

SAD # 46 Design Development June 7, 2007 Meeting Notes

A Mechanical Systems Committee Meeting was attended by:

David Gudroe
Barry Brown
Steve Foster
Julie Richard
Allyson Saunders
Juanita Staples
Richard Pfirman
Kevin Jordan

Steve Doel Bennett Engineering
Joe Hemes SBA

Not Present: Shawn Lancaster, Terry Staples, Ron Fanjoy, Gary Perkins, Mike McCormick
Andrea Rollins, Corey Wyman, Ernest Rollins, Don Goerlitz, Michael Bennett, Fred Shurburne

Agenda, HVAC notes from 5/1/07 & Mechanical System information by Steve Doel were handouts. Comments as follows:

1. **SBA forwarded information** requested last meeting including: DVD on wood chip Boiler, DVD on Displacement Ventilation and a set of drawings showing a typical mechanical system that will be similar to this school. Also a list of 3 maintenance directors and phone numbers was forwarded so David Gudroe could review both DDC and radiant systems.
2. **Proposed HVAC System descriptions** -Steve Doel reviewed several handouts on various systems presented in the last meeting, some working conjunction with each other including:
 - a. Autoflow Cartridge valve
 - b. Energy Recovery heating unit- a payback analysis showing just over 3 years
 - c. Piping circuits- from ASHRAE design considerations.
 - d. VAV unit for gym- Consider 2 smaller units in case 1 breaks down.

3. **Air Conditioning:**

Variable Air Volume-for AC smaller rooms and zoning.

- a. 1 unit for Art, Hands-on, Music, Wellness and Cafeteria.

Packaged Roof Top Equipment- For AC:

- a. 1 unit for Front office
- b. 1 unit for District office, Literacy PDC, Special Education office,
- c. 1 unit for Media Center/server room.
- e. Computer labs with individual splits for AC 2.

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4. **Displacement Ventilation**-Slow and quiet ventilation-average 350 cfm in 2 diffusers. A sample of diffuser was shown to the committee.

Can small perforations be cleaned? Filtration materials are much smaller than perforations, and Steve said this should not be necessary.

5. **Boiler Area:**

- a. Oil fired water heater for summer use. 140 degrees. (kitchen will have booster to 180 degrees)
- b. Heat exchanger for water from either oil boiler or wood chip boiler.
- c. Possible evacuated solar thermal unit for heating water.
- d. Oil tank- 10,000 gallon capacity/ 30 year warranty underground below service drive/ steel inner tank, polyethylene outer tank with monitoring.
- e. Wood Chip Boiler- excess capacity for under front walk? The risk if pipes ever froze the system would not work and be very expensive to rip slab and replace.
- f. Equipment selection for service out of Bangor would be the most convenient if possible.
- g. 2 pumps for heating loop, working alone, but switching off.

6. **Radiant Floor Heating:** - temperatures of water loop 110-120 degrees. For use in some rooms like first floor classrooms, kitchen (not freezer/cooler), locker rooms etc.
 - a. Classrooms will each have there own zone for heat and thermostat.
 - b. Control sensor in slab to provide feedback on slab temperature, connects with thermostat.
 - c. Expected life is good with no moving parts on tubing or sensors.
 - d. Can radiant be used on the 2nd floor? This is more expensive system, requiring thicker slab, more reinforcement, additional structure and the slab must be insulated below. SBA to price the option.

7. **Fancoil Units**- proposed for heat on 2nd floor

- a. Filter air and add heat from above ceiling boxes.
- b. Small motors are 15-20 year.
- c. No belts
- d. Filter size: 1' x 2'-6" +/-
- e. Owner indicated that they may be inconvenient to work on above the ceiling.

8. **Schedule:** Next meeting to be scheduled after some more wood chip boiler information is obtained and 2nd floor radiant floor cost information is reviewed.

SBA to forward information for review