

Architectural Design

2020-2021 High School Design Problem

Background

No one envisioned the impact that the COVID pandemic this year could have had on the fabric of our society. Schools and businesses closed, Zoom meetings are the norm, and going to the grocery store or getting a haircut is a risky venture. Social distancing and masks are required, and the importance of social interaction has taken a backseat to the importance of health and safety. Businesses at every level are re-inventing their methods of doing business, and ordering online, touchless delivery, and curbside pickup have become critical.

Challenge (with design considerations and constraints)

The focus of the 2020-2021 Architectural Design problem is open-ended. Students must select a non-residential building in their community, and create a “remodeled” facility. This can be a restaurant, school, grocery store, library, hotel, fire or police station, office building, place of worship, community center, warehouse or any other facility. Students must include photos of the current structure, including the inside.

The challenge is to assume that current pandemic restrictions are our new normal, and for the next several years, social distancing, masks and other limitations will be in place. Your goal is to re-envision the structure to create a remodeled situation to allow the current business to remain open and operational (a change of use is not allowed). This challenge encourages students to think beyond one-way aisles and plexiglass barriers. Consider traffic flow, air circulation, occupancy numbers, surfaces and decontamination, as well as parking, communication, internet requirements and any other factors that would be important for doing “business.”

1. Identify your selected facility.
 - a. Define the location and function.
 - b. Define the physical, contextual and environmental factors where your facility is located.
 - c. Assign and detail the level of risk that you are designing to (an example would be a Low/Medium/High/Extremely High designation, or numerical Infection Rates). For the purpose of this challenge, you may use worst case projections or create a hypothetical scenario to which you design.
 - d. Provide information about the users (both employees and public as appropriate) and consider socio-economic, political and educational factors to determine voluntary compliance levels.
2. Conduct research on your selected facility to determine how it was used prior to the current pandemic.
3. Define the existing physical and programmatic conditions that promote transmission, and the philosophy you will use to reduce or eliminate that risk.
4. Design and incorporate effective and innovative concepts that would allow your selected facility to remain operational during the current COVID-19 pandemic. The design must indicate how the following areas are being addressed:
 - a. Parking and site access. Compliance with locally adopted building and zoning codes must be maintained. If access is reduced, usage of the facility must be reduced to maintain compliance.
 - b. Primary and secondary entrance(s) and exit(s)
 - c. Back-of-house/employee areas (as applicable)
 - d. Food preparation area (as applicable)
 - e. Public/employee interface (as applicable)
 - f. Areas of the facility that are primary to the operation of the business
 - g. Support spaces as necessary to sustain the use and function of the facility. Some examples of support spaces are: janitorial, storage, mechanical and electrical
 - h. Bathrooms (must maintain compliance with locally adopted building codes (such as the International Building Code (IBC))
 - i. Accessibility measures as mandated by locally adopted codes as well as ANSI and ADA

5. All basic construction systems shall be clearly defined and graphically represented.
6. Mechanical, Electrical, Plumbing and Technology systems should be considered, and if appropriate, describe how they were modified to support the overall re-design (consider efficiency, life-cycle cost, sustainability, flexibility, etc.).
7. Consideration should be given to Fire and Life Safety measures as defined in the locally adopted codes, and applicable systems should be clearly defined.
8. Construction materials and methods shall be clearly defined and should be carefully selected to take into account ease of construction, permanent vs. temporary, life-cycle cost, material sustainability, availability, integration with current design, and overall appropriateness.
9. Public health and safety are paramount. A public health statement defining the restrictions currently in place in your town/city/county and/or state (or students may define their own scenario if the current one is not conducive to the challenge) must be included.
10. The model must be placed on ½ inch foam core board, 20 x 30 inches, and scale must be specified in the documentation.