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added housing

Green and culturally appropriate building design



Introduction / We are working with Nuu-chah-nulth communities on the west coast of Vancouver Island, BC, Canada, to help them design green and culturally appropriate homes that recognize present circumstances, using today's skills, based on yesterday's knowledge, for future generations.

As part of the Clayoquot Forest Communities Program 'Q'wii-q'wiiq-sap: Standing Tree to Standing Home' initiative (Q'wii-q'wiiq-sap meaning 'transformation' in the Nuu-chah-nulth language), the **Green and Culturally Appropriate Building Design Project** aims to help guide the building of homes for Nuu-chah-nulth First Nations. The design of the homes will take into account cultural design elements such as the traditional long house design; use of local harvested materials such

as cedar; geography, climate and community demographics. It has been estimated that there is a need for 200-plus homes to be built in the region over the next 40 years. Coupled with this is a desire to change how current homes are designed and built.

Learning from the past /

In earlier times, "Buildings were constructed without nails," recalls Earl Maquinna George, in *Living on the Edge: Nuu-Chah-Nulth History*

PHOTO / Prototype
home design
—Architect
David Wong

PHOTO, L (top & bottom) to R: mould and drainage issues in current housing; new building in progress.



from an Ahousaht Chief's Perspective. "The timbers and boards fitted into grooves and were locked together at the corners so that they wouldn't move in the wind. The siding of the buildings, made of cedar boards one to two inches thick ... were buried in the sand and weighted down with the piles of rocks, and then set at an angle, leaning inward to the building. The roof was framed so that boards would fit partly on top of each other, overlapping all the way down. The builders were careful to start the roof boards from the southeast end of the building so that the wind had no force over the slope of the building. There were two holes towards each end of the building, at the north and south ends, for smoke to go through."

George paints a picture of a house designed and created to be respectful to cultural traditions as well as being climatically appropriate and environmentally smart. These were homes that paid tribute to the region and culture, but at the same time were able to withstand the unique rainforest climatic conditions such as those found in Clayoquot Sound and the surrounding area. These homes took into account cultural traditions of accommodating multiple generations of families under one roof without sacrificing space.

The **Green and Culturally Appropriate Building Design Project** aims to account for and support cultural traditions which worked so well for hundreds of years. We are working

to create much-needed safe and comfortable homes, combining best practices and technologies with a respect for cultural needs, while still addressing current circumstances.

A necessary change /

Why the need for this?

1. **Weathering the climate** Nuu-chah-nulth communities are located in a temperate rainforest, which brings with it unique, rainy conditions. Many of the existing homes have not weathered this well, and are in dire need of replacement.
2. **Climate change** Climate change projections show warmer, wetter winters, which will serve to increase problems of humidity and mould. Housing adaptation strategies are now more necessary than ever.
3. **Housing statistics** Existing housing stock is under enormous pressure from a growing population. Nuu-chah-nulth First Nation populations have doubled in the last 10 years, but the housing supply has not grown with it.
4. **Staying power** Indigenous peoples are deeply connected to place and committed to staying in their territories. Homes that have equal staying power are required. Currently, poorly built homes last only around seven to 15 years where, really, 100-year homes are needed.

5. **Recognizing health and wealth of tradition** There is an increasing resurgence of interest and belief in heritage and cultural knowledge and practices. By embracing their language, histories and traditions, the Nuuchahnulth have facilitated an awareness of past building methodologies.

Issues in existing housing this project hopes to address include water ingress and drainage; mould, mildew, fungus and air quality; crowded rooms and privacy issues; affordability; support for use of local materials and labour; and a deep cultural rootedness that sees families desiring to stay together and age in place. An important opportunity exists to smartly plan community growth with buildings suited for climate and culture, and respectful of both environment and community well-being.

Project goals /

The project aims to engage the community and gather meaningful knowledge, concerns and observations from those who will actually be living in the homes. Our desire is not to impose standard housing solutions, but to listen to and learn from the community. In this way, we will derive a wish list that is unique and respectful to their community needs, their heritage and their territories. It will also support the use of local materials and labour. We are working with the Nuuchahnulth people to:

- Design culturally relevant homes and other community buildings;
- Ensure the design addresses energy efficiency, climatic conditions and affordability;
- Support the region in implementing the design into their local policies and planning;
- Identify innovative approaches to financing the construction of these homes;
- Build capacities and partnerships that will support this vision.

Our approach /

To achieve the vision of a green and culturally appropriate building design, created by and for the Nuuchahnulth peoples, our work takes the following approach:

Discovery Information and ideas gleaned in interviews with members of the communities.

Learning Taking into account learnings from the past, from elders and local experts.

Appropriate building science Working together to create comfortable shelters that recognize the importance of health and safety.

Green design Respecting natural concepts, local resources and low-tech solutions.

Visioning Increasing community awareness of how housing impacts their well-being and that of the regional economy.

Future solutions /

An outcome of this project will be a prototype home-design, including working drawings.

- The prototype design will be simple and flexible, allowing for expansion as a family requires. The roof will be pitched to overcome excessive rainfall issues, it will also be oriented to good solar exposure and aspect. This will also allow occupants opportunities to take advantage of passive green solutions such as solar water heating.
- The home will be 1.5 to 2 storeys tall to encourage indoor air to circulate within.
- Cross ventilation will be a basic requirement for all rooms where layouts permit.
- The home will be raised a couple of feet off the ground for further climatic adaptability, but with easy access to the main floor.
- The use of wood, a natural and time tested building material which is a good source of carbon sequestration, is promoted.
- Wood will be obtained from local sources, such as the First Nations-owned, Forest Stewardship Council® certified, Lisaak Forest Resources mill.



Architect David Wong
Vancouver born Architect and Urban Ecologist David Wong's background in biology, combined with practical knowledge of feng shui, has made David a pioneer of 'green

design'. For over three decades David has been bringing to his work knowledge that respects climatic and cultural precedents to create contextually responsive architecture.

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SKETCH /
 Prototype home
 design sketch ,
 Architect David
 Wong



Partners /

- UBC School of Architecture & Landscape Architecture
- ISIS, Sauder School of Business, UBC
- David Wong, Architect
- Nuu-chah-nulth First Nations: Ahousaht, Tla-o-qui-aht, Toquaht, Yuutu?it?aht, Hesquiaht

Community support /

This project has already created much excitement in the region. We have been in discussions with two Nuu-chah-nulth families who have agreed to invest in building these model homes. Several others have also expressed interest in making this vision a reality.

Funders /

Real Estate Foundation



Vancouver Foundation



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