

# First Nation Mould Remediation Case Study

## Montreal Lake Cree Nation



Canada Mortgage and Housing Corporation (CMHC) is profiling mould remediation and repair success stories in First Nations across Canada. These case studies highlight current housing operations, key milestones, successes, decisions, changes and experiences of some First Nations.

The communities are diverse, and so the case studies provide a variety of solutions based on each community's specific needs. Each case study includes a description of the community's approach to solving mould problems, implications for new housing, outcomes and lessons learned.

The case studies were prepared based on interviews with key members of the community, including housing department staff, councillors and mould remediation and repair contractors. Many First Nations across Canada have important decisions to make regarding the way mould issues are addressed in their communities, and may find these case studies to be a useful reference.

### The Community

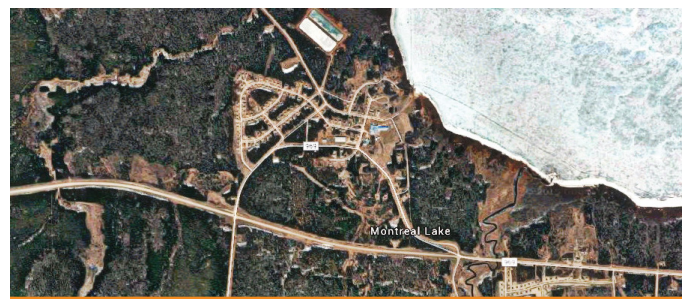
Montreal Lake Cree Nation people are Woodland Cree. Their main community is situated in the southern boreal forest region of Canada on the edge of the Prince Albert National Park, 103 kilometres (64 miles) north of Prince Albert, Saskatchewan.

In 1889, the Cree Band, under the leadership of Chief William Charles, signed Treaty 6 and settled upon the location for the reserve at Montreal Lake. In 1948, the original land mass was divided, and Montreal Lake Indian Reserve 106 was created, along with the Little Red River Reserve 106B, totalling 8,315 hectares (20,547 acres).

The main economic activity in the Montreal Lake community is the First Nation itself: the administration, school, store and health unit. The logging industry

employs some community members. Seasonal guiding for sport fishing and hunting is also an important economic activity, and the community hosts several high-profile fishing derbies each year.

Montreal Lake is one of the 12 member First Nations that make up the Prince Albert Grand Council (PAGC).



**Figure 1** Aerial view of Montreal Lake Cree Nation

### Quick facts

- The community is governed by a Chief and eight Councillors.
- There are 3,678 registered members.  
(Source: AANDC, 2015)
- Of the registered members, 2,261 live in the community and 1,417 live outside the community.
- There are approximately 267 houses at Montreal Lake 106.
- There are approximately 126 houses at Montreal Lake 106 B, Little Red River Reserve.
- Of the total 393 houses, 151 were built under the CMHC Section 95 program.
- The majority of the houses were built after 1980; the oldest house was built in 1969.
- All the houses in the community are built on preserved wood foundations; 30 per cent have basements and 70 per cent have crawl spaces.
- Currently, the community has no privately owned homes.
- The Housing Department consists of a housing and finance manager; a housing coordinator; a mould remediation crew and a maintenance/renovation crew.
- The Housing Department is governed by an elected five-member Housing Committee and a Council representative.

Source: Montreal Lake Cree Nation, 2015

The mission statement of the Montreal Lake Cree Nation reads “To have a healthy sustainable community that supports a holistic way of life, by encouraging our involvement in traditions, customs and practices through sharing and learning.”

### Housing Overview

In the summer of 2011, a steady dose of rain, previously unknown to the Prairies area, caused rivers and lakes in the region to rise dramatically. The Montreal Lake leadership had a housing disaster on their hands. Culverts couldn't handle the water; roads became rivers; and basements and crawl spaces flooded. About 50 homes became isolated because of road washouts, and 200 people were evacuated. When the waters subsided, the Chief and Council began the long road to recovery, and the community also started to look at mould issues in a different way.

This case study highlights the causes and response in Montreal Lake Cree Nation to the flood disaster and also looks into mould issues caused by other factors over the years. Several issues and many people came together to start the change in Montreal Lake Cree Nation. After the 2011 flood, the community declared a state of emergency.

The community applied for flood remediation funding from Aboriginal Affairs and Northern Development Canada (AANDC) to implement a comprehensive drainage plan. The plan was laid out in four phases, which will eventually serve the entire community. The first two phases of the stormwater management project, namely, ditching and building culverts and establishing water courses, have been completed (see figures 2 and 3). Completion of the next two phases is expected when the community acquires adequate funding.

Flood damage repair to community houses was covered by insurance, and an extensive cleanup plan was set up. The cleanup activities included drying out basements, gutting wet material that could not be dried quickly enough, replacing furnaces and repairing the overall damage. However, while dealing with repairs caused by the flooding, other mould issues came to light. It was noted that these mould issues had been caused over the years by a combination of factors, including construction flaws, occupant behaviours, plumbing problems and inadequate ventilation.



**Figure 2** Drainage path/floodway used through the forest to better manage surface water in community



**Figure 3** Ditching/culvert system is also used to manage surface water in the community

Around the same time, the community was asked to participate in the First Nations Lung Health Project, led by the University of Saskatchewan. The study was called *Assess, Redress and Reassess: Addressing Disparities in Respiratory Health Among First Nation People*.<sup>1</sup> The study's team hired Montreal Lake First Nation member Clarice LaVallee to coordinate the project, conduct home assessments and perform occupant

lung function tests. What Clarice found changed the community. She began to realize that the air quality was noticeably better in homes with working (heat recovery ventilators (HRVs) than in homes without them and that air quality and excessive moisture were directly related to the presence of mould. Clarice went on to assess all the homes in the community. She prepared a report for Chief and Council that prioritized the houses in need of vital mould remediation.

At the same time, Leland Parisienne at the PAGC was looking for a way to teach youth practical skills that would enable them to acquire employment and get off income assistance. With the help of CMHC's Housing Internship Initiative for First Nations and Inuit Youth (HIIFNIY) as well as AANDC and PAGC financial contributions, PAGC implemented a mould remediation training program. The program included 12 trainees from six communities, including Montreal Lake. The project was a training pilot, which also included a 12-month mentoring program once the students returned to their communities. From that program, Randy (Corey) Bird has stayed on in Montreal Lake and is now working full time doing mould remediation.

The last component of the project was put in place in 2014, when eight Montreal Lake women completed the Woodland Cree Women in Trades program and returned home to work on house renovations. The First Nation still employs three of the women full time doing renovations, and another one has been hired to work in the Housing Department.

With all the pieces coming together, it wasn't long before the Housing Department developed a comprehensive mould remediation strategy that included assessment, remediation and renovations. The community was well on its way to dealing with mould problems. With Clarice becoming the champion, a willing Chief and Council, supportive administration, and Corey taking on the remediation with the support of the housing professionals at PAGC and the women's crew of renovators, they make an impressive team.

<sup>1</sup> <http://aboriginal.usask.ca/events/pdf/Kathleen%20McMullin.pdf>



“Montreal Lake is ahead of the game,” said Vince Genereaux, Housing Advisor, PAGC. “The Housing Department is innovative, and you can see their success. There were more than 80 people at their last Basic Home Maintenance workshop, and that’s a huge turnout—way more than we usually get.”

“Our time is spent trying to convince people that it’s not about how to fix the symptoms; mould cleanup is just part of the solution. We need to find the causes and fix the causes,” said Frank Bighead, Director of Technical Services and Housing at PAGC.

Montreal Lake Cree Nation is doing just that. Councillor Frank Roberts, in charge of the housing portfolio, knows that the problems and solutions must include everyone. The First Nation hired Clarice LaVallee to manage housing repairs, but Roberts knows it’s not just a construction problem and, while he’s supporting the remediation work done by his staff, he’s also working on informing his people, “We all need to understand mould better, and we need to focus on educating the membership so they can figure out what they can do as part of the solution.”

### Mould Issues

Many houses in Montreal Lake Cree First Nation were built on crawl spaces with little thought given to proper drainage. “A big problem for us is people digging holes to build houses,” Bighead explained. “Many of our communities have houses built on flood plains, which are subject to flooding. Why dig a hole to build a house in such places? It’s always better to build up, not dig down.”

The main problems that led to mould in the community are wet crawl spaces, high and constant moisture in bathrooms and kitchens as well as overall plumbing deficiencies that allow water to seep and damage surfaces. But another common and pressing issue that was identified in the community had to do with the wall area below window openings. Upon further examination, it became clear that windows were poorly installed and lacked insulation

and air sealing. Vandalism and broken windows only added to the problem, since the solution over the years had been to place plywood over the openings. This left the potential for rain penetration around the plywood in the summer and excessive frost and condensation on the surface of the plywood in the winter, which wetted the structure below the windows, leading to mould, not to mention the potential for safety concerns related to egress.



**Figure 4** Montreal Lake Cree Nation’s housing office is situated below the level of the nearby roadway, such that surface water is directed toward the building



**Figure 5** Drywall repairs below a previously broken window where mould was growing



**Figure 6** Drywall repairs behind a stove where mould was growing

Overcrowding, inadequate or non-existent site drainage systems; no formal process for building code inspections; low-cost, moisture-susceptible building materials; and the harsh prairie winters all factored in the accelerated deterioration of the houses, high moisture problems and mould.

## Community's Approach to Solving Mould Problems

The first step to solving Montreal Lake's mould problems included the implementation of the flood drainage system. Surface water was redirected away from the houses; crawl spaces were repaired; plumbing issues were addressed; and heating equipment that had been damaged by the water was replaced. Then, the Housing Department developed a comprehensive mould strategy that started with thorough house assessments. Mould was found in approximately 30 per cent of the houses and, of those, 10 per cent were critically damaged. A priority list, to ensure the neediest houses got immediate attention, was created.

Clarice LaVallee educated herself by reading everything she could find on mould: its causes, its effects on health and its solutions. She turned Montreal Lake into a learning community. "Community members didn't understand mould," Clarice said. "They didn't understand how dangerous it was, so they weren't reporting." The Housing Department now works closely with the Health Department—the communication between the two departments is open and effective. "Complaints about mould now come from tenants, after they have visited the health clinic," she added.



**Figure 7** Drywall removal and replacement in a previously flooded basement

The Housing Department is getting the word out to residents on how mould is created and what steps they can take that will prevent mould from occurring. The community has also benefited greatly from training programs. The community's renovation crew is made up of graduates from the Woodland Cree's Women in Trades training program, and the members of its mould remediation crew were trained at PAGC and have an ongoing mentoring relationship with the professionals at the Grand Council who also provide building inspections for their projects.

Finally, and perhaps most importantly, Montreal Lake leadership is on side. “Everything we do follows policy,” Clarice said. “Leadership knows the policy and, if they don’t, they come in to find out.” Councillor Frank Roberts pays close attention to the mould remediation activities and gives support whenever he can. “I’d say we have a new focus,” Roberts said. “We didn’t understand it before, now we do, and we are now doing everything we can to fix the problems.”

Funding for the initiative comes from multiple sources, including AANDC, RRAP,<sup>2</sup> the Capital Replacement Reserve,<sup>3</sup> and individual and community contributions.

### New Approaches for Construction and Renovation

There has been no new house construction in the community for the past four years. However, the Montreal Lake Cree First Nation is committed to ensure that, when new construction resumes, new building practices and procedures will be in place.

The community is committed not only to remediate existing mould but also to prevent it from occurring in the future. With that in mind, the community is a signatory to the PAGC Code Plus<sup>4</sup> housing specifications, which supplement the National Building Code. Among other specifications, Code Plus ensures better design and installation of ventilation and heating systems. Previous installations had proved unsuccessful, resulting in several issues ranging from uneven temperatures to moisture and mould problems.

As a consequence of flooding events, the community has put in place steps to do a better job of locating homes and setting the depths of the foundations to ensure improved water management around buildings. New buildings will be tied into the community’s drainage

plan, and steps are being taken to make sure that the drainage system is properly maintained. Part of the strategy to avoid groundwater problems is a commitment to building up rather than digging down.

The Housing Department has also been working with its plumber to fix plumbing problems and to adopt the use of water-resistant materials in bathrooms and kitchens. The Housing Department is also looking at existing HRVs in order to ensure they are operating and maintained.

The Montreal Lake Cree Nation, PAGC and CMHC are committed to capacity building. The training plan includes the following workshops:

- CMHC’s Build and Renovate to Avoid Mould workshop, with supplementary on-site instruction designed to ensure new windows are properly installed; and
- the Introduction to HRV Ventilation workshop, to train community members and staff to install and maintain HRVs.

Both workshops will include training modules for home occupants, in order to continue community education.

### Outcomes and Lessons Learned

The most significant outcome in the community has been the flood mitigation strategy. The drainage system now prevents basements and crawl spaces from flooding, and the homes that were damaged in the past can now be renovated. Montreal Lake’s mould remediation efforts are well under way.

At the time of writing, 20 houses were still on the list for mould remediation and set to have windows installed or replaced to complete the repairs. “Chief and Council approved the project, and we are going to put a policy in place to make the tenants responsible for their windows,” Clarice said. The First Nation will replace

<sup>2</sup> CMHC’s Residential Rehabilitation Assistance Program (RRAP) offers financial assistance to First Nations and First Nation members to repair substandard homes to a minimum level of health and safety.

<sup>3</sup> The Capital Replacement Reserve helps First Nations determine what major building repairs and replacements need to be done, when they will be needed and how much they will cost.

<sup>4</sup> Code Plus establishes standards beyond the National Building Code (NBC) suitable for First Nations in Saskatchewan. This is a Grand Council resolution, with all 12 member communities having signed on, and a building permit and inspection system was designed to ensure all houses meet the higher requirements, NBC or better.

future broken windows, but the policy will state that tenants will be charged for the expense. “We don’t just want to fix the problem,” she said. “We intend to prevent the problems in the future and to make the people accountable for their own actions.”

The early outcomes can be measured in the shift that has taken place in the community’s understanding of the mould problem. The housing administration, renovation crew, leadership and community members have all experienced a dramatic increase in their knowledge of mould and its effects on housing and health. The old adage “until you understand the problem, it cannot be solved” describes this most important outcome in the First Nation. “After the community began to understand about air quality and the problems created by mould,” Clarice said, “the word got out. Everyone wanted their house inspected. People were coming in describing the mould, the air quality and the health problems they were experiencing.” For example, people now want to learn more about their HRVs and want them properly maintained and functioning.

A challenge has arisen from the community’s success. The more aware and educated community members become about mould, the more they worry about health implications and the more the demand for renovations on the houses increases.

A key factor going forward will include training workshops for home occupants, so that they can learn how to identify and address moisture and mould problems before they get out of hand and how to prevent problems from occurring in the future.

## Keys to Success

Montreal Lake provides an example for other First Nations on how to get started and deal with mould problems in the community. The steps the Montreal Lake has implemented to successfully put into practice a mould remediation plan include:

1. getting a champion and setting a vision and goals;
2. becoming a learning community by:
  - taking advantage of every training opportunity in the region, and
  - educating and engaging community members;
3. getting leadership and administration on side and offering support; and
4. making sure the community has a comprehensive drainage plan to address the changing weather including severe storms and flooding conditions.

## Acknowledgments

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