

A stylized, light blue illustration of a plant with several leaves and small, round berries or flowers, positioned on the left side of the cover.

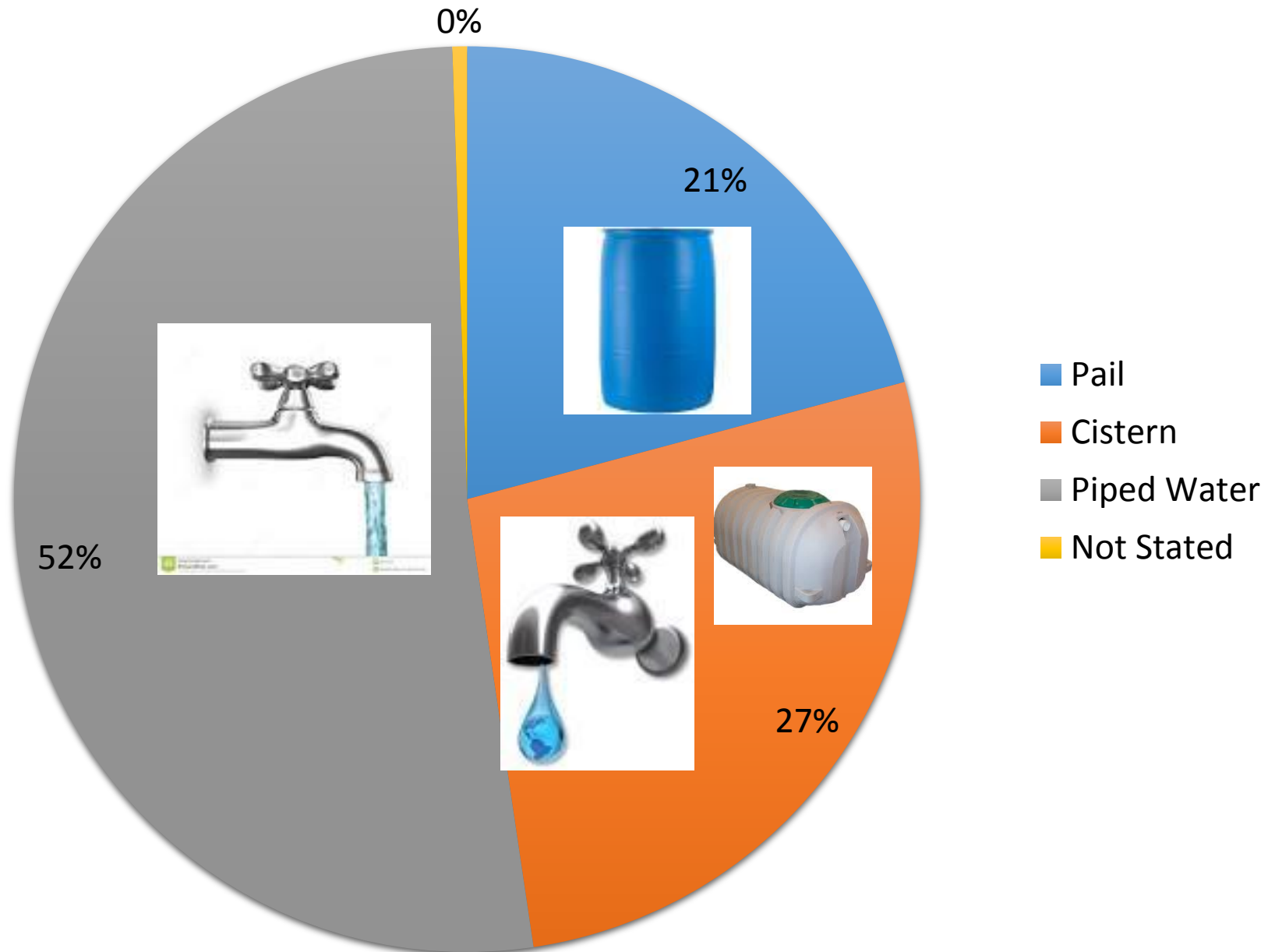
Housing, Water and Sewer in Garden Hill First Nation

**Lakeisha Barkman,
Elsie Monias &
Shirley Thompson
2018**

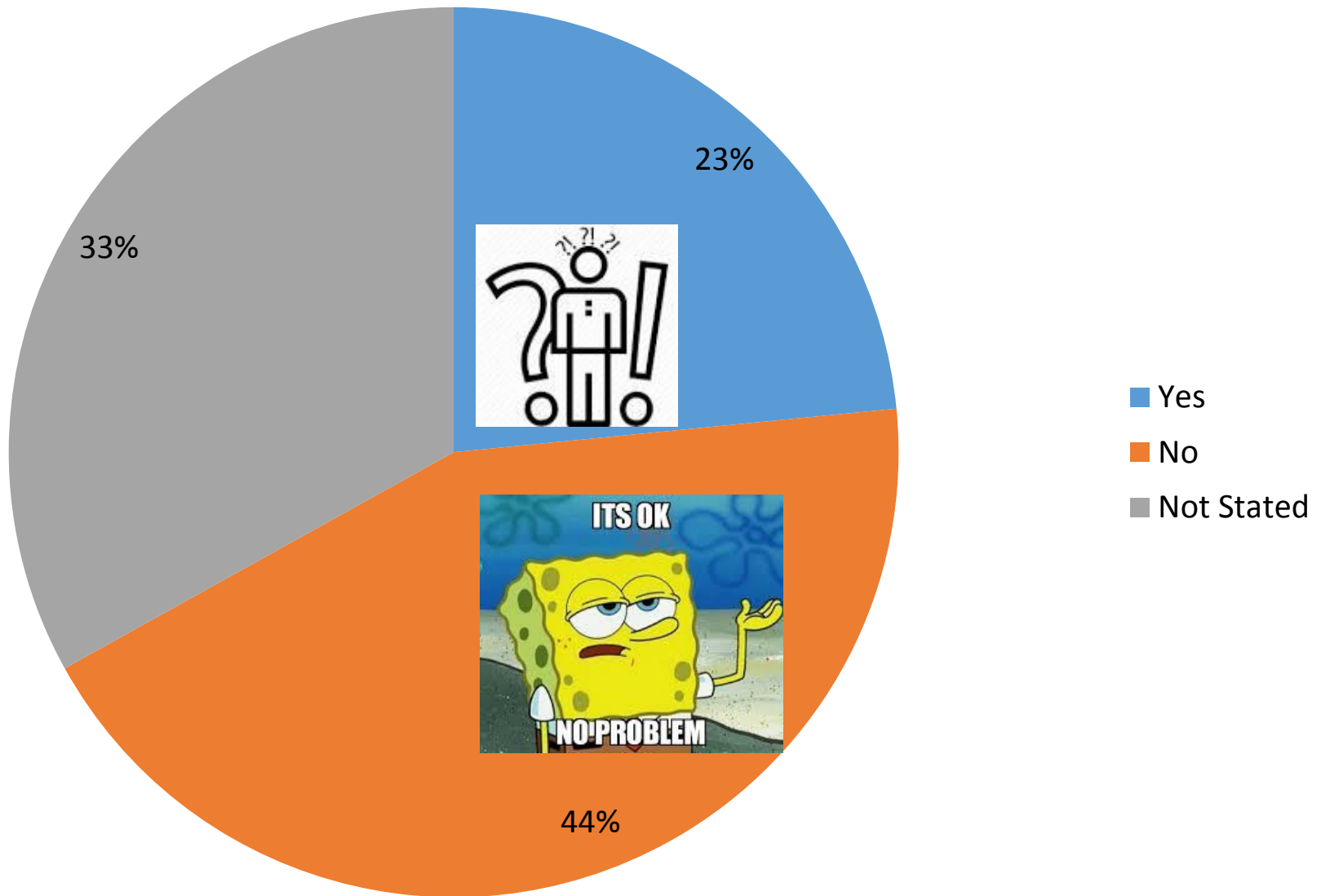
Introduction

- This presentation is the analysis of Garden Hill First Nation (GHFN) Housing and Employment Data from summer of 2017.
- Survey organized, written & data collected by GHFN employment authority's Lakeisha Barkman and Elsie Monias, Director of Employment and Training.
- Statistics analyzed by Rezwanul Hoque, Keshab Thapa and Shirley Thompson with Microsoft Excel 2017.
- Total Number of Household Respondents is 384 (n=384).

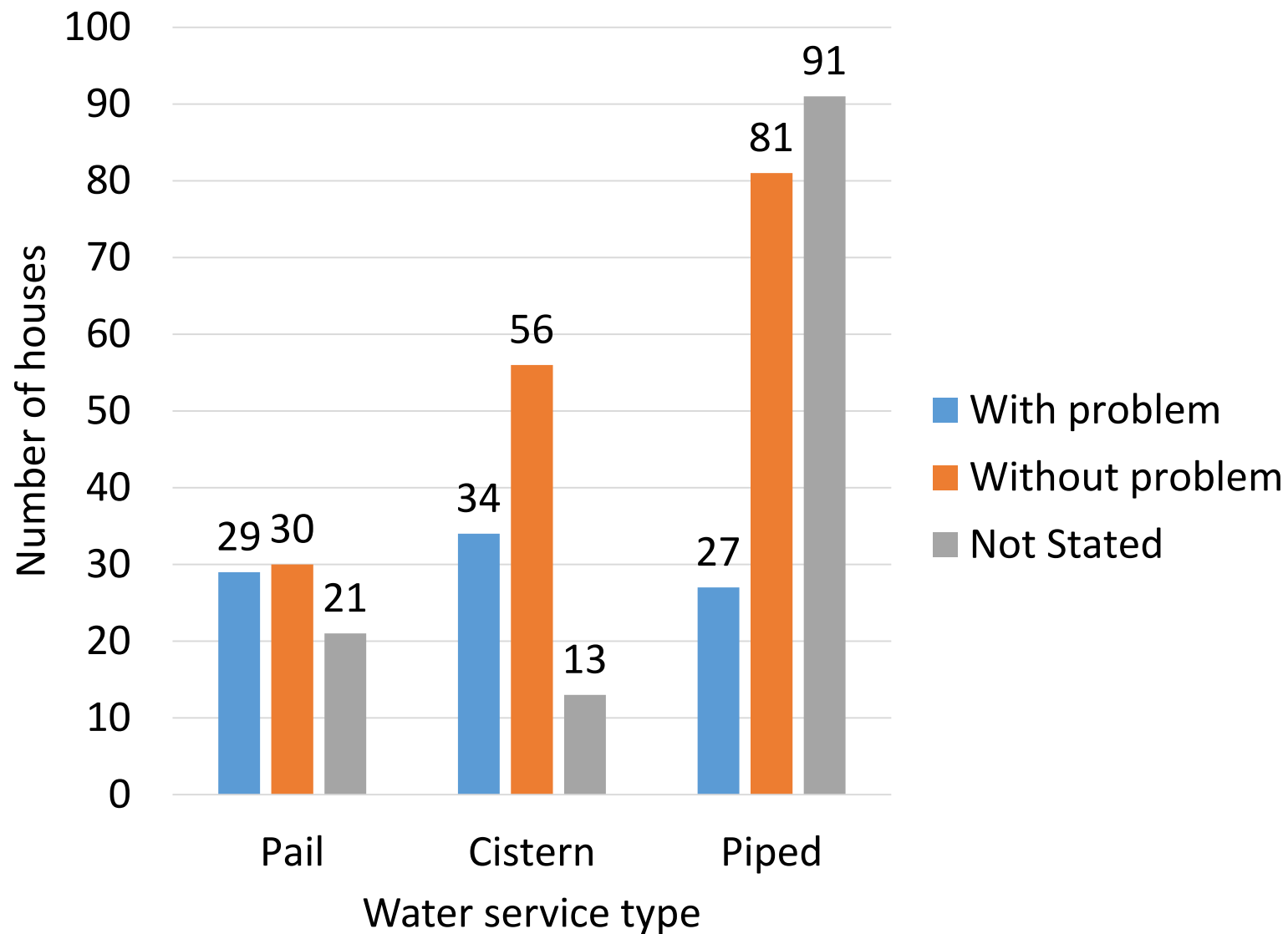
Water Supply by Pail, Cistern or Pipe in Garden Hill Homes (n=384)



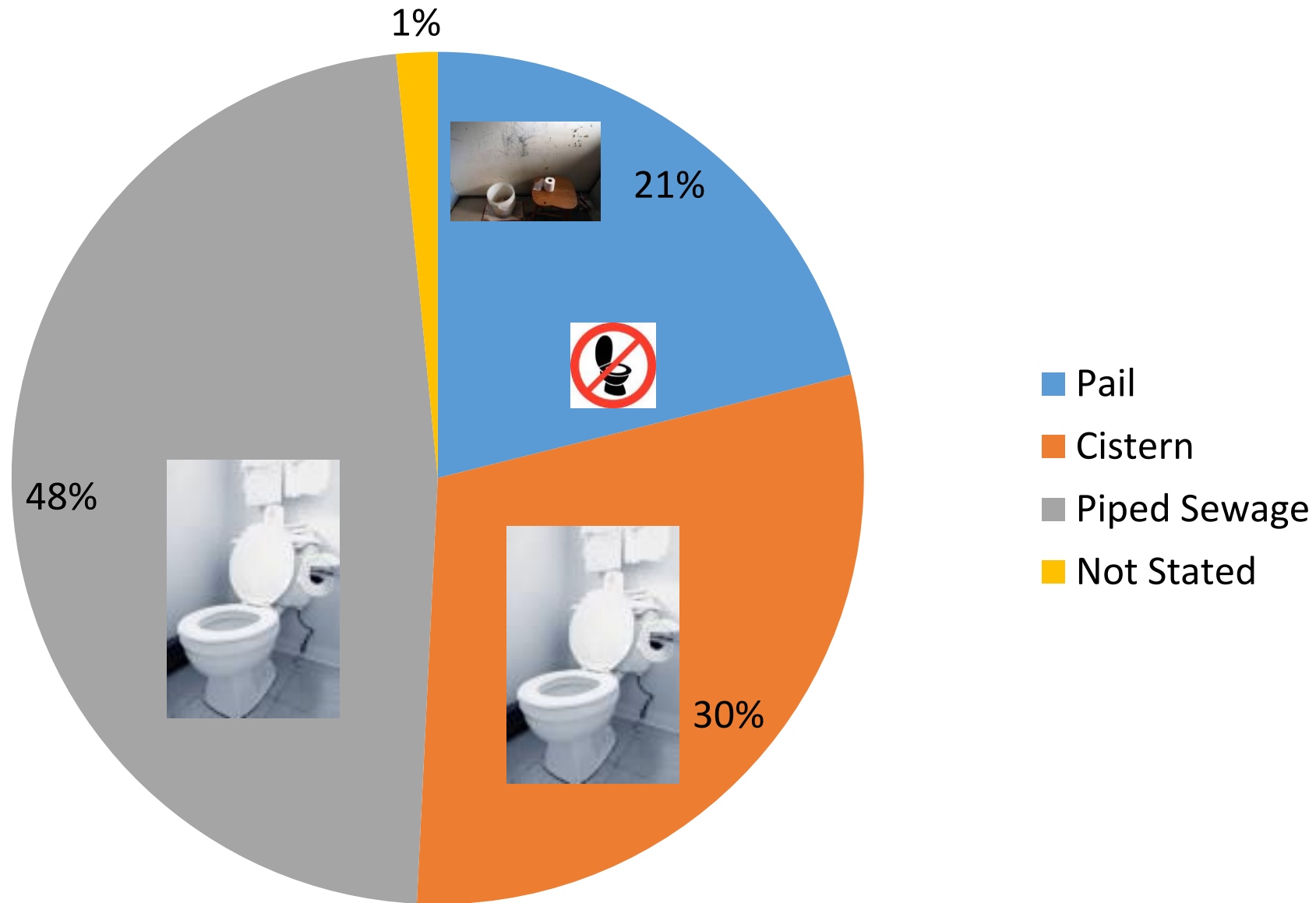
Homes with Water Supply Problems (n=384 homes)



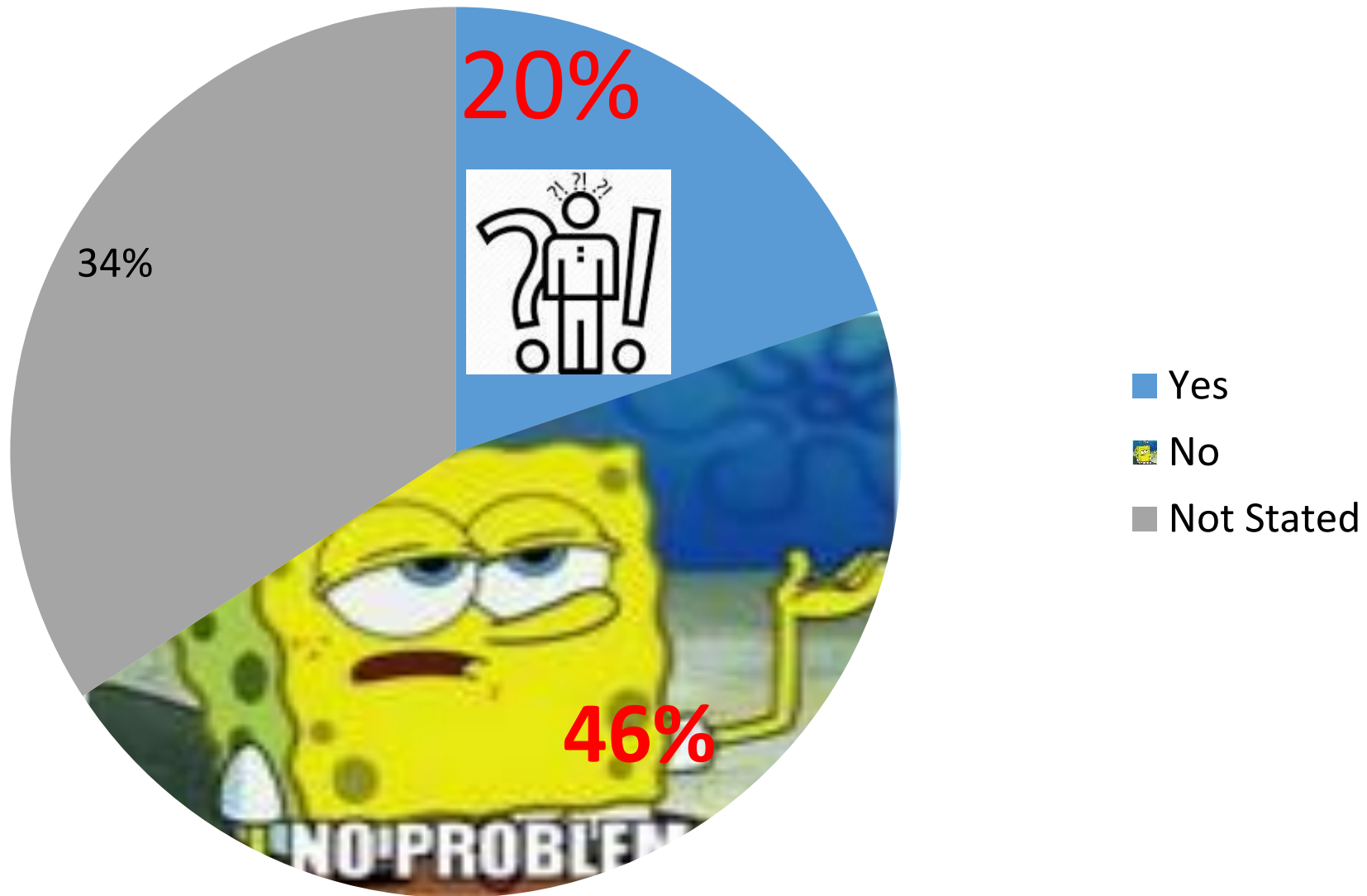
House's Water Service Problem by Delivery Type (n=384 houses)



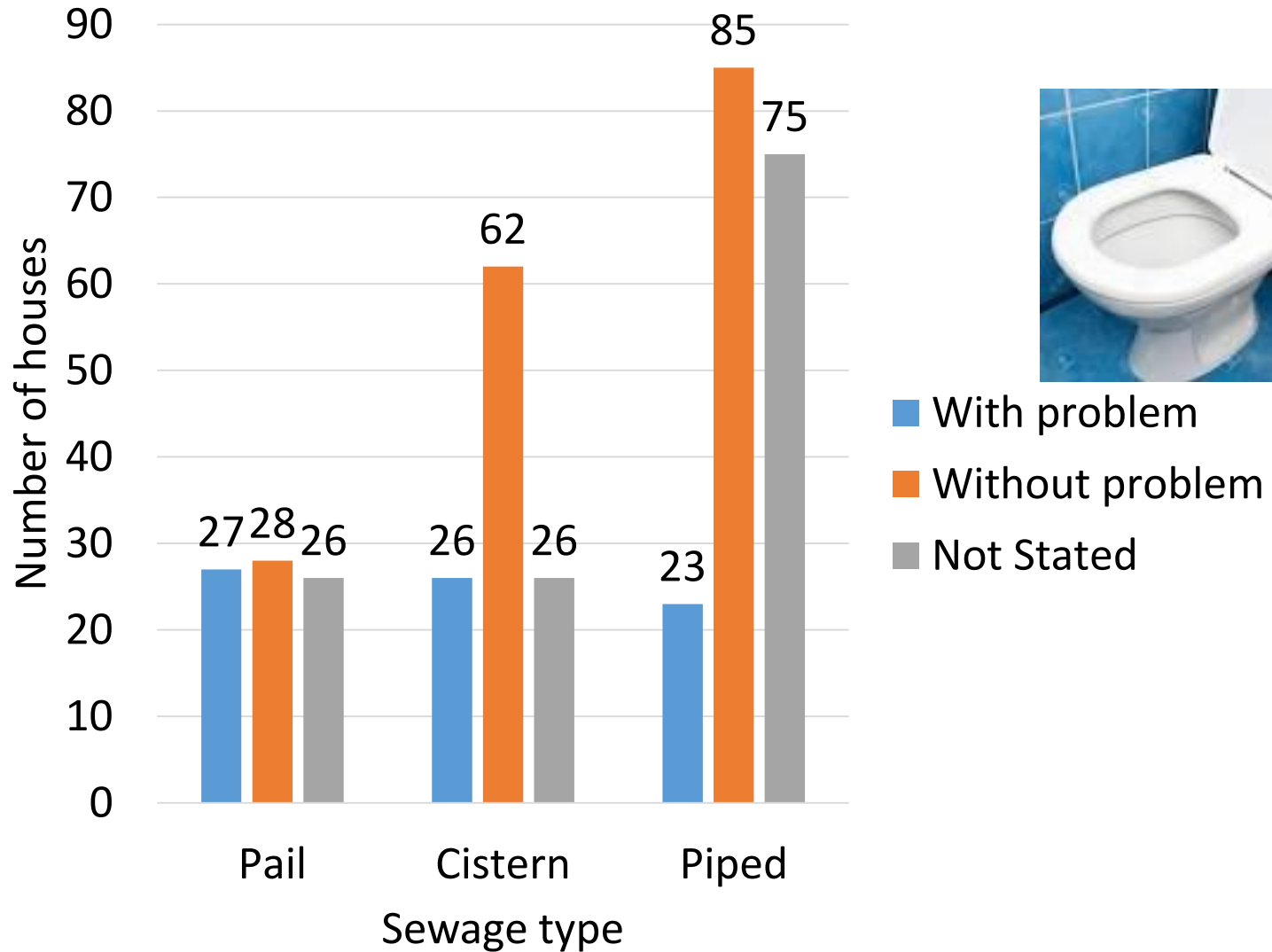
Garden Hill Sewage Method (n=384)



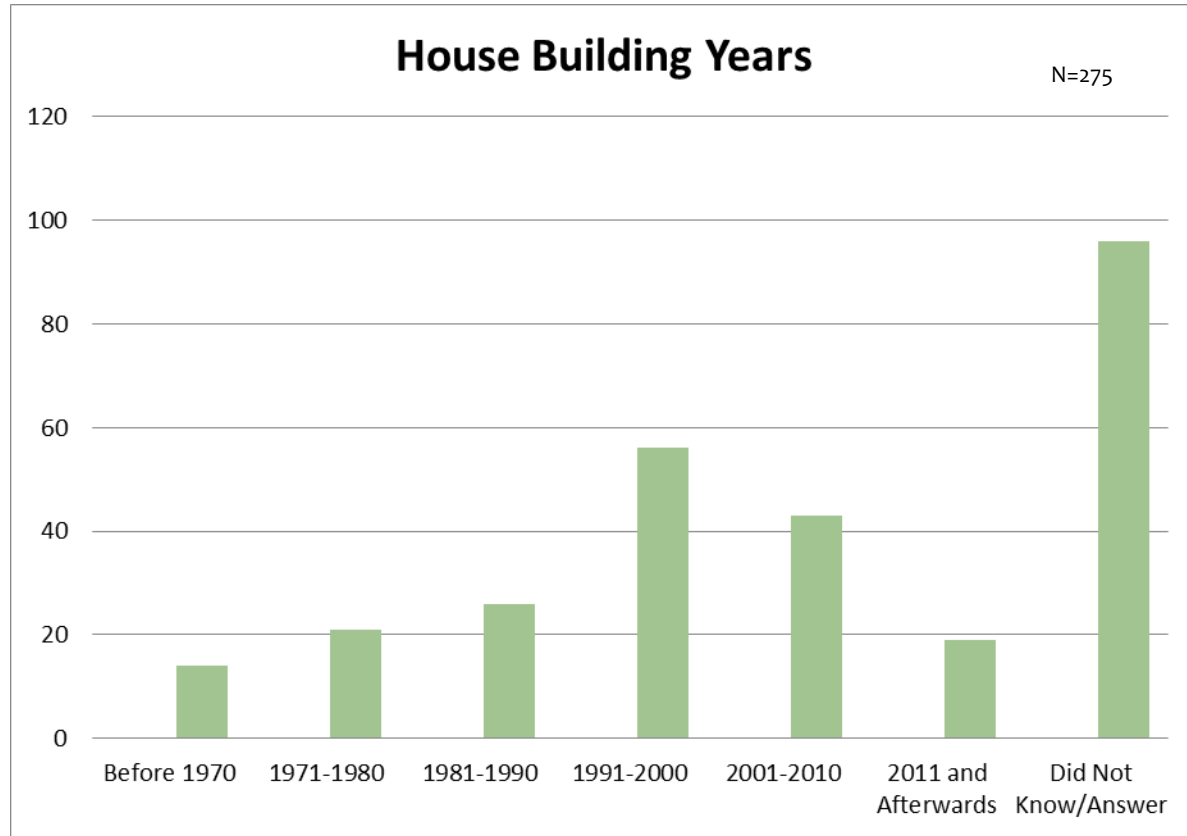
Sewage Problem (n=384 houses)



Sewage Problems by Pail, Cistern or Pipe Removal (n=384 houses)



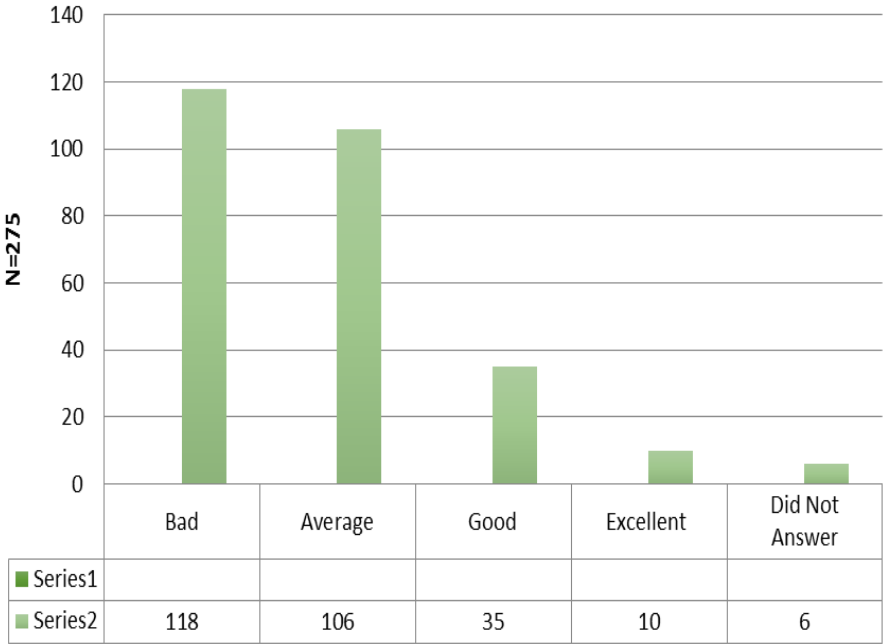
House Construction Year In GHFN



House Buliding Year	
Before 1970	14
1971-1980	21
1981-1990	26
1991-2000	56
2001-2010	43
2011 and Afterwards	19
Did Not Know/Answer	96

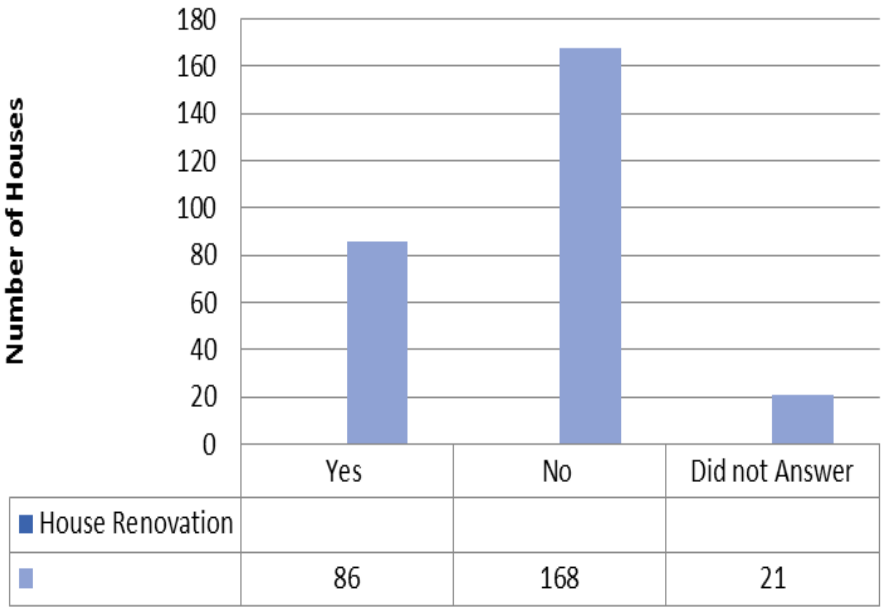
Condition of Houses in GHFN

Quality of Houses in GHFN



House Renovation Statistics in GHFN

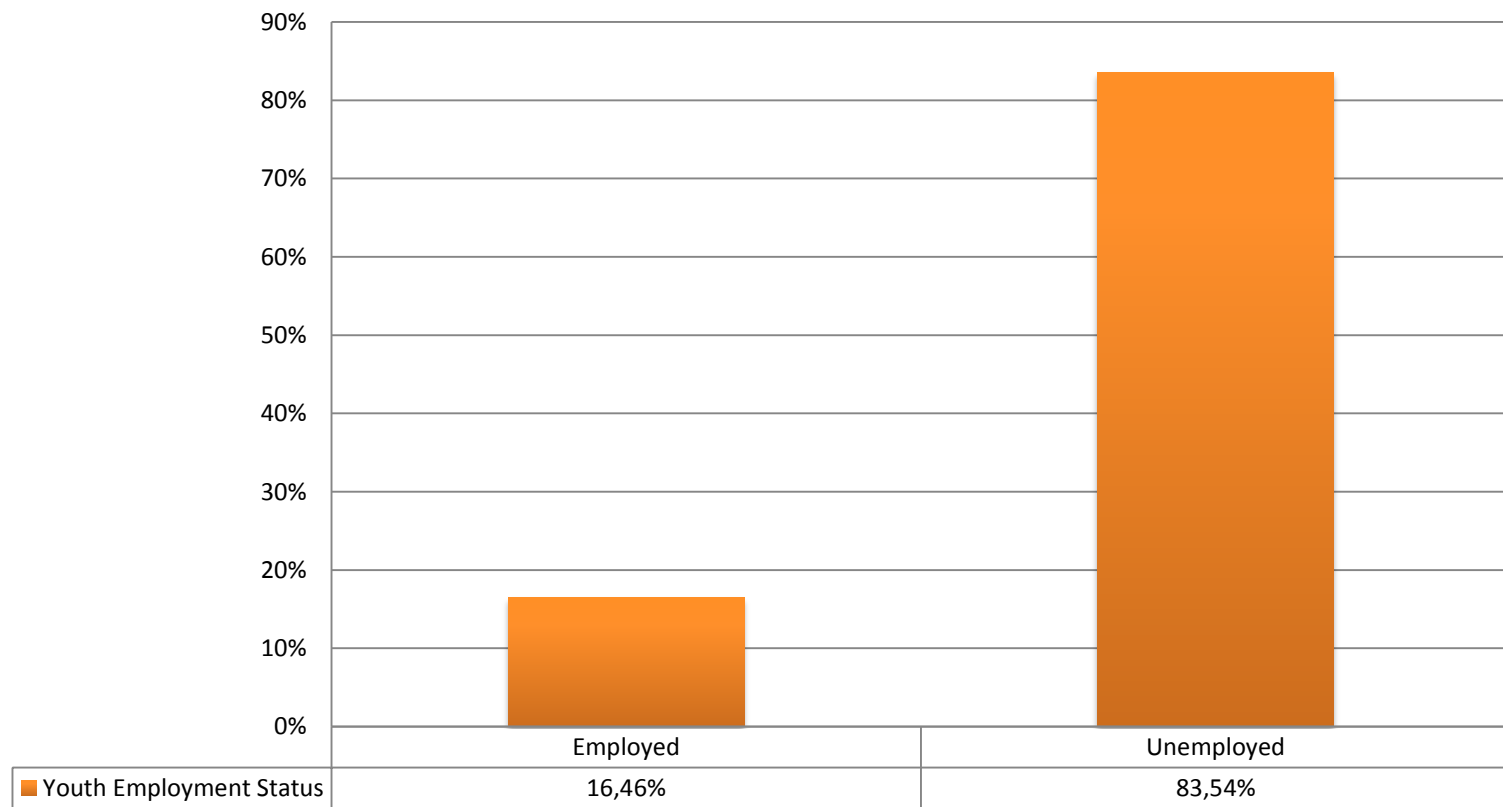
N=275



Young Adult Employment Status in Garden Hill

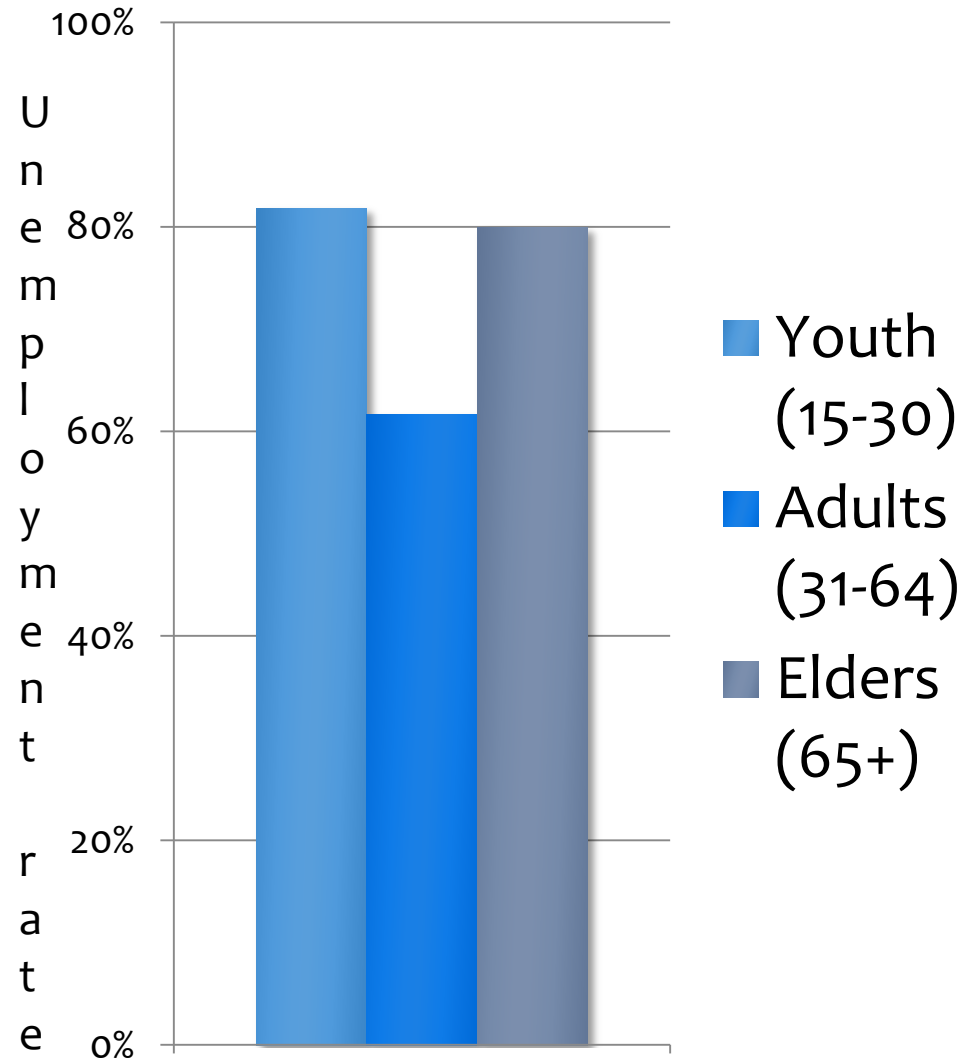
First Nation

age= 15 to 30



High Unemployment – highest for young adults

Age Group	Unemployment Rate	Employment Rate
Young Adults (age:15-30)	474 (82%)	105 (18%)
Adults (age:31-64)	356 (62%)	221 (38%)
Elders (65+)	76 (80%)	19 (20%)



How to define home?

- Nunavut Tunngavik defines it for Nunavut as: “a place that provides shelter... a response to special needs, social interaction, comfort and security.”
- Qikiqtani Inuit Association: “ a place where someone feels they belong, but its geography is not always fixed in time or space – it can expand, contract, move and change shape according to cultural and personal experiences. “



Housing and health are central for supporting the Green-Pink Nations.

Housing problem or housing solution?

“Housing fits in the middle of everything. It is physical design; it is community economic development; it is social development; it is important to health and educational outcomes; it can be a poverty reduction tool, and it is an investment, a wealth creator and a generator of economic development. It is both an individual and public good” (Myers in HOMEWorks, 2009, p. 05).

Project Team

- Seamless integration and coordinated interaction
- Focus and attention towards energy and mechanical decisions



INTEGRATED DESIGN

- Third-party independence complete with robust systems, processes and tools
- Results include clear and workable mechanical recommendations



Outcome

- Scope of work is disciplined, holistic and fully developed
- Comparative quotes for mechanical solutions
- Successful project and happy homeowner



Project Considerations

Strategic decisions and mechanical considerations include:

- | | |
|----------------|---------------|
| ✓ Planning | ✓ Forced Air |
| ✓ Budgets | ✓ Radiant |
| ✓ Expectations | ✓ Hybrid |
| ✓ Quality | ✓ Renewables |
| ✓ Environment | ✓ Geothermal |
| ✓ Value | ✓ Heat Pumps |
| ✓ Aesthetics | ✓ Ventilation |

Build  SAVINGS
BY DESIGN

SAVE ON ENERGY PROGRAM

Community Designing: lots to think about

TYPES

walls using natural raw gravel and sand mixed with



TREATED TIMBER

Treated wood, such as telephone poles, are pounded into the soil acting as friction fit piles. Depending on soil conditions, telephone poles may need extensions to reach the point of refusal.

advantage of modular sized bonding agent. Locally trees and sand is gathered in phase.



CONCRETE FOOTING

Projects that utilize a site-cast concrete footing to support/accept various wall systems.

that utilizes whole-logs rather than lumber. Timber frame alternate joinery and support



SCREW PILE

A steel screw-in piling and ground anchoring system used for building deep foundations.

ally used for water defense and used as a structural function of the project.



MASONRY HEATER

Site-built, solid-fueled heating device constructed mainly of masonry materials. Heat is stored in its massive structure for slow release to the building.

where a layer of water vapour over of a second layer of air barrier. vapour to travel freely through the wall assembly dry.



WOOD STOVE

Singular heating unit that burns solid wood products as its iron membrane emits radiant heat throughout the interior of the dwelling.



DIESEL FURNACE

An enclosed chamber in which heat is generated through the burning of diesel fuels. Heat is distributed through the dwelling via air ducts.



PASSIVE HEAT/COOL

Temperature regulations are controlled by the design of elements within the spaces. Specific heat-storing materials and window placements all contribute to passive design strategies.

FOUNDATION TYPE

ALTER OPPORTI



LOCAL LABOUR

Members of the community are employed during the project. Training of local labour is offered by construction workers.



EDUCATIONAL

Educational benefits could be integrated with the project to provide educational opportunities for each community.



EXPANSION

Designs that intention in the future years of expansion opportunities.



OUTDOOR SHELTER

A designated exterior space for natural elements, i.e. wind, sun, rain.



SEKUWE 4d7
MY HOUSE

DENE FIRST NATION'S PERSPECTIVES ON HEALTHY HOMES

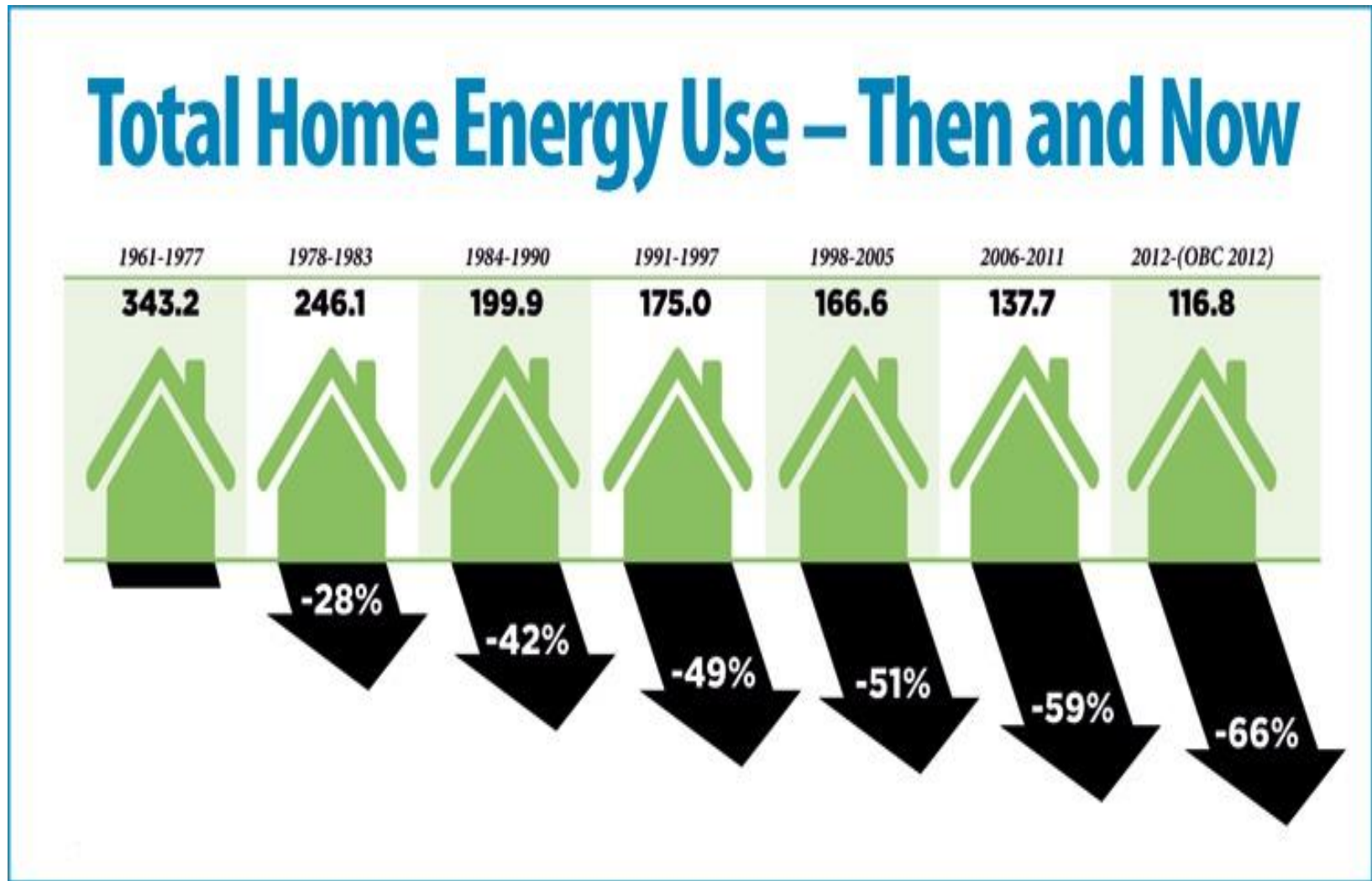
By The Northern and Aboriginal Health Research Group
University of Manitoba
Assembly of Manitoba Chiefs
Northlands Denesuline First Nation
Sajini Dene First Nation



SEKUWE ᑭᑦᑯᑦ
MY HOUSE

DENE FIRST NATION'S PERSPECTIVES ON HEALTHY HOMES
By The Northern and Aboriginal Health Research Group
University of Manitoba
Assembly of Manitoba Chiefs
Northlands Council of First Nations
Seymour Dene First Nation

The path of continuous improvement – 1960 to now



The 2017 Code update will see an improvement of 15% over OBC 2012 and forecast the 2022 level

Canadian Home Energy Use

Space Heating

Space Heating makes up approximately 60 % of the Homes energy load. Forced air furnaces make up the majority of applications with minimum efficiency of 90%

Space Heating
60%

Lighting
5%

Lighting

Lighting currently makes up approximately 10% of the Home energy use however CFL and LED technology uptake is reducing this.

Air Conditioning

Although Canada is a heating dominated climate, forced air cooling is common in homes and accounts for approximately 5% of annual energy consumption

A/C
5%

Potable Water Heating

Water heating makes up approximately 20% of the Homes energy consumption. Averaging 225L/day, water heating is most often provided by storage type tanks with minimum efficiency of .57 EF

Water Heating
20%

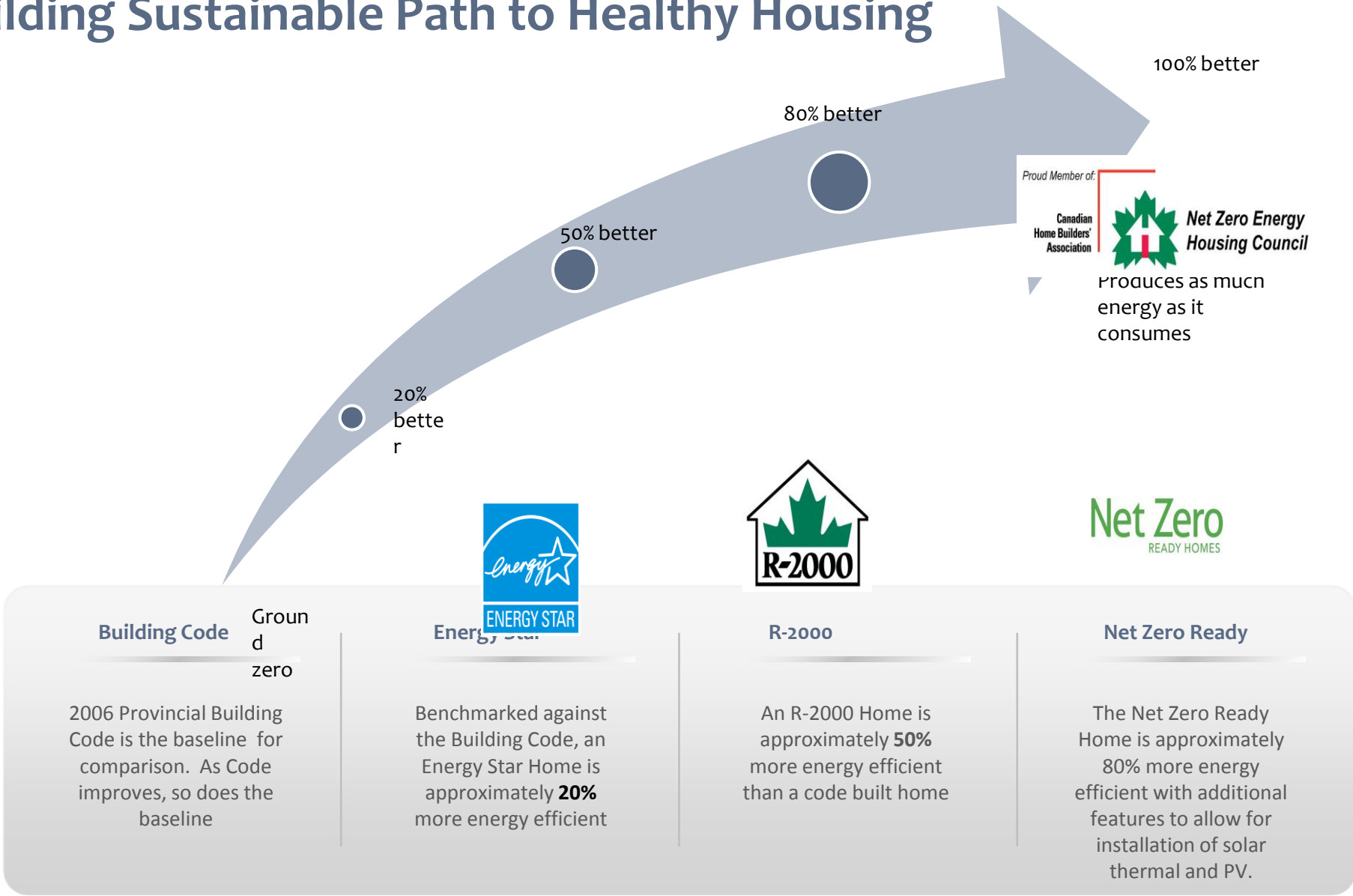
Appliances
10%

Major Appliances

Major Appliances, including refrigerator, dishwasher and laundry account for approximately 10% of household energy use



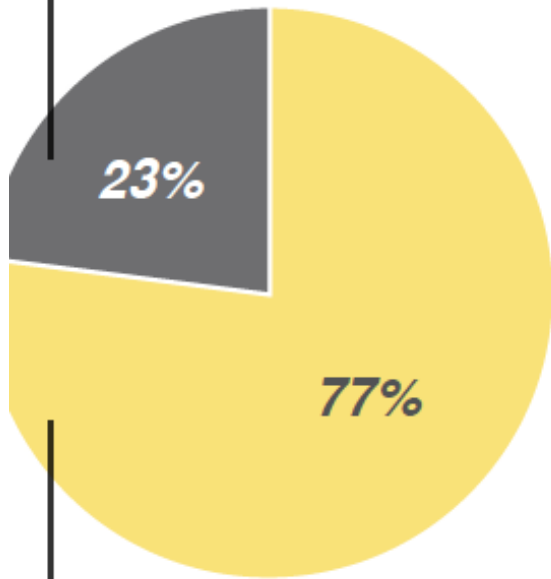
Building Sustainable Path to Healthy Housing





SEKUWEᑭᐃᐅ MY HOUSE

DENE FIRST NATION'S PERSPECTIVES ON HEALTHY HOMES
 By The Northern and Aboriginal Health Research Group
 University of Manitoba
 Assembly of Manitoba Chiefs
 Northwest Territories First Nations
 Sahtu Denes First Nations



HARVESTED MATERIALS

- BLACK SPRUCE TREES



The interior spaces are sealed and insulated as the timber frame wraps the exterior, creating a workable and transformable structural separation between the exterior and interior functions.



A HOUSE FOR A CRAFTSPERSON

STUDENT: EVAN TAYLOR - ARCHITECTURE YEAR 4

The Dene First Nations reserve of Lac Brochet, Manitoba faces a shortage of available housing for the growing community. In this scenario this form of overcrowding has led to mental illnesses such as depression and sometimes worse within the community. This project aims to create an alternative pathway towards new housing compared to the standard housing stock. Currently, the Dene youth have little to no alternative options for new housing options. This project proposes a method and process of construction that creates an opportunity for a single youth to develop into series of necessary living spaces into a complete dwelling over a period of time.

In remote communities such as Lac Brochet resource and material collection can be difficult and costly when transportation time and costs are considered. This process of goods and material shipment becomes a major issue in the contemporary northern building practices. This project seeks to find an alternative method to this current building practice: one that returns the First Nations community's housing stock back into a relation with the land and natural surroundings by utilizing local Black Spruce trees as core building materials. The integration of the University College of the North's carpentry program becomes a basis of working and construction skills necessary for creation of the building. The project utilizes a locally-sourced small round-timber exo-skeleton frame system to allow for external additions and flexibility of cladding types relative to the intended interior spaces. The timbers are connected into a three-dimensional frame through a series of simple, milled perpendicular connections aided by steel collars and steel tubing tied with bolts. These frames can be constructed in form for one to two story configurations. This process on the ground and raised up into place with the efforts of a few people. Interior and exterior finishes are milled from the same type of wood used in the frame; centre log cores sliced to form studs that can hold insulation and other typical framed inserts, smaller cuts can be utilized as interior wall, floor and ceiling surfaces, and off-cut

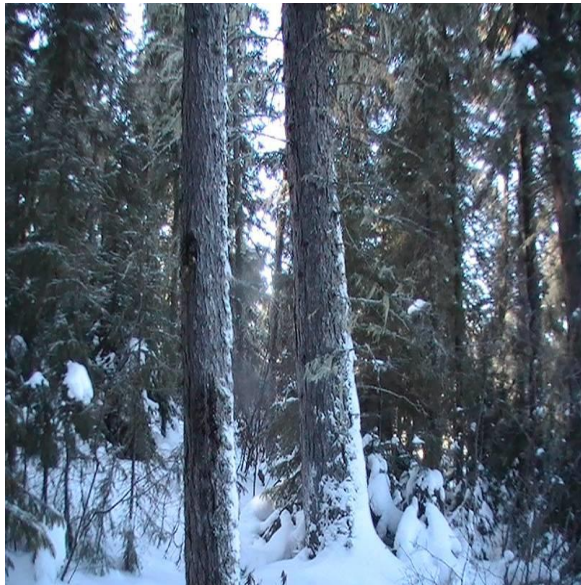


SEKUWE 4d7
MY HOUSE

DENE FIRST NATION'S PERSPECTIVES ON HEALTHY HOMES
by The Northern and Indigenous Health Research Group
University of Manitoba
University of Saskatchewan
Northern Saskatchewan First Nations
Saskatoon, Saskatchewan

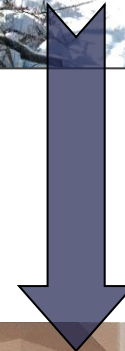
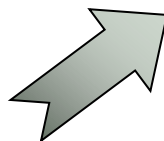
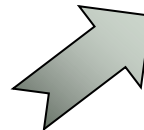
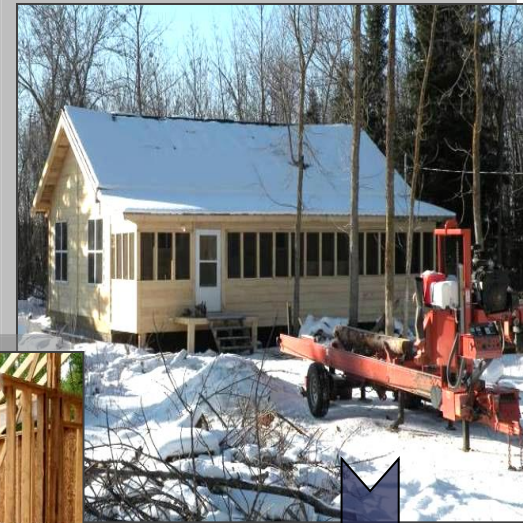
Standing Tree to Standing Home.

Course: Home Builders Program

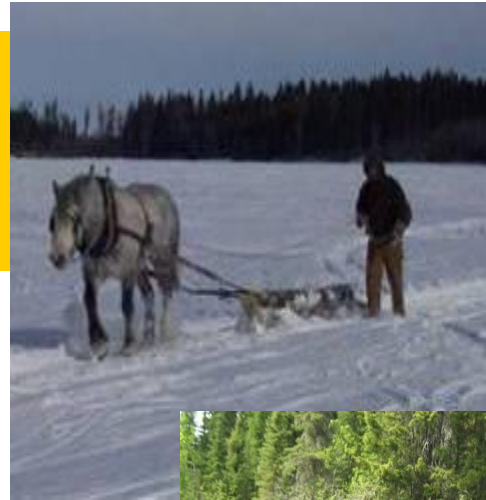


60 Trees = 1 House

Standing Tree to Standing Home



Forestry



Milling



CFPA®
S-P-F
KD-HT
NLGA

26
2

Foundations



Framing



Stick Wall



Finishing



Garden Hill, July 5, 2011



Finishing Cost

Finishing Costs for 2-Bedroom House

Foundation	\$15,000.00
Sheathing	500.00
Roofing	3000.00
Windows (1 Big and 6 Small)	4000.00
Doors (2 Exterior & 6 Interior)	2500.00
Insulation and Poly	2000.00
Drywall, Mud, Primer, Paint	2000.00
Electrical	5000.00
Plumbing: Sewer/Water Tanks	5500.00
Plumbing: Piping & Fixtures	2000.00
Flooring	1500.00
Kitchen Cabinets	3000.00
Miscellaneous items	<u>2000.00</u>
TOTAL	\$48,000.00

Want to know more ?

Natural Resources Canada - www.nrcan.gc.ca/energy/efficiency/housing

Canadian Homebuilders Association - www.chba.ca/

Net Zero Energy Housing Council - <http://www.chba.ca/members-area/committees-councils/net-zero-energy-housing-council.aspx>

Net Zero Pilot Project-

Builder Videos www.vimeo.com/buildability