

UNIVERSITY OF SASKATCHEWAN

Canadian Centre for Rural  
and Agricultural Health

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# A 15-year Relationship and Reconciliation

Beardy's & Okemasis Cree Nation  
Montreal Lake Cree Nation

Canadian Centre for Rural and Agricultural Health,  
University of Saskatchewan

# Presenters

**Canadian Centre for Rural and Agricultural Health**

University of Saskatchewan

Jeremy Seeseequasis, Research Associate

Dr. Shelley Kirychuk, Professor and Director

Dr. James Dosman, Distinguished Professor

## How it all Started

**Dr. Malcolm King, Mississaugas of the Credit First Nation, Ontario**

1974 Research Fellow, McGill University

“Malcolm and I were research fellows together at the Meakins – Christie Laboratories in Montreal. Malcolm was the first person from his community to obtain a PhD.”

Sometime between May 16 and 21, 2008 – Meeting in Toronto restaurant “I asked Malcolm how to go about doing a research project on respiratory health among First Nations People. Malcolm said get to know the people.”



# Designing the Project

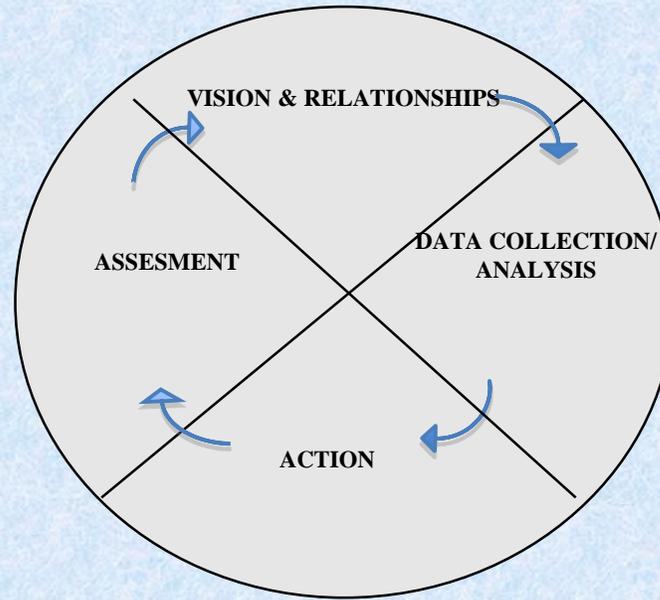
10 sharing circles 2009-2010

- *What did the communities need?*
- *What could we provide?*

Application to Canadian Institutes of Health Research (CIHR) in 2011.

*“Assess, address, reassess: Addressing disparities in respiratory health among First Nations people”*

2012-2017



*Vision and Relationships*

Ref: First Nations Information Governance Committee. First Nations Regional Longitudinal Health Survey (RHS) 2002/03. Results for adult, youth and children living in First Nations Communities. 2nd ed. In. Ottawa, Ontario. Assembly of First Nations 2005.



# Enhancing Capacity in the Communities

2012-2028

## Publications 2012-2028

Ten community sharing circles

Children Lung Health Study 2013-2017

Green Tree Program  
2014-2015

Sleep Health Project  
2018-2024

2008-2011

2012

2013

2014

2015

2016

2017

2018

.....

2022

2023

2024

...

2028

Housing Assessment Study  
2014-2017

*Policy Intervention*  
Canada-Wide Sleep Testing Policy  
2016

Green Light Program 2013-2017

Lung Health Project  
2012-2017

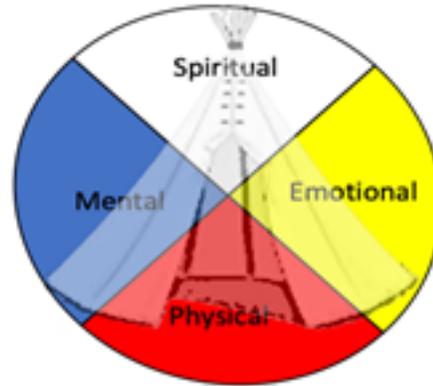
House, Home, and Mental Health Project  
2022-2028

- Draw on the traditional wisdom of the Cree Tipi Teachings.
- Tipi Teachings as a foundation for moving from house to home

HOUSE (Waskahikan)



WELLNESS (Miyo-pimatisiwin)



HOME (Mikiwam)



## Results Adults 18 and over

### Sleep Deprivation 25% had less than 7 hours of sleep

- PTSD? – 54% waking up at night, terrifying dreams, nightmares, flashback to traumatic event
- Sleeping - 37% sleeping with child/ family member
  - 30% sleeping with spouse or partner
  - 34% sleeping alone
  - 24% sleeping living room or basement
- Safety - 17% afraid to sleep in home
- Housing- 62.2% mold in house

ELSEVIER

Sleep Medicine: X

sleepmedicine: X

[Sleep Med X](#). 2021 Dec; 3: 100037. Published online 2021 Jun 2. doi: [10.1016/j.sleepx.2021.100037](https://doi.org/10.1016/j.sleepx.2021.100037)

PMCID: PMC8220004 | PMID: [34169273](https://pubmed.ncbi.nlm.nih.gov/34169273/)

### Sleep deprivation in two Saskatchewan First Nation communities: a public health consideration

[Chandima P. Karunanayake](#),<sup>a,\*</sup> [Mark Fenton](#),<sup>b</sup>  
[Robert Skomro](#),<sup>b</sup> [Vivian R. Ramsden](#),<sup>c</sup>  
[Shelley Kirychuk](#),<sup>a,b</sup> [Donna C. Rennie](#),<sup>d</sup>  
[Jeremy Seesequasis](#),<sup>e</sup> [Clifford Bird](#),<sup>f</sup>  
[Kathleen McMullin](#),<sup>a</sup> [Brooke P. Russell](#),<sup>a</sup>  
[Niels Koehncke](#),<sup>a,b</sup> [Thomas Smith-Windsor](#),<sup>g</sup>  
[Malcolm King](#),<sup>h</sup> [Sylvia Abonyi](#),<sup>h</sup> [Punam Pahwa](#),<sup>a,h</sup> and  
[James A. Dosman](#)<sup>a,b</sup>

# Evidence to Policy

## Evidence changed Federal Government Policy

- Major inequity: Status Indians could not have treatment for sleep apnea with home sleep study, but other Saskatchewan residents could.
- Status Indians needed to have in hospital sleep test: cost and delay.
- Our policy research papers (Dr. Greg Marchildon et al; 2015, 2017) described problem.
- We (Dr. Mark Fenton) approached First Nations Non-insured Health Benefits.
- In 2020 – Policy Change - First Nations can have treatment for sleep apnea with home sleep study.



Dr. Greg Marchildon



Dr. Mark Fenton

- Gregory P Marchildon, Tarun R Katapally, Caroline A Beck, JoAnn Episkenew, Punam Pahwa, Sylvia Abonyi, James A Dosman. Exploring policy driven systemic inequities leading to differential access to care among Indigenous populations with obstructive sleep apnea in Canada. International Journal for Equity in Health 2015, 14:148 doi:10.1186/s12939-015-0279-3 <http://www.equityhealthj.com/content/14/1/148>

- Gregory Marchildon, Caroline A. Beck Tarun Reddy Katapally, Sylvia Abonyi, James A. Dosman, Jo-Ann Episkenew. Bifurcation of Health Policy Regimes: A Study of Sleep Apnea Care and Benefits Coverage in Saskatchewan. Healthcare Policy 2017 May;12(4):69-85. doi: 10.12927/hcpol.2017.25097



# Evidence to Policy

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Research → Evidence → Policy

TRC recommendation 19

The program is reconciliation in action.

The value in the relationships.

When you throw a stone on the water you never know where the ripples will end!



# HOUSEHOLD FACTORS

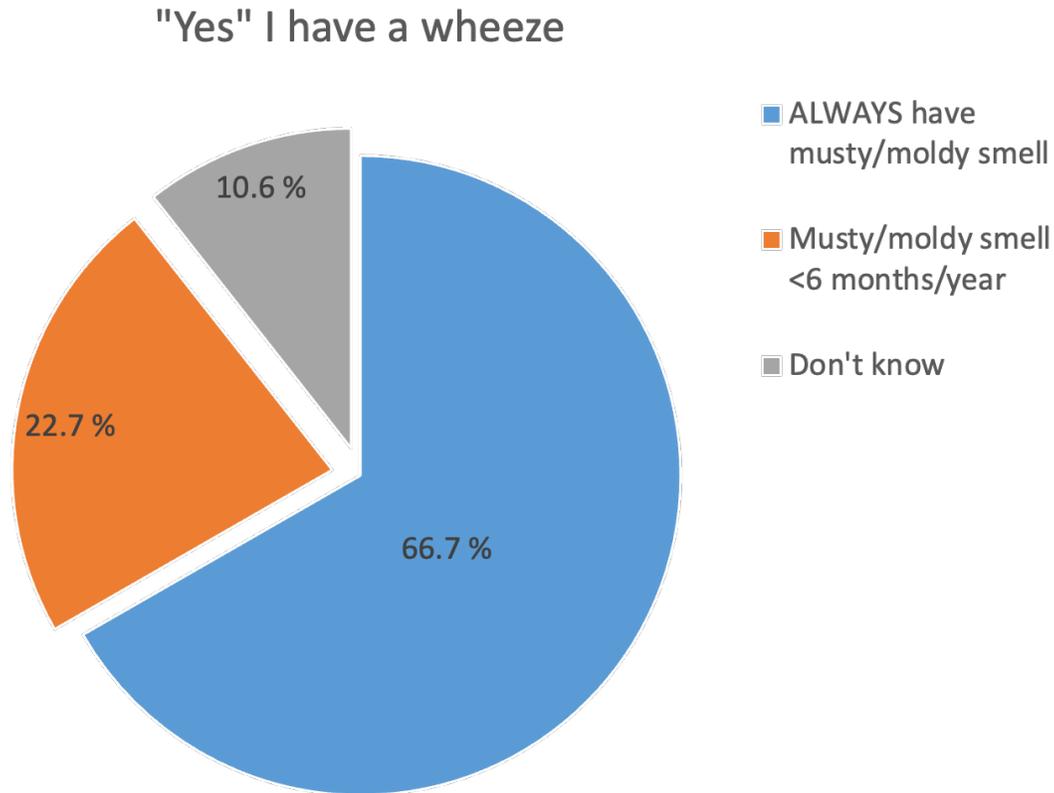
318 individuals  
from 144 homes

	Mean±SD /% (freq)
Age of participants	36.9 ± 15.08
Sex	
Male	46.4%
Female	53.6%
Current Smoker	75.5%
Smoker in the home	51.7%
Respiratory Symptoms	
Cough	44.2% (141)
Phlegm	50.2% (160)
Current Wheeze	15.4% (49)

# Housing Factors

	% / Mean±SD
Moldy/mildew smell	57.7%
ALWAYS have a moldy smell	33.8%
Signs of mold/mildew in the home	56.3%
Crowded home	36.7%
6 or more people in the home	34.8%

# Mildew/Moldy/Musty Smell in the Home and Wheeze

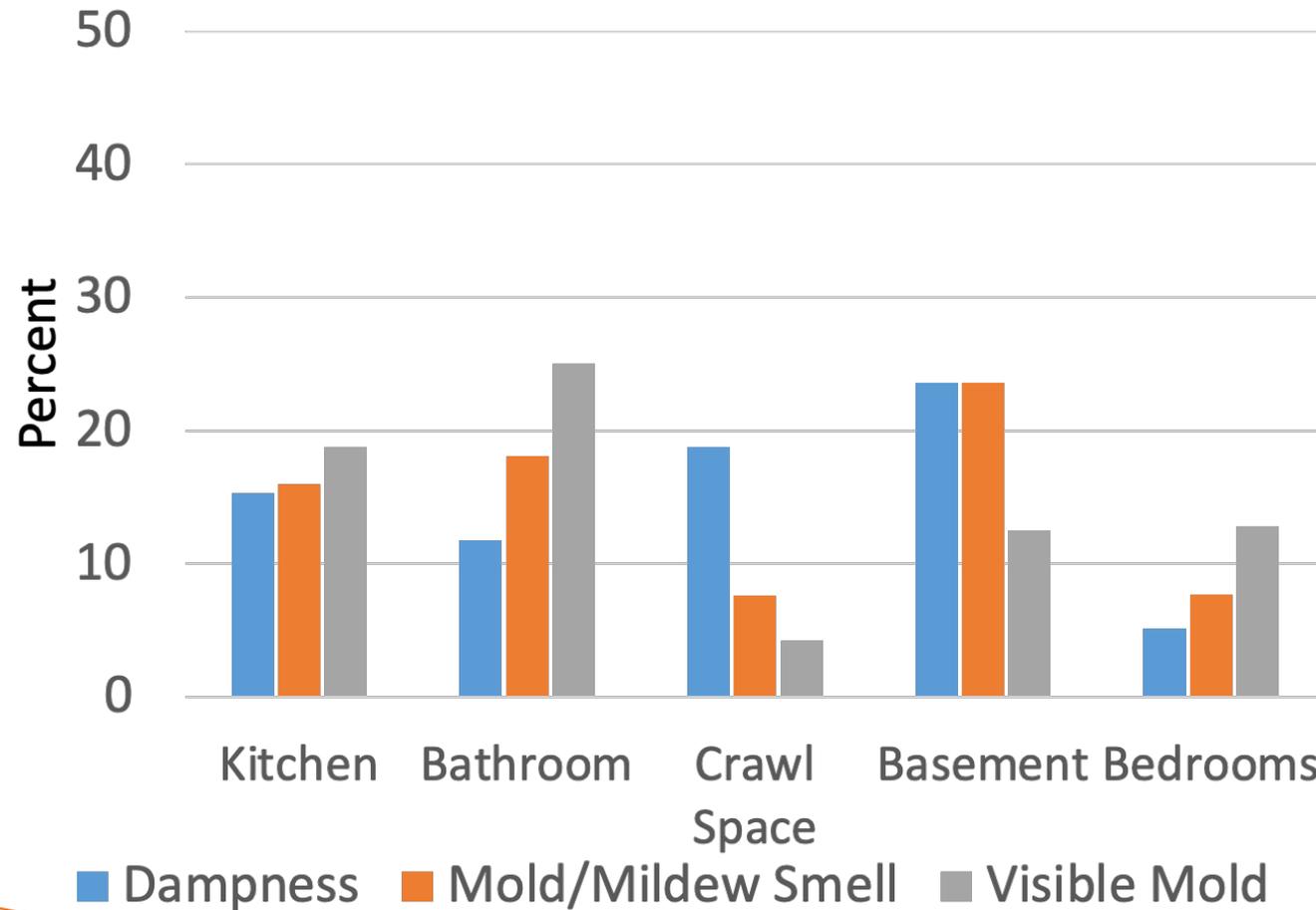


*For those that indicated “Yes” to “Does your house frequently have a mildew/moldy/musty smell?”. The follow-up question was “How often is this present?”*

***141** persons responded “Yes” to “ever having a wheeze” and “Yes” to “Frequent musty/moldy smell”*

**ALWAYS** having a **musty/moldy smell** in the house was significantly associated ( $p=0.006$ ) with **EVER HAVING WHEEZE** (compared to a musty/moldy smell *less than 6 months/year*).

# Frequency of dampness, visible mold and smell by location in the home



# Relationships Between Housing and Health

- 26 papers have been published from the lung health and sleep health projects with Beardy's and Okemasis and Montreal Lake
- These papers clearly show the evidence of the impact of the 'house' on health

# Housing Factors & Health

## Visible mold

- Sleep deprivation
- Ever Bronchitis
- Insomnia
- Seasonal changes in sleep patterns
- Atopic Asthma

## Crowding

- Chronic Bronchitis
- Excessive daytime sleepiness

## Damage caused by dampness

- Seasonal changes in sleep patterns
- Excessive daytime sleepiness
- Atopic Asthma

## House needing minor repairs

- Excessive daytime sleepiness



## Damage in the last 12 months

- Ever wheeze
- Excessive daytime sleepiness
- Snoring

## Mildew smell

- Ever wheeze
- Chronic Bronchitis
- Insomnia
- Seasonal changes in sleep patterns

## House needing major repairs

- Diabetes
- Depression
- Snoring

● Housing Factor  
● Health

# Research Papers to-date

Karunanayake, C., Dosman, et al. (2023). Sleep efficiency and sleep onset latency in a First Nation community in Saskatchewan, Canada. *European Respiratory Journal*; 62.

Dosman, J. A., Karunanayake, et al. (2022). STOP-Bang Score and Prediction of Severity of Obstructive Sleep Apnea in a First Nation Community in Saskatchewan, Canada. *Clocks & Sleep 2022, Vol. 4, Pages 535-548, 4(4), 535–548.*

Dosman, J. A., Karunanayake, et al. (2022). Obesity, Sex, Snoring and Severity of OSA in a First Nation Community in Saskatchewan, Canada. (2022) *Clocks & Sleep 2022, 4(1), 100–113.*

Karunanayake, C. P., Ramsden, V. R., et al. (2022). Duration and quality of sleep in 2 rural Cree First Nation communities in Saskatchewan, Canada. *Sleep Health, 8(2), 146–152.*

Kiryuchuk, S., Russell, E., et al. (2022). Housing inadequacy in rural Saskatchewan First Nation communities. *PLOS Global Public Health, 2(8).*

Anwar, N., Kiryuchuk, S., et al (2021). Associations between housing factors and respiratory symptoms in two saskatchewan first nations communities. *International Journal of Environmental Research and Public Health, 18(7), 1–10.*

Dosman, J. A., Karunanayake, et al. (2021). Prevalence of Insomnia in Two Saskatchewan First Nation Karunanayake, C. P., Fenton, M., et al. (2021). Sleep deprivation in two Saskatchewan First Nation communities: a public health consideration. *Sleep Medicine.*

Karunanayake, C. P., Ramsden, et al. (2021). Seasonal Changes in Sleep Patterns in Two Saskatchewan First Nation Communities. *Clocks & Sleep 2021, Vol. 3, Pages 415-428, 3(3), 415–428.*

Karunanayake, C. P., Amin, K., et al (2020). Prevalence and determinants of asthma among aboriginal adolescents in Canada. *J Asthma; 57(1):40-46*

Rennie, D. C., Karunanayake, et al. (2020). Domestic Risk Factors for Atopic and Non-Atopic Asthma in First Nations Children Living in Saskatchewan, Canada. *Children, 7(5), 38.*

Zahan, R., Khan, et al. (2020). Lung function reference equations and lower limit of normal for Cree First Nations Children and adolescents living in rural Saskatchewan, Canada. *Model Assisted Statistics and Applications, 15(2), 153–165.*

Dosman, J., Karunanayake, C., et al. (2019). Risk Factors for Snoring in Two Canadian First Nations Communities. *Clocks & Sleep, 1(1), 117–125.*

Karunanayake, C., Dosman, et al. (2019). Association between Co- Morbidities and the Prevalence of Excessive Daytime Sleepiness over a Four-Year Period. *Clocks & Sleep, 1(4), 459–470.*

Mohsen, S., Chandima, K., et al. (2019). Is A Body Shape Index (ABSI) Predictive of Lung Function? *International Journal of Respiratory and Pulmonary Medicine, 6(1).*

Karunanayake, C., Dosman, J., et al. (2018). Incidence of Daytime Sleepiness and Associated Factors in Two First Nations Communities in Saskatchewan, Canada. *Clocks & Sleep, 1(1), 13–25.*

Janzen, B., Karunanayake, C., et al. (2017). Racial discrimination and depression among on-reserve first nations people in rural Saskatchewan. *Canadian Journal of Public Health, 108(5–6).*

Karunanayake, C., Rennie, D., et al. (2017). Bronchitis and Its Associated Risk Factors in First Nations Children. *Children, 4(12), 103.*

Marchildon, G. P., Beck, C. A., et al. (2017). Bifurcation of Health Policy Regimes: A Study of Sleep Apnea Care and Benefits Coverage in Saskatchewan. *Healthcare Policy, 12(4), 69.*

Pahwa, P., Karunanayake, C. P., et al. (2017). Prevalence and associated risk factors of chronic bronchitis in First Nations people. *BMC Pulmonary Medicine, 17(1), 95.*

van der Spuy, I., Karunanayake, C. P., et al. (2017). Determinants of excessive daytime sleepiness in two First Nation communities. *BMC Pulmonary Medicine, 17(1).*

Karunanayake, C. P., Albritton, W., et al. (2016). Ear Infection and Its Associated Risk Factors in First Nations and Rural School-Aged Canadian Children. *International Journal of Pediatrics.*

Katapally, T. R., Abonyi, S., et al. (2016). Catalyzing Action on First Nations Respiratory Health Using Community-based Participatory Research: Integrated Knowledge Translation through Strategic Symposia. *Engaged Scholar Journal: 2(1), 57-70.*

Dyck, R. F., Karunanayake, et al (2015). Do discrimination, residential school attendance and cultural disruption add to individual-level diabetes risk among Aboriginal people in Canada? Chronic Disease epidemiology. *BMC Public Health, 15(1), 1–12.*

Marchildon, G. P., Katapally, et al (2015). Exploring policy driven systemic inequities leading to differential access to care among Indigenous populations with obstructive sleep apnea in Canada. *International Journal for Equity in Health, 14(1).*

Pahwa, P., Abonyi, S., et al (2015). A community- based participatory research methodology to address, redress, and reassess disparities in respiratory health among First Nations. *BMC Research Notes, 8(1).*

# Building for the Future (*Miyo Waskahikan - Beautiful Home*)

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A Symposium to discuss results  
and to share strength-based  
processes for supporting First  
Nation housing



# 4 Themes Emerged

**Builds and  
Procurement**

**Policy &  
Governance**

**Training &  
Transition**

**Asset  
Management**

# Agenda

Building for the Future: Housing and Health Forum



## REGISTRATION (8:15 - 8:45)

8:45	Opening Prayer
8:55	Tansi (Welcome) from the Communities and CCRAH (USask)
9:00 - 9:20	Ongoing relationship between CCRAH and First Nations Connection between house and health Dr. Shelley Kirychuk and Dr. Jim Dosman
9:20 - 9:30	Setting the stage for the day Desired Outcomes and the process for each of the topic areas
9:30 - 10:30	Topic 1 – Policy & Governance Sharing conversations – good practices and examples

## Health Break (10:30 - 10:45)

10:45 - 11:45	Topic 2 – Training & Transition Sharing conversations – good practices and examples
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## Lunch (11:45 - 12:45) - Keynote Speaker: Rosie Charles

12:45 - 1:45	Topic 3 – Asset Management Sharing conversations – good practices and examples
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1:45 - 2:45	Topic 4 – Builds & Procurement Sharing conversations – good practices and examples
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## Health Break (2:45 - 3:00)

3:00 - 3:30	Holmes Group Presentation
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## WRAP-UP/NEXT STEPS/DOOR PRIZES/CLOSING PRAYER (3:30 – 4:00)

*Sharing Knowledge & Experiences  
Supporting a Good Path Forward*

Today

Share

- Share what we've heard

Expand

- Expand on the themes

Plan

- Plan next steps

# Theme: Governance & Policy

## Table Lead Guide



Governance means *who gets to decide what?* Policy flows from governance and refers to the guides, rules, agreements and requirements created by government institutions and First Nations communities. Government policies guide financial programs, planning, rules, and allocations for housing. First Nations create housing policies to address complex housing issues such as financial and housing management, housing allocation, ownership and tenancy, and evictions.

**1. Produce questions. [5 MINUTES]** Have the table brainstorm questions relating to policy and governance for housing. **Ask: *What QUESTIONS come to mind for you when you think about governance and policy for housing?*** Just questions – no opinions or answers, and no debating which questions are best. *The idea is to get creative juices flowing to think about the subject from different angles.*

Examples of questions that people might suggest:

<b>Governance</b>	<b>Policy</b>
<i>Who is responsible for housing?</i>	<i>Does every reserve have a housing policy?</i>
<i>Who decides which person gets a new house?</i>	<i>Are housing policies required?</i>
<i>Is there a housing board or committee?</i>	<i>What policies are in place for on-reserve housing?</i>
<i>How does the government decide on housing funding?</i>	<i>How do Nations decide what kind of housing to build?</i>

**2. Build on/Prioritize the questions.** From the interests revealed in the brainstorming session at your table, look at which questions below might open up new ways of thinking about the issue. These are not in order – every table might want to look at something different within this theme. *If your table wants to follow a different question, and it fits within this theme, go ahead.* The way a question is asked will yield different results and can lead you in different directions. *Frame the question as open (so it can't be answered with a yes/no) and add a why?* **[Aim: discuss 3 questions in 45 minutes – roughly 15 minutes per question]**

### Discussion Questions:

- What governance or policy tools are needed to help Nations build successful housing projects, and why?
- What funding is needed to help Nations build, support, and maintain housing, and why?
- How might Nation members be involved in decision-making for housing, and why?
- What partnerships are important to support housing for Nations, and why?

**3. Extend discussion to next steps: Ask: *What if...? How might we...? What is needed to...?***

**4. [Last Five Minutes]: Reflect on what you have learned.** What did you hear in this session? What can you take back to your organization and community?

# Theme: Training & Transition

## Table Lead Guide



Training and Transition refer to *capacity* for housing, such as how to hire, train, mentor, and support housing managers and staff to feel comfortable and well-equipped to work in housing. It can also include establishing paths for different housing career opportunities, such as skill or trades development. Training can also refer to tenant education for housing. Good training and transition are important to having a strong housing portfolio.

**1. Produce questions. [5 MINUTES]** Have the table brainstorm questions relating to training and transition for housing. **Ask: *What QUESTIONS come to mind for you when you think about training and transition for housing?*** Just questions – no opinions or answers, and no debating which questions are best. *The idea is to get creative juices flowing to think about the subject from different angles.*

Examples of questions that people might suggest:

<i>Training</i>	<i>Transition</i>
<i>What training is available for housing?</i>	<i>What happens when a new housing councillor, director, or manager comes in?</i>
<i>Where can I learn about housing?</i>	<i>What do we do when people leave their jobs?</i>
<i>How do I stay on top of all this information, and why is it necessary?</i>	<i>How do we make sure the Nation has access to all the information it needs?</i>
<i>How can we train tenants to help look after housing?</i>	<i>Why do we have so much turnover in housing staff?</i>

**2. Build on/Prioritize the questions.** From the interests revealed in the brainstorming session at your table, look at which questions below might open up new ways of thinking about the issue. These are not in order – every table might want to look at something different within this theme. *If your table wants to follow a different question, and it fits within this theme, go ahead.* The way a question is asked will yield different results and can lead you in different directions. *Frame the question as open (so it can't be answered with a yes/no) and add a why?* **[Aim: discuss 3 questions in 45 minutes – roughly 15 minutes per question]**

### Discussion Questions:

- What is needed to help new leadership and staff transition into a housing portfolio, and why?
- How might training increase success in housing, and why? (examples: trades, certifications, finance, administration, maintenance, grant writing)
- What is needed to increase staff capacity for housing, and why?
- How might tenants support a housing program, and why?

**3. Extend discussion to next steps: Ask: *What if...? How might we...? What is needed to...?***

**4. [Last Five Minutes]: Reflect on what you have learned.** What did you hear in this session? What can you take back to your organization and community?

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# Theme: Builds & Procurement

## Table Lead Guide



Builds and Procurement refer to the strengths and challenges of larger-scale projects related to building and maintaining quality houses on-reserve to accommodate community needs. This theme includes issues related to construction, infrastructure, tendering, planning, contractor and business relationships for both renovation and new builds. It can also include factors that influence builds and procurement, including building codes and opportunities for energy-efficiency.

**1. Produce questions. [5 MINUTES]** Have the table brainstorm questions relating to builds and procurement for housing **Ask: *What QUESTIONS come to mind for you when you think about builds and procurement for housing?*** Just questions – no opinions or answers, and no debating which questions are best. *The idea is to get creative juices flowing to think about the subject from different angles.*

Examples of questions that people might suggest:

- *What contractors do you work with, and why do you like them?*
- *How do you upgrade and bring everything up to code when the houses are all different ages and different infrastructure?*
- *What do you do to keep everything on track during a build?*
- *What would make builds and procurement easier and better?*

**2. Build on/Prioritize the questions.** From the interests revealed in the brainstorming session at your table, look at which questions below might open up new ways of thinking about the issue. These are not in order – every table might want to look at something different within this theme. *If your table wants to follow a different question, and it fits within this theme, go ahead.* The way a question is asked will yield different results and can lead you in different directions. *Frame the question as open (so it can't be answered with a yes/no) and add a why?* **[Aim: discuss 3 questions in 45 minutes – roughly 15 minutes per question]**

**Discussion Questions:**

- What is needed to design houses that better suit community? How might design flexibility change existing housing programs?
- What is needed for Nations and businesses (contractors, engineers, etc.) to work together, and why?
- What is needed to support Nation infrastructure (roads, sewer, water, power, heat, etc.) development, and how might things be different?
- How might housing look in the future, and what is needed to prepare for future challenges?

**3. Extend discussion to next steps: Ask: *What if...? How might we...? What is needed to...?***

**4. [Last Five Minutes]: Reflect on what you have learned.** What did you hear in this session? What can you take back to your organization and community?

# Acknowledgements



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