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POINT HOPE SCHOOL
MECHANICAL AND ELECTRICAL
BUILDING ASSESSMENT AND INVENTORY SURVEY REPORT

August 19, 2024

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SECTION 1. INTRODUCTION

A. OVERVIEW

This report provides an area wide condition survey of the mechanical and electrical systems in of the buildings owned by the North Slope Borough School District in Point Hope. The purpose of the survey was to develop a plan to prioritize and address the issues with the mechanical and electrical systems as money is available. The assessment was performed by a survey team composed of representatives from RSA Engineering and the NSBSD. The survey included a walk-through of each building to evaluate condition of the existing mechanical and electrical systems. The survey was non-destructive, issues noted in this report were visible during the building walk-through or reported by NSBSD staff. During the walk-through the survey team met with NSBSD staff to discuss issues at the buildings and proceeded to assess the project area to develop recommended upgrades for the facility.

Team Member	Title
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B. BUILDING SUMMARY

The below table includes a list of buildings inspected in this survey:

Table 1: Buildings Surveyed

Village	Building Name
Point Hope	Tikigaq School

REFERENCED CODES AND STANDARDS

The buildings were inspected for conformance of the following adopted codes and standards:

International Existing Building Code 2021
International Mechanical Code 2021
International Fire Code 2021
International Fuel Code 2021
Uniform Plumbing Code 2021
National Electrical Code 2020
ASHRAE 62.1-2019 – Ventilation & Acceptable Indoor Air Quality.
National Fire Alarm Code (NFPA 72), 2019
ADA Standards for Accessible Design 2010
ANSI A117.1 2017: Accessible and Usable Buildings and Facilities
Illuminating Engineering Society (IES) Lighting Standards, latest published version

SECTION 2. SURVEY RESULTS

TIKIGAQ SCHOOL

Note that 2017 reports are included in regular text and updates from 2024 site visits are found in bold italic after each section.

Mechanical Systems

Overview

The school was visited on May 8th and 9th, 2024, to update information from the 2017 survey. The entire school was renovated under the Phase IV project and Gymnasium Addition.

Plumbing

Domestic water and sanitary sewer service is provided to the school by the city utility.

The plumbing piping has recently been replaced or is being replaced in the Phase IV renovation project. The only areas where piping is not being replaced is the Administration area, Kitchen, Pool Locker Rooms and Voc-ed wings of the school. The domestic water piping in these areas of the building is in fair condition has approximately 20 years useful life expectancy remaining. The waste piping condition in these areas is unknown. Piping in the kitchen and pool locker rooms is approximately 40 years old. The piping is routed through the floor assembly and then down into the utilidor system under the school. The piping is nearing the end of its useful life expectancy and should be replaced during any renovation of the kitchen or pool locker rooms.

The plumbing fixtures in the building toilet rooms and classrooms are being replaced during the Phase IV project. The fixtures in the pool locker room are not being replaced, the locker room fixtures were installed within the last 2006 and are in fair condition.

Domestic hot water is provided by hot water generators that are in good condition. Two hot water generators are located in the gym addition fan room, they serve the gym addition locker and toilet rooms. Three hot water generators are located in the mechanical room above the pool locker rooms. These hot water generators serve the kitchen, pool locker rooms, administration and high school wing of the school. The hot water generators were installed in 2015 and 2016 during the Phase II renovation/addition project. Two additional hot water generators will be installed during the Phase IV renovation. The hot water generators will be located in the Voc-ed mezzanine and the utility room serving the elementary wing toilet rooms.

The fuel system for the building includes a double wall fuel tank and double wall day tank. Both day tanks are in good condition and were installed in 2015 during the Phase II renovation/addition project.

2024 Update

Onsite maintenance personnel indicated that waste piping has failed in the pool area. Plumbing fixtures in the pool locker room and other fixtures in the area have their water connections turned off to avoid running water in the sewer lines. A sewage odor is prevalent in the pool room, pool mechanical equipment room, old gymnasium, and mech room E-02 above the pool locker rooms.

2024 Update – New Findings

Plumbing fixture wall mounted infrared sensors are poorly mounted and move or fall off of the wall when touched. All of the flush valve sensors have manual override buttons, requiring people to touch them periodically.

Most exposed waste and water piping under handicap accessible (ADA) lavatories are missing code required insulation. This is a life safety deficiency.

Onsite maintenance personnel indicated that waste piping in a below building arctic pipe under Area F (Elementary Classrooms) freezes up and plumbing fixtures are not usable. According to maintenance personnel the electric heat trace installed in the arctic pipe is not connected to power, so does not maintain the waste pipe above freezing. The heat trace was to be installed under Phase 4 work.

Mezzanine E-11, hot water generator HWG-7 temperature controller does not work. Flashing error code 'Er3' and temperature unadjustable at 87 deg. F.

Men's Toilet H-9, ADA insulation missing on left lavatory waste pipe.

Classroom Toilet H-301B, lavatory sink with very low flowrate.

Classroom C-110 (Home Economics) bubbler on sink not working.

Women's Toilet HA-021

- ***Lavatories missing ADA insulation on waste and water piping.***
- ***Middle lavatory is not working.***
- ***Left lavatory is not working.***
- ***Second water closet from lavatories has "out of order" sign on stall door.***

Girl's Lockers HA-017, middle lavatory is not working.

Toilet HA-027, missing ADA insulation on lavatory waste piping.

Reading Room E-217, cold water at sink is not working.

Janitor E-3, cold and hot water at sink is not working.

Kitchen C-10

- ***Waste pipe under 3-bin sink is falling apart and is currently supported from the floor using a bucket.***

- ***Kitchen personnel indicated that the pass-through dishwasher temperature fluctuates, which compromises effective cleaning and sterilization.***
- ***There is a substantial amount of standing water under the prerinse sink, pass through washer, and 3-bin sink. The base of the wall in this area has water damage and mold.***
- ***Hot water at the handwash sink is not working.***
- ***Cold and hot water is not working at the prep sink in the table with the wood counter.***
- ***Cold and hot water lever handle at stainless steel table sink is too loose.***
- ***Cold and hot water is not working at kitchen office lavatory.***

Mechanical Room E-02, hot water generators

- ***HWG-1 balance valve is corroded and leaking.***
- ***HWG-1&2 are missing equipment labels.***

Janitor C-14, cold water at the sink is not working.

Boys Toilet C-23

- ***Water turned off to area due to leaking waste pipes.***
- ***Missing ADA insulation on lavatory water and waste piping.***
- ***Vent branch pipe in plumbing chase is not connected to the waste and vent piping system and is open to the plumbing chase.***

Girls Toilet C-22

- ***Right lavatory faucet is missing.***
- ***Missing ADA insulation on lavatory water and waste piping.***

Mechanical Building M-100, fuel supply pump 2 trips the circuit breaker when operating.

Photo M1 – Gym Addition Hot Water Generators

Photo M2 – School Fuel Tank

Heating

The heating system consists of three fuel oil three pass cast iron sectional boilers. The boilers are Burnham MPC-13 boilers rated at 2,137,000 BTU/hr gross output each. The boilers are in good condition, the boilers were installed in 2015 during the Phase II renovation/addition project. The boilers are piped primary/secondary with one boiler circulation pump per boiler and two variable speed circulation pumps serving the building. The building circulation pumps operate in lead/lag configuration alternating to equalize run time. The piping in the building room consists of steel and copper piping.

Terminal heating equipment in the building includes finned tube in the classrooms and offices, unit heaters in the storage and mechanical rooms and cabinet unit heaters in the entry areas. The heating equipment is being upgraded throughout the building during the Phase IV renovation project.

The boiler system is supplemented by a waste heat recovery heat exchanger located in the mechanical building. The waste heat system includes a circulation pump that injects heat into the main heating return piping upstream of the boilers. The waste heat recovery system was carrying the building load while we were on-site, the boilers did not need to operate.

2024 Update

None.

2024 Update – New Findings

Mechanical Building – M100, pump CP-2 disconnect HOA switch has broken off.

Elementary School Attic, some unit heaters have failed, resulting in frozen sprinkler pipes.

Vestibule H-3, cabinet unit heater is running continuously, and space is very hot.

Storage C-41, space is colder than thermostat setpoint. Unit heater fan is running but control valve is not operating. Space has wet fire sprinkler piping and requires heat.

Mechanical Room A-200

- ***Hot water generator HWG-1 heating glycol return pipe is leaking glycol.***
- ***Heating glycol return air vents are leaking.***

Kitchen C-10, cooking equipment is propane but piping behind grille leaks propane, so propane system is not in use. Kitchen personnel indicated that electric power and cooking equipment will be installed soon.

Photo M3 – Boiler System

Photo M4 - Building Circulation Pumps

Ventilation

Ventilation for the school is provided by thirteen air handlers distributed throughout the building. The air handlers are in good condition. The air handlers were either new or refurbished during the Phase II and Phase III renovation projects.

Two heat recovery ventilators are installed at the school to provide ventilation for areas not attached to the air handling unit ventilations system. One HRV is located in the maintenance office and one in the computer room of the elementary wing. The HRVs are in fair condition but are nearing the end of their useful life expectancy. The HRVs do not have heating coils limiting their use in the winter.

Exhaust fans are installed for the pool locker rooms, pool equipment room, restrooms, voc-ed and kitchen. The exhaust fans are in fair to good condition. The wood shop has duct collector that filters and recirculates air into the room. The dust collector does not have listing and safety devices required by current codes to allow for recirculation within the space.

The school has a commercial grade kitchen with Type 1 exhaust hood and fire suppression. The exhaust fan serving the kitchen hood does not comply with current codes requirements for UL762 listed exhaust fan.

The combustion air system for the boiler is an engineered combustion air system with vent fan and combustion air/relief damper. The vent fan is in good condition.

The generator ventilation system was installed in the Phase II renovation project and is in good condition.

The pool dehumidifier is being replaced during the Phase IV renovation project.

2024 Update

AHU-4 was turned off at the disconnect because supply air was described as "too cool" for the space.

AHU-6 turned off at VFD because pool is not in use.

AHU-9 was turned off at the disconnect because the fan wheel bearings were failing and making considerable noise.

2024 Update – New Findings

Science Classroom H-318, laboratory vent hood with numerous ventilation and plumbing (gas) deficiencies. Not usable.

Mechanical A-116, space exhaust fan is not operating. Since room is above a lift station, fan is to operate continuously.

Kitchen C-10

- ***Pass through dishwasher hood fan not operating.***
- ***Kitchen make-up air unit not working (could be control programming issue).***

Gymnasium A-123, two supply diffusers missing outlet cones.

Mechanical Room A-200, AHU-1 fan 1 VFD in alarm indicating to replace fan.

Photo M5 – Gym Addition Air Handler

Photo M6 – Phase III New Air Handler

HVAC Controls System

The control system utilized throughout the building is a Johnson Control Metasys system. The entire system is being upgraded during the Phase IV renovation.

2024 Update

None.

2024 Update – New Findings

On site maintenance personnel do not know how to log into the DDC system front end on site.

According to building occupants, thermostats throughout the building do not work well and spaces are generally too warm.

When the building is operating on back up (generator) power, some of the terminal heating unit control valves are not on backup power and fail open, making the building too warm.

Mechanical Building M-100

- ***Outside air damper and return damper serving generator ventilation modulate to maintain space temperature when generator is off, resulting in the outside air damper being continually open. Programming for Phase 2 required the O/A damper and R/A damper to be open when the generator is off.***
- ***DDC system does not automatically adjust speed of main heating pumps, nor rotate lead-lag status. Pump speeds and lead-lag alternation are done manually. DDC programming should perform these functions per the Phase 2 sequence of operations.***
- ***Boiler control panel was displaying an outside air temperature of 172 deg. F.***

Area B Fan Room, AHU-2 heating control valve motor is not attached.

Men's Toilet A-122, thermostat is missing from the wall.

Fire Protection

The fire protection system is a wet sprinkler system and is supplied from the city water utility. The system is in fair condition.

2024 Update

None.

2024 Update – New Findings

Office C-102B, sprinkler escutcheon missing.

Pool

The pool is being renovated as part of the Phase IV renovation project. The pool systems will all be updated at the completion of Phase IV.

2024 Update

None.

2024 Update – New Findings

Natatorium C-32, pool has been drained of water due to pool liner leaking, according to principal.

Electrical Systems

Overview

The school was visited on May 8th and 9th 2024 to review the current conditions of the building with the conditions of the building identified in the report from 2017. The current fire alarm system has been updated to a new addressable system with the ability to upgrade to a voice evacuation system in the future. Other systems have had minor wear and tear with use over the past few years which are addressed in detail below. The entire school was renovated under the Phase IV project and Gymnasium Addition.

Power

The school electrical power service is supplied by an 800A, 277/480V, 3-Phase underground feeder direct from the Point Hope Power Plant to a Current Transformer (CT) enclosure on the exterior of the southwest side of the new Mechanical Building. The service conductors route from the CT enclosure into the Mechanical Building to an 800A, 480V, 3-Phase, Service Entrance rated Automatic Transfer Switch (ATS) (*Photo E1*) which contains a shunt trip breaker connected to an exterior disconnected means that serves as the building service disconnect. The ATS load side feeder then routes to an adjacent 800A, 277/480V, 3-Phase, 4-Wire Main Distribution Panel 'SMDP' (*Photo E1*) which feeds Panel 'MH' (Mechanical Building), Panel 'MDP' (2nd Floor Voc-Ed Area) and Panel 'SH' (2nd Floor Mechanical Room A-200 within the new Gymnasium addition). The new Mechanical Building and Gymnasium Addition contain 480V mechanical equipment, 277V lighting, and 120/208V equipment and devices. The remaining portion of the school utilizes 120/208V only. The service conversion to 480V, 3-Phase was completed sometime in the late 1990s, at which time Panel 'MDP' was added within the 2nd Floor of the Voc-Ed area and step-down transformers were placed on all feeders out to the existing 120/208V, 3-Phase distribution panels throughout the school.

The emergency side of the ATS connects to a 250kW, 480V, 3-Phase standby diesel generator (*Photo* E2) which provides backup power to the entire school. This generator is a Caterpillar Model #C9 ATAAC, diesel-fired engine generator set located in the new Mechanical Building. The generator was relocated from the old Itinerant Housing building in 2015 and is in good condition. There is an automatic load shedding panel located in the same room as the generator that is programmed to drop the main

contactors upstream of Voc-Ed Panels 'WS' and 'ES' as well as Kitchen Panels 'K1' and 'K2' to prevent overloading of the generator (*Photo E3*).

The older portion of the school is distributed power via Panel 'MDP' (*Photo E4*) which is located on the 2nd Floor of the Voc-Ed area. This 'MDP' then feeds Panels 'ES', 'WS', 'VE', 'RE', 'NG', 'T', 'T1', and Sub-Distribution Panel 'SDP' (*Photo E5*). 'SDP' is located in the 2nd Floor Fan Room above the old Gymnasium and feeds Panels 'NF1', 'FS', 'NM', 'NC', 'NC2', 'K1', 'K2', 'GS1', 'GS2', 'G', 'F', 'H', 'NA1' and 'NA2'. All panels were in fair to good condition and replacement breakers are readily available.

2024 Update

Panel 'H' is in need of repair, see photo E5a.

2024 Update – New Findings

Ladder Room H-304, lift station control panels set to 'hand' and shown as 'on'. Per maintenance personnel the lift station was removed, and the panels are not in service. Panels should not have power and should be removed.

Area C Fan Room, HOA switch on panel LC-E has broken off.

Photo E1– ATS (right) and 'SMDP'

Photo E2– Generator

Photo E3 – Load Shed Control Panel'

Photo E4 – Panel 'MDP'

Photo E5 – Panel 'SDP'

Photo E5a – Panel 'H'

Wiring and Cabling Systems

The typical branch wiring system in the facility consists of ½" electrical metallic conduit with copper building wire and a separate insulated green equipment grounding conductor. Surface routed conduit and surface raceway were used in many locations throughout the facility (*Photo E6*) due to inaccessible ceilings within the classrooms and other areas within the building. MC cable was used in a few locations with accessible ceilings above, which is suitable for the purpose. It is assumed that some of the older circuits utilized the conduit for a ground and did not contain a separate equipment grounding conductor, however, the panels were not opened during the site visit so this information could not be verified.

The wiring devices in the facility consist of NEMA 5-20R receptacles and 20A, 120V light switches (toggles in rooms and keyed-type in the corridors of the older portion of the building). Faceplates were primarily

stainless steel and ivory in the older portion of the school. The new Gymnasium addition utilized entirely stainless steel faceplates (*Photo E7*).

Photo E6 – Surface Raceway in Classroom

Photo E7 – Devices in new Gymnasium Addition

Fractional horsepower motor starters and combination motor starters for mechanical equipment within the new Gymnasium Addition and the recent Phase III upgrades were all new and in excellent condition. The remaining starters were all in need of replacement, which is presently being performed under the Phase IV portion of the School upgrades. The larger fan and circulation pump motors had new Variable Frequency Drives (VFDs) installed for optimal energy efficiency and control.

The building contains various heat trace cabling for the arctic piping and roof vents throughout the school. The heat trace for the arctic piping and vents installed within the new Gymnasium project is all fed via a heat trace controller located in the new Mechanical Building which is connected to the DDC system for automatic temperature control. The older portion of the school contains manual pilot-lit toggle switches for heat trace control. This heat trace cabling is being replaced in the Phase IV project and will be connected to a new heat trace controller similar to that which is installed in the new Mechanical Building.

2024 Update

New Gym curtain divide, and backboard motors are currently not working. Need troubleshooting and be repaired or replaced.

Surge Protective Device (SPD) protecting panel 'SH' needs to be replaced or repaired as the device has experienced surges beyond its capacity.

Lighting

The new Gymnasium Addition and all exterior lighting is comprised of energy efficient Light Emitting Diode (LED) type lighting. The interior fixtures in the new Gym were high bay type LED fixtures (*Photo E8*). The remaining interior portions contain a mixture of LED pendants, LED recessed troffers, LED recessed can lights and general-purpose LED strip lights in mechanical and storage spaces (*Photo E9*). The exterior lights consist of LED wall packs around the building and LED recessed can lights at the entry canopies (*Photo E10*). Emergency egress lighting is provided by integral battery ballasts within the interior LED fixtures

and emergency inverters for exterior LED fixtures near the building exits. Exit lighting is entirely hardwired LED type fixtures within the new addition.

The older portion of the school is illuminated primarily with T8 fluorescent fixtures, either surface, recessed or pendant mounted. Recessed can lights with compact fluorescent lamps were located in the corridors outside of classrooms and within the entry vestibules. The older Gym and Multipurpose Room is illuminated with high bay type 400W Metal Halide (MH) fixtures (*Photo E11*). The lighting within the older classrooms and office spaces were primarily pendant mounted 3-lamp T8 fixtures or recessed 3-lamp T8 2'x4' troffers (*Photo E12*). The lighting within the corridors is a mixture of surface and recessed mounted 3-lamp T8 2'x4' troffers and corner (cove) mounted 2-lamp T8 fixtures (*Photo E13*). The interior fixtures within the older portion of the school are in varying degrees of condition. The classroom fixtures were generally in good condition with a few ballasts and lamps needing replacement. The commons area fixtures were all showing signs of their age and are all being replaced within the Phase IV project. The old Gym, Multipurpose Room and Natatorium are also being replaced within the Phase IV project. The emergency egress fixtures consist of mainly bugeye type fixtures, many of which did not work when tested. The majority of the exit signs are hardwired type. All egress fixtures and exit signs are being replaced within the Phase IV upgrades.

Lighting Controls

The new Gymnasium addition has a networked lighting control system installed for the commons areas which incorporates occupancy sensors and a time schedule for optimal energy efficiency. The Gymnasium and other stand-alone rooms all consist of occupancy sensor control and wall mounted low-voltage switching. The Gymnasium and Office switches have dimming capabilities. Exterior lighting is controlled via photocell and a time schedule.

The interior common area lighting of the older portion of the school is controlled via keyed switches. All common area lighting controls, including the old Gym, Multipurpose Room and Natatorium, are being upgraded to match that of the Gymnasium Addition within the Phase IV project. Classroom lighting is typically controlled at the room entrance with two or four switches for varying levels of lighting control. There are a few motion sensors in storage rooms and other small areas. Classrooms and all small rooms within the older portion of the school being equipped with occupancy sensor control within the Phase IV project.

2024 Update

Found hand full of damaged exit signs and emergency lighting batteries needing replacement.
In-floor lighting at the entrance to the new gym is not working. We suspect they need re-lamping but troubleshoot and repair.

Exterior building-mounted lights are in poor condition and need to be replaced.

Area B Fan Room, lights in space do not work.

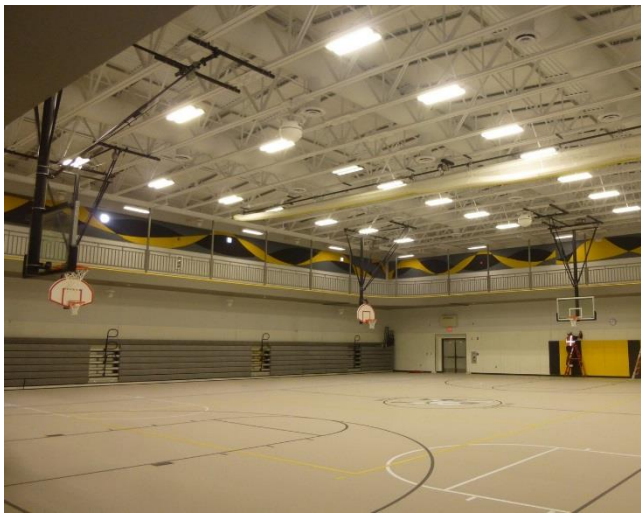

Photo E8 – New Gymnasium Lights

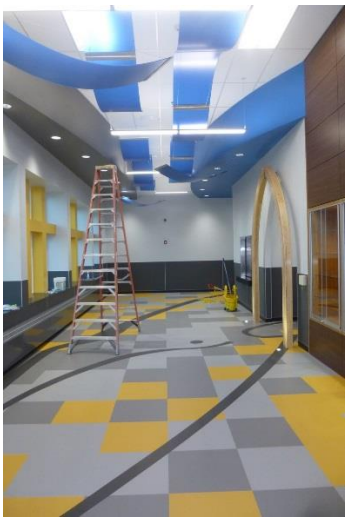

Photo E9 – New Addition Common Area Lights

Photo E10 – Exterior Lighting

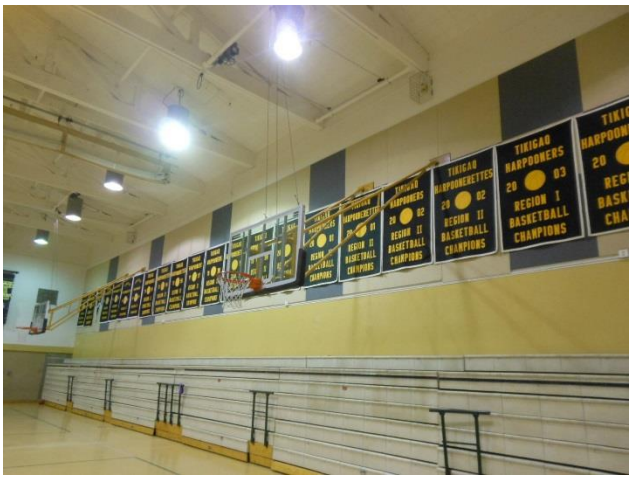

Photo E11 – Older Gym Lighting

Photo E12 – Typical Classrom Lighting

Photo E13 – Typical Older Corridor Lighting

Telecommunication Systems

The main telephone/data service runs underneath the building to a Telephone Terminal Board located on the second floor Data Room M-114A (*Photo E14*). Data Room M-114A houses the main telephone and data headend equipment, servers, patch panels, etc. for the entire school within 7ft tall, four post racks 'TR1A', 'TR1B', and 'TR1C' which were installed in 2016. Fiber optic cable distributes from this location to a new wall mounted rack 'TR2' within Mechanical Room A-200 within the new Gym addition, an older 2-post rack 'TR-3' in the 2nd Floor Voc-Ed area, and an older 2-post rack 'TR-4' within the 2nd Floor Mechanical Room C-105 on the north end of the building. 'TR-3' and 'TR-4' are being replaced in the Phase IV project.

The new telecommunications system cabling consists of Category 6 wiring. All of the older portion of the school is routed in Category 5 and 5e wiring, however, that is all being replaced in the Phase IV project with new Cat 6. The wiring is routed above the accessible ceiling in J-Hooks and/or cable tray, and conduit drops from these locations to the jacks. The new Gym addition wiring is all concealed with flush mounted jacks and stainless steel faceplates. Numerous wireless access points are located throughout the addition for full wireless coverage. The wiring within the older portion of the school is generally surface mounted from the ceiling to 4-port jacks within surface raceway and/or conduit (*Photo E15*). The majority of the surface mounted installations are being replaced with recessed mounted in the Phase IV project.

2024 Update

None.

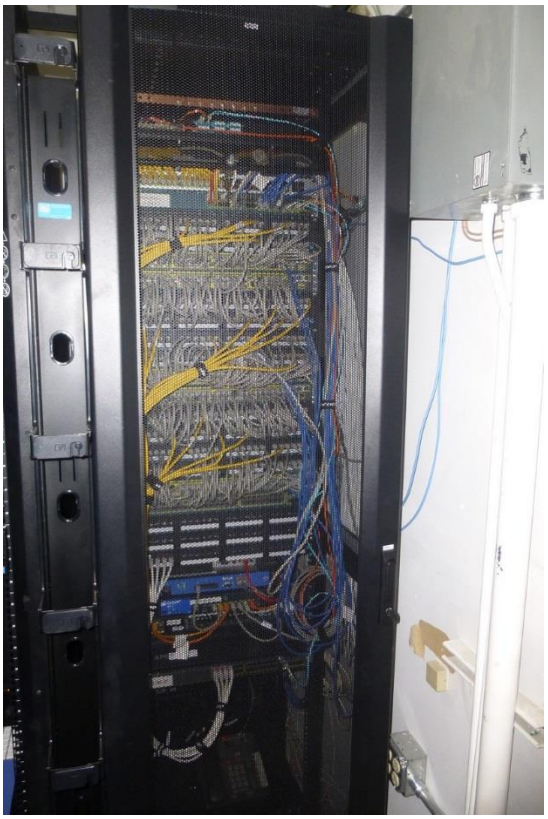

Photo E14 – Telecom Rack 'TR1A'

Photo E15 – Typical Older School Data Installation

Fire Alarm System

The fire alarm system consists of an addressable Class 'B' fire alarm System. The Fire Alarm Control Panel 'FACP' is located in Admin Room C-102F and is a Notifier #NFS2-3030 control panel which was installed in 2016. There is a remote annunciator in the Maintenance Office. The fire alarm initiating devices include pull stations at the exits, smoke detectors throughout the building, beam smoke detectors/receivers within the gymnasiums, heat detectors in the mechanical and kitchen areas, duct smoke detectors on the air handlers, kitchen hood suppression system, and sprinkler flow/tamper switches. The signaling devices consist of fire alarm horn/strobes in the corridors, classrooms, and public spaces as well as an alarm dialer. The system was recently upgraded by the NSB during the Gymnasium Addition project and all existing devices within the older portion of the school are being replaced within the Phase IV project.

The new Mechanical Building is protected via an Aerosol Extinguishing system manufactured by Hochiki (*Photo E16*), with similar detection and notification devices as the rest of the school.

The old Itinerant Housing building is also connected to the school fire alarm system because, prior to 2015, the school was connected to this building via a semi-underground utilidor that had full a full fire alarm system. Since the demolition of the utilidor, the fire alarm system within the Itinerant Housing building has been reconnected to the new panel and continues to operate. This building does not technically require a full fire alarm system and should be disconnected from the school and provided with the

minimum stand-alone coverage for a sprinkled housing building. This will prevent alarm system from going off in the Itinerant Housing during School related events.

2024 Update

FACP was inspected by AFS in February with no issues, but the panel is now in trouble, and it was reported that the annunciation devices are not audible in the new gym.

Magnetic door holds are not functioning in all classrooms. Suspect a voltage drop issue. System needs troubleshooting and repair.

Photo E16 – Hochiki Aerosol System

Intercom, Master Clock and Bell System

A new Atlas Sound rack-mounted intercom/bell and clock system was added in the Gymnasium addition project. The headend equipment for this system is located in Data Room M-114A. This system is presently connected to the new Internet Protocol (IP) speakers/call switches and clocks within the new Gymnasium Addition only (*Photo E17*). The Phase IV project will extend the system to the entire school for full functionality. The system utilizes Category 6 wiring and Power over Ethernet (PoE) switches to control the speakers and clocks throughout. The system software runs on a Dell R210 II Server and is accessed via a Client Workstation at the Reception and/or Principal's desk. There is a CD player, AM/FM tuner and monitor panel associated with the system that allows the capability of playing music over the speakers. The system monitors the fire alarm system and will mute in the event of a fire alarm.

The older intercom/bell system within the remaining portion of the school is no longer in use and will be replaced, as previously mentioned. The existing Primex Wireless clock system will also be replaced with the new Atlas IP clock system (*Photo E18*).

2024 Update

Reported that the PA system is not loud enough in the new gym and 2nd Grade classroom.
The clock system is working except for a clock in the library and a couple of classrooms.

Photo E17 – New IP Speakers/Clocks & Call-Ins

Photo E18 – Old Speakers/Clocks

Gymnasium Sound System

A new Gym sound system was installed within the addition project in 2016 and is in excellent condition. This system includes a Creston Control Processor, Extron Audio/Video Switcher, Denon CD/DVD/MP3 Player, Biamp Signal Processor, Network Switch and UPS all within a wall-mounted rack in the Gym Office A-109. There is a mobile cart with wireless mic receivers, transmitters, feedback processor, audio mixer and CD player. The system connects to various audio, video and microphone jacks located within the new Gym (*Photo E19*). There are two large Soundsphere speakers within the center of the Gym and 8 smaller Soundsphere speakers installed above and below the running track (*Photo E20*).

Little information is known on the older gymnasium and multipurpose sound systems; however, they are assumed to have been installed in the late 1980s to early 1990s and most likely outdated. Record drawings from the facility indicate the systems contain Audio Mixers, CD Players, AM/FM Tuners, Gain Managers, and Amplifiers all manufactured by Rauland. There are microphone jacks and Rauland speakers within each space. Due to project funding restrictions, the old gym and multipurpose sound systems are not being upgraded within the Phase IV project. These systems should be evaluated and replaced by the NSBSD as required.

2024 Update

None.

Photo E19– New Gym SS Audio/Video Jacks

Photo E20– New Gym SS Speakers

Security Systems

A new IP security camera system was installed within the new Gymnasium project and the Phase III project which utilizes Axis PoE 1 Megapixel cameras with infrared capabilities. The headend equipment is located in a new enclosed rack within Data Room M-114A (*Photo E21*) which contains the NSBSD standard Genetec Video Management within a Dell PowerEdge R520 server. The Client Workstation computer is location in the new Principal's Office A-107. Camera coverage is mainly at all entrances to the facility and within the common spaces (corridors, gym). The system utilizes Category 6 cabling to all cameras within the facility. There are presently 17 cameras installed throughout the school and an additional 30 cameras are being added in the Phase IV project.

The older portion of the school had older cameras that were not functional at the time of the site visit. All of these older cameras and headend equipment are being demolished and replaced under the Phase IV project.

A new Johnson Controls access control system was also installed within the new Gymnasium addition and Phase III projects. The system consists primarily of proximity card readers at exterior doors and keypads/prox card readers on select interior doors. The Phase IV project will extend the system to the remaining interior corridor and common space doors throughout the facility. There are numerous access control panels located throughout the facility that provide the power and controls necessary for the doors (*Photo E21*).

The older portion of the school did not have an existing access control system, other than what is being installed under the recent renovation projects.

2024 Update

None.

Photo E19 – IP Camera Headend

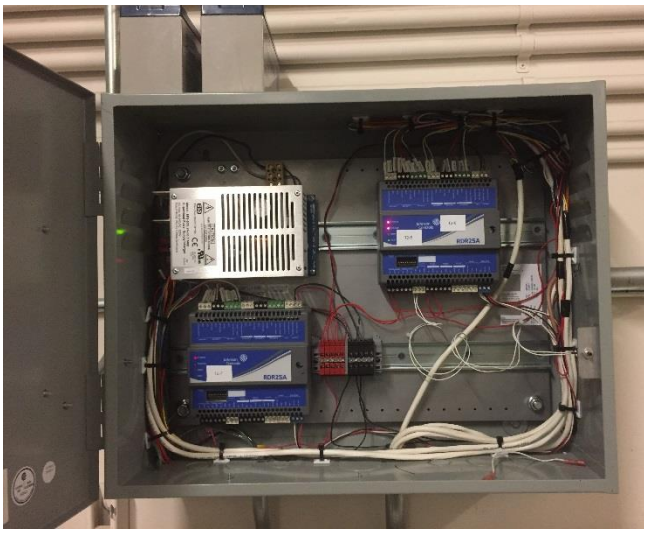

Photo E20 – Typical Access Control System Panel

Classroom Multimedia Systems

The classroom multimedia systems typically only consist of a Smartboard. There are no teacher voice amplification systems in any of the classrooms.

2024 Update

None.

SECTION 3. DEFICIENCY CODES & FINDINGS

This section explains the codification system for categorizing facility deficiencies based upon field survey findings.

A. DEFICIENCY CODES

1 – Health/Life Safety: These deficiencies identify areas where the facility is not constructed or maintained in compliance with provisions of the state mandated life safety aspects of building codes including the codes adopted from the International Code Council (such as the International Building Code) or other standards organizations (such as the National Fire Prevention Association). Deficiencies could include inadequacies in fire barriers, smoke barriers, capacity and means of egress, door ratings, and fire protection equipment not covered in other deficiency codes.

2 – Operating Cost: These deficiencies address the efficiency of lighting, heating systems/fuel types and the thermal enclosures of buildings, processes, and are required for energy conservation and good energy management.

3 – Technical Upgrade: These are items that would upgrade obsolete equipment or systems to the current technology.

4 – Code Upgrade: These are deficiencies related to building code violations where there is no imminent threat to life safety.

5 – Protection of Structure: These are deficiencies that endanger the physical structure of the facility.

6 – Functional Upgrade: These are deficiencies in the plumbing, heating, ventilating, air conditioning, power, lighting, special systems, etc. requiring maintenance due to normal wear and tear that would result in system failure.

7 – Education Program Upgrade: These are items that would improve the ability of the educators to instruct the students.

The deficiencies are further categorized by design disciplines and priority as follows:

Code	Discipline
M	Mechanical
E	Electrical

Priority	Description
1	Highest priority – Life safety or imminent danger
2	Repair/remodel within 3 years
3	Repair/remodel within 3-10 years

See attached Deficiency Matrix for detailed information.

B. MASTER DEFICIENCY INDEX

Discipline/ Record #	Deficiency Code	Priority	Building	Deficiency Title	*2024 Update*
M1	4	2	Tikigaq School	Dust Collector does not meet current code	***No Change Noted***
M2	6	2	Tikigaq School	Waste piping nearing end of useful life expectancy.	***Pipe is failing. See comments M4, M16, M26.***
M3	6	2	Tikigaq School	Upgrade Ventilation	***Ventilation upgraded in 2016.***
M4	***4***	***2***	***Tikigaq School***	***Waste piping in pool area has failed.***	***New Item***
M5	***4***	***2***	***Tikigaq School***	***Arctic pipe waste piping without heat trace and freezing under elementary classrooms.***	***New Item***
M6	***1***	***1***	***Tikigaq School***	***Most restroom lavatories missing ADA insulation.***	***New Item***
M7	***6***	***2***	***Tikigaq School***	***Wall-mounted infrared sensors serving plumbing fixtures loosely mounted and moving/falling off.***	***New Item***
M8	***4***	***1***	***Tikigaq School***	***Mezzanine E-11, HWG-7 temperature controller failed.***	***New Item***
M9	***6***	***2***	***Tikigaq School***	***Classroom Toilet H-301B, lavatory with very low flow.***	***New Item***
M10	***6***	***3***	***Tikigaq School***	***Classroom C-110, sink bubbler not working.***	***New Item***
M11	***6***	***2***	***Tikigaq School***	***Women's Toilet HA-021, left and middle lavatories not working.***	***New Item***
M12	***6***	***2***	***Tikigaq School***	***Women's Toilet HA-021, second water closet from lavatories "out of order".***	***New Item***
M13	***6***	***2***	***Tikigaq School***	***Girl's Locker HA-017, middle lavatory not working.***	***New Item***
M14	***6***	***2***	***Tikigaq School***	***Reading Room E-217, cold water at sink is not working.***	***New Item***
M15	***6***	***2***	***Tikigaq School***	***Janitor E-3, cold and hot water at sink is not working.***	***New Item***
M16	***4***	***2***	***Tikigaq School***	***Kitchen C-10, waste pipe under 3-bin sink is failing.***	***New Item***

M17	*1*	*1*	*Tikigaq School*	*Kitchen C-10, pass through dishwasher temperature fluctuates*	*New Item*
M18	*5*	*2*	*Tikigaq School*	*Kitchen C-10, standing water under dishwash equip.*	*New Item*
M19	*1*	*1*	*Tikigaq School*	*Kitchen C-10, hand wash sink hot water is not working.*	*New Item*
M20	*4*	*2*	*Tikigaq School*	*Kitchen C-10, wood counter prep sink cold and hot water not working.*	*New Item*
M21	*6*	*2*	*Tikigaq School*	*Kitchen C-10, metal counter prep sink cold and hot water lever handle very loose.*	*New Item*
M22	*6*	*2*	*Tikigaq School*	*Kitchen C-10, office hand wash sink cold and hot water is not working.*	*New Item*
M23	*5*	*2*	*Tikigaq School*	*Mechanical Room E-02, HWG-1 balance valve is corroded and leaking.*	*New Item*
M24	*6*	*3*	*Tikigaq School*	*Mechanical Room E-02, HWG-1&2 missing equipment labels.*	*New Item*
M25	*6*	*2*	*Tikigaq School*	*Janitor C-14, sink cold water is not working.*	*New Item*
M26	*4*	*2*	*Tikigaq School*	*Boys Toilet C-23, water turned off to restroom due to leaking waste pipes.*	*New Item*
M27	*4*	*2*	*Tikigaq School*	*Boys Toilet C-23, vent pipe in plumbing chase is disconnected and open to chase.*	*New Item*
M28	*6*	*2*	*Tikigaq School*	*Girls Toilet C-22, right lavatory faucet is missing.*	*New Item*
M29	*6*	*2*	*Tikigaq School*	*Mechanical Building M-100, fuel supply pump 2 trips circuit breaker.*	*New Item*
M30	*6*	*2*	*Tikigaq School*	*Mechanical Building M-100, pump CP-2 disconnect HOA switch has broken off.*	*New Item*
M31	*5*	*1*	*Tikigaq School*	*Elementary School Attic, some failed unit heaters.*	*New Item*
M32	*2*	*2*	*Tikigaq School*	*Vestibule H-3, cabinet unit heater running when vestibule is hot.*	*New Item*

M33	*5*	*1*	*Tikigaq School*	*Storage C-41, unit heater control valve motor has failed, and space is too cold for sprinkler piping.*	*New Item*
M34	*5*	*2*	*Tikigaq School*	*Mechanical Room 200, HWG-1 heating return pipe is leaking.*	*New Item*
M35	*5*	*2*	*Tikigaq School*	*Mechanical Room 200, heating return pipes are leaking.*	*New Item*
M36	*1*	*1*	*Tikigaq School*	*Kitchen C-10, propane pipe serving cooking equipment leaks. To be replaced with electric.*	*New Item*
M37	*4*	*2*	*Tikigaq School*	*AHU-4, turned off because supply air "too cold".*	*New Item*
M38	*6*	*2*	*Tikigaq School*	*AHU-6, turned off because pool is not in use.*	*New Item*
M39	*4*	*2*	*Tikigaq School*	*AHU-9, turned off due to fan wheel noise.*	*New Item*
M40	*6*	*2*	*Tikigaq School*	*Science Classroom H-318, laboratory ventilation hood not working. Multiple deficiencies.*	*New Item*
M41	*4*	*2*	*Tikigaq School*	*Mechanical A-116, fan not working. Should run continuously.*	*New Item*
M42	*4*	*2*	*Tikigaq School*	*Kitchen C-10, pass through dishwasher exhaust hood fan not working.*	*New Item*
M43	*4*	*2*	*Tikigaq School*	*Kitchen C-10, kitchen makeup air unit not working.*	*New Item*
M44	*6*	*3*	*Tikigaq School*	*Gymnasium A-123, two supply diffusers missing outlet cones.*	*New Item*
M45	*6*	*2*	*Tikigaq School*	*Mechanical Room A-200, AHU-1 fan 1 VFD in alarm indicating to replace fan.*	*New Item*
M46	*6*	*2*	*Tikigaq School*	*Maintenance personnel cannot log into HVAC control system front end.*	*New Item*
M47	*2*	*2*	*Tikigaq School*	*Thermostats throughout building do not work well. Building too warm.*	*New Item*

M48	***2***	***2***	***Tikigaq School***	***Some terminal heating unit control valves do not operate when backup generator is running. Makes building too warm.***	***New Item***
M49	***2***	***2***	***Tikigaq School***	***Mechanical Building M-100, generator O/A and R/A dampers not programmed properly.***	***New Item***
M50	***2***	***2***	***Tikigaq School***	***Mechanical Building M-100, DDC system not controlling main heating pump speed and alternation.***	***New Item***
M51	***6***	***2***	***Tikigaq School***	***Mechanical Building M-100, boiler control panel displaying incorrect outside air temperature.***	***New Item***
M52	***2***	***2***	***Tikigaq School***	***Area B Fan Room, AHU-2 heating control valve motor is not attached.***	***New Item***
M53	***6***	***2***	***Tikigaq School***	***Men's Toilet A-122, thermostat is missing from wall.***	***New Item***
M54	***6***	***3***	***Tikigaq School***	***Office C-102B, sprinkler escutcheon missing.***	***New Item***
M55	***6***	***3***	***Tikigaq School***	***Natatorium C-32, pool drained due to leaking liner.***	***New Item***
E1	***6***	***3***	***Tikigaq School***	***Office C-102B, sprinkler escutcheon missing.***	***New Item***
E2	***6***	***3***	***Tikigaq School***	***Natatorium C-32, pool drained due to leaking liner.***	***New Item***
E3	3	1	Tikigaq School	It was reported that the kitchen panel was reading 191V where it should have been 208V.	***No Change Noted***
E4	***6***	***3***	***Tikigaq School***	***Panel 'H' deadfront is not covering exposed electrical components.***	***New Item***
E5	***7***	***3***	***Tikigaq School***	***The curtain and backboards are not working.***	***New Item***
E6	***6***	***3***	***Tikigaq School***	***SPD has reached maximum number of strikes.***	***New Item***
E7	***1***	***4***	***Tikigaq School***	***Some exit signs and emergency battery units are damaged or not operating.***	***New Item***

E8	*6*	*3*	*Tikigaq School*	*Lights no longer operating.*	*New Item*
E9	*6*	*3*	*Tikigaq School*	*Lights are corroded and failing*	*New Item*
E10	*1*	*1*	*Tikigaq School*	*Panel was in trouble during site visit, and it was reported that annunciation devices are not operating in new gym.*	*New Item*
E11	*6*	*3*	*Tikigaq School*	*Various units are not holding doors open properly. Suspect a voltage drop issue.*	*New Item*
	7	*3*	*Tikigaq School*	*Reported that PA system not reaching gym and at least one classroom.*	*New Item*
	7	*3*	*Tikigaq School*	*Clock in 2nd grade classroom and library not working.*	*New Item*