



Green and Culturally Appropriate Building Design

for Clayoquot Sound
First Nations

PART 1. DISCOVERY:

INTERVIEWS AND PRELIMINARY FINDINGS

May 25, 2011

“ In earlier times, each house included one hundred people or more. Whole families lived there – men, women, and children – each of whom would have a designated spot inside the bighouse where they slept on a mat with no other flooring, even during the winter months. The fireplace in the middle of the house was where people cooked and ate together. They baked salmon over the open fire and shared it with the family. There were no set meal times. People ate whenever they got hungry.

The houses were constructed of a framework of large, upright cedar timbers, which were, depending on the structure, 60 or 100 feet long and about one foot square. The timbers were handcarved with adzes. The blades for these tools were made from sharpened stone. They had a handle of crabapple limb or other wood, which was tied onto the stone blade and rounded to make a comfortable grip.

The buildings were constructed without nails. 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 was made of cedar boards one to two inches thick, split with mauls and wedges. They were arranged so that they would cover the entire sides of the houses, straight up and down. At the lower end, they were buried in the sand and weighted down with the piles of rocks, and then set at an angle, leaning inward to the building.



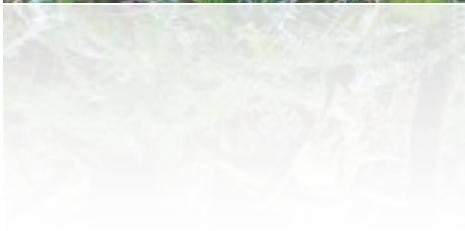
The roof was framed so that boards would fit partly on top of each other, overlapping all the way down. The builders were careful to start the roof boards from the southeast end of the building so that the wind had no force over the slope of the building. The house was approximately 60 feet and 100 feet long, and there was a slight pitch to the roof, not too slanted, with both east and west sides equal. There were two holes towards each end of the building, at the north and south ends, for smoke to go through.”

Earl Maquinna George

from *Living on the Edge: Nuw-Chah-Nulth History from an Ahousaht Chief's Perspective*

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Summary

Objective

As part of Ecotrust Canada's Q^wii-q^wiq-sap Initiative, this document will serve to be the reference that will help guide home designs that will be created, planned and designed by Nuu-chah-nulth communities.

This undertaking will be divided into 5 key stages, with this first stage titled, "**Part 1: Discovery**", which summarizes information and ideas gathered from the community.

This collected information will be organized into a framework of knowledge and ideas that will serve to help facilitate upcoming community design sessions for the creation of culturally appropriate and environmentally smart homes for participating Nuu-chah-nulth First Nations' communities.

In addition to the first stage, "**1. Discovery**", the other key stages are:

2. **Learning:** from the past, learning from elders, learning from others
3. **Basic building science,** health, and safety– working together to create comfortable shelter
4. **Green Design:** natural concepts, local resources - materials and knowledge
5. **Visioning:** creating and designing homes, building community by the community



“ a home which keeps the rain out and has enough food to keep us from starving – this is sufficiency ” ancient proverb

* Q^wii-q^wiq-sap
(pronounced Quay-qwiik-suup ~ meaning Transformation in Nuu-chah-nulth)



Goals

1. **Engage** the community.
2. **Gather** meaningful knowledge, concerns and observations from the community.
3. Ask the Nuu-chah-nulth what their **hopes** and desires are.
4. Ask what some of the **failures** have been.
5. Respectfully speak to individuals and to groups.

Interviewees will be representative of the diversity of knowledge, ideas and demographics across several Nuu-chah-nulth communities. The people interviewed, include young persons, elders, educators, artists, families, community leaders, entrepreneurs, facilitators, administrators, and hired 'outsiders' (i.e. non-aboriginal workers).

6. This study is to **learn** from their community.

The effort is not to impose standard "home/ housing solutions", but to listen, and to learn from the community: traditional best practices

7. To derive a "wish list" that is unique and **respectful** to their needs, their heritage, and to their community.
8. Learn how to design energy **efficient** dwellings that does not add a premium to the costs of construction or ownership , and to share achievable and effective 'green' solutions
9. Create **job** opportunities from within the community to undertake the creation and maintenance of new homes.

With the information and ideas gathered, this effort will continue towards engaging the community in the last stage, an interactive, participatory "Visioning" workshop. It will be at this workshop that a home design will evolve, a home that will embrace the many ideas and issues presented from the community.



Ahousaht construction workers share their thoughts

Findings

"The sacred teachings were passed on from one generation to the next. Sometimes up to five generations lived together under one household. The grandmothers played a very important role in passing on these teachings to the children and grandchildren and great grandchildren."

(R. Arlene Paul, from Sacred Teachings, Nuuchahnulth.org website)



Nuu-chah-nulth village (c. 1860)

Process

Interviews



In regards to existing housing forms and current conditions, participants were asked of what their own personal views, concerns and issues were. Some interviewees were also asked what community desires may be, and how they as individuals, could contribute to the betterment of living conditions for everyone in their community.

This question of “a greater community well being” helped facilitate an understanding and an appreciation of how everything is connected. The sense of becoming an integral part of a greater, inclusive planned housing solution excited many of the interviewees.

Great pride in the history of their communities was shared. It is from this strong sense of connection to the historic past (vs recent past), that the key to culturally appropriate housing will begin.

People from across generational lines in several Nuu-chah-nulth First Nations’ communities were interviewed, some, with their permission, had their photographs and/ or voices recorded.

Questions presented include,

- “What are your thoughts on your current home?”
- “Your desires, hopes, frustrations and headaches?”
- “What, and how do you see housing in your community? and how would your home fit within it?”
- “What knowledge can you share with us of past (or traditional) home and building?”
- “ Do you have stories from your youth of your grandparents days?... did your elders speak of how homes used to be built, or back in the time of their ancestors?”
- “if so, what do you remember fondly?”
- “What do you know of green design and healthy homes?”
- “do you think it costs more to design a healthy home?”
- “Would you want your children, parents and grandparents living under the same roof?”
- “What would you or your family really want to incorporate into a home?”



Research

In addition to the interviews, research to locate documented material that would support historic dwelling typologies, oral histories, and examples or precedents of other progressive climatic design response designs (in similar westcoast temperate environments) was undertaken.

Precedents include other First Peoples' design features and non-aboriginal – from the past and from current forms. These examples will be presented to the community just prior to the visioning session to help in preparation for the design workshop.



Research material included reference collected from credible internet information sites, such as Statistics Canada, Nuu-Chah-Nulth Tribal Council, provincial museum and major university websites. However, the majority of research material was referenced from books and manuscripts located in public libraries and archives.



*Nuu-Chah-Nulth Children
(photo taken c. 1930's)*

Background

Location

The Nuu-chah-nulth are the first peoples to have resided along the length of the western edge of Vancouver Island. This effort will focus on the Nuu-chah-nulth Central Region First Nations communities located in Clayoquot Sound.

The communities in this study are relatively isolated. In some cases, accessible only by boat or by seaplane. The towns of Tofino and Ucluelet help support the region with shopping amenities, a hospital and a high school. Connected by highway, 100 km to the east, is the city of Port Alberni.



Map source: Wikipedia Commons

Climate



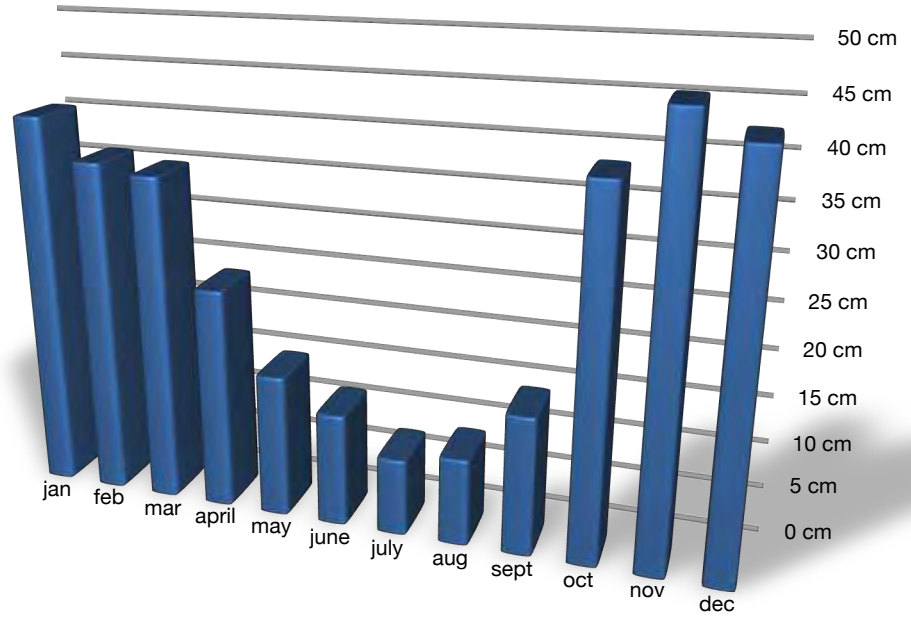
It has often been observed that the moss “grows like fur” upon the trees in Clayoquot. The abundant rain during the much of the year contributes to the lush growth in this west-coast temperate rainforest.

In fact, Clayoquot receives some of Canada’s greatest amount of rainfall. The average annual rainfall amounts to 324 cm (127.6 inches), triple that amount of rainfall the city of Vancouver receives. The community of Ucluelet is reported to have had a record rainfall of 48.9 cm (19 1/4 inches) on October 6, 1967, a Canadian record.

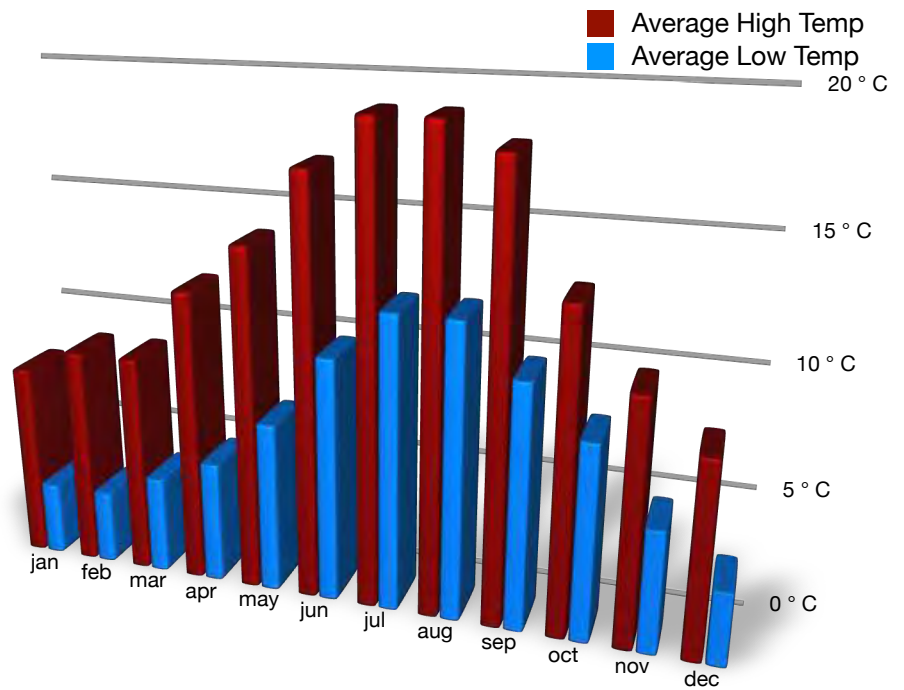
With it’s proximity to the open ocean, Clayoquot’s average monthly temperatures are fairly mild, thanks to the buffering effects by the sea. It’s temperatures range between above freezing (0 °C), to 19 °C.

Within any given month, the average range of temperatures between the low and its high is approximately 7°C. Freezing temperatures, ice, and snow are not common in this region.

Average Monthly Rainfall: Clayoquot



data source: Environment Canada



Observations



Nuu-chah-nulth communities are located in a temperate rainforest. A number of homes in Nuuchah-nulth communities have not weathered well in this climate, and are in dire need of repair and replacement.

Some of these homes were built a number of years ago, with methodologies and built-climatic responses that are not adequate for this region. Even some recently constructed homes are failing. An observation was made by an individual, that "new homes are being built the same old bad ways".

A recurring concern was that water, drainage and moisture issues are problems that have never been properly addressed for many homes. Associated with water ingress, are flooded spaces, rot, mould and constant dampness. In turn, contributing to health related challenges.

Adding to this issue of deteriorating living conditions, is the fact that the existing housing stock is under great pressure from a growing population. Of important significance, is the current demographics of First Nations people, where young persons form the largest percentage of the community:

The 2006 census data for Alberni-Clayoquot shows the median age of First Nations people to be 23.8 years old, compared to 28.1 years old for the rest of the province. More significant is the fact that over half the population is under the age of 25 years old, at 51.6 % (census 2006).



So what does all of this statistics mean?

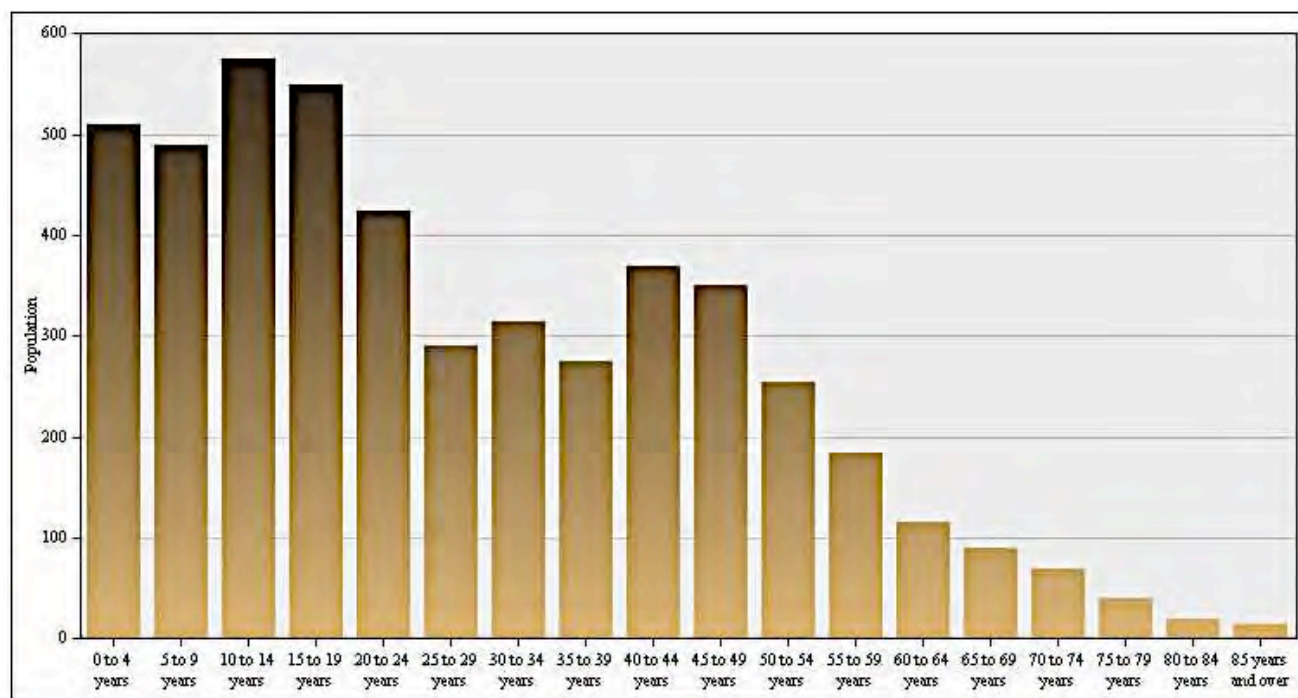
As the young adult demographics enter into their family rearing years, there will be a rising demand for housing and family related support facilities – daycares, schools, health and medical facilities, recreational facilities, etc.

An important opportunity exists to smartly plan the forthcoming community growth with homes and buildings that are suited for this climate, are culturally appropriate, and are respectful to both the environment and to the built community.



Figure Age characteristics of the Aboriginal identity population	Alberni-Clayoquot (CD)			British Columbia		
	Total	Male	Female	Total	Male	Female
Total Aboriginal identity population ¹⁰	4,940	2,550	2,385	196,070	94,855	101,215
0 to 4 years	510	355	155	16,195	8,130	8,065
5 to 9 years	490	225	260	18,005	9,155	8,855
10 to 14 years	575	290	280	21,045	10,960	10,085
15 to 19 years	550	285	260	19,940	10,400	9,545
20 to 24 years	425	210	215	14,875	7,180	7,695
25 to 29 years	290	160	130	12,750	6,110	6,645
30 to 34 years	315	165	150	12,855	6,065	6,785
35 to 39 years	275	120	155	13,945	6,350	7,595
40 to 44 years	370	185	185	15,670	7,175	8,500
45 to 49 years	350	190	165	14,790	6,645	8,140
50 to 54 years	255	120	130	11,635	5,440	6,200
55 to 59 years	185	85	95	8,275	3,895	4,375
60 to 64 years	115	40	70	6,150	2,890	3,260
65 to 69 years	90	40	50	4,135	1,985	2,155
70 to 74 years	70	30	40	2,705	1,220	1,480
75 to 79 years	40	15	25	1,670	740	935
80 to 84 years	20	0	15	835	320	520
85 years and over	15	10	10	585	195	385
Median age of the Aboriginal identity population ¹¹	23.8	22.1	25.5	28.1	26.2	29.8
% of the Aboriginal identity population aged 15 and over	68.1	65.5	70.9	71.8	70.2	73.3

Source: Canada Census (2006)



Knowledge



Heritage and cultural traditions are enjoying a resurgence throughout many First Nations' communities.

The Nuu-chah-nulth are a proud people. Their embracing of their language, histories and traditions have facilitated an awareness of some past building traditions and methodologies. A goal of this effort is to engage the Nuu-chah-nulth in the design of their future homes, with 'help' from their ancestors.

This knowledge is more than just learning about a people's heritage.

Knowledge will contribute to a more meaningful process of engaging individuals and groups in a collaborative effort. Through this process of grassroots involvement and exchange of ideas, knowledge and ownership of the "design process" can help result in the design of more culturally appropriate homes.

A benefit from the synergies of a participatory process is that it helps one appreciate other points of view, facilitate awareness, and shared community concerns. Being engaged and building support across the community has been one of the key elements in traditional Nuu-chah-nulth society. This participatory effort will explore opportunities on renewing community building and its overall wellness.



Challenges

It is vital to be respectful to all ideas presented.



It is also important to carefully and objectively assess an idea for possible limitations, so that it may either be realized, or be re-interpreted to accommodate budget constraints, installation, and maintenance abilities.

Anticipated challenges will be in the selection of available technologies, methodologies, and materials. It is important to balance the desire of historically accurate methodologies and techniques to current best practices.

It is recommended that an assessment matrix be developed to explore proposed materials and methodologies so that available community assets – such as local knowledge and expertise, regional materials, maintenance, expectations and operations issues may be objectively compared and evaluated.

A successful outcome will be prototype homes designed by the peoples of Clayoquot, with some guidance by professionals.

One of the recurring themes shared by the community was the desire to employ persons from within the community. This is an important attribute, as self-sustaining communities will have the ability to hire from within. The desire to provide, train, and maintain employment within the community is one of the objectives of this effort.

With the involvement of individuals and families contributing to the design development process, the cycle of knowledge will be built into, and will become an integral part of the successful evolution of the community.

Ownership is an important key to social and economic sustainability.



Issues



Interviews with the community were recorded and transcribed by Geoff Taylor, a Graduate Fellow with ISIS, Sauder School of Business, UBC. The interview documents may be referenced by the reader for additional material and actual transcript information.

Although there were many observations, concerns, and suggestions made by participants, common themes have been selected and presented in this report using the following procedure:

The issue is identified, and,
potential solutions immediately follow.

Note that there may be more than one acceptable solution for a particular issue.

However, the suggested solution presented on the following pages have been selected if one or more of the following desirable attributes had been met.

Starting with preferred solutions:

- common sense
- are natural solutions
- reflect and /or respect past traditions
- cost effective: adds little or no additional cost to the budget
- energy efficient: require little or no energy to work
- are time tested – especially if a ‘new’ technology is used
- do not require high levels of maintenance



Major issues identified by the communities were:

1. Water Ingress and Drainage
2. Mould, Mildew and Fungus
3. Cold floors and ‘clammy’ walls
4. Crowded rooms and Privacy
5. Affordability
6. Garbage



Issues

Issue #1: Water Ingress and Drainage



Water enters the home through leaky roofs, walls and floors. In a region of high rainfall and strong winds, water can creep upwards, against the laws of gravity, with help from wind pressure.

The puddling and collection of rainwater outside many homes demonstrate drainage problems, either from inadequate rainwater removal systems, ground water levels, or both.

Other sources of water and moisture inside a home, include humidity that results from cooking, bathing and cleaning – with water vapour condensing and collecting onto cool surfaces.

Solution:

Rainwater protection

Entries should be sheltered and generously protected with covered overhangs, porches, or shed roofs.

Roofs should be built with a pitch, with large protective overhangs.

Roofs should be built with easily 'maintainable' material – for replacement and repair. Local roofing products should be encouraged due to repair, replacement and maintenance issues.

Should specialty roofing materials be employed, failure and maintenance issues should be explored (eg. metal roofs may last for 30 years, but failures often occur at connection points / gaskets deteriorate).

Rainwater from roofs collected with adequately sized and fitted gutters and rainwater drain pipes.

Gutters and rainwater leaders properly attached and maintained to catch, collect and direct water away from the home.

Use of rainscreen wall systems and properly understand the science behind equalized pressure wall cavity systems.

Groundwater mitigation

Homes should always be built higher than its surrounding yardscape and adjacent pathways and roadways.

Homes elevated on posts present other issues (eg. cold floors, accessibility, aesthetics, etc). Consider these issues when preparing house foundation options.





Properly fit and size perimeter drainage to direct water away from home's foundation. Use drainage pipes designed for the specific use (eg. use solid pipes for drainage collection systems, and use perforated pipes to capture ground water).

In addition to below grade drainage pipe systems, employ secondary drainage backup/ support systems, such as the use of drainage rock pits and sumps where conditions permit.

Avoid large areas of hard surface near the home (eg. asphalt play areas, gravel driveways, patios). If this cannot be avoided, slope the hard surface away from home and away from neighbours' dwellings.



Landscape with swales (depressed paths for surface water flow) away from house.

Encourage low maintenance gardens with living ground cover that can help absorb, retain and mitigate water flow. Selection of plants should be of local native species.

Should rainwater be collected, it should be contained inside a cistern and not be open. Open rainwater detention ponds present hazards to children.

Circulate air to reduce stagnant air, and even out temperatures

- Concealed spaces must be properly cross-vented (e.g. attic spaces, crawl spaces).
- Natural convections may be created in the home using taller, double volume spaces.
- Air may rise up and out through upper storey windows.
- Skylights should be operable to encourage natural ventilation
- Ceiling fans to mix the air, and may help discourage cool temperature pockets that are potential condensation spots.
- Exhaust fans. These may be set with humidistats or with motion sensors.
- Rooms and spaces that experience high levels of humidity should have window or other access to fresh outside air (e.g. bathrooms should be next to an outside wall and have a window for air circulation).
- Encourage cross ventilation. Create spaces that have at least two operable windows, or access to outside air when needed.



Issue #2: Mould, Mildew, Fungus



Favourable climatic conditions for humans, also present favourable conditions for flora and fauna. It is in this benevolent environment that we find microscopic flora in the form of microbes – fungi, mould, and mildew. These microbes are harmful to human health, and they are present everywhere. However, microbes flourish in homes that have high humidity levels, and have little or no air circulation.

The 3 main ingredients that contribute to microbial growth are:

- water (moisture)
- warmth (i.e. room temperature)
- food (i.e. cellulose in the form of wood or paper)

To combat the proliferation of harmful microbes, one or all of the above ingredients should be considered in the design of homes, meaning, the control (e.g. removal) or diminishing of one or more of the items.



Solution:

Air movement

- Natural convections may be created in the home using taller, double volume spaces.
- Stagnant air may rise up and out through upper storey windows.
- Skylights should be operable to encourage natural ventilation
- Ceiling fans to mix the air. These may be on timers.
- Exhaust fans. These may be set with humidistats or with motion sensors.

Water and moisture abatement

Effective building envelope protection should alleviate much of the moisture and water (see issue #1: Water).

Food source

Wood is a reliable and readily available local resource. It has always been an effective building material. Other building materials, especially those that are inert such as concrete and metal, are generally not as cost efficient.

Cedar wood is a natural material that is resistant to rot and microbial activity. It is also a widely used product by First Peoples. Cedar should be explored as both as a finish and as structural material.

Extreme temperature conditions and exposure to sunlight can also help to discourage the growth of microbes.





Issue #3: Cold floors and clammy walls

Floors were identified as being uncomfortably cold. This observation was also reiterated by participants who were currently engaged on a construction project in Ahousaht. One of the workers indicated that suspended wood floor systems were cold, and the solution was to build slabs on grade.

Slab on grade ground floors are made from pours of concrete during the foundation construction stage. It was stated that these floors were a better system, as they contributed to warmer and more comfortable floors.

The same observations were identified with exterior perimeter walls, which were identified as being cold and 'clammy'.

Solution:

Cold floors and cold walls indicate a heat loss scenario. Essentially, when these barriers feel 'cold', it identifies the assemblies as being insufficient or having failed i.e., not properly insulated.

Slab on grade concrete floors generally provide a better insulated system, thus they feel "warmer". The same may be true of properly designed suspended wood floor assemblies.

A thought had been shared with a group of Elders, who recollected that the bighouses their ancestors once lived in were constructed entirely of thick wooden cedar planks suspended off the ground. Thus, a wooden floor assembly may work if thoughtfully constructed and prepared.

Thick wooden planks provide a better insulative value than would inadequately insulated plywood sheathing assemblies.

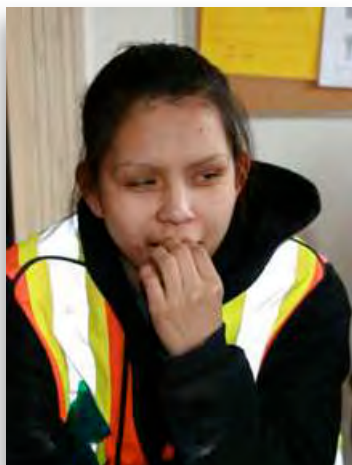
Exposed floor assemblies should have a proper R value (insulation) material that is protected from wind, water and critter damage.

The same is true for exterior walls. Exterior walls should be properly insulated and should also have the ability to "air out" and breath to allow trapped water vapour and moisture to escape.

When floors and walls are cooler than the ambient room temperature, moisture will condense upon it, resulting in wet walls that feel cold and clammy, and worst, may encourage mould and mildew to grow.

Slab on grades add a small premium to the overall construction budget of a home, and if used, should also employ a proper insulation system along with good drainage.





Issue #4: Crowded rooms and Privacy

Multiple generations under one roof help strengthen the family unit with strong bonds between elders, adults and young ones. This was the basic and historic societal structural unit of Nuu-chah-nulth communities.

Existing housing forms are inadequate, and do not reflect the desire to accommodate multiple generations. A preliminary observation of existing homes indicate designs as being similar to housing forms built in suburban metropolitan areas, and thus, not responsive to the unique cultural history of the Nuu-chah-nulth. As a result, it appears that these homes were not designed for flexibility, permanence, nor for expansion or contraction of family size.

In addition, suggestions for spaces unique to the community were shared. Spaces such as fish canning rooms and carving rooms.

Add to this the current trend of growing families and the desire for individual “space” – privacy. Some participants observed that the demand for space and privacy is high. Current conditions have seen up to four individuals sharing a sleeping room.

Solution:

Design a home plan that allows for flex housing and be respectful to their cultural heritage. Historically, communal buildings were constructed and de-constructed, leaving structural posts and systems in place. The wall plank systems were portable, allowing communities to relocate according to the seasons.

The new designs should also respect the ability for persons of varying abilities to live where it is most comfortable. An example may be in the design of bedrooms and space with ease of accessibility for some elders at the ground floor.

Other innovative suggestions from the community were to design “multiplex” type homes that are adjacently joined and are securable. A good example of how this technique is used, are in hotels where adjacent suites are connected through common (but lockable) internal passage doors.

As a family grows, the building gets expanded – a new living and sleeping space gets repeated, and is appended next to an existing dwelling, or interfaced and connected between a shared common space. This common space may be the fish canning room.

Homes may be arranged in clusters, around family or community gathering spaces.

These examples reflect the important connections that are intrinsic and vital to Nuu-chah-nulth heritage and community. It is important to recognize the desire to house multiple generations in one place with provisions for privacy.

Issue #5: Affordability



Home ownership is a desirable goal. Purchasing a home and the ability to maintain payment loans and issues of maintenance were brought up.

The ability to create employment within a community and to keep the circle of wealth within, reflects the health of a community. A sustainable community will have the ability to sustain itself economically, which in turn would support social and environmental sustainability within that community.

Thus it is prudent, when exploring home ownership solutions, the question of community benefit and economic support is first on the agenda.

Of recent, various financing instruments have appeared for First Nations' communities.

Although these financial vehicles are outside the scope of this study, it is important to identify aside from home rental and ownership loan costs, another large expense is in the use of **energy and power** – i.e. *electricity* – which is used for space heating, for clothes drying, and for hot water heating.

Solution

Both natural and more efficient methods of heating should be considered and encouraged.

High efficiency wood burning stoves/ heaters should be considered for new home designs. Electric heating systems should not be the primary source of warmth.



Air drying clothes lines, both inside and outside the home should be provided. Thus, a separate room, for the removal of rain soaked clothing for drying should be designed. This transitional room, like an enclosed porch area, is located at the entry door. By keeping water drenched clothing and footwear away from the main spaces of home, moisture will also be kept away from the main living areas. These “drying rooms” designed to facilitate drying should be an integral design feature for new homes.

More efficient hot water heating systems should be offered. There are “on-demand” hot water panel systems that use energy only when the need for hot water occurs. Contrast this to traditional hot water tanks where energy is consumed to heat and maintain gallons of water which gets stored and reheated – whether hot water is used or not.

For the more adventurous, passive solar hot water heating systems may be installed for use when the opportunity for sunshine occurs.

Suggestions

The following points were ideas and suggestions shared by participants – as desirable attributes/ entities/ spaces for their new homes:



- an art / creative space (e.g. a carving space)
- decorate exterior of homes individually - with artwork, family crests
- use more local materials - stone, cedar harvested at proper time(s)
- use more local labour / skills development (share knowledge)
- encourage community involvement - raising/ building of home as a group (neighbourhood) effort
- smoke house
- canning room
- animal/ pet access into homes
- overwintering space - food/ canoe/ stuff
- accessibility for elders
- modern conveniences - media room, computer room
- energy saving ideas
- solutions wanted NOW



Observations about their geographic location:

- isolation
- proximity to ocean
- convenience? / food supply
- schooling – travelling to/ fro for some secondary students
- granitic substrate
- flooding
- drainage
- tsunami worries



Issues

- Health
- Mould, Mildew and Fungal problems
- Roads (potholes), and continual raising of road by infilling with rocks
- Garbage/ sanitation... accumulation of unwanted toys, cars, disposables and other “junk”
- Things to do (for the youth)
- Trans-generational interaction

End of Part I:

Community Discovery and Feedback

On Visioning a Home for the Nu-chah-nulth: Using today's abilities, based on yesterday's lessons for tomorrow's hopes



The Nuu-Chah-nulth, as in many First Nation communities across the continent, are enjoying a resurgence of pride in their culture and history.

In discussions with members of the community, the idea of their ancestors' longhouse (also identified as "bighouse") was often referenced. In order to appreciate the success of the historic longhouse, information from books and from reliable sources from the internet was undertaken.

The author of this document feels that there is much to learn from history and historic precedents.

However, notions of historic references should be explored objectively – in particular, to resources and technologies that may have been available during past time periods. For example, the use of large girth timbers may no longer be available today.

A more important aspect, is to understand less apparent notions - that of spatial relationships, dwelling positioning, weather protection, and assembly concepts. These notions are the essence of past design features.

Equally important, are the intangible qualities that are often absent from the design process. Elements such as social relationships between families (both within and extended), neighbours, intergenerational relationships, and the rest of the community.





Advances in “time proven” building technologies, methodologies, and materials have inherent efficiencies. In addition, some of these advances contribute to the health, life and safety aspects. Often technology is embraced for its novelty (or marketed expectations). It is prudent to employ those solutions that do not require major capital upkeep; have proven ease of maintenance (i.e. low requirement of frequent outside technical expertise or support); have backup solutions/ options during times of failure, or during maintenance shut-downs, and offer some of today’s “modern” conveniences.

Some historic design elements are relevant and appropriate in today’s designs. These take the form in both material selection such as rot resistant cedar building material for both structural and finish uses; roof overhangs to shelter and to displace rainwater, vaulted interior spaces for natural air circulation, artistic expression, and dwelling placement. The exercise is to decide what elements and ideas from Nuu-Chah-nulth heritage may be re-expressed, re-interpreted, or renewed.



For a fuller appreciation, key items and features should be understood for their inherent/ intrinsic values, and see how they may best be realized with traditional design(s). An example of this could be the tall spaces in traditional Nuu-Chah-nulth interiors. These tall, vaulted spaces helped ventilate the space (allowed cooking/ warming fire smokes to escape), while at the same time encouraged ventilation through convections of warm air rising, then cooling. This convection allowed a natural circulation of air. A modern interpretation of this could be in the form of operable skylights, that would offer the same – a user controlled air circulation.

Ecotrust can lead a number of design sessions with Nuu-Chah-nulth community members across the generations. Here it will be the members of the community who will participate in a design effort that will allow participants to become “Architects” and “Designers” for their own community. An ownership and synergy of ideas and a sense of pride would also be a product of these sessions.

“Design charettes” will help build community, pride and ownership of place. As community designed homes become physically realized, there is an even greater opportunity to encourage more participation in the building process – helping one other build each other’s homes. This was one of the key thoughts shared by several elders on what they had experienced and what had worked in the past.





Planning Process

A methodology for creating a culturally appropriate and a green approach to crafting a home for today's community :

1. Ask the community what they want - e.g. elders want little ones near by; a desire for specialty spaces, such as a smoke house, canning room, carving/ art space
2. Can local materials be used?
3. Identifying the major problems - mould, "movement" space, privacy, drainage, maintenance, heating/ cooling
4. If a price premium is incurred, can it be justified?
5. With the given community knowledge/ expertise pool, which technique of deployment is best suited?
6. Can the design issue employ a natural solution? (eg. natural ventilation, daylighting, weather protection)
7. What are some possible drawbacks of alternate solutions? (eg. added costs, more maintenance, possible failures)
8. How does the home fit into the overall community plan (location, fit, neighbourliness, shape, proportion, scale)
9. Do you need a vehicular road? Can it be shrunk in size, and/ or have it serve more households? Driver's line of vision for pedestrian safety
10. Can local people be employed for this component(s) of the building?
11. If not, can they be trained in time to help deliver?
12. Is there flexibility built-in? (eg. programming, increasing/ decreasing floor space)
13. Is the home design healthy?
14. What design features are in place to help maintain/ encourage a healthy home?
15. Is it an added cost?
16. Respect. What components of the home demonstrates respect? i.e. for the occupants (privacy); for elders (accessibility); for neighbours (overviews); for safety (surveillance and hazards), for heritage (cultural pride); for ownership (dignity and cleanliness)
17. How does the various generations feel about the new house design? (does it function well in terms of circulation and adjacent room proximities?; is it "cool?" or is it just "practical"... can it be both?; is it expensive to maintain?)
18. Are you proud of your home?





Towards the Future

The success of this effort is more than on developing the concept of one or several home designs. It's success is supported by the inclusion of the invisible bonds that connect and hold a community together.

Physically, the siting of homes – proximities, orientations, and clustering of these homes, all eventually lead back to the basic building unit – of families, and how the design of spaces within the home and outside the home, 'works'.

The exploration of community building may begin at the macro level, but as the process refines itself, this exploration gradually focuses inwards, toward a more personal level.

The following is a discussion list, in preparation of proposed community design forums (parts 2, 3 and 4):



1. lack of / or remoteness of supporting community facilities
 - a. schooling and displacement of impressionable young people from family and familiar surrounds
 - b. health care and emergency care
 - c. local opportunities - work, live and play
 - d. these issues require a longer term vision/ plan
2. keeping the various generations engaged amongst themselves and between generations
3. planning, layout and placement (siting) of the homes
 - a. should a design follow natural contours?
 - b. do you cluster around gathering places?
 - c. are vehicular roads important?
 - d. walking distances to important/ relevant places
 - e. climatic considerations v/s social considerations (eg. homes around a cul-de-sac)
4. Flex housing
 - a. accommodate different generations
 - b. economies enjoyed - heating, ventilation, built in efficiencies makes green sense
 - c. privacy
 - d. shared spaces/ conveniences
5. landscaping
 - a. drainage - rock pits/ cisterns, swales, systems
 - b. indigenous plant species
 - c. rocks
 - d. tree canopies/ affects to root trimming and removal (weakened?)



5. exterior finishes
 - a. walls
 - b. windows
 - c. doors
 - d. roofs
 - e. vents
6. infrastructure / miscellaneous
 - a. sewers
 - b. water
 - c. drainage
 - d. electricity

The home design itself:

Checklist of items to be considered and planned internally (interior layout) for a House:

entry/ "wet/ drying" room

living space

dining

bedroom count

bathrooms (shared and ensuite)

kitchen

storage – wet, dry, food, etc.

cultural (carving/ art) space

garage (for canoe/ car/ boat or workshop)

play space(s)

reading/ sitting

crawlspace / maintenance spaces

mudroom / canning room / smoke house

co-ordination of space; for thoughtful spatial arrangement and workflows;
sound / work separations

maintenance issues

privacy

natural ventilation of rooms (e.g. cross ventilation)

access to daylight





Communal spaces:

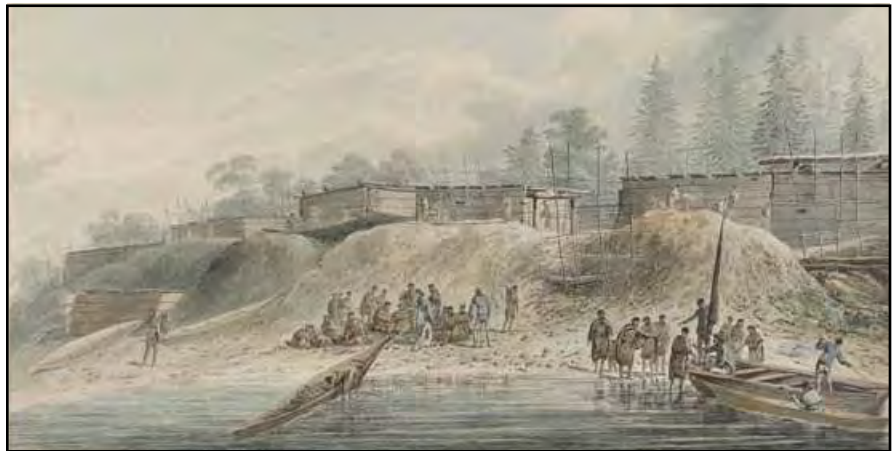
Common areas
Yards/ Gardens/ Rest areas
Cultural/ Places of pride
Roadways (are they needed?)
Play areas

Healthy Community Planning

Clustering
Traffic safety
Common facilities
Short and long term vision/ planning

Healthy Homes

Encourage passive systems
Natural ventilation
Radiant Heating and Cooling
Local materials
Recycled/ re-use



"For us to learn from each other is quite important as the bigger society has to grasp on to learning from another culture. Today, environmentalists are paying a lot of attention to First Nations and what they believe and how they handle resources. We have a lot of neighbours that were not treated well especially the animal world. Everyday we lose but then again we have to learn, hopefully in this case by our mistakes."

(Nelson Keitlah, from Sacred Teachings, Nuuchahnulth.org website)

A Thought: the evolved Nuu-chah-nulth home

A home for the future learned from Nuu-chah-nulth ancestors.

It's about continuity.

Based on the assumption that the Nuu-chah-nulth would maintain traditions, but would seek to continually explore and develop their homes with today's tools, technologies and knowledge, what and how would a Nuu-chah-nulth home look like today, had it been allowed to evolve without outside 'design' influences?

This is an interesting and exciting thought to explore.



"I was raised by my grandparents and many aunties and uncles. Living with my grandparents was really neat because I had a lot of other family members to live with. It was really important to us that we all went to bed at the same time, even our grandparents. Our grandfather would tell us stories at bed time and I would never hear the ending of that story. The next night we couldn't wait to hear that story again and he would never say to us, "I told you that story before"...he would just begin that story again..."

(Margaret Andrew, from Sacred Teachings, Nuuchahnulth.org website)