9. GREEN DREAM 2, NEW ORLEANS, LA

9.1 Executive Summary

Gate 2 – Prototype: Green Dream 2, New Orleans, LA

Overview

The Green Dream 2 is a single family home being built by Catholic Charities Operation Helping Hands. The home started construction in June of 2009 and is expected to be completed by the end of December 2009. Project partners include Building Science Corporation (BSC), Louisiana State University Agricultural Center (LSU AgCenter), Portland Community College (PCC) and Operation Helping Hands (OHH). The home will be an example of energy-efficient and flood-recoverable construction in a high wind zone.

Key Results

Though the home is not yet completed, there are several key results to report at this point during construction:

- The home was successfully framed with dimensional lumber floors and walls, wood roof trusses and specified fasteners and connectors to meet the prescriptive code for the Wood Frame Construction Manual, 130 mph, Exposure B.
- All of the windows were installed with proper flashing back to the drainage plane following a window installation demonstration for volunteers.
- Plumbing and mechanical systems were installed in the attic meeting the requirements of the contract drawings and specifications.
- The builder was unable to provide a complete construction budget, making it difficult near the end of the project to ensure the project was completed per drawings and specifications.
- Volunteer labor (combined with hired crews) was utilized to keep the project on schedule.

The Green Dream 2 is being built to meet high performance specifications for both the enclosure and mechanical systems. Once home is complete, BSC will do performance testing to ensure the house performs as designed.

Gate Status

Below is a table indicating that the Green Dream 2 Gate 2 Prototype passes the "Must Meet" Gate Criteria.

Table 9.1: Stage Gate Status Summary

"Must Meet" Gate Criteria	Status	Summary
Source Energy Savings	Pass	The Green Dream 2 design achieves a 57% source energy savings over the 2009 Building America Benchmark.
Prescriptive-Based Code Approval	Pass	Design complies with 2006 International Residential Code and Wood Frame Construction Manual, 130 mph, Exposure B.
Quality Control Requirements	Pass	Weekly conference calls combined with weekly photos taken by LSU staff allowed BSC to ensure critical details were being implemented on the project. BSC staff also visited the site during critical construction periods. Details will also be verified by a third-party as part of NAHB's Green Building Standard.

"Should Meet" Gate Criteria	Status	Summary
Neutral Cost Target	Fail	The Green Dream 2 does not meet the neutral cost target when the cost of improvements is financed as part of a 30 year mortgage. This annual amortized cost is more than the energy savings of the homes compared to the 2009 Building America Benchmark. Although in this particular project, the homeowner has received cash from the Road Home recovery program and will not be taking out a mortgage.
Quality Control Integration	Pass	The drawing set and specifications include details on air barriers, framing and mechanical and structural coordination. Details in the drawing set were reviewed with the builder and MEP trades at two critical time during the project – first before construction began and second before the trades were to start work.
Gaps Analysis	Pass	Most of the lessons learned in this project were related to designing and detailing framing in a high wind zone to meet prescriptive requirements. Many of the prescriptive requirements prevented the implementation of advanced framing practices. Other lessons learned include cladding attachment in a high wind zone, foundation design and truss design.

Conclusions

When complete, the Green Dream 2 will stand as an example of an energy-efficient home in a high wind zone, built to recover from both flooding and high wind events. From working with a structural engineer provided by LSU, the project team learned that there is currently research being conducted by structural engineers in the Louisiana area in an effort to create design guidelines specific to buildings in high wind and flood zones. These guidelines would address elevated floors and different foundation types including pier construction, which are not covered by the current prescriptive code for high wind construction. It is the hope that with these guidelines, designers would have a better understanding of the various foundation options and be able to design them to meet the project's specific loading requirements.

The high performance enclosure and high efficiency mechanical systems specified for the Green Dream 2 are predicted to save the homeowner $2,000 per year in utility bills. Results from performance testing will be reported on and included in the Case Study created after construction is complete.

9.2 Introduction

9.2.1. Project Overview

The Green Dream 2 is a single-family home being built on the site of a hurricane-damaged house that stood for 3 years before being demolished by the city. Staff and students from Portland Community College met the homeowner and his family on a trip to New Orleans and wanted to help them by building a new home; one that would be durable, healthy, comfortable, energy-efficient and affordable. PCC connected the homeowner with Catholic Charities Operation Helping Hands who, in turn, asked BSC and the LSU AgCenter to be a part of the team.

Architects and engineers created the plans and specifications for the 4-bedroom, 2-full bath home on piers. The foundation system is a proprietary system of telescoping concrete piers with wood framed sill beams supporting the floor joists. In order for the home to be flood-recoverable, the insulation for the walls is placed to the outside of the studs, leaving the stud bays open and able to be cleaned after a flooding event. Medium and high-density spray foam is utilized between the floor joists and on the underside of the roof sheathing not only to be part of the thermal envelope but also to provide a critical seal air barrier. The windows allow cross ventilation and have a low solar heat gain coefficient (SHGC = 0.21), decreasing solar gain. All plumbing and mechanical systems are located in the conditioned attic, including supplemental dehumidification, which will control the humidity during the shoulder seasons of spring and fall.

The Green Dream 2 will have fiber cement siding over treated wood furring strips and high wind rated shingles over a fully adhered roofing membrane. See Figure 9.2.1 below.

Figure 9.2.1: Green Dream 2 rendered elevation

The home is scheduled to be completed at the end of December 2009. See the photos below for a series of construction milestones. Additional photos can be seen on the project's blog at the following web address:

www.greendream2.posterous.com

Figure 9.2.2: Concrete piers, treated floor framing and borate treated wall framing

Figure 9.2.3: Roof trusses and treated wall sheathing

Figure 9.2.4: Roof trusses and treated wall sheathing

Figure 9.2.5: Treated roof sheathing

Figure 9.2.6: Housewrap

Figure 9.2.7: Roof shingles and windows

The Green Dream 2 is not only part of the Building America Program, but is also registered in Builders Challenge and in NAHB's Green Building Standard.

9.2.2. Project Information Summary Sheet

PROJECT SUMMARY	
Company	Catholic Charities Operation Helping Hands
Company Profile	Operation Helping Hands brings volunteers from across the country together to help rebuild New Orleans by rebuilding homes of elderly, disabled or uninsured homeowners that were severely damaged by Hurricanes Katrina and Rita in 2005.
Contact Information	Paul Cook Operation Helping Hands Archdiocese of New Orleans 3738 Paris Ave New Orleans, LA 70122 (504) 324-4318 http://www.ccano.org/operation_helping_hands.htm
Division Name	n/a
Company Type	Non-profit
Community Name	n/a
City, State	New Orleans, LA
Climate Region	Hot-Humid (2A)

SPECIFICATIONS	
Number of Houses	1
Municipal Address(es)	5007 Cartier Ave New Orleans, LA 70122
House Style(s)	Custom single-family on piers
Number of Stories	1
Number of Bedrooms	4
Plan Number(s)	BSC Plan – "Green Dream 2"
Floor Area	1,944 ft^2
Basement Area	n/a
Estimated Energy Reduction	57%
Estimated Energy Savings	$2,000
Estimated Cost	$150,000
Construction Start	June 2009
Expected Buildout	December 2009

9.2.3. Targets and Goals

The Green Dream 2 was designed to achieve a 57% reduction in source energy relative to the 2009 Building America Benchmark. The design surpasses the goal of achieving a 50% energy use reduction in hot-humid climates.

Below are specific goals of the project:

- To design a home that meets BSC Building America requirements as well as the needs of the homeowner.
- To use insulation strategies that allow the framing to be cleaned after a flooding event.
- To install supplemental dehumidification with controls both on the unit as well as in the living space.
- To design and install a solar thermal system.
- To frame the house with borate treated lumber.
- To use advanced framing practices where permitted by the Wood Frame Construction Manual.
- To be certified under the following programs:
    - Builders Challenge
    - NAHB Green Building Standard

Though not all of the goals were achieved, mainly for budgetary reasons, the built home will be an example of how to build in a high wind and flood zone in a hot humid climate.

9.3 Whole-House Performance and Systems Engineering

9.3.1. Energy Analysis Summary

Table 9.2: Estimated Whole House Energy Use for Green Dream 2, New Orleans, LA

ESTIMATED WHOLE HOUSE ENERGY USE		
Source (MMBtu/year)	Site (MMBtu/year)	Area + Bsmt (sq ft)
127	51	1944 + 0
	% Electric	No. of Bedrooms
	62	4

With the enclosure and mechanical characteristics presented in Table 1.6 and Table 1.7 (below), this plan achieves a performance level of 57% reduction relative to the Building America Benchmark.

9.3.1.1. Parametric Energy Simulations

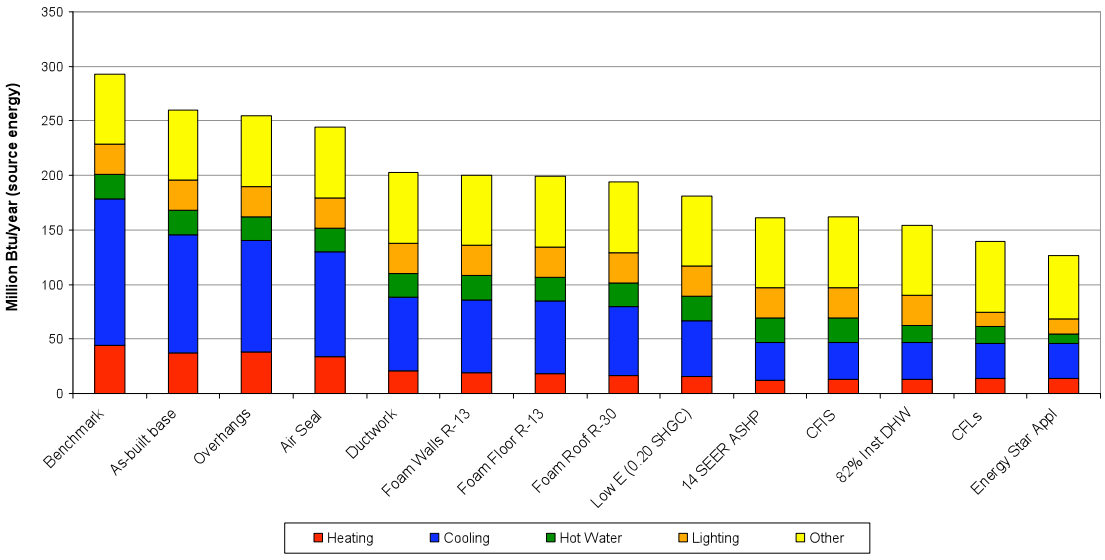


Figure 9.3.1: Parametric energy simulations for Green Dream 2, New Orleans, LA

9.3.1.2. End-Use Site and Source Energy Summaries

Table 9.3: Summary of End-Use Site-Energy

	Annual Site Energy			
	BA Benchmark		Prototype 1	
End-Use	kWh	therms	kWh	therms
Space Heating	3831	0	1067	0
Space Cooling	11676	0	2655	0
DHW	0	203	0	82
Lighting*	2420		1184	
Appliances + Plug	4527	114	4031	114
OA Ventilation**	65		248	
Total Usage	22518	317	9185	196
Site Generation	0	0	0	0
Net Energy Use	22518	317	9185	196

*Lighting end-use includes both interior and exterior lighting

**This OA Ventilation energy consumption is for fan energy only, space conditioning is included in Space Heating and Cooling

Table 9.4: Summary of End-Use Source-Energy and Savings

			Source Energy Savings	
	Estimated Annual Source Energy		Percent of End-Use	Percent of Total
	BA Benchmark	Prototype 1	Prototype 1 savings	Prototype 1 savings
End-Use	106 BTU/yr	106 BTU/yr		
Space Heating	44	12	**72%**	**11%**
Space Cooling	134	30	**77%**	**35%**
DHW	22	9	**60%**	**5%**
Lighting*	28	14	**51%**	**5%**
Appliances + Plug	64	59	**9%**	**2%**
OA Ventilation**	1	3	**-282%**	**-1%**
Total Usage	293	127	**57%**	**57%**
Site Generation	0	0		**0%**
Net Energy Use	293	127	**57%**	**57%**

The "Percent of End-Use" columns show how effective the prototype building is at reducing energy use in each end-use category.
The "Percent of Total" columns show how the energy reduction in each end-use category contributes to the overall savings.

The Green Dream 2 achieves a 57% source energy use reduction relative to the 2009 Building America Benchmark.

9.3.2. Discussion

9.3.2.1. Enclosure Design

Table 9.5 (below) summarizes the building enclosure assemblies used for this project.

Table 9.5: Enclosure Specifications

ENCLOSURE	SPECIFICATIONS
Ceiling	
Description -	Conditioned attic framed with 2x6 wood trusses
Insulation -	7” open cell medium density (0.8 pcf) spray foam (R-30)
Walls	
Description -	2x4 16” o.c. borate treated wood stud walls
Insulation -	2” foil-faced polyisocyanurate on exterior of studs (R-13)
Foundation	
Description -	Wood piles, concrete grade beams, telescoping concrete piers, 2x12 treated sill beams, 2x10 borate treated floor joists
Insulation -	2 ½” closed cell high density (2.0 pcf) spray foam (R-15) between floor joists
Windows	
Description -	Single hung, double pane, impact rated, low-E vinyl windows
Manufacturer -	Showcase Custom Vinyl Windows and Doors
U-value -	0.40
SHGC -	0.21
Infiltration	
Specification -	2.5 in^2 leakage area per 100 ft^2 envelope
Performance test -	Goal of 1590 CFM 50 (4.1 ACH 50) (house not yet tested)

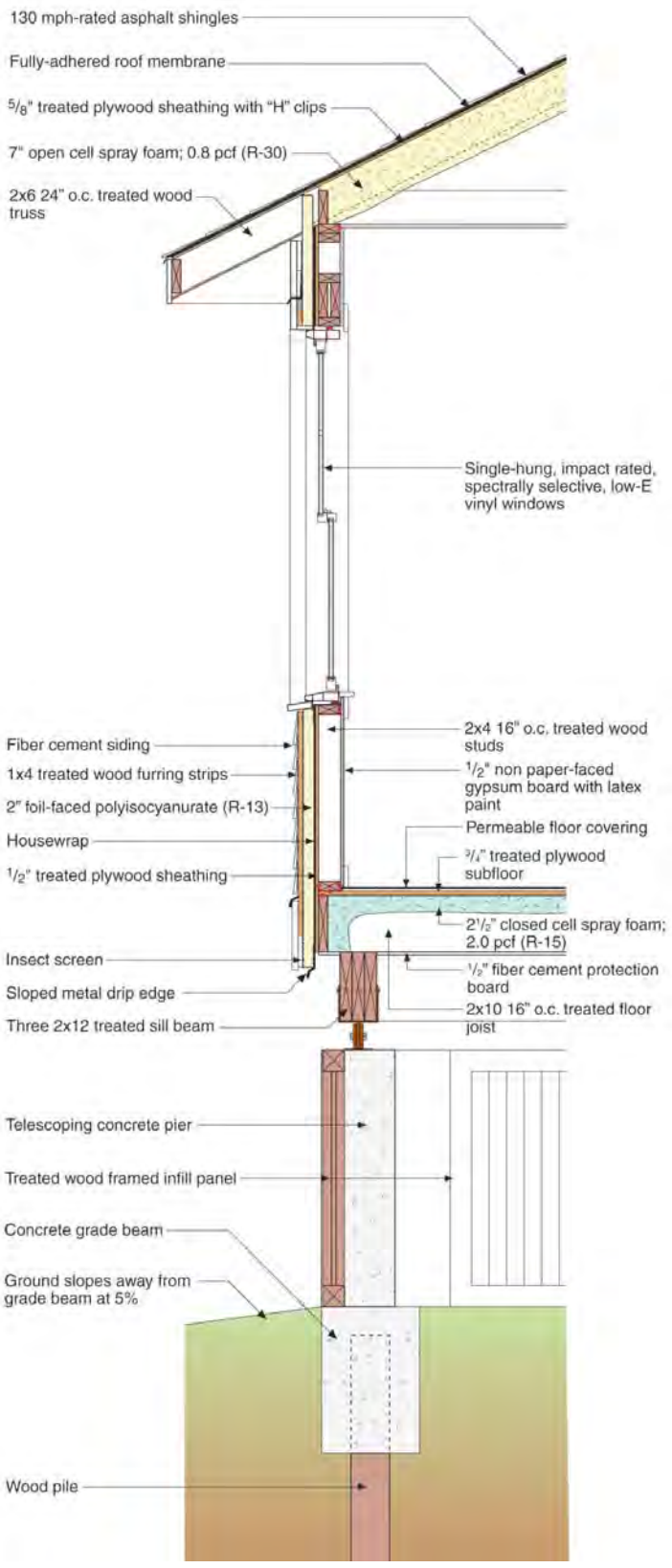


Figure 9.3.2: Green Dream 2 Wall Section

When designing the enclosure for the Green Dream 2, the two driving forces were the need to meet a 50% reduction in source energy use and the desire to have a flood and hurricane recoverable home. Below is a description of how both were achieved in each enclosure component:

- **Ceiling** – The underside of the roof deck is insulated to R-30 using 7" of open cell medium density (0.8 pcf) spray foam. This increases the home's airtightness and provides a conditioned attic in which to locate the home's mechanical system and distribution, both of which increase the energy use reduction. The spray foam also increases the rigidity of the structure and is not as susceptible to water damage as other types of insulation, making it more hurricane resistant and flood recoverable. This medium-density foam was used in this application because although high density (2.0 PCF) foam was specified, the spray foam contractor was not comfortable with the limited drying of this assembly. The medium density foam was suggested as a compromise; this appears to be a good application for this product. Although the open cell structure would be more vulnerable to flood damage, the elevation of the roof makes this risk very low.

- **Walls** – The four exterior walls of the house are insulated to R-13 using (1) 2" layer of foil-faced polyisocyanurate rigid insulation on the exterior of the studs. By insulating on the outside of the studs, thermal bridging is decreased, which increases the energy use reduction. Specifically, a conventionally framed R-13 wall would have an overall assembly R value of R-8; this measure, although nominally the same R value, is a 60% increase in R value over conventional construction. And by leaving the stud bays open, if flooded, the cavities can be cleaned without needing to remove and eventually replace the insulation.

- **Foundation** – The foundation of the Green Dream 2 is a system of concrete grade beams and telescoping concrete piers. The sill beams made up of (3) 2x12s support the 2x10 treated wood floor joists. The raised floor is insulated to R-15 through the use of 2 ½" of closed cell high density (2.0 pcf) spray foam installed between the floor joists. Like the spray foam in the attic, this increases the home's airtightness and is more resistant to water damage than other types of insulation.

    - **Selecting the Foundation** – Concrete piers were used on the Green Dream 2 because they were donated. Other options would have been masonry piers or wood piles. Due to the soils on the site, wood piles were specified along with concrete grade beams and the concrete piers. Even with the donation, this system was priced almost double the cost of wood piles alone, which would have met the structural requirements of the site. In future projects, more research should be conducted on foundation options, perhaps leading to a cost savings for both the builder and homeowner. However, the system as designed and installed is indeed quite flood resistant and recoverable. See the photos below.

Figure 9.3.3: Concrete grade beams and piers

Figure 9.3.4: Concrete grade beams and piers

- **Windows** – The windows specified are single-hung, double pane, impact rated, low-E vinyl windows. The low solar heat gain coefficient (SHGC = 0.21) reduces solar gain, decreasing the mechanical system run times during cooling hours, increasing the energy use reduction. The impact rated windows not only protect the home but also allow light into the space during a high wind event.

Figure 9.3.5: Showcase windows NFRC label

Figure 9.3.6: Installed window

9.3.2.2. Mechanical System Design

Table 9.6 (below) summarizes the mechanical systems used by this project.

Table 9.6: Mechanical system specifications

MECHANICAL SYSTEMS	SPECIFICATIONS
Heating	
Description -	15.5 SEER / 9.0 HSPF air source heat pump split system
Manufacturer & Model -	Comfortmaker FVM4X2400A
Cooling (outdoor unit)	
Description -	15.5 SEER / 9.0 HSPF air source heat pump split system
Manufacturer & Model -	Comfortmaker C4H424GKC
Cooling (indoor unit)	
Description -	15.5 SEER / 9.0 HSPF air source heat pump split system
Manufacturer & Model -	Comfortmaker FVM4X2400A
Domestic Hot Water	
Description -	0.82 instantaneous water heater
Manufacturer & Model -	Rinnai
Distribution	
Description -	R-6 duct board supply trunk and R-6 flex duct run-outs in conditioned space, sheet metal supply plenum
Leakage -	None to outside (5% or less)
Ventilation	
Description -	Supply-only system integrated with AHU, 74 CFM 33% Duty Cycle: 10 minutes on; 20 minutes off
Manufacturer & Model -	n/a
Return Pathways	
Description -	Transfer grilles at bedrooms, central return, dehumidifier return
Dehumidification	
Description -	Whole House Dehumidifier
Manufacturer & Model -	Aprilaire 1750
PV System	
Description -	n/a
Manufacturer & Model -	n/a
Solar Hot Water	
Description -	n/a
Manufacturer & Model -	n/a

See “2009-04-17 Green Dream 2 Mechanical Systems” in the Appendix of this report for project specifications.

Through BSC’s construction administration on another New Orleans project, the team learned that it is best to specify a dehumidistat for the living space as well as a control on

the actual unit. Aprilaire's Model #70 Living Space Control will be installed next to the thermostat in this project.

9.3.2.3. Lighting and Miscellaneous Electrical Loads

All compact fluorescent lighting and ENERGY STAR appliances were specified for the Green Dream 2. If installed as specified, these will contribute greatly to the increased energy performance of the house at 5.2% and 4.2% respectively. LED lighting was also purchased for the kitchen of the home.

9.3.2.4. Site-generated Renewable Energy

As described in the targets and goals section of this report, the project team wanted to design and install a solar thermal system for the home. This was given serious consideration for several reasons: first, the non-freezing climate (99.6% design T of 30.6° F) allows the use of a simpler, lower cost integrated collector storage (ICS) system. Second, the house is expected to have high occupancy (3 adults, 5 children), with a high associated domestic hot water load; this measure might have benefits greater than those indicated modeling the house under Benchmark operating conditions. Several options were modeled, and a system design was drawn (see 1.7.3. 2009-04-17 Green Dream 2 Mechanical Systems), incorporating a gas-fired instantaneous water heater with the ICS collector.

Unfortunately, the system was never priced; due to the unknown amount of funds remaining for the homeowner, the system will not be installed. If it had been installed, the system would have increased the energy use reduction by 2.0%. The house is sited with a large roof area facing south, giving the home an ideal orientation should the homeowner choose to install the system in the future.

9.4 Construction Support

9.4.1. Construction Overview

Construction on the Green Dream 2 began in June of 2009 and is expected to be complete at the end of December 2009. Operation Helping Hands has utilized both hired crews and volunteers to build the home. Team members from LSU visit the site weekly to take photos and report back to the entire project team during weekly conference calls. See construction photos below.

Figure 9.4.1: Wood piles and concrete grade beam formwork

Figure 9.4.2: Wall stud to rim joist straps

Figure 9.4.3: Top plate to wall stud straps

Figure 9.4.4: Concrete piers with metal saddles for sill beam

Figure 9.4.5: Self-adhered membrane on top of porch floor joists

Figure 9.4.6: Plumbing below floor joists

9.4.2. Educational Events and Training

The project team has worked together throughout the construction process to make sure the community, other design professionals and people working on the project, both volunteers and hired contractors, are aware of the unique features of the project and learn why they are important in this hot-humid climate. This has been achieved by the following educational tools and events:

- **Project Blog** – Since the beginning of construction, a project blog has been maintained and sent out to industry partners. The blog documents the construction of the home and points out key features.
- **MEP Bid Meeting** – A meeting was held with the selected mechanical, electrical and plumbing contractors after the bidding process to review the systems and details and finalize the quoted costs. This meeting was held in the builder's office and attended by team members from LSU and BSC (by phone).
- **MEP Pre-Installation Meeting** – A meeting was held on 9/17/09 at the site of the Green Dream 2 to review final details of each of the systems prior to the contractors working in the home. The meeting was attended by each of the MEP contractors, team members from LSU, BSC and the builder.
- **Window Installation Demonstration** – Team members from LSU, BSC and the builder held a window installation demonstration at the site of the Green Dream 2 on 9/17/09 for volunteers and design professionals. The demonstration was marketed by LSU and attended by approximately 40 people. BSC created hand-outs for the audience to follow along as the window was being installed. See SK-03 in the Appendix of this report for the window installation sequence. Team members assisted as volunteers proceeded to install the remaining 15 windows. See photos below of the window installation demonstration.
- **Future Tours** – Future tours of the home are planned at critical stages of construction, such as after spray foam has been installed and during cladding attachment.

Figure 9.4.7: Audience at window installation demonstration

Figure 9.4.8: Cut housewrap and bead of caulk at sill

Figure 9.4.9: Folding and securing housewrap at jambs

Figure 9.4.10: Installing jamb flashing

Figure 9.4.11: Installed window

Figure 9.4.12: Installing air seal between top of wood sill and back of sill pan

9.4.3. Systems Testing

When complete, the project team will perform the standard battery of performance testing, including overall air infiltration (blower door), duct leakage (total and to exterior), HVAC system static pressure and overall flow, HVAC register flows, room pressurization, and ventilation system flows.

9.4.4. Monitoring

The project team is planning on collecting monthly gas and electricity bills for the Green Dream 2 for roughly a year, at a minimum. The results will then be compared to predictions from the energy models. The project team may also administer the previously developed homeowner survey, for a complete battery of data.

9.5 Project Evaluation

The following sections evaluate the research project results based on the ability to integrate advanced systems with production building practices in prototype homes. References are made to the results from field tests and energy simulations, which are included as an appendix to this report.

9.5.1. Source Energy Savings

Requirement:	*Final production home designs must provide targeted whole house source energy efficiency savings based on BA performance analysis procedures and prior stage energy performance measurements.*
Conclusion:	***Pass***

With the enclosure and mechanical characteristics presented in Table 1.6 and Table 1.7, this plan achieves a performance level of 57% reduction relative to the Building America Benchmark.

9.5.2. Prescriptive-based Code Approval

Requirement:	*Must meet prescriptive or performance safety, health and building code requirements for new homes.*
Conclusion:	***Pass***

The design of the Green Dream 2 complies with the New Orleans Building Code, the 2006 International Residential Code, the Wood Frame Construction Manual, 130 mph, Exposure B and all zoning bylaws for the City of New Orleans.

9.5.3. Quality Control Requirements

Requirement:	*Must define critical design details, construction practices, training, quality assurance, and quality control practices required to successfully implement new systems with production builders and contractors.*
Conclusion:	***Pass***

In order to build a home that is durable, comfortable, energy-efficient and affordable, quality control methods must be in place at the beginning of the project and reviewed with the builder and all other parties involved in the construction. The following is a list of methods either already implemented or planned to be implemented on the Green Dream 2:

- **Weekly conference calls** – Starting from the beginning of the project, BSC has held weekly conference calls for all team members. Minutes are created, distributed and used as the agenda for the following week's call. The conference calls and meeting minutes allow the entire team to be up-to-date on the current status of the project. See the Appendix for an example of the Meeting Minutes.
- **Weekly photos** – Agreed upon at the start of the project, LSU team members go by the site regularly to take photos and post them on the project blog. The photos

are used as a tool on the conference calls to ensure details are being implemented as designed.

- **Durability Checklist** – A Durability Checklist was developed during design and implemented during the construction process, in order to ensure that critical design details would be implemented, that design intent would be carried out through construction as well as that the finished home would be one that is healthy, durable and energy efficient. Items on the Durability Checklist such as managing both interior and exterior water sources, identifying and creating an interior air barrier as well as preventing pests from entering the home were verified by team members while on site visits and will also be checked by a third party verifier as part of the NAHB's Green Building Standard certification process. See the Appendix for the Durability Checklist.

- **Homeowner's Manual** - A Homeowner's Manual will be developed to ensure the home will operate as intended. The manual will describe key operational and maintenance measures, describe the lighting and appliances in the home, as well as include the makes and models of all the appliances.

9.5.4. Neutral Cost Target

Requirement:	*The incremental annual cost of energy improvements, when financed as part of a 30 year mortgage, should be less than or equal to the annual reduction in utility bill costs relative to the BA Benchmark.*
Conclusion:	***Fail***

The Green Dream 2 fails to achieve a positive cost target with respect to annual mortgage payments. This means that the annual energy savings is lower than the additional annual amortized mortgage cost.

See The Neutral Cost Analysis Worksheet below. The house is expected to spend $16 a year compared to the additional amortized mortgage payments. The mortgage is assumed to be a 30 year plan at a rate of 7%.

But note that due to the homeowner paying for the construction with funds from the Road Home program, he will not be taking out a mortgage.

Table 9.7: Green Dream 2 Neutral Cost Analysis

	Annual Electric Energy (Site)			Annual Gas Energy (Site)			
End Use	Benchmark (kWh/yr)	Builder Standard Practice (Optional) (kWh/yr)	Prototype House (kWh/yr)	Benchmark (therms/yr)	Builder Standard Practice (Optional) (therms/yr)	Prototype House (therms/yr)	Annual Utility Bill Reduction vs Benchmark ($/yr)
Space Heating	3830.75		1067	0		0	$359
Space Cooling	11675.5		2655	0		0	$1,173
DHW	0		0	203		82	$145
Lighting	2420		1184				$161
Appliances and MELs	4527		4031	114		114	$64
Ventilation	65		248				($24)
Total Usage	**22518.25**	**0**	**9185**	**317**	**0**	**196**	**$1,879**
Site Generation	0	0	50	0	0	0	$7
Net Energy Use	**22518.25**	**0**	**9135**	**317**	**0**	**196**	**$1,885**
Added Annual Mortgage Cost w/o Site Gen.							**$1,901**
Net Cash Flow to Consumer w/o Site Gen.							**($23)**
Added Annual Mortgage Cost with Site Gen.							**$1,901**
Net Cash Flow to Consumer with Site Gen.							**($16)**

9.5.5. Quality Control Integration

Requirement:	*Health, Safety, Durability, Comfort, and Energy related QA, QC, training, and commissioning requirements should be integrated within construction documents, contracts and BA team scopes of work.*
Conclusion:	***Pass***

The Green Dream 2 contract documents have critical construction details included that ensure the home's health, safety, durability, comfort and energy-efficiency. Below are examples of details included in the drawing set:

- Framing plans integrated with the mechanical layout to identify critical locations where different building trades need to coordinate
- Wall framing elevations identifying stud spacing, headers, number of jack and king studs at windows and doors and high wind required connectors
- Air sealing details identifying responsibilities of different trades
- Window and door details and installation sequences
- Window and door schedules and specifications
- Duct sealing details
- Electrical box air sealing details

9.5.6. Gaps Analysis

Requirement:	*Should include prototype house gaps analysis, lessons learned, and evaluation of major technical and market barriers to achieving the targeted performance level.*
Conclusion:	***Pass***

Though the Green Dream 2 is still under construction, issues have been identified that have either been resolved in the field or will need further research and design to resolve for future projects.

- **Foundation Design** – Though the system built is durable and designed for this specific site, other more cost effective systems should be researched for future projects.
- **Treated Lumber** – Treated lumber was used on the Green Dream 2 in order to increase durability of the stick framing in a hot-humid climate, as well as to reduce the risks associated with flooding immersion. Borate treatment was decided on by the project team as the best method of treatment, but was not immediately available for all types of framing members. In the future, a connection should be made with a supplier early in the design process to be more aware of what is available.
- **Truss Design** – Just as with the lumber, a connection should also be made early on in the design process with a truss designer. Changes made to the truss design by the manufacturer resulted in a time consuming redesign of the mechanical layout in the attic.
- **Formwork Removal** – Some of the formwork for the concrete grade beams is still in the ground. Since the grade beams are 2' deep, the volunteers had a difficult time removing the 2x formwork. Unfortunately, some of the wood is buried and is likely to remain in the ground.
- **Budget** – In future projects, the project team must insist that the builder complete a budget. An incomplete budget in the case of the Green Dream 2 has led to being unaware of what items have or have not been included in the pricing, and not knowing whether funds are available to complete the project as designed.
- **Solar Thermal** – The solar thermal system for the Green Dream 2 was designed and specified but never priced and subsequently will not be installed. In the future, the project team should aid the builder in working with local suppliers and installers to obtain competitive pricing.
- **Furring Strip and Cladding Attachment** – The high wind codes to not address cladding attachment but defer to manufacturer's installation instructions. However, manufacturers do not address how to install their cladding over rigid insulation or over furring strips. In order to have more widespread implementation of our exterior wall assembly, structural load calculations need to be completed by industry partners and/or consultants, and accepted by local and national codes.
- **Project Management** – In order to continue working with Operation Helping Hands, a project manager needs to be assigned to each project and be the contact person who is aware of the schedule, budget, volunteer availability, goals and is on-site during construction. Fortunately, this has been the case on the Green

Dream 2. However, it will need to be the case on all projects in order to increase the builder's ability to build high performance homes.

9.6 Conclusions/Remarks

The Green Dream 2 will be an example of a high performance home in a hot-humid climate; a high performance home that is flood and hurricane resistant and recoverable. While not all of the goals of the project were achieved, significant lessons were learned that would help guide future projects with Operation Helping Hands and in the New Orleans area.

Once the home is complete, the project team will visit the site before the homeowner moves in in order to test the home's performance, review the Homeowner's Manual and answer any questions the builder or homeowner may have on the operation and maintenance of the home.

9.7 Appendices

Appendix D.9.7.1
2009-03-04 Green Dream 2 PCC Intern Plan

Catholic Charities Brown House

Work Plan for PCC Interns

- Scope of Work:
  - Interiors Budget:
    - Finishes (flooring, wall & ceiling paint, trim)
    - Interior Doors & Hardware
    - Kitchen Equipment (range, refrigerator, sink, dishwasher)
    - Kitchen & Bath Cabinets
    - Kitchen & Bath Countertops
    - Bath Accessories (mirror, bench & hooks, towel bars, toilet paper holder)
    - Light Fixtures
    - Plumbing Fixtures
    - Clothes Washer & Dryer
    - Closet Shelving
    - Furniture
    - Window Treatments
  - Coordination of Interior Budget Items with Homeowner
  - Drawing Set:
    - Interior Elevations
    - Interior Finish, Door, Fixture, Equipment & Accessory Schedules
    - Exterior Elevations
    - Window Schedule
    - Exterior Details (railings, panel between piers, landscape plan – if time allows)

- Work Schedule:
  - Interior Elevations:
    - April to draw elevations and post on BSC FTP site for Katie to review
    - Katie to redline drawings and go over changes with April
    - April to make changes and format elevations on Plot sheet
  - Interiors Budget & Item Selections:
    - Nikki to price interior budget items
    - Nikki to put together package to review with Homeowner
  - CAD & Item Selection Coordination:
    - April and Nikki to work on calling out interior items on interior elevations
    - April and Nikki to work on finish, door, fixture, equipment, and accessory schedules
    - April to format schedules on Plot sheet and post updated interior elevations and schedules on BSC FTP site for Katie to review
    - Katie to redline drawings and go over changes with April
    - April to make changes
  - Exterior Elevations:
    - Same process as “Interior Elevations” above

Appendix D.9.7.2
2009-04-01 Green Dream 2 3D Image

Appendix D.9.7.3
2009-04-17 Green Dream 2 Mechanical Systems

April 17th, 2009

Catholic Charities Operation Helping Hands Paul Cook O'Neal Bourgeois Bonnie Evans	**LSU** Claudette Reichel Paul LaGrange
Portland Community College Spencer Hinkle Shannon Baird April Golden Nikki Jeffers	

Re: Green Dream 2 Mechanical Systems Specifications

The following document is a set of preliminary specifications for the mechanical systems for Green Dream 2, which includes systems for heating, ventilation, and cooling (HVAC), dehumidification, and domestic hot water. It also has requirements for the installation of the HVAC system, and minimum Building America performance levels that are associated with the mechanical systems.

1. Equipment Specifications: HVAC

- Heating and Cooling: Heating and cooling to be provided by an air source heat pump split system. The system will have 2 tons (24,000 Btu/hour) nominal capacity with minimum efficiency levels of 8.5 HSPF (Heating Season Performance Factor) and 14 SEER (Seasonal Energy Efficiency Ratio).

  BSC is considering an upgrade to a 9 HSPF/16 SEER unit; we have run simulations that indicate that if this upgrade can be obtained for a reasonable price, it is quite cost-effective. Ideally, this would be priced as an add alternate, and then compared with the associated energy savings in order to make the decision.

  In either case, this system must use R410a refrigerant.

- Supplemental Dehumidification: Supplemental dehumidification to be provided by an Aprilaire 1750, General Aire 1300, or equal (unit with built-in dehumidistat). System is to be installed supplying dehumidified air to the supply plenum, and drawing air from the main space. A normally closed motorized damper (e.g. Aprilaire 6508) to be installed in supply duct of dehumidifier. Installation to be completed as per "Aprilaire 1700 Safety and Installation Instructions," see Figure 1, right-hand figure.
- Filtration: Minimum MERV 13 filtration to be provided.
- Thermostat: Thermostat shall be a programmable heat pump thermostat.
- Ventilation: Ventilation is to be provided by a central fan integrated ventilation system (duct to return side of air handler with motorized damper and manual damper), controlled by an Aprilaire 8126 Ventilation Control System kit

(includes controller and motorized damper) or equal (e.g., AirCycler FR-V). Note that if Aprilaire 1750 dehumidifier is used, this control is built in to the unit, eliminating the need for the Aprilaire 8126 and AirCycler FR-V.

- Refrigerant-based HVAC systems to be installed per Building Science Primer 051: "Refrigeration System Installation and Startup Procedures, and Air Conditioning Equipment Efficiency" (see http://www.buildingscience.com/documents/primers/bsp-051-refrigeration-system-installation-and-startup-procedures-and-air-conditioning-equipment-efficiency?full_view=1).

2. Equipment Specifications: Domestic Hot Water

- Domestic Hot Water: Domestic water heating to be provided by a gas-fired instantaneous (tankless) hot water heater with a minimum energy factor (EF) of 0.80. The unit will be located within conditioned space, and therefore must be a sealed combustion or direct vent unit (draws air for combustion from the exterior, not the interior). Given the high occupancy of this house, the likelihood of simultaneous domestic hot water draws is higher; therefore, a high output (199,000 Btu/hour input) unit is recommended.

  Examples of units that meet these requirements are American Water Heater 305 (GT-305-I), Bosch Aquastar (2700ES), Rinnai R75-LSi (REU-VA2528FFUD-U), and State 305 (GTS-305-I).

- Solar Hot Water System: An integrated collector storage (ICS) solar hot water system to be installed on the south-facing roof (following the roof pitch angle); our simulations used a Thermal Conversion Technology ProgressivTube PT-40CN collector (41 gallons, 32.1 square feet gross area).

- Solar Hot Water Plumbing: In order to integrate the solar hot water system with the instantaneous (tankless) hot water heater, the required plumbing schematic is shown in Figure 2. Note that several pieces of equipment are required for this system, including a Taco 013-BF3 pump, Watts 1170 mixing valve, 6 gallon electric storage water heater tank, and Amtrol Therm-X-Trol ST-5 expansion tank. These items are also shown and called out in Figure 2.

3. Building America Performance Criteria

BSC Building America Performance Criteria that are relevant to the HVAC system are as follows; these criteria can also be found on the web at http://www.buildingscienceconsulting.com/buildingamerica/targets.htm.

- Whole-house dilution ventilation: a mechanical ventilation system must be installed to be capable of meeting ASHRAE Standard 62.2 which stipulates a ventilation rate of 7.5 CFM per person (counted as the number of bedrooms plus one) plus 0.01 CFM per square foot of floor area. While 62.2 stipulates that operation of the ventilation system is at the occupant's discretion and the Standard is silent regarding whole-house distribution of ventilation air, this Performance Criteria stipulates that the 62.2 ventilation flow rate be delivered at least one-third of the time and that whole-house distribution is required.

- Local exhaust ventilation: Intermittent spot exhaust of 100 CFM must be provided for each kitchen (recirculating cooktop hoods are not permitted). Intermittent spot exhaust of 50 CFM or continuous exhaust of 20 CFM when the

building is occupied must be provided for each room having a toilet, bath, or shower.

- Ventilation intake locations: When a supply-only or balanced ventilation system is used, the intake must go through an outside wall and not the roof (due to proximity to exhaust/vent pollutants, and heated air/VOC's/odors from the roof). Wall intakes should be located at least 10 feet from, and not directly above, any wall exhaust or vent.
- All combustion appliances (except a gas stove, cooktop or oven) in the conditioned space must be sealed combustion. Specifically, any furnace inside conditioned space must be a sealed-combustion 90%+ unit. Any water heater inside conditioned space must be direct- power-vented. Any boiler inside a conditioned space must be sealed combustion.
- All ducts and air handling equipment must be in the conditioned space.
- Total space conditioning system duct leakage must be less than five percent of the total air handling system rated air flow at high speed (nominal 400 CFM per ton) determined by pressurization testing at 25 Pa. Two compliance mechanisms are acceptable: (1) test total duct leakage at finish stage, or (2) test total duct leakage at duct rough-in stage. When more than one air handler exists, each air handling system must individually meet the requirement. If zoning is used, all zone dampers must be open. Manual or motorized outside air ventilation dampers must be closed.
- Local and whole-house mechanical ventilation system airflows must be tested during commissioning of the building.
- Forced air systems that distribute air for heating must be designed to provide balanced airflow to all conditioned spaces and zones (bedrooms, hallways, basements). Balanced airflow is defined as a system that controls inter-zonal air pressure differences when doors are closed to less than 3 Pa using passive transfer grilles, jump ducts, door undercuts or active return ducts or any combination thereof. (see Transfer Grille Detail and Transfer Grille Sizing Chart; see http://www.buildingscience.com/documents/reports/rr-0006-discussion-of-the-use-of-transfer-grilles-to-facilitate-return-air-flow-in-central-return-systems)
- System external static pressure must be within manufacturer specifications (0.5 WIC/125 Pa maximum typical).

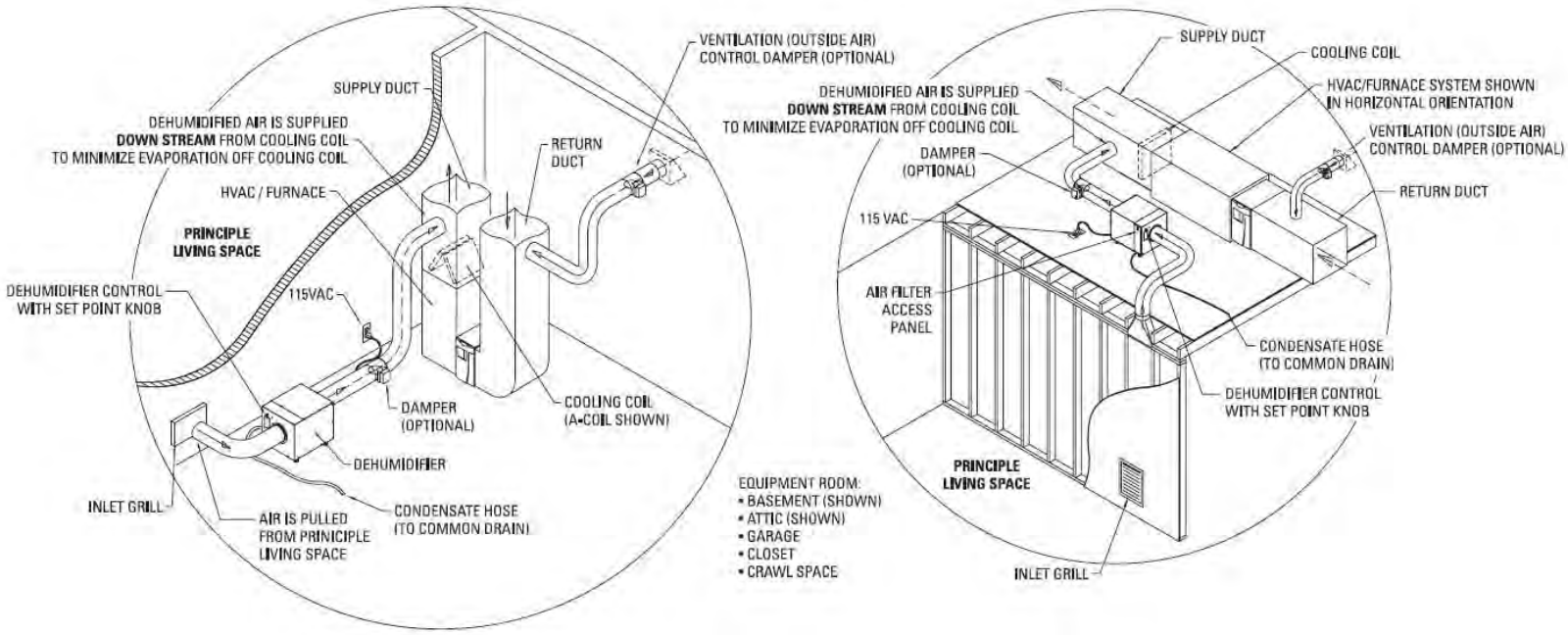
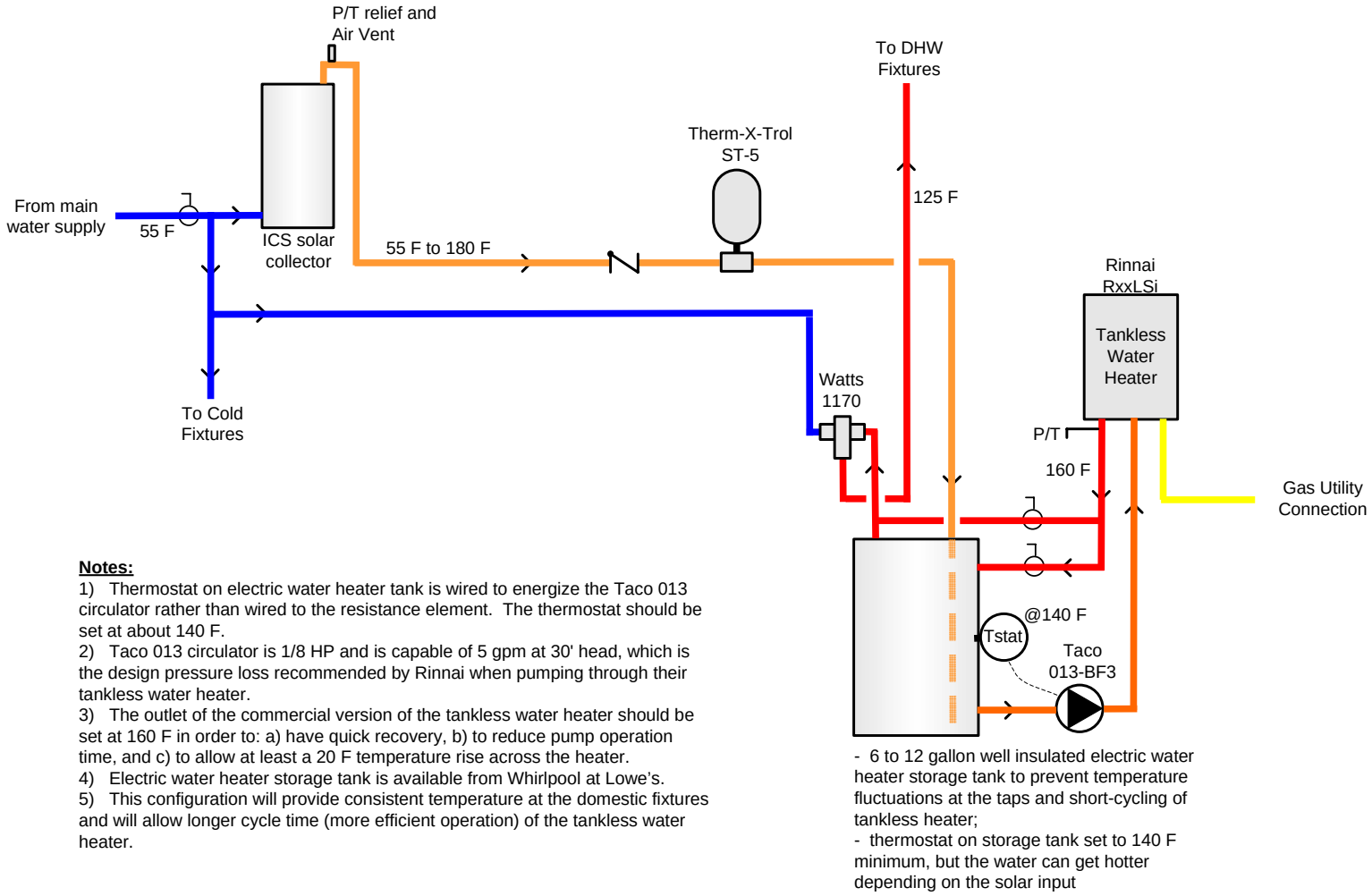


Figure 1: Ducted dehumidifier installation instructions from Aprilaire 1700 installation guide (1750 similar)



Notes:

1) Thermostat on electric water heater tank is wired to energize the Taco 013 circulator rather than wired to the resistance element. The thermostat should be set at about 140 F.
2) Taco 013 circulator is 1/8 HP and is capable of 5 gpm at 30' head, which is the design pressure loss recommended by Rinnai when pumping through their tankless water heater.
3) The outlet of the commercial version of the tankless water heater should be set at 160 F in order to: a) have quick recovery, b) to reduce pump operation time, and c) to allow at least a 20 F temperature rise across the heater.
4) Electric water heater storage tank is available from Whirlpool at Lowe's.
5) This configuration will provide consistent temperature at the domestic fixtures and will allow longer cycle time (more efficient operation) of the tankless water heater.

Figure 2: Tankless Hot Water Heater Application with Solar Preheat and Active Storage

collapse article

BSP-051: Refrigeration System Installation and Startup Procedures, and Air Conditioning Equipment Efficiency

last updated 2008/09/09

The performance of the cooling system will be evaluated and assured through a series of measurements including: air flow, pressures, temperatures, humidity levels, and power draw. To get off to the best start possible, the following procedures (or equivalent) should be followed for line set installation and system startup:

1. The refrigerant grade copper line set should not be left open to the atmosphere to collect contaminants. It should be capped off and filled with dry nitrogen.
2. Make sure a filter/dryer is installed in the liquid line (either factory or field installed). Use bi-directional units for heat pumps.
3. Using a silver/phosphorus/copper alloy with between 5% and 15% silver, braze refrigerant line set to the indoor and outdoor units with nitrogen flowing through the lines to eliminate carbon deposit buildup on the inside of the joints which could contaminate the refrigerant and restrict the metering device. (To do this, remove the Schrader valve cores and connect nitrogen bottle to one valve and set pressure regulator to about 2 psi. A small amount of nitrogen will flow out the other Schrader valve.)
4. After brazing the line set to the indoor and outdoor units, visually inspect the quality of the joints (a mirror helps), then reinstall the Schrader valve cores and pressurize the line set and evaporator coil with between 125 to 150 psi of dry nitrogen. Check for leaks.
5. Connect the manifold pressure gauges, micron gauge, and vacuum pump. Release the nitrogen charge and begin evacuation. For faster evacuation, leave the gas ballast valve open on the 2-stage pump until you reach 1000 microns, then close it.
6. Evacuate the refrigerant lines and evaporator coil to 300 microns or lower (a micron gauge and 2-stage vacuum pump are required). This should take about 15 minutes for a system that is not contaminated. Valve off and turn off the vacuum pump and wait for at least 10 minutes to make sure the micron gauge reading does not go back up above 700 microns. If it does, re-start the vacuum pump and evacuate for another 15 minutes. Repeat that process until it is successful, assuring that there are no leaks and all moisture and non-condensable particles are removed.
7. With the system evacuated, if the actual line set length is greater than the default length that the manufacturer pre-charged the condenser for, add refrigerant by weight to account for the actual line set length. The manufacturer will specify the weight of refrigerant per foot of line set for different tube diameters, and the manufacturers specification should be used for a mismatched evaporator coil size. The condenser unit comes pre-charged for a given line set length (usually between 15 ft and 25 ft). It is easiest to measure and document the line set length at rough-in. One way this can be done is by measuring the waste length from a standard size coil. Refrigerant charge must be adjusted by weight using a digital refrigerant scale with resolution to at least one-half ounce.

8. Release the refrigerant charge from the condenser unit into the line set and evaporator coil.
9. If the refrigerant line set length is less than the default length that the manufacturer pre-charged the condenser for, then subtract refrigerant by weight to account for the actual line set length according to the manufacturers specification. Refrigerant charge must be adjusted by weight using a digital refrigerant scale with resolution to at least one-half ounce.
10. Check the return air filter(s). If it is new, continue to step 11, if it is dirty (> 25 Pa pressure drop), replace it with a new filter. If a new filter is not available, remove the dirty filter for the purpose of checking system operation.
11. Start the system and run for at least 15 minutes. If indoor and outdoor environmental conditions are favorable, check for proper superheat for capillary tube and accurator systems, and check for proper sub-cooling for TXV (thermal expansion valve) systems. Adjust refrigerant charge as necessary.
12. Check for proper temperature drop across the evaporator coil. Check static pressures in the supply and return plenums. Correct for any airflow problems as necessary.

According to the best engineering data available, the performance loss using a thermal expansion valve (TXV) metering device is about 5% if the refrigerant charge is off by plus or minus 20%. The performance loss using a fixed metering device (capillary tube, piston or accurator) is about 15% to 20% if the refrigerant charge is off by plus or minus 20%. Therefore, TXV systems are best, however, by following the installation procedure listed above, the refrigerant charge should be within about 5% every time, limiting the performance loss to about 5%.

Additional resources:

- "Just the facts," Thermal Engineering Company, Toledo, OH
- "Fundamentals of dehydrating a refrigerant system," Robinair Manufacturing Corp., Montpelier, OH
- "Influence of the expansion device on air-conditioner system performance characteristics under a range of charging conditions," Farzad and O'Neal, ASHRAE Transactions 1993, V. 99, Pt. 1.
- "Soldering and brazing copper tube," Copper Development Association Inc.
- "Split system space cooling refrigerant charge and air flow measurement," California Energy Commission, Contractor's Report, #P 400-01-014, http://www.energy.ca.gov/reports.

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Appendix D.9.7.4
2009-05-12 Green Dream 2 Permit Set

CATHOLIC CHARITIES OPERATION HELPING HANDS

Green Dream 2

5007 CARTIER AVENUE
NEW ORLEANS, LOUISIANA
HOT-HUMID CLIMATE

DRAWING LIST

PROJECT DESCRIPTION

These plans describe an affordable, energy efficient and durable 1,944 sq. ft. single family home to be built in New Orleans, LA. The home has four bedrooms and two full baths. The drawing set and specifications were developed by Building Science Corporation through the Department of Energy's Building America Program for Catholic Charities Operation Helping Hands. During project planning and construction, all efforts should be made to meet the goals of this project.

BUILDING CODE

These plans comply with the New Orleans Building Code, the 2006 International Residential Code and the Wood Frame Construction Manual, 130 mph, Exposure B.

SQUARE FOOTAGES - Area calculations according to ANSI Z765-2003

First Floor 1,944 sq. ft.

Building Science Corporation
30 Forest Street
Somerville, MA 02143
(978) 589-5100

PERMIT SET
12 MAY 2009

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

GENERAL REQUIREMENTS

1. ALL WORK SHALL COMPLY WITH FEDERAL, STATE AND LOCAL BUILDING CODES AND REGULATIONS.
2. MECHANICAL, ELECTRICAL AND PLUMBING WORK REQUIRED OF THIS PERMIT APPLICATION TO BE PERFORMED BY SUBCONTRACTORS LICENSED IN THE STATE AND PARISH IN WHICH WORK IS BEING PERFORMED.
3. SUBCONTRACTORS SHALL PROVIDE CERTIFICATION OF GENERAL LIABILITY INSURANCE AND WORKMAN'S COMPENSATION COVERAGE, AS REQUIRED BY THE GENERAL CONTRACTOR.
4. CONTRACTOR SHALL COORDINATE AND/OR OBTAIN ALL BUILDING PERMITS REQUIRED FOR CONSTRUCTION AND CERTIFICATES OF OCCUPANCY.
5. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND PROCEDURES.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY DURING BUILDING CONSTRUCTION AND SHALL PROVIDE ADEQUATE SHORING AND BRACING TO ENSURE SUCH SAFETY.
7. ALL DIMENSIONS AND SITE CONDITIONS TO BE FIELD VERIFIED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NOTIFY BUILDING SCIENCE CORPORATION OF ANY DISCREPANCY PRIOR TO COMMENCEMENT OF WORK.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER INDICATED ON PLANS OR NOT, AND TO PROTECT THEM FROM DAMAGE.
9. ALL DETAILS, SECTIONS, NOTES, OR REFERENCE TO OTHER DRAWINGS ARE INTENDED TO BE TYPICAL.
10. DURING CONSTRUCTION, AND PRIOR TO THE INCORPORATION OF ANY CHANGES, REVISIONS, MODIFICATIONS OR DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL NOTIFY BUILDING SCIENCE CORPORATION AND OBTAIN APPROVAL FROM THE GOVERNING BUILDING OFFICIAL BEFORE PROCEEDING WITH THE WORK.
11. THE MANUFACTURERS, PRODUCTS AND EQUIPMENT LISTED ESTABLISH PERFORMANCE REQUIREMENTS. SUBSTITUTIONS OF EQUAL PERFORMANCE MAY BE SUBMITTED TO BUILDING SCIENCE CORPORATION FOR APPROVAL.
12. ALL MATERIALS SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS/SPECIFICATIONS UNLESS OTHERWISE SPECIFIED BY BUILDING SCIENCE CORPORATION.
13. SPECIFIC NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

BUILDING AMERICA PERFORMANCE CRITERIA

DESIGN REQUIREMENTS:

RESIDENCES MUST REDUCE WHOLE HOUSE ENERGY USE (HVAC, HOT WATER, LIGHTING, AND ALL APPLIANCES/PLUG LOADS) AS STIPULATED IN THE TABLE BELOW RELATIVE TO THE APPLICABLE BUILDING AMERICA BENCHMARK USING THE APPLICABLE BUILDING AMERICA EVALUATION METHOD:

PROJECT TYPE	PERCENT REDUCTION	ENERGY STAR INDEX
SINGLE HOMES	40%	60-65
COMMUNITIES	30%	70-75

WHOLE-HOUSE DILUTION VENTILATION: A MECHANICAL VENTILATION SYSTEM MUST BE INSTALLED TO BE CAPABLE OF MEETING ASHRAE STANDARD 62.2 WHICH STIPULATES A VENTILATION RATE OF 7.5 CFM PER PERSON (COUNTED AS THE NUMBER OF BEDROOMS PLUS ONE) PLUS 0.01 CFM PER SQUARE FOOT OF FLOOR AREA. WHILE 62.2 STIPULATES THAT OPERATION OF THE VENTILATION SYSTEM IS AT THE OCCUPANT'S DISCRETION AND THE STANDARD IS SILENT REGARDING WHOLE HOUSE DISTRIBUTION OF VENTILATION AIR, THIS PERFORMANCE CRITERIA STIPULATES THAT THE 62.2 VENTILATION FLOW RATE BE DELIVERED AT LEAST ONE-THIRD OF THE TIME AND THAT WHOLE HOUSE DISTRIBUTION IS REQUIRED.

LOCAL EXHAUST VENTILATION: INTERMITTENT SPOT EXHAUST OF 100 CFM MUST BE PROVIDED FOR EACH KITCHEN (RECIRCULATING COOKTOP HOODS ARE NOT PERMITTED). INTERMITTENT SPOT EXHAUST OF 50 CFM OR CONTINUOUS EXHAUST OF 20 CFM WHEN THE BUILDING IS OCCUPIED MUST BE PROVIDED FOR EACH ROOM HAVING A TOILET, BATH, OR SHOWER.

VENTILATION INTAKE LOCATIONS: WHEN A SUPPLY-ONLY OR BALANCED VENTILATION SYSTEM IS USED, THE INTAKE MUST GO THROUGH AN OUTSIDE WALL AND NOT THE ROOF (DUE TO PROXIMITY TO EXHAUST/VENT POLLUTANTS, AND HEATED AIR/VOC'S/ODORS FROM THE ROOF). WALL INTAKES SHOULD BE LOCATED AT LEAST 10 FEET FROM, AND NOT DIRECTLY ABOVE, ANY WALL EXHAUST OR VENT.

ALL COMBUSTION APPLIANCES (EXCEPT A GAS STOVE, COOKTOP OR OVEN) IN THE CONDITIONED SPACE MUST BE SEALED COMBUSTION. SPECIFICALLY, ANY FURNACE INSIDE CONDITIONED SPACE MUST BE A SEALED-COMBUSTION 90%+ AFUE UNIT. ANY WATER HEATER INSIDE CONDITIONED SPACE MUST BE DIRECT-POWER-VENTED. ANY BOILER INSIDE A CONDITIONED SPACE MUST BE SEALED COMBUSTION.

WINDOWS WITH THE FOLLOWING IECC CLIMATE-SPECIFIC PERFORMANCE VALUES MUST BE USED:

CLIMATE ZONE	MAXIMUM U-VALUE	MAXIMUM SHGC
ZONES 1-3	0.40	0.35
ZONES 4-8	0.35	0.40

ALL DUCTS AND AIR HANDLING EQUIPMENT MUST BE IN THE CONDITIONED SPACE.

MAJOR APPLIANCES (REFRIGERATOR, CLOTHES WASHER, AND DISHWASHER) MUST ACHIEVE ENERGY STAR PERFORMANCE IN THE TOP ONE-THIRD OF THE DOE ENERGY GUIDE RATING SCALE.

ALL LIGHTING MUST BE ENERGY STAR QUALIFIED WITH THE FOLLOWING EXCEPTIONS: MOTION-SENSITIVE OUTDOOR SPOTLIGHTS AND SOLAR-POWERED ACCENT AND PATHWAY LIGHTING. LED TECHNOLOGY IS CURRENTLY NOT CERTIFIED BY ENERGY STAR. HOWEVER, LEDS ARE ACCEPTABLE.

CARBON MONOXIDE DETECTORS (HARD WIRED UNITS) MUST BE INSTALLED (AT ONE PER EVERY APPROXIMATE 1000 SQUARE FEET) IN ANY HOUSE CONTAINING COMBUSTION APPLIANCES OR AN ATTACHED GARAGE.

TESTING REQUIREMENTS:

BUILDING AMERICA TESTING OF THE HOUSE MUST BE COMPLETED AS PART OF THE COMMISSIONING PROCESS.

IN A PRODUCTION SETTING, EACH MODEL TYPE (i.e., FLOOR PLAN) MUST BE TESTED UNTIL TWO CONSECUTIVE HOUSES OF THIS MODEL TYPE MEET TESTING REQUIREMENTS. ADDITIONALLY, TESTING OF THIS MODEL TYPE CAN BE REDUCED TO A SAMPLING RATE OF 1 IN 7 (i.e., 1 TEST, WITH 6 "REFERENCED" HOUSES). SMALL ADDITIONS TO A FLOOR PLAN (e.g., BAY WINDOW, CONVERSION OF DEN TO BEDROOM) ARE CONSIDERED TO BE THE SAME MODEL TYPE; MAJOR CHANGES (e.g., BONUS ROOM OVER THE GARAGE, CONVERSION OF GARAGE INTO A HOBBY ROOM, ETC.) MUST BE CONSIDERED A SEPARATE MODEL TYPE. UNIQUE OR CUSTOM HOUSE PLANS MUST BE INDIVIDUALLY TESTED.

AIR LEAKAGE (DETERMINED BY PRESSURIZATION TESTING) MUST BE LESS THAN 2.5 SQUARE INCHES/100 SQUARE FEET SURFACE AREA LEAKAGE RATIO (CGSB, CALCULATED AT A 10 PA PRESSURE DIFFERENTIAL); OR 1.25 SQUARE INCHES/100 SQUARE FEET LEAKAGE RATIO (ASTM, CALCULATED AT A 4 PA PRESSURE DIFFERENTIAL); OR 0.25 CFM/SQUARE FOOT OF BUILDING ENCLOSURE SURFACE AREA AT A 50 PASCAL AIR PRESSURE DIFFERENTIAL. THE CALCULATION OF THE BUILDING ENCLOSURE AREA INCLUDES THE FOUNDATION OR BELOW GRADE SURFACE AREAS. IF THE HOUSE IS DIVIDED INTO MULTIPLE CONDITIONED ZONES, SUCH AS CONDITIONED ATTICS OR CONDITIONED CRAWL SPACE, THE BLOWER DOOR REQUIREMENT MUST BE MET WITH THE ACCESS TO THE SPACE OPEN, CONNECTING THE ZONES.

TOTAL SPACE CONDITIONING SYSTEM DUCT LEAKAGE MUST BE LESS THAN FIVE PERCENT OF THE TOTAL AIR HANDLING SYSTEM RATED AIR FLOW AT HIGH SPEED (NOMINAL 400 CFM PER TON) DETERMINED BY PRESSURIZATION TESTING AT 25 PA. TWO COMPLIANCE MECHANISMS ARE ACCEPTABLE: (1) TEST TOTAL DUCT LEAKAGE AT FINISH STAGE, OR (2) TEST TOTAL DUCT LEAKAGE AT DUCT ROUGH-IN STAGE. WHEN MORE THAN ONE AIR HANDLER EXISTS, EACH AIR HANDLING SYSTEM MUST INDIVIDUALLY MEET THE REQUIREMENT. IF ZONING IS USED, ALL ZONE DAMPERS MUST BE OPEN. MANUAL OR MOTORIZED OUTSIDE AIR VENTILATION DAMPERS MUST BE CLOSED.

LOCAL AND WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOWS MUST BE TESTED DURING COMMISSIONING OF THE BUILDING.

FORCED AIR SYSTEMS THAT DISTRIBUTE AIR FOR HEATING MUST BE DESIGNED TO PROVIDE BALANCED AIRFLOW TO ALL CONDITIONED SPACES AND ZONES (BEDROOMS, HALLWAYS, BASEMENTS). BALANCED AIRFLOW IS DEFINED AS A SYSTEM THAT CONTROLS INTER-ZONAL AIR PRESSURE DIFFERENCES WHEN DOORS ARE CLOSED TO LESS THAN 3 PA USING PASSIVE TRANSFER GRILLES, JUMP DUCTS, DOOR UNDERCUTS OR ACTIVE RETURN DUCTS OR ANY COMBINATION THEREOF.

SYSTEM EXTERNAL STATIC PRESSURE MUST BE WITHIN MANUFACTURERS SPECIFICATIONS (0.5 WIC/125 PA MAXIMUM TYPICAL).

GENERAL CONSTRUCTION NOTES

CIVIL NOTES:

DEBRIS - REMOVE DEBRIS WITHIN 2'-0" OF BUILDING.

EXTERIOR GRADE - SLOPE GRADE 5% TO DRAIN AWAY FROM BUILDING.

SOIL TREATMENT - INSTALL "TERMIDOR" SOIL TREATMENT AROUND BUILDING PER MANUFACTURER'S INSTRUCTIONS.

STRUCTURAL NOTES:

CONCRETE - ALL CONCRETE TO HAVE A WATER:CEMENT RATIO OF LESS THAN 0.5 AND HAVE 10% FLY ASH PORTLAND CEMENT REPLACEMENT. ALL CONCRETE SHALL BE 3500 PSI/28 DAYS.

BEAMS AND LINTELS - SUPPORT FULL WIDTH TO FOUNDATION.

ARCHITECTURAL NOTES:

DRIP EDGE - PROVIDE 1" DRIP EDGE ON FLASHING OVER OPENINGS IN EXTERIOR WALLS.

ATTIC ACCESS - OPENING 20" x 28" MIN.

WOOD PROTECTION - ALL WOOD FRAMING MEMBERS. SHEATHING AND PLYWOOD TO BE BORATE PRESSURE TREATED. WOOD STAIR STRINGERS TO BE SEPARATED FROM CONCRETE BY METAL FASTENER.

STAIR DIMENSIONS (ALL INTERIOR AND EXTERIOR STAIRS - REFER TO DRAWINGS FOR ACTUAL DIMENSIONS)

MAXIMUM RISER HEIGHT ..... 7 ¾"
MINIMUM TREAD DEPTH ..... 10"
MINIMUM NOSING ..... ¾"
MAXIMUM NOSING ..... 1 ¼"
MINIMUM HEADROOM ..... 6'-8"
MINIMUM WIDTH ..... 3'-0"

HANDRAILS AND GUARDS

HANDRAIL MINIMUM HEIGHT ..... 2'-10"
HANDRAIL MAXIMUM HEIGHT ..... 3'-2"
GUARD MINIMUM HEIGHT ..... 3'-0"

NOTE: A CLEARANCE OF NOT LESS THAN 1 ½" SHALL BE PROVIDED BETWEEN HANDRAIL AND ANY SURFACE BEHIND IT.

BEDROOM EGRESS - MIN. ONE WINDOW PER BEDROOM SHALL HAVE A MIN. NET CLEAR OPENING OF 5.7 SF, A MIN. NET CLEAR OPENING HEIGHT OF 24", A MIN. NET CLEAR OPENING WIDTH OF 20", AND A SILL HEIGHT OF NOT MORE THAN 44" FROM THE FLOOR UNLESS OTHERWISE SPECIFIED IN WINDOW SPECIFICATION (NOT APPLICABLE IF THERE IS A DOOR W/ DIRECT ACCESS TO THE EXTERIOR ON THAT LEVEL).

INTERIOR DOORS - UNDERCUT ALL DOORS ¾" MIN.

COAT CLOSETS - (1) ROD AND (1) SHELF MIN. 12" DEEP MIN.

LINEN CLOSETS - (4) SHELVES MIN. AND 1'-2" DEEP MIN.

MECHANICAL, ELECTRICAL, AND PLUMBING NOTES:

EXHAUST FANS - VENT TO EXTERIOR.

RANGE HOODS - VENT TO EXTERIOR W/ NON-COMBUSTIBLE DUCT.

DRYER VENT - VENT TO EXTERIOR; CAPPED AND SCREENED DRYER VENT, DUCTING INSTALLED TO SLOPE TO EXTERIOR.

SMOKE DETECTORS - (1) SHALL BE PLACED WITHIN 12" OF EVERY BEDROOM ENTRY DOOR; AND AT LAUNDRY ROOM, HALL, AND LIVING/DINING AREA AND SHALL BE HARD-WIRED AND INTERCONNECTED.

CARBON MONOXIDE DETECTORS - LOCATE IN EACH BEDROOM.

ROOF PENETRATIONS - ALL PLUMBING VENTS SHALL BE COMBINED SO AS TO PENETRATE THE ROOF ONE TIME.

CONSTRUCTION ASSEMBLIES

CONSTRUCTION SHALL CONFORM TO BUILDING AMERICA SPECIFICATIONS (UNITED STATES DEPARTMENT OF ENERGY) AND ASSEMBLIES AS LISTED BELOW:

FOUNDATION WALLS - FOUNDATION WILL BE A CONCRETE GRADE BEAM / PIER SYSTEM WITH OPEN LATTICE INFILL PANELS BETWEEN PIERS.

FRAME WALL CONSTRUCTION - EXTERIOR WALLS SHALL BE FRAMED WITH TREATED WOOD 2x4 STUDS AT 16" O.C., STAGGER TOP AND BOTTOM PLATE SPLICES. WALLS SHALL BE SHEATHED WITH ½" TREATED PLYWOOD SHEATHING AND DRAINING HOUSEWRAP. (1) LAYER 2" FOIL-FACED POLYISOCYANURATE INSULATING SHEATHING (R-13) TO BE INSTALLED OVER DRAINING HOUSEWRAP. 1x4 TREATED PLYWOOD FURRING SHALL BE APPLIED ON TOP OF INSULATING SHEATHING AND BELOW CLADDING. SEE DETAIL 1/A-502 FOR WOOD FURRING AND SIDING INSTALLATION.

UNVENTED ROOF CONSTRUCTION - ROOF SHALL BE FRAMED WITH TREATED WOOD TRUSSES. TRUSSES TO BE SHEATHED WITH ⅝" TREATED PLYWOOD SHEATHING. THE UNDERSIDE OF THE ROOF SHEATHING SHALL BE INSULATED WITH 5" CLOSED CELL SPRAY FOAM - 2.0 PCF (R-30). SPRAY APPLIED IGNITION BARRIER TO BE APPLIED TO HIGH DENSITY SPRAY FOAM THROUGHOUT ATTIC. UNVENTED ROOF CONSTRUCTION COMPLIES WITH 2006 IRC SECTION R806.4 CONDITIONED ATTIC ASSEMBLIES.

INTERIOR NON-LOAD BEARING PARTITION CONSTRUCTION - 2X4 STUDS AT 24" O.C. WITH SINGLE TOP AND BOTTOM PLATES AND ONE (1) LAYER 1/2" PAPERLESS GWB EACH SIDE. USE SINGLE STUD ON EITHER SIDE OF INTERIOR DOORS.

TYP. FLOOR CONSTRUCTION - ¾" TREATED PLYWOOD SUBFLOOR ON TOP OF TREATED 2x10 FLOOR JOISTS WITH 2" CLOSED CELL SPRAY FOAM - 2.0 PCF (R-13) APPLIED BETWEEN FLOOR JOISTS. ½" FIBER CEMENT PROTECTION BOARD TO BE INSTALLED BELOW FLOOR JOISTS. PERMEABLE FLOORING TO BE INSTALLED ABOVE PLYWOOD SUBFLOOR. FLOOR JOISTS TO BEAR DIRECTLY ON (3) 2x12 TREATED SILL BEAMS.

PRODUCT SPECIFICATION

	Product Type	*Specified Product*
A	Adhesive	
	Construction Adhesive	Polyseamseal All Purpose Adhesive Caulk, PL 200® Construction Adhesive or Equal
	Foam-Compatible Construction Adhesive	Liquid Nails Foamboard & Projects Adhesive (LN-604), PL 300® Foam Board Adhesive or Equal
B	Backer Board	
	Cement Backer Board	USG Durock, WonderBoard Cement Backerboard or Equal
	Fiber Cement Backer Board	James Hardie HardieBacker Cement Board or Equal
C	Cladding Vent	Cor-A-Vent Siding Vent SV-3/5 or Equal
E	Expanding Polyurethane Foam Sealant	
	High Expansion	Dow Great Stuff Big Gap Filler or Equal
	Low Expansion	Dow Great Stuff Window & Door or Equal
	Extruded Polystyrene Foam (XPS)	Dow Styrofoam or Owens Corning Foamular
F	Flashing	
	Metal Flashing	York Manufacturing Soleil® Copper-Aluminum Flashing or Equal
	Pre-Manufactured Sill Pan Flashing	Dow Weathermate Sill Pan or Equal
	Self Adhered Flashing	
	Formable Flashing	DuPont FlexWrap, Dow Weathermate Flexible Flashing or Equal
	Straight Flashing	W.R. Grace Vycor Plus, DuPont StraightFlash, Dow Weathermate Straight Flashing or Equal
	Fully-Adhered Waterproofing Membrane	W.R. Grace Ice and Water Shield or Equal
G	Gypsum Wall Board (GWB)	
	Paper Faced Gypsum Wall Board (GWB)	Sheetrock Brand Gypsum Panels or Equal
	Paperless Gypsum Wall Board (PGWB)	Georgia Pacific DensArmor Plus
H	Housewrap (Non-Micro Perforated Plastic)	
	Draining Housewrap	DuPont Tyvek Drainwrap
	Housewrap	DuPont Tyvek Homewrap, Fiberweb Typar HouseWrap, Dow Weathermate Plus, Johns Manville Gorilla Wrap, Fortifiber WeatherSmart
I	Ignition Barrier	
	Spray Applied	Flame Seal Class A Thermal Barrier
K	Kick-Out Diverter	Berger Kick-Out Diverter or Equal
R	Rigid Polyisocyanurate	
	Foil Faced	Dow Tuff-R or Thermax
	Glass Fiber Faced	Dow Quik-R or Equal
S	Sealant	
	Air-Barrier Sealant	Tremco Acoustical Sealant or Equal
	Paintable Sealant	Polyseamseal All Purpose Adhesive Caulk, Sashco Sealants Big Stretch, Geocel ProCOLOR™ Tripolymer Sealant or Equal
	Urethane Sealant	Bostik Chem-Calk 955-SL Polyurethane Sealant or Equal
	Spray Polyurethane Foam	
	Closed Cell Spray Foam	Demilec Heatlok 2lbs/cubic foot or Equal
	Open Cell Spray Foam	Icynene 0.5 lbs/cubic foot or Equal
T	Tape	
	Builder's Sheathing Tape	Tyvek Tape, Dow Weathermate Construction Tape, 3M Contractor's Tape or Equal
	Foil Tape	3M Aluminum Foil Tape 1449 or Equal
	Thin Profile Sheathing	Thermoply or Equal

ARCHITECT:

BUILDING SCIENCE CORPORATION

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America — U.S. Department of Energy — Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

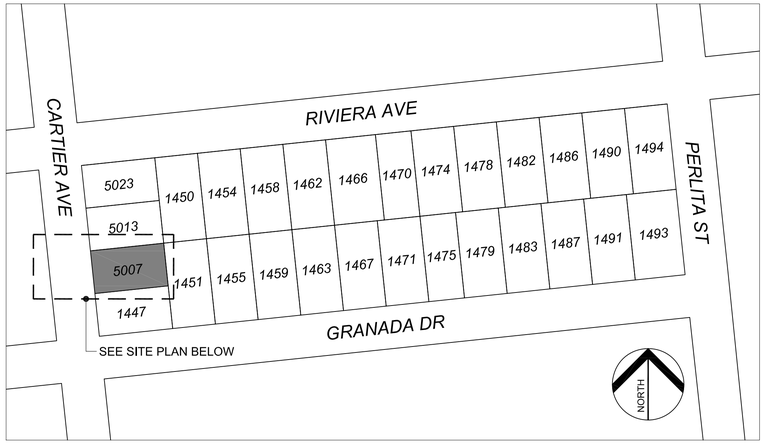
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG
CHECKED BY:	BP

SHEET TITLE:

Notes, Assemblies & Specifications

SCALE: AS NOTED

A-001



ZONING INFORMATION:

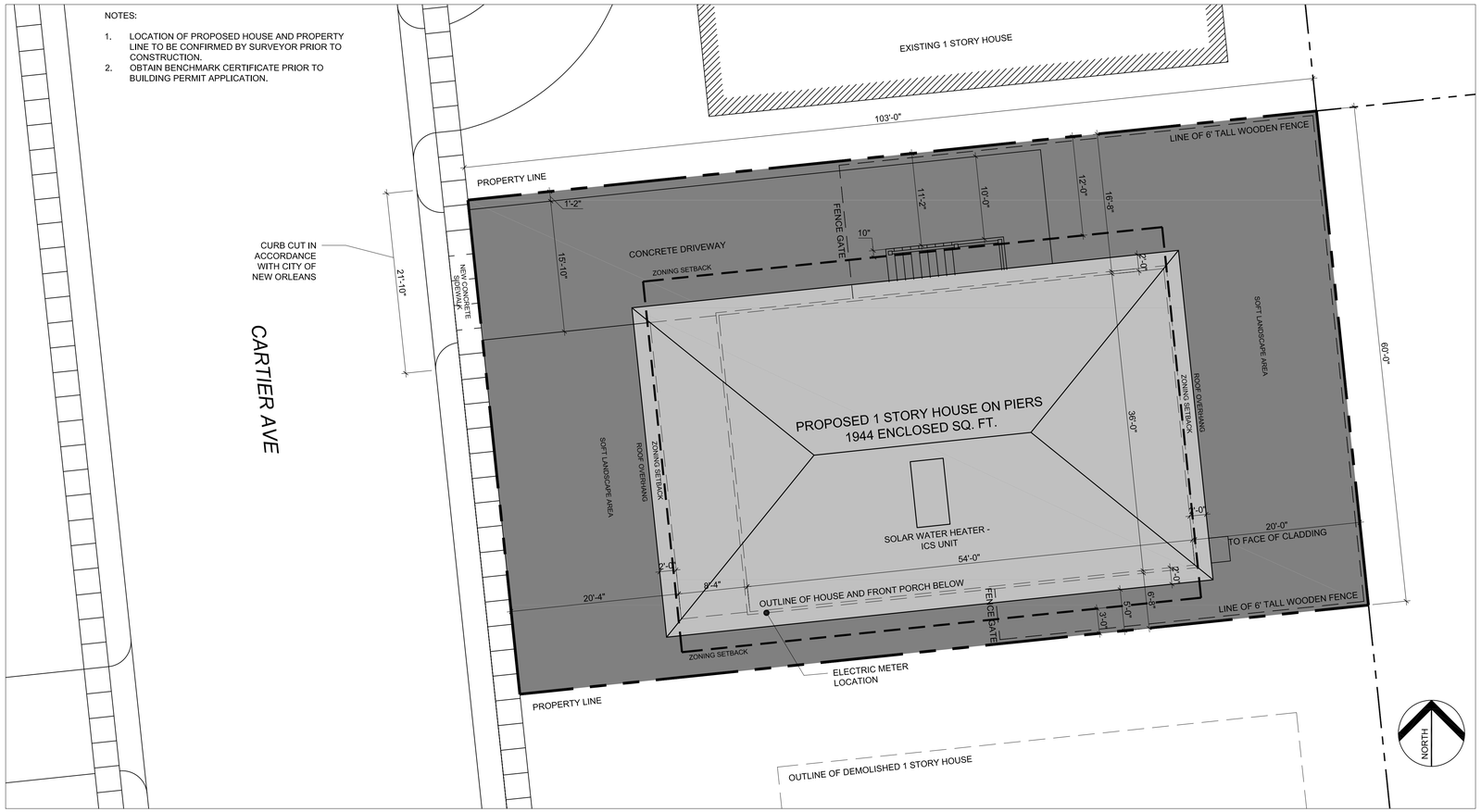
MUNICIPAL ADDRESS:	5007 CARTIER AVENUE NEW ORLEANS, LA 70122		
LOT DIMENSIONS:	60' W X 103' D		
LOT AREA:	6180 SQ FT		
PROPOSED FOOTPRINT:	2232 SQ FT (INCLUDING PORCH)		
PROPOSED FLOOR AREA:	1944 SQ FT		
NEIGHBORHOOD:	FILLMORE		
ZONE:	RS-1 (SINGLE-FAMILY RESIDENTIAL)		
FLOOD ZONE:	A5		
MAXIMUM BUILDING HEIGHT:	35'	PROPOSED:	24'-4"
MIN. DEPTH OF FRONT YARD:	20'	PROPOSED:	20'
MIN. WIDTH OF SIDE YARD:	3'	PROPOSED:	6'-8"
MIN. AGGR. WIDTH OF SIDE YARDS:	15'	PROPOSED:	23'-4"
MIN. DEPTH OF REAR YARD:	20'	PROPOSED:	20'

1 LOCATION PLAN

SCALE: 1" = 100'

NOTES:

1. LOCATION OF PROPOSED HOUSE AND PROPERTY LINE TO BE CONFIRMED BY SURVEYOR PRIOR TO CONSTRUCTION.
2. OBTAIN BENCHMARK CERTIFICATE PRIOR TO BUILDING PERMIT APPLICATION.



2 SITE AND LANDSCAPING PLAN

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

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PROJECT:

Catholic Charities Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

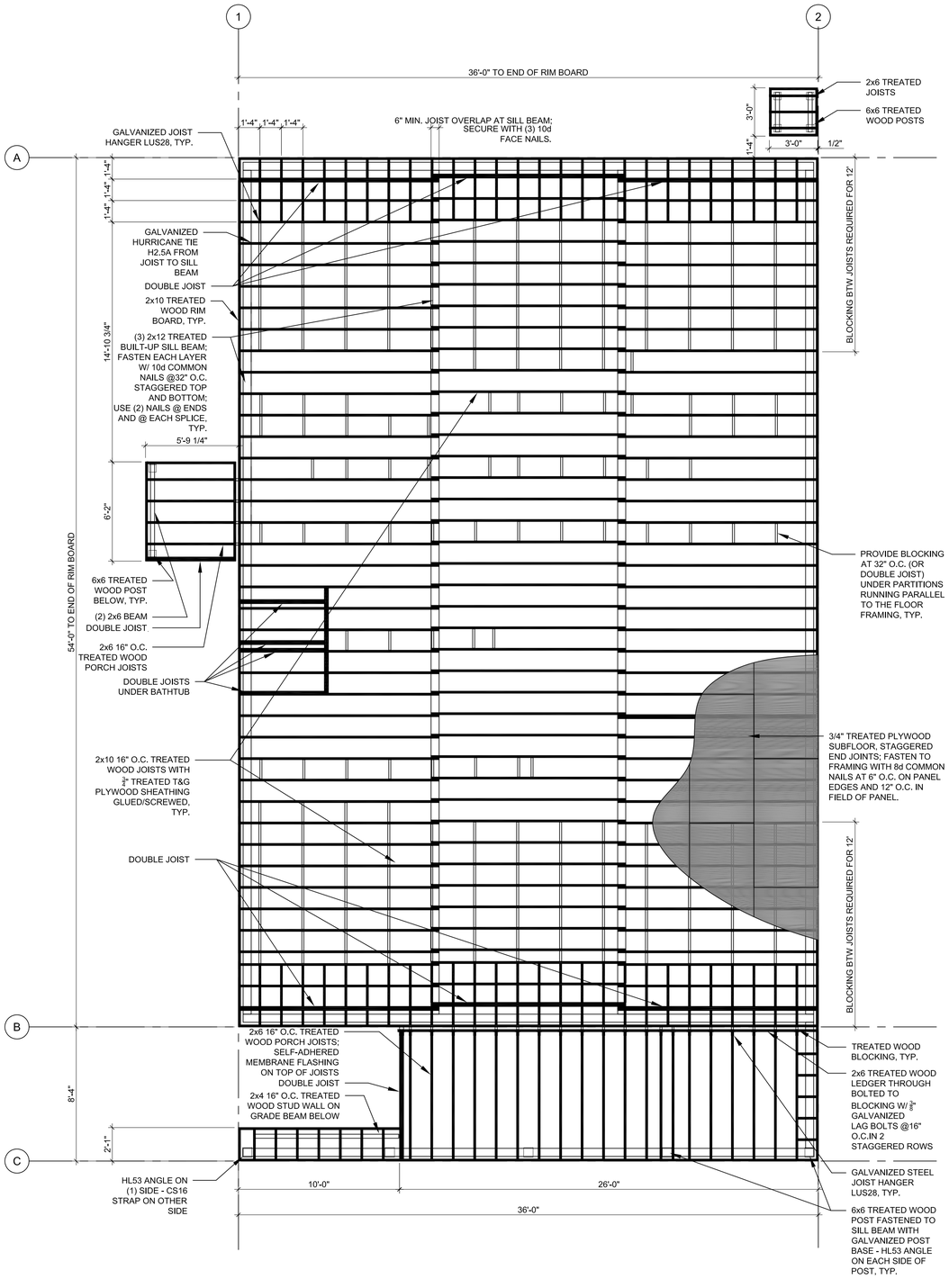
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG
CHECKED BY:	BP

SHEET TITLE:

Location Plan & Zoning Information & Site and Landscaping Plan

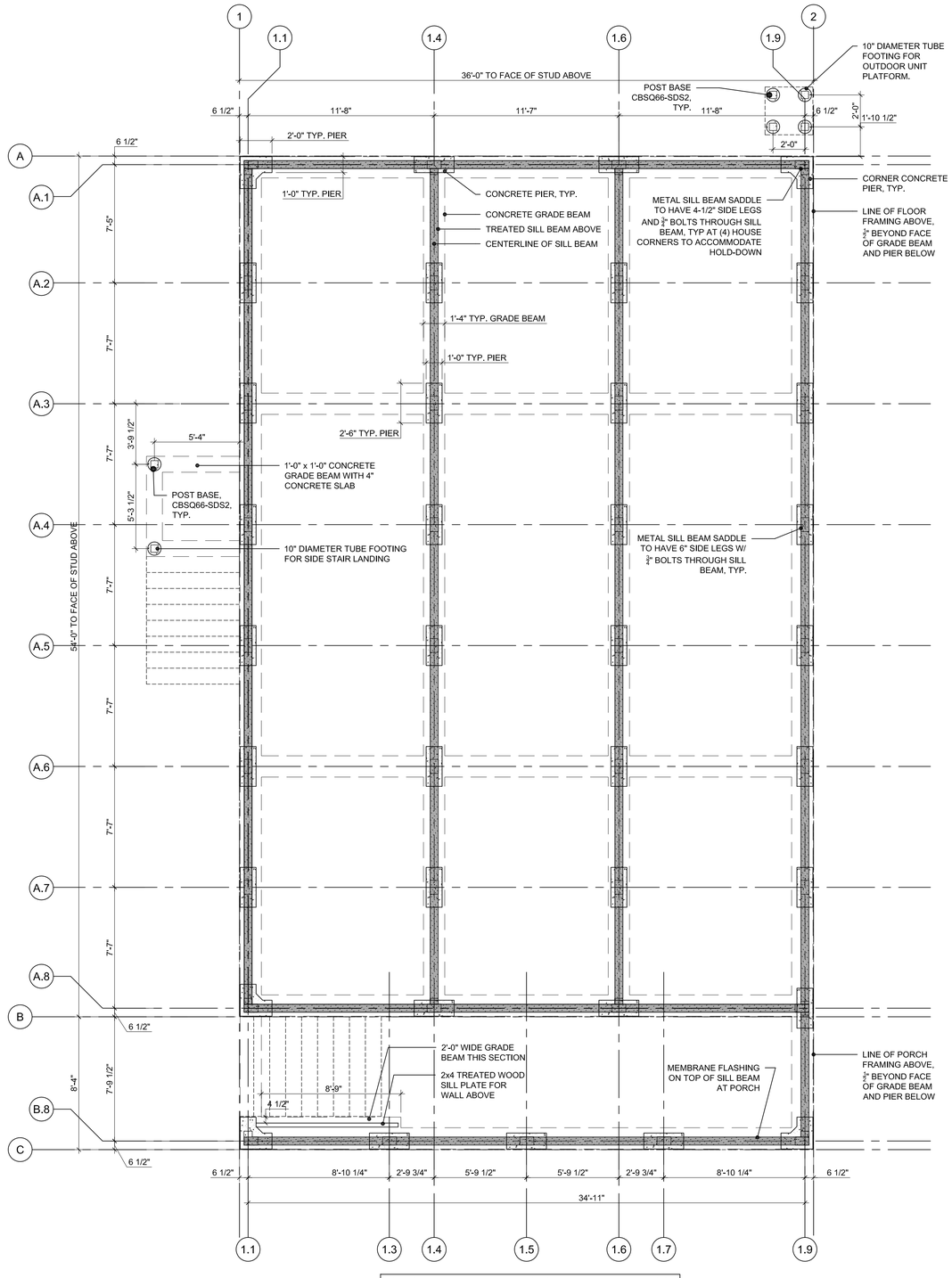
SCALE: AS NOTED

A-101



2 FIRST FLOOR FRAMING PLAN

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



NOTE: SEE TDTP-01 AND TDTP-02 FOR GRADE BEAM AND PIER DESIGN.

1 FOUNDATION PLAN

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

ARCHITECT:

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GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
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Building America U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET
ISSUE:		

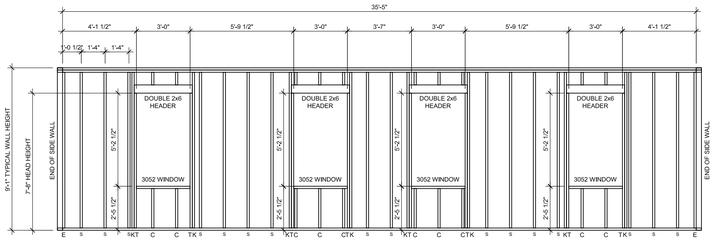
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG, CG
CHECKED BY:	BP

SHEET TITLE:

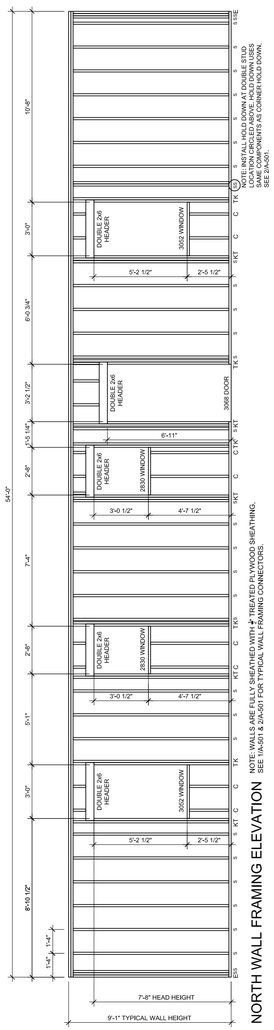
Foundation Plan & First Floor Framing Plan

SCALE: AS NOTED

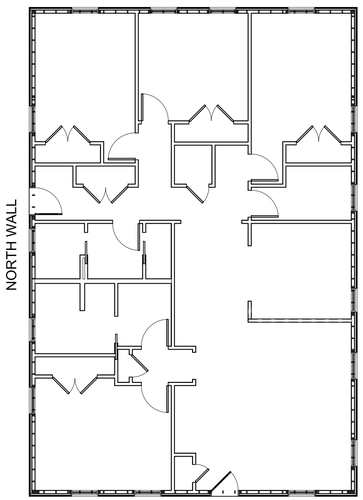
A-102

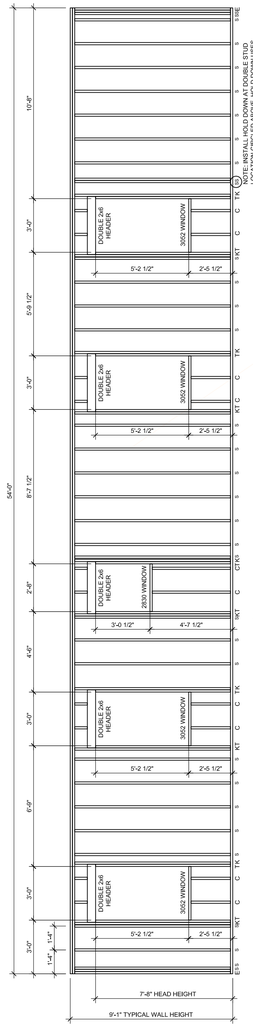


EAST WALL FRAMING ELEVATION NOTE: WALLS ARE FULLY SHEATHED WITH ½" TREATED PLYWOOD SHEATHING, SEE 1/A-501 & 2/A-501 FOR TYPICAL WALL FRAMING CONNECTORS.

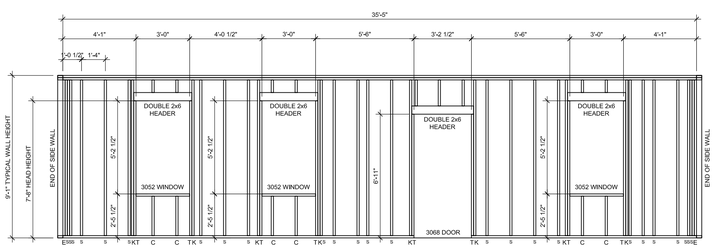


NORTH WALL FRAMING ELEVATION





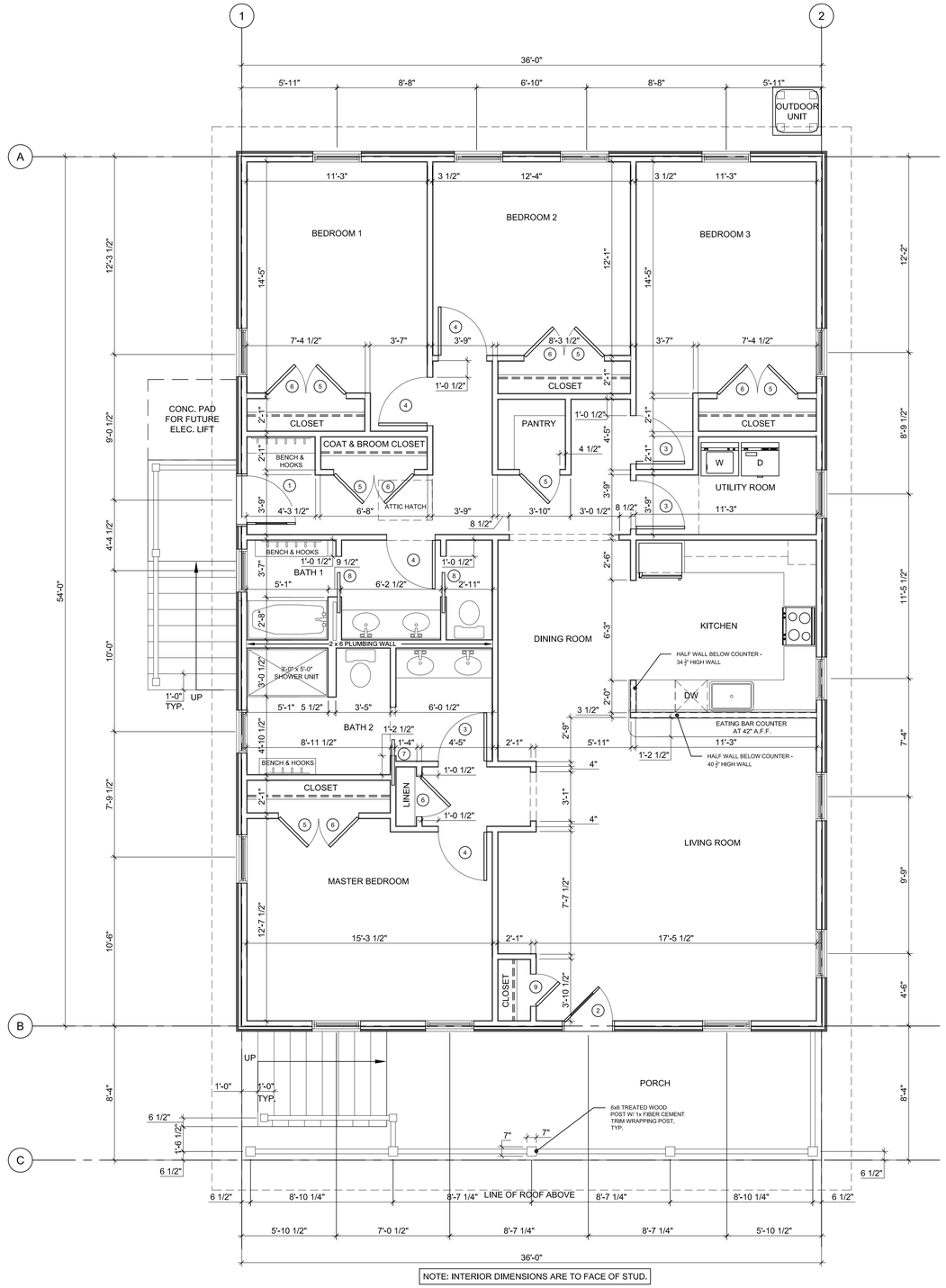
SOUTH WALL FRAMING ELEVATION



WEST WALL FRAMING ELEVATION NOTE: WALLS ARE FULLY SHEATHED WITH ½" TREATED PLYWOOD SHEATHING, SEE 1/A-501 & 2/A-501 FOR TYPICAL WALL FRAMING CONNECTORS.

2 KEY PLAN & WALL FRAMING ELEVATIONS

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



1 FIRST FLOOR PLAN

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

ARCHITECT:

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET
ISSUE:		

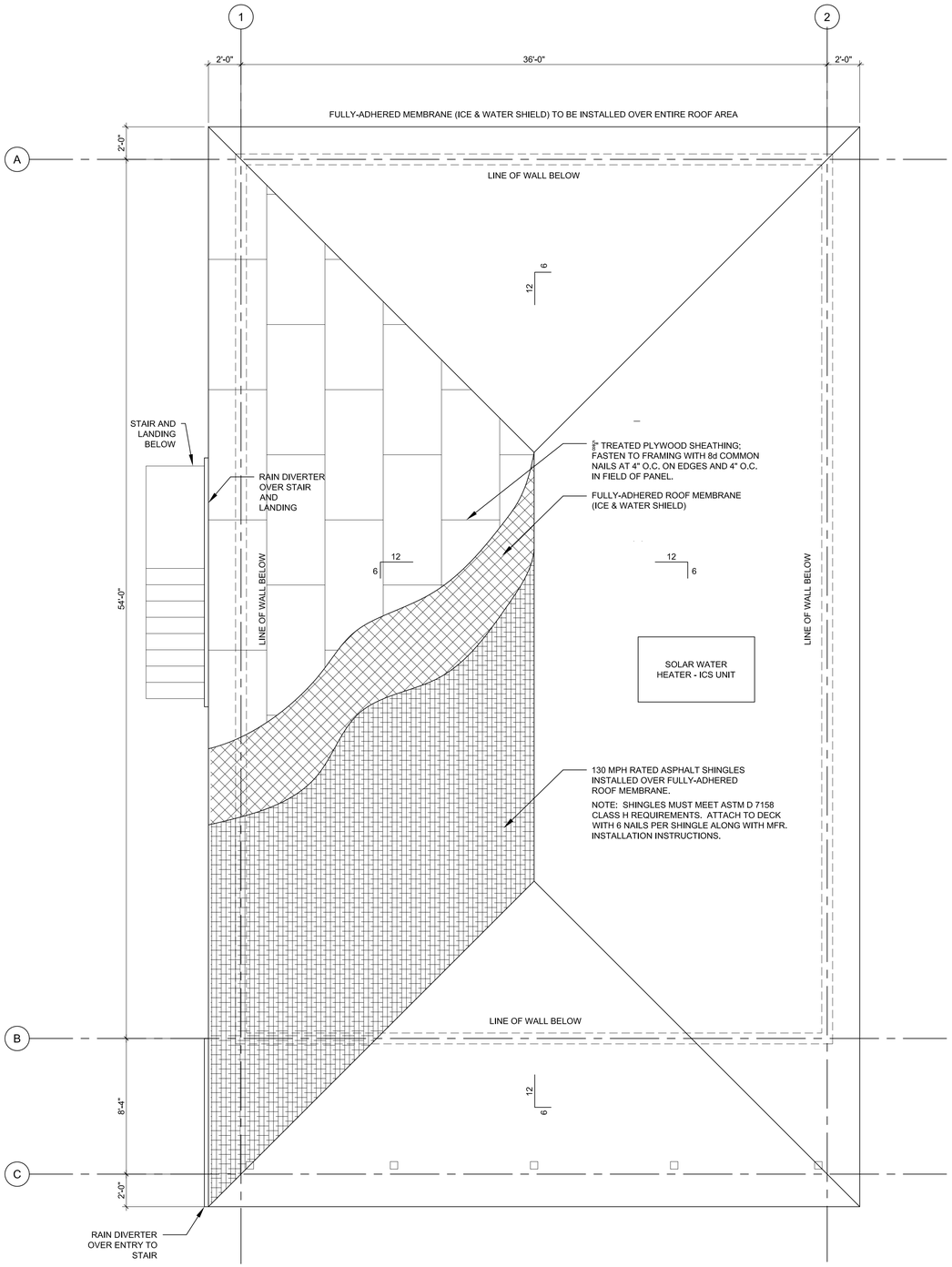
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG
CHECKED BY:	BP

SHEET TITLE:

First Floor Plan & Key Plan & Wall Framing Elevations

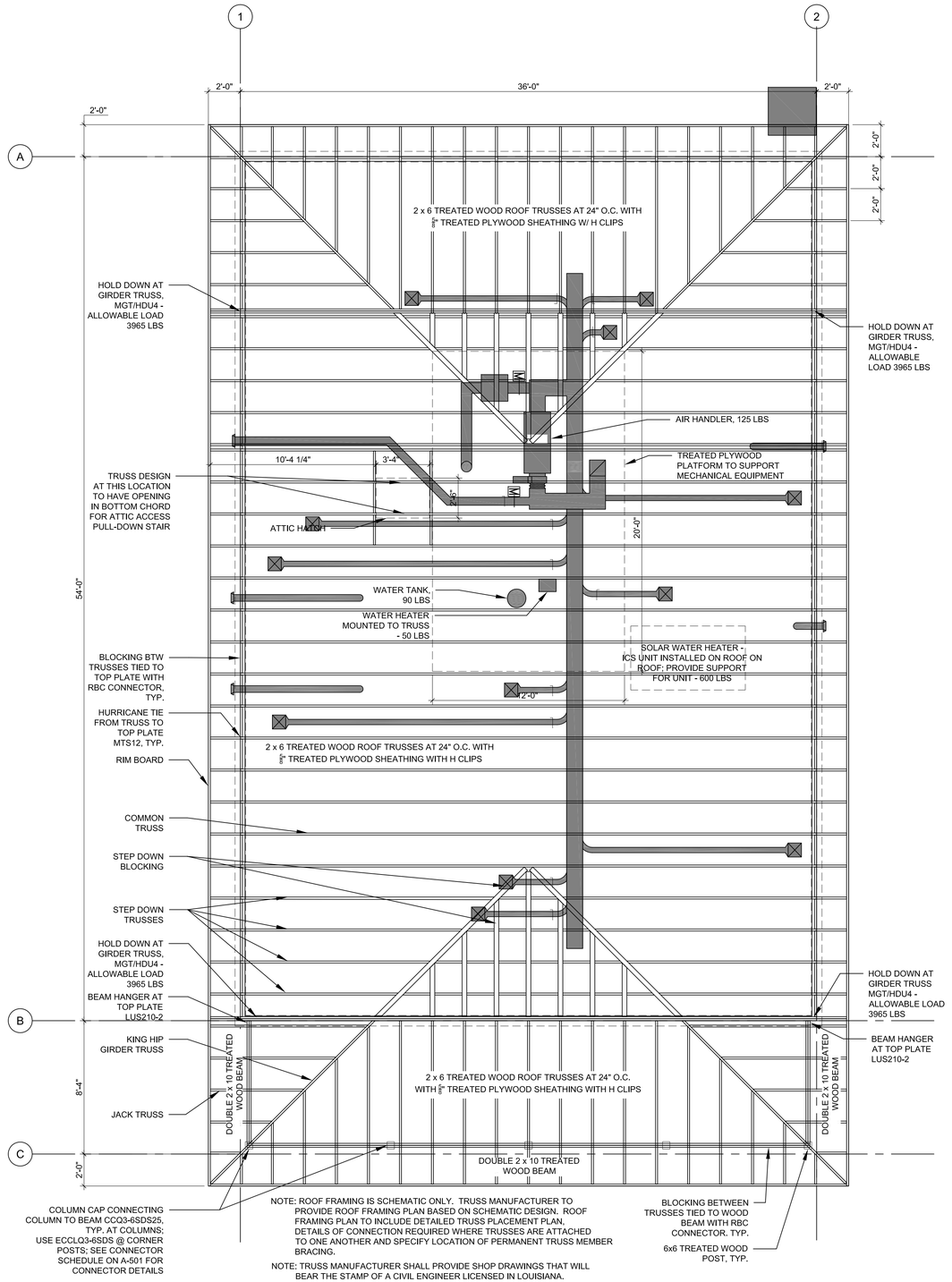
SCALE: AS NOTED

A-103



2 ROOF PLAN

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



NOTE: ROOF FRAMING IS SCHEMATIC ONLY. TRUSS MANUFACTURER TO PROVIDE ROOF FRAMING PLAN BASED ON SCHEMATIC DESIGN. ROOF FRAMING PLAN TO INCLUDE DETAILED TRUSS PLACEMENT PLAN, DETAILS OF CONNECTION REQUIRED WHERE TRUSSES ARE ATTACHED TO ONE ANOTHER AND SPECIFY LOCATION OF PERMANENT TRUSS MEMBER BRACING.

NOTE: TRUSS MANUFACTURER SHALL PROVIDE SHOP DRAWINGS THAT WILL BEAR THE STAMP OF A CIVIL ENGINEER LICENSED IN LOUISIANA.

1 ROOF FRAMING PLAN & DUCT LAYOUT

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

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Building America U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET
ISSUE:		

PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG, CG, KN, DB
CHECKED BY:	BP

SHEET TITLE:

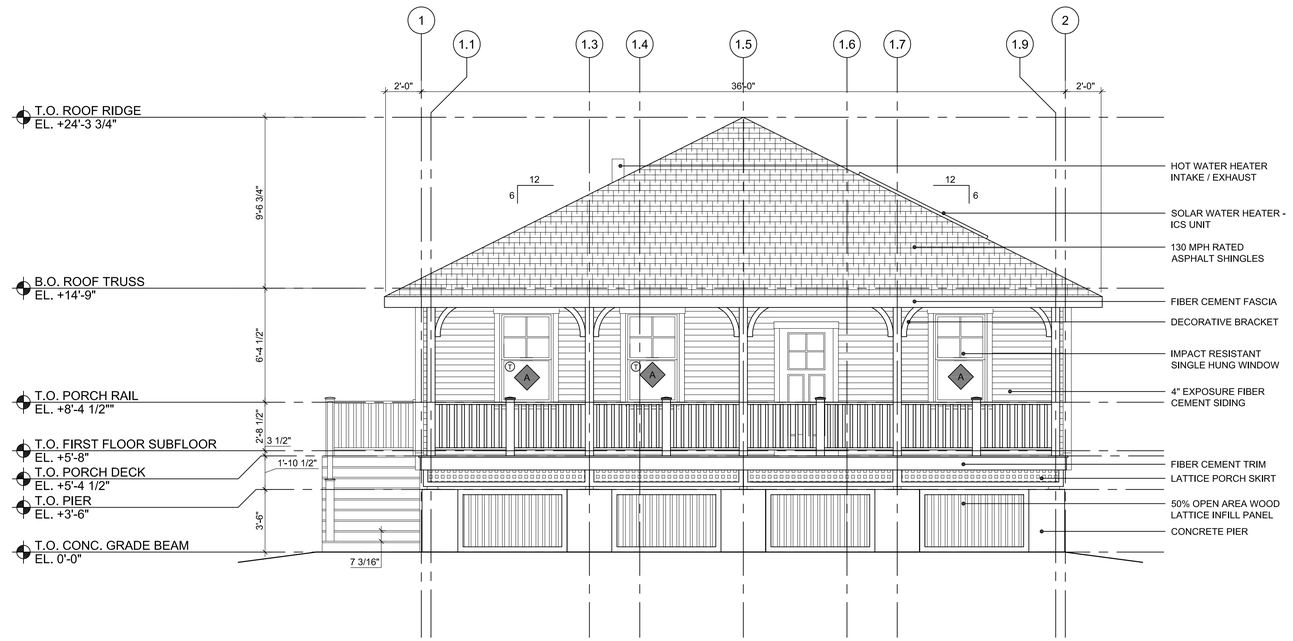
Roof Framing Plan & Duct Layout & Roof Plan

SCALE: AS NOTED

A-104

2 RIGHT SIDE (SOUTH) ELEVATION

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



1 FRONT (WEST) ELEVATION

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

ARCHITECT:

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PROJECT:

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GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Build America — U.S. Department of Energy — Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

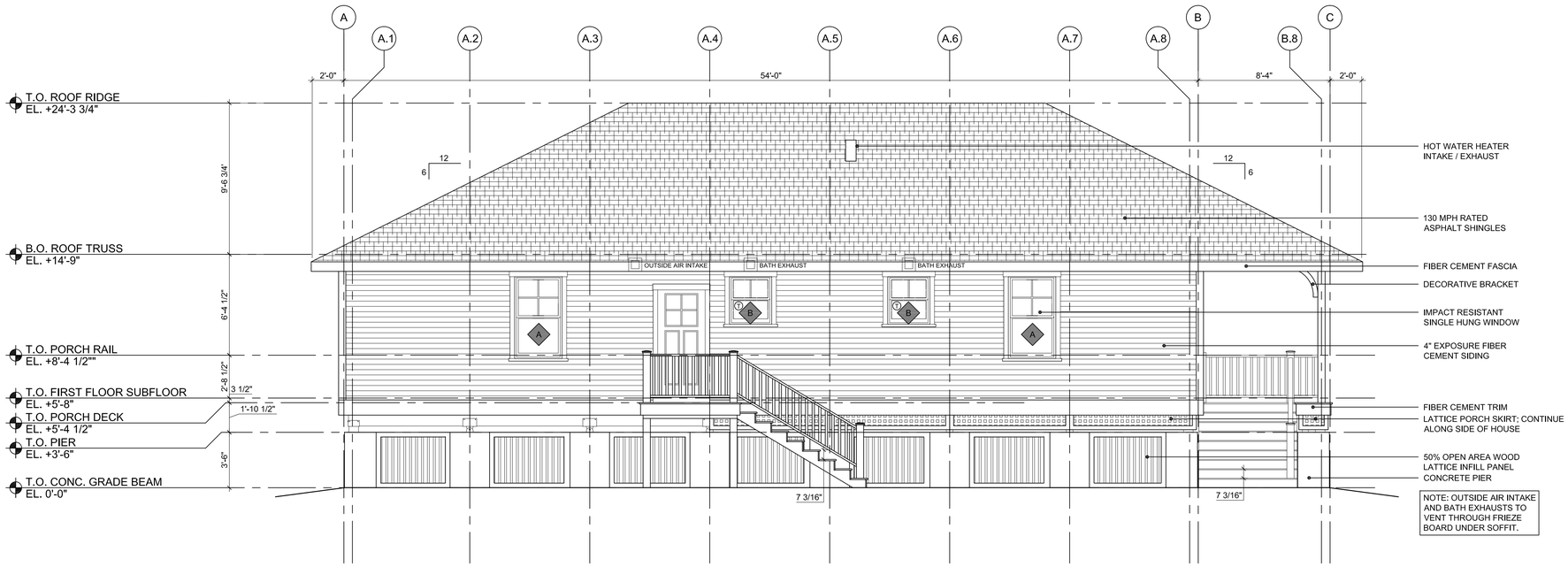
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG, HW, CG
CHECKED BY:	BP

SHEET TITLE:

Exterior Elevations

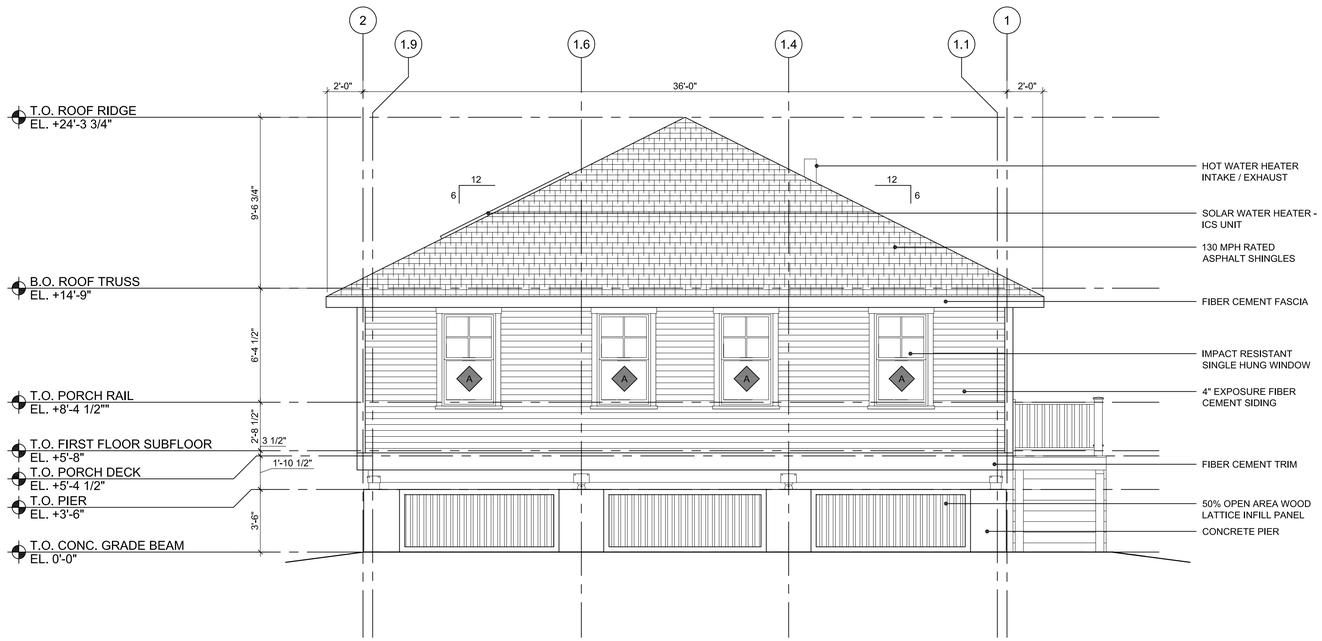
SCALE: AS NOTED

A-201



2 LEFT SIDE (NORTH) ELEVATION

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



1 REAR (EAST) ELEVATION

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

ARCHITECT:

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PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Build it Right AMERICA U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

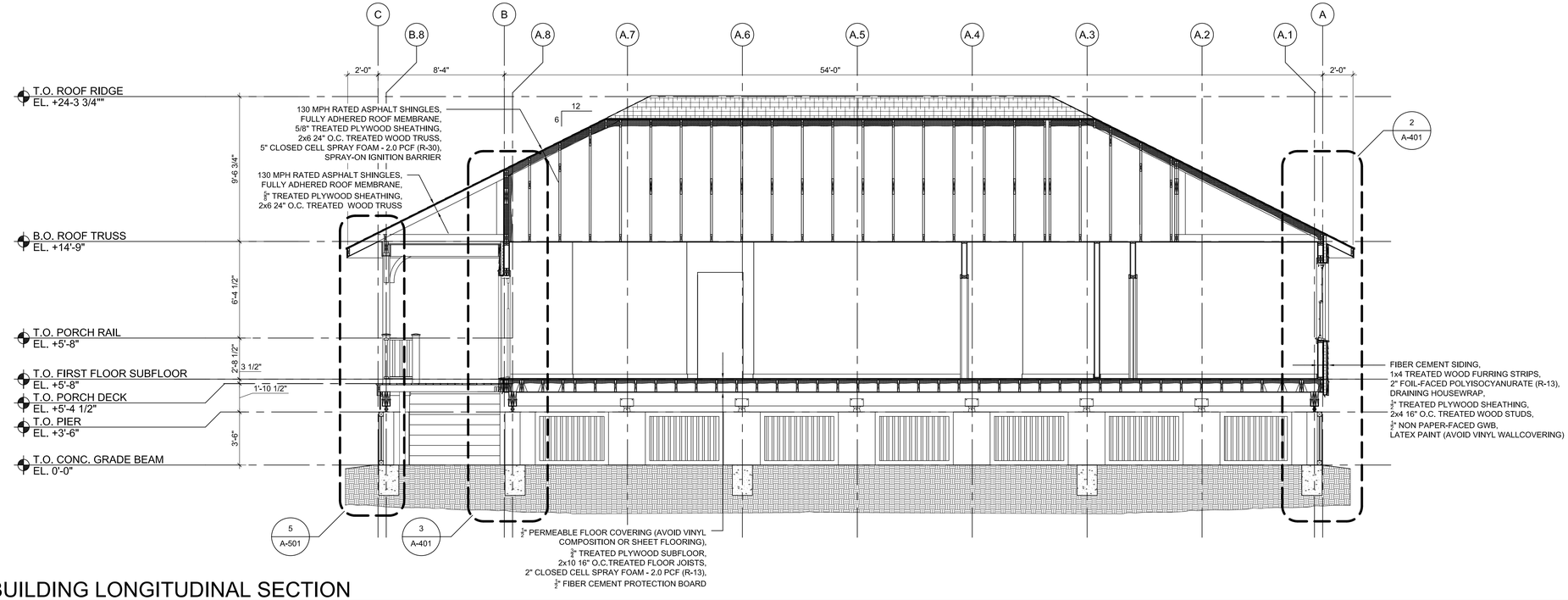
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG, HW, CG
CHECKED BY:	BP

SHEET TITLE:

Exterior Elevations

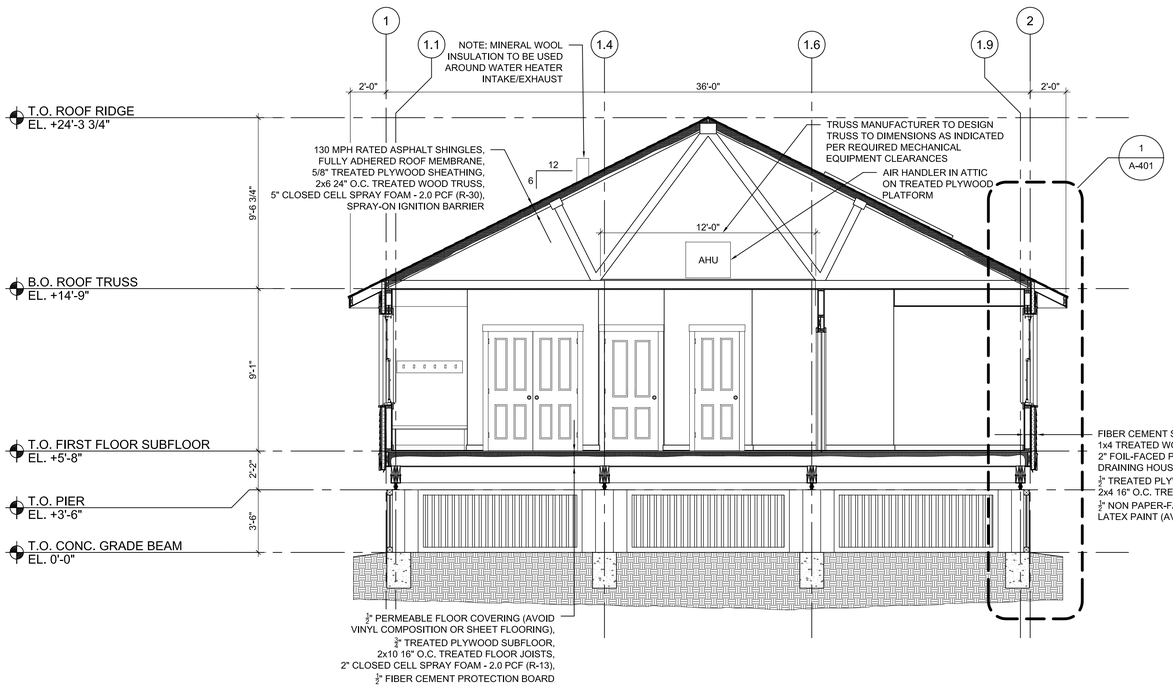
SCALE: AS NOTED

A-202



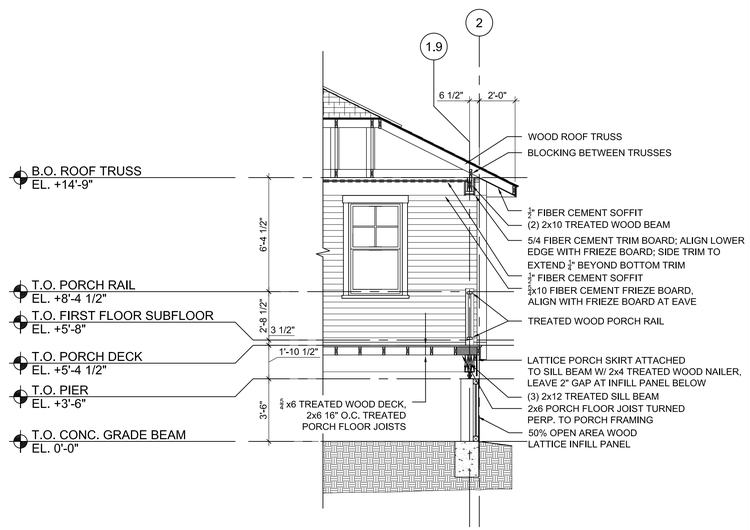
3 BUILDING LONGITUDINAL SECTION

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



2 BUILDING CROSS SECTION

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



1 PORCH CROSS SECTION

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

ARCHITECT:

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Build it Green AMERICA
U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET
ISSUE:		

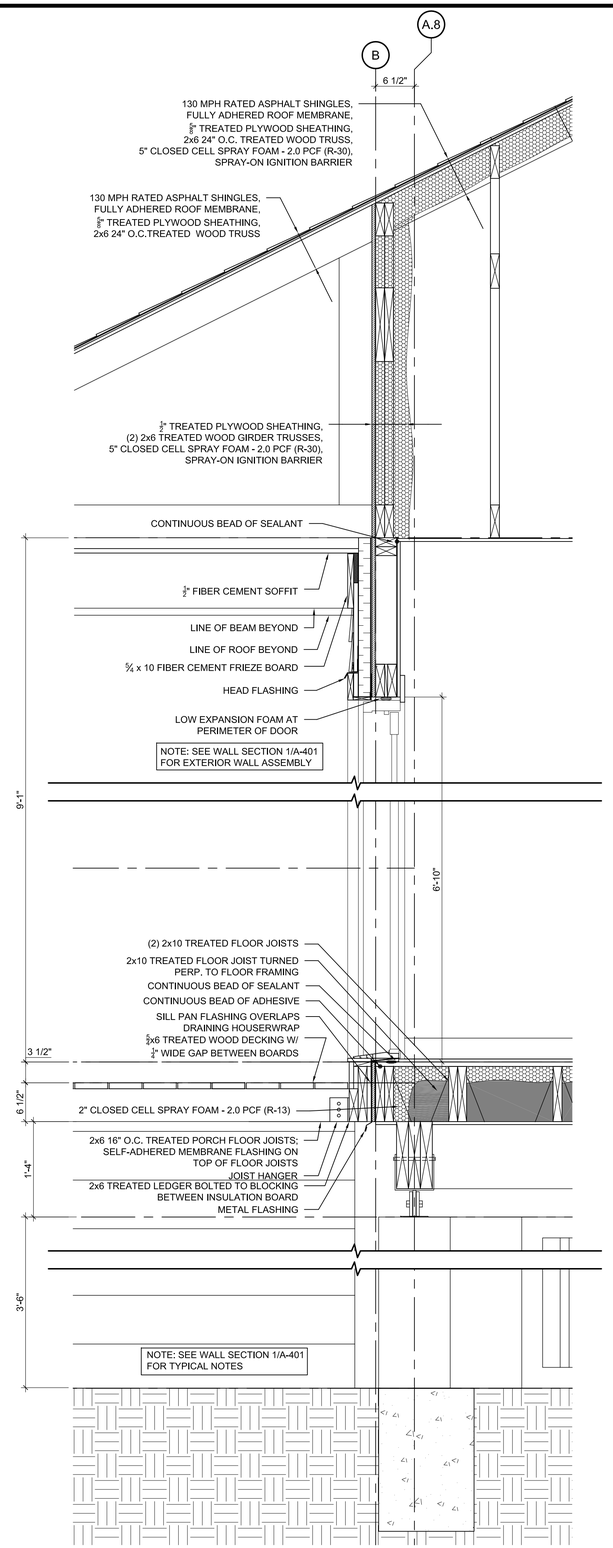
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	HW, CG
CHECKED BY:	BP

SHEET TITLE:

Building Sections

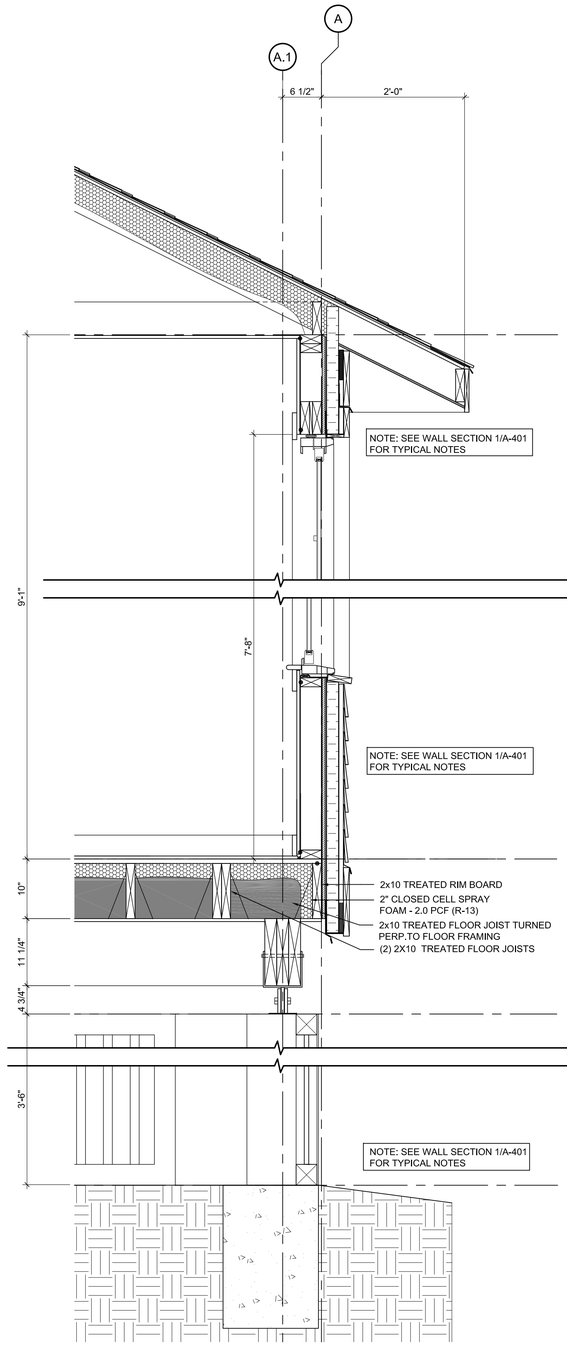
SCALE: AS NOTED

A-301



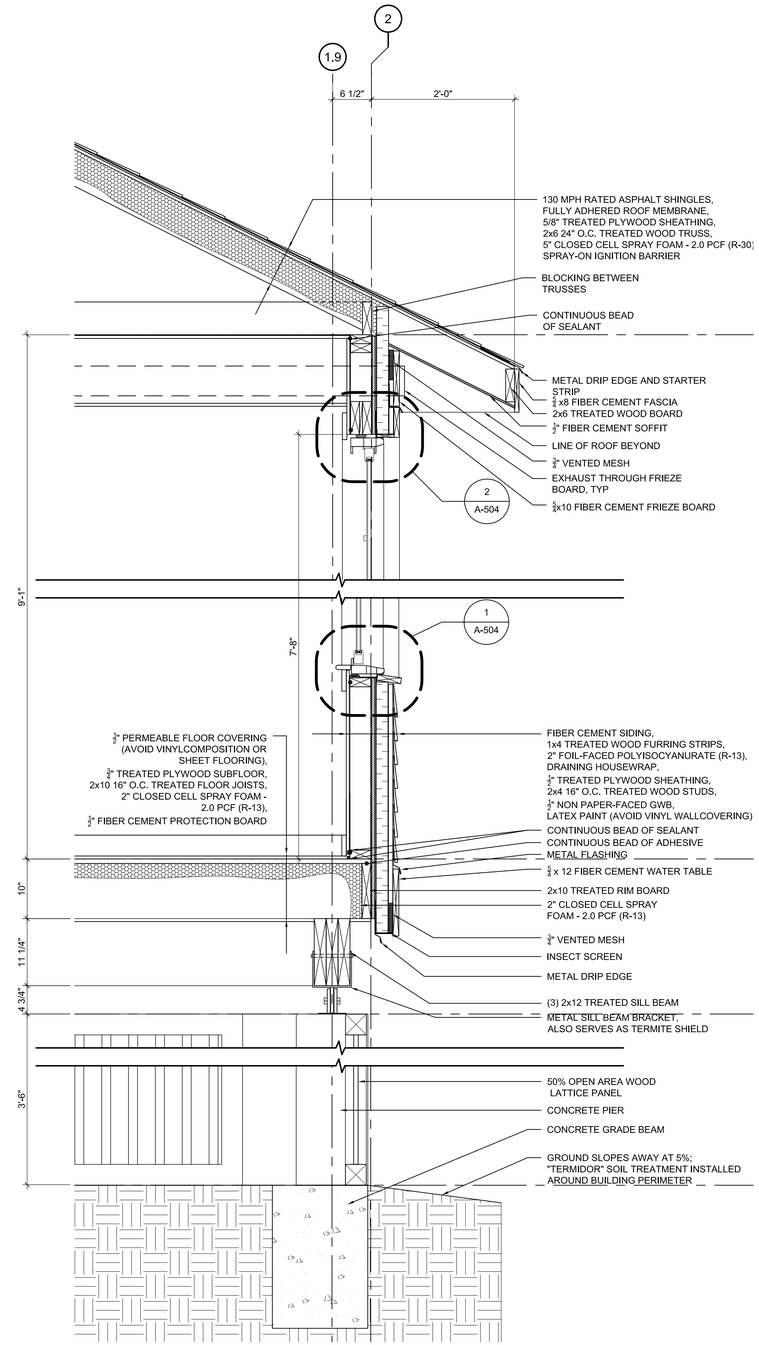
3 WALL SECTION BETWEEN HOUSE & PORCH

SCALE: 1" = 1'-0"



2 WALL SECTION PARALLEL TO FL. FRAMING

SCALE: 1" = 1'-0"



1 WALL SECTION PERP. TO FL. FRAMING

SCALE: 1" = 1'-0"

ARCHITECT:

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America U.S. Department of Energy
Research Toward Zero Energy Homes

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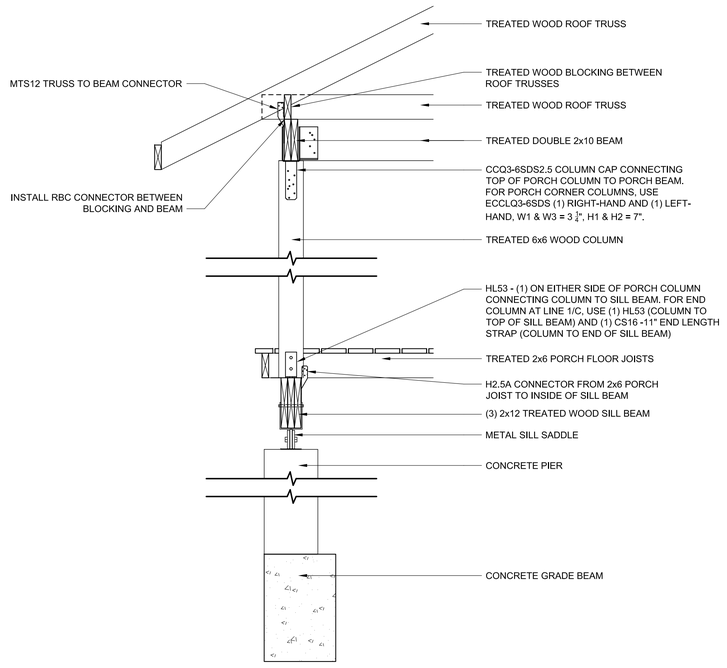
SHEET TITLE:

Wall Sections

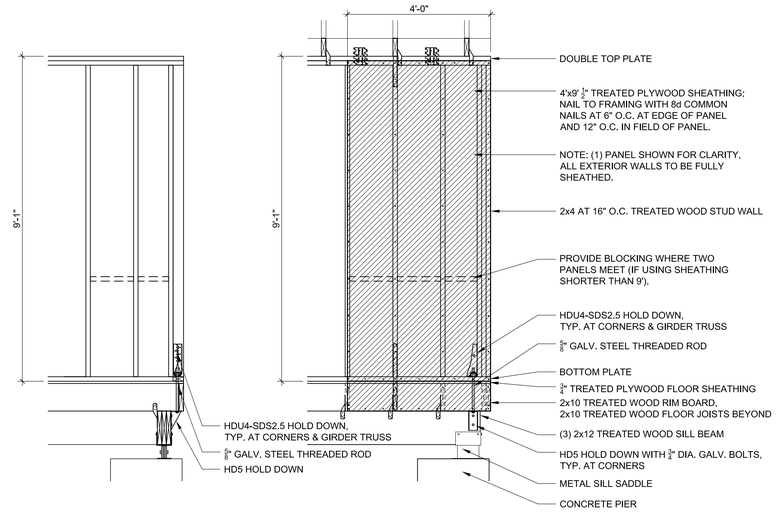
SCALE: AS NOTED

A-401



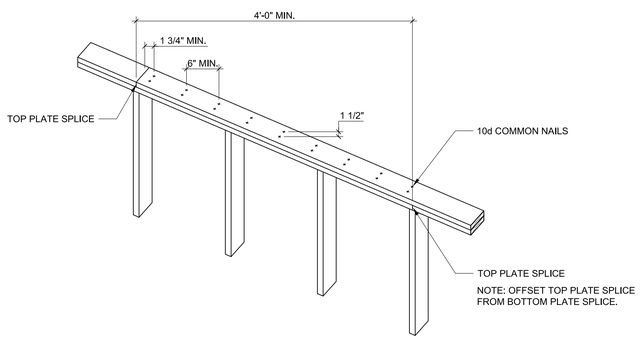
5 PORCH FRAMING SECTION

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



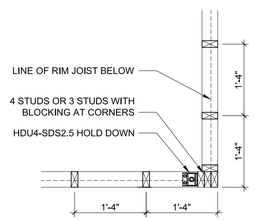
2 TYPICAL FRAMED CORNER SECTION & ELEVATION

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



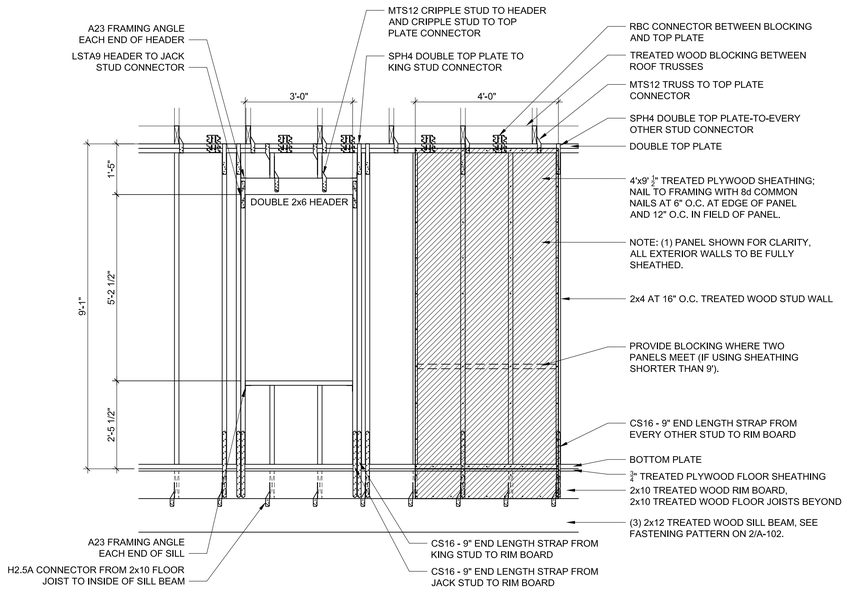
4 DOUBLE TOP PLATE SPLICE DETAIL

SCALE: N.T.S.



3 TYPICAL FRAMED CORNER PLAN DETAIL

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



1 TYPICAL FRAMED WALL OPENING ELEVATION

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

GENERAL FRAMING NOTES

1. WOOD IN CONTACT WITH MASONRY, CONCRETE OR GROUND IS TO BE PRESSURE BORATE TREATED.
2. WOOD FRAMING MEMBERS TO BE SOUTHERN YELLOW PINE #2, UNLESS OTHERWISE NOTED.
3. METAL CONNECTORS INSTALLED ON TREATED WOOD TO BE HOT-DIPPED ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL UNLESS OTHERWISE PROTECTED WITH A BARRIER MEMBRANE.
4. CONTRACTOR TO PROVIDE CONTINUOUS LOAD PATH FROM EACH ROOF-FRAMING ELEMENT TO FOUNDATION WITH APPROPRIATE LOAD-TRANSFER CONNECTORS. EACH CONNECTOR TO BE INSTALLED WITH THE NUMBER OF NAILS SPECIFIED BY THE MANUFACTURER OF THE CONTRACTOR.
5. ALL CONNECTORS NOTED ON PLANS ARE SIMPSON STRONG-TIE. USE THESE CONNECTORS OR APPROVED EQUAL.

STRUCTURAL CONNECTORS SCHEDULE

DETAIL	DESCRIPTION	CONNECTOR
2/A-102	FLOOR FRAMING JOIST HANGER.	LUS28
2/A-102 & 1&2/A-501	FLOOR JOIST TO SILL BEAM HURRICANE TIE.	H2.5A
1/A-102	SIDE PORCH & OUTDOOR UNIT POST BASE.	CBSQ66-SDS2
1/A-104	GIRDER TRUSS HOLD DOWN AT TRUSS / TOP PLATE.	MGT/HDU4
1/A-104	TRUSS BLOCKING TO TOP PLATE.	RBC
1/A-104 & 1&2/A-501	TRUSS TO TOP PLATE HURRICANE TIE & CRIPPLE STUD TO HEADER & TOP PLATE.	MTS12
1/A-104	PORCH BEAM HANGER.	LUS210-2
1/A-104 & 5/A-501	COLUMN CAP - (3) MIDDLE PORCH COLUMNS.	CCQ3-6SDS2.5
1/A-104 & 5/A-501	COLUMN CAP - (2) CORNER PORCH COLUMNS (1) RIGHT-HAND & (1) LEFT-HAND CONNECTOR.	ECCLQ3-6SDS, W1&W3=3.25" H1&H2=7"
2/A-102 & 5/A-501	PORCH COLUMN TO SILL BEAM.	HL53
2/A-102 & 5/A-501	PORCH COLUMN TO SILL BEAM AT LINE 1/C.	HL53 & CS16 - 11" END LENGTH
1/A-501	EVERY OTHER STUD, KING STUD & JACK STUD TO RIM BOARD.	CS16 - 9" END LENGTH
1/A-501	WINDOW HEADER & SILL FRAMING ANGLE.	A23
1/A-501	DOUBLE TOP PLATE TO EVERY OTHER STUD AND KING STUD.	SPH4
2/A-501	CORNER AND UNDER ROOF TRUSS GIRDER AT BOTTOM PLATE HOLD DOWN.	HDU4-SDS2.5
2/A-501	CORNER AND UNDER ROOF TRUSS GIRDER AT BOTTOM PLATE HOLD DOWN.	HD5

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

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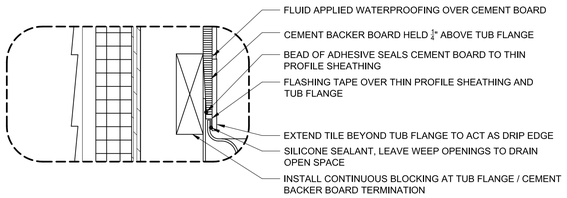
CHECKED BY:	BP

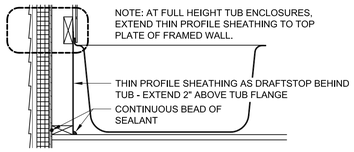
SHEET TITLE:

Framing & Connection Details

SCALE: AS NOTED

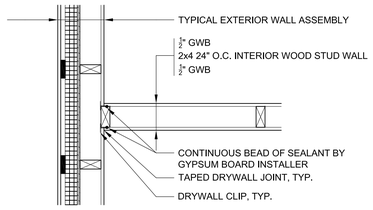
A-501





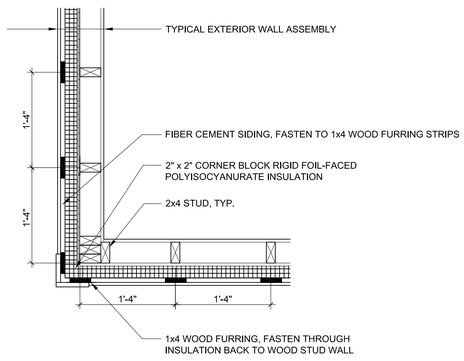
5 BATHTUB / SHOWER AT EXT. WALL DETAIL

SCALE: 1" = 1'-0"



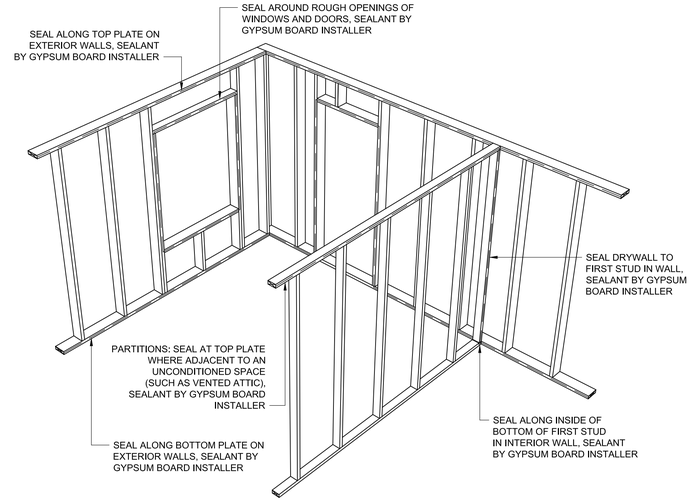
4 INTERIOR PART. AT EXT. WALL DETAIL

SCALE: 1" = 1'-0"



3 EXTERIOR CORNER PLAN DETAIL

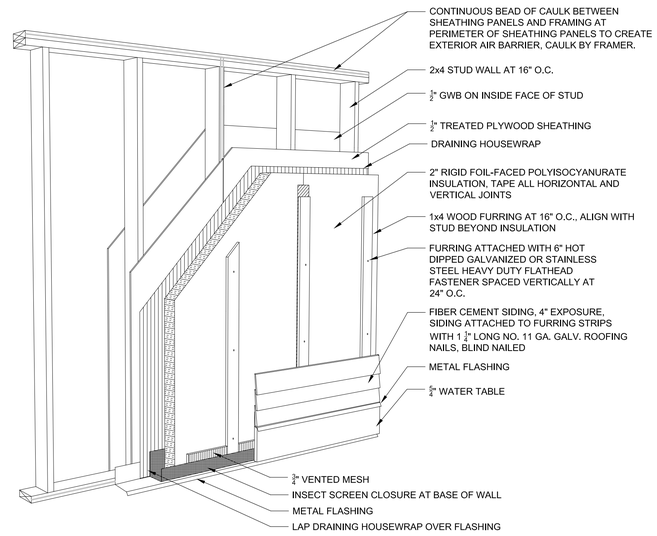
SCALE: 1" = 1'-0"



NOTE: WOOD STUD LAYOUT IS CONCEPTUAL ONLY. SEE FRAMING ELEVATIONS FOR STUD LAYOUT.

2 INTERIOR AIR BARRIER PERSPECTIVE

SCALE: N.T.S.



1 ENCLOSURE ASSEMBLY

SCALE: N.T.S.

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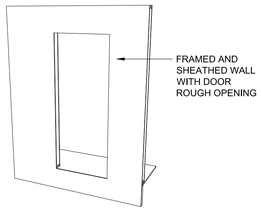
CHECKED BY:	BP

SHEET TITLE:

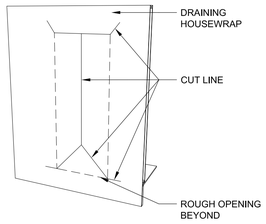
Enclosure Details

SCALE: AS NOTED

A-502



STEP 1



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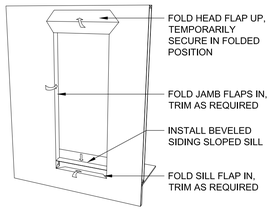

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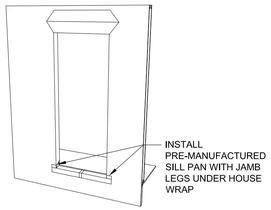

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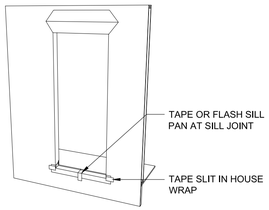

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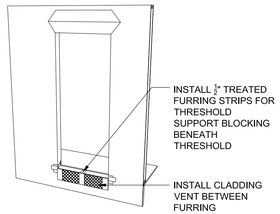

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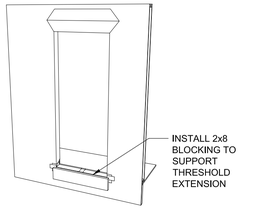

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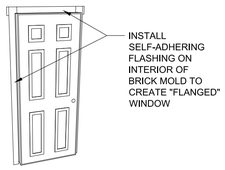
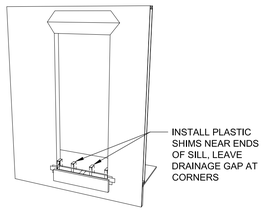


STEP 8 (REVERSE VIEW)



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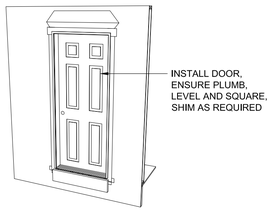

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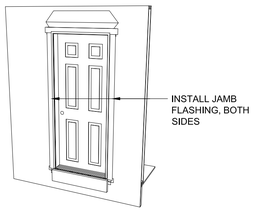

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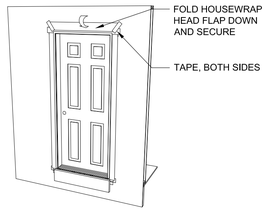

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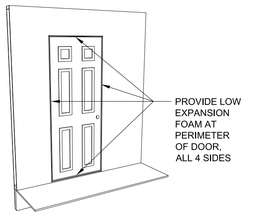

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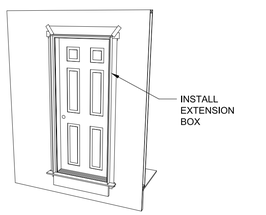

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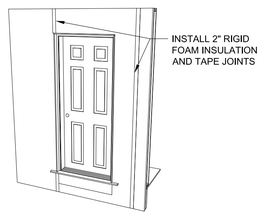

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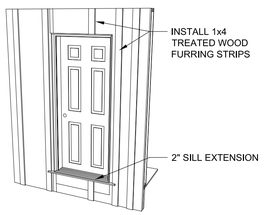

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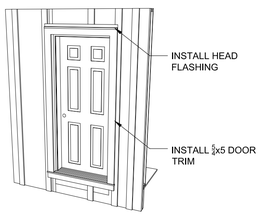

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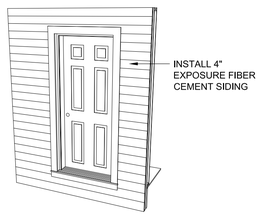
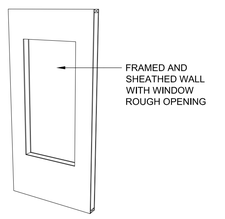


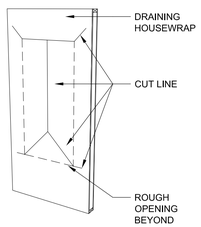
STEP 18

2 DOOR INSTALLATION SEQUENCE

SCALE: N.T.S.



STEP 1



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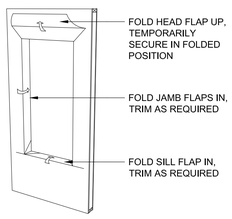

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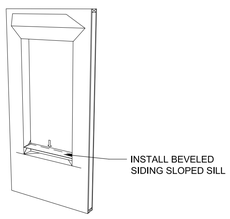

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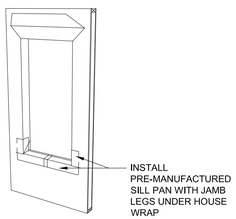

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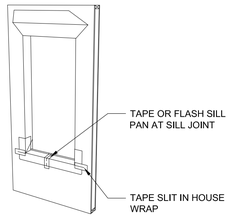

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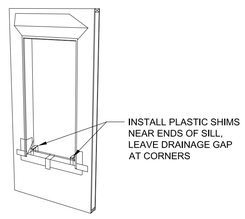

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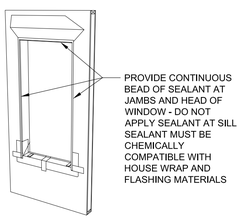

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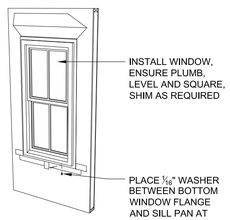

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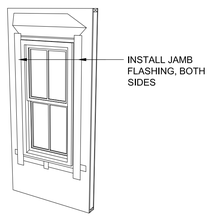
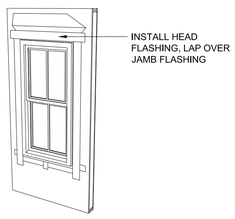
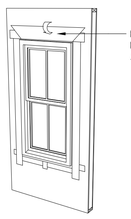


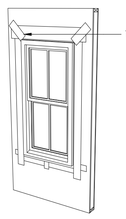
STEP 10



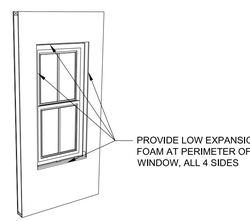
STEP 11



STEP 12



STEP 13



STEP 14 (REVERSE VIEW)

1 WINDOW INSTALLATION SEQUENCE

SCALE: N.T.S.

ARCHITECT:

BUILDING SCIENCE CORPORATION

30 FOREST STREET SOMERVILLE, MA
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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

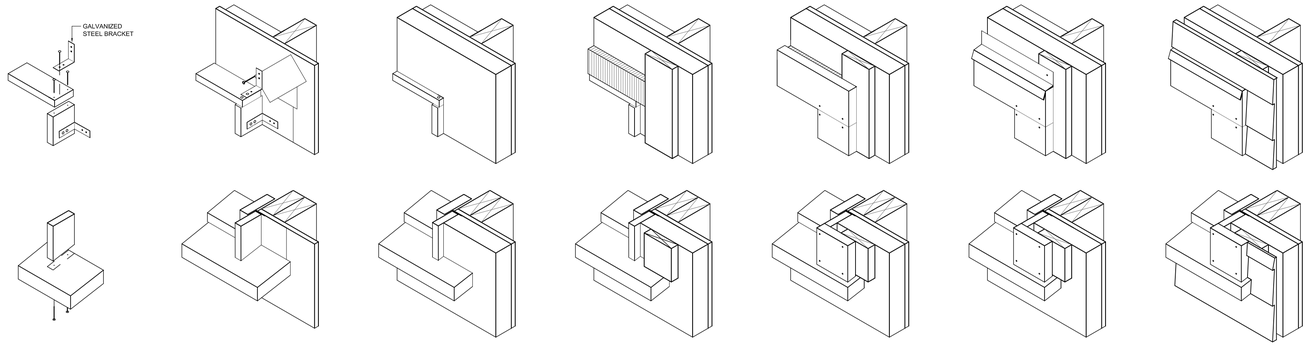
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KN
CHECKED BY:	BP

SHEET TITLE:

Window & Door Installation Sequences

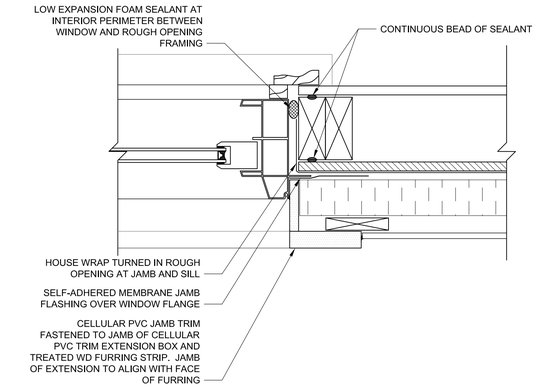
SCALE: AS NOTED

A-503



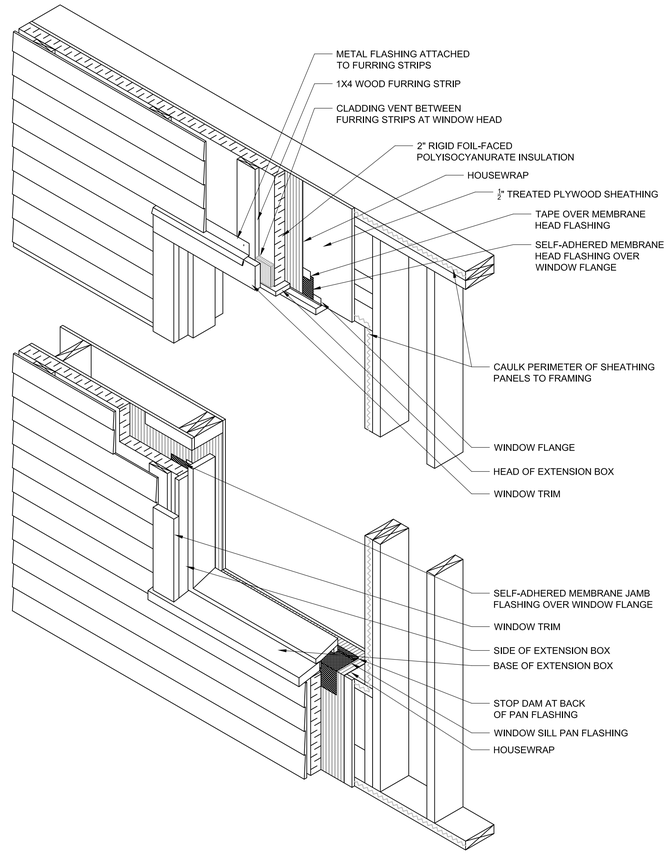
5 TRIM INSTALLATION SEQUENCE

SCALE: N.T.S.



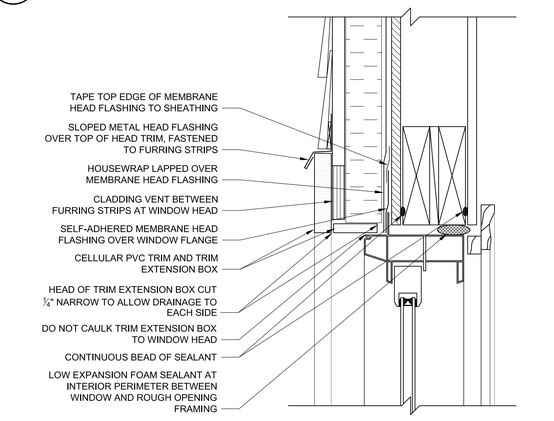
3 WINDOW JAMB DETAIL

SCALE: 3" = 1'-0"



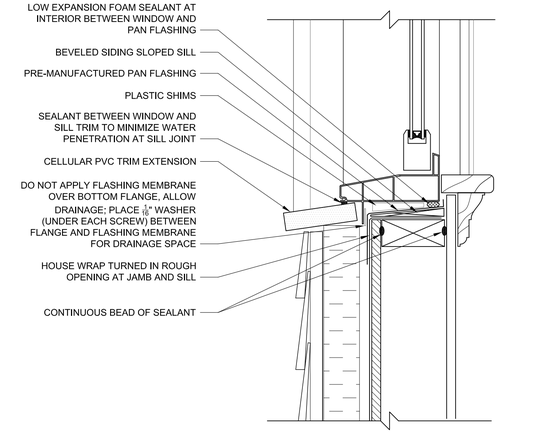
4 ENCLOSURE ASSEMBLY WITH WINDOW OPENING

SCALE: N.T.S.



2 WINDOW HEAD DETAIL

SCALE: 3" = 1'-0"



1 WINDOW SILL DETAIL

SCALE: 3" = 1'-0"

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PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

PS	5/12/09	PERMIT SET
MARK	DATE	DESCRIPTION

ISSUE:

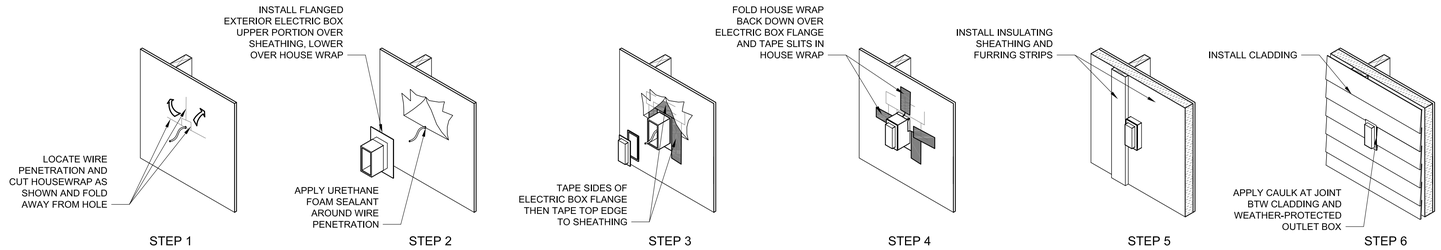
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KN
CHECKED BY:	BP

SHEET TITLE:

Window Details

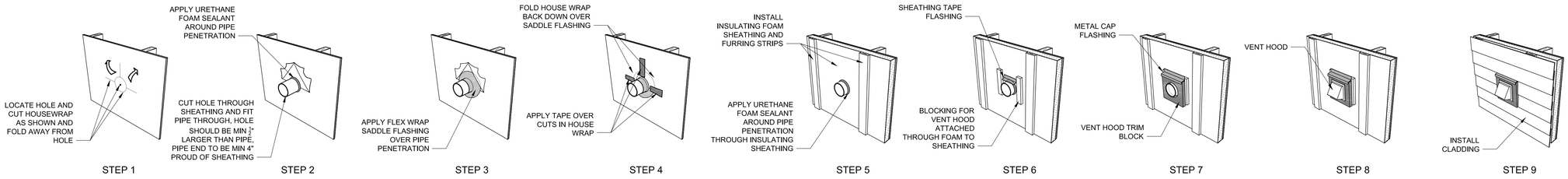
SCALE: AS NOTED

A-504



EXTERIOR ELECTRICAL BOX INSTALLATION SEQUENCE

STARTING POINT:
EXTERIOR WALL WITH HOUSE WRAP

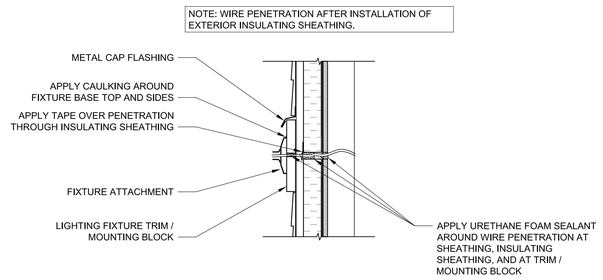


PIPE / DUCT INSTALLATION SEQUENCE

STARTING POINT:
EXTERIOR WALL WITH HOUSE WRAP

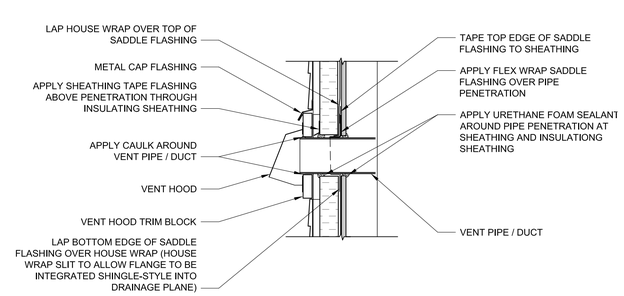
7 ENCLOSURE PENETRATION INSTALLATION SEQUENCES

SCALE: N.T.S.



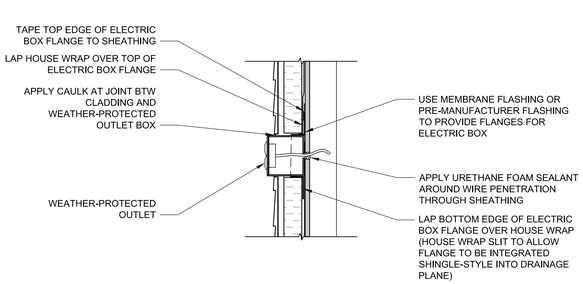
6 EXTERIOR LIGHT FIXTURE SECTION DETAIL

SCALE: 3" = 1'-0"



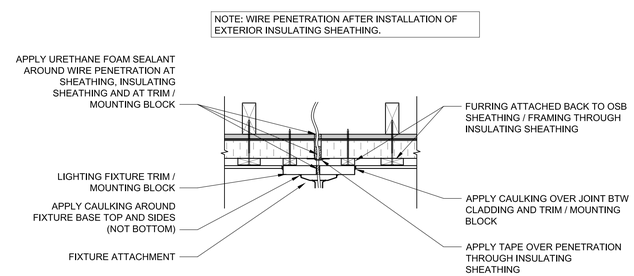
4 EXTERIOR ELECTRICAL BOX SECTION DETAIL

SCALE: 3" = 1'-0"



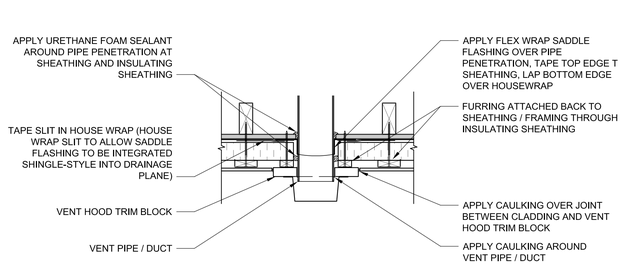
2 PIPE / DUCT SECTION DETAIL

SCALE: 3" = 1'-0"



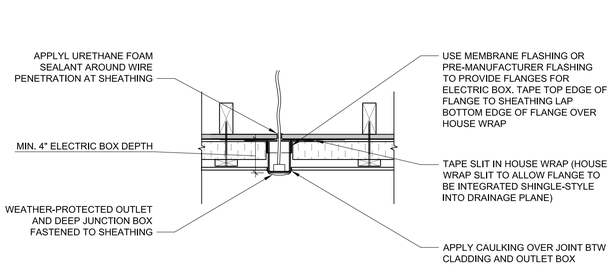
5 EXTERIOR LIGHT FIXTURE PLAN DETAIL

SCALE: 3" = 1'-0"



3 EXTERIOR ELECTRICAL BOX PLAN DETAIL

SCALE: 3" = 1'-0"



1 PIPE / DUCT PLAN DETAIL

SCALE: 3" = 1'-0"

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

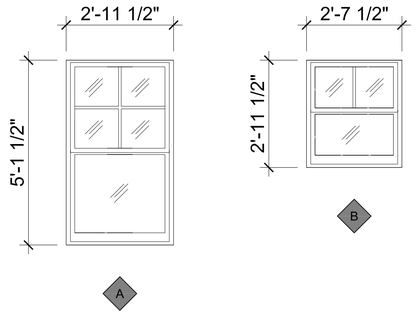
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KN
CHECKED BY:	BP

SHEET TITLE:

Enclosure Penetration Details & Sequences

SCALE: AS NOTED

A-505



WINDOW TYPES

WINDOW SCHEDULE							
MARK	FRAME SIZE	TYPE	MATERIAL	GLAZING	MEETS EGRESS REQ.	QUANTITY	NOTES
A	2'-11 1/2" x 5'-1 1/2"	SINGLE HUNG	VINYL	DOUBLE PANE CLR LOW E	YES	13	1, 2, 3
B	2'-7 1/2" x 2'-11 1/2"	SINGLE HUNG	VINYL	DOUBLE PANE CLR LOW E	NO	3	1, 2, 3

NOTES:

1. SIMULATED DIVIDED LITE.

2. WINDOWS ADJACENT TO FRONT STAIR, SIDE STAIR AND IN BATHROOMS TO HAVE TEMPERED GLASS (T) - (2) 3052 (2) 2830.

3. IMPACT GLAZING.

WINDOW SPECIFICATION

1. ALL WINDOWS SHALL BE SPECTRALLY SELECTIVE LOW-E DOUBLE GLAZED VINYL FRAMED WITH THE FOLLOWING PERFORMANCE VALUES FROM THE NATIONAL FENESTRATION RATING COUNCIL (NFRC):

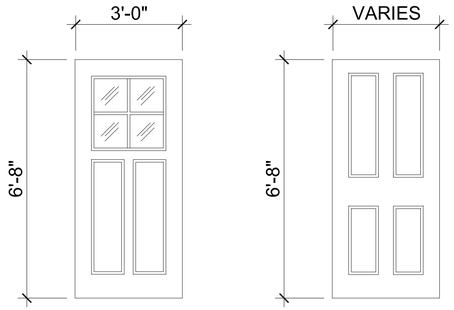
CLIMATE ZONE 2: U-VALUE = 0.33 OR LESS
SOLAR HEAT GAIN COEFFICIENT (SHGC) = 0.30 OR LESS

2. ALL WINDOWS SHALL BE CERTIFIED IN ACCORDANCE WITH AAMA / WDMA / CSA 101 / I.S.2 / A440-05 TEST SPECIFICATIONS. WINDOW DESIGN PRESSURE SHALL BE AT LEAST H-R 50 (50 PSF).

3. 3052 SINGLE HUNG WINDOWS MUST MEET IRC R310 REQUIREMENTS FOR EMERGENCY ESCAPE AND RESCUE OPENINGS.

4. CONFIRM R.O. SIZES WITH WINDOW MANUFACTURER AND ADJUST WALL FRAMING IF NECESSARY.

5. SEE A-503 & A-504 FOR WINDOW DETAILS.



DOOR TYPES

DOOR SCHEDULE							
MARK	SIZE	LOCATION	TYPE	MATERIAL	HINGE	QUANTITY	NOTES
1	3'-0" x 6'-8"	EXTERIOR	SWING	INSULATED STEEL	RH	1	1
2	3'-0" x 6'-8"	EXTERIOR	SWING	INSULATED STEEL	LH	1	1
3	3'-0" x 6'-8"	INTERIOR	SWING	HOLLOW CORE	RH	3	
4	3'-0" x 6'-8"	INTERIOR	SWING	HOLLOW CORE	LH	4	
5	2'-6" x 6'-8"	INTERIOR	SWING	HOLLOW CORE	RH	6	
6	2'-6" x 6'-8"	INTERIOR	SWING	HOLLOW CORE	LH	6	
7	3'-0" x 6'-8"	INTERIOR	POCKET	HOLLOW CORE	-	1	
8	2'-6" x 6'-8"	INTERIOR	POCKET	HOLLOW CORE	-	2	
9	2'-0" x 6'-8"	INTERIOR	SWING	HOLLOW CORE	RH	1	

NOTES:

1. GLASS IN EXTERIOR DOORS TO BE TEMPERED.

DOOR SPECIFICATION

1. EXTERIOR HOUSE DOORS TO BE INSULATED STEEL AND WEATHERSTRIPPED.

2. EXTERIOR HOUSE DOORS TO OPEN FROM INSIDE WITHOUT KEY.

3. EXTERIOR HOUSE DOORS TO HAVE VIEWER UNLESS TRANSPARENT GLASS IS PROVIDED IN DOOR OR SIDELITE.

4. INTERIOR DOORS TO BE HOLLOW CORE.

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PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET

ISSUE:

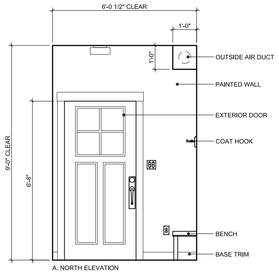
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	KG
CHECKED BY:	BP

SHEET TITLE:

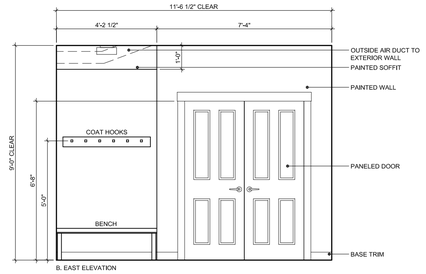
Window & Door Specifications & Schedules

SCALE: AS NOTED

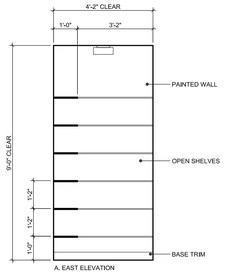
A-601



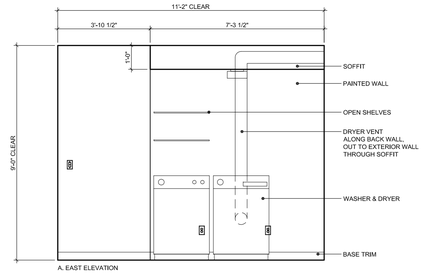
A. NORTH ELEVATION



B. EAST ELEVATION



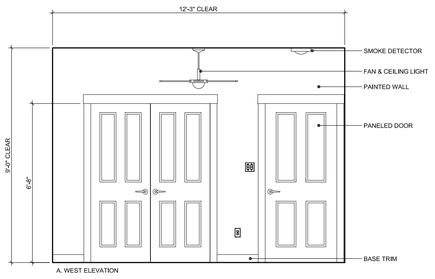
A. EAST ELEVATION



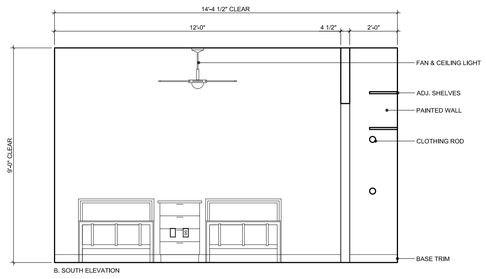
A. EAST ELEVATION

4 SIDE ENTRY, PANTRY & UTILITY ROOM ELEVATIONS

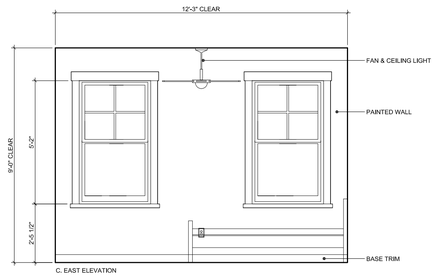
SCALE: 3/8" = 1'-0"



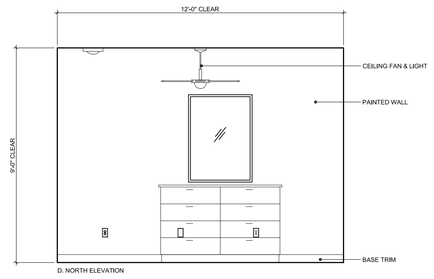
A. WEST ELEVATION



B. SOUTH ELEVATION



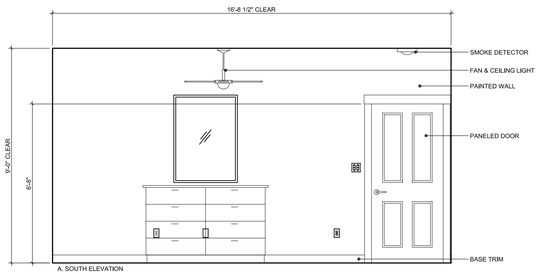
C. EAST ELEVATION



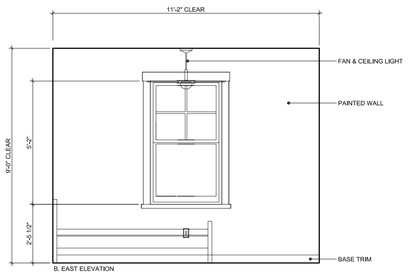
D. NORTH ELEVATION

3 BEDROOM 2 ELEVATIONS

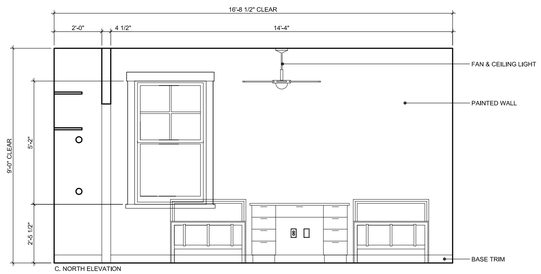
SCALE: 3/8" = 1'-0"



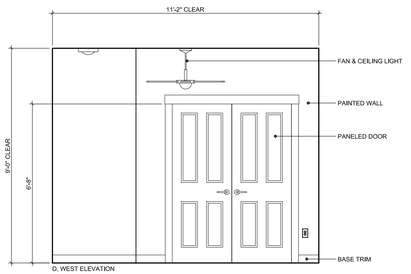
A. SOUTH ELEVATION



B. EAST ELEVATION



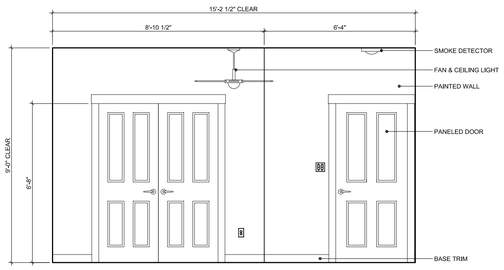
C. NORTH ELEVATION



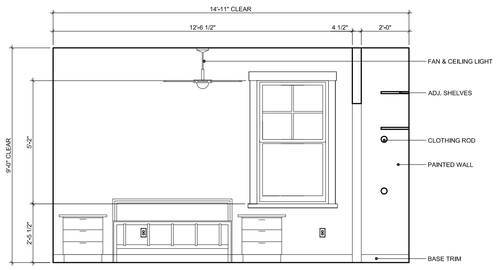
D. WEST ELEVATION

2 BEDROOM 1 ELEVATIONS (BEDROOM 3 MIRRORED)

SCALE: 3/8" = 1'-0"



A. EAST ELEVATION



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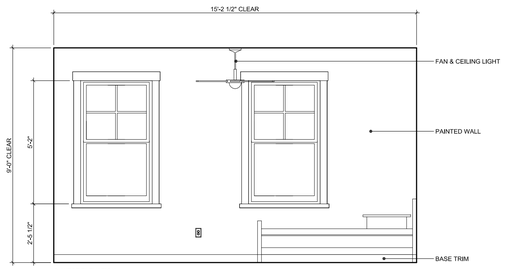
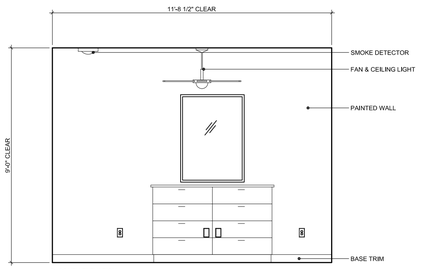


C. WEST ELEVATION



D. SOUTH ELEVATION

1 MASTER BEDROOM ELEVATIONS

SCALE: 3/8" = 1'-0"

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Hot-Humid Climate

Building America U.S. Department of Energy
Research Toward Zero Energy Homes

MARK	DATE	DESCRIPTION
PS	5/12/09	PERMIT SET
ISSUE:		

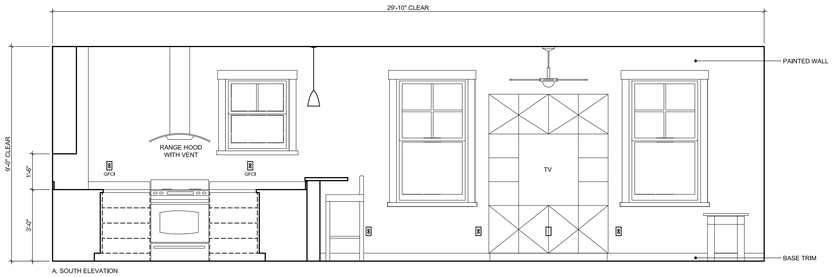
PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	AG
CHECKED BY:	BP

SHEET TITLE:

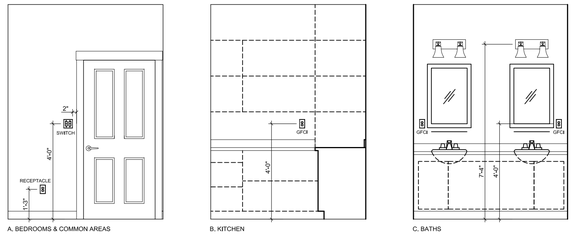
Interior Elevations

SCALE: AS NOTED

A-701



A. SOUTH ELEVATION



A. BEDROOMS & COMMON AREAS | B. KITCHEN | C. BATHS

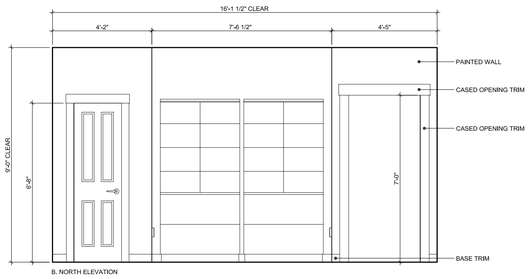
4 KITCHEN & LIVING ROOM ELEVATION

SCALE: 3/8" = 1'-0"

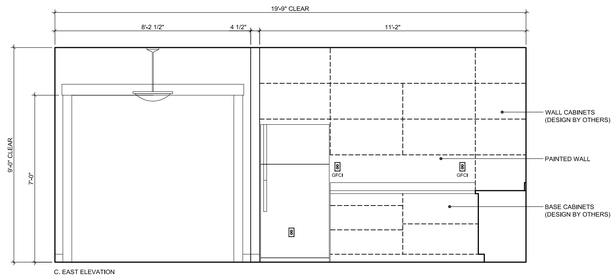
5 TYPICAL SWITCHES & OUTLETS

SCALE: 3/8" = 1'-0"

A. WEST ELEVATION



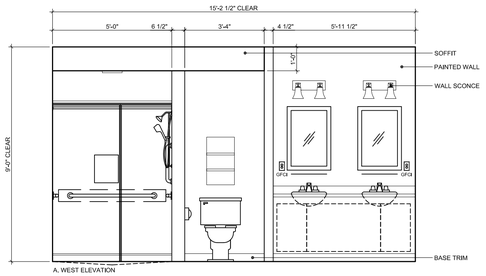
B. NORTH ELEVATION



C. EAST ELEVATION

3 LIVING ROOM, DINING ROOM & KITCHEN ELEVATIONS

SCALE: 3/8" = 1'-0"



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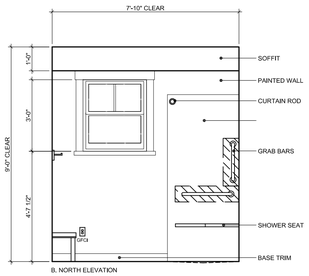
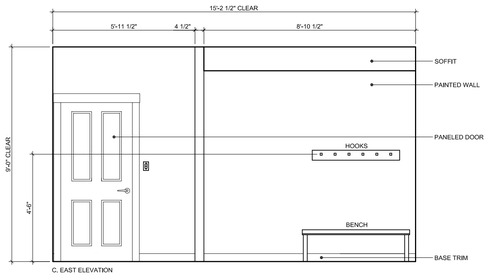
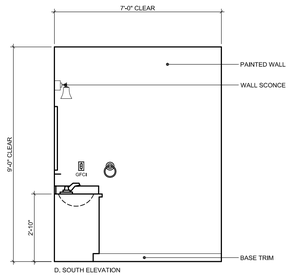


B. NORTH ELEVATION



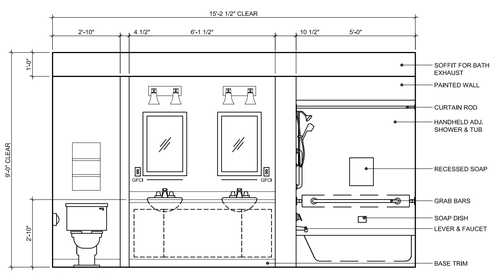
C. EAST ELEVATION



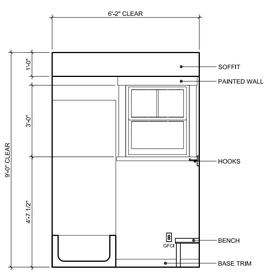
D. SOUTH ELEVATION

2 BATH 2 ELEVATIONS

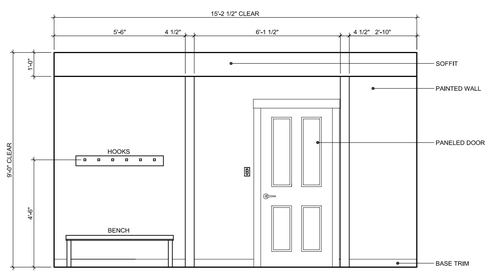
SCALE: 3/8" = 1'-0"



A. WEST ELEVATION



B. NORTH ELEVATION



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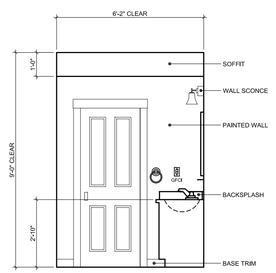

D. SOUTH ELEVATION

1 BATH 1 ELEVATIONS

SCALE: 3/8" = 1'-0"

ARCHITECT:

BUILDING SCIENCE CORPORATION

30 FOREST STREET SOMERVILLE, MA
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ASSOCIATED ARCHITECT:

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John L. Schackai, III LA Registered Architect No. 2990

PROJECT:

Catholic Charities
Operation Helping Hands

GREEN DREAM 2

5007 Cartier Avenue
New Orleans, LA
Hot-Humid Climate

Building America
U.S. Department of Energy
Research Toward Zero Energy Homes

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Interior Elevations

SCALE: AS NOTED

A-702

GENERAL MECHANICAL NOTES

1. DUCTS ARE SIZED FOR COOLING. SEE MECHANICAL SPECIFICATION FOR COOLING LOAD.
2. SIZES FOR BRANCH RUN-OUTS ARE GIVEN AS ROUND DUCT DIAMETER. WHERE OVAL SECTIONS ARE USED, THESE ARE TO BE SIZED EQUIVALENT TO THE GIVEN ROUND DUCT SIZES.
3. ALL DUCTS TO BE SEALED WITH MASTIC AND LOCATED IN CONDITIONED SPACE.
4. ALL DUCTS TO BE ARRANGED AND INSTALLED IN SUCH MANNER AS TO OFFER MINIMUM AIRFLOW RESISTANCE.
5. ALL REGISTERS TO HAVE ADJUSTABLE TURNING VANES AND CLOSE-OFF DAMPER.
6. A MANUAL DAMPER TO BE LOCATED AT EACH TAKE-OFF / MAIN TRUNK JUNCTION TO CONTROL FLOW.
7. TRANSFER GRILLES TO BE PROVIDED FOR PRESSURE RELIEF / PRESSURE EQUALIZATION BETWEEN CLOSED ROOMS AND COMMON AREAS.
8. DOORS TO BE UNDERCUT ¾" BETWEEN TOP OF FINISH FLOOR AND UNDERSIDE OF DOOR.
9. AIR HANDLER TO BE LOCATED AND ACCESSED WITHIN INTERIOR CONDITIONED SPACE.
10. RETURN DUCT TO BE BUILT WITH TWO OFFSET BENDS TO REDUCE SOUND TRANSMISSION AND A VIBRATION ISOLATION SECTION "SOFT CONNECTION".
11. A FILTER WITH A MERV 13 RATING TO BE INSTALLED AT THE AIR HANDLER.
12. 6" INSULATED OUTDOOR AIR DUCT TO BE INSTALLED TO SUPPLY OUTDOOR AIR TO INTERIOR WITH MANUAL DAMPER TO SET FLOW. OUTDOOR AIR SUPPLY TO BE CONNECTED TO THE RETURN DUCT UPSTREAM OF THE FILTER.
13. DUCTS TO OUTSIDE TO BE SLOPED TO THE OUTLET TO DRAIN ANY POTENTIAL INTERIOR CONDENSATION. AVOID USING LONG LENGTHS OF FLEX DUCT THAT MAY HAVE A DIP AND COULD CREATE A RESERVOIR FOR CONDENSATION.
14. R410a REFRIGERANT MUST BE USED IN AIR SOURCE HEAT PUMP SPLIT SYSTEM.
15. EXHAUST CFM - 50 CFM BATHS AND 100 CFM KITCHEN.
16. MOTORIZED DAMPERS NORMALLY CLOSED.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	CEILING SUPPLY REGISTER
	OVER DOOR TRANSFER GRILLE
	CEILING EXHAUST FAN
T	THERMOSTAT SCI ERV-24 SUPER
M	MOTORIZED DAMPER
	MANUAL DAMPER
	RETURN GRILLE & DUCT

MECHANICAL SPECIFICATION

1. EQUIPMENT

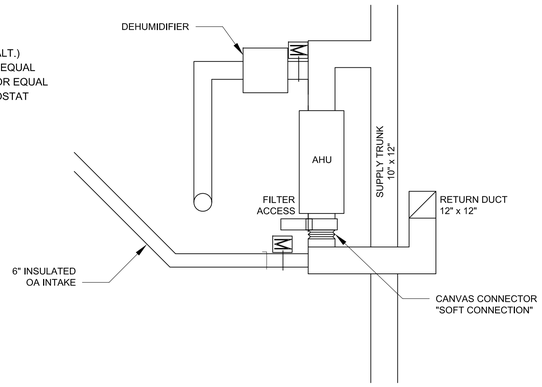
AIR SOURCE HEAT PUMP SPLIT SYSTEM	2 TON / 8.5 HSPF / 14 SEER (2 TON / 9 HSPF / 16 SEER PRICED AS ALT.)
FAN CYCLING CONTROLLER	APRILAIRE 8126, FANCYCLER FR-V OR EQUAL
DEHUMIDIFIER	APRILAIRE 1750, GENERAL AIRE 1300 OR EQUAL
THERMOSTAT	PROGRAMMABLE HEAT PUMP THERMOSTAT

2. DESIGN LOADS

HEATING LOAD	16.4 kBTU/hr
COOLING LOAD	16.3 kBTU/hr
SYSTEM CFM	540 CFM
62.2 VENTILATION RATE	58 CFM

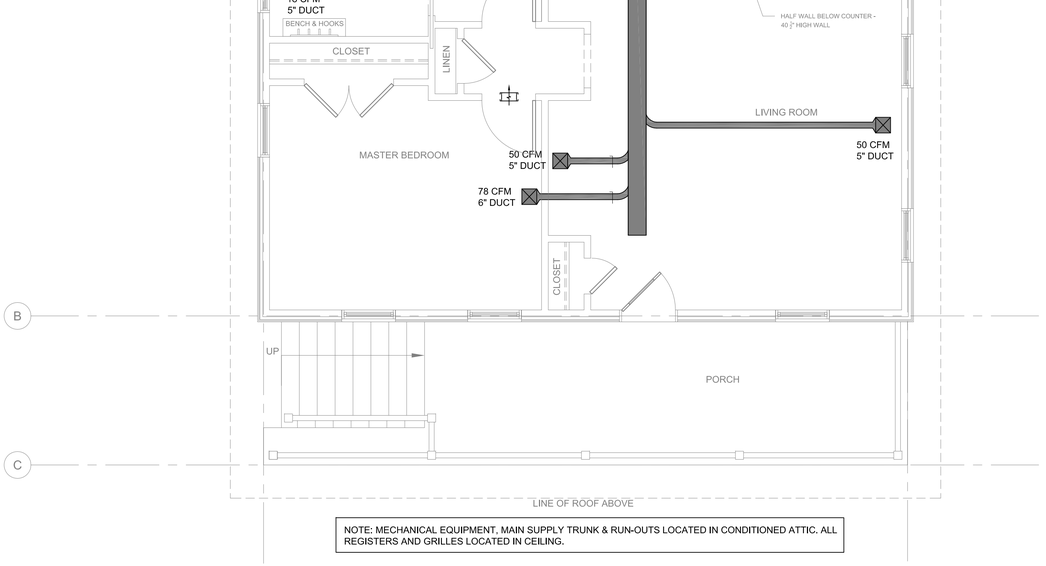
3. DUCT DESIGN

SUPPLY TRUNK	10" x 12"
RETURN DUCT	12" x 12" OR EQUIVALENT
RETURN GRILLE	16" x 18"
SUPPLY TRUNK DESIGN VELOCITY	650 FPM
RETURN TRUNK DESIGN VELOCITY	550 FPM
RETURN GRILLE DESIGN VELOCITY	350 FPM



4 MECHANICAL AREA ENLARGED PLAN

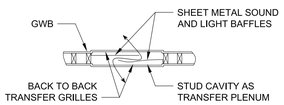
SCALE: 1/2" = 1'

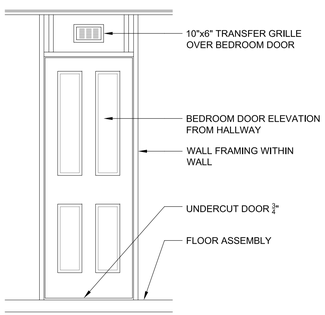


NOTE: MECHANICAL EQUIPMENT, MAIN SUPPLY TRUNK & RUN-OUTS LOCATED IN CONDITIONED ATTIC. ALL REGISTERS AND GRILLES LOCATED IN CEILING.

1 FIRST FLOOR MECHANICAL PLAN

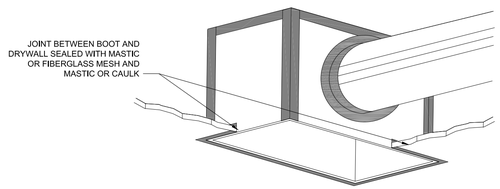
SCALE: 1/4" = 1'-0"





3 DOOR TRANSFER GRILLE DETAIL

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



2 CEILING REGISTER AIR SEALING DETAIL

SCALE: N.T.S.

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Catholic Charities Operation Helping Hands GREEN DREAM 2

5007 Cartier Avenue
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Hot-Humid Climate

Building America U.S. Department of Energy
Research Toward Zero Energy Homes

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PS	5/12/09	PERMIT SET
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PROJECT NO:	Green Dream 2
CAD DWG FILE:	PLOT_LA NO
DRAWN BY:	DB
CHECKED BY:	BP

SHEET TITLE:

First Floor Mechanical Plan, Notes & Details

SCALE: AS NOTED

M-101

GENERAL NOTES:

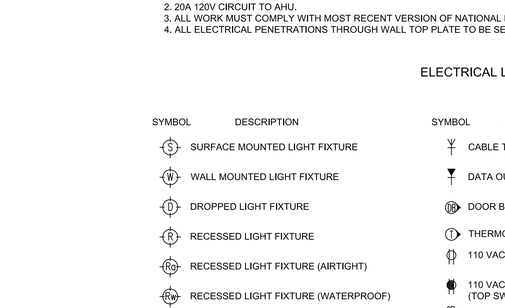
1. ALL SYMBOLS IN LEGEND MAY NOT BE USED IN PLAN.
2. 20A 120V CIRCUIT TO AHU.
3. ALL WORK MUST COMPLY WITH MOST RECENT VERSION OF NATIONAL ELECTRIC CODE.
4. ALL ELECTRICAL PENETRATIONS THROUGH WALL TOP PLATE TO BE SEALED WITH FIRE RATED SEALANT.

ELECTRICAL LEGEND

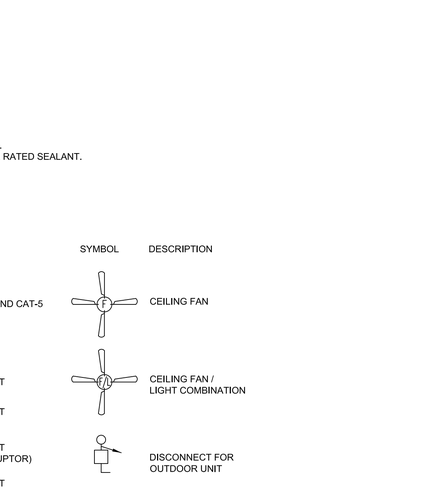
SYMBOL	DESCRIPTION
S	SURFACE MOUNTED LIGHT FIXTURE
W	WALL MOUNTED LIGHT FIXTURE
D	DROPPED LIGHT FIXTURE
R	RECESSED LIGHT FIXTURE
RG	RECESSED LIGHT FIXTURE (AIRTIGHT)
RW	RECESSED LIGHT FIXTURE (WATERPROOF)
P	PENDANT LIGHT FIXTURE
F	FLOOD WITH MOTION SENSOR
SD	SMOKE DETECTOR, INTERCONNECTED WITH BATTERY BACKUP
CO	CARBON MONOXIDE DETECTOR, INTERCONNECTED WITH BATTERY BACKUP IF REQUIRED
E	EXHAUST FAN
	THROUGH-WALL EXHAUST FAN
F/L	EXHAUST FAN / LIGHT COMBINATION
K/L	KITCHEN EXHAUST FAN / LIGHT COMBINATION
(24)	SINGLE FLUORESCENT STRIP LIGHT (LENGTH IN INCHES)
(24)	DOUBLE FLUORESCENT STRIP LIGHT (LENGTH IN INCHES)
(24)	TRACK LIGHT (LENGTH IN INCHES)

SYMBOL	DESCRIPTION
	CABLE TV OUTLET
	DATA OUTLET: PHONE AND CAT-5
DB	DOOR BELL
T	THERMOSTAT
	110 VAC DUPLEX OUTLET
	110 VAC DUPLEX OUTLET (TOP SWITCHED)
GFI	110 VAC DUPLEX OUTLET (GROUND FAULT INTERUPTOR)
WP	110 VAC DUPLEX OUTLET (WEATHERPROOF)
D	DRYER OUTLET
R	RANGE OUTLET
S	SINGLE POLE SWITCH
S3	THREE-WAY SWITCH
S4	FOUR-WAY SWITCH
SD	SWITCH WITH DELAY-OFF
SD3	THREE-WAY SWITCH WITH DIMMER
SD4	FOUR-WAY SWITCH WITH DIMMER
ST	SWITCH WITH TIMER

SYMBOL	DESCRIPTION
F	CEILING FAN
F/L	CEILING FAN / LIGHT COMBINATION
	DISCONNECT FOR OUTDOOR UNIT



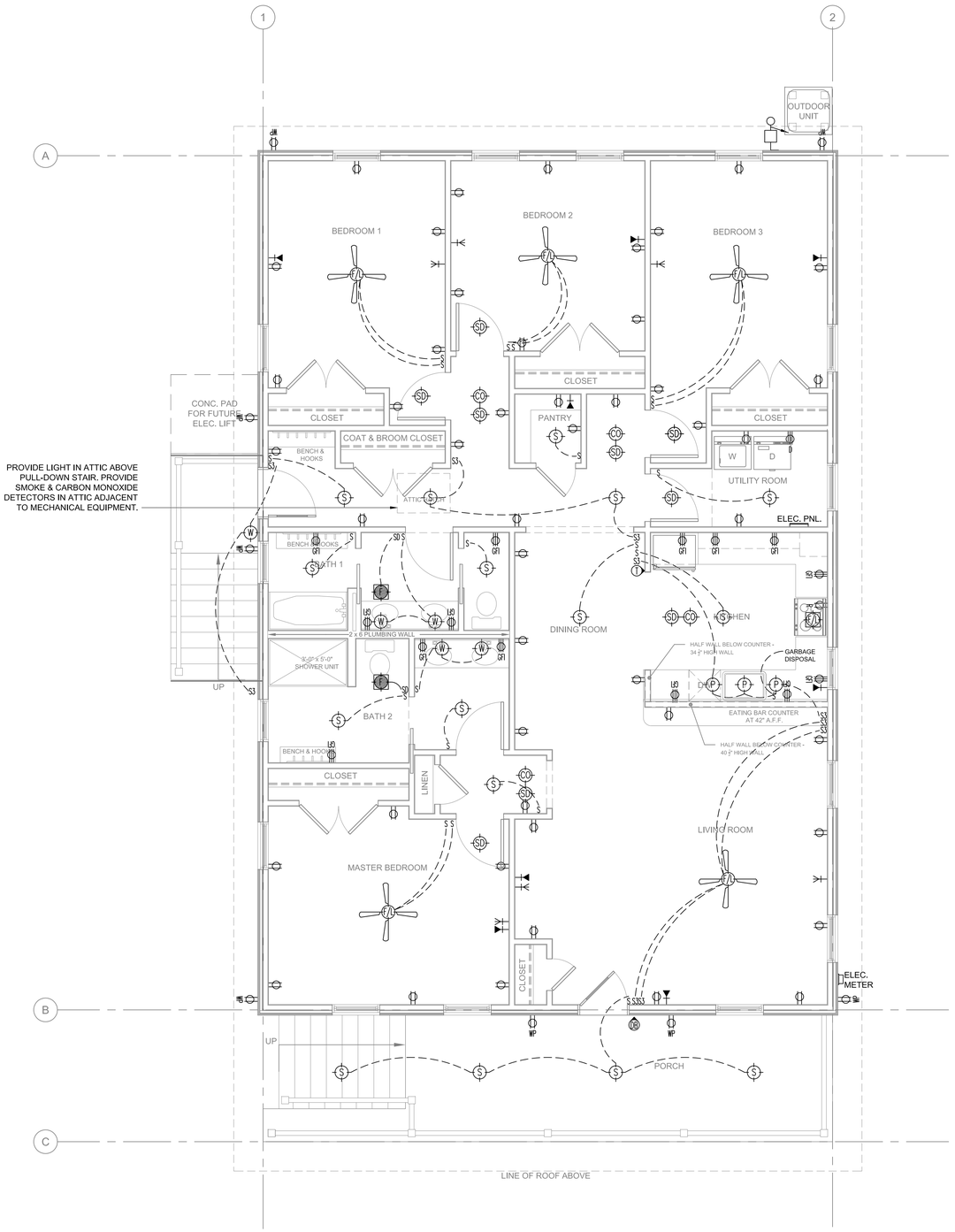
OPTION 1



OPTION 2

2 INTERIOR ELECTRICAL BOX AIR SEALING DETAILS

SCALE: 1" = 1'-0"



1 FIRST FLOOR ELECTRICAL PLAN

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

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DRAWN BY:	HW, CG
CHECKED BY:	BP

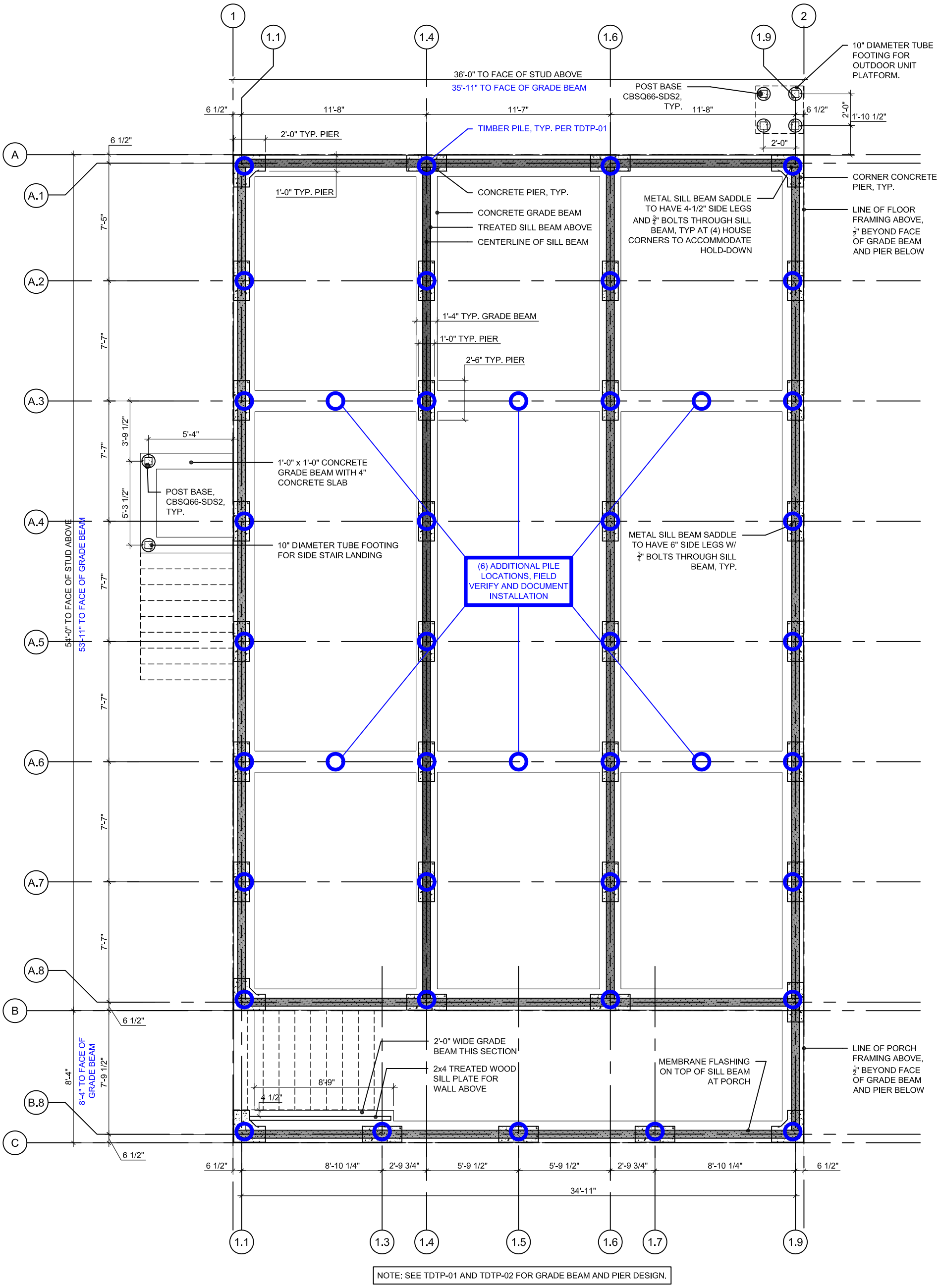
SHEET TITLE:

First Floor Electrical Plan, Notes & Details

SCALE: AS NOTED

E-101

Appendix D.9.7.5
2009-06-09 Green Dream 2 Additional Piles SK-01



NOTE: SEE TDTP-01 AND TDTP-02 FOR GRADE BEAM AND PIER DESIGN.

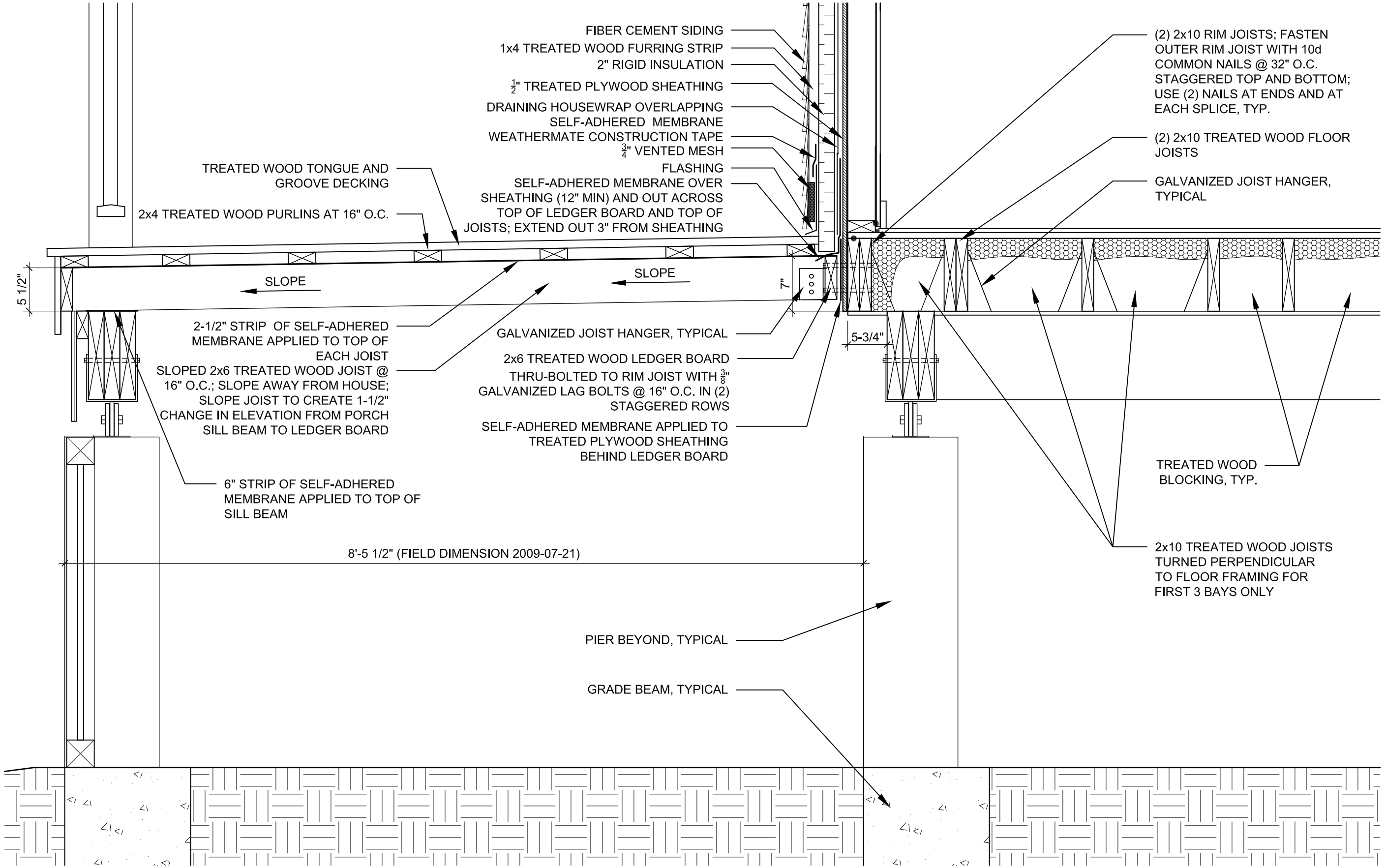
Project:	Catholic Charities Green Dream 2
Date:	2009-06-09
Drawing Title:	SK-01 Additional Piles on Fdn. Plan
Drawing File:	PP_LA NO Brown House.dwg
Drawing Scale:	3/16" = 1'-0"

Sheet Title:

SK-01

Appendix D.9.7.5

Appendix D.9.7.6
2009-08-06 Green Dream 2 Framing SK-02



1 PORCH DECK SECTION

SCALE: 1" = 1'-0"

Sheet Title:

SK-02

Appendix D.9.7.6

Catholic Charities Green Dream 2
2009-08-06
SK-02 Porch Deck Section
PP_LA NO Brown House.dwg
1" = 1'-0"

Project:
Date:
Drawing Title:
Drawing File:
Drawing Scale:

Appendix D.9.7.7
2009-09-17 Green Dream 2 Window Install Demo

2009-09-17 Green Dream 2 Window Install Demo

Topic: Green Dream 2 Window Install Demo

Date and Time: September 17th, 2009, 9 am

Location: 5007 Cartier Ave, New Orleans LA

Purpose: Demonstrate how to properly flash and install a window.

Step	Action	Materials Needed
P-1	Measure window rough openings and window frames.	Tape Measure
P-2	Measure distance from back of flange to face of frame. (Will need to build up with shims if deeper than 3 ¾" and R.O. allows - don't want to smash sill pan).	Tape Measure
P-3	Draw cuts on housewrap with black Sharpie.	Black Sharpie
P-4	Install beveled siding on sill rough opening – slope to exterior. Cut to fit with circular saw. Bead of caulk below siding. Fasten to sill with 2 galv. nails.	Beveled Siding, Galv. Nails, Caulk
1	Cut housewrap along drawn cuts with utility knife.	Utility Knife
2	Staple sill housewrap to beveled siding, do not trim.	Stapler
3	Insert sill pan under cuts in housewrap at jambs. Caulk under sill pan. Staple edges. Trim sill housewrap to back of sill pan.	Sill Pan, Caulk, Stapler, Utility Knife
4	Fold back, staple and trim jamb housewrap. Temporarily tape head housewrap.	Stapler, Utility Knife, 3" Construction Tape
5	Tape sill pan joint with flashing tape (entire pan profile and slightly below sill pan) and tape housewrap cuts with 3" construction tape applied horizontally.	4" Flashing Tape, 3" Construction Tape
6	Place plastic shims near end of sill, cut to fit, level shims, tape to secure.	EZ Shims, 3" Construction Tape, Level
7	Install window, nail into a few holes at head and jambs to secure. Shim as required. Insert 1/16" galvanized fender washer under each hole in sill flange. Temporarily tack in place, then fully install once all washers are under flange.	Window, 2" 12 Ga. Galv. Roofing Nails, Shims, 1/16" Galv. Fender Washers
8	Install jamb flashing.	4" Flashing Tape
9	Install head flashing.	4" Flashing Tape
10	Fold head housewrap down and tape both sides of flap.	3" Construction Tape
11	Install low expansion foam on all four sides on interior of window.	Great Stuff Pro Window & Door
12	Caulk back of sill pan to beveled siding.	Caulk

Need to Purchase / Find in Storage:

Beveled Siding – about 50 linear feet

2″ 12 Gauge (Min.) Galvanized Roofing Nails – about 750 nails – roofing nails used are OK

Silicone Caulk – GE Silicone II Window and Door (white) – available at Home Depot – about 5 tubes

EZ Shims – available at Ace Hardware – about 4 packages of 20

1/16″ Galvanized Fender Washers – about 150 1″ diameter washers – measure window before buying

Donated by Dow:

3″ Construction Tape

4″ Flashing Tape

Sill Pans

Great Stuff Pro Window & Door

General Construction Supplies:

Construction Stapler

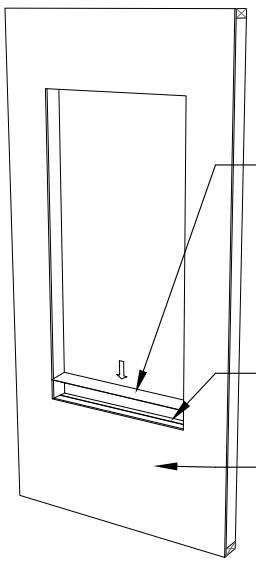
Tape Measure

Level for 3′ Window

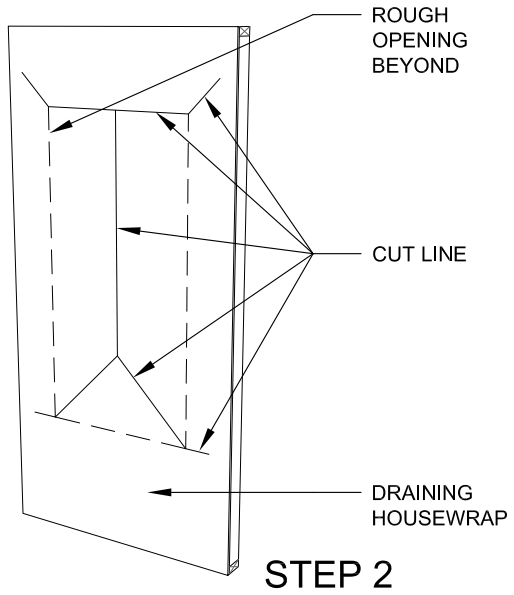
Utility Knife

Black Sharpie

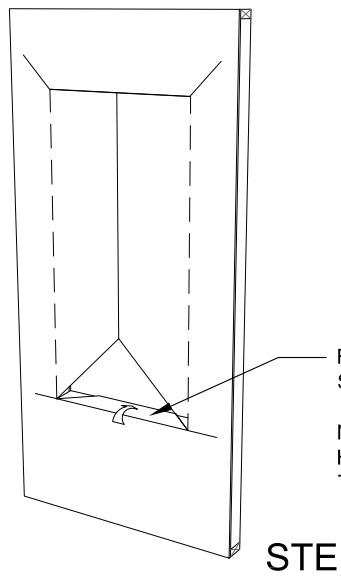
Appendix D.9.7.8
2009-09-17 Green Dream 2 Window Sequence SK-03



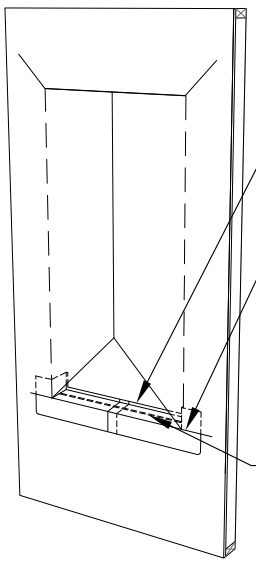
STEP 1



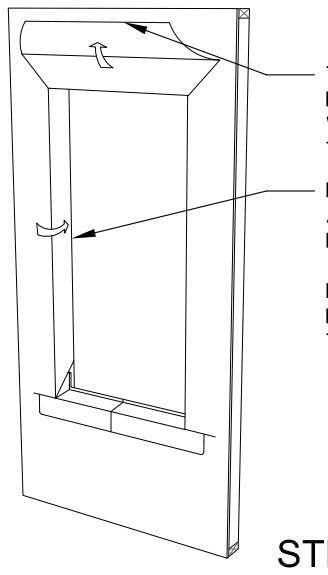
STEP 2



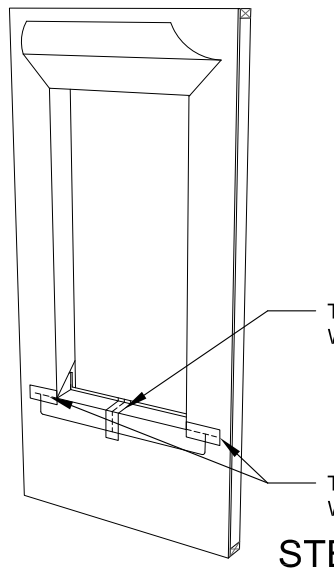
STEP 3



STEP 4



STEP 5



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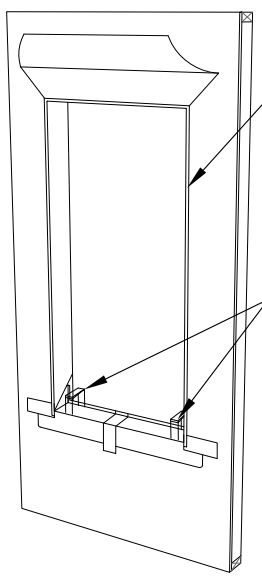

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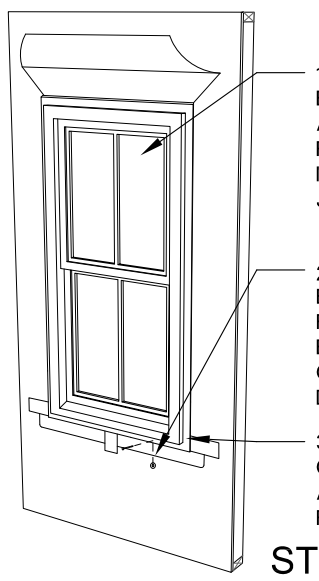

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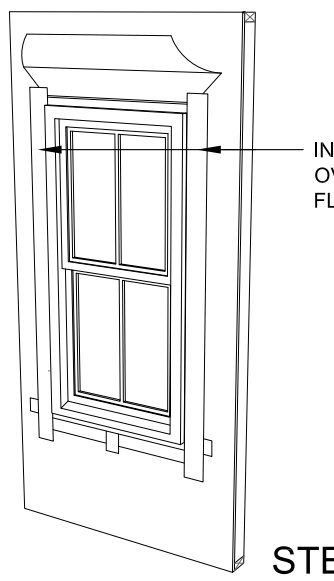
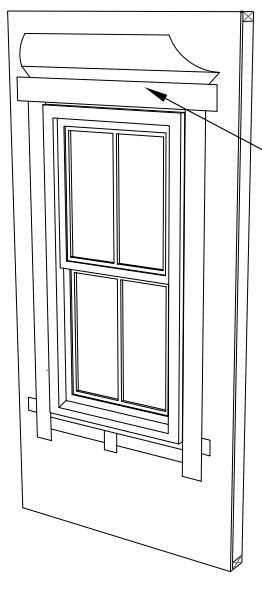
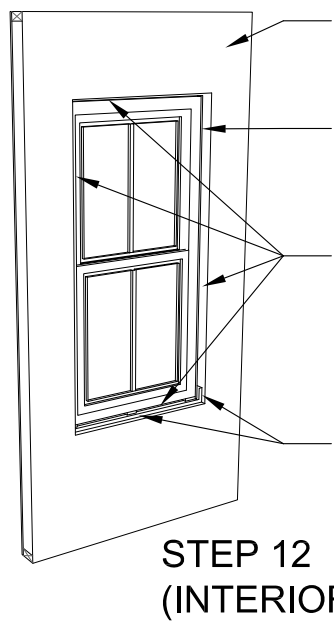


STEP 9



STEP 10

STEP 11



STEP 12
(INTERIOR VIEW)

Project: Catholic Charities Green Dream 2
Date: 2009-09-17
Drawing Title: SK-03 Window Installation Sequence
Drawing File: Green Dream 2 Window Sequence SK-03.dwg
Drawing Scale: N.T.S.

Sheet Title:

SK-03

Appendix D.9.7.8

Appendix D.9.7.9
2009-09-28 Grreen Dream 2 MEP Checklist

2009-09-24 Green Dream 2 MEP Checklist – REVISED 2009-09-28

Project & Location:	Green Dream 2 – 5007 Cartier Ave, New Orleans LA
Purpose of Checklist:	To identify recent MEP decisions and address outstanding MEP issues and questions from subcontractors.
Subcontractors:	Plumbing: David Rader, Carter & Sons, (504) 832-5924
	Mechanical: Marc Stephens, Stephens & Co., (504) 828-7373
	Electrical: Larry Adams, Ken Layus Electric Inc., (504) 382-7870

Plumbing	Action Item	Action By	Complete
1	No "Solar Hot Water System" or "Solar Hot Water Plumbing" per "2009-04-17 Green Dream 2 Mechanical Systems Specifications."	N/A	YES / NO
2	PEX water supply lines in attic and down through interior partitions (kitchen sink to come down in exterior wall). Locate ductwork area of work in attic to prevent plumbing and ductwork conflicts.	David & Ed	YES / NO
3	Need revised bid including installation of gas tankless hot water heater.	David & Ed	YES / NO
4	Do not drill through floor joists for plumbing lines. Hang plumbing 8"-12" below bottom of floor joists – need space to spray foam and install fiber cement protection board.	David	YES / NO
5	Install one-piece shower and bath modules in bathrooms (rather than a tile enclosure). Install thin profile sheathing on 3 sides of modules and air seal – see attached "2009-09-24 Bathtub and Shower Air Sealing Details."	David & Ed	YES / NO
6	Install gas tankless hot water heater per "2009-04-17 Green Dream 2 Mechanical Systems Specifications."	David & Ed	YES / NO

Mechanical	Action Item	Action By	Complete
1	Trusses near air handler were built slightly different than approved prohibiting locating the air handler as shown on the drawings. The truss manufacturer has approved moving the unit to a more central location. Revised unit location and associated ductwork to be shown on SK-04.	Kohta & Katie	YES / NO
2	Revise system CFM to accommodate 2-ton unit. Show revisions on SK-04.	Kohta & Katie	YES / NO
3	Daniel to talk to Armin re: running the dehumidifier and air handler at the same time. Show revisions on SK-04.	Daniel & Katie	YES / NO
4	16 SEER unit. $1400 upgrade cost from 14 SEER - $1000 manufacturer rebate and $400 covered by Entergy. Confirm rebate.	Marc	YES / NO
5	Need revised bid and contract (once we have issued SK-04).	Ed & Marc	YES / NO
6	Owens Corning QuietR Duct Board OK for supply and return trunks. Supply plenum to be sheet metal. $1800 upcharge to use sheet metal supply and return trunks.	Marc	YES / NO

7	R-4.2 insulation on all flex duct run-outs and outdoor air intake.	Marc	YES / NO
8	Fan cycling controller not needed if Aprilaire 1750 dehumidifier is installed per "2009-04-17 Green Dream 2 Mechanical Systems Specifications."	Marc	YES / NO
9	No fur down needed in laundry room. Dryer vent to be low on exterior wall.	Marc	YES / NO
10	No fur down needed in back entry. Outdoor air intake to be located in existing fur down area over bathrooms.	Marc	YES / NO

Electrical	Action Item	Action By	Complete
1	Sent Larry revised kitchen layout.	N/A	YES / NO
2	Install combination smoke and CO detectors hard-wired, interconnected with battery back-up.	Larry	YES / NO
3	Moved a few outlets during walk-through.	Larry	YES / NO
4	Added front door light and (3) double flood motion lights on center of sides of house (2) and back of house (1).	Larry	YES / NO
5	Install 50 CFM bath exhaust fans – Panasonic FV-05VF1 or approved equal.	Larry	YES / NO
6	Moved electrical meter to front left of house where service comes in.	Larry	YES / NO
7	Install electronic or mechanical off-timer for bath exhaust fans.	Larry	YES / NO
8	Exterior outlet for future wheelchair lift to be 115v/20a.	Larry	YES / NO
9	Run electrical 8" down from top plate; use J-box, then run wiring down partition to outlet. This will help to keep majority of wiring above possible flooding.	Larry	YES / NO

Appendix D.9.7.10
2009-09-30 Green Dream 2 Meeting Minutes Example

2009-09-30 Green Dream 2 Meeting Minutes

Meeting Topic:	Green Dream 2 – 5007 Cartier Ave, New Orleans LA
Date and Time:	September 30th, 2009 – 3:00 pm – 4:00 pm ET
Location:	Conference Call
Attendees:	Katie Gunsch (BSC), Spencer Hinkle (PCC), Steve Picou (LSU), Diane Scimeca (LSU), Ed Cannon (CC)
Purpose:	Weekly update.
Attachments:	None.
Project Blog:	www.greendream2.posterous.com.

1 – Funding

	Agenda Item	Action	Status
.1	*Homeowner:* $139,250 (money needs to be put into escrow). **UPDATE:** Applied for elevation money.	Bonnie & Paul Cook	OPEN
.2	*PCC:* $18,750 ($15,500 to the Browns and $3,250 to student travel) PCC still actively fundraising on registry and Facebook? Include furniture.	Spencer & Nikki	OPEN

2 – Budget

.1	*Overall:* $10k - $20k more than construction cost. *Construction Cost:* **$122,421** (95% estimate). Cost does *not* include: 1) Spray foam in attic and under floor joists ($12,108) 2) Appliances (on registry) 3) Bath vanities (to be purchased) 4) Drywall installation (contracted out) 5) Duration shingles ($4,415.17)	Paul Cook & Spencer	OPEN
.2	*Lumber:* Bora-Care to be applied to ends of trusses when scaffolding is up. Can be found at PESTOP in Metairie for $159 per gallon (need 2).	Paul Cook	OPEN
.3	*MEP:* Reviewing new proposal from Stephens & Co. - $13,100 – same as original bid. State HERO program (Department of Natural Resources) - $2000 check to homeowner for meeting Builders Challenge, $3000 check to homeowner for meeting Federal Tax Credit level.	Paul Cook	OPEN
.4	*NAHB Green Building Standard*: $500 registration fee to come out of the budget. The next step will be the inspection after insulation and rough-in.	Paul Cook, BSC & Paul LaGrange	OPEN

3a – Donations

.1	*Plumbing Fixtures:* Send letter to Toto for donation.	Paul Cook	OPEN
.2	*Appliances:* Spencer has Whirlpool contact. Whirlpool appliances listed on website. Katie asked Spencer to change range and dryer to gas. **UPDATE:** Still listed as electric on registry.	Spencer	OPEN
.3	*DOW*: Send letter to DOW for donation.	Paul Cook	OPEN
.4	*Countertops:* Spencer has a contact that may be able to provide light-weight concrete countertops. **UPDATE:** Peter Field from PCC to send photos, samples of countertop for Cornelius to review.	Spencer & Peter	OPEN
.5	*Kitchen Light Fixtures:* LEDs ordered for kitchen. Sent to Catholic Charities? **UPDATE:** Ed to check to see if fixtures from Task Lighting arrived.	Ed	OPEN
.6	*Paperless Drywall:* Catholic Charities can do a smooth ceiling finish. Give 2 weeks notice to get material from GP - $3,400.	Paul Cook	OPEN
.7	*Garbage Disposal:* Spencer to look into donation.	Spencer	OPEN

3b – Material Selections

.1	*Kitchen:* Spencer to send Bonnie links to kitchen fixtures and finishes to show Cornelius.	Spencer	OPEN
.2	*Smoke / CO Detectors:* Combo units will be used in the ceiling. Diane to see if she can get a few donated to plug in low on the wall.	Diane	OPEN

4 – Schedule

.1	*Dates:* **9/22/09 – Plumbing work started.** 10/9/09 – HVAC to start. 10/16/09 – Electrical to start (work same time as HVAC). 10/26/09 – Spray foam? Paul LaGrange to verify penetrations before installing spray foam. 10/30/09 – Open house, workshop, demo? 12/12/09 – 12/18/09 – Spencer, Peter and students install cabinets and make concrete countertops for kitchen. 12/21/09 – Complete.	Paul Cook	OPEN
.2	Figure out two, two-week windows to schedule demos, workshops: 1. After spray foam is installed – end of October. 2. During exterior foam, furring, and siding installation.	Diane & Claudette	OPEN

5 – Construction

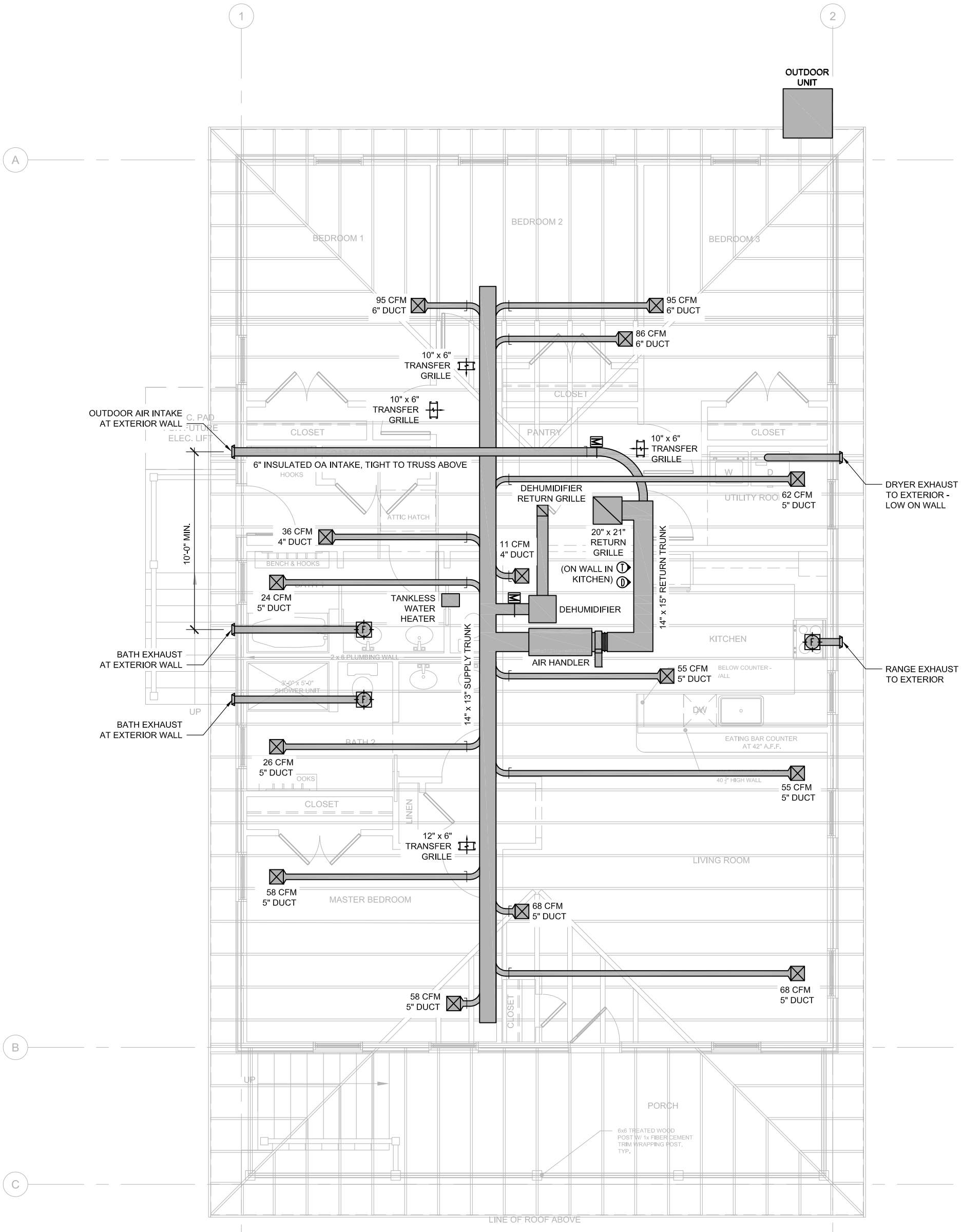
.1	*Foundation:* Sill beam saddles still need galvanized bolts installed. Joe Sproules still needs to do some leveling – cannot do this without bolts. **UPDATE:** Started installing bolts.	Paul Cook & Ed	OPEN
.2	*Framing:* Final framing items (for volunteers): 1. Install Simpson Strong-Ties. 2. Install blocking and RBC connectors between trusses. 3. Install blocking between floor joists. 4. Install blocking at sheathing seams. Katie to detail: 1. Ice and water shield around porch beams. 2. Floating drywall corners. 3. Truss to interior partition slotted anchor. 4. Blocking between trusses on interior.	Katie & Ed	OPEN
.3	*Plumbing:* Carter & Sons will repair (and abandon) the broken sewer line at the rear of the property. **UPDATE:** Installed the Rinnai tankless hot water heater.	Paul Cook	OPEN
.4	*Windows & Doors:* Windows and construction doors installed. Katie to send door options to show Cornelius.	Paul Cook & Katie	OPEN
.5	*Site Drainage:* Katie to check local codes for parking requirements and send sketch showing only paving "tire" portions of driveway. Need to allow site to drain front to back (not to the sides).	Paul Cook & Katie	OPEN
.6	Grade beam formwork needs to be removed ASAP. **UPDATE:** Volunteers to do this.	Ed	OPEN
.7	Mechanical, electrical and plumbing penetrations to be flashed before foam is installed. Foam to be installed with treated furring strips and 4" heavy duty galvanized screws. **UPDATE:** www.quickflashproducts.com - possible product.	Ed & Katie	OPEN
.8	*Electrical:* Make sure the pendant lights in kitchen have dimmers. Add garbage disposal to kitchen.	Ed	OPEN

6 – New Business

.1	The next conference call will be Wednesday, October 7th at 3pm ET.	All	OPEN

Please advise Katie Gunsch of Building Science Corporation of any errors or omissions before the next conference call.

Appendix D.9.7.11
2009-09-30 Green Dream 2 Revised Mechanical Plan SK-04



NOTE: MECHANICAL EQUIPMENT, MAIN SUPPLY TRUNK & RUN-OUTS LOCATED IN CONDITIONED ATTIC. ALL REGISTERS AND GRILLES LOCATED IN CEILING. R-4.2 INSULATED RUN-OUTS AND OUTDOOR AIR INTAKE. SUPPLY PLENUM BETWEEN AIR HANDLER AND MAIN SUPPLY TRUNK TO BE SHEET METAL. MAIN SUPPLY AND RETURN TRUNKS TO BE OWENS CORNING QUIET R DUCT BOARD.

NOTE: DEHUMIDISTAT TO BE INSTALLED NEXT TO THERMOSTAT. USE APRILAIRE MODEL 70 LIVING SPACE CONTROL WITH APRILAIRE DEHUMIDIFIER.

bsc

Project:	Catholic Charities Green Dream 2
Date:	2009-09-30
Drawing Title:	SK-04 Revised Mechanical Plan
Drawing File:	MEP_LA NO Brown House.dwg
Drawing Scale:	3/16" = 1'-0"

Sheet Title:

SK-04

Appendix D.9.7.12
2009-10-22 Green Dream 2 Durability Checklist

Builder Name:	Catholic Charities Operation Helping Hands
Project:	Green Dream 2
Lot Number:	5007 Cartier Ave, New Orleans LA 70122

Durability Inspection Checklist

Part 1 - Pre-drywall Inspection

Foundation & Framing	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
All wood formwork used for grade beam footings must be removed	ref: n/a	☐
A capillary break separating the concrete piers from the wood sill beams must be provided	ref: Plans & Sections	☐
A metal bracket has been installed on top of each concrete pier (also used as termite shield)		☐
Treated floor and wall framing	ref: Plans & Sections	☐
All floor framing is treated to resist termite and water damage		☐
All interior and exterior wall framing is treated to resist termite and water damage		☐
End of roof trusses are treated with applied treatment to resiste termite and water damage		☐

Pre-Cladding	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Protect construction materials from moisture before installation	ref: n/a	☐
Keep all building materials dry during storage on-site		☐
A drainage plane must be provided that is integrated with flashings	ref: Sections & Dtls., BSC Information Sheets 300, 302	☐
Drainage plane has been installed in a continuous manner		☐
Sheet material has been properly lapped to drain water		☐
All flashing elements specified have been correctly installed		☐
Drainage plane overlaps flashing or connected by a transition membrane		☐
A drainage plane must be accompanied by a drainage space	ref: Sections & Dtls., BSC Information Sheet 300	☐
Materials to create drainage gap have been installed as specified		☐
Intentional drainage spaces are clear of construction debris		☐
Subsill flashing: windows and doors must be "pan-flashed"	ref: Details, BSC Information Sheet 301	☐
All windows and door openings are "pan-flashed"		☐
Pan-flashing installed with end dams and positive slope towards the exterior		☐
Flashing materials are correctly lapped		☐
Reservoir claddings must be "uncoupled" from wall assemblies	ref: Sections, BSC Information Sheet 304	☐
Reservoir claddings (such as brick, stucco and fiber cement) are back-ventilated with min. 1/4" ventilation space (1" for brick) or are installed over a moisture-tolerant and vapor impermeable material		☐
A continuous air barrier must be provided	ref: Sections & Details, BSC Information Sheets 403, 40	☐
Air sealing provided between bottom plates and floor deck	405, 406	☐
Rim joists areas are caulked or sealed with sprayed foam		☐
Carrying beams running to outside walls and beam pockets are sealed		☐
Perimeter of windows and doors are sealed on the interior side with low-expansion foam or sealant		☐
Bathtubs on exterior walls have draftstopping materials installed behind tub		☐
Interior soffits running to exterior walls have been draftstopped and air sealed		☐
Electrical wiring or outlets on exterior walls and other penetrations have been sealed		☐
Vapor control of wall, roof and foundation assemblies must be provided as specified	ref: Sections, BSC Information Sheet 311	☐
Materials with vapor permeability characteristics matching the products specified for each assembly in the construction documents have been installed		☐

Pre-Insulation	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Wet rooms should have floor drainage	ref: BSC Information Sheet 305	☐
Install floor drain and drain pan where water heater is installed over living space		☐
Paper faced gypsum board to be used throughout house	ref: Sections	☐
Plumbing should not be located in exterior walls	ref: n/a	☐
Make plumbing easy to inspect and repair and insulate plumbing pipes to keep them warm (above dewpoint temperatures)	ref: BSC Information Sheet 305	☐
Pipe insulation has been installed on exposed hot and cold runs not located in walls.		☐

Pre-Drywall	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Install insulation to meet HERS Insulation Installation Grade 1	ref: Sections, BSC Information Sheet 501	☐
ENERGY STAR Thermal Bypass Inspection Checklist has been completed		☐

Builder Name:	Catholic Charities Operation Helping Hands
Project:	Green Dream 2
Lot Number:	5007 Cartier Ave, New Orleans LA 70122

Durability Inspection Checklist

Part 2 - Finish Inspection

Mechanical System Inspection	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Sealed combustion equipment	ref: Mech. Plans, BSC Information Sheet 601	☐
Sealed combustion equipment provided as specified		☐
Sealed combustion equipment installed as specified		☐
Ventilation system design must have the capacity to meet the requirements of ASHRAE 62.2 and must be commissioned at 60% of ASHRAE 62.2	ref: Mech. Plans, BSC Information Sheet 610	☐
Ventilation system provided and installed as specified		☐
Ductwork to inside and outside are properly installed and connected		☐
Ventilation system control has been installed and commissioned as specified		☐
Air filter housings must be airtight to prevent bypass or leakage		☐
Interior spaces must be air pressure balanced (less than 3 Pascals between all spaces). Transfer grilles or jump ducts to be provided for any closed room without a return grille (except bathrooms, closets, pantries and laundry rooms)	ref: Mech. Plans, BSC Information Sheets 604	☐
Transfer grilles have been installed where indicated on the plans		☐
Duct systems properly sized and placed	ref: n/a	☐
Duct runs are placed where indicated on the drawings or layout has been revised with mechanical designer		☐
Conditioning system design loads must be determined according to ACCA Manual J and equipment must be sized using ACCA Manual S	ref: Mech. Plans	☐
Air conditioning system supplied and installed as specified		☐
Whole house dehumidification	ref: Mech. Plans, BSC Information Sheet 620	☐
Whole house dehumidification system has been provided and installed as specified		☐
Dehumidification system controls have been installed and commissioned as specified		☐
Ducts should be located inside the enclosure air barrier.	ref: Mech. Plans, BSC Information Sheet 602	☐
If located outside, leakage must be limited to 5% of the total air handling system rated air flow at high speed (nominal 400 CFM per ton) determined by pressurization testing at 25 Pa.		☐
Building cavities not used as part of the forced air supply or return system		
Supply and return ductwork sealed to be airtight	ref: Mech. Details, BSC Information Sheet 603	☐
Ductwork has been air sealed at joint locations and equipment connections		☐
Ductwork is sealed to supply and return boots		☐
Protect ductwork during construction	ref: n/a	☐
Ductwork rough-in protected from construction debris		☐
Supply and return duct boots have been covered during interior finishing		☐
Exhaust vents and intake ducts correctly placed	ref: Mech. Plans, BSC Information Sheet 606	☐
Exhaust and intake ducts installed where indicated on plans		☐
Clothes dryers vented outdoors		☐

Landscaping	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Provide strips around buildings free of planting and organic mulch	ref: n/a	☐
A 24" wide strip free of organic mulch and planting has been provided around buildings		☐
Bushes and trees are at least 36" away from building		☐
Site surface water is controlled by appropriate grading and landscape measures	ref: Sections, BSC Information Sheet 101	☐
Grade on all sides of building slopes away from building		☐
Patios and decks are installed lower than the finished floor and slope away from the building		☐
Finished grade is lower than main floor and slopes away from the building		☐
Stoops, porches and walkways are lower than the main finished floor and slope away from the building		☐
Grade under house is higher than outside grade		☐

Exterior Finish	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Separate wood from concrete or masonry with appropriate capillary break	ref: Plans	☐
Deck and stair posts held off concrete with metal brackets or other non-organic spacer		☐
Detail deck to house connection (including ledger to wall connection) to shed water away from house and to allow natural drying of assembly		☐
Install exterior flashing and drainage	ref: BSC Information Sheet 302	☐
Gutters and downspouts or other roof drainage system has been installed		☐
Select building materials that are insect resistant (steel framing, concrete framing, treated wood framing and sheathing, plastic or plastic composite cladding, cement or fiber cement cladding, brick or stucco	ref: Plans & Sections	☐
Fiber cement board has been installed under floor spray foam insulation		☐
Insect resistant materials are installed where specified on the plans		☐

Pre-Occupancy	Location in Drawing Set, BSC Information Sheet Number*	Completion Verified
Paper faced gypsum board should not be used in "wet areas"	ref: Sections, BSC Information Sheet 407	☐
Paper-faced gypsum board not used in bathrooms, showers, laundry rooms and mudrooms		☐
Raise gypsum board minimum of 1/2" above concrete slab		☐
Washers should be equipped with single throw shut off valves	ref: BSC Information Sheet 305	☐
Washing Machine connections are equipped with a single throw shut off valve		☐
No carpet in areas prone to get wet: bathrooms, laundry rooms, kitchens, and entryways	ref: Sections, BSC Information Sheet 305	☐
No carpet has been installed in bathrooms, laundry rooms, kitchens, and entryways		☐
Vapor open design of construction assemblies maintained	ref: Sections, BSC Information Sheet 311	☐
Vapor-permeable finish materials that do not interfere with vapor open design have been installed		☐

*** For BSC Information Sheets, see www.buildingscience.com/doctypes/information-sheets.**

Appendix D.9.7.13
2009-10-22 Green Dream 2 Site Visit Reports

2009-03-25 Green Dream 2 Site Visit Report

Written By: Katie Gunsch (BSC)

This report can be found in the following folder on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Admin/Site Visit Reports/2009-03-25 Green Dream 2 Site Visit Report.pdf.

Additional site visit photos can also be found on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Site Visit Photos/2009-03-26 Site Visit.

Project Blog:
www.greendream2.posterous.com

Address:	5007 Cartier Ave, New Orleans LA 70122
Date:	2009-03-25
Time:	4:00 pm – 4:30 pm
Weather:	Partly cloudy, 80 degrees
Workers on Site:	None
Work in Progress:	

1. The site has been cleared of debris and any remaining concrete left over from the demolition of the house.
2. The tree and stump in the front yard have been removed.
3. Sand fill has been brought in to fill in the site.
4. A broken cast iron sewer line has been located near the back of the site.

Figure 1.1 – Broken Cast Iron Sewer Line

Figure 1.2 – View of the Site from Rear of Yard

2009-07-21 Green Dream 2 Site Visit Report

Written By: Katie Gunsch (BSC)

This report can be found in the following folder on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Admin/Site Visit Reports/2009-07-21 Green Dream 2 Site Visit Report.pdf.

Additional site visit photos can also be found on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Site Visit Photos/2009-07-21 Site Visit.

Project Blog:
www.greendream2.posterous.com

Address:	5007 Cartier Ave, New Orleans LA 70122
Date:	2009-07-21
Time:	1:30 pm – 2:30 pm
Weather:	Sunny, hazy 90 degrees
Workers on Site:	Foundation installer and volunteers

Work in Progress:

1. Volunteers are working with the foundation installer to set the concrete piers on the grade beams.
2. The treated lumber has arrived and is on site ready for framing.

Figure 1.1 – Volunteers setting the piers

Figure 1.2 – Treated lumber arrived on site

2009-09-17 Green Dream 2 Site Visit Report

Written By: Katie Gunsch (BSC)

This report can be found in the following folder on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Admin/Site Visit Reports/2009-09-17 Green Dream 2 Site Visit Report.pdf.

Additional site visit photos can also be found on the BSC server:
Building America/BA Communities/LA New Orleans Brown House/Site Visit Photos/2009-09-17 Site Visit.

Project Blog:
www.greendream2.posterous.com

Address:	5007 Cartier Ave, New Orleans LA 70122
Date:	2009-09-17
Time:	8:30 am – 12:30 pm
Weather:	Sunny, hazy 90 degrees
Workers on Site:	Volunteers, Operation Helping Hands staff, MEP installers, LSU staff

Work in Progress:

1. BSC along with LSU and Operation Helping Hands held a window installation demonstration for the volunteers and interested professionals.
2. After the window demonstration, volunteers finished installing the windows.
3. A pre-construction MEP meeting was held to review the plans and specifications prior to installation of systems.

Figure 1.1 – Volunteers installing windows

Figure 1.2 – Installed window with flashing