Requirements Specifications

Energy Efficient House

**Version 1.1**

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# Revision History Table

Table 1

|  |  |  |  |
| --- | --- | --- | --- |
| Version Number | Version Date | Added By: | Revision Description |
| 0.1 | 01-Mar-2010 | JM | Document created |
| 0.2 | 10-Mar-2010 | JM | Added the "Features" section from the finalized Project Charter |
| 1.0 | 17-Mar-2010 | JM | Document approved |
| 1.1 | 10-Apr-2010 | JM | Updated "User Classes" table |

# Sign-Off Matrix

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Name & Title | Project Role | Date | Signature |
| Darren Bolds | President and CEO | 17-Mar-2010 | Darren Bolds |
| Tameka Finnen | VP Marketing | 17-Mar-2010 | Tameka Finnen |
| Neil Argento | Project Manager | 17-Mar-2010 | Neil Argento |
| Nelson Hauk | Senior Architect | 17-Mar-2010 | Nelson Hauk |
| Kelly Winnett | Director, Sales | 17-Mar-2010 | Kelly Winnett |

# Introduction

## Document Purpose

This document is the Requirements Specification for the "Energy Efficient House" project (aka project "Rainforest"). It addresses intended audiences, scope, user classes and detailed requirements of the future product. The RS document is a configuration item and must be placed under change control once agreed. Updates to the RS must be reviewed and approved by the Project Manager and any relevant stakeholders for the section that is changed.

## Intended Audience

This document is intended for the following audiences:

* Project manager
* Senior architect
* Senior designer
* Technical team members - foreman, construction crew, energy specialists, etc.
* Users of all categories - represented by the focus group
* Business stakeholders - see "Stakeholder register" section in the Project Charter

The rest of the Requirements Specification document contains the overview of the project scope and any relevant reference documents. The next section describes key product features, user classes and the product environment. Finally, the document focuses on the detailed requirements of the "Rainforest" project.

## Project Scope

The scope of the project is the design and construction of a 5-bedroom, 4-bathroom West Coast style energy efficient (ENERGY STAR certified) home.

## References

Table

|  |  |
| --- | --- |
| Document Title | URL Link |
| "Effective Insulation" | Click here to access the document |
| "High-Performance Windows" | Click here to access the document |
| "Efficient Heating and Cooling Equipment" | Click here to access the document |
| "Lighting and Appliances" | Click here to access the document |
| "Third-Party Verification" | Click here to access the document |

# Product Description

## Product Features

Table

|  |  |
| --- | --- |
| Feature ID | Feature Description |
| F 1.0 | West Coast style |
| F 2.0 | Five bedrooms |
| F 3.0 | Four bathrooms |
| F 4.0 | Square Footage - 3,500-4,500 sq feet |
| F 5.0 | Two floors |
| F 6.0 | Energy efficiency |

## User Classes and Characteristics

Table

|  |  |  |
| --- | --- | --- |
| User Class | Characteristics | Favored? |
| Buyers | External customers who will end up purchasing the house | Yes |
| Sales and Marketing | Internal customers who will use the house in their marketing and PR campaigns |  |

## Product Environment

* Initially the final product should be mobile and ready to be transported, assembled and exhibited at the Home Design Expo in April 2013.
* After the Expo the house design should allow for a fairly quick deployment in climate with temperatures as high as +40C and as low as -20C and a rainfall of up to 2,000 mm.

# Product Features and Requirements

Table

|  |  |
| --- | --- |
| Feature ID | Feature Description |
| F 1.0 | West Coast Style |
| F 2.0 | Five bedrooms |
| F 3.0 | Four bathrooms |
| F 4.0 | Square Footage - 3,500-4,500 sq feet |
| F 5.0 | Two floors |
| F 6.0 | Energy efficiency |

## F 1.0 - West Coast Style

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description\* | Priority |
| F 1.0 | R 1.1 | Post and beam construction | See note below |
| R 1.2 | Exposed timber structural members |
| R 1.3 | Extensive glazing and skylights |
| R 1.4 | Open floor plans |
| R 1.5 | Integration of interior and exterior spaces |
| R 1.6 | Wood finishes on both interior and exterior (stained) |
| R 1.7 | Flat or minimally canted roofs |
| R 1.8 | Orientation to views or natural features |
| R 1.9 | Integrated with natural setting, extensive use of native trees and landscaping |

**\*Note**: at least six of the above nine requirements must be satisfied.

## F 2.0 - Five Bedrooms

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description | Priority |
| F 2.0 | R 2.1 | Master Bedroom – at least 300 ft2 | Must Have |
| R 2.2 | Bedroom # 2 – at least 180 ft2 | Should Have |
| R 2.3 | Bedroom # 3 – at least 180 ft2 | Should Have |
| R 2.4 | Bedroom # 4 – at least 180 ft2 | Nice To have |
| R 2.5 | Bedroom # 5 – at least 180 ft2 | Nice To have |

## F 3.0 - Four Bathrooms

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description | Priority |
| F 3.0 | R 3.1 | Master Bathroom shall include toilet, shower, bath and two sinks | Must Have |
| R 3.2 | Bathroom # 2 – shall include toilet, shower, and at least one sink | Must Have |
| R 3.3 | Bathroom # 3 – shall include toilet, shower, and at least one sink | Must Have |
| R 3.4 | Bathroom # 4 – shall include toilet, shower, and at least one sink | Must Have |

## F 4.0 - Square Footage

Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description | Priority | |
| F 4.0 | R 4.1 | House size shall be between 3,500 and 4,500 feet2 | | Must Have |

## F 5.0 – Number of Floors

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description | Priority |
| F 5.0 | R 5.1 | House shall consist of two floors | Should Have |

## F 6.0 - Energy Efficiency

Table

|  |  |  |  |
| --- | --- | --- | --- |
| Feature ID | Req ID | Requirement Description | Priority |
| F 6.0 | R 6.1 | The building shall be built from sustainably harvested wood | Nice To Have |
| R 6.2 | The insulation materials used shall range from R-20 to R-30 in the walls and from R-50 to R-70 in the ceilings | Must Have |
| R 6.3 | The basement and the foundation shall also be insulated | Should Have |
| R 6.4 | The builder shall locate as many electrical appliances in the basement as possible | Nice To Have |
| R 6.5 | The builder shall use vapor retardant materials in construction of the walls | Must Have |
| R 6.6 | The smaller windows (less than 9% of the floor area of the room) shall be located on the north, east and west sides of the building | Must Have |
| R 6.7 | The windows on the north, east and west sides of the building shall be made of the glass with low Solar Heat Gain Coefficient (SHGC) | Must Have |
| R 6.8 | The larger windows (approximately 12% of the floor area of the room) shall be located on the south side of the building | Must Have |
| R 6.9 | The windows on the south side of the building shall be made of the glass with high Solar Heat Gain Coefficients (SHGC) | Must Have |
| R 6.10 | All of the potential air leaks everywhere in a home’s thermal envelope shall be sealed | Must Have |
| R 6.11 | Heat recovery ventilators (HRV) or energy recovery ventilators (ERV) shall be installed in the house | Should Have |
| R 6.12 | Energy Star certified furnace shall be installed in the house | Should Have |
| R 6.13 | Energy Star certified appliances shall be used in the house | Should Have |

# Appendix

N/A