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August 14, 2013

Claybaugh Preservation Architecture
BOB CLAYBAUGH
361 W. Government St.
Taylors Falls, MN.
55084

Re: Annandale School Reuse Study-Mechanical
EDI Project No. 13-058

Dear Bob.
Described herein are two reuse scenarios with associated mechanical discussions.

Scenario 1:

This scenario assumes that the school district will retain the existing building and occupy the basement level only. The upper floors will be conditioned minimally to not only conserve energy but also to maintain the building integrity.

Consideration should be given to insulating windows in areas that will not be occupied to reduce the heating load. In addition, the heating terminal devices should be adjusted to maintain a reduced space temperature. This can be accomplished by manually closing the terminal units (steam radiators) heating valves or, if controls exist, adjusting the thermostat.

The air distribution system is centralized, delivering ventilation air to the entire facility. Consideration should be given to look at the feasibility of isolating the ductwork serving the unoccupied spaces from the occupied spaces. The intent would be to reduce the fan speed to an airflow that is adequate to support the occupied spaces only. This would reduce the energy costs by heating only the amount of outdoor air required for the occupied basement level and not the entire building.

Scenario 2:

This scenario assumes that the 1922 building is separated from the adjacent building and is no longer owned by the school district. With this scenario, the heating and cooling systems would also need to be separated as well.

The portion of the building retained by the school district will need to be served by its own heating plant. A new boiler room will need to be created in that building with consideration given to the feasibility of converting the boiler plant from steam to hot water.

The 1922 building that no longer is owned by the school district will also require its own boiler plant. This new heating system would consist of high efficiency, gas fired, condensing hot water boilers that serve the entire building. It is recommended that a minimum of two boilers

be provided with each sized at 2/3 the building load. This will give the facility redundancy in the event of a failure of any single boiler. Anticipated capacity for each boiler is 1500 MBH. This plant would provide heating water to air handler coils and terminal devices such as fin-tube radiation, cabinet unit heaters and reheat coils. It is anticipated that each living space on the two upper floors would be heated with fin-tube perimeter radiation. Areas such as entrance vestibules, lobbies and stairways would be heated utilizing cabinet unit heaters.

In the event that not all floors will be developed at the same time, the boiler plant can be incrementally expanded over time.

On the air side, a variable air volume (VAV) system with hot water reheat coils would be proposed for the basement space as well as the common spaces (hallways) located on the upper two floors. This system would also provide ventilation air for those spaces. Anticipated capacity is 20,000 cfm with 50 tons of DX cooling using an air cooled condensing unit.

In addition to that unit, the living spaces would be supplied with 100% outdoor air for ventilation purposes. A dedicated outdoor air unit will provide this function and would include features such as energy recovery wheels for enhanced energy savings. Anticipated capacity is 1500 cfm with 7 tons of DX cooling using an air cooled condensing unit.

Each living unit would be cooled utilizing ductless split system cooling units (mini-splits). Each mini-split system would include a wall mounted evaporator and an outdoor air cooled condenser. The approximate load for each two bedroom unit is 4 tons with two units at 2 tons each advisable. The approximate load for each single bedroom unit is 3 tons.

A separate HVAC system will serve the current gym space. If the space becomes a parking garage, then a ventilation system that monitors and controls the concentration of carbon monoxide will be required. If the space becomes a common space for occupants, then a rooftop heating (hot water coils) and cooling unit would provide heating, cooling and ventilation. With this usage, the anticipated capacity would be 4000 cfm and 10 tons of cooling.

A web-based Direct Digital Control (DDC) system would control all HVAC building functions. This computer based system would include features such as scheduling, alarms and remote access.

Sincerely,
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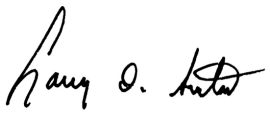

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