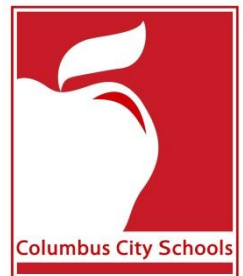


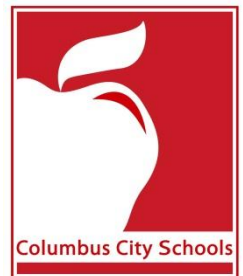
Columbus City Schools - Statistics

- 50,000+ students
- 118 schools (140+ buildings)
- Ethnicity
 - 60% African American
 - 27% Caucasian
 - 6% Hispanic
 - 1.9% Asian
- Over 89 different languages (11.5% ESL)
- 77% free or reduced price meal daily
- 17.7% gifted and talented
- 17.2% special education
- 19% student mobility



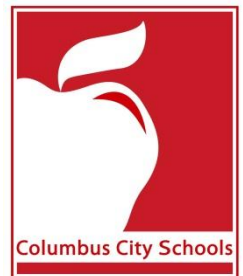
CCS – Facilities Master Plan

- Originally conceived as a 7 Segment plan. Currently in the middle of Segment 3.
- Segment 1 & 2 approved by voters in 2002 with \$392M bond issue and matching OSFC funds of \$129M.
- Segments 1 & 2 largely complete (the exception being Africentric K-12).
- 35 new or renovated schools completed in Segments 1 & 2.
- Segment 3 approved by voters in 2008 with \$123M bond issue and matching OSFC funds of \$46M.
- Africentric K-12 brought forward as Segment 2C.
- Stewart Elementary School added to Segment 3 with interest free ARRA bonds as funding source.
- Segment 3 status: 5 schools under construction with the remaining 6 in design.



Sustainability Goals

- OSFC Requirement is LEED Silver
- CCS Segment 3 Projects are all currently on target to achieve LEED Gold
- Integrated Design (not just counting points)
- Key Expectations
 - Site Design
 - Energy Efficiency & Reduction in water use
 - Daylighting
 - Minimize Environmental Impact – Heat Island, Storm Water
 - Indoor Air Quality, Low-emitting Materials
 - Waste Management – Recycling Construction Waste
 - Recycled Content and Regionally Sourced Materials in New Construction

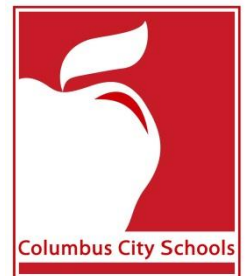


Segment 3 projects



- Alum Crest / Clearbrook 6-12 School
- Cedarwood Elementary School
- Clinton Elementary School
- Georgian Heights Elementary School
- Language Immersion K-8 School
- Liberty Elementary School
- Linden McKinley STEM 6-12 School
- Olde Orchard Elementary School
- Starling K-8 School
- Stewart Elementary School

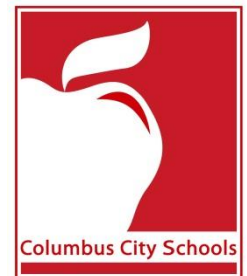
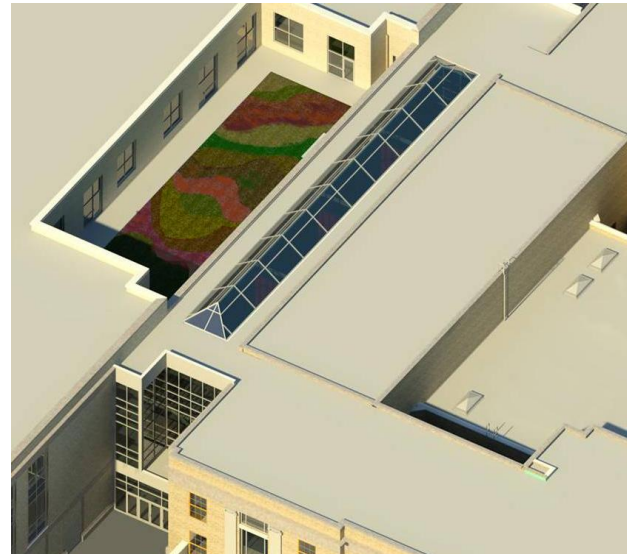
- Africentric K-12 School



Sustainable Design: Supporting Teaching & Learning

Tangible

- Green Roofs / Outdoor Learning Environments
- Technology and Interactive Whiteboards to Engage Students
- Energy Dashboard – Understand Carbon Footprint
- Flexible Spaces, Tutor Rooms, Extended Learning Areas



Sustainable Design: Supporting Teaching & Learning

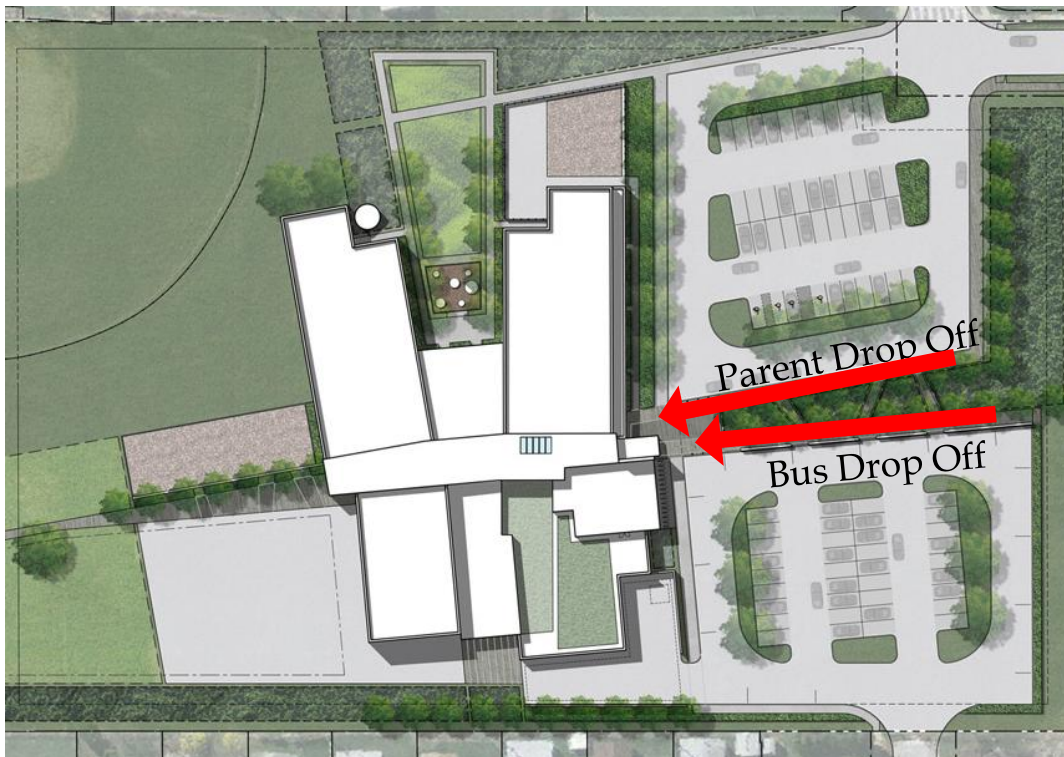
Intangible

- Improved Lighting, Daylighting & Enhanced Acoustics
- Increased Fresh Air / Improved Indoor Air Quality / Low-emitting Materials
- Safe & Secure Environments



Sustainable Design: Site Considerations

- Separation of Automobile, Bus Traffic & Pedestrian Traffic
- Solar Orientation
- Maximize Available Greenspace

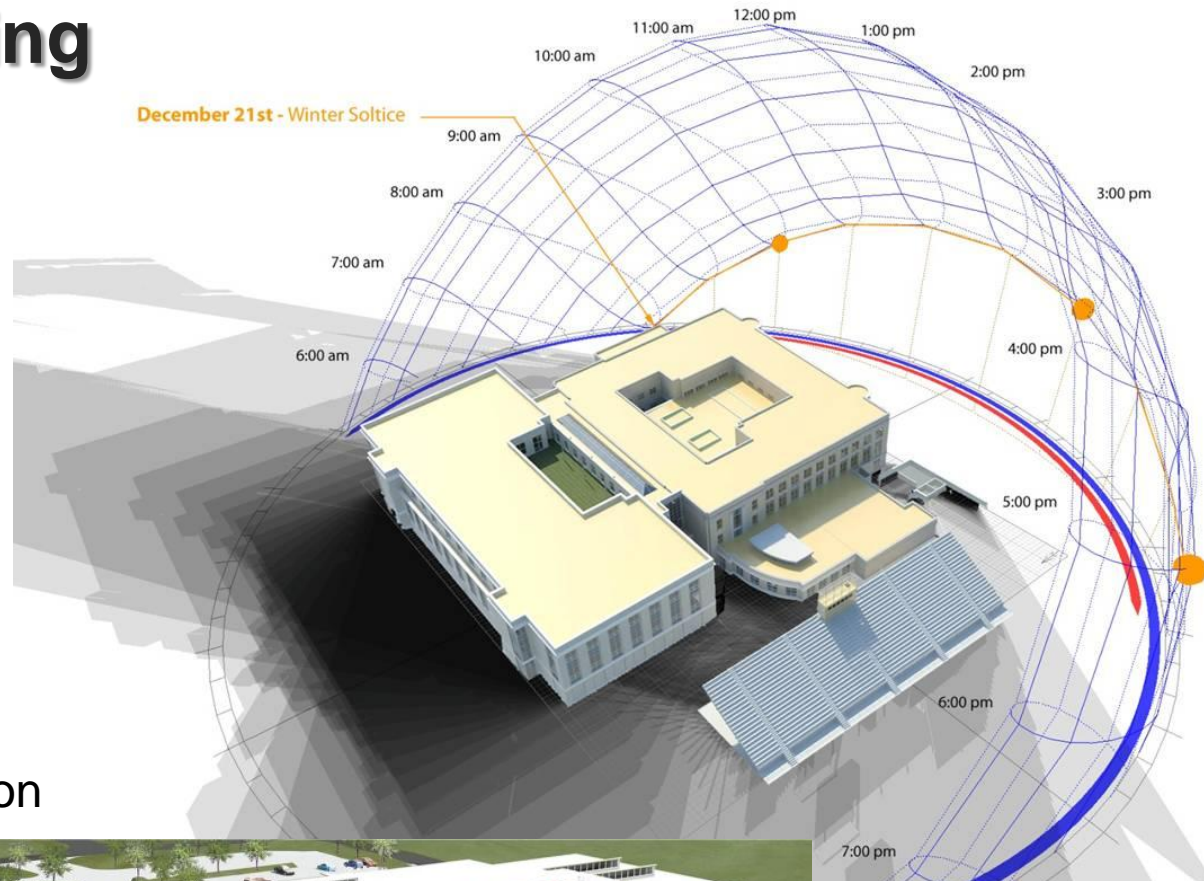


Sustainable Design: Site Considerations

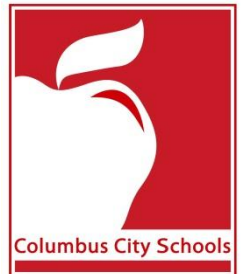
- Stormwater Quality/Quantity Features – Detention, Rain Gardens, Bioswales & Pervious Pavements
- Outdoor Educational Environments
- Safe Playgrounds and Maximized Green Space for Play



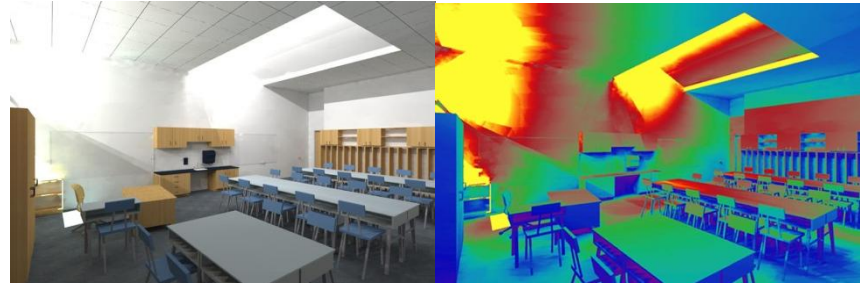
Sustainable Design: Daylighting



Solar Orientation

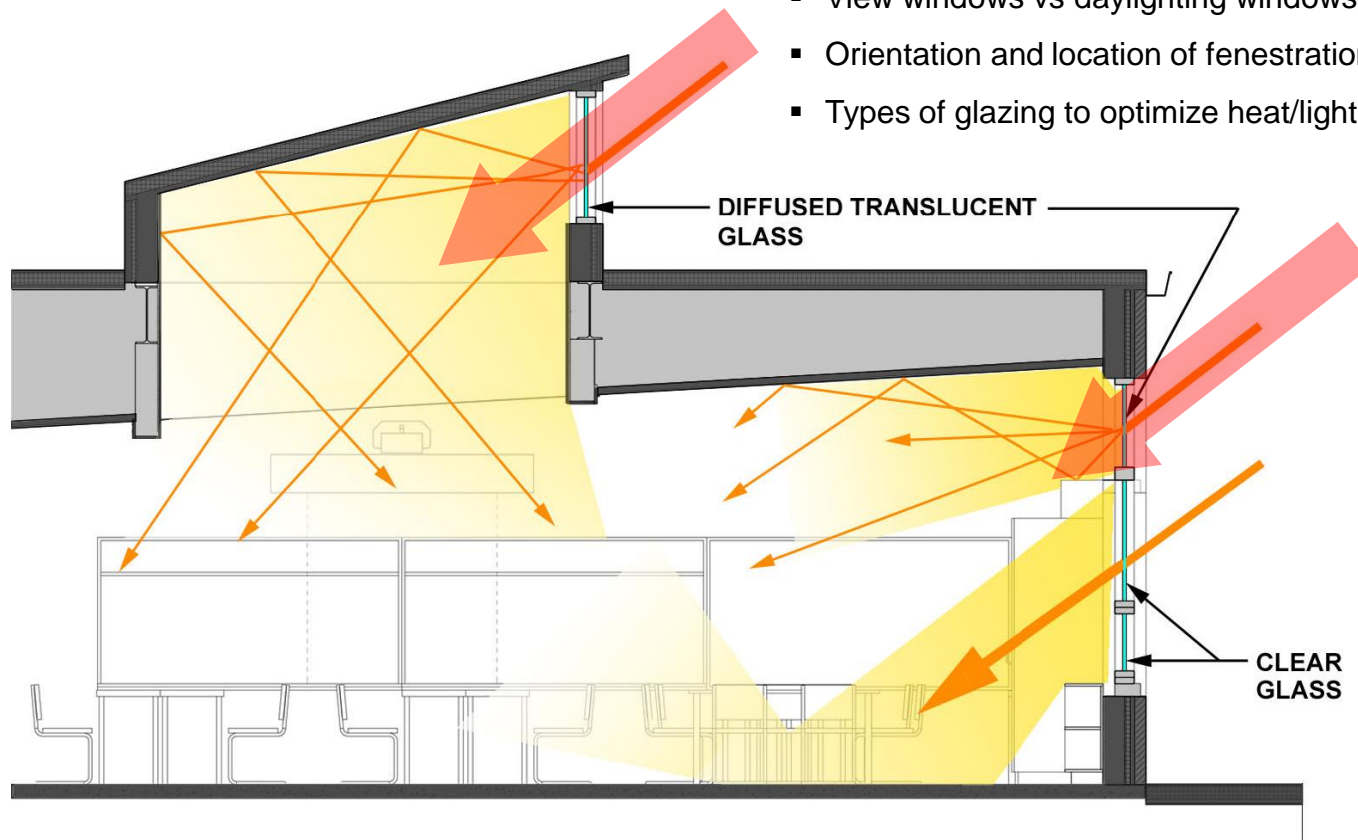


Sustainable Design: Daylighting



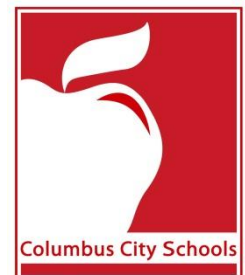
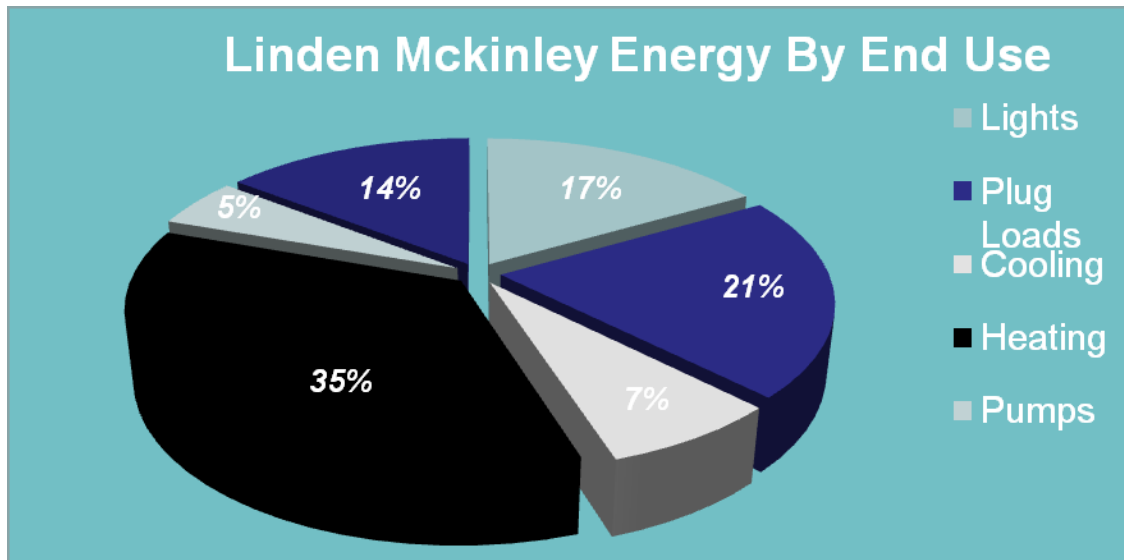
Daylight Analysis

- View windows vs daylighting windows
- Orientation and location of fenestration
- Types of glazing to optimize heat/light transmission



Sustainable Design: Energy Efficiency

- Energy efficient lighting systems
 - Reduce artificial lighting where possible and supplement with daylight.
 - Vacancy sensors and daylight harvesting reduce electrical consumption by lighting.
 - Reduce exterior lighting & use cut-off fixtures.



Sustainable Design: Energy Efficiency

- Low flow faucets and flush valves to reduce use of potable water.
- Experimenting with grey water systems.
- Geothermal HVAC systems utilizing 100+, 300-400 ft. deep bores as heatsink.
- Continued/expanded use of LON based DDC controls for HVAC systems – expanding into lighting controls.
- Modeling heat loss/heat gain and adjusting R-value of insulation to maximize savings.
- Improved glazing systems to reduce heat loss & heat gain
- Focus on envelope tightness – use of air barrier & thermographic imaging to detect problems.



Columbus City Schools: Summary

- Consistency across projects in LEED credits pursued and design solutions wherever possible – unique solutions where appropriate.
- Focus on applications that can improve student achievement and reduce operating costs for the District.
- Opportunities for common goals: for example, use of flooring materials that eliminate need for waxing thereby reducing operating cost and impact on the environment.
- Ability to use building as a teaching tool: allow students to engage in the environment and understand cause & effect.
- Engage community, staff & students on principles of LEED and how to participate in conservation, recycling, etc.
- Adapt to change, learn from mistakes, stay abreast of changes in technology, evolve with the design & construction profession.

