Highlights: Summer 2020
Physical Properties Update

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Bernerd Rice, Executive Director, Physical Properties

September 30, 2020
Presentation Overview

- Summer Construction and Maintenance Projects
- School Re-Occupancy Preparations
  - Heating Ventilating and Air Conditioning (HVAC) Systems
  - Health and Wellness Signage
  - Social Distance Preparations
  - Plumbing Systems
  - Cleaning and Sanitizing
Gym Floor Refinishing - Slauson
Gym Floor Refinishing - Scarlett
Gym Floor Refinishing - Skyline Auxiliary Gym
Gym Floor Refinishing - Skyline Main Gym
Roof Replacement - A2 STEAM
Roof Replacement - A2 STEAM
Roof Replacement - Forsythe
Roof Replacement - Forsythe
Roof Replacement - Freeman
Roof Replacement - Freeman
Roof Replacement - Balas
Roof Replacement - Eberwhite
Huron Track Reconstruction
Pioneer Track Reconstruction
Skyline Turf Field Replacement
Skyline Track Reconstruction
Pioneer Parking Lot Reconstruction
Pioneer Parking Lot Reconstruction - Flag Pole Entrance
Scarlett Parking Lot Reconstruction
Scarlett Parking Lot Reconstruction
Scarlett Parking Lot Reconstruction
Scarlett Parking Lot Reconstruction
Freeman Classrooms Renovation - Work Room
Skyline Dugouts Construction
Ellsworth / Bryant Parcel Acquisition
Transportation - Electric Bus Infrastructure
Bryant / Pattengill Renovations - COVID Safety
Bryant Renovation - Demolition
Bryant Renovation - Window Installation
Bryant Renovation - New PK Rooms
Bryant Renovation - Art Room Skylights
Pattengill Renovation - Demolition
Pattengill Renovation - New Sign
Pattengill Renovation - Hallways
Pattengill Renovation - Classrooms
Pattengill Renovation - Classrooms
Pattengill Renovation - Solar
Shiny Floors
Shiny Floors
Thank You to the AAPS Community for your generous support of the Sinking Fund!
Preparing School Buildings for a Safe and Healthy Return to School

- Heating Ventilating and Air Conditioning (HVAC) Systems
- Health and Wellness Signage
- Social Distance Preparations
- Plumbing Systems
- Cleaning and Sanitizing
AAPS has retained Fishbeck as consulting engineers to assist in maximizing the healthy operation of our school buildings’ HVAC systems. There work has focused in several areas:

- Maximizing the provision of fresh outside air
- Maximizing the effectiveness of air filtration systems
- Developing algorithms for operating AAPS buildings in an Enhanced Indoor Air Quality mode through the District’s Building Automation System (BAS)
TYPICAL AIR SYSTEM CONFIGURATION

Discharge Air
Variable 0%-80% Return Air
Variable 20%-100% Outside Air
Motorized Profile Damper

ENHANCED INDOOR AIR QUALITY VENTILATION

- Review control system
- Modify sequences and setpoints to allow for an increase in outdoor air
- Implement emergency mode ventilation sequences

Images courtesy of UV Resources
ENHANCED INDOOR AIR QUALITY

AIR FILTRATION

- Verify outdoor and exhaust air paths – Inspect filters, air intakes, and control devices
- Recommend filter upgrades based on fan capability and space available in units

MERV-8 to MERV-13
1" or 2" up to 4" thickness

HEPA Filter
12" thickness

Considerations: Physical size, pressure drop (fan capacity to maintain airflow), availability, and cost vs. benefit
**Heating Ventilating and Air Conditioning Systems (HVAC)**

**Enhanced Indoor Air Quality**

**Mechanical Verification and Testing**

**Abbot Elementary**

- **Recirculated Air**
- **Building Automated System (BAS) Graphic of Unit Ventilator**
- **Classroom Unit Ventilator**

**Outdoor Air Ventilation**

- **MA-Damper**
  - 40.0% open

**Increased Ventilation**

Outdoor air ventilation between 40% to 100% based on heating demand. Functions tested by Engineer.

**Optimized Air Filtration**

- Meets minimum code?
- Highest level of filtration allowed by equipment?
- Effectiveness of filtration?

**Extended Equipment Schedules**

Continuous operation and extended equipment schedules provide additional air changes to flush the building before and after each school day.

**Above & Beyond**

CO2 monitoring automatically brings in additional ventilation as CO2 levels increase.
Heating Ventilating and Air Conditioning Systems (HVAC)

Enhanced Indoor Air Quality

Mechanical Verification and Testing Clague Middle School

Above & Beyond
CO₂ monitoring automatically brings in additional ventilation as CO₂ levels increase.

Building Automated System (BAS)
Graphic of Air Handling Unit

Air Handling Unit (AHU)

Recirculated Air

Outdoor Air Ventilation

Increased Ventilation
Outdoor air ventilation between 40% to 100% based on heating demand. Functions tested by Engineer.

Optimized Air Filtration
- Meets minimum code?
- Highest level of filtration allowed by equipment?
- Effectiveness of filtration?

Extended Equipment Schedules
Continuous operation and extended equipment schedules provide additional air changes to flush the building before and after each school day.
AAPS has retained Stantec consulting architects and planners to develop Informational Signage and Social Distancing strategies. Signage will be placed throughout the school including:

- “In-Only” and Exit-Only” door locations
- Social Distancing Reminders
- Self-Screening Reminders
- One-Way hallway and staircase traffic circulation - Walk on the right side only- “Stay in Your Lane”
- Maximum Occupancy for Elevators
- Maximum Occupancy for Restrooms
- Hand Washing Reminders in Restrooms
Health and Wellness Signage - Typical Floor Plan
# Health and Wellness Signage - Overall Legend

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SIGNAGE LEGEND</th>
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<tbody>
<tr>
<td>1</td>
<td>ENTER ONLY SIGN</td>
</tr>
<tr>
<td>2</td>
<td>EXIT ONLY SIGN</td>
</tr>
<tr>
<td>3</td>
<td>DO NOT ENTER SIGN (ON BACKSIDE WHERE APPLIES)</td>
</tr>
<tr>
<td>4</td>
<td>ALL VISITORS USE MAIN ENTRY SIGN</td>
</tr>
<tr>
<td>5</td>
<td>EMERGENCY EXIT ONLY SIGN</td>
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<tr>
<td>6</td>
<td>CORRIDORS - SOCIAL DISTANCING FLOOR CLING DOTS - ‘STAY IN YOUR LANE’ - 2 COLORS - LOCATE OUTSIDE OF DOORS AND AT 15” OC MAX, TYP</td>
</tr>
<tr>
<td>7</td>
<td>MAXIMUM OCCUPANCY SIGN</td>
</tr>
<tr>
<td>8</td>
<td>WELLNESS CHECK-IN LOCATION SIGN</td>
</tr>
<tr>
<td>9</td>
<td>ENTRANCE SCREENING POSTER</td>
</tr>
<tr>
<td>10</td>
<td>DRAPE-OFF EVERY OTHER CHAIR IN RECEPTION AREA</td>
</tr>
<tr>
<td>11</td>
<td>SOCIAL DISTANCING REMINDER SIGN</td>
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<tr>
<td>12</td>
<td>SELF SCREENING REMINDER SIGN</td>
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<tr>
<td>13</td>
<td>HAND WASHING AT SINKS SIGN</td>
</tr>
<tr>
<td>14</td>
<td>HAND SANITIZER STATION</td>
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<tr>
<td>15</td>
<td>ISOLATION ROOM LOCATION</td>
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<tr>
<td>16</td>
<td>DRINKING FOUNTAIN SOCIAL DISTANCING FLOOR CLING SET</td>
</tr>
<tr>
<td>17</td>
<td>STAIR SOCIAL DISTANCING FLOOR CLING SET</td>
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</table>
Health and Wellness Signage - Entry and Exit
Health and Wellness Signage - Hallway Circulation
Health and Wellness Signage - Stairway Circulation
Health and Wellness Signage - Maximum Occupancy
Health and Wellness Signage - General Health Reminders

**Keep Space Between You and Others**
- **When outside:** 6 FT
- **In the classroom:** 6 FT
- **On the bus:** try to skip a row if possible

**Stop the Spread of Germs**
- Wash your hands often
- Wear a mask
- Cover your coughs and sneezes
- Keep 6 feet of space between you and your friends

[cdc.gov/coronavirus]
Health and Wellness Signage - Hand Washing Reminders
Social Distancing Preparations - Furniture

Classroom, Offices and other occupied space will have furniture arranged to maximize social distancing. Unused furniture will be secured and labeled.

- SAMPLE Classroom Layout - Stantec / American Institute of Architects
Social Distancing Preparations - Sneeze Guards

Sneeze Guards will be installed in all offices and other transaction locations where maintaining social distance is not feasible.
Plumbing Systems

• While buildings are unoccupied, completely flush the plumbing systems weekly to help prevent the growth of Legionella bacteria which can cause Legionnaires disease
• Implement a plan to test water at all AAPS schools for Legionella and Ecoli
• Complete the bi-annual replacement of all drinking water filters
• Remove all drinking fountain bubblers and cap openings
• Begin transition to touchless restroom fixture operation
• Remove all forced air hand dryers and replace with touchless paper towel dispensers
Cleaning and Sanitizing

- Frequently touched surfaces including light switches, doors, benches, bathrooms, will be cleaned every four hours with an EPA-approved disinfectant.
- Staff will wear appropriate personal protective equipment when cleaning.
- Custodial staff to regularly check and restock soap, hand sanitizer and paper towels.
- Doors will be propped open to minimize touch surface contact
- Hand sanitizer will be provided in all occupied spaces and when arriving at school
## Should We Use These Disinfecting Techniques?

<table>
<thead>
<tr>
<th>Product / System</th>
<th>Recommendation</th>
<th>Status</th>
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<tbody>
<tr>
<td>EPA Listed N Products</td>
<td>YES</td>
<td>Follow label instructions for approved application methods and required contact times.</td>
</tr>
<tr>
<td>Electrostatic Spraying</td>
<td>YES</td>
<td>Follow label instructions for approved application methods and required contact times.</td>
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<tr>
<td>Ultraviolet, Ozone, or Steam</td>
<td>MORE INFORMATION NEEDED</td>
<td>EPA and CDC are reviewing safety and effectiveness against COVID-19.</td>
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<tr>
<td>Fogging</td>
<td>NO</td>
<td>Increased hazardous chemical exposure and provides no added benefit against COVID-19.</td>
</tr>
<tr>
<td>Ultrasonic Waves or LED Blue Light</td>
<td>NO</td>
<td>There is no data to suggest these are effective against COVID-19.</td>
</tr>
</tbody>
</table>

- **US Environmental Protection Agency (EPA) and Center for Disease Control (CDC)**
References

Center for Disease Control and Prevention (CDC)
• CDC Activities and Initiatives Supporting the COVID-19 Response and the President’s Plan for Opening America Up Again (PDF) Release : May 2020
• Considerations for Schools - Get Your Schools Ready for Pandemic Flu (WEB) Release : 2017

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
• ASHRAE Epidemic Task Force Reopening Schools (PDF)
• COVID-19 Resources (WEB) Release : May 2020

The School Superintendents Association (AASA)
• Guilding Principles & Action Steps for Reopening Schools (WEB)
• COVID - 19 Resources (WEB) Release : Expected June 2020

American Institute of Architects (AIA)
• Re-Occupancy Assessment Tool (WEB)
• Reopening America: Strategies for Safer Schools (WEB) Release : Expected July 2020