

## **Design Brief for Sam and Christine Garst Home at 6015 Marantha Lane, Tumwater**

**Concept:** We are seeking a design which is comfortable and modern/futuristic ... unlike the current mini-mansion style common in the area. The structure should be a work of modern art, compatible with the environmental. The overreaching goal is to create an integrated green building which minimizes and ideally eliminates its impact on the environment. Thus, locally sourced materials and sustainably harvested wood products are a must.

Consequently, we will be incorporating the most energy efficient appliances, photo voltaic electricity, and a greenhouse for the production of fruit and vegetables on the site.

The lot has a spectacular view of both Mount Rainier and Mount St. Helens which should be maximized through siting and windows.

Finally, our bias is for light, open space design within the structure to accommodate entertaining and several pieces of art we own.

**General Constraints:** We seek a structure that is 3 bedrooms or 2 bedrooms plus a dual purpose office.

We must have a structure that contains 2,300 ft<sup>2</sup> under the building covenants, but it is unclear whether a smaller structure can include a conservatory/greenhouse in the footage.

### **Our Concepts for Individual Rooms:**

**Kitchen:** The kitchen should be an open plan to accommodate the view and incorporating the style with the main living area.

Functionality includes plenty of storage space, a large refrigerator, dishwasher, sink w/ disposal, stove/microwave, and grill with ventilation hood. Ideally, there will be a pantry or similar food storage space associated with the kitchen. The island should have recycling bins built in.

The kitchen should be located near the greenhouse to accommodate harvesting vegetables.

**Greenhouse/Conservatory:** The greenhouse should be sited to the South of the House and have enough height to accommodate as many as 3 trees (orange, grapefruit and avocado.) There will be growing tables for vegetables and flowers. This space should be large enough to accommodate limited furniture for relaxation in the space.

There should be a floor drain, ideally a rainwater collection system (cistern) for irrigating plants, and grow lights. The greenhouse should open into the kitchen and to the patio area.

Optionally, if a sauna is sited near the greenhouse this would be a place for a cool shower.

We are conscientious that the greenhouse will be high humidity, get very hot in the summer, and integration with the main structure may be an issue. Ideas for using heat from the greenhouse in the home heating during winter and or/capturing waste heat from the main structure are welcomed. A trom wall between the greenhouse and the main structure or some form of air/heat exchanger might work.

It may be feasible to vent the washer dryer into the greenhouse. If a water heater is selected, it may be optimal to have the water heater in the greenhouse as well.

**Living Room /Family Room/Great Room:** Our ideal space has a high/vaulted ceiling, an open wood fireplace w/doors. (We realize that this is not as energy efficient but we've had a wood burner before and prefer the open fireplace option.) The fire place should have an external air source and have a blower system to maximize the delivery of heat to the structure.

To visually break the space, a sunken area in front of the fire place might work. The external view or the mountains should be maximized throughout this space, and it should flow into or include the kitchen and a breakfast nook.

At least once per year, we hold a fundraising event, and this space should be adequate to accommodate 60-80 people with some squeezing. The space should have double doors which open onto the patio. There should be the ability to open windows into this space, perhaps close-to-the-floor windows to allow for natural ventilation.

We have several large pieces of art which need to have a wall area to accommodate them.

The use of stone, masonry or poured concrete should be locally sourced to the degree possible. We certainly will consider other floor options such as bamboo or linoleum. Summer solar gain is an issue, and we opt for a SE orientation rather than a due south for the view.

We would also like to have an entertainment area incorporated into the design, along with built-in book shelves. We have a large vinyl collection. Television and stereo components should be incorporated into this area with speakers wire hidden and running to both ends of the great room, greenhouse, dining room, and master bedroom.

**Formal Dining Room:** While the overall style of the house should be modern and contemporary, a formal dining room is contemplated. We have a number of antiques, including dining room set which will be used here. Consequently, the dining room should probably not be part of the great room.

View is less important, but it should be sited near the kitchen area.

**Master Bedroom Suite:** We are looking for a large master bedroom which can accommodate a small sofa and large king sized bed.

The view to both sides of the lot should be maximized, and probably a sky light.

The Master bath should have a shower stall with multiple water jets, Jacuzzi, and dual sink with significant counter space. The toilet should be separated in a water closet. There should be a ventilation fan and plenty of light ... a window to the SW would be terrific.

We prefer to have 2 walk-in closets for the master suite.

**Bedrooms 1/Office:** One of the bedrooms will be used as an office. This can be accommodated either as a discrete bedroom or perhaps a loft. Thus, this space should have a size adequate for 2 desks, a single bed, filing cabinets, and book self.

**Bedroom 2/Guest Room:** If possible we would like this room to have some privacy, eg the door separated from the master suite or hallway. It is possible that we may rent this room out during the legislative session.

**Guest Bath:** If the office loft approach is selected, the loft does not require a bath. However, the guest room should have a full bathroom. Ideally, the guest bath room would double as a half bath for the main living area.

**Entryway and Garage:** We have a bias against having the garage impede the view from the street. The garage should accommodate at least 2 vehicles, one of which will be a camper van with a clearance of just over 8.5 feet and 21 feet in length.

We would like to use part of the garage for storage and or have a work bench area as part of the garage. Thus, it should be a minimum of 24+ feet. Of course, we want an electric garage door.

The driveway should be large enough to accommodate 3 additional cars; a side car port might work.

We have a bias for a low ceiling (7') entry way that would then open into the great room space.

**Patio Area:** The patio area should maximize the view of the Mountains. It should also have a fire pit for warmth and a covered area for eating out during a warm rainy evening. There will need to be a space for wood storage accessible to the main living space and the fire pit.

The patio should be accessible to paths through the rest of the property, particularly the pond area. We would also like to have the patio open seamlessly onto a reasonably flat grassy lawn/activity area.

**Landscaping:** There is a small shallow ravine running through the middle of the property. Ideally, during construction a pond can be defined here. Our bias is that most of the lot be kept in its natural state with the addition of a few trees, wildflowers and shrubs added for aesthetics along a path around the site and for some demarcation of the property. We would like to landscape the front of the house and minimize or eliminate any lawn. To the back, there will be formal beds which will need to be dug out and filled with good soil during the excavation of the building site.

**Mechanical:** We believe that the site lends itself to a solar electric array. The roof should be able to accommodate as much as 500 ft<sup>2</sup> of PV panels. We also are intrigued by solar shingles. We prefer a battery storage system batteries and interconnections with the grid can be made in the greenhouse. Solar panels get hot, so there may be a need for additional insulation to prevent summer heating.

We also believe that Washington State's climate is ideally suited to a ground source heat pump system. The ground source heat pumps coils should be sited away from the foundation, probably under the lawn. The heat pump will provide both heating and intermittent cooling, as needed, for the structure.

We are open to suggestions on the hot water system. Water heaters are a huge energy user, and an alternative may be an instant-on electric system to conserve water use as well as energy. Such a system's robustness should be evaluated with seasonal temperature controls required.

Because the heat pump system will be for heating and cooling radiant heat may not prove practical. Duct work must be installed to a high standard. An air to air heat exchanger is a must.

We would like an attic fan to cool the home during the summer. We also contemplate the need to move warm air from high ceilings to the floor areas in the winter.

The site has cable TV. All office and bedrooms should have cable outlets, as should the great room, kitchen and greenhouse.

Finally, the site seems to lend itself to the possibility of gray water sewage system because of the pond potential. We would like to explore this option as a water conserving environmental feature. The site has been approved for a 4 bedroom septic system. For a gray water system, additional work with neighbors and county planning officials may be needed.

**Envelope:** The foundation should be built with moisture barriers to prevent water from entering any masonry in the floor or walls. Ceiling insulation and wall insulation should exceed code.

All glass should maximize insulating values, probably triple pane. We envision using drapery for the large windows in the great room to reduce heat loss in the winter and solar gain in the summer.

We believe that some form of SIP wall may reduce construction waste.

Some form of gutters for water collection is desired, again a cistern tied to the green house would be desirable.

**Pre Construction:** We have not selected a builder. We understand that the final cost of construction is based upon the speed with which a structure can be built and the amount of construction waste. As we move through the design issues, we hope to have a builder participate to help reduce both time and waste.

A holistic approach to green buildings can reduce cost and increase their performance. Thus, we will likely need to include heating and cooling, landscape, interior decorator, and electrical contractors at some stage in the planning. But, certainly all elements of the plan will need to be set before construction gets underway.