

AGENDA

**This meeting is physically closed to the public but the public
may view the meeting on livestream at:**

https://townhallstreams.com/towns/mansfield_ct

1. Call to Order
2. Approval of 7-23-20 Meeting Minutes
3. Owners Project Manager Update
 - Schedule update
 - Design Development review process
4. Architect's Update
 - Review of Covid 19 mechanical safeguards
 - CMTA presentation
 - Design update
5. Other items coming before the Committee
6. Adjournment

Next Meeting Date: Regular Meeting August 27, 2020

DRAFT MINUTES

Members Present: Randy Walikonis, Chris Kueffner, Madison Day, Steve Ferrigno, Mary deVecchis, Toni Moran, Kathy Ward, Chris McNaboe, Kelly Lyman, John Carrington

Members Absent: Richard Weyel

Staff Present: Curt Vincente, Director of Parks and Recreation; Cherie Trahan, Director of Finance; Allen Corson, Director of Facilities Management

Guests: Scott Pellman (Project Manager, Colliers International), Felicia Smith (Colliers International), Ryszard Szczypek (TSKP Studio), Jeff Brown (TSKP Studio)

1. CALL TO ORDER

Meeting called to order at 4:34PM by Chairman Randy Walikonis.

2. APPROVAL OF MINUTES

Ms. Day **moved** to approve the minutes of the July 9, 2020 meeting.
Ms. Ward seconded the motion.

The motion **passed** unanimously.

3. OWNERS PROJECT MANAGER UPDATE

Ms. Smith went over the milestone schedule and spoke to the Committee about plans for well drilling and upcoming Planning and Zoning hearings. The Committee was informed that the Phase 1B archeological report should be ready by the end of the month.

4. ARCHITECTS UPDATE

Mr. Szczypek went over the revised floor plans indicating some minor changes in the building configuration. He also went over the site plans schematic design including possible outdoor storage space for maintenance equipment. The Committee discussed interior lighting and window plans.

5. SELECTION OF STUDENT BATHROOM CONFIGURATION

Mr. Brown went over several options for designs of the toilet rooms, including gender-specific and gender-neutral models and options for sink locations. The Committee discussed locations for janitor's closets inside or near the toilet rooms, having a combination of gender neutral and gender specific room, and facilities that can be used by the public.

It was the consensus of the Committee to go with the toilet room design designated by the gold label (*as labeled in the 7-23-20 Packet*)

6. COMMITTEE APPROVAL OF PLANS AND SPECIFICATIONS FOR PHASE 1 WELL DRILLING AND TESTING

Ms. Moran moved to certify that the final plans and project manual as prepared for bidding and dated July 21, 2020, and the professional cost estimate, completed in accordance with Level 3 of ASTM International Standard E1557, Standard Classification of Building Elements and Related Sitework-UNIFORMAT II for this project, dated July 21, 2020, have been reviewed and approved. Mr. Ferrigno seconded the motion.

The motion **passed** unanimously.

7. REVIEW JULY INVOICE PACKAGE

Ms. Day **moved**, effective July 23, 2020, to approve Archeological Consulting Services invoice number 11200801 for archeological services, Consulting Engineering Services Inc. invoice number 2020067.00-0000004 for engineering services, TSKP Studio invoice number 5 for architectural services, and Colliers International invoice number 006614 for project management services related to Project #078-0068N Mansfield Elementary School. Ms. McNaboe seconded the motion.

The motion **passed** unanimously.

8. OTHER ITEMS COMING BEFORE THE COMMITTEE

There was discussion of the next meeting with the State.

9. ADJORNMENT

Mr. Kueffner **moved** to adjourn the meeting at 5:49PM. Ms. McNaboe seconded the motion.

The motion **passed** unanimously.

Respectfully Submitted,

Tasha N. Smith
Executive Assistant, Town Manager's Office

August 10, 2020

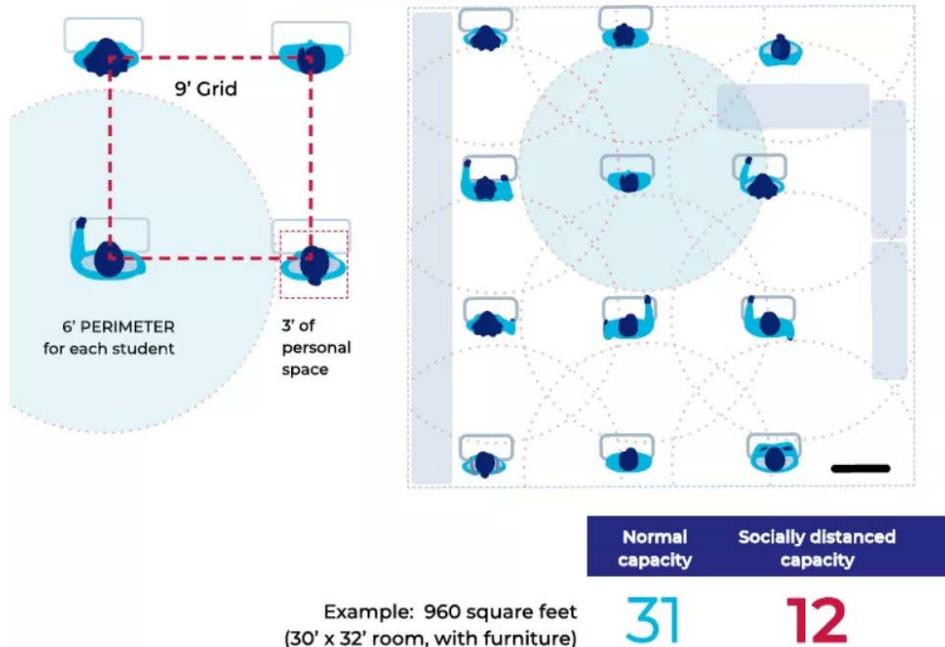
Mansfield School Building Committee
Mr. Randy Walikonis, Chair
Town of Mansfield
Four South Eagleville Road
Mansfield, CT 06268

Sent by email: MSBC@mansfieldct.org

Dear Mr. Walikonis and Members of Mansfield’s School Building Committee:

I am concerned that the proposed sizes of classrooms and meeting rooms, as described in the forty-four-page “Mansfield Elementary School Ed Specs” (5/23/19), may be too small. Presently, classrooms are clearly designed to rigorously facilitate grade-level guidelines, (PreK-3, 14-18 students—plus one or two instructional staff; Grade 4, 16-20 students—again, plus one or two instructional staff). If present (or even later modified) social distancing models remain, considerably fewer students may be able to safely occupy these classrooms; i.e., kindergarten classrooms are planned to be 900 square feet; grades 1 through 4, 800 square feet. The example below, from *Education Week*, illustrates new instructional space arrangements.

Arranging Instructional Spaces



Source: <https://www.edweek.org/ew/issues/reopening-schools/the-socially-distanced-school-day.html>
National Council on School Facilities and Cooperative Strategies, Cannon Design Icons: iStock/Getty

Mansfield School Building Committee
August 10, 2020
Page 2

In Mansfield's proposed school building published documents, to enable students to select their own learning space, classroom seating plans call for multiple options; among the choices are bean bag chairs, as well as a few instructional tables with five to six chairs placed around them. Individual desks are not planned. The special educational resource room is to be 350 square feet. Other special rooms (reading, world language, etc.) are 300 square feet each. The dimensions of conference rooms should be reviewed. Handwashing stations may be required in each meeting room, hallways may have to be wider, bathrooms larger, and lunchroom and other common spaces may also need to be more generous. Negative air pressure will prevent room-to-room cross-contamination.

While this virus is, I hope, winding down, another virulent "flu virus with 'pandemic potential' [has been] found in China."¹ *The New York Times* reports on a study led by Dr. Taylor Heald-Sargent, a pediatric infectious disease expert at the Lurie Children's Hospital of Chicago, with results recently published in *JAMA Pediatrics*: "kids do have levels of virus similar to and maybe even higher than adults."²

In fact, while this virus may abate, the zeitgeist that has developed as a result of this pandemic will probably remain a viable force influencing the design of *all* public spaces, and especially for school buildings where children and the staff who work with them are closely situated. With so many unknowns and the seared memory of our present situation, the proposed interior design of this building is in jeopardy.

The committee has been planning for what is now "yesterday"; the sensitivities of the entire world have flipped. I sense the School Building Committee needs to pivot as well. The upper case "C" has disrupted the five "C"s. Because we are on the cusp of learning about the magnitude of Covid-19, the committee should consider putting this building project on hold for several months.

Sincerely,

Martha Kelly
29 Bundy Lane; Storrs, CT 06268

cc: Kathy Ward, Board of Education Chair

N.B.: Although I am an elected member of Mansfield's Board of Education (as well as its secretary and member of several committees), I am writing to the School Building Committee as a private individual. MK

¹ "Flu virus..." <https://www.bbc.com/news/health-53218704>

² "Children May Carry Coronavirus at High Levels, Study Finds"
<https://www.nytimes.com/2020/07/30/health/coronavirus-children.html>

TSKP
STUDIO

MANSFIELD
CONNECTICUT
Public Schools

 CMTA

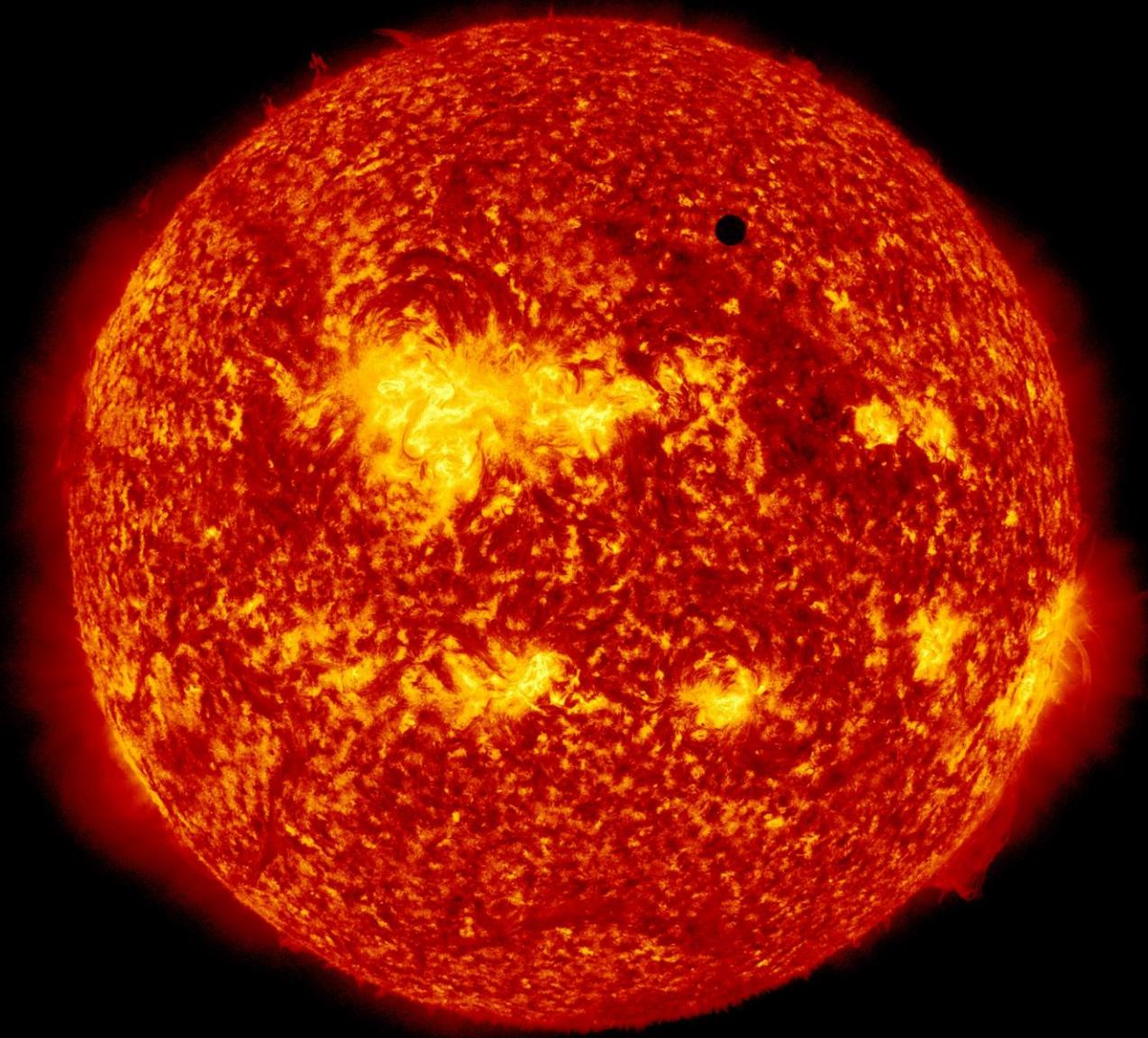


Mansfield Elementary Project

Mansfield, Connecticut

Energy & Sustainability Update

August 11, 2020

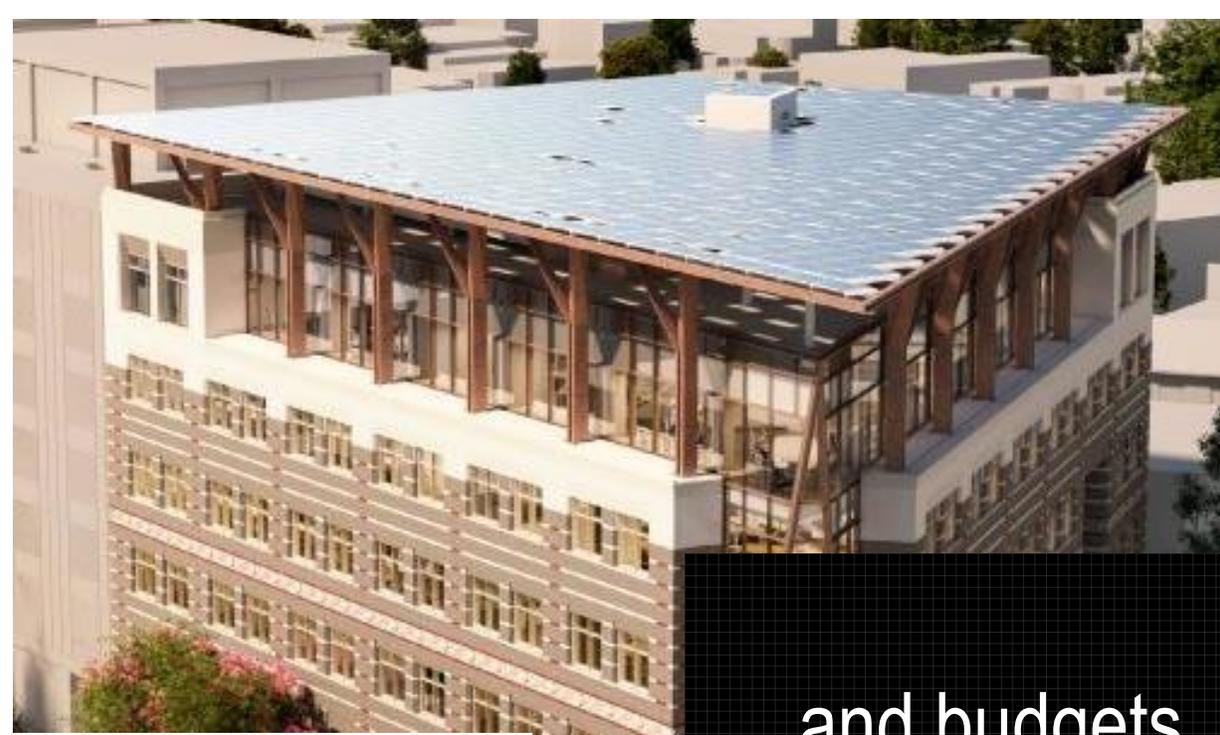




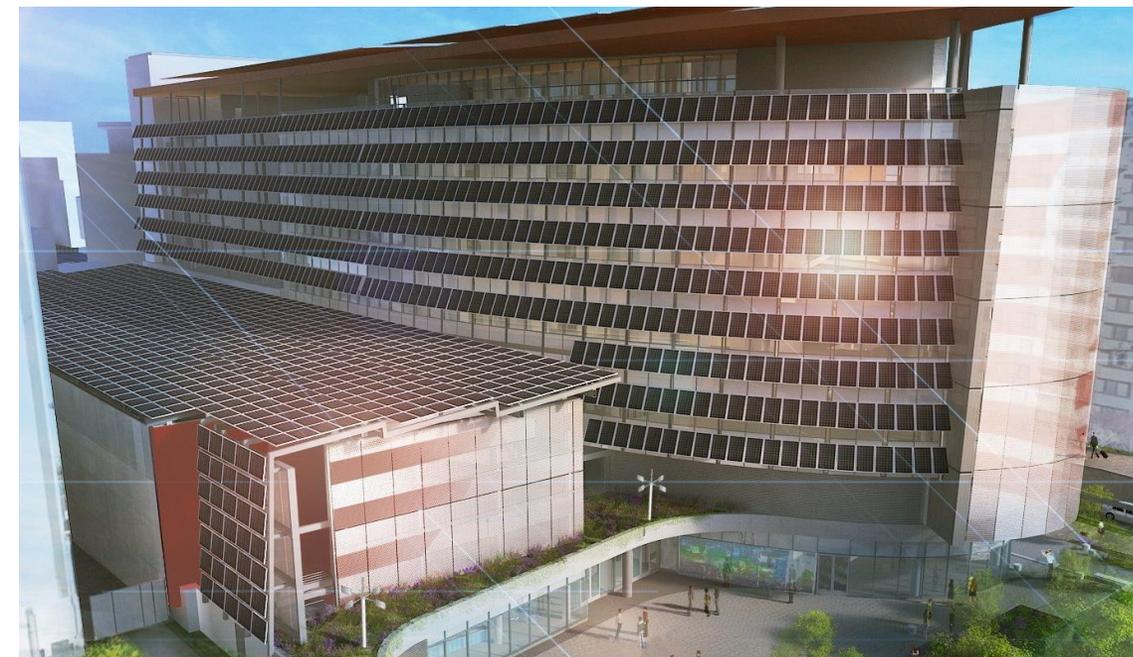
Any building
can be zero-
energy...



if you can
afford
the solar
array...



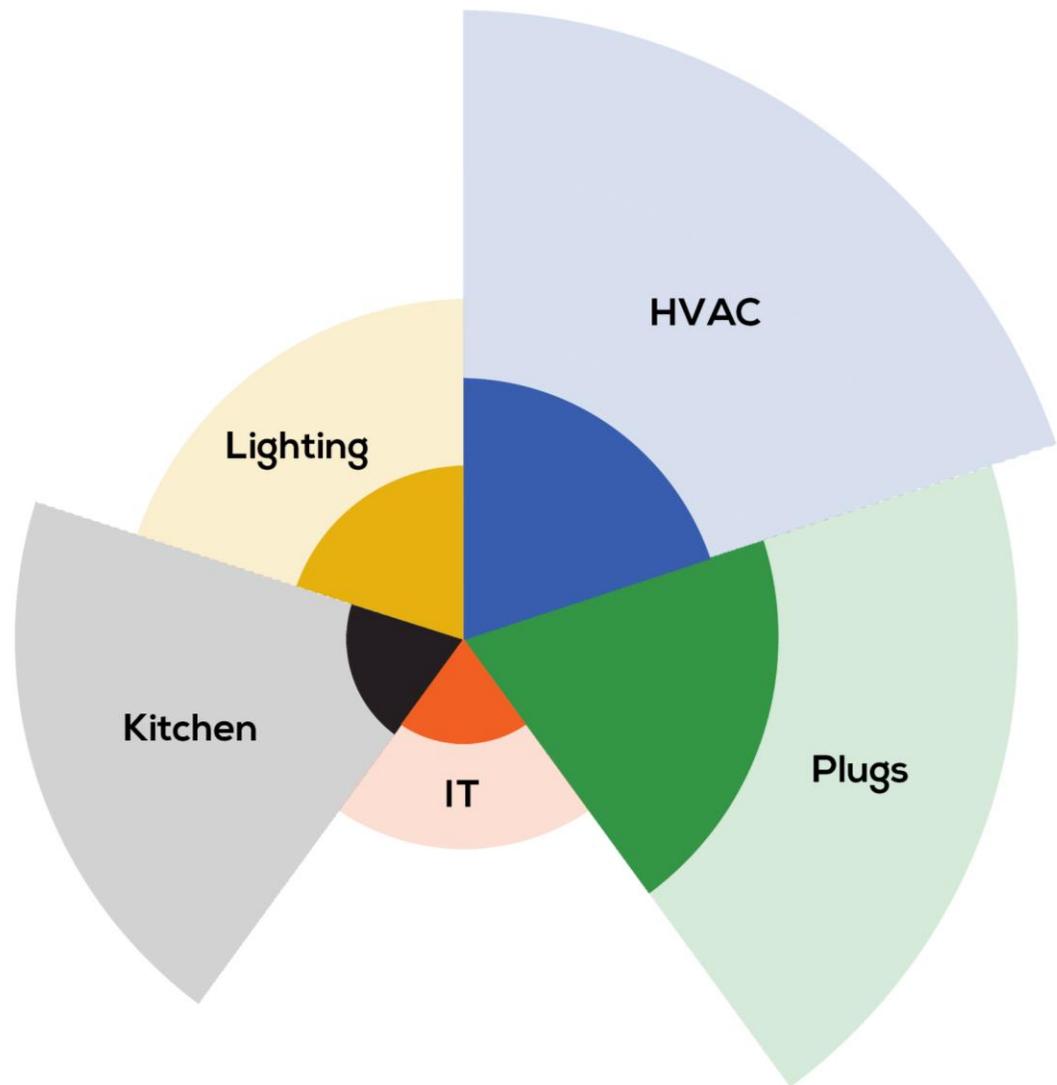
...and budgets are not *always* unlimited.





DRASTIC ENERGY REDUCTION

- HVAC (~45%)
- Kitchen (~20%)
- Lighting (~20%)
- Plug Loads (~10%)
- IT (~5%)

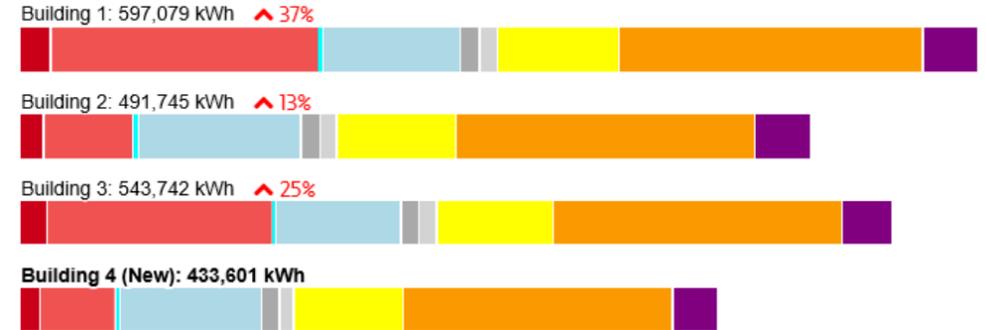




CONCEPTUAL ENERGY MODELING

Massing Model Energy Evaluation

			EUI	Annual Electricity De...	Annual Net CO _{2e} Em...	Annual Energy Cost ...	
	Building 1	Water Source Heat Pump	23	▲ 21%	597,079 ▲ 37%	315,854 ▲ 37%	\$1.3 ▲ 30%
	Building 2	Water Source Heat Pump	19	↔ 0%	491,744 ▲ 13%	260,186 ▲ 13%	\$1.1 ▲ 10%
	Building 3	Water Source Heat Pump	22	▲ 15%	543,742 ▲ 25%	287,699 ▲ 25%	\$1.2 ▲ 19%
	Building 4 (New)	HVAC System Type Water Source Heat Pump	19 kBTU/ft ² /yr		433,601 kWh	229,375 lbCO _{2e} /yr	\$1.0 /ft ²



- Heating
 - AHU
 - Zones
 - Humidification
- Cooling
 - AHU
 - Heat Rejection
 - Zones
- Fans
 - AHU
 - Zones
- Interior
 - Lighting
 - Equipment
- Pumps
- Other Gas

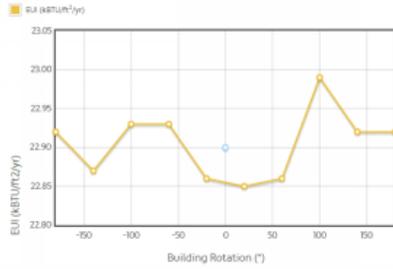




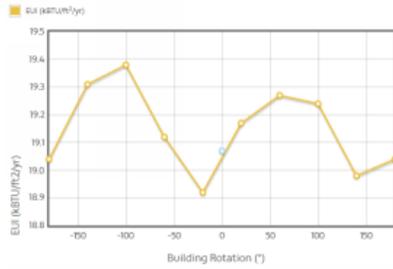
PARAMETRIC STUDIES

Orientation Study

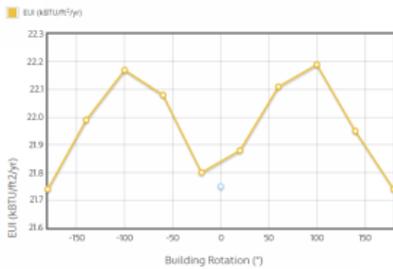
Building 1:



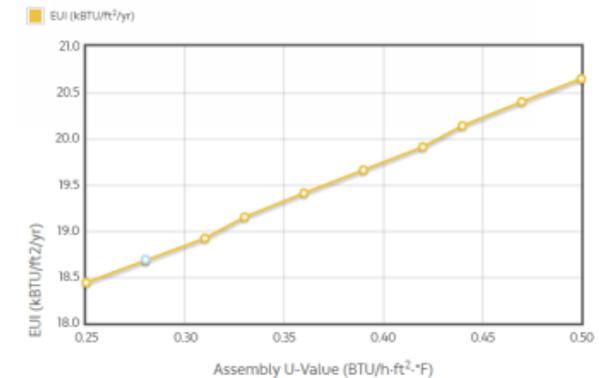
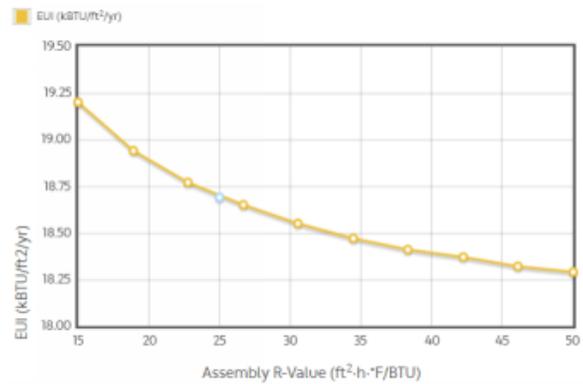
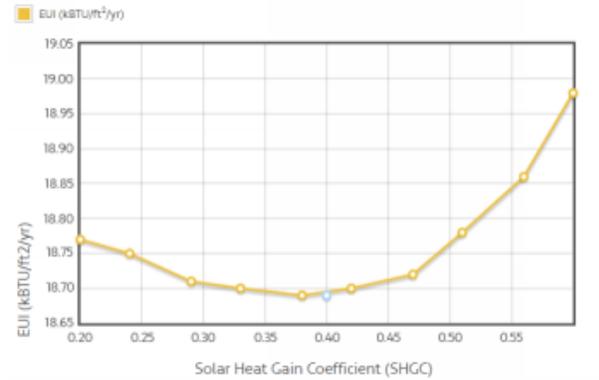
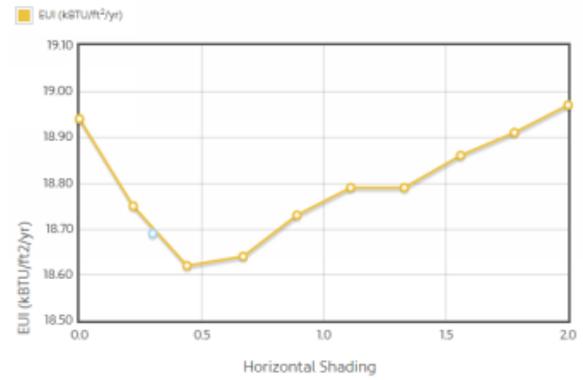
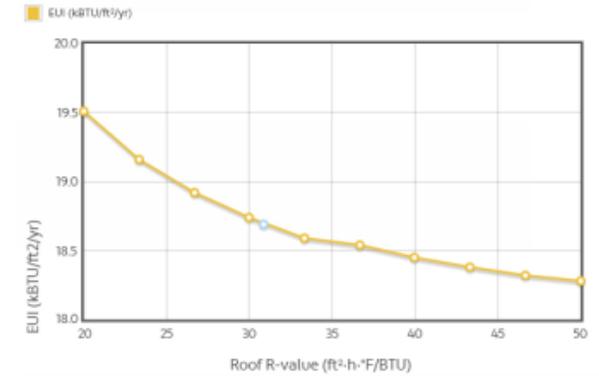
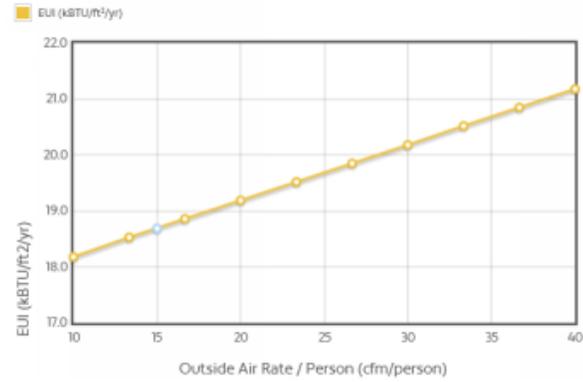
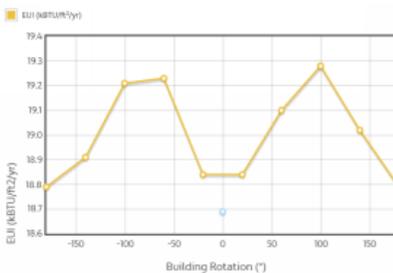
Building 2:



Building 3:



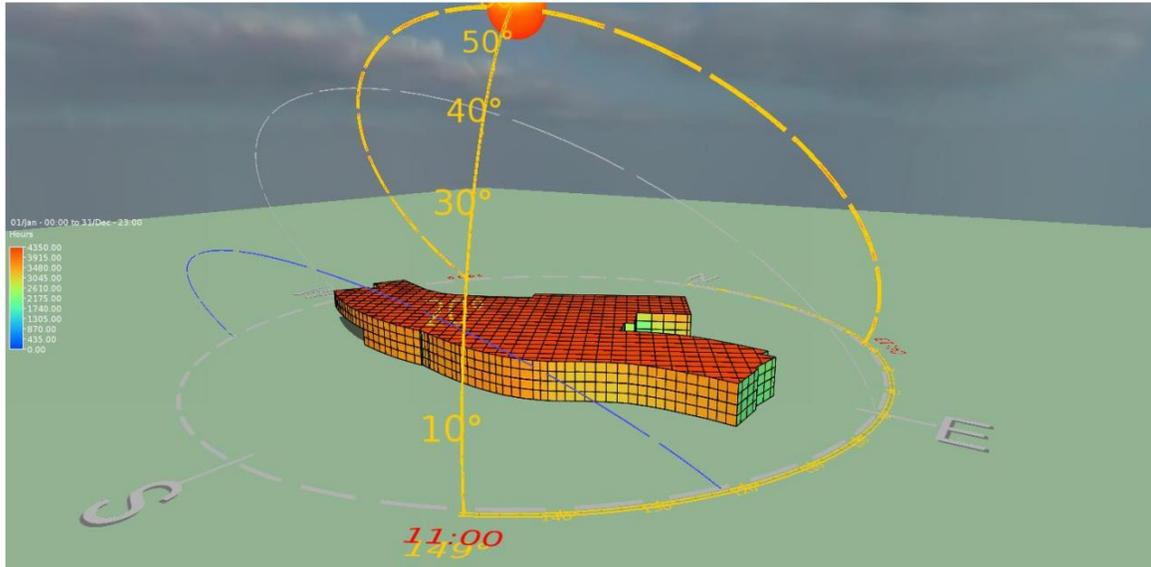
Building 4:



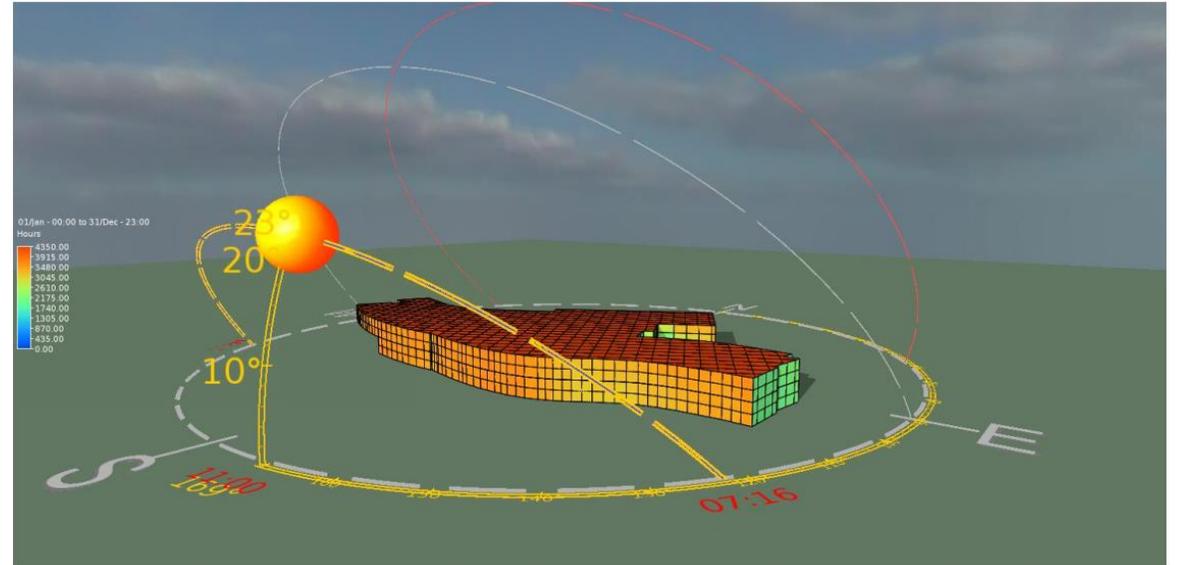


SOLAR GAIN STUDIES

Summer Solstice at 11am (View from Southeast):



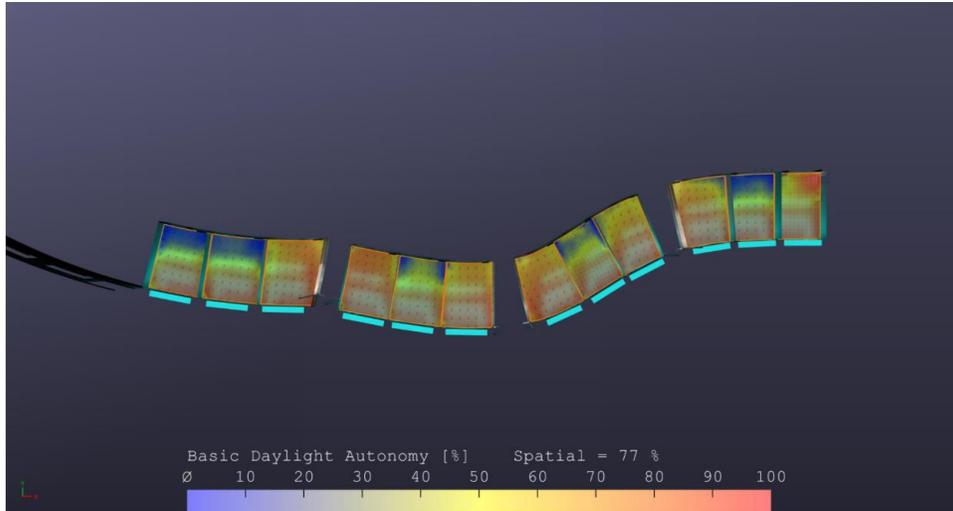
Winter Solstice at 11am (View from Southeast):



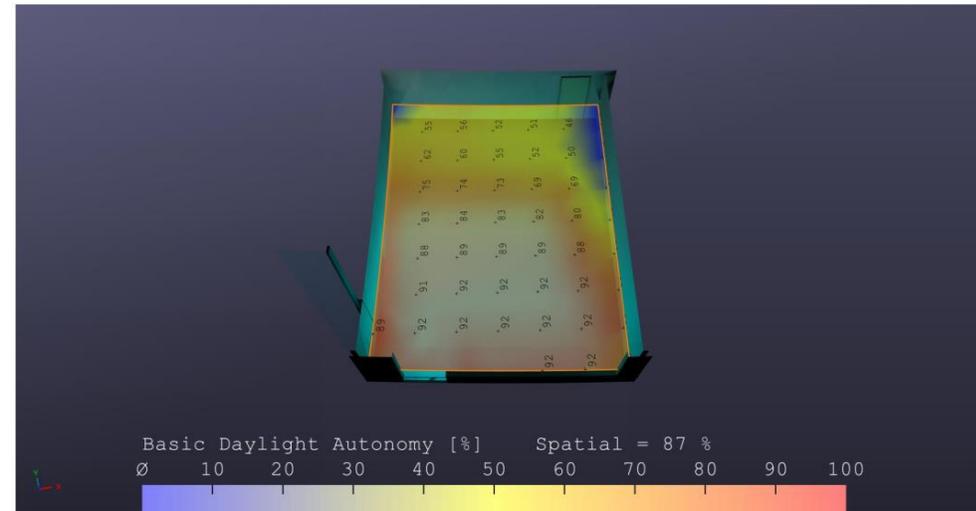


DAYLIGHTING ANALYSIS

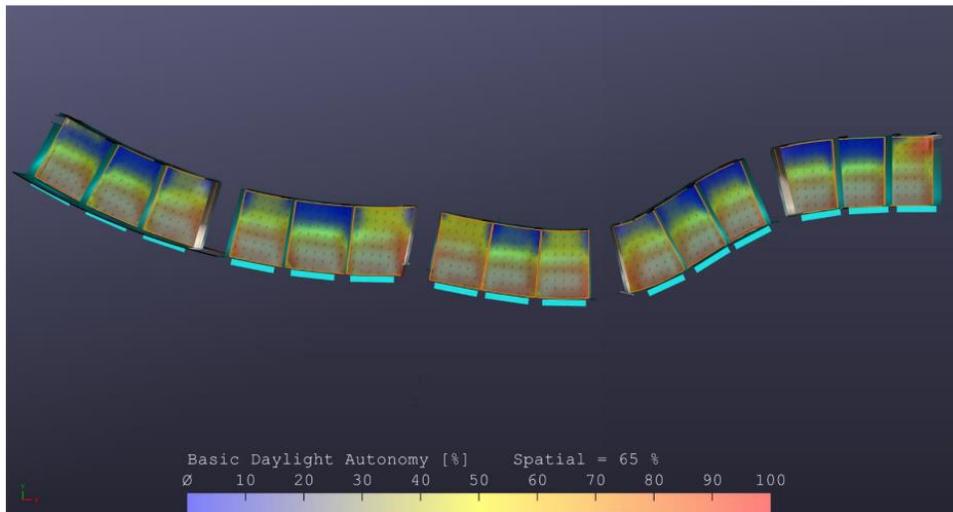
First Floor Classrooms (sDA):



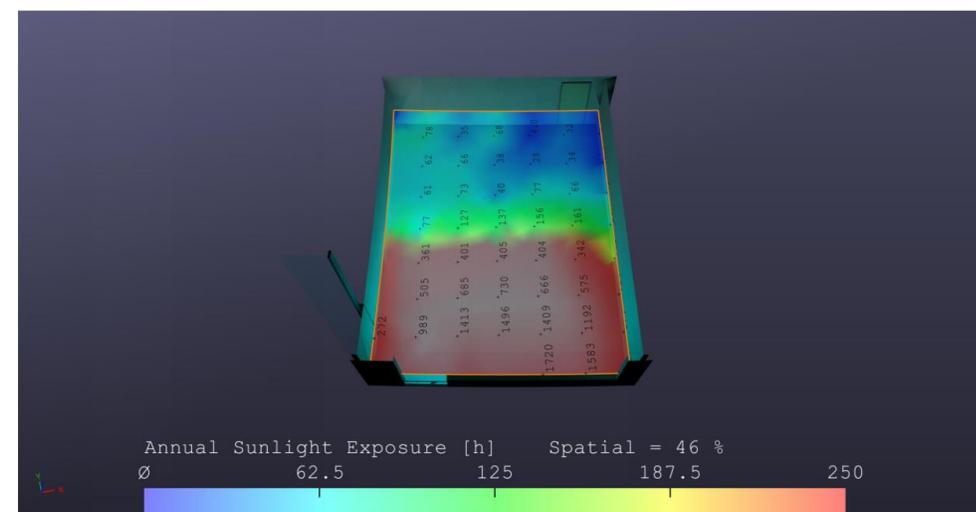
Typical Classroom (sDA):



Second Floor Classrooms (sDA):



All Classrooms (ASE):





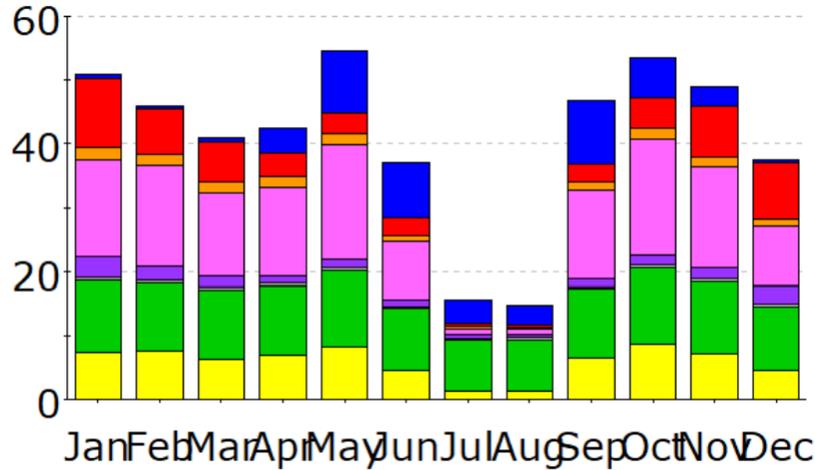
PRELIMINARY DETAILED ENERGY MODEL RESULTS

Mansfield Elementary

DOE-2.2-50a 8/11/2020 17:53:56 BDL RUN 1

REPORT- BEPS Building Energy Performance

WEATHER FILE- Hartford CT TMY2



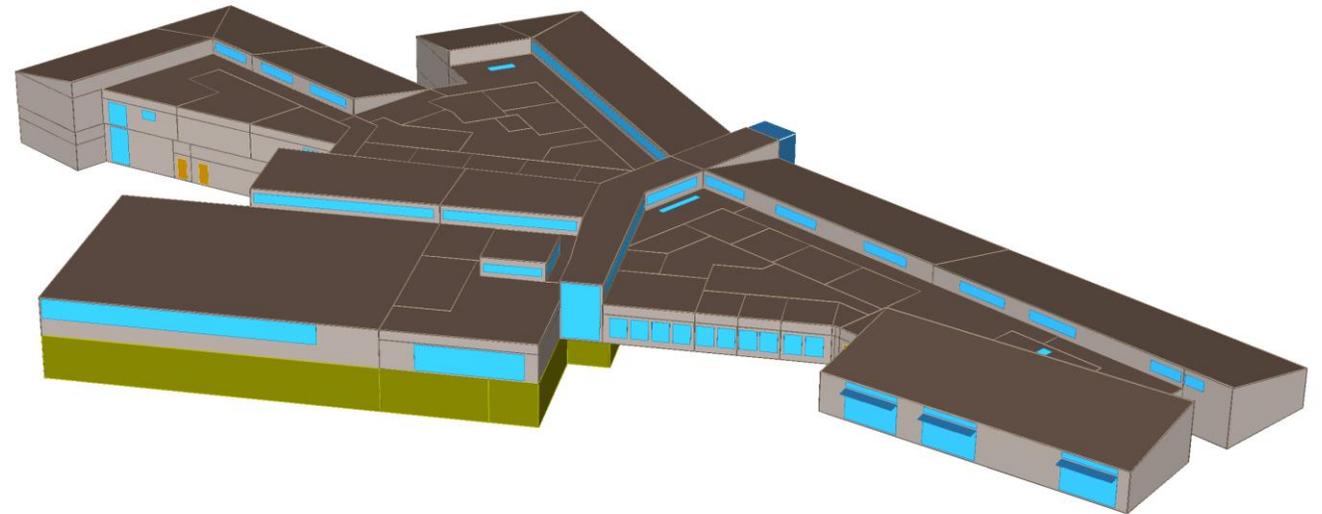
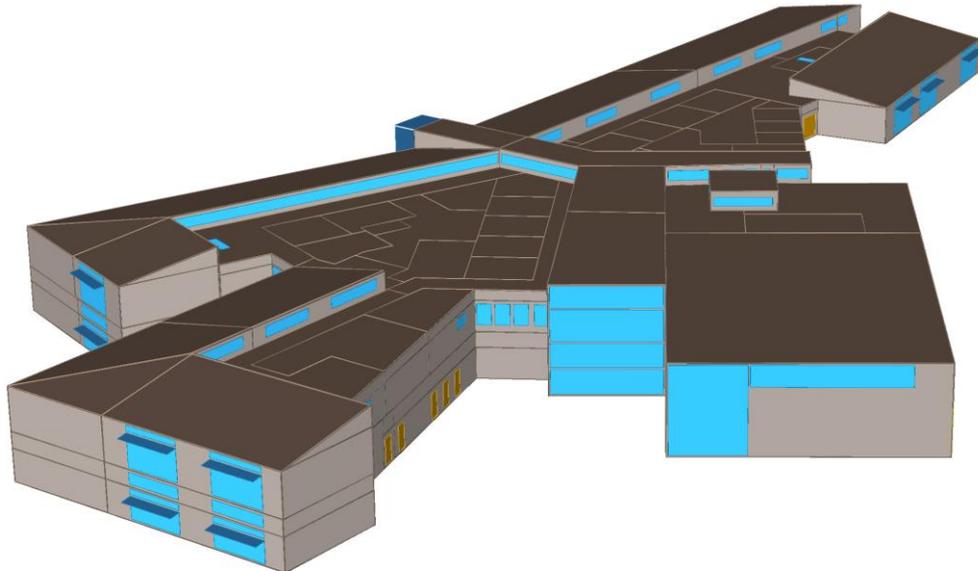
	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EMI ELECTRICITY MBTU	240.2	0.0	427.5	202.9	172.1	0.0	65.6	491.7	0.0	0.0	53.8	14.9	1668.7
FMI NATURAL-GAS MBTU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MBTU	240.2	0.0	427.5	202.9	172.1	0.0	65.6	491.7	0.0	0.0	53.8	14.9	1668.7

TOTAL SITE ENERGY 1668.71 MBTU 20.8 KBTU/SQFT-YR GROSS-AREA
 TOTAL SOURCE ENERGY 5006.13 MBTU 62.4 KBTU/SQFT-YR GROSS-AREA

20.8 KBTU/SQFT-YR NET-AREA
 62.4 KBTU/SQFT-YR NET-AREA

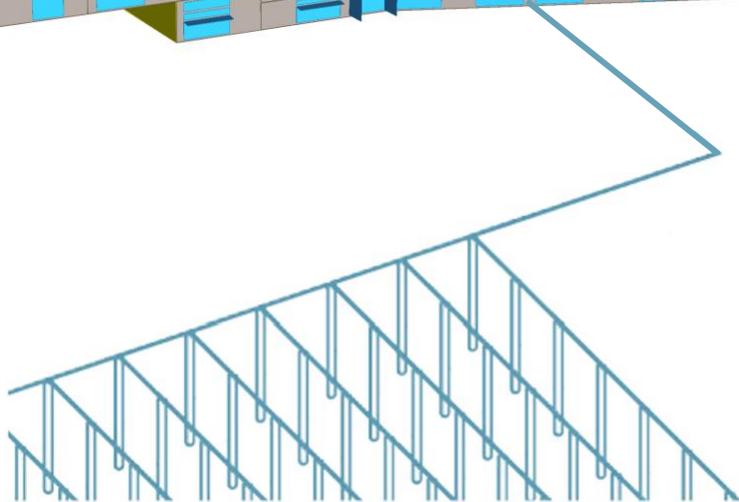
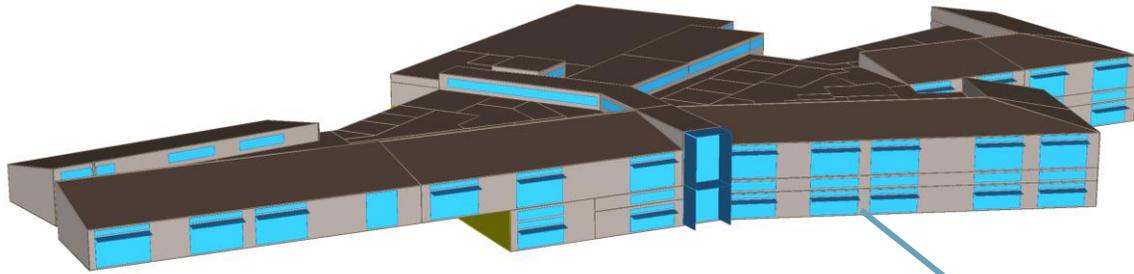
PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.56
 PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.00
 HOURS ANY ZONE ABOVE COOLING THROTTLING RANGE = 49
 HOURS ANY ZONE BELOW HEATING THROTTLING RANGE = 0

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.





GEOHERMAL HEAT REJECTION



VS



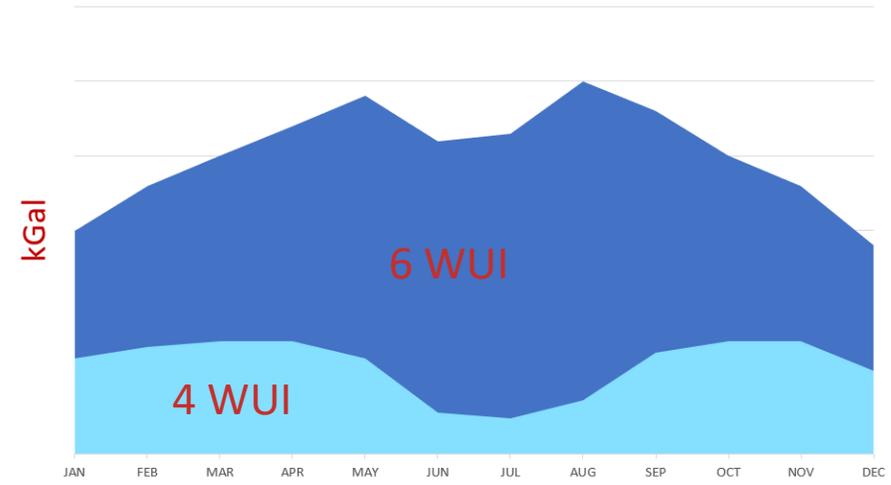
+



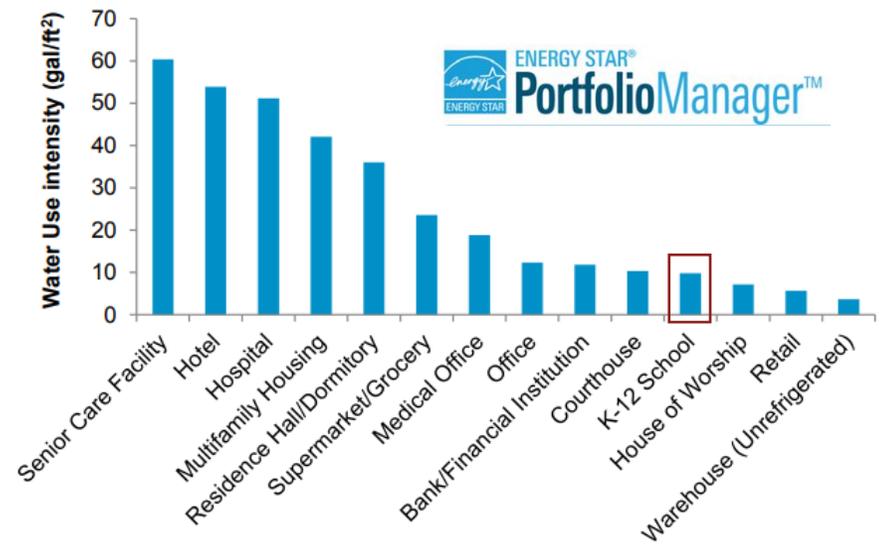


Water Use Intensity (WUI)

Cooling Tower vs. Indoor Water Usage



Median Water Use Intensity



Mansfield Elementary Efficiency Measures

Enhanced Wall & Roof Insulation

Careful Glazing Design

Geothermal Heat Rejection

Multi-Stage Heat Pumps

Dedicated Outdoor Air System (DOAS)

Demand Control Ventilation

Energy Recovery

Mobile Computing Technology

High-Performance Kitchen Design

High Efficacy LED Lighting

Reduced Thermal Bridging

Reduced Air Infiltration

Tuned Exterior Solar Shades

Geo Heat Pump Water Heating

Occupancy/Vacancy Controls

No Reheat!

Building Controls Optimization

Energy Star Appliances

Low Energy IT Infrastructure

Exterior Lighting Motion Sensors

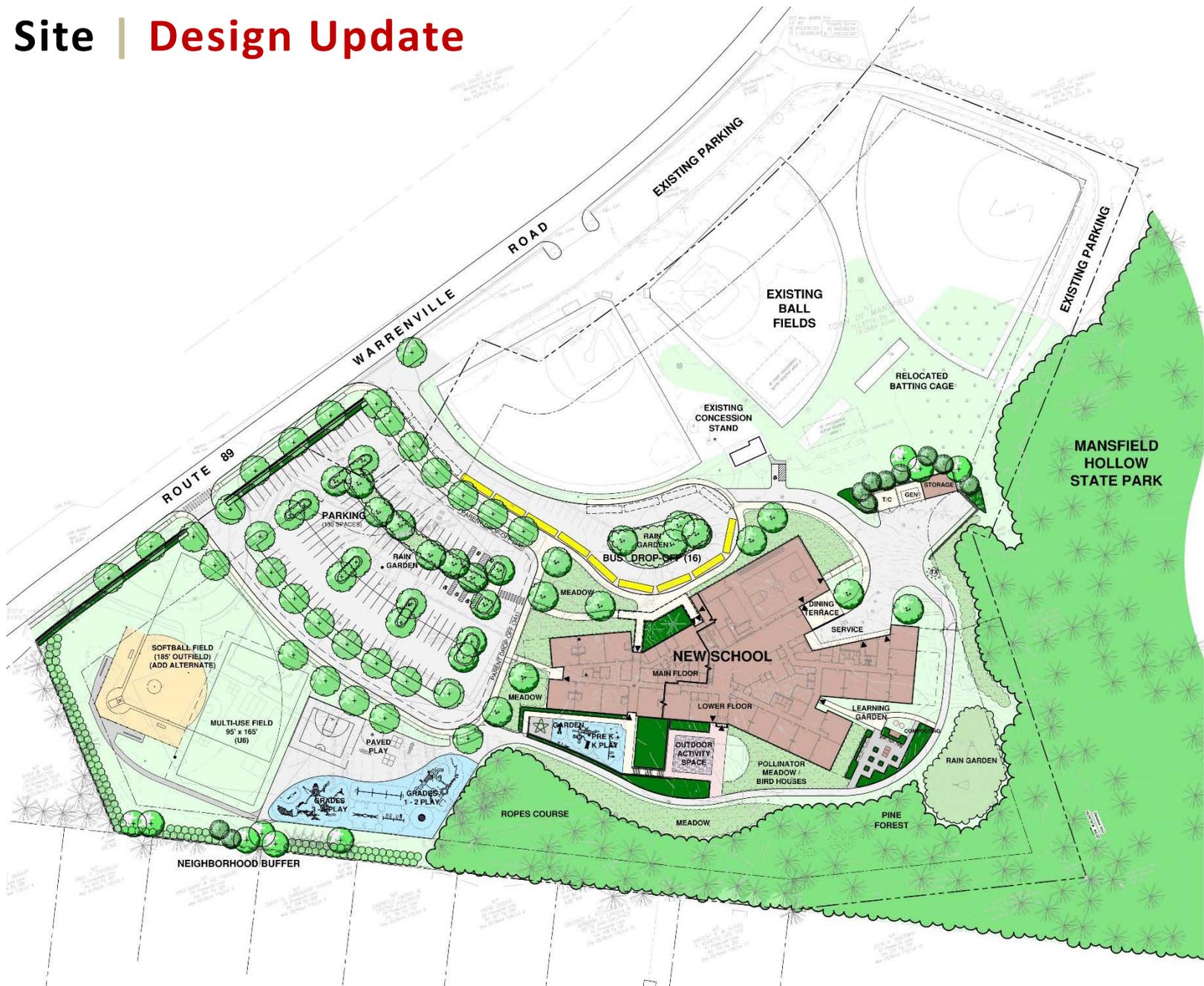
Town of Mansfield Elementary School MSBC Meeting

August 13, 2020



TSKP ARCHITECTURE | PLANNING | INTERIORS
STUDIO

Site | Design Update



Design Update | Custodial Storage Requirements

2- stand on auto scrubbers

8-mop buckets

1-Walk behind carpet machine

1-Carpet spotter

5-vacuums

2-mini floor scrubbers

1-walk behind high speed buffer

2-regular floor scrubbers

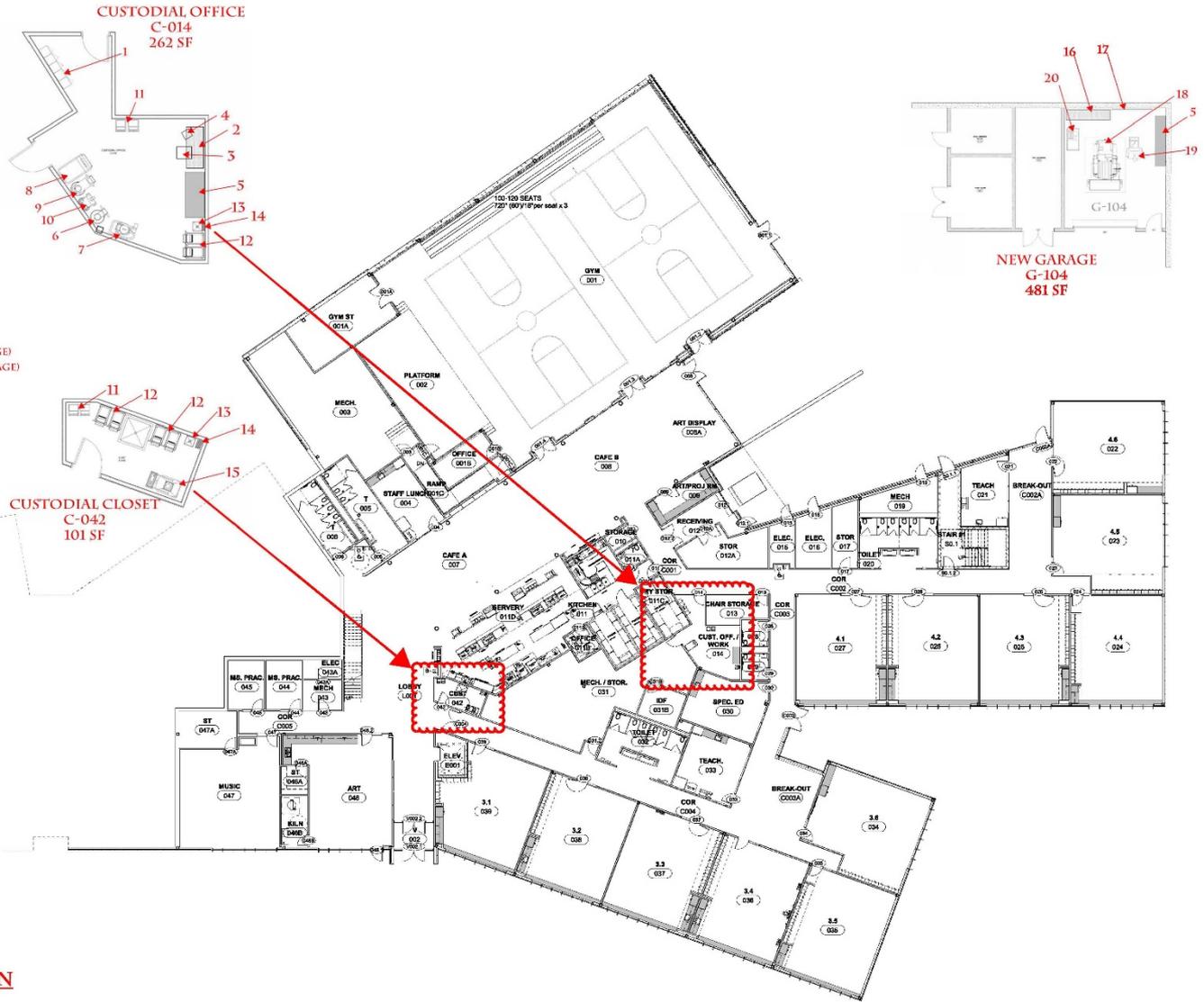
1 bench for equipment and furniture repair in school

Shelving to store 1 months' worth of supplies i.e. paper towel, toilet paper

Design Update | Custodial Storage Requirements

CUSTODIAL SPACES - NEW GARAGE

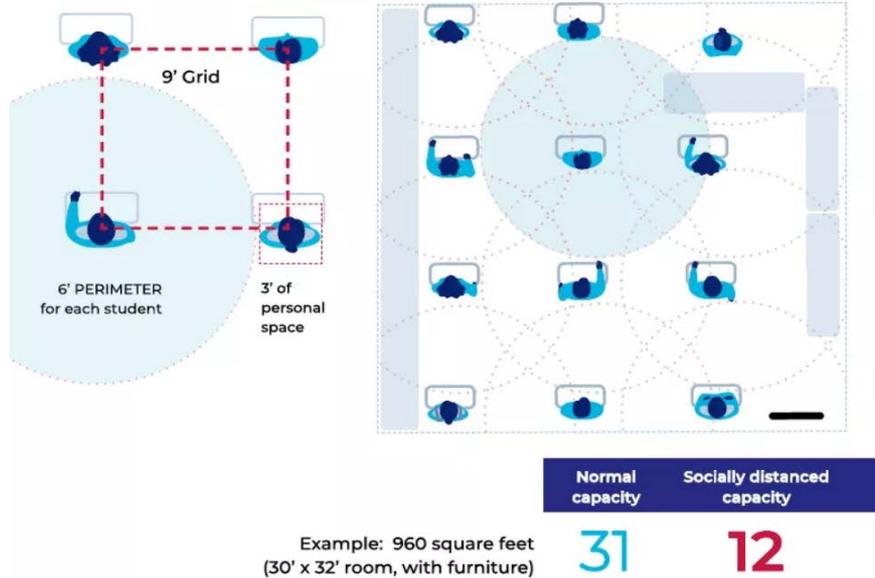
- 1 - LOCKERS (SINGLE)
- 2 - DESK
- 3 - OFFICE CHAIR
- 4 - MOBILE FILING CABINET
- 5 - WORKBENCH
- 6 - HIGH SPEED BUFFER
- 7 - CARPET SPOTTER
- 8 - STAND-ON AUTO SCRUBBER
- 9 - REGULAR FLOOR SCRUBBER
- 10 - MINI-SCRUBBER
- 11 - UPRIGHT VACUUM
- 12 - MOP BUCKET
- 13 - WET FLOOR CONE ML (MULTI-LANGUAGE)
- 14 - WET FLOOR STAND ML (MULTI-LANGUAGE)
- 15 - CARPET EXTRACTOR
- 16 - INDUSTRIAL UTILITY SHELVING
- 17 - SLATWALLS 4' x 8' W/ ACCESSORIES
- 18 - KUBOTA TRACTOR W/ M/D-MOWER
- 19 - SNOW BLOWER
- 20 - AWP30 AERIAL WORK PLATFORM



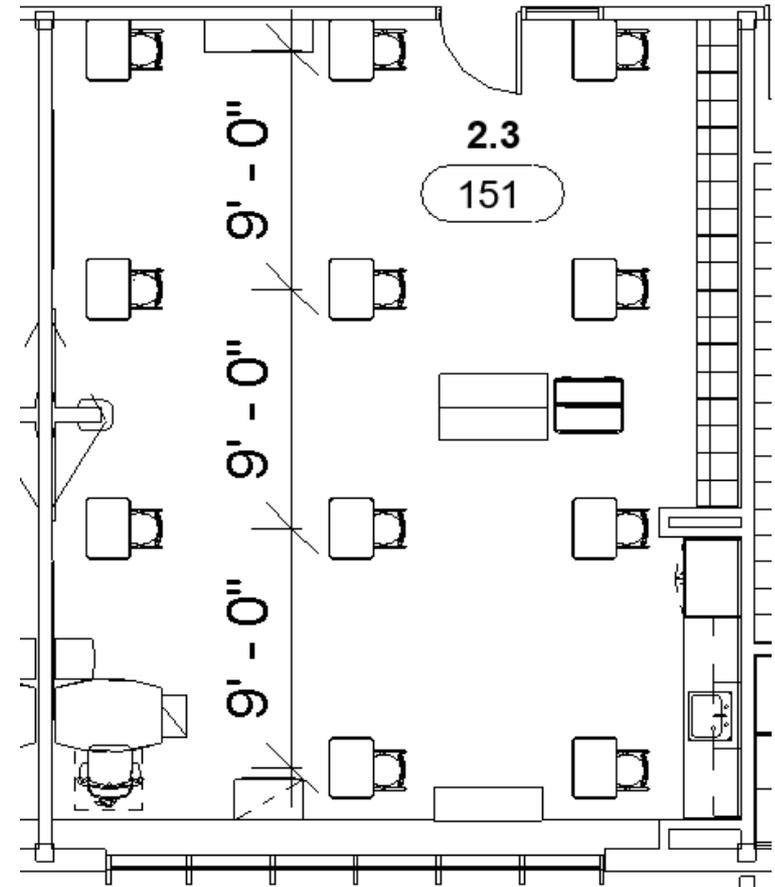
LOWER LEVEL FLOOR PLAN
NOT TO SCALE

Health Issues | Room Occupancy

Arranging Instructional Spaces



Source: <https://www.edweek.org/ew/issues/reopening-schools/the-socially-distanced-school-day.html>
National Council on School Facilities and Cooperative Strategies, Cannon Design Icons: iStock/Getty



800 SF Classroom

Recommendation and Guidelines for Educational Facilities

Information included within is taken from sources such as the CDC, ASHRAE, State of Connecticut and other publications. The recommendations listed here in are guides to provide a safer building environment. They should not be construed as 100% full proof against preventing the spread or contracting Covid-19. All other methods such as washing hands, social distancing, etc. should be followed.

Can HVAC systems spread COVID-19?

There has been very little evidence of HVAC systems spreading the virus.

One case that was been presented - Restaurant in Guangzhou, China

- **Findings from study:**
 - **Recirculating fan coil units**
 - **No fresh air**
 - **No exhaust air**
 - **Ventilation rate was 1/10th of what it would be using ASHRAE**
 - **Only tables adjacent to the infected tables became sick**

Poor ventilation can lead to aerosol contaminants can linger and become more concentrated.

Properly designed HVAC System can decrease the chance of infection.

Recommendations and guidelines for educational facilities

HVAC CONSIDERATIONS

Ways To Reduce The Spread

Humidification, Dilution, Filtration, and/or Inactivation

- Controlling Moisture = Humidification
- Increased Ventilation = Dilution
- Particle Entrapment = Filtration
- UVGI and Bi-Polar Ionization = Inactivation

Recommendations and guidelines for educational facilities

HUMIDIFICATION

Temperature and Humidity Design Criteria

PRIOR TO COVID-19:

- Winter classroom design guidelines 72°F with no humidity control
- Summer classroom design guidelines, 75°F/40-50%RH
- Summer – Air handling units are primarily off

POST COVID-19:

- Winter classroom design guidelines 72°F/40-50% RH
- Summer classroom design guidelines, 75°F/50-60%RH
- Humidification to be provided at the air handling units.
- Summer – Air handling units are on to maintain proper humidity levels



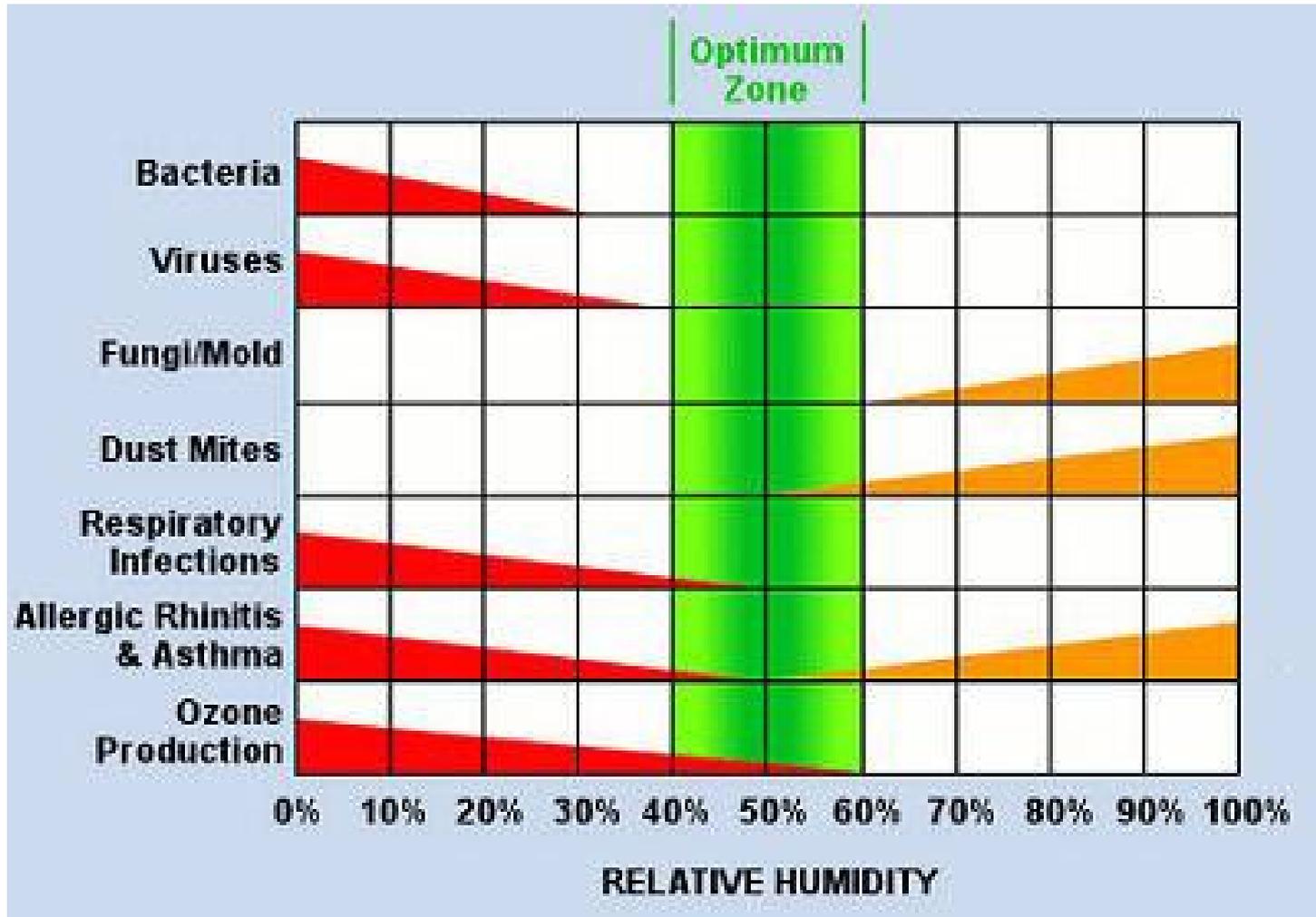
KOHLER RONAN

August 13, 2020

Recommendations and guidelines for educational facilities

HUMIDIFICATION

Why 40-60%RH?



Recommendations and guidelines for educational facilities

VENTILATION

Ventilation Design Criteria

POST COVID-19:

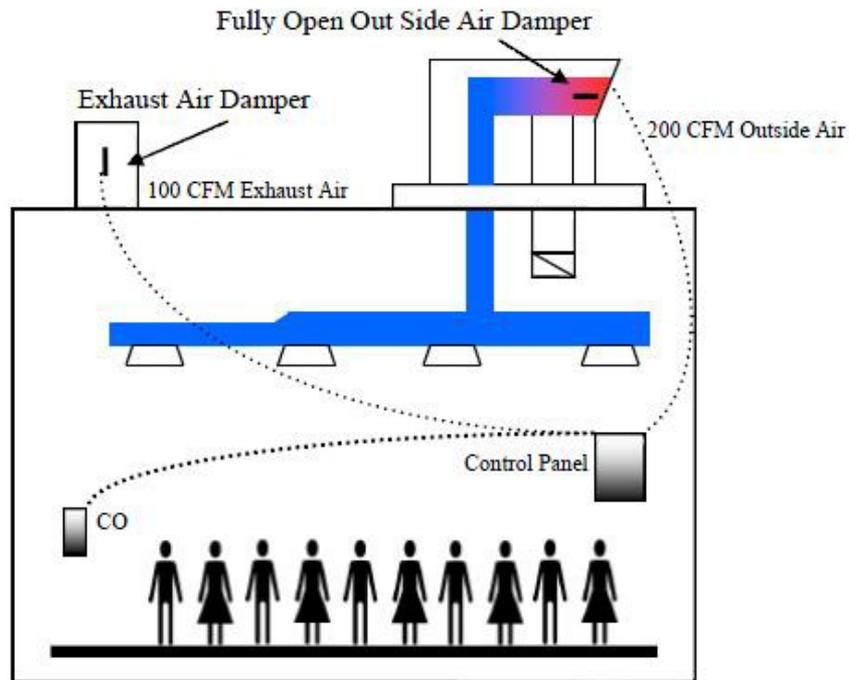
- Provide maximum ventilation air without compromising indoor thermal comfort for learning environment (due to severe thermal outdoor air conditions) or space IAQ due to poor outdoor ambient conditions (pollution).
- Operate air handling units to allow for flushing ventilation starting two (2) hours before building occupancy and one (1) hour post occupancy.
- Ventilation is provided during all hours the building is occupied.
- Exhaust fans operate 24/7
- Demand control ventilation is disabled during a pandemic.

Recommendations and guidelines for educational facilities

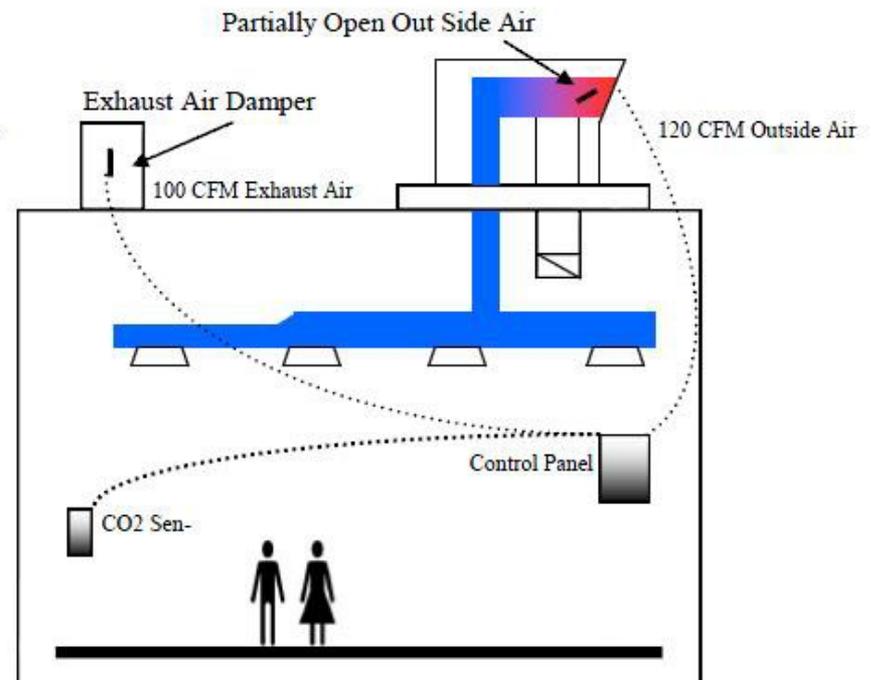
VENTILATION

What is demand controlled ventilation?

DCV System At Full Occupancy



DCV System Partial Occupancy



Recommendations and guidelines for educational facilities

FILTRATION

Air Filtration Criteria

PRIOR TO COVID-19:

- Provide air filters with a MERV rating of 11 or if a LEED building 13.

POST COVID-19:

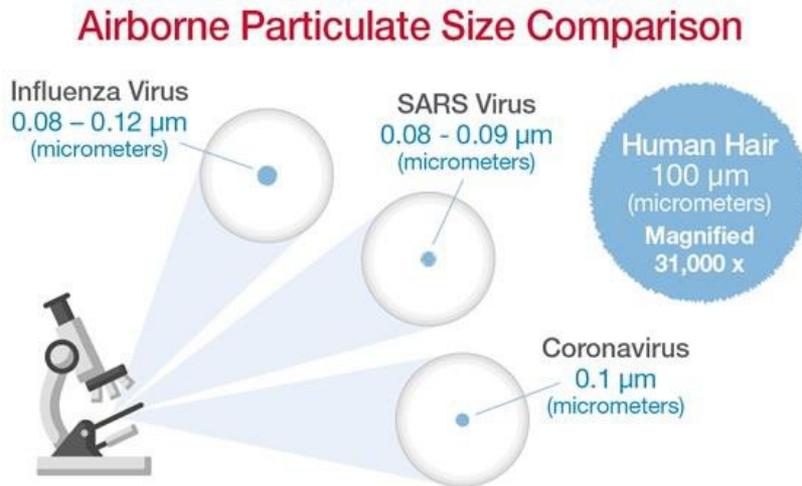
- Provide air filters with a minimum MERV rating of 13, if possible use MERV 14.



Recommendations and guidelines for educational facilities

FILTRATION

What is MERV and how are air filters rated?



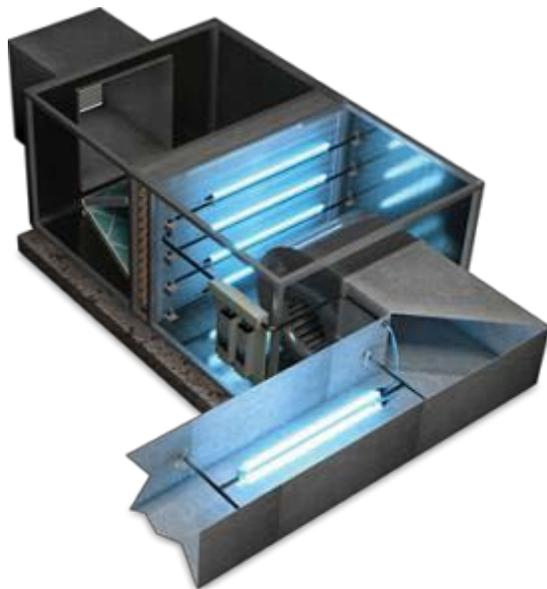
MERV Rating	Minimum % of particles trapped		
	"PM 2.5 Zone"		
	0.3 - 1.0 Microns	1.0 - 3.0 Microns	3.0 - 10.0 Microns
MERV-1	-	-	<20%
MERV-2	-	-	<20%
MERV-3	-	-	<20%
MERV-4	-	-	<20%
MERV-5	-	-	20% - 34%
MERV-6	-	-	35% - 49%
MERV-7	-	-	50% - 69%
MERV-8	-	-	70% - 85%
MERV-9	-	<50%	>85%
MERV-10	-	50% - 64%	>85%
MERV-11	-	65% - 79%	>85%
MERV-12	-	80% - 89%	>85%
MERV-13	<75%	>90%	>85%
MERV-14	75% - 84%	>90%	>85%
MERV-15	85% - 94%	>90%	>85%
MERV-16	>95%	>90%	>85%

Recommendations and guidelines for educational facilities

UVGI

UVGI (Ultraviolet Germicidal Irradiation)

- Infectious airborne microbiological agents, too small to be captured by filtration, can be disinfected as they pass through the "blanket of UVC energy"
- Flexible applications for new units, existing units and retro-fit applications
- Broad spectrum UV light can be harmful to humans, causing skin cancers and cataracts.
- System design to incorporate safety features to prevent accidental exposure to maintenance staff.

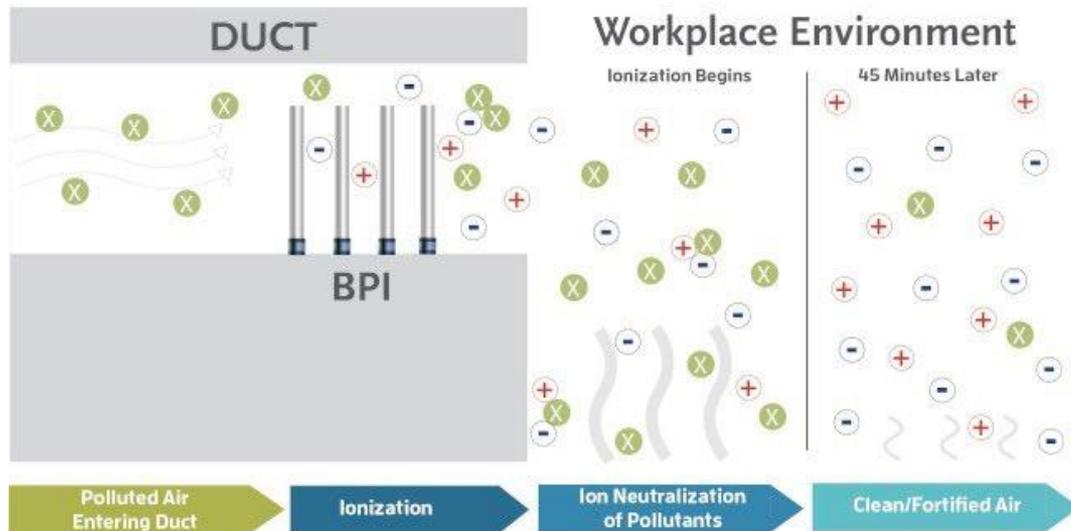


Recommendations and guidelines for educational facilities

IONIZATION

Bi-Polar Ionization

- Bipolar ionization technology releases charged atoms that attach to and deactivate harmful substances like bacteria, mold, allergens, and viruses.
- According to ASHRAE, convincing scientifically-rigorous, peer-reviewed studies do not currently exist on this emerging technology. ASHRAE recommends that manufacturer data should be carefully considered.



Recommendations and guidelines for educational facilities

OTHER CONSIDERATIONS

Plumbing

Touchless activation

Manual faucet and flushometer handles are breeding ground for germs. Providing touch-free activation fixtures improves hygiene and cleanliness. Helps to conserve water and energy.



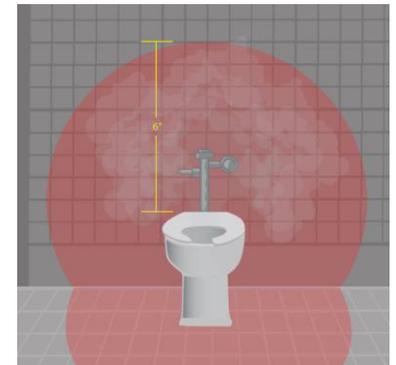
Hand Drying

There is evidence that bathroom hand dryers can disperse bacteria from hands or deposit bacteria on surfaces, including recently washed hands.



Toilet Plume

Research suggests that toilet plume could play a contributory role in the transmission of infectious diseases.



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