

# School District Risk and Cost Avoidance



**How to Avoid Emergency Repairs  
and Liability Issues**

# Presenter



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# Presentation Outline

- What are the problems?
- Worst-case scenarios
- Solutions



# Air Conditioning Chiller Units

## Water Cooled

- Most efficient and most maintenance
- Must treat properly to avoid issues with tube bundles, system piping, and cooling coils
- Tube bundles may burst if not inspected regularly

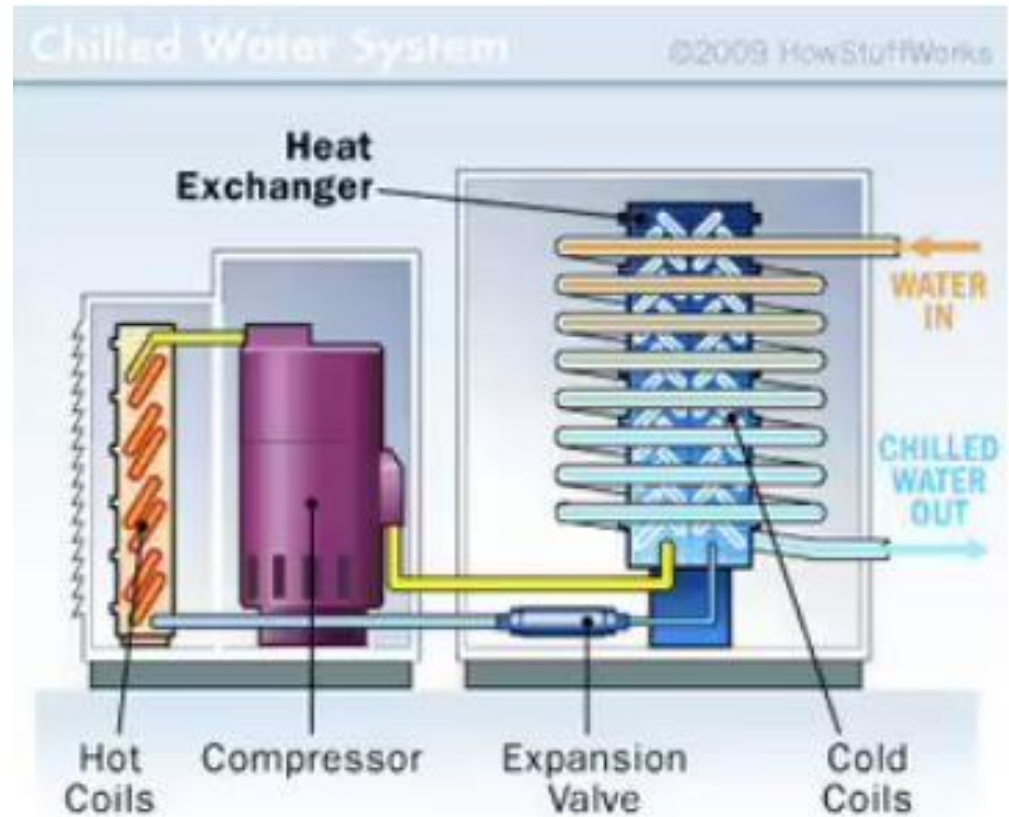


Photo Credit: <https://home.howstuffworks.com/ac4.htm>

# Air Conditioning Chiller Units

## Air Cooled

- No condenser tube bundle
- Use outside air to cool refrigerant
- Evaporator tube bundle must be inspected and cleaned

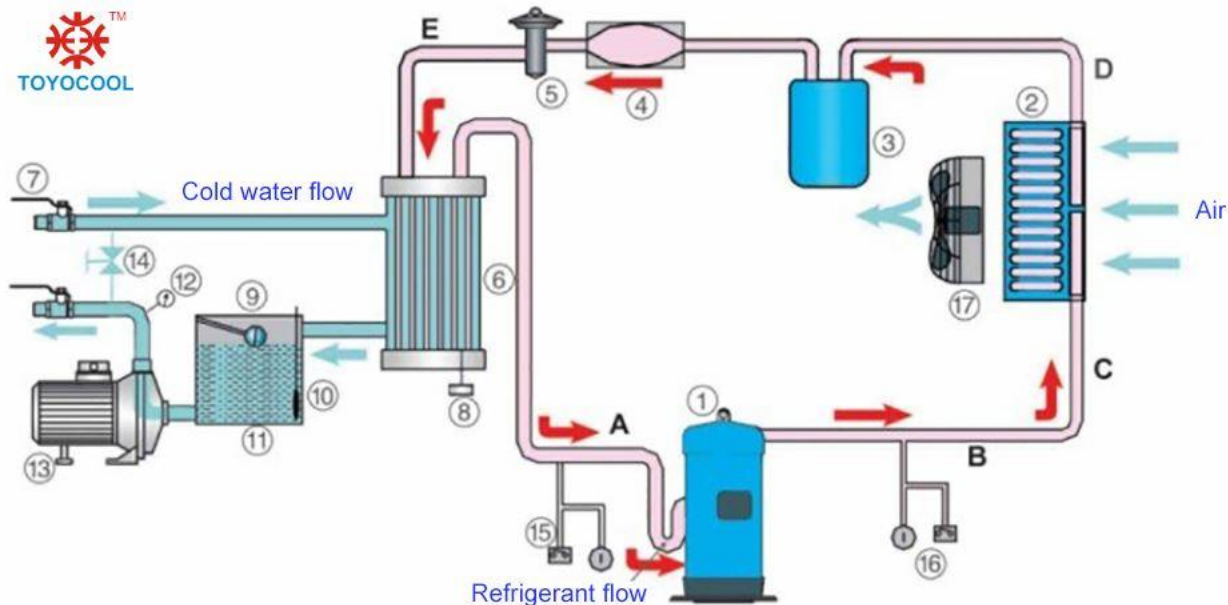


Photo Credit: [www.toyochiller.com/box-type-air-cooled-chiller/57734152.html](http://www.toyochiller.com/box-type-air-cooled-chiller/57734152.html)

# Air Conditioning Chiller Units

- Test the tubes every 3-5 years for both types
- Perform annual maintenance (tube brushing)
- Emergency replacement costs range from \$75,000 - \$500,000



# Air Handling Units

- Distribute heated and cooled ventilation air
- Provides the correct amount of outside air per code
- Long life span if properly maintained
- Biggest issue is moisture

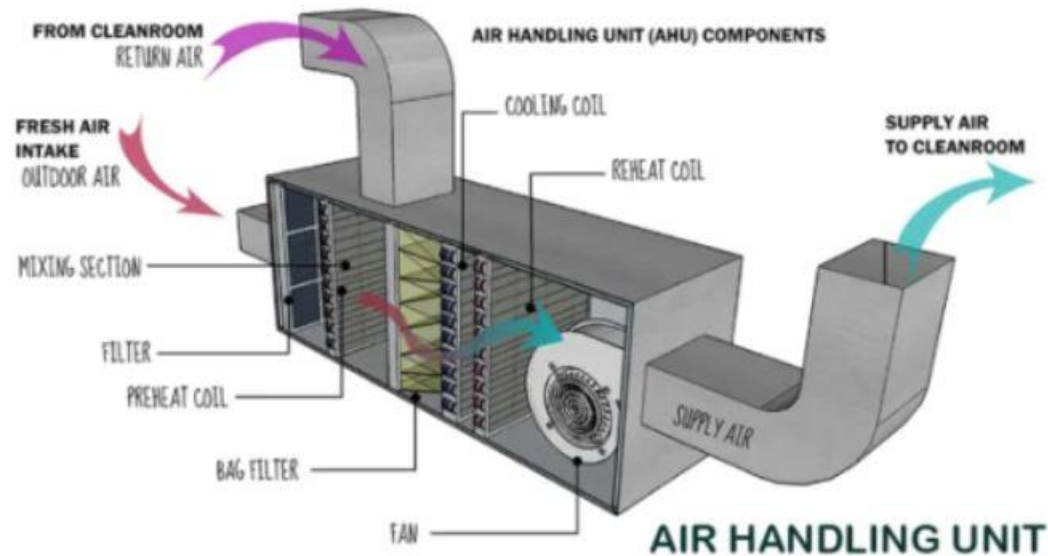


Photo Credit: [m.made-in-china.com/product/HVAC-Air-Handling-Unit-Ahu-1914669772.html](http://m.made-in-china.com/product/HVAC-Air-Handling-Unit-Ahu-1914669772.html)

# Air Handling Units

- Replace worn fan belts as needed
- Regularly inspect during filter changes
- Verify the motor is wired correctly
- Verify dampers are opening and closing properly





# Roof Repair and Replacement

- Roofs are expensive – 30% increase last year!
- Cost to replace a flat roof system increases by 7% per year.
- Insulation is the most expensive component
- Verify roof flashings, wall terminations, and roof details are installed properly
- Perform thermal imaging scans
- Roofs with dry insulation can be restored



# Roof Safety

- Roofs are dangerous
- Place guard rails around roof hatches and skylights
- Permanent ladders must be code compliant
- Use fall protection if working within 15 feet of a roof edge
- Wear slip-resistant footwear on rubber type roofs



# Water Infiltration

- Water can seep through brick, fascia, roof membranes, parapet wall copings, and even flow uphill
- Walls can buckle and bulge
- Blocked weep holes can damage brick walls as the water freezes and thaws
- Mold and bacteriological growth
- Have a professional evaluate your building envelope



# Indoor Environmental Quality (IEQ)

- Water, food waste, and other bacteria can cause health issues in a school
- IEQ Coordinator and plan required for all schools
- Insurance companies and EHS consultants can help



# Playgrounds

- Negate injuries, fatalities, falls, and entrapment
- Inspect annually preferably by a Certified Playground Safety inspector.
- Replace missing parts directly from the manufacturer
- Surfacing material type, depth, and condition



# Playgrounds

- “Public Playground Safety Handbook” from U.S. Consumer Product Safety Commission
- Certified Playground Safety Inspector (CPSI) certification through the National Recreation and Park Association



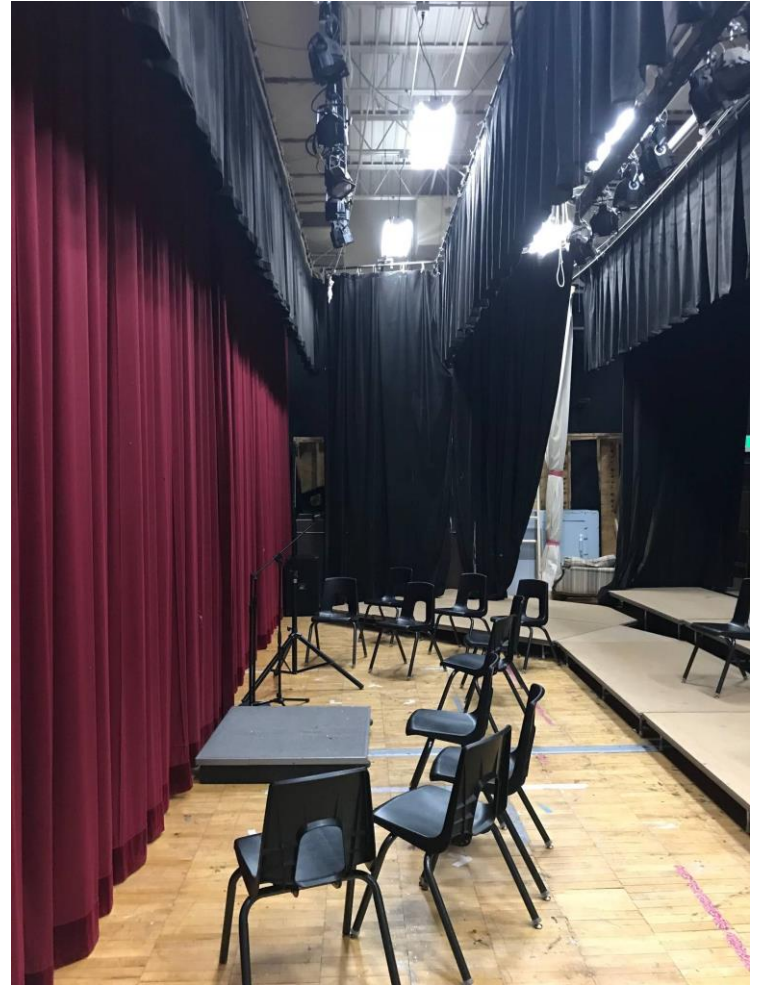
# Bleachers

- Handrails, head entrapment prevention, and fall protection requirements
- Use only manufacturer parts
- Budget to replace sets that do not meet code



# Stages

- Designed for production sets and lighting
- Elevated platforms and catwalks create fall hazards
- Catwalks need guard rails, safety railings, and toe boards
- Permanently installed ladders should have a surrounding cage
- Insurance companies and EHS consultants can help





# Concrete and Asphalt Surfaces

- Uneven surfaces greater than one quarter of an inch are a hazard
- Level off uneven sidewalks – replace or grind
- Fill potholes in driveways and parking lots with an asphalt compound or infrared patching



# Block Hours

- Fire alarms, sprinkler systems, and elevators require regular maintenance
- Service technician rates continuously increase
- Consider buying block hours from your service provider for reduced hourly rates



# Questions

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