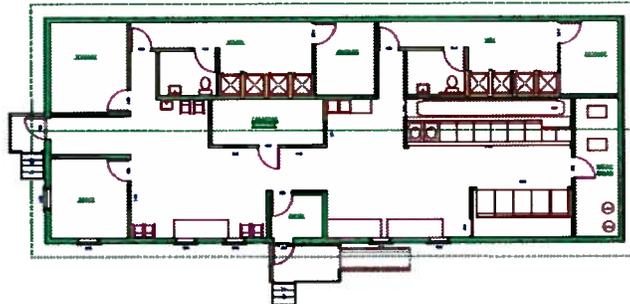
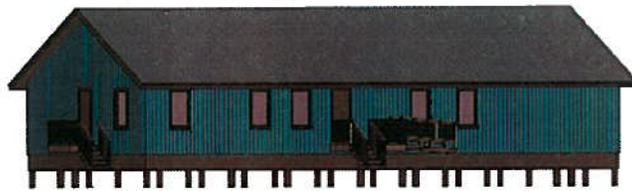


EMMONAK WASHETERIA OPERATION AND MAINTENANCE MANUAL

32' x 84' Washeteria



Size: 32' x 84' (2688 sq ft)
Type: Washeteria
Owner: City of Emonah
Year built: 2003

Year upgraded: 2008

Prepared by CE2 Engineers, Inc.

March 2009

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INTRODUCTION

The Emmonak Washeteria was originally constructed in 2003. The facility required remodeling due to serious foundation instability and International Building Code violations. The Washeteria electrical and mechanical systems were upgraded in 2008 to current safety standards. The foundation was leveled and skirted to prevent frost jacking. An upgraded hydronic system provides heat throughout the facility, including the dryers and the newly installed saunas.

The upgrades and additions to the facility allowed the Washeteria to reopen in January 2009.

HOW TO USE THIS MANUAL

This manual is arranged so you can easily find the information needed to understand how the various systems and appliances in the Washeteria operate.

An overview of key facility components is provided along with manufacturer's guidance on maintenance and repair. Operators should review and become familiar with the overview of the hydronic system presented in Fig. 1 on the next page, as well as the Equipment Information Sheets and manufacturer's documentation in Appendix A, maintenance checklist in Appendix B, and the construction plan set provided in Appendix C.

The manufacturer's documentation in Appendix B provides important maintenance and repair information. The answer to common maintenance questions or concerns may be found in this documentation, which should be consulted prior to calling for outside assistance when troubleshooting Washeteria components.

EMERGENCY CONTACTS

In case of an emergency, the following personnel may be contacted for assistance:

- David Tucker, Emmonak Washeteria Maintenance – Phone (907) 949-1227
- Billy Westlock, Remote Maintenance Worker – Phone (907) 949-1779
- Debra Addie, State of Alaska Village Safe Water Project Engineer – Phone (907) 269-3085
- Sean Gwaltney, CE2 Engineers Project Manager – Phone (907) 349-1010

SEASONAL FACILITY RESPONSIBILITY

Regular maintenance during the following seasons is extremely important to ensure safe facility operation:

- **Spring:** Shut off isolation valves and remove unit heaters from crawl space before flood season. Verify the flood vents are free of obstructions or debris so they may operate properly. Re-inspect flood vents after flood waters recede to ensure optimal operation.
- **Summer:** Reinstall unit heaters and test valves. Repair / replace vapor barrier and/or insulation if damaged. Do not block flood vents.
- **Fall:** Set thermostats and verify unit heaters are in good working order. Check fans and airflow. Verify glycol heat trace for the service line is operating correctly. Check roof crawlspace for

airflow, moisture, and insulation. Inventory spare parts such as replacement pumps for the hydronic heating system. Purchase additional spare parts as necessary for winter operation.

- **Winter:** Once the outside temperature falls below 32° F, check airflow and temperature of crawl space **daily**. The temperature in the crawl space must be kept above 40° F to ensure the ground does not freeze. Monitor heat loss and condensation. If the temperature in the crawl space drops below 40° F, check the heaters to confirm they are all operating properly. Inspect the skirting and immediately repair any openings. If a substantial amount of condensation builds along the skirting, add vapor barriers where appropriate.

Foundation Skirting: The piling foundation supporting the Washeteria is susceptible to frost jacking if the ground freezes. In October 2007 skirting was installed to insulate and prevent the ground from freezing during the winter. It is important to maintain the insulation and skirting to economically heat the crawlspace. Continuously monitor the interior of the building for cracking or movement.

Four crawl space unit heaters prevent the ground under the Washeteria from freezing. It is necessary to keep the crawl space unit heaters operational throughout the winter. If the ground freezes, frost heaving could disrupt the piling foundation and cause the building to jack.

The unit heaters are controlled by two thermostats in the crawl space. Set the thermostats to 40° F and verify that the isolation valves on the supply and return side of each unit heater are open. Monitor the unit heaters for several minutes. Check that the fans are spinning and that warm air is circulating throughout the entire crawlspace. All four unit heaters must be operational to ensure good air flow. In the spring, Yukon River flooding may require removal of the unit heaters. The heaters have isolation valves and threaded couplings for easy removal. After the seasonal flooding has subsided, the unit heaters must be reinstalled and tested.

The unit heaters are primarily supplied with heating fluid, a 50/50 mix of propylene glycol and water, through the circulation loop from mixing and storage tank GT-1 by pump CP-4A. Pump CP-4B is a back up for CP-4A, but it also is primary for the loop to BB-2 on the north wall of the Washeteria.

****Note that if CP-4A fails, the saunas should *not* be used. When CP-4A is out of service CP-4B has sufficient power remaining to supply only necessary heat to the baseboards inside the Washeteria and the unit heaters. The saunas must remain out of service to conserve power and maintain necessary heat until CP-4A is brought back online.**

Smart Vent™ flood vents were installed per the Emmonak Flood Plain Ordinance. Blocking or removing these flood vents will void Federal Emergency Management Agency (FEMA) relief insurance if the building is damaged by a natural disaster. Do not add additional insulation to improve the R value of the vents.