



Project Summary for a Completed LEED for Homes Project

This documentation package must be submitted to USGBC by the designated LEED for Homes Provider.

To: USGBC, LEED for Homes From: _____
c/o Clare Rosenberger
Fax: 202 - 828 - 5110 Pages: _____
Phone: 202 - 828 - 7422 Date: _____

or mail: U.S. Green Building Council, 2101 L Street, NW, Suite 500, Washington, DC 20037

or scan and e-mail: crosenberger@usgbc.org and certification@jayhall.com

Documentation Package

| | |
|---|--|
| <input checked="" type="checkbox"/> Signed Project Summary page | <input checked="" type="checkbox"/> Durability Evaluation Form |
| <input checked="" type="checkbox"/> Signed LEED for Homes Checklist | <input checked="" type="checkbox"/> Signed Durability Inspection Checklist |
| <input checked="" type="checkbox"/> Signed Accountability Forms | <input checked="" type="checkbox"/> Certification fee |

Project Information

Project name 40790 Waring Road
Project address(es) 40790 Waring Road
City St. Peter
Metro. Area NA
State Minnesota
Subdivision / Dev. NA

Verification Team Information

Provider QAD Pat O'Malley
Company Building Knowledge
Green Rater Pat O'Malley
Company Building Knowledge
Green Rater _____
Company _____

Project Team Information

Builder Swenson Construction
Other Team Sarah Nettleton - Architect
Members Terry Winters - HVAC
Jamie Borell - Solar

Team Leader Sarah Nettleton
Company Sarah Nettleton Architects
Address 275 East 4th Street, #620, St. Paul MN
Fax / email sn@sarah-architects.com

Project Information

| | |
|---|--|
| Type of building <small>(how to choose?)</small> <u>Single detached</u> | # of bedrooms: <u>4</u> |
| Type of builder <small>(how to choose?)</small> <u>Custom</u> | Floor area (square feet): <u>2,913</u> |
| # of homes: <u>1</u> | Home Size Adjustment: <u>3</u> |
| # of stories <u>2</u> | EA pathway? <u>Performance</u> |
| IECC climate zone <u>6</u> | HERS Index (if any) <u>40</u> |
| EPA radon zone <u>1</u> | |

Reviewed by Provider QAD

I have evaluated this project's documentation package and conducted the necessary QA/QC procedures with the Green Rater, and I hereby declare and affirm to USGBC that this project is ready to earn LEED for Homes certification, as per the attached checklist.

Name: Patrick O'Malley
Company: Building Knowledge, Inc.
Signature: *Patrick M. O'Malley*
Date: 9/2/10



for Homes

LEED for Homes Project Checklist

| | |
|-----------------------------------|---|
| Builder Name: | Swenson Construction |
| Project Team Leader: | Sarah Nettleton, Sarah Nettleton Architects |
| Home Address (Street/City/State): | 40790 Waring Road, St. Peter, Minnesota |

Project Description

Building Type: **Single detached**

of Bedrooms: **4**

Project type: **Custom**

Floor Area: **2,913**

Adjusted Certification Thresholds

Certified: **48.0** Gold: **78.0**

Silver: **63.0** Platinum: **93.0**

| Project Point Total | | Final Credit Category Point Totals | | | |
|--------------------------|-------------|------------------------------------|----------|--------|--------|
| Prelim: 76 + 0 maybe pts | Final: 82.5 | ID: 5 | SS: 15.5 | EA: 26 | EQ: 15 |
| Certification Level | | LL: 1 | WE: 9 | MR: 9 | AE: 2 |
| Prelim: Silver | Final: Gold | | | | |

date last updated : **8/12/10**

last updated by : **Sarah Nettleton**

Max Pts.

Available

Preliminary Rating

Y / Pts Maybe No

Notes

Project

Points

| Innovation & Design Process (ID) (Minimum 0 ID Points Required) | | Max: 11 | Y:5 | M:0 | Final: 5 |
|--|--|---------|-----|-----|----------|
| 1. Integrated Project Planning | | | | | |
| 1.1 Preliminary Rating | Prereq. | | | | Y |
| Target performance tier: | Gold | | | | |
| 1.2 Integrated Project Team (meet all of the following) | | 1 | 1 | 0 | 1 |
| <input checked="" type="checkbox"/> a) Individuals or organizations with necessary capabilities | <input checked="" type="checkbox"/> c) Regular meetings held with project team | | | | |
| <input checked="" type="checkbox"/> b) All team members involved in various project phases | | | | | |
| 1.3 Professional Credentialed with Respect to LEED for Homes | | 1 | 0 | 0 | 0 |
| 1.4 Design Charrette | | 1 | 0 | 0 | 0 |
| 1.5 Building Orientation for Solar Design (meet all of the following) | | 1 | 0 | 0 | 0 |
| <input checked="" type="checkbox"/> a) Glazing area on north/south walls 50% greater than on east/west walls | <input checked="" type="checkbox"/> c) At least 450 sq. ft. of south-facing roof area, oriented for solar applications | | | | |
| <input checked="" type="checkbox"/> b) East-west axis is within 15 degrees of due east-west | <input type="checkbox"/> d) 90% of south-facing glazing is shaded in summer, unshaded in winter | | | | |
| 2. Quality Management for Durability | | | | | |
| 2.1 Durability Planning (meet all of the following) | Prereq. | | Y | | Y |
| <input checked="" type="checkbox"/> a) Durability evaluation completed | <input checked="" type="checkbox"/> d) Durability strategies incorporated into project documentation | | | | |
| <input checked="" type="checkbox"/> b) Strategies developed to address durability issues | <input checked="" type="checkbox"/> e) Durability measures listed in durability inspection checklist | | | | |
| <input checked="" type="checkbox"/> c) Moisture control measures from Table 1 incorporated | | | | | |
| 2.2 Durability Management (meet one of the following) | Prereq. | | Y | | Y |
| <input checked="" type="checkbox"/> Builder has a quality management process in place | <input checked="" type="checkbox"/> Builder conducted inspection using durability inspection checklist | | | | |
| 2.3 Third-Party Durability Management Verification | | 3 | 3 | 0 | 3 |

| | | | | | | |
|--|--|--|----------------|------------|------------|-----------------|
| 3. Innovative or Regional Design | | | | | | |
| 3.1 | Innovation 1 (ruling #): | SS 2.5 + SS 2.2 b, c & d are met | 1 | 1 | 0 | 1 |
| 3.2 | Innovation 2 (ruling #): | | 1 | 0 | 0 | 0 |
| 3.3 | Innovation 3 (ruling #): | | 1 | 0 | 0 | 0 |
| 3.4 | Innovation 4 (ruling #): | | 1 | 0 | 0 | 0 |
| Location & Linkages (LL) (Minimum 0 LL Points Required) | | | Max: 10 | Y:0 | M:0 | Final: 1 |
| 1. LEED for Neighborhood Development | | | | | | |
| 1 | LEED for Neighborhood Development | | 10 | 0 | 0 | 0 |
| 2. Site Selection | | | | | | |
| 2 | Site Selection (<i>meet all of the following</i>) | | 2 | 0 | 0 | 0 |
| | <input checked="" type="checkbox"/> a) Built above 100-year floodplain defined by FEMA | <input checked="" type="checkbox"/> d) Not built on land that was public parkland prior to acquisition | | | | |
| | <input checked="" type="checkbox"/> b) Not built on habitat for threatened or endangered species | <input type="checkbox"/> e) Not built on land with prime soils, unique soils, or soils of state significance | | | | |
| | <input checked="" type="checkbox"/> c) Not built within 100 ft of water, including wetlands | | | | | |
| 3. Preferred Locations | | | | | | |
| 3.1 | Edge Development | | 1 | 0 | 0 | 0 |
| OR | 3.2 | Infill | 2 | 0 | 0 | 0 |
| AND/OR | 3.3 | Previously Developed | 1 | 0 | 0 | 0 |
| 4. Infrastructure | | | | | | |
| 4 | Existing Infrastructure | | 1 | 0 | 0 | 0 |
| 5. Community Resources / Transit | | | | | | |
| 5.1 | Basic Community Resources / Transit (<i>meet one of the following</i>) | | 1 | 0 | 0 | 0 |
| | <input type="checkbox"/> a) Within 1/4 mile of 4 basic community resources | <input type="checkbox"/> c) Within 1/2 mile of transit services providing 30 rides per weekday | | | | |
| | <input type="checkbox"/> b) Within 1/2 mile of 7 basic community resources | | | | | |
| OR | 5.2 | Extensive Community Resources / Transit (<i>meet one of the following</i>) | 2 | 0 | 0 | 0 |
| | <input type="checkbox"/> a) Within 1/4 mile of 7 basic community resources | <input type="checkbox"/> c) Within 1/2 mile of transit services providing 60 rides per weekday | | | | |
| | <input type="checkbox"/> b) Within 1/2 mile of 11 basic community resources | | | | | |
| OR | 5.3 | Outstanding Community Resources / Transit (<i>meet one of the following</i>) | 3 | 0 | 0 | 0 |
| | <input type="checkbox"/> a) Within 1/4 mile of 11 basic community resources | <input type="checkbox"/> c) Within 1/2 mile of transit services providing 125 rides per weekday | | | | |
| | <input type="checkbox"/> b) Within 1/2 mile of 14 basic community resources | | | | | |
| 6. Access to Open Space | | | | | | |
| 6 | Access to Open Space | | 1 | 0 | 0 | 1 |

1. Site Stewardship

| | | | | |
|-----|---|---------|---|---|
| 1.1 | Erosion Controls During Construction (<i>meet all of the following</i>) | Prereq. | Y | Y |
|-----|---|---------|---|---|

☒ a) Stockpile and protect disturbed topsoil from erosion.

☒ b) Control the path and velocity of runoff with silt fencing or equivalent.

☒ c) Protect sewer inlets, streams, and lakes with straw bales, silt fencing, etc.

☒ d) Provide swales to divert surface water from hillsides

☒ e) Use tiers, erosion blankets, compost blankets, etc. on sloped areas.

| | | | | | |
|-----|--|---|---|---|---|
| 1.2 | Minimize Disturbed Area of Site (<i>meet the appropriate requirements</i>) | 1 | 1 | 0 | 1 |
|-----|--|---|---|---|---|

Where the site is not previously developed, meet all the following:

☒ a) Develop tree / plant preservation plan with "no-disturbance" zones

☒ b) Leave 40% of buildable lot area, not including area under roof, undisturbed

OR Where the site is previously developed, meet all the following:

☐ c) Develop tree / plant preservation plan with "no-disturbance" zones AND

☐ Rehabilitate lot; undo soil compaction and remove invasive plants AND

☐ Meet the requirements of SS 2.2
OR ☐ d) Build on a lot of 1/7 acre or less, or 7 units per acre.

2. Landscaping

| | | | | |
|-----|--------------------|---------|---|---|
| 2.1 | No Invasive Plants | Prereq. | Y | Y |
|-----|--------------------|---------|---|---|

| | | | | | |
|-----|---|---|---|---|---|
| 2.2 | Basic Landscaping Design (<i>meet all of the following</i>) | 2 | 2 | 0 | 0 |
|-----|---|---|---|---|---|

☒ a) Any turf must be drought-tolerant.

☒ b) Do not use turf in densely shaded areas.

☒ c) Do not use turf in areas with slope of 25%

☒ d) Add mulch or soil amendments as appropriate.

☒ e) All compacted soil must be tilled to at least 6 inches.

| | | | | | | |
|--------|-----|-------------------------|---|---|---|---|
| AND/OR | 2.3 | Limit Conventional Turf | 3 | 0 | 0 | 0 |
|--------|-----|-------------------------|---|---|---|---|

 Percentage of designed landscape softscape area that is turf

| | | | | | | |
|--------|-----|-------------------------|---|---|---|---|
| AND/OR | 2.4 | Drought-Tolerant Plants | 2 | 0 | 0 | 0 |
|--------|-----|-------------------------|---|---|---|---|

 Percentage of installed plants that are drought-tolerant

| | | | | | | |
|----|-----|--|---|---|---|---|
| OR | 2.5 | Reduce Overall Irrigation Demand by at Least 20% | 6 | 6 | 0 | 6 |
|----|-----|--|---|---|---|---|

 Percentage reduction in estimated irrigation water demand
[\(calculate\)](#)

3. Reduce Local Heat Island Effects

| | | | | | |
|---|---|---|---|---|---|
| 3 | Reduce Local Heat Island Effects (<i>meet one of the following</i>) | 1 | 0 | 0 | 0 |
|---|---|---|---|---|---|

☐ a) Locate trees / plantings to provide shade for 50% of hardscapes

☐ b) Install light-colored, high-albedo materials for 50% of hardscapes

| | | | | | |
|--|--|---|---|---|---|
| 4. Surface Water Management | | | | | |
| 4.1 Permeable Lot | | 4 | 4 | 0 | 4 |
| <div>97%</div> vegetative landscape | | | | | |
| <div>1%</div> permeable paving | | | | | |
| <div>2%</div> impermeable surfaces directed to infiltration features | | | | | |
| <div>0%</div> other impermeable surfaces (areas not counted towards credit) | | | | | |
| 4.2 Permanent Erosion Controls <i>(meet one of the following)</i> | | 1 | 1 | 0 | 1 |
| <input checked="" type="checkbox"/> a) For portions of lot on steep slope, use terracing and retaining walls | | <input checked="" type="checkbox"/> b) Plant trees, shrubs, or groundcover | | | |
| 4.3 Management of Runoff from Roof <i>(meet any, see Rating System for pts)</i> | | 2 | 2 | 0 | 2 |
| <input type="checkbox"/> a) Install permanent stormwater controls to manage runoff from the home | | <input type="checkbox"/> c) Install vegetated roof to cover 100% of roof area | | | |
| <input type="checkbox"/> b) Install vegetated roof to cover 50% of roof area | | <input checked="" type="checkbox"/> d) Have lot designed by professional to manage runoff from home on-site | | | |

| | | | | | |
|--|--|--|---|---|-----|
| 5. Nontoxic Pest Control | | | | | |
| 5 Pest Control Alternatives <i>(meet any of the following, 1/2 pt each)</i> | | 2 | 2 | 0 | 1.5 |
| <input type="checkbox"/> a) Keep all wood at least 12" above soil | | e) In 'moderate' to 'very heavy' termite risk areas: | | | |
| <input checked="" type="checkbox"/> b) Seal external cracks, joints, etc. with caulking and install pest-proof screens | | <input type="checkbox"/> i) Treat all cellulosic material with borate product to 3' above foundation | | | |
| <input checked="" type="checkbox"/> c) Include no wood-to-concrete connections, or separate connections with dividers | | <input type="checkbox"/> ii) Install sand or diatomaceous earth barrier | | | |
| <input checked="" type="checkbox"/> d) Install landscaping so mature plants are 24" from home | | <input type="checkbox"/> iii) Install steel mesh barrier termite control system | | | |
| | | <input type="checkbox"/> iv) Install non-toxic termite bait system | | | |
| | | <input type="checkbox"/> v) Use noncellulosic wall structure | | | |
| | | <input type="checkbox"/> vi) Use solid concrete foundation walls or pest-proof masonry wall design | | | |

| | | | | | |
|---|-----------------------|---|---|---|---|
| 6. Compact Development | | | | | |
| 6.1 Moderate Density | | 2 | 0 | 0 | 0 |
| <div>1</div> # of total units on the lot <div>25.0</div> lot size (acres) <div>0.0</div> density (units/acre) | | | | | |
| OR | 6.2 High Density | 3 | 0 | 0 | 0 |
| OR | 6.3 Very High Density | 4 | 0 | 0 | 0 |

| | | | | | |
|---|--|----------------|------------|------------|-----------------|
| Water Efficiency (WE) (Minimum 3 WE Points Required) | | Max: 15 | Y:7 | M:0 | Final: 9 |
| 1. Water Reuse | | | | | |
| 1.1 Rainwater Harvesting System | | 4 | 3 | 0 | 3 |
| <div>59%</div> Percentage of roof area used for harvesting | | | | | |
| <div>Outdoor only</div> Application | | | | | |
| AND/OR | 1.2 Graywater Reuse System | 1 | 0 | 0 | 0 |
| OR | 1.3 Use of Municipal Recycled Water System | 3 | 0 | 0 | 0 |

2. Irrigation System

| | | | | | |
|--------------------------|--|-----------------------------|---|---|---|
| 2.1 | High-Efficiency Irrigation System (<i>meet any of the following, 1 pt each</i>) | 3 | 0 | 0 | 0 |
| <input type="checkbox"/> | a) Irrigation system designed by EPA Water Sense certified professional | <input type="checkbox"/> | g) Install timer or controller for each watering zone | | |
| <input type="checkbox"/> | b) Irrigation system with head-to-head coverage | <input type="checkbox"/> | h) Install pressure-regulating devices | | |
| <input type="checkbox"/> | c) Install central shut-off valve | <input type="checkbox"/> | i) High-efficiency nozzles with distribution uniformity of at least 0.70. | | |
| <input type="checkbox"/> | d) Install submeter for the irrigation system | <input type="checkbox"/> | j) Check valves in heads | | |
| <input type="checkbox"/> | e) Use drip irrigation for 50% of planting beds | <input type="checkbox"/> | k) Install moisture sensor or rain delay controller | | |
| <input type="checkbox"/> | f) Create separate zones for each type of bedding | | | | |
| AND/OR | 2.2 Third-party Inspection | 1 | 0 | 0 | 0 |
| OR | 2.3 Reduce Overall Irrigation Demand by at Least 45% | 4 | 4 | 0 | 4 |
| | <input type="text" value="62%"/> Percentage reduction in estimated irrigation water demand | (calculate) | | | |

3. Indoor Water Use

| | | | | | |
|-------------------------------------|---|--------------------------|--|---|---|
| 3.1 | High-Efficiency Fixtures and Fittings (<i>meet any of the following, 1 pt each</i>) | 3 | 0 | 0 | 0 |
| <input type="checkbox"/> | a) Average flow rate of lavatory faucets is ≤ 2 gpm | <input type="checkbox"/> | c) Average flow rate for all toilets is ≤ 1.3 gpf; OR | | |
| <input type="checkbox"/> | b) Average flow rate for all showers is ≤ 2.0 gpm per stall | <input type="checkbox"/> | Toilets are dual-flush; OR | | |
| | | <input type="checkbox"/> | Toilets meet the EPA Water Sense specification | | |
| 3.2 | Very High-Efficiency Fixtures and Fittings (<i>meet any, 2 pts each</i>) | 6 | 0 | 0 | 2 |
| <input checked="" type="checkbox"/> | a) Average flow rate of lavatory faucets is ≤ 1.5 gpm; OR | <input type="checkbox"/> | b) Average flow rate for all showers ≤ 1.75 gpm per stall | | |
| <input type="checkbox"/> | Lavatory faucets meet the EPA Water Sense specification | <input type="checkbox"/> | c) Average flow rate for all toilets is ≤ 1.1 gpf | | |

Energy & Atmosphere (EA) (Minimum 0 EA Points Required)

Max: 38 Y:26 M:0

Final: 26

1. Optimize Energy Performance

| | | | | | |
|-----|--|--|----|---|----|
| 1.1 | Performance of ENERGY STAR for Homes | Prereq. | | | Y |
| 1.2 | Exceptional Energy Performance | 34 | 24 | 0 | 24 |
| | <input type="text" value="6"/> IECC climate zone | <input type="text" value="40"/> HERS Index | | | |

7. Water Heating

| | | | | | |
|--------------------------|--|--------------------------|--|---|---|
| 7.1 | Efficient Hot Water Distribution System (<i>meet one of the following</i>) | 2 | 0 | 0 | 0 |
| <input type="checkbox"/> | a) Structured plumbing system | <input type="checkbox"/> | c) Compact design of conventional system | | |
| <input type="checkbox"/> | b) Central manifold distribution system | | | | |
| 7.2 | Pipe Insulation | 1 | 1 | 0 | 1 |

11. Residential Refrigerant Management

| | | | | | |
|-------------------------------------|--|--------------------------|--|---|---|
| 11.1 | Refrigerant Charge Test | Prereq. | Y | | Y |
| 11.2 | Appropriate HVAC Refrigerants (<i>meet one of the following</i>) | 1 | 1 | 0 | 1 |
| <input checked="" type="checkbox"/> | a) Use no refrigerants | <input type="checkbox"/> | c) Use refrigerants that complies with global warming potential equation | | |
| <input type="checkbox"/> | b) Use non-HCFC refrigerants | | | | |

Materials & Resources (MR) (Minimum 2 MR Points Required)

Max: 16 Y:10 M:0
Final: 9
1. Material-Efficient Framing

| | | | | |
|------------|---|---------|---|---|
| 1.1 | Framing Order Waste Factor | Prereq. | Y | Y |
| 1.2 | Detailed Framing Documents | 1 | 0 | 0 |
| 1.3 | Detailed Cut List and Lumber Order | 1 | 0 | 0 |
| | <input type="checkbox"/> Requirements of MR 1.2 have been met | | <input type="checkbox"/> Detailed cut list and lumber order corresponding to framing plans or scopes | |
| AND/OR 1.4 | Framing Efficiencies (meet any of the following, see Rating System for pts) | 3 | 0 | 0 |
| | <input type="checkbox"/> Precut framing packages | | <input type="checkbox"/> Stud spacing greater than 16" on center | |
| | <input type="checkbox"/> Open-web floor trusses | | <input type="checkbox"/> Ceiling joist spacing greater than 16" on center | |
| | <input checked="" type="checkbox"/> Structural insulated panel walls | | <input type="checkbox"/> Floor joist spacing greater than 16" on center | |
| | <input checked="" type="checkbox"/> Structural insulated panel roof | | <input type="checkbox"/> Roof rafter spacing greater than 16" on center | |
| | <input type="checkbox"/> Structural insulated panel floors | | <input type="checkbox"/> Two of the following: Size headers for loads; ladder blocking; drywall clips; 2-stud corners | |
| OR 1.5 | Off-site Fabrication (meet one of the following) | 4 | 4 | 0 |
| | <input checked="" type="checkbox"/> a) Panelized construction | | Pre-cut SIP roof & walls, floor trusses | |
| | <input type="checkbox"/> b) Modular, prefabricated construction | | | 4 |

2. Environmentally Preferable Products

| | | | | |
|-----|--|---------|---|---|
| 2.1 | FSC Certified Tropical Wood (meet both of the following) | Prereq. | Y | Y |
| | <input checked="" type="checkbox"/> a) Provide suppliers with a notice of preference for FSC products; AND | | <input checked="" type="checkbox"/> b) All purchased wood is either not tropical, FSC-certified, or reclaimed | |
| | <input checked="" type="checkbox"/> Request country of manufacture for each wood product | | | |
| 2.2 | Environmentally Preferable Products (meet any, 1/2 pt each) | 8 | 4.5 | 0 |

| Assembly : component | (a) EPP | (b) Low emission | (c) Local production |
|---|-------------------------------------|--|-------------------------------------|
| Exterior wall: framing | <input type="checkbox"/> | | <input type="checkbox"/> |
| Exterior wall: siding or masonry | <input type="checkbox"/> | | <input type="checkbox"/> |
| Floor: flooring | <input type="checkbox"/> (45%) | <input checked="" type="checkbox"/> 90% hard flooring | <input type="checkbox"/> (45%) |
| Floor: flooring | <input type="checkbox"/> (90%) | <input type="checkbox"/> SCS FloorScore | <input type="checkbox"/> (90%) |
| Floor: carpet | | <input type="checkbox"/> Green Label Plus | |
| Floor: framing | <input type="checkbox"/> | | <input type="checkbox"/> |
| Foundation: aggregate | | | <input checked="" type="checkbox"/> |
| Foundation: cement | <input type="checkbox"/> | | <input checked="" type="checkbox"/> |
| Interior wall: framing | <input type="checkbox"/> | | <input type="checkbox"/> |
| Interior wall, ceiling: gypsum board | | | <input type="checkbox"/> |
| Interior wall, ceiling, millwork: paint | <input type="checkbox"/> | <input checked="" type="checkbox"/> type: Benjamin Moore Low VOC | <input type="checkbox"/> |
| Landscape: decking or patio | <input type="checkbox"/> | | <input checked="" type="checkbox"/> |
| Other: cabinet | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Other: counter | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Other: door | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Other: trim | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Other: adhesive, sealant | | <input type="checkbox"/> | <input type="checkbox"/> |
| Other: window frame | <input type="checkbox"/> | | <input type="checkbox"/> |
| Roof: framing | <input type="checkbox"/> | | <input type="checkbox"/> |
| Roof: roofing | <input type="checkbox"/> | | <input type="checkbox"/> |
| Roof, floor, wall: insulation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Roof, floor, wall (2 of 3): sheathing | <input type="checkbox"/> | | <input type="checkbox"/> |

3. Waste Management

| | | | | |
|-----|--|---------|---|---|
| 3.1 | Construction Waste Management Planning (<i>meet both of the following</i>) | Prereq. | Y | Y |
| | <input checked="" type="checkbox"/> a) Investigate local options for waste diversion | | <input checked="" type="checkbox"/> b) Document diversion rate for construction waste | |
| 3.2 | Construction Waste Reduction (<i>use one of the following methods</i>) | 3 | 1.5 | 0 |
| | <input type="text" value="2.4"/> a) pounds waste / square foot | | | |
| | <input type="text"/> cubic yards waste / 1,000 square feet | | | |
| | <input type="text"/> b) percentage of waste diverted | | | |

Indoor Environmental Quality (EQ) (Minimum 6 EQ Points Required)

Max: 21 Y:12 M:0

Final: 15

1. ENERGY STAR with Indoor Air Package

| | | | | |
|---|-------------------------------------|----|---|---|
| 1 | ENERGY STAR with Indoor Air Package | 13 | 0 | 0 |
|---|-------------------------------------|----|---|---|

2. Combustion Venting

| | | | |
|-----|---|---|---|
| 2.1 | Basic Combustion Venting Measures (<i>meet all of the following</i>) | Prereq. | Y |
| | <input checked="" type="checkbox"/> a) no unvented combustion appliances | <input type="checkbox"/> d) space, water heating equipment designed with closed combustion; OR | |
| | <input checked="" type="checkbox"/> b) carbon monoxide monitors on each floor | <input type="checkbox"/> space and water heating equipment has power-vented exhaust; OR | |
| | <input checked="" type="checkbox"/> c) no fireplace installed, OR | <input type="checkbox"/> space and water heating equipment located in detached or open-air facility; OR | |
| | <input type="checkbox"/> all fireplaces and woodstoves have doors | <input checked="" type="checkbox"/> no space- or water-heating equipment with combustion | |
| 2.2 | Enhanced Combustion Venting Measures (<i>meet one of the following</i>) | 2 | 0 |
| | Type of Fireplace or stove | Better practice (1 pt) | Best practice (2 pts) (must also meet Better Practice) |
| | None | | <input checked="" type="checkbox"/> granted automatically |
| | Masonry wood-burning fireplace | <input type="checkbox"/> masonry heater | <input type="checkbox"/> back-draft potential test |
| | Factory-built wood-burning fireplace | <input type="checkbox"/> listed by testing lab and meets EPA standards | <input type="checkbox"/> back-draft potential test |
| | Woodstove and fireplace insert | <input type="checkbox"/> listed by testing lab and meets EPA standards | <input type="checkbox"/> back-draft potential test |
| | Natural gas, propane, or alcohol stove | <input type="checkbox"/> listed, power- or direct-vented, fixed doors | <input type="checkbox"/> electronic pilot |
| | Pellet stove | <input type="checkbox"/> EPA certified or meets safety requirements | <input type="checkbox"/> power- or direct-venting |

3. Moisture Control

| | | | | |
|---|--|---|--|---|
| 3 | Moisture Load Control (<i>meet one of the following</i>) | 1 | 0 | 0 |
| | <input type="checkbox"/> a) Additional dehumidification system | | <input type="checkbox"/> b) Central HVAC system equipped with additional dehumidification mode | |

4. Outdoor Air Ventilation

| | | | | |
|-----|---|---|---|---|
| 4.1 | Basic Outdoor Air Ventilation (<i>meet one of the following</i>) | Prereq. | Y | Y |
| | <input type="checkbox"/> a) Located in a climate with $\leq 4,500$ infiltration degree days | <input type="checkbox"/> c) Intermittent ventilation | | |
| | <input checked="" type="checkbox"/> b) Continuous ventilation | <input type="checkbox"/> d) Passive ventilation | | |
| 4.2 | Enhanced Outdoor Air Ventilation (<i>meet one of the following</i>) | 2 | 2 | 0 |
| | <input type="checkbox"/> a) In climates with $\leq 4,500$ infiltration degree days, install active ventilation system | <input checked="" type="checkbox"/> b) Install heat recovery system | | |
| 4.3 | Third-Party Performance Testing | 1 | 1 | 0 |

| | | | | |
|---|---|---------|--|---|
| 5. Local Exhaust | | | | |
| 5.1 | Basic Local Exhaust <i>(meet all of the following)</i> | Prereq. | Y | Y |
| | <input checked="" type="checkbox"/> a) Bathroom and kitchen exhaust meets ASHRAE Std. 62.2 air flow requirement | | <input checked="" type="checkbox"/> c) Air exhausted to outdoors | |
| | <input checked="" type="checkbox"/> b) Fans and ducts designed and installed to ASHRAE Std. 62.2 | | <input checked="" type="checkbox"/> d) ENERGY STAR labeled bathroom exhaust fans | |
| 5.2 | Enhanced Local Exhaust <i>(meet one of the following)</i> | 1 | 0 | 0 |
| | <input type="checkbox"/> a) Occupancy sensor | | <input checked="" type="checkbox"/> c) Automatic timer tied to switch | |
| | <input type="checkbox"/> b) Automatic humidistat controller | | <input type="checkbox"/> d) Continuously operating exhaust fan | |
| 5.3 | Third-Party Performance Testing | 1 | 1 | 0 |
| 6. Distribution of Space Heating and Cooling | | | | |
| 6.1 | Room-by-Room Load Calculations | Prereq. | Y | Y |
| 6.2 | Return Air Flow / Room-by-Room Controls <i>(meet one of the following)</i> | 1 | 1 | 0 |
| | A. Forced-Air Systems | | | |
| | <input type="checkbox"/> a) Return air opening of 1 sq. inch per cfm of supply | | | |
| | <input type="checkbox"/> b) Limited pressure differential between closed room and adjacent spaces | | | |
| | B. Nonducted HVAC Systems | | | |
| | <input checked="" type="checkbox"/> Flow control valves on every radiator | | | |
| 6.3 | Third-Party Performance Test / Multiple Zones <i>(meet one of the following)</i> | 2 | 2 | 0 |
| | A. Forced-Air Systems | | | |
| | <input type="checkbox"/> Have supply air flow rates in each room tested and confirmed | | | |
| | B. Nonducted HVAC Systems | | | |
| | <input checked="" type="checkbox"/> Install at least two distinct zones with independent thermostat control | | | |
| 7. Air Filtering | | | | |
| 7.1 | Good Filters | Prereq. | Y | Y |
| 7.2 | Better Filters | 1 | 0 | 0 |
| OR 7.3 | Best Filters | 2 | 0 | 0 |
| 8. Contaminant Control | | | | |
| 8.1 | Indoor Contaminant Control during Construction | 1 | 1 | 0 |
| 8.2 | Indoor Contaminant Control <i>(meet any of the following, 1 pt each)</i> | 2 | 1 | 0 |
| | <input type="checkbox"/> a) Design and install permanent walk-off mats at each entry | | | |
| | <input checked="" type="checkbox"/> b) Design shoe removal and storage space near primary entryway | | | |
| | <input type="checkbox"/> c) Install central vacuum system with exhaust to outdoors | | | |
| 8.3 | Preoccupancy Flush | 1 | 1 | 0 |
| 9. Radon Protection | | | | |
| 9.1 | Radon-Resistant Construction in High-Risk Areas | Prereq. | Y | Y |
| 9.2 | Radon-Resistant Construction in Moderate-Risk Areas | 1 | 0 | 0 |

| | | | | | |
|--|------|--|---------------|------------|------------|
| 10. Garage Pollutant Protection | | | | | |
| | 10.1 | No HVAC in Garage | Prereq. | Y | Y |
| | 10.2 | Minimize Pollutants from Garage (<i>meet all of the following</i>) | 2 | 2 | 0 |
| | | a) In conditioned spaces above garage: | | | |
| | | <input type="checkbox"/> Seal all penetrations and connecting floor and ceiling joist bays | | | |
| | | <input type="checkbox"/> Paint walls and ceilings of shared walls, including garage | | | |
| | | b) In conditioned spaces next to garage | | | |
| | | <input checked="" type="checkbox"/> Weather-strip all doors | | | |
| | | <input checked="" type="checkbox"/> carbon monoxide detectors in rooms that share a door with garage | | | |
| | | <input checked="" type="checkbox"/> Seal all penetrations and cracks at the base of walls | | | |
| AND/OR | 10.3 | Exhaust Fan in Garage (<i>meet one of the following</i>) | 1 | 0 | 0 |
| | | <input type="checkbox"/> a) Fan runs continuously | | | |
| | | <input type="checkbox"/> b) Fan designed with automatic timer control | | | |
| OR | 10.4 | Detached Garage or No Garage | 3 | 0 | 0 |
| Awareness & Education (AE) (Minimum 0 AE Points Required) | | | Max: 3 | Y:0 | M:0 |
| 1. Education of the Homeowner or Tenant | | | | | |
| | 1.1 | Basic Operations Training (<i>meet both of the following</i>) | Prereq. | Y | Y |
| | | <input checked="" type="checkbox"/> a) Operations and training manual | | | |
| | | <input checked="" type="checkbox"/> b) One-hour walkthrough with occupant(s) | | | |
| | 1.2 | Enhanced Training | 1 | 0 | 0 |
| | 1.3 | Public Awareness (<i>meet three of the following</i>) | 1 | 0 | 0 |
| | | <input type="checkbox"/> a) Open house on at least four weekends | | | |
| | | <input checked="" type="checkbox"/> b) Website about features and benefits of LEED homes | | | |
| | | <input checked="" type="checkbox"/> c) Newspaper article on the project | | | |
| | | <input checked="" type="checkbox"/> d) Display LEED signage on the exterior of the home | | | |
| 2. Education of the Building Manager | | | | | |
| | 2 | Education of the Building Manager (<i>meet both of the following</i>) | 1 | 0 | 0 |
| | | <input type="checkbox"/> a) Operations and training manual | | | |
| | | <input type="checkbox"/> b) One-hour walkthrough with building manager | | | |

USGBC LEGAL DISCLAIMER

USGBC makes no warranty with respect to any LEED certified project, including any warranty of habitability, merchantability, or fitness for a particular purpose. There are no warranties, express or implied, written or oral, statutory or otherwise, with respect to the certifications provided by USGBC. By way of example only, and without limiting the broad scope of the foregoing, it is understood that LEED certification, whether at the Certified level or any other level, does not mean that the project is structurally sound or safe, constructed in accordance with applicable laws, regulations or codes, free of mold or mildew, free of volatile organic compounds or allergens, or free of soil gases including radon.

SIGNATURES BY RESPONSIBLE PARTIES

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents.

Project Team Leader

Sarah Nettleton

Company

Sarah Nettleton Architects

Signature

Sarah Nettleton

Date

8/15/10

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

Provider QAD

Pat O'Malley

Company

Building Knowledge

Signature

Pat O'Malley

Date

9/2/10

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

Green Rater

Pat O'Malley

Company

Building Knowledge

Signature

Pat O'Malley

Date

9/2/10

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Green Rater

Company

Signature

Date

LEED for Homes Calculator for Percent Reduction in Outdoor Water Demand

This calculator can be used to determine the percent reduction in outdoor water use (irrigation), and the LEED points earned in SS 2.5 and WE 2.3. This must be completed by a qualified landscape professional. Please review the guidance document, "Guidance on Calculation of Outdoor Water Use Reductions", before using the calculator for the first time.

Notes: 1) SS 2.5 and WE 2.3 address reducing total outdoor water needs. Reducing potable water use outdoors is addressed in Credit WE 1. 2) Credit can only be earned for reducing water use in areas with designed landscape. Existing landscape is not included.

Legend

 User input cell  Calculated cell

Step 1: Calculate outdoor water use for baseline case

Enter project address, builder, total landscaped area, reference evapotranspiration rate (ET_o, in inches for July), and ET_o source.

Note: ET_o values are available from the EPA's WaterSense website, which uses data from the International Water Management Institute (IWMI). On the link below, enter the project's zip code, and choose the month of July. ET_o values obtained from the ET Manager Scheduler Software from Rainbird are also acceptable. The USGBC thanks these sources for the use of this data.

<http://epa.gov/watersense/specs/searchzip.html>

| | | | |
|-------------------------------------|---|---|-----------------------------------|
| Project Address | 40790 Waring Road, St. Peter, Minnesota | | |
| Total Landscaped Area (sq ft) | 75,176 | Builder | Swenson Construction |
| ET _o (in/mo for July) | 6.95 | ET _o Source (e.g., WaterSense) | WaterSense ET _o Finder |
| Baseline Outdoor Water Use (gal/mo) | 323,933 | | |

Step 2a: Select appropriate inputs for each zone in the design case

Choose appropriate values for species factor (K_s), microclimate factor (K_{mc}), irrigation efficiency (IE), and control factor (CF): Divide landscaped area into landscape zones. For each zone, enter the descriptions, and use them to choose a value for each factor. Please refer to the guidance document for more information about how to choose these values.

Notes: 1) Well-designed landscaped areas have zones designed so that all plants within each zone will need the same amount of water. 2) Many projects will have fewer than 8 zones. Leave unused rows blank. 2) For boxes with pull-down menus, choose from the list. Do not type in information. 3) The fly-out directions box can be moved by dragging it.

Step 2b: Calculate the outdoor water use for each zone in the design case

Enter the area for each landscape zone in square feet.

| Zone | Area of zone (sq ft) | K _s | K _{MC} | IE | CF | Water demand (gal/mo) | Water demand (% of total) |
|-------|----------------------|----------------|-----------------|------|----|-----------------------|---------------------------|
| 1 | 74,512 | 0.2 | 1.2 | 0.65 | 1 | 118550 | 97 |
| 2 | 664 | 0.6 | 1 | 0.4 | 1 | 4292 | 3 |
| 3 | | 0 | 0 | | 0 | 0 | 0 |
| 4 | | 0 | 0 | | 0 | 0 | 0 |
| 5 | | 0 | 0 | | 0 | 0 | 0 |
| 6 | | 0 | 0 | | 0 | 0 | 0 |
| 7 | | 0 | 0 | | 0 | 0 | 0 |
| 8 | | 0 | 0 | | 0 | 0 | 0 |
| Total | 75,176 | | | | | | |

Step 2c: Calculate the total outdoor water use for the design case

This step is completed automatically. If an error is indicated, the sum of the zone areas does not equal the Total Landscaped Area. Please address this error.

Sum of zone areas = Tot Landscaped Area? No errors

Total outdoor water demand (gal/mo): 122842

Step 3: Calculate the percentage reduction in water demand

This step is completed automatically to calculate the reduction in water demand between the design case and baseline case.

Reduction in water demand: 62%

Step 4: Calculate LEED points

This step is completed automatically to calculate the number of points awarded in SS 2.5, WE 2.3, and ID 3.

| | |
|---------------|---|
| SS 2.5 points | 6 |
|---------------|---|

| | |
|---------------|---|
| WE 2.3 points | 4 |
|---------------|---|

| | |
|---|---|
| ID 3 points (for exemplary performance) | 0 |
|---|---|

Landscape Professional Sign-off

I hereby declare and affirm to USGBC that the above calculation describes the landscape and irrigation system that is installed at the site.

Printed Name

Company

Credential

Signature



Date

LEED for Homes Accountability Form

All declarations and affirmations made in this Accountability Form are made to USGBC solely for the purpose of assisting USGBC in determining whether LEED Certification is merited. No such declaration or affirmation can be construed as a warranty or guarantee of the performance of the building.

INSTRUCTIONS: This form is to be completed by the person / organization responsible for the design and/or implementation of one or more of the LEED for Homes credits below.

Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.

Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

Home Address: 40790 Waring Road

Builder: Swenson Construction

Return to: Sarah Nettleton, Sarah Nettleton Architects

275 East 4th Street, #620, St. Paul MN

sn@sarah-architects.com

Areas of Accountability

| Innovation and Design Process (ID) | Responsible Party | initial |
|--|-------------------|---------|
| ID 3.1 Innovation #1: SS 2.5 + SS 2.2 b, c & d are met | Sarah Nettleton | SN |

| Sustainable Sites (SS) | Responsible Party | initial |
|--|-------------------|---------|
| SS 2.1 No Invasive Plants: No invasive plant species introduced into the landscape. | Sarah Nettleton | SN |
| SS 2.5 Reduce Overall Irrigation Demand: Overall outdoor water use was reduced by at least 20% and demonstrated using the method prescribed in the Rating System. All information in the submitted calculations related to outdoor water use is accurate. | Sarah Nettleton | SN |
| SS 4.1 Permeable Lot: Lot is designed such that at least 70% of the built environment, not including area under roof, is permeable or designed to capture water runoff for infiltration on-site. (4 pts) - 100% of built environment (excluding area under roof) is permeable | Sarah Nettleton | SN |
| SS 4.3 Management of Runoff from Roof, part (d): The site is designed by a licensed or certified landscape design or engineering professional such that all water runoff from the home is managed through on-site design elements. | Sarah Nettleton | SN |

| Water Efficiency (WE) | Responsible Party | initial |
|---|-------------------|---------|
| WE 2.3 Reduce Overall Irrigation Demand: Overall outdoor water use was reduced by at least 45% and demonstrated using the method prescribed in the Rating System. All information in the submitted calculations related to outdoor water use is accurate. | Sarah Nettleton | SN |

| Awareness & Education (AE) | Responsible Party | initial |
|--|-------------------|---------|
| AE 1.1 Basic Operations Training: The home's occupant(s) has been or will be provided with an operations and maintenance manual / binder that includes all of items listed in the Rating System. A one-hour walkthrough of the home with the occupant(s), featuring the elements listed in the Rating System, has been or will be conducted. | Sarah Nettleton | SN |
| AE 1.2 Enhanced Training: Two hours of training for the occupant(s), in addition to the training provided for AE 1.1, has been or will be provided. See Rating System for examples. | Sarah Nettleton | SN |

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name SARAH NETTLETON

Company Sarah Nettleton Architects

Project Role / Title ARCHITECT

Date 8/15/10

Signature Sarah Nettleton

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Step 4. Return a signed copy to the Provider and/or project team leader.

| Project Information | |
|--|--|
| Home Address: 40790 Waring Road Builder: Swenson Construction | Return to: Sarah Nettleton, Sarah Nettleton Architects 275 East 4th Street, #620, St. Paul MN sn@sarah-architects.com |

Areas of Accountability

| Indoor Environmental Quality (EQ) | Responsible Party | Initial |
|--|-------------------|---------|
| 4.1 Outdoor Air Ventilation: One of the following requirements was met: b) Whole-house continuous ventilation system designed and installed that complies with ASHRAE Standard 62.2 requirements; | Terry Winters | TW |
| 5.1 Basic Local Exhaust: All of the following requirements were met: a) Local exhaust systems designed and installed in all bathrooms (including half-baths) and the kitchen to meet the requirements of Section 5 of ASHRAE Standard 62.2. b) Fans and ducts designed and installed to meet the requirements of Section 7 of ASHRAE Standard 62.2. c) Exhaust air is sent to the outdoors (i.e. not to attics or interstitial spaces) d) All single-port bathroom exhaust fans are ENERGY STAR labeled. | Terry Winters | TW |
| 6.1 Room by Room Load Calculations: Design calculations were completed (using ACCA Manuals J and D, the ASHRAE Handbook of Fundamentals, or an equivalent computation procedure) and ducts were installed accordingly. | Terry Winters | TW |
| 8.1 Indoor Contaminant Control During Construction: Upon installation, all ducts and vents were permanently sealed to minimize contamination during construction. Any seals were removed after all phases of construction are completed. | Terry Winters | TW |
| 8.3 Pre-Occupancy Flush: The home was flushed with fresh air prior to occupancy but after all phases of construction are completed. The entire home was flushed for at least 48 total hours, keeping all interior doors open. During the flush, windows were kept open and fan (e.g., HVAC system fan) ran continuously OR the home was flushed with all HVAC fans and exhaust fans operating continuously at the highest flow rate. Additional fans were used to circulate air within the home. The HVAC air filter was replaced or cleaned afterward, as necessary. | Terry Winters | TW |

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name Terry Winters
 Project Role / Title Plmb + HVAC
 Signature Terry Winters

Company Winters Plmb + Htg Inc
 Date 08-17-2010

LEED for Homes Accountability Form

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INSTRUCTIONS: This form is to be completed by the person / organization responsible for the design and/or implementation of one or more of the LEED for Homes credits below.

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Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

Home Address: 40790 Waring Road

Return to: Sarah Nettleton, Sarah Nettleton Architects

Builder: Swenson Construction

275 East 4th Street, #620, St. Paul MN

sn@sarah-architects.com

Areas of Accountability

Materials & Resources (MR)

MR 2.1 FSC Certified Tropical Wood: Both of the following requirements were met:

- a) All wood product suppliers were provided a notice containing the following elements:
 - i.) a statement that the builder's preference is to purchase products containing tropical wood only if it is FSC-certified; ii.) request for the country of manufacture of each product supplied; and iii.) request for a list of FSC-certified tropical wood products the vendor can supply.
- b) Any tropical wood used on the project is FSC-certified, reused or reclaimed.

Responsible Party

Lee Swenson

initial

LS

MR 2.2 Environmentally Preferable Products: Qualifying assemblies and components meet the criteria for one or more of the following designations, and all information provided to the Green Rater and all measures listed on the project checklist are accurate:

- a) Environmentally Preferable Products, including FSC-certified wood products, recycled content, reclaimed content;
- b) low emissions, typically low-VOC content;
- c) Local production, indicating that the product was extracted, processed, and manufactured within 500 miles of the site.

initial only appropriate choice(s) below

Lee Swenson

Lee Swenson

Lee Swenson

LS
LS
LS

Indoor Environmental Quality (EQ)

9 Radon Resistant Construction: The home was designed and built with radon-resistant construction techniques as prescribed by EPA, the International Residential Code, Washington State Ventilation and Indoor Air Quality Code or some equivalent code or standard.

Responsible Party

Lee Swenson

initial

LS

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name Lee Swenson

Company L. Swenson Const.

Project Role / Title Gen. Contractor

Date 08-17-10

Signature

Lee Swenson



LEED for Homes
Durability Evaluation Form
(for prerequisite ID 2.1)

| | |
|-----------------------------------|---|
| Builder Name: | Swenson Construction |
| Project Team Leader: | Sarah Nettleton, Sarah Nettleton Architects |
| Home Address (Street/City/State): | 40790 Waring Road, St. Peter, Minnesota |

Home

| | | |
|---------------------------------------|--------------------------------------|---|
| Building type: Single detached | Floor Area: 2913 | Structure type: Structural Insulated Panel |
| Project type: Custom | # of Bedrooms: 4 | Exterior roofing: Steel Standing Seam |
| Number of stories: 2 | Number of full bathrooms: 2.5 | Garage: Attached |

Site

| | |
|--|--|
| EPA Radon Zone: 1 | Type of soil: Clay |
| Terrain / topography: Rural, flat bluff | Depth of soil to bedrock: >50 ft |
| Predominant landscaping: Native prairie grasses | Depth of ground water below structure: >100 ft |
| Common regional pests: Mice | Proximity to bodies of water? >1 mile |
| Other significant features: NA | Above FEMA 100-year floodplain? Yes |
| Additional comments: | |

Climate

| | | |
|--|---|------------------------------------|
| IECC 2004 Climate Zone: 6 | Annual rainfall (inches/yr): 26.7 in/yr | |
| Heating degree days (HDD): 8072 | Annual maximum wind speed (mph): 9 mph | |
| Cooling degree days (CDD): 693 | Avg annual solar radiation (kWh/m ² /day): 4 to 5 | |
| Natural disaster risks: | | |
| <input type="checkbox"/> hurricanes | <input type="checkbox"/> earthquakes | <input type="checkbox"/> wildfires |
| <input checked="" type="checkbox"/> tornados | <input type="checkbox"/> floods | <input type="checkbox"/> blizzards |

Issues

| Issue Type | Risk Level | Issue Type | Risk Level |
|----------------------------|---------------|------------------------|-------------|
| Exterior water: | medium | Pests: | low |
| Interior moisture: | medium | Heat loss: | high |
| Air infiltration: | high | Ultraviolet radiation: | low |
| Interstitial condensation: | high | Other: _____ | |



Durability Inspection Checklist Template

(for prerequisite ID 2.1 & 2.2 and credit ID 2.3)

| | |
|----------------------|---|
| Builder Name: | Swenson Construction |
| Project Team Leader: | Sarah Nettleton, Sarah Nettleton Architects |
| Home Address: | 40790 Waring Road, St. Peter, Minnesota |

For each risk type below, list the durability strategies used in the home to help mitigate those risks. For each of the high and moderate risk areas indicated in the Risk Evaluation Form, please include at least three strategies. Where necessary, add additional rows. Refer to the Example Durability Strategies page for sample strategies that may be applicable.

Have the builder or trade indicate where the strategy is included in the drawings, specification, or scopes of work, and then sign-off that the durability strategies were incorporated into the home. If ID 2.3 is being pursued, have the Green Rater sign-off that the strategies were verified in the home.

| Durability Strategies by Issue Type | Location in Drawings, Specifications, and/or Scopes of Work | Sign-off by Responsible Party (initial below) | |
|--|---|--|--------------------------------|
| | | Prerequisite ID 2.1 (Builder/Trade) | Credit ID 2.3 (Green Rater) |
| Exterior Water / Moisture | | | |
| SITE | | | |
| grade site with positive drainage away from house | L1.1 and Div 2 | ✓ | X |
| locate septic downhill to avoid grinder pump | L1.1 | ✓ | X |
| Install gutter system and rain barrels to water garden | L1.1 and future | ✓ | X |
| LANDSCAPE | | | |
| Seed native prairie on 17 acres of the site | L1.2 | ✓ | X |
| Plant gro low sumac on disturbed slopes to retain soil | L1.2 | ✓ | X |
| Plant native Oaks away from the house | L1.2 | ✓ | X |
| Provide 2-0 perimeter strip of gravel around house and garage | L1.2 | ✓ | X |
| FOUNDATION AND FLAT WORK | | | |
| Provide drain tile at foundation perimeter to daylight | L1.1 | ✓ | X |
| Install 2" rigid insul under slab- tape joints | 20/A3.2 | ✓ | X |
| Seal all plumbing, electrical penetrations at walls and floors | ASI 6 | ✓ | X |
| Backfill with sand and crushed rock | L1.1 | ✓ | X |
| Insulate, drainboard and waterproof the foundation | 16/A3.2 and Div 7 | ✓ | X |
| Install radon vent | Field report #3 | ✓ | X |
| T Mass Foundation system- eliminate rim joist | Div 3 | ✓ | X |
| WALLS | | | |
| Continuous drainage plane behind siding, flashed | Div 7 20/A3.2 | ✓ | X |
| Interior slabs stop before ext wall so no moisture overhang at eaves | 16/A3.2 | ✓ | X |
| Flash openings per Lath& Plaster stds | Field notes #12 | ✓ | X |
| avoid thermal transfer with steel connections | S1.2 | ✓ | X |
| minimize thermal transfer with SIPs | 16/A3.2 | ✓ | X |
| No wood ext deck | A2.1 | ✓ | X |
| Ext balconies are metal | A2.1 | ✓ | X |



Durability Inspection Checklist Template

(for prerequisite ID 2.1 & 2.2 and credit ID 2.3)

| | |
|----------------------|---|
| Builder Name: | Swenson Construction |
| Project Team Leader: | Sarah Nettleton, Sarah Nettleton Architects |
| Home Address: | 40790 Waring Road, St. Peter, Minnesota |

WINDOWS AND DOORS

Ext doors- insul metal with storms

Fiberglass Windows U=.023 and SHGC= .45

MATERIALS SELECTION

No wood in contact with ground

Treated wood sill plates

Treated wood posts at porch

All materials stored on site in shed or under cover
wood to concrete seperated by metal connectors

Exterior - concrete siding and trim

ROOF

continuous epdm glue down on flat roofs

continuous high temp ice and water under steel

Steel standing seam roof

Adhered and counterfashed details at roof/wall

Eave at all sloped roofs, scupper at parapet

Scupper- 12" projection at flat roof

Gutters at sloped roofs - RWL to containers

Div 8

Div 3

Div 6

Div 6

Div 1

Div 6

Div 6

Div 7

Div 7

Div 7

A3.2 and A3.3

A3.2 and A3.3

A12/A3.4

A2.2

X

X

X

X

X

X

X

X

Interior Water / Moisture

ERV to remove interior moisture build up

All materials at site kept dry

Concrete floors at all wet areas

Durable materials in wet areas- no paper faced drywall

clothes dryer vented to exterior

No carpet in wet areas

Pressure test plumbing for leaks

wet areas vented with ERV auto programmed

Floor drain in Mechanical room

Div 15

Div 1

A1.1 A1.2

Div 9

Div 15

A3.2 and A3.3

done 7.19.10

Div 15

20/A1.2

X

X

X

X

X

X

X

X

Air Infiltration

Seal connections at SIPS against mositure migration,tape and foam

No recessed lighting fixtures in ceiling

Preform blower door test to assess leakage rate of envelope

Seal all penetrations at foundation wall with foam

A3.2 and A3.3 and Shop dwg

AL100

done by NEC on 7.19.10

Dv 3

X

X

X

Interstitial Condensation

Seal connections at SIPS against mositure migration,tape and foam

Vent dryer to exterior

Seal all penetrations at SIPs with foam and or tape

Div 6

A 20/A1.1

Div 6

X

X

X

Pests



Durability Inspection Checklist Template

(for prerequisite ID 2.1 & 2.2 and credit ID 2.3)

| | |
|----------------------|---|
| Builder Name: | Swenson Construction |
| Project Team Leader: | Sarah Nettleton, Sarah Nettleton Architects |
| Home Address: | 40790 Waring Road, St. Peter, Minnesota |

| | | | |
|---|-----------------------------|---|---|
| Tightly seal foundation penetrations against field mice | Div 7 | ✓ | X |
| | | | |
| Heat Loss | | | |
| SIP walls R=32 | Div 6 | ✓ | X |
| SIP ceiling R=48 | Div 6 | ✓ | X |
| T Mass Foundation R=18 + 4" rigid insul | Div 3 and | ✓ | X |
| Seal all SIPs with rubber tape | Div 6 | ✓ | X |
| Fiberglass windows U=.023 | Div 8 | ✓ | X |
| Double glazed glass on S and W for heat gain | Div 8 | ✓ | X |
| Triple glazed glass on N and E for heat loss | Div 8 | ✓ | X |
| Provide ERV | Div 15 | ✓ | X |
| Provide separately controlled hood make up air | Div 15 | ✓ | X |
| Provide circulating pump on domestic hot water | Div 15 and ASI # 4 | ✓ | X |
| Eliminate AC compressor and ducts | Div 15 | ✓ | X |
| Provide passive solar gain -6.6% of load | Rem Rate Energy Model 10.09 | ✓ | X |
| Provide thermal heat sink- conc floor | Rem Rate Energy Model 10.09 | ✓ | X |
| Provide solar thermal array 11.2% load | Rem Rate Energy Model 10.09 | ✓ | X |
| Provide for future mini-split if needed for AC | ASI # 3 | ✓ | X |
| No recessed lighting in ceiling | AL100 | ✓ | X |
| No ductwork outside of conditioned space | Div 15 | ✓ | X |
| Ultraviolet Radiation | | | |
| Roofing membranes are protected with standing seam metal roof | Div 7 | ✓ | X |
| | | | |
| Natural Disasters | | | |
| structural connection of roof for tornados | S1.1 | ✓ | X |
| | | | |
| Other | | | |
| GREEN ARCHITECTURAL DESIGN | | | |
| Narrow footprint efficient floor/walls ratio | A1.1 | ✓ | X |
| Provide sliding sun shades for south facing glass doors | A2.1 Div 5 | ✓ | X |
| Orient house to provide winter gain, summer shade | L1.1 | ✓ | X |
| Optimal volume- max 13-0 cigs | A3.1 | ✓ | X |




| | |
|----------------------|---|
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| | | | |
|--|----------------------------|---|----------------------------|
| Luxury of enough- 2,600 SF 4 br home | Daylight model | ✓ | K K K K K K |
| Modeled natural daylighting with shading | Rem Rate Energy Model 9.10 | ✓ | |
| Toward ZERO NET ANNUAL ENERGY USE | L1.1 Div 15 | ✓ | |
| Active solar thermal array | Div 15 | ✓ | |
| Passive tempered underground ventilation air- | Div086 | ✓ | |
| Passive solar gain- low SHGC south glass | L1.1 Div 15 | ✓ | |
| Provision for future solar electric array to get to Zero | | | |
| SERVICE LIFE | | | |
| concrete siding -15 year paint life span | Div 6 | ✓ | K K K |
| 50 year metal roof life span | Div 7 | ✓ | |
| 20 year insulated glass life span | Div 8 | ✓ | |

Builder Declaration for ID prerequisite 2.1 & 2.2

I hereby declare and affirm to USGBC that I have evaluated this project's durability risks, completed the Durability Risk Evaluation Form, and incorporated appropriate durability measures into the design to adequately address the moderate and high risks. The construction drawings and specifications have been updated accordingly, and the measures were verified to be completed appropriately.

Name: Lee Swenson
Title: General Contractor
Signature: 
Date: 08-17-10