FACILITY ASSESSMENT REPORT
MAPLE VALLEY SCHOOL DISTRICT
ORISKA SCHOOL

APRIL 2016

ICON ARCHITECTURAL GROUP

KFI Karges-Faulconbridge, Inc. Engineers

FACILITY SUMMARY

The school for the Maple Valley School District located in Oriska , ND is currently occupied by grades 4 through 6. The original 7,800 sf building including an additional 3,600 sf on second floor was built in 1924. A 8,184 sf addition for the gymnasium, locker rooms, and restrooms was built in 1968. The school consists of eight classrooms, library, cafeteria, kitchen, gymnasium with stage, locker rooms, two set of restrooms, and office space.

The Tower City School is located on a 4.1 acre lot with 33rd St SE to the south, agriculture land to the north and west, and Zion Lutheran Church to the east. The parking lot is gravel with concrete sidewalks surrounding a majority of the building.

The original building is concrete masonry walls with a steel floor and roof structure. The gymnasium is concrete masonry exterior walls, three-point hinged laminated arches and wood ceiling. There no insulation in almost all of the building, making it inefficient and difficult to climate control. All windows would be required to be replaced, exterior walls would be required to be furred out to add insulation, and insulation would be added to all roofs.

The building is heated with steam generated by two steam boilers, one Kewanee natural gas boiler and one Coates Cam Industries electric boiler. Kewanee boiler is original to building was recently repaired in 2013. Kewanee went out of business in 2001. The gas boiler is beyond its useful life. The electric boiler was installed in 1980 and is approaching the end of its useful life. The condensate boiler feed system appears to be in good condition. Boiler room does not have emergency shutdowns properly located to meet current codes. Combustion air ventilation is under sized. Boiler piping and venting contains asbestos throughout facility and needs to be abated. Steam is distributed throughout the building for heating applications via tunnels. The existing steam traps are original to the building and need to be replaced. Given the age of the overall system, replacing the system would be recommended, including piping, valves, controls, and accessories.

There is no ventilation into the building, with the exception of the gymnasium/stage and the kitchen. However, the kitchen ventilation appears to be non-operational and the gymnasium/stage units are beyond their useful life. New ventilation systems would be required throughout to meet current ventilation and energy codes.

There is no air conditioning in the building, with the exception of some office through-the-wall AC units.

Existing bathrooms and janitor's closet ventilation does not meet current codes. New exhaust fans and transfer grilles would need to be installed. Currently, transfer air is brought from the corridor through openings in the bathroom doors. Doors would need to be changed out, if fire rating corridor is required.

Existing kitchen ventilation system does not meet current codes and would need to be replaced. Makeup air unit would need to be replaced. Dishwasher would require a new hood and makeup air system.

Data room / computer classroom is not properly temperature controlled. Auxiliary cooling unit would need to be added.

The building control system is an old pneumatic system that needs to be replaced with new DDC building automated control system.

The existing water service is a 2-inch service. Existing building is not protected with a fire suppression system. A new fire suppression system would need to be installed. The existing 2-inch water service would need to be increased to add a fire sprinkler system to the building, or a new 6-inch water service would need to be brought to the building.

There are both and electric water heater and a gas water heater. Both water heaters are approaching the end of their useful life. The electric water heater is the newer of the two and was installed in 2001.

Existing bathrooms do not meet ADA requirements. Converting bathrooms to ADA fixtures would be required, including replacement of existing water closets, urinals, and lavatories.

Drinking fountains do not meet ADA requirements and would need to be replaced.

Art room sink would require a new plaster or sediment trap.

Sanitary system appears to be original cast iron piping and is beyond its useful life. All sanitary piping should be replaced throughout.

Given the age of the building, the domestic water piping should be replaced throughout.

Along with an upgraded fire suppression system, the fire alarm system would require upgrading and replacement with a modern addressable system compliant with the IFC and ADA requirements, including demolition and removal of all abandoned devices and cabling above ceilings.

Adequate and reliable illumination is required for all means of egress. Emergency and exit lighting systems should be evaluated for compliance with current Life Safety codes.

Renovations would require compliance with ADA regulations for new systems installed as well as for any architectural modifications; examples include ensuring accessibility for the building entry, parking, building signage and displays, water fountains and bathroom fixtures, adequate doorway widths, timing for automatic doors, doorknobs and playground equipment.

Retrofit of security system with visitor control is advised with locked or monitored doors. This could consist of a buzzer, intercom and camera allowing the main office to open the door. School lockdown function should be looked at to determine if there is a quicker and safer means to accomplish lockdown for the facility. Additional camera monitoring is typically required in corridors and exterior entrances for the facility.

New lighting fixtures with LED lamps will reduce energy consumption and allow for greater flexibility in lighting levels. High efficiency lamps, multiple lighting levels, direct and indirect lighting, occupancy sensors and light monitoring sensor provide greater control and improved comfort in the classroom. Lighting controls are not saving energy the way that current lighting controls provide for spaces such as these with daylighting controls, dimming, and occupancy/vacancy sensor controls.

Adequate provision and placement of general purpose receptacles meeting new tamper resistant requirements and data outlets should be installed in all areas to eliminate overuse of extension cords and multi plug strips. Tamper resistant receptacles to replace one-for-one all receptacles are recommended in public and classroom locations as that is required in current codes and designs.

The audio and video within the facility is not updated as a typical school for this age group and would recommend updating to current flat panel technology for student population.

Additional load to the electrical service may be required with the installation of new mechanical equipment and electrical systems.

Upgrades to kitchen dishwasher and exhaust hood would require connection to fire suppression system and automatic shut off for kitchen equipment under the hood and air handling system.

A detailed engineering assessment and load study should be completed to evaluate the additional load requirements with existing service capacities.

Grounding connections to building structure and new fire suppression system and other systems should be evaluated and upgraded if necessary.

Electrical panelboards have not been properly maintained and need to be replaced. An existing fuse panel has an open fuse holder and another panelboard has paper taped across the circuit breakers.

The building is almost one hundred years old and most of the major components of the building are original. The exterior masonry and stone needs tuck-pointing and repair along with major envelope renovations to become energy efficient. In order to be capable of meeting building codes the replacement of the issues addressed above such as replacement of the mechanical system, providing air-conditioning throughout, installation of fire-suppression system, renovation to provide accessibility to first and second floor, and other life safety must be provided.

FACILITY ASSESSMENT

2012 IBC: SECTION 903.2.3 GROUP E

- An automatic sprinkler system shall be provided for Group E occupancies as follows:
  - Throughout all Group E fire areas greater than 12,000 square feet in area.

Corrective Action: Provide automatic sprinkler system throughout existing building. Provide smoke detection in gymnasium. Replace light fixtures with energy efficient fixtures.




FACILITY ASSESSMENT

Corrective Action: New lighting fixtures with LED lamps will reduce energy consumption and allow for greater flexibility in lighting levels. High efficiency lamps, multiple lighting levels, direct and indirect lighting, occupancy sensors and light monitoring sensor provide greater control and improved comfort in the classroom. Lighting controls are not saving energy the way that current lighting controls provide for spaces such as these with daylighting controls, dimming, and occupancy/vacancy sensor controls.

FACILITY ASSESSMENT

2012 IBC: SECTION 1022 INTERIOR EXIT STAIRWAYS AND RAMPS

- Interior exit stairways and ramps shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway.

Corrective Action: Provide two interior exit stairways for egress from second floor. Both of these stairways will be required to be rated enclosures with no other purpose than as a means of egress leading directly to the exterior. Install elevator for access to second floor.

FACILITY ASSESSMENT

2012 IBC: SECTION 1022 INTERIOR EXIT STAIRWAYS AND RAMPS

- Interior exit stairways and ramps shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway.

Corrective Action: Emergency escape does not meet requirements of being a rated enclosure with no other purpose than as a means of egress leading directly to the exterior. To be considered a second means of egress a rated interior exit stairway must be constructed that connects directly to the corridor, not through an intervening space as it currently does.

FACILITY ASSESSMENT

Corrective Action: The building is heated with steam generated by two steam boilers, one Kewanee natural gas boiler and one Coates Cam Industries electric boiler. Kewanee boiler is original to building and was recently repaired in 2013. The gas boiler is beyond its useful life. The electric boiler was installed in 1980 and is approaching the end of its useful life. Boiler room does not have emergency shutdowns properly located to meet current codes. Combustion air ventilation is under sized. Steam is distributed throughout the building for heating applications via tunnels. The existing steam traps are original to the building and need to be replaced. Replacing the system would be recommended, including piping, valves, controls, and accessories.

FACILITY ASSESSMENT

Corrective Action: There is no ventilation into the building, with the exception of the gymnasium/stage and the kitchen. However, the kitchen ventilation appears to be non-operational and the gymnasium/stage units are beyond their useful life. New ventilation systems would be required throughout to meet current ventilation and energy codes. Existing kitchen ventilation system does not meet current codes and would need to be replaced. Makeup air unit would need to be replaced. Dishwasher would require a new hood and makeup air system.

FACILITY ASSESSMENT

Corrective Action: There are both an electric water heater and a gas water heater. Both water heaters are approaching the end of their useful life. The electric water heater is the newer of the two and was installed in 2001.

FACILITY ASSESSMENT

Corrective Action: Data room / computer classroom is not properly temperature controlled. Auxiliary cooling unit would need to be added.

FACILITY ASSESSMENT

2012 IBC: SECTION 716.5.3 DOOR ASSEMBLIES IN CORRIDORS AND SMOKE BARRIERS

- Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke barrier walls

2012 IBC: SECTION 1008.1.9.1 HARDWARE

- Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

Corrective Action: Replace all doors and frames in corridors with properly fire-rated doors and frames including fire-rated glass and louvers. Replace all door hardware with accessible hardware.

FACILITY ASSESSMENT

2012 IBC: SECTION 1109.2 TOILET AND BATHING FACILITIES

- Each toilet room and bathing room shall be accessible.

Corrective Action: Bathrooms will be required to be renovated to provide clearances to make restrooms accessible.

FACILITY ASSESSMENT

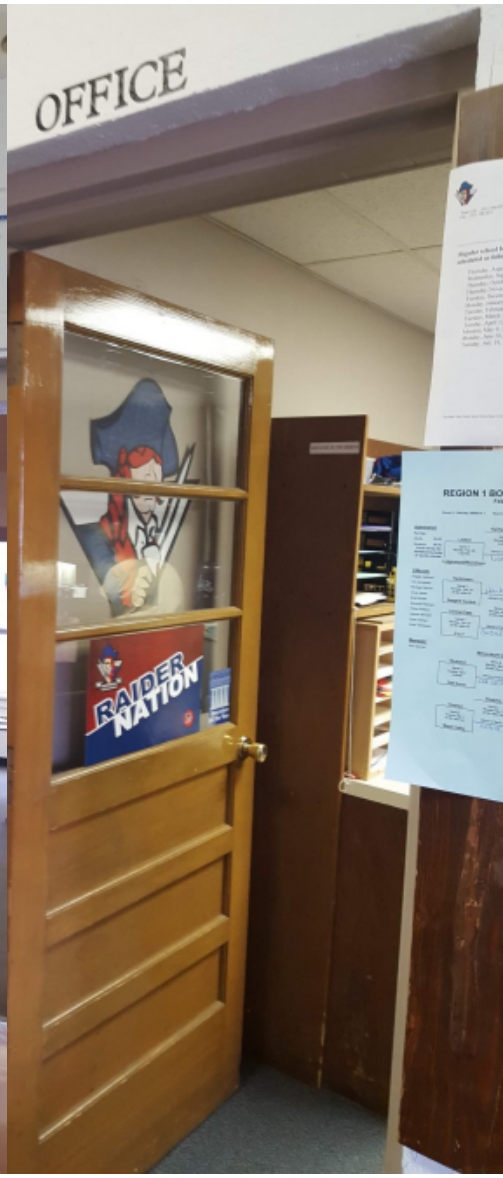
2012 IBC: SECTION 1109.2 TOILET AND BATHING FACILITIES

- Each toilet room and bathing room shall be accessible. At least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

Corrective Action: Provide accessible toilet compartments and add fixtures to meet required plumbing counts.

FACILITY ASSESSMENT

Corrective Action: Sanitary system appears to be original cast iron piping and is beyond its useful life. All sanitary piping should be replaced throughout. Given the age of the building, the domestic water piping should be replaced throughout.



FACILITY ASSESSMENT

2012 IBC: SECTION 1110.1 Signs

- Required accessible elements shall be identified by the International Symbol of Accessibility.

Corrective Action: Provide signage indicating accessibility provisions at all entrances, and rooms required to be accessible.

FACILITY ASSESSMENT

Corrective Action: Exterior walls, roof and windows of entire building provide poor insulation and should be corrected to provide a comfortable and efficient environment. All windows are single pane or glass block and are in need of replacement.

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Corrective Action: Exterior walls, roof and windows of entire building provide poor insulation and should be corrected to provide a comfortable and efficient environment. All exterior walls will be required to be furred out to add insulation. All roofs will require added insulation and repair. Install gutters and downspouts on gymnasium roof to protect foundation from seepage and reduce erosion.

FACILITY ASSESSMENT

2012 IBC: SECTION 1104.1 SITE ARRIVAL POINTS

- Accessible routes within the site shall be provided from public transportation stops; accessible parking; accessible passenger loading zones; and public streets or sidewalks to the accessible building entrance served.

Corrective Action: Provide paved parking for designated accessible parking.

FACILITY ASSESSMENT

Corrective Action: The building control system is an old pneumatic system that needs to be replaced with new DDC building automated control system.

FACILITY ASSESSMENT

Corrective Action: Provide school resource officer office with direct line of sight of new vestibule entrance. Provide intrusion detection system for all entrances. Provide panic / alert devices in all classrooms.

FACILITY ASSESSMENT

Corrective Action: The flooring, most plaster walls and ceilings, pipe insulation and other components of the building contain asbestos and would require abatement prior to any new construction or renovation.