## GET WELL!

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

COMMUNITY ROOTS ELEMENTARY SCHOOL 51 ST EDWARDS STREET, BROOKLYN NY

SHARED WITH PS67 + PS369

JULY 2020



## LUBRANOCIAVARRA WITH JAROS BAUM & BOLLES

## SITE: EXISTING AERIAL

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## SITE: EXISTING AERIAL



AERIAL VIEW LOOKING NORTHEAST

## SITE: EXISTING AERIAL



AERIAL VIEW LOOKING WEST





## 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

## EXISTING INTERIORS



VIEW OF TYPICAL CLASSROOM



VIEW OF TYPICAL CLASSROOM



TYPICAL 3RD FL CORRIDOR



VIEW OF TYPICAL CLASSROOM



VIEW OF 3RD FL MULTIPURPOSE ROOM

## FURNITURE DIAGRAMS

#### **DOE GUIDELINES**



# ALTERNATIVE SEATING OPTIONS



## **3RD FLOOR SEATING DIAGRAM: OPTION A**

	CLASSROOM CAPACITY									
		Pre-0	COVID	Post-COVID (In School) Po			Post-COVID	Remote)		
Grade	# of Students Per Grade	# of Classrooms	# of Students Per Classroom	# of Classrooms	# of Students Per Classroom	# of Students Per Grade	% in School	# of Students Remote Learning	% of Remote Students	Notes
Kindergarten	52	2	26	2	8 ; 15	23	44%	29	56%	taking Multi-Purpose room
1st Grade	52	2	26	3	8;8;8	24	46%	28	54%	taking existing K classroom
2nd Grade	52	2	26	3	8;9;9	26	50%	26	50%	taking Art room
3rd Grade	52	2	26	3	8;8;8	24	46%	28	54%	taking Science room
4th Grade	52	2	26	3	8;8;9	25	48%	27	52%	taking Music room
5th Grade	52	2	26	3	8;8;13	29	56%	23	44%	taking Learning Specialists room
Total	312	12	312	17		151	48%	161	52%	(5) Speciality rooms are converted to Classrooms. Existing faculty and staff Offices and OT/PT room remain.



## **3RD FLOOR SEATING DIAGRAM: OPTION B**

	CLASSROOM CAPACITY										
		Pre-0	COVID		Post-COVID (	(In School)		Post-COVID	Post-COVID (Remote)		
Grade	# of Students Per Grade	# of Classrooms	# of Students Per Classroom	# of Classrooms	# of Students Per Classroom	# of Students Per Grade	% in School	# of Students Remote Learning	% of Remote Students	Notes	
Kindergarten	52	2	26	2	8 ; 15	23	44%	29	56%	taking Multi-Purpose room	
1st Grade	52	2	26	3	8;8;8	24	46%	28	54%	taking existing K classroom 米	
2nd Grade	52	2	26	3	8;9;9	26	50%	26	50%	taking Art room 🛛 😽	
3rd Grade	52	2	26	3	8;8;8	24	46%	28	54%	taking Science room 🛛 😽	
4th Grade	52	2	26	3	8;8;9	25	48%	27	52%	taking Music room 🛛 🗶	
5th Grade	52	2	26	3	8;8;13	29	56%	23	44%	taking Learning Specialists room	
Total	312	12	312	17		151	48%	161	52%	(5) Speciality rooms are * converted to Classrooms. Existing faculty and staff Offices and OT/PT room remain.	



8 STUDENTS

## **3RD FLOOR SEATING DIAGRAM: OPTION C**

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	CLASSROOM CAPACITY									
		Pre-COVID		Post-COVID (In School)				Post-COVID (Remote)		
Grade	# of Students Per Grade	# of Classrooms	# of Students Per Classroom	# of Classrooms	# of Students Per Classroom	# of Students Per Grade	% in School	# of Students Remote Learning	% of Remote Students	Notes
Kindergarten	52	2	26	2	9;9	18	35%	34	65%	
1st Grade	52	2	26	2	9;9	18	35%	34	65%	All grade level classifoorns
2nd Grade	52	2	26	2	9;9	18	35%	34	65%	locations. Some speciality room are repurposed for non-
3rd Grade	52	2	26	2	9;9	18	35%	34	65%	
4th Grade	52	2	26	2	9;9	18	35%	34	65%	
5th Grade	52	2	26	2	9;9	18	35%	34	65%	classroom use, see plan below
Total	312	12	312	12		108	35%	204	65%	:



## EXISTING INTERIORS



1921 STAIR AT 3RD FLOOR



GROUND FLOOR GYMNASIUM



1940 STAIR AT GROUND FLOOR



GROUND FLOOR AUDITORIUM

## POSSIBLE ADDITIONAL CAPACITY | 1ST FLOOR SCALE: 1:500



POSSIBLE SHARED CAPACITY										
1ST FLOOR (51 SAINT EDWARDS ST)										
Post-Covid										
Space	Notes									
Cafeteria	4	44	Classroom layouts at Cafeteria & Gym							
Gymnasium	4	36	may vary. It is recommended that							
Auditorium	1	61	lunch be served in Classrooms.							
Total	9	141	Physical health is a component of mental health. At Auditorium, only fixed seating is counted.							





EXISTING CORRIDOR WITH WALL & FLOOR DECALS

# CORRIDOR 6FT SPACING CONCEPT

- CHILDREN'S SILHOUETTE: CUSTOM VINYL DECALS OR STENCILS CAN BE APPLIED ON WALLS TO ILLUSTRATE 6-FT SPACING AND DIRECTION OF TRAVEL.
- **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).



## HVAC REVIEW

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 Elementary 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 aircooled window air conditioning unit and a grill in the ceiling. There appeared to be a heating and ventilating unit and associated return fan in a mechanical room adjacent to the classrooms. As there was no staff present to attest to the operational capability of the unit and the distribution throughout the floor, we assumed it was not operational based on our visual observations. 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.



Existing Heating and Ventilating Unit



Existing Through the Window AC Unit



Existing Wall Grill Connect to HVAC System

## HVAC RECOMENDATIONS

#### **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 it if AC units are up high and not directly blowing on anyone it meets the intent of the CDC guidelines. Q



#### **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 heating and ventilating unit and associated return fan. There is a mechanical room on the 3rd floor that appears to distribute ductwork to each of the classrooms and hallways. By refurbishing these units, the return fan, coupled with the operable windows and/or heating and ventilating unit, will allow each classroom to be provided with outside air and therefore dilution of the air within the space. The system should be configured to not recirculate any of the return air from the classrooms but exhaust it to the out of doors whenever possible. If recirculating the air is required, replace the existing filters with a minimum of MERV 13 filters or higher as the system will allow. MERV 16 filters would be ideal. MERV 16 are filters that are effective for small particles (0.3 to 10 microns) with an efficiency of 95 percent. This is consistent with final filtration levels (Stage 2 filtration) for general healthcare facilities. **\$ \$** 

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## HVAC RECOMENDATIONS

#### **TIER 3 RECOMMENDATION:**

Replace the existing Heating and Ventilating unit and return fan with a central, air cooled packaged air conditioning unit 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. **\$ \$ \$** 

#### **EMERGING TECHNOLOGIES**



Synexis Dry Hydrogen Peroxide Generator



Grignard Fogging System



Atomosair Bipolar Ionization

## 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 PUCH, 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



## IMPROVED AIR QUALITY IN TOILET ROOMS

#### **FLUSH VALVE ADJUSTMENTS**

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.

#### **ADJUSTMENT OF THE FLOW RATE**

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



#### NO ENGINEER OR CONTRACTOR REQUIRED

#### **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!



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