GET WELL!
EDUCATIONAL DESIGN IDEAS FOR THE POST-PANDEMIC ERA
PHASE 2: STRATEGIES FOR REOPENING

COMMUNITY ROOTS MIDDLE SCHOOL
50 NAVY STREET, BROOKLYN NY

SHARED WITH ES 267
JULY 2020

LUBRANO CIAVARRA WITH JAROS BAUM & BOLLES
SIDEWALK SOCIAL DISTANCING CONCEPT

WELCOME SPOTS:
CUSTOM VINYL DECALS OR STENCILS CAN BE APPLIED ON THE GROUND TO ALLOW FOR SOCIAL DISTANCING WHILE STUDENTS WAIT TO ENTER THE SCHOOL. THE GROUND MARKERS PROVIDE IDENTITY FOR THE SCHOOL AND CAN BE INSTALLED BY PARENT VOLUNTEERS OR A HANDYMAN.

GROUND DECAL DESIGN
6'-0" social distancing between children waiting in line
TYPICAL CLASSROOM

SCIENCE CLASSROOM
DOE GUIDELINES

6'-0” social distancing at all circulation
6'-0” social distancing between seated children

FURNITURE LAYOUT | OPTION B
providing 6'-0” social distancing at all grouped tables

FURNITURE LAYOUT | OPTION B
providing 6'-0” social distancing between seated children

FURNITURE LAYOUT | OPTION C
providing 6'-0” social distancing at all grouped tables

750 sf | 10 students + 1 teacher | 68 sf/person
750 sf | 12 students + 1 teacher | 58 sf/person
750 sf | 15 students + 1 teacher | 47 sf/person
75 sf | 12 students + 1 teacher | 58 sf/person
ALTERNATIVE SEATING OPTIONS

NEW CUSTOM INDIVIDUAL WELLSTATION: CHAIR + DESK + LOCKER
NEW CUSTOM GROUP LEARNING SCREEN
NEW CUSTOM INDIVIDUAL FLOOR MAT
<table>
<thead>
<tr>
<th>Grade</th>
<th># of Students Per Grade</th>
<th># of Classrooms</th>
<th># of Students Per Classroom</th>
<th>% of Students Per Grade</th>
<th># of Students Per Classroom</th>
<th># of Students Per Grade</th>
<th>% in School</th>
<th># of Students Remote Learning</th>
<th>% of Remote Students</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>4</td>
<td>11;10;10;10</td>
<td>41</td>
<td>76%</td>
<td>13</td>
<td>24%</td>
<td>taking Main and Operations Office + Science</td>
</tr>
<tr>
<td>7th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>4</td>
<td>10; 10; 10; 10</td>
<td>40</td>
<td>74%</td>
<td>14</td>
<td>26%</td>
<td>taking Performing Arts</td>
</tr>
<tr>
<td>8th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>3</td>
<td>10; 10; 10</td>
<td>30</td>
<td>56%</td>
<td>24</td>
<td>44%</td>
<td>taking Art room</td>
</tr>
<tr>
<td>Total</td>
<td>162</td>
<td>6</td>
<td>162</td>
<td>11</td>
<td>111</td>
<td>69%</td>
<td>31%</td>
<td>51</td>
<td>31%</td>
<td>(1) Speciality rooms are converted to Classrooms + Main Office</td>
</tr>
</tbody>
</table>

### 3RD FLOOR SEATING DIAGRAM: OPTION A

![3rd Floor Seating Diagram Option A](image-url)
### Grade # of Students Per Grade # of Classrooms # of Students Per Classroom # of Students Per Grade % in School # of Students Remote Learning % of Remote Students

<table>
<thead>
<tr>
<th>Grade</th>
<th># of Students Per Grade</th>
<th># of Classrooms</th>
<th># of Students Per Classroom</th>
<th># of Students Per Grade</th>
<th>% in School</th>
<th># of Students Remote Learning</th>
<th>% of Remote Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>4</td>
<td>11; 12; 12</td>
<td>47</td>
<td>87%</td>
</tr>
<tr>
<td>7th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>4</td>
<td>12; 12; 12</td>
<td>48</td>
<td>89%</td>
</tr>
<tr>
<td>8th Grade</td>
<td>54</td>
<td>2</td>
<td>26</td>
<td>3</td>
<td>12; 12; 12</td>
<td>36</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>162</strong></td>
<td><strong>6</strong></td>
<td><strong>162</strong></td>
<td><strong>11</strong></td>
<td><strong>131</strong></td>
<td><strong>31</strong></td>
<td><strong>19%</strong></td>
</tr>
</tbody>
</table>

**N:** Speciality rooms are converted to Classrooms + Main Office

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### 3RD FLOOR SEATING DIAGRAM: OPTION B

- **6 #1** 11 STUDENTS
- **6 #2** 12 STUDENTS
- **6 #3** 12 STUDENTS
- **8TH #1** 12 STUDENTS
- **8TH #2** 12 STUDENTS
- **7TH #1** 12 STUDENTS
- **7TH #2** 12 STUDENTS
- **7TH #3** 12 STUDENTS
- **7TH #4** 12 STUDENTS
- **6TH #4** 12 STUDENTS

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**Notes:**
- Taking Main and Operations Office + Science
- Taking Performing Arts
- Taking Art room
CORRIDOR 6FT SPACING CONCEPT

- DUE TO THE WIDTH OF THE CORRIDOR, TRAFFIC FLOWS IN ONE DIRECTION ONLY.

- **RULER:** CUSTOM VINYL DECALS OR STENCILS CAN BE APPLIED ON FLOOR TO SEPARATE DIRECTION OF TRAVEL. THE RULER IS ALSO A LEARNIGN TOOL THAT VISUALLY SHOWS DISTANCE (LONG PURPLE TICK MARKS EVERY 3-FT).
JB&B has given consideration to what HVAC system-related measures are recommended toward the goal of increasing human health and wellness within the Community Roots Middle School. The current ongoing health crisis associated with the COVID-19 virus has brought an obvious renewed interest and sense of urgency toward the issue of mitigating airborne contaminates that may be present within schools. There is an overwhelming amount of technology available that enhance the Indoor Air Quality (IAQ) of the school environment but the related efficacy of some of the technology is yet to be determined. Coupled with the fact that scientific studies of the COVID-19 virus are ongoing and information is updated almost weekly, our recommendations are based on tested technologies via a combination of our healthcare sector experience, ASHRAE recommendations and the CDC Guidelines. As the science continues to evolve, the mechanical solutions will continue to evolve and recommendations may change accordingly.

Based on visual observations of the school, there is limited existing infrastructure. Each classroom is provided with an air-cooled window air conditioning unit and a grill in the ceiling. There is a central exhaust fan in a mechanical room adjacent to the classrooms for each wing. Based on our conversations with the staff present only one of the two exhaust fans was operational. We would need more information as to the capacity and distribution in order to confirm utilizing this equipment in its current state as a viable option.

Utilizing the above information, we are providing recommended mitigation strategies based on the invasiveness for upgrading the HVAC infrastructure.

All of the following measures are one portion of a full viral particle mitigation strategy for the building occupants. The Teachers, Security Staff, Parents, Students and Cleaning Staff need to work together as a single entity to execute a comprehensive plan for viral particle mitigation.
**TIER 0 RECOMMENDATION:**

Per the CDC Guidelines, when the weather allows, open windows and doors to allow fresh air to travel throughout the classrooms and facilities. ASHRAE and CDC state to place fans and other recirculating devices so as not to blow across multiple people, so if AC units are up high and not directly blowing on anyone it meets the intent of the CDC guidelines.

**TIER 1 RECOMMENDATION:**

Deploy portable HEPA filters within each classroom. These units provide a local increase in air change rates and particle removal and are recommended for higher density areas. These units can be provided with the existing infrastructure in place and are the least invasive from a mitigation strategy.

**TIER 2 RECOMMENDATION:**

Refurbish the exhaust fans. There are two (2) mechanical rooms on the 3rd floor that distribute ductwork to each of the classrooms and hallways. By refurbishing these units, the exhaust fans, coupled with the operable windows, will allow each classroom to be provided with outside air when the temperatures allow for the windows to be open and therefore dilution of the air within the space. During the hotter and colder months of the year this could be problematic as the outside air could become uncomfortable for students located near the windows.
TIER 3 RECOMMENDATION:
Install new central, roof top air cooled packaged air conditioning units with appropriate supply and return air ductwork to each occupied space and provide MERV 16 final filters within the unit. This would provide controlled pressurization, outside air and filtration levels via a central system that can supply both heating and cooling to each occupied space. A major retrofit of the mechanical and electrical infrastructure would be required to accommodate this recommendation. $ $ $ 

TIER 4 RECOMMENDATION:
The base mitigation strategies for particle migration in the an occupiable space are dilution and filtration. Given the limited infrastructure nature of the portfolio, coupled with the high cost and construction schedule related to retrofitting the facility, there are supplemental technologies that are available to deploy. The efficacy of viral particle elimination varies by product and should be carefully reviewed by the client and other appropriate agencies prior to execution within the occupied spaces. Several of these technologies include atmospheric disinfection, bipolar ionization and dry hydrogen peroxide generation. $ $ $ $
POSSIBILITIES FOR HAND FREE CIRCULATION

HAND FREE FOOT PULL FOR BATHROOM DOORS AND DOORS WITH NO LOCKSET

HAND FREE ARM PULL BY “ROCKWOOD” FOR BATHROOM DOORS AND DOORS WITH NO LOCKSET

AUTOMATIC DOOR OPENER AND SENSOR BY “HES, NORTON”

HIP PUNCH, ARM PULL MORTISE LOCK BY “ASSA-ABBLOY” VARIOUS

MAINTENANCE STAFF INSTALLATION ONLY REQUIRED
JBB recommends upgrading all toilet room fixtures, door hardware, stall hardware, etc. to be hands free and touchless. We recommend the removal or disconnection of all automatic hand dryers. We recommend the review of the existing toilet exhaust system and retro-balancing the system to ensure proper operation and sufficient exhaust air change rates within the toilet rooms.

CONSIDERATIONS FOR BETTER HYGIENE

- Touchless Hydro Power Automatic Lavatory Faucet
- Touchless Soap Dispenser
- Touchless Hydro Power Water Closet and Urinal Flush Valves
- Touchless Paper Towel Dispenser
- Signage

TOILET SEAT COVER
(CLOSE LID PRIOR TO FLUSHING)

HAND SANITIZER FLOOR STAND

TOUCHLESS PAPER TOWEL
(NOT AIR DRYER)

TOUCHLESS SOAP DISPENSER

PORTABLE SINK

MAINTENANCE STAFF INSTALLATION ONLY REQUIRED

TOUCHLESS HYDRO POWER WATER CLOSETS + URINAL FLUSH VALVES

TOUCHLESS HYDRO POWER FAUCET

LICENSED PLUMBER REQUIRED
Toilet plumes can be exacerbated by excess pressure and flow rate to the water closets. Most flush valves are equipped with control stops to adjust the flow rate, which can minimize toilet plumes caused during flushing. PRVs can also be installed on the branch to limit excess pressures.

**FLUSH VALVE ADJUSTMENTS**

**ADJUSTMENT OF THE FLOW RATE**

1. Adjust the flow rate by the turning screw on the control stop.
2. Turn the screw to the right to decrease the flow rate and turn to the left to increase.

**UPPER IN-ROOM GUV FIXTURES**

UVC Room Occupied Strategy

1. Provide wall-mounted UVC Germicidal Indirect source within room to treat upper air stream.
2. Fixture mounted at 7’ AFF
3. Time-based operation
4. Install safety signs
BE WELL!