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The Green MLF Strategy: improved school ventilation with zero emissions

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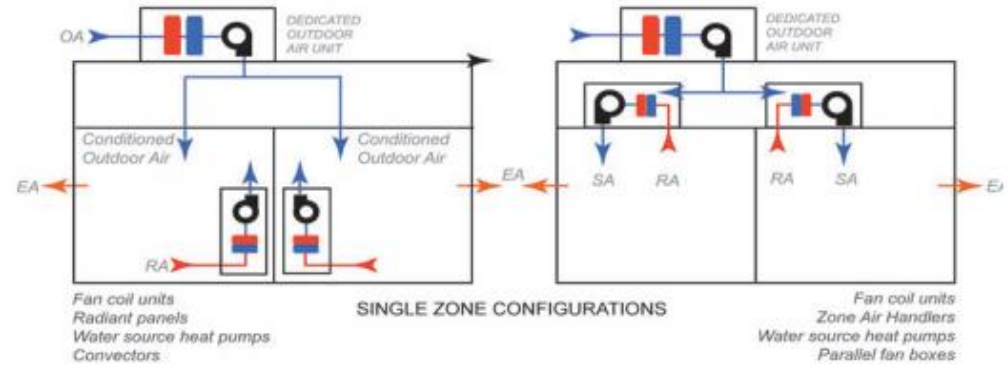

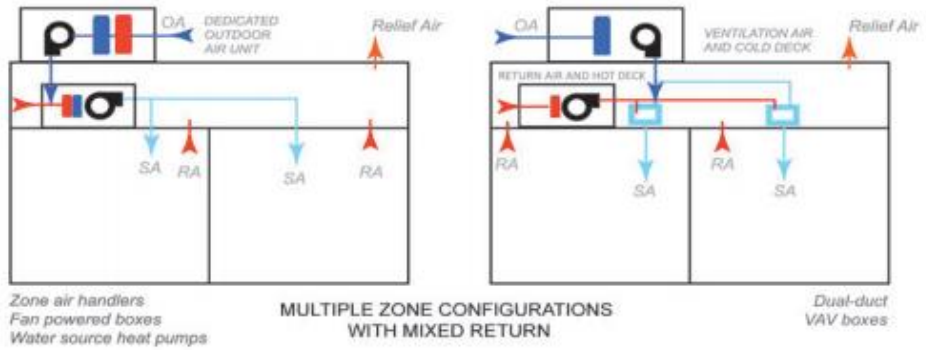

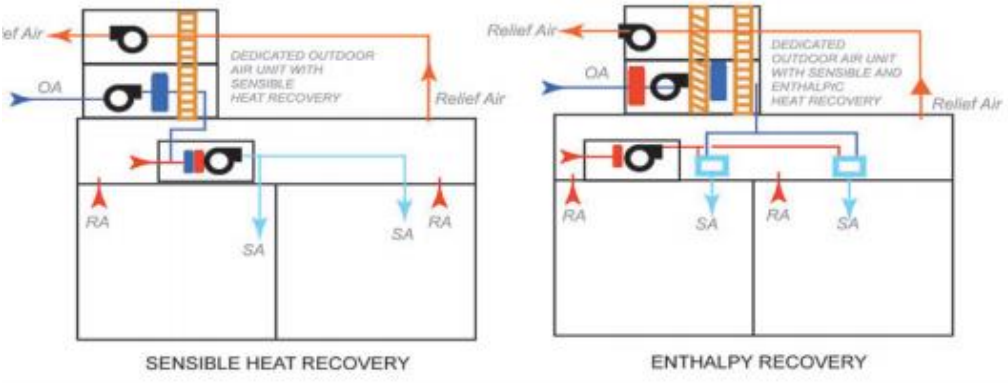

The MLF strategy calls for urban and rural school districts to apply for the Federal Reserve's Municipal Liquidity Facility loans. Poor districts should take radical advantage of the Fed's radical program to get the resources they need to provision their communities, specifically infrastructure to make schools safe for reopening.

Schools have been under-resourced for far too long, so much so that districts and funding inequality hold a suffocating system of racial capitalism in place across the country.

Suffocation is more than analogy here. Schools literally don't have proper ventilation, heating/cooling, and window systems. The infrastructure costs are high and the money coming in from property taxes, wealthy bondholders, and minimal state grants just don't cut it.

Now that there's a pandemic we have an opportunity to fix this infrastructure, create employment, and boost our public schools in the process. And because the MLF strategy focuses on ventilation infrastructure—making schools safe—we have an opportunity to cut harmful emissions contributing to the bigger ongoing ecological crisis.

The MLF strategy can and must be green.

Buildings and Emissions

Daniel Aldana Cohen has spent years researching and advocating a Green New Deal for Housing. He pushes this initiative because he knows how much buildings contribute to global warming. Just in terms of housing, a GND would

> beyond making conditions better for those who live in public housing, greening these spaces would equate to removing 1.2 million cars from the road each year—an important step in decarbonizing the U.S. economy—and would create about a quarter-million jobs annually across the country.

That's because buildings "and their construction together account for 36 percent of global energy use and 39 percent of energy-related carbon dioxide emissions annually, according to the United Nations Environment Program."

If we want to stop global temperature from increasing, we have to reduce carbon emissions. If we want to reduce carbon emissions, we better start doing green infrastructure and building projects.

Schools are part of that picture.

Green School Ventilation Infrastructure

Akira Drake Rodriguez specializes in this issue and pointed me towards the Center for Green Schools, which reports that

> The 130,000 schools in the U.S. serve nearly one-sixth of the nation's population every day. K–12 public school districts operate more than 7.5 billion gross square feet of building area, equivalent to nearly half the area of all U.S. commercial office space, and inhabit an estimated 2 million acres of land.
>
> The impact of implementing environmentally sensitive practices at these facilities could lead to substantial reductions in natural resource use. Research suggests that improving school building energy performance alone could reduce up to 30 million tons of CO2 emissions, which is equivalent to removing 6 million cars from the road for an entire year.

Ventilation concerns are a significant portion of school buildings' energy performance. As we push for municipal liquidity support from the Federal Reserve, we have to specify the kinds of infrastructure updates and construction we want to do.

So what kind of solutions are there for schools who want to help reduce carbon emissions?

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) provides an Advanced Energy Design Guide for zero

emissions buildings, and have written detailed reports specifically looking at school buildings. They also offer 30% emissions and 50% emissions strategies.

Zero Emissions

The first step is commissioning a zero emissions designer who can put together a solid thermal envelope for your school building. In terms of materials, the report emphasizes decentralized systems, energy recovery, and dedicated outdoor air systems in its approach to zero emissions school ventilation infrastructure.

Roof-mounted solar panels are essential to any low-cost system. Thermal systems are best for heat.

They propose three ventilation systems as zero emissions options:

- Chilled-/hot-water system with single-zone air-handling units (AHUs)
- Air-source variable-refrigerant-flow (VRF) multisplit heat pump system.
- Ground-source heat pump (GSHP) system.

I'm an education policy guy, not an HVAC engineer, so I can't really speak to the details of these options. I just want to give you a beginner's sense of what we're looking for in ventilation system infrastructure reduce emissions.

Ideally every school will do zero emissions infrastructure improvements. But there's the ideal world and the real world. Many schools might need options that emit a bit, and the report offers different options for 30% emissions and 50% emissions. The reports are free and full of information that experts in the area will be able to summarize and interpret way better than me.

Greening the MLF

The MLF strategy gives us an opportunity to fund green infrastructure soon. Not only will this infrastructure contribute to lowering carbon emissions, but it will incorporate green infrastructure in organizing conversations with unions, school districts, and other constituents involved in the campaign.

We know where the money’s coming from. Now we have a better sense of where exactly it should go. Our school districts can’t wait and neither can the environment in which our schools exist.