

## **A RESOLUTION**

reserving funding and designating Show-Me Central Habitat for Humanity as a Community Housing Development Organization (CHDO); authorizing the City Manager to execute a general warranty deed to transfer title of property located at 413 West Ash Street to Show-Me Central Habitat for Humanity; directing the City Clerk to have the general warranty deed recorded; approving an amendment to the FY 2013 Annual Action Plan for CDBG and HOME funds; authorizing the City Manager to file a Finding of No Significant Impact and Request for Release of Funds for CHDO activities; transferring funds.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. Show-Me Central Habitat for Humanity is certified as meeting the definition of a Community Housing Development Organization (CHDO) and the City Manager is authorized to execute an agreement for CHDO funding in the amount of \$65,300.00 and funding in the amount of \$18,079.00 from the Water and Light Department for energy efficiency upgrades. The form and content of the agreement shall be substantially as set forth in "Attachment B" attached hereto and made a part hereof as fully as if set forth herein verbatim.

SECTION 2. The City Manager is hereby authorized to execute a general warranty deed transferring real property located at 413 West Ash Street to Show-Me Central Habitat for Humanity. The form of the general warranty deed shall be substantially as set forth in "Exhibit A" attached hereto and made a part hereof as fully as if set forth herein verbatim.

SECTION 3. The City Clerk is authorized and directed to have the general warranty deed recorded in the office of the Boone County Recorder of Deeds.

SECTION 4. The amendment to the FY 2013 Annual Action Plan for CDBG and HOME funds, identified as "Attachment A" attached to this resolution, is approved.

SECTION 5. The City Manager is authorized to submit this amendment to the FY 2013 Annual Action Plan for CDBG and HOME funds to the Department of Housing and Urban Development (HUD).

SECTION 6. The City Manager is authorized to file with HUD a finding of no significant impact to the environment and a request for release of funds.

SECTION 7. At the request of the City Manager, the City Council hereby transfers \$65,300.00 from the CHDO Account No. 266-4130-532.49-90 G44324 to the CHDO-Habitat Account No. 266-4130-532.49-90 G44226.

ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

ATTEST:

\_\_\_\_\_  
City Clerk

\_\_\_\_\_  
Mayor and Presiding Officer

APPROVED AS TO FORM:

\_\_\_\_\_  
City Counselor

## **Attachment B**

# **COMMUNITY HOUSING DEVELOPMENT ORGANIZATION AGREEMENT**

THIS AGREEMENT, made and entered into this 15th day of April, 2013, by and between the City of Columbia, Missouri, a municipal corporation (hereinafter, "City") and Show-Me Central Habitat for Humanity, a corporation of the State of Missouri (hereinafter, "Agency"). The period of this agreement ends on the 31st day of December, 2014.

WITNESSETH:

WHEREAS, the City receives HOME Investment Partnership Program (HOME) funds from the U.S. Department of Housing and Urban Development for the purpose of retaining and adding to the supply of affordable housing in the community, and

WHEREAS, 15% of those funds are set aside for use by Community Housing Development Organizations (CHDO) in order to develop, sponsor and/or own affordable housing.

WHEREAS, Agency meets the requirements of CHDO designation as specified by the U.S. Department of Housing and Urban Development and intends to expend its funds on HOME eligible activities as defined in 24 CFR Part 92 (HOME regulations) to produce affordable housing.

NOW, THEREFORE, be it resolved that the City and the Agency agree as follows:

1. Eligible Activities

a. City agrees to provide Agency \$55,000 in FY 2009 HOME CHDO funding and 10,300 in FY 2008 HOME CHDO funding for the purpose of constructing an energy efficient home at 413 W. Ash that incorporates Universal Design features as proposed by Show-Me Central Habitat for Humanity, and described in Section 1(b) of this agreement. Funding shall be expended on HOME eligible activities as defined by the HOME regulations at 24 CFR Part 92.206. The Agency shall not use these funds for the purposes of prohibited activities as defined by 24 CFR Part 92.214.

b. The home to be constructed at 413 W. Ash shall include the following design features:

1. Perimeter insulation R-20.
2. Sub-slab insulation R-20.
3. 2x6 exterior wall framing on 24" center with spray foam wall cavity insulation and exterior closed cell sheathing. Wall cavity insulating value minimum of R-30.
4. Attic insulation minimum R-50.
5. 8 kw solar panel array.
6. Mini split heat pump system for heating and cooling.
7. Zero step walkways on all home entrances.
8. ½ inch or less door thresholds.
9. Rocker style light switches.
10. Open base kitchen and bathroom sinks.
11. 60" x 60" turnaround in bathroom.
12. Zero step entry shower.
13. HERS score of 65 or below without PV array.
14. Energy star water heater, refrigerator and dishwasher.
15. Building envelope with .2 natural air changes per hour (ACHn).

c. The following energy efficiency upgraded features shall be included in construction of the home at 413 W.

Ash and will be paid for the amount specified in each line item of this agreement by City of Columbia Water and Light funding:

1. Solar water heater.....\$7,600.00
2. Lennox ERV3-150.....\$454.00
3. R-20 sub slab insulation upgrade.....\$1,300.00
4. Window upgrade to .20 u-factor....\$4,607.00
5. LED lighting (90% of fixtures) and fluorescent lighting (10% of home)....\$400.00
6. Low water dual flush toilets and low flow faucets.....\$738.00
7. 1 inch coat of closed cell spray foam in attic.....\$1,080.00
8. Energy star roof shingles.....\$1,900.00

City of Columbia Water and Light total funding for energy efficiency upgrades \$18,079.00

d. The agency shall notify Community Development staff of completion of the following items for progress inspections:

1. Foundation and slab pours for inspection of sub slab, slab edge insulation, and floor drains.
2. Exterior drainage plane, fenestration (window) flashing and sealing .
3. Blower door test immediately following exterior wall and attic spray foam installation and curing.

e. Payments will be made to the Agency on a regular basis based on periodic estimates of completion of each activity and invoices supporting the statement. No payment shall be made under this agreement until completion of environment review activities by the city is completed and a release of funds for activities proposed by the Agency has been obtained from the Department of Housing and Urban Development. No final payment on a house shall be made without documented certification that each home meets energy star requirements.

f. The Agency shall satisfactorily demonstrate that they have effective management control of the development and will own, develop and/or sponsor all HOME funded developments. Each project shall meet the subsidy layering requirements as established by the City.

g. All housing activities shall comply with building codes of the City of Columbia, HUD-published Housing Quality Standards, and the 2009 International Energy Conservation Code. Certification of compliance with each shall be provided to the City by the Agency. All newly constructed housing constructed with HOME funds shall have an "Energy Star" certification, with proof of certification posted in the house by a certified Home Energy Rater, prior to occupancy by a homeowner.

h. All decisions regarding HOME funded projects and activities governed by this agreement shall be made by the CHDO board.

2. Performance Measurement: The Agency shall use CHDO funding from this agreement, CHDO proceeds available, and other available financing, to construct a minimum of one single family homes to benefit owner occupants below 80% of the median income.

3. City Recognition: The Agency shall ensure recognition of the role of the City HOME funds in providing services through this agreement, including reference to the support provided herein in all publications made possible with funds available under this Agreement.

4. Proceeds from Home Sales: Any proceeds, including payments of principal and interest, return on investment, or other program income resulting from the investment of HOME funds for eligible HOME activities may be retained by the Agency and used for additional HOME eligible activities. Eligible activities may include operating costs defined in 24 CFR Part 92.208, provided that the total amount of HOME proceeds expended for operating costs do not exceed 10% of the appraised value of each HOME funded project. The Agency shall provide a report to the City on the receipt and use of all proceeds including operating costs on an annual basis.

5. The following other Provisions Apply as required by 24 CFR Part 92:

- a. Housing for homeownership shall not exceed the mortgage limits established by Section 203(b) of the National Housing Act. Each family of a homebuyer assisted by the Agency shall qualify as low income as defined by HUD for the HOME program. Each unit shall be initially the principal residence of the homebuyer. The period of affordability of each homebuyer assisted unit is established by 24 CFR Part 92.254(4) and (5). As each housing unit constructed is sold to a low to moderate income buyer, the Agency shall provide a copy of the signed promissory note and recorded deed of trust enforcing the affordability provisions at 24 CFR Part 92.254(4) and (5).
- b. Nondiscrimination and equal opportunity. The Fair Housing Act (42 U.S.C. 3601-19) and implementing regulations at 24 CFR part 100 et seq.; Executive Order 11063, as amended by Executive Order 12259 (3 CFR, 1959-1963 Comp., p. 652 and 3 CFR, 1980 Comp., p. 307) (Equal Opportunity in Housing Programs) and implementing regulations at 24 CFR part 107; title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d- 2000d-4) (Nondiscrimination in Federally Assisted Programs) and implementing regulations at 24 CFR part 1; the Age Discrimination Act of 1975 (42 U.S.C. 6101-6107) and implementing regulations at 24 CFR part 146; section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and implementing regulations at part 8 of this title; title II of the Americans with Disabilities Act, 42 U.S.C. 12101 et seq.; 24 CFR part 8; section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) and implementing regulations at 24 CFR part 135; Executive Order 11246, as amended by Executive Orders 11375, [[Page 41]] 11478, 12086, and 12107 (3 CFR, 1964-1965 Comp., p. 339; 3 CFR, 1966- 1970 Comp., p. 684; 3 CFR, 1966-1970 Comp., p. 803; 3 CFR, 1978 Comp., p. 230; and 3 CFR, 1978 Comp., p. 264, respectively) (Equal Employment Opportunity Programs) and implementing regulations at 41 CFR chapter 60; Executive Order 11625, as amended by Executive Order 12007 (3 CFR, 1971- 1975 Comp., p. 616 and 3 CFR, 1977 Comp., p. 139) (Minority Business Enterprises); Executive Order 12432 (3 CFR, 1983 Comp., p. 198) (Minority Business Enterprise Development); and Executive Order 12138, as amended by Executive Order 12608 (3 CFR, 1977 Comp., p. 393 and 3 CFR, 1987 Comp., p. 245) (Women's Business Enterprise). The nondiscrimination provisions of Section 282 of the National Affordable Housing Act of 1982.
- c. Must establish a minority outreach program described at 24 CFR 92.351(b).
- d. Disclosure requirements. The disclosure requirements and prohibitions of 31 U.S.C. 1352 and implementing regulations at 24 CFR part 87; and the requirements for funding competitions established by the Department of Housing and Urban Development Reform Act of 1989 (42 U.S.C. 3531 et seq.).
- e. Debarred, suspended or ineligible contractors. The prohibitions at 24 CFR part 24 on the use of debarred, suspended or ineligible contractors.
- f. Drug-Free Workplace. The Drug-Free Workplace Act of 1988 (41 U.S.C. 701 et seq.) and HUD's implementing regulations at 24 CFR part 24.
- g. Shall provide an annual audit to the City conducted by an independent certified CPA.
- h. Lead-Based Paint requirements at 24 CFR Part 35 and State of Missouri Lead Paint regulations at 19 CSR 30-70.110 - 640.
- i. Flood insurance requirements at 92.358.
- j. The Agency shall certify to the city that HOME funds do not provide more than 50% of its annual operating budget during the year in which funds are provided.

6. Records and Reports

- a. The Agency shall provide all information needed for compliance monitoring purposes by the City or the U.S. Department of Housing and Urban Development. Agency shall permit City to inspect all assisted housing to ensure compliance with required property standards.
- b. Upon the sale of each property, the Agency shall provide a copy of the closing statement and completion report to the City;
- c. Agency shall retain all records pertinent to the HOME program described at 92.508 (3) (4) vi-viii, (7) (i)

(A) & (B), and (ii) - (viii) and allow access to such records upon request and during monitoring visits.

7. Reversion of Assets

Upon expiration of this agreement, the Agency must transfer to the City any HOME funds on hand at the time of expiration and any accounts receivable attributable to the use of HOME funds.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the day and year first above written.

ATTEST:

CITY OF COLUMBIA, MISSOURI

BY: \_\_\_\_\_

Sheela Amin, City Clerk

\_\_\_\_\_  
Michael Matthes, City Manager

APPROVED AS TO FORM:

\_\_\_\_\_  
Nancy Thompson, City Counselor

SHOW ME CENTRAL HABITAT FOR  
HUMANITY

BY: \_\_\_\_\_

Title: \_\_\_\_\_

CERTIFICATION: I hereby certify that this agreement is within the purpose of the appropriation to which it is to be charged, Account No. 266-4130-532.49.90, G44124, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefore

\_\_\_\_\_  
John Blattell, Director of Finance

### GENERAL WARRANTY DEED

THIS INDENTURE, made this \_\_\_\_\_ day of \_\_\_\_\_, 2013, by and between the City of Columbia, Missouri, a municipal corporation of the State of Missouri ("Grantor") and Show-Me Central Habitat for Humanity, a corporation of the State of Missouri ("Grantee"): (Grantee's mailing address: 1906 Monroe Street, Columbia, Missouri 65201).

WITNESSETH, that the said Grantors, for and in consideration of ten dollars (\$10) and other good and valuable consideration, the receipt whereof is hereby acknowledged, do GRANT, BARGAIN AND SELL, CONVEY AND CONFIRM unto the said Grantee, its successors and assigns, the following described real estate situated in Boone County, Missouri, to wit:

Lot One Hundred Seventy-One (171) of SMITHTON, an addition to the City of Columbia, Boone County, Missouri

Subject to easements, restrictions, reservations and covenants now of record, and to the Community Housing Development Organization Agreement dated \_\_\_\_\_, 2013.

**The property address is: 413 W Ash St, Columbia, MO 65203. The first named grantee's address is: 701 E. Broadway, Columbia, MO 65201.**

TO HAVE AND TO HOLD the same, with all and singular the rights, privileges, appurtenances and amenities thereto belonging, or in any wise appertaining, unto the said Grantee and its successors and assigns, FOREVER, and the said Grantors hereby covenant that it is lawfully seized of an indefeasible estate in fee simple in the premises herein conveyed; that it has good right to convey the same; that the premises are free and clear of any encumbrances whatsoever done or suffered by it or those under whom it claims; that it will make and execute such other and further assurances and do such other acts and things as may be necessary for perfecting the title and confirming the premises hereby granted; and that it will warrant and defend the title to said premises unto the said Grantee and its heirs and assigns, against the lawful claims of all persons whomsoever; excepting, however, the general taxes, special assessments becoming a lien after the date of this deed.

IN WITNESS WHEREOF, the said Grantors have set their hands and have executed this Deed the day and year first above written.

\_\_\_\_\_  
Mike Matthes, City Manager,  
City of Columbia

STATE OF MISSOURI       )  
                                      )ss  
COUNTY OF BOONE       )

On this \_\_\_\_\_ day of \_\_\_\_\_, 2013, before me, a Notary Public in and for said state, personally appeared Mike Matthes, City Manager of the City of Columbia, known to me to be the person who executed the foregoing instrument and acknowledged to me that he executed the same for the purposes therein stated.

\_\_\_\_\_  
Notary Public, State of Missouri

My commission expires:





# Fourth Program Year Action Plan

The CPMP Fourth Annual Action Plan includes the SF 424 and Narrative Responses to Action Plan questions that CDBG, HOME, HOPWA, and ESG grantees must respond to each year in order to be compliant with the Consolidated Planning Regulations. The Executive Summary narratives are optional.

## ATTACHMENT A Narrative Responses

### GENERAL

#### Executive Summary

The Annual Action Plan details the proposed sources and uses of funds available from HUD, including Community Development Block Grant (CDBG) and HOME funds, and outlines the accomplishments resulting from the use of HUD funding in the City. This year's Action Plan was written pursuant to the implementation of the third year of the City's five year Consolidated Plan for program years 2010 through 2014. The Plan was developed in accordance with the City's adopted Citizen Participation Plan, as amended as part of this year's plan to include updated technology. A more detailed summary of the 2013 CDBG and HOME Budget is presented in Tables 1 and 2.

#### A. Sources of HUD Funding:

1. \$802,000 of CDBG and \$463,000 of HOME funding as indicated below in Tables 1 and 2;
2. \$120,000 in reprogrammed CDBG funds;
3. An estimated \$50,000 of CDBG and \$75,000 of HOME Program Income;
4. Funding through the HUD Continuum of Care administered by the Missouri Housing Development Commission will be awarded during 2012. Funding applications are being prepared at this time. Funds awarded in 2012 with 2011 funding include:
  - \$37,450 to continue the *Salvation Army/Harbor House* program for case management and supportive services.
  - \$71,122 for a one year renewal for *Phoenix Programs/Voluntary Action Center's* Project Bridge.
  - \$74,113 for renewal of the *Phoenix Programs* "At Home" permanent housing program for those with substance abuse problems.
  - \$325,380 for Shelter plus Care funding for the Columbia Housing Authority.Total renewals are \$508,065.
4. \$75,000 in Emergency Shelter Grant(ESG) funding is estimated to be provided for Emergency Shelter projects through the State of Missouri ESG Program;
5. HUD Funding for the Columbia Housing Authority annual plan for the year ending 2012 supports the management and maintenance of 719 public housing units and 1062 rental assistance vouchers, including:
  - \$2,209,318 for its *public housing operating fund*;
  - \$835,363 for its *public housing capital fund*;

- \$6,725,683 for *Section 8 Rental Assistance Programs*;
  - \$315,000 for the Shelter Plus Care Housing Choice Vouchers;
  - *Resident Opportunity Self-Sufficiency (ROSS) Programs*:
    - *Public Housing Ross Service Coordinator*: 65,900
    - *Housing Choice Voucher Family Self-Sufficiency Program (Section 8)*: \$51,378 will provide funding to coordinate with job training and homeownership assistance classes for assisted tenants.
    - *Public Housing Family Self-Sufficiency Program*: \$52,396 to provide self-sufficiency programs for CHA Residents.
    - *Drug Free Community Grant*: \$125,000 for public housing safety and security
6. *Community Housing Options*, a local not-for-profit housing development organization is applying for funding through the Missouri Housing Development Commission for Low Income Housing Tax Credits to help build 16 units of housing on the corner of Vandiver and Oakland Gravel Road.
7. *Jeffery Smith Development Company* has been awarded Low Income Housing Tax Credits through MHDC to build an additional 42 units of housing for senior citizens. \$620,000 in federal 9% tax credits, and \$620,000 in state 9% tax credits.
8. *Burrell Behavioral Health* has been awarded Section 202 HUD funds to build supportive housing for senior citizens at Edenton & Bodie Drive in north central Columbia.
9. *The Columbia Housing Authority and New Horizons Community Support Services, Inc.* have submitted a joint application to the Missouri Housing Development Commission (MHDC) for 9% Low-Income Housing Tax Credits to support the development of a 47 unit affordable housing project.

**TABLE 1: FY 2013 CDBG PROGRAM**

	<b>Approved 03/18/2013</b>	<b>Amendment 3/4/1013</b>
<b>COMMUNITY DEVELOPMENT BLOCK GRANT RESOURCES</b>		
Estimated Entitlement Amount	<b>\$802,000</b>	<b>\$802,000</b>
Reprogrammed	<b>\$120,000</b>	<b>\$120,000</b>
<b>PROPOSED USES of CDBG FUNDS</b>		
<b>Housing Programs</b>		
Owner Occupied Housing Rehabilitation	\$60,000	\$60,000
Neighborhood Response Team Code Enforcement	35,000	35,000
Neighborhood Response Team Demolition	30,000	30,000
Homebuyers Classes	15,000	15,000
BCCA Senior Home Repair Program	36,000	36,000
SIL RAMP Program	40,000	40,000
<b>Public Improvements</b>		
Downtown Ramps	179,000	179,000
Worley Sidewalks Phase II Construction	194,500	194,500
<b>Community Facilities, Services and Economic Development</b>		
Columbia Housing Authority Park Avenue Head Start	84,000	84,000
Job Point Nursing/Heavy and Highway Training	76,180	76,180
REDI and CMCA Career Center	32,500	32,500
HUD Mandated Fair Housing Set-aside	11,500	11,500
<b>Planning and Administration</b>		
Administration	96,240	96,240
Community Dev., Housing & Neighborhood Planning	32,080	32,080

<b>TOTAL CDBG</b>	<b>\$922,000</b>	<b>\$922,000</b>
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**TABLE 2: FY 2013 HOME PROGRAM**

<b>HOME RESOURCES</b>		
HOME Entitlement	<b>\$463,000</b>	<b>\$528,300</b>
<b>Proposed Uses of HOME Funds</b>		
CHA Tenant-Based Rental Assistance	106,000	106,000
Rental Production	175,250	175,250
Community Housing Development Organizations	69,450	69,450
<i>Reprogram 2008 CHDO Show-Me Central Habitat</i>		<b>10,300</b>
<i>Reprogram 2009 CHDO Show-Me Central Habitat</i>		<b>55,000</b>
Homeownership Assistance	66,000	66,000
Administration	46,300	46,300
<b>TOTAL HOME</b>	<b>463,000</b>	<b>528,300</b>

## B. Specific Objectives, Outcomes, and Performance of CDBG and HOME Projects

Below is a statement, by national objective and national outcome measures of the projected accomplishments for CDBG, HOME and other HUD funded activities within the next year. Where the objective is similar to one carried over from a previous year, the accomplishments to date on that objective are stated for the 2013 year.

**1. National Objective of Providing Decent Affordable Housing:** Through the use of CDBG and HOME funding during 2013, this Plan provides for the ability of the City to facilitate the provision of 16 units of affordable rental housing, the purchase 17 of units of affordable new and existing owner occupied housing, 53 home rehabilitation and repair projects through City and not-for-profit Agency programs, and 20 special needs households assisted Tenant-Based Rental Assistance. The City proposes to make housing assistance available for 106 units of housing.

**Objective 1: Policy on Affordable Housing: The City Council should adopt an overall policy statement to further institutional changes in affordable housing. The policy should be part of a new comprehensive plan currently being developed by the City.** For 2013, completion of a draft plan including an affordable housing policy is expected.

2012: Affordable housing was identified as a contributing factor to creating a livable community including specific aspects that need to be addressed to reduce housing costs.

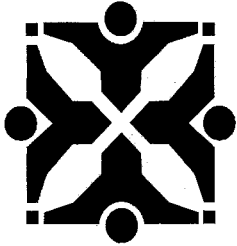
**Objective 2: Establish a locally administered Housing Trust Fund to help provide decent affordable housing.** For 2013, appoint a board to oversee a housing Trust Fund.


2012: Community Development Director, City Manager, and Columbia Housing Authority CEO have been meeting to explore implementation.

**Objective 3: Create a new position for an affordable housing planner to act as the City's advocate for comprehensively developing affordable housing recommendations contained in this report.**

This activity was completed in 2010 and is funded through the 2011 City fiscal year. Funding was not extended for 2012.

**Objective 4: Establish one or more committees to address the following topics:**



Source: Community Development - CDBG/Home  Agenda Item No:

To: **City Council**  
From: **City Manager and Staff** 

Council Meeting Date: Apr 15, 2013

Re: Approval of FY 2013 CDBG and HOME Annual Action Plan Amendment and Approval of CHDO Agreement

**EXECUTIVE SUMMARY:**

The U.S. Department of Housing and Urban Development's (HUD) Citizen Participation rules require jurisdictions to consider any comments or views of citizens at a public hearing prior to submitting an amendment to the Annual Action Plan. In order to comply with this requirement, staff has prepared a resolution approving the FY 2013 Annual Action Plan and HOME agreement. This amendment to the FY 2013 Action Plan will reallocate \$65,300 in HOME Community Housing Development Organization (CHDO) funds to assist Show-Me Central Habitat for Humanity in financing the construction of a new affordable home

**DISCUSSION:**

The Annual Action Plan provides an update on the actions the City will take to meet the priority needs, goals and objectives of the 2010-2014 Consolidated Plan during FY2013. The City submitted its FY 2013 Annual Action Plan to HUD in November of 2012. The Plan was approved by HUD on January 2, 2013, and an amendment was approved by the Council on March 18, 2013.

The \$55,000 FY2009 and \$10,300 FY2008 HOME funds will be used in the construction of an energy efficient home with Universal Design features on the corner of Ash and Sanford. The home will incorporate additional energy efficiency and Universal Design features not previously included in CHDO houses. The proposed project will be constructed at 413 W Ash. Responses to the RFP were received from Central Missouri Community Action and Show-Me Central Habitat for Humanity. The Community Development Commission held a public hearing on March 13, 2013 and voted to recommend Council approval of a HOME agreement with Show-Me Central Habitat for Humanity based on the organizations proposal. Show-Me Central Habitat for Humanity's proposal is attached as Exhibit A.

The additional energy efficiency measures and Universal Design features to be included in this project are as follows:

Energy Efficiency

1. R-20 perimeter foundation insulation
2. R-20 sub-slab insulation
3. Exterior wall cavities with R-30 insulation value
4. R-50 attic insulation
5. .20 U-value windows
6. 8 kw solar array
7. Mini-split heat pump system for heating and cooling
8. Solar water heater
9. Building envelope with .20 Natural Air Changes Per Hour or less
9. Energy Recovery Ventilator (ERV) with duct diffusers
10. 100% LED lighting
11. Energy star roof shingles
12. Low-flow water fixtures

Universal Design Features

1. Zero step walkways on all home entrances
2. 1/2 inch door thresholds
3. Rocker style light switches
4. Open base kitchen and bathroom sinks
5. 60" x 60" turnaround in bathroom

## 6. Zero step entry shower

Community Development and Water and Light staff have been working as a team to determine energy efficiency enhancements for the project. The City of Columbia Water and Light Department is also seeking Council approval to allocate approximately \$18,079 in additional funding for further energy efficiency enhancements. This transfer is included in the attached resolution. Water and Light funded enhancements will include: solar water heating, ventilation for indoor air quality, additional foundation insulation, upgraded windows beyond energy star requirements, light emitting diode (LED) lighting, energy star rated shingles, low-flow water fixtures, and additional attic insulation.

City staff conducted a door-to-door questionnaire on Sanford, Ash and Alexander streets to help shape the RFP, inform the neighborhood of the proposed project and scheduled informational meeting. Staff knocked on approximately 75 doors. Questionnaire results showed nearly all neighborhood respondents supported an affordable home development that incorporated additional energy efficiency and Universal Design features. Staff also held a public informational meeting on January 9, 2013 to describe features of the potential project and gain further public input for developing the RFP. Three common themes from public input were: the public supported the project, neighborhood members preferred the driveway to be on Sanford, and several neighborhood members expressed concern regarding affordability. Show-Me Central Habitat for Humanity's proposal maintains the driveway on Sanford and sets the purchase price at \$107,000. The City has also recently experienced difficulty in finding qualified buyers for some of its affordable housing development. Show-Me Central Habitat for Humanity currently has a pre-qualified buyer identified for this project to address this concern.

Staff utilized public input, as well as review of other affordable housing development projects around the country to develop energy efficiency targets and minimum Universal Design requirements. The most significant challenge in developing the RFP was to balance increasing innovation and project scope, while balancing developer capacity. Staff feels that the proposed project balances innovation and developer capacity to successfully implement additional design features.

Staff held an informational meeting with qualified CHDOs in conjunction with the RFP. The informational meeting provided clear project expectations and described elements of a strong proposal. Proposals were reviewed by staff, and analysis was provided to Community Development Commission (CDC) members. The CDC reviewed the proposals and staff analysis prior to the March 13th CDC meeting. Applicants were provided 10 minutes to present their proposals to the CDC. The CDC voted to recommend council approval of Show-Me Central Habitat for Humanity's proposal for 413 W Ash. Staff is seeking Council approval of an amendment to the FY 2013 Annual Action Plan allocating funds for 413 W Ash, as well as approval of an agreement with Show-Me Central Habitat for Humanity.

### **FISCAL IMPACT:**

Reprograms \$65,300 in previous years CHDO funding allocations. \$18,079 in Water and Light funds.

### **VISION IMPACT:**

<http://www.gocolumbiamo.com/Council/Meetings/visionimpact.php>

### **SUGGESTED COUNCIL ACTIONS:**

The Council should pass a resolution approving an amendment to the FY2013 Action Plan and CHDO agreement with Show-Me Central Habitat for Humanity.

FISCAL and VISION NOTES:					
City Fiscal Impact Enter all that apply		Program Impact		Mandates	
City's current net FY cost	\$0.00	New Program/ Agency?	No	Federal or State mandated?	Yes
Amount of funds already appropriated	\$0.00	Duplicates/Epands an existing program?	No	Vision Implementation impact	
Amount of budget amendment needed	\$0.00	Fiscal Impact on any local political subdivision?	No	Enter all that apply: Refer to Web site	
Estimated 2 year net costs:		Resources Required		Vision Impact?	Yes
One Time	\$0.00	Requires add'l FTE Personnel?	No	Primary Vision, Strategy and/or Goal Item #	11.1
Operating/ Ongoing	\$0.00	Requires add'l facilities?	No	Secondary Vision, Strategy and/or Goal Item #	11.1
		Requires add'l capital equipment?	No	Fiscal year implementation Task #	



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Thomas Kamps  
Chris Lunn  
Scott Maledy  
Steve Saitta  
Mark Workman

Executive Director  
Bill View

## CHDO Energy Efficient and Universal Design Home

### Proposal Narrative

Show Me Central Habitat for Humanity in collaboration with People's Visioning of Columbia, Missouri submit the following proposal to the CHDO Commission this 30<sup>th</sup> day of February 2013. The City of Columbia's CHDO Commission requests RFPs for an energy efficient home with universal design features. Show Me Central Habitat for Humanity is proposing the following energy efficient home to be built on 413 West Ash, the lot provided by the City of Columbia.

Habitat's board has agreed to submit the RFP as developed with the coordination of People's Visioning, represented by Monta Welch, Daniel Karlov, architect of Karlov's Architectural Firm, LLC in Jamestown, and Lawrence Lile, PE and LEED AP of Ashland. **Show Me Central Habitat for Humanity proposes to build a net zero home.** This net zero home will be built with respect to the RFP in place and the plans and specifications of the design as presented in the architectural drawing enclosed.

The home has a solar design on the south face of the home that includes an 8K solar array system to meet the energy requirements of the home as demonstrated in the HERS (Home Energy Rating System) report generated by Lawrence Lile, engineer. Based on the solar array analysis and the annual electrical consumption report, this energy efficient home should be net zero. This meets the energy efficiency targets requested by the City of Columbia's community development staff.

Committee Chairs: Building: Travis Condict; Church Relation: Vacant; Family Relations: Vacant;  
Family Selection: Todd Weyler; Finance: John Keller; Fund Raising & Public Relations: Chris Lunn & Laura Gerding;  
ReStore: Vacant; Site Selection: Jerry Black; Volunteer Coordinator: Linda Hollingshead

## **Energy Efficiency Targets**

1. Net-Zero Home
2. Sub-slab insulation of R-10
3. Slab edge insulation of R-20 with a design concept of R10 on the outside of slab edge and R10 on the inside of slab footing to reduce transfer of heat loss on slab layer
4. Exterior walls at R-31.5
5. Ceiling insulation is R-50
6. Mini-split system for heating/cooling
7. .91 Energy Star water heater
8. Passive solar design for south living area
9. Overhang designed trusses for optimum shade for summer sun
10. Solar tube lights in three rooms without outside windows for off grid lighting

## **Universal Design Elements**

1. Zero step walkways as requested in RFP
2. ½ inch thresholds
3. All doors at 36" inside and out
4. 36" hallways
5. Rocker style switches
6. Open base kitchen and bathroom sinks
7. 60 x60 inches of turnaround in bathroom
8. Zero entry shower
9. Grab bars installed
10. Green building design options are available for review as alternates

## **CHDO Documentation**

Show Me Central Habitat for Humanity is a recognized CHDO from the City of Columbia. All our materials are on file with the City of Columbia. As stated in the RFP, a CHDO certified within the past 12 months are exempt from resubmitting documentation.



### **Previous CHDO Projects**

Show Me Central Habitat for Humanity is the only CHDO doing business with the City to have built and sold 118 homes for low income families. We have been in the business of low income housing since 1988. During the last seven years we have almost doubled our production. Show Me Central Habitat for Humanity now builds nine to ten homes per year. To our knowledge, we build more in one year than any other CHDO has built in the last ten years. Show Me Central has had experience in building three sub-divisions from infrastructure to streets to homes. Our most current project is a thirty-two home sub-division in Old Plank Estates off Old Plank Road. We have built energy efficient homes, energy star homes, and have had a track record of solid performance with the City of Columbia Protective Inspections Department.

### **Relevant Project Staff**

Resumes of the professional staff are included in our supporting documentation. Daniel Karlov is a licensed architect that has worked on the design of the State Farm expansion within the City of Columbia. Daniel resides in Jamestown, Missouri. Lawrence Life, PE, LEED AP BD+C, CEM is the owner of Life Engineering and energy consulting firm in Ashland, Missouri. Both gentlemen have a sincere interest in this project and have spent countless hours preparing this project for Show Me Central Habitat for Humanity. The Executive Director, Bill View, is a former superintendent of schools and has supervised the building of a 9-12 high school during his tenure as a school administrator.

### **Project Timeline**

3/15/13	Award Announce
3/16/13	Submit Building Permit to the City of Columbia
3/19-23/13	Survey, Prep, and Stake Property and Building Lines and provide time for City of Columbia to do tree removal and trimming
3/26-30/13	Begin Construction with trench work
4/1/13	Ground work for plumbing
4/8/13	Pour slab
4/15/13	Frame walls and set trusses
4/29/13	Construct Roof
5/6/13	Rigid Insulations, OSB walls, windows, and vinyl siding
5/27/13	Inside wiring, plumbing and insulation in walls and solar infrastructure
6/17/13	Sheet Rock
7/8/13	Paint walls
7/15/13	Trim work and inside doors
7/22/13	Cabinet installation

### **Project Timeline Continued**

7/29/13	List Property for Sale
8/5/13	Install Solar Array/Solar Hot Water
8/12/13	Outside prep work for lawn
8/19/13	Install vinyl and carpet
8/26/13	Seed lawn and prep for sale
9/13	TBA – Media Day with City of Columbia
9/2/13	Sale Property prior to deadline

### **City of Columbia Request**

Show Me Central Habitat for Humanity hopes that the City of Columbia would consider using their resources for the following aspects of the project in this proposal. To attain the maximum benefit to the solar panel array, two trees need to be removed from the project and others trimmed back. These trees are on the east boundary line of 413 Ash between the two properties. Water and light is requested to remove and or trim back any tree that interferes with the solar array. In addition, the north boundary has an encroachment as the neighbor's driveway is on 413 Ash. As owner of the property, the City is asked to contact and resolve this issue.

### **Geothermal Ground Source Heat Pump or Mini-split System (City's Choice)**

Show Me Central Habitat has proposed a mini-split heating system for the energy home to be constructed. This was chosen to reduce costs and allow the budget to procure more solar panels to attain net zero. If the City would prefer a geothermal ground source heat pump for their model energy home, Habitat would be willing to trade the extra costs of the ground source heat pump for the costs of the additional solar panels using Water and Light Funding.

### **Disclaimer**

Show Me Central Habitat for Humanity will build our proposed energy efficient house as designed and presented. Any proceeds from the build will be retained by Habitat for future low income housing projects. No buyer discounts or forgivable deeds of trust will be required to be offered by seller/builder. Secondly, if the City of Columbia is interested in any of the concepts on our alternate proposal, we reserve the right to negotiate and or qualify all alternative items requested and the timelines for home sale.

## Sources and Uses of Funds, 413 W Ash (3 bdrm, 2 bath, Energy Star)

### Sources of Funds

Total Sources		% of Dev. Costs
CHDO Funds	\$ 65,300.00	59%
Construction Financing		
Habitat Revolving Loan	\$ 44,781.04	41%
Other		
Other		
Other		
<b>Total</b>	<b>\$ 110,081.04</b>	<b>100%</b>

### Extras Beyond City Requirement Added by Habitat

8KW Solar Array System	26,000.00
R-10 Insulation in the Floor Slab	2,135.70
Roof sun tube lighting 3 each	675.00
<b>Sub-total</b>	<b>28,810.70</b>

### List of Extras from Water and Light not in totals

ERV - Energy Reverse ventilation	\$1,283.00
Solar Water Heater	\$7,650.00
R-20 Insulation in Slab Floor	\$2,135.70
Windows / .20 U Factor \$446.17 X15 ea	\$6,692.55
90% LED Lighting - 10% Fluorescent	\$1,985.24
Metal Roof/Installation .77 Reflect .08 Emit	\$4,204.40
Low water dual flush toilets/faucets	\$1,000.00
<b>Water and Light Totals</b>	<b>\$24,950.89</b>

### Uses of Funds

#### Acquisition & General Requirements

Building Lot*	\$ 1.00
Permits	\$ 3,115.17
Labor *	\$ 10,000.00
Surveys/Appraisals *	\$ 450.00
Temporary Facilities/Utilities \$40/month	\$ 360.00
Equipment Rental - Crane for Truss	\$ 300.00
Insurance	\$ 697.00
Plans/Architect *	\$ 4,478.92
Dev. Fees Program Operations	\$ -
Construction Dumpster/nine month est.	\$ 465.75
Realtor Fees	\$ 6,300.00
Advertising & Sales	\$ 300.00
Legal Fees and Title Insurance	\$ 780.00
Maint/ Clean-up	\$ 1.00
<b>Total Acq/General Requirements</b>	<b>\$ 27,248.84</b>

#### Sitework

Site Preparation *	\$ 560.00
Earthwork/Excavation*	\$ 262.50
Sewer includes rough in	\$ 1,297.96
Utilities Installation	\$ 1.00
Landscaping	\$ 400.00
<b>Total Sitework</b>	<b>\$ 2,521.46</b>
<b>Concrete</b>	
Rebar	\$ 130.00
Rock	\$ 1,739.82
Footings/Foundations	\$ 3,654.29
Flatwork/Slab Insulation	\$ 3,342.74
<b>Total Concrete</b>	<b>\$ 8,866.85</b>

#### Wood

Rough Carpentry	\$ 2,762.59
Trusses/Pre-Fabs	\$ 1,995.00
Finish Carpentry	\$ 350.00
<b>Total Wood</b>	<b>\$ 5,107.59</b>

#### Thermal & Moisture Protection

Insulation - Spry Foam NEMOW	\$ 1,800.00
Shingles/Roofing	\$ 1,649.40
Gutters	\$ 525.00
Siding/Soffit/Fascia	\$ 1,500.00
NA	\$ -
<b>Total Thermal/Moisture Protection</b>	<b>\$ 5,474.40</b>

#### Doors and Windows

Exterior Entrance Doors	\$ 345.69
Interior Pre-Hung Doors ten each x \$77	\$ 770.00
Patio Doors	\$ -
Garage Door(s)	\$ 795.00
Windows ten each at \$237	\$ 2,370.00
Hardware *	\$ 457.80
<b>Total Doors and Windows</b>	<b>\$ 4,738.49</b>

#### Finishes

Gypsum(Drywall)	\$ 1,157.34
Flooring	\$ 1,845.26
Carpet	\$ 2,197.70
Painting Interior * 23 gallons/\$22/gal	\$ 506.00
<b>Total Finishes</b>	<b>\$ 5,706.30</b>

#### Equipment

Appliance kitchen	\$ 2,880.00
<b>Total Equipment</b>	<b>\$ 2,880.00</b>

#### Furnishings

Cabinets	\$ 2,895.00
Mirrors *	\$ 450.00
<b>Total Furnishings</b>	<b>\$ 3,345.00</b>

#### Mechanical

Plumbing	\$ 1,496.17
HVAC	\$ 8,000.00
ERV	\$ -
<b>Total Mechanical</b>	<b>\$ 9,496.17</b>

#### Electrical

Service & Distribution	\$ 2,400.00
Lighting	\$ 1,985.24
Communications	\$ 300.00
Electric	\$ 1,200.00
<b>Total Electrical</b>	<b>\$ 5,885.24</b>
<b>Total Development Costs</b>	<b>\$ 81,270.34</b>

Extras Beyond City Requirements \$ 28,810.70

<b>Total Cost of Home</b>	<b>\$ 110,081.04</b>
Sale Price of Home	\$107,000

Solar Water Heater: System must be SRCC OG-300 rated, come with a five-year manufacturer's warranty, and replace existing water heating system.  
 Photovoltaic System: 15-year manufacturer's warranty on panels, 2-year warranty on grid-tied sine wave inverters. Must meet all applicable UL, IEEE, and NEC certification

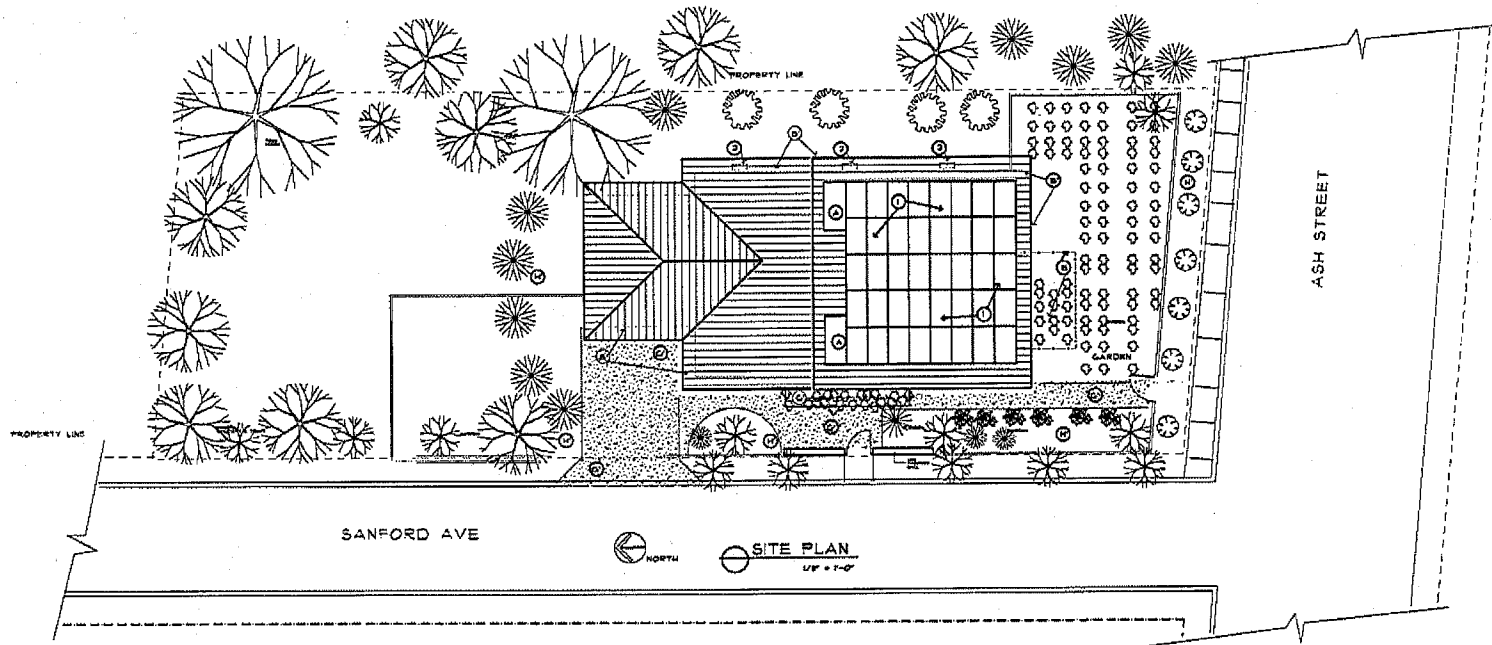
# CITY OF COLUMBIA REQUEST FOR PROPOSAL: ZERO ENERGY HOUSE

LOCATED AT: 413 WEST ASH STREET, COLUMBIA, MISSOURI 65201

## HABITAT FOR HUMANITY SUBMISSION

DESIGNED IN CONJUNCTION WITH "PEOPLES VISIONING"

CONTRACTOR: HABITAT FOR HUMANITY, DILL VIEW  
PEOPLES' VISIONING COORDINATOR: MONTA WELCH  
ARCHITECT: DANIEL W. KARLOV  
ENGINEER: LAWRENCE LILE



### FEATURES IN KEYED NOTES

#### BASE BID

NOTE: BUILDING EXTERIOR FEATURES  
HERE RATING OF 101 ZERO

- ① 1 KW SOLAR PANEL ARRAY
- ② MINI SPLIT SYSTEM, GROUND SOURCE  
AIR HANDLING, EXTERIOR UNIT
- ③ GENERAL NOTE BASE BID INCLUDES:  
1 NET ZERO ENERGY RATED RESIDENCE  
THREE SOLAR PANEL ARRAYS  
THREE INVERTERS  
R-10 BURNER INSULATION  
34\"/>

#### ALTERNATE, "GREEN"

NOTE: ALTERNATE "GREEN"  
HOUSE AND LANDSCAPE

- ④ DOMESTIC HOT WATER SOLAR PANELS
- ⑤ DEMOUNTABLE SOLAR GREENHOUSE PVC  
SLAB, BURNER TO REPLACE 25 LAYERS  
PLASTIC FOR INSULATION/SHROUD IN SPRING
- ⑥ DEMOUNTABLE SOLAR GREENHOUSE PVC  
SLAB, BURNER TO REPLACE 25 LAYERS  
PLASTIC FOR INSULATION/SHROUD IN SPRING

#### COLUMBIA WATER & LIGHT REQUEST

NOTE: ALTERNATE "GREEN"  
HOUSE AND LANDSCAPE

- ⑦ DOMESTIC HOT WATER SOLAR SYSTEM
- ⑧ METAL REFLECTIVE ROOF
- ⑨ LED LIGHTING
- ⑩ 20 U-FACTOR WINDOWS
- ⑪ R-20 BURNER INSULATION
- ⑫ GRASS DOOR - ENTRY
- ⑬ NATIVE TREES, SHRUBS AND PLANTS FOR UNDERPLANT  
BIRD AND ANIMAL FOOD SOURCE, PERMACULTURE DESIGN

INDEX OF DRAWINGS	
KEY	DESCRIPTION
C-1	NOTE PLAN
T-1	TECHNICAL INFORMATION - ZERO ENERGY HOUSE
A-1	FLOOR PLAN and BUILDING SECTION, BASE BID
A-2	EAST/WEST ELEVATIONS, BASE BID
A-3	NORTH and SOUTH ELEVATIONS, BASE BID

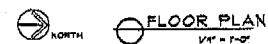
DANIEL W. KARLOV - ARCHITECT  
DANIEL W. KARLOV & ASSOCIATES LLC  
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EMAIL: dkarlov@dkarlov.com

LAWRENCE LILE, PE, LEED AP BD+C  
LILE ENGINEERING, LLC  
101 N. 1ST ST., SUITE 100  
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CELL: 816.212.1200  
LILE, LAWRENCE

CITY OF COLUMBIA ZERO ENERGY HOUSE  
413 WEST ASH ST.  
COLUMBIA, MISSOURI

Project # ZERO E  
Date 09/01/13  
Designed by DDK  
Checked by  
Reviewed by

Sheet No.  
C.1



**BASE BID**

NOTE: BUILDING MATERIALS USED TO PROJECT HERE RATING OF 101 ZERO

- ① PERIMETER FOUNDATION INSULATION - R-10 INTERNAL-R-10 EXTERNAL
- ② UNDERSLAB INSULATION - R-10 ENTIRE SLAB W/ 4" CONCRETE SLAB
- ③ EXTERIOR WALL DESIGN - 2X4 STUD FRAME @ 24" O.C. R-16 INSULATION  
R-10 - 1 1/2" RIGID CLOSE CELL BREATHING,  
1" DRYEAL AND EXTERIOR SIDING
- ④ ATTIC/ROOF INSULATION - R-50 CELLULOSE BLOWN
- ⑤ ROOF STRUCTURAL FRAME - PRE-ENGINEERED WOOD TRUSSES  
2X12 RAFTERS @ 24" O.C. W/ 1/2" BREATHING

- ② WINDOW - VINYL LAFRACOR JO. SHGC 31. ARGON FILLED DBL. PANR GLASS  
CABINET/SLIDING DR. DIN. HUNGHOPE FINE, CLEARSTONE FINED, AND TUBED TYPED
- ⑦ ROOF MATERIAL - SHAPLOCK METAL STANDING SEAT S/VAPOR  
BARRIER TOWARDS SKY *WOOD S*
- ⑧ HEATING AND COOLING SYSTEM - MINI-SPLIT HEAT PUMPS
- ⑨ 40 GALLON/ELECTRIC WATER HEATER  
W/ .41 EFFICIENT WATER HEATER ENERGY
- ⑩ 6 KW SOLAR PANEL ARRAY
- ⑪ 6 KW SOLAR PANEL ARRAY

PAKE GLASS  
AND PINE TAPER  
OR Wood Shingle  
BY

NOTE: ALTERNATIVE SUSTAINABLE-GREEN RECOMMENDATIONS

- [illegible]

DANIEL W. KARLOV - ARCHITECT  
DANIEL W. KARLOV AND ASSOCIATES LLC  
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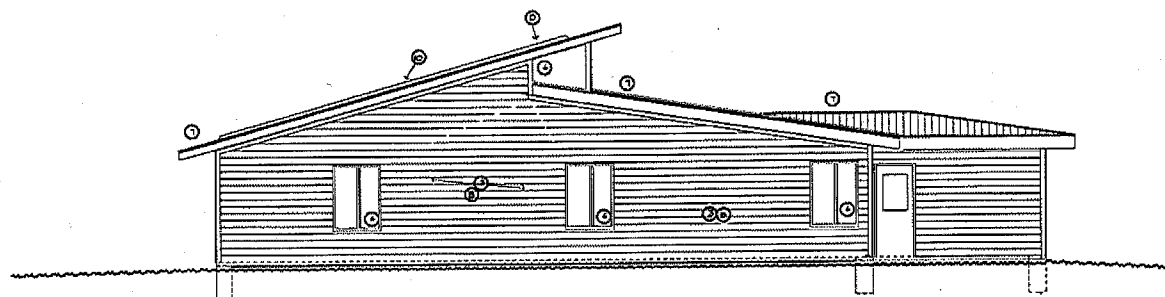
LAWRENCE LILE, PE, LEEDAP BD+C  
LILE ENGINEERING LLC  
ASHLAND, MISSOURI  
OFFICE: 313.410.1021 CELL: 313.498.7444  
LES BYE: 313.411.1452

CITY OF COLUMBIA ZERO ENERGY HOUSE

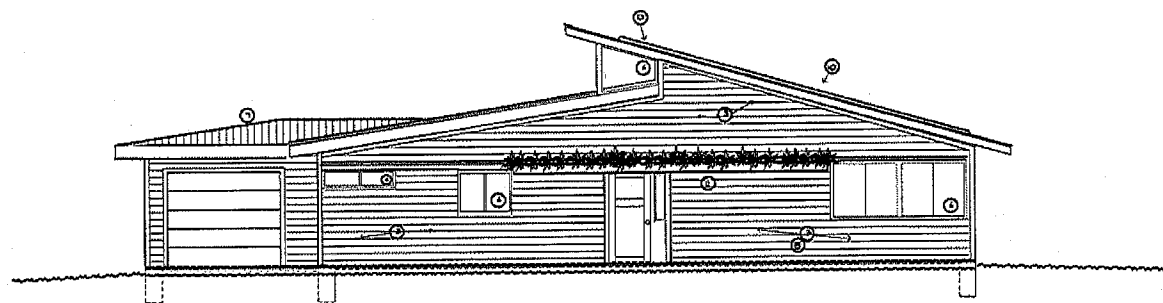
413 WASH ST.  
COLUMBIA, MISSOURI

Project # ZERO-B  
Date 03.01/13  
Designed by DWK  
Drawn by DWK  
Checked by LL  
Revised

Sheet No.  
A-1



EAST ELEVATION  
1/4" = 1'-0"



WEST ELEVATION  
1/4" = 1'-0"

# FEATURES IN KEYED NOTES

## BASE BID

NOTE: BUILDING ELEMENTS USED TO PROJECT HERS RATING OF 101 ZERO

- 1 PERIMETER FOUNDATION INSULATION - R-10 INTERNAL-R10 EXTERNAL
- 2 UNDERSLAB INSULATION - R-10 EXTERIOR SLAB 1/2" 4" CONCRETE SLAB
- 3 EXTERIOR WALL DESIGN - 2X4 STUD FRAME @ 24" O.C. R-5 SPRAFOAM 1/2" DRYWALL AND EXTERIOR SIDING
- 4 ATTIC/ROOF INSULATION - R-30 CELLULOSE BLOWN
- 5 ROOF STRUCTURAL FRAME - PRE-ENGINEERED WOOD TRUSSES W/HURRICANE TIEDOWNS @ 2' O.C. 5/8" OSB SHEATHING

- 6 WINDOWS - VINYL UPRATION 30, 5000 2. ARGON FILLED DRIP-PAN GLASS CASIMENTS AND/OR DR. HUNGDOOPER, CLEANSTORY TONED, AND FIXED TYPES
- 7 ROOF MATERIAL - SHAPLOCK METAL STANDING SEAM W/VAPOR BARRIER TOWARDS SHEATHING
- 8 HEATING AND COOLING SYSTEM - MINI-SPLIT HEAT PUMPS
- 9 40 GALLON/ELECTRIC WATER HEATER W/ .75 EFFICIENT WATER HEATER ENERGY
- 10 2 KW SOLAR PANEL ARRAY
- 11 4 KW SOLAR PANEL ARRAY

## ALTERNATE 1 "GREEN"

NOTE: ALTERNATIVE SUSTAINABLE-GREEN RECOMMENDATIONS

- 12 FLOOR MATERIAL - DELITE CONCRETE SLAB FOR CORE EASTERN FLOOR WITH DECORATIVE CONTROL JOINTS W/STAINED LINSEED OIL FINISH
- 13 EXTERIOR WALL - CELLULOSE BASED STRAW BALE AND KORE GALL. DEPENDING ON SOLAR AND CLIMATIC ORIENTATION OF WALL, WITH TROUBLE BALL - FASTER SUDROOF SOUTH WALL
- 14 ROOF - DELETE WOOD TRUSS FRAME AND METAL ROOFING FOR EASTERN GREEN GABLE ROOF - 2-50 W/INSULATED LAYERS 9-10 RIGID INSULATION REFRIGERANT ROOF W/ SUEET BENTOLITE LAYER 1" P.C. DRUMMAGE REPPRA GRAVEL AND FILTER PAVING AND NATIVE PLANTS AND GRASSES OF HAMBURG
- 15 DOMESTIC HOT WATER SYSTEM - (2) 5000 SOLAR WATER HEATING PANELS, (2) 50 GALLON STORAGE TANKS W/ 40 GALLON ELECTRIC WATER HEATER
- 16 PERVIOUS PAVEMENT AT DRIVE AND WALKS
- 17 GRASS ROOF - ENTRY
- 18 NATIVE TREES, SHRUBS AND PLANTS FOR WINDBREAKS BIRD AND ANIMAL FOOD SOURCE, PERMACULTURE DESIGN

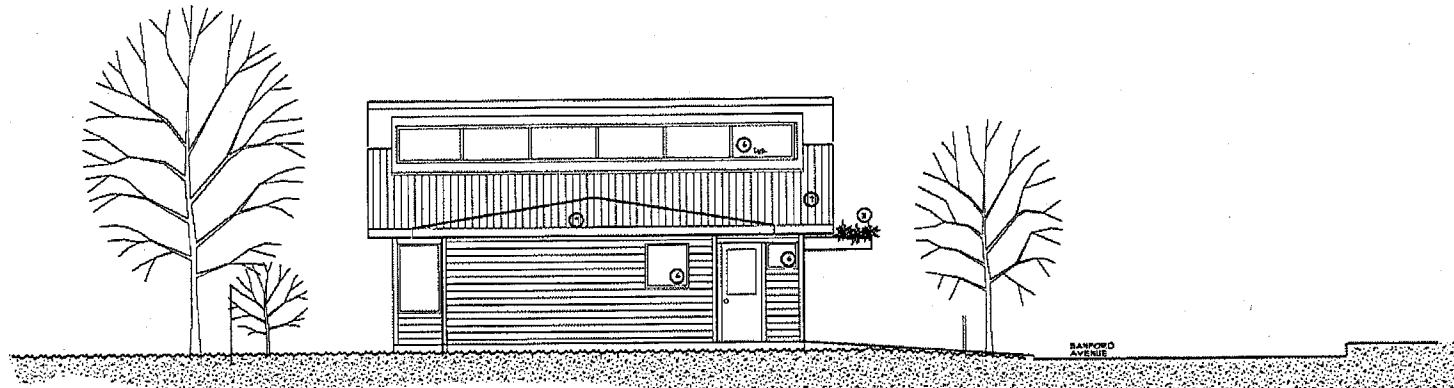
DANIEL W. KARLOV - ARCHITECT  
DANIEL W. KARLOV AND ASSOCIATES LLC  
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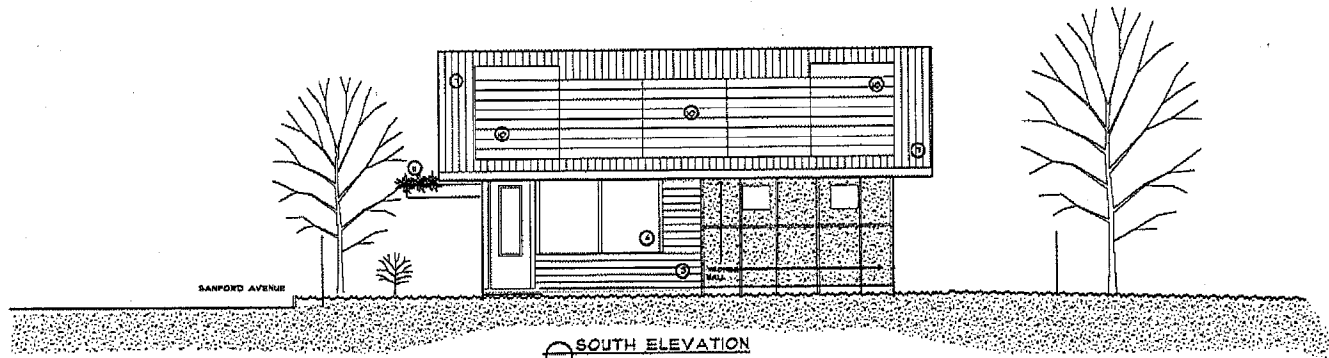
CITY OF COLUMBIA ZERO ENERGY HOUSE  
113 WASH ST.  
COLUMBIA, MISSOURI

Project # ZERO-1  
Date 03/01/13  
Designed by DKK  
Drawn by DKK  
Checked by LL  
Revised

Sheet No.  
A-2



NORTH ELEVATION  
1/4" = 1'-0"



SOUTH ELEVATION  
1/4" = 1'-0"

#### FEATURES IN KEYED NOTES

##### BASE BID

NOTE: BUILDING ELEMENTS USED TO PROJECT HERE RATING OF 101 ZERO

- ① PERIMETER FOUNDATION INSULATION - R-10 INTERNAL-R-10 EXTERNAL
- ② UNDERSLAB INSULATION - R-10 ENTIRE SLAB 1/4" CONCRETE SLAB
- ③ EXTERIOR WALL DESIGN - 2X4 STUD FRAME - 2" O.C. R-6 SPRAYFOAM 1/2" ORYBALL AND EXTERIOR SING
- ④ ATTIC/ROOF INSULATION - R-10 CELLULOSE BLOOM
- ⑤ ROOF STRUCTURAL FRAME - PRE-ENGINEERED WOOD TRUSSER WITH HURRICANE TIEDOWN 2" O.C. 1/4" OSB SHEATHING
- ⑥ BRIDGES - VINYL SPACER 30, 800C 2X ANCON FILLED DCLPANE GLASS CABINET/AND/OR DBL HUNGCHOPPER, CLEARSTORY FIXED, AND FIXED TYPES
- ⑦ ROOF MATERIAL - SHAPLOCK METAL STANDING SEAM 24" VAPOR BARRIER TOWARDS SHEATHING
- ⑧ HEATING AND COOLING SYSTEM - MINI-SPLIT HEAT PUMPS
- ⑨ 40 GALLON/ELECTRIC WATER HEATER 1/4" EFFICIENT WATER HEATER ENERGY
- ⑩ 8 KW SOLAR PANEL ARRAY
- ⑪ 8 KW SOLAR PANEL ARRAY

#### ALTERNATE: "GREEN"

NOTE: ALTERNATIVE SUSTAINABLE-GREEN RECOMMENDATIONS

- ① FLOOR MATERIAL - DELETE CONCRETE SLAB FOR EARTH FLOOR WITH DECORATIVE CONTROL JOINTS 1/4" STAINED UNSEED OIL FISH
- ② EXTERIOR WALL - CELLULOSE BASED STRIPS BALK AND EOOD BALL SPRINGING OR MOLLY AND CLASTIC ORIENTATION OF WALL WITH TROUSE WALL - MASTER BEDROOM SOUTH WALL
- ③ ROOF - DELETE WOOD TRUSS FRAME AND METAL ROOFING FOR EARTHEN GREEN GRASS ROOF 2"20 W/ BUILT UP LAYERS 4"10 BOLD INSULATION HENDBRAKE ROOF 1/2" BENT+ BUSTOOTE LAYER 2" O.C. DRAINAGE WITH GRAYEL AND PLETS FABRIC AND NATIVE PLANTS AND GRASSES OF MISSOURI
- ④ DOMESTIC HOT WATER SYSTEM - (2) 3'X7' SOLAR WATER HEATING PANELS, (2) 80 GALLON STORAGE TANKS 1/4" 40 GALLON ELECTRIC WATER HEATER
- ⑤ PREVIOUS PAVEMENT AT DRIVE AND WALKS
- ⑥ GRASS ROOF - ENTRY
- ⑦ NATIVE TREES, SHRUBS AND PLANTS FOR UNDERFRAYS
- ⑧ BIRD AND ANIMAL FOOD SOURCE, PERMACULTURE DESIGN

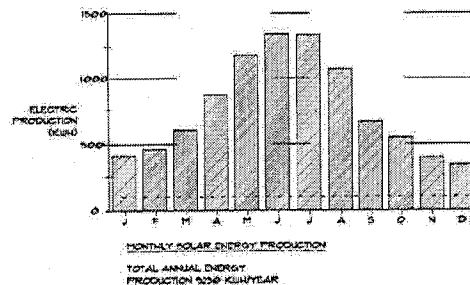
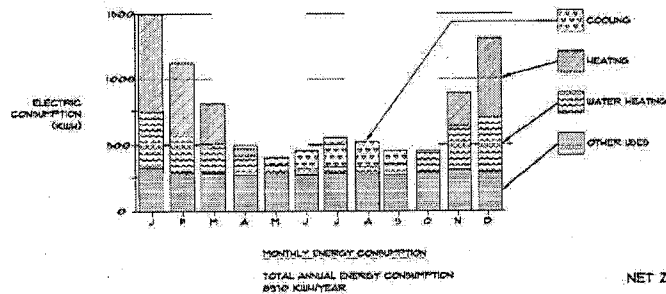
DANIEL W. KARLOV - ARCHITECT  
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EMAIL: dan@dwkarch.com

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LUE ENGINEERS LLC  
1000 N. 10TH ST.  
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LEED C/P E BUILDING 27

CITY OF COLUMBIA ZERO ENERGY HOUSE  
413 WASH ST.  
COLUMBIA, MISSOURI

Project: ZERO-E  
Date: 03/01/15  
Designed by: DWK  
Drawn by: DWK  
Checked by: LL  
Revised:

Sheet No.  
A-3



NET ZERO

#### NOTES

PROJECTED WEIR RATING: ZERO

HVAC: (2) 1/2" BOLT HEAT PUMPS, 2000 BTU EACH, 100% HEATING CAPACITY AT 95, NO ELECTRIC SUPPLEMENTAL BACKUP

SOLAR ELECTRIC ARRAY: 8 KW TOTAL DC CAPACITY, 12-200W PANELS, TOPWAVE MICROINVERTERS, ROOF MOUNTED

SOLAR WATER HEATERS: (2) 5' X 7' PANELS, 40 SQ FT COLLECTION AREA, 50 GALLON PREHEAT TANK, OUTSIDE SYSTEM

WALLS: R-15 TOTAL, 6" STUCCO, 3/4" SPRAY FOAM PLUS 1/2" CONTINUOUS R-15 FOAM INSULATION

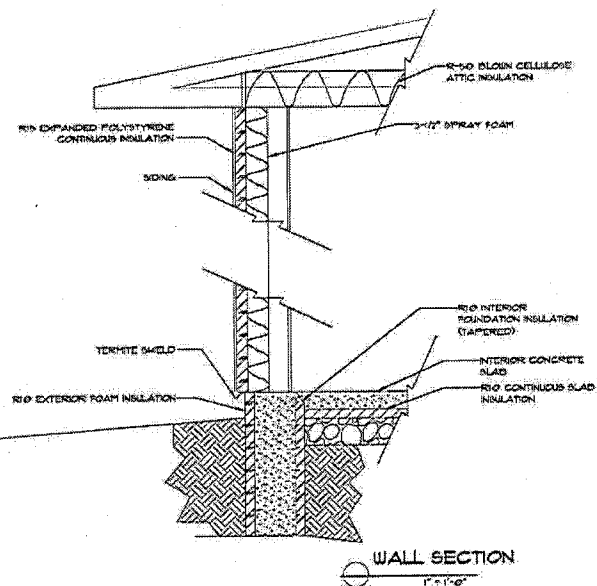
ATTIC: R-50 BLOWN CELLULOSE

FOUNDATION AND UNDERSLAB INSULATION: R-10 INSIDE THE FOOTING, R-10 OUTSIDE THE FOOTING, R-10 UNDER THE SLAB

WINDOWS: U FACTOR 0.50 SHOPS: ARGON FILLED DOUBLE GLAZED

DOORS: INSULATED STEEL WITH THERMAL BREAK

ELECTRIC WATER HEATER WITH 1% ENERGY FACTOR



DANIEL W. KARLOV - ARCHITECT  
DANIEL W. KARLOV AND ASSOCIATES LLC  
345 N. MILL ST.  
JACKSON, MISSOURI 64504  
CELL 913.875.6789  
EMAIL DANIEL@DANIELW.COM

LAURENCE LILE, PE, LEED AP  
LILE ENGINEERING LLC  
ASHLAND, MISSOURI  
OFFICE 913.875.6789 CELL 913.875.6789  
WEB SITE WWW.LEEDS.COM

CITY OF COLUMBIA ZERO ENERGY HOUSE  
413 W. WASH ST.  
COLUMBIA, MISSOURI

PROJECT # 1008  
DATE 02.01.13  
DESIGNED BY LL  
DRAWN BY LS  
CHECKED BY  
REVISED

SHEET  
TECH.  
INFO.



### **Water and Light Sponsorship Bid List**

1. Solar Water Heater per RFP with Glycol	\$7600
a. Supplied and installed by Dogwood Solar of Columbia	
b. Five year warranty on parts and labor	
2. Lennox EVR3-150 ventilation installed by Chapman Heating and Cooling	\$1283
3. R-20 Sub-slab insulation installed by Habitat	\$2135.70
4. Windows with a .20 U factor from Mid-City Lumber	\$6692.55
5. LED Lighting (90% of home) and (10% of home) Fluorescent	\$1985.24
6. Metal Roof Installation with .77 Reflectivity and .08 Emissivity 23 Squares	\$4204.40
7. Low water dual flush toilets and low flow faucets	\$1000
Total of all items	\$24,900.89

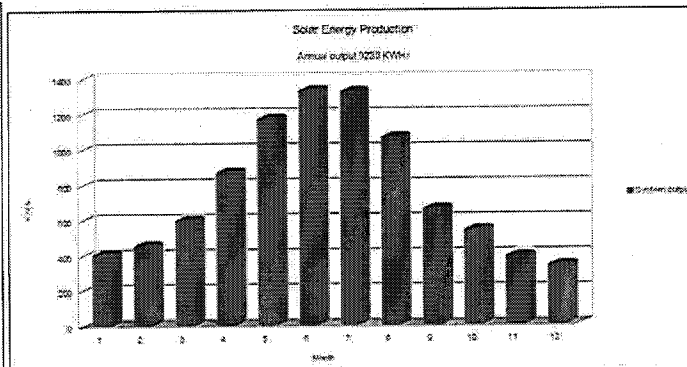
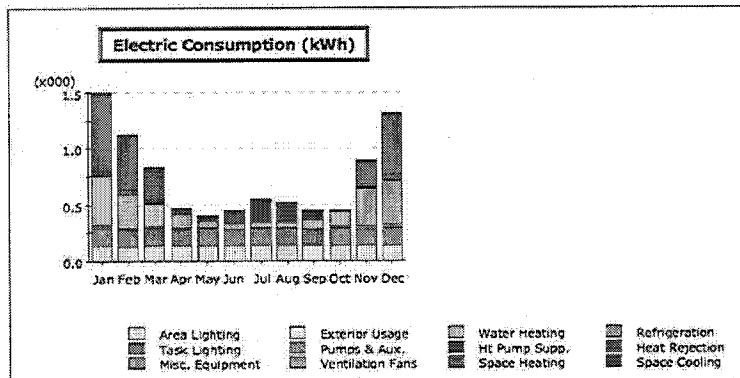
If the Light and Water Department would like to cost share the solar array system, Show Me Central Habitat for Humanity would be open to the option. In addition, if the City of Columbia wishes to have a model home with a geothermal heat pump installed, Habitat would be agreeable to substitute the extra costs associated with geothermal ground source heat pump for partial procurement of the solar equipment panels paid by Water and Light.

Lawrence Lile, PE, LEED AP BD+C, CEM, QCxP is the owner of Lile Engineering, a consulting firm specializing in energy conservation studies, LEED and Green building consulting, commissioning, and electrical engineering.

Mr. Lile has been working as a consulting engineer for 29 years on projects ranging from hospitals, commercial offices, schools, and retail. He has been involved in 4 LEED projects in the mid-Missouri area. He has installed 5 solar electric systems, and has inspected several more systems for code violations or troubleshooting.

Mr. Lile and Daniel Karlov worked together previously at a firm which designed the Energy Center at Shelter Insurance, a \$2 million renovation of the HVAC system for Shelter Insurance's main office.





#### NOTES

HVAC: (4) MINI-SPLIT HEAT PUMPS, 100% HEATING CAPACITY AT 5°F, NO ELECTRIC SUPPLEMENTAL BACKUP

SOLAR ELECTRIC ARRAY: 8 KW, MICROINVERTERS

SOLAR WATER HEATERS: (2) 3' X 7' PANELS, 50 GALLON PREHEAT TANK

WALLS: R31.5 SPRAY FOAM PLUS CONTINUOUS INSULATION

ATTIC: R50 BLOWN CELLULOSE

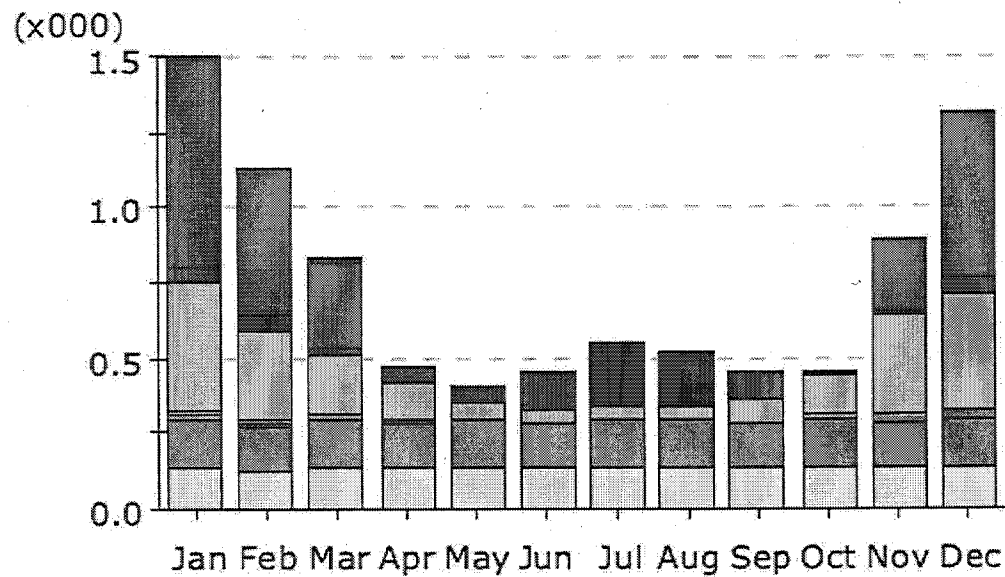
FOUNDATION AND UNDERSLAB INSULATION: R10 INSIDE THE FOOTING, R10 OUTSIDE THE FOOTING, R10 UNDER THE SLAB 5 FEET FROM EDGE

WINDOWS: U FACTOR 0.30 SHGF .21 ARGON FILLED DOUBLE GLAZED

DOORS: INSULATED STEEL WITH THERMAL BREAK

ELECTRIC WATER HEATER WITH .91 ENERGY FACTOR

## Electric Consumption (kWh)



Area Lighting  
Task Lighting  
Misc. Equipment

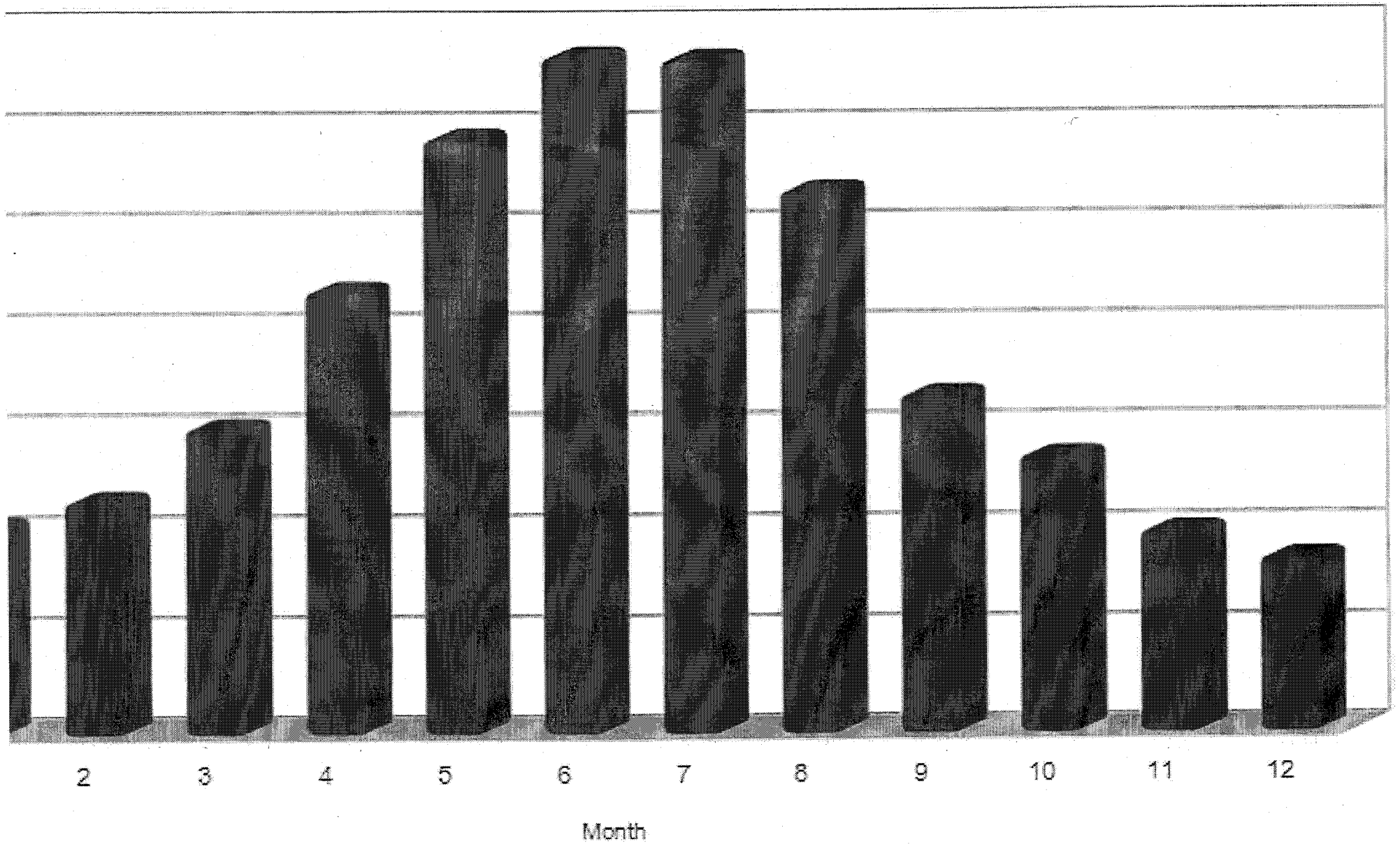
Exterior Usage  
Pumps & Aux.  
Ventilation Fans

Water Heating  
Ht Pump Supp.  
Space Heating

Refrigeration  
Heat Rejection  
Space Cooling

# Solar Energy Production

Annual output 9230 KWHr



# 1. Solar Shading Analysis

## 1.1. Location Description

GPS Coordinates: 38.954693 Latitude, -92.34495 Longitude, 0.0Altitude

System Parameters: Fixed-axis, 5.0kW at 15.0 degree tilt and 180.0 degree azimuth

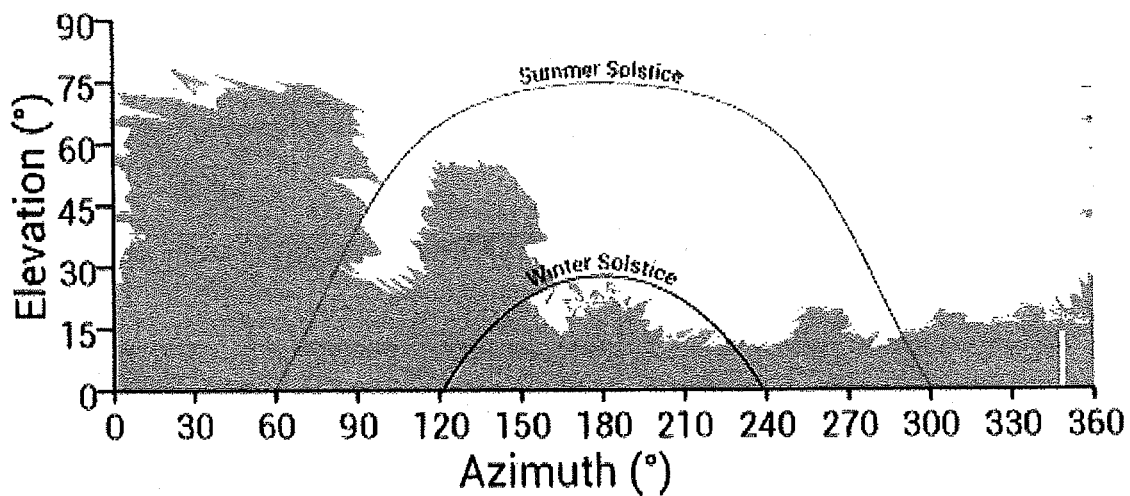
Time Zone: Central Standard Time

Winter Solstice Day Length: 9.4Hrs.

Summer Solstice Day Length: 14.8Hrs.

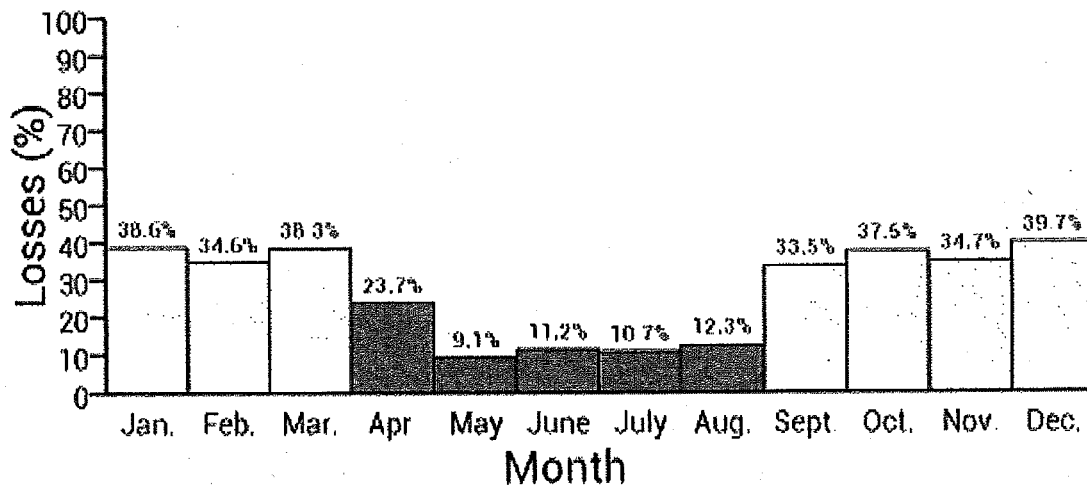
## 1.2. Solar Path

Ash and Sandford - Sun Path



## 1.3. Shading Losses

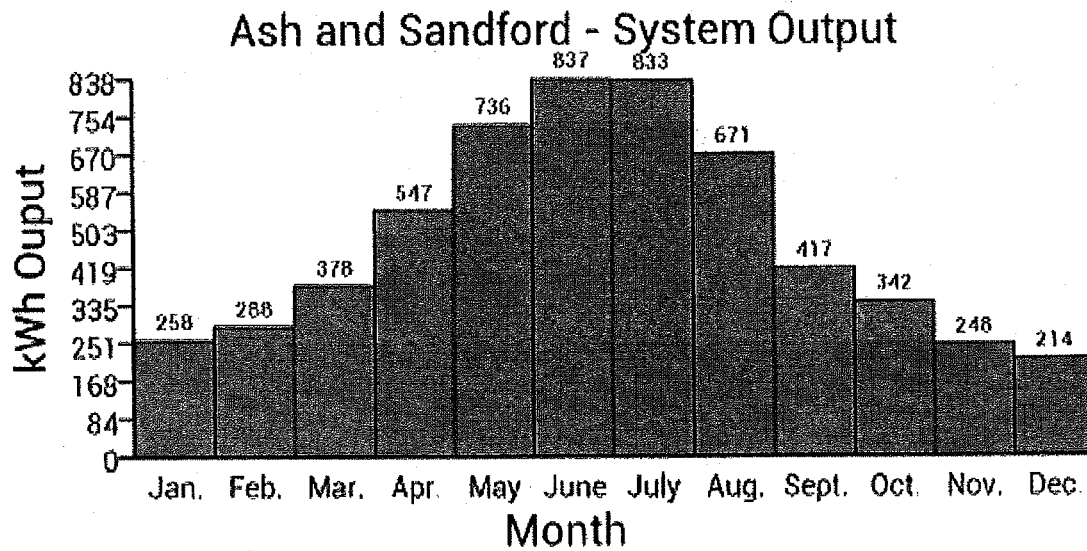
Ash and Sandford - Monthly Losses



The total yearly sun hour losses are 41.44% due to shading.

## 2. System Output Analysis

### 2.1. System Output Results



### 2.2. Total System Output

The total estimated system output of this location is 5770.2kWh/yr. Without shading there is a total possible output of 7665.1kWh/yr. At this location you will loose 1894.9kWh/yr or 24.7% due to shading.

In accordance with ACCA Manual J

## Report Prepared By:

## Chapman Heating &amp; Air Conditioning

## For:

Habitat  
413 Ash  
Columbia, MO

## Design Conditions:

## Indoor:

Summer temperature: 70  
Winter temperature: 75  
Relative humidity: 50

## Outdoor:

Summer temperature: 100  
Winter temperature: -5  
Summer grains of moisture: 100  
Daily temperature range: High

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Whole House	1,361 sq.ft.	17,617	3,958	21,575 ( 2 tons )	25,605
First Floor		17,617	3,958	21,575	25,605
All Rooms	1,361 sq.ft.	17,617	3,958	21,575	25,605
Infiltration		3,277	3,038	6,315	11,503
Duct		839	0	839	1,219
People	4	1,200	920	2,120	0
Miscellaneous		1,200	0	1,200	0
Floor	1,361 sq.ft.	0	0	0	2,352
W Wall	293 sq.ft.	277	0	277	774
Window	62 sq.ft.	4,092	0	4,092	1,612
Door	21 sq.ft.	282	0	282	790
N Wall	219 sq.ft.	207	0	207	578
Door	21 sq.ft.	282	0	282	790
E Wall	330 sq.ft.	311	0	311	871
Window	46 sq.ft.	3,036	0	3,036	1,196
S Wall	189 sq.ft.	178	0	178	499
Window	30 sq.ft.	1,020	0	1,020	780
Door	21 sq.ft.	282	0	282	790
Ceiling	1,361 sq.ft.	1,134	0	1,134	1,851
Whole House	1,361 sq.ft.	17,617	3,958	21,575 ( 2 tons )	25,605



# CUSTOMER CHOICE AGREEMENT

# CHAPMAN

HEATING AND AIR CONDITIONING

4441 I-70 Drive NW  
Columbia, MO 65202  
Phone: 673.445.4489  
Toll Free: 800.695.2259  
Fax: 673.445.3807  
www.chapmanhvac.com

Customer Name: Habitat For Humanity

Date: 1/31/13

Address: 1906 Monroe St.

City: Columbia

State: MO

Zip: 65201

Home Phone:

Work #: 499-1202

Email:

We agree to furnish, install and service the equipment listed below at the price, terms and conditions outlined on both sides of this agreement.

Job Description	Investment
Special energy efficient house project:	
Install (1) Geothermal 3 ton groundsource heat pump with desuperheater, ductwork and earth loops.	\$14,800.
Option A: Additional for 10kw electric heat strips.	\$225.00
Option B: Install Lennox ERV3-150 Energy Recovery Ventilator	\$1,283.00
Special Notes / Exclusions / Terms: 50% deposit and 50% upon completion	Job Totals \$
Check #:	Amount \$:
Credit Card #:	Exp. Date:
Name on Card:	Amount \$:
	Initial Deposit (50%) \$ ( )
	Amount Due Upon Completion \$
	Amount Financed \$

## Electrical:

- ☐ New weatherproof disconnect
- ☒ New low voltage wiring
- ☐ Licensed electrical contractor
- ☐ New electrical wiring at unit
- ☐ Dual fuel package
- ☐ New digital programmable thermostat

## Indoor Air choices:

- ☐ Power Humidifier
- ☐ Bypass Humidifier
- ☐ Steam Humidifier
- ☐ Pure Air System
- ☐ 5" MERV 10 Filter
- ☐ U/V Light
- ☐ \_\_\_\_\_

## Additional Items:

- ☐ Duct Systems to be insulated metal trunk with Flex Branches
- ☐ Duct Systems to be metal trunk with Metal Branches
- ☐ Removal & disposal of old equipment
- ☐ All ductwork to be sealed
- ☐ 1<sup>st</sup> year maintenance agreement (Chapman Comfort Club)
- ☐ Other \_\_\_\_\_
- ☐ Other \_\_\_\_\_

## Warranties:

Air Conditioner/Heat Pump:  
Compressor: 10 years  
Parts: 5 years  
Labor: 5 years  
Furnace/Air Handler:  
Heat Exchanger: n/a years  
Parts: 5 years  
Labor: 5 years  
Thermostat: 5

## Guarantees:

- ☐ System sized and installed correctly.
- ☐ No surprises pricing.
- ☐ Installer will perform quality audit prior to completion of installation.
- ☐ Installers will protect property and lay down tarps and wear carpet savers in all finished areas.
- ☐ Installation conforms to local codes.
- ☐ If you are not 100% satisfied, we will reinstall the system at no additional charge.

Authorization by: Phil Figueiredo  
Comfort Advisor

1/31/13  
Date

Acceptance by: \_\_\_\_\_  
Customer Signature Date

This agreement is valid for 30 days.

Date

Acceptance by: \_\_\_\_\_  
Customer Signature Date

Notice to Owner. Do not sign this contract if blank. You are entitled to two (2) copies of the contract at the time you authorize. Keep it to protect your legal rights. Do not sign any completion certificate or agreement stating that you are satisfied with the entire project before this project is complete. Home repair contractors are prohibited by law from requesting or accepting a certificate of completion signed by the owner prior to the actual completion of the work to be performed under the home repair contract.

We own the real property in which the equipment is to be installed and have authority to order the work outlined above. Terms: Net due on the day of installation or in accordance with financing agreement. The job must be executed within 30 days or this contract shall be void. The seller retains the title to all materials and property listed herein until payment has been made in full. Accounts not paid within thirty (30) days of notice of invoice are in default and a late payment charge of 1-1/2% per month will be added. Buyer agrees to any reasonable attorney or collection fees incurred by the seller in securing payment for this contract. See reverse side for additional terms.

# **SPECIFICATIONS - ERV**

SPECIFICATIONS - ERV			ERV3-150	ERV3-200
		Model No.	Single	Single
		Number of Cores	Single	Single
Performance	Sensible effectiveness @ 32°F		81% (63 cfm)	76% (116 cfm)
	Sensible efficiency (thermal) @ 32°F		69% (63 cfm)	69% (116 cfm)
	Latent efficiency (moisture) 95°F		37% (65 cfm)	41% (117 cfm)
	Total efficiency 95°F		47% (65 cfm)	50% (117 cfm)
Blower	Air Flow (cfm)	0.1 in. w.g.	151	180
	vs. Static Pressure (high speed)	0.2 in. w.g.	141	169
		0.3 in. w.g.	132	157
		0.4 in. w.g.	124	146
		0.5 in. w.g.	* 107 *	132
		0.6 in. w.g.	98	118
		0.7 in. w.g.	81	101
		0.8 in. w.g.	60	82
	Number of Speeds Available (with furnished control)		1	1
	Number of Speeds Available (with optional control)		5	5
Door Port Balancing		No	No	
Balancing Damper in Intake and Exhaust Collar		Yes	Yes	
Duct Ports		(2) 6 outside, (2) 6 inside		
ELECTRICAL DATA				
		Voltage	120 volts - 60 hertz - 1 phase	
		Blower HP (PSC type)	1/20	1/10
		Fan Watts - high speed @ 0.3 in. w.g.	* 173 *	182
		Fan Watts - low speed @ 0.3 in. w.g.	63	70
		Amp Rating	1.4	1.4
Shipping weight - lbs. (kg)			77 (35)	77 (35)

NOTE - Effectiveness is based on temperature difference between the 2 airstreams.  
Efficiency includes parasitic losses from fan operation

# Submittal Data Sheet

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## Performance

Indoor Unit Model No: Non-Ducted  
Outdoor Unit Model No: 4MXS32GVJU  
Rated Cooling Capacity (Btu/hr): 30600  
Sensible Capacity (Btu/hr): N/A  
Max/Min Cooling Capacity (Btu/hr / kW): tabook/databook  
Cooling Input Power (kW):  
SEER: 17.2  
Rated Heating Capacity (Btu/hr): 32000  
Max/Min Heating Capacity (Btu/hr / kW): tabook/databook  
Heating Input Power (kW):  
Heating COP (Btu/hr / Btu/hr): 3.4  
HSPF: 9.3

Indoor Unit Type:  
Condensing Unit Type: 4 Zone Multi Heat Pump  
Indoor: 80°F DB/67°F WB  
Rated Cooling Conditions Outdoor: 95°F DB/75°F WB  
Indoor: 70°F DB/60°F WB  
Rated Heating Conditions Outdoor: 47°F DB/43°F WB  
Rated Piping Length(ft) 25  
Rated Height Separation(ft) 0

## Indoor Unit Details

Power Supply (V/Hz/Ph): N/A  
Power Supply Connections:  
Min Circuit Amps MCA (A):  
Max Overcurrent Amps MFA (A):  
Dimensions (HxWxD): N/A  
Panel (HxWxD): N/A  
Net Weight (lbs):  
Weight with Panel (lbs):

Airflow Rate (CFM wet coil) N/A  
Moisture Removal (pt/h):  
Gas Pipe Connection (inch):  
Liquid Pipe Connection (inch):  
Condensate Connection (inch):  
Sound Pressure Level (dBA):  
Sound Power Level (dBA):  
Static Pressure Rated/Max (inWg) 1

## Condensing Unit Details

Power Supply (V/Hz/Ph): 208-230/60/1ph  
Power Supply Connections: L1, L2, Ground  
Min. Circuit Amps MCA (A): 18  
Max. Overcurrent Amps MFA (A): 20  
Max. Starting Current MSC(A): 13.8  
Rated Load Amps RLA (A): 12.1  
Dimensions (HxWxD): 30-5/16x35-7/16x12-5/8  
Net Weight (lbs): 168

Compressor Type: Inverter  
Capacity Control Range (%):  
Airflow Rate (CFM): 2062  
Gas Pipe Connection (inch): 3/8 x 1, 1/2 x 1, 5/8 x 2  
Liquid Pipe Connection (inch): 1/4 x 4  
Sound Pressure Level (dBA): 54  
Sound Power Level (dBA):

## System Details

Refrigerant Type: R-410A  
Holding Refrigerant Charge (lbs): 6.83  
Additional Charge (oz/ft): 0.22  
Pre-charge Piping (Length ft): 131.6 ft  
Max. Pipe Length (Total ft): 230/82 ft

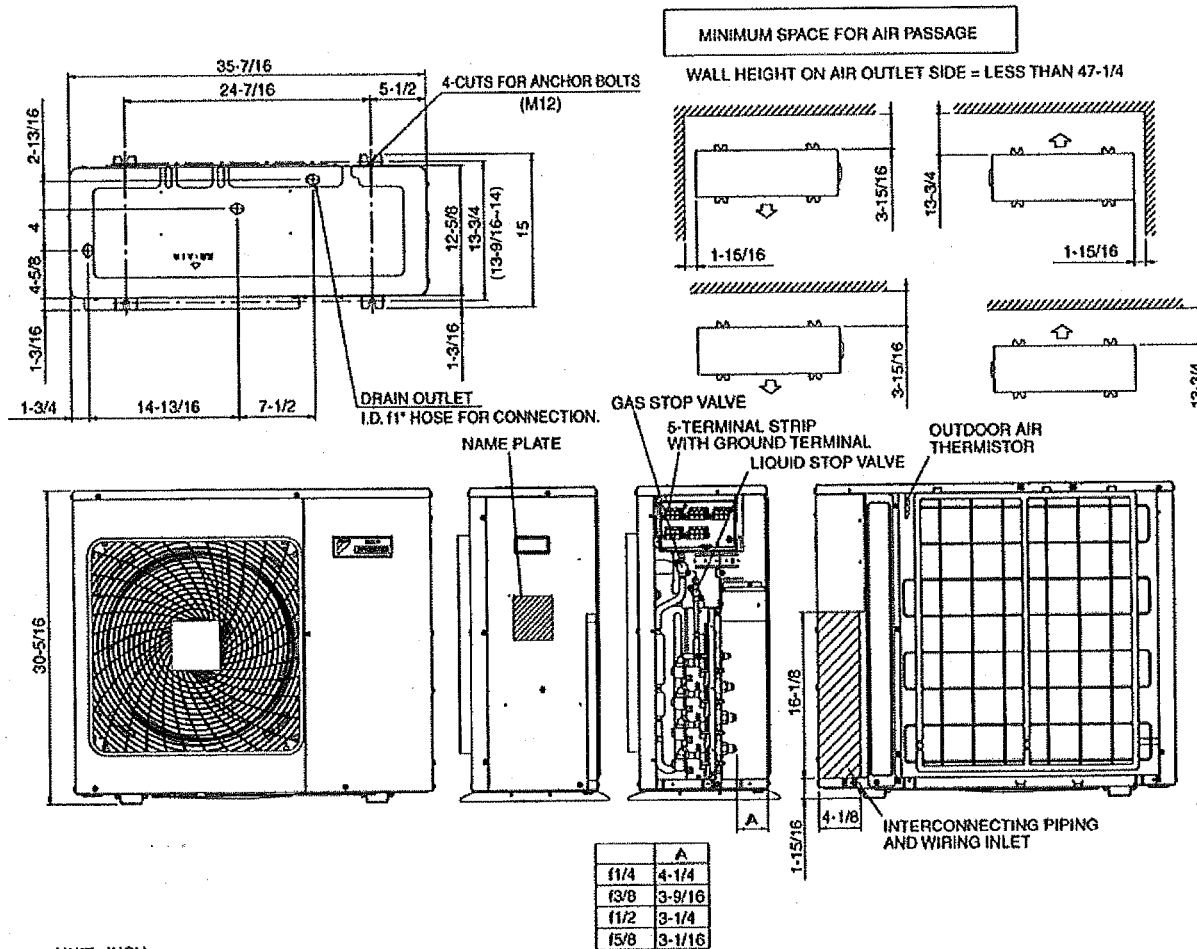
Max. Pipe Length (Vertical ft): 49.2 ft  
Cooling Operation Range (°F): 14 - 115  
Cooling Range w/Baffle (°F): 14 - 115  
Heating Operation Range (°F): 5 - 72  
Heating Range w/Baffle (°F): 5 - 72

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

4MXS32GVJU

## Dimensional Drawing - Condensing Unit



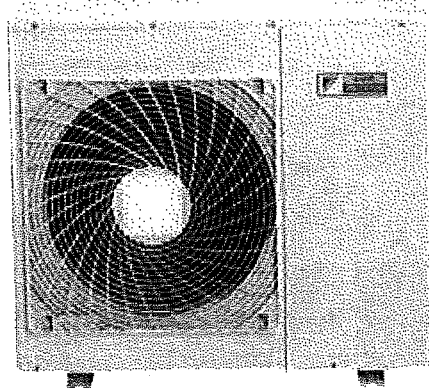
# Submittal Data Sheet

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Reference: 413 Ash

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Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## Non-Ducted

## 4MXS32GVJU



## Non-Ducted

Std U.S. Warranty: 7yrs Compressor, 5yrs Parts

## 4MXS32GVJU

Std U.S. Warranty: 7yrs Compressor, 5yrs Parts



# Submittal Data Sheet

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## Performance

Indoor Unit Model No: CTXS07LVJU  
Outdoor Unit Model No:  
Rated Cooling Capacity (Btu/hr): 7000  
Sensible Capacity (Btu/hr): N/A  
Max/Min Cooling Capacity (Btu/hr / kW): tabook/databook  
Cooling Input Power (kW):  
SEER: data book  
Rated Heating Capacity (Btu/hr): 8500  
Max/Min Heating Capacity (Btu/hr / kW): tabook/databook  
Heating Input Power (kW):  
Heating COP (Btu/hr / Btu/hr): data book  
HSPF: data book

Indoor Unit Type: Wall Mounted (for Multi)  
Condensing Unit Type:

Rated Cooling Conditions Indoor: 80°F DB/67°F WB  
Outdoor: 95°F DB/75°F WB

Rated Heating Conditions Indoor: 70°F DB/60°F WB  
Outdoor: 47°F DB/43°F WB

Rated Piping Length(ft) 25  
Rated Height Separation(ft) 0

## Indoor Unit Details

Power Supply (V/Hz/Ph): 208-230/60/1ph  
Power Supply Connections: L1, L2, Ground  
Min Circuit Amps MCA (A): data book  
Max Overcurrent Amps MFA (A): data book  
Dimensions (HxWxD): 11-5/8x31-1/2x8-9/16  
Panel (HxWxD): N/A  
Net Weight (lbs): 20  
Weight with Panel (lbs):

Airflow Rate (CFM wet coil) 332/194/145  
Moisture Removal (pt/h):  
Gas Pipe Connection (inch): 3/8  
Liquid Pipe Connection (inch): 1/4  
Condensate Connection (inch): 5/8  
Sound Pressure Level (dBA): 38  
Sound Power Level (dBA): 54  
Static Pressure Rated/Max (inWg) 0 / 0/0

## Condensing Unit Details

Power Supply (V/Hz/Ph):  
Power Supply Connections: L1, L2, Ground  
Min. Circuit Amps MCA (A): data book  
Max. Overcurrent Amps MFA (A):  
Max. Starting Current MSC(A): data book  
Rated Load Amps RLA (A): data book  
Dimensions (HxWxD): N/A  
Net Weight (lbs):

Compressor Type: Inverter  
Capacity Control Range (%):  
Airflow Rate (CFM): N/A  
Gas Pipe Connection (inch):  
Liquid Pipe Connection (inch):  
Sound Pressure Level (dBA):  
Sound Power Level (dBA):

## System Details

Refrigerant Type: R-410A  
Holding Refrigerant Charge (lbs): -  
Additional Charge (oz/ft): -  
Pre-charge Piping (Length ft): -  
Max. Pipe Length (Total ft): data book

Max. Pipe Length (Vertical ft): data book  
Cooling Operation Range (°F): 14 - 115  
Cooling Range w/Baffle (°F): 14 - 115  
Heating Operation Range (°F): 5 - 72  
Heating Range w/Baffle (°F): 5 - 72

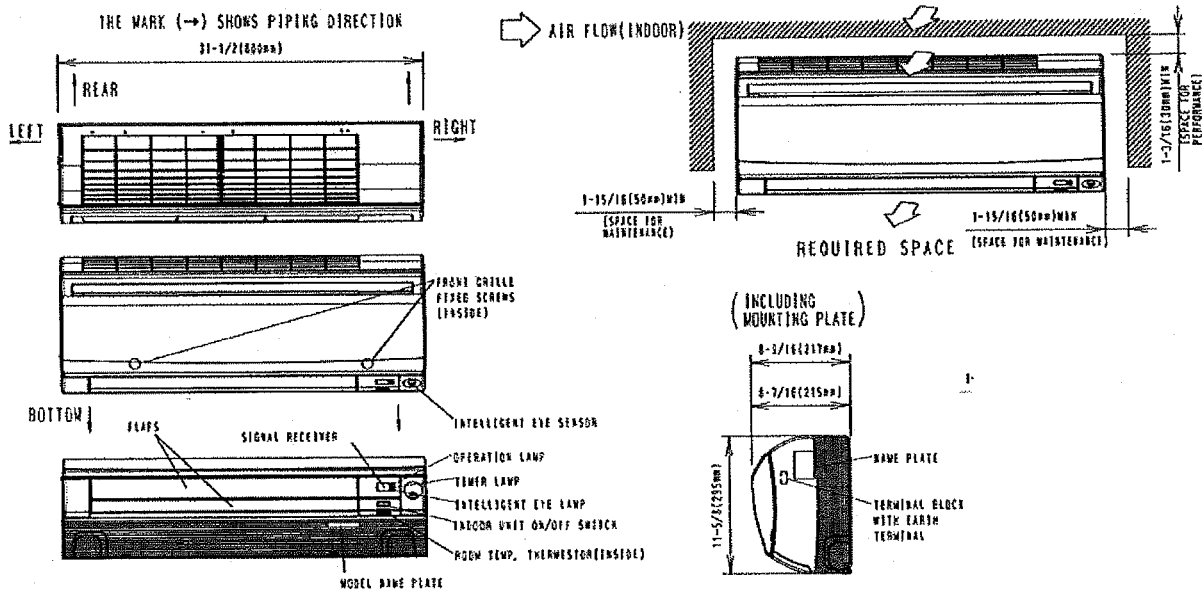
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Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## Dimensional Drawing - Indoor Unit

CTXS07LVJU

CTXS07LVJU

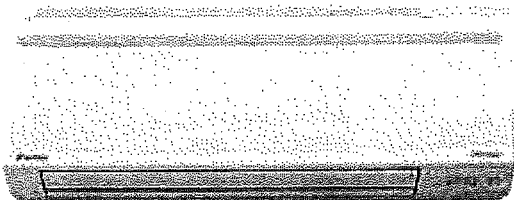


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Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

**CTXS07LVJU**



**CTXS07LVJU**

Std U.S. Warranty: 5yrs Parts

Std U.S. Warranty: 5yrs Parts



# Submittal Data Sheet

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## Performance

Indoor Unit Model No: CTXS09HVJU  
Outdoor Unit Model No:  
Rated Cooling Capacity (Btu/hr): 8500  
Sensible Capacity (Btu/hr): N/A  
Max/Min Cooling Capacity (Btu/hr / kW): tabook/databook  
Cooling Input Power (kW):  
SEER: data book  
Rated Heating Capacity (Btu/hr): 10000  
Max/Min Heating Capacity (Btu/hr / kW): tabook/databook  
Heating Input Power (kW):  
Heating COP (Btu/hr / Btu/hr): data book  
HSPF: data book

Indoor Unit Type: Wall Mounted (for Multi)  
Condensing Unit Type:  
Rated Cooling Conditions: Indoor: 80°F DB/67°F WB  
Outdoor: 95°F DB/75°F WB  
Rated Heating Conditions: Indoor: 70°F DB/60°F WB  
Outdoor: 47°F DB/43°F WB  
Rated Piping Length(ft): 25  
Rated Height Separation(ft): 0

## Indoor Unit Details

Power Supply (V/Hz/Ph): 208-230/60/1ph  
Power Supply Connections: L1, L2, Ground  
Min Circuit Amps MCA (A): data book  
Max Overcurrent Amps MFA (A): data book  
Dimensions (HxWxD): 11-7/16x31-5/16x9-3/8  
Panel (HxWxD): N/A  
Net Weight (lbs): 20  
Weight with Panel (lbs):

Airflow Rate (CFM wet coil): 388/335/283  
Moisture Removal (pt/h):  
Gas Pipe Connection (inch): 3/8  
Liquid Pipe Connection (inch): 1/4  
Condensate Connection (inch): 11/16  
Sound Pressure Level (dBA): 44  
Sound Power Level (dBA): -  
Static Pressure Rated/Max (inWg): 0 / 0/0

## Condensing Unit Details

Power Supply (V/Hz/Ph):  
Power Supply Connections: L1, L2, Ground  
Min. Circuit Amps MCA (A):  
Max. Overcurrent Amps MFA (A):  
Max. Starting Current MSC(A): data book  
Rated Load Amps RLA (A): data book  
Dimensions (HxWxD): N/A  
Net Weight (lbs):

Compressor Type: Inverter  
Capacity Control Range (%):  
Airflow Rate (CFM): N/A  
Gas Pipe Connection (inch):  
Liquid Pipe Connection (inch):  
Sound Pressure Level (dBA):  
Sound Power Level (dBA):

## System Details

Refrigerant Type: R-410A  
Holding Refrigerant Charge (lbs): -  
Additional Charge (oz/ft): -  
Pre-charge Piping (Length ft): -  
Max. Pipe Length (Total ft): data book

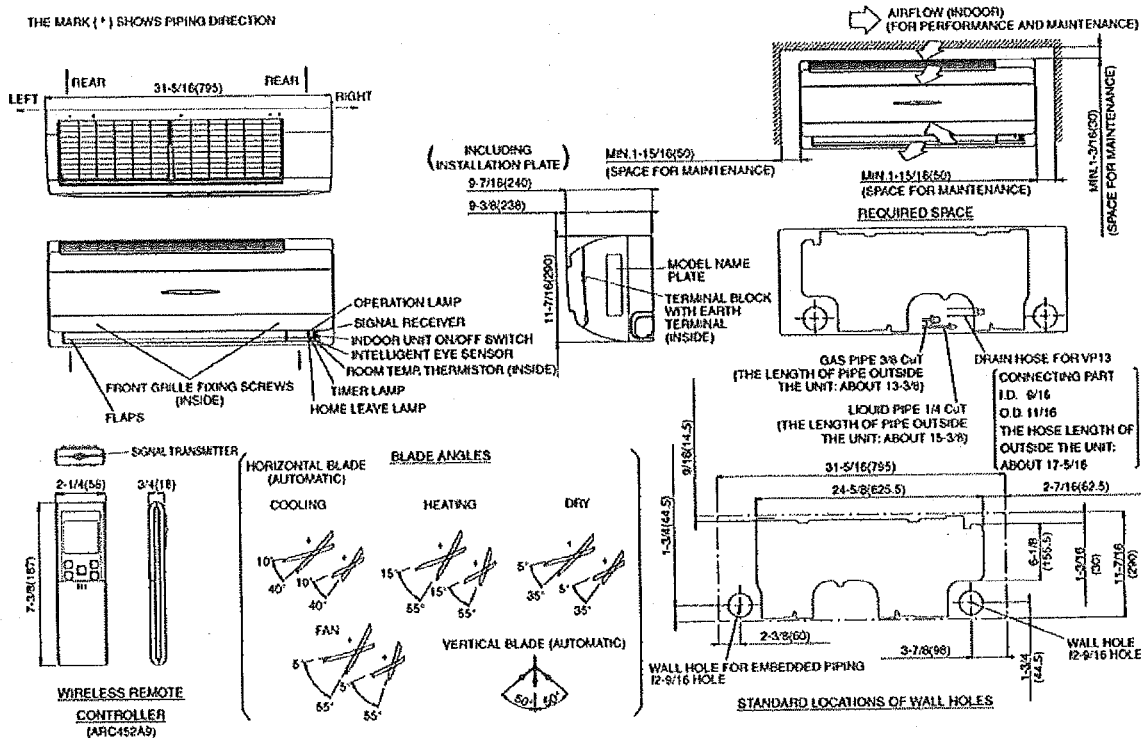
Max. Pipe Length (Vertical ft): data book  
Cooling Operation Range (°F): 14 - 115  
Cooling Range w/Baffle (°F):  
Heating Operation Range (°F): 5 - 72  
Heating Range w/Baffle (°F):

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

CTXS09HVJU

## Dimensional Drawing - Indoor Unit

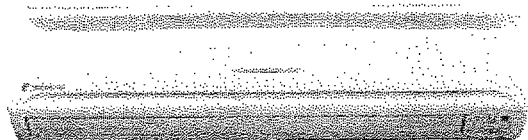


# Submittal Data Sheet

Project Name: 413 Ash Multi Split  
Location:  
Engineer: Eddie Christ  
Submitted to: Chapman Htg & A/C  
Submitted by:  
Reference: 413 Ash

Approval:  
Date: 3/1/2013  
Construction:  
Unit #:  
Drawing #:

## CTXS09HVJU



## CTXS09HVJU

Includes Intelligent Eye occupancy sensor:  
Options include Wired Remote Controller, Std  
U.S. Warranty: 5yrs Parts

Includes Intelligent Eye occupancy sensor:  
Options include Wired Remote Controller, Std  
U.S. Warranty: 5yrs Parts



Dogwood Solar, LLC  
1001 Fay St, STE 101  
Columbia, MO 65201

Phone: 573-424-2011  
Fax: 573-499-1331  
dan@dogwoodsolar.com

## Installation Agreement for a Solar Water Heater

Date: 2/18/13

Name: Bill View  
Installation Address: 413 Ash  
City: Columbia State: MO Zip code: 65203  
Phone: 573-808-0686  
Email: [billviewhabitat@yahoo.com](mailto:billviewhabitat@yahoo.com)

Dogwood Solar, LLC proposes to furnish and install a solar water heater as described below per Addendum for the 413 West Ash RFP:

"Solar water heater sized to supply at least 50 % of the water heating"

The following material will be provided:

- 1) solar collector(s)
  - 2) All plumbing necessary consisting of  $\frac{3}{4}$  copper- \*\* insulated with 1" foam insulation, and 30% per gallon glycol anti-freeze,
  - 3) pump, controls and electrical components,
  - 4) Appropriately sized tank and heat exchanger, including expansion tank
- \*\* we utilize a stainless flexible line, this has been used on our other City projects

Also includes  
Anti-scald valve  
Waterproof membrane  
Roof flashing  
Miscellaneous supplies and parts for a complete installation  
Operation manual, solar water heater orientation for owner  
All labor for complete installation and system commissioning

### NOTES regarding the installation at 413 Ash:

The actual system will be designed once we verify what other heat sources are utilized (i.e. desuperheater on geo unit) Based on the configuration of other tanks, we will design a system that meets or exceeds the requirements.

#### INSTALLATION TIME

Weather permitting; we expect this installation to last 1.5 to 2 days. In the event we are interrupted due to weather, we will insure your home is appropriately protected from the elements until work resumes.

Prior to start, we will coordinate our schedules to find a date that will be least disruptive for the installation.

#### WARRANTY

A complete copy of the warranty with serial and model numbers will be furnished to the owner once the system is commissioned.

Dogwood Solar provides a complete 5 year warranty on labor and installation

#### SYSTEM DATA

##### LOCATION DATA

Solar resource: 5.05 kWh/m<sup>2</sup> per day

Latitude/Longitude: 38.82, -92.22

Module array pitch: 18.43°

Module array Orientation: 180°

#### SYSTEM COST

Cost with no incentive, rebate or sales tax \$7,600.00

The City of Columbia offers a \$400 rebate for solar water heaters in this scenario. At this point I am unsure if this project is eligible for this rebate. If the project is eligible, I do not know if the rebate would go to Habitat or the eventual homeowner.

Sincerely,

Dan Shifley  
Dogwood Solar, LLC  
P: 573-424-2011  
F: 573-499-1331  
[dan@dogwoodsolar.com](mailto:dan@dogwoodsolar.com)

Accepted By: \_\_\_\_\_

Signature: \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Deposit Amount: \$ \_\_\_\_\_

Tentative installation date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Payment Method: \_\_\_\_\_

# Bright City Lights

1400 Heriford Road Suite A  
Columbia, MO 65202

(573) 474-8890

(573) 875-8893 Fax #

brightcitylights.com

## Estimate

Date	Estimate #
2/7/2013	3786
project	
Ash St.	

Name / Address
Habitat for Humanity 499-1202 Bill View billviewhabitat@yahoo.com

Rep
LKW

Item	Description	Qty	Cost	RM	Total
RC22	New construction speedy can	17	13.50	great room, kitchen, master	229.50
S8858	White trim 17w PAR 38 LED	17	61.12353	led bulbs for recessed	1,039.10
FL2x4CST	White 2-32w T8 fluorescent	1	30.00	laundry	30.00
s6619	32 watt T-8 Environment friendly 48"	2	2.10	fluorescent bulbs for laundry	4.20
P5044-084-L	Brushed nickel wall sconce, 10w led incl	2	180.00	bath vanity	360.00
F548-ORB	ORB, 52" uni-pack fan 3- 60w. cand	2	110.00	bedrooms	220.00
ldct3wh27k	3 w led dimmable 2700k cand.	6	25.00	led bulbs for fans	150.00
F547-ORB	Oil Rubbed Bronze, Contractor 52"	2	80.00	great room, master	160.00
K9625	Compact fluorescent keyless fixture, 1-13w GU24 bulb incl.	5	14.50	garage, storage	72.50
P9625-Sh	short cover for K9625	5	5.25		26.25
72391-143c	outdoor	2	95.00	exterior doors	190.00
20% DISCOUNT	20% DISCOUNT		-20.00%		2,481.55 -496.31

			<b>Subtotal</b>	\$1,985.24
			<b>Sales Tax (7.35%)</b>	\$0.00
			<b>Total</b>	\$1,985.24

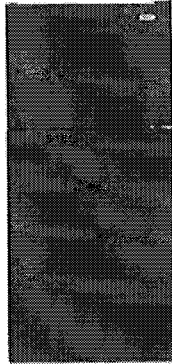
Signature

Your Store:  
Columbia, MO

You're shopping a store in:

Columbia, MO  
201 Conley Road N.

We use your store location to provide current pricing and inventory. It'll also be the location for in-store pickups.



### Whirlpool 17.6 cu ft Top-Freezer Refrigerator (Black) ENERGY STAR

Item #: 358680 | Model #: W8TXEWFYB

★★★★★

**\$649.00**

Get 5%\* Off Every Day or Special Financing\*\*  
Minimum Purchase Required

#### FREE Store Pickup

Your order will be ready for pickup from  
Lowe's Of Columbia, MO by  
02/20/2013.

#### FREE Lowe's Truck Delivery

Your order will be ready for delivery to  
you from Lowe's Of Columbia, MO by  
02/20/2013.

#### Parcel Shipping

Unavailable for This Order  
Sent by carriers like UPS,  
FedEx, USPS, etc.

Whirlpool 17.6 cu ft  
Top-Freezer  
Refrigerator (Black)  
ENERGY STAR

**\$649.00**

#### Description

17.6 cu ft Top-Freezer Refrigerator (Black) ENERGY STAR

- Refrigerators run non-stop - so choose an ENERGY STAR® qualified model that will be cost-efficient to run and not waste resources
- A clear, full-width crisper allows you to store a wide array of fruits and vegetables and full-width shelves keep everything in sight
- Up-front temperature controls make temperature management easy by placing the interior controls at the front of the refrigerator
- Fixed utility compartment
- Optional automatic ice maker sold separately - part number ECKMF94
- Full-width fixed wire freezer shelf
- Fixed freezer door storage shelves
- Automatic defrost system
- Flat door styling

#### Specifications

Appliance Color/Finish	Black	Freezer Baskets	0
Overall Capacity (Cu. Feet)	17.6	Freezer Shelves	1
Refrigerator Capacity (Cu. Feet)	13.5	Freezer Door Style	Side-swing
Freezer Capacity (Cu. Feet)	4.1	Frost-Free	Yes
Door Texture	Textured	ENERGY STAR Qualified	Yes
Door Style	Flat	CEE Tier Qualified	CEE Tier 1
Hidden Hinge	No	Height to Top of Case (Inches)	67.375
Handle Type	Standard	Height to Top of Door Hinge (Inches)	67.875
Water Filtration	No	Width (Inches)	28.0
Dispenser Options	N/A	Depth (Including Handles) (Inches)	32.875
Child Safety Locks	No	Depth (Excluding Handles) (Inches)	30.875
Water Filter Indicator	No	Depth (Less Door) (Inches)	27.75
Door Alarm	No	Depth with Door Open (Inches)	57.0
Dispenser Light	No	Manufacturer Color/Finish	Black

2-Year Major Appliance Extended Protection Plan (\$500-\$999.99)	\$69.97
4-Year Major Appliance Extended Protection Plan (\$500-\$999.99)	\$109.97

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## GIK Construction Catalog > Whirlpool > Appliances > Product De

[Question / Feedback on](#)

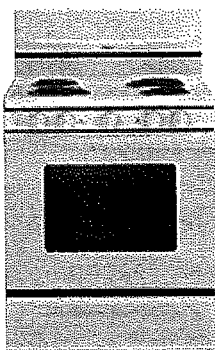
30" Standard Clean Freestanding Electric Range ADA Compliant, WFC340S0AB and WFC340S0



[Question / Fe](#)

[Back](#) |

[Recommend this resource](#)



**IMPORTANT!!! WHIRLPOOL ORDER STATUS UPDATES!!!**  
**IMPORTANT!!! WHIRLPOOL ORDER STATUS UPDATES!!!**

**Whirlpool-Habitat Ambassador Program Unveiled**  
 Introducing the new Whirlpool-Habitat Ambassador Program

**Whirlpool Brand Appliance Buying Guide Available**  
 Check out the new Whirlpool Brand Appliance Buying Guide

**Donor Recognition Toolkits Available**  
 Toolkits that provide resources to recognize and build awareness of a donor's partner with Habitat are available on My.Habitat

### Order:

Description:		Quantity:	Cc
30" Standard Clean Freestanding Electric Range ADA Compliant, WFC340S0AB and WFC340S0AW		<input type="text" value="1"/>	\$
<b>Options</b>			
Color	White	<input type="text"/>	\$
Power Cords	4 Prong Power Cord - \$0	<input type="text"/>	\$
Delivery Services	Set in Place/Crated - \$0	<input type="text"/>	\$
<b>Total:</b>			<b>\$</b>

Please allow 4 weeks for delivery.

**Ord**

This 4.8 cu. ft. capacity freestanding electric coil range assumes a more sophisticated with wider, sturdier angles and a 1-piece steel console that's easier than ever to clear without seams that gather debris. Also features knob controls, two 8" elements, two 6 elements and an EasyView™ Extra-Large Oven Window to monitor your cooking pro



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[print](#) | [contact](#)

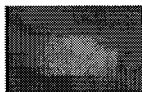


## Whirlpool® Dishwasher with ENERGY STAR® qualification

Model WDF310PAAW Rating: 27 Reviews

[we also recommend](#)

works best with



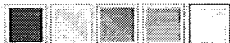
pan.

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White  
MSRP \$379.00

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### Whirlpool® Dishwasher with ENERGY STAR® qualification

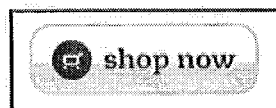
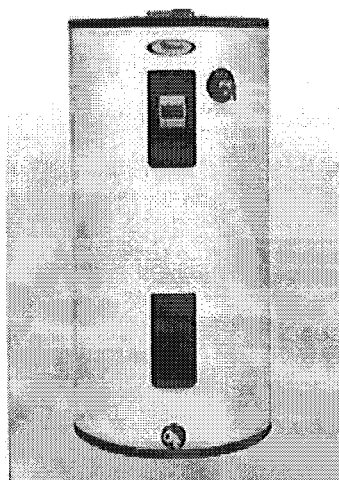
Take home a dishwasher that will help improve your home and the environment. With ENERGY STAR® and CEE Tier 1® qualifications, this dishwasher exceeds federal minimum energy efficiency standards by more than 15% and may qualify for rebates. The resource-efficient wash system cleans a full load of dishes using nearly 1/2 the water and energy<sup>1</sup>, while the Tall Tub design allows

why you'll love it...



ENERGY STAR® Qualified

Whirlpool® dishwashers exceed government efficiency standards, so they are better for the environment and your wallet.



Available exclusively at Lowe's

★★★★★ 4.6 / 5

[Read all 179 reviews](#) | [Write a review](#)

## 40 Gallon Electric Water Heater

40GAL 9YR ENERGY SMART ELECTRIC WATER HEATER

**Model:** ES40R92-45D **Lowe's Item\* #:** 345706

### Product Features

- Self-Diagnostic Electronic Control with 3 User-Selectable Operating Modes – Saves Energy, Monitors Functions, and automatically adjusts to Homeowner Water Usage Patterns
- Stainless Steel Lower Element, Copper Upper Element
- Features & Specs
- Guides & Literature
- Energy Efficiency
- Rebate Finder
- Support Resources
- Ratings & Reviews

### Features and Specs

- **Capacity** 40 Gallons
- **Family Size** 2-3
- **Warranty** 9 Years
- **Electric Wattage** 4500 Watts
- **Energy Factor** 0.92
- **Self Cleaning** Yes
- **Tank Style** Regular
- **Number of Electrical Elements** Dual Elements

### Dimensions

**Diameter** 20"

**Height** 48.25"

Available at



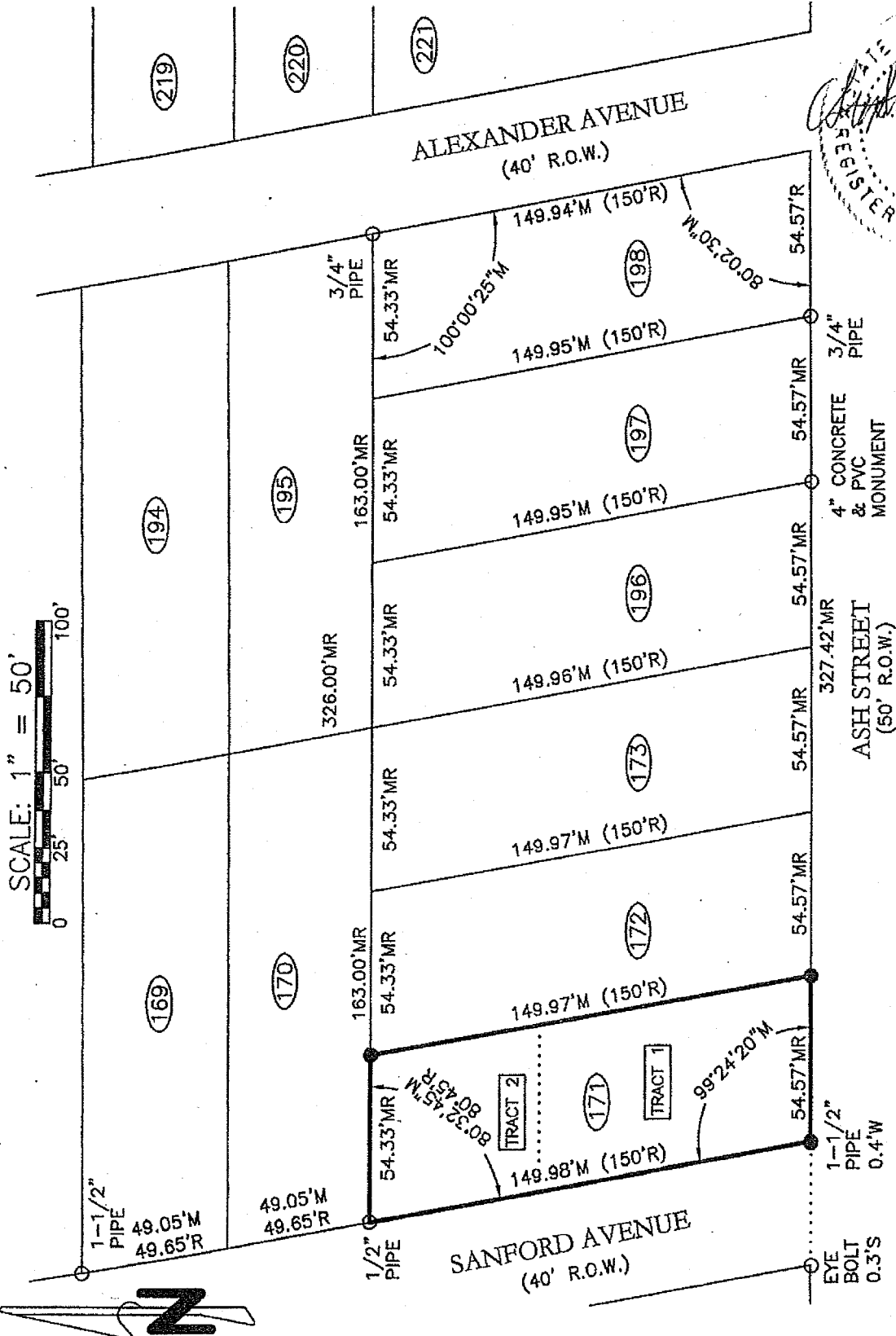
Lowe's® Stores Nationwide  
Professional Installation  
available at Lowe's

[Read all ES40R92-45D reviews](#)

\*Some items numbers may not be stocked in all Lowe's Home Improvement Warehouse stores. Some item numbers are available through special order only. Please consult the special order

SHEET 1 OF 3

FEBRUARY 7, 2013



# Plot Plan

LOT 171, SMITHTON  
 LOCATED IN THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 48 NORTH, RANGE 13 WEST  
 CITY OF COLUMBIA, BOONE COUNTY, MISSOURI *FEBRUARY 7, 2013*

## DESCRIPTION

LOT ONE HUNDRED SEVENTY-ONE (171) OF SMITHTON, AN ADDITION TO THE CITY OF COLUMBIA, BOONE COUNTY, MISSOURI.

## REFERENCE DATA

- 1) PLAT OF "GARTH'S ADDITION TO COLUMBIA" RECORDED IN PLAT BOOK 1 PAGE 2 ON JUNE 15, 1900.
- 2) PLAT OF "SMITHTON" SUBDIVISION RECORDED IN PLAT BOOK 1 PAGE 45 ON JUNE 27, 1907.
- 3) PLAT OF "W.W. PAYNE'S ADDITION" RECORDED IN PLAT BOOK 2 PAGE 37 ON SEPTEMBER 3, 1913.
- 2) SURVEY RECORDED IN CITY OF COLUMBIA SURVEY RECORD BOOK 1 PAGES 220 AND 221 IN OR BEFORE 1957.
- 3) SURVEY RECORDED IN DEED BOOK 289 PAGE 15 ON JUNE 5, 1957.
- 4) "A LOT LINE ADJUSTMENT" RECORDED IN DEED BOOK 1668 PAGE 197 ON NOVEMBER 16, 2000.

## NOTES

- 1) BASIS OF BEARINGS IS THE NORTH LINE OF ASH STREET IS ASSUMED TO BE EAST-WEST.
- 2) SUBJECT TO EASEMENTS OF RECORD AND/OR AS FOUND IN THE FIELD.
- 3) THIS SURVEY MEETS OR EXCEEDS THE REQUIREMENTS OF URBAN TYPE CLASSIFICATION SURVEYS.
- 4) THE POSTED STREET ADDRESS IS 413 WEST ASH STREET, COLUMBIA, MO 65203.

## FLOOD PLAIN STATEMENT

THIS TRACT IS NOT LOCATED WITHIN THE 100-YEAR FLOOD PLAIN PER FEMA FIRM NO. 290036 0011C REVISED DECEMBER 28, 1982.

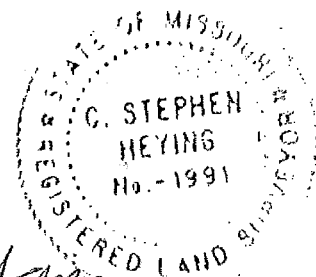
I, C. STEPHEN HEYING, HEREBY STATE THAT I MADE A SURVEY OF THE PROPERTY DESCRIBED HEREON AND LOCATED THE HOUSE AND IMPROVEMENTS THEREIN IN ACCORDANCE WITH THE REQUIREMENTS FOR RECORD DOCUMENT RETRACEMENT SURVEYS OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGY AND LAND SURVEY AND THE CURRENT MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS ADOPTED BY THE MISSOURI BOARD OF ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS AND LANDSCAPE ARCHITECTS.

PREPARED BY

**C. STEPHEN HEYING SURVEYING**

1202 MADISON STREET  
 COLUMBIA, MISSOURI 65203

PHONE & FAX (573)442-3455



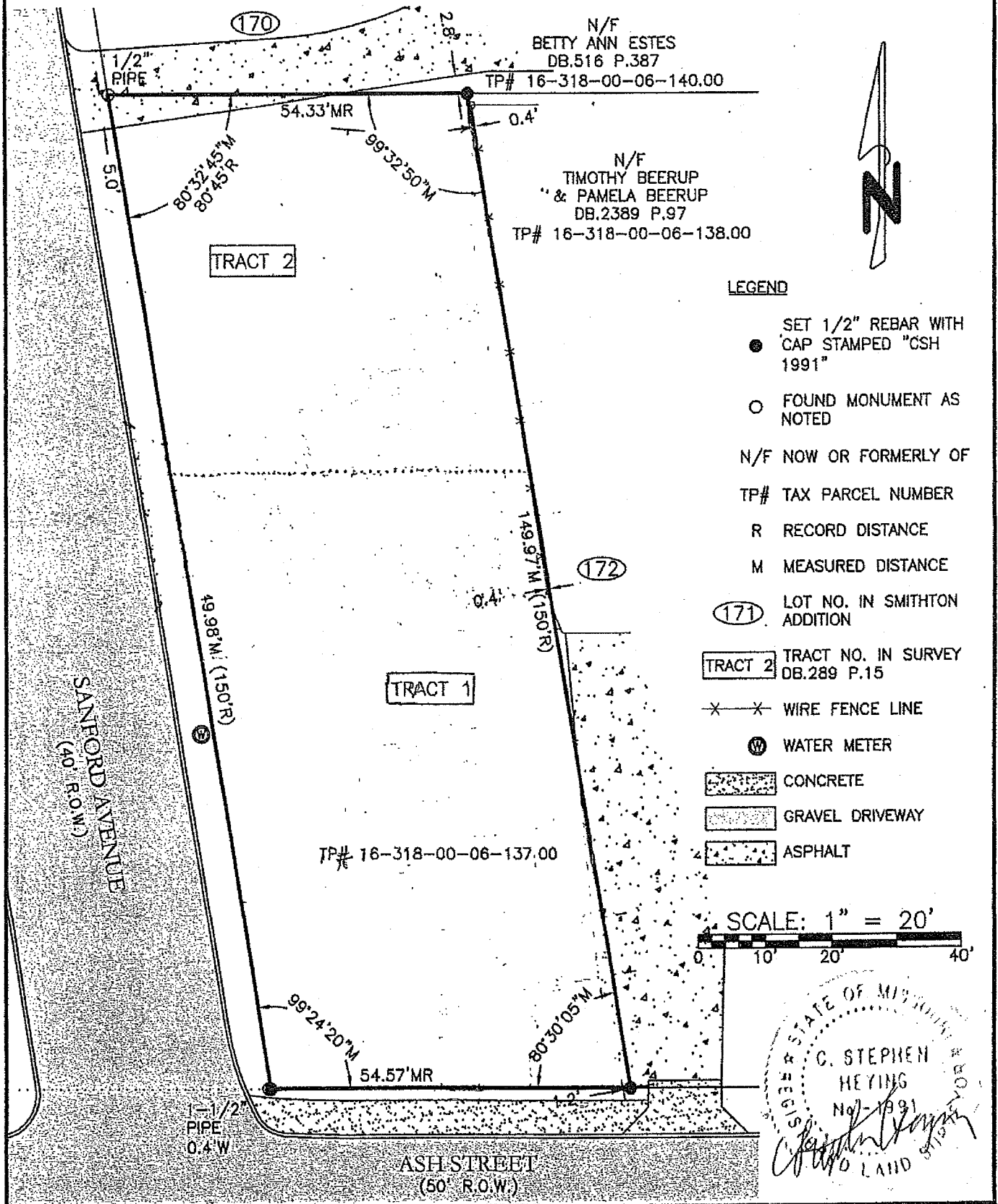
*C. Stephen Heying*  
 C. STEPHEN HEYING, M.P.L.S. #1991

JOB #10082501

JAC

# Plot Plan

LOT 171, SMITHTON  
 LOCATED IN THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 48 NORTH, RANGE 13 WEST  
 CITY OF COLUMBIA, BOONE COUNTY, MISSOURI  
 FEBRUARY 7, 2013



# BUILDING PERMIT APPLICATION FOR NEW ONE AND TWO FAMILY DWELLINGS

City of Columbia Public Works Department / Protective Inspection Division  
 701 E. Broadway, Columbia, Missouri 65201  
 Phone: (573) 874-7474 Fax: (573) 874-7283 TTY: (573) 874-7251

BUILDING ADDRESS: <b>413 Ash</b>				APPLICATION VALUE: <b>\$ 110,000</b>		PERMIT #	
PERMIT TYPE: <b>NSFD</b>		CONSTRUCTION TYPE: <b>Frame-Stick</b>		LEGAL DESCRIPTION: <b>Lot 171 of Smithton</b>			
PROPERTY USE: <b>R-3</b>	OWNER OCCUPIED	RENTAL	CUSTOM <b>X</b>	SPEC	PROPERTY ZONING: <b>R-1</b>	FLOOD ZONE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	STORM WATER CODE: ST-
CONTRACTOR: <b>Same →</b>				BUILDING OWNER: <b>Show Me Central Habitat for Humanity</b>			
ADDRESS:				ADDRESS: <b>1906 Monroe</b>			
CITY, STATE, ZIP				CITY, STATE, ZIP <b>Columbia, MO. 65201</b>			
TELEPHONE NUMBER:				TELEPHONE NUMBER: <b>(573) 499-1202</b>			
FAX NUMBER:				FAX NUMBER: <b>(573) 875-2848</b>			
E-MAIL ADDRESS:				E-MAIL ADDRESS: <b>billviewhobitat@yahoo.com</b>			

## CONTACT INFORMATION

SEND ALL CORRESPONDENCE TO: (CHECK ONE BOX ONLY)		SEND TO ATTENTION OF:	
<input checked="" type="checkbox"/> OWNER	<input type="checkbox"/> CONTRACTOR	NAME <b>Bill View</b>	PHONE NUMBER <b>499-1202</b>
		CELL PHONE NUMBER <b>808-0686</b>	

## SUBCONTRACTORS

SUBCONTRACTOR - ELECTRICAL <b>MME</b>	SUBCONTRACTOR - OTHER
SUBCONTRACTOR - MECHANICAL <b>Chapman</b>	SUBCONTRACTOR - OTHER
SUBCONTRACTOR - MECHANICAL (FIREPLACE)	SUBCONTRACTOR - OTHER
SUBCONTRACTOR - PLUMBING <b>Wallace &amp; Lawrence</b>	SUBCONTRACTOR - OTHER

## BUILDING AREAS

MAIN FLOOR HABITABLE / SQ. FT	SECOND STORY / SQ. FT	GARAGE / SQ. FT	#FLOORS	#BEDROOMS	LOT AREA
UNFINISHED BASEMENT / SQ. FT	FINISHED BASEMENT / SQ. FT	COVERED PATIO / SQ. FT.	DECK / SQ. FT.		

## FOR OFFICE USE ONLY

DEVELOPMENT FEE AREA	UNFINISHED AREA	TOTAL FINISHED AREA	TOTAL BUILDING AREA
----------------------	-----------------	---------------------	---------------------

## PLUMBING FIXTURE COUNT

## PLUMBING PERMIT MISCELLANEOUS

WATER CLOSETS/ URINALS	2	WATER METER SIZES:
LAVATORIES (Bathroom sink)	2	
TUBS / SHOWERS	2	BACK-FLOW DEVICE:
SINKS (Kitchen, bar, janitor, laundry)	2	
DISHWASHERS	1	# OF SEWER TAPS:
LAUNDRY CONNECTIONS	1	
WATER HEATERS	1	# OF FLOOR DRAINS
DRINKING FOUNTAINS	1	
TOTAL # OF FIXTURES:	11	

## ELECTRICAL PERMIT


## MECHANICAL PERMIT

ELEC. SERVICE SIZE:	# CIRCUITS:	# OF HEATING CIRCUITS:	TEMPORARY ELECTRIC SERVICE REQUESTED:	TYPE OF HEAT:	HVAC VALUATION:	FIREPLACE VALUATION:
200 Amps	22	1	Yes	Geothermal <del>Heat Pump</del>	\$ 5000	\$ —

## BUILDING SPECIFICATIONS

FOOTING MATERIAL:	DEPTH 130" MIN.	FOOTING WIDTH:	SPREAD FOOTING THICKNESS:	FOUNDATION WALL MATERIAL:	FOUND. WALL THICKNESS:	FOUND. WALL HEIGHT:
Concrete	30	12				
	SIZE	SPACING	CLEAR SPAN	GRADE	SPECIES	
BEAMS	NA					
FLOOR JOISTS	Slab	O.C.				
CEILING JOISTS	2X4 Trusses	O.C.				
ROOF RAFTERS	2X4 11	O.C.				
INTERIOR STUDS	2X4	O.C.	Garage Floor Design (check one)		Suspended over basement	
EXTERIOR STUDS	2X4	O.C.		X	Poured on existing or fill ground	
INTERIOR FINISHES	1/2 Gypsen		Garage Ceiling Rating (Check one)	X	10#	No attic storage
EXTERIOR FINISHES	Vinyl				20#	Limited attic storage

I Hereby Acknowledge That I Have Read this Application and State That the above is Correct and I Agree to Comply with the City Ordinances and State Laws, Regulating Building Construction. I Understand That a Certificate of Occupancy must Be Issued Before the Building Is Occupied.

GENERAL CONTRACTOR'S SIGNATURE	DATE	APPROVED BY
	3/15/13	

# LAND DISTURBANCE PERMIT

1. LEGAL DESCRIPTION: Lot 171 of Smithton

2. ENGINEER: Heying Surveying 4. CONTRACTOR/AGENT FOR OWNER

3. OWNER: Show Me Central Habitat COMPANY/NAME: Same

ADDRESS: 1906 Monroe

ADDRESS: \_\_\_\_\_

CITY/STATE: Columbia, MO

CITY/STATE: \_\_\_\_\_

PHONE: 499-1202

PHONE: \_\_\_\_\_

ADDRESS:

I, (print name) Bill View certify that all construction will be in accordance with the approved site plan and with the current requirements of the City of Columbia. Any changes to the approved site plan will be re-reviewed and approved by Public Works Engineering Division prior to making changes.

Bill View

Signature

## I. PLAN SUBMITTAL

- A. Street
- B. Sanitary Sewer
- C. Storm Water Management
- D. Land Disturbance
- E. Landscaping/Tree Preservation

DATE OF  
PLAN

DATE  
APPROVED

BY


## II. Site Two (2) Acres or Less or Individual Lot Zoned R-1 or R-2

- A. Plot Plan/Erosion Control Plan

--	--

## III. STORM WATER UTILITY INFORMATION

A. Square Ft./Units: \_\_\_\_\_

B. Storm Water Rate: ST

C. Total Monthly Fee: \$ \_\_\_\_\_

APPROVED BY \_\_\_\_\_

DATE \_\_\_\_\_

NOTICE: Call 1-800 DIG RITE for utility locations prior to excavation.

PERMIT NO.:



**To: Community Development Commission**  
**From: Randy Cole**  
**Date: 3/13/2013**  
**Subject: 3/13/2013 CDC Agenda Item Summary Memo**

## **Overview**

The purpose of this memo is to provide a brief summary of 3/13/2013 CDC meeting agenda items. This memo provides a brief staff update on each of the agenda items requiring staff input.

## **Agenda Item Summaries**

### 413 West Ash Project

City staff received 413 W Ash CHDO applications from Show-Me Central Habitat for Humanity and Central Missouri Community Action (CMCA). Staff has concluded that both applications are eligible for funding and are both strong proposals. This memo provides analysis of the strengths and weaknesses for both applications, and defines recommended questions for respondents.

## **CMCA Proposal**

### *Strengths*

- Traditional design that potentially blends well with neighborhood
- Project manager has significant experience and expertise
- Structural Insulated Panel (SIPS) construction have higher R-value and excellent air sealing properties
- More efficient HVAC system includes desuperheater for water heating.
- Exceeds Universal Design requirements
- Innovative Universal Design aspect for hallway
- All appliances included

### *Weaknesses*

- Past performance (Transitional Housing Facility Project, however agency has had successful housing development projects in the past)
- Some energy and passive solar targets not met
- Lower detail of drawings
- Later finish date
- Pricing on SIPS (staff would like clarification, specs were provided, but no bid/pricing data)
- Insufficient south facing roof area

### *Questions*

- Was pricing obtained for SIPS construction? Was there an analysis completed on SIPS cost vs. traditional construction?
- What changes have been made to ensure successful completion of this project?
- Exterior siding type?

## **Show-Me Central Habitat for Humanity Proposal**

### *Strengths*

- Past performance, agency has a history of high production
- Close to net-zero energy usage, most energy efficient proposal according to software
- Lower purchase price
- Innovative passive solar design aspects
- Includes solar panels, solar study included
- Detailed drawings and specifications
- Pool of eligible homebuyers
- Lighting

### *Weaknesses*

- House design may affect salability
- Several options for added changes and additional partners involved with project (this was a strength for developing the proposal, may make implementation more difficult)
- Proposal asks the City to address additional property concerns (2 small trees and north property line encroachment)
- Some Universal Design requirements missed or not addressed
- Some energy efficiency targets missed
- Washer dryer not included

### *Questions*

- Will Habitat be able to implement the proposal as submitted without additional Water and Light funding?
- Will the occupant purchasing the house own the solar panels?
- Hallway and walkway width, entry walkway slope?

## Review of Initial Draft of Consolidated Annual Performance Evaluation Report (CAPER)

The CAPER is an annual report required by the Department of Housing and Urban Development (HUD) in order to receive annual CDBG and HOME funding. This report summarizes progress on activities undertaken over the past year and progress on the goals and objectives of the City's Consolidated Plan.

### *Successes*

1. Increased production and expenditures in the following activities
  - a. Owner Occupied Housing Rehabilitation Program
  - b. Demolition Program
  - c. Emergency Repair Program
  - d. SIL Ramp Program
2. Continued Success and Additional Project Progress
  - a. BCCA Senior Home Repair
  - b. Show-Me Central Habitat CHDO Projects
  - c. East Side Sidewalks Phase III

3. Progress on Fair Housing Education
4. Progress on Objective 42, barriers to affordable housing survey

*Opportunities for Improvement*

1. Code Deficiency Abatement Program production
2. Homeownership Assistance Program production
3. Staff needs to increase monitoring activities of sub-recipients
4. Ensure HOME funding Commitments are up to date

FY2014 Agency RFP Released Funding Levels with Sequestration

Budget sequestration has resulted in CDBG and HOME funds predicted to be reduced by 5% in FY2014. This would provide an estimated \$762,712 in CDBG funds and \$439,850 in HOME funds. City staff has identified approximately \$34,000 in previous year funding that may potentially be reprogrammed into the FY2014 RFP process. City staff is seeking CDC input and approval of reprogramming the funding. Potential sources of reprogrammed funding are listed below:

Money to be Reprogrammed Per CDC Approval		
Year	Project	Amount
2009/2010	Cottage Housing	\$ 9,957.80
2010/2011	CHO Water Line	\$ 8,500.00
2010/2011	Moneysmart	\$ 4,044.00
2010/2011	True North	\$ 650.52
2010/2011	EDC-Microenterprise	\$ 3,185.17
2010/2011	Mid-MO Legal Services	\$ 1,311.80
2011/2012	EDC-Microenterprise	\$ 6,500.00
<b>Total</b>		<b>\$ 34,149.29</b>

Staff is also seeking approval on clarifying audit requirements for CDBG sub-recipients. This issue was identified at the training on 3/6/2013. Past training required Audited financial statements for applications over \$25,000. Staff is recommending audited financial statements requirements be in place for agencies with annual budgets greater than \$25,000. This would be consistent with City and County Social Services funding. Further staff explanation will be provided at the meeting.

Owner Occupied Rehabilitation Program Report

The CDC requested an overview of the Owner Occupied Rehabilitation Program in the 2012 CAPER review meeting. Staff has compiled a presentation that provides an overview of procedures required for the rehab program. The purpose of this presentation will be to inform the CDC on program operations and steps involved with the process. Staff will be presenting this overview at the 3/13/13 CDC meeting.

Non-profit 501(c) 3 status.	y
Good standing with SOS	y
OMB Circular A-110	y
Organizational housing mission	y
Staff housing devel capacity	y
Housing devel success	y
board composition	y

Match with neighborhood	M
Timeline	H

## Energy Efficiency

## R value/ U factor

Subslab (min R10)	10
slab edge (min R20)	20
wall cavity (min30)	35
Ceiling Min (R60)	50
Window (max U-.28)	0.3

## HVAC/DHW

Heating system efficiency	3.4
Cooling system efficiency	17.2
DHW efficiency	0.92
ERV CFM	107 CFM
ERV efficiency	173w

## Passive solar

South facing glazing area	4%
living areas on south side	LR/M BdRm
overhangs	2'
Max. south facing roof area	Y

HERS Score	11/65 No PV
Proposed ACH	0.2
LED/CFL Lighting	78%/22%

## Other

8kW PV Array	Y
Fridge DW	Y
Solar tube	Specs?

## Universal Design

## Visitability

Zero step	Y
walkway width (min 60")	?
1:20 max rise	?
threshold ht (max 1/2")	Y
door width (min 32")	36"
hallway width (min 42")	36"

## Bath

sink knee space - bath	Y
Bath turning radius (min 60")	Y
size of tub/bath (5'x3')	?
bath floor material waterproof	?
bath floor drain	?
grab bar blocking	Y

## Kitchen

sink knee space - kitchen	Y
front range controls	Y
open range base	Y

light switches	Y
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## Other
