



RETROFIT EDITION

NEW YORK CITY OPEN RESTAURANTS TOOLKIT

Help keep restaurants open **and**
diners safe **while eating outdoors.**

Brought to you by

**Design
Advocates**

ABOUT THIS GUIDE

This guide is intended to help NYC restaurants with existing outdoor installations make them safer and more comfortable.

PRIORITIES



ABOUT THIS GUIDE

Information provided in this guide is for general advisory purposes only and should only be implemented in consultation with a qualified design professional such as a licensed architect or engineer.

If you are a restaurant owner and need help with an existing or new outdoor dining installation, the **Design Corps** can help. Free services from architects, engineers, and other design industry professionals are available to New York City restaurants.

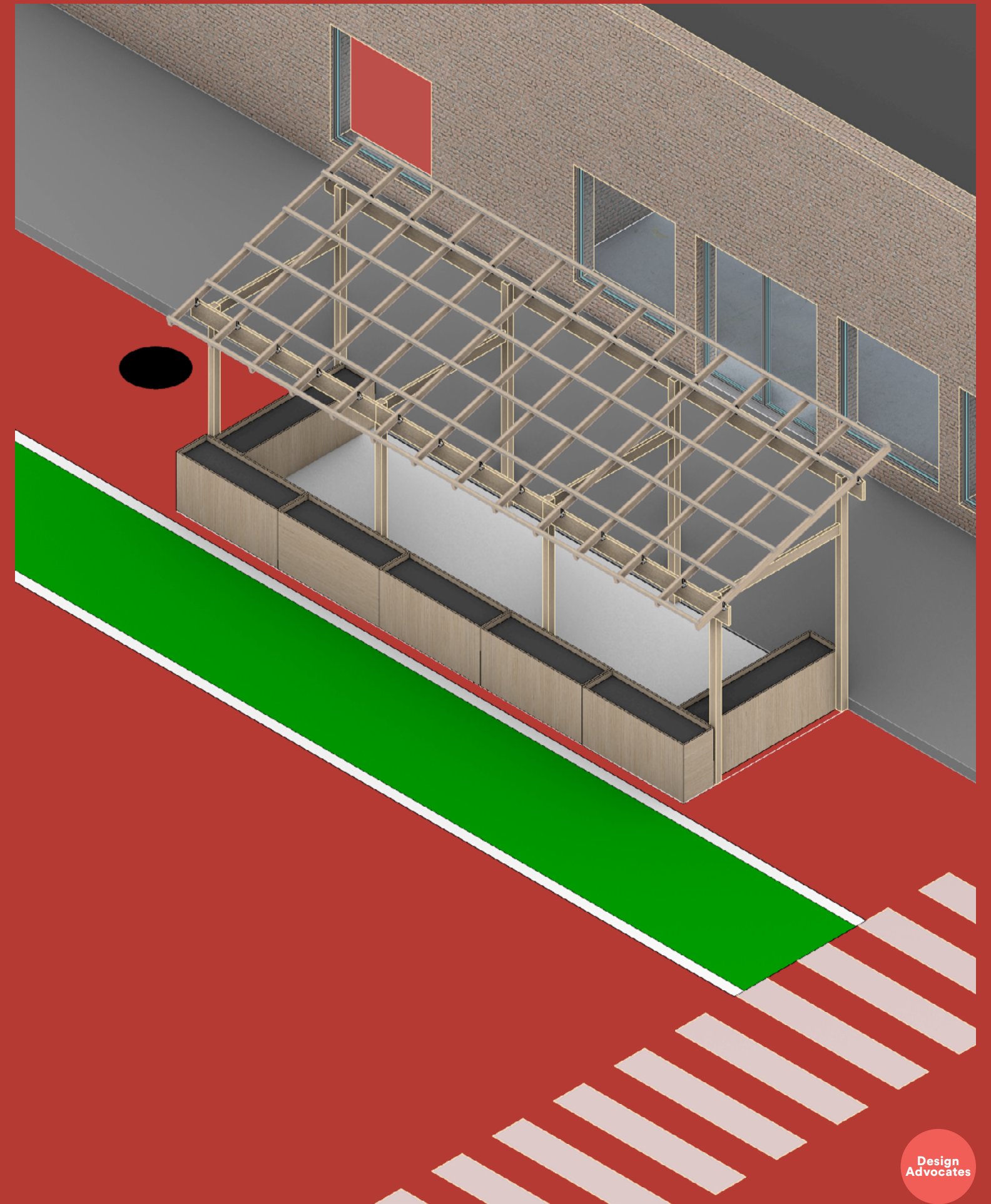
Visit www.nycxdesign.com/design-corps to learn more.

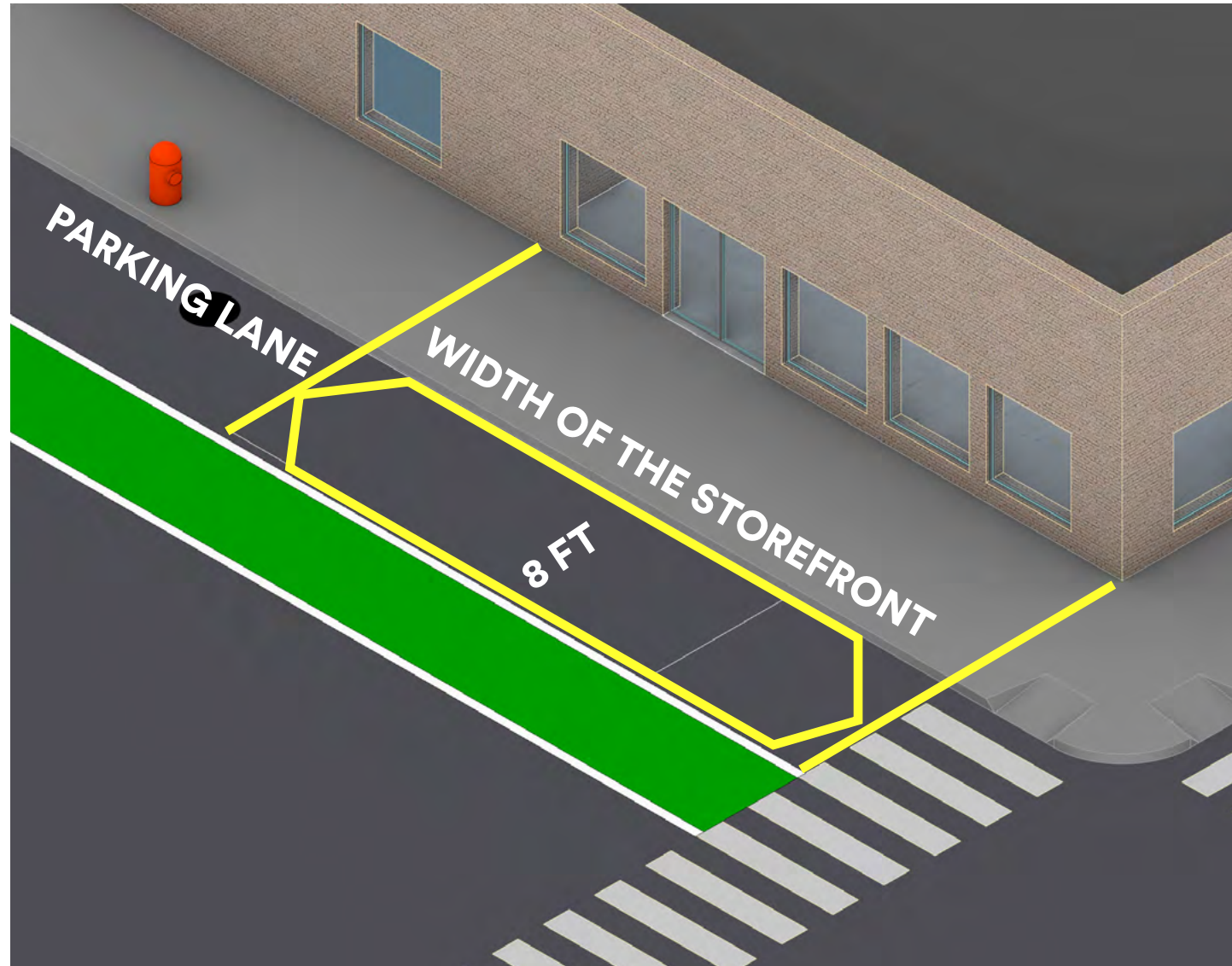
Design Advocates is a non-profit network of architects, designers, and engineers working to assist small businesses and non-profits adapt their spaces and operations to COVID-19 and beyond.

Visit www.designadvocates.org to learn more about us and what we do.

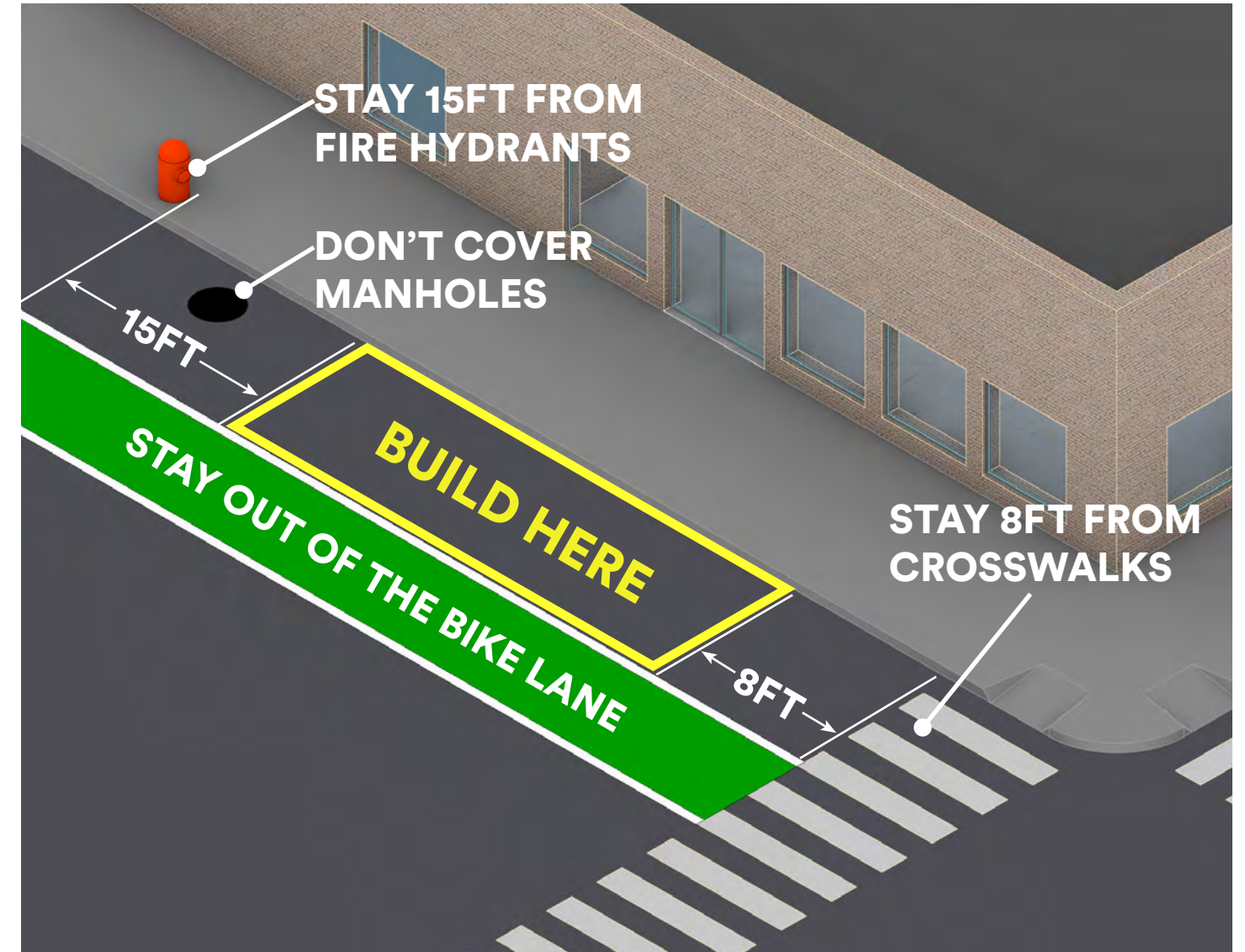
STARTING WITH THE BASICS

Familiarize yourself with the New York City requirements for outdoor dining installations

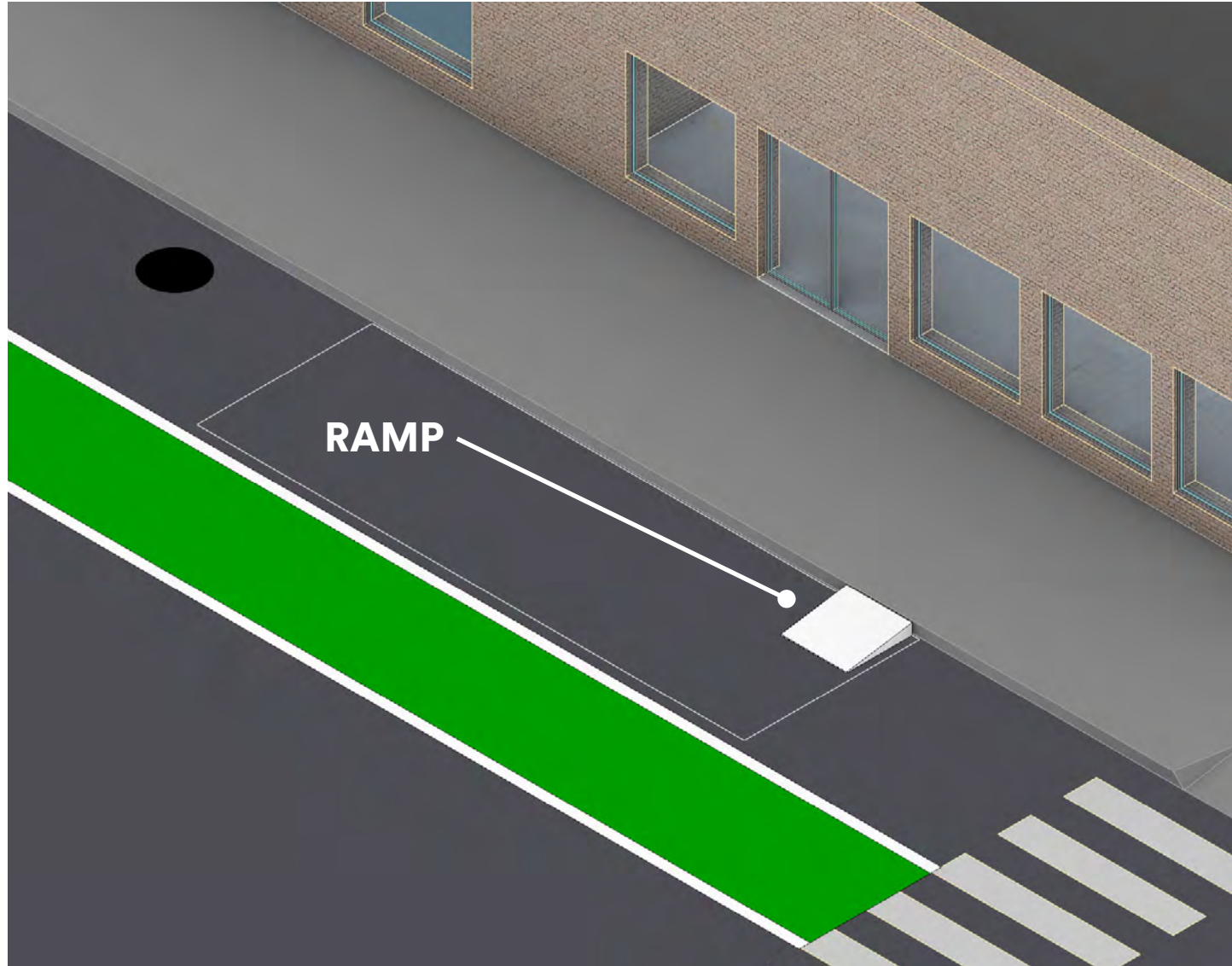




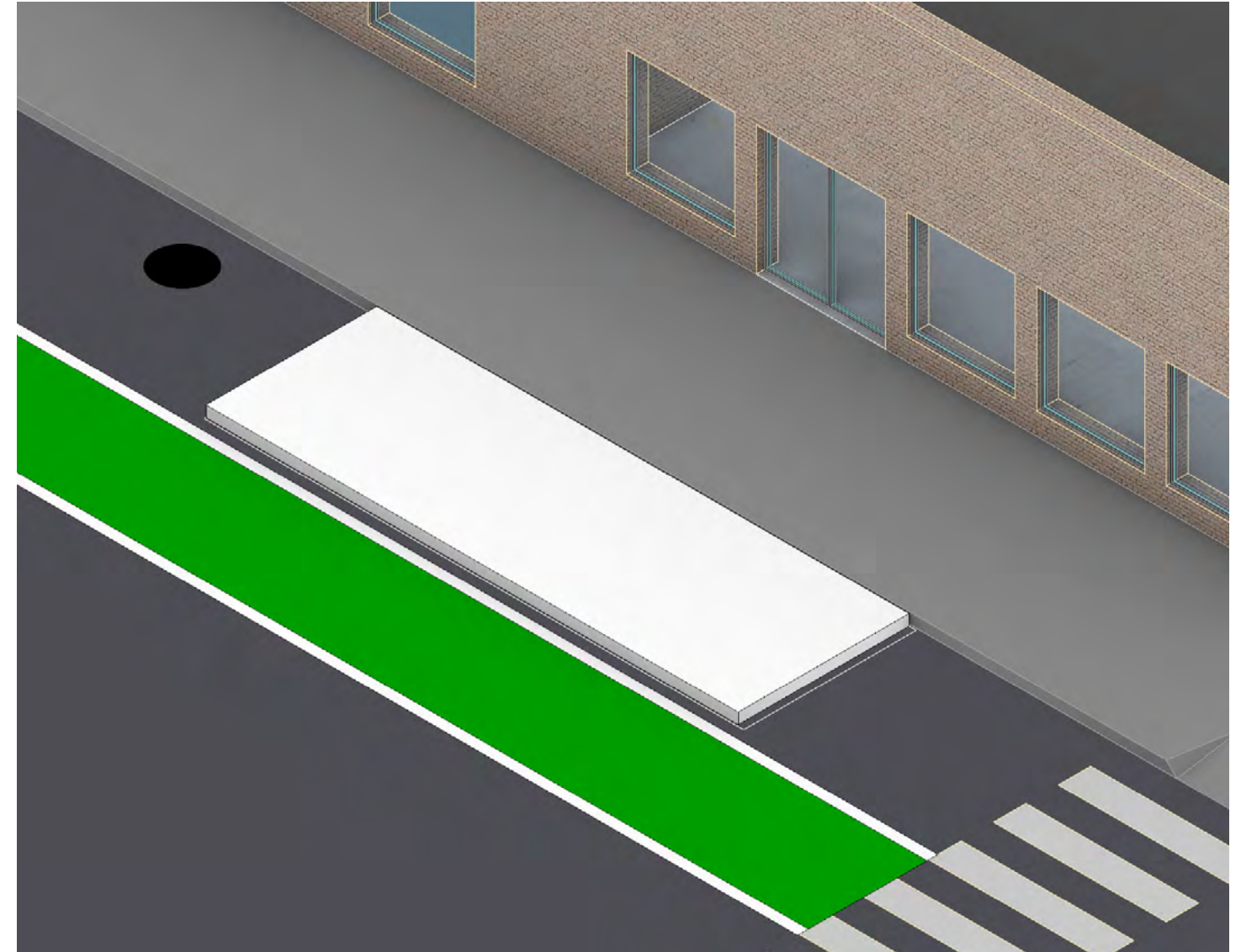
Outdoor dining installations in the parking lane can be no wider than 8ft and as long as a restaurant's ground floor storefront.



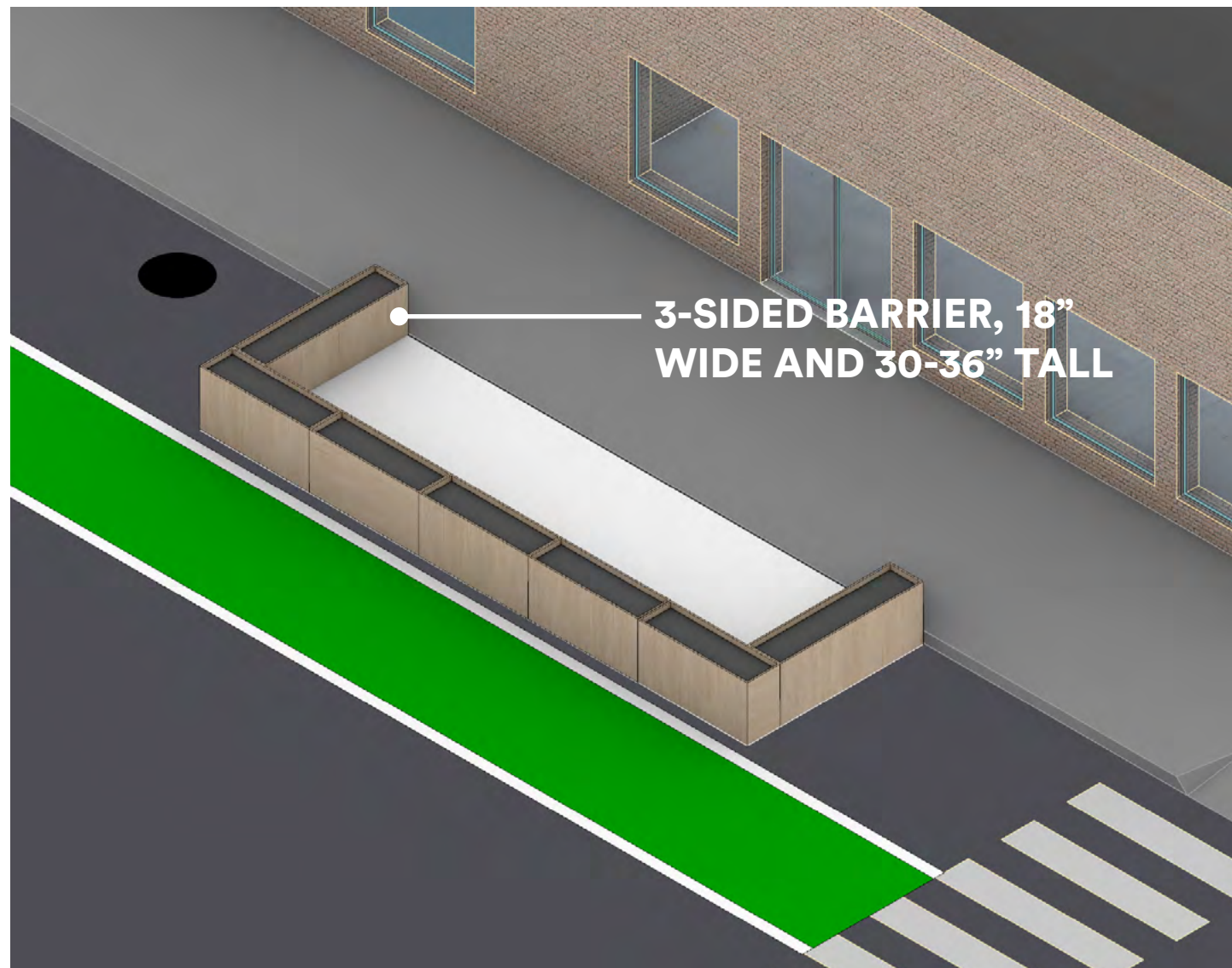
Installations must be spaced 8ft away from crosswalks, 15ft away from fire hydrants, and cannot cover manholes and other utilities.



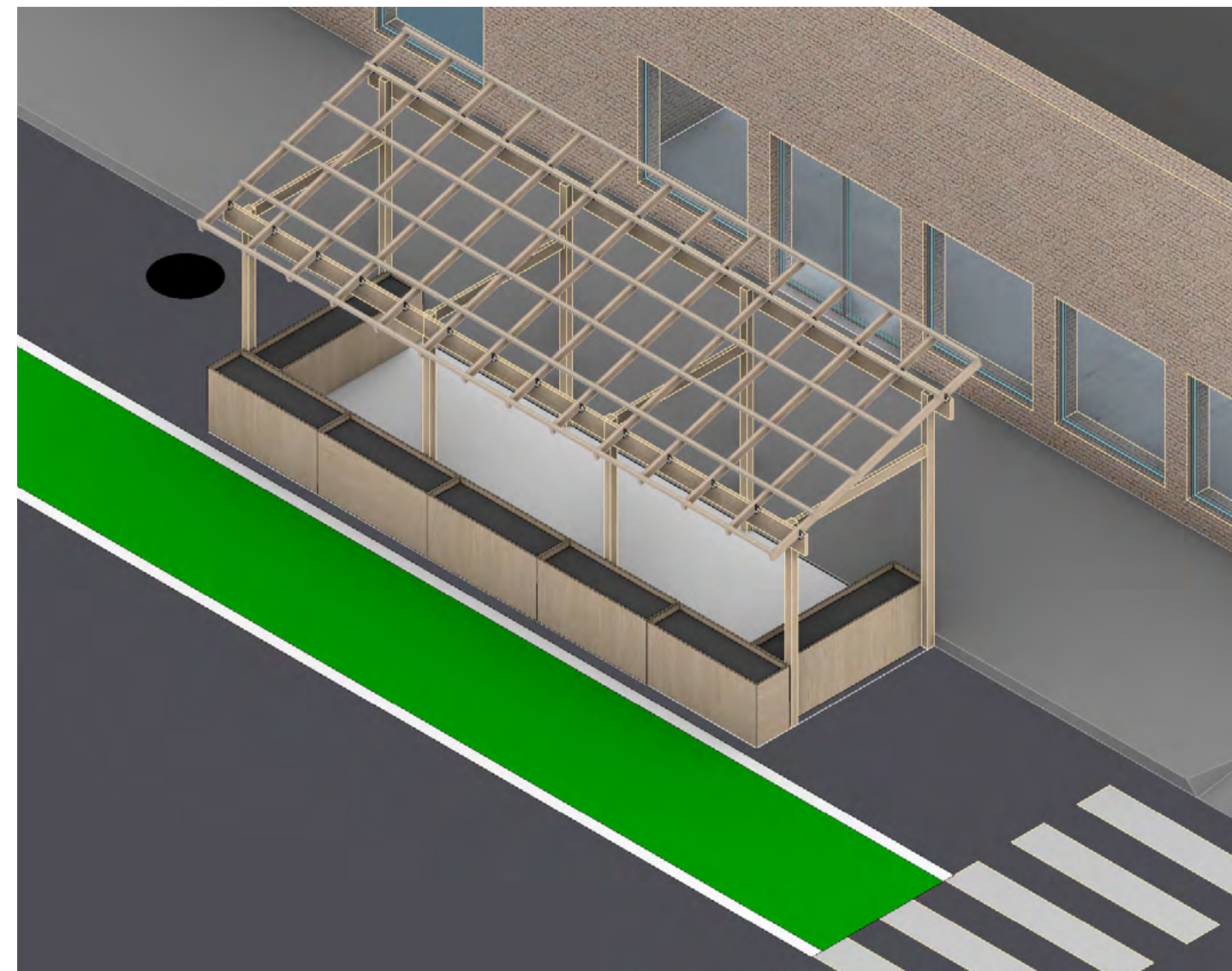
The space used for the outdoor dining installation must have a ramp or a platform, to satisfy the Americans with Disabilities Act (ADA).



A platform built to be level with the curb is a good way to make sure that customers with disabilities have access.

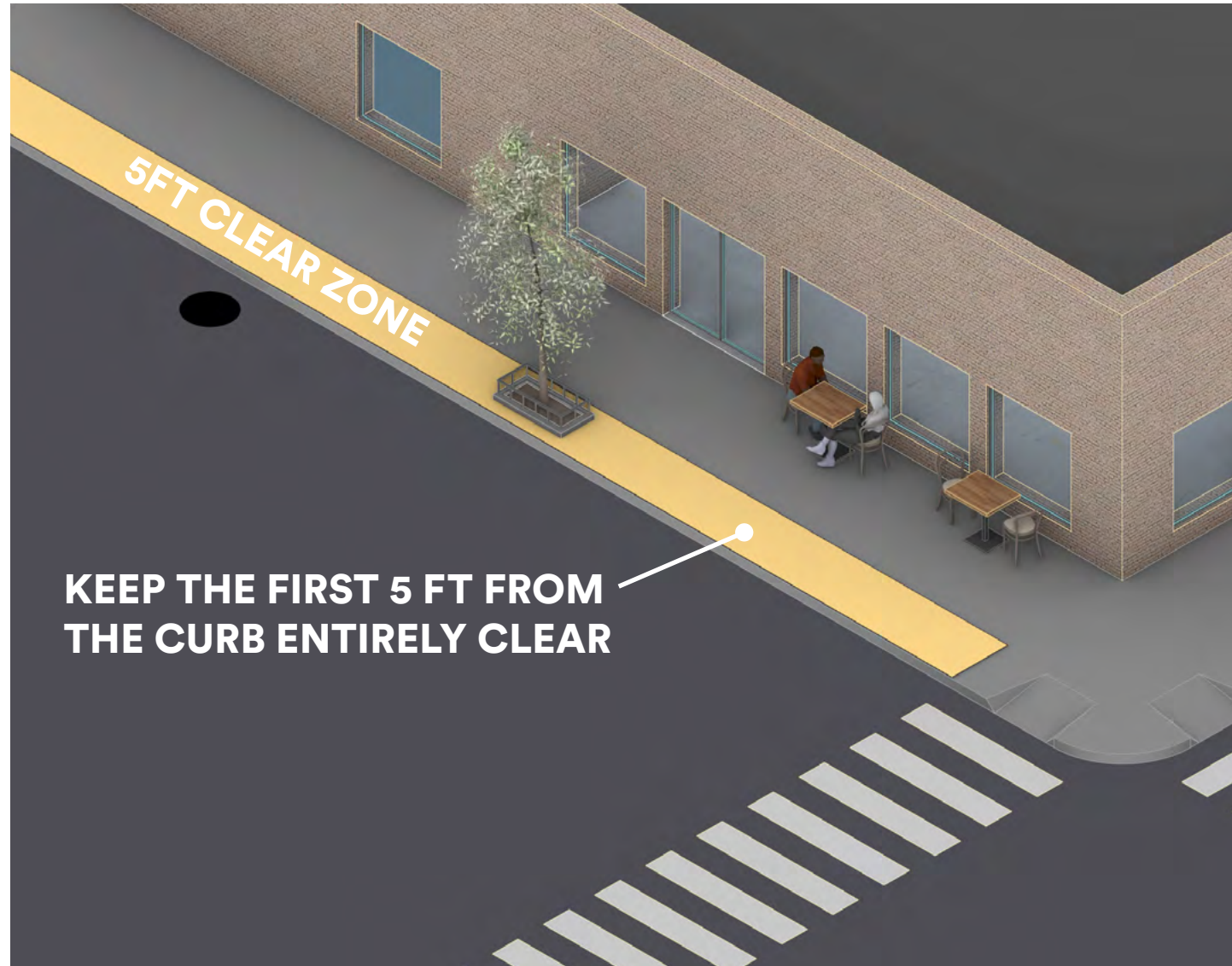


Every installation must have a barrier 18" wide and 30-36" tall, filled with sand, soil, or gravel around 3 sides.

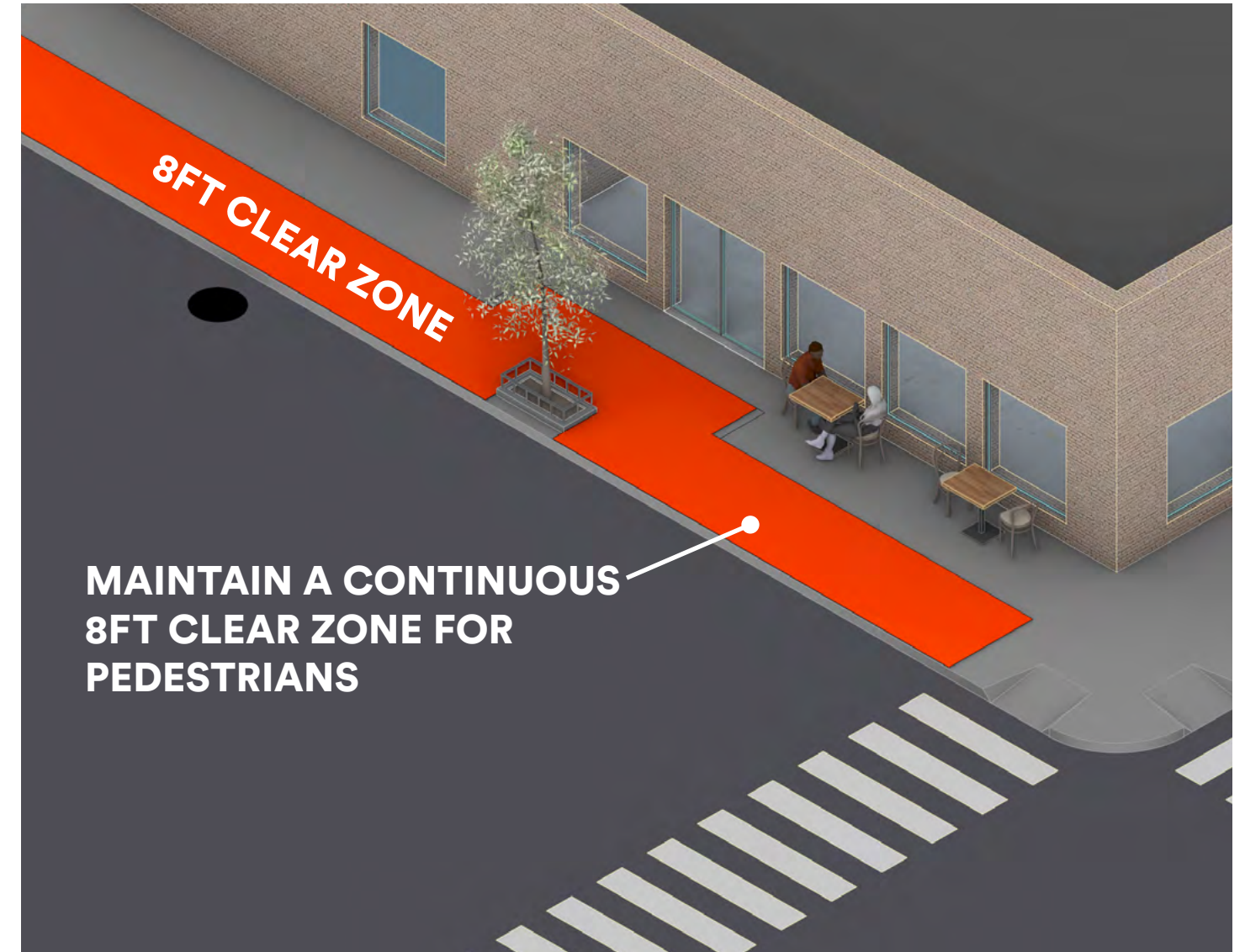


A roof can be added, as long as it is weighed down or attached to the heavy barrier. See the following pages for more information.

IF YOU PLACE TABLES ON THE SIDEWALK:



Nothing can be placed in the 5ft zone along the curb, otherwise known as the “Amenity Zone”.



You must maintain a clear 8ft zone through any seating. That zone has to go around trees, bike racks, and other objects installed on the sidewalk.

WHAT'S THE GOAL?

Sturdy roofs and canopies that are strong enough for all weather

Safe electrical work for lighting and heaters

Social distance or partitions between parties

Enhanced traffic safety using planters or water filled traffic barriers

Accessibility for disabled customers

Sidewalks that are unobstructed for pedestrians



Help us keep restaurants open, improve restaurant customers' and workers' trust, make outdoor dining accessible to everyone, keep sidewalks unobstructed, and ensure everyone stays safe.

IS YOUR DINING INSTALLATION TRAFFIC SAFE?

**Protect customers
from traffic with safety
barriers and by enhancing
visibility.**



What are the essential ingredients for enhanced traffic safety?

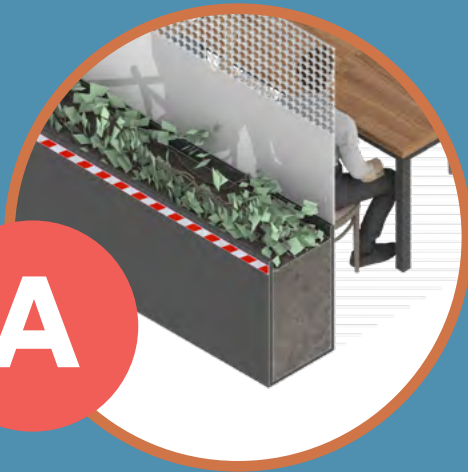
SNOW STICKS FOR VISIBILITY



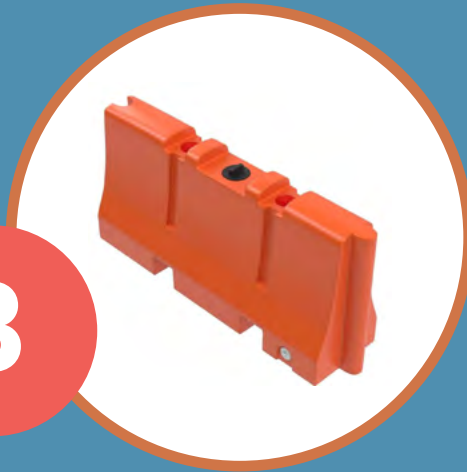
REFLECTORS AND REFLECTIVE TAPE



A PLANTER OR OTHER SOLID BARRIER TO PROTECT CUSTOMERS

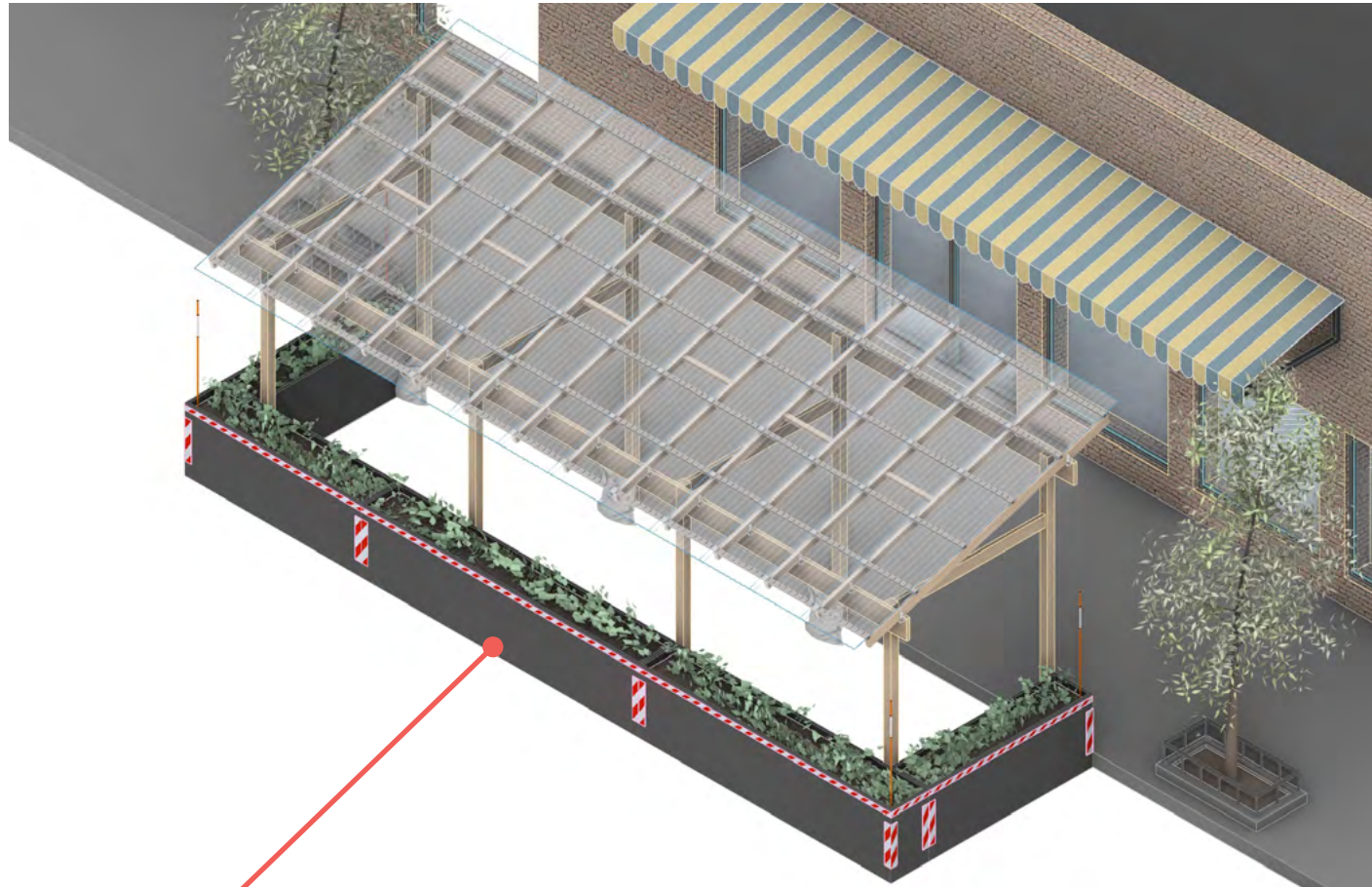


A PLASTIC TRAFFIC SAFETY BARRIER



TRAFFIC SAFETY

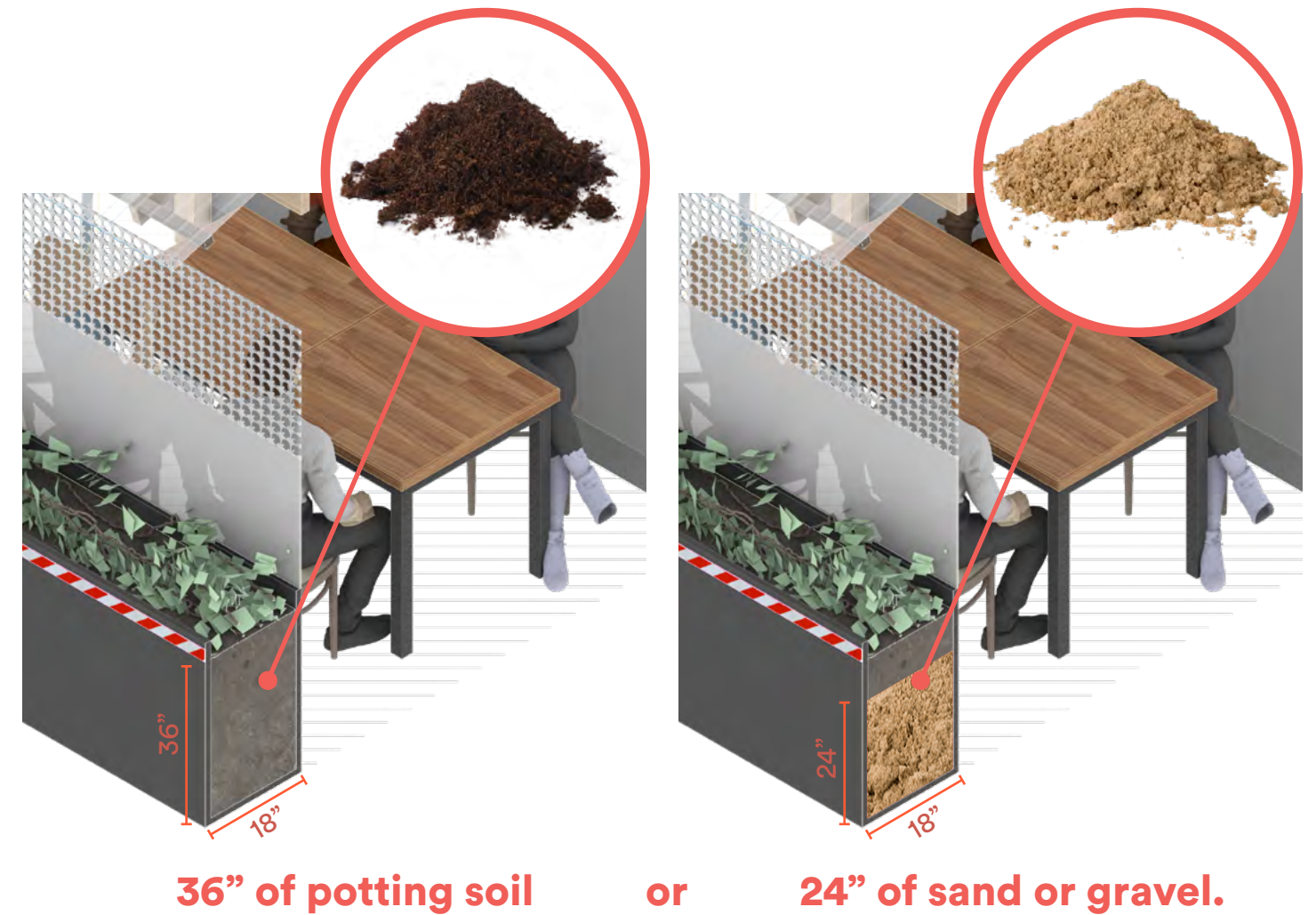
What does New York City require?



A

You must have a continuous and heavy safety barrier or planter at least 18” wide and 30-36” tall around the outside of the entire seating area.

We Recommend:



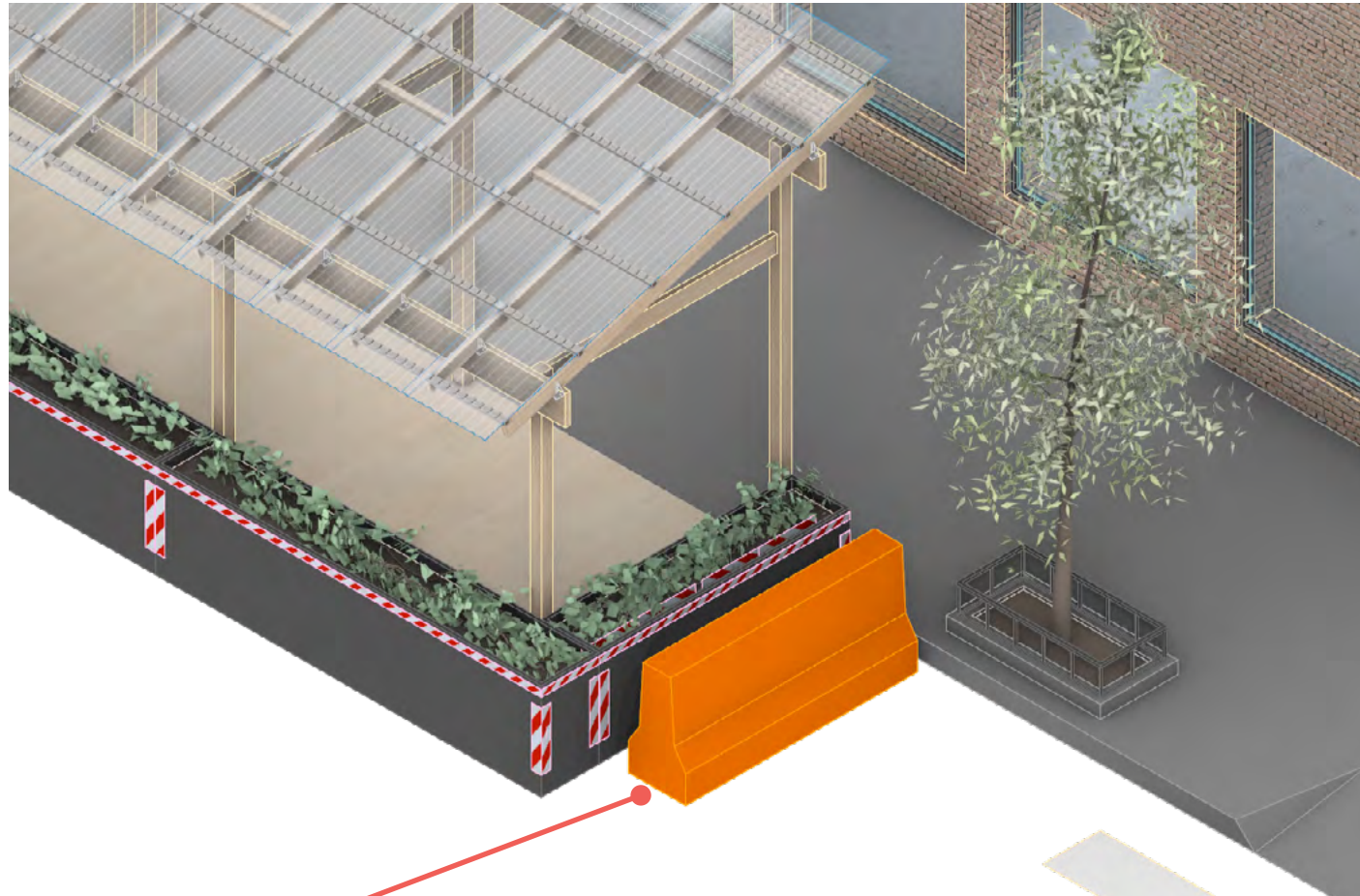
36” of potting soil

or

**24” of sand or gravel.
You can add potting soil on top for plants.**

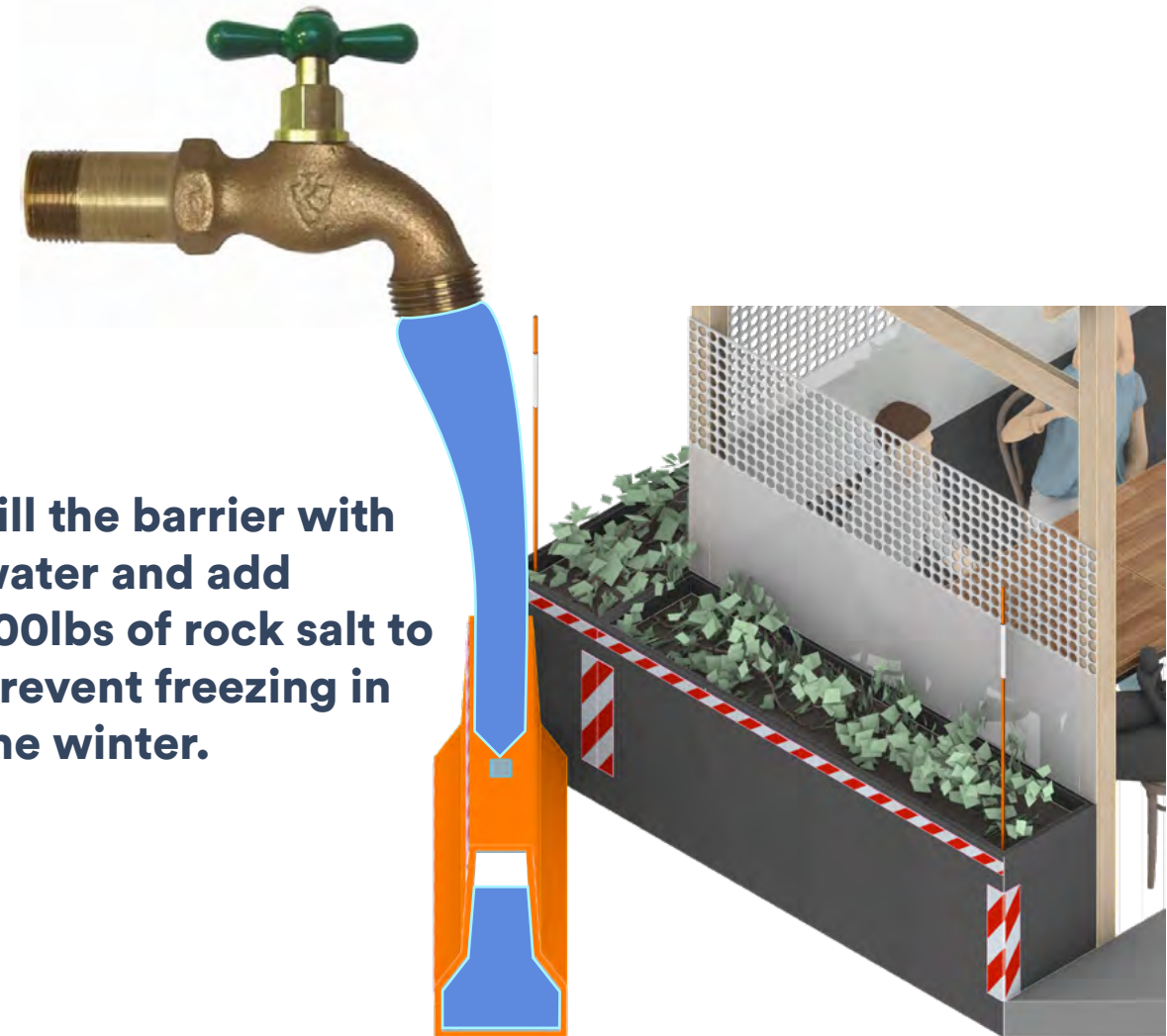
Fill the planter with soil, sand, or gravel to protect diners.

What does New York City require?



B

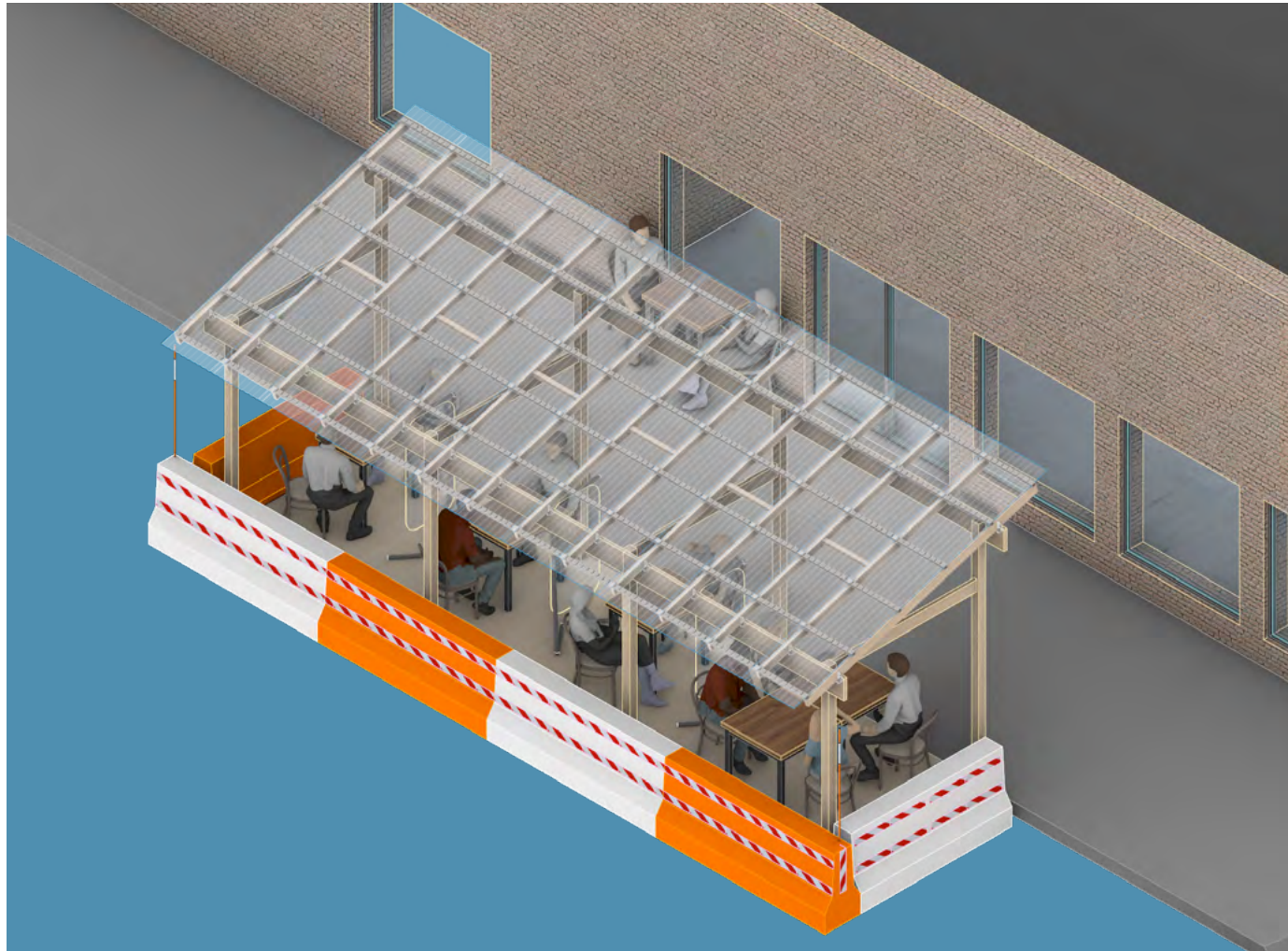
You may be required by the City to add a plastic water-filled traffic safety barrier.



Fill the barrier with water and add 100lbs of rock salt to prevent freezing in the winter.

Place the barrier 90 degrees from the curb, on the end facing oncoming traffic.

We Recommend:

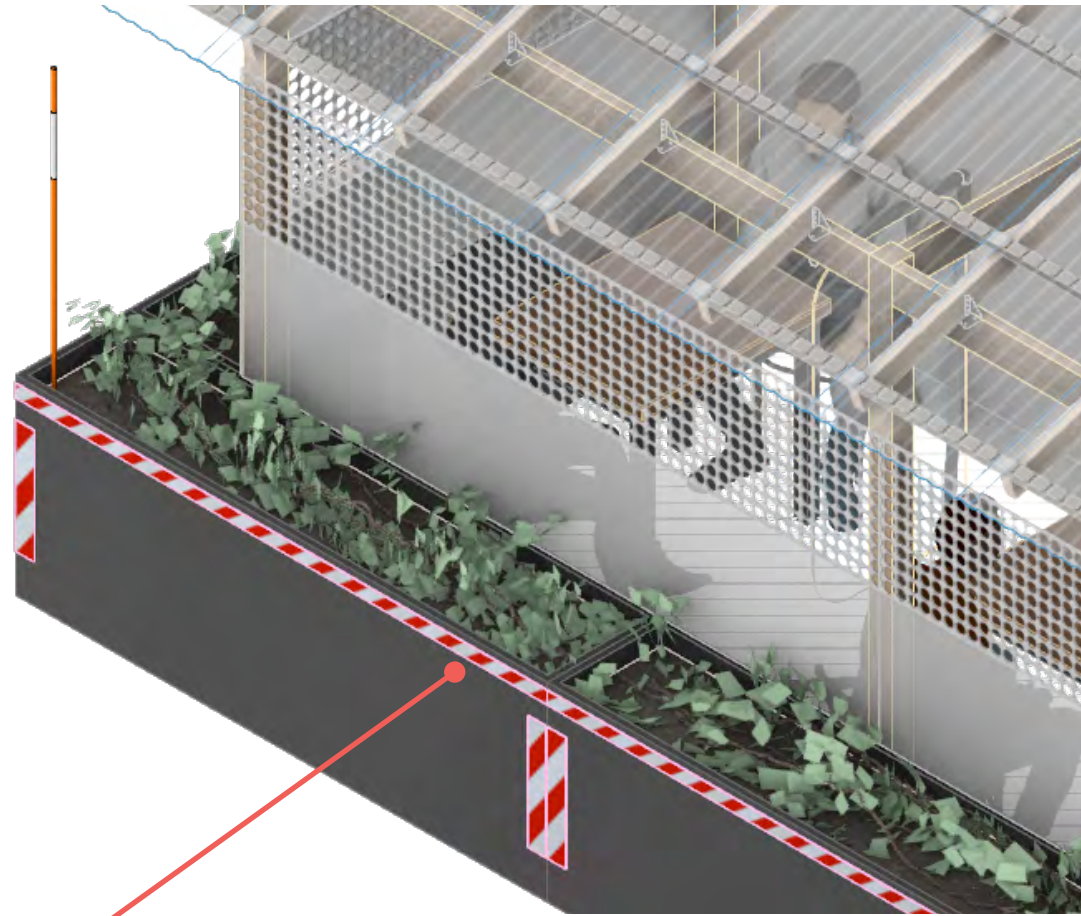


Consider enclosing your seating area with water filled traffic barriers for greatly enhanced safety.

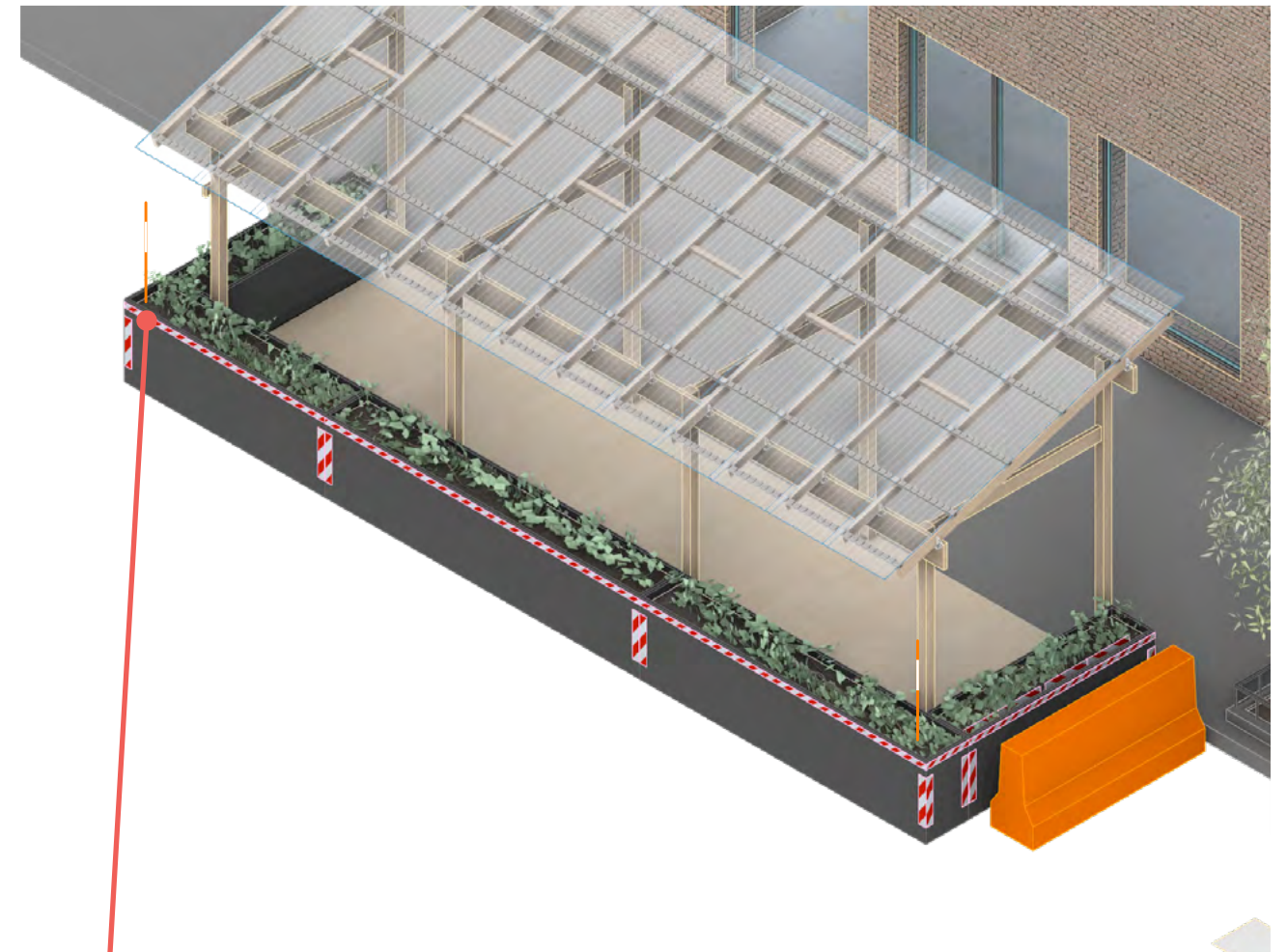


If you add a planter or other elements, it's best to avoid attaching directly to the barrier.

What does New York City require?



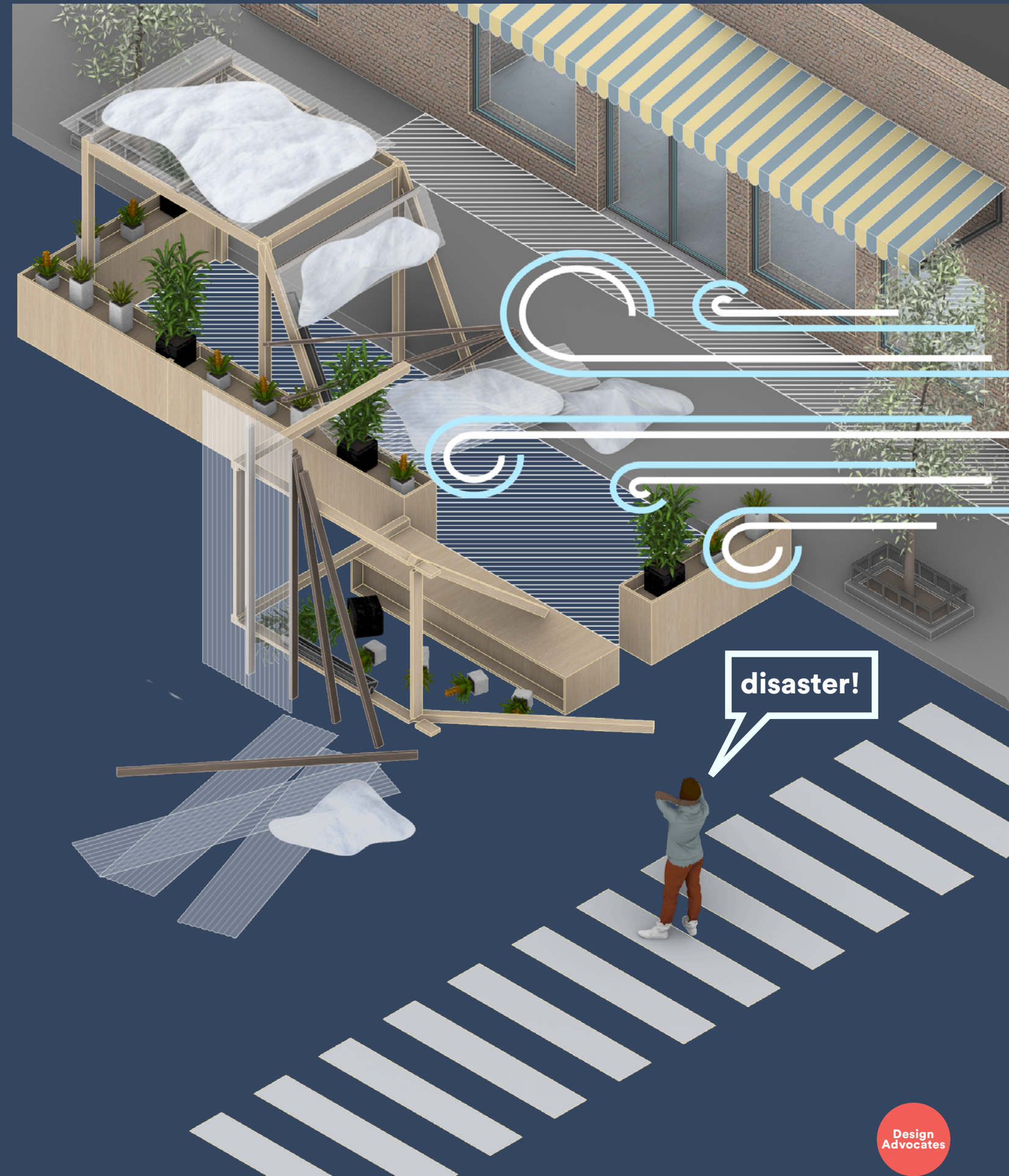
C Apply reflective tape around all edges of the planters or barrier so they are visible to drivers at night.



D Add reflectors and “snow sticks” at the corners of your installation so it is visible in all weather.

IS YOUR OUTDOOR DINING WEATHER AND WIND SAFE?

Take some simple steps to improve the strength and stability of roofs and canopies.



STRUCTURAL SAFETY

What are the essential ingredients for all-weather safety?

KNOW WHAT DO WHEN IT SNOWS

A



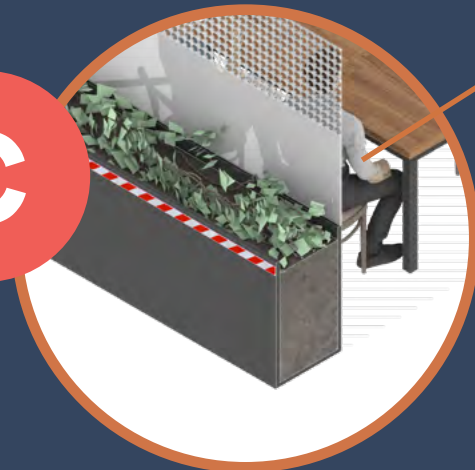
REINFORCE YOUR CANOPY FOR STABILITY

B

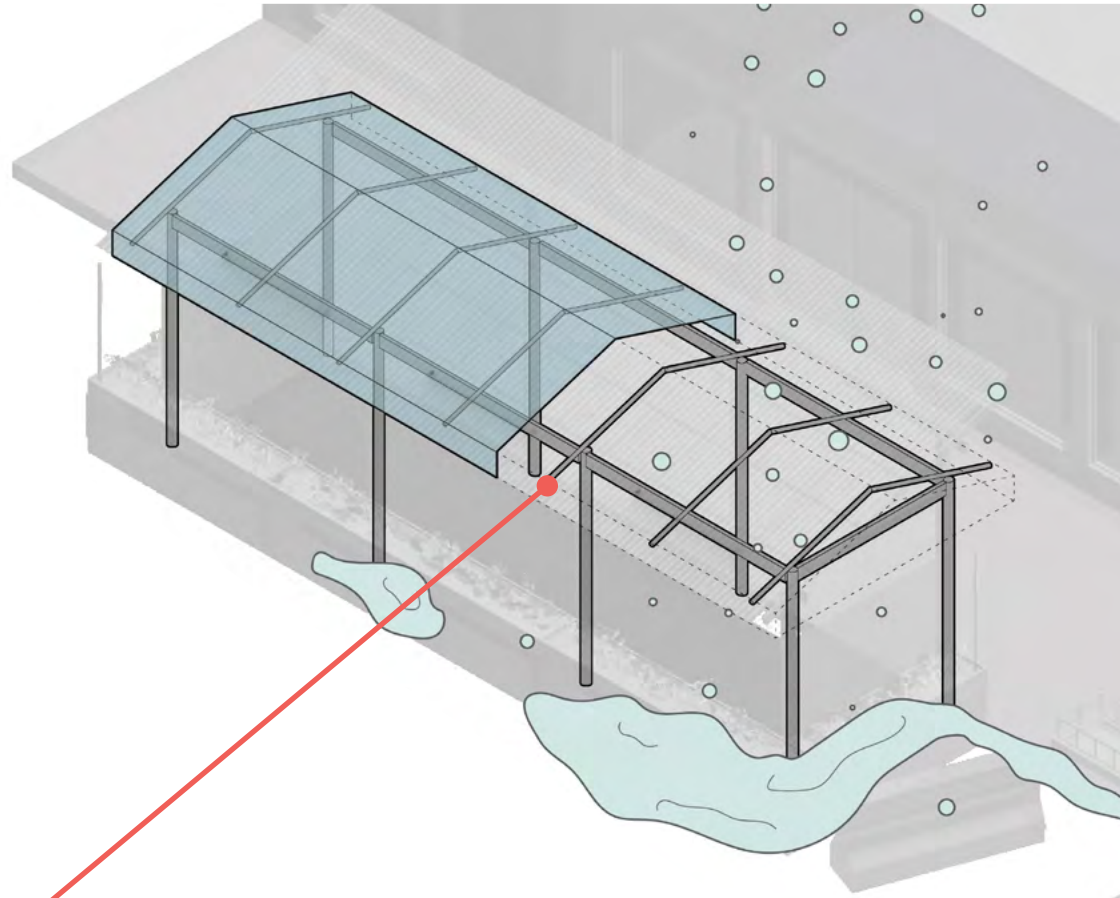


WEIGH YOUR CANOPY DOWN TO RESIST WIND

C

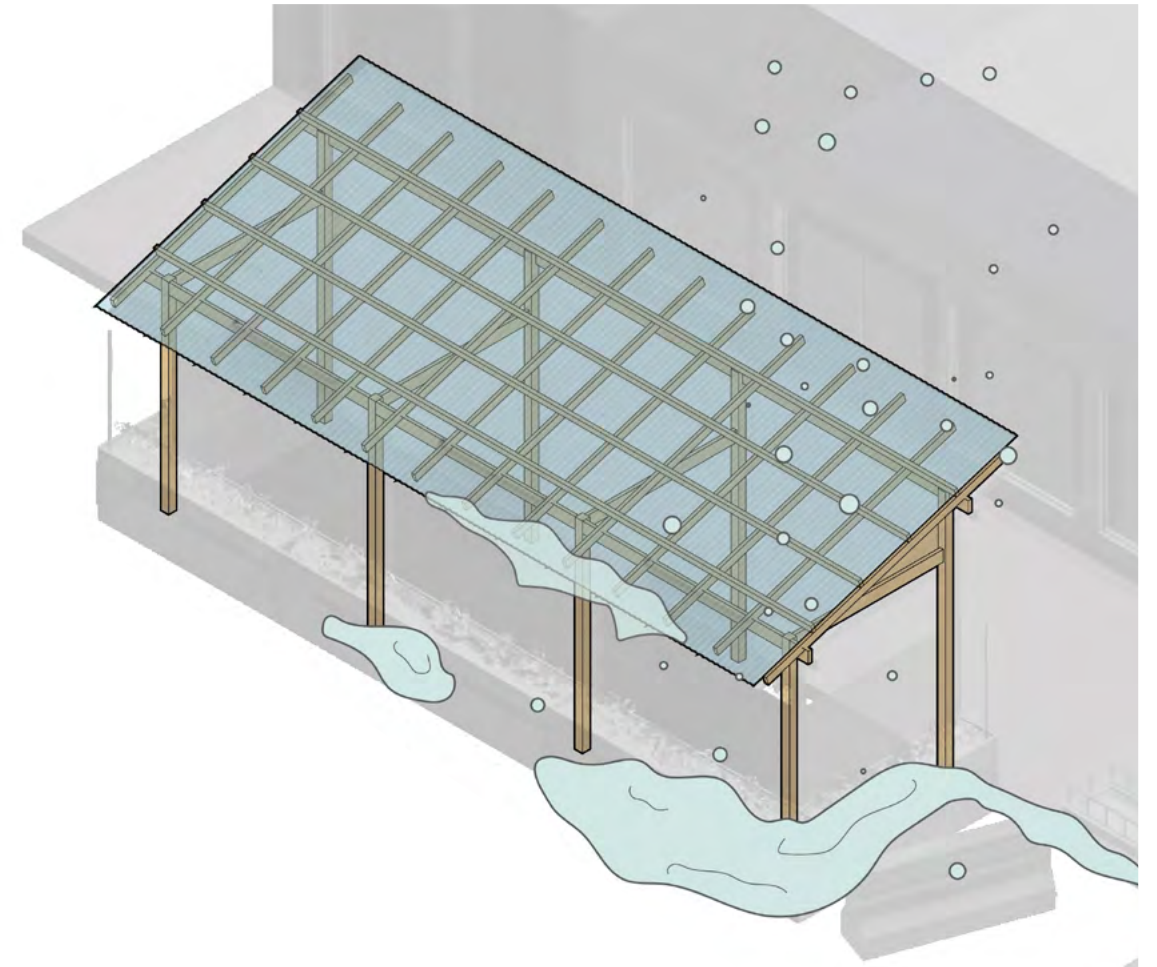


What does New York City require?



A

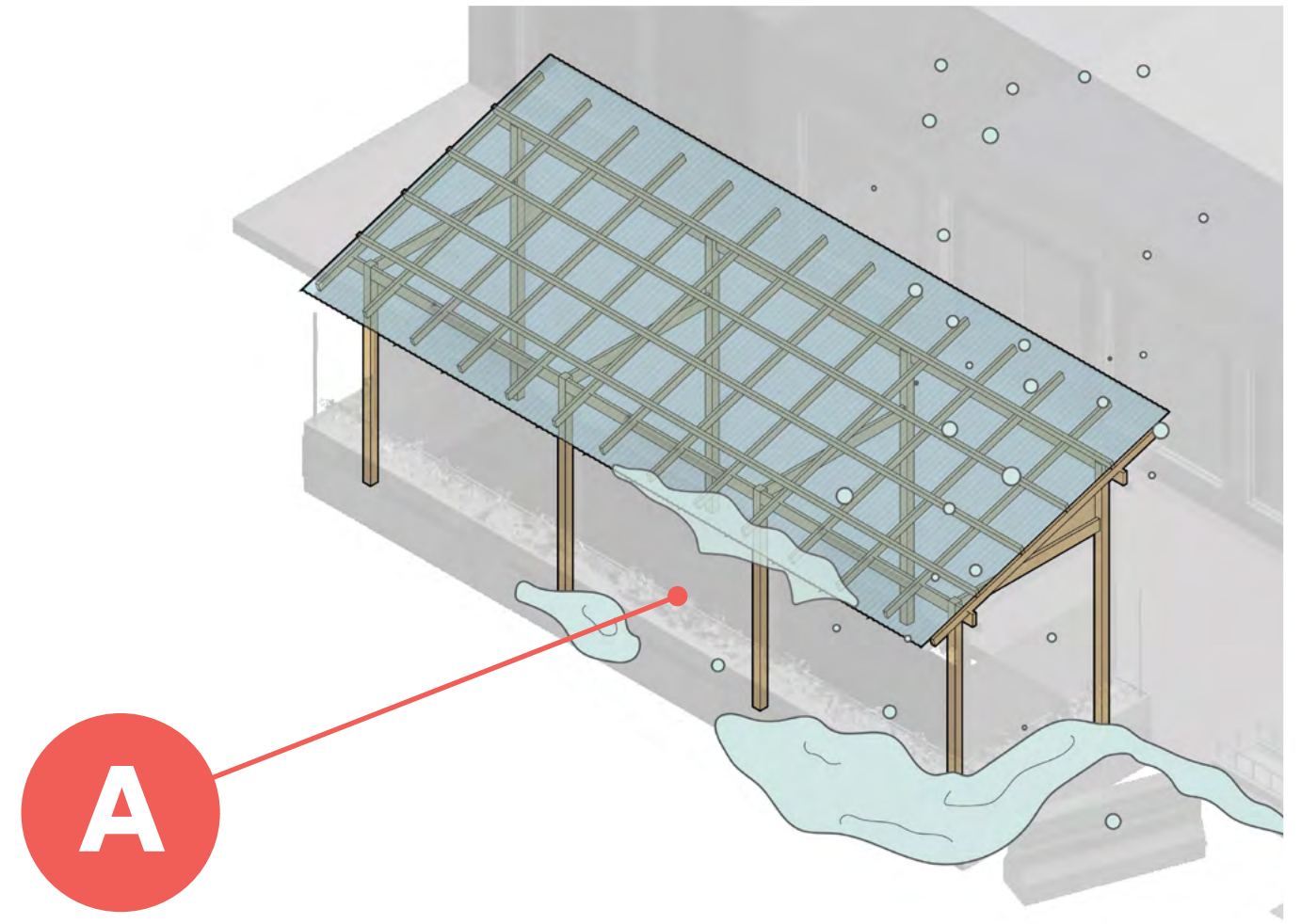
If you use a lightweight tent or a tarp as a covering, it must be removed during snow.



If you use a constructed canopy or roof structure, make sure it is strong enough and sloped toward the street for snow and rain.

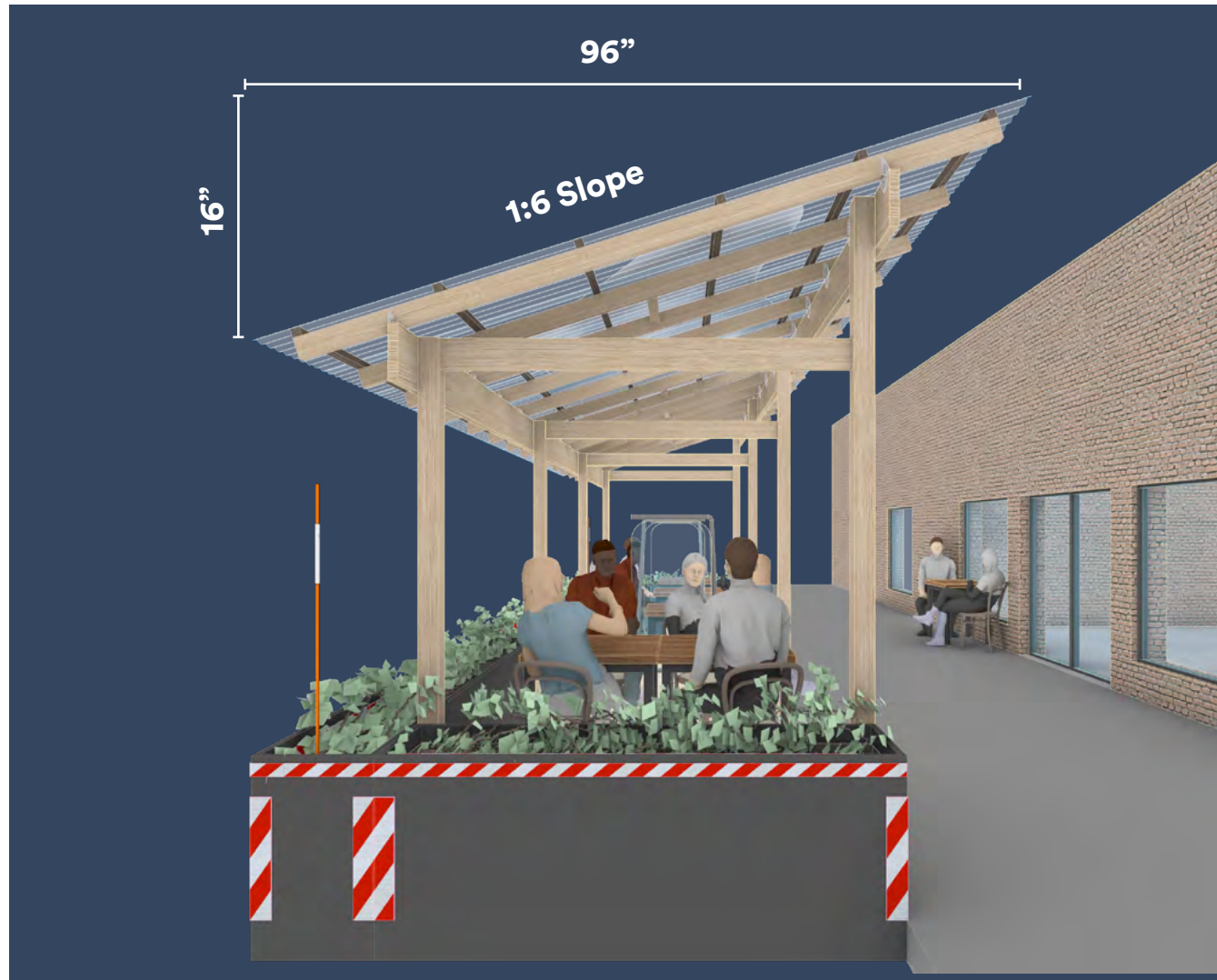
What does New York City require?

If there is an active snow alert issued by the City, diners may not sit in roadway set ups. Tables and chairs must be secured or removed.



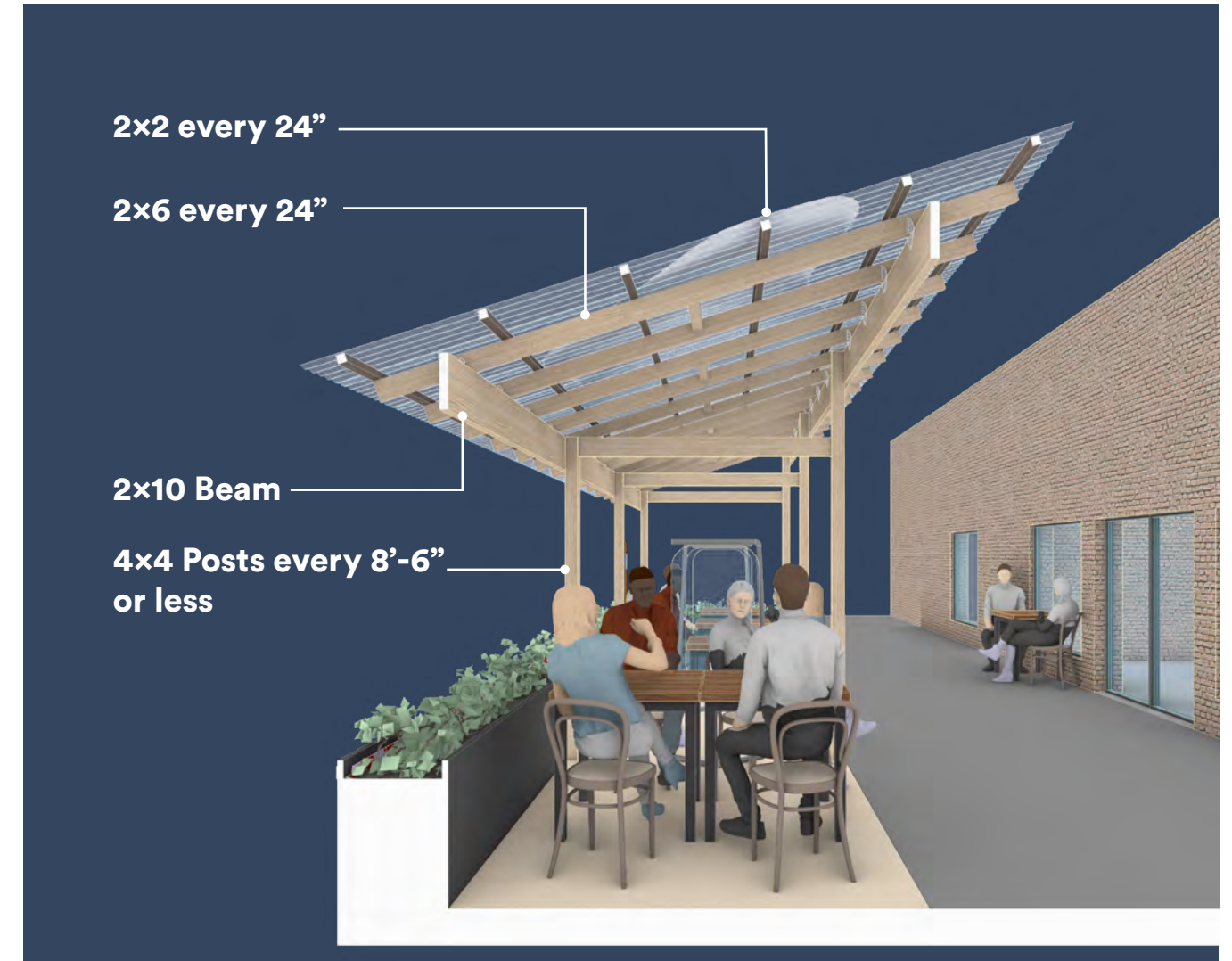
If there is a snow alert, remove all furniture, and if possible push everything against the curb.

We Recommend:



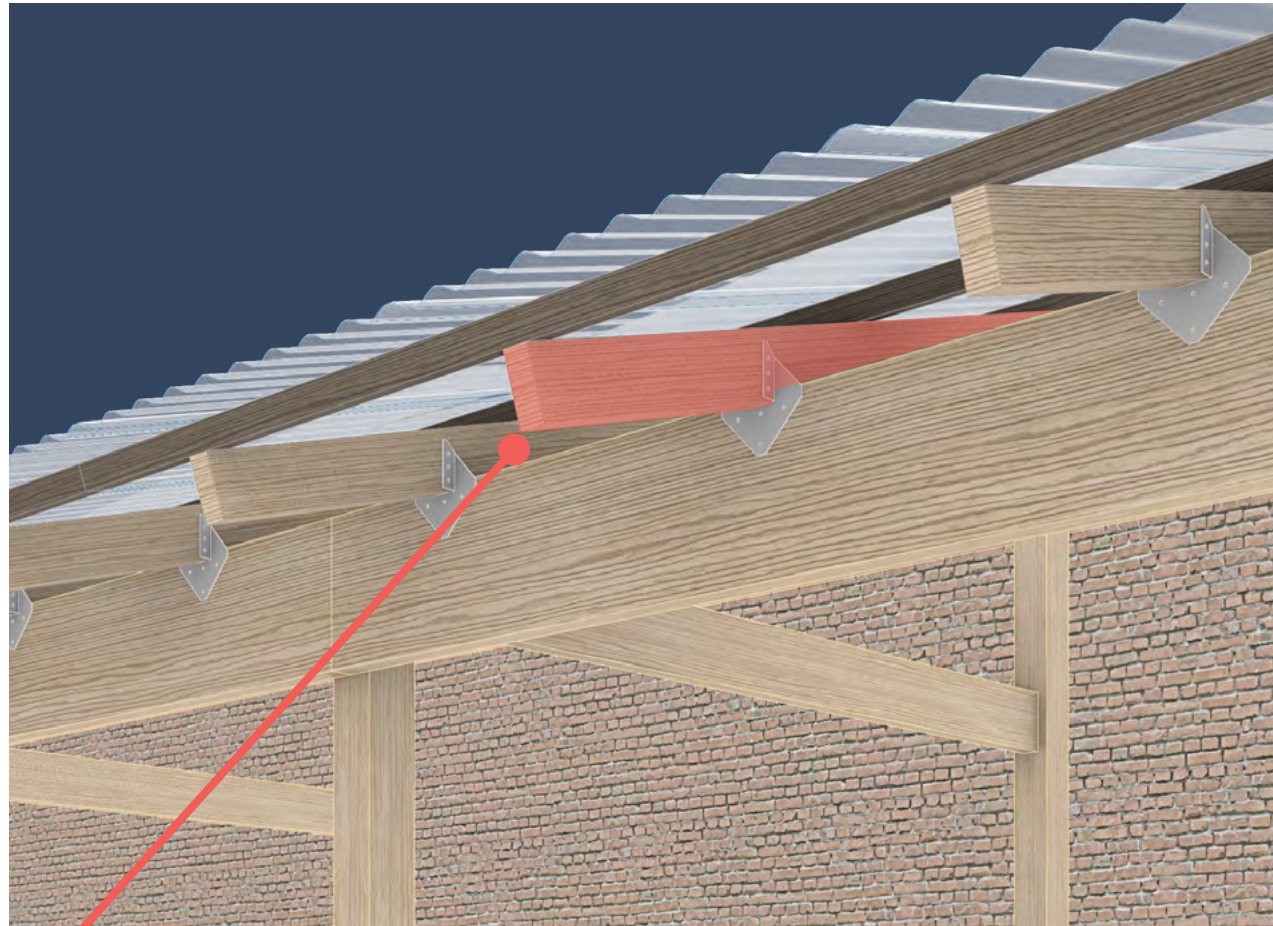
B

Slope your roof toward the street at 10 degrees, or at a ration of 1:6. Extend the roof over the planters or barrier.



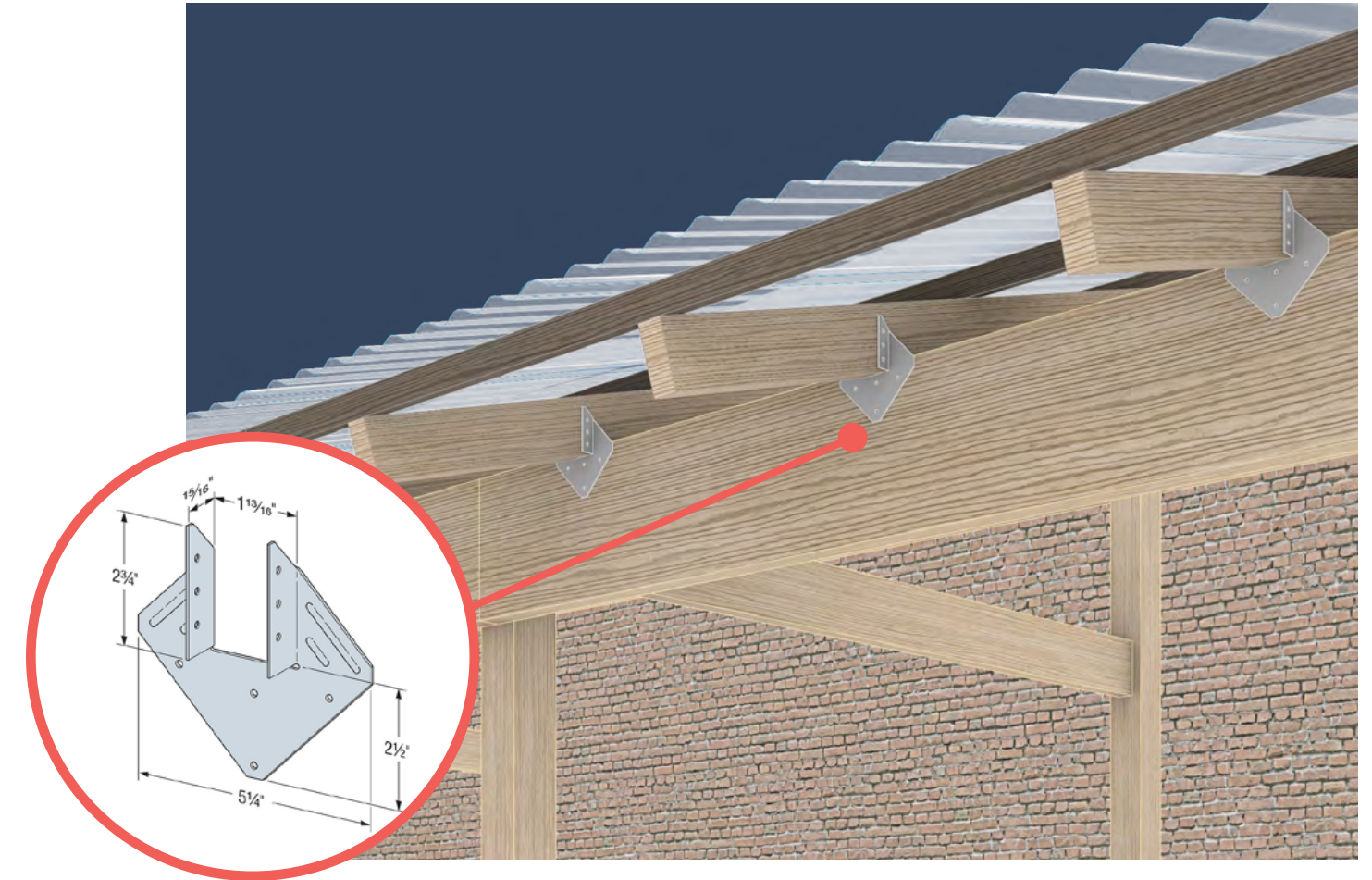
Use lumber sizes that structural engineers recommend are strong enough to withstand a heavy snow.

We Recommend:



B

Make sure to support the roof panels every 24". Add lumber rafters if yours are spaced greater than 24" apart.



Reinforce the all connections in your roof structure with a connection bracket like a *Simpson Strong-Tie H1.81Z Hurricane Tie*.

We Recommend:



A strong wind can topple your structure. Make sure you secure posts to heavy planters full of soil or sand.



You can also secure sandbags to posts to weigh the structure down.

Appendix

On Structures

We recommend always using sheet metal brackets and connectors to connect posts, beams, and rafters. They are inexpensive and easy to install. Visit <https://www.strongtie.com> for more information.

We recommend using plastic or pressure treated lumber for outdoor structures, or painting non-pressure treated lumber for improved water resistance and strength.

On Roofs, Tents, and Coverings

Overhead structures and canopies of less than 400sf are permitted under the Open Restaurants program.

Tents, canopies and other overhead structures larger than 400sf require a Department of Buildings permit.

Refer to: https://www1.nyc.gov/assets/buildings/bldgs_bulletins/bb_2020-017.pdf for additional New York City Department of Buildings requirements.

**ELECTRICITY, HEATING AND
ENCLOSURE**

**KEEP CUSTOMERS
COMFORTABLE,
WARM, AND SAFE.**

**Tips for adding enclosure
and heat for comfort and
providing fresh air for
safety.**



What are the essentials for safely enclosing and heating outdoor dining?



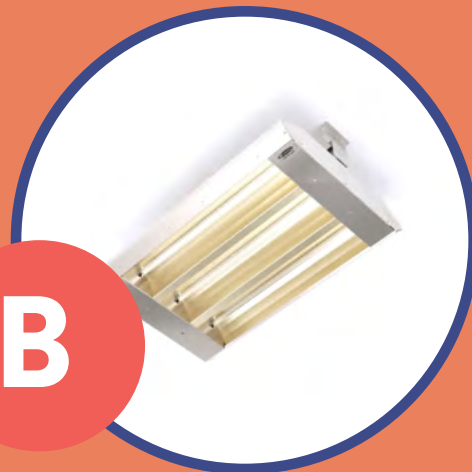
ALLOW ENOUGH FRESH AIR FLOW

A



USE ELECTRIC INFRARED HEATERS

B



HEAT THE SEAT

C



HEATING AND ENCLOSURE

What not to do:



Fully enclosed installations are NOT PERMITTED under the Open Restaurants program. They do not have safe ventilation.

Please be aware that if you enclose your Open Restaurants installation, you may be subject to violations and fines.

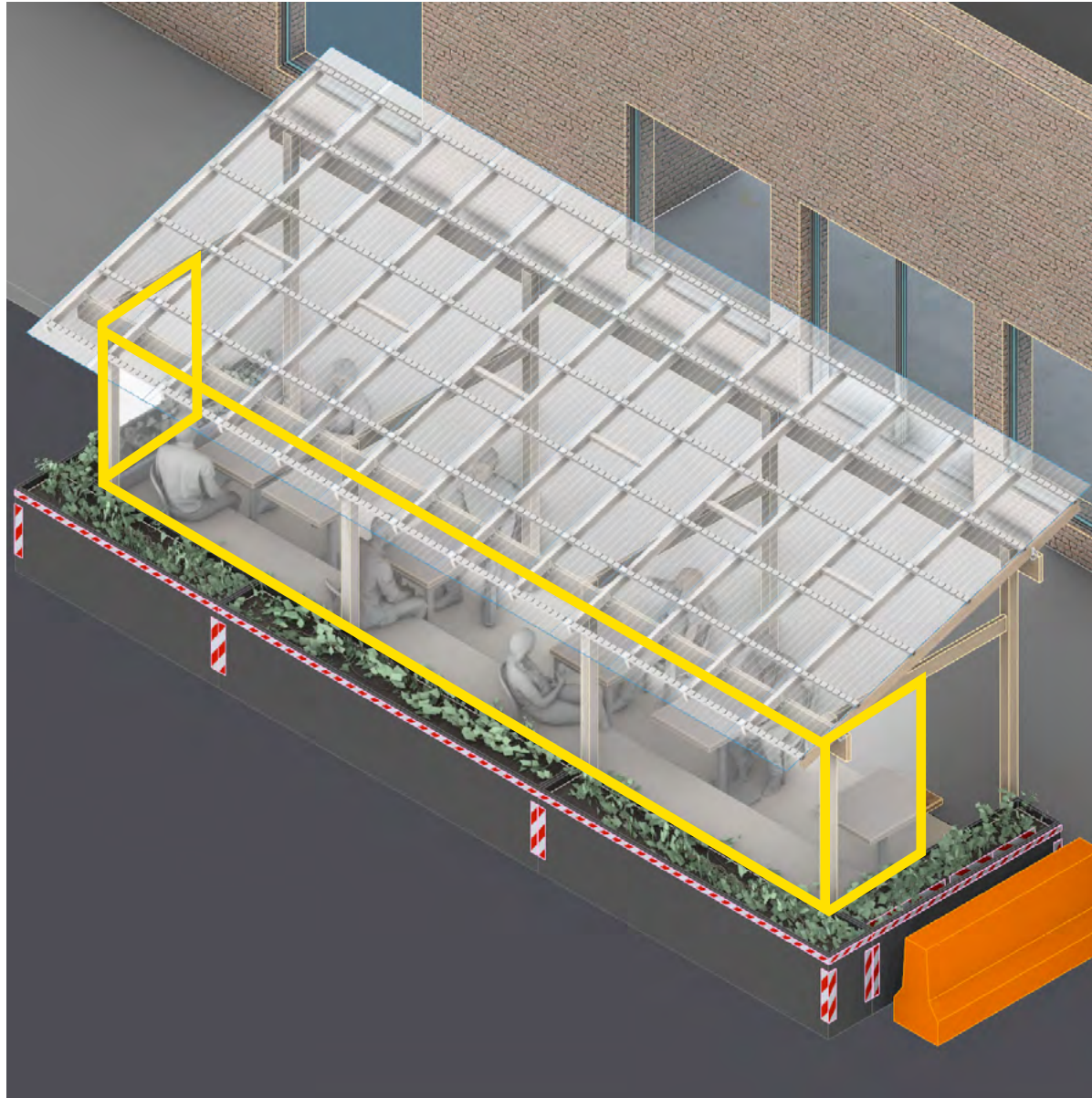
What not to do:



Structures on the sidewalk are NOT PERMITTED under the Open Restaurants program.

If you have been approved for sidewalk seating, you can place tables and chairs, but no coverings or enclosures.

What does New York City allow?



New York State and City permit 50% or two sides of outdoor structures to be enclosed to protect diners from wind and weather.

50% or two sides must be entirely open, or Indoor Dining restrictions and seating capacity limits will apply.

A Partial enclosure to ensure safe fresh air flow

What does New York City allow?

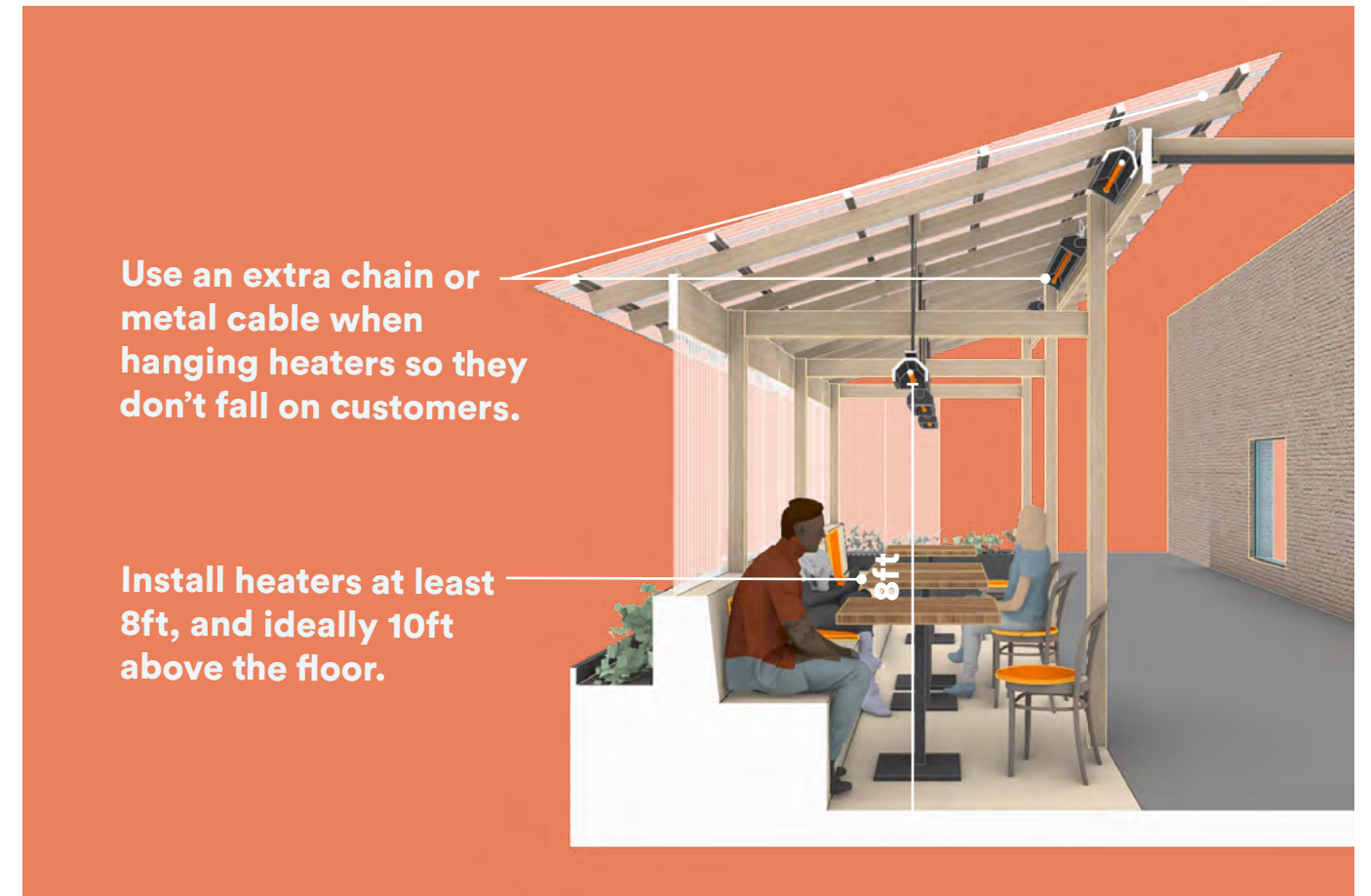


B

Electric heaters are permitted. Infrared heaters will be most effective in most installations.

***Gas and propane heaters are not permitted in the roadway.**

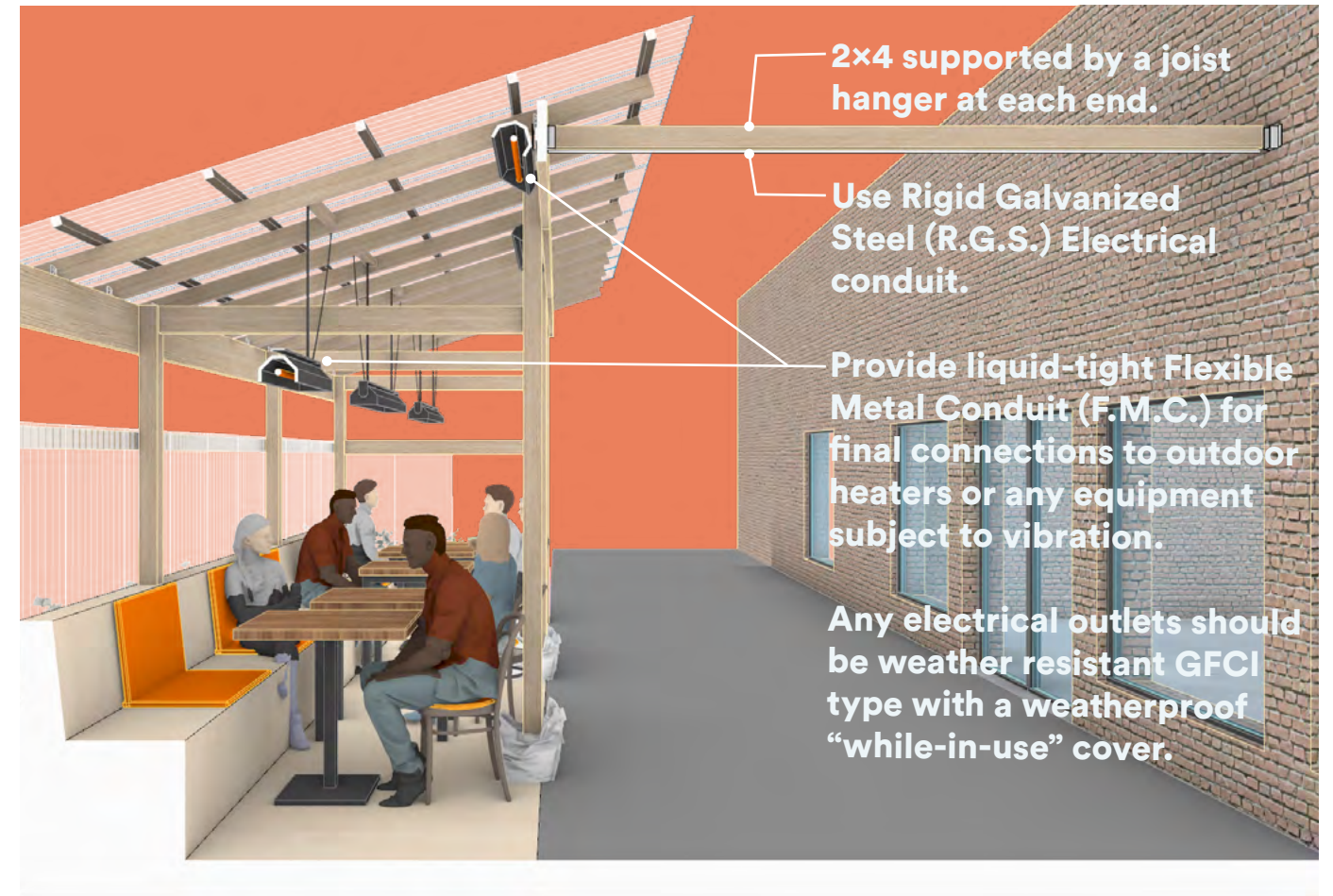
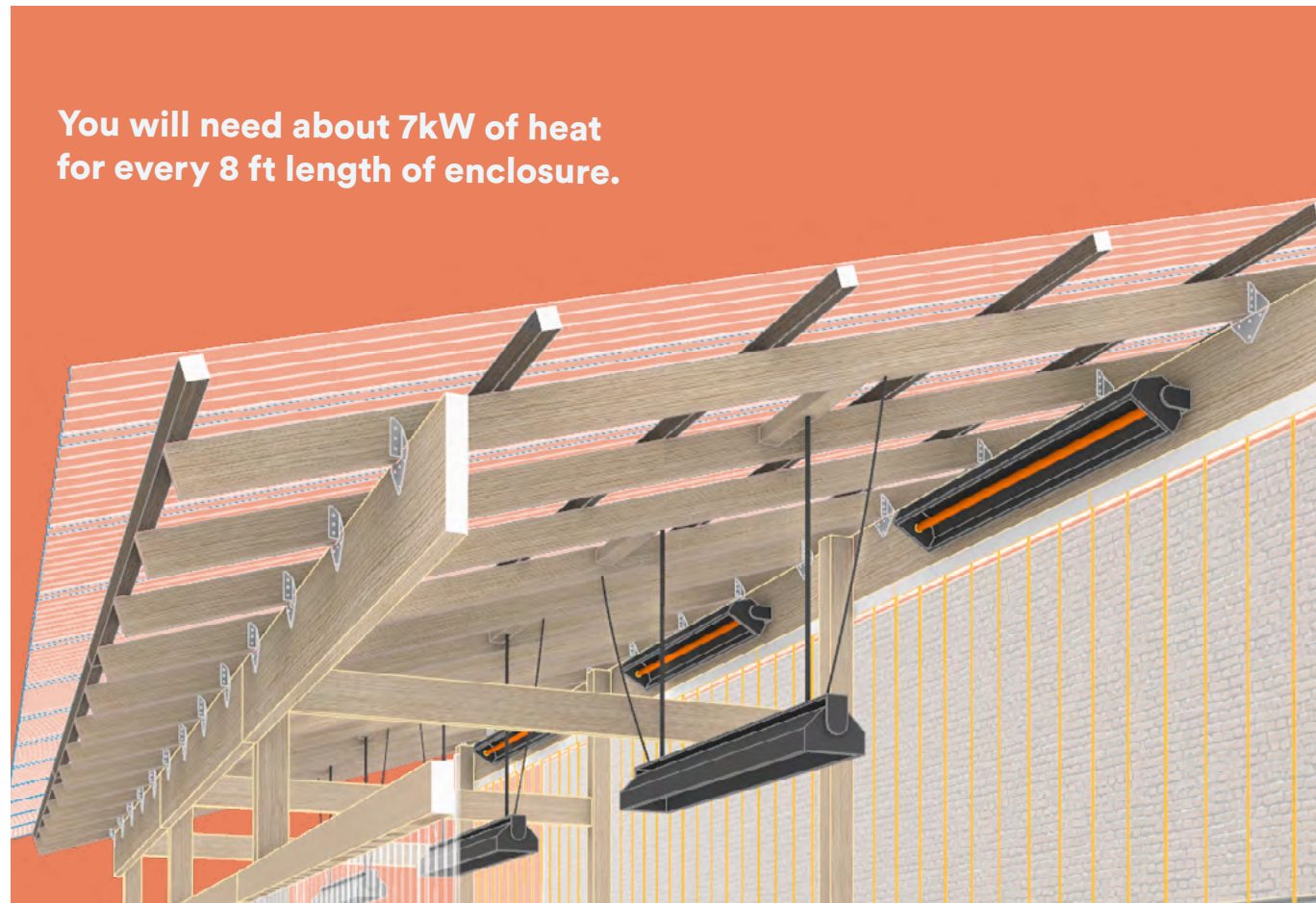
We Recommend:



It's important to SIZE and INSTALL heaters properly.

Consult a licensed electrician or engineer. The Design Corps can help you for free.

We Recommend:



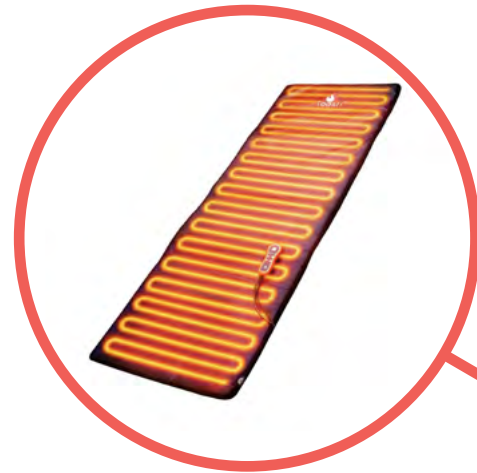
B Make sure to consult an electrician or engineer to size the heater properly. Manufacturers and suppliers can help too. (See the appendix.)

Electricity must be run by a licensed electrician. Make sure that the electrical conduit is properly supported above the sidewalk and weatherproof. (See the appendix.)

We Recommend:



Heated Cushions
and Stadium Pads

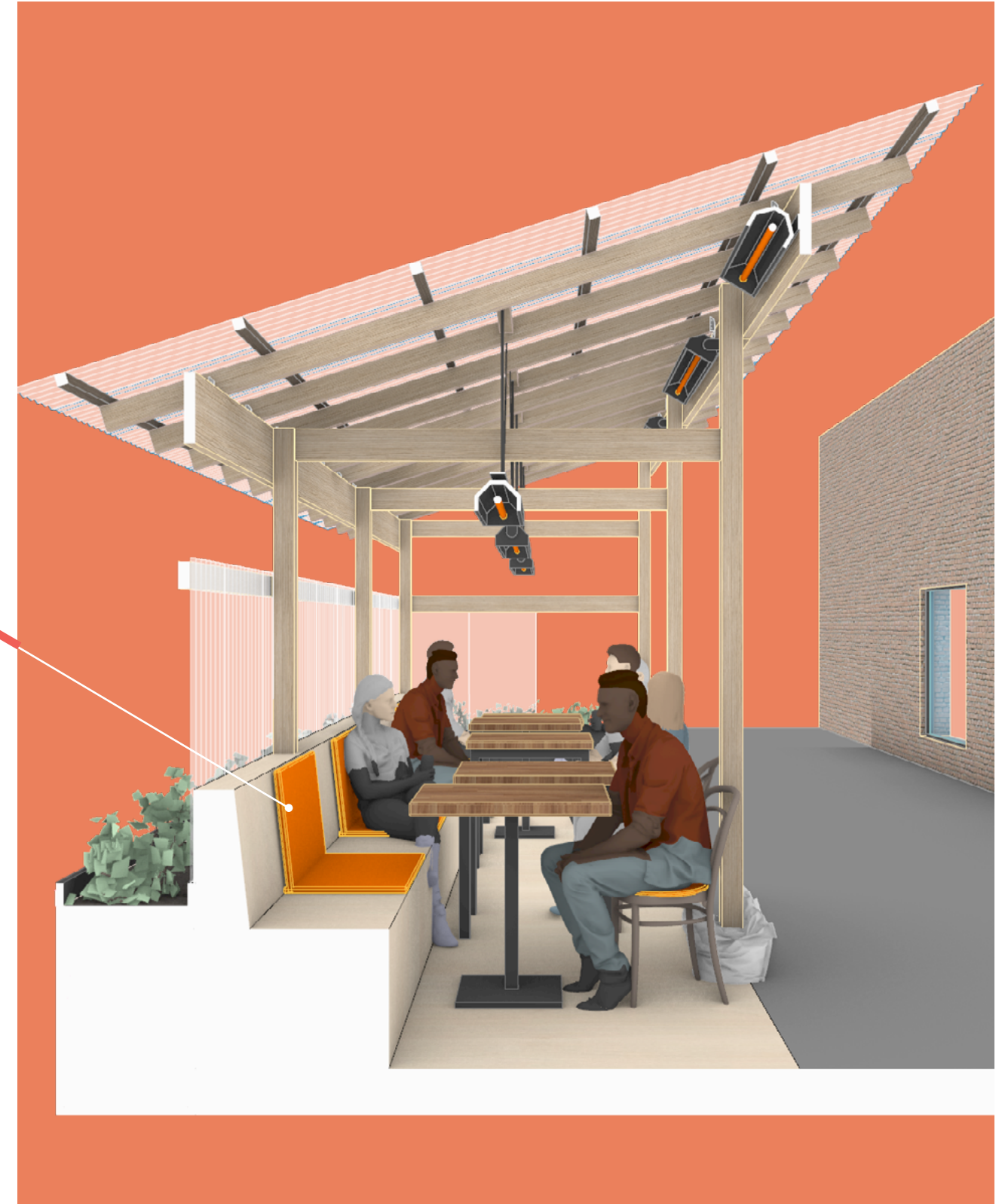


Heated Yoga
Mats

Disinfect between uses



Heat the Seat. Providing heat at the bench or chair where customers are sitting will greatly improve their comfort. Have you ever had heated car seats?



Appendix

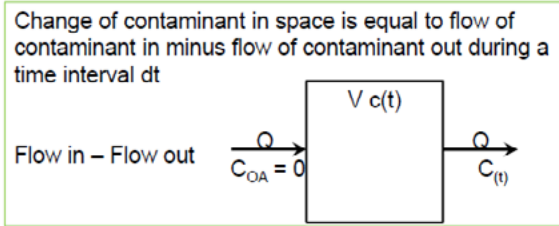
Epidemic Conditions in Place

Flushing Air Changes Calculations for Well-Mixed Spaces



One air change = $c / C_0 = \exp^{-1} = 0.368$
Three air changes = $c / C_0 = \exp^{-3} = 0.050$
Therefore, three air changes result in the removal of 95% of the contaminants in the space for a well mixed system

Assumptions:
• V = Volume
• Q_t = Total air flow
• c = space concentration
• C (t=0) = C_0
• $C_{OA} = 0$
• N = number of air changes
• ACH is outdoor airflow rate in air changes per hour
• t[h] = hours for pre- and post-flush



$$VdC = (QC_o - QC)dt$$

Outdoor air concentration is zero so

$$VdC = -QCdt$$
$$\frac{dC}{C} = -\frac{Q}{V}dt$$
$$\int_{C_0}^c \frac{dC}{C} = -\int_0^t \frac{Q}{V}dt$$
$$\ln(C) - \ln(C_0) = -\frac{Qt}{V}$$
$$\frac{C}{C_0} = \exp\left(-\frac{Qt}{V}\right) = \exp(-N)$$

Where N = number of air changes
Time for N air changes:

$$N = \frac{Qt}{V}$$
$$t = \frac{N}{Q/V}$$
$$t[h] = \frac{N}{ACH}$$

Where ACH is the outdoor air flow rate in air changes per hour (ACH)



The state and city guidelines require 50% or two sides to be entirely open. To calculate the ACH of a given enclosure we'll make the following assumptions:

- Enclosure is 8ft wide, 8ft tall, and 25 ft long.
- The two (2) sides are taken to be one (1) short side, and one (1) long side.
- The average wind speed is (a conservative) 5 mph.

The cross sectional area of the two (2) open sides is 165 sq. ft. when considering the 3ft base.

We assume half of the area is used for air in, half for air out.

The resulting ACH rate is approximately 1360 ACH which is more than 450x the ASHRAE recommendation, and removal of 100% of the contaminants in the space.

On Enclosure and Fresh Air Change:

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has released calculation methodology for flushing air change calculations for well-mixed spaces. They recommend a ventilation Air Change per Hour (ACH) rate of 3 ACH as a minimum. This rate results in a removal of 95% of the contaminants in the space.

Visit www.nycxdesign.com/design-corps to connect to a design professional who can help you for free.

Appendix

On Electrical Installations and Infrared Heat

Only electric heaters (not gas) are permitted in roadway installations. Propane and other types of heat are permitted on the sidewalk only.

Refer to: https://www1.nyc.gov/assets/buildings/bldgs_bulletins/bb_2020-018.pdf for additional requirements concerning electrical installations in the roadway.

Electrical installations must be performed by a licensed electrician and are subject to inspections by the NYC Department of Buildings.

Keep in mind that infrared heaters must be sized properly for the space and desired heating performance, as well as the available electrical capacity. A licensed electrician or electrical engineer can help you do this properly.

Case Study for calculating recommended heating:

Assume an outdoor seating area of 8'x 20' = 160 SF

Calculation:

Area of outdoor seating x 2 watts of heat required per SF x desired increase in temp

Scenario: 160 SF x 2 watts x 50 degrees F = 16,000 watts -> 16 kW required to increase the temperature by 50 degrees F in the outdoor dining space

Based on the calculation above, you would need enough units to provide 16kW of heat evenly across the entire outdoor space.

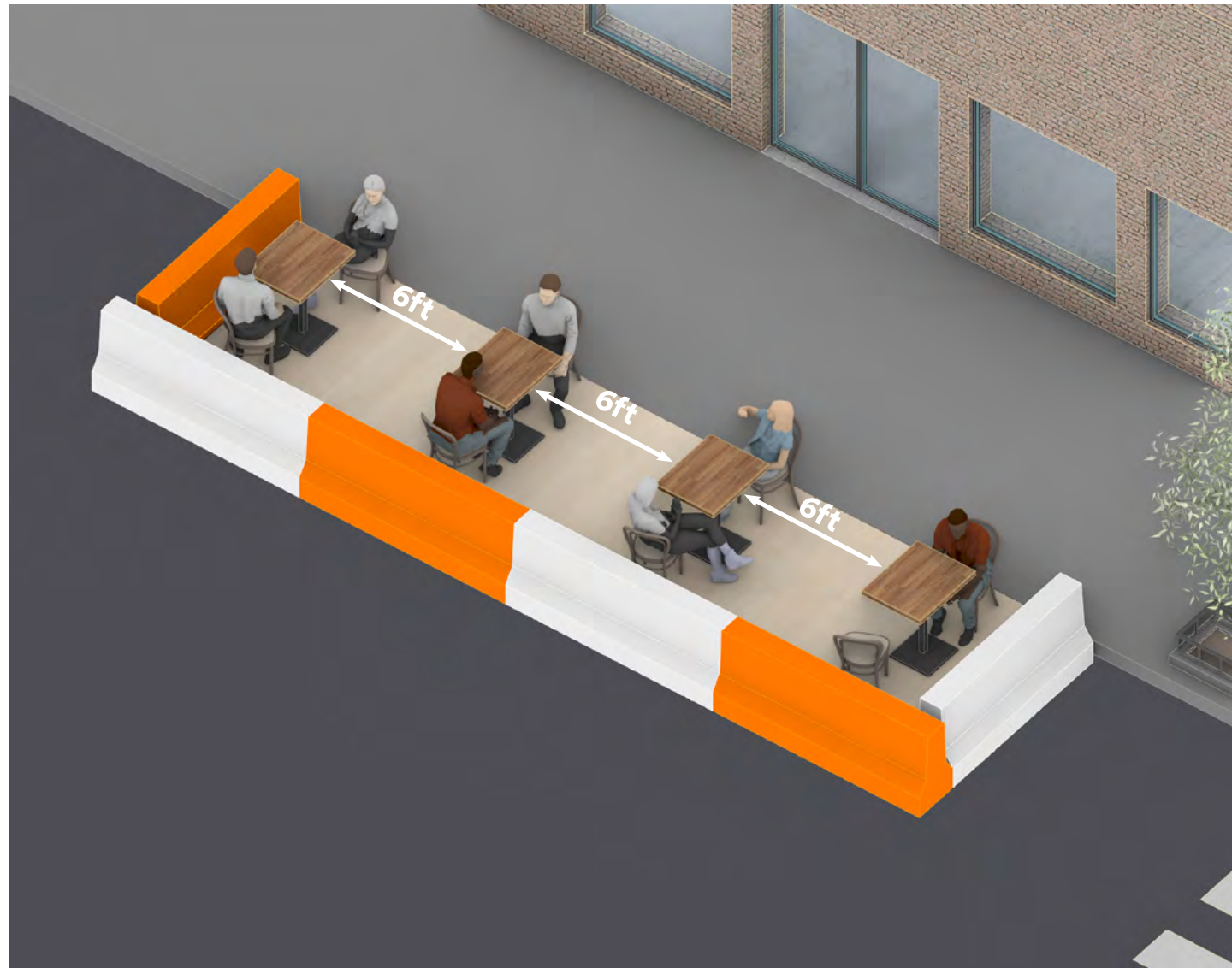
SAFE SEATING

KNOW HOW TO KEEP SAFE PHYSICAL DISTANCE BETWEEN CUSTOMERS

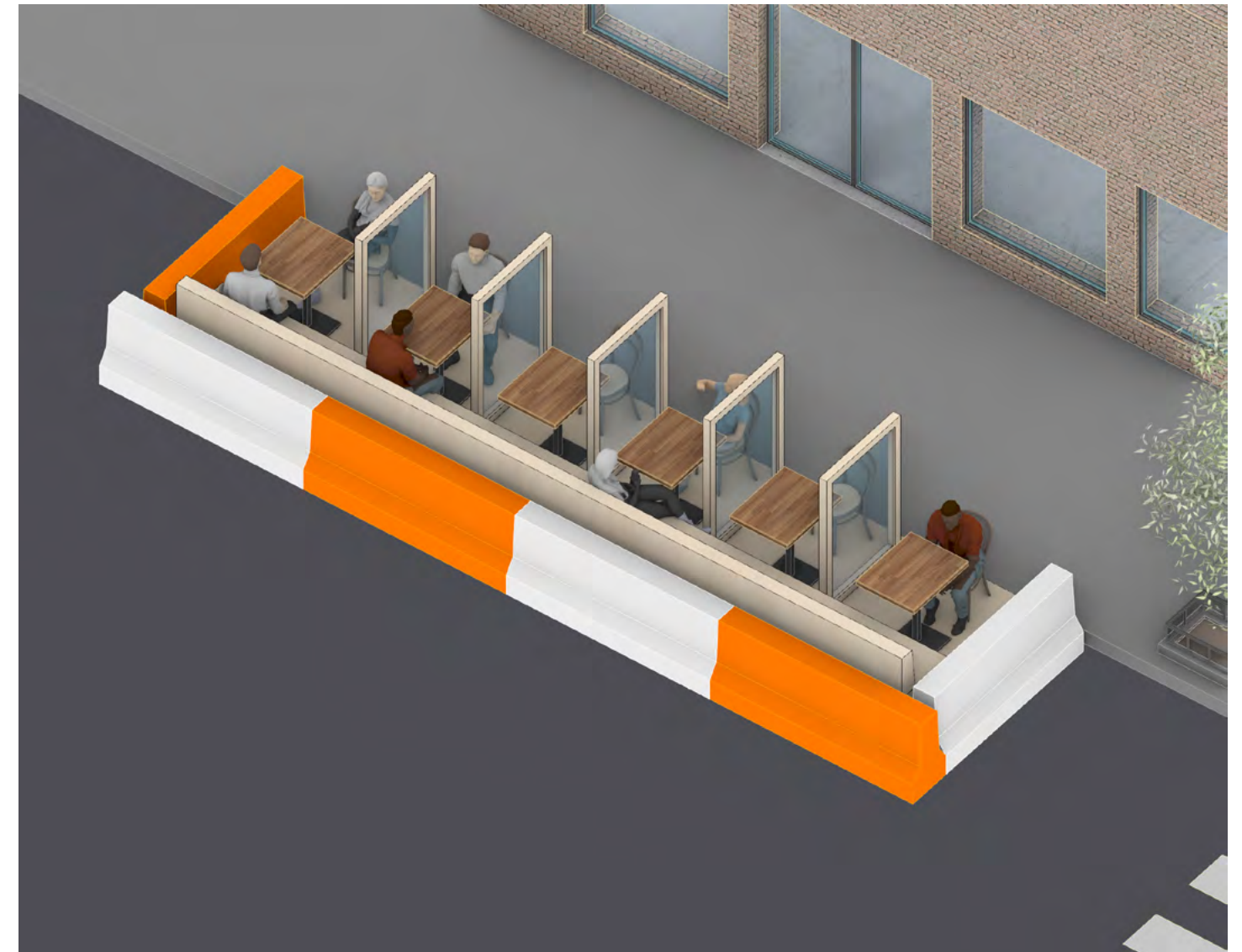
**Tips for arranging tables,
chairs, and safety partitions**



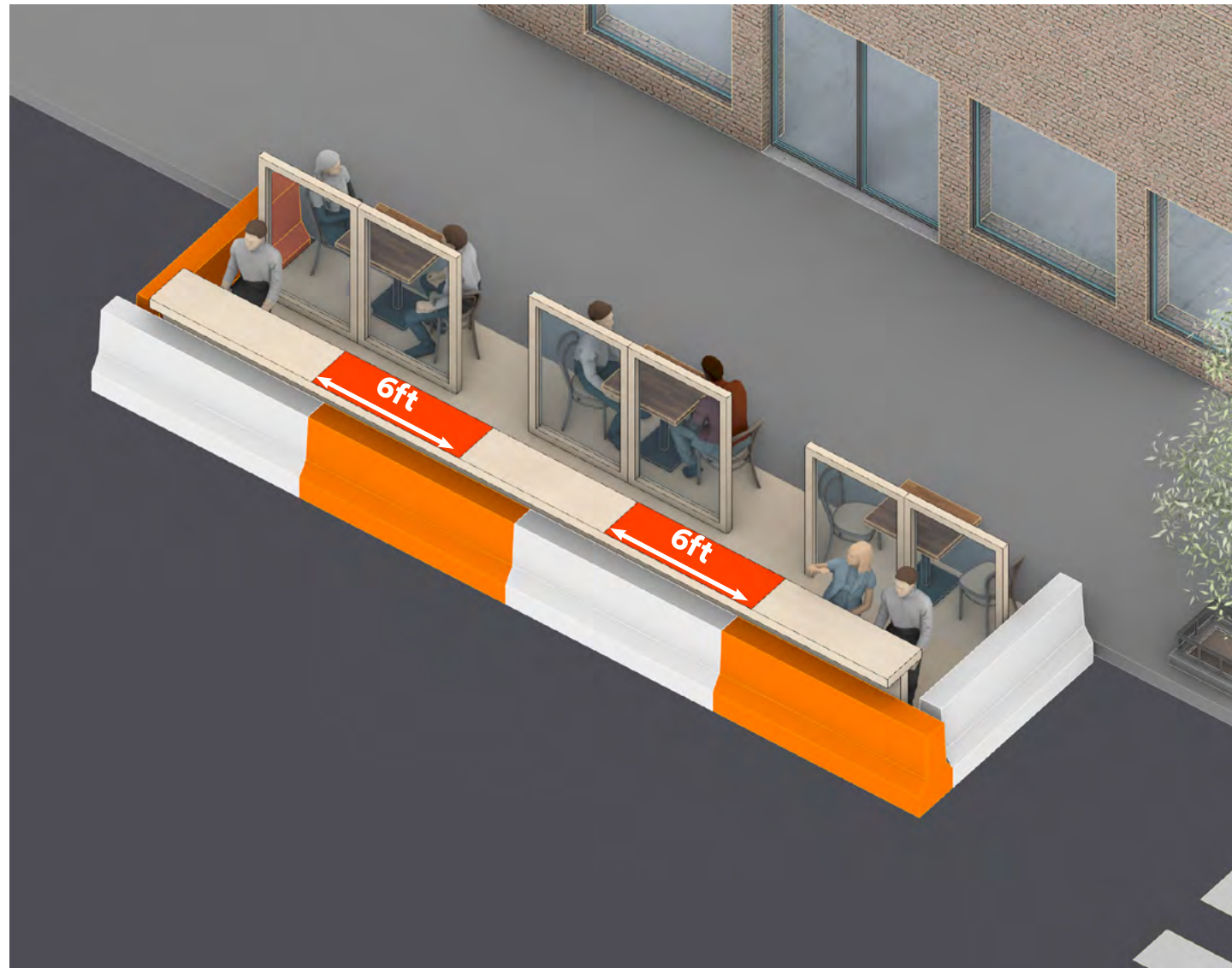
What does New York City allow?



Tables should be spaced 6ft apart, measured edge to edge



If 6ft spacing is not achievable, the NY State guidelines permit closer spacing with the use of a partition between tables at least 60" tall.



If you create benches or counters, make sure to leave 6ft of space between parties, or use partitions.

Creating safe and comfortable seating arrangements in small spaces can be tricky. Design Corps can help. Free services from architects, engineers, and other design industry professionals are available to New York City restaurants.

Visit www.nycxdesign.com/design-corps to learn more.

CREDITS

This document was produced by volunteer design professionals and fellow New Yorkers - architects, engineers, and designers - working in consultation with the NYC Department of Transportation, Department of Buildings, Small Business Services, and Economic Development Corporation.

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Visit www.designadvocates.org to learn more about us and what we do.

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