Final Presentations
June 26, 2020
The Coronavirus pandemic has disrupted standard processes surrounding how we educate students at every level. This spring, all Ohio schools were ordered to transition to a virtual platform by the Ohio Department of Health out of concern for the safety of the students, their families, educators, and administrative personnel. As we enter the summer of 2020, the effects of the pandemic have not disappeared, and we remain concerned about an uncertain future. Current policy and protocols for how we interface with the current educational environment need to be reshaped, and our local and statewide leaders need valuable information to inform pressing decisions.

Over the month of June, AIA Ohio hosted an online Design Charrette to develop ideas to help school administrators understand what opening up in the fall for the 2020-2021 school year might look like. Ideas and concepts were developed into presentations, which were juried and constructively analyzed for improvements. The top five submissions were presented virtually to an audience of architects, administrators, district officials and other stakeholders. You can watch these presentations here:

Following are the presentations from the five finalists:

Mollie McNally and Julia Bohlen, Miami University..............................................................2

Erin Achille, Michael Bednar, Ashley Kerwood, Lauren Miller and Paige Schmeling
WSA Studio.........................................................................................................................10

Eric Pros, DS Architecture.................................................................................................31

Stephen Gastright, Doug Marsh, Noah Pennekamp and Lynn Zuch,
KZF Design.......................................................................................................................70

Alexandra Bohler, Hatch Architects and Aaron Kuck, Ohio State University.............92
AIA Ohio

Safe Schools Charrette

Mollie McNally & Julia Bohlen
Maintain contained cohorts
- Control interaction between groups
- Minimize spread by creating classroom communities
- Maximize opportunities for individual student spaces

Enhance educational experiences
- Provide outdoor learning opportunities
- Increase physical and mental wellbeing
- Foster sustainable mindsets
Repurposing of existing classroom items to facilitate social distancing

- Enlarge individual student space
- Maintain distance in familiar classroom environment
- Allow for safe student interaction
Modifications to existing desk

- Plexiglass Dry Erase Board
- Moveable C-Clamps
- Adjustable Bracket
- Special Activities Particle Board

Connect Create Community
Connect  Create  Community
Facilitate pride and ownership in students
- Provide ability for customization
- Personalize learning space to suit needs
- Take responsibility for own space
Connect Create Community

Emphasize sustainable practices through customization
- Incorporate elements from classroom and home
- Teach students to reimagine existing items
- Foster a sustainable mindset in future generations
SAFE SCHOOLS CHARRETTE

JUNE 26, 2020
GOALS

PROVIDE A FLEXIBLE FRAMEWORK FOR ALL SCHOOL DISTRICTS...

TO PROVIDE EQUITABLE ACCESS TO EVERY STUDENT IN ANY SITUATION...

UTILIZING EXISTING ASSETS TO THEIR FULL POTENTIAL.
THE SHIFT IN LEARNING

K - COMMUNAL

Guided

INDEPENDANT 12
WHERE LEARNING CAN TAKE PLACE

PHYSICAL

VIRTUAL

SCIENCE

HISTORY

SOCIAL INTERACTION

MUSIC

LANGUAGE ARTS

SPORTS/ P.E.

ART

MATH
SOCIAL DISTANCING ISSUE

HOW CAN WE MINIMIZE STUDENT CONTACT DAILY?
CURRENT SPACE ISSUE

MULTI CLASSROOM SCHEDULE

SINGLE CLASSROOM COHORT

HOW CAN WE DIVERSIFY THE STUDENT’S EXPERIENCE?
# PROPOSED SCHOOL YEAR

## TERM 1

### JANUARY

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## HOW CAN WE ACCOUNT FOR THE ADDITIONAL NEEDED SPACE?

**STUDENT COHORT**

**CHANGE COHORT**

**EACH TERM**

(5) 2 MONTH TERMS

(2 week quarantine)
K - 5
- 100% IN EXISTING SCHOOLS
- REDISTRIBUTED TO ALL SCHOOLS AS REQ'D TO MEET POST-COVID REC S
- ROTATE USE OF SPECIALTY ROOMS (ART / GYM)

6 - 8
- OVERFLOW INTO COMMUNITY SPACES AS REQ'D BY (K-5) REDISTRIBUTION
- PUBLIC LIBRARY
- OR OTHER SPACES WITH GUIDED LEARNING CAPABILITIES
- MOBILE LEARNING OPPORTUNITIES: SEE MAGIC SCHOOL BUS

9 - 12
- LIMITED USE OF EXISTING SCHOOL BUILDINGS TO “SPECIALTY SPACES”
- SCIENCE LABS
- WORKSHOPS
- ART ROOMS
- USE OF COMMUNITY SPACES WITH LESS TRADITIONAL CAPABILITIES
- SPACES FOR INDEPENDENT LEARNING
- RELIABLE WIFI, A SPACE TO WORK AND A SPACE TO SERVE FOOD
- MOBILE LEARNING OPPORTUNITIES: SEE MAGIC SCHOOL BUS

ALTERNATIVE LEARNING LOCATIONS
ALTERNATIVE LOCATIONS WITHIN THE SCHOOL

- Cafeteria Pop Up Classrooms
- Auditorium Pop Up Classrooms
- Gymnasium Pop Up Classrooms
- Music Room Use as Cohort Classroom
- Art Room Use as Cohort Classroom
- Science Lab Use as Cohort Classroom
ALTERNATIVE COMMUNITY LOCATIONS

CITY HALL | MUSEUM | EVENT SPACE | PUBLIC LIBRARY | CINEMA

7:00AM | 5:00PM
CURRENT TRANSPORTATION ISSUE

TRADITIONAL SCHOOL BUS
66-90 STUDENTS

SOCIALEY DISTANCED SCHOOL BUS
16-22 STUDENTS

HOW CAN WE ACCOUNT FOR THE NEW TRANSPORTATION NEEDS?
PROPOSED BUS SCHEDULING

TYPICAL PARENT WORK DAY

HIGH SCHOOL
MIDDLE SCHOOL
ELEMENTARY SCHOOL

7 8 9 10 11 12 1 2 3 4 5 6
PROPOSED MAGIC SCHOOL BUS

HOW CAN WE BETTER UTILIZE THIS TIME?

TRANSPORT
LUNCH SCIENCE MUSIC ART THEATER PE
CLASSROOM
SPECIALIZED SUBJECT DELIVERY
TRANSPORT
WIFI LIBRARY HOTSPOT
CLEAN
CLEAN
CLEAN
CLEAN
CLEAN
CLEAN
# Proposed School Day

## K - 5

- **Classroom Teacher**

| Schedule | 7:30 - 2:30 |

## 6 - 8

- **Classroom Teacher**
- **Virtual Lessons for Limited Subjects**

<table>
<thead>
<tr>
<th>Schedule</th>
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<tbody>
<tr>
<td>Period 1</td>
<td>8:30am - 10:25am</td>
</tr>
<tr>
<td>Lunch</td>
<td>10:35am - 12:35pm</td>
</tr>
<tr>
<td>Period 2</td>
<td>10:35am - 12:35pm</td>
</tr>
<tr>
<td>Period 3</td>
<td>12:40am - 1:20pm</td>
</tr>
<tr>
<td>Period 4</td>
<td>1:35pm - 3:30pm</td>
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</table>

## 9 - 12

- **Classroom Monitor**
- **Virtual Lessons**

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<tr>
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<tr>
<td>Lunch</td>
<td>10:35am - 12:35pm</td>
</tr>
<tr>
<td>Period 2</td>
<td>10:35am - 12:35pm</td>
</tr>
<tr>
<td>Period 3</td>
<td>12:35pm - 2:35pm</td>
</tr>
<tr>
<td>Period 4</td>
<td>1:35pm - 3:30pm</td>
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## Example Middle School Schedule

### Location: Cohort Room

<table>
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<tr>
<th>Location</th>
<th>Schedule</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>Period 1</td>
<td>8:30am - 10:25am</td>
<td>Math</td>
<td>Geography</td>
<td>Math</td>
<td>Geography</td>
<td>Math</td>
</tr>
<tr>
<td>Period 2</td>
<td>10:35am - 12:35am</td>
<td>English</td>
<td>Geography</td>
<td>English</td>
<td>PE</td>
<td>English</td>
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<tr>
<td>Lunch</td>
<td>12:30am - 1:30pm</td>
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<tr>
<td>Period 4</td>
<td>1:30pm - 3:30pm</td>
<td>Science</td>
<td>Art</td>
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### Example High School Schedule

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<thead>
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<tbody>
<tr>
<td>Period 1</td>
<td>10:00am - 11:55am</td>
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<tr>
<td>Lunch</td>
<td>12:05am - 12:45am</td>
</tr>
<tr>
<td>Period 2</td>
<td>12:40am - 2:40pm</td>
</tr>
<tr>
<td>Period 3</td>
<td>2:40am - 5:40pm</td>
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### 2HR Class Blocks

**10:00am - 10:45am**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**10:45am - 11:30am**
- **Break**
- **Lunch**
- **Break**

**11:30am - 12:15pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**12:15pm - 12:55pm**
- **Break**
- **Lunch**
- **Break**

**12:55pm - 1:40pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**1:40pm - 2:25pm**
- **Break**
- **Lunch**
- **Break**

**2:25pm - 3:10pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**3:10pm - 3:55pm**
- **Break**
- **Lunch**
- **Break**

**3:55pm - 4:35pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**4:35pm - 5:20pm**
- **Break**
- **Lunch**
- **Break**

**5:20pm - 6:05pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**

**6:05pm - 6:50pm**
- **Break**
- **Lunch**
- **Break**

**6:50pm - 7:30pm**
- **Math**
- **English**
- **Social Studies**
- **Science**
- **Arts**
CURRENT TRANSPORTATION ISSUE

TRADITIONAL SCHOOL BUS - PLAN

TRADITIONAL SCHOOL BUS - SECTION

HOW CAN WE BETTER UTILIZE THIS SPACE?
THE MAGIC SCHOOL BUS

1

SUBJECT MATERIAL DELIVERY BUS

2

MOBILE LEARNING BUS
1 SUBJECT MATERIAL DELIVERY BUS

TRADITIONAL SCHOOL BUS - PLAN

STUDENT

SUBJECT MATERIAL

TRADITIONAL SCHOOL BUS - SECTION
2 MOBILE LEARNING BUS

SAFE TRANSPORTATION + STORAGE
2 MOBILE LEARNING BUS

TRANSFORMS FOR OUTDOOR LEARNING

LIBRARY
WIFI
THEATER
PE
2 MOBILE LEARNING BUS
Provide a flexible framework for all school districts...

To provide equitable access to every student in any situation...

Utilizing existing assets to their full potential.
Surfaces Define Space
Surfaces
Depth, Texture, Pattern, Light & Shadow
Unfortunately:
Surfaces Have Germs
Kids touch surfaces...
...then they touch their faces
3 Strategies
Deployable, Affordable, Preserve Quality of Space

1. Antimicrobial Surfaces
2. Automated Cleaning of Surfaces
3. Surface Avoidance
Antimicrobial Surfaces
How long viruses can survive on surfaces

<table>
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<th>Time</th>
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<tr>
<td>Air</td>
<td>3 HOURS</td>
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<td>Copper</td>
<td>4 HOURS</td>
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<td>Cardboard</td>
<td>24 HOURS</td>
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<tr>
<td>Stainless Steel</td>
<td>2-3 DAYS</td>
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<tr>
<td>Plastic</td>
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Copper Orbital Structure
Copper’s unique properties

A. Copper ions on the surface are recognized as an essential nutrient, and enter the cell

B. A lethal dose of copper ions interferes with normal cell functions and membrane integrity

C. Copper ions impede cell respiration/metabolism, sometimes causing DNA damage
Just make EVERYTHING copper?
Maybe just high touch surfaces
Coper alloys
A. Zahner Company

“In the last several decades there has been substantial testing on the efficacy of various surfaces and wipes to eliminate harmful bacteria. Copper and copper alloys have performed extremely well.”

– Bill Zahner

AIA Ohio Safe Schools Charrette
Learning Environments in a Post-Covid-19 World
Copper can be beautiful
2. Automated Cleaning of Surfaces
UV-C Light

How UV Works

The molecular structure of the DNA is broken down rendering the microbe harmless.
Self Cleaning Restrooms

Boeing has piloted this idea.
Self Cleaning Restrooms
Could these be implemented in schools
Maybe Robots Can Help?
CleanseBot
Cleans furniture with UV Light
UV Light Robots
Already being used in hospitals
UV Light Robots

Yezhik UVD

Disinfection robot "Yezhik UVD"

Yezhik UVD is used as part of a regular cleaning cycle preventing and reducing the spread of infectious diseases, bacteria, viral, and other types of harmful organic microorganisms by breaking down their DNA structure.

- **Integration:**
  - 1
  - Thermal Scanner
  - Pulse oximeter

- **Speed:**
  - 3 meters per second

- **Mobile platform:**
  - Up to 8 hours

- **Charging time:**
  - 45-90 minutes

- **Weight:**
  - 60+ kg
  - Includes cameras, battery, and computer assembly

- **Battery:**
  - 2 - 2.5 hours

AIA Ohio Safe Schools Charrette
Learning Environments in a Post-Covid-19 World
Drones with UV Light

Aertos 120-UVC Indoor Disinfection Drone
Window Washing Robots
Wash vertical surfaces
3. Surface Avoidance
Limiting Physical Contact

Use sanitary devices
Limiting Physical Contact
Hands free door operators
Limiting Physical Contact

Technology can be used to operate doors
Hands Free Door Opener
Hands Free Door Opener

AIA Ohio Safe Schools Charrette
Learning Environments in a Post-Covid-19 World
Hands Free Door Opener
Foot Latch
Hands Free Door Opener

Foot Latch

AIA Ohio Safe Schools Charrette

Learning Environments in a Post-Covid-19 World
Hands Free Door Opener

Foot Latch

**How it works**

**Design Criteria / Concept in Function**

1. The door is always open when no one is using the stall.
2. The view from inside the stall with latch in locked position.

Foot Latch is:

- Acceptable to almost all types of restroom stall doors.
- Never accidentally locks from inside.
- Easy to use for men, women, and children.
- Simple and inexpensive in production.

---

AIA Ohio Safe Schools Charrette
Learning Environments in a Post-Covid-19 World
Hands Free Door Opener

Foot Latch

**Concept Details**

*The simple, one piece design makes Foot Latch cost-effective in production and easy to install.*

**Materials:**
- Anodized Aluminum 6000 Series
- Stainless Steel
- Wood / Recycled Rubber*

*By replacing the surface, Foot Latch can match any door with any color and material.*

---

AIA Ohio Safe Schools Charrette

Learning Environments in a Post-Covid-19 World
References

Copper: https://www.smithsonianmag.com/science-nature/copper-virus-kill-180974655/

A. Zahner Company: https://www.azahner.com/contact


Dimer Germ Falcon: https://www.dimeruv.com/

Aitheon Yezhik UVD https://aitheon.com/medical-robots

UV Drone: https://digitalaerolus.com/aertos-120-uvc-disinfection-drone/

Window Washing Robots: https://cleanup.expert/window-cleaning-robots/

Clean Key: https://www.getkeysmart.com/products/cleankey

Foot Latch: https://behzadrashidi.com/foot-latch
Contact Information

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AIA OHIO
School Safety
COVID-19
School Survival Guide
V2 – 6/25/20
Vision

BRIDGE TO FUTURE?

MITIGATION TO "NORMALCY"?
Design Leadership Teams

SCHOOL

STAFF

ADMINISTRATION

TEACHERS

SUPPORT

STUDENTS
Design Leadership Teams

SCHOOL

TEACHING TEAMS

EXECUTIVE TEAM
GRADE-LEVEL TEAM
ENRICHMENT TEAM

STAFF

ADMINISTRATION
TEACHERS
SUPPORT

STUDENTS

K 1 2 3 4 5
Executive Team – Set Goals and Constraints

- Create a safe environment – Guidelines
- Start with learning – Quality over quantity
- Maximize Face-to-face learning
- Provide all services
- Work with existing facilities and staff
- Optimize student “experience”
- Student Enrollment and Family Survey
Executive Team – Categorize Space

- Classroom space contains less students unless mask wearing is required during class
- Therefore, larger open spaces will be needed to accommodate students not in the classroom
Executive Team – Design Teaching Teams

GRADE-LEVEL TEAMS (1 per Grade)

ENRICHMENT TEAM
Teaching Teams – Start with Learning
Teaching Teams – Design Learning Modes

List of 20 Learning Modalities
1. Independent study
2. Peer tutoring
3. Team collaboration
4. One-on-one learning with teacher
5. Lecture format - teacher-directed
6. Project-based learning
7. Technology with mobile computers
8. Distance learning
9. Internet-based Research
10. Student Presentation
11. Performance-based learning
12. Seminar-style Instruction
13. Inter-disciplinary learning
14. Naturalist learning
15. Social / emotional / spiritual learning
16. Art-based learning
17. Storytelling
18. Design-based learning
19. Team teaching/learning
20. Play-based learning

- The Language of School Design, Nair, Fielding, & Lackney, 2005
Grade-Level Teams – Classroom Capacity

- VS, Physical Distancing Thought Starters, 2020
Grade-Lvl Teaching Teams – Design Learning Teams

TEAM BEAR

TEAM YAK

TEAM ORANGUTAN
Enrichment Teaching Team – Design Enrichment Capacity
Enrichment Teaching Team – Design Enrichment Teams

ENRICHMENT TEAM PICASSO

ENRICHMENT TEAM MOZART
Enrichment Events - Community Building

OUTDOOR

ONLINE

DISTANCED
Design Master Schedule

SCHOOL

TEACHING TEAMS

EXECUTIVE TEAM
GRADE-LEVEL TEAM
ENRICHMENT TEAM

STAFF

ADMINISTRATION
TEACHERS
SUPPORT

STUDENTS
K 1 2 3 4 5

Pg. 085
Executive Team – Design Master Schedule
- By Learning Team

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- LANGUAGE ARTS
- MATH
- SCIENCE
- SOCIAL STUDIES
- ENRICHMENT
- LUNCH
Executive Team – Design Master Schedule
- By Student for Before/After Care and Tutorial
Executive Team – Design Master Calendar

- Information is always changing – build intervals into Master Calendar for adjustments
- Calendar needs to accommodate A/B schedule, regular check-ins, assessments, and potential closures
Students – Make Hygiene Teachable
- Transition Time – Mask Up, Wash Up and Clean Up
Students – Make Hygiene Teachable
- Transition Time – Mask Up, Wash Up and Clean Up
The Welcome(ing) Module

- 2x4 stud construction
- 4’x 8’ plywood
- Hand sanitizer
- Temperature check station (hole through plywood; person checking temperatures on the other side)
- Optional casters for module storage
- Optional ramps for ADA compliance
Sample Module:
Elementary School

Habitat--Coral Reef theme:
- Animals from habitat 6' apart leading to entry module
- Learning opportunity example: life size images of animals
- Music inside box: underwater theme and/or rotating student selection
- Optional lighting
- Optional hanging elements for interest, out of reach
Sample Module:
Elementary School

Top View of Approach

Unfolded Module Graphic Example
Elementary School Theme Ideas

- Animals/Zoo
- Underwater/Habitats
- Dinosaurs
- Willy Wonka/Movies
- Trains/Vehicles
- Sports
- Outer Space
- Books
Sample Module: Middle/High School

School Spirit theme:
- Two modules shown
- Slot for temperature checks
- Hand sanitizer
- Metal detector option
- Music inside, selected by students
- LED strip lighting option
- Tiger prints are spaced 6 feet apart
- Ideally: student participation in design, construction and/or painting - rotate in new modules
Locating the Modules

**Outdoors**
- Under existing overhang
- Under new overhang
- Exposed to weather
- Caster option for interior storage

**Indoors**
- Gym
- Cafeteria
- Atrium/entryway
- Central corridor/rotunda
The parasol was developed to be an object around which to organize an outdoor classroom as well as a shade device. Constructed of 2 x 4 dimensional lumber, simple hardware, and canvas, the parasol is an affordable and simple yet elegant solution.
“Social Circles”

In conjunction with the parasols, athletic field marking paints already on hand at most schools could be used to predetermine social distancing spaces for each outdoor classroom area. If budgets allow, the painted circles could be replaced with simple-built seating of the same dimensional lumber as the parasol.
Our goal was to keep solutions affordable and relatively easy to construct while allowing for improvements to the design. When budgets allow, the materials could be improved for amenities like photo-voltaic panels, USB charging, and wireless Internet could be supported by this platform.
Fauxtree

Rather than mobile parasol, fixed Fauxtree shading devices could be permanently located to create a longer lasting outdoor learning environment. Paired with adjustable outdoor desks constructed from the same simple materials, this could quickly be achieved in many school districts. Branches could be added or adjusted to achieve the desired shading for any given location.