

FULLER MIDDLE SCHOOL FEASIBILITY STUDY

School Building Committee
June 28, 2018

Relating Building Form to Educational Environments



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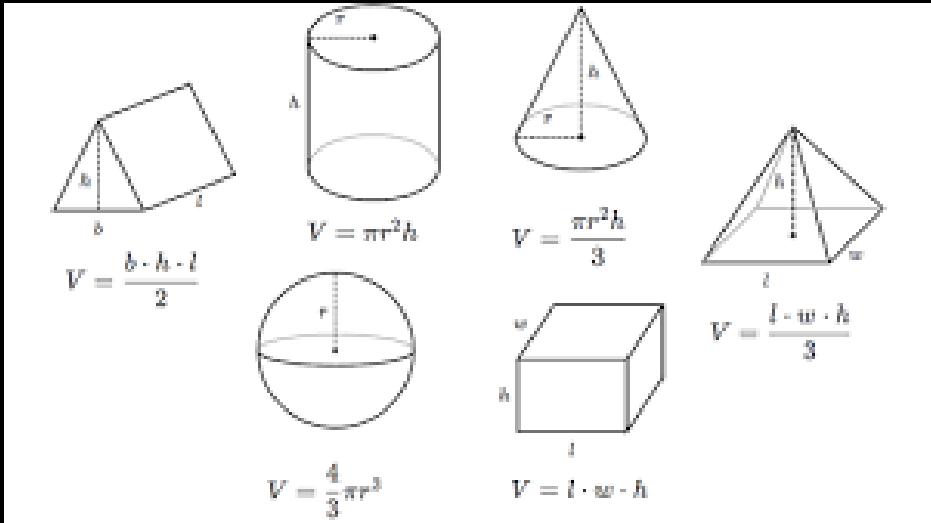
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Design Update



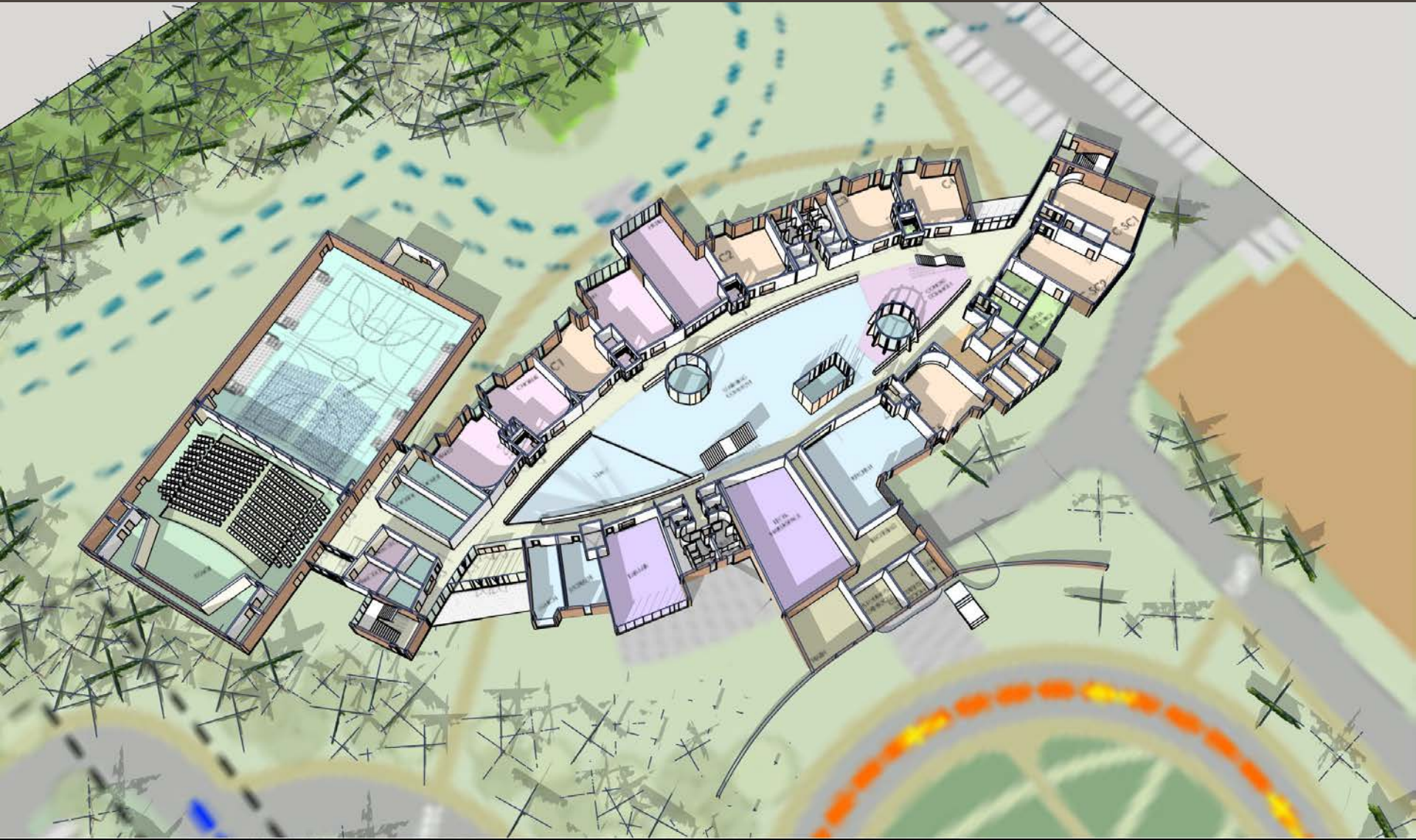
PROJECT MANAGEMENT **SMMA**
Jonathan Levi Architects

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Design Update



Design Update – 1st Floor



Design Update – 2nd Floor



Design Update – 3rd Floor



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Cost Reduction Strategy

Cost Reduction Strategy

- Reduce Auditorium seating from 750 seats to 420 seats (-\$3.3M)
 - Delete Full Air Conditioning (-1.0M)
- Total Potential Reduction (-\$4.3 M)**

Previous Total Project Cost \$104.5M

Potential Adjusted Total Project Cost \$100.2M

Air Conditioning vs Dehumidification

Air Conditioned Spaces:

- Maintains inside temperature at 75°F, 50% humidity;
- Comfortable all year;
- Typically used at a minimum in Auditorium, Cafeteria, Administrative Spaces, and Media Center.

Dehumidified Spaces:

- Reduced Construction Costs;
- For rooms not typically used in the summer;
- Temperature floats within comfort zone; typically maximum 80°F;
- Starts to become uncomfortably warm when outdoor temperature goes above 88°F.

Sustainability

LEED Goals

1. Site:

- Credit for Building on Developed Site
- Control Erosion During Construction
- Improve Storm Water Runoff
- Assess Potential Hazards in the Soil
- Reduce Heat Island Solar Absorption
- Reduce Light Pollution
- Provide Community Use

2. Reduce Energy Use:

- 3rd Party Verification of Mechanical Systems and Envelope Performance
- High Efficiency Heat and Hot Water Systems
- Excellent Thermal Insulation
- Make “Solar Ready”

3. Reduce Water Consumption:

- Low Flow Fixtures
- Minimize Irrigation
- Meter Usage

4. Materials and Resources:

- Design for Reduced Life / Cycle Costs
- Use Environmentally Friendly Materials
- Recycle Demolition and Construction Waste

5. Indoor Environmental Quality :

- Excellent Indoor Air Quality
- Use Low -Emitting Materials
- Enhanced Acoustic Performance
- Incorporate Daylighting
- Provide Access to Outdoor Views

Geothermal Systems under Review

Closed-Loop Geothermal System:

- Typical Well Depth 500 ft.
- Approximately 120 wells at 20 ft on-center for cooling loads
- Approximately 145 wells at 20 ft on-center for heating load (would eliminate boiler plant)
- Comparatively minimal DEP process
- Comparatively little maintenance

Open-Loop Geothermal System:

- Typical Depth 1500 ft.
- Approximately 13 wells at 75 ft o.c. for Cooling loads
- Approximately 16 wells at 75 ft o.c. for heating load (would eliminate boiler plant)
- More involved DEP process (wells must be sanitized)
- Requires substantially more maintenance (less reliable)

Photovoltaic Considerations under Review

Funding:

The MSBA does not reimburse for PV panels, as electricity use is considered an operational expense.

Solar Ready:

The building will be designed to accept the gravity loads of PV panels, and will have conduit from the roof to the electrical room so that PV can be easily installed at the district's discretion.

This work is eligible for MSBA reimbursement

Location:

Panels can be Rooftop, Ground Mounted and / or Car Port.

Net-Zero:

To be Energy Neutral or Carbon Neutral, there will need to be more PV panels than would fit on the roof. The precise quantity will be dependent on the HVAC system chosen later this summer.