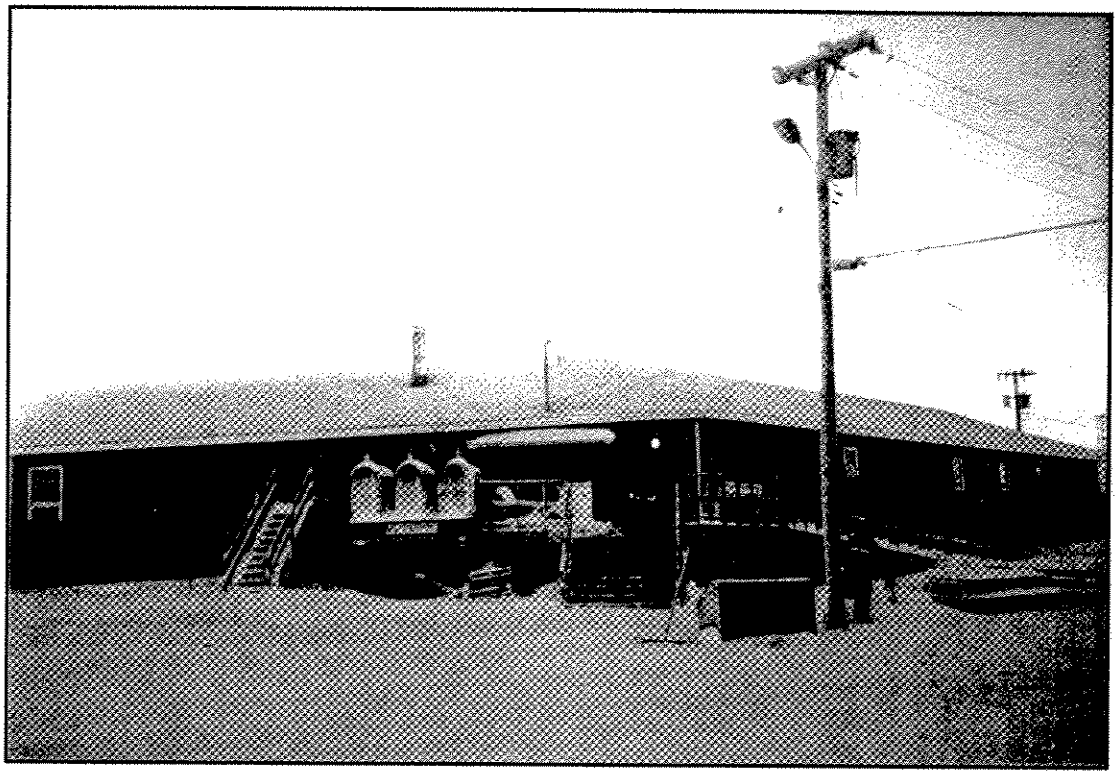
Joe Greenland Centre

Aklavik, NT



TECHNICAL STATUS EVALUATION REPORT

November 2002

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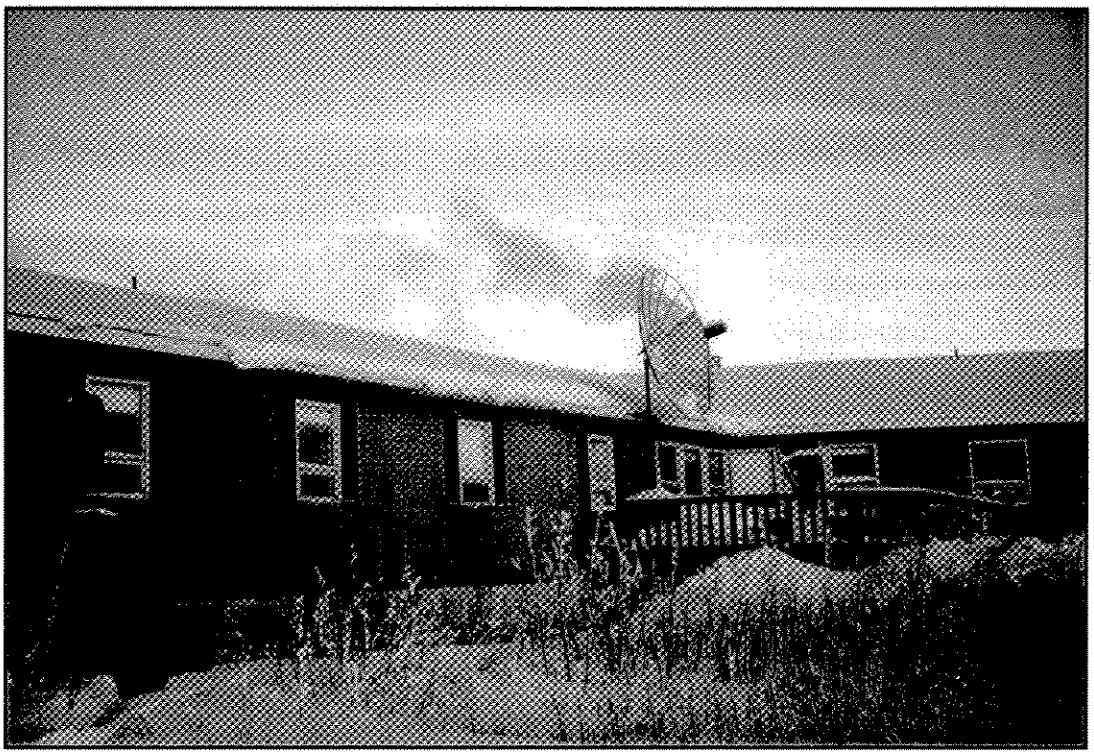

TECHNICAL STATUS EVALUATION REPORT

Prepared by:

Technical Support Section
Asset Management Division
Department of Public Works and Services
Government of the Northwest Territories, Yellowknife

Prepared for:

Department of Health & Social Services
Government of the Northwest Territories, Yellowknife

Northwest Territories Health and Social Services

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EXECUTIVE SUMMARY

This report has been prepared for the **Dept. of Health and Social Services, Yellowknife.** This report evaluates architectural, structural, mechanical and electrical systems and subsystems in the **Joe Greenland Centre** located in **Aklavik**. The evaluation was conducted to assist the client, facility planners and designers to determine the suitability of the building for contemplated renovations and/or additions. The evaluation considers the technical aspects of the building only and does not consider functional or program issues. Maintenance concerns and an associated cost analysis are included in this report.

The **substructure** consists of deep foundation units (untreated timber piles) 'adfreeze' installed in discontinuous permafrost, silty alluvial soils near the Mackenzie River. The substructure appears stable, but differential movement in a portion of it has occurred, causing deformation of a portion of the superstructure. The piles (Mychem Survey, September 2000) are considered to be near the end of their 25-year economic service life, and should be periodically monitored for rot.

The **superstructure** is in satisfactory condition for its age, but shows some signs of deformation, deterioration and damage around the entry lobby and mechanical room, where foundation movement (predominantly uplift) has cracked finishes and put some framing out of alignment. The building **shell** meets most major performance requirements for which it was designed and constructed, but insulation values of walls, suspended floors and roofs are below values recommended in *Good Building Practice for Northern Facilities* published by and available from PW&S, Asset Management Division. Exterior windows are at the end of their economic service life, and exterior wall cladding materials are somewhat deteriorated, requiring repair and/or replacement within ten years. The building shell has been operating satisfactorily with only natural and exhaust ventilation, but may not be suitable to operate as a mechanically ventilated, positively pressurized envelope without upgrading.

The **wood-framed structure** is unsprinklered. Classification of the building under Part 3, *National Building Code of Canada 1995, Group C – Residential Occupancy, Article 3.2.2.47,* requires no specified *fire resistance rating* for the roof assemblies because of the building area and height.

Interiors are typical of the era of construction, with some components (*fire-resistance* rated doors) near the end of their service life. Interior finishes have reasonable remaining service life, providing some shortcomings (*fire separations* and *closures*, wall surface repairs) are addressed.

Building **site work** is basic but satisfactory. Some future consideration needs to be given to ensuring surface water drains away from the open crawl space under the building in spring, and to better maintenance of the wood-framed access ramps, stairs and decks. *Guards* and *handrails* and *barrier-free access* provisions require updating to current code standards.

The mechanical systems in the building reflect the technology at the time of construction. There are numerous code deficiencies and operational concerns, as follows. The plumbing fixtures, including water closets, lavatories, faucets, drains and water supply do not comply with the current code requirements for barrier free access. The water supply piping to the storage tank, as detailed in the records, does not comply with the *Canadian Plumbing Code*.

The fiberglass water storage tank has a significant bulge in the sidewall, which if not repaired will lead to premature failure of the tank.

The fuel oil storage tanks and distribution system do not comply with the current *CAN/CSA-B139-00 Installation Code for Oil Burning Equipment.*

The hydronic heating boilers were reported as having leaks at the seals. The boilers should be thoroughly checked when shut down and the necessary repairs completed.

The building has only natural ventilation as provided by opening windows. Mechanical ventilation has not been provided, as by *ASHRAE Standard 62.*

Electrical systems in this facility are in good condition for the number of years they have been in service. Some of the rooms require more power receptacles as identified in the details. Some savings could be realized if more energy efficient fluorescent lights were used. Zone valves for the heating system should be included on the auxiliary power supply.

The information contained in this Technical Status Evaluation Report ("Report") has been prepared and compiled in accordance with the principles and practices established by the Government of the Northwest Territories ("GNWT") Department of Public Works & Services for the evaluation of facilities. It constitutes a "technical snapshot" of the state of the facility to which the Report relates as at a specific point in time based, in part, on a very limited inspection of the facility. Neither the GNWT nor any other person, including, without limitation, employees, agents or independent contractors of the GNWT involved in the inspection of the facility to which the Report relates or in preparation of the report:

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(b) shall under any circumstances whatsoever be under any liability whatsoever to any person for any loss, damage or expenses of whatever nature or kind arising or resulting directly or indirectly, whether in contract or in tort, from reliance on the accuracy or completeness of the information contained in the report.

PROJECT TEAM

Joe Greenland Centre
Aklavik, NT

Report Completion Dates	
Report Phase	**Date**
Field Work	February 2002
Report Compilation	November 2002
Report Issue	

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1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 General

The **Technical Support Section,** Asset Management Division, Public Works and Services was requested to carry out a Technical Status Evaluation on the **Joe Greenland Centre** located in **Aklavik.** The on-site evaluation was performed on **February 4, 2002**.

The evaluation of the building considered a number of issues including remaining service life of the systems and components, suitability for future expansion, compliance with current codes and operating and maintenance concerns.

The Technical Support Section wishes to express its appreciation to all those involved with the day-to-day operation of the **Joe Greenland Centre,** for their comments and suggestions.

1.2 Terms of Reference

This report has been prepared for the **Dept. of Health and Social Services, Yellowknife.**

1.3 Report Distribution

This report has been distributed to:

- Dept. of H&SS - Yellowknife (Ian Cook) (5 copies)
- Regional Superintendent of PW&S - Inuvik Region (1 copy)
- Technical Support - Asset Management Division (5 copies)
- Library - Asset Management Division (1 copy)

Additional copies of this report may be obtained from the original report, which is filed in the PW&S Library, 3rd floor, Stuart M. Hodgson Building, Yellowknife (867) 920-6451.

1.4 Building Description

The Joe Greenland residential centre is located about 200 m. away from the Mackenzie River, on a slightly southward sloping site. There is no foliage other than low grass and reeds, characteristic of the Mackenzie Delta region. The site is in south Aklavik on the edge of town, and vehicles can get to all four sides of the building from surrounding roads.

Built in 1977, the wood-framed, one-storey, 674 sq. m. vee-shaped building has a total of seven self-contained apartments and eight self-contained bed-sitting rooms in east and west wings. Interior access corridors reach washroom and bathroom spaces, a laundry room, a small facility storage room, a central dining-room lounge, a kitchen, and food storage spaces. A partially enclosed semi-public exterior wood-framed deck, located next to the lounge on the south side, provides exterior and 'cold-porch' activity spaces. A single mechanical equipment room is reached through an exterior door, located on the main entrance landing on the north public access side of the building.

The floor is about 2 m. above finished grade, so the two entrances and two exits, one at each end of each wing, have stairs and sloped ramps from the floor level to the ground.

Untreated timber piles set into permafrost support the superstructure. Light plywood skirting encloses the unheated crawl space below the building, in which is located an insulated wood-framed utilities enclosure or utilidette, suspended below the central access corridor on the main floor above. August 1977 construction drawings show panelized (diaphragm) construction for the floor, and insulation values for the roof, walls and floor of R 30, R 20 and R 30 respectively. Drawings also indicate 5/8" thick 'Firecode C' gypsum board ceilings, and corridor walls and party (demising) walls between rooms as ULC assembly W301, clad with 5/8" gypsum board both sides and 'sound batt' insulation in the framing cavities.

The structure is unsprinklered combustible wood frame construction, conformed under Part 3 of the *National Building Code of Canada, 1995*, as Group 3, *residential occupancy,* because the building area exceeds 600 square metres. That standard requires typical 45 minute *fire separations* at floor assemblies (Article 3.2.2.47), and 45 minute *fire separations* between *public corridors* and the remainder of the *floor area* (Article 3.3.1.4), and at demising walls (Article 3.3.4.2). The furnace room is now required by NWT Fire Marshal *Technical Bulletin 'Service Room Construction' (FM-056-98)* to be separated from adjacent *floor areas* by a one hour *fire separation.*

The shell of the building is clad with prefinished composite hardboard panel siding, which replaces the originally specified metal siding. Original wood framed windows contain fixed and operable twin-sealed glazed units. The 4 in 12 sloped roof is covered with an asphalt shingle water shedding membrane. Surface and roof drainage appear to stay on the ground near the building perimeter, where evaporation and seepage eventually disperse the water.

Potable water is provided throughout the building from a domestic water storage tank and pressure system. Domestic hot water is provided from a fuel oil-fired water heater located in the boiler room. The sewage system gravity feeds to two sewage holding tanks located at ground level, at either end of the building. Water is delivered and sewage is removed from the building by a truck haul system.

Two fuel oil-fired boilers supply heated glycol to zoned perimeter baseboard radiation, force flow units and unit heaters. The building has natural ventilation only. Individual exhaust fans provide exhaust from the various rooms in the building.

Fuel oil is stored in three exterior oil tanks and gravity feeds to the oil-burning appliances located in the boiler room.

Portable hand-held extinguishers are located throughout the building.

Building power is provided at 120/240 volt, rated at 350 amps. All switchgear is in a common room with the boilers. Branch circuit panels are also located in the same room. Branch wiring in the building consists of concealed NMD throughout and surface conduit in the service rooms. Interior lighting is mainly fluorescent throughout, but is not all the energy efficient type. Exterior is illuminated with high-pressure sodium wall packs.

Communication and security systems are made of a Cerberus Pyrotronics fire alarm, smoke alarms in the rooms, a Sentech nurse call and public address system, a security system, satellite TV, and a telephone system.

1.5 Definitions

Remaining Service Life

Remaining service life refers to the remaining cost effective service life of the system or component being considered.

Nine remaining service life ratings are used in this report:

- **Over 15 Years** - means that, under normal operating conditions and receiving proper maintenance, the system or component is expected to remain economically in service exceeding 15 years. Often the system or component is in new or in like new condition.
- **10 to 15 Years** - means that, under normal operating conditions and receiving proper maintenance, the system or component is expected to remain in service for 10 to 15 years.
- **5 to 10 Years** - means that, under normal operating conditions and receiving proper maintenance, the system or component is expected to remain in service for 5 to 10 years.
- **0 to 5 Years** - means the end of the effective economic service life of this system or component has been reached. Plans to replace or renovate the system or component should proceed.
- **Zero Years** - means the system or component is still in service; however, the end of its effective economic service life has been reached and it could fail at any time.
- **Not Operational** - means the system or component is not in service as intended. One or more systems or components may have failed as a result of reaching the end of its expected service life, or due to maintenance or operational circumstances.
- **Not Determined** - means that sufficient information could not be gathered on the system or component to assign a remaining service life.
- **Varies See Details** - is used to describe a system consisting of many subsystems and/or components, where the remaining service life for each of the subsystems and/or components may differ, and are therefore described separately.
- **Not Applicable** - means the system or component, for a variety of reasons, could not be assigned a remaining service life.

Recommended Action Priority

Recommended action priority refers to the urgency of the recommended action. The urgency reflects the importance of the recommended action to the safety, cost-efficient operation or the conservation of the element's service life. Code related items are identified in the course of examining building technology, but should not be considered an exhaustive analysis of current code compliance.
Seven levels of action are used in the report:

- **Mandatory** - means an action that is a legal obligation arising from the requirement of a code, regulation or referenced standard, and involves **life safety concerns. This action must be addressed immediately.**
- **High Priority** - means an action that is a legal obligation arising from the requirement of a code or regulation, and must be addressed at the first available opportunity. There may not be a life safety concern.
- **Code Upgrade** - means a building system or component that does not meet current code requirements, regulations or standards and is, therefore, a legal obligation. It must be addressed as part of any contemplated building additions and/or renovations.
- **Desirable** - means an action that would improve substantially the safety, cost-efficient operation or extend the service life of the building system or component.
- **Suggestion** - means an action which will have some benefit to the operation or longevity of the building system or component and is a discretionary item.
- **Varies See Details** - is used to describe a system consisting of many subsystems and/or components, where the recommended action priority of each of the subsystems and/or components may differ, and are therefore described separately.
- **None** - means there is no recommended action.

Performance Rating

Performance rating refers to the degree to which the identified status or condition of the element conforms to technical performance requirements or standards called for in codes, standards and guidelines for design and construction quality, and current operating and maintenance standards.

Six performance ratings are used in the report:

- **Very Good** - means the element's performance meets and exceeds the specified quality standard.
- **Good** - means the element conforms to the specified quality standard.
- **Satisfactory** - means the element generally conforms to the specified quality standard with some shortcomings.
- **Unsatisfactory** - means the element fails to meet the specified quality standard.
- **Not Determined** - means that sufficient information could not be gathered on the system or component to assign a performance rating.

- **Varies See Details** - is used to describe a system consisting of many subsystems and/or components, where the performance rating of each of the subsystems and/or components may differ, and are therefore described separately.

2.0 ARCHITECTURAL / STRUCTURAL

2.1 INDEX OF SYSTEMS AND COMPONENTS INVESTIGATED AND FINDINGS SUMMARY

Record	System, Subsystem or Component	Remaining Service Life	Recommended Action Priority	Performance Rating
1	**A SUBSTRUCTURE**	5 to 10 Years	High Priority	Unsatisfactory
2	**A10 FOUNDATIONS**	5 to 10 Years	High Priority	Unsatisfactory
3	**A1020 Special Foundations**	5 to 10 Years	High Priority	Unsatisfactory
4	A1020.1 Bored Augured or Driven Piles	0 to 5 Years	High Priority	Unsatisfactory
5	**A1040 Open Crawl Spaces**	Varies See Details	Varies See Details	Varies See Details
6	A1040.1 Open Crawl Spaces - Perimeter Security Screening	Over 15 Years	Suggestion	Satisfactory
7	A1040.2 Open Crawl Spaces - Drainage	0 to 5 Years	Desirable	Unsatisfactory
8	**B SHELL**	Varies See Details	Varies See Details	Varies See Details
9	**B10 SUPERSTRUCTURE**	Over 15 Years	Suggestion	Satisfactory
10	**B1009 Suspended Utility / Service Space (L99) Construction**	Over 15 Years	Suggestion	Satisfactory
11	**B1010 Ground Floor (L100) Construction**	Over 15 Years	Desirable	Satisfactory
12	B1010.1 L100 Floor Structural Frame Primary/ Secondary	Over 15 Years	Desirable	Unsatisfactory
13	B1010.2 L100 Floor Framing Members	Over 15 Years	None	Satisfactory
14	B1010.4 L100 Floor Decks, Slabs and Sheathing	Over 15 Years	None	Good
15	B1010.5 L100 Floor Air / Vapour Barriers	Over 15 Years	Suggestion	Good
16	B1010.6 L100 Floor Thermal Insulation	Over 15 Years	None	Good
17	B1010.7 L100 Floor Exterior Soffit	Over 15 Years	Suggestion	Satisfactory
18	B1010.8 L100 Floor Fire-Stopping/Fire Resistance Rating	Over 15 Years	Suggestion	Satisfactory
19	**B1011 Upper (or Attic Space) Floor Construction**	Over 15 Years	None	Good
20	B1011.8 Upper Floor (or Attic Space) Fire-Stopping /Fire -Resistance Rating	Not Evaluated	Mandatory	Unsatisfactory
21	**B1020 Roof Construction**	Over 15 Years	Suggestion	Good
22	B1020.6 Roof Air/Vapour Barriers	Over 15 Years	Suggestion	Satisfactory
23	B1020.7 Roof Thermal Insulation	Over 15 Years	Suggestion	Satisfactory
24	B1020.8 Roof Fire-Stopping / Fire Resistance Rating	Not Evaluated	Mandatory	Unsatisfactory
25	**B20 EXTERIOR CLOSURE**	Varies See Details	Varies See Details	Varies See Details
26	**B2010 Exterior Walls**	Varies See Details	Varies See Details	Varies See Details

Record	System, Subsystem or Component	Remaining Service Life	Recommended Action Priority	Performance Rating
27	B2010.1 Exterior Walls Exterior Skin	0 to 5 Years	Desirable	Unsatisfactory
28	B2010.2 Exterior Wall Construction	Over 15 Years	None	Satisfactory
29	B2010.3 Exterior Wall Air / Vapour Barrier	Over 15 Years	Desirable	Satisfactory
30	B2010.4 Exterior Wall Thermal Insulation	Over 15 Years	Desirable	Satisfactory
31	B2010.5 Exterior Wall Interior Skin	Over 15 Years	Suggestion	Good
32	**B2020 Exterior Windows**	0 to 5 Years	High Priority	Unsatisfactory
33	B2020.1 Exterior Windows - Standard Thermal Units	0 to 5 Years	High Priority	Unsatisfactory
34	**B2030 Exterior Doors**	Varies See Details	Varies See Details	Varies See Details
35	B2030.1 Exterior Entrance Doors	10 to 15 Years	None	Satisfactory
36	B2030.2 Exterior Utility Doors	10 to 15 Years	Desirable	Satisfactory
37	**B30 ROOFING**	Not Evaluated	Desirable	Satisfactory
38	**B3010 Roof Coverings - Water-Shedding Membranes**	Not Evaluated	Desirable	Satisfactory
39	B3010.2 Discontinuous Non-Metallic Membrane Roofing	Not applicable	Desirable	Satisfactory
40	B3010.4 Flashing and Sheet Metal Accessories	0 to 5 Years	High Priority	Unsatisfactory
41	**C INTERIORS**	Varies See Details	Varies See Details	Varies See Details
42	**C10 INTERIOR CONSTRUCTION**	Varies See Details	Varies See Details	Varies See Details
43	**C1010 Interior Partitions**	Varies See Details	Varies See Details	Varies See Details
44	C1010.1 Interior Fixed Partitions - No Fire Resistance Rating	Over 15 Years	Desirable	Satisfactory
45	C1010.2 Interior Fixed Partitions - Fire Resistance Rated	0 to 5 Years	High Priority	Unsatisfactory
46	**C1020 Interior Doors**	Varies See Details	Varies See Details	Varies See Details
47	C1020.1 Interior Swinging Doors	5 to 10 Years	None	Satisfactory
48	C1020.2 Interior Entrance Doors	10 to 15 Years	Desirable	Unsatisfactory
49	C1020.3 Interior Fire-Rated Doors	0 to 5 Years	Code Upgrade	Unsatisfactory
50	**C1030 Interior Specialties**	Varies See Details	Varies See Details	Varies See Details
51	C1030.4 Storage Shelving and Cabinets	Varies See Details	Varies See Details	Varies See Details
52	C1030.5 Toilet and Bath Accessories	Not Evaluated	None	Not Determined

Record	System, Subsystem or Component	Remaining Service Life	Recommended Action Priority	Performance Rating
53	C1030.6 Wardrobe and Closet Access	10 to 15 Years	None	Good
54	**C30 INTERIOR FINISHES**	Varies See Details	Varies See Details	Varies See Details
55	**C3010 Interior Wall Finishes**	10 to 15 Years	Desirable	Satisfactory
56	C3010.1 Gypsum Board Wall Finish	Over 15 Years	Desirable	Unsatisfactory
57	C3010.4 Tile Wall Finishes	Varies See Details	Varies See Details	Varies See Details
58	C3010.7 Interior Wall Painting	10 to 15 Years	Suggestion	Good
59	**C3020 Interior Floor Finishes**	Varies See Details	Varies See Details	Varies See Details
60	C3020.2 Resilient Flooring	10 to 15 Years	None	Good
61	C3020.5 Wood Flooring	0 to 5 Years	High Priority	Unsatisfactory
62	**C3030 Interior Ceiling Finishes**	Varies See Details	Varies See Details	Varies See Details
63	C3030.1 Gypsum Board Ceiling	Over 15 Years	Mandatory	Unsatisfactory
64	C3030.2 Suspended Ceiling System	10 to 15 Years	None	Good
65	**G BUILDING SITE WORK**	Varies See Details	Varies See Details	Varies See Details
66	**G10 SITE PREPARATION**	Varies See Details	Varies See Details	Varies See Details
67	**G1040 Site Earthwork**	Not operational	High Priority	Unsatisfactory
68	G1040.1 Grading Excavating Backfilling and Compacting	Not operational	High Priority	Unsatisfactory
69	**G20 SITE IMPROVEMENTS**	Varies See Details	Varies See Details	Varies See Details
70	**G2010 Roadways**	Over 15 Years	None	Good
71	G2010.1 Roadways- Access to Building Service Points	Over 15 Years	None	Good
72	**G2040 Site Development**	5 to 10 Years	None	Satisfactory
73	G2040.3 Site Furnishings and Specialties	5 to 10 Years	None	Satisfactory
74	**G2060 Exterior Building Access**	0 to 5 Years	Code Upgrade	Unsatisfactory
75	G2060.1 Exterior Access Stairs	5 to 10 Years	Code Upgrade	Unsatisfactory
76	G2060.2 Exterior Access Ramps	5 to 10 Years	Code Upgrade	Unsatisfactory
77	G2060.3 Exterior Access Decks	10 to 15 Years	Desirable	Satisfactory

CONDITION OR STATUS	RECOMMENDATIONS

1 A SUBSTRUCTURE

Remaining Service Life	5 to 10 Years
Action Priority	High Priority
Rating	Unsatisfactory

The substructure consists of deep foundation units (untreated timber piles) 'adfreeze' installed in discontinuous permafrost, silty alluvial soils near the Mackenzie River. The substructure appears stable, but differential movement in a portion of it has occurred, causing deformation of a portion of the superstructure. The piles are (Mychem survey, September 2000, Appendix A) nearing the end of their 25 year economic service life.

Monitor piles for movement and further deterioration. Reexamine them every two years to identify the progress of rot. See detailed records recommending systematic replacement of, or structural remediation of, individual piles, along with regular reexamination for structural deterioration.

2 A10 FOUNDATIONS

Remaining Service Life	5 to 10 Years
Action Priority	High Priority
Rating	Unsatisfactory

Pile foundations are deteriorating and causing differential movement and structural deformation of portions of the superstructure. The Mychem Wood Protection Consultants Ltd. inspection, completed September 2000, showed 56% of the sampled piles had heavy rot damage to more than 50% of the pile cross-sectional area.

Reexamine previously sampled piles, and the remainder of the piles which were not sampled in 2000, to determine the condition of all piles.

Crawl-space surface-water drainage is poor, with evidence of standing water being present at some times of the year. Uplifting forces on individual piles, caused by thaw/freeze cycling, may be contributing to the deformation of the superstructure above. Pile uplift may indicate degradation of the permafrost in some portions of the site beneath the building, allowing active zone freezing to break piles free from their reduced permafrost adhesion (pile jacking).

Regrade the site so water drains away from the crawl space and is not retained there. Fill in around individual piles with tamped draining fill to prevent water pooling around the pile and seeping into both pile and soil. Refer to Record G1040.1.

CONDITION OR STATUS	RECOMMENDATIONS

3 A1020 Special Foundations

Remaining Service Life	5 to 10 Years
Action Priority	High Priority
Rating	Unsatisfactory

Untreated wood pile foundations are at or near the end of their service life, based on typical service conditions found in the Mackenzie delta and the wood species used. Visual evidence of pile rot was found in many piles near ground level. Individual piles (statistically 59% of all piles) have rotted to 50% or more of their structural capacity (cross-sectional area), and an additional 7% have rotted to between 10% and 50% of their structural capacity. (See Mychem Wood Protection Consultants Ltd. report, Appendix 'A'). Individual piles may be at the end of their service life, but the load-sharing design of the foundation system and clear working height under the building allows for individual piles to be structurally strengthened. This will allow the service life of the foundation to be extended indefinitely.

Restore initial structural capacity of individual piles which have deteriorated to the heavy damage phase, as identified by the Mychem Wood Protection Consultants report.

4 A1020.1 Bored Augured or Driven Piles

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Untreated wood piles set into the ground support the building, frozen into the permafrost alluvial soil. The age of the piles (25 years) corresponds to the typical service life for untreated wood piles in this region. Piles were previously sampled for rot in September 2000. 56% of piles examined showed visual signs of deterioration. Numerous piles had water stains and ground level depressions which would retain water in contact with the piles.

Replace, or remedially restore the bearing capacity of, individual piles which have lost 50% or more of their cross-sectional area. Use a method designed by a registered Professional Structural Engineer, and have the installation supervised by the designer. Refer to Record A1040.2 Open Crawl Spaces - Drainage for surface water drainage recommendations.

CONDITION OR STATUS	RECOMMENDATIONS

5 A1040 Open Crawl Spaces

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

The 2 metre high open crawl space has water retention, access security and potential building heat retention problems, which are described in the subsequent records.

See applicable detail records.

6 A1040.1 Open Crawl Spaces - Perimeter Security Screening

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

The open crawl space is enclosed with plywood skirting around the building perimeter, with a ventilation gap of about 150 mm between the skirting and the ground apparent at most locations. This gap can plug with snow, trapping heat from the building in the crawl space, and potentially warming the ground and reducing pile adfreeze bearing capacity over time.

Ensure the plywood skirting does not interfere with the flow of cold air through the crawl space by ensuring the skirting is high enough above the ground to allow air to circulate under all snow conditions.

The crawl space is unsecured, with openings allowing general access to the underside of the structure.

If concerns arise about building security from vandalism in the crawl space, install screened gates at the openings in the skirting.

The plywood skirting has peeling paint at a number of locations and is unfinished on the interior, but the supporting wood framing appears solid and durable.

Repaint the exterior as part of routine building repair and maintenance.

CONDITION OR STATUS	RECOMMENDATIONS

7 A1040.2 Open Crawl Spaces - Drainage

Remaining Service Life	0 to 5 Years
Action Priority	Desirable
Rating	Unsatisfactory

Hollows in the ground surface in the open crawl space indicate water is retained there, in some locations around piles. The crawl space is not graded to allow surface water to drain away from the building, and the finished grade of the site around the building perimeter appears insufficient to allow surface water to drain away from the building perimeter. Retained water will aid rotting of the wood piles, and reduce their service life. Once rotting piles are stabilized, replaced or remediated, better drainage will conserve their service life.

Fill hollows around piles with compacted fill to direct water away from the pile surfaces. Grade the crawl space to direct surface water to the building perimeter. (This may require raising the general elevation of the crawl space floor.) Refer also to Record G1040.1 Grading Excavating Backfilling and Compacting.

8 B SHELL

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

The shell is in satisfactory condition for its age, but shows some signs of deformation, deterioration and damage around the entry lobby and mechanical room where foundation movement (apparently uplift) has cracked finishes and put some superstructure framing out of alignment. The building shell meets most major performance requirements for which it was designed and constructed, but insulation values of walls, suspended floors and roofs are below values recommended in *Good Building Practice for Northern Facilities* published by and available from PW&S, Asset Management Division. Exterior windows are at the end of their economic service life, and exterior roof and wall cladding materials are somewhat deteriorated, requiring repair and/or replacement within ten years. The building shell has been operating satisfactorily with only natural and exhaust ventilation.

See applicable detail records. In the event a mechanical ventilation system is installed as part of any major upgrade of the building, ensure it will operate at neutral or very slight positive pressure on the building envelope, to avoid moisture condensate forming in walls, floor and roof assemblies through exfiltration.

CONDITION OR STATUS	RECOMMENDATIONS

9 B10 SUPERSTRUCTURE

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

The superstructure shows minor structural deformation in a portion of the exterior wall, and interior wall movement signs around the central north portion of the building. Some unevenness of the floor system is likely due to foundation movement. Refer to Record B1010 and following.

Monitor for structural change in the currently affected zones of the building. Refer to Record A1020 Special Foundations.

10 B1009 Suspended Utility / Service Space (L99) Construction

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

A utilidette enclosed with plywood runs suspended below the main floor along the centreline of the building . The plywood joints are not covered with battens, and gaps between the sheets are visible. Plywood in this kind of construction generally acts as an air barrier if the joints are well sealed, restricting the flow of cold exterior air into the floor assembly by induced stack effect. The drawings indicate the utilidette is insulated with friction fit fibrous insulation and lined with a 2 mil polyethylene sheet air/vapour barrier sandwiched between plywood layers on the interior of the utilidette.

As part of any major retrofit, verify and upgrade the air/vapour barrier of the building envelope, seal the plywood joints in the utilidette with building sealant, and overlay them with wood battens.

11 B1010 Ground Floor (L100) Construction

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Satisfactory

Some unevenness in the floors, and cracks in the finishes of the laundry, kitchen and mechanical room walls indicate some structural deformation has occurred. The structural deformation is consistent with foundation system movement, which could include pile settlement from pile deterioration or loss of ground support, as well as uplift from thaw/freeze cycles around individual piles.

Continued satisfactory performance of the floor system relies on stabilizing and preventing further movement. Refer to detailed records.

CONDITION OR STATUS	RECOMMENDATIONS

12 B1010.1 L100 Floor Structural Frame Primary/ Secondary

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Unsatisfactory

Some variation in floor level at the south exit corridor and in the kitchen, mechanical room and storage areas indicate movement of the primary framing system, likely due to foundation units moving or subsiding. The drawings indicate the primary structural framing consists of nail-laminated (3 - 2 x 10's) built up beams running laterally across the building, typically at 12 foot centres.

Determine the cause of the movement causing unevenness in the floor system, and design a stabilization plan, as part of any major renovation. Provide remedial action to prevent further movement of the floor system.

13 B1010.2 L100 Floor Framing Members

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Satisfactory

The drawings indicate the floor is framed with nominal 2 x 10's, made up into stressed skin panels spanning between nail-laminated (3 - 2 x 10's) primary beams positioned laterally across the structure, carried on piles. The floor framing appears solid, stable, and durable except where foundation movement has occurred.

No recommended action.

14 B1010.4 L100 Floor Decks, Slabs and Sheathing

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Good

The drawings indicate a 5/8 inch thick plywood subfloor laid over nominal 2 x 6 sleepers at 16 inch centres, and overlain with a 1/4 inch thick plywood finish material underlay. The floor appears solid, durable and level, except in those areas affected by foundation movement.

No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS

15 B1010.5 L100 Floor Air / Vapour Barriers

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Good

The drawings indicate a 2 mil polyethylene sheet air/vapour barrier is sandwiched between the subfloor and the 1/4 inch thick underlayment panels. The resilient sheet flooring which covers the floor is also a continuous and effective air/vapour barrier, except below non-load bearing interior partitions, where the polyethylene sheeting would run. The air/vapour barrier appears to be performing well, as no evidence of air infiltration was found on the day of the visit. The building has no mechanical ventilation system, so the floor would currently be operating with a slight negative pressure, caused by the stack effect of the building.

The air/vapour barrier function is working well with the floor assembly operating at neutral or slight negative pressure. In the event the building becomes mechanically ventilated and operating at positive air pressure, the air/vapour barrier of the floor should be checked for air leakage with a thermographic survey, then any leaks sealed.

16 B1010.6 L100 Floor Thermal Insulation

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Good

The drawings indicate the joist cavities are filled with friction fit fibrous insulation. Interior floor temperatures were warm and consistent, with no apparent cold spots.

No recommended action.

17 B1010.7 L100 Floor Exterior Soffit

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

Plywood lines the underside of the main floor, forming a continuous soffit which, in this kind of construction, generally acts as an air barrier if the joints are well sealed, restricting the flow, by induced stack effect, of cold exterior air into the floor assembly. The soffit has unsealed open joints at many locations, although the plywood panels are typically evenly installed, tight to the framing above, and well fastened.

Verify the floor air/vapour barrier is continuous by thermographic analysis with the building under positive internal air pressure, if a new mechanical ventilation system is installed. Upgrade the joints in the soffit to eliminate any detected air leakage locations.

CONDITION OR STATUS	RECOMMENDATIONS

18 B1010.8 L100 Floor Fire-Stopping / Fire Resistance Rating

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

The floor is required to have a *fire resistance rating* of 45 minutes for conformance to *NBCC 1995 Article 3.2.2.47.* The floor assembly described on the construction drawings does not meet the current requirement, but was accepted by the *Authority having jurisdiction* in 1977, and signed accordingly. The floor *fire resistance rating* was judged to conform to the requirements in effect at the time of construction. Fire stopping is concealed within the finish materials and cannot be evaluated without removing portions of the finishes.

In the event of a major renovation, verify conformance to current requirements from the *Authority having jurisdiction* for the existing floor assembly, or upgrade the assembly to a 45 minute *fire resistance rating.* If verification of the fire stopping is required, remove sufficient materials to verify fire stopping materials installed at joints between the utilidette walls, the exterior walls, and the floor assembly are continuous and tight.

19 B1011 Upper (or Attic Space) Floor Construction

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Good

The attic floor is shown on the drawings to be constructed of prefabricated wood trusses, and insulated with 9 inch thick fibrous insulation above a 2 mil thick polyethylene sheet air/vapour barrier, supported by a 5/8 inch thick Firecode "C" gypsum board ceiling. The assembly appears to be stable, well anchored and durable.

No recommended action.

20 B1011.8 Upper Floor (or Attic Space) Fire-Stopping / Fire Resistance Rating

Remaining Service Life	Not Evaluated
Action Priority	Mandatory
Rating	Unsatisfactory

The *attic* is required to be separated into compartments no greater in area than 300 square metres with no dimension exceeding 20 metres, as it is likely to contain materials with a *flame-spread rating* greater than 25, as required by *NBCC 1995 Article 3.1.11.5,* and table *D-3.1.1.A.* The *attic* compartmentation was not verified in the allowed time, and the construction drawings do not indicate an attic plan.

Determine the compartmentation of the attic conforms to the code requirement, and if it does not, install fire-stopping as required.

CONDITION OR STATUS	RECOMMENDATIONS

21 B1020 Roof Construction

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Good

The drawings indicate the roof is framed from prefabricated wood trusses at 2 foot centres, and decked with 5/8 inch thick plywood sheets. This assembly exceeds current deck standards for this type of construction. No visual indication of structural deformation was observed during a visual inspection of the exterior of the roof from the ground, indicating bearing walls and beams supporting it are in good condition. The roof was not inspected for weakened portions of decking, nor for strain indications in the framing system visible within the attic space.

While apparently in good and durable condition, the roof construction assembly should be inspected, and the deck checked for soft spots, when the roof is free of snow. Refer also to Record B3010 Roof Coverings - Water-Shedding Membranes, and perform a comprehensive roof system evaluation.

22 B1020.6 Roof Air/Vapour Barriers

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

The roof system has soffit vents to let air into the attic, but only the east gable appears to have an outlet vent. The drawings indicate a 2 mil thick polyethylene sheet air/vapour barrier is installed at the underside of the roof framing, mechanically supported by a 5/8 inch thick gypsum board ceiling. Some deterioration of the air/vapour barrier around penetrations through the ceiling plane (mechanical room) is apparent, but no systematic evidence of water staining from melted attic condensate was found. There is no frost plume present around the gable end outlet vent, indicating lack of moisture in the attic, and a well-performing air/vapour barrier.

Add a gable end vent into the west gable to ensure effective flow of ventilation air through the attic. If a more detailed analysis of the performance of the roof air/vapour barrier is needed, or in the event of a decision to positively pressurize the building envelope with a mechanical ventilation system, do a thermographic survey of the roof system to locate any breaks in the air/vapour barrier, so they may be sealed.

CONDITION OR STATUS	RECOMMENDATIONS

23 B1020.7 Roof Thermal Insulation

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Satisfactory

Roof thermal insulation is indicated as both "R30" and "9 inch insulation" on the record drawings. Ceiling temperatures in the corridors and rooms are reasonably consistent, and ranged from a low of 17 Degrees Celsius to a high of 23 Degrees Celsius at the time of the evaluation. Current *Good Building Practice* (GBP) standards suggest R40 (RSI 7.0) would be appropriate roof insulation levels for Aklavik, which has 10,000 heating degree days.

In the event of a major building renovation, consider increasing the roof insulation to current *Good Building Practice* guidelines if it is cost effective to do so.

24 B1020.8 Roof Fire-Stopping / Fire Resistance Rating

Remaining Service Life	Not Evaluated
Action Priority	Mandatory
Rating	Unsatisfactory

Refer to Record B1011.8.

Refer to Record B1011.8.

25 B20 EXTERIOR CLOSURE

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

The weather enclosing envelope appears to be performing adequately for the age and construction type. Deficiencies arising from some structural deterioration, attributable to foundation system movement, are the only progressive deterioration effects that will substantially reduce the remaining service life of the building envelope. Components of the wall assembly may be economical to upgrade as part of any planned major renovation.

See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

26 B2010 Exterior Walls

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Exterior walls generally are performing well, except for some exterior cladding coming loose, minor structural deformation (wall out of plumb) at one portion, and moisture deterioration of the assembly localized to some window surrounds. Air/vapour barrier and thermal insulation may not meet contemporary standards, but appear to be performing adequately.

See applicable detail records.

27 B2010.1 Exterior Walls Exterior Skin

Remaining Service Life	0 to 5 Years
Action Priority	Desirable
Rating	Unsatisfactory

Original prefinished composition siding (Canfor "CanExel" siding visible inside the smoker's room) has been replaced at other locations of the exterior with a "Masonite" or ABTCO/ABITIBI style interlocking composition board siding. The siding is bowing and coming loose at numerous locations. Corrosion is visible on some fasteners and metal splice plates. Problems with this type of siding are the subject of current litigation in the USA. A photo from the web site (http://www.sidingclaims.com/abtco/damage.shtml) tracking the litigation shows a photo typical of the condition of the product. The looseness of the siding on this building may be due to structural flexing of the wall from building movement, and inadequate initial fastening. In addition, the siding appears to have been installed without back venting (not rain screen method). Where the siding is loose, snow and rain will be able to enter behind the siding, where the moisture will corrode fasteners and cause deterioration of the wood fibres in the material.

As part of routine building repair and maintenance, re-nail the siding where it has come loose from the wall. As part of any major renovation of the building, include for replacement of the siding with a more durable product mounted on the wall with the rainscreen method so it can dry by natural ventilation.

Gable ends of the roof are clad with oriented strand or chip board, painted. They are visually uneven in places, indicating loose fasteners.

Check panels for tightness and install new fasteners as required to hold panels secure and tight to the framing which supports them.

CONDITION OR STATUS	RECOMMENDATIONS

28 B2010.2 Exterior Wall Construction

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Satisfactory

Exterior walls typically appear plumb, stable and durable. One portion of the south wall of the east wing appears to have some structural distortion of the framing (tilted out of plumb) possibly due to foundation system movement.

No recommended action.

29 B2010.3 Exterior Wall Air / Vapour Barrier

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Satisfactory

The polyethylene sheet air/vapour barrier is not indicated on the drawings, but the term "V.B" is used in description of the wall assembly. The wall air/vapour barrier appears to be performing well except around windows, where there are some indications of vapour transmission through the wall assembly.

While satisfactory, the connection of the air/vapour barrier to the window frames may be loose at some locations. As part of replacing the windows (Record B2020.1) ensure the wall air/vapour barrier is fully sealed to the new frames, and joints in it near the windows are fully sealed.

30 B2010.4 Exterior Wall Thermal Insulation

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Satisfactory

Thermal insulation is concealed within the wall assembly and could not be examined directly. No systematic cold spots were found on the interior surfaces of the walls when exterior temperatures were minus 38 Degrees Celsius. The drawings indicate fibrous insulation to a value of R15 (RSI 2.6) in the framing cavities. Another description on the drawings indicates an additional R7.5 (RSI 1.3) of rigid foamed plastic insulation installed on the exterior of the framing. Current *Good Building Practice* recommendation is RSI 4.9 (R30) for walls. While somewhat less than the recommended value, the insulation appears adequate for the exterior conditions at the time of evaluation, but might allow condensate formation on some portions of interior walls when exterior temperatures fall below minus 45 Degrees Celsius for extended periods of time.

While satisfactory at the time of evaluation, the walls may be inadequately insulated for more extreme winters. In the event of a major building renovation, consider adding additional thermal insulation to the walls if thermographic scanning and cost benefit analysis demonstrates to do so would be cost effective for heat savings.

CONDITION OR STATUS	RECOMMENDATIONS

31 B2010.5 Exterior Wall Interior Skin

Remaining Service Life	Over 15 Years
Action Priority	Suggestion
Rating	Good

Gypsum wallboard used throughout the building is in good condition except where structural deformation has caused it to crack, or where condensate or water leaks near windows have caused deterioration.

No required action, other than routine periodic maintenance.

32 B2020 Exterior Windows

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Exterior windows appear to be original units, and are at the end of their economic service life.

See applicable detail records.

33 B2020.1 Exterior Windows - Standard Thermal Units

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Originally installed wood-framed, paint-finished windows have fixed lights and operable ventilating sash, carrying sealed double pane glazing units in apparent good condition. Some sash is warped and does not close. Sash latches are loose and ventilators do not seal tightly. Seals are worn and deteriorated, showing signs of water leakage stains on the interior wood. Many windows have signs of water damage to the gypsum wallboard near the sills. Exterior paint finish is typically cracked and flaking. The air leakage rates through this style of window are excessive by contemporary standards. Connection of the frames to the air/vapour barrier may be insufficient, as many windows have evidence of moisture migration on the painted exterior trim.

As part of any renovation, replace all windows with thermally broken twin-sealed glazing units, using low emissivity glass, in thermally broken sash and frames, meeting test standards for windows identified in the *National Building Code of Canada 1995*.

CONDITION OR STATUS	RECOMMENDATIONS

34 B2030 Exterior Doors

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Exterior doors are generally in satisfactory condition, but may need to be repositioned to incorporate current requirements for *barrier-free access*.

See applicable detail records.

35 B2030.1 Exterior Entrance Doors

Remaining Service Life	10 to 15 Years
Action Priority	None
Rating	Satisfactory

The exterior entrance door is a flush panel metal exterior grade door in satisfactory operating condition. Weather seals are worn and could be upgraded to reduce air drafts, but the door operates smoothly.

No recommended action.

36 B2030.2 Exterior Utility Doors

Remaining Service Life	10 to 15 Years
Action Priority	Desirable
Rating	Satisfactory

Exterior doors at the end of the east and west wings are flush panel metal clad exterior grade doors. Exterior utility doors do not close automatically on the closers. Other hardware is well adjusted and operates as required. Weather-stripping is in good condition, but door paint is deteriorated.

Adjust exterior utility doors for automatic closing. Repaint detoriorated finish as part of routine building repair and maintenance.

Glazed sliding doors lead from the lounge to the smoker's porch on the west side. The roller wheels on the sliding door are worn, making the door operation stiff.

Replace roller wheels on the door as part of routine building repair and maintenance.

The door from the smoker's porch to the south-facing exterior deck is a metal pan insulated residential grade door. It is in satisfactory operating condition.

No recommended action other than periodic adjustment and maintenance.

CONDITION OR STATUS	RECOMMENDATIONS

37 B30 ROOFING

Remaining Service Life	Not Evaluated
Action Priority	Desirable
Rating	Satisfactory

Roofing was not evaluated, but appears to be functioning well, with no systematic evidence of water leakage visible from the interior. Major water leakage damage at the mechanical room chimney appears to be from a failed flashing, and localized ice-damming.

See applicable detail records.

38 B3010 Roof Coverings - Water-Shedding Membranes

Remaining Service Life	Not Evaluated
Action Priority	Desirable
Rating	Satisfactory

The roof has a 4 in 12 pitch and is covered with asphalt shingles. The snow covered shingles were not visible and could not be evaluated, but no systematic evidence of water intrusion was found during examination of the interior ceilings.

Inspect the roof membrane when it is clear of snow to determine the remaining service life.

39 B3010.2 Discontinuous Non-Metallic Membrane Roofing

Remaining Service Life	Not applicable
Action Priority	Desirable
Rating	Satisfactory

Asphalt shingles appear to be evenly installed and show no sign of deterioration (as indicated by water leakage) at all locations in the building except in the mechanical room, where apparent ice-damming around the chimney flashing has resulted in a major water leak. Roofing membranes should be inspected for continuity, adhesion (tightness) and material condition every year, and as this roof was covered with snow at the time of evaluation, could not be examined in detail.

Inspect the shingles when they are clear of snow, to determine remaining service life. In the event of a major renovation, consider upgrading the roof membrane to a continuous (torched on) membrane, which will provide longer service and less chance of water intrusion caused by ice-damming.

CONDITION OR STATUS	RECOMMENDATIONS

40 B3010.4 Flashing and Sheet Metal Accessories

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Major water damage to the mechanical room ceiling around the chimney is localized, and likely due to ice-damming near the high heat loss from the chimney, and failure of the metal flashing (roof jack) around the chimney. Ice damming can be minimized if the heat escaping into the attic space from the mechanical room is reduced, and the attic well enough ventilated to keep the roof surface cold in winter.

Replace the roof flashing and chimney jack, ensuring they extend a full 200 mm above the drainage plane and 600 mm up the slope, and are sleeved tightly to the chimney barrel. Replace the gypsum board ceiling finish, and install a metal thimble fitting around the chimney at the ceiling, to allow high temperature caulking to be installed, sealing all air gaps where the chimney passes through the ceiling.

41 C INTERIORS

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interiors are typical of the era of construction, with some components (*fire-resistance rated* doors) near the end of their service life. Interior finishes have reasonable remaining service life, providing some shortcomings (*fire separations* and *closures,* wall surface repairs) are addressed.

See applicable detail records

42 C10 INTERIOR CONSTRUCTION

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interior construction - partitions, doors and specialties - is typically in satisfactory condition except where minor structural movement has caused cracking. Some doors do not meet current code standards.

See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

43 C1010 Interior Partitions

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interior partitions are typically in good condition with ample remaining service life. Wallboard cracks in some *fire separations* require repair.

See applicable detail records.

44 C1010.1 Interior Fixed Partitions - No Fire Resistance Rating

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Satisfactory

Interior partitions are typically in good condition with ample remaining service life, except where structural movement has caused the surface materials to crack. Locations include the doorway between the kitchen and the dry storage room, walls near the mechanical room, and the washroom next to the mechanical room.

While partition condition is satisfactory, localized repairs to partition finishes are needed, once the cause of structural movement has been identified, and the building movement stopped.

45 C1010.2 Interior Fixed Partitions - Fire Resistance Rated

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Interior *fire-resistance rated* partitions around the mechanical room have numerous cracks in the finish materials and holes around penetrations, which compromise the continuity of the *fire separation* function of the walls. *Fire-resistance rated* partitions in other locations appear to be continuous, except for some *closures* (doors, vents) through them which are not conformed with the required *fire protection rating* labels.

Repair the breaches in the walls to restore the continuity of the *fire separation* as part of immediate remedial maintenance. Refer to Record C1020.3 - Interior Fire Rated Doors for further information.

46 C1020 Interior Doors

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interior doors are generally in satisfactory condition, except for doors required to have a *fire protection rating*.

See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

47 C1020.1 Interior Swinging Doors

Remaining Service Life	5 to 10 Years
Action Priority	None
Rating	Satisfactory

Interior doors vary in type and grade depending on location in the building. Doors typically are well adjusted, have satisfactorily operating hardware, and have reasonable remaining service life.

No recommended action.

48 C1020.2 Interior Entrance Doors

Remaining Service Life	10 to 15 Years
Action Priority	Desirable
Rating	Unsatisfactory

Vestibule doors at the main entrance and both exits were stood open on wedges, defeating the heat retention function of the vestibules. Exit vestibule doors also have additional *fire protection rating,* as they consist of wired glass in metal frames. This creates areas of refuge in the corridors next to each exit.

Keep inner entrance doors closed in winter, to reduce cold air entry into the building and reduce heating costs.

49 C1020.3 Interior Fire-Rated Doors

Remaining Service Life	0 to 5 Years
Action Priority	Code Upgrade
Rating	Unsatisfactory

Doors to rooms and suites do not have self-closing devices, and the doors and frames have no *fire protection rating* labels. For conformance to *NBCC 1995* Articles *3.1.8.10* and *3.1.8.11*, door assemblies in the *fire separation* between rooms or suites and corridors must have a 20 minute *fire protection rating* and must be equipped with a self-closing device.

Verify the *fire protection rating* of the suite door assemblies as 20 minutes, or replace them with new doors and frames that meet the requirement.

The mechanical room door assembly is required to have a 45 minute *fire protection rating* but has no visible labels, which seem to be missing or painted over.

Verify the mechanical room door assembly has a 45 minute *fire protection rating,* or replace it with a new conforming door assembly.

CONDITION OR STATUS	RECOMMENDATIONS

50 C1030 Interior Specialties

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interior specialties which were evaluated vary in age, condition and type.

See applicable detail records.

51 C1030.4 Storage Shelving and Cabinets

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Metal kitchen cabinets in individual suites are in fair to poor condition. Some melamine cabinet doors are loose and poorly aligned. Plastic laminate counter tops are typically near the end of their service life, with splits, cracks and loose laminate sections not uncommon.

Repair loose doors and fittings as part of routine building maintenance. In the event of a major renovation, replace the metal cabinets with new units.

Cabinets in the main kitchen, laundry and storage areas are in typical good condition for their age. They are made from edge trimmed plywood, and have at least 10 years remaining service life.

No recommended action, other than periodic repainting and repair, as part of routine building repair and maintenance.

52 C1030.5 Toilet and Bath Accessories

Remaining Service Life	Not Evaluated
Action Priority	None
Rating	Not Determined

Bath accessories in the therapeutic bathing room appear to meet technical and program requirements. Bath accessories (towel racks, shower curtain rods, tissue dispensers and similar) in the living units were not evaluated.

No recommended action.

53 C1030.6 Wardrobe and Closet Access

Remaining Service Life	10 to 15 Years
Action Priority	None
Rating	Good

Metal closet shelving and hanging rods in suites are in good condition.

No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS

54 C30 INTERIOR FINISHES

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Interior finishes have been upgraded periodically and have ample remaining service life. Minor damage from structural movement affects limited portions of walls and ceilings.

See applicable detail records.

55 C3010 Interior Wall Finishes

Remaining Service Life	10 to 15 Years
Action Priority	Desirable
Rating	Satisfactory

Interior walls are typically finished with gypsum wall board, paint finished. The wallboard condition is satisfactory in most locations except where water damage and structural deformation has caused cracking or crumbling, and delamination of the surface ivory face paper.

No required action other than routine periodic maintenance.

56 C3010.1 Gypsum Board Wall Finish

Remaining Service Life	Over 15 Years
Action Priority	Desirable
Rating	Unsatisfactory

Gypsum board walls are in good condition except where water damage near windows has deteriorated the surface and crumbled the board, and in areas where structural movement has caused cracking (such as the mechanical room, lounge area wash room, and in the food storage area).

The damaged portions of the gypsum board walls should be filled and refinished once the building movement causing the cracking has been stopped, and the water entry points near windows sealed.

CONDITION OR STATUS	RECOMMENDATIONS

57 C3010.4 Tile Wall Finishes

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Ceramic tile backsplashes in kitchens in individual suites are nearing the end of their service life. Some kitchen back splash tiles are loose and cracked from structural strain in walls and aged adhesives.

Replace tiles and re-grout as part of routine building maintenance.

Tub surrounds in suites are typically solid, with the occasional loose tile. Grout should be removed and replaced in some stained areas. Ceramic wall tiles are more difficult to keep clean and sanitized than continuous water proof coatings, because of the grout filled joints.

Consider replacing tile tub surrounds in individual suites with moulded acrylic liners, as part of any proposed renovation of the building.

Ceramic wall tiles in the therapeutic tub room (Rm. 148) are in very good condition.

No required action.

58 C3010.7 Interior Wall Painting

Remaining Service Life	10 to 15 Years
Action Priority	Suggestion
Rating	Good

Wall painting is typically good throughout except in service areas and water-damaged areas.

No required action other than routine periodic maintenance for damaged areas.

59 **C3020 Interior Floor Finishes**

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Resilient flooring is typically in good condition throughout the building. Wood flooring in the mechanical room is due for replacement.

See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

60 C3020.2 Resilient Flooring

Remaining Service Life	10 to 15 Years
Action Priority	None
Rating	Good

Resilient sheet vinyl flooring used throughout the facility is in good condition with ample remaining service life.

No recommended action.

61 C3020.5 Wood Flooring

Remaining Service Life	0 to 5 Years
Action Priority	High Priority
Rating	Unsatisfactory

Unpainted plywood flooring in the mechanical room has deteriorated from wetting and some structural movement. The face veneer is worn or broken in many places. The floor will easily absorb spilled liquids, and is developing areas which will be slipping and tripping hazards.

Replace the plywood floor with new materials, as part of ongoing repair and maintenance.

62 **C3030 Interior Ceiling Finishes**

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Suspended ceiling system has about 150 mm clearance above it to the gypsum board liner on the underside of roof structure. The suspended ceiling is in good condition. The concealed gypsum board ceiling was not examined in detail.

See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

63 C3030.1 Gypsum Board Ceiling

Remaining Service Life	Over 15 Years
Action Priority	Mandatory
Rating	Unsatisfactory

Gypsum board ceilings where visible are in typical good condition except where extensive water damage in the mechanical room has caused the ceiling to collapse around the main chimney, and unsealed holes around conduits were found.

The mechanical room ceiling forms part of the *fire-resistance rating* of the roof above the mechanical room, which is required to be constructed as a one hour *fire separation*, in accordance with NWT *Fire Marshal Technical Bulletin "SERVICE ROOM CONSTRUCTION" (FM-056-98).*

Replace the gypsum board ceiling in the mechanical room with new materials to achieve a one hour *fire-resistance rating.* Ensure all holes are sealed so the *fire separation* is continuous.

64 C3030.2 Suspended Ceiling System

Remaining Service Life	10 to 15 Years
Action Priority	None
Rating	Good

A suspended tee-bar system is installed in most rooms a distance of 150 mm below the original gypsum board ceiling. The clearance is typically adequate to allow removal and replacement of the acoustic units. The metal suspension system and the acoustic units are typically in clean, unstained, and undamaged condition.

No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS

65 G BUILDING SITE WORK

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Building site work is basic but satisfactory. Some future consideration could be given to ensuring surface water drains away from the open crawl space under the building in spring, and to better maintenance of the wood-framed access ramps, stairs and decks. *Guards* and *handrails* and *barrier-free access* provisions require updating to current code standards.

See applicable detail records.

66 G10 SITE PREPARATION

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

The site does not appear to have been originally graded to provide effective surface water drainage.

See applicable detail records.

67 G1040 Site Earthwork

Remaining Service Life	Not operational
Action Priority	High Priority
Rating	Unsatisfactory

Grading is insufficient to divert surface drainage water away from the perimeter of the building.

See applicable detail records.

68 G1040.1 Grading Excavating Backfilling and Compacting

Remaining Service Life	Not operational
Action Priority	High Priority
Rating	Unsatisfactory

The site drains poorly, allowing surface water to enter and be retained in the crawl space below the building, where it wets the timber piles and speeds up rotting.

Regrade the site so surface water drains away from the building in all directions and no surface water is retained in the crawl space.

CONDITION OR STATUS	RECOMMENDATIONS

69 G20 SITE IMPROVEMENTS

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Site improvements are austere and minimal. Parking areas do not appear to be set out, and vehicles can approach all sides of the building. Access for emergency and service vehicles is good.

See applicable detail records.

70 G2010 Roadways

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Good

Roadways provide access to three sides of the building, and to the south side of the site near the river.

No recommended action.

71 G2010.1 Roadways - Access to Building Service Points

Remaining Service Life	Over 15 Years
Action Priority	None
Rating	Good

The roadways on the north, east and west sides provide access to all service points and for emergency service vehicles.

No recommended action.

72 G2040 Site Development

Remaining Service Life	5 to 10 Years
Action Priority	None
Rating	Satisfactory

Site development is minimal but appears adequate for limited outdoor activities.

No recommended action.

73 G2040.3 Site Furnishings and Specialties

Remaining Service Life	5 to 10 Years
Action Priority	None
Rating	Satisfactory

Picnic tables and barbecue stands provide modest activity sites around the building exterior.

No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS

74 G2060 Exterior Building Access

Remaining Service Life	0 to 5 Years
Action Priority	Code Upgrade
Rating	Unsatisfactory

Access to the main entrance, the south side deck, and the exits at the east and west ends are deteriorating from lack of protection to the wood, and do not all conform to current code requirements.

See applicable detail records.

75 G2060.1 Exterior Access Stairs

Remaining Service Life	5 to 10 Years
Action Priority	Code Upgrade
Rating	Unsatisfactory

Wood-framed exterior access stairs at the main entrance are framed from unprotected nominal 38 mm thick dimensioned lumber. The stairs and guards do not meet current code conformance. Guards on the stairs facilitate climbing and have openings which can pass a sphere 100 mm in diameter, contravening article *NBCC 1995 3.4.6.5.* Children can access the guards and are at risk of injury from falling.

Provide conforming guards.

Handrails, as required by article *NBCC 1995 3.4.6.4* for exit stairs, are not provided.

Provide conforming handrails.

The stairs are partly constructed from poorly protected nominal 38 mm thick dimensioned lumber, which is deteriorating through moisture absorption. Some of the material is protected with wood preservative.

Sand, scrape and restain the stairs and related unprotected portions of the wood structure, as part of routine building repair and maintenance.

CONDITION OR STATUS	RECOMMENDATIONS

76 G2060.2 Exterior Access Ramps

Remaining Service Life	5 to 10 Years
Action Priority	Code Upgrade
Rating	Unsatisfactory

Barrer-free access ramps are provided at the east and west exit landings, as well as at the north entrance. The ramp slopes appear to conform to current standards, but clearance at the doors for wheelchair positioning does not have the 600 mm clear space on the approach side, required by *NBCC 1995 Articles 3.8.3.3.10)a)* and *3.8.3.4.1)c).*

The clearances conformed to requirements in effect at the time of construction. In the case of a major renovation, provide the required *barrier-free access* clearances.

Guards on the access ramps facilitate climbing and have openings which can pass a sphere 100 mm in diameter, contravening *NBCC 1995 Articles 3.4.6.5*. Children can access the guards and are at risk of injury from falling.

Provide conforming guards.

Handrails, as required by *NBCC 1995 Articles 3.4.6.4* for exit ramps, and by article *NBCC 1995 3.8.3.4.1)e)* for ramps in a *barrier-free* path of travel, are not provided.

Provide conforming handrails.

The ramps are partly constructed from poorly protected nominal 38 mm thick dimensioned lumber, which is deteriorating through moisture absorption. Some of the material is preservative treated.

Sand, scrape and restain the ramps and related unprotected portions of the wood structure, as part of routine building repair and maintenance.

CONDITION OR STATUS	RECOMMENDATIONS

77 G2060.3 Exterior Access Decks

Remaining Service Life	10 to 15 Years
Action Priority	Desirable
Rating	Satisfactory

An access deck on the south side of the building provides an additional means of egress from the central lounge. The plywood deck was mostly snow covered at the time of evaluation, but appears to be in satisfactory condition. The guards around the perimeter and to the wood-framed stair leading to grade conform to height and openness stipulations, but the lumber from which they are constructed is deteriorating from moisture absorption resulting from deteriorated finishes.

Scrape, sand and restain the wood materials on the deck and related construction to conserve their remaining service life.

3.0 MECHANICAL

Record	System, Subsystem or Component	Remaining Service Life	Recommended Action Priority	Performance Rating
1	**D20 PLUMBING SYSTEMS**	Varies See Details	Varies See Details	Varies See Details
2	D2010 Plumbing Fixtures	5 to 10 years	High Priority	Unsatisfactory
3	**D2020 Domestic Water Distribution**	Varies See Details	Varies See Details	Varies See Details
4	D2020.1 Water Supply Piping	5 to 10 years	High Priority	Unsatisfactory
5	D2020.2 Water Supply Equipment	5 to 10 years	Desirable	Unsatisfactory
6	D2030 Sanitary Waste System	10 to 15 Years	None	Good
7	**D30 HEATING, VENTILATING AND AIR COND.**	Varies See Details	Varies See Details	Varies See Details
8	**D3010 Fuel Supply Systems**	0 to 5 Years	Code Upgrade	Unsatisfactory
9	D3020.1 Hot Water Boilers	0 to 5 Years	Desirable	Unsatisfactory
10	D3040.1 Air Distribution Systems	Not Applicable	Code Upgrade	Unsatisfactory
11	D3040.3 Hydronic Distribution Systems	10 to 15 Years	Desirable	Satisfactory
12	**D3050 Heat Transfer**	10 to 15 Years	High Priority	Unsatisfactory
13	**D3060 HVAC Controls and Instrumentation**	5 to 10 years	Suggestion	Satisfactory
14	D3060.3 Instrumentation	Not Applicable	Suggestion	Satisfactory
15	**D40 FIRE PROTECTION SYSTEMS**	5 to 10 years	Suggestion	Satisfactory
16	G30 Site Plumbing Utilities	Not Applicable	None	Satisfactory

CONDITION OR STATUS	RECOMMENDATIONS
1 D20 PLUMBING SYSTEMS	**Remaining Service Life** Varies See Details **Action Priority** Varies See Details **Rating** Varies See Details
The plumbing systems, in general, are in good operating condition with only violations relating to current codes and safety concerns.	See applicable detail records.
2 D2010 Plumbing Fixtures	**Remaining Service Life** 5 to 10 years **Action Priority** High Priority **Rating** Unsatisfactory
Although all plumbing fixtures noted were operational, the water closets, lavatories and trim do not comply with current barrier-free access requirements. Scald protect on the drain lines and tempered water has not been provided to the lavatories in the washrooms.	As part of any contemplated renovations, ensure the plumbing fixtures in the facility are brought up to current codes.
The operating staff noted that leaks occur at the floor seals of the water closets. This was caused when a new subfloor was installed without lifting the water closet floor flanges. This will result in premature rotting of the floor.	Either raise the floor flange on the water closets or install thicker wax seals.
At the time of the site visit the Century Tub was not in operation and building maintenance staff indicated difficulty sourcing replacement parts.	Continue searching for replacement parts and, if unsuccessful, review replacement of the tub.
3 D2020 Domestic Water Distribution	**Remaining Service Life** Varies See Details **Action Priority** Varies See Details **Rating** Varies See Details
The domestic water distribution is copper and is in generally good working order. There are some code deficiencies as detailed in the detailed records.	See applicable detail records.

CONDITION OR STATUS	RECOMMENDATIONS

4 D2020.1 Water Supply Piping

Remaining Service Life	5 to 10 years
Action Priority	High Priority
Rating	Unsatisfactory

The water supply piping is copper and generally insulated throughout. Some new water lines, especially in the boiler room, have not been insulated.

Insulate new water lines and repair insulation that is loose or has fallen off.

ABS piping and galvanized fittings have been used on the fill line to the water tank and in some other locations. Refer to **Photo M2.B.** The *Canadian Plumbing Code* does not allow ABS pipe or galvanized fittings on potable water systems.

Replace the galvanized fittings and ABS pipe with approved pipe as shown in *Table A-2.5, 2.6, 2.7* of the *Canadian Plumbing Code.*

5 D2020.2 Water Supply Equipment

Remaining Service Life	5 to 10 years
Action Priority	Desirable
Rating	Unsatisfactory

Potable water is stored in a 10,000 litre (approximate) fibreglass rectangular water tank located in the storage room. There is significant bulging of the side wall of the water tank as shown in **Photo M2.C.** If this deflection of the tank wall is allowed to continue, it will lead to failure of the tank.

Provide support bracing for the water storage tank walls, in order to extend the life of the tank.

A single pressure pump and expansion tanks provide pressurized water to the building. **Refer to Photo M2.D.** Although operational, comments from the staff indicate that there isn't sufficient capacity for the demand in the facility.

Consider installing a larger pump to meet the water demand in the facility.

A new Aero fuel oil-fired domestic water heater has been installed in the boiler room. The unit appears to be in good condition with ample capacity. **Refer to Photo M1.D.** In-line circulators circulate domestic hot water throughout the facility.

No action required.

CONDITION OR STATUS	RECOMMENDATIONS

6 D2030 Sanitary Waste System

Remaining Service Life	10 to 15 Years
Action Priority	None
Rating	Good

The sanitary waste system in the building appears to be original and is primarily copper throughout. Some ABS piping has been installed in renovated or repair areas. The sanitary system drains by gravity through the under-building utilidette to two insulated sewage holding tanks located at either end of the building. The system appears to be in good condition with no complaints from operating staff.

No required action.

7 D30 HEATING, VENTILATING AND AIR COND.

Remaining Service Life	Varies See Details
Action Priority	Varies See Details
Rating	Varies See Details

Refer to the following detailed records for information on the heating and ventilation systems.

See applicable detail records.

8 D3010 Fuel Supply Systems

Remaining Service Life	0 to 5 Years
Action Priority	Code Upgrade
Rating	Unsatisfactory

The fuel oil system consists of three 1,135 litre exterior fuel oil tanks piped in parallel and supported by a wooden stand. The fuel oil gravity feeds to the oil-burning appliances in the boiler room. The tanks are not ULC labeled and the combined storage capacity of 3,400 litres exceeds the capacity of 2,500 litres which requires secondary containment, in accordance with *CAN/CSA- B139-00 Installation Code for Oil-Burning Equipment.* The wooden support stand also does not comply with the code.

Review the fuel oil consumption requirements for the facility and install a new approved fuel oil storage and distribution system.

Drip pans have not been installed under the oil-burning appliances.

Provide drip pans as required.

CONDITION OR STATUS	RECOMMENDATIONS
9 D3020.1 Hot Water Boilers	**Remaining Service Life** 0 to 5 Years **Action Priority** Desirable **Rating** Unsatisfactory
The building is heated by two fuel oil-fired Weil McLain hydronic boilers. The boilers appear to be original and the building operators indicate one boiler is leaking at the seals. The chimneys are also showing signs of corrosion.	Provide repairs to the boilers and chimneys, as required. A further investigation into the remaining service life of the boilers should also be performed during system shutdown.
10 D3040.1 Air Distribution Systems	**Remaining Service Life** Not Applicable **Action Priority** Code Upgrade **Rating** Unsatisfactory
The building does not have any mechanical ventilation, only natural ventilation by opening windows. This does comply with current ventilation code requirements.	As part of any contemplated renovations provide mechanical ventilation to the requirements of *ASHRAE Standard 62*.
The individual washrooms and the kitchen range hood are provided with individual exhaust fans. The washroom exhaust fans discharge to the underside of the building. The fans all appear to be operational.	No required action.
11 D3040.3 Hydronic Distribution Systems	**Remaining Service Life** 10 to 15 Years **Action Priority** Desirable **Rating** Satisfactory
In general the hydronic heating system is in good operating condition with the exception of evidence of leaks in the boiler room. With the exception of the boiler room piping, insulation is in place on the distribution mains.	Ensure all leaks are repaired and insulation is replaced and properly secured.
A glycol sample was not taken for analysis.	A glycol sample should be analysed for proper freeze protection & inhibitor levels.
The system does not have a bypass valve or loop to maintain minimum flow in the system during light load conditions.	Consider installing a bypass valve or loop to maintain minimum flow in the system.
Two new in-line circulating pumps have been installed and are in good condition.	No action required.

CONDITION OR STATUS	RECOMMENDATIONS
12 D3050 Heat Transfer	**Remaining Service Life** 10 to 15 Years **Action Priority** High Priority **Rating** Unsatisfactory
The heat transfer systems in the building consist of zoned baseboard radiation throughout, combined with force flow cabinet units in the shower room and entrances.	Ensure the radiation elements are kept clean.
The force flow cabinet heater in the shower room poses an electrical safety concern due to the wet conditions experienced in the shower room.	Ensure the electric fan in the force flow unit is protected with proper ground fault protection.
13 D3060 HVAC Controls and Instrumentation	**Remaining Service Life** 5 to 10 years **Action Priority** Suggestion **Rating** Satisfactory
The temperature controls installed in the facility consist of low voltage room thermostats controlling two position control valves on the zoned baseboard radiation. Operating safety controls are also provided on the two heating boilers.	Provide ongoing service, calibration and/or repair of the control components (thermostats, control valves and controllers) in the building, as required.
14 D3060.3 Instrumentation	**Remaining Service Life** Not Applicable **Action Priority** Suggestion **Rating** Satisfactory
Only minimal temperature and pressure gauges are installed on the two boilers.	Provide additional temperature and pressure gauges on heating and domestic water lines as required.
15 D40 FIRE PROTECTION SYSTEMS	**Remaining Service Life** 5 to 10 years **Action Priority** Suggestion **Rating** Satisfactory
Fire protection is provided in the building by hand-held portable stored pressure fire extinguishers.	Continue required monthly and annual service checks on fire extinguishers and replace units when required.
16 G30 Site Plumbing Utilities	**Remaining Service Life** Not Applicable **Action Priority** None **Rating** Satisfactory
Water is delivered to the building and sewage is removed from the building by the community truck haul system.	No required action.

4.0 ELECTRICAL

Record	System, Subsystem or Component	Remaining Service Life	Recommended Action Priority	Performance Rating
1	**D50 ELECTRICAL SYSTEMS**	Varies See Details	Varies See Details	Varies See Details
2	**D5010 Electrical Service and Distribution**	10 to 15 Years	Varies See Details	Varies See Details
3	D5010.3 Main Electrical Switchboards	10 to 15 Years	Code Upgrade	Unsatisfactory
4	D5010.5 Electrical Branch Circuit Panelboards	10 to 15 Years	None	Satisfactory
5	**D5020 Lighting and Branch Wiring**	Varies See Details	Varies See Details	Satisfactory
6	D5020.1 Electrical Branch Wiring	10 to 15 Years	Mandatory	Satisfactory
7	D5020.2 Interior Lighting	10 to 15 Years	Desirable	Satisfactory
8	D5020.3 Exterior Lighting	Over 15 Years	None	Satisfactory
9	**D5030 Communication and Security Systems**	Varies See Details	None	Satisfactory
10	**D5030.1 Alarm and Detection Systems**	Varies See Details	None	Satisfactory
11	D5030.11 Fire Alarm Systems	10 to 15 Years	None	Satisfactory
12	D5030.12 Smoke Detection Systems	10 to 15 Years	None	Satisfactory
13	D5030.15 Security Access Systems	Over 15 Years	None	Satisfactory
14	**D5030.3 Voice and Data Systems**	Varies See Details	None	Satisfactory
15	D5030.31 Telephone Systems	10 to 15 Years	None	Satisfactory
16	D5030.32 Paging Systems	Over 15 Years	None	Satisfactory
17	**D5030.5 Television Systems**	Not Determined	Desirable	Satisfactory
18	D5040.2 Packaged Engine Generator Systems	Over 15 Years	High Priority	Satisfactory

CONDITION OR STATUS	RECOMMENDATIONS
1 D50 ELECTRICAL SYSTEMS	**Remaining Service Life** Varies See Details **Action Priority** Varies See Details **Rating** Varies See Details
See detailed records.	See applicable detail records.
2 D5010 Electrical Service and Distribution	**Remaining Service Life** 10 to 15 Years **Action Priority** Varies See Details **Rating** Varies See Details
See detailed records.	See applicable detail records.
3 D5010.3 Main Electrical Switchboards	**Remaining Service Life** 10 to 15 Years **Action Priority** Code Upgrade **Rating** Unsatisfactory
Main switch is rated at 400 amp, 120/240 volt, single phase. Service is fused at 350 amps. The main switch, CT cabinet and a splitter are located in the boiler/electrical room.	
Main feeders are 350 MCM. These feeders are only rated at 325 amp according to Table 2 of the *Canadian Electrical Code.*	Fuses should be reduced to size that the feeders are rated for. If they are too small for building needs then the feeders may have to be replaced to meet the proper ratings.
The building maintainer indicated that he has had to replace the fuses in this switch. Normally this should only be done by a Journeyman Electrician.	If building is renovated, recommend the fusible switch be replaced with a circuit breaker type. This will eliminate the requirement for replacing fuses.
4 D5010.5 Electrical Branch Circuit Panelboards	**Remaining Service Life** 10 to 15 Years **Action Priority** None **Rating** Satisfactory
Branch circuitry for most of the building is provided with 4 FPE combination panels that are located in the boiler/ electrical room. Panel A is full, while there is space in the remaining panels.	No recommended action.
The suites in the housing wing are fed with small panels that are equipped with plug fuses. These panels are fed from a panel in the electrical room.	

CONDITION OR STATUS	RECOMMENDATIONS
5 D5020 Lighting and Branch Wiring	**Remaining Service Life** Varies See Details **Action Priority** Varies See Details **Rating** Satisfactory
See detailed records.	See applicable detail records.
6 D5020.1 Electrical Branch Wiring	**Remaining Service Life** 10 to 15 Years **Action Priority** Mandatory **Rating** Satisfactory
The branch wiring for the building is concealed and is mainly NMD throughout. Some conduit was used in the service rooms. The staff/medical room has no power outlets. The pantry and dining/living room require more outlets.	Install receptacles in the staff/medical room. Add more receptacles in the pantry and the dining/living room.
Some of the receptacles on the kitchen counter are showing signs of wear. When appliances are plugged into them the contacts no longer hold them firmly.	Replace worn receptacles throughout, especially in the kitchen.
7 D5020.2 Interior Lighting	**Remaining Service Life** 10 to 15 Years **Action Priority** Desirable **Rating** Satisfactory
Interior lighting is made up of 4'-T12 fluorescent fixtures, compact fluorescent wall mount fixtures and some incandescent lights. All switching is line voltage type.	Retrofit T12 type lights to T8-electronic ballast during next renovation.
Maintenance staff indicated that bulbs did not seem to be lasting as long as they normally should.	Check voltage supply to ensure that it is within the recommended levels.
Emergency lighting is provided with battery packs.	
8 D5020.3 Exterior Lighting	**Remaining Service Life** Over 15 Years **Action Priority** None **Rating** Satisfactory
Exterior is lit with high pressure sodium wall packs.	No recommended action.
9 D5030 Communication and Security Systems	**Remaining Service Life** Varies See Details **Action Priority** None **Rating** Satisfactory
See detailed records.	No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS
10 D5030.1 Alarm and Detection Systems	**Remaining Service Life** Varies See Details **Action Priority** None **Rating** Satisfactory
See detailed records.	No recommended action.
11 D5030.11 Fire Alarm Systems	**Remaining Service Life** 10 to 15 Years **Action Priority** None **Rating** Satisfactory
A single stage fire alarm system is in use. This is a Ceberus Pyrotronics system. The main panel is mounted in the front and a remote annunciator is in the office. There are 3 initiating zones in use. Signaling devices are combination bell/strobes.	No recommended action.
12 D5030.12 Smoke Detection Systems	**Remaining Service Life** 10 to 15 Years **Action Priority** None **Rating** Satisfactory
Sleeping rooms are equipped with smoke alarms that send a signal to a Sentech panel in the common area as well as an indicating light outside of each room.	No recommended action.
13 D5030.15 Security Access Systems	**Remaining Service Life** Over 15 Years **Action Priority** None **Rating** Satisfactory
Door sensors are installed on all exterior doors. A signal from these doors is sent to a Sentech panel in the dining room. This will let the staff know if anybody is attempting to leave the premises without their knowledge.	No recommended action.
14 D5030.3 Voice and Data Systems	**Remaining Service Life** Varies See Details **Action Priority** None **Rating** Satisfactory
See detailed records.	No recommended action.
15 D5030.31 Telephone Systems	**Remaining Service Life** 10 to 15 Years **Action Priority** None **Rating** Satisfactory
Main service is fed overhead and terminates in the electrical / boiler room. Housing suites are all equipped with individual lines. The facility manager has a telephone on a separate line. A common area telephone in the dining room is also equipped with a separate line. A fax machine and an e-mail connection are also provided with lines.	No recommended action.

CONDITION OR STATUS	RECOMMENDATIONS
16 D5030.32 Paging Systems	**Remaining Service Life** Over 15 Years **Action Priority** None **Rating** Satisfactory
Speakers are mounted in the ceiling throughout. A wall mounted microphone is in the kitchen and another is also in the main office. A Sentech amplifier is mounted in the boiler /electrical room. Call switches are also located in the sleeping rooms and operate a light outside of the room as well as indication on the panel in the dining room.	No recommended action.
17 **D5030.5 Television Systems**	**Remaining Service Life** Not Determined **Action Priority** Desirable **Rating** Satisfactory
3 satellite dish systems are in use. One dish is for the entire facility and the other two are privately owned. Coaxial cable has been run above T-bar ceiling in corridors.	Cable and splitter should be tidied up in the boiler/electrical room.
18 D5040.2 Packaged Engine Generator Systems	**Remaining Service Life** Over 15 Years **Action Priority** High Priority **Rating** Satisfactory
A 4 kw Onan gasoline, engine driven, generator is mounted in a room that is adjacent to the boiler / electrical room. Access door to the room is on the outside of the facility. A manual transfer switch is in the boiler / electrical room. Only the boilers and heating pumps are provided back-up power from this generator.	
The zone valves are not on back-up power and have to be manually operated when there is a power outage.	Re-feed power to the valves so they can continue to operate automatically when there is loss of utility power.

5.0 MAINTENANCE REVIEW

5.0 MAINTENANCE REVIEW – Joe Greenland Centre, Aklavik NT

From a maintenance perspective, a number of items need attention.

5.1 Fire and Safety Issues

- Fire alarm testing is not being recorded as required by the *National Fire Code* and the referenced *ULC S536*.
  - Monthly tests are to be recorded and retained for two years.
  - An annual inspection and testing is to be conducted, and the results documented and retained. There is no documentation that these tests were completed on site.
- Monthly checks of fire extinguishers are not being noted on the tags as required by the *NFC* referenced document *NFPA 10, Section 4.3*.
- Internal doors are being wedged open for convenience. This compromizes their usefulness as a fire separation.
- Steps and ramps need to be cleared of snow.

5.2 Mechanical

- Most room thermostats are set to the maximum temperature.
- Piping on fill line for domestic water tank is a combination of copper, galvanized iron and ABS.

Photo 1: Potable water tank fill piping.

- Rain cap is missing from chimney.
- Oil supply pipe is on the floor of mechanical room without protection from damage. This pipe is also a tripping hazard.

5.3 Facility Rooms/Public Services Areas

Lounge

- Ceiling tiles have been damaged.
- Door to exit is wedged open.
- Movement crack over the door to the exit.
- Sliding door has both coaxial (satellite dish) cable and an extension cord restricting closure.

Public Washroom

- Flooring is bubbled and is showing screw heads in the sub-flooring.
- Door lockset is very worn and is loose on the inside to the point of being difficult to operate.
- Movement cracking over door (inside).

Laundry Room

- Faucet in laundry tub is dripping steadily.
- Bottom of door is damaged.

Tank Room

- Numerous unsealed penetrations of walls.
- Ceiling tile out of place.

Kitchen

- Door is not fire rated.
- No fire extinguisher in cooking area of kitchen.
- Kitchen is very warm with no cooking taking place. Staff indicated that temperature become unbearable in the summer.
- No exhaust fan has been installed except range hood that cannot move sufficient air to ventilate this area.
- Lights in range hood do not work.
- Dishwasher has not worked for years.
- Movement cracking above door to storeroom.
- Ceiling tiles are damaged.
- Wall areas were left unpainted during renovations carried out in 1996(?).

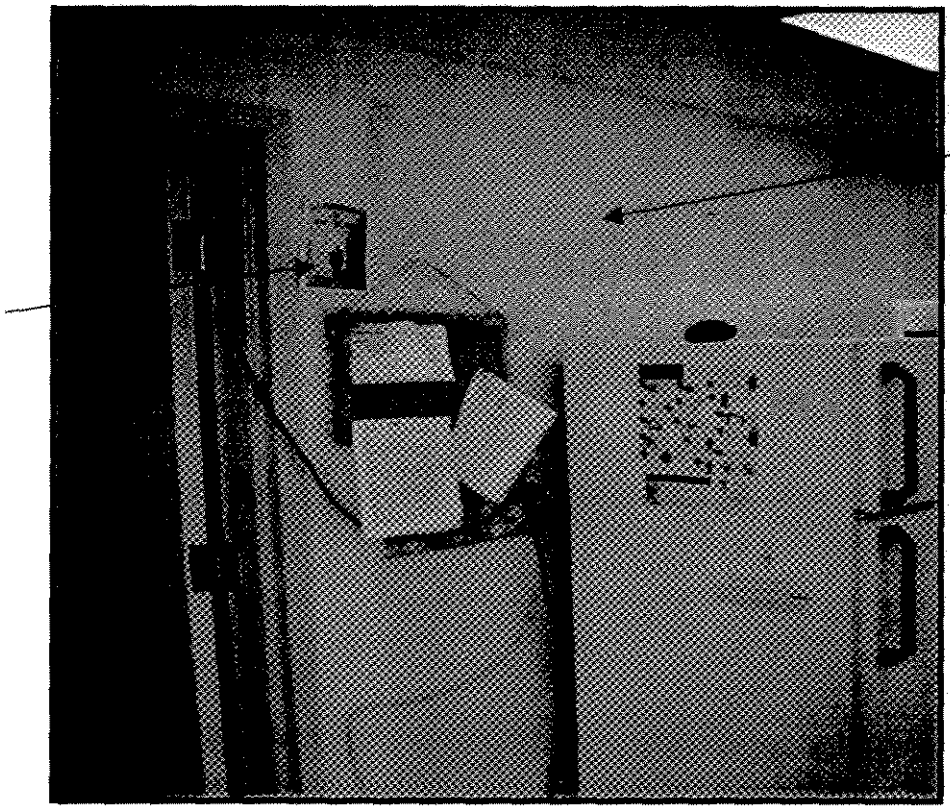

Photo 2: Wall not painted during renovation and cord for freezer

- Ceramic tile was not sealed to backsplash during 1996(?) renovation.

Pantry

- Extension cord to large freezer is running between door to the kitchen and the door casing.
- Room is very warm. Rejected heat from freezer is contributing to this.
- Hole in ceiling tile around pipes to convector. Tile is stained in this area-indicating leak at some time.

Kitchen Store Room

- Movement cracking over door to kitchen.
- Ceiling needs to be sealed around conduit.
- Hinges of the freezers are damaging wall.
- Light diffuser is missing.

Med Room

- Thermostat is set at 27°c.
- Room has no electrical outlets. This necessitates the use of extension cords.

Administration Office

- Patch and paint is required.
- Floor inclines to centre of room.
- Door is contacting casing.

Smoking Room

- Cable from satellite dish is running through window.
- Room is not connected to building heating system.
- Smoke exhaust is provided by a recess type bathroom fan surface mounted on the ceiling and powered by an extension cord through sliding doors.

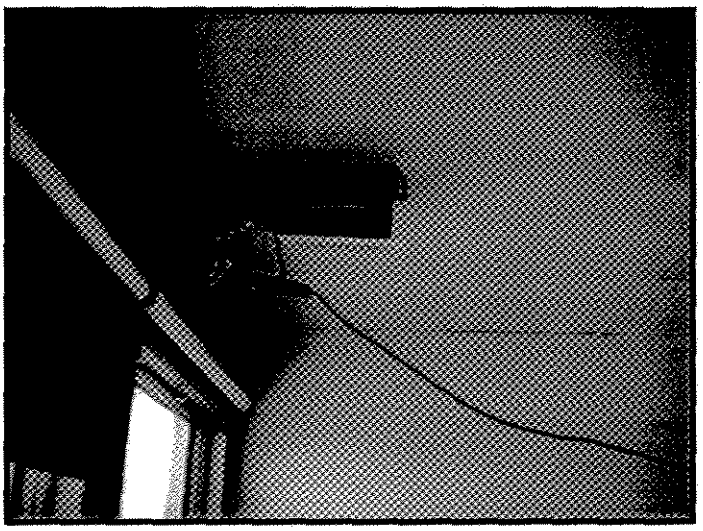

Photo 3: Exhaust fan in smoking room

Main Entrance

- Weather-strip on door needs to be replaced.
- Wall around door needs to be patched and painted. There are numerous tack holes around this door.

Room 208

- Patching and painting is required.

Century Tub Room

- Sewage gas smell in this room.
- Ceramic tile adhesive is failing.
- No sealant at wall/ceiling joint allowing moisture damage to occur.
- Fire rating label on door casing has been painted over.

Small Laundry Room

- Light diffuser is missing.
- Wall damage has occurred.

Linen Storage

- Light diffuser is missing.

Exit by Room 215

- Door from corridor to exit vestibule wedged open.
- Fire rating label on door casing has been painted over.
- Exterior door does not latch on closer.

Exit by Room 201

- Fire rating label on door to corridor has been painted over.
- Exterior door is contacting the steps.
- Window at the end of the corridor to the exit vestibule is coated with bird droppings on the outside.

Photo 4: Bird droppings on exterior of window .

5.4 Exterior

- Soffit is loose at the eve on the end wall (over water fill point).
- Access port in skirting by sewage pump-out is missing.
- Visible depression at base of exposed piles.

Photo 5: Depression at base of pile.

- Paint on skirting and most of the windows is peeling.
- There is a profusion of satellite dishes on this building. Many have their cables run through window or door gaps. Installation of a common system might be preferred.
- Siding is loose in places.

Photo 6: Loose siding.

- Roof on generator building appears to be failing.