

# GUIDANCE FOR PLEXIGLASS BARRIERS IN SUPPORT OF COVID-19 PREVENTION EFFORTS

ADAPTED FROM UW "GUIDANCE FOR PLEXIGLASS BARRIERS IN THE WORKPLACE | [WWW.EHS.WASHINGTON.EDU](http://WWW.EHS.WASHINGTON.EDU)

June 15, 2020

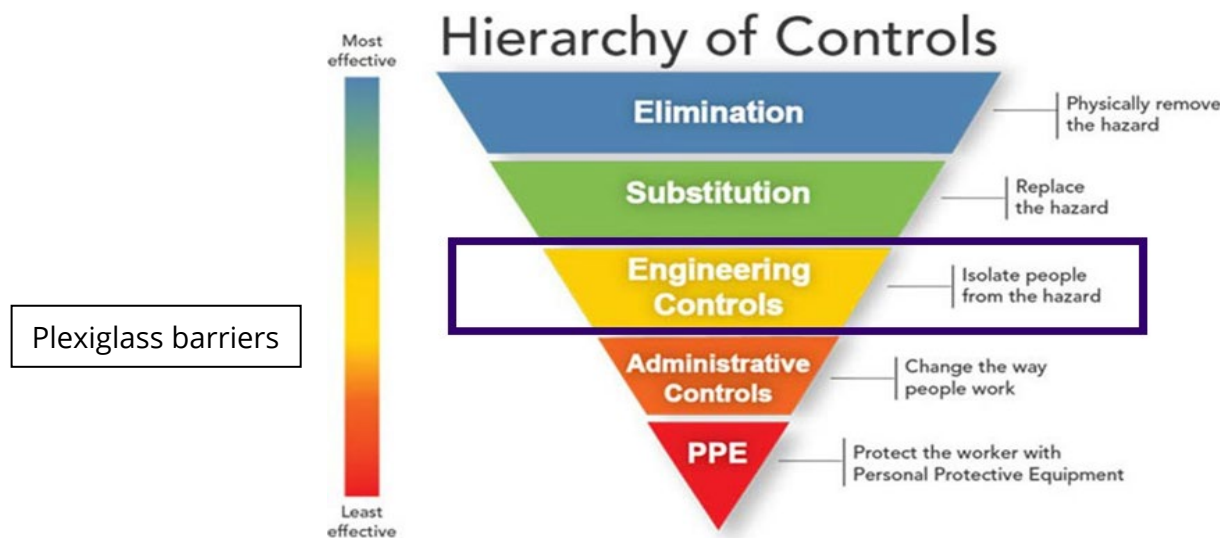
The Department of Environmental Health and Safety (EHS), in partnership with Facilities Operations, conducted a review of the benefits, limitations, and performance standards for plexiglass barriers, as well as guidance on prioritizing the installation where there is an increased potential for close contact with others. University units considering the use of physical barriers (plexiglass or other similar materials such as polycarbonate) may consider this alternative strategy as a component of their overall COVID-19 prevention efforts to help reduce the risk of COVID-19 transmission in public areas and worksites.

## BACKGROUND & RISK REDUCTION

COVID-19 transmission occurs from mucous membrane exposure to respiratory droplets from coughs/sneezes during close contact (within 6 feet) with an infected individual. Droplets may enter the mouth or other mucus membrane of an uninfected individual and subsequently cause transmission of the virus. This is the primary route of COVID-19 transmission identified by the Centers for Disease Control and Prevention (CDC).

To effectively minimize COVID-19 risk, it is important to implement multi-layered strategies. In order of effectiveness, workplaces should focus on:

- Eliminating the hazard (keep sick people at home; eliminate reception areas, congregation areas, and nonessential spaces; use remote or touch-free pickup/drop-off);
- Isolating people from or removing the hazard (engineering controls, e.g., reduce density; rearrange spaces, work locations, and furniture to maintain 6ft distances; use physical barriers such as separate offices, cubicles with walls, plexiglass barriers; environmental surface disinfection; use of facemasks or coverings to protect others);
- Changing the way people work (e.g., training; stagger breaks, lunches, and work times; using visual cues and markers to direct traffic); and
- Using personal protective equipment appropriate for the task (e.g., gloves, face shields, gowns, and respirators).



Workplaces should use these types of interventions together and along with general hygiene recommendations. All strategies must be customized for the work environment and should include methods that address multiple modes of transmission.

Plexiglass has been used as a tool to provide a physical barrier between people and to help capture respiratory droplets when individuals are in close contact. Plexiglass (acrylic sheet) is a common name for poly (methyl methacrylate), or PMMA, and is a transparent thermoplastic often used as an alternative to glass. PMMA is an alternative to polycarbonate, but does not offer as much strength, ultraviolet light tolerance, ability to polish, heat or chemical resistance.

## LIMITATIONS OF PLEXIGLASS BARRIERS

When in-person interactions cannot be avoided, barriers can provide a physical separation between people to support social and physical distancing efforts. They are appropriate in a variety of settings, including public-facing areas, retail settings, and spaces where it is difficult to maintain 6 feet of separation in high-occupancy areas. However, they are not always appropriate and do have limitations (including but not limited to):

- Barriers do not provide a zero-risk solution. They do not address all possible modes of transmission, such as aerosol transmission, or fully protect anyone from COVID-19.
- Barriers do not replace the need to maintain 6 feet of separation between individuals when possible.
- Barriers do not replace the need to follow other public health requirements such as practicing good hygiene (e.g., washing hands, not touching your face, staying home if you are ill), the need to wear face coverings and PPE, or other requirements and recommendations from EHS, CDC, or the State of Connecticut.
- There may be constraints in the physical/structural environment that prevent

installation of appropriately sized barriers.

- Barriers may not be feasible or appropriate in all workspaces or for all work activities.
- If not designed or installed properly for the specific work environment, barriers may obstruct or interfere with the ventilation system airflow, and fire and life safety protection systems (e.g., fire alarm notification devices, fire sprinklers, fire pull stations).
- Barriers may break if individuals lean against the material, which may expose sharp edges. Consider polycarbonate if the barrier may be subjected to individuals leaning or pushing against it.
- The plexiglass barrier may interfere with voice communication causing individuals to lean forward from the natural sitting or standing position to project their voice. In these situations, the installation of a no-draft speak-through or an electronic communication device should be considered

## GUIDELINES FOR INSTALLATION

Barriers should be sized to block face-to-face pathways between individuals and must create a distance of at least 6 feet for any indirect pathways.

Below are examples of possible University environments and circumstances in which barriers can be beneficial. This list is not exhaustive and serves to generate conversations about potential implementation.

- Retail point of sale
- Grocery or dining checkout
- Shuttle driver protection
- Library circulation
- Reception desks
- Buffet lines if a sneeze barrier is not built-in
- Ticket sales and ticket scanners
- Resident hall front desks
- Facilities Stores equipment/supply desk locations
- Student mail rooms

## PRIORITIZATION OF PLEXIGLASS BARRIERS

Plexiglass barriers offer the ability to separate individuals who may need to be in close proximity to others. **Due to increased requests for plexiglass barrier installation, it is important to prioritize the areas of installation to ensure higher risk areas receive barriers first.** Prioritization considerations should include certain factors such as workplace type and risk level, occupant and visitor frequency, density, placement, and pedestrian pathway density.

When considering the prioritization of plexiglass barrier installation, it is important to determine the risk level, frequency, and volume of contact with the public and coworkers, and where adequate controls are not able to be implemented at the installation location. Facilities in conjunction with EHS will evaluate installation requests and determine priority level. **At this time, only high priority areas/situations will be considered for installation by Facilities**

**Priority Level**

**Area Description**

**Higher**

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Areas of high frequency and high volume of contact with members of the general public, and lack of other controls

*Examples:*

- Food service – cashiers, serving counters
- Higher volume retail cashier lanes
- Higher volume screening and check-in areas (e.g., medical facilities, first point of entry)
- Ticketing/transportation desks/kiosks
- Higher volume reception or information desks
- Transportation shuttles and buses (high volume)

**Medium**

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Areas of frequent contact with members of the general public or coworkers, and lack of other controls

*Examples:*

- Lower volume reception, information and administrative stations
- Open work areas with close proximity workstations that lack barriers and other controls
- Lower volume retail locations
- Transportation vehicles, including research vessels

**Lower**

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Areas that do not require contact with people and/or areas with minimal occupational contact with members of the general public or coworkers

*Examples:*

- Lower volume and density offices where social/physical distancing is strictly adhered to and minimal contact with others
  - Areas with other installed engineering controls that are as effective or more effective than plexiglass barriers
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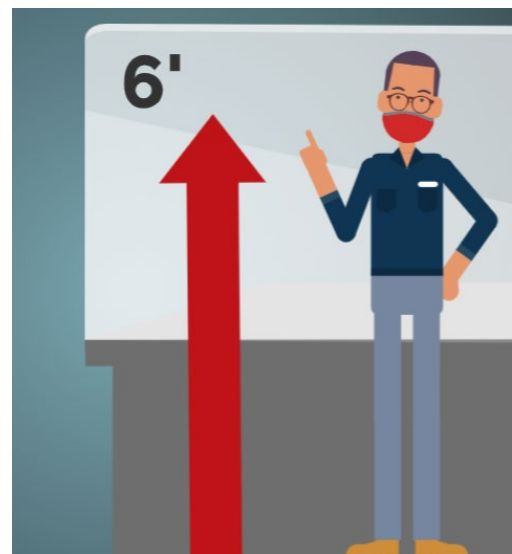
## Plexiglass dimensions

Each plexiglass installation area will require individual considerations regarding specific plexiglass dimensions based upon specific building or furniture layout, and occupant or visitor stationing. The overall goal is to prevent respiratory droplets from one individual travelling through the air, landing on another individual, and potentially causing infection. The plexiglass barriers will need to be of a certain minimum size, determined by the specific installation area.

The following spatial arrangements between individuals will need to be considered during installation of plexiglass barriers:

- Sitting near sitting
- Sitting near standing
- Standing near standing
- Individual movements within area
- High-density pedestrian flow
- Multiple individuals providing services at a single location

Anthropometric data provided by the [CDC](#) states that the measured average height for adults aged 20 and over in the United States is between 63.6 and 69.0 inches. The average sitting height for individuals varies based on chair height and type; therefore, plexiglass vertical heights will need to be designed specific to the location, unless the vertical height dimensions can be applied across similar workstations in a single Work Request. To block respiratory droplets from standing individuals, the top horizontal edge **height of the barrier should be at least 72 inches, or 6 feet, above the floor** and accounts for the tallest average individual height with the addition of a buffer.



## INSTALLATION CONSIDERATIONS

### Ventilation design interference potential

The installation of plexiglass barriers may require customization at each specific location where deemed necessary. Due to the variation in plexiglass barrier dimensions, it is important to consider how the barrier will affect building airflow and overall ventilation of the space. During the design phase of the installation process, it is important to examine the ventilation design with regard to the location of supply and return air registers so that the barriers do not block air flow within spaces. Depending on the scope and location of the project, a review by Facilities Operational Engineering may be needed as part of the Work Order process to determine potential ventilation impacts and solutions.

## **Regulated building materials**

Many older buildings may be constructed of materials that may contain asbestos or surfaces coated with lead-containing paint. Facilities Operations will consult historical data and/or conduct a hazardous materials survey to ensure building materials containing regulated materials are managed properly prior to disturbance through the installation process.

## **Food Service Areas**

There are specific requirements for barriers used as food shields. Please see the following document if the plexiglass barrier request is to be used as separation in food service: [ANSI 2-2014 Food Equipment](#).

## **Radiation Safety Laboratories**

Lead-lined plexiglass or lead acrylic barriers must meet the minimum lead equivalences for radiation shielding. If installation is requested in a lab with radiation hazards, the EHS RSO must be contacted.

## **Building and Fire Safety Considerations**

Ensure 18 inches below ceiling to prevent interference with fire sprinkler spray patterns. If full height barriers are needed, FMBIO will need to assess and determine if new fire safety devices will be required. Installation of new fire sprinkler or fire alarm devices may be necessary.

Barriers must not interfere with existing corridors, aisles, or other similar open pathways intended for exiting. Barriers that interfere with existing exit routes must be reviewed by FMBIO.

## **PLEXIGLASS INSTALLATION REQUEST PROCESS**

To request plexiglass installation, submit to UConn Facilities the [Plexiglass Barrier Installation Request Form found on the Facilities Operations homepage](#) (<https://fo.uconn.edu/>) with authorization from your unit head or designee. It is important to provide the requested information on the form to assist UConn Facilities Operations with prioritizing and streamlining the installation.

Facilities Operations will consult with EHS, FMBIO, and Operational Engineering as needed on the installation requests. For general safety questions about plexiglass use and installation, contact EHS at [ehs@uconn.edu](mailto:ehs@uconn.edu).