



# Leveraging ESSER Dollars to Improve Educational Environments

For the

2021 Midwest Facility Masters Conference/Illinois ASBO PDC

November 2 , 2021

10:20-11:15 AM v2



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*Facility Masters*  
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## Introductions

Ron Richardson, Speaker

- Vice President, FGM Architects

**FGM**ARCHITECTS

Jeff Oke, PE, LEED AP, Speaker

- Principal, IMEG Corp.

 **IMEG**

Aaron Raftery, Speaker

- Account Manager, Trane

**TRANE**  
TECHNOLOGIES

Troy Kerr, Speaker

- Project Manager, FGM Architects

**FGM**ARCHITECTS



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## Agenda

- Elementary and Secondary School Emergency Relief (ESSER) Program Highlights
- Projects that would promote social distancing and safe in-person instruction
- Repair, replacement, and upgrade projects to improve the indoor air quality in school facilities
- Importance of long-range planning
- Questions

# Funding Programs

From the May 2021 US Department of Education's Frequently asked Questions summary.

- Of the five programs in the Education Stabilization Fund (ESF) to prevent, prepare for, and respond to the COVID-19 emergency, we will be looking at ARP ESSER
  - “ESSER I”: The ESSER Fund established in the CARES Act.
  - “ESSER II”: The additional funding for ESSER provided in the CRRSA Act.
  - **“ARP ESSER”: The additional funding for ESSER provided in the ARP Act.**
  - “GEER I”: The GEER Fund established in the CARES Act.
  - “GEER II”: The additional funding for GEER provided in the CRRSA Act.

# Activities

The activities that are listed in section 18003(d) of the CARES Act, section 313(d) of the CRRSA Act, and section 2001(e) of the ARP Act that an LEA may support with ESSER funds are:

- 17-School **facility repairs and improvements to enable operation of schools to reduce risk of virus transmission and exposure to environmental health hazards, and to support student health needs.**
- 18- Inspection, testing, maintenance, repair, replacement, and upgrade **projects to improve the indoor air quality** in school facilities, including:
  - **mechanical and non-mechanical heating**
  - **ventilation**
  - **air conditioning systems**
  - **filtering**
  - **purification**
  - **other air cleaning, fans, control systems**
  - **window and door repair and replacement**



# New Construction

New construction/remodeling: B-6: May ESSER and GEER funds be used for construction?

- **Yes.** Construction is authorized under Title VII of the ESEA (Impact Aid) and therefore is an allowable use of GEER and ESSER funds under sections 18002(c)(3) and 18003(d)(1) of the CARES Act, sections 312(c)(3) and 313(d)(1) of the CRRSA Act, and section 2001(e)(2) of the ARP Act.
- The broad Impact Aid definition of “construction” includes **new construction** as well as **remodeling, alterations, renovations, and repairs** under which many activities related to COVID-19 would likely fall (see FAQ for additional detail).
- However, **the Department discourages LEAs from using ESSER and GEER funds for new construction** because this use of funds may limit an LEA’s ability to support other essential needs or initiatives. Remodeling, renovation, and new construction are often time-consuming, which may not be workable under the shorter timelines associated with ESSER and GEER funds. These types of activities are also subject to a number of additional Federal requirements,



# Renovation

Renovation: B-7. May ESSER and GEER funds be used for **renovation**, including for such projects as making improvements to a school facility to improve indoor air quality (such as heating, ventilation, and air conditioning (**HVAC systems**)), and projects that would **promote social distancing and safe in-person instruction**?

- **Yes.** ESSER and GEER funds may be used to make necessary improvements, for example to improve air quality and support social distancing, so that teachers and students may safely return to and continue in-person instruction. As is the case with all activities charged to ESSER or GEER, costs must be reasonable and necessary to meet the overall purpose of the program, which is “to prevent, prepare for, and respond to” COVID-19. (See 2 CFR § § 200.403-200.404.) Therefore, renovation or remodeling activities that are necessary for an LEA to prevent, prepare for, and respond to COVID-19 would be permissible.
- This might include
  - renovations that would permit an LEA to clean effectively (e.g., **replacing old carpet with tile that could be cleaned more easily**) or
  - create a learning environment that could better sustain social distancing (e.g., **bringing an unused wing of a school into compliance with fire and safety codes** in order to reopen it to create more space for students to maintain appropriate social distancing). This might also include, for example, as noted in section 2001(e)(2)(O)-(P) of the ARP Act



# HVAC comments:

- In implementing any allowable ESSER or GEER activity, a grantee or subgrantee must follow all applicable Federal, State, and local standards and policies (e.g., building codes or specifications for HVAC systems, which may be consistent with standards identified by the EPA, CDC, or World Health Organization).
- If an LEA uses funds for HVAC systems, the Department's regulation at 34 CFR § 75.616(c) **requires the use of American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) standards.**
- A State, SEA, or LEA might also consider using ESSER or GEER funds to establish a program for **assessing and improving HVAC systems.** Such a program could also require verification that proper ventilation is occurring, such **as through the use of carbon dioxide (CO2) monitors.**



# HVAC comments:

- Please note that the Environmental Protection Agency (EPA) has a variety of publications that can assist education leaders in improving the indoor air quality in schools. EPA resources on indoor air quality in schools can be accessed at: <https://www.epa.gov/iaq-schools>.
- The EPA has information available at: <https://www.epa.gov/coronavirus/air-cleaners-hvac-filters-and-coronavirus-covid-19> on some indoor air filtration devices that use **bipolar ionization technology**, which has the potential to create ozone. **EPA states that ozone generators should not be used in occupied spaces.** If choosing to use a device that incorporates bipolar ionization technology, EPA **recommends using a device that meets UL 2998 standard certification (Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners)** and notes that there are many air cleaning devices that do not use bipolar ionization.
- In addition, the CDC provides information on improving ventilation in schools at: <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html> and in buildings at: <https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html>.

# Other items if interest:

- Approved construction projects must comply with applicable Uniform Guidance requirements, as well as the Department's regulations regarding construction at 34 CFR § 76.600. As is the case with all remodeling or construction contracts using laborers and mechanics financed by **Federal education funds**, an LEA that uses ESSER or GEER funds for minor remodeling, renovation, repair, or construction contracts over \$2,000 must meet all **Davis-Bacon prevailing wage requirements** and include language in the contracts that all contractors or subcontractors must pay wages that are not less than those established for the locality of the project (prevailing wage rates). (See 20 U.S.C. 1232b Labor Standards.) (See also FAQ B-6.)



# Other items if interest:

## Buy American Act provisions

- 2 CFR § 200.322 Domestic preferences for procurements.  
(a) As appropriate and to the extent consistent with law, the non-Federal entity **should, to the greatest extent practicable** under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

# Other items if interest:

E-3. What is the **timeline** for an SEA or LEA to obligate funds under ARP ESSER?

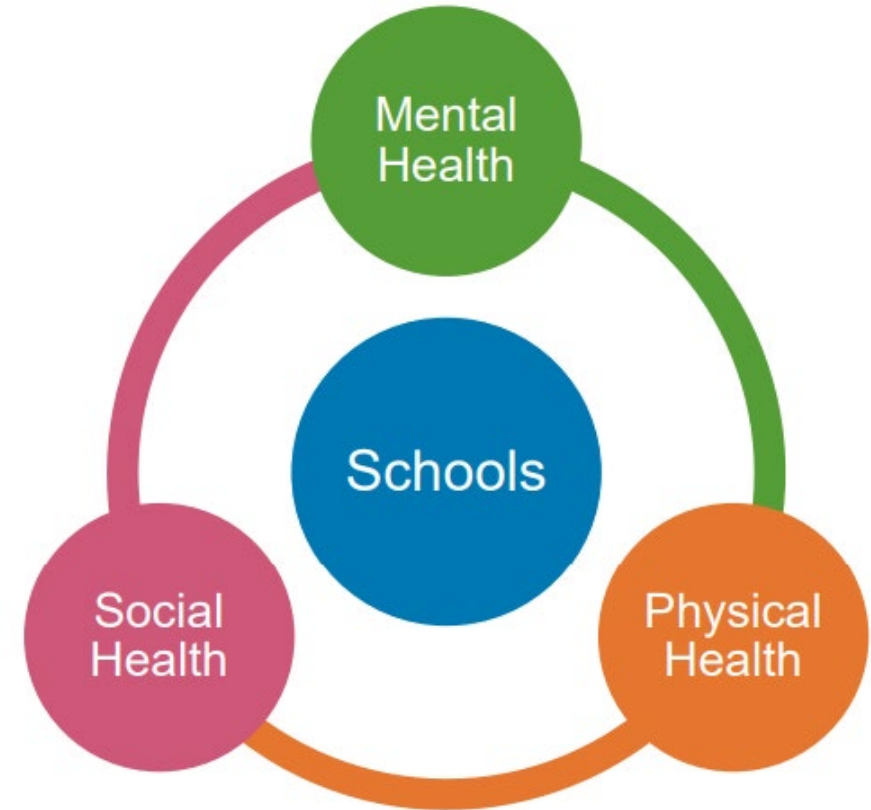
- An SEA or LEA has until **September 30, 2024**, to obligate the ARP ESSER funds it receives. This includes the 12-month Tydings Amendment period. Although funds must be obligated by September 30, 2024, grant activities carried out through a valid obligation of funds may continue beyond that date. Under 2 CFR § 200.344(a), ESSER funds must be liquidated within 120 calendar days after the end of the performance period (September 30, 2024).



# Renovation & New Construction Projects

## Best Practices for Design

- Promote Social Distancing and Safe In- Person Instruction
- Provide Flexibility for Instruction
- Technology for Virtual Delivery
- Improve Student Services
- Student & Staff Wellness



# CLASSROOMS

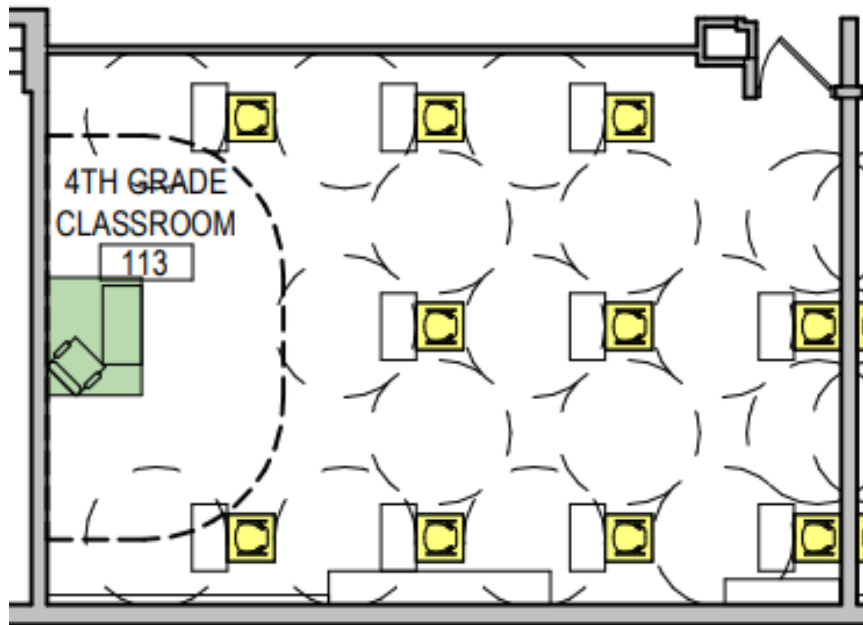
- Social Distancing
- Easily Reconfigured Seating
- Flexible Planning
- Increased Room Sizes
- Personalized Learning



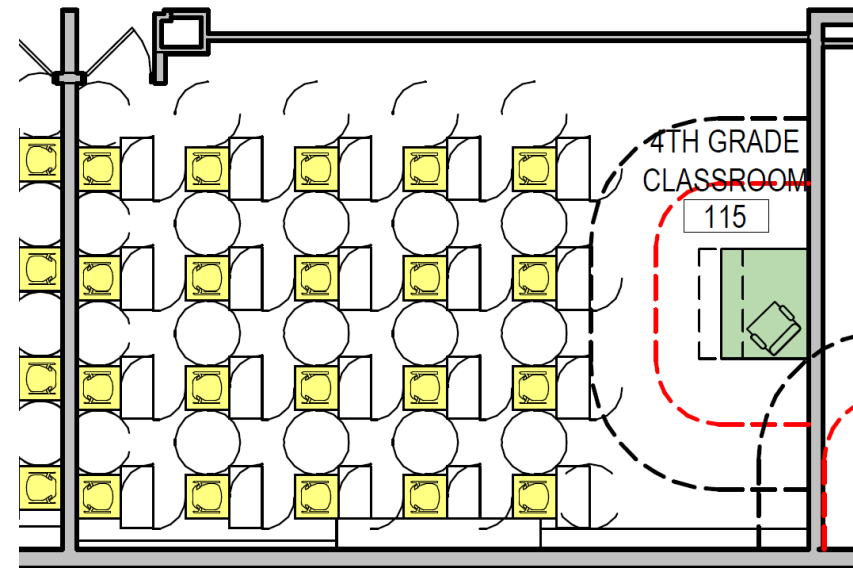


# Classrooms

## Social Distancing – Planning Strategies



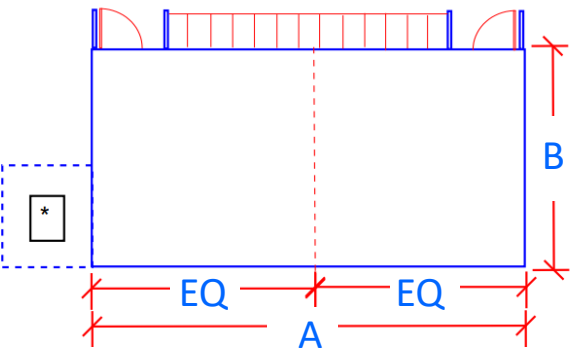
6 Foot Spacing  
Likely unsustainable



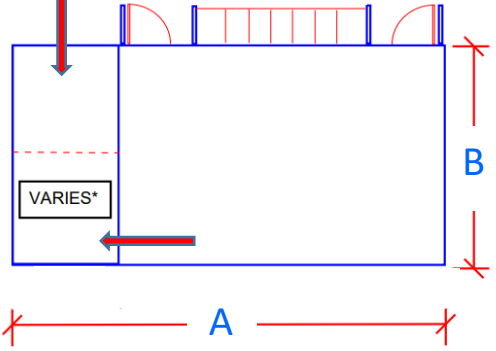
3 Foot Spacing  
Affordable Best Practice

# Classrooms

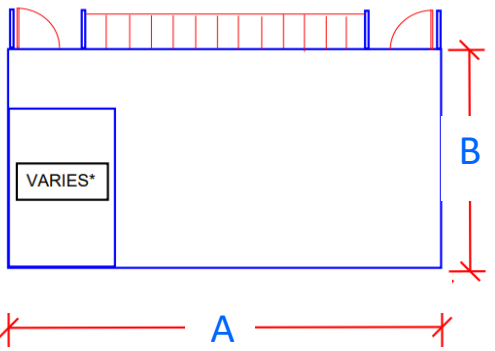
## Flexible Planning: A Kit-of-Parts Approach



2 Classrooms  
=Multi-Purpose Room  
Optional storage/office



Specialty Classroom  
Associated or Non-  
Associated Function

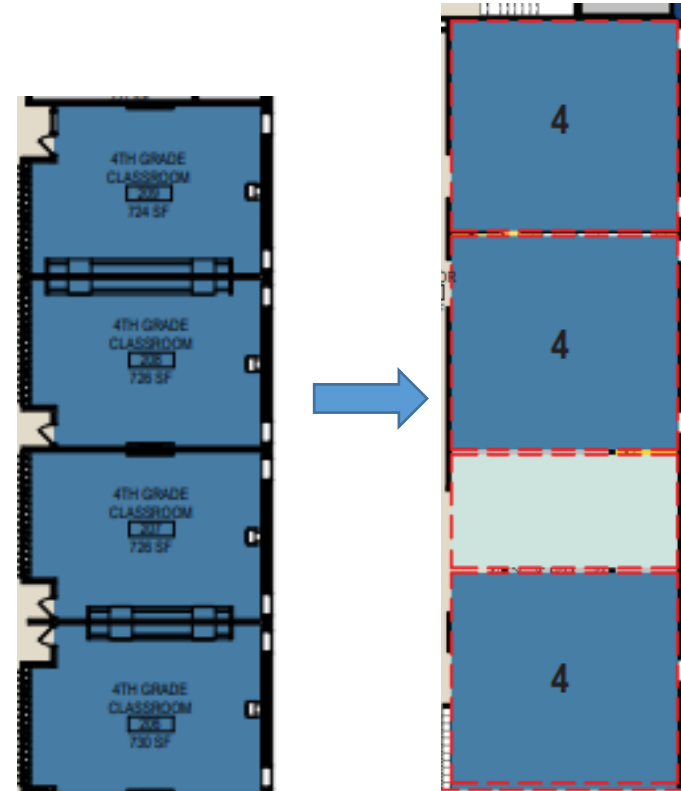


Specialty Classroom  
Storage or Office  
Requirement

# Classrooms

## Increased Room Sizes

- Student spacing hinges on classroom layout
- Coordinate with building structure
- Incorporate Small Group

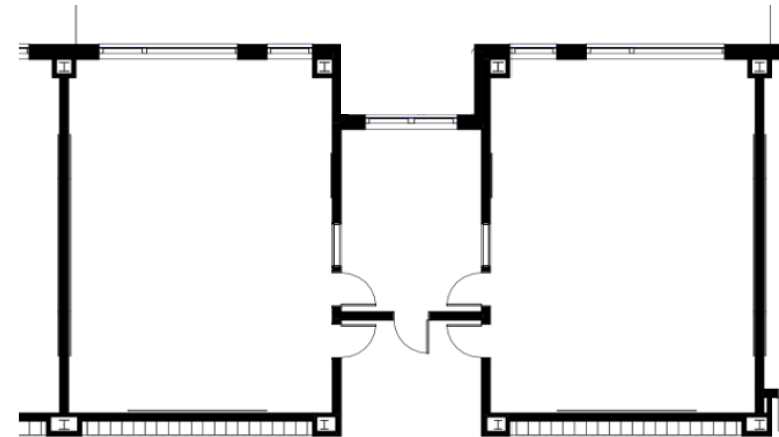
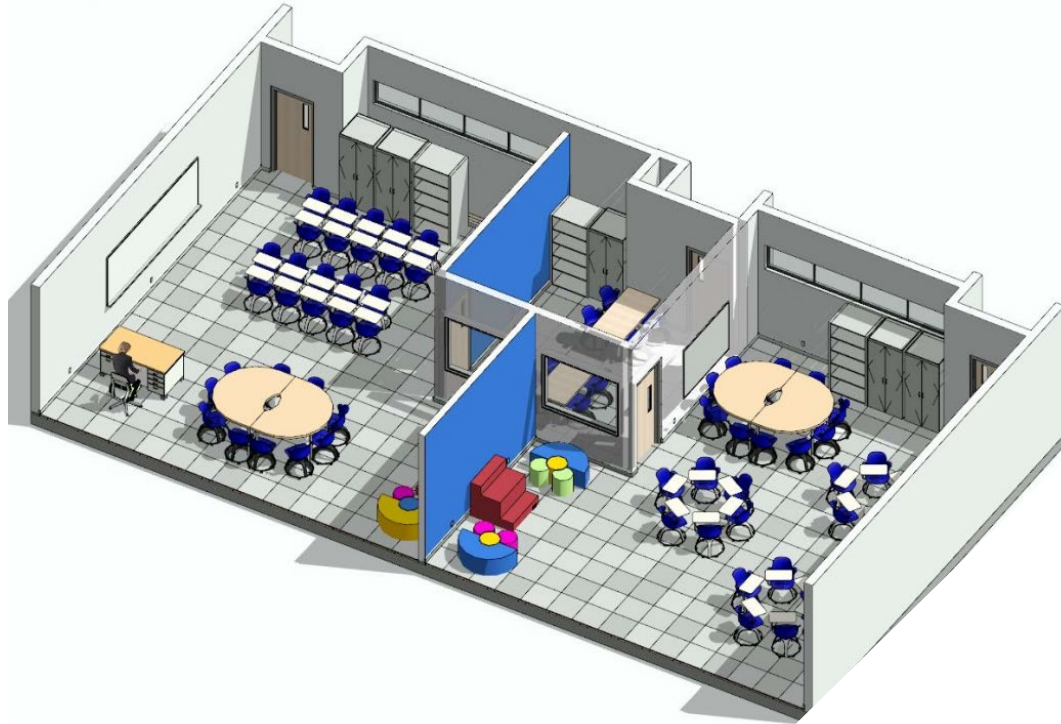




# Classrooms

## Small Group Rooms

- Personalized Learning & Instruction
- Small Group Work
- Flexible for SPED & Office



# Classrooms

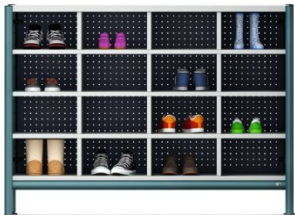
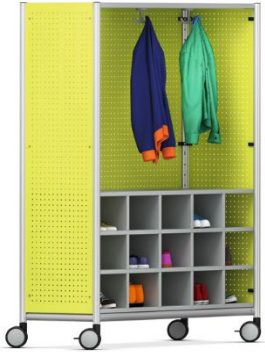
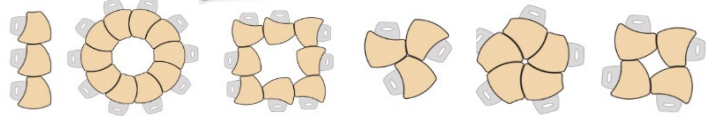
## Flexibility

- Flexible & Demountable Walls
- Designs to support Asynchronous Learning
- Consideration for Power Technology





# Classrooms Flexibility





# Flexible Space for Health & Wellness

## Upgrading Indoor & Outdoor Spaces

- Accommodate physical activity while following public health protocols



# Flexible Space

## Cafeteria

- Adequate room for social distancing & sufficient time to eat
- Equipment & space for fresh & healthy food choices
- Quick Cleaning and Rearrangement all types of furniture





# Flexible Space

## Multipurpose Rooms & Gymnasias

- Ensure Social Distancing
- Provide Adequate Ventilation or Activities
- Flexible Assembly Space Easily Subdivided
- Acoustical Considerations





# Flexible Space for Health & Wellness

## Outdoor Areas for P.E. & Recess

- More space for instruction
- Engage students in moderate-to-vigorous physical activity
- Features



# Outdoor Learning

- Bringing the Curriculum Outside
- Benefits of Outdoor Play





# Outdoor Learning

## Bringing the Curriculum Outside

A variety of outdoor spaces can support socialization and activities that might ordinarily take place in the classrooms and can be brought outside including STEM, Art, Music, and Writing.





# Mental, Physical, & Social Health

## Outdoor Learning

- Engages children longer
- Improves self-regulation
- Less competitive
- Promotes confidence



# Mental, Physical, & Social Health

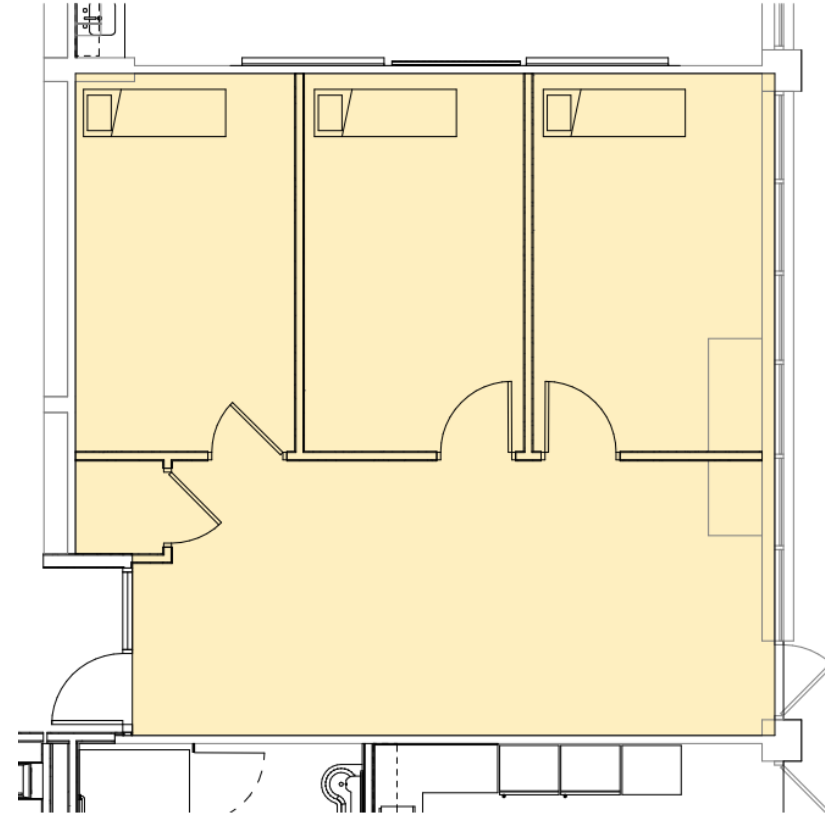
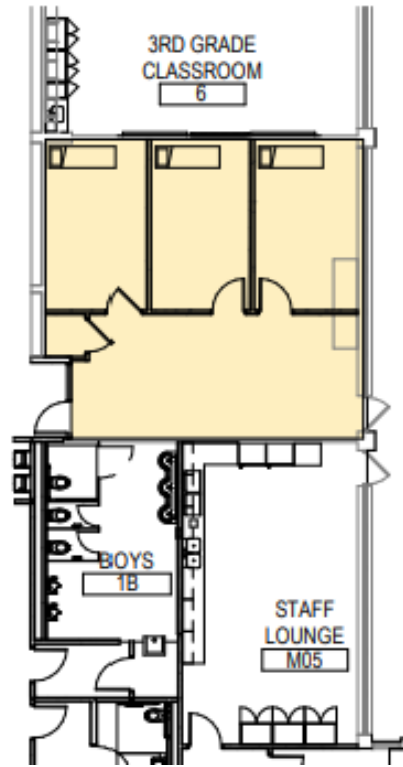
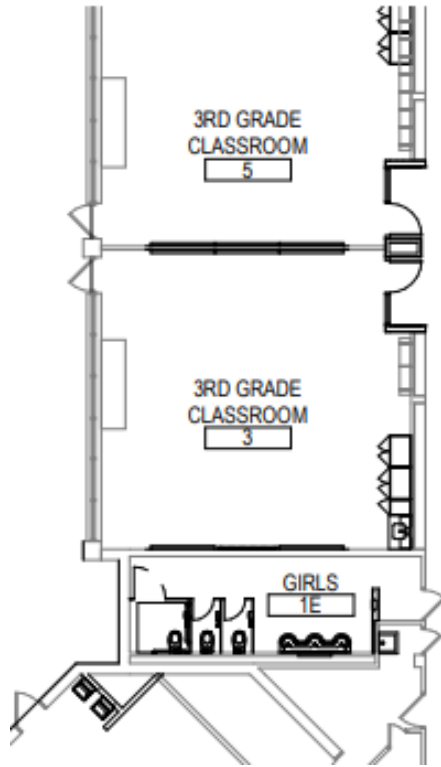
School-Based Health Center / Office

Retrofit school health office or school-based health center



# Mental, Physical, & Social Health

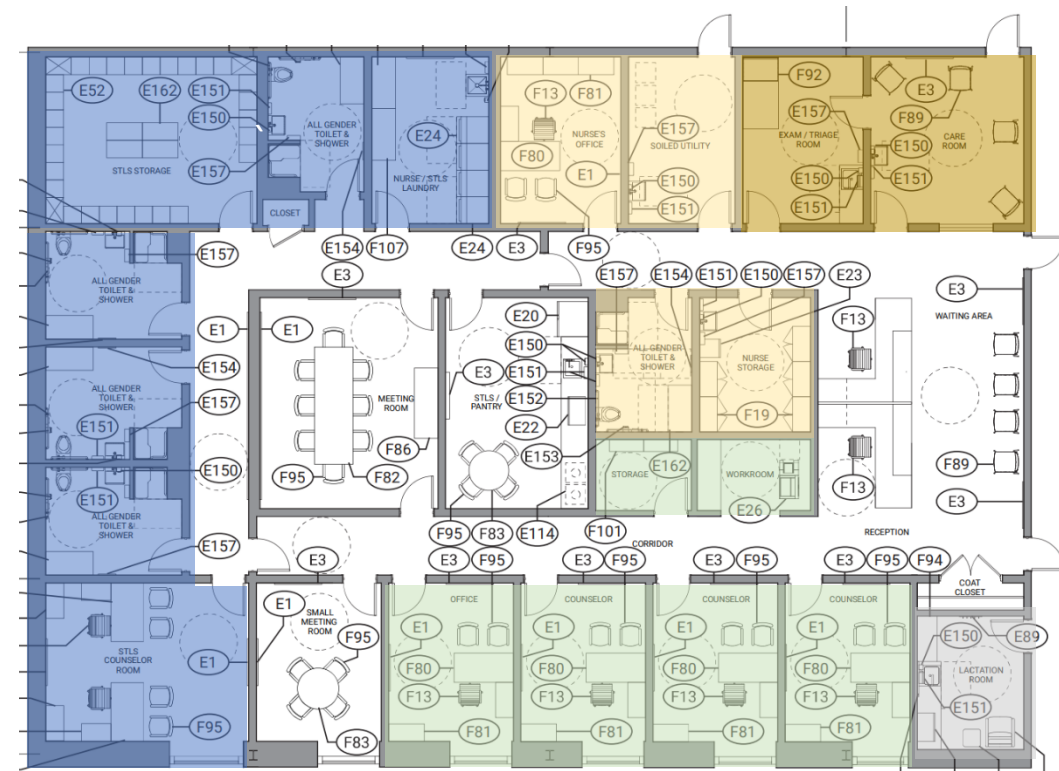
## School-Based Health Center / Office





# Mental, Physical, & Social Health School-Based Health Center / Office

- Planning for flexible service.
- Triage level of care
- Respond to social-emotional effects of the pandemic
- Services
  - Medical
  - Counseling
  - Homeless Support
  - Mothers Room



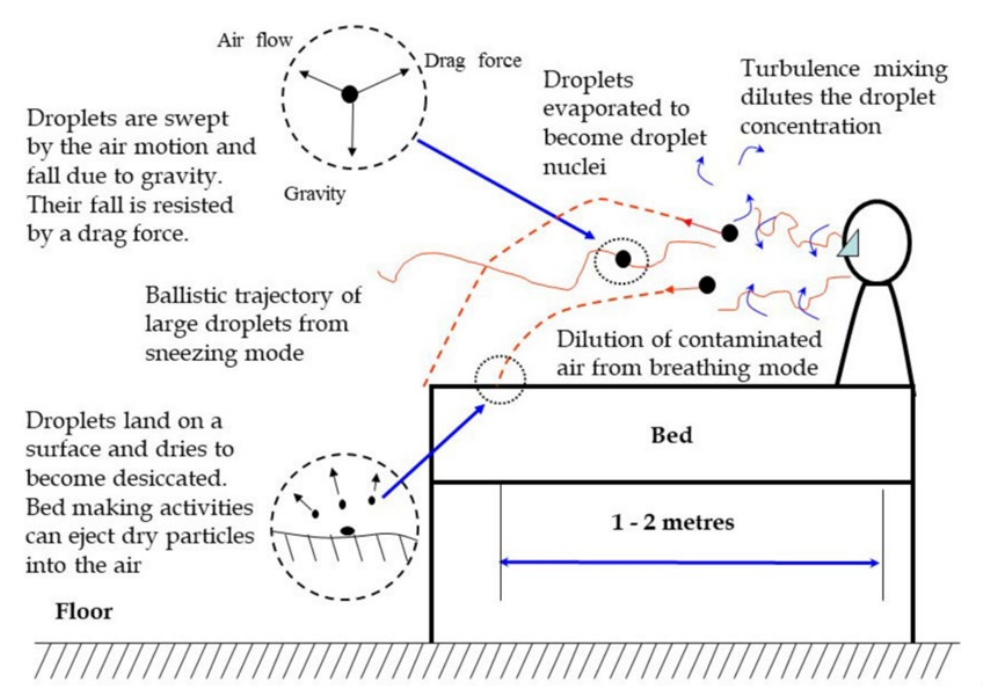
# Facility Goals

- Provide options improve the safety of the facility
- Provide recommendations for School Districts to improve the safety of the facility for the students and faculty



# TRANSMISSION ROUTES

- Aerosol form
  - Aerosolized is the suspension of a liquid or solid (virus) in air or another gas. A true aerosolized particle can remain suspended in the air for several hours depending on temperature, particle size, and humidity.
- Droplet form
  - A liquid or solid (virus) is airborne for a few seconds after someone sneezes or coughs.
  - Droplets only travel a short distance before gravity pulls them down to space surfaces.
  - Surface cleaning and sterilization is more effective for combating droplet-borne viruses than most HVAC strategies.

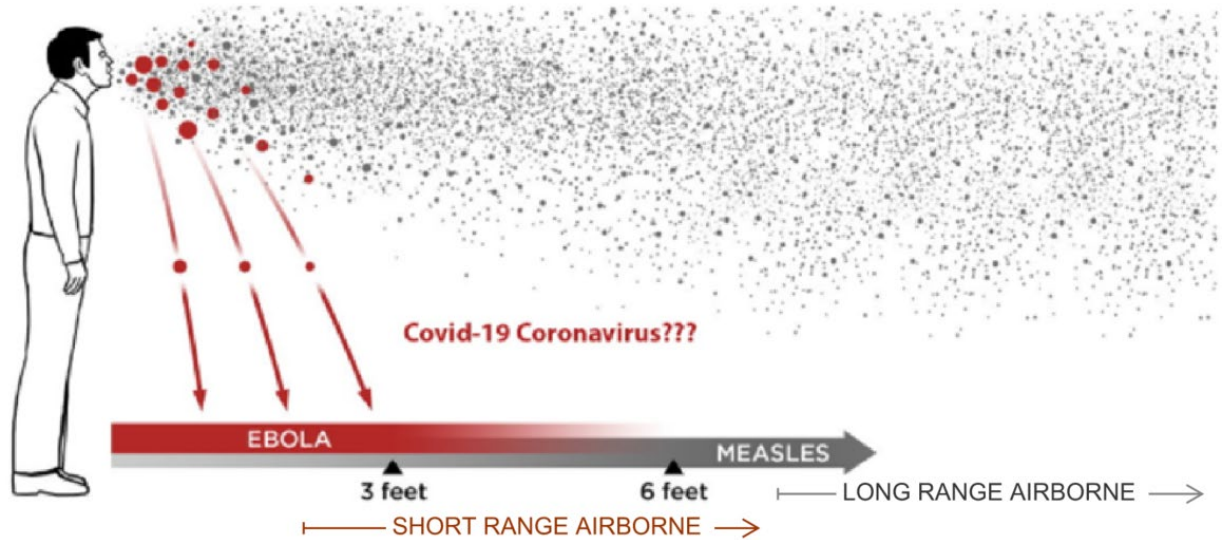


Theoretical aerobiology of transmission of droplets and small airborne particles produced by an infected patient with an acute infection (courtesy Yuguo Li). (Image courtesy [ASHRAE Position Document on Infectious Aerosols](#) – free public download from ASHRAE.org).



# TRANSMISSION ROUTES

- SARS-CoV-2 Transmission
  - Long Range Airborne: Travels long distances. Can potentially travel through multiple spaces.
  - Short Range Airborne: Travels relatively short distances. Travel distance typically limited to one room or space.
  - Evidence continues to show the coronavirus is predominantly spread via droplet transmission and short range airborne.
  - Little evidence of long range airborne
  - Newer evidence shows particles can be affected by air movement.
- Bottom Line: Health Industry is still studying and debating

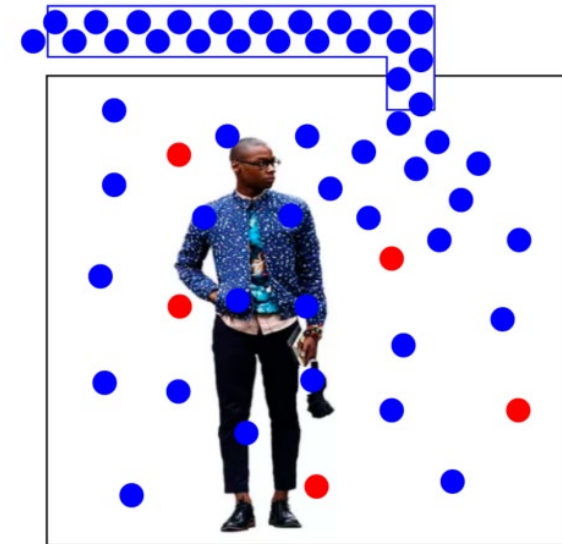
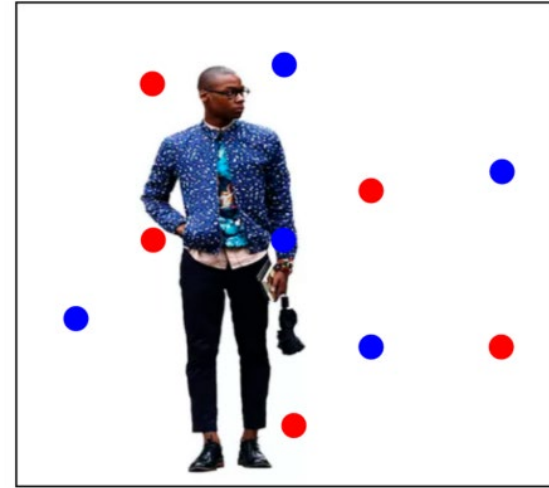


Airborne vs. Aerosolized

# Facility recommendations

# INCREASED VENTILATION

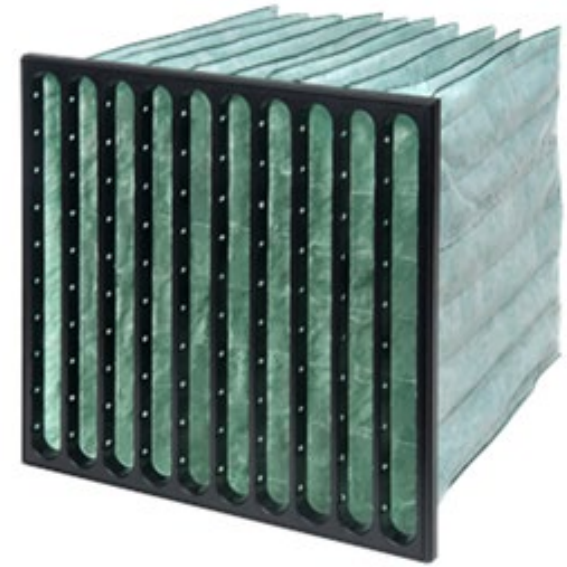
- **Confirm outdoor air dampers are operating properly**
- Hire a test and balance company to confirm outdoor airflow rate
- **Increase outdoor air ventilation to improve dilution**
- Increase air changes
- Utilize operable windows
- Eliminate Demand Controlled Ventilation
- Operate HVAC System longer





# IMPROVED FILTRATION

- Filters greater than MERV 15
- Only effective against particles that make it back to the filter
- Can require additional space in air handling units
- Can require additional energy to blow air through



# MAINTAIN SOCIAL DISTANCING

- Conduct activities outdoors if possible
- Reduce large gatherings
- Increase space for more dense gatherings



# SANITATION PROTOCOLS

- Regularly clean high touch surfaces
- Provide personal hygiene products (hand sanitizer)
- Consider disinfectant fogging
- Refer to common COVID CDC mitigation strategies (i.e. masks, plexiglass separations, etc.)





# OTHER CONSIDERATIONS

- Ultra-violet light (UV)
- Humidification
- Mobile HEPA Filtration
- Needle Point / Bipolar Ionization



# Long Range Planning

Lay out all district needs then determine what items have the highest priority. Create baseline needs.

Typical items reviewed or generated:

- A review of site surface conditions.
- A review of the exterior enclosures (windows, walls)
- A review of interior conditions- floors, walls, ceilings, doors, toilet rooms and support spaces
- Space utilization plans
- Roof evaluation
- A review of large mechanical and electrical equipment systems
- Paving evaluation
- Review open HLS items or generate new survey
- A 10-year cost summary. All cost data to be based on conceptual design only.

# Cost Detail and Modeling

FGM Architects, Inc.

Scope Detail

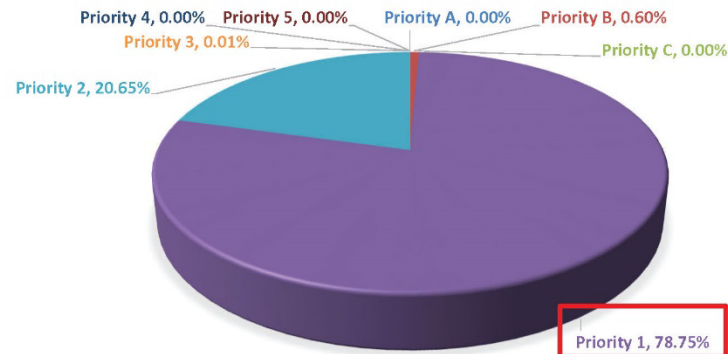
## 1 Cost Summary for All Work:

Hard Costs	Attea	Glen Grove	Henking	Hoffman	Lyon	Pleasant Ridge	Springman	Westbrook	Admin.	Hard Cost Total per Priority
Priority A	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Priority B	\$13,703	\$109,627	\$212,869	\$0	\$0	\$53,217	\$0	\$0	\$0	\$389,417
Priority C	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Priority 1	\$5,844,033	\$6,308,675	\$5,130,610	\$4,086,899	\$5,845,839	\$5,059,407	\$11,751,626	\$6,637,290	\$690,636	\$51,355,014
Priority 2	\$2,112,869	\$1,253,448	\$1,438,380	\$1,575,486	\$1,039,759	\$1,675,125	\$2,866,462	\$1,338,365	\$163,562	\$13,463,456
Priority 3	\$0	\$0	\$0	\$3,427	\$0	\$0	\$0	\$0	\$0	\$3,427
Priority 4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Priority 5	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal 1	\$7,970,605	\$7,671,751	\$6,781,858	\$5,665,813	\$6,885,597	\$6,787,749	\$14,618,087	\$7,975,655	\$854,198	\$65,211,314

Soft Costs **\$16,926,718**

Total Cost **\$ 82,138,033**

## 2 Overall Scope Breakdown for Nine Buildings





# Long Range Planning

C19:

- Model larger classrooms?
- Model better HVAC system?
- Model large core spaces?
- Health services?
- Staging areas?

Model the plan to see what it would look like to upgrade HVAC systems

Funding:

- ESSER III
- HLS
- Rebuild Illinois
- Energy Bill



# Re-Commissioning & Asset Planning

- Building performance deteriorates overtime and re-commissioning is important to return a building to more efficient operation
  - Review building controls and sequence of operation
  - Conduct field measurements such as ventilation, light levels, motor kW, duct static pressure, temperature, etc.
- Optimize the learning atmosphere and ensure proper indoor environmental quality (IEQ)
  - Air Quality, Thermal Comfort, Lighting, & Acoustics
- Work with district's architect / engineer or preferred contractor on future infrastructure improvements
  - Analyze equipment reliability / life expectancy based on ASHRAE standards & maintenance records
- Opportunity to fund re-commissioning and infrastructure improvements with ESSER, ISBE Grants, Utility Incentives, & Renewable Energy

# Leverage Energy Efficiency & Renewable Energy to optimize ESSER Funds

- Building's energy profiles have changed due to new ASHRAE Indoor Air Quality (IAQ) guidelines and changes in operation
  - These changes can affect energy consumption and district's budget
- ESSER funds are generational opportunity to holistically improve student learning environments and mitigate health risks with IAQ strategies
  - These funds also present opportunity to improve energy efficiency of building and offset increased energy usage due to ventilation requirements
- When ESSER funds are combined with utility incentives and / or renewable energy, more comprehensive infrastructure upgrades are possible
  - Renewable energy like solar PV system can energize new HVAC system and even help districts become net zero



# Purchasing options for Solar PV Systems

## #1- Power Purchase Agreement (PPA)

- Solar PV system installed at no cost to the district
- District agrees to buy power from the system at reduced energy rate
- Contractor captures state / utility / federal incentives
- New energy rate includes ALL program costs including O&M
- Agreement is for set term (15-30 years typically)

## #2- Direct Purchase

- District pays for solar PV system
- Contractor assists with state / utility / federal incentives
- New energy rate is less than a PPA
- O&M is district's responsibility
- No set agreement length

# Case Studies

- Columbia CUSD 4 – Middle & High School
  - HVAC upgrades, building envelope, roofing, and building controls
  - District became more energy efficient while increasing HVAC equipment reliability & ventilation
  - COVID -19 presented challenges during the construction process, but project was completed in fall 2020
  - Grant: Ameren CLIP Program - \$187,000
- Prairie Trails School
  - HVAC upgrades, building controls, roofing, windows, exterior wall system
  - New HVAC system utilized heat recovery, eliminating need to rely on fossil fuels for heat & proper ventilation for classrooms
  - Photovoltaic solar panel system on the roof designed to offset 100% of building's annual electricity consumption
  - Grant: Illinois Clean Energy Community Foundation - \$2M

# *Questions and Answers*

*We thank you for your time!*



# Presenters:

## PANELISTS INFO:

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