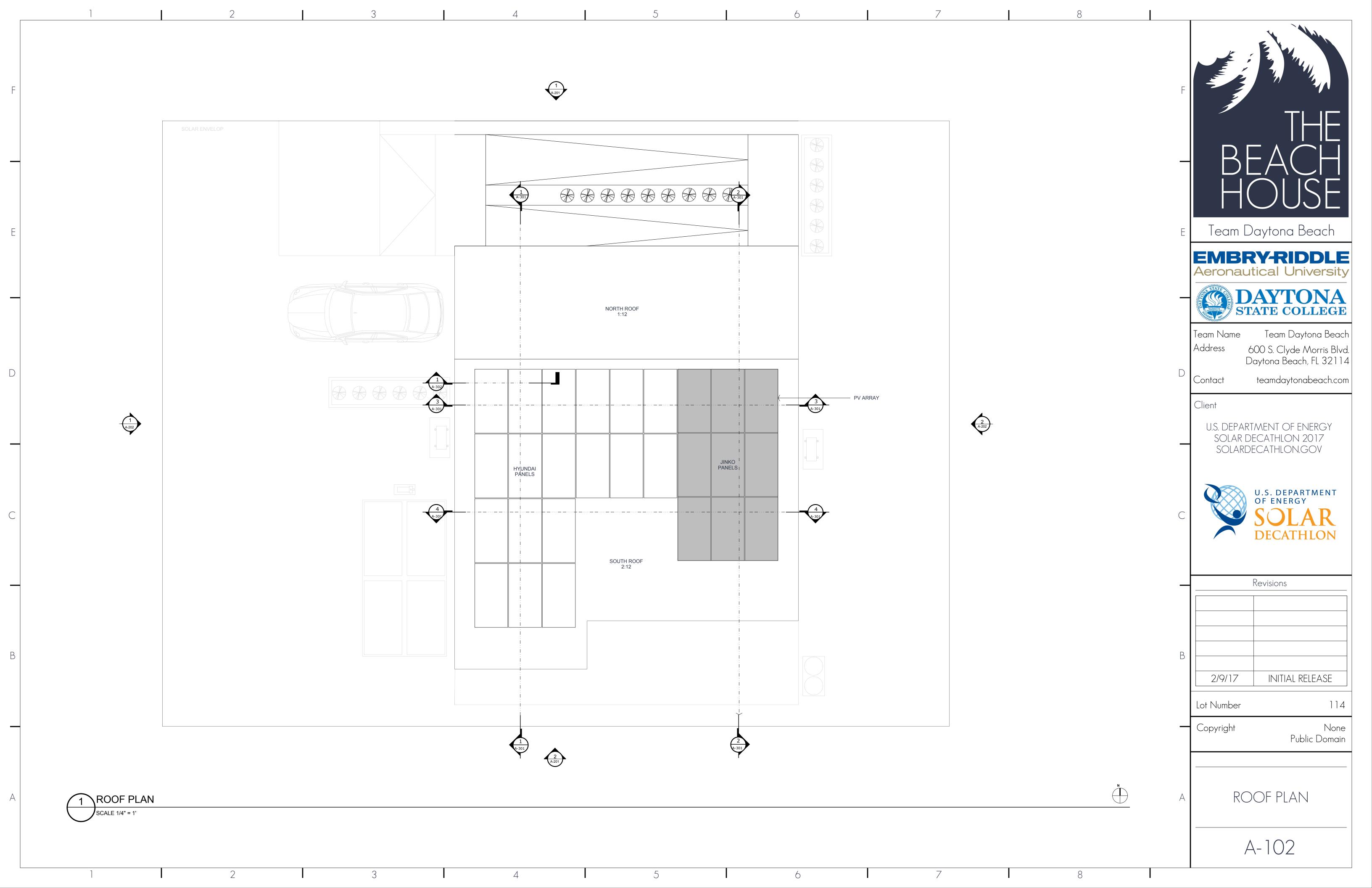


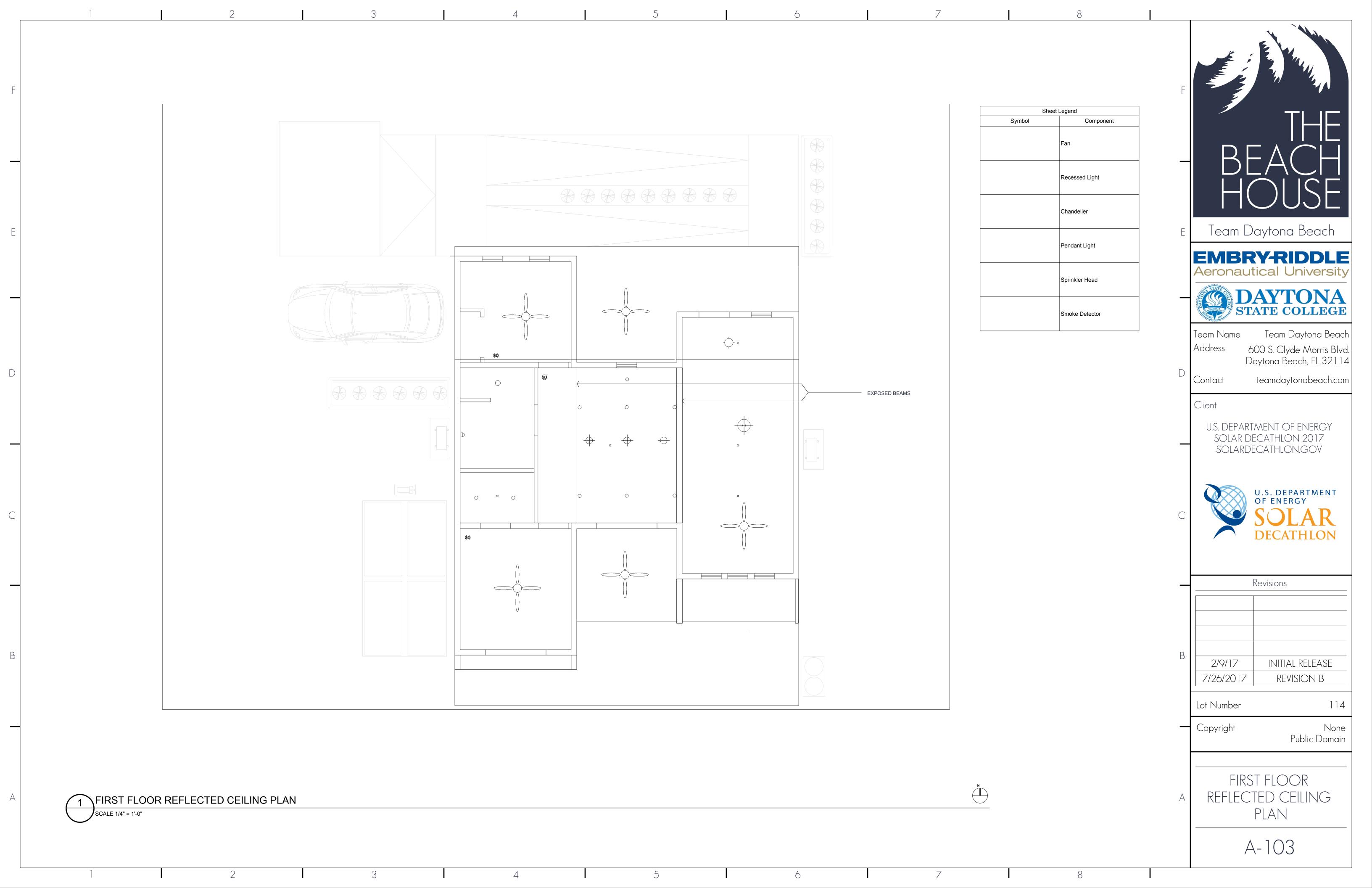




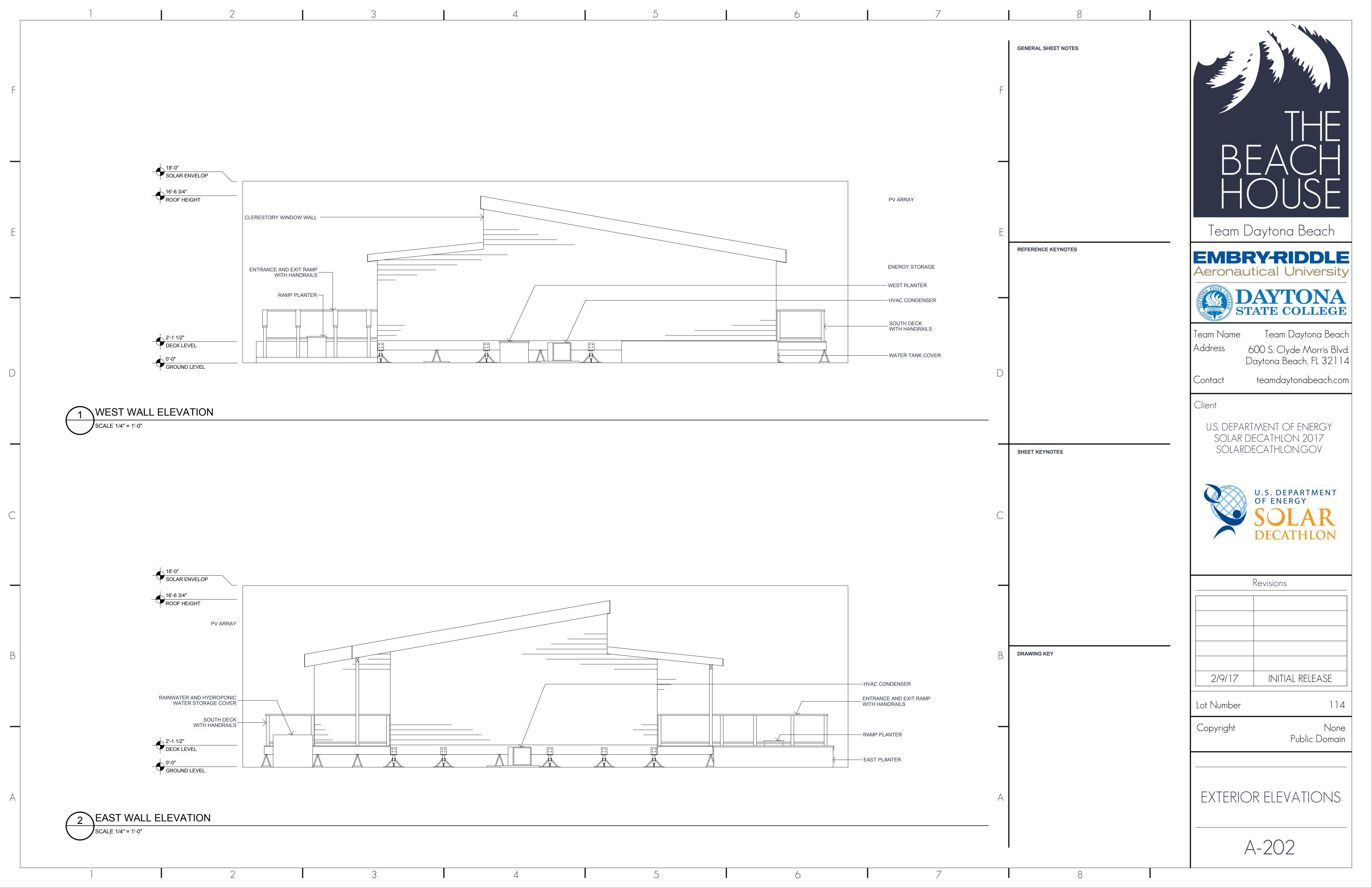


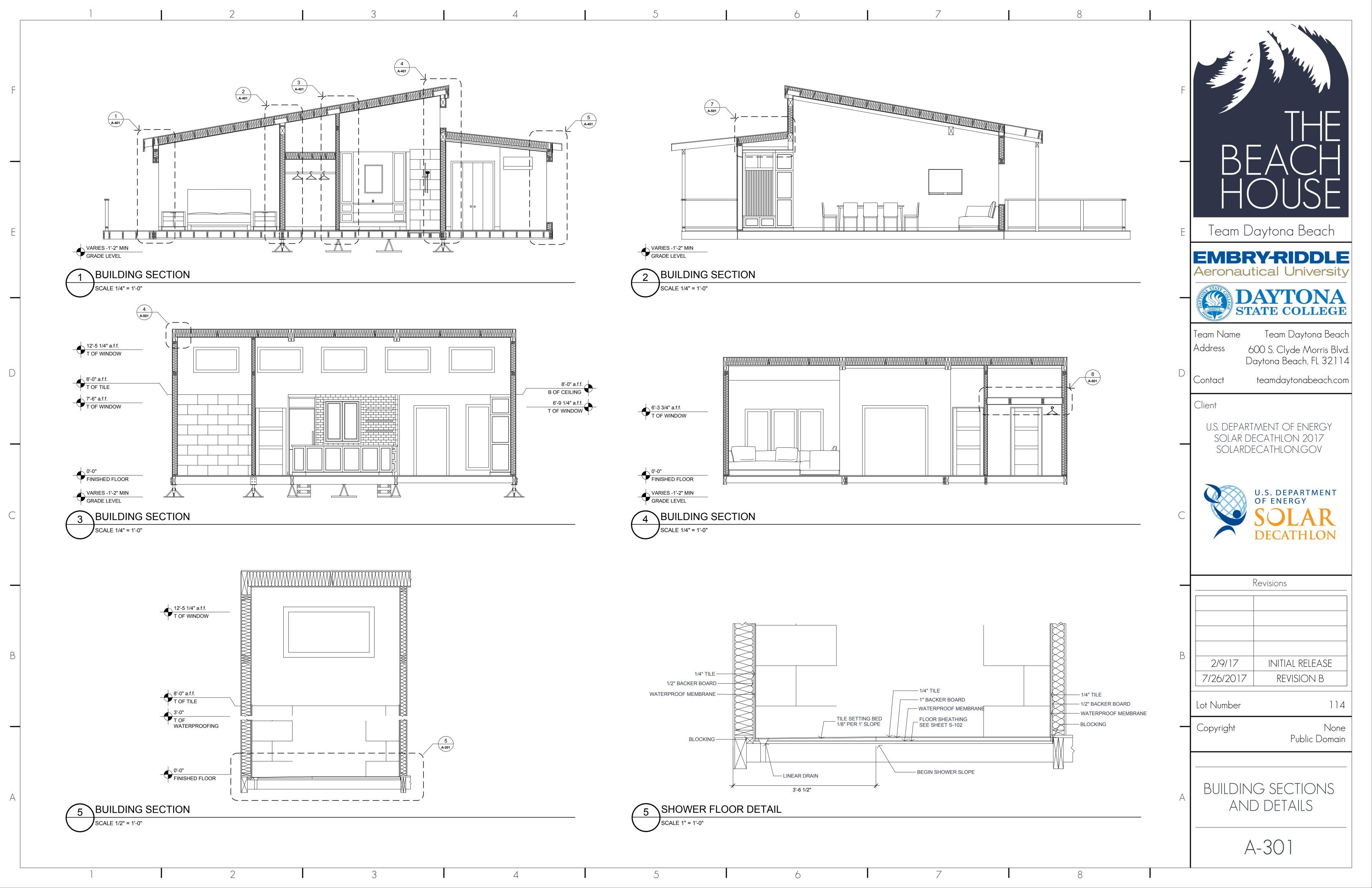


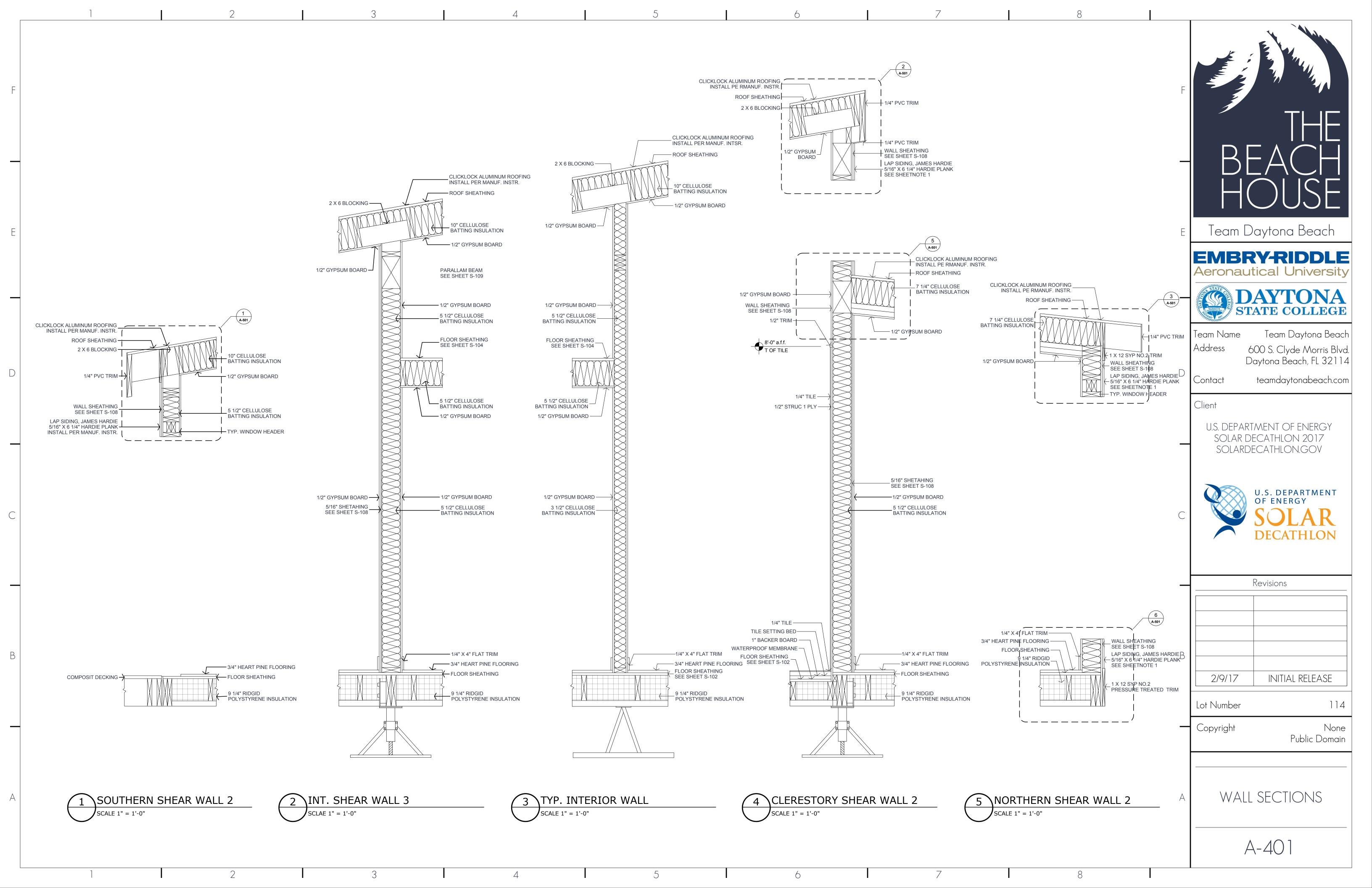


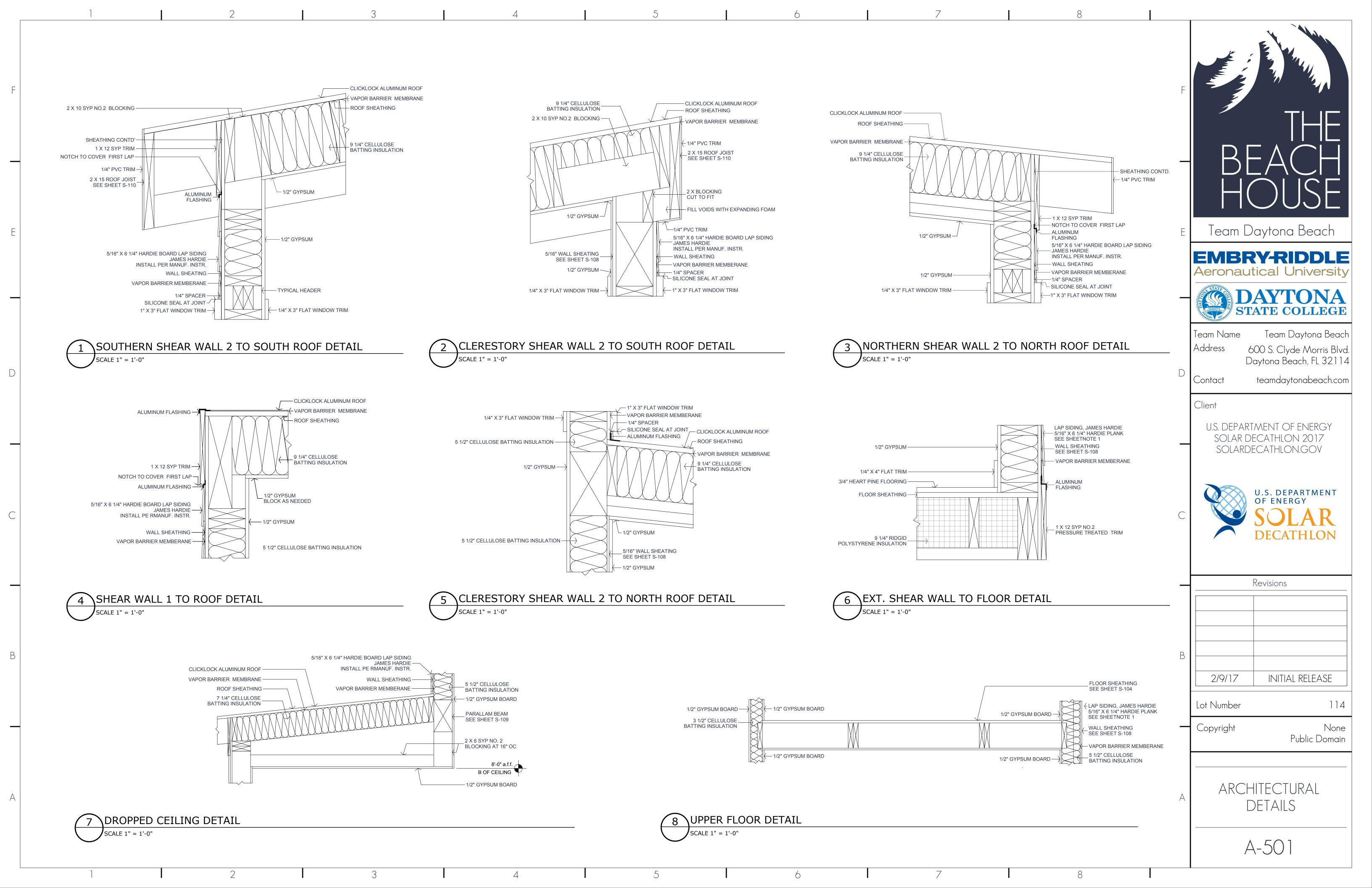




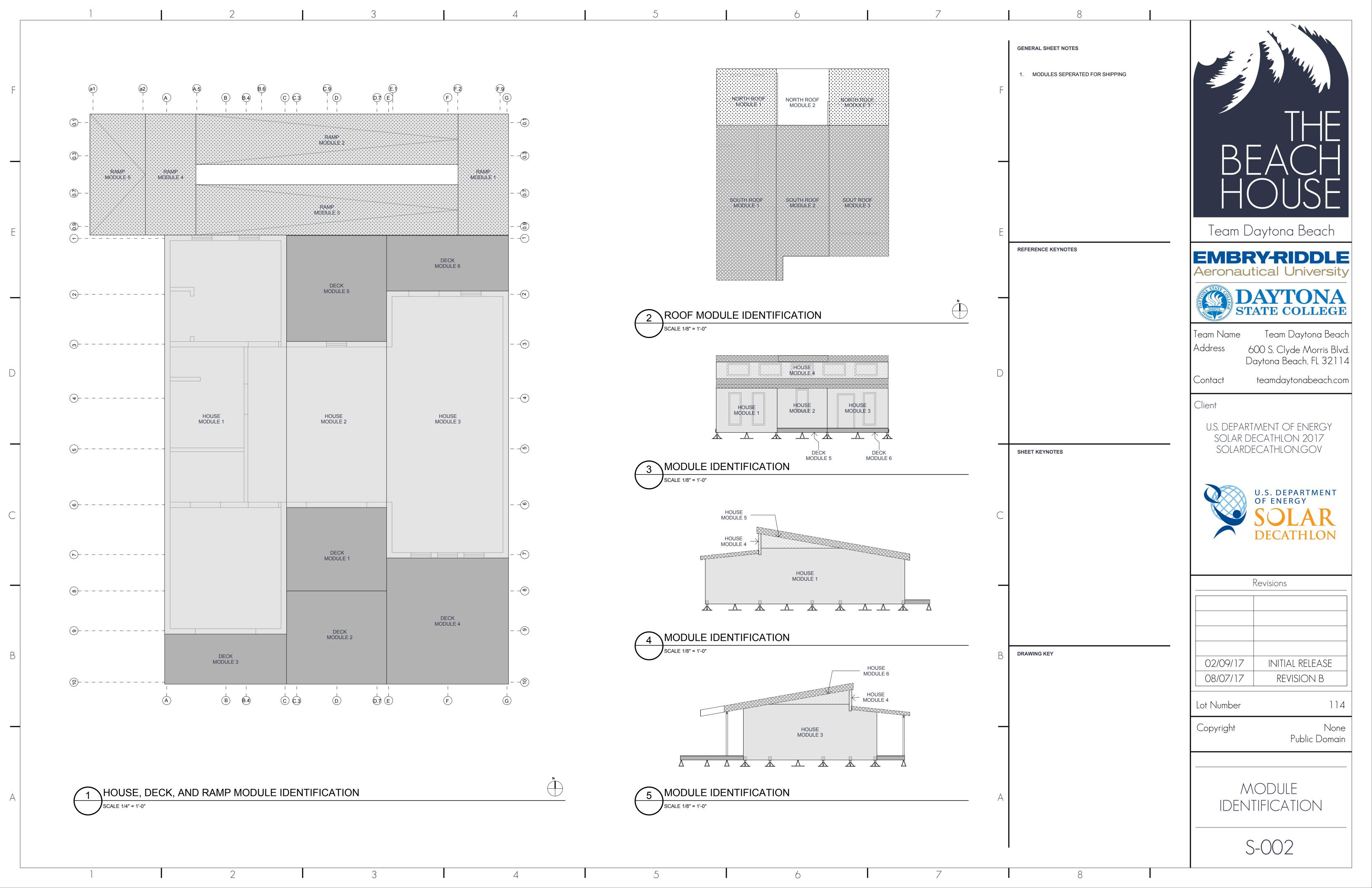


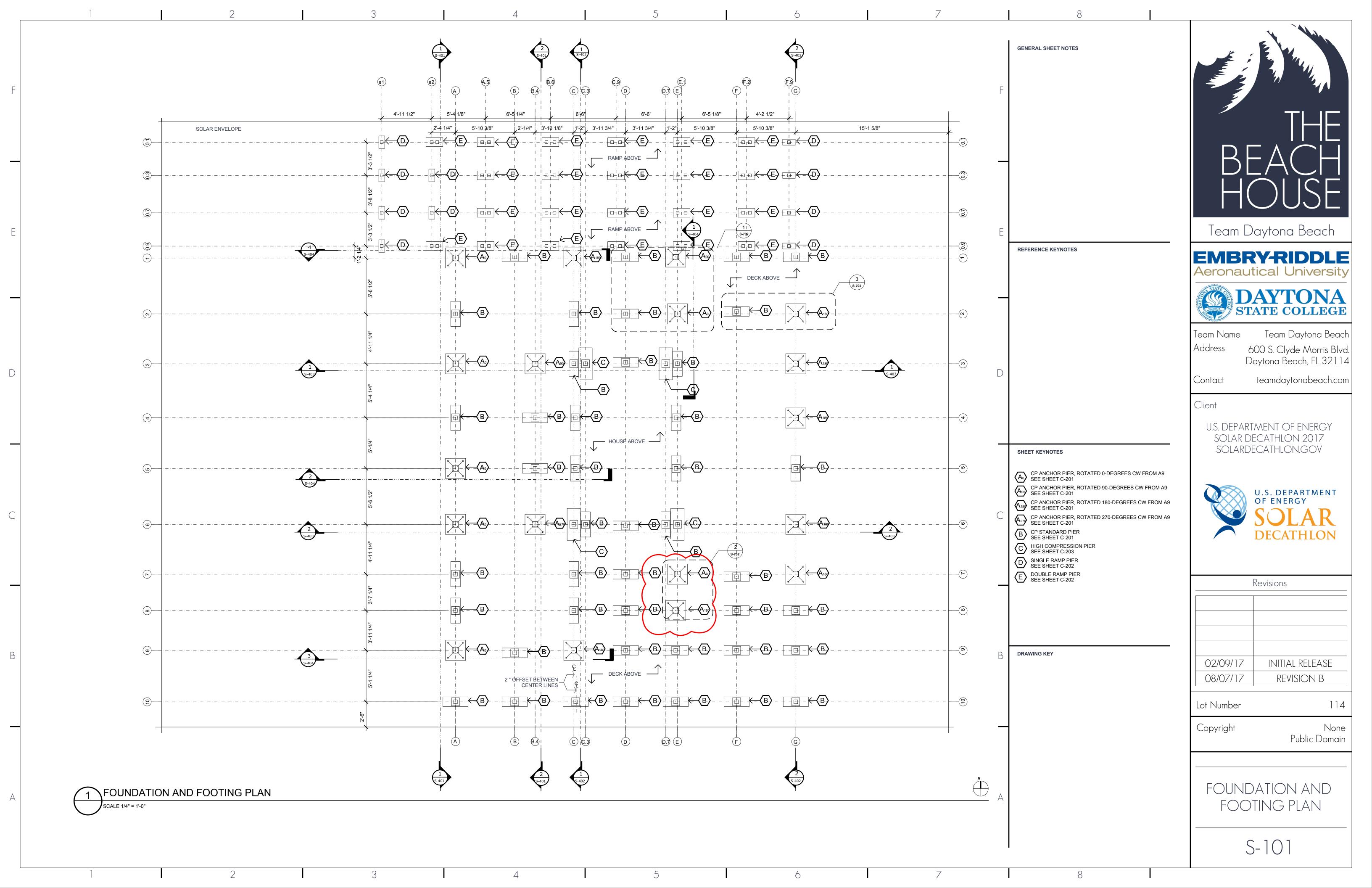


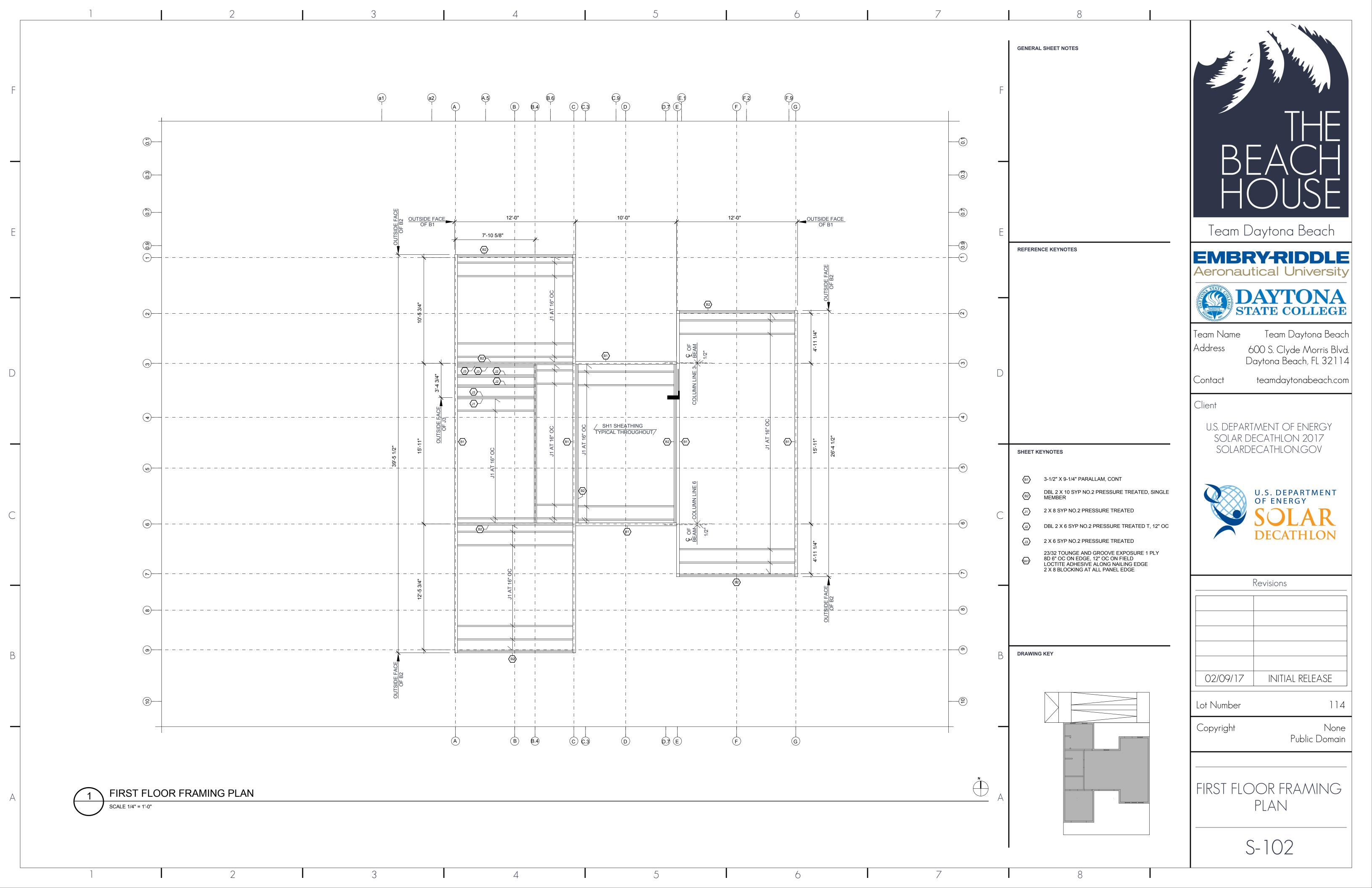


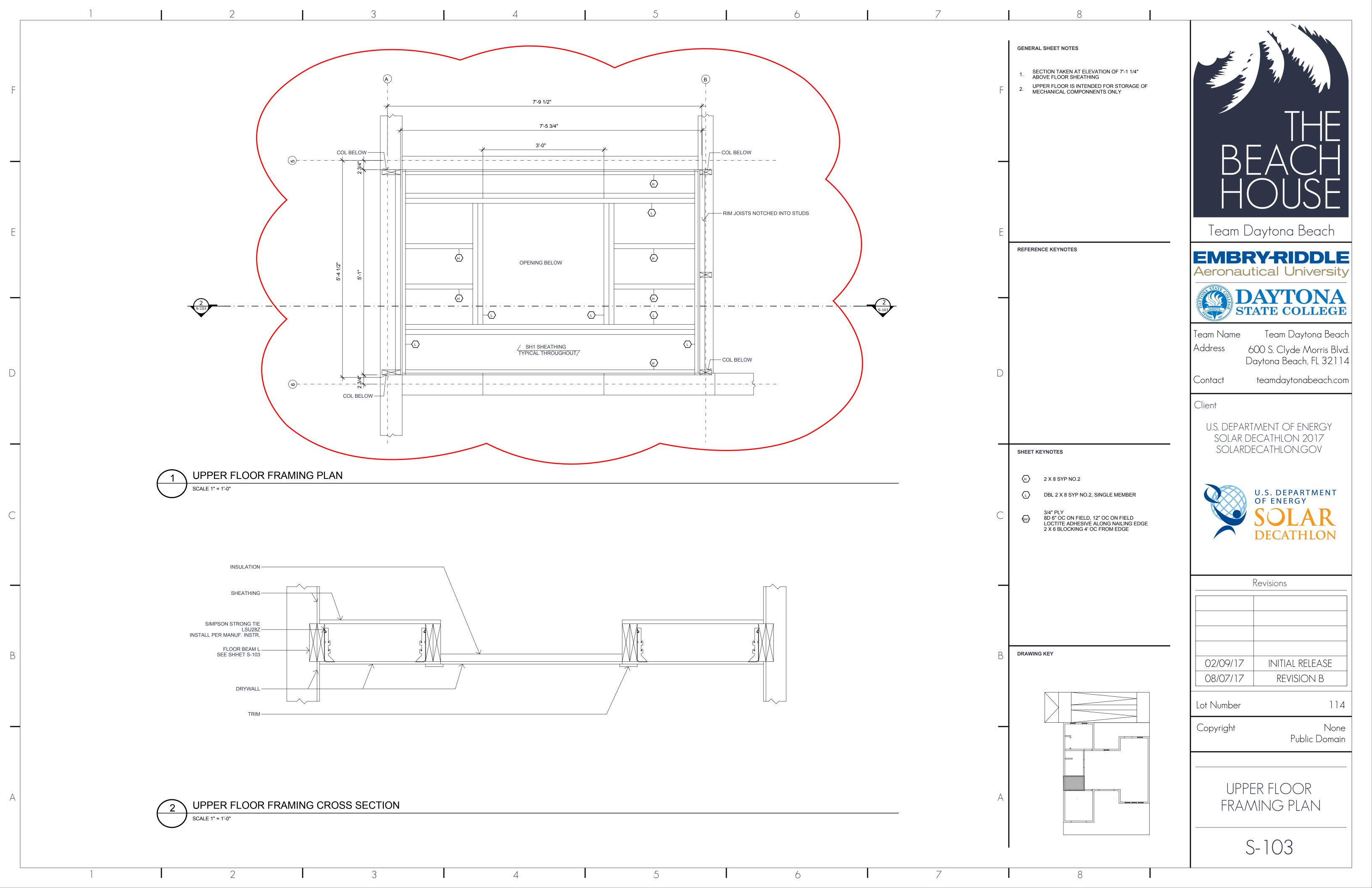


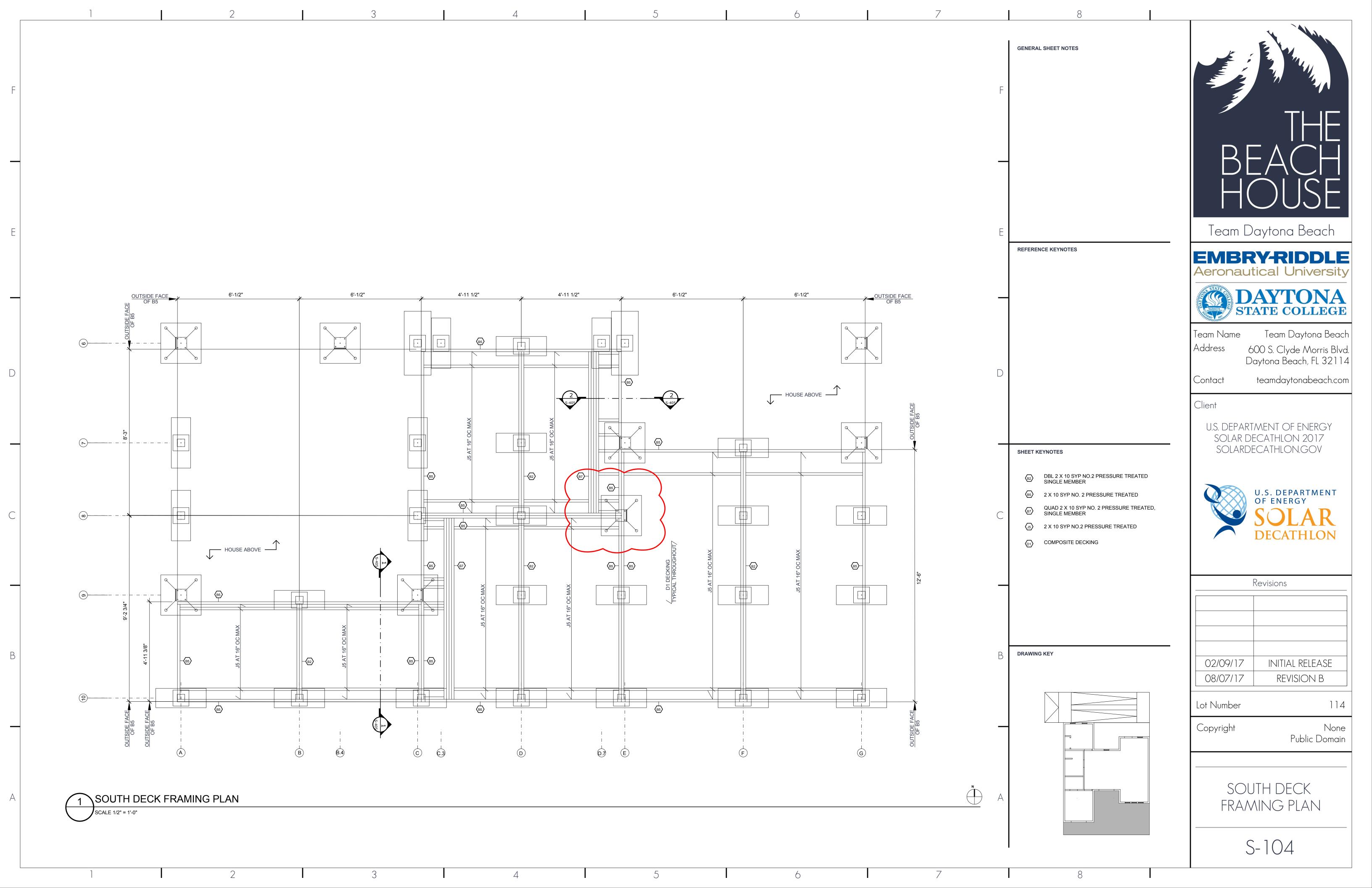
GENERAL NOTES: WALLS 1. ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING APPLICABLE REFERENCE STANDARDS SURFACE DESIGNATION DESIGN PRESSURE (PSF) a. 2017 SOLAR DECATHLON BUILDING CODE EXTERNAL PRESSURE WINDWARD WALL (ALL) LEEWARD WALL (WIND N-S OR S-N) b. 2017 SOLAR DECATHLON RULES LEEWARD WALL(WIND W-E OR E-W) c. 2017 SOLAR DECATHLON MINIMUM BUILDING DESIGN CONSIDERATIONS d. 2014 INTERNATIONAL RESIDENTAL CODE e. ASCE 7-10, MINIMUM DESIGN CODES FOR BUILDINGS OR OTHER STRUCTURES ROOF f. 2000 RESIDENTIAL STRUCTURAL DESIGN GUIDE (RSDG) USING UPDATED ASD LOAD COMBINATIONS FROM ASCE 07-10 SURFACE DESIGNATION | WIND DESIGN EXTERNAL PRESSURE (PSF) UNDER EAVE PRESSURE (PSF) DIRECTION (DISTANCE FROM 2. ALL STUCTURAL WORK SHALL CONFORM TO THE PROJECT SPECIFCTIONS, ALL DRAWING NOTES, AND APPLICABLE REFERENCE STANDARDS. 3. TYPICAL DETAILS APPLY THROUGHOUT THE PROJECT, EVEN IF NOT SPECIFICALLY REFERENCED IN PLANS OR DETAILS. DETAILS OF CONSTRUCTION NOT FULLY SHOWN OR NOTED ON THE DRAWINGS NOR CALLED OUT IN THE SPECIFICATIONS SHALL BE OF THE SAME SIZE AND CHARACTER AS FOR SIMILAR CONDITIONS WHICH ARE SHOWN AND NOTED. ARGE ROOF (ALL) S-N ARGE ROOF (0-5.5) W-E or E-W 4. STRUCTURAL ELEMENTS SHALL BE CENTERED AROUND GRIDLINES OR DIMENSION LINES, UNLESS OTHERWISE NOTED. LARGE ROOF (5.5-11) W-E or E-W -41.51 -26.58 -19.11 5. OPENINGS SHALL NOT BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER. STRUCTURAL LUMBER: 1. ALL FRAMING LUMBER AND DETAILS OF WOOD CONSTRUCTION SHALL CONFORM TO THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION AND ITS SUPPLEMENTS.",2015 SIESMIC LOADING: 2. ALL ENGINEERED WOOD PRODUCTS ARE TO BE PROVIDED BY WEYERHAEUSER AND ARE TO MEET ALL SPECIFICATIONS OF Team Daytona Beach NO SIESMIC LOADING FOR DAYTONA BEACH, FL WEYERHAEUSER'S "TRUSS JOIST BEAMS, HEADERS, AND COLUMNS SPECIFIER'S GUIDE." SPECTRAL RESPONSE ACCELERATION FACTOR FOR DENVER, CO: 0.182 IN ACCORDANCE WITH SECTION 11.1.2, THE BEACH HOUSE IS EXEMPTED FROM ASCE 07-10 REQUIREMENTS (SECTION 11.1.2) 3. TYPICAL LUMBER SHALL BE OF THE FOLLOWING MINIMUM GRADE AND SHALL BE GRADE STAMPED BY A RECOGNIZED GRADING **EMBRY-RIDDLE** AGENCY, SHALL BE SURFACED DRY, AND SHALL BE USED AT A MAXIMUM OF 19% WATER CONTENT. SPECIES: SOUTHERN YELLOW SPECIAL CONSIDERATIONS: PINE: NO. 2 UNLESS SPECIFIED OTHERWISE IN DRAWINGS Aeronautical University THE 140 MPH WIND LOADING IN DAYTONA BEACH, FL WAS DETERMINED TO CONTROL THE DESIGN WHEN COMPARED WITH THE SIESMIC LOADING AND WIND LOADING FOR DENVER, CO. 4. PLYWOOD SHEATHING SHALL BE APA GRADE STAMPED FOR THE SPECIFIC SPAN AND SHEAR WALLS SHALL BE MADE WITH APA RATED STRUCTURAL SHEATHING GRADE 1. ALL FLOOR PLYWOOD SHEATHING SHALL BE GLUED TO FLOOR JOISTS USING CONSTRUCTION ADHESIVE. ALL SHEATHING ON THE **ABREVIATIONS:** BEACH HOUSE SHALL BE FASTENED USING THE SPECIFIC NAILS AND SPACING NOTED IN THE STRUCTURAL DRAWINGS. BETWEEN STATE COLLEGE STEEL: COLUMN CONTINUOUS MANUFACTURER INSTRUCTIONS 1. MATERIAL SPECIFICATIONS MUST BE AS FOLLOWS: A. FOUNDATION BRACKETS 1. ASTM A500 GRADE B ON CENTER SOUTHERN YELLOW PINE Team Daytona Beach Team Name B. BOLTS: UNLESS OTHERWISE NOTED ON DRAWINGS a. HIGH STRENGTH BOLTS Address 1. ASTM A325-N 600 S. Clyde Morris Blvd. b. MACHINE BOLTS Daytona Beach, FL 32114 1. ASTM A307 teamdaytonabeach.com _ontact **DESIGN LOADS FOR BUILDING STRUCTURE:** Client DESIGN LOADS PRESENTED BELOW HAVE BEEN DEVELOPED FOR THIS BUILDING TO BE LOCATED IN THE FOLLOWING MUNICIPALITIES: - DENVER, COLORADO, U.S. U.S. DEPARTMENT OF ENERGY - DAYTONA BEACH, FLORIDA, U.S. SOLAR DECATHLON 2017 DEAD LOADS: GRAVITY LOAD SOLARDECATHLON.GOV BIPV/T-PCM ROO PV ROOF ALUMINUM ROOF EXTERIOR WAI FLOOR, WOOD 10 FLOOR, BATHROOM 15 GIRDER 8.5 () SOME LOADS ADOPTED FROM 'DEAD LOADS FOR COMMON RESIDENTAL CONSTRUCTION' (RSDG 2000). U.S. DEPARTMENT OF ENERGY LIVE LOADS: LIVE LOADS OBTAINED FROM SDBC 2017 RAIN LOADS: APPLICABLE SECTIONS OF THE IBC AND IRC 2012 WERE CONSIDERED. HOWEVER, RAIN LOADS WERE NOT FACTORED INTO THE DESIGN OF THE HOUSE DUE TO THE INABILITY FOR THE ROOF TO RETAIN WATER AND PRODUCE A LOAD. FLOOD LOADS: Revisions EFFECTIVE FLOOD INSURANCE RATE MAPS (FIRM) FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) WERE ANALYZED FOR BOTH THE DAYTONA BEACH, FL AND DENVER, CO BUILDING LOCATIONS. SINCE, BOTH BUILDING SITES ARE NOT LOCATED IN FLOOD HAZARD AREAS, THE SPECIFIC EFFECTS OF FLOOD HAZARDS AND FLOOD LOADS WERE NOT DIRECTLY TAKEN INTO CONSIDERATION DURING THE DESIGN AND CONSTRUCTION. SNOW LOADS: A GROUND SNOW LOAD OF 35PSF WAS USED WITH THE ASCE 07-10 TO PRODUCE A UNIFORM SNOW LOAD ON THE ROOF AND TO DETERMINE DRIFT SURCHARGE AND DECK SNOW LOAD. WIND LOADS (DIRECTIONAL PROCEDURE ASCE 07-10): DESIGN WIND SPEED: 140 MPH (DAYTONA BEACH, FL); 115 MPH (DENVER, CO) INITIAL RELEASE 2/9/17 EXPOSURE CATEGORY C -SECTION 26.7.3 (USED ONLY ON THE TEMPORARY FOUNDATION) EXPOSURE CATEGORY D –SECTION 26.7.3 (USED ON THE ENTIRE STRUCTURE EXCEPT THE TEMPORY FOUNDATION TO ALLOW FOR THE BEACH HOUSE TO BE LATER LOCATED ON A PERMANENT FOUNDATION IN COASTAL AREAS WHERE THE DESIGN WIND SPEED IS Lot Number LESS THAN OR EQUAL TO 140MPH) BUILDING: LOW RISE, RIDGID, ENCLOSED -SECTIONS 26.2 AND 26.9.2 None Copyright RISK CATERGORY II—TABLE 1.5-1 Public Domain DESIGN WIND LOADING CASES I&III—SECTION 27.4.6 AND APPENDIX D DAYTONA BEACH, FL WIND LOADING CONTROLLED THE DESIGN. THE EXPOSURE D WIND LOADS USED ON THE STRUCTUAL ANALYSIS ARE SHOWN BELOW: STRUCTURAL NOTES

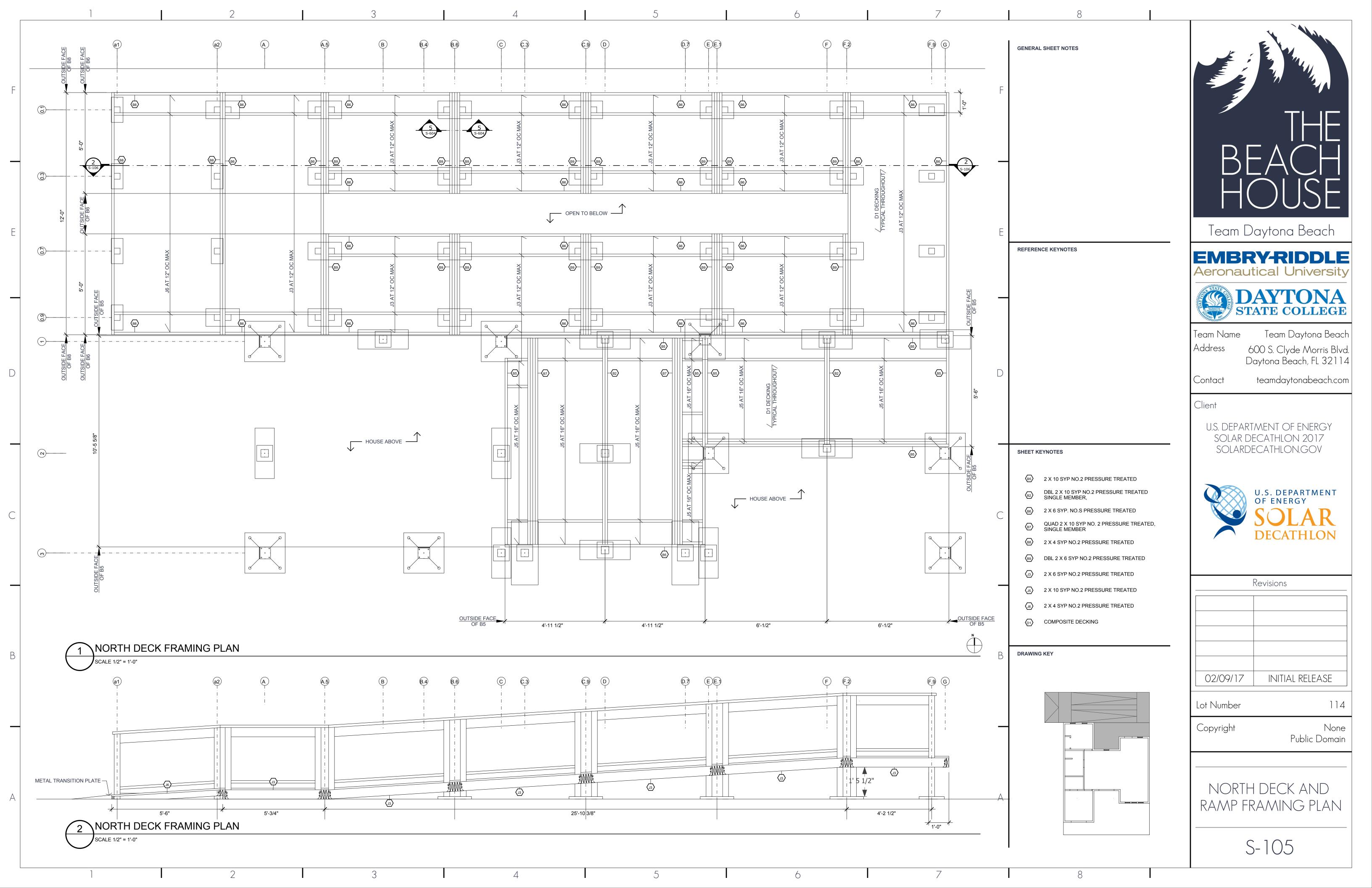


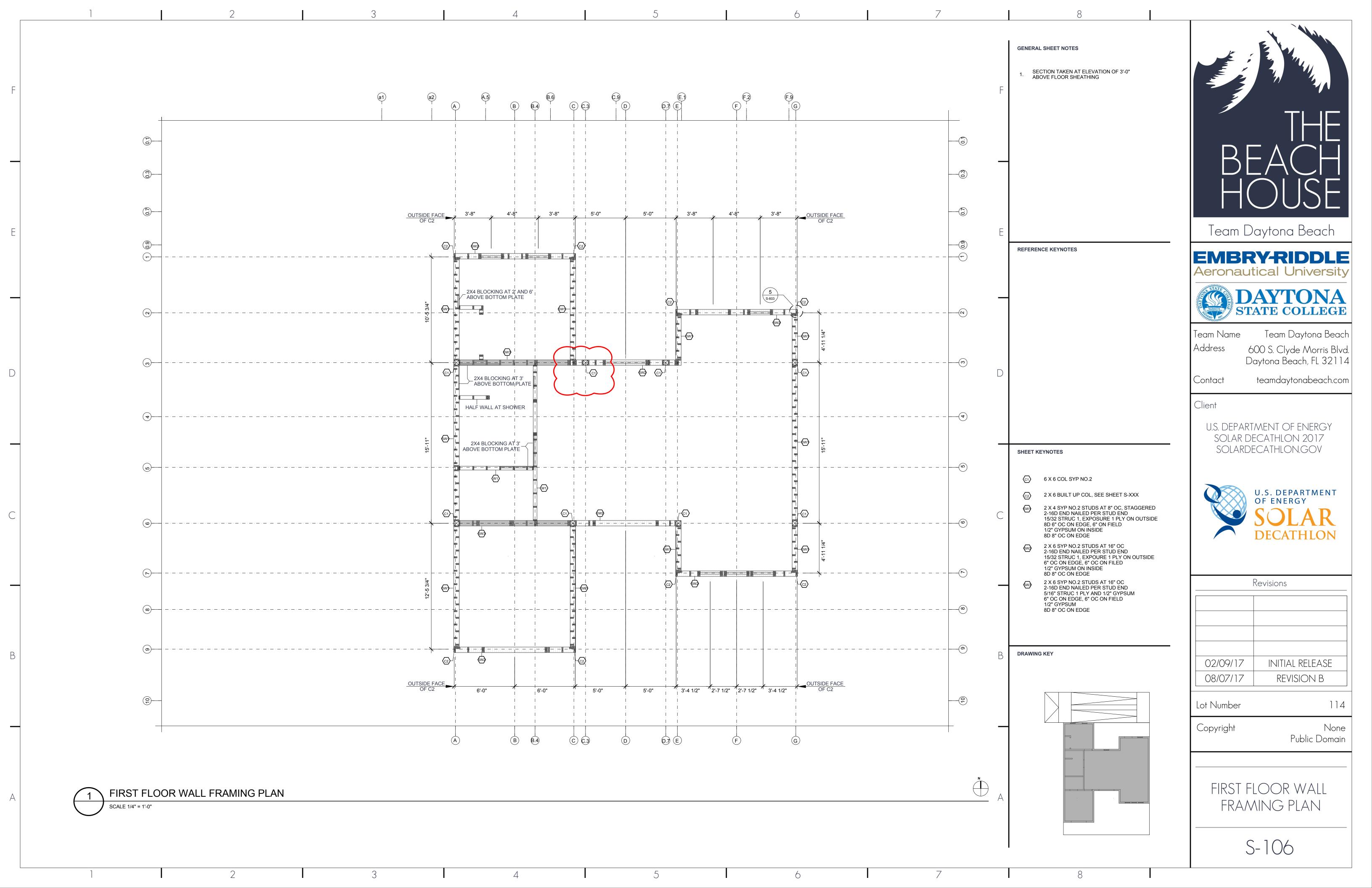


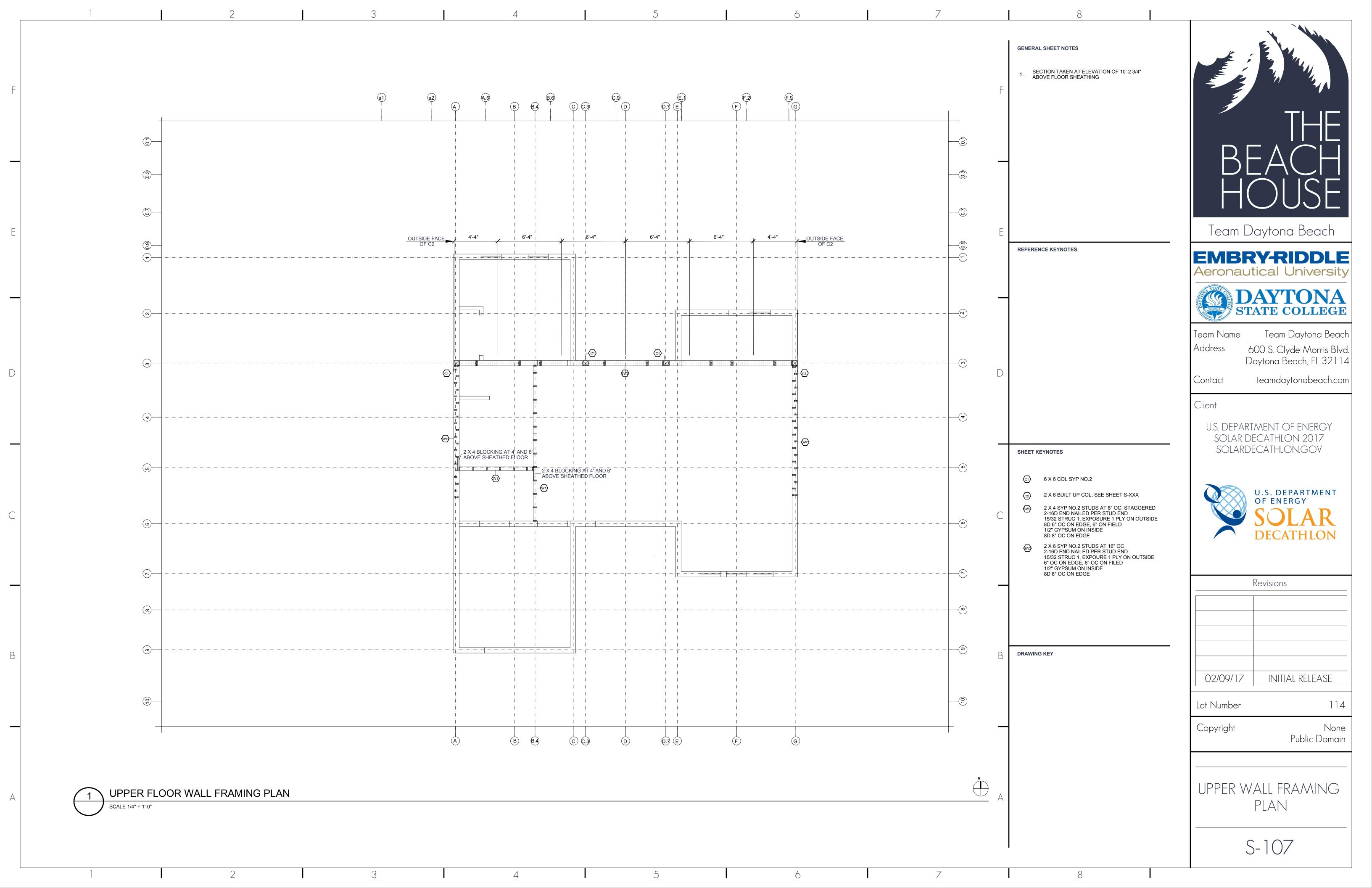


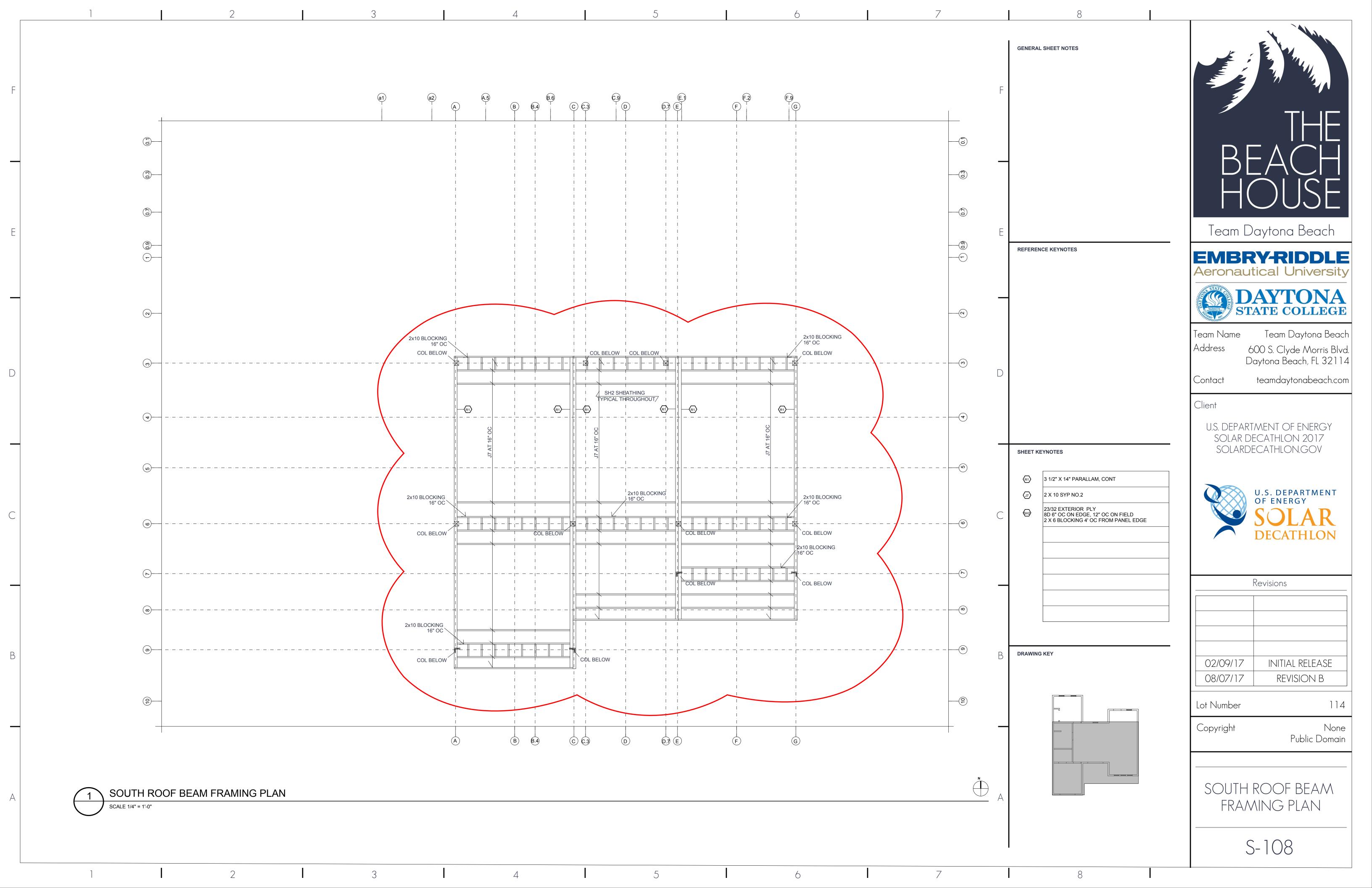


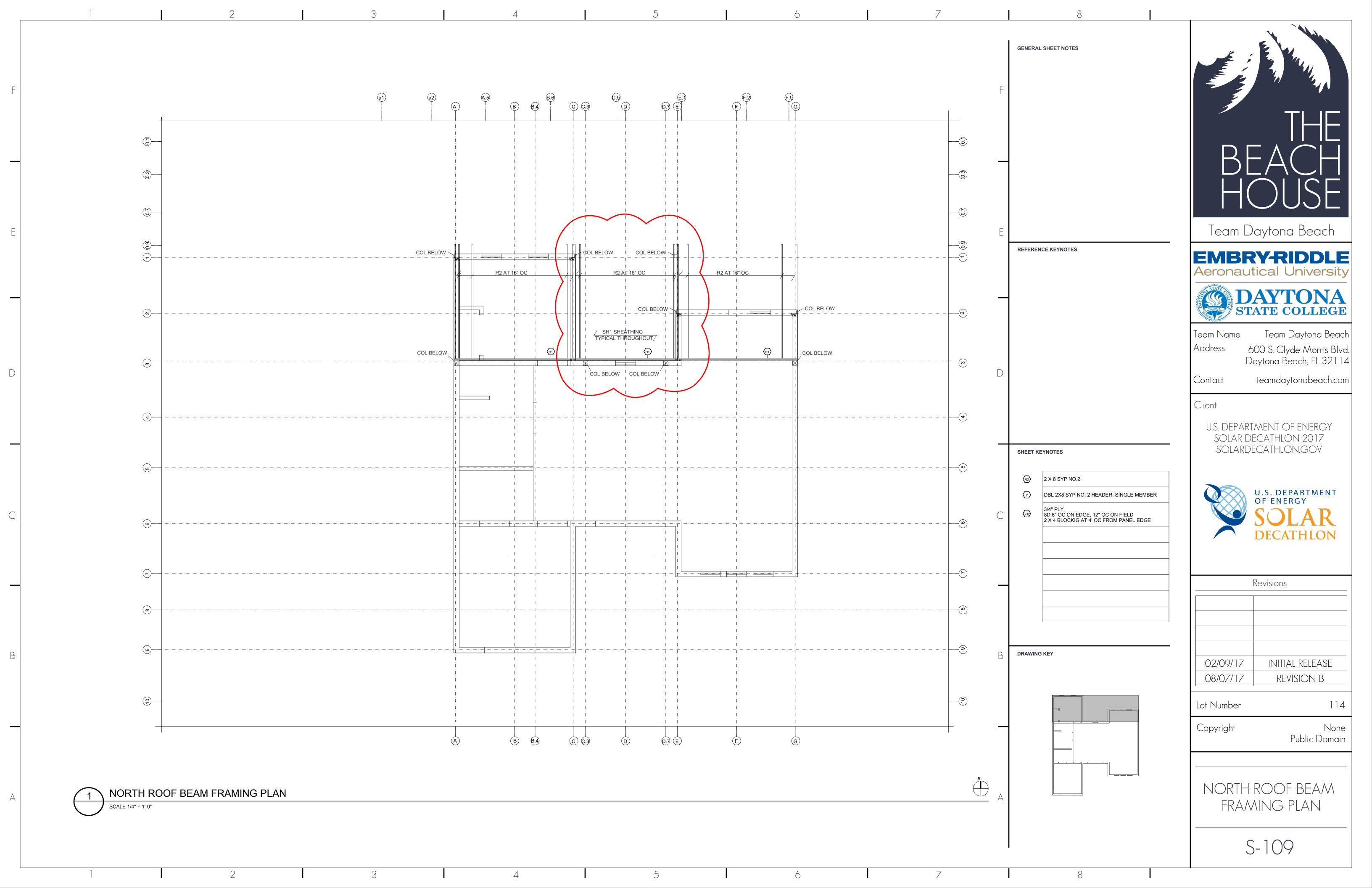


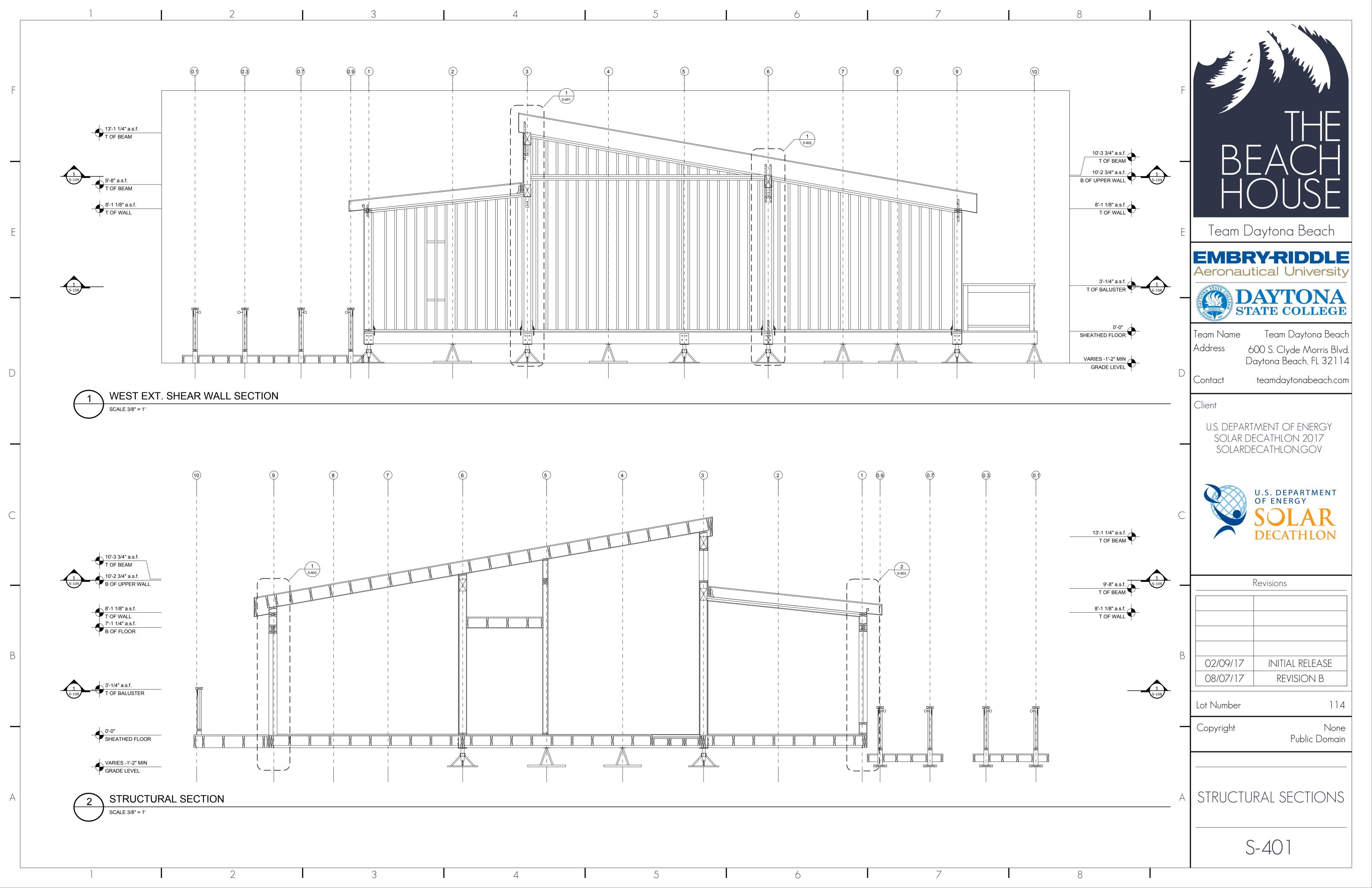


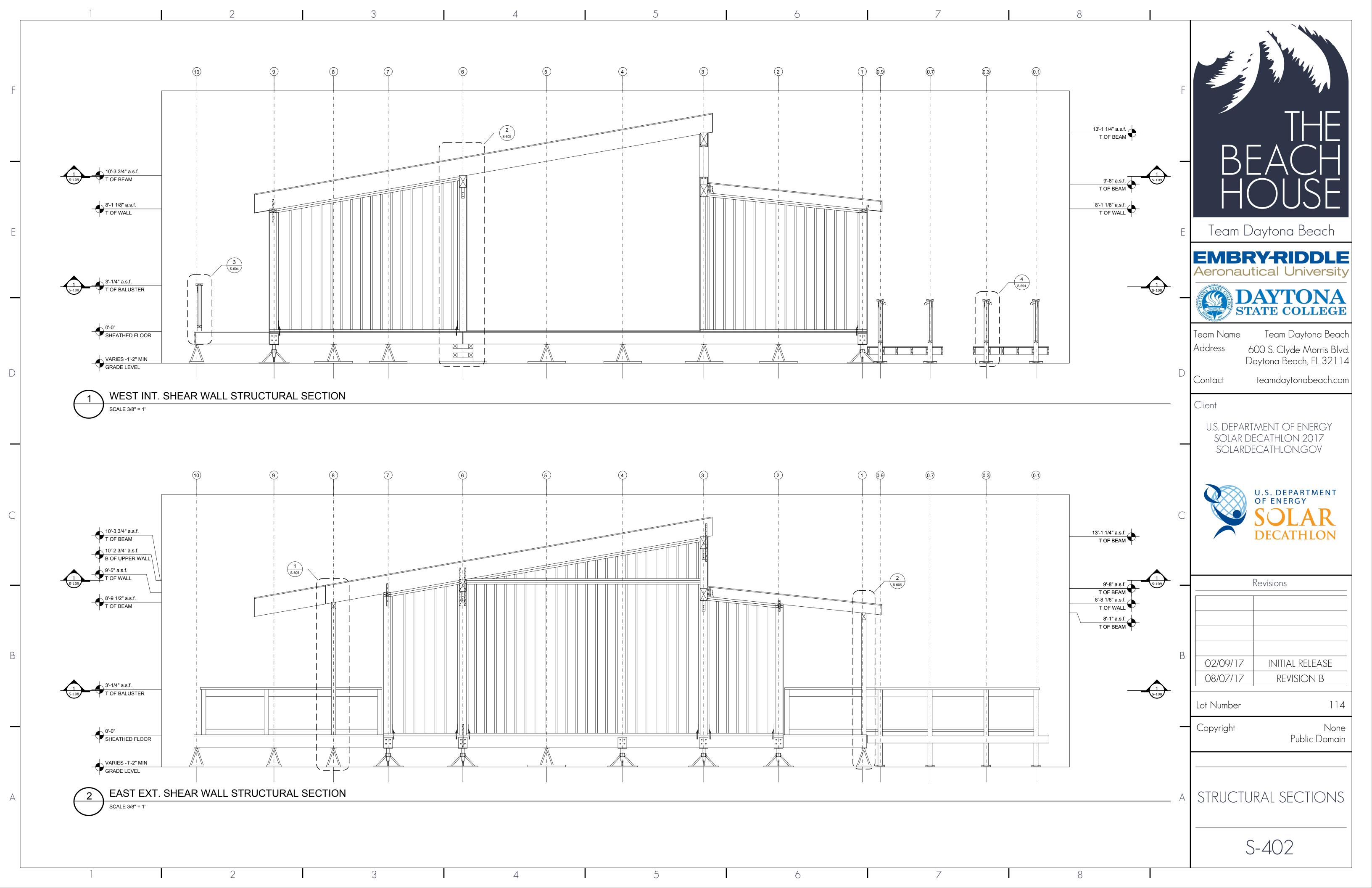


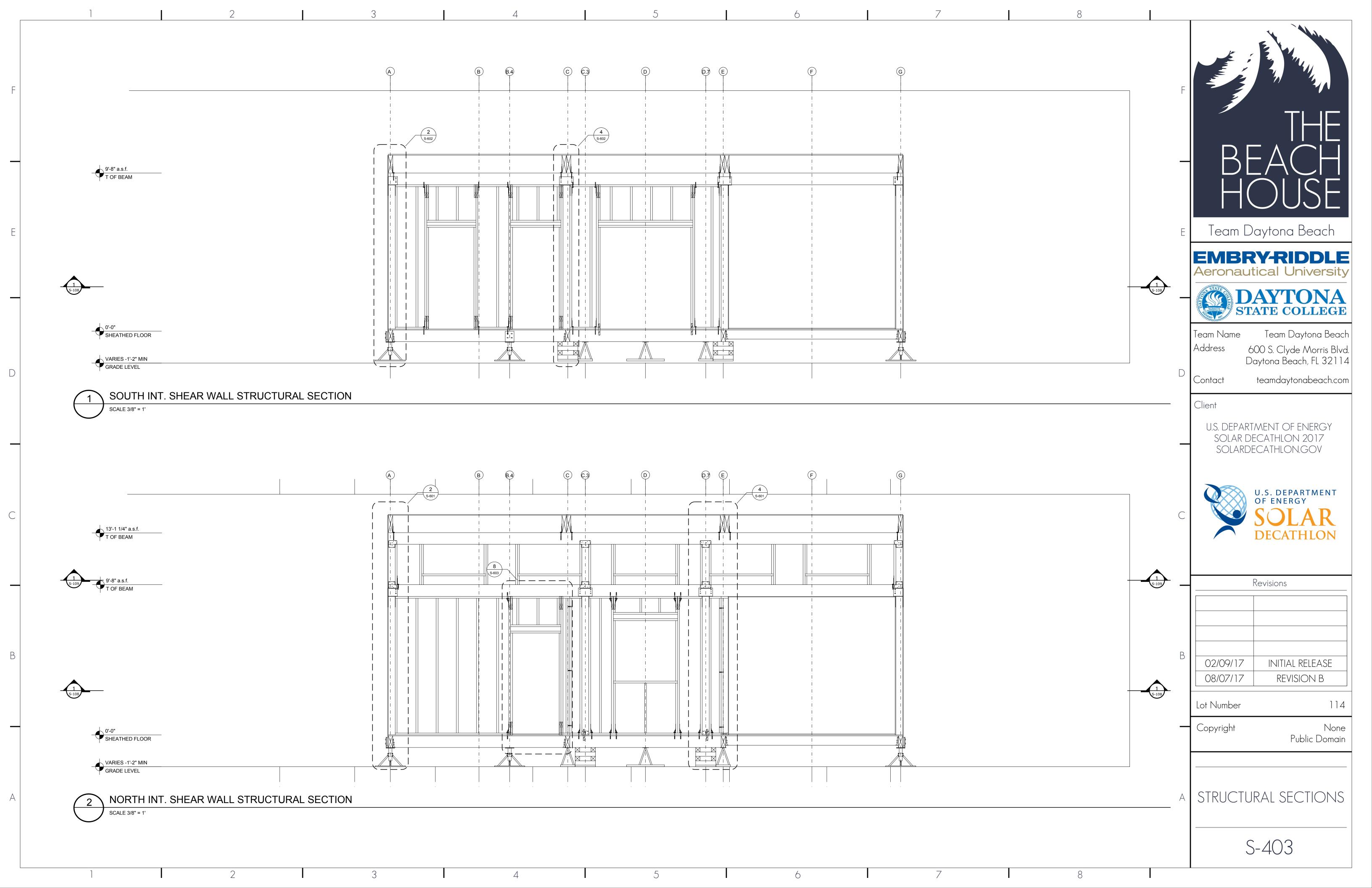


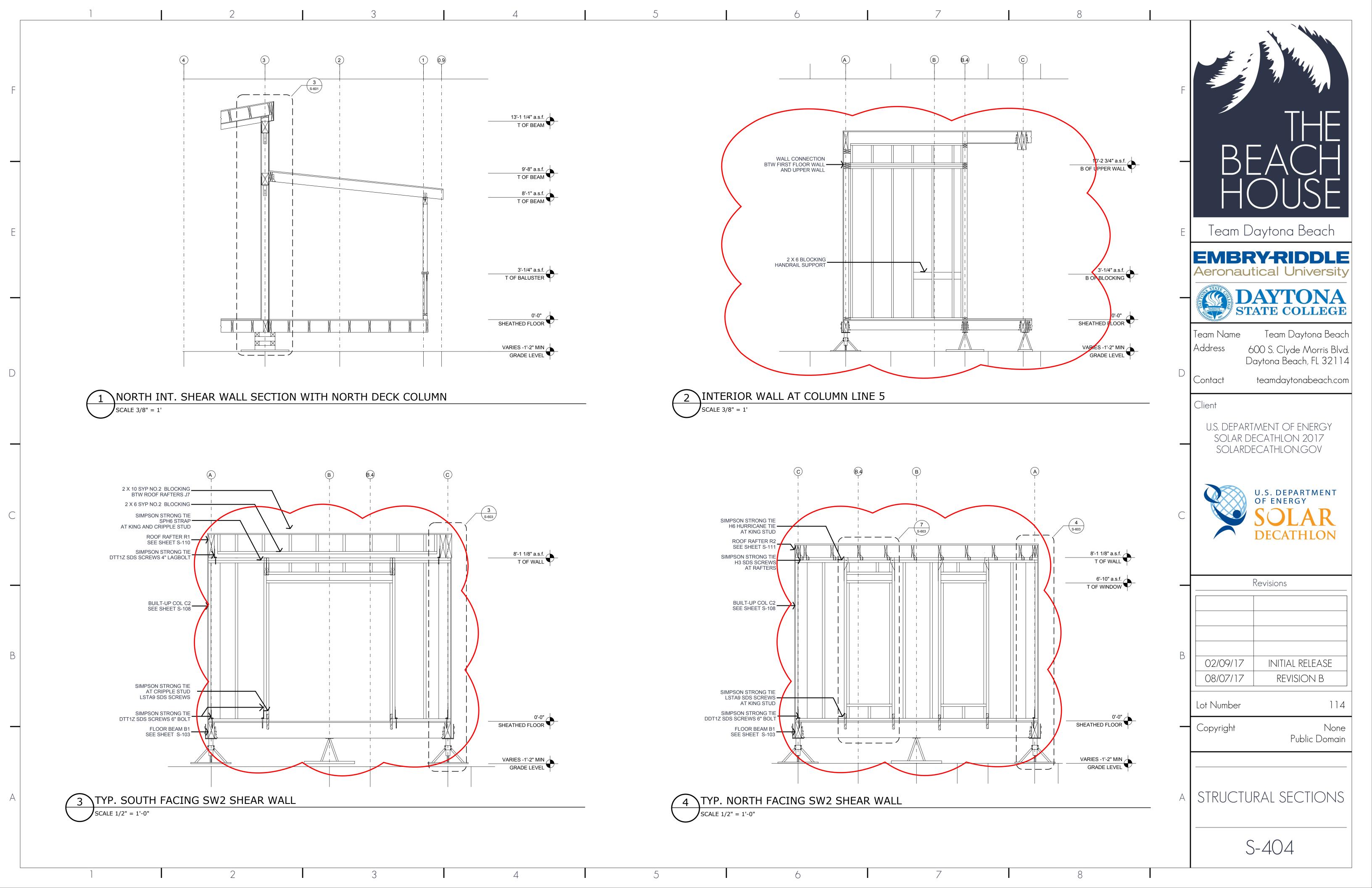


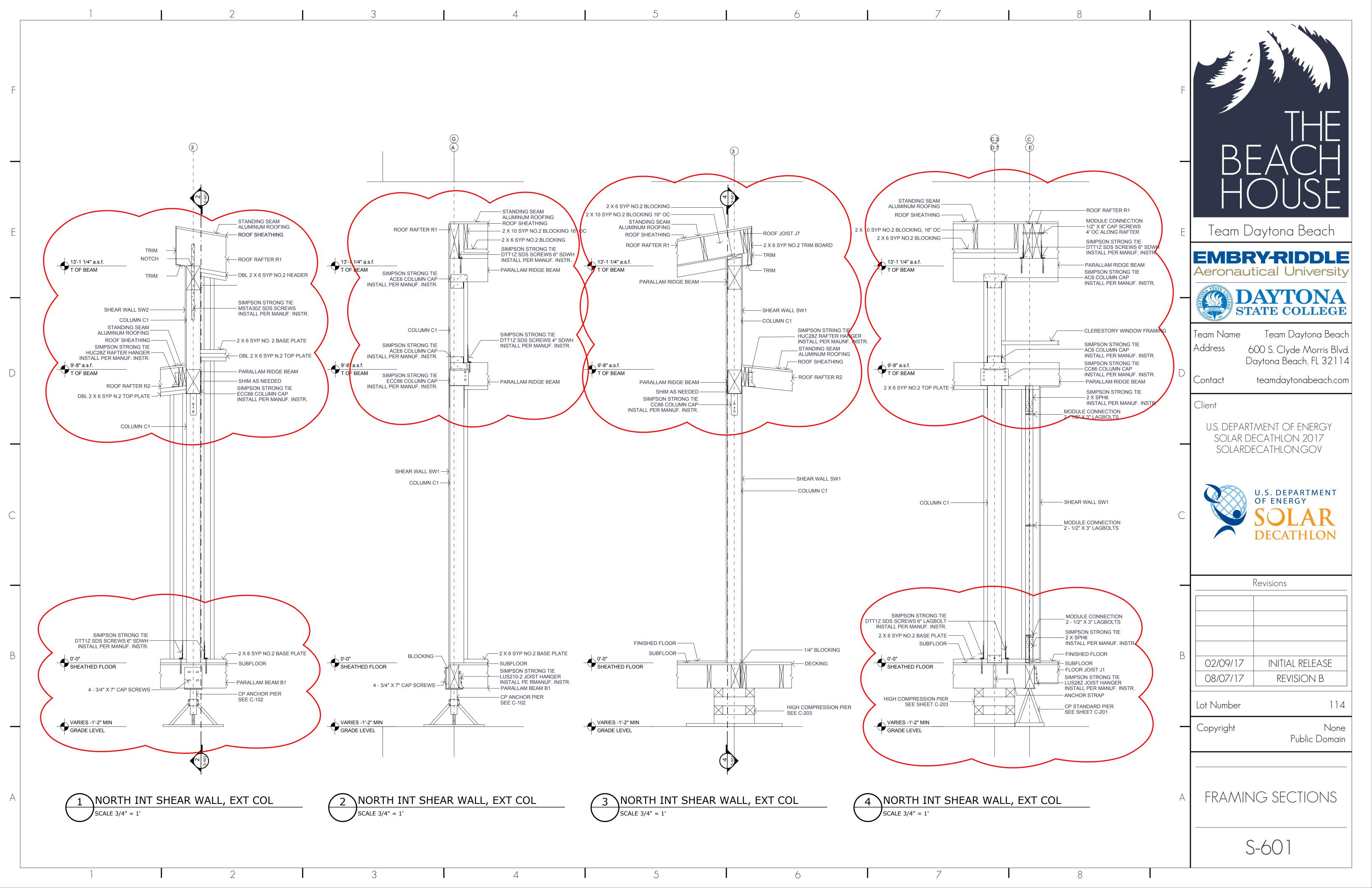


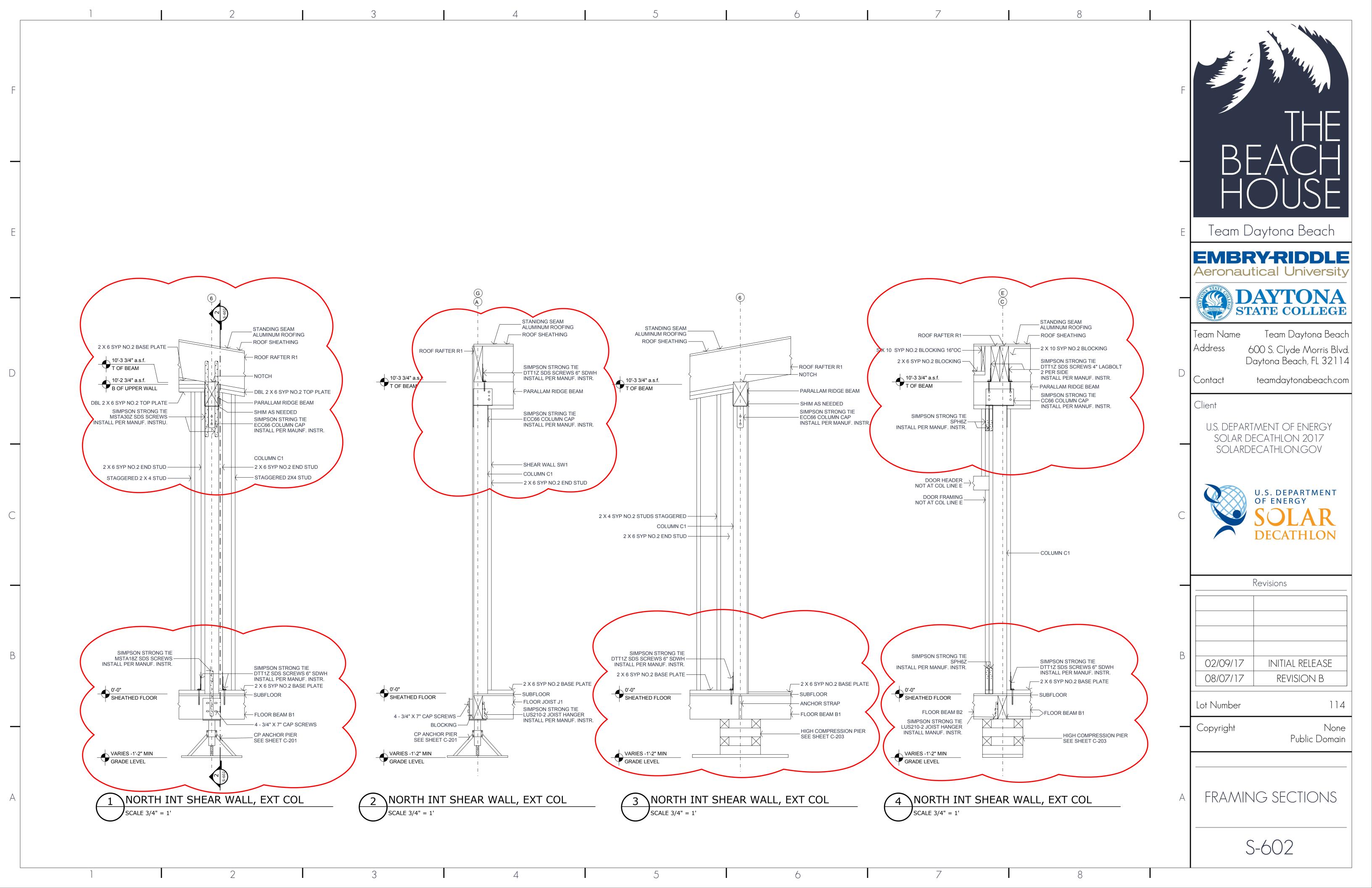


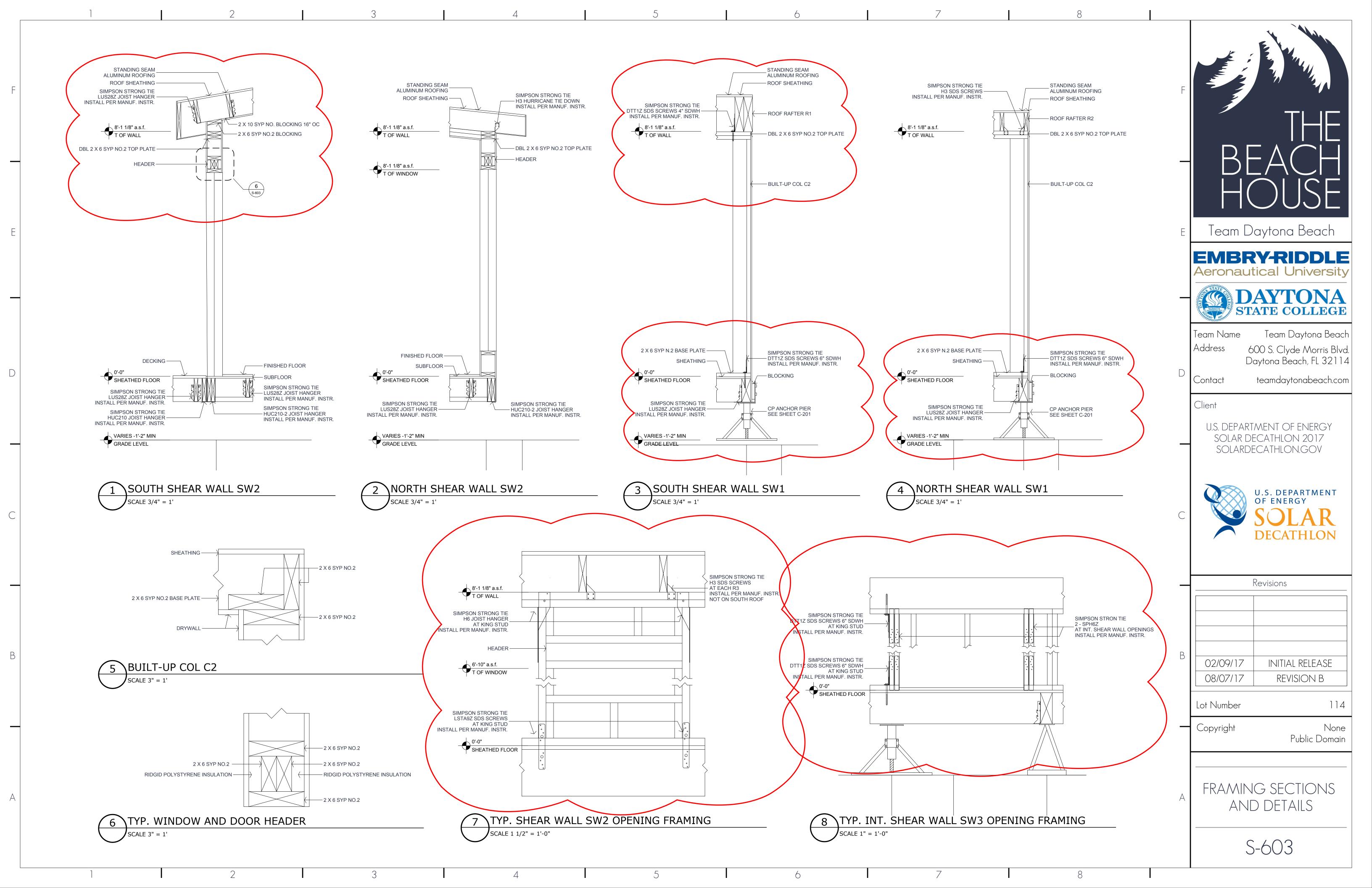


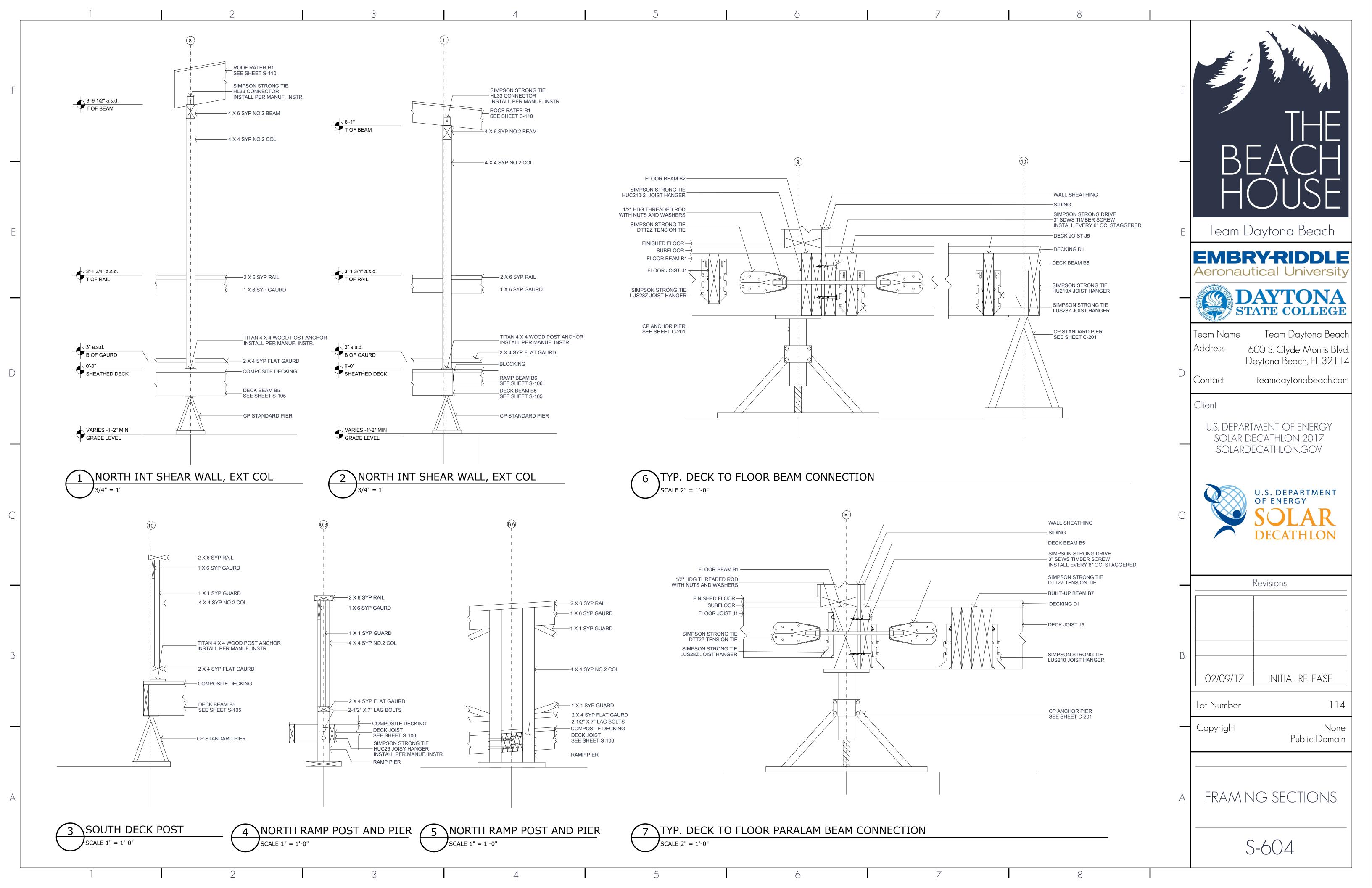


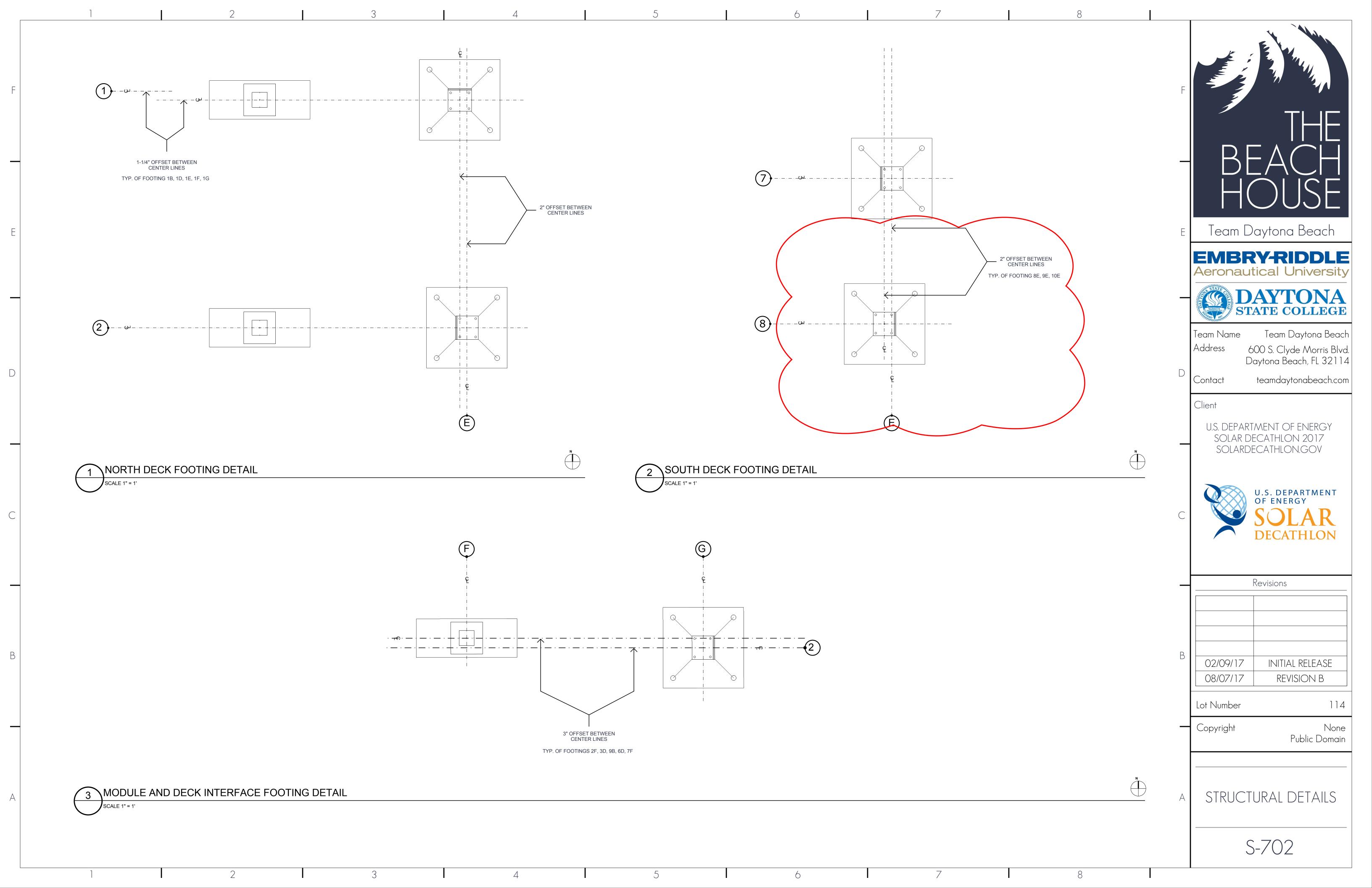


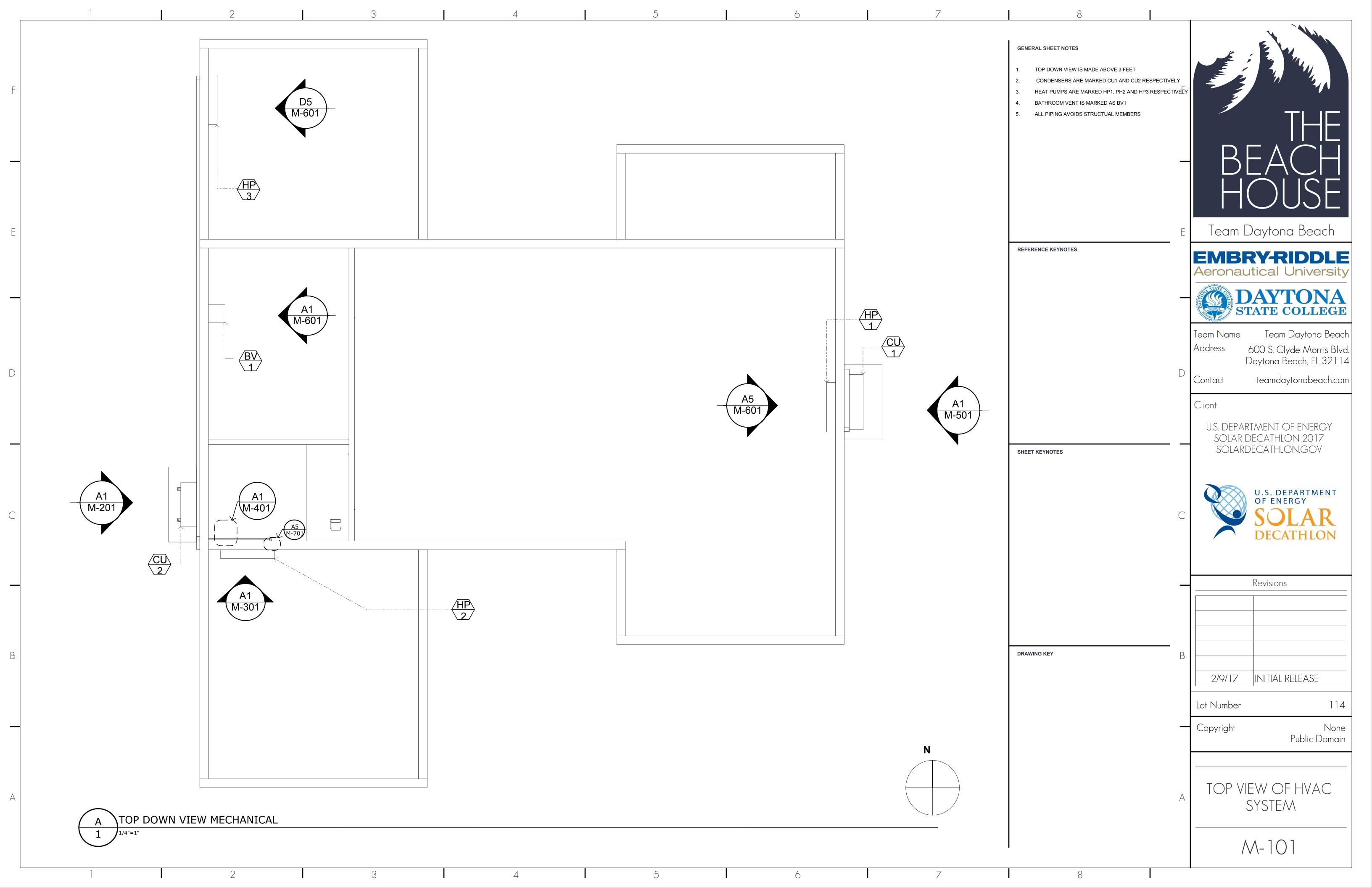


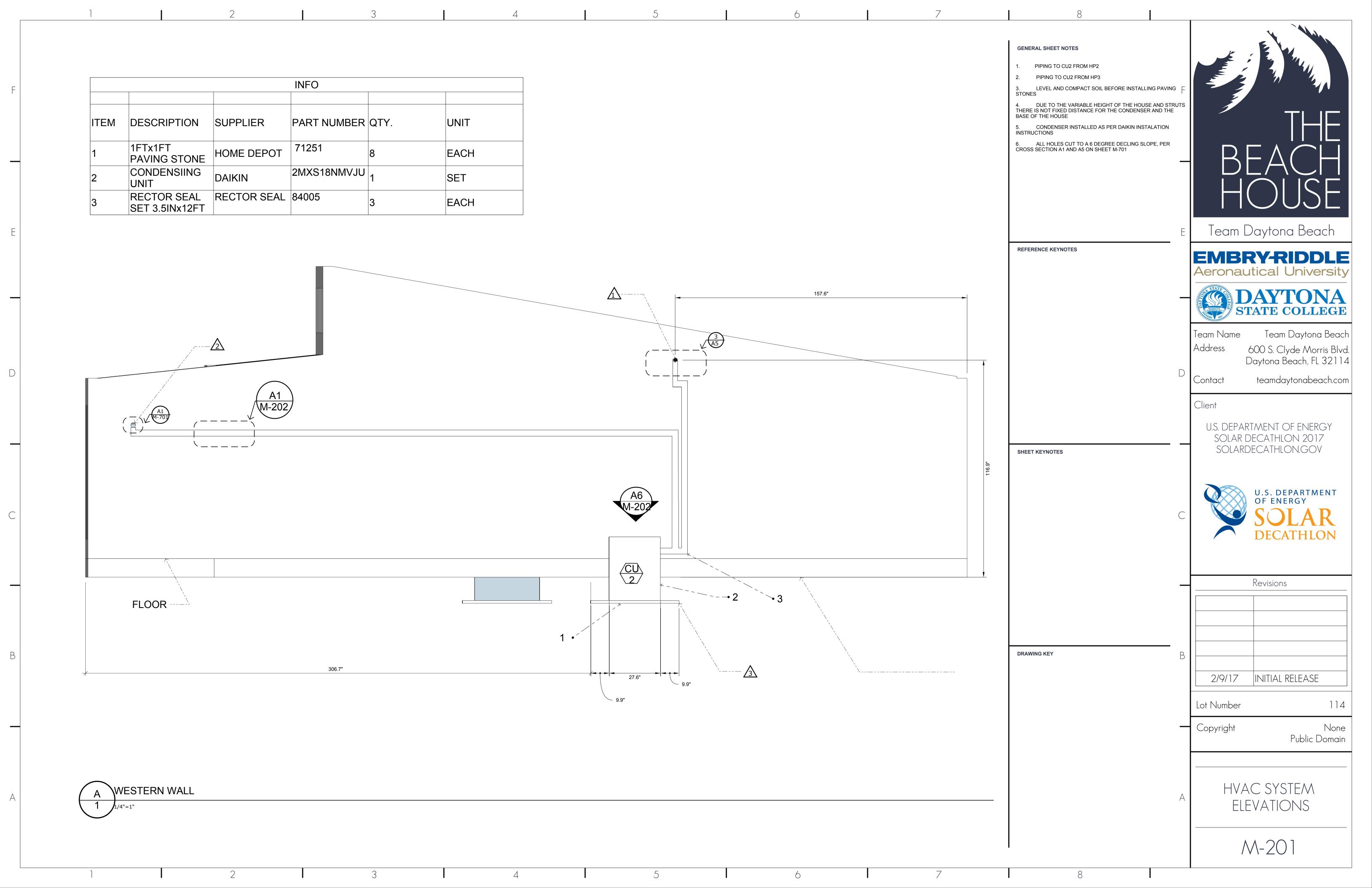


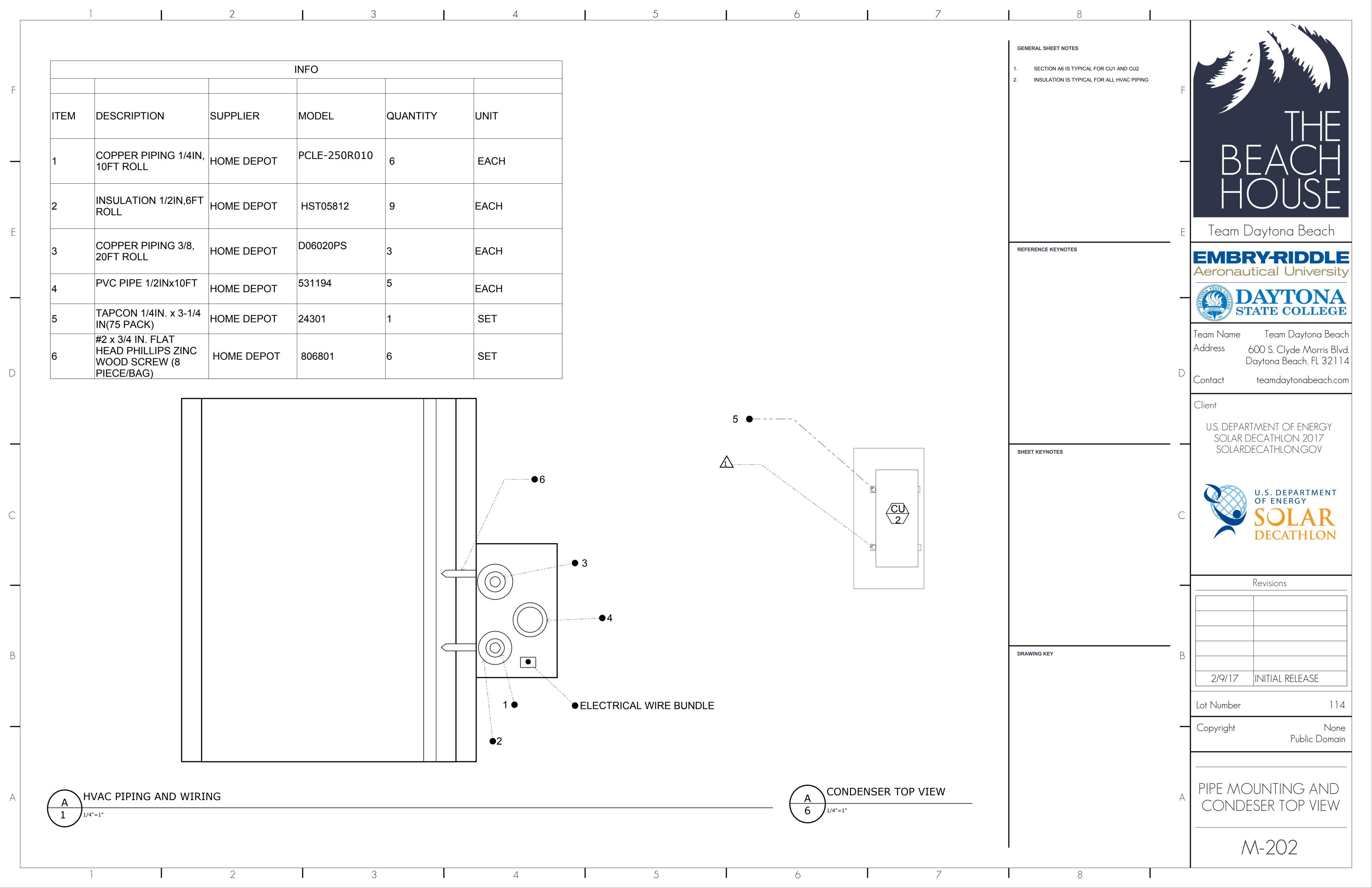


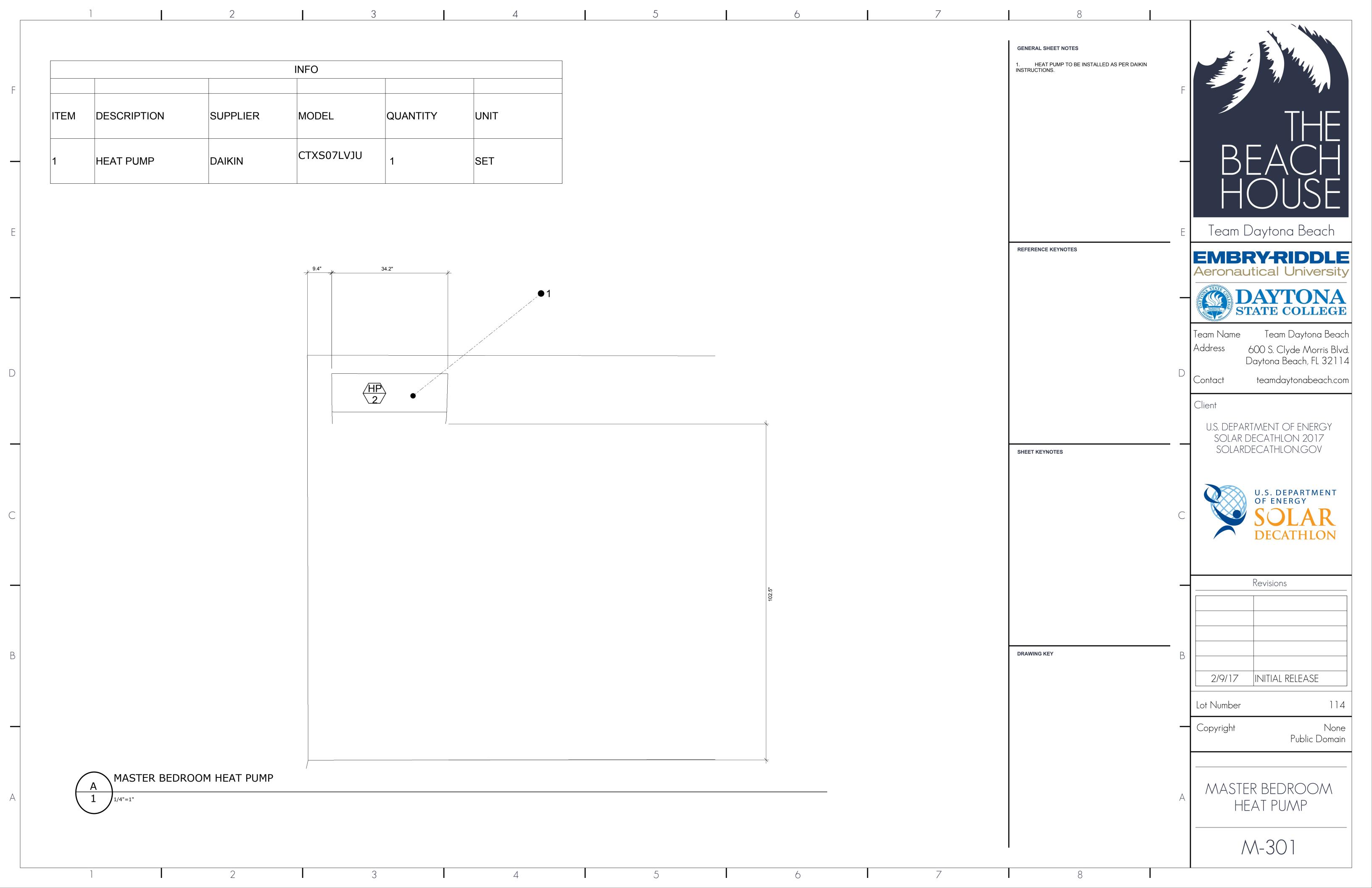


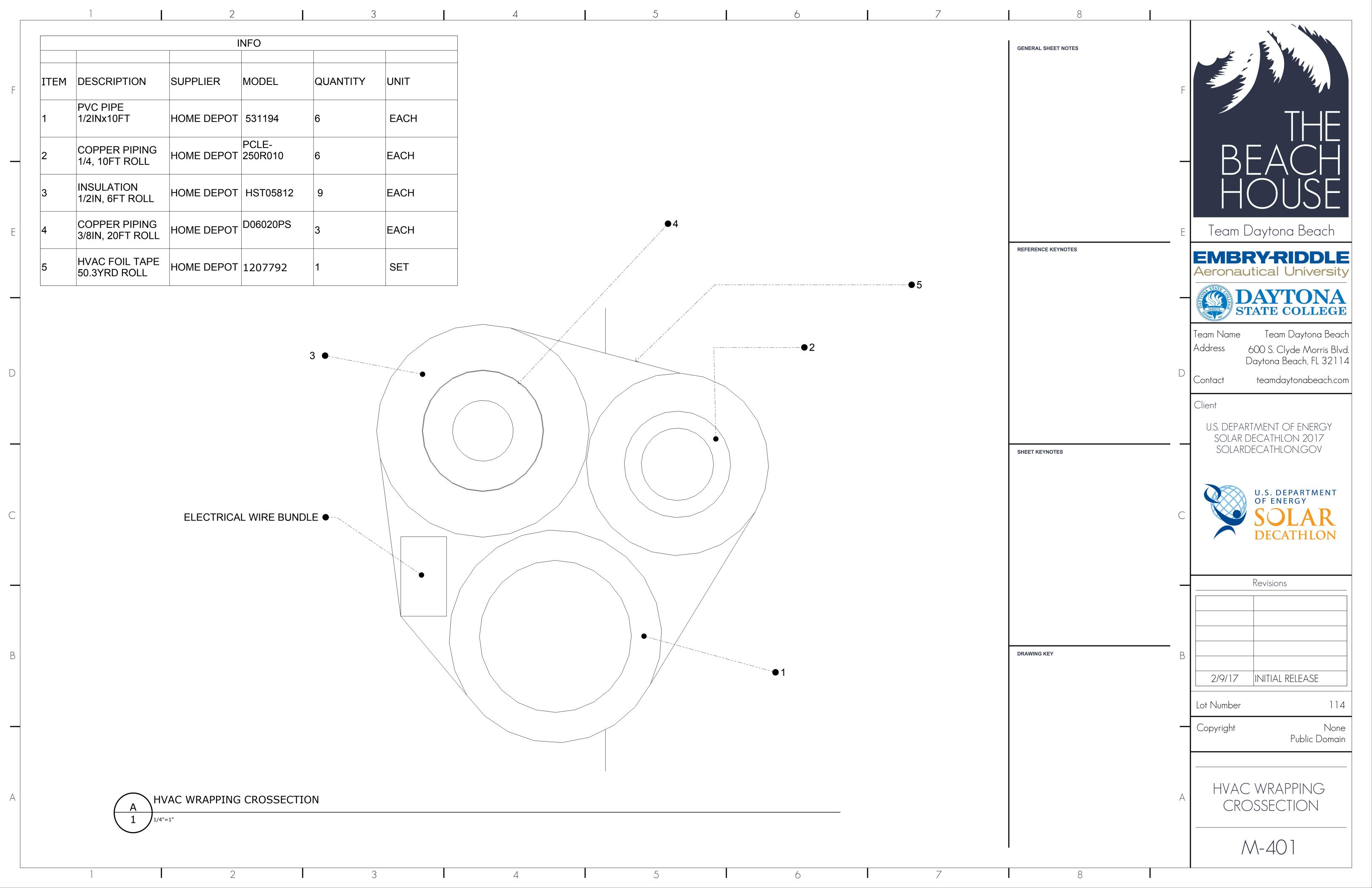


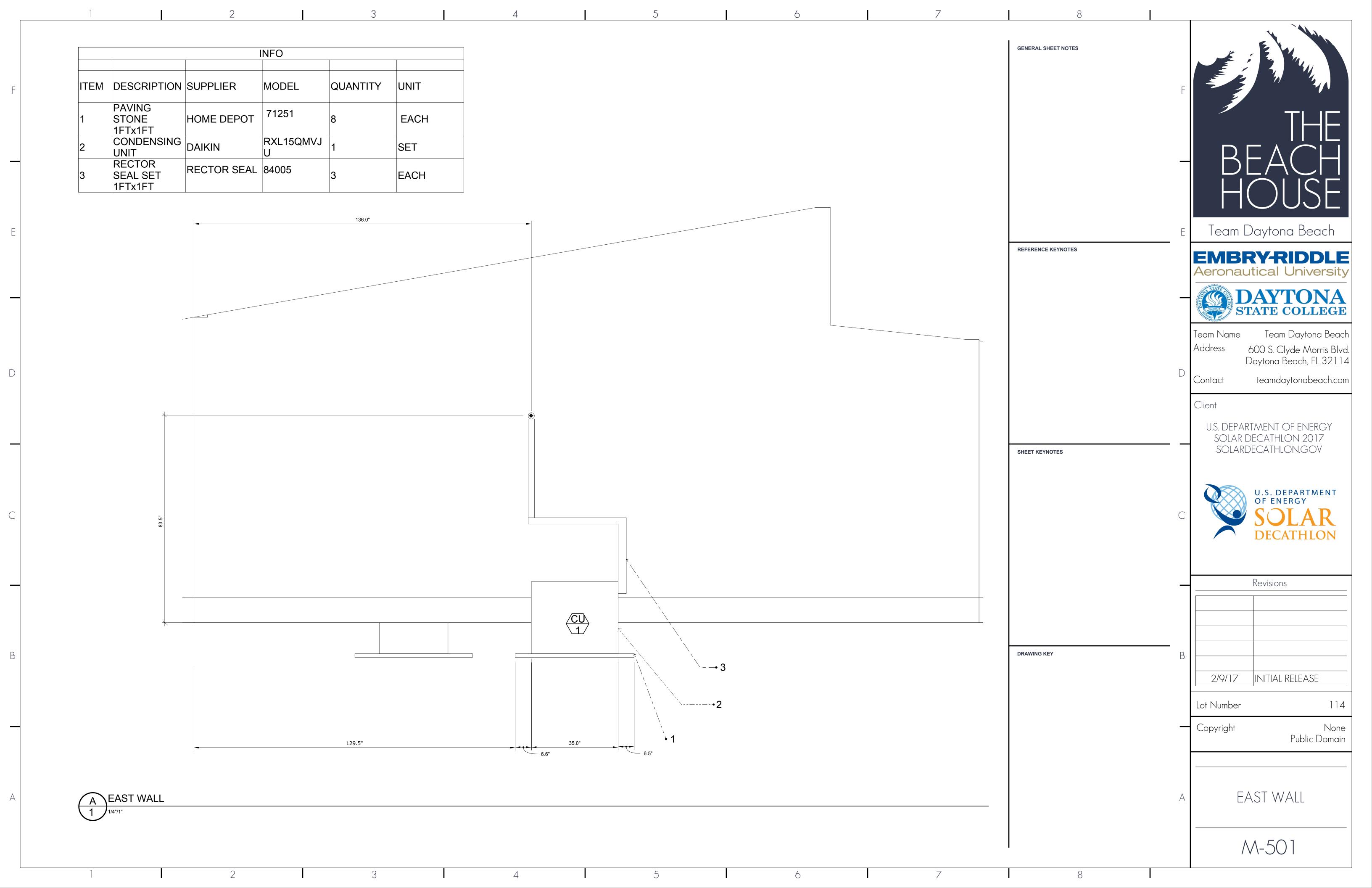


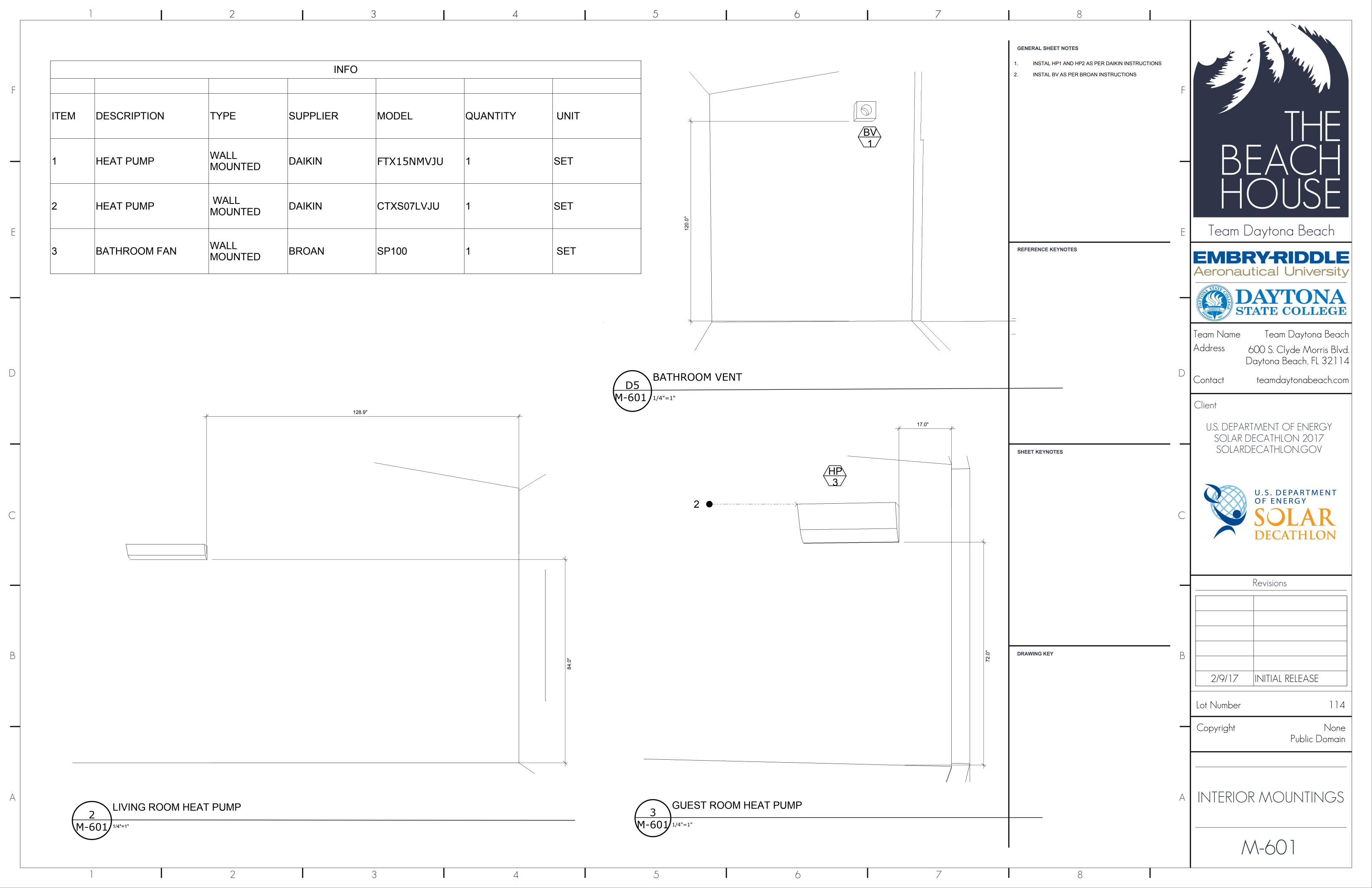


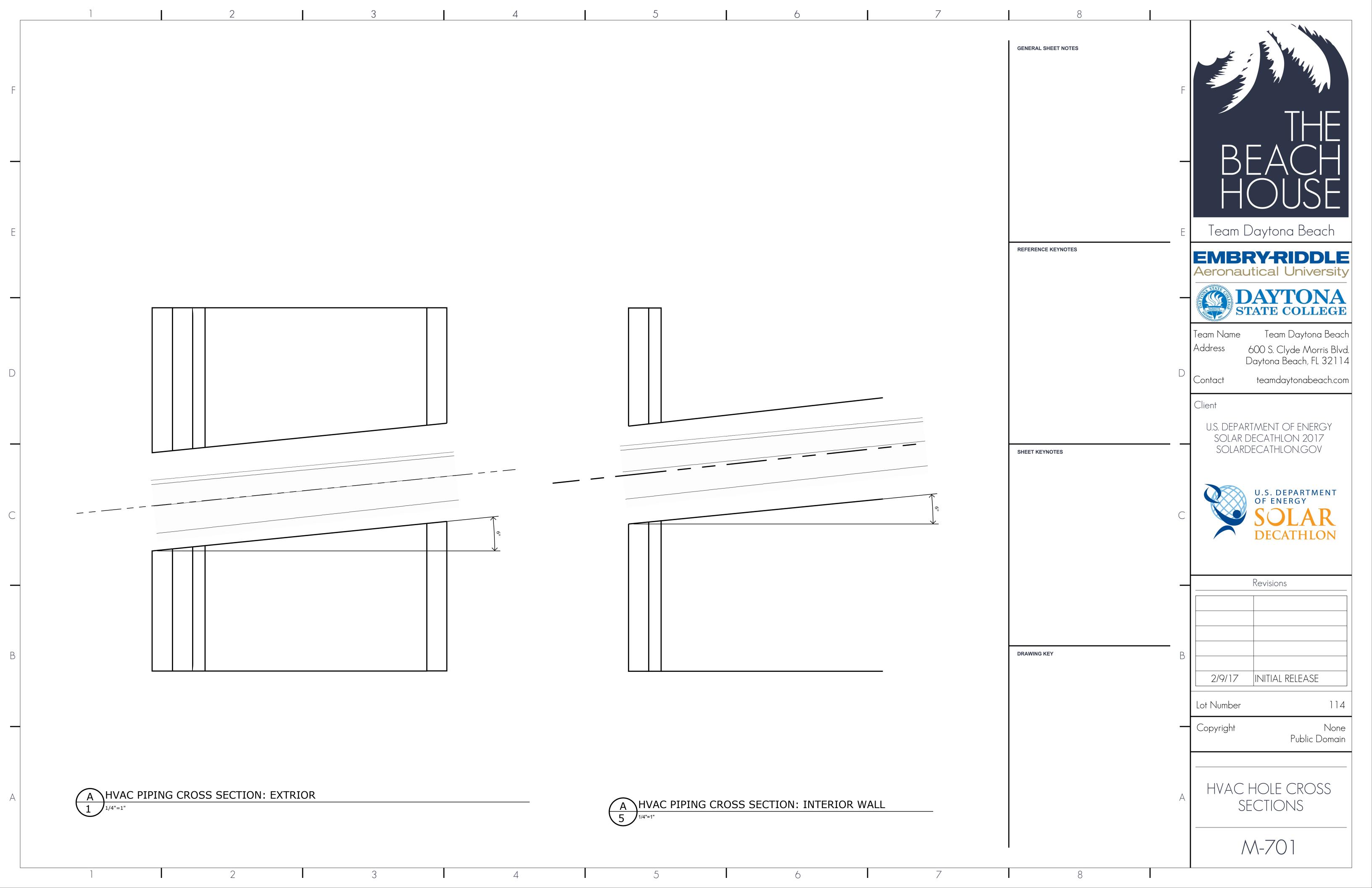


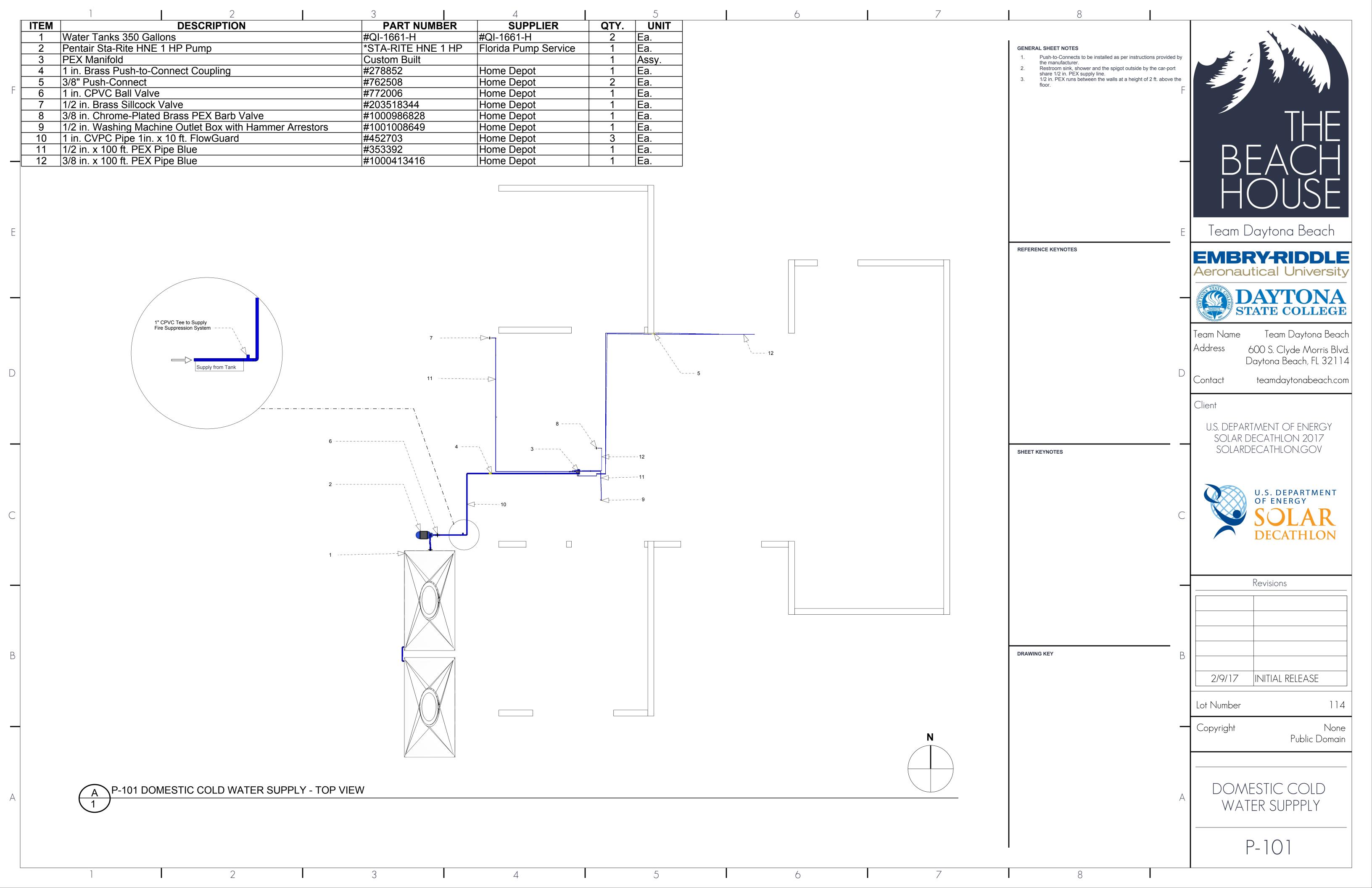


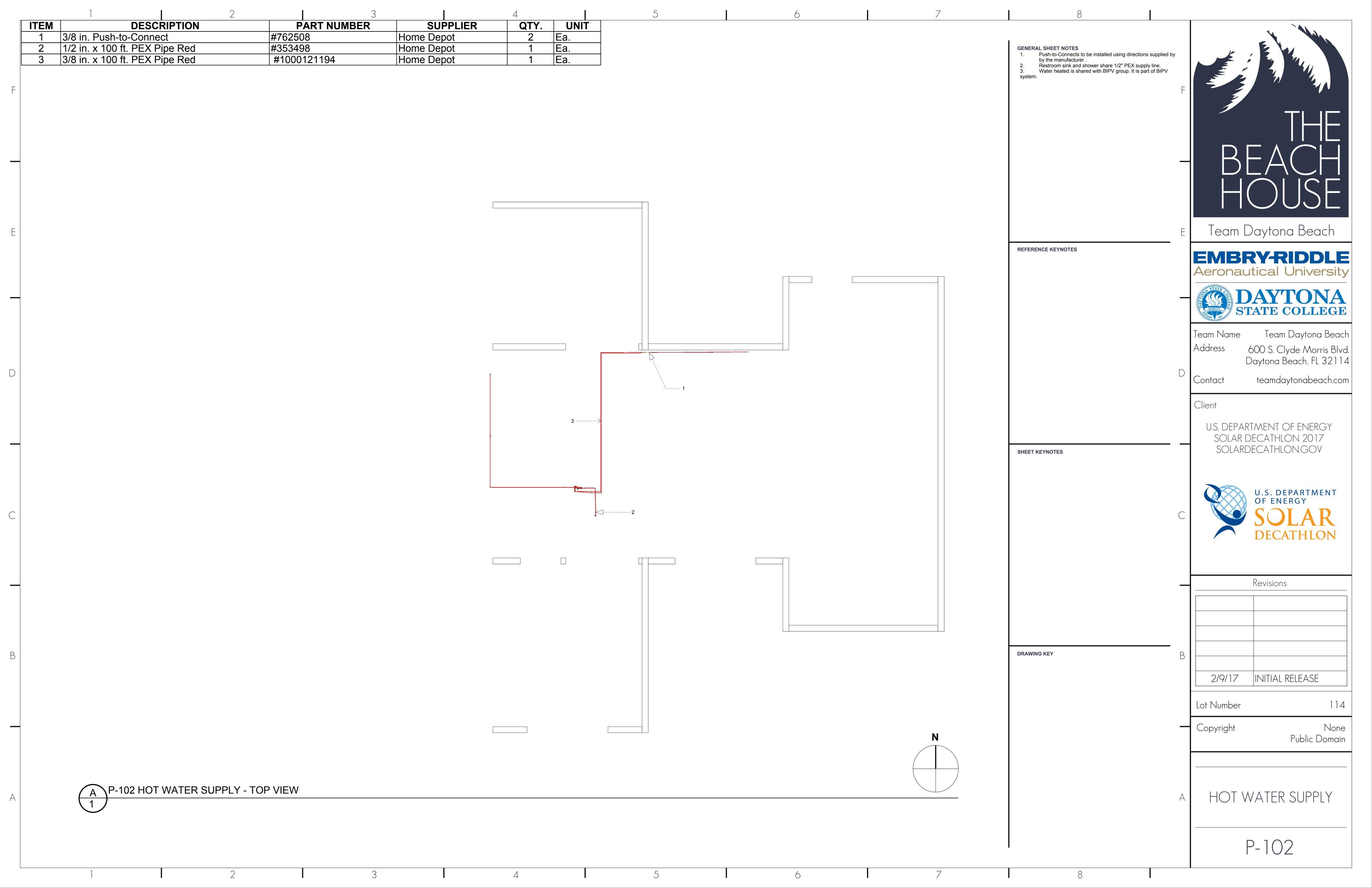


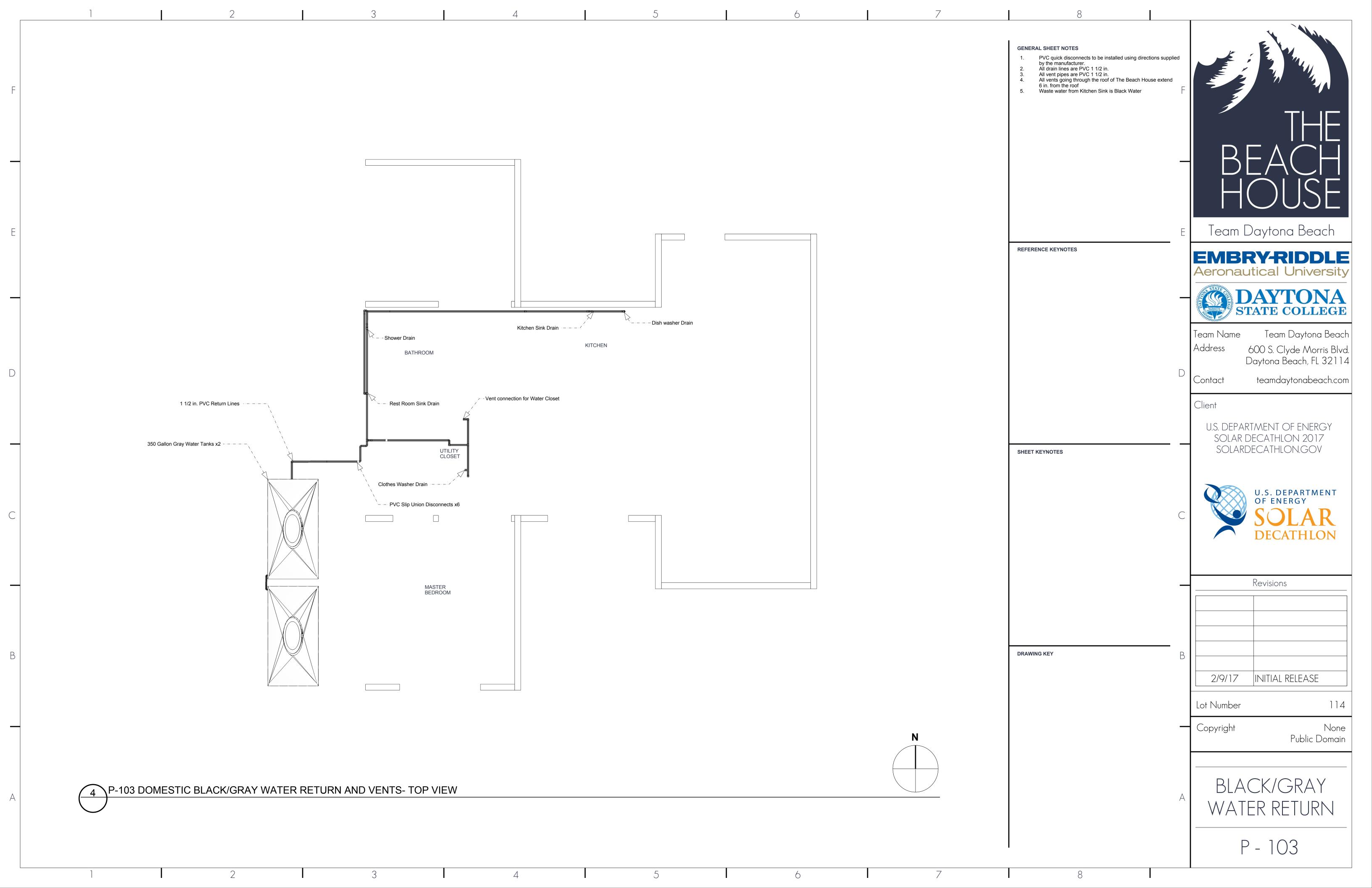


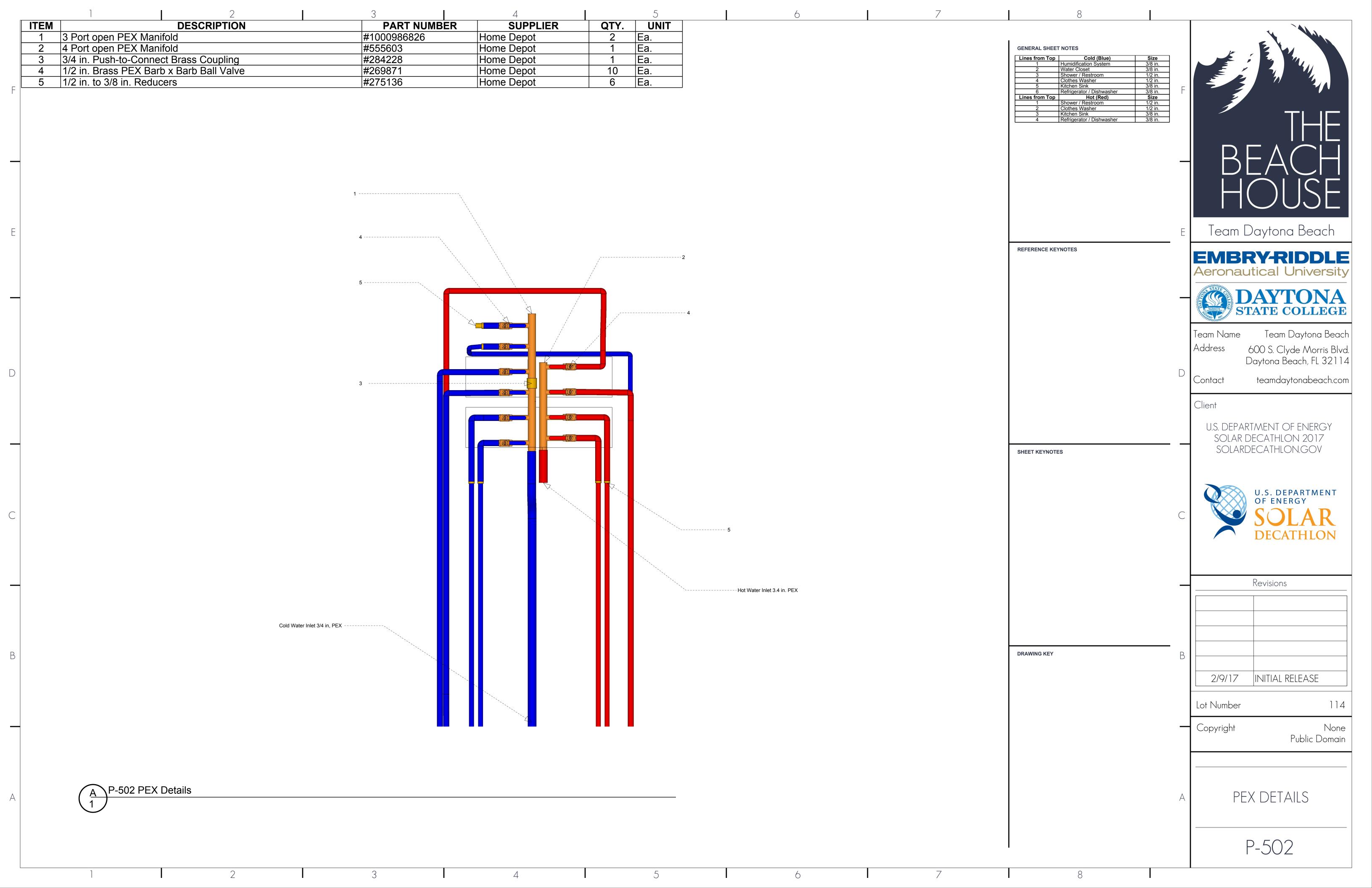


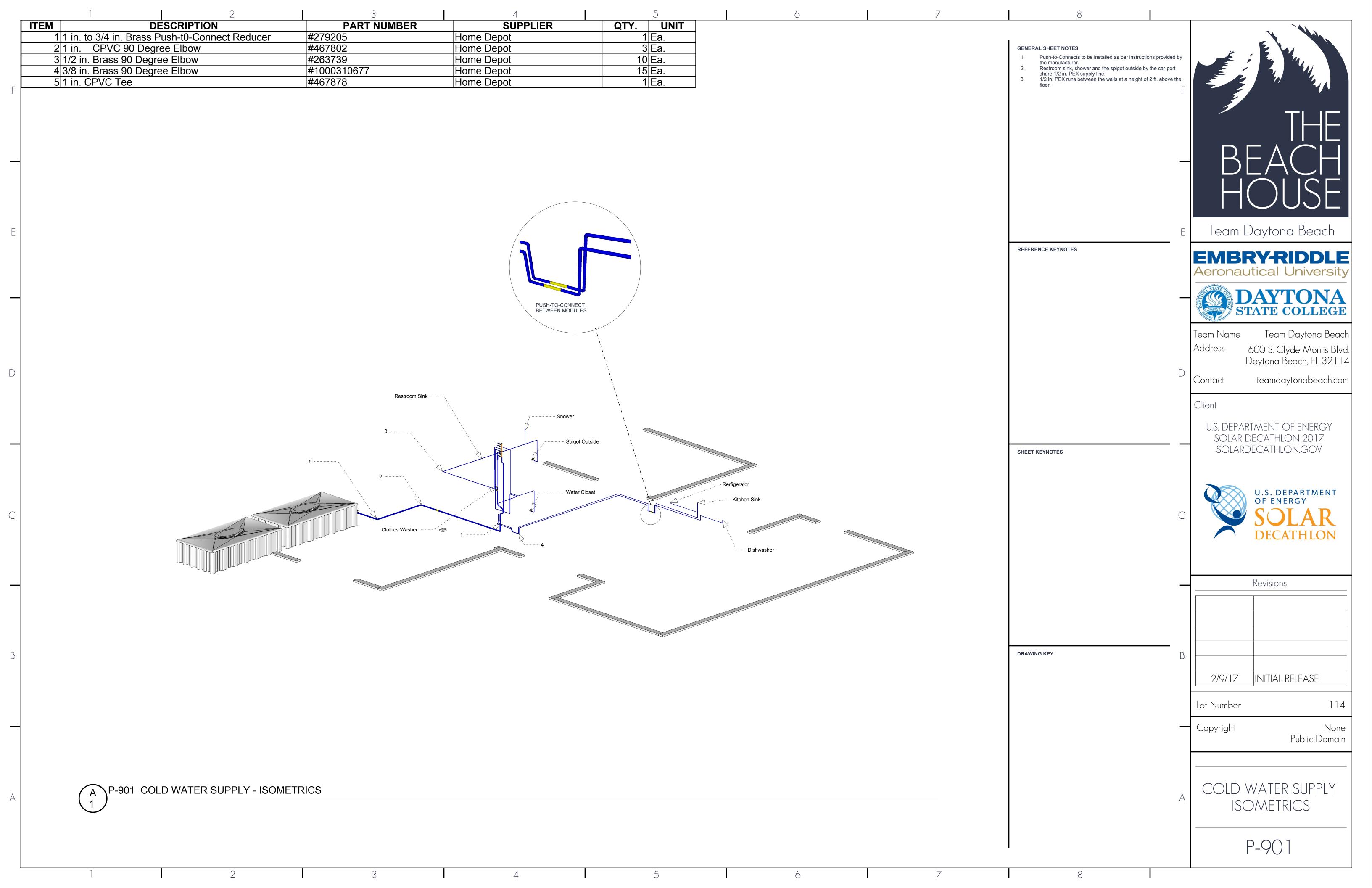


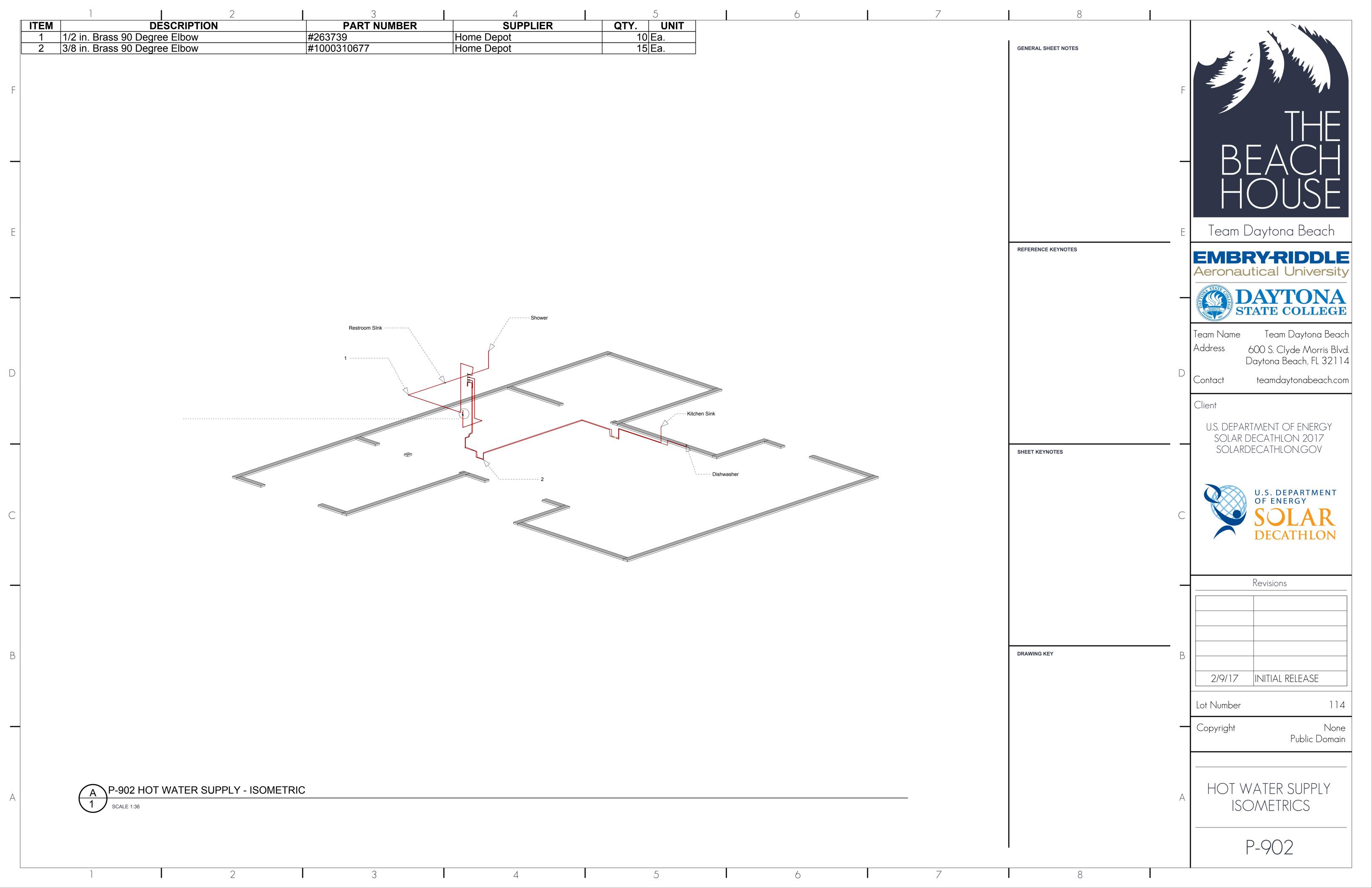


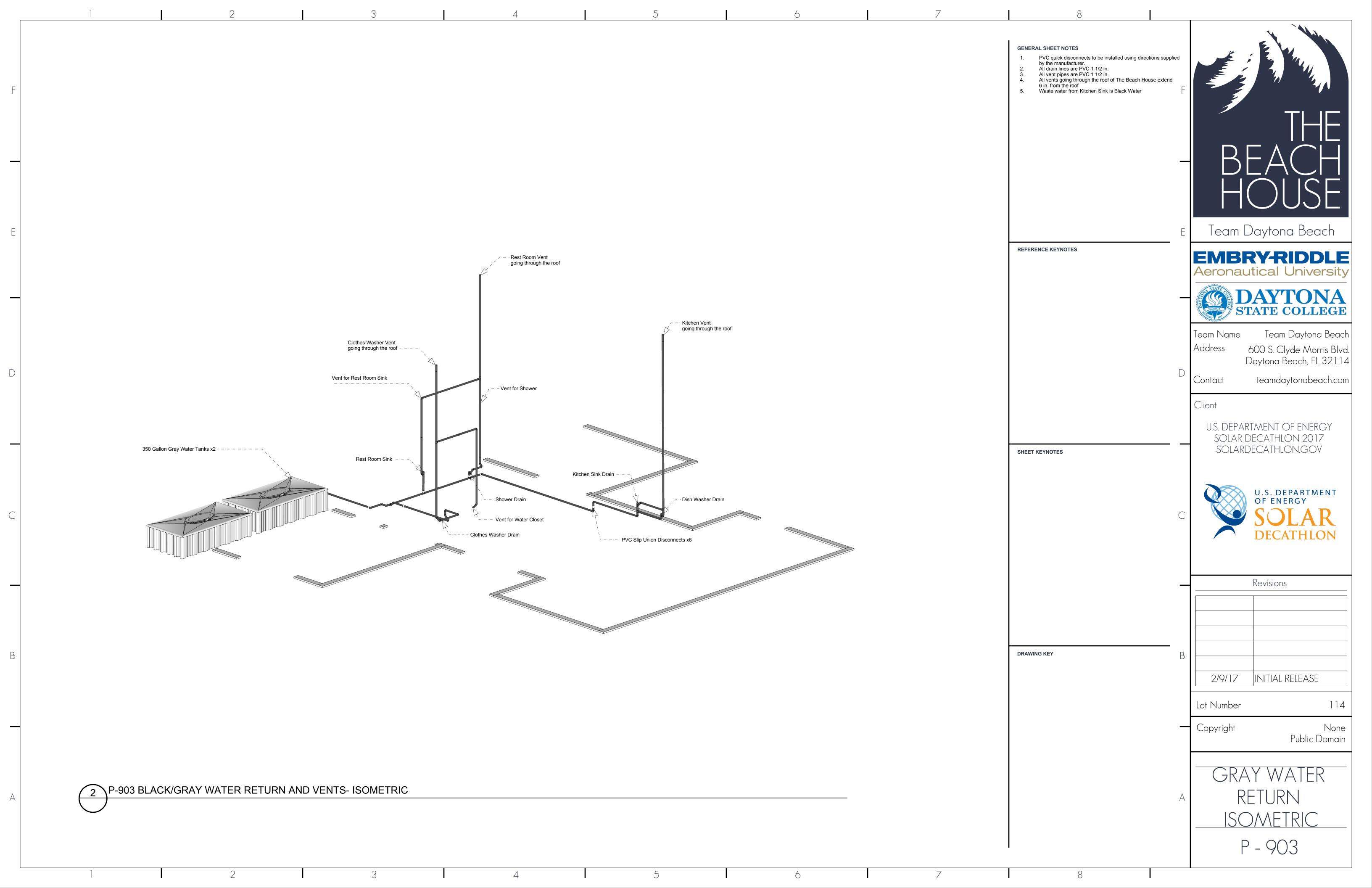












• 8.6.5 SPRINKLERS SHALL NOT BE REQUIRED IN ATTICS, PENTHOUSE EQUIPMENT ROOMS, ELEVATOR MACHINE ROOMS, CONCEALED SPACES DEDICATED EXCLUSIVELY TO AND CONTAINING ONLY DWELLING UNIT VENTILATION EQUIPMENT, FLOOR/CEILING SPACES, ELEVATOR SHAFTS CRAWL SPACES, AND OTHER CONCEALED SPACES THAT ARE NOT USED OR INTENDED FOR LIVING PURPOSES AND DO NOT CONTAINFUEL-FIRED EQUIPMENT

• 8.6.6 SPRINKLERS SHALL NOT BE REQUIRED IN COVERED UNHEATED PROJECTIONS OF THE

BUILDING AT ENTRANCES/EXITS AS LONG

AS THERE IS ANOTHER MEANS OF EGRESS FROM THE DWELLING UNIT.

• 8.6.7 SPRINKLERS SHALL NOT BE REQUIRED FOR CEILING POCKETS THAT MEET THE FOLLOWING

(1) THE TOTAL VOLUME OF UNPROTECTED CEILING POCKET DOES NOT EXCEED 100 FT3

(2) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY THE SPRINKLERS AT THE LOWER CEILING ELEVATION

(3) EACH UNPROTECTED CEILING POCKET IS SEPARATED FROM ANY ADJACENT UNPROTECTED CEILING POCKE BY A MINIMUM 10 FT

HORIZONTAL DISTANCE.

(4) THE INTERIOR FINISH OF THE UNPROTECTED CEILING POCKET IS NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL

(5) SKYLIGHTS NOT EXCEEDING 32 FT2 SHALL BE PERMITTED TO HAVE A PLASTIC COVER

FIRE SPRINKLERS CODE REQUIREMENTS

R313.2 ONE- AND TWO-FAMILY DWELLINGS AUTOMATIC FIRE SYSTEMS. AN AUTOMATIC RESIDENTIAL FIRE SPRINKLER SYSTEM SHALL BE INSTALLED IN ON- AND TWO-FAMILY DWELLINGS.

P2904.1 GENERAL

THE DESIGN AND INSTALLATION OF RESIDENTIAL FIRE SPRINKLER SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA 13D. WHICH SHALL BE CONSIDERED EQUIVALENT TO NFPA 12D. PARTIAL RESIDENTIAL SPRINKLER SYSTEMS SHALL BE PERMITTED TO BE INSTALLED ONLY IN BUILDINGS NOT REQUIRED TO BE EQUIPPED WITH A RESIDENTIAL SPRINKLER SYSTEM. SHALL APPLY TO STAND-ALONE AND MULTIPURPOSE WET-PIPE SPRINKLER SYSTEMS THAT DO NOT INCLUDE THE USE OF ANTIFREEZE. A MULTIPURPOSE FIRE SPRINKLER SYSTEM SHALL PROVIDE DOMESTIC WATER TO BOTH FIRE SPRINKLERS AND PLUMBING FIXTURES. A STAND-ALONE SPRINKLER SYSTEM SHALL BE SEPARATE AND INDEPENDENT FROM THE WATER DISTRIBUTION SYSTEM.

P2904.1.1 REQUIRED SPRINKLER LOCATIONS.

SPRINKLERS SHALL BE INSTALLED TO PROTECT ALL AREAS OF A DWELLING UNIT.

EXCEPTIONS:

1. ATTICS, CRAWL SPACES AND NORMALLY UNOCCUPIED CONCEALED SPACES THAT DO NOT CONTAIN FUEL FIRED APPLIANCES DO NOT REQUIRE SPRINKLERS. IN ATTICS, CRAWL SPACES AND NORMALLY UNOCCUPIED CONCEALED SPACES THAT CONTAIN FUEL-FIRED EQUIPMENT, A SPRINKLER SHALL BENSTALLED ABOVE THE EQUIPMENT; HOWEVER, SPRINKLERS SHALL NOT BE REQUIRED IN THE REMAINDER OF THE SPACE.

2. CLOTHES CLOSETS, LINEN CLOSETS AND PANTRIES NOT EXCEEDING 24 SQUARE FEET IN AREA, WITH THE SMALLEST DIMENSION NOT GREATER THAN 3 FEET AND HAVING WALL AND CEILING SURFACES OF GYPSUM

3. BATHROOMS NOT MORE THAN 55 SQUARE FEET IN AREA.

4. GARAGES; CARPORTS; EXTERIOR PORCHES; UNHEATED ENTRY AREAS, SUCH AS MUD ROOMS, THAT ARE ADJACENT TO AN EXTERIOR DOOR; AND SIMILAR AREAS.

SPRINKLERS SHALL BE NEW LISTED RESIDENTIAL SPRINKLERS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SPRINKLER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

P2904.2.1 TEMPERATURE RATING AND SEPARATIONS FROM HEAT SOURCES

SPRINKLERS SHALL HAVE A TEMPERATURERATING OF NOT LESS THAN 135°F AND NOT MORE THAN 170°F. SPRINKLERS SHALL BE SEPARATED FROM HEAT SOURCES AS REQUIRED BY THE SPRINKLER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

P2904.2.4.1 COVERAGE AREA LIMIT

THE AREA OF COVERAGE OF A SINGLE SPRINKLER SHALL NOT EXCEED 400 SQUARE FEET AND SHALL BE BASED ON THE SPRINKLER LISTING AND THE SPRINKLER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

P2904.2.4.2 OBSTRUCTIONS TO COVERAGE

SPRINKLER DISCHARGE SHALL NOT BE BLOCKED BY OBSTRUCTIONS UNLESS ADDITIONAL SPRINKLERS ARE INSTALLED TO PROTECT THE OBSTRUCTED AREA. ADDITIONAL SPRINKLERS SHALL NOT BE REQUIRED WHERE THE SPRINKLER SEPARATION FROM OBSTRUCTIONS COMPLIES WITH EITHER THE MINIMUM DISTANCE INDICATED IN FIGURE THE MINIMUM DISTANCES SPECIFIED IN THE SPRINKLER MANUFACTURER'S INSTRUCTIONS WHERE THE MANUFACTURER'S INSTRUCTIONS PERMIT A LESSER DISTANCE.

P2904.2.4.2.1 ADDITIONAL REQUIREMENTS FOR PENDENT SPRINKLERS.

PENDENT SPRINKLERS WITHIN 3 FEET OF THE CENTER OF A CEILING FAN, SURFACE-MOUNTED CEILING LUMINAIRE

P2904.2.4.2.2 ADDITIONAL REQUIREMENTS FOR SIDEWALL SPRINKLERS.

SIDEWALL SPRINKLERS WITHIN 5 FEET OF THE CENTER OF A CEILING FAN, SURFACE-MOUNTED CEILING LUMINAIRE

P2904.3 SPRINKLER PIPING SYSTEM.

SPRINKLER PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS FORCOLD WATER DISTRIBUTION PIPING. SPRINKLER PIPING SHALL COMPLY WITH ALL REQUIREMENTS FOR COLD WATER DISTRIBUTION. PIPING. FOR MULTIPURPOSE PIPING SYSTEMS, THE SPRINKLER PIPING SHALL CONNECT TO AND BE A PART OF THE COLD WATER DISTRIBUTION PIPING SYSTEM

P2904.3.1 NONMETALLIC PIPE AND TUBING.

NONMETALLIC PIPE AND TUBING, SUCH AS CPVC, PEX AND PE-RT SHALL BE LISTED FOR USE IN RESIDENTIAL FIRE SPRINKLER SYSTEMS.

P2904.3.1.1 NONMETALLIC PIPR PROTECTION.

NONMETALLIC PIPE AND TUBING SYSTEMS SHALL BE PROTECTED FROM EXPOSURE TO THE LIVING SPACE BY A

OF NOT LESS THAN 3/8-INCH-THICK GYPSUM WALLBOARD, 1/2-INCH-THICK PLYWOOD, OR OTHER MATERIAL HAVING A 15-MINUTE FIRE RATING.

P2904.3.2 SHUTOFF VALVES PROHIBITED.

WITH THE EXCEPTION OF SHUTOFF VALVES FOR THE ENTIRE WATER DISTRIBUTION SYSTEM, VALVES SHALL NOT BE INSTALLED IN ANY LOCATION WHERE THE VALVE WOULD ISOLATE PIPING SERVING ONE OR MORE SPRINKLERS.

P2904.3.4 DRAIN.

A MEANS TO DRAIN THE SPRINKLER SYSTEM SHALL BE PROVIDED ON THE SYSTEM SIDE OF THE WATER DISTRIBUTION

SHUTOFF VALVE.

P2904.4 DETERMINING SYSTEM DESIGN FLOW.

THE FLOW FOR SIZING THE SPRINKLER PIPING SYSTEM SHALL BE BASED ON THE FLOWRATING OF EACH SPRINKLER

ACCORDANCE WITH SECTION P2904.4.1 AND THE CALCULATION IN ACCORDANCE WITH SECTION P2904.4.2. P2904.5 WATER SUPPLY.

THE WATER SUPPLY SHALL PROVIDE NOT LESS THAN THE REQUIRED DESIGN FLOW RATEFOR SPRINKLERS IN ACCORDANCE WITH SECTION P2904.4.2 AT A PRESSURE NOT LESS THAN THAT USED TO COMPLY WITH SECTION

P2904.6 PIPE SIZING.

P2904.6.

THE PIPING TO SPRINKLERS SHALL BE SIZED FOR THE FLOW REQUIRED BY SECTION P2904.4.2. THE FLOW REQUIRED TO SUPPLY THE PLUMBING FIXTURES SHALL NOT BE REQUIRED TO BE ADDED TO THE SPRINKLER DESIGN FLOW.

P2904.7 INSTRUCTIONS AND SIGNS.

AN OWNER'S MANUAL FOR THE FIRE SPRINKLER SYSTEM SHALL BE PROVIDED TO THEOWNER. A SIGN OR VALVE TAG SHALL BE INSTALLED AT THE MAIN SHUTOFF VALVE TO THE WATER DISTRIBUTION SYSTEM STATING THE FOLLOWING: "WARNING, THE WATER SYSTEM FOR THIS HOME SUPPLIES FIRE SPRINKLERS THAT REQUIRE CERTAIN FLOWS AND PRESSURES TO FIGHT A FIRE. DEVICES THAT RESTRICT THE FLOW OR DECREASE THE PRESSURE OR **AUTOMATICALLY**

SHUT OFF THE WATER TO THE FIRE SPRINKLER SYSTEM, SUCH AS WATER SOFTENERS, FILTRATION SYSTEMS AND AUTOMATIC SHUTOFF VALVES, SHALL NOT BE ADDED TO THIS SYSTEM WITHOUT A REVIEW OF THE FIRE SPRINKLER SYSTEM BY A FIRE PROTECTION SPECIALIST. DO NOT REMOVE THIS SIGN

P2904.8.1 PRECONCEALMENT INSPECTION.

THE FOLLOWING ITEMS SHALL BE VERIFIED PRIOR TO THE CONCEALMENT OF ANY SPRINKLER SYSTEM PIPING: 1. SPRINKLERS ARE INSTALLED IN ALL AREAS AS REQUIRED BY SECTION P2904.1.1.

2. WHERE SPRINKLER WATER SPRAY PATTERNS ARE OBSTRUCTED BY CONSTRUCTION FEATURES, LUMINARIES OR CEILING FANS, ADDITIONAL SPRINKLERS ARE INSTALLED AS REQUIRED BY SECTION P2904.2.4.2.

3. SPRINKLERS ARE THE CORRECT TEMPERATURE RATING AND ARE INSTALLED AT OR BEYOND THE REQUIRED SEPARATION DISTANCES FROM HEAT SOURCES AS REQUIRED BY SECTIONS P2904.2.1 AND P2904.2.2.

4. THE PIPE SIZE EQUALS OR EXCEEDS THE SIZE USED IN APPLYING TABLES P2904.6.2(4) THROUGH P2904.6.2(9) OR, IF THE PIPING SYSTEM WAS HYDRAULICALLY CALCULATED IN ACCORDANCE WITH SECTION P2904.6.1, THE SIZE USED IN THE HYDRAULIC CALCULATION.

5. THE PIPE LENGTH DOES NOT EXCEED THE LENGTH PERMITTED BY TABLES P2904.6.2(4) THROUGH P2904.6.2(9) OR, IF THE PIPING SYSTEM WAS HYDRAULICALLY CALCULATED IN ACCORDANCE WITH SECTION P2904.6.1, PIPE LENGTHS AND FITTINGS DO NOT EXCEED THOSE USED IN THE HYDRAULIC CALCULATION.

6. NONMETALLIC PIPING THAT CONVEYS WATER TO SPRINKLERS IS LISTED FOR USEWITH FIRE SPRINKLERS. 7. PIPING IS SUPPORTED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S AND SPRINKLER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

8. THE PIPING SYSTEM IS TESTED IN ACCORDANCE WITH SECTION P2503.7.

P2904.8.2 FINAL INSPECTION.

- THE FOLLOWING ITEMS SHALL BE VERIFIED UPON COMPLETION OF THE SYSTEM:
- OR SIMILAR OBJECT SHALL BE CONSIDERED TO BE OBSTRUCTED, AND ADDITIONAL SPRINKLERS SHALL BE INSTALLED. 1. SPRINKLERS ARE NOT PAINTED, DAMAGED OR OTHERWISE HINDERED FROM OPERATION.
 - 2. WHERE A PUMP IS REQUIRED TO PROVIDE WATER TO THE SYSTEM, THEPUMP STARTS AUTOMATICALLY UPON SYSTEM WATER DEMAND
- OR SIMILAR OBJECT SHALL BE CONSIDERED TO BEOBSTRUCTED, AND ADDITIONAL SPRINKLERS SHALL BE INSTALLED. 3. PRESSURE-REDUCING VALVES, WATER SOFTENERS, WATER FILTERS OR OTHER IMPAIRMENTS TO WATER FLOW THAT WERE NOT PART OF THE ORIGINAL DESIGN HAVE NOT BEEN INSTALLED.
 - 4. THE SIGN OR VALVE TAG REQUIRED BY SECTION P2904.7 IS INSTALLED AND THE OWNER'S MANUAL FOR THE

SMOKE ALARMS

R314.2 SMOKE DETECTION SYSTEMS.

MAINTAINED IN ACCORDANCE WITH NFPA 72.

HOUSEHOLD FIRE ALARM SYSTEMS INSTALLED IN ACCORDANCE WITH NFPA 72 THAT INCLUDE SMOKE ALARMS, OR A COMBINATION OF SMOKE DETECTOR AND AUDIBLE NOTIFICATION DEVICE INSTALLED AS REQUIRED BY THIS SECTION FOR SMOKE ALARMS, SHALL BE PERMITTED. THE HOUSEHOLD FIRE ALARM SYSTEM SHALL PROVIDE THE SAME LEVEL OF SMOKE DETECTION AND ALARM AS REQUIRED BY THIS SECTION FOR SMOKE ALARMS. WHERE A HOUSEHOLD FIRE WARNING SYSTEM IS INSTALLED USING A COMBINATION OF SMOKE DETECTOR AND AUDIBLE NOTIFICATION DEVICE(S), IT SHALL BECOME A PERMANENT FIXTURE OF THE OCCUPANCY AND OWNED BY THE HOMEOWNER. THE SYSTEM SHALL BE MONITORED BY AN APPROVED SUPERVISING STATION AND BE

R314.3 LOCATION.

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:

1. IN EACH SLEEPING ROOM.

2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.

R314.4 POWER SOURCE.

SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHEN SUCH WIRING IS SERVEDFROM A COMMERCIAL SOURCE, AND WHEN PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION.

R314.5 INTERCONNECTION.

WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT IN ACCORDANCE WITH SECTION R314.3, THE ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. PHYSICAL INTERCONNECTION OF SMOKE ALARMS SHALL NOT BE REQUIRED WHERE LISTED WIRELESS ALARMS ARE INSTALLED AND ALL ALARMS SOUND UPON ACTIVATION OF ONE ALARM.

E3902.12 ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION.

ALL BRANCH CIRCUITS THAT SUPPLY 120-VOLT, SINGLE-PHASE, 15- AND 20-AMPERE OUTLETS INSTALLED IN FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS AND SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A COMBINATION TYPE ARC-FAULT CIRCUIT INTERRUPTER INSTALLED TO PROVIDE PROTECTION OF THE BRANCH

NFPA 72: SMOKE DETECTORS INSTALLED IN A WALL SHALL BE NO CLOSER THAN 4" AND NO MORE THAN 12"

NFPA 72: WHEN LOCATED ON THE CEILING, SMOKE DETECTORS MUST BE NO CLOSER THAN 4" FROM THE WALL.

R315.1 CARBON MONOXIDE ALARMS.

AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.

R315.2 CARBON MONOXIDE DETECTION SYSTEMS.

CARBON MONOXIDE DETECTION SYSTEMS THAT INCLUDE CARBON MONOXIDE DETECTORS AND AUDIBLE NOTIFICATION APPLIANCES, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THIS SECTION FOR CARBON MONOXIDE ALARMS AND NFPA 720, SHALL BE PERMITTED. THE CARBON MONOXIDE DETECTORS SHALL BE LISTED AS COMPLYING WITH UL 2075. WHERE A HOUSEHOLD CARBON MONOXIDE DETECTION SYSTEM IS INSTALLED, IT SHALL BECOME A PERMANENT FIXTURE OF THE OCCUPANCY, OWNED BY THE HOMEOWNER AND SHALL BE MONITORED BY AN APPROVEDSUPERVISING STATION.

R315.4 ALARM REQUIREMENTS.

SINGLE-STATION CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH UL 2034 AND SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



Team Daytona Beach



EMBRY-RIDDLE

leam Name Address

600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

Team Daytona Beach

teamdaytonabeach.com

Client

Contact

U.S. DEPARTMENT OF ENERGY SOLAR DECATHLON 201 SOLARDECATHLONGO\



Revisions 2/9/17 INITIAL RELEASE

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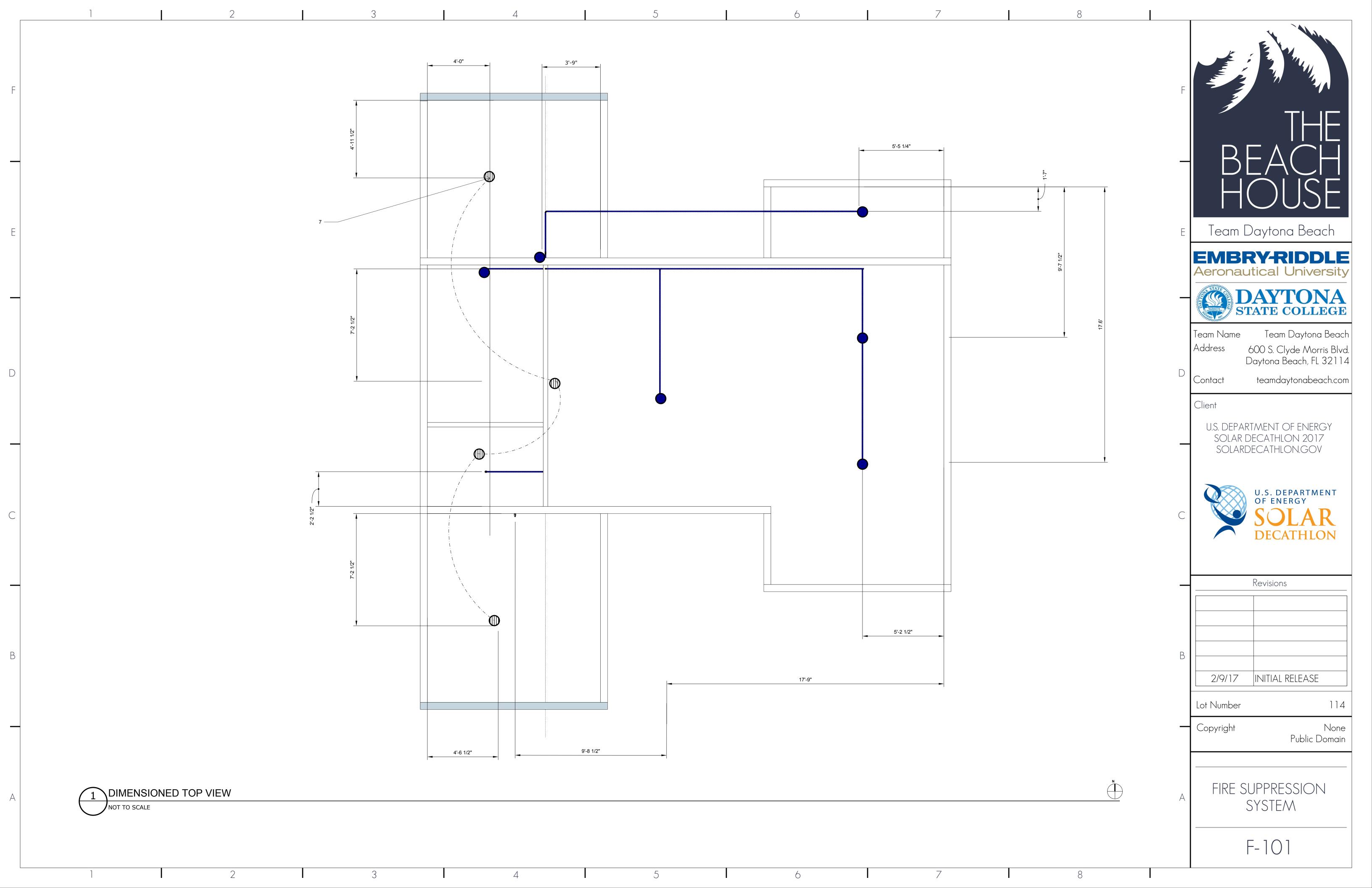
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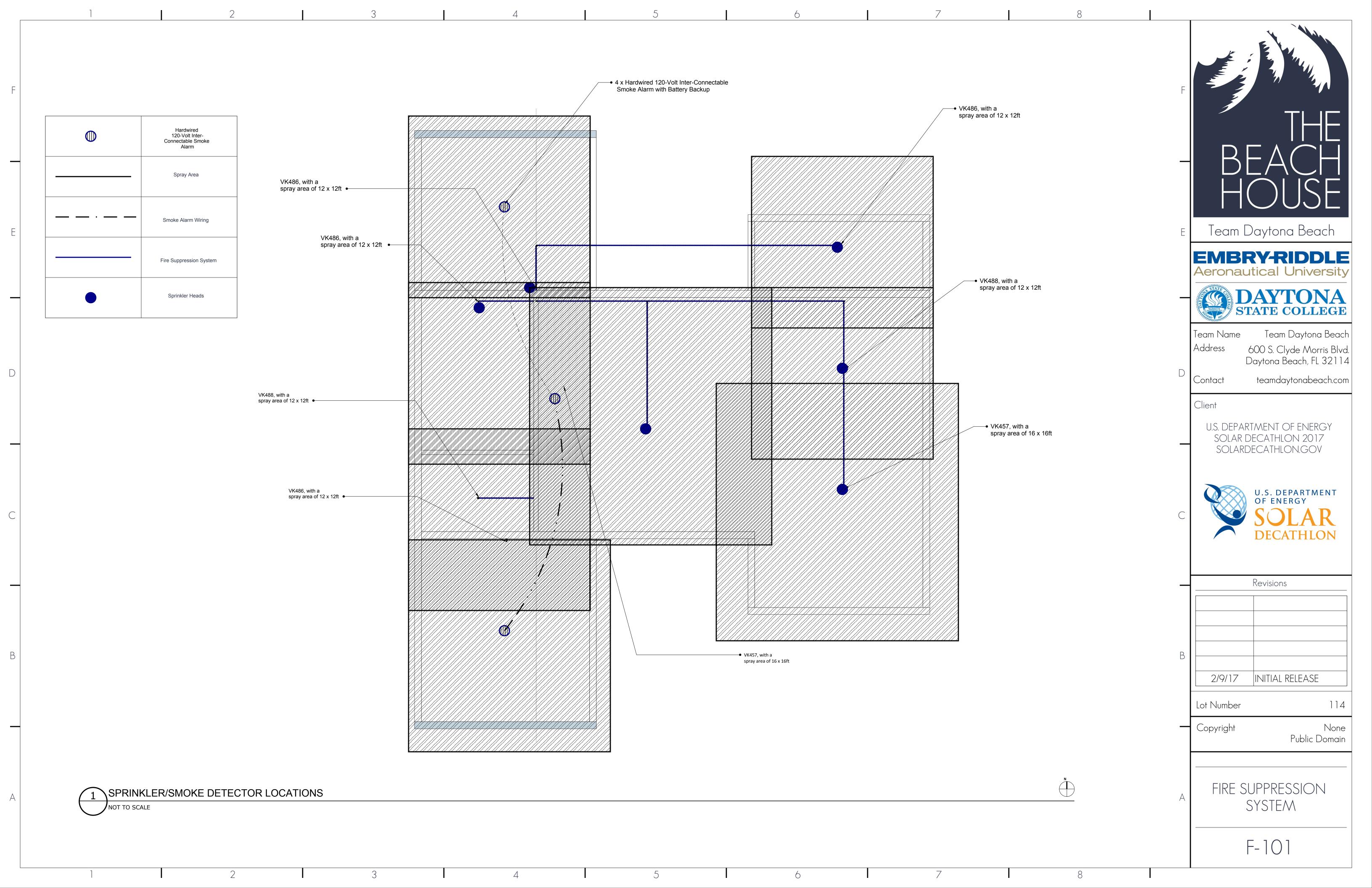
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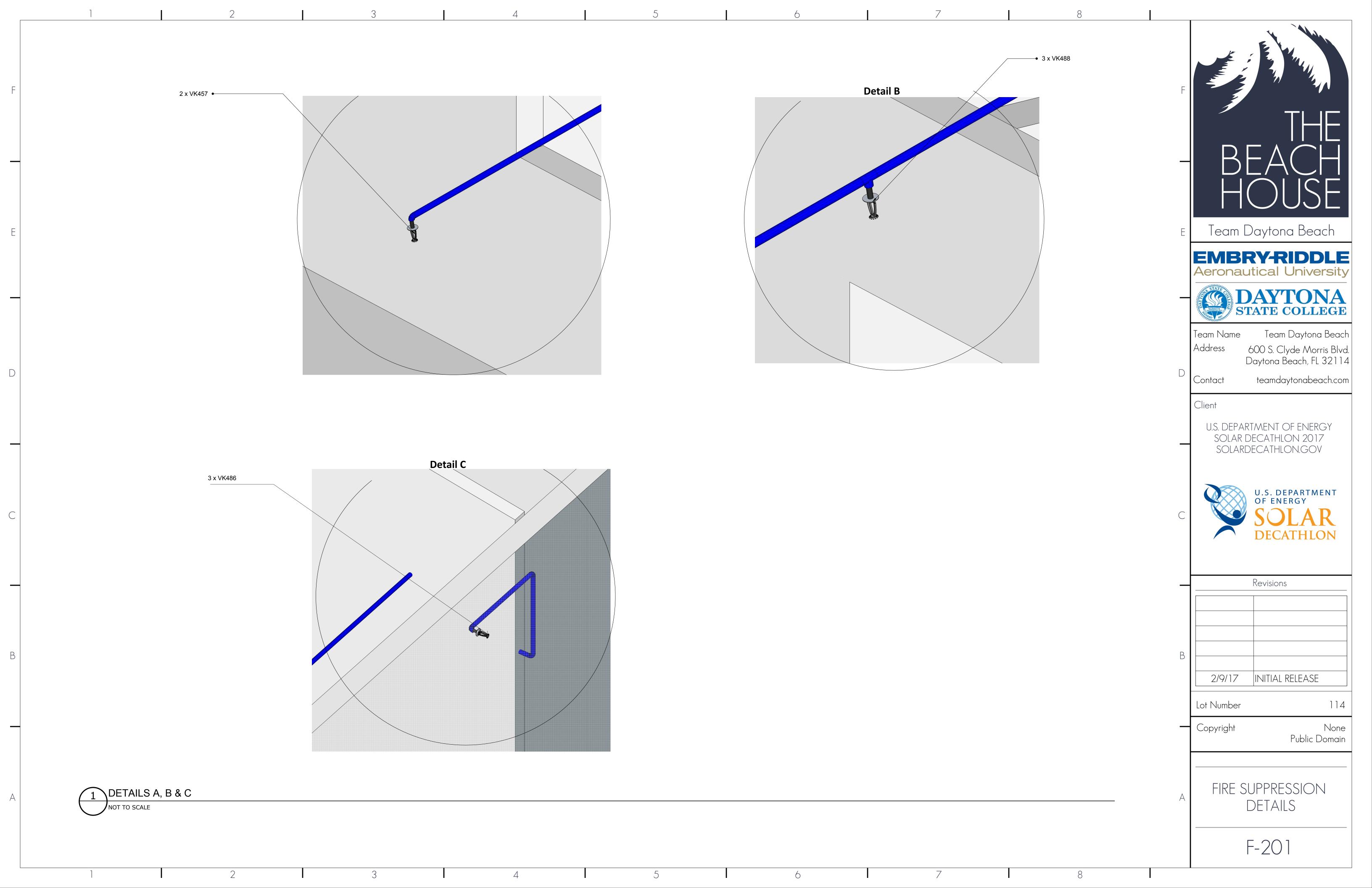
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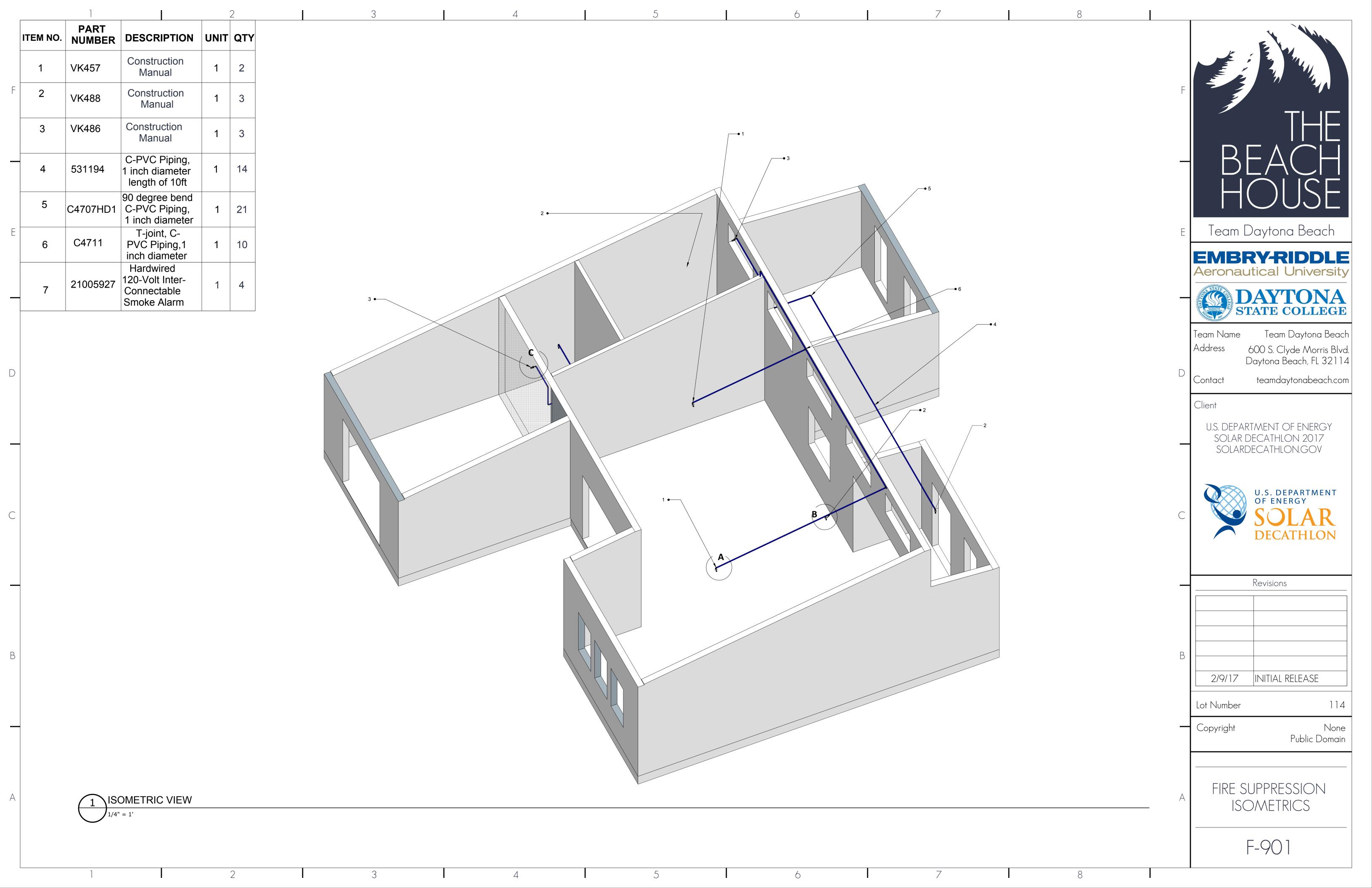
SYSTEM NOTES

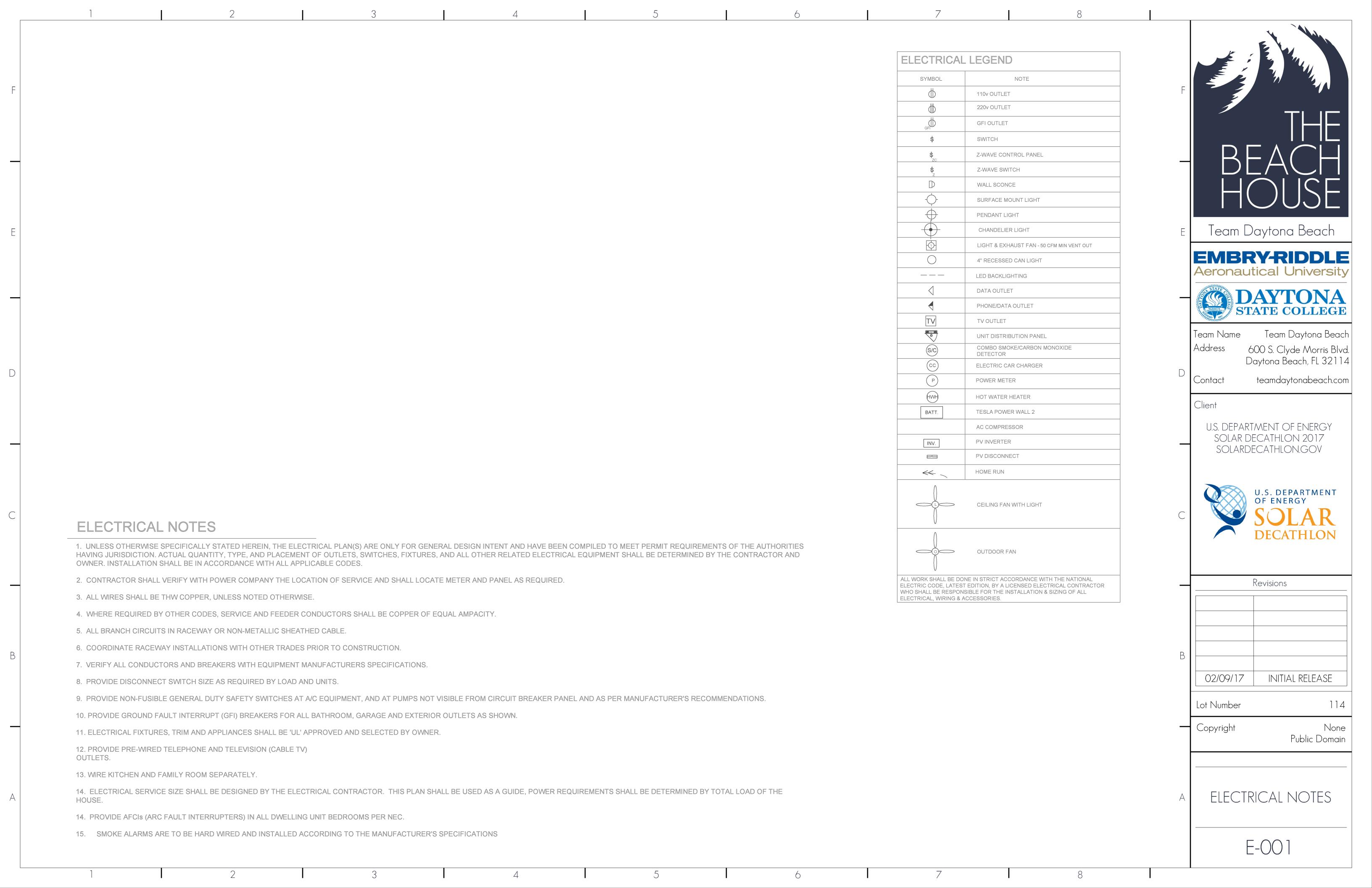
| ITEM NUMBER | DESCRIPTION | MANUFACTURER | MODEL NUMBER |
|-------------|---|--------------|--------------|
| 1 | | Viking | VK457 |
| 2 | | Viking | VK488 |
| 3 | | Viking | VK486 |
| 4 | CPVC PIPING, 1" DIAMETER | | |
| 5 | CPVC 90-DEGREE BEND, 1" DIAMETER | | |
| 6 | CPVC T-JOINT, 1" DIAMETER | | |
| 7 | HARDWIRED 120-V INTERCONNECTABLE SMAOKE ALARM | | |
| • | | | |

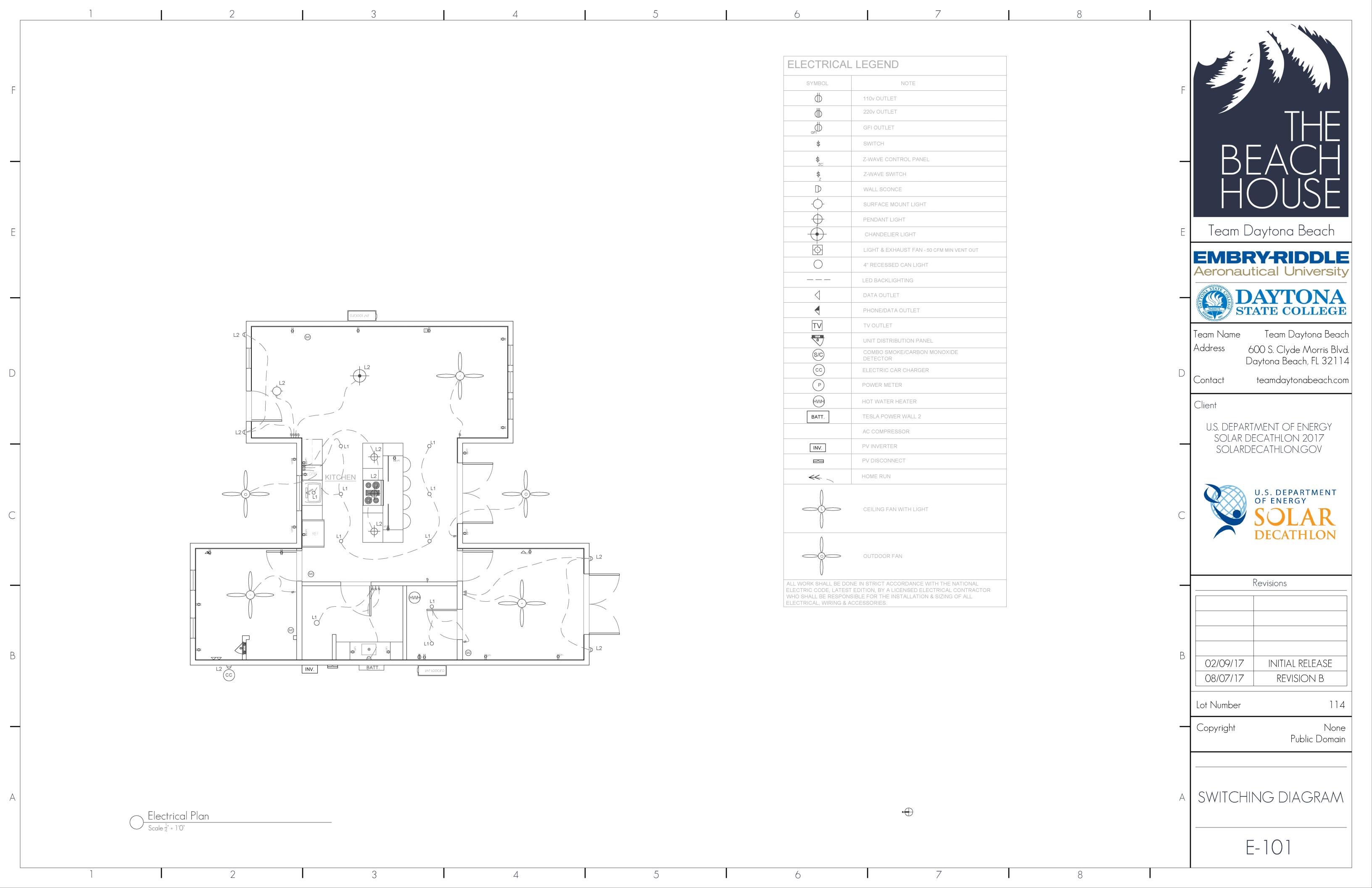


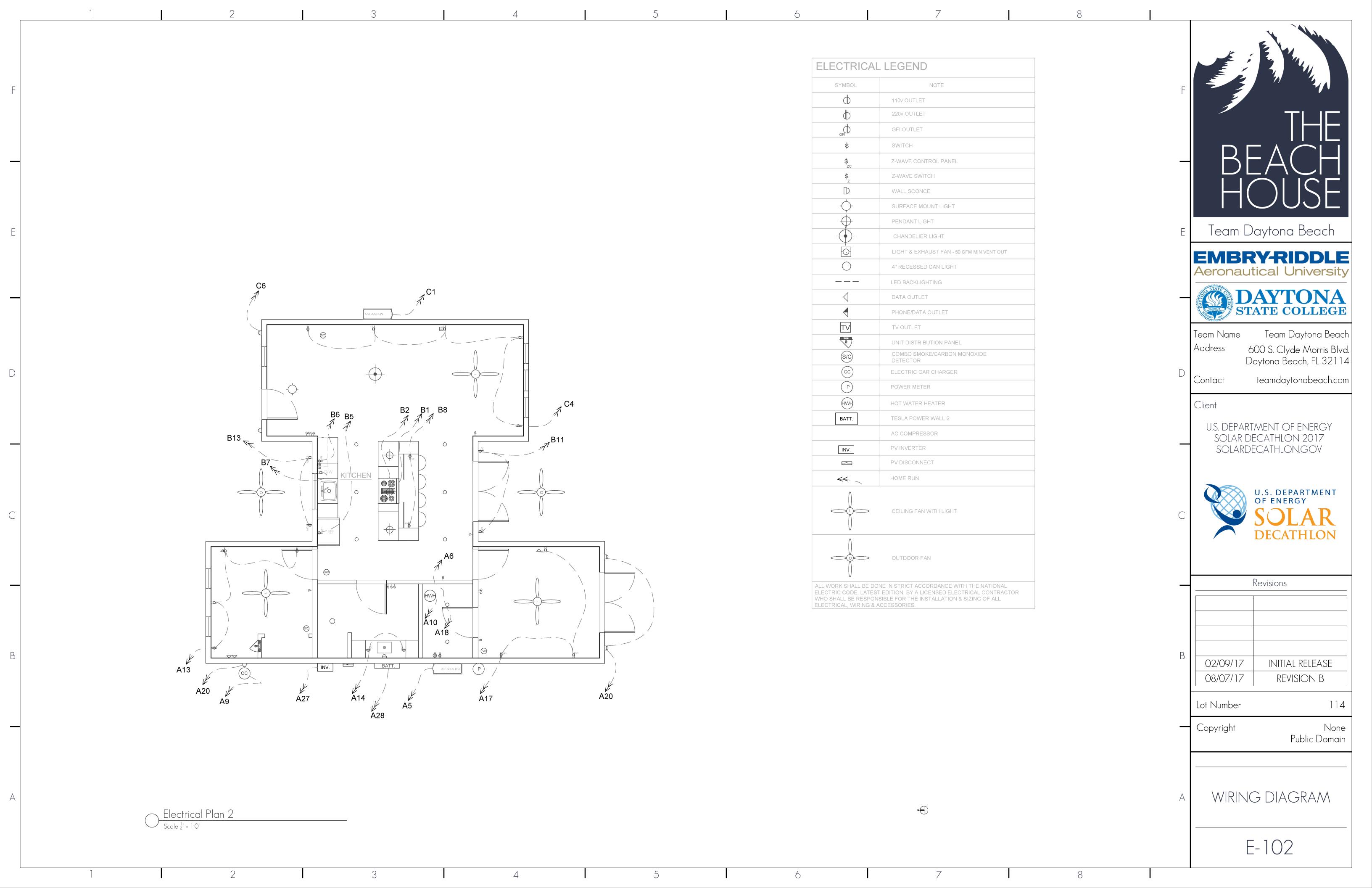






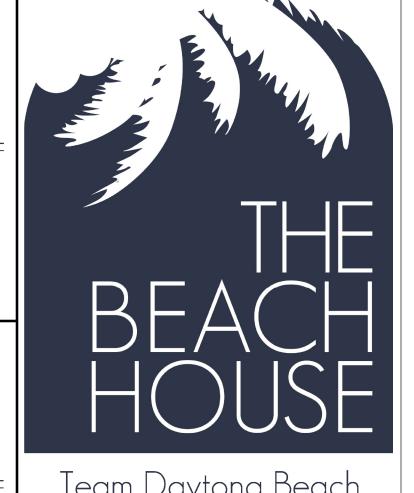






| CIRCUIT | AMPERAGE | BREAKER TYPE | WIRE TYPE |
|---------------------|----------|--------------|--------------|
| AC ZONE 2 | 20A | 2 POLE | 12 AWG UF-B |
| HOT WATER HEATER | 35A | 2 POLE | 8 AWG NM-B |
| WATER PUMP | 15A | 2 POLE | 14 AWG UF-B |
| DRYER | 30A | 2 POLE | 10 AWG NM-B |
| CAR CHARGER | 20A | 2 POLE | 12 AWG NM-B |
| AC ZONE 1 | 15A | 2 POLE | 14 AWG NM-B |
| OVEN | 30A | 2 POLE | 10 AWG UF-B |
| COOKTOP | 30A | 2 POLE | 10 AWG UF-B |
| DOWNDRAFT | 15A | 1 POLE AFCI | 14 AWG UF-B |
| GUEST | 15A | 1 POLE AFCI | 14 AWG NM-B |
| BATHROOM FAN/LIGHTS | 15A | 1 POLE | 14 AWG NM-B |
| AUTOMATION | 15A | 1 POLE AFCI | 14 AWG UF-B |
| MASTER | 15A | 1 POLE AFCI | 14 AWG NM-B |
| HUMIDIFICATION | 15A | 1 POLE | 14 AWG NM-B |
| EXTERIOR | 20A | 1 POLE | 12 AWG NM-B |
| BATHROOM | 20A | 1 POLE | 12 AWG NM-B |
| LAUNDRY | 20A | 1 POLE AFCI | 12 AWG NM-B |
| FIRE ALARMS | 15A | 1 POLE AFCI | 14 AWG NM-B |
| KITCHEN LIGHTING | 15A | 1 POLE AFCI | 14 AWG UF-B |
| ISLAND LIGHTING | 15A | 1 POLE AFCI | 14 AWG UF-B |
| SMALL APPLIANCE | 20A | 1 POLE AFCI | 12 AWG UF-B |
| SMALL APPLIANCE | 20A | 1 POLE AFCI | 12 AWG UF-B |
| MICROWAVE | 20A | 1 POLE AFCI | 12 AWG UF-B |
| FRIDGE | 20A | 1 POLE AFCI | 12 AWG UF-B |
| BACK DECK | 20A | 1 POLE | 12 AWG UF-B |
| FRONT DECK | 20A | 1 POLE | 12 AWG UF-B |
| DISHWASHER | 20A | 1 POLE AFCI | 12 AWG UF-B |
| L ROOM LIGHTS | 15A | 1 POLE AFCI | 14 AWG UF-B |
| L ROOM OUTLETS | 15A | 1 POLE AFCI | 14 AWG UF-B |
| FRONT DECK | 20A | 1 POLE | 12 AWG UF-B |
| BACK DECK | 20A | 1 POLE | 12 AWG UF-B |
| HYDROPONICS | 20A | 1 POLE | 12 AWG UF-B |
| PV | 40A | 2 POLE | 6 AWG RHW |
| POWERWALL | 35A | 2 POLE | 8 AWG THWN-2 |

| AC ZONE 2 | HOT WATER HEATER | | | |
|------------------|---------------------|--|--|--|
| WATER PUMP | DRYER | | | |
| CAR CHARGER | AC ZONE 1 | | | |
| OVEN | COOKTOP | | | |
| SPARE | SPARE | | | |
| SPARE | SPARE | | | |
| GUEST | BATHROOM FAN/LIGHTS | | | |
| HOME AUTOMATION | MASTER | | | |
| HUMIDIFICATION | EXTERIOR | | | |
| BATHROOM | LAUNDRY | | | |
| FIRE ALARMS | SPARE | | | |
| SPARE | SPARE | | | |
| KITCHEN LIGHTING | ISLAND LIGHTING | | | |
| SMALL APPLIANCE | SMALL APPLIANCE | | | |
| MICROWAVE | FRIDGE | | | |
| BACK DECK | FRONT DECK | | | |
| DISHWASHER | DOWNDRAFT | | | |
| SPARE | SPARE | | | |
| L ROOM LIGHTS | L ROOM OUTLETS | | | |
| FRONT DECK | BACK DECK | | | |
| HYDROPONICS | SPARE | | | |
| PV | POWERWALL | | | |
| • | | | | |



Team Daytona Beach



Team Name Address

Team Daytona Beach 600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

Contact

teamdaytonabeach.com

Client

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| | | Revisions |
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| , | 02/09/17 | initial release |
| | 08/07/17 | revision b |
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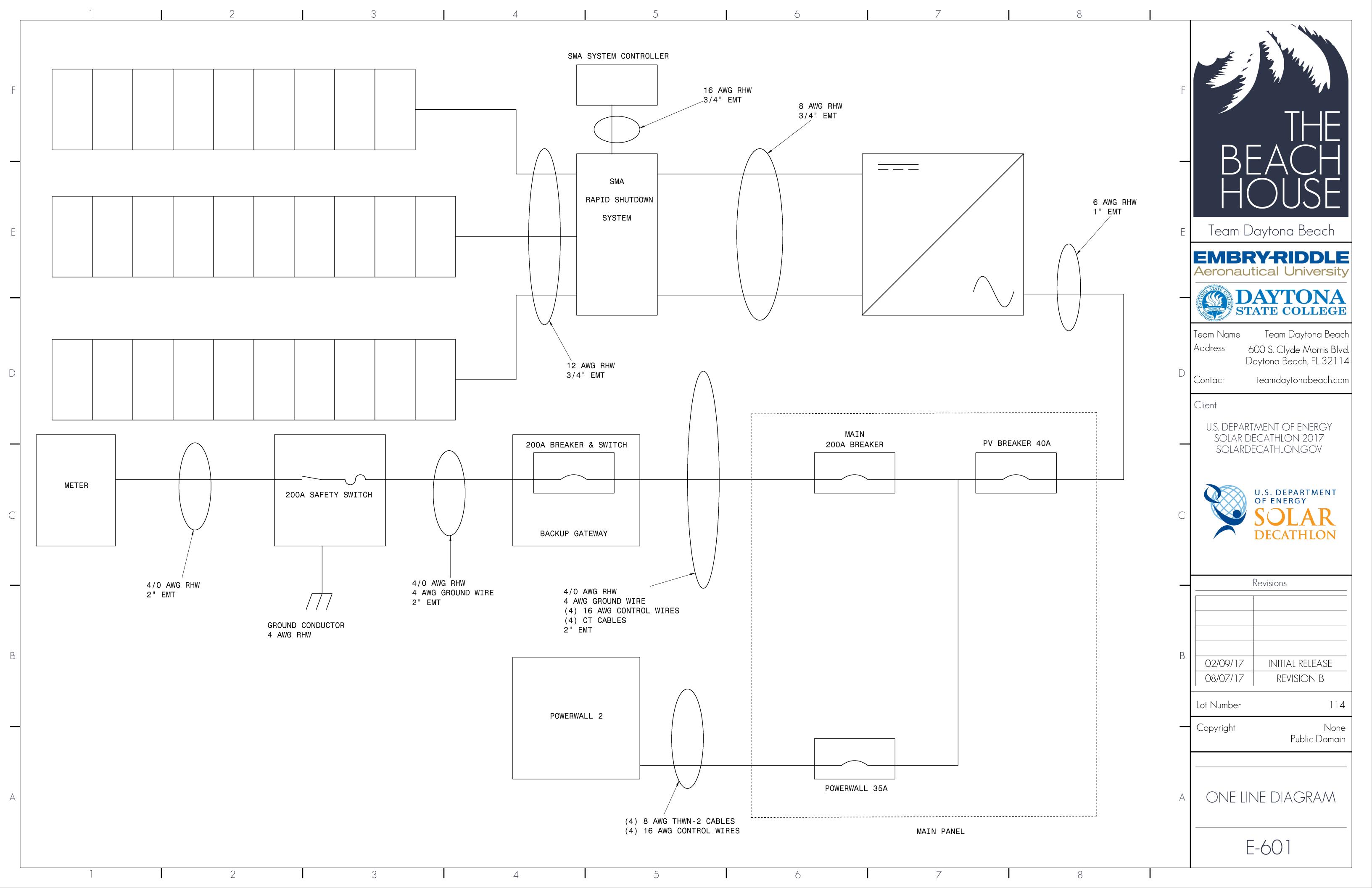
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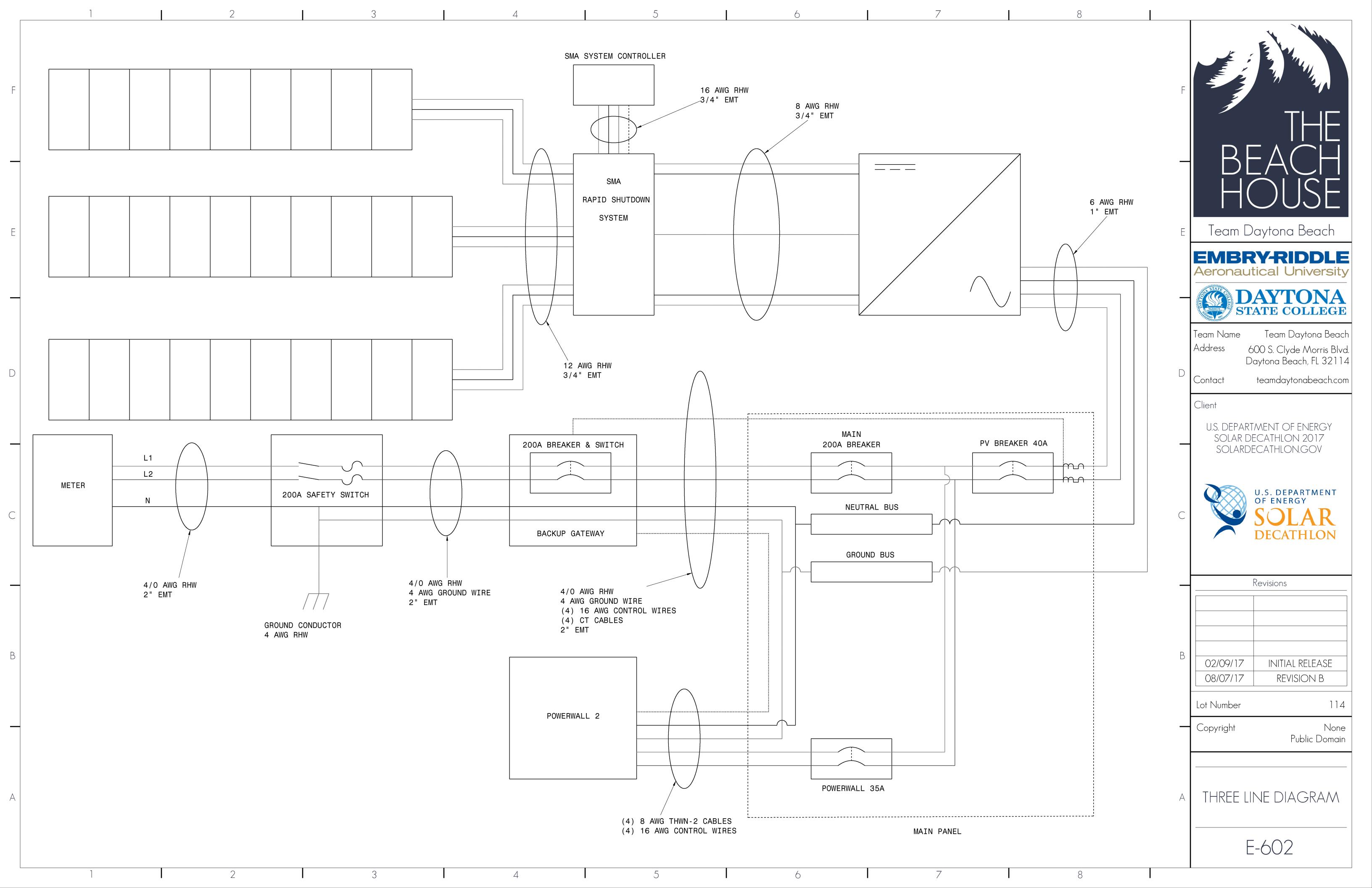
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ONE LINE BREAKER PANEL

E-103





| | | GEN | ERAL HOUSE LOAD CALCULA | TIONS | | |
|------------|--------------------------|---------------|-------------------------|-------------------------------|----------|------|
| FOLLOWING: | NEC 220.82, 220.61 | | | | | |
| PANEL | RULE | VOLTAGE | AMPERAGE | CALCULATION | VALUE | UNIT |
| A,B,C | HOUSE LIGHTING | 120 | NA | 850.86SQFT X 3 VA/SQFT | 2552.58 | VA |
| A | HWH | 240 | 6.25 | 1 X 1500 VA/ CIRCUIT | 1500 | VA |
| A | HUMIDIFICATION SYSTEM | 120 | 2.40 | 1 X 288 VA/ CIRCUIT | 288 | VA |
| A | WASHER | 120 | 12.50 | 1 X 1500VA/ CIRCUIT | 1500 | VA |
| A | CLOTHES DRYER | 240 | 18.75 | 1 X 4500 VA/ CIRCUIT | 4500 | VA |
| A | BATHROON FAN | 120 | 0.73 | 1 X 87 VA/CIRCUIT | 87 | VA |
| В | ELECTRIC COOKTOP | 240 | 30.00 | 1 X 7200 VA/ CIRCUIT | 7200 | VA |
| В | DOWNDRAFT SYSTEM | 120 | 4.41 | 1 X 530 VA/ CIRCUIT | 530 | VA |
| В | OVEN | 240 | 26.15 | 1 X 7200 VA/ CIRCUIT | 6275 | - |
| В | FRIDGE | 120 | 15.00 | 1 X 185 VA/ CIRCUIT | 1800 | VA |
| В | SMALL APPLIANCE | 120 | NA | 2 X 1500 VA/ CIRCUIT | 3000 | + |
| В | MICROWAVE | 120 | 9.17 | 1 X 1100 VA/ CIRCUIT | 1100 | + |
| В | DISHWASHER | 120 | 12.00 | 1 X 1440 VA/ CIRCUIT | 1440 | VA |
| A | CAR CHARGER | 240 | 30.00 | 1 X 7200 VA/ CIRCUIT | 7200 | VA |
| C | TELEVISION | 120 | 1.50 | 1 X 54.4 VA/ CIRCUIT | 180 | + |
| A,B,C | COMPUTER | 120 | 2.00 | 1 X 60 VA/ CIRCUIT | 240 | VA |
| | ROUTER/ Z-WAVE HUB | 120 | 0.05 | 1 X 6 VA/ CIRCUIT | | VA |
| A | HOME AUTOMATION | 120 | 10.00 | 1 X 1800 VA/ CIRCUIT | 1200 | VA |
| С | POTABLE WATER/ FIRE PUMP | 240 | 7.40 | 1 X 1776 VA/ CIRCUIT | 1776 | |
| С | HYDROPONICS PUMP | 120 | 0.40 | 1 X 48 VA/ CIRCUIT | 48 | VA |
| С | HYDROPONICS HEATER | 120 | 7.50 | 1 X 900 VA/ CIRCUIT | 900 | VA |
| A,C | ROOM FANS | 120 | 0.15 | 1 X 18 VA/CIRCUIT | 18 | VA |
| В | OUTDOOR FANS | 120 | 0.10 | 1 X 12 VA/ CIRCUIT | 12 | VA |
| | | | | | | |
| | | | | TOTAL | 43352.58 | VA |
| | | | | FIRST 10000 VA AT 100% | 10000.00 | VA |
| | | | | REST AT 40% | 13341.03 | VA |
| | | | | NET GENERAL LOAD | 23341.03 | VA |
| | CON | TINIOUS LOADS | • | | | |
| С | AC , ZONE 1 (FTXG) | 240 | 8.04 | 1 X 1656 VA/CIRCUIT | 1930 | VA |
| A | AC, ZONE 2 (2MXS) | 240 | 4.5 | 1 X 3480 VA/CIRCUIT | 1080 | VA |
| A | POWERWALL | 240 | 30 | 1 X 7200 VA/CIRCUIT | 7200 | VA |
| | | | | TOTAL | 10210 | VA |
| | | | | | | • |
| | | | | OVERALL TOTAL | 33551.03 | VA |
| | | | | | | • |
| | | | | TOTAL CURRENT | 139.80 | Α |
| | | | | MAIN SERVICE PANEL BREAKER | 200.00 | Α |

| | | | | | | 2ER | RVICE PANEL | A | | | | | |
|----------------|-------------|--------------------|------------------|---------------------|------------------------|------------|-------------|-----------------------|--------------------|------------------|-----------------------|-------------|------------------|
| | | VOLTAGE AND PHASE | 120/240 - SINGLE | PHASE | | | ļ | PANEL AMERAGE: | 200 A | | | | |
| | BREACKER | MOUNTING METHOD: | BOLT ON | | | | | | P.A | NEL A.I.C RATING | 22 KAIC | | |
| | | OTHER: | ALL 15 AND 20 A | MP BREACKERS ARE AF | CI, CIRCUITS NEAR WATI | ER ARE ALL | GFI | | MAIN CI | RCUIT BREACKER: | 200 A | | |
| MPS (PECTED | VA EXPECTED | BREAKER RATING (A) | WIRE RATING | CURRENT RATING | DESTINATION | # | # | DESTINATION | CURRENT RATING (A) | WIRE RATING | BREAKER RATING (A) | VA EXPECTED | AMPS EXPECTED |
| 89.99 | 21597 | 100 | 1/0 AWG,THHN | 170 AMPS, AC | PANEL B | 3 | 2 | PANEL C | 170 AMPS, AC | 1/0 AWG,THHN | 100 | 4948 | 20.62 |
| 4.50 | 1080 | 15 | 14 AWG,NM-B | 15 AMPS, AC | AC ZONE 2 | 5 7 | 6 8 | DRYER | 30 AMPS, AC | 10 AWG,NM-B | 30 | 4500 | 18.75 |
| 30.00 | 7200 | 40 | 8 AWG,NM-B | 40 AMPS, AC | CAR CHARGER | 9 | 10 12 | нwн | 15 AMPS, AC | 14 AWG,NM-B | 15 | 1500 | 6.25 |
| 4.75 | 570 | 15 | 14 AWG,NM-B | 15 AMPS, AC | GUEST | 13 | 14 | POTABLE WATER/ FIRE | 15 AMPS, AC | 14 AWG,NM-B | 15 | 1776 | 7.40 |
| 1.85 | 222 | 20 | 12 AWG, NM-B | 20 AMPS, AC | BATHROOM | 15 | 16 | | | | | | |
| 4.25 | 510 | 15 | 14 AWG,NM-B | 15 AMPS, AC | MASTER | 17 | 18 | WASHER/ DRYER | 20 AMPS, AC | 12 AWG,NM-B | 20 | 1500 | 12.50 |
| 10.00 | 1200 | 15 | 14 AWG,NM-B | 15 AMPS, AC | HOME AUTOMATION | 19 | 20 | EXTERIOR | 20 AMPS, AC | 12 AWG,NM-B | 20 | 318 | 2.65 |
| | | | | | SPARE | 21 | 22 | BATHROOM FAN/LIGHTS | 15 AMPS, AC | 14 AWG,NM-B | 15 | 110 | 0.92 |
| | | | | | SPARE | 23 | 24 | HUMIDIFICATION SYSTEM | 15 AMPS, AC | 14 AWG,NM-B | 15 | 288 | 2.40 |
| • | | | | | SPARE | 25 | 26 | SPARE | | | | | |
| 41.7 | 10008 | 50 | 6 AWG,NM-B | 55 AMPS, AC | PV | 27 | 28 | POWER WALL | 30 AMPS, AC | 10 AWG, THWN | 30 | | |

| | | | | | | SERVICE PAI | NEL B | | | | | | |
|---|-------------|--------------------|--------------|----------------|---------------------------------|-------------|-------|-----------------------------|-----------------|-------------|--------------------|-------------|---------------|
| VOLTAGE AND PHASE 120/240 - SINGLE PHASE | | | | | | | | PA | NEL AMERAGE: | | 100 A | | |
| BREACKER MOUNTING METHOD: BOLT ON | | | | | | | | PAN | EL A.I.C RATING | | 22 KAIC | | |
| OTHER: ALL 15 AND 20 AMP BREACKERS ARE AFCI | | | | | | | | MAIN CI | RCUIT BREACKER: | 100 A | | | |
| AMPS EXPECTED | VA EXPECTED | BREAKER RATING (A) | WIRE RATING | CURRENT RATING | DESTINATION | # | # | DESTINATION | CURRENT RATING | WIRE RATING | BREAKER RATING (A) | VA EXPECTED | AMPS EXPECTED |
| 32.21 | 7730 | 30 | 10 AWG, NM-B | 30 AMPS, AC | ELECTRIC COOKTOP / DOWNDRAFT | 1 3 | 2 | OVEN | 40 AMPS, AC | 8 AWG, NM-B | 40 | 6275 | 26.15 |
| 15.00 | 1800 | 20 | 12 AWG,NM-B | 20 AMPS, AC | FRIDGE | 5 | 6 | SMALL APPLIANCE (WALL) | 20 AMPS, AC | 12 AWG,NM-B | 20 | 1500 | 12.50 |
| 12.00 | 1440 | 20 | 12 AWG,NM-B | 20 AMPS, AC | DISHWASHER | 7 | 8 | SMALL APPLIANCE (ISLAND) | 20 AMPS, AC | 12 AWG,NM-B | 20 | 1500 | 12.50 |
| 9.17 | 1100 | 20 | 12 AWG,NM-B | 20 AMPS, AC | MICROWAVE | 9 | 10 | LIGHTING | 15 AMPS, AC | 14 AWG,NM-B | 15 | 510 | 4.25 |
| 5.18 | 621 | 20 | 12 AWG,NM-B | 20 AMPS, AC | BACK DECK | 11 | 12 | LIGHTING (ISLAND) | 15 AMPS, AC | 14 AWG,NM-B | 15 | 510 | 4.25 |
| 4.30 | 516 | 20 | 12 AWG,NM-B | 20 AMPS, AC | FRONT DECK | 13 | 14 | SPARE | | | | | |
| | | | | | SPARE | 15 | 16 | SPARE | | | | | |

| | | | | | | | SERVICE PAI | NEL C | | | | | | |
|------------------|-------------|---------------------|-----------------|-------------------|-------------------|-------------------|-------------|--------------------|-------------------|------------------|---------------------|-------------|------------------|---|
| | | VOLTAGE AND PHASE | 120/240 - SINGL | E PHASE | | | | | P | ANEL AMERAGE: | 100 A | | | |
| BR | EACKER MOUN | TING METHOD: | BOLT ON | | | | | | PAN | NEL A.I.C RATING | 22 KAIC | | | |
| | OTHE | R: | ALL 15 AND 20 A | AMP BREACKERS A | ARE AFCI | | | | MAIN CIR | CUIT BREACKER: | 100 A | | | |
| AMPS EXPECTED | VA EXPECTED | BREACKER RATING (A) | WIRE RATING | CURRENT RATING | DESTINATION | # | # | DESTINATION | CURRENT RATING | WIRE RATING | BREACKER RATING (A) | VA EXPECTED | AMPS EXPECTED | |
| 8.04 | 1930 | 15 | 14 AWG,NM-B | 15 AMPS, AC | AC ZONE 1 /ETVC) | AC, ZONE 1 (FTXG) | 1 | 2 | GREAT ROOM LIGHTS | 15 AMPS, AC | 14 AWG,NM-B | 15 | 840 | 7 |
| 8.04 | 1930 | 12 | 14 AVVG,INIVI-B | 15 AIVIP3, AC | AC, ZONE I (FIXG) | 3 | 4 | GREAT ROOM OUTLETS | 15 AMPS, AC | 14 AWG,NM-B | 15 | 180 | 1.5 | |
| 7.90 | 948 | 20 | 12 AWG, NM-B | 20 AMPS, AC | HYDROPONICS | 5 | 6 | FRONT DECK | 20 AMPS, AC | 12 AWG,NM-B | 20 | 450 | 3.75 | |
| | | | | | SPARE | 7 | 8 | BACK DECK | 20 AMPS, AC | 12 AWG,NM-B | 20 | 600 | 5.00 | |
| | | | | | SPARE | 9 | 10 | SPARE | | | | | | |
| | | | | | SPARE | 11 | 12 | SPARE | | | | | | |
| | | | | | SPARE | 13 | 14 | SPARE | | | | | | |
| | | | | | SPARE | 15 | 16 | SPARE | | | | | | |



Team Daytona Beach

EMBRY-RIDDLE
Aeronautical University



Team Name Address

Team Daytona Beach 600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

Contact

teamdaytonabeach.com

Client

U.S. DEPARTMENT OF ENERGY SOLAR DECATHLON 2017 SOLARDECATHLON.GOV



| | | Revisions |
|---|----------|-----------------|
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|) | | |
| | 02/09/17 | initial release |
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Lot Number

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LOAD CALCULATIONS

E-604

2 3 4 5

' |

Photovoltaic Equipment

Number of Branches

D

В

Hyundai Max Power Per Branch 3250 W Jinko 2745 W Max Current Per Branch Hyndai 9.2 A 9.05 A Jinko Max Power of System 9245 W Max Current of System 9.2 A Hyundai Panels Jinko Panels Model Number HiS-S325TI JKM305P Rated Power (P_Max) 325 W 305 W Max Power Voltage (V_MPP) 37.8 V 37.4 V Max Power Current (I_MPP) 8.6 A 8.16 A Open Circuit Voltage (V_OC) 46.1 V 45.6 V Short Circuit CURRENT (I_SC) 9.2 A 9.05 A Max System Voltage SC_II and USA NEC 1000 VDC 1000 VDC 15 A 15 A Max Series Fuse **Limiting Reverse Current** 15 A 15 A I_SC Temperature Coefficient (ALPHA) 0.032 %/K 0.06 %/C V_OC Temperature Coefficient (BETA) -0.33 %/K -0.32 %/C -0.45 %/K -0.43 %/C P_MAX Temperature Coefficient (GAMMA) **Standard Test Conditions** 25 C IEC 61215 (Ed.2) and IEC 61730 Certifications UL listed (UL 1703), IEC 61701 ISO 9001:2000 and ISO 14001:2004 Sunny Boy 7700TL-US **Model Number** 8000W Max Usable DC Power Max Input Voltage 600V MPP Voltage Range / Rated Input Voltage 270 - 480 V Min. Input Voltage / Initial Input Voltage 125 V / 150 V Max Input Current 30 A / 18 A Max Input Current Per String 30 A / 18 A Number of indepenent MPP Inputs 2/2 Strings Per MPP Input @ Combiner Box Output (AC) Rated Power / Max Apparent AC Power 6650 / 7680 W Nominal AC Voltage / Nominal AC Voltage Range 240 / 211 - 264 V AC Power Frequency / Range 60 / 59.3 - 60.5 Hz Max Output Current 32 A Power Factor at Rated Power Feed-in Phase / Connection Phase 1/2 CEC Efficiency Max Efficiency 96.50% Operating Temperature Ranges -40 to 60 C UL1741, UL1998, IEEE1547, Certifications FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1, UL 1699B

Branches (Hyundai)

Branch (Jinko)

PV Modules Per Branch

PV Modules Per Branch

10

| Powerwall 2 (Battery) | |
|----------------------------------|-----------------------------------|
| Model Number | PowerWAII 2 AC |
| AC Voltage (Nominal) | 120/240 V |
| Feed-In Type | Single and Split-Phase |
| Grid Frequency | 60 Hz |
| Usage Capacity (100% DOD) | 13.2 kWh |
| Real power, peak | 7.2 kW for 10s |
| Real power, max continuous | 5 kW |
| Apparent power, max continuous | 5.8 kVA (charge and discharge) |
| Imbalance for single-phase loads | 100% |
| Power Factor Output Range | +/- 1.0 |
| Depth of Discharge | 100% |
| Internal Battery DC Voltage | 50 V |
| Round Trip Efficiency | 89% |
| Operating Temperature | -20C to 50C |
| Storage Temperature | -30C to 60C |
| Operating Humidity | 100%, condensing |
| Ingress Rating | IP67 (Battery & Power Electronics |
| | IP56 (Wiring) |
| Encloser type | NEMA 3R |
| Noise level @ 1m | <40 DbA, at 30C |
| Certifications | UL 1642, UL 1741, UL 1973, UL 954 |
| | UN 38.8, IEC 62109-1, IEC 62619 |

| Maximum Photovoltaic System Voltage | |
|--|----------|
| Number of Connected In Series | |
| Highest Expected Ambient Temperature (Daytona Beach) | 35 C |
| Lowest Exptected Ambient Temperature (Denver) | -23 C |
| Open Circuit Voltage | 45.6 V |
| STC Temperature | 25 C |
| Change in Temperature | -48 C |
| V_OC Temperature Coefficient | -0.32 %/ |
| Correction Factor | 1.2 |
| Corrected Open Circuit System Voltage | 553.2 V |
| Maximum Circuit Current | |
| Short Circuit Current (I_SC) | 9.2 A |
| Sum of Parallel PV Modules | 1 |
| Correction Factor | 1.25 |
| Maximum Current Per PV Module | 11.5 A |
| Conductor Ampacity | |
| Cable Ampacity Required | 11.5 A |
| Conditions | |
| Ambient Temperature | 35 C |
| Ampacity of 12 AWG (75C) Wire in Conduit | 20 A |
| Correction Factor For 4 Current Carrying | 0.8 |
| Adjusted Ampacity | 16 A |
| Conductor Output Current Rating | 12 AWG |
| Ampacity And Overcurrent Device Ratings | |
| | |
| Maximum Output Corrent of Inverter | 32 A |
| Adjusted Ampacity | 52.125 |
| Distance From Inverter to Panel Board | 5 Ft |
| Overcurrent Devices | |
| Panel Board Overcurrent Device | |
| Conductor Ampacity | |
| Cable Ampacity Required | 52.125 |
| Ambient Temperature | 25 C |
| Ampacity of 8 AWG | 50 A |
| Correction Factor For 4 Current Carrying | 0.8 |
| Adjusted Ampacity | 40 A |
| Conductor Size Chosen for Strong Home Run | 6 AWG |
| Service and Feeder Conductor Sizes | |
| Service Entrance Cable Type NEC310.14(B)(16) | RHW |
| Correction Factor 310.15(2)(B) | 1 |
| Corrected Current Rating | 230 A |
| Conductor Size Based on 75C | 6 Coppe |
| Grounding Electrode Conductor Size | |
| Electrode Size | 6 Coppe |
| Electrode Size | 1 |
| Conduit Size Feeder and Service Encloser | |



Team Daytona Beach





Team Name Address

600 S. Clyde Morris Blvd. Daytona Beach, FL 32114

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Contact

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| | Revisions | | | | | | | | |
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| | 02/09/17 | initial release | | | | | | | |

Lot Number

114

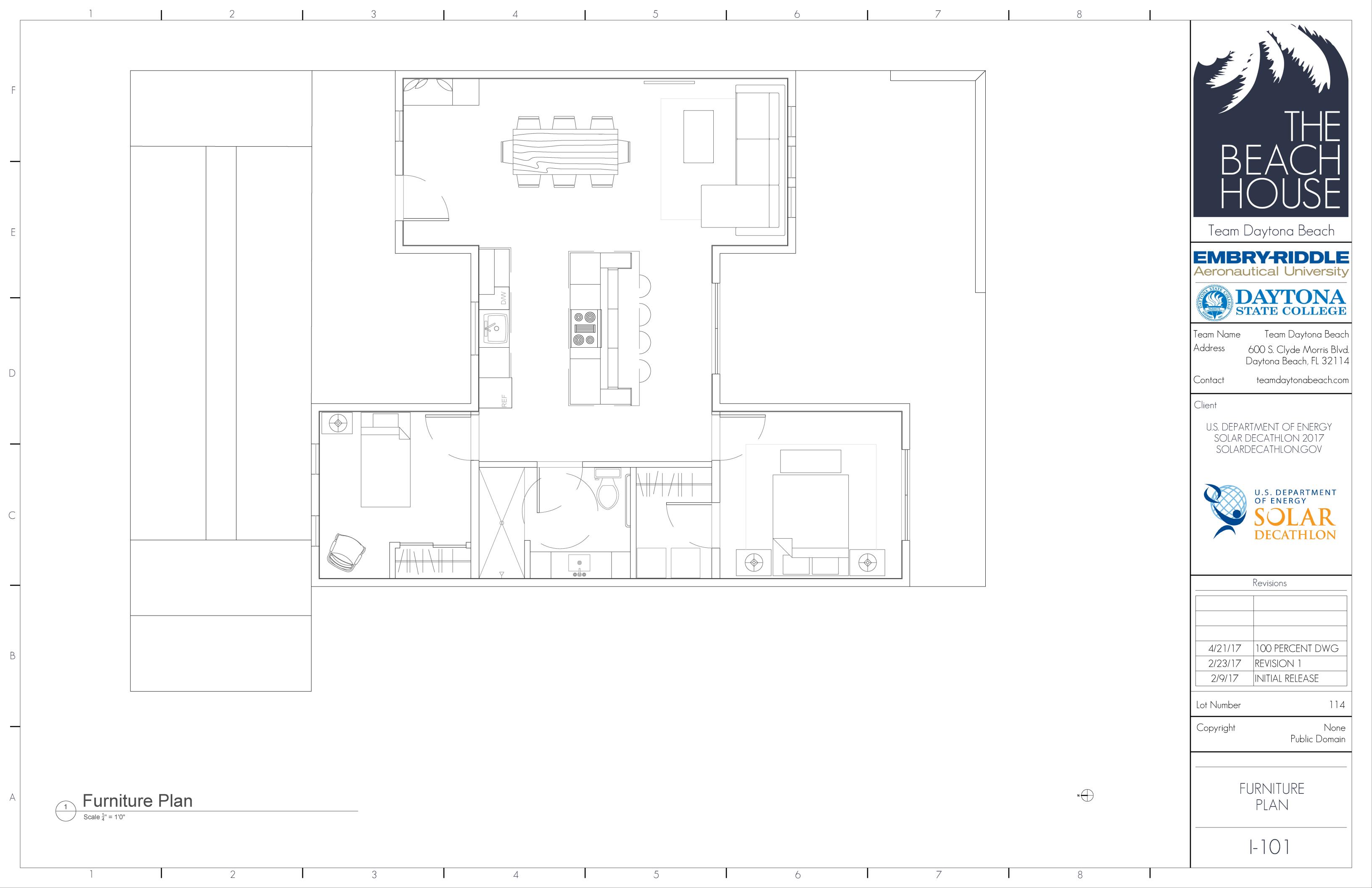
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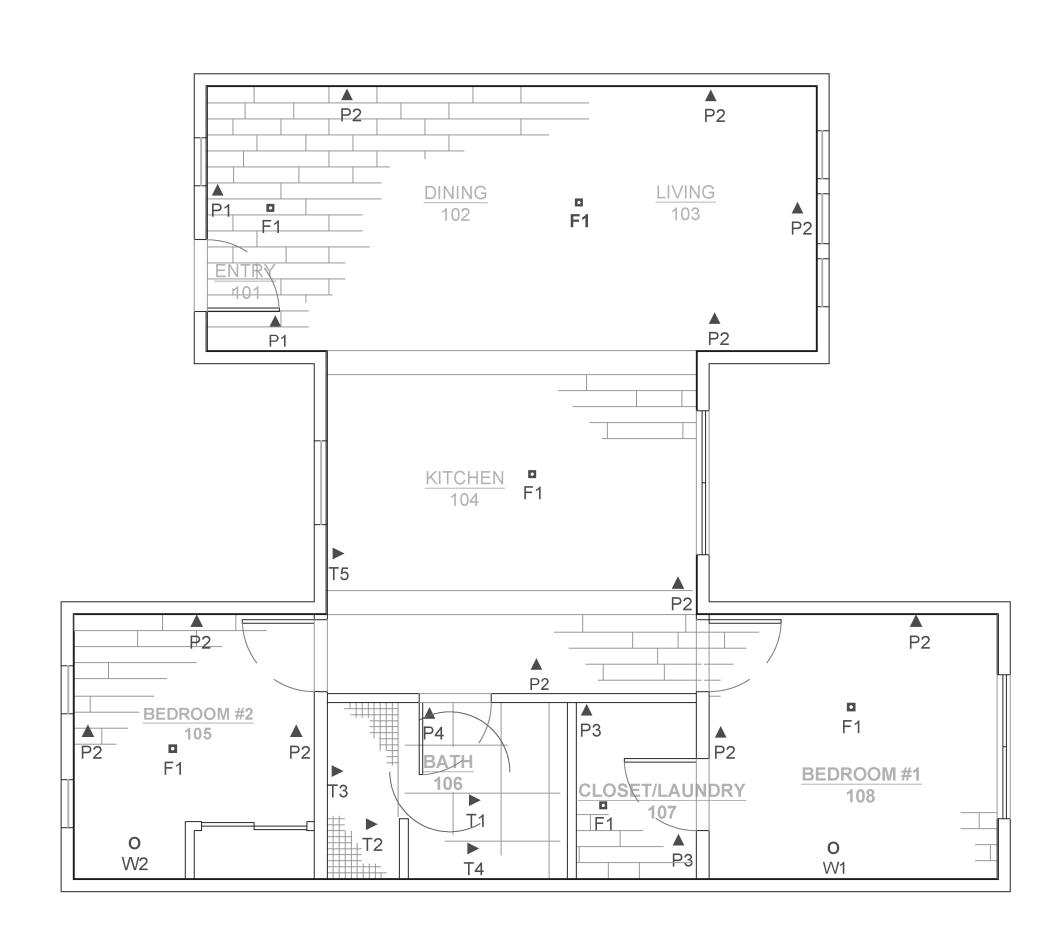
PV LOAD CALCULATIONS

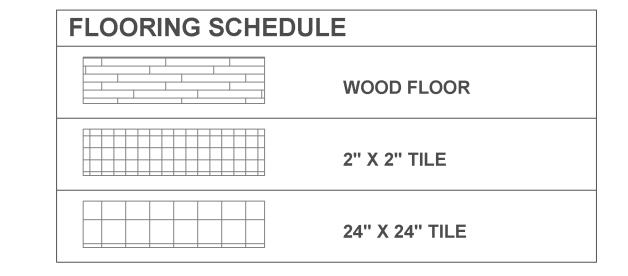
E-605

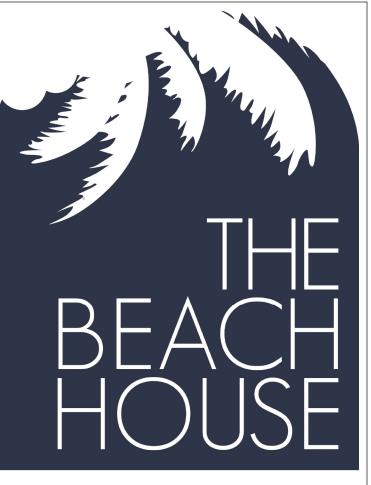
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FINISH SCHEDULE KEY MANUFACTURER FINISH VENDOR MATERIAL PRODUCT# **▲**P1 PAINT SHERMIN WILLIAMS INDIGO BATIK SW7602 SOUTHERN PAINT **▲**P2 PAINT SOUTHERN PAINT BENJAMIN MOORE STONE HEARTH 984 **▲**P3 DESIGNER WHITE SOUTHERN PAINT PAINT **▲** P4 PAINT BENJAMIN MOORE INTENSE WHITE SOUTHERN PAINT OC-31 OW1 WALLPAPER SERENA & LILY PALMETTO PALM LEAF SERENA & LILY oW2 WALLPAPER MAYA ROMANOFF ISLAND WEAVES-ROSEAU MR-TK-003 MAYA ROMANOFF **▶**T1 AV261.12424UHT TILE CROSSVILLE 24X24 TILE CROSSVILLE CROSSVILLE **▶**T2 TILE CROSSVILLE 2" HEXAGON AV261.12UHTHEX **▶**T3 TILE CROSSVILLE 3 X 6 SUBWAY CROSSVILLE AV261.10306UHT TILE **▶**T4 BEVEL WHITE SUBWAY ►T5 TILE APEX □F1 WOOD GOODWIN LUMBER HARD PINE / BLACK CHERRY GOODWIN LUMBER







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| | 4/21/17 | 100 PERCENT DWG | | |
| | 2/23/17 | revision 1 | | |
| | 2/9/17 | initial release | | |
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INTERIOR FINISH SCHEDULE

1-102

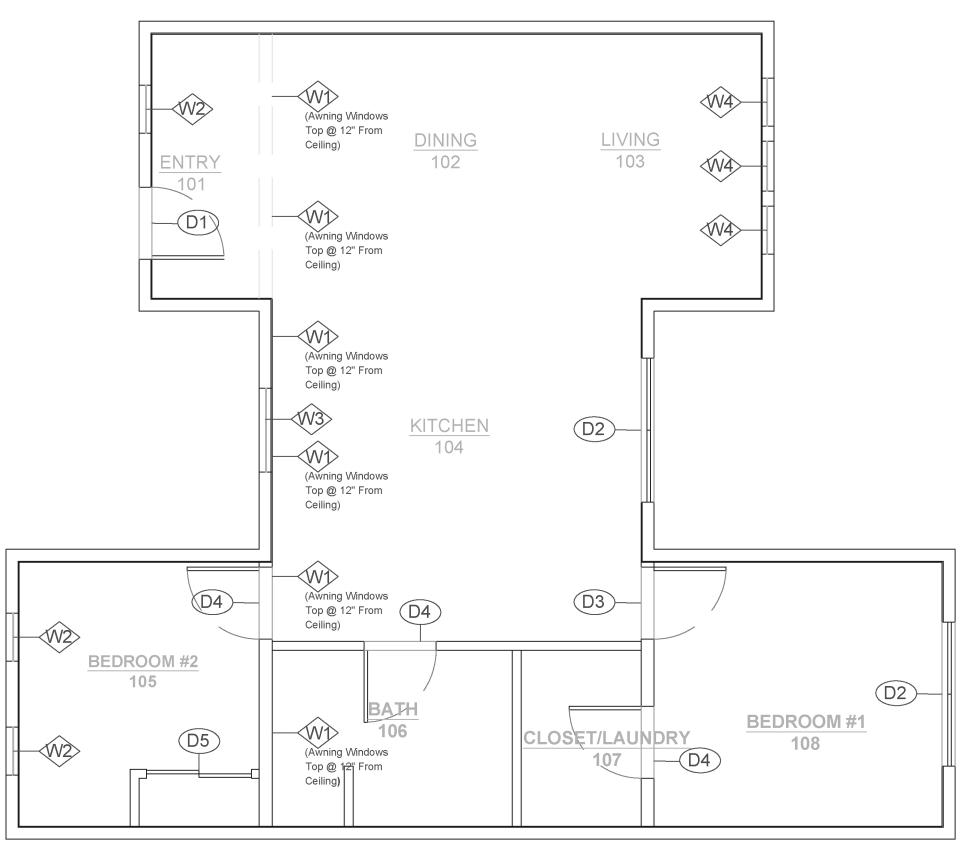
Finish Plan

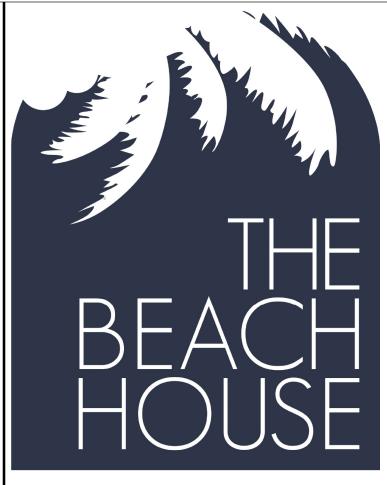
Scale ¹/₄" = 1'0"

6

| WINDOW SCHEDULE | | | | | | | |
|-----------------|-----|----------|----------|--------------|-----------------|-----------------------------|---|
| KEY | QTY | WIDTH | HEIGHT | MANUFACTURER | PRODUCT# | PRODUCT NAME | MATERIAL |
| W1 | 5 | 4'0 3/4" | 2'0 3/4" | ABACO PRO | #8450-AW 4020 | 8450 SERIES AWNING WINDOW | LOW E 366 Insulated / Stainless Steel Hardware / Impact |
| W2 | 3 | 2'0 3/4" | 6'0 3/4" | ABACO PRO | #8400-CS-L 2060 | 8400 SERIES CASEMENT WINDOW | LOW E 366 Insulated / Impact |
| W3 | 1 | 4'1 1/4" | 4'1 1/4 | ABACO PRO | #CS-L - CS-R | 8400 SERIES CASEMENT WINDOW | LOW E 366 Insulated / Impact |
| W4 | 3 | 2'0 3/4" | 4'0 3/4 | ABACO PRO | #8400-CS-R 2040 | 8400 SERIES CASEMENT WINDOW | LOW E 366 Insulated / Stainless Steel Hardware / Impact |

| DOOR SCHEDULE | | | | | | | |
|---------------|-----|-----------|------------|--------------|-----------|--------------------------------|---|
| KEY | QTY | WIDTH | HEIGHT | MANUFACTURER | PRODUCT# | PRODUCT NAME | MATERIAL |
| D1 | 1 | 3'1 1/2" | 6'9 1/2" | MASONITE | #60028777 | TEXTURED SINGLE PREHUNG | BELLEVILLE FIR TEXTURED FIBERGLASS & DECORATIVE GLASS |
| D2 | 2 | 5'11 1/2" | 6'7 3/4" | ABACO PRO | #8750-FD | 8750 PVC FRENCH DOOR | LOW E366 Insulated / Impact |
| D3 | 1 | 3'0 9/16" | 6'9 11/16" | JELD-WEN | | INTERIOR MOLDED DOOR - PREHUNG | COMPOSITE SMOOTH - LEFT HINGE |
| D4 | 3 | 3'0 9/16" | 6'9 11/16" | JELD-WEN | | INTERIOR MOLDED DOOR - PREHUNG | COMPOSITE SMOOTH - RIGHT HINGE |
| D5 | 1 | 3'0 9/16" | 6'9 11/16" | JELD-WEN | | INTERIOR MOLDED DOORS DOUBLE | COMPOSITE SMOOTH |
| | | | | | | | |





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Revisions

| 4/21/17 | 100 PERCENT DWG |
|---------|-----------------|
| 2/23/17 | revision 1 |
| 2/9/17 | INITIAL RELEASE |

Lot Number

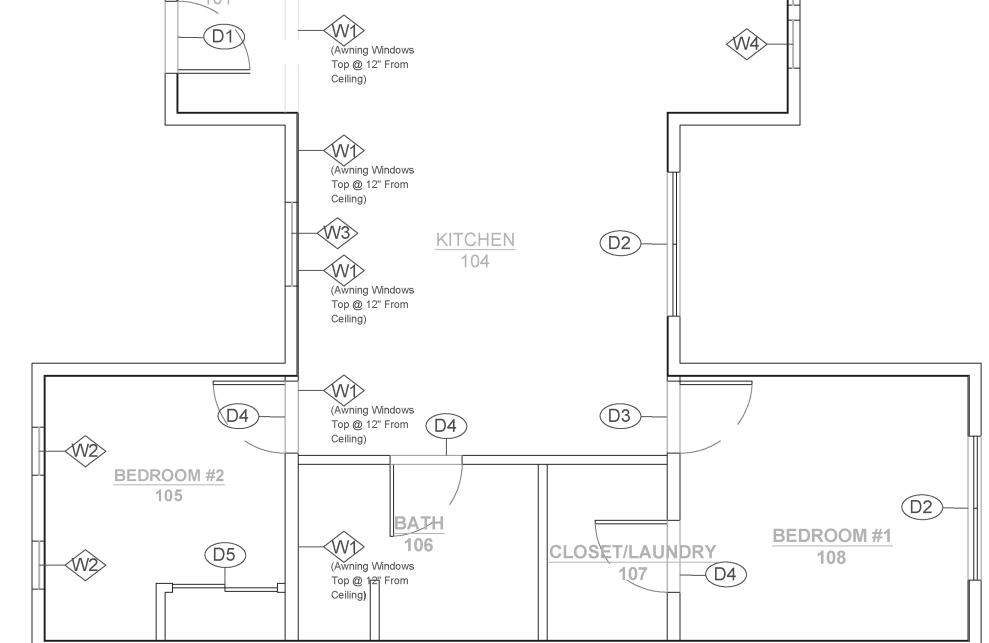
114

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DOOR & WINDOW SCHEDULE

1-201

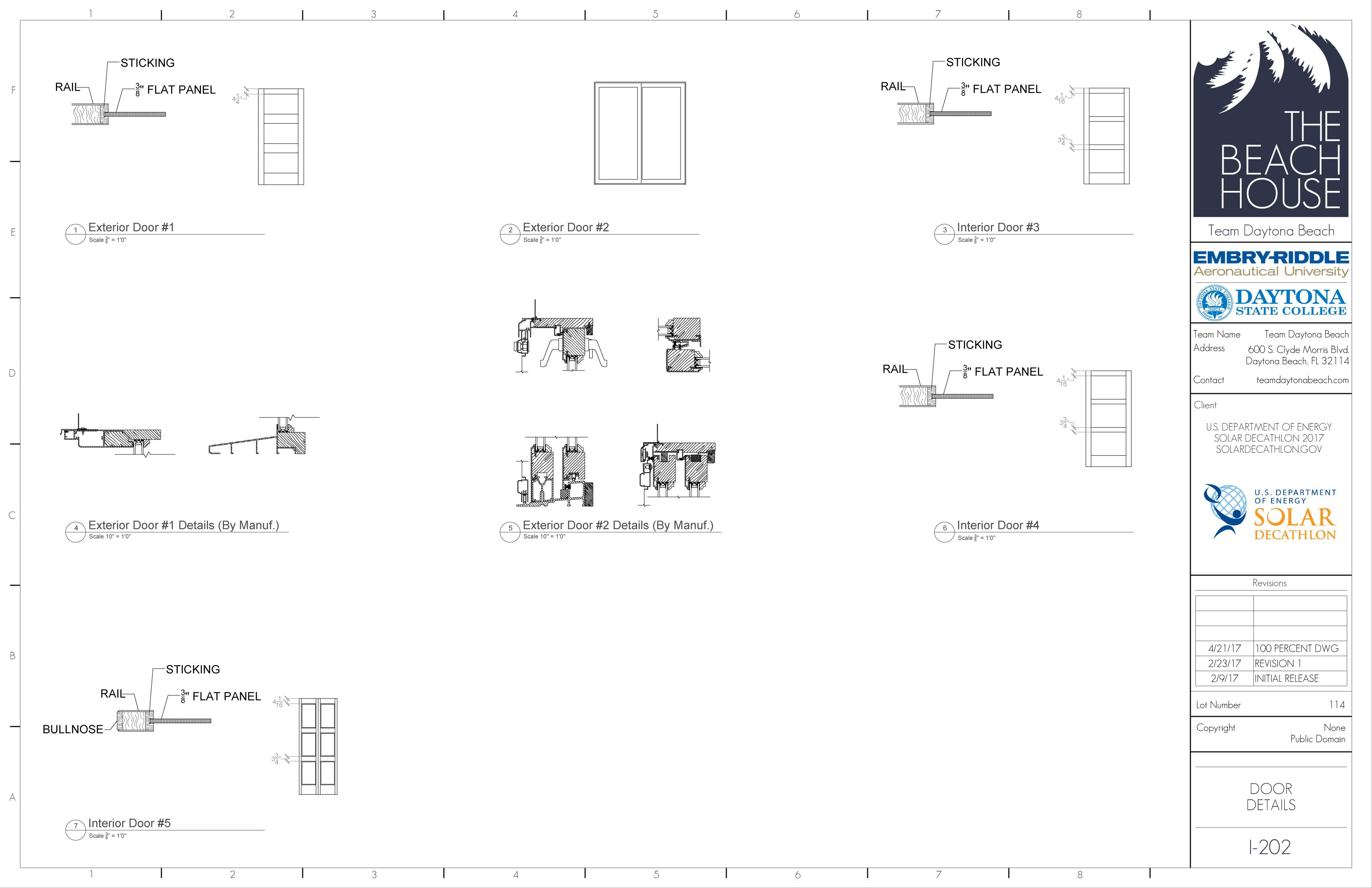


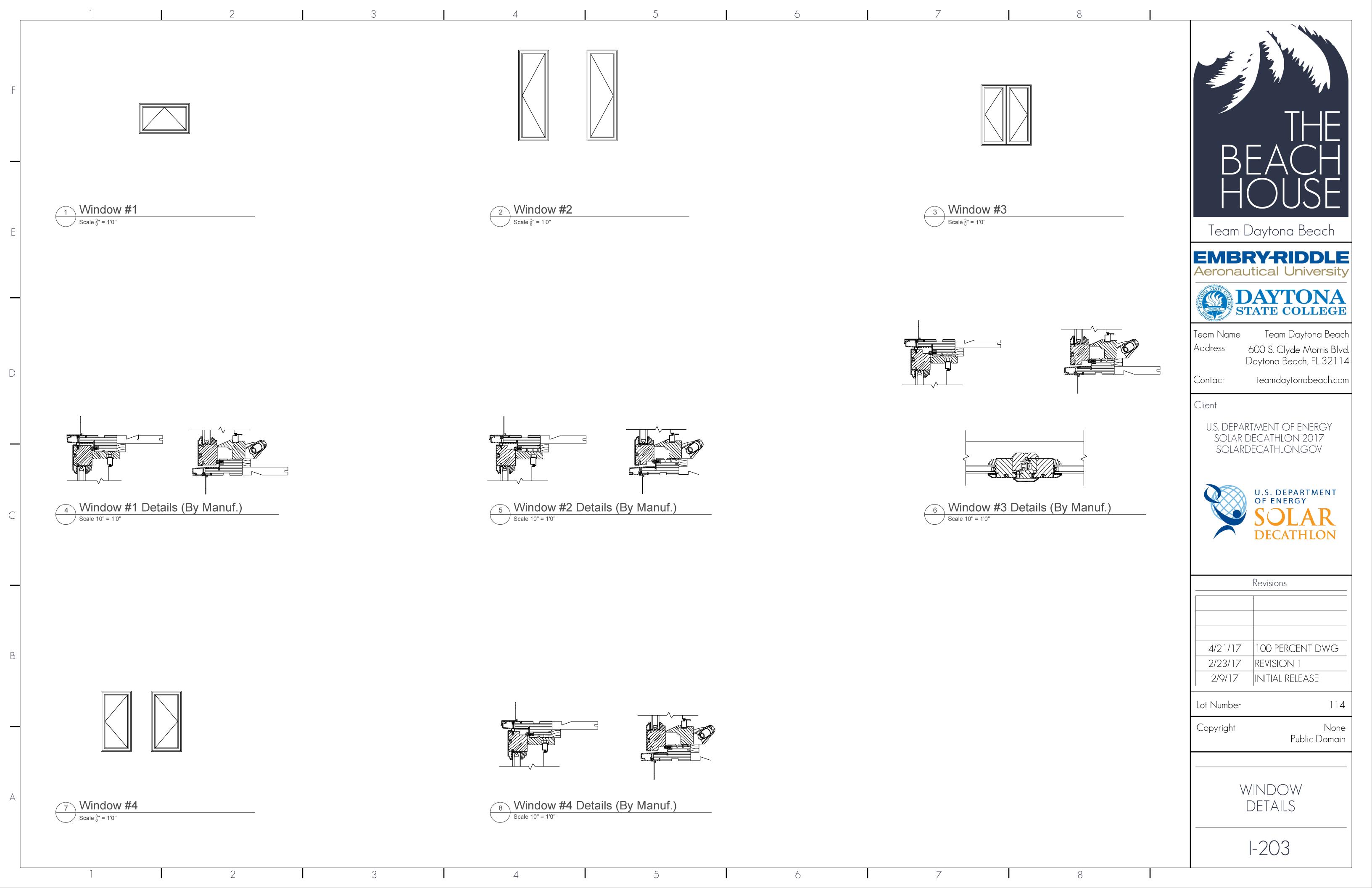
Door & Window Plan

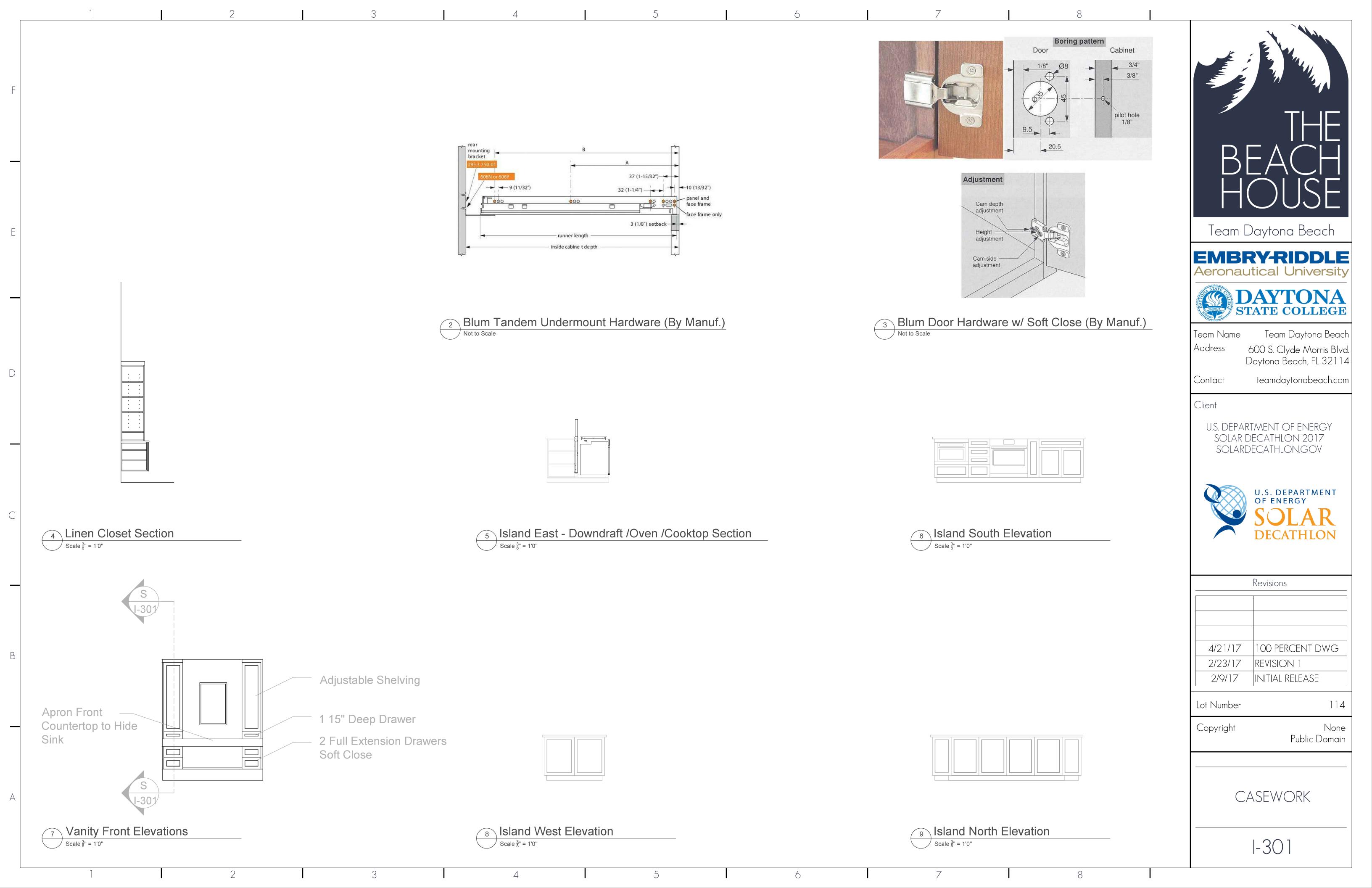
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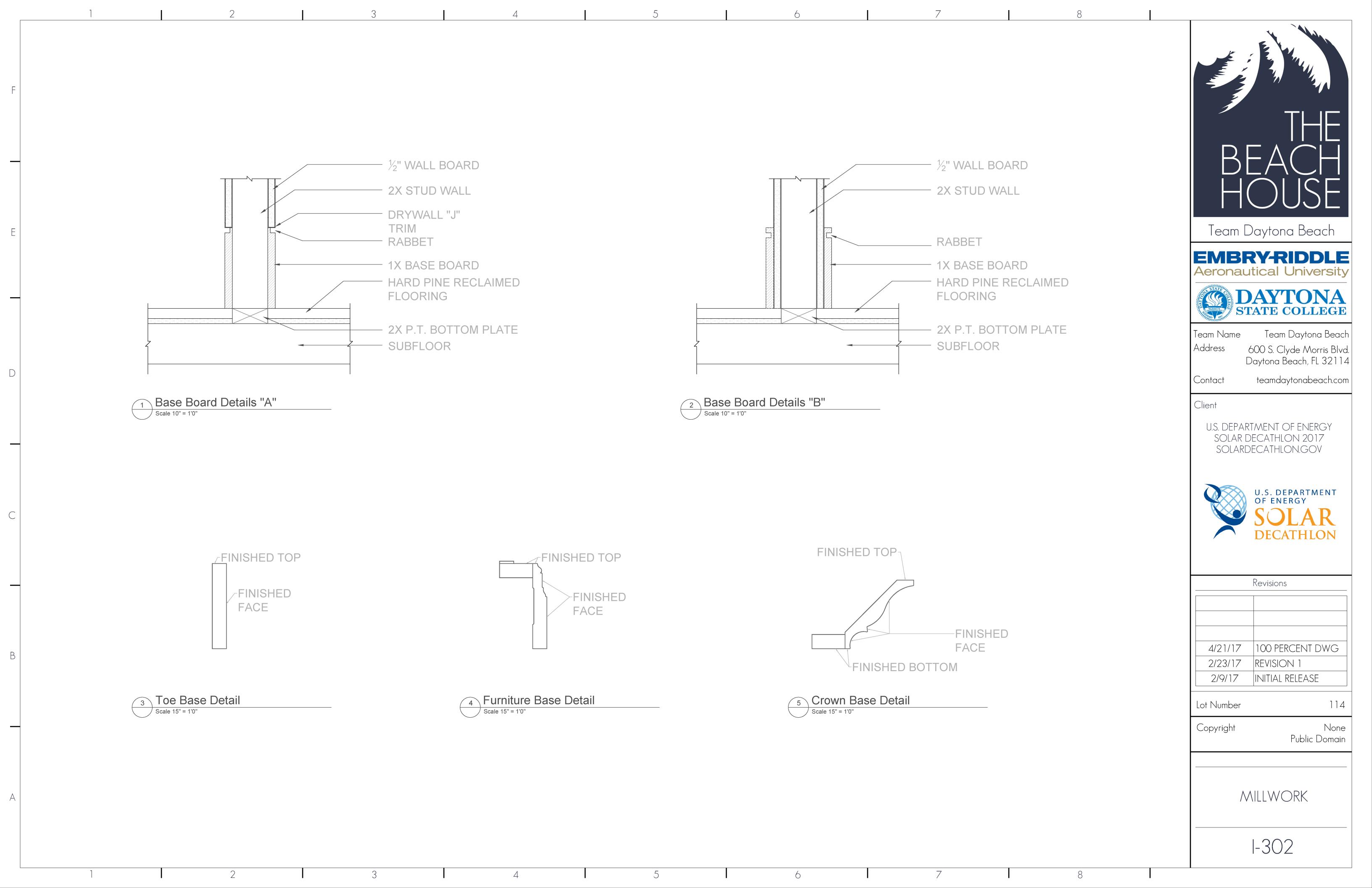
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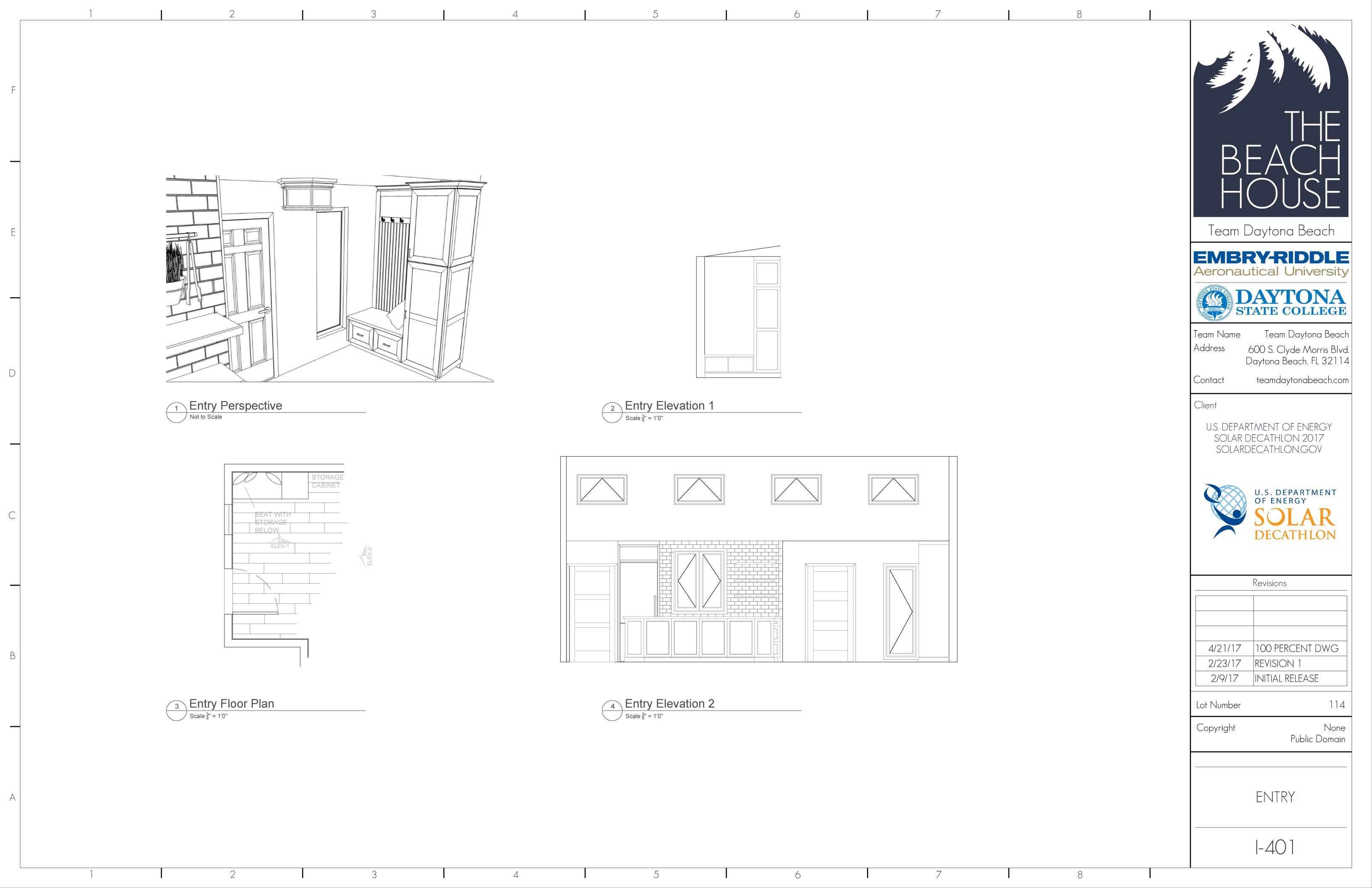
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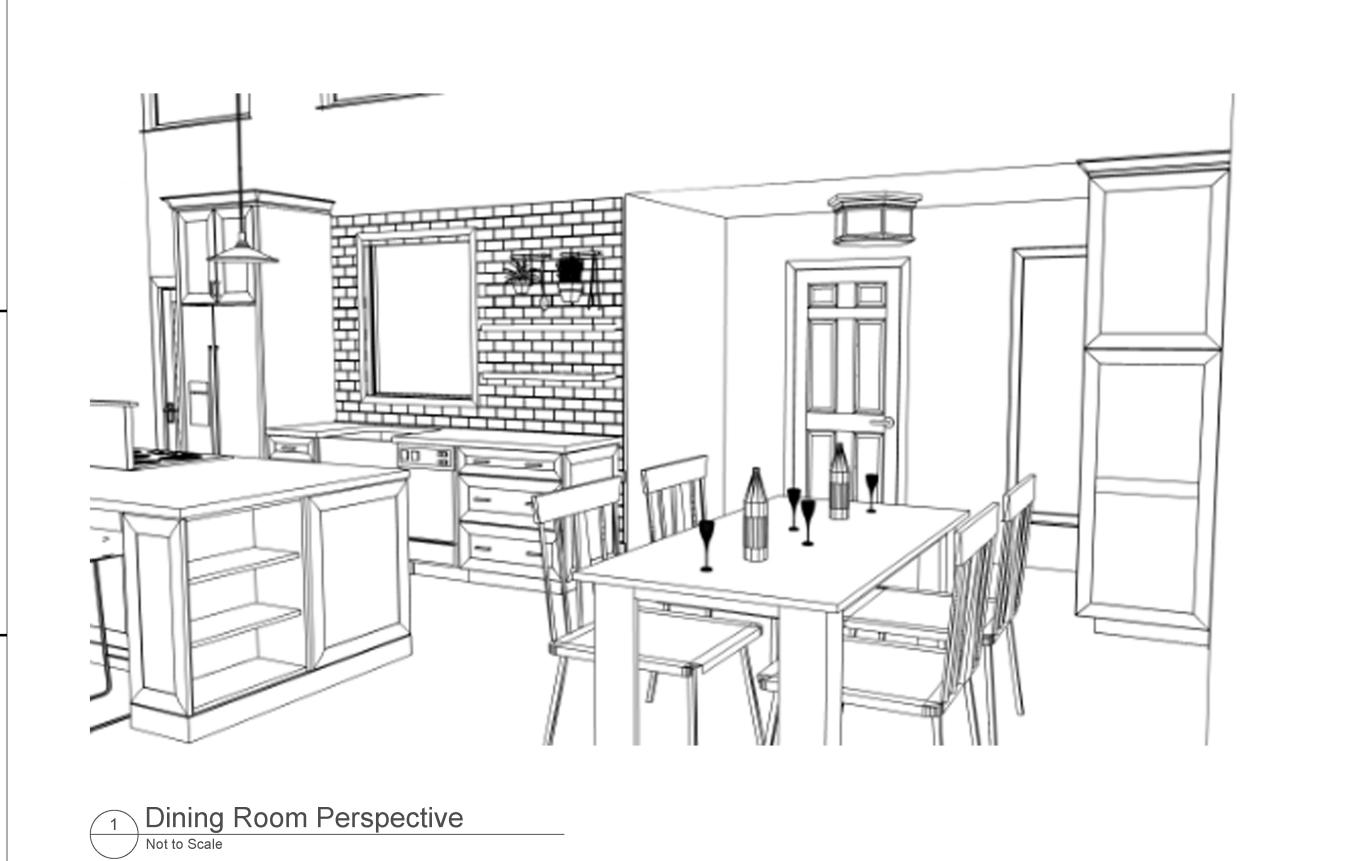


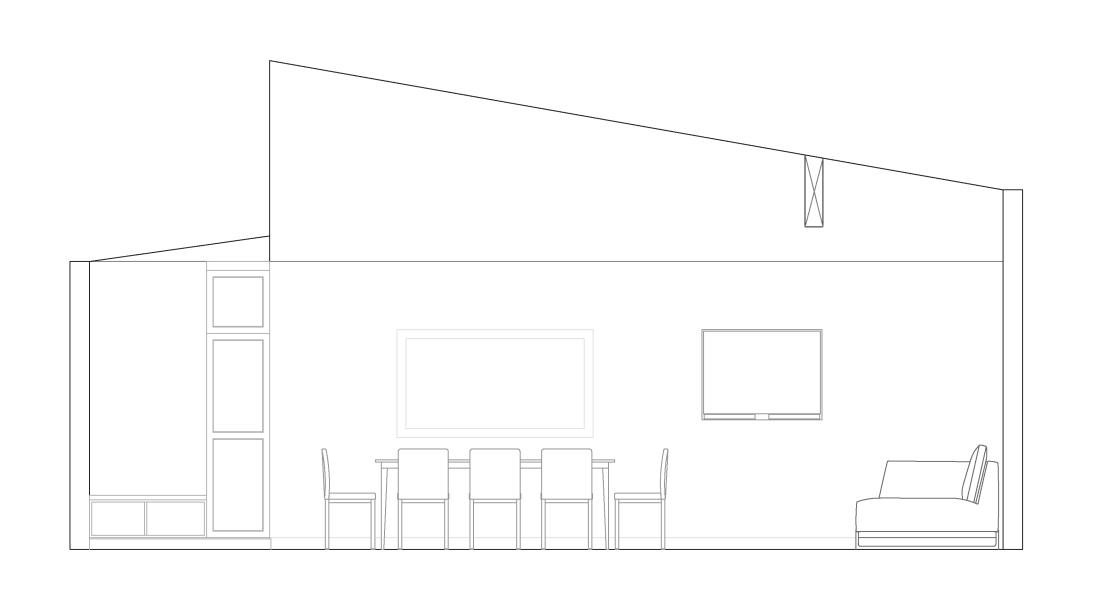




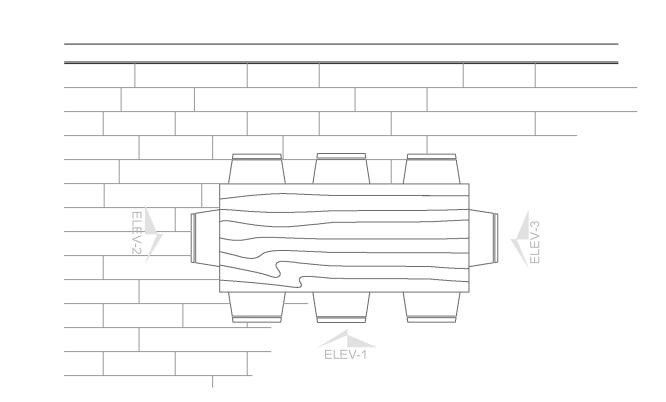




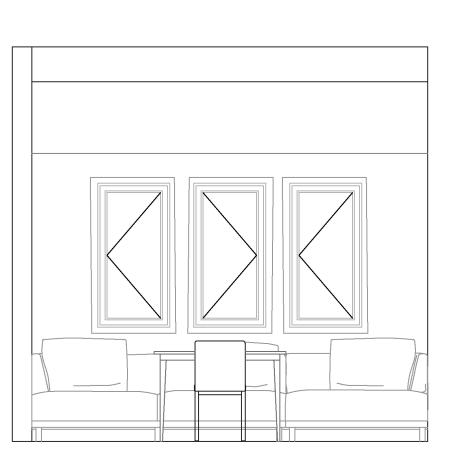




2 Dining Room Elevation 1
Not to Scale

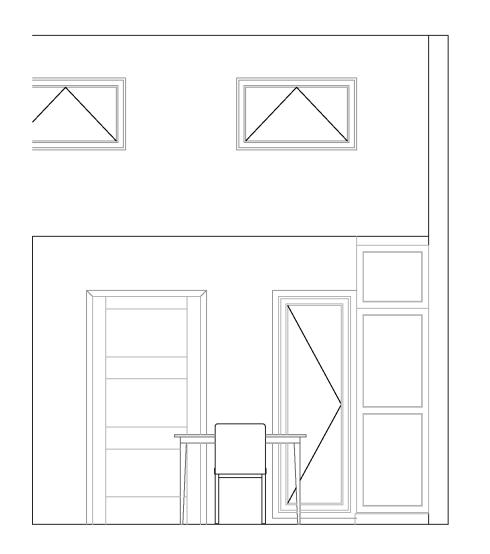


3 Dining Room Floor Plan
Scale 3" = 1'0"

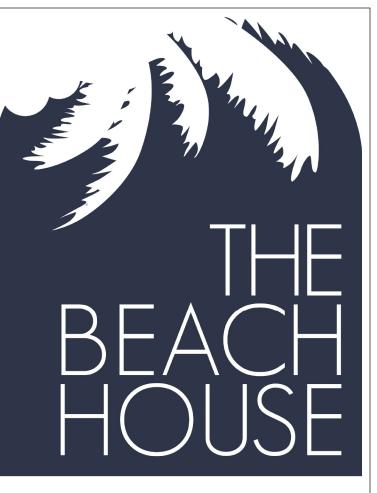


4 Dining Room Elevation 2

Scale 3/8" = 1'0"



5 Dining Room Elevation 2
Scale 3" = 1'0"



Team Daytona Beach

EMBRY-RIDDLE Aeronautical University DAYTONA STATE COLLEGE

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None

DINING ROOM

1-402

3 4 5 8

