

**Butler Creek Elementary School  
Centennial High School  
COMMISSIONING**

**NEW BUILDING  
REMODEL & ADDITION**

<u>Owner/Client:</u> Centennial School District 18135 SE Brooklyn Street Portland, OR 97326 Richard Larson (503) 760-7990	<u>Project Start:</u> <u>Project Finish:</u> <u>Facility Type:</u> <u>Building Age:</u> <u>Construction Cost (Total):</u> <u>Commissioning Fees:</u> <u>Project Size:</u>	November 2002 June 2004 Educational Built 1961(HS) Built 2002 (ES) \$16,000,000(HS) \$8,100,000 (ES) \$191,930 258,564 (HS) 60,530 (ES)
---	---	--

EESI Staff Involved: Steve Barney, Fred Shaub, Ron Anderson, & Jimmy Jen.

Project Description: Commissioning services for the new Butler Creek Elementary School & Centennial High School remodel & addition project.

Centennial High School: Centennial High School remodel and addition project is a major renovation to update the existing facility, provide ten additional classrooms, new media center and commons. This project, originally developed to have 17 phases, began in the summer of 2002 and is scheduled for completion in the spring of 2004. Mechanical equipment improvements incorporated 16 new rooftop units with air conditioning and controlled from an building automation system (BAS). Three types of fan systems are employed including variable air volume with steam heat and constant volume fans with steam heat or natural gas. A heat recovery wheel is used on the new ten classroom addition fan system.

Butler Creek Elementary School: Butler Creek Elementary School project is a new facility providing 24 classrooms, media center, gymnasium, offices, kitchen and commons. This project construction began in the fall of 2002 and was completed in the summer of 2003. Mechanical equipment incorporated 4 variable air volume fan systems and 3 constant volume fans. All fan system have hydronic heat and cooling coils. The primary plant equipment serving the air handlers are two condensing boilers and one air cooled 125 ton screw chiller. All systems are controlled from a building automation system (BAS).

One major concern of the District was the mechanical equipment insure proper indoor air quality is maintained . In order to insure indoor air quality, the design team incorporated a control strategy on the outside air ventilation system to be regulated with carbon dioxide sensors in the return air plenum and direct measurements of outside airflow. Ventilation air flow is adjusted based on carbon dioxide reset schedule.

Services for both schools included:

- Commissioning scoping meeting
- Design review
- Commissioning plan development & functional testing procedures & forms
- Coordinating and overseeing functional testing
- Actual performing the functional testing (hands on)
- Troubleshooting
- O&M manual reviews

## O&M training

### Types of Systems Commissioned:

#### Butler Creek Elementary School:

- ∅ Building Automation System
- ∅ Variable & constant volume air fan systems
- ∅ Terminal Boxes
- ∅ Condensing hot water boilers
- ∅ Screw chiller
- ∅ Fire system tie in to BAS
- ∅ Lighting occupancy sensors

#### Centennial High School:

- ∅ Building Automation System
- ∅ Packaged rooftop equipment
- ∅ Vocational Wing hot water boiler
- ∅ Existing pneumatic controls for unit ventilators and single zone fan systems
- ∅ Fire system tie in to BAS
- ∅ Lighting occupancy sensors