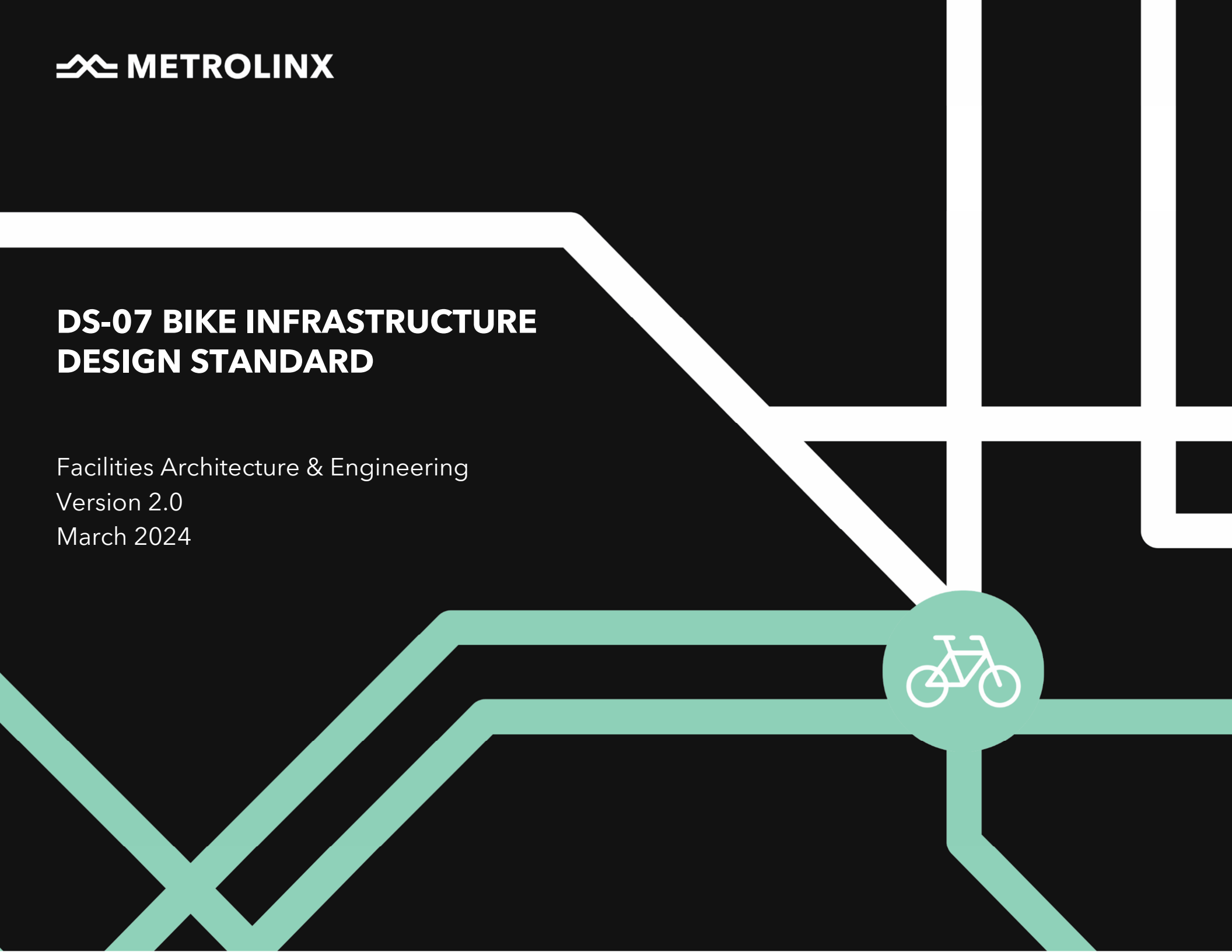
METROLINX

DS-07 BIKE INFRASTRUCTURE DESIGN STANDARD

Facilities Architecture & Engineering
Version 2.0
March 2024



Metrolinx Design Standards
Metrolinx Bike Infrastructure Design Standard
Publication Date: July 16, 2019
Revision Dates: March 2024

AMENDMENT RECORD

Version No.	Publication Date	Remarks
1.1	July 2019	First publication.
2.0	March 2024	Added sections 1 Introduction, 2 Administering Standards, and 10 Reference Documents, and revised the document layout for alignment with other Design Standards. Added sections 6 Integrated Secure Bike Rooms, 9 Proposed Locations for Electrical and Communication Cabinets to provide visual clarity to the standard. Updated sections 3 Bikeway Facilities, 4 Bike Parking, 5 Standalone Secure Bike Room Design Renderings, 7 Standalone Covered Bike Shelter Renderings, and 8 Secure Bike Room Signage Requirements to address cost-saving measures and increase flexibility in cladding materials.

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1 INTRODUCTION

1.1. Preface

This is the second edition of the Metrolinx DS-07 Bike Infrastructure Design Standard document.

The purpose of this document is to ensure a consistent, seamless, safe and inclusive customer experience, as well as a highly functional and maintainable transit environment for Metrolinx assets. It incorporates conclusions from lessons learned as well as cost-saving flexibilities that facilitate efficiency and maintainability while optimizing the customer experience. This document focuses on assets including bike storage facilities which play a role in the customer journey experience.

This standard is applicable to all Metrolinx projects and provides bike storage design requirements for both secure bike rooms and bike shelters, both integrated with the station building or TOC, or standalone structures. Operator-specific requirements and amenities are not in the scope of this standard and shall be expanded on a project-by-project basis.

Suggestions for revisions or improvement should be sent to Metrolinx Facilities Architecture and Engineering, Attention: Senior Manager, Design Standards.

2 ADMINISTERING STANDARDS

2.1. How To Use This Document

2.1.1. Overview

The Metrolinx DS-07 Bike Infrastructure Design Standard provides design direction and requirements for the design and implementation of bike storage facilities that affect the customer experience. This standard shall be applied together with the project contract documents.

These requirements include guidance to develop the architectural design for secure bike rooms and bike shelters and prescriptive requirements that must be followed to meet the minimum required conditions in the design.

2.1.2. Relationship with Other Standards

a. This design manual shall be read together with other Metrolinx Standards, including the respective bulletins and updates.
b. A complete list of relevant standards is included in Section 2.2.
c. Some of these standards are referenced in this document. In these cases, an accompanying statement will be included. For example, the statement may read:
    i. "Refer to Metrolinx DS-03, Wayfinding Design Standard for detailed requirements."
d. As required, this standard shall be read together with Municipal standards and by-laws to ensure coordination.

2.1.3. Relationship to Other Technical Standards

Reserved.

2.1.4. Conflicts

Where conflicts arise between legislative codes and standards, the more stringent requirement shall apply.

2.2. Legislative Codes & Standards

a. The following is a list of codes and standards that have been referenced in this document; it is not intended to provide an exhaustive or definitive list of applicable codes and standards.
b. Codes and regulatory requirements shall be met in all cases and this document is intended to provide additional requirements but is not intended to replace codes and regulatory requirements.

2.2.1. Acts, Codes, and Municipal By-Laws:

- Accessibility for Ontarians with Disabilities Act (AODA)
- Ontario Building Code (OBC)
- Ontario Building Code Supplementary Standard
- Ontario Fire Code
- Occupational Health and Safety Act (OHSA)
- Occupational Health and Safety Act - Regulation 851,

- Industrial Establishments
- Ontario Electrical Safety Code

Applicable municipal, standards, and by-laws as required on a project-by-project basis.

2.2.2. Referenced Standard Organizations:

- National Fire Protection Association (NFPA)
- Canadian Standards Association (CSA)
- International Standards Organization (ISO)

2.2.3. Metrolinx Design Standards:

- DS-00 Master Front End
- DS-02 Universal Design Standard
- DS-03 Wayfinding Design Standard (published in two parts)
    - Part 1: Wayfinding Design Standard
    - Part 2a: Sign Implementation Manual - GO Transit Edition
    - Part 2b: Sign Implementation Manual - LRT/Subway Edition
- DS-04 GO Station Architecture Design Standard
- DS-05 Sustainable Design Standard
- DS-06 Rail Corridor Design Benefits Management
- DS-08 GO Bus Park & Ride Design Standard
- DS-09 Subway Station Architecture Design Standard
- DS-11 Third-Party Entrance Connection Requirements
- DS-13 Light Rail Transit (LRT) Architecture Design Standard
- DS-25 Climate Change Informed Data Standard
- DS-27 Bus Rapid Transit (BRT) Architecture Design Standard
- DS-01-S TOC Design Guidelines for Subways Stations
- PRESTO Service Design Standard

2.2.4. Other Design Guidelines:

- Ministry of Environment, Conservation, and Parks, NPC 300 Environmental Noise Guideline
- Canadian Hard of Hearing Association, Universal Design, and Barrier-Free Access, Guidelines for Persons with Hearing Loss, Section 6.0 Desirable Acoustics
- Canadian National Institute for the Blind (CNIB), Clearing our Path, Section 2.4.0 Acoustics
- Crime Prevention Through Environmental Design (CPTED)
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 55
- 2015 ASHRAE Handbook – HVAC Applications, Chapter 48 - Noise and Vibration Control
- Illuminating Engineering Society of North America (IESNA)
- Ontario Information and Privacy Commissioner - "Guidelines for the Use of Video Surveillance Cameras in Public Places"
- Privacy and Video Surveillance in Mass Transit Systems - "A Special Investigation Report MC07-68"
- Applicable municipal Standards
- National Association of City Transportation Officials (NATCO) Transit Street Design Guide

2.3. Acronyms and Terminology

Term	Abbreviation
AHJ	Authority Having Jurisdiction
ANSI	American National Standards Institute
AODA	Accessibility for Ontarians with Disabilities Act
AP	Access Points
APBP	Association of Pedestrian and Bicycle Professionals
APS	Accessible Pedestrian Signal
ASHRAE	American Society of Heating, Refrigerating, and Air–Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
BOH	Back of House
BUG rating	Backlight, uplight, and glare rating
CAN/CGSB	Canadian General Standards Board
CAN/ULC	Underwriters Laboratories of Canada
CCTV	Closed Circuit Television
CNIB	Canadian National Institute for the Blind
CPCI	Canadian Precast/Prestressed Concrete Institute
CPTED	Crime prevention through environmental design
CS	Commercial Steel
CSA	Canadian Standards Association
CSDMA	Canadian Steel Door and Frame Manufacturing Association
DM	Design Manual
DRM	Design Requirements Manual (also referred to as GO DRM)
DWA	Designated Waiting Area
EAB	Emergency Assistance Button
EAM	Engineering and Asset Management
EAS	Electronic Article Surveillance
ELE/ITS	Electrical and IT System cabinets
EQ	Equal
FD	Floor Drain
FFE	Finish Floor Elevation
FFL	Finish Floor Level
FOH	Front of House
GGHA	Greater Golden Horseshoe Area
GL	Glass
GO	GO Transit
GTHA	Greater Toronto and Hamilton Area
HDPC	High–Density Plastic Composite
HDPE	High–Density Polyethylene
HMMA	Hollow Metal Manufacturers Association
HVAC	Heating Ventilation and Air Conditioning
IENSA	Illuminating Engineering Society of North America
ISO	International Standards Organization
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
LRV	Light Reflectance Value
MPI	Master Painter Institute
MSP	Municipal Service Provider (also referred to as Transit Agencies or Local Transit Provider)
MTO	Ontario Ministry of Transportation
MUP	Multi-Use Path
MX / Mx	Metrolinx

Term	Abbreviation
NAFS	North American Fenestration Standard
NBC	National Building Code of Canada
NCS	Natural Colour System
NFPA	National Fire Protection Association
NRC	National Resource Council
O.C.	On Centre
OBC	Ontario Building Code
OESC	Ontario Electrical Safety Code
OHSA	Occupational Health and Safety Act
OPS	Ontario Public Service
OSHA	Occupational Safety and Health Act
PA	Project Agreement
PAI	Passenger Assistance Intercom
PAS	Public Address System
POPS	Privately Owned Public Space
PPUDO	Passenger Pick-Up and Drop-Off
PSOS	Project Specific Output Specification
PUDO	Pick-Up and Drop-Off
PV	Photovoltaic
PVC	Polyvinyl Chloride
PVIS	Passenger Visual Information System
RAL	International colour matching system
ROW	Right of Way
SME	Subject Matter Experts
SOV	Single Occupant Vehicle
SPOS	Station Point of Sale
SR	Solar Reflectance
SRI	Solar Reflectance Index
SSG	Structural Silicone Glazing

Term	Abbreviation
T/O	Top of
TA	Transit Agencies
TAC	Transportation Association of Canada
TAI	Tactile Attention Indicators
TDI	Tactile Direction Indicators
TGS	Toronto Green Standards (City of Toronto)
TNC	Transportation Network Company
TOC	Transit-Oriented Community
TTC	Toronto Transit Commission
TTMAC	Terrazzo Tile & Marble Association of Canada
TVA	Threat and Vulnerability Assessment
TWSI	Tactile Warning Surface Indicator(s)
U/S	Underside
UDS	Universal Design Standard
UGRL	Unified Glare Rate
UHPC	Ultra High-Performance Concrete
ULC	Underwriters Laboratories of Canada
UV	Ultraviolet
VCE	Vertical Circulation Element
VMS	Variable Message Sign(s)
WC	Washroom
WMA	Wheeled Mobility Aid

3 BIKEWAY FACILITIES

3.1. Definitions

a. A "cyclist" is a person who operates a muscular powered or motor-assisted bicycle, tricycle, hand cycle, recumbent, or unicycle, and includes persons using any of the above as a mobility aid.
b. A "bikeway" is defined as a roadway or part of a roadway, intended for the use of bikes, either exclusively or shared with other vehicular traffic or pedestrians.
c. "Bike parking" includes all types of bike parking mentioned in SECTION 2: Bike Parking below.

3.2. General Bikeway Requirements

a. Cyclists accessing the station shall be able to reach bike parking facilities via a safe and convenient route that is appropriate for users of all ages and abilities.
b. Bikeways shall be built in accordance with the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, Chapter 5 – Bicycle Integrated Design, or revised equivalent, latest version (hereafter referred to as "TAC Design Guidelines").
c. Traffic control for bikeways, including signage, pavement markings, and signals, shall be in accordance with the TAC Bikeway Traffic Control Guidelines for Canada, or the revised equivalent, the latest version.
d. Bikeways shall be designed and constructed to provide safe and direct bidirectional connections for cyclists between bike parking and the municipal street and/or path network at the edge of the station, also having regard for pedestrian and vehicular routes, circulation, and potential conflicts on the site.
e. Bikeways shall be provided at all GO stations. Where existing or planned municipal bikeways exist, the bikeway shall be aligned to provide a direct connection to the off-site bikeway. Where bikeways do not exist and are not planned at the station edge, a bikeway shall be constructed and connected to the local street network.
    i. Connections to the municipal street and/or path network include signalized crossings and intersection treatments (refer to TAC Bikeway Traffic Control Guidelines for Canada, or revised equivalent, latest version).
    ii. Where platform access is provided from both sides of the rail corridor, bikeways shall also be constructed on both sides of the rail corridor.
f. Station sites and bikeways shall be designed and aligned to avoid requiring cyclists to dismount prior to reaching bike parking (see Dismount Policy section).
g. Bikeways shall be designed to minimize the number of conflict points with other modes.
h. Wherever possible, bikeways should be aligned to travel along or through areas of the station that are illuminated or provide sufficient illumination if not possible.

3.3. Design Elements

a. All design elements of bikeways shall be compliant with the requirements referenced above, including but not limited to

intersection elements, signage, pavement markings, curb cuts, cross-slope, width, and grade.

b. Accessible curbs (curb cuts) shall be provided where bikeways intersect with vehicular roads, at bike parking locations, at connection points to the local street or bikeway network, and wherever there is a change in level along a barrier-free path of travel.
c. Where a bikeway runs parallel and adjacent to a walkway, consideration should be given to preventing pedestrian encroachment onto the bikeway and cyclist encroachment onto the sidewalk. This can be achieved by providing a wide buffer, a wider walkway, pavement striping, or a significant visual and tactile contrast between the sidewalk and bike lane.
d. Where a high level of pedestrian cross-traffic is anticipated, pedestrian access across the bikeway should be channelized as much as possible, to guide pedestrians to cross at clearly marked locations. Provide clear direction to cyclists when they are expected to yield to pedestrians crossing the bikeway.
e. When a bikeway crosses a bus stop, the preferred design is to route the bikeway behind the transit stop, with bus passengers accommodated with a transit island. Refer to TAC Guidelines for detailed design requirements.
f. When an existing or planned municipal bikeway is intended to pass through a station facility, placement of station elements, including bus bays, platform access points, passenger pick-up-drop-off facilities, and bike parking should be coordinated such that the bikeway can be made as continuous as possible through the station.
g. A lateral clearance of 0.5 m shall be provided on each side of the bikeway. Lateral clearance areas shall be designed, constructed, and maintained free from any obstruction.
h. Obstructions, such as signposts, bollards, and fences, shall not be placed within the bikeway facility, or within the lateral clearance area of the bikeway.

3.4. Acceptable Bikeway Facility Types

The types of bikeways from the TAC Guidelines deemed acceptable for GO Stations are summarized below. All requirements are in addition to those stated in the TAC Guidelines. They are presented in order of most preferred to least, based on the level of safety and comfort that each design provides.

a. Bike Path: Bike paths are roadside facilities designed for the exclusive use of cyclists. They are separate from both motorists and pedestrians but primarily require design based on bicycles operating in parallel with pedestrians, especially at intersections. A bike path is not a substitute for a walkway; where a bike path is constructed, a parallel walkway shall be provided, if a nearby parallel route does not already exist.
b. Multi-Use Path: Multi-use paths are roadside facilities designed for mixed, bi-directional travel by cyclists and pedestrians, separate from motorists.
c. Bike Lane: Bike lanes are roadway facilities designed for the exclusive use of cyclists. They are separate from both motorists and pedestrians but primarily require design

based on bicycles operating in parallel with motor vehicles, especially at intersections.

3.5. Selection Of Bike Path Versus Multi-Use Path

When designing and constructing stations, the separation of pedestrians and cyclists is the preferred design approach, using a bike path and a separate walkway.

For locations where space is constrained, consideration should be given to a multi-use path, however, if the expected daily volume of pedestrians and cyclists accessing a station, based on the station ridership forecast and access mode targets expressed in the GO Rail Station Access 2023 or revised equivalent, latest version, exceeds 1,500, segregation of pedestrians and cyclists is recommended.

3.6. Bikeway Width

The default design width for bikeways shall fall within the Recommended Width range stated in the TAC Guideline. Usage of the Practical Lower Limit in the TAC Guideline is permitted where constraints exist, however, justification shall be provided.

The below table provides a summary of bikeways and widths from the 2020 TAC Guideline. These numbers are superseded in the case where a newer TAC Guideline is available.

Bikeway Type	Recommended Width	Practical Lower Limit
1. Bike Path + Walkway	4.6 – 5.2m **	4.0m **
2. Bike Path	1.8 – 2.5m (one-way) 3.0 – 3.6m (two-way)	1.5m (one-way) 2.4m (two-way)
3. Multi-Use Path	3.0 – 6.0m	2.7m
4. Bike Lane (one-way, painted, no buffer)	1.8 – 2.1m *	1.5m *

Table 1

**Recommended width higher when buffers/separation is used. Refer to TAC Guidelines.*

***Includes 1.6 m walkway width.*

3.7. Signage And Pavement Markings

a. Bikeway signage and pavement markings shall be provided in accordance with the TAC Bikeway Traffic Control Guidelines for Canada, or revised equivalent, latest versions.
b. Mx DS-03 Wayfinding Design Standard, GO DRM requirements, and other Mx standards will also apply to signage and pavement markings where applicable.
c. GO Static Signage catalogue and GO DRM requirements will also apply to signage and pavement markings where applicable.

3.8. Dismount Policy

a. Bikeway routing through the station for the integrated bike room should enable cyclists to travel as close to bike parking as possible without dismounting. Consideration should be

given specifically to the placement of bus bays, platform access points, passenger pick-up-drop-off facilities, and bike parking.

b. Physical obstructions or obstacles such as bollards shall not be used as a strategy to force cyclists to dismount, as these pose significant hazards to cyclists, and can prevent access by persons using bicycles as a mobility aid.
c. Where bollards are required at bikeway entrances to prevent motor vehicle access, a minimum of 1.5 metres spacing shall be provided between bollards to accommodate through access by persons using bicycles as a mobility aid. Flexible bollards shall be used as they absorb energy in the event of a cyclist or pedestrian collision.
d. Bikeways are required to terminate at the edge of the Station Plaza and Platform Access areas and should do so as close to the bike parking as possible so that the need for cyclists to dismount before reaching the bike parking is minimized.
e. Where termination of the Bikeway occurs, the following design elements shall be used to communicate the end of the bikeway (in accordance with TAC Bikeway Traffic Control Guidelines for Canada, or revised equivalent, latest version):
    i. A transverse stop line across the full width of the bikeway;
    ii. A bright blue painted box with "DISMOUNT" painted in white paint; and
    iii. The "TAC Dismount and Walk Sign MUTCDC RB-79" sign posted outside the lateral clearance area.
f. At operational facilities where several pedestrian safety complaints have been received regarding conflict with cyclists in plaza areas, flexible bollards are permitted for use as an additional dismount strategy at the terminus of the bikeway, provided that they are spaced at 1.5 metres apart so as to not hinder access for persons using bicycles as a mobility aid.

4 BIKE PARKING

4.1. Introduction

Bike parking shall be provided at all GO facilities, to encourage cycling as an access mode, in accordance with the quantities specified in the 2023 GO Rail Station Access document, or revised equivalent, the latest version. Bike parking is also provided at Metrolinx-delivered subway and rapid transit station projects with quantities determined on a project-specific basis at this time. All GO-specific references are used for brevity, and subway or LRT equivalents are to be consulted based on each specific project. The general requirements for bike parking are noted in this Standard.

Different Design Standards may apply and should not be considered in conflict with DS-07 for projects where bike rooms or parking will be operated and maintained by a third party. Where additional standards and requirements (i.e., municipal standards) may be required, the AHJ guidelines may be adopted in conjunction with Mx standards. Consultation with Mx on a case-by-case basis will be required. Ensure coordination for access control infrastructure, CCTV and monitoring, bike rack requirements, etc.

Types of bike parking include:

1) Secure:
   a) Integrated Secure Bike Rooms
      i) Secure bike rooms that are integrated into the station building either within the main station building or within a secondary entrance building that provides direct tunnel/platform access while separating the flow of bikes from other passengers entering and exiting the station. These bike rooms can be integrated into GO Station Entry Buildings in accordance with DS-04 GO Station Architecture Design Standard. Refer to DS-09 for Subway Station buildings and DS-13 for LRT Station buildings.
      ii) Where integrated with the station, the bike room shall match materiality and design (i.e., utilitarian vs. customer journey palette vs. TOC)
   b) Standalone Secure Bike Rooms
      i) Standalone secure bike rooms are single-unit buildings located out of the stations near the station building.

2) Covered:
   a) Integrated Covered Bike Shelters
      i) Integrated covered bike shelters are bike storage facilities that are attached to the station or a building adjacent to the station and have bike racks and roofs to cover the bikes.
      ii) Where integrated with the station, the bike shelter shall match materiality and design (i.e., utilitarian vs. customer journey palette vs. TOC)
   b) Standalone Covered Bike Shelters
      i) Standalone cover bike shelters are bike storage facilities that provide racks for bikes and a roof to cover the bikes.

Bike Room Typologies

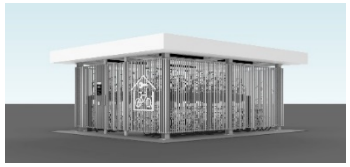
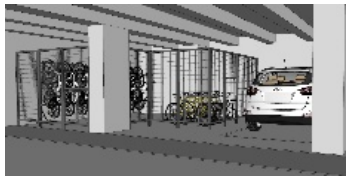
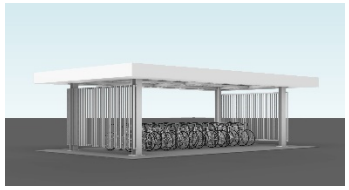
Type		Image	Specification
Secure Bike Rooms	Standalone		No less than 32 bikes, depending on structure size and rack quantities
	Integrated		Indoor, as size permits, no less than 32 bikes
Covered Bike Shelters	Standalone		Approximately 32 bikes in the covered bike shelter
	Integrated		Approximately 16 bikes in the covered bike shelter

Table 2

4.2 General Secure and Covered Bike Room Parking Requirements

Bike Parking shall provide an attractive, convenient, and user-friendly solution for passengers to secure their bikes at the station.

4.2.1. Location

Bike parking shall be located:

a. As near to the station building or platform and tunnel access points as possible,
   i. Covered bike shelters shall be located:
      a. no more than 50 metres from the station entrance doors;
      b. no more than 50 metres from a hose bib or domestic water source.
   ii. Secure parking shall be located:
      a. no more than 25 metres from the station entrance doors and
      b. no more than 50 metres from a hose bib or domestic water source.
   iii. If the above-mentioned, optimal location for bike shelters can not be met, an appropriate alternative location must be discussed with appropriate Metrolinx stakeholders including Facilities Architecture & Engineering and Station Operations to consider mitigating measures to provide an enhanced customer experience and address any maintenance implications.

b. No more than 10 metres from the terminus of bikeway facilities, with curb-free and barrier-free access from the bikeway facilities, where possible, if facilities exist.
c. In such a way that does not hinder pedestrian flow to and from any of the passenger access points, the station, and the platform.
d. In a highly visible location with high foot traffic for security purposes.
e. In such a way that customers are not required to carry their bikes up and down stairwells.
f. To minimize flow intersections with passengers requiring mobility devices.
g. Where applicable, locate rooms where they can be visually supervised from staffed areas such as the Station Ambassador Module. If it is not present at the station, locate in areas with clear sight lines and frequent paths of foot traffic for added security. Refer to CPTED principles for intents and guidance.
h. Coordinate site planning of the bicycle storage with all station operational and system requirements including rail systems (e.g., train sightline requirements).
i. Site Access for fire department equipment shall be provided. The main entrance doors of the Secure Bike Room shall be located within 3 to 15 metres from the nearest Fire Access Route on the station property.

4.2.2. Quantity

a. Constructed with capacity met or exceeded as per the 2023 GO Rail Station Access document, or revised equivalent, latest version. Flexibility is permitted in the dimensions and layout of the rooms provided they meet the requirements of the Bike Parking Configuration section.
b. Generally, the standard has indicated quantities that are in line with available and typical rack products that provide increments of 16 bikes per unit.
c. Bike parking shall be provided in sufficient quantity such that the Secure and Covered requirements for each side of the station, as specified in the 2023 GO Rail Station Access document, or revised equivalent, latest version, are met or exceeded. Where there is a Station Plan that has been approved by Planning & Development, the specified bike parking quantities shall prevail over the Station Access targets.
d. Covered Bike Parking shall not be provided as a substitution for Secure Bike Rooms, and vice versa, without Metrolinx approval.

4.2.3. Constrained Sites

a. In constrained sites where construction of a secure bike room is not logistically possible, Metrolinx may consider proposals for the use of a prefabricated bike storage structure.
b. In constrained locations, meeting the required quantities of bike parking should be prioritized over vehicle parking and pick-up-drop-off as per the access hierarchy established in the GO Rail Station Access document, or revised equivalent, latest version.
c. In locations where land is not owned or controlled by Metrolinx, a best effort should be made to establish agreements with the local landowner(s) to provide bike

parking as an amenity to GO customers consistent with the principles of this standard.

4.2.4. Signage and Wayfinding

a. Clear signage shall be placed throughout the station area as required to communicate the availability and location of bike parking.
b. Signage for Bike Parking facilities shall follow the specifications outlined in Section 5 of this document and shall adhere to the Metrolinx DS-03, Wayfinding Design Standard, and DRM, latest versions.

4.2.5. Mechanical & Electrical Considerations

a. Heat tracing as required, refer to DRM for requirements.
b. Considerations shall be given to various bike types including e-bikes. Power provisions and/or rough-ins shall be included for future modification capabilities.

4.2.6. Electrification Considerations

a. Bike parking shall not be located in an area likely to be affected by a broken future electrification overhead conductor. Refer to Metrolinx Electrification Standards.
b. Metallic shelter structures within the affected area shall be made electrically continuous and bonded to the station counterpoise/grounding grid.
c. Any bike parking located within 4 to 6 metres from the centerline of the track shall be grounded and bonded to the traction return system. See Metrolinx Electrification Standards.

4.2.7. Bike Parking Configuration

a. Bike parking shall be accommodated with bike racks. Configuration of bike racks is dependent on the overall room shape and size.
b. Bike rack styles, installation, materials, coatings, and placement shall meet the Performance Criteria specified in the Essentials of Bike Parking (2015), guideline published by the Association of Pedestrian and Bicycle Professionals (APBP), or revised equivalent, latest version. Any rack style included in the "Racks to Avoid" section in the APBP guideline is not permitted for use.
c. Where "Inverted U" and "Post & Ring" style racks are used, the following minimum spacing requirements shall apply, as specified in the Essentials of Bike Parking (2015), guideline published by the APBP, or revised equivalent, latest version.
d. Bike parking layout and placement of racks shall enable free movement of persons with bikes.
e. Rack designs should enable customers to independently lock their bikes and easily remove any parts of their bikes, such as wheels, seat posts, or anything attached with a quick-release lever.
f. Vertical racks shall comprise no more than 50 percent of the overall bike parking capacity.
g. The room shall be optimized to provide maximum capacity by adjusting the interior layout of the integrated bike rooms, including the location of the entrance and placement of

racks with respect to aisles and electrical panel clearance requirements.

h. All circulation aisles shall be 1.5 metres wide (beyond the footprint of the bike racks when full) allowing easy placement and removal of bikes.

i. Consideration shall be given to provisions for various bike types (e.g., various sizes, tire widths, cargo bikes, e-bikes).

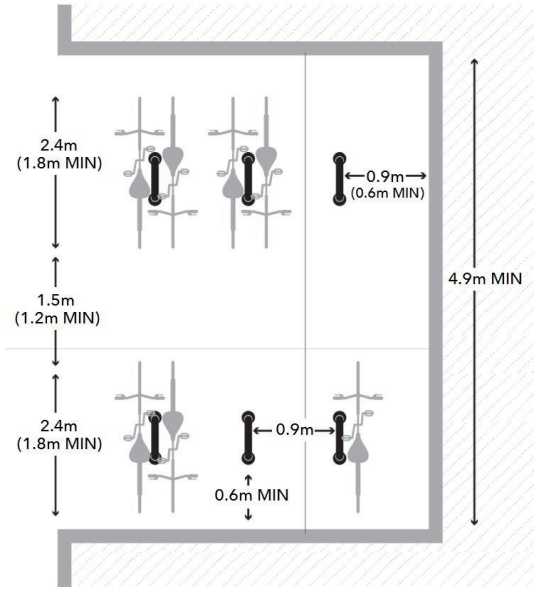


Figure 1 – Minimum spacing requirements for installation of Inverted-U and Ring & Post bike racks (adapted from APBP)

4.3. General Secure Bike Room Requirements

All Secure Bike Room facilities (Station Integrated Bike Rooms and Standalone Secure Bike Rooms) shall be:

a. Designed utilizing Crime Prevention Through Environmental Design (CPTED) principles to provide clear views of the entire space from both inside and outside, in an effort to ensure the safety of users.

b. New CCTV shall be mounted in a location that
   i. provide coverage of the entrances as well as an overview inside the bike room.
   ii. is mounted at a minimum height of 2.7m above the floor to mitigate against vandalism.

c. Refer to I&IT Standard for the design of the CCTV system and coordinate to ensure that the space provides adequate visibility.

d. Equipped with cameras mounted in an appropriate location which provides a dedicated identification shot (fixed) covering the entrances, as well as an overview (fixed) camera to capture and monitor activities in the area surrounding the bike room to improve safety for the users. IP cameras shall be connected using conduit sized in accordance with the GO Design Requirement Manual and shall be run from a network rack inside the IT room to the location of the cameras.

e. Located a maximum of 90 metres from the electrical and communications rooms that serve them. Electrical run and voltage drop calculation to be done to determine the most efficient length. For any run required to be beyond 90m,

refer to I&IT standards for cable types and infrastructure to be used.

f. Weather Protected with a roof covering that is consistent with the architectural language and materiality of the GO Shelter Family. Refer to the renderings provided and GO Standard Architectural Standard Drawings and Specs for guidance.
g. A secure perimeter enclosure of tamper-proof exterior screens.
h. The door hinges should be heavy-duty.
i. Grade 1 Heavy Duty Door Closer shall be used.
j. Designed to the latest version of GO Design Requirements Manual (DRM) and Metrolinx Standards. Where conflicts arise between local Codes and Standards, the more stringent requirement shall apply.
k. Facades shall be low maintenance, with graffiti-resistant textures, treatments, and materials to reduce potential vandalism.
l. Occupancy Sensor controlled artificial illumination twenty-four (24) hours per day and seven (7) days per week. The illumination level for secure bike rooms shall be 200 LUX.
m. In order to reduce energy consumption, the lighting shall have daylight dimming control.
n. The entrance and walkway to the secure bike room shall be lit during all station operational hours of the day and be on occupancy sensors after hours. The lighting controls shall comply with the Exterior Lighting Sources and Controls requirements in the DRM.
o. Materials selected shall have matching replacement stock available for the expected life of the material.
p. Materials shall be selected for ease of cleaning, repair, or replacement.
q. Materials shall resist soiling and be cleanable with commonly used equipment and environmentally benign cleaning agents.
r. Removal and replacement of damaged materials shall be possible without specialized tools or proprietary tools, without requiring major dismantling, and without damage occurring to adjacent areas.
s. All finishes and materials used for the bike room shall be able to withstand reasonable vandalism and graffiti without damage. This includes hammer blows, felt markers, spray paint, burning, and scratching.
t. The construction of the bike room should be such that snow accumulation is prevented in front of the door or diverted to a place where it can be easily removed by building maintenance machinery without damaging the bike room structure.
u. Bike rooms shall be constructed to withstand local environmental conditions. The material used and design shall comply with OBC and ensure that impact by snow, water, street dust, sand, and tree leaves will be minimized.
v. Minimum space allowance for electrical and communications equipment shall be provided to accommodate junction boxes, conduits, and panels (where applicable). Unobstructed access with secure footing must be maintained 1m in front of the equipment. Minimum equipment panel dimensions to include are as follows:
    i. Communications: 400mm wide x 1000mm high x 150mm deep

ii. Electrical: 600mm wide x 1000mm high x 150mm deep

w. Electrical and communications shall be kept in separate enclosures and conduits.

x. Dedicated circuit breaker shall be provided for each piece of equipment. Sharing one circuit breaker for more than one piece of equipment must be avoided.

y. Provide at least one GFCI 120V 20A outlet in a lockable weatherproof in-use cover for maintenance applications inside the bike room.

z. Provide separate conduits for communications, data, power, lighting, door operators, convenience outlets, cameras, CCTV, security, PRESTO equipment, and pull-boxes in addition to provision for additional capacity at 25% of a total number of conduits.

aa. Built with a minimum interior headroom of 2.6 metres, to accommodate two-tier bike parking.

bb. Design of supergraphics shall conform to the Metrolinx DS-03 and be applied as a ceramic frit and placed on one of the walls or welded wire mesh screens, to identify the space from a distance and to assist with wayfinding, aligned with the Metrolinx DS-03, Wayfinding Design Standard and other Metrolinx standards.

cc. Wayfinding signage shall be clear and located at all approaches to the bike room to enable users to find the bike room easily, including the routes to/from the nearest public road or bicycling facility.

dd. Constructed from low maintenance, durable, enduring materials that have a minimum 20-year lifecycle and are easily replaceable (i.e., off-the-shelf type).

ee. Constructed with material and fasteners that are non-corroding, low maintenance, and durable (this includes signage, light fixtures, and painted surfaces).

ff. Passively ventilated through the incorporation of a permeable perimeter enclosure, such as min. 8-gauge welded wire mesh, bar grading, and perforated metal, integrated with the architecture of the station building or Standalone Secure Bike Room, in order to mitigate the effect of heat gain internal to bike parking facilities.

gg. Roofs and floors shall be sloped to provide natural drainage.

hh. Roof drains shall be provided with strainer baskets.

ii. The roofing drainage design shall be compliant with all applicable codes and standards.

jj. Roof drainage to exterior paving can be considered where:

i. Exterior paving must be sloped to site drainage to prevent ponding of water.

ii. A rainwater leader is provided between the roof and a splash pad at grade.

iii. The bike shelter is more than 25m from a sub-surface site drainage system.

iv. Drainage water is directed to the floor at the perimeter of the bike shelter sloping away from the interior of the shelter.

v. The exterior slab receiving the roof drainage water is sloped away from adjacent buildings and does not create drainage flows across pedestrian paths or bikeways.

vi. If the above-mentioned requirements can not be met, designs must be discussed with appropriate

Metrolinx stakeholders including Facilities Architecture & Engineering and Station Operations to consider mitigating measures to provide an enhanced customer experience and address any maintenance implications.

kk. Within stations, concrete floors shall be sloped to drain and have slip resistant exterior traffic coating system for safety and ease of maintenance. For bike parking outside of the station building, the floor to be sloped to drain.

ll. Ensure any applied floor finish is vapor permeable to avoid deleterious impact on concrete if exposed to freeze-thaw cycles.

mm. If applicable, all exterior facing glass panels shall have bird-friendly frit pattern.

nn. The exterior walls of the Secure Bike Room shall conform to the applicable spatial separation and exposing building face construction requirements of the OBC.

oo. If the Secure Bike Room is located such that limiting distances of the exposing building faces of existing structures are diminished, spatial separation and exterior building face construction requirements of the existing structure shall be re-evaluated in accordance with the OBC. Retroactive works to achieve compliant spatial separation requirements shall be completed for the existing structure, as required.

4.3.1. Secure Bike Room Doors, Access, and Access Control

a. All doors shall be secured, with 24-hour access swing door in one direction outward.

b. Locked doors shall operate reliably under all conditions and in all seasons. Moisture remaining in structures shall not corrode them.

c. Minimum of one door to be provided per Secure Bike Room. Refer to OBC for additional occupancy requirements.

d. The primary doorway shall
   i. Be a minimum of 1.2 metres wide for accessibility purposes.
   ii. Only non-proprietary access control systems shall be used.
   iii. Door access control must be compatible with and monitorable from the existing station security system.
   iv. Doors shall have emergency exiting hardware as required by code.
   v. Vertical door guard posts at both sides of the door shall be provided. Doors should open out with a door guard in the form of a rail as per standards.
   vi. The door must open a minimum of 90 degrees to allow unrestricted clear width for various bike types, egress, and accessibility purposes. Door swing guard railings shall be used
   vii. Door closers and stoppers must be installed to prevent doors from over travel, excessive stress, and damage to hinges.
   viii. Door handles shall be provided from the outside for manual door operation.
   ix. Automatic door operators (“push buttons”) shall be placed within and outside the rooms in locations that maximize user convenience.

x. The card readers and push bottoms must be weather-protected.

e. Doors must conform to Metrolinx Hardware Specifications and be equipped with
   i. master key lock cylinder,
   ii. sensor indicators (when doors are unnecessarily left open for extended periods), and
   iii. electronic door controllers for access control system (i.e., pin pad/FOB/card access), adjacent to automatic door operators.
   iv. Manual master key lock cylinder must be installed on each door.

f. Doors shall have extra heavy-duty commercial grade frames, hinges, locks, handles, push bars, and exposed door closers.

g. Materials used shall be of high quality, durable, low maintenance, and should have full height unbreakable transparent panels – suitable for bike and rider to safely enter or exit. All door hardware is to be stainless steel.

h. Equipped with secured, controlled access hardware to permit 24 hours 7 days a week access, preventing unauthorized entry from outside and allowing free egress from inside. Doors must provide secure access from the outside and free egress from the inside

i. The door and the access control must be reliable under anticipated operating conditions including snow, icing, and precipitation. For example, snow and frost must not impair the operational reliability of the access system.

j. Access door control circuit and electric strike lock shall have separate power supply protection.

k. Access electronic door controllers must be non-proprietary approved access control systems.

l. One power conduit sized per DRM requirements shall be run from the electrical room to the location of the access control for use with door control systems.

m. One data conduit sized per DRM requirements shall be run from a network rack inside the IT room to the location of the door controller for use with door control systems.

n. Access controls shall be compatible with existing and planned access control systems in use by Metrolinx or its partner agencies. A dedicated access control system shall be installed at the entrance of each bike room. The system shall, at minimum, be able to identify the unique ID of the user. The system is used only and exclusively for the identification of the right to access the bike room. The system shall ensure that the actual customer profile is not identifiable and is in compliance with the Metrolinx Customer Access Strategy.

4.4. General Integrated Secure Bike Room Requirements

Station Integrated Secure Bike Rooms shall be:

a. Incorporated within the main station entrance building or within a secondary entrance building that provides tunnel/platform access while separating the flow of bikes from other passengers entering and exiting the station and designed in compliance with DS-04 GO Station Architecture Design Standard. Compliance with DS-09 for Subway Stations and DS-13 for LRT Stations is also required. At least

one set of doors shall accommodate a design width of 1.2 metres, to accommodate a person riding a non-standard cycle for accessibility purposes.

b. Bike rooms may be located on a parking level. However, the accessibility and distance requirement for the location needs to be confirmed with Metrolinx for each specific site. A maximum walking distance of 50m to the station entry is required unless otherwise permitted by Metrolinx officials, with clear wayfinding and a path of travel designed following CPTED principles.
c. For economies of scale where applicable, the designer shall consider the implementation of pre-engineered, prefabricated, or modular elements to reduce the cost of delivery of bike rooms. The foundation design shall consider tolerances and provision for dimensional adjustments, as necessary.
d. Located adjacent to a station exterior glazed wall to ensure the room is visible from outside, prior to entry to the station.
e. Fully integrated into the building envelope and consistent with the architecture of the station building.
f. The bike room must be easy to locate, quick to access and use, and should provide convenient access to the platform to facilitate easy transfer between various modes.
g. The bike room must be accessible to cyclists of all ages and skill levels and, thus, the selected locations shall have no grade separation. If the bike room cannot be located at ground level, a barrier-free path of travel is permitted to include ramps and elevators. However, step-free access at ground level is preferred.
h. The integrated bike parking shall be on the approach to the station building so that it is clearly visible when cyclists arrive at the station. The bike room shall be easily accessible from the existing cycle infrastructure to minimize the time and effort required by cyclists to reach cycle parking. Bike parking shall be closer than the closest car parking spots to the entrance of the station with the exception of accessible parking spots. Bike parking entrance shall be situated close to and convenient to the station entrance.
i. Design language shall comply and shall utilize the kit of parts with applicable Mx Standards.
j. Ceilings may be used to accommodate wiring for power and communications from the station building for integrated secure bike rooms where there is a clear routing method.
k. The bike rooms and users must be protected from weather as much as possible through strategic placement and orientation of the room.
l. Built with a minimum interior headroom of 2.6 metres, to accommodate two-tier bike parking.
m. Slope to drain, grit epoxy floor or textured concrete for slip protection, no ground depressions for pooling of water.
n. A minimum of 1 floor drain shall be provided. Floor drains and grates should be located outside of the circulation path to avoid trips and falls where the grate is heaved, uneven, or not secured properly. All floor drains to be provided with electronic trap seal primer.
o. Natural ventilation must be provided for integrated bike rooms and shall comply with the requirements in OBC.
p. Electrical and fire alarm design shall adhere to the latest version of the GO Design Requirements Manual (DRM) and GO Standards. Where conflicts arise between Codes and Standards, the more stringent requirement shall apply.

q. Electrical devices for the bike room shall be fed from the nearest Station electrical room panel board. Should the bike room be situated far from the Station electrical room, a compact lockable panel board can be considered to optimize cabling costs.
r. Provide at least one GFCI 120V 20A outlet in a lockable weatherproof in-use cover for maintenance use.
s. Exposed equipment shall be protected to avoid possible damage by bikes.
t. Lighting and controls shall adhere to the latest version of the DRM and other applicable Mx Standards.
u. The room shall be sufficiently illuminated twenty-four (24) hours per day and seven (7) days per week.
v. The illumination level for the bike room shall be 200 LUX.
w. In order to reduce energy consumption, the lighting shall have daylight dimming control (where applicable for the room) and occupancy sensor control.
x. Alternative systems shall be in place to ensure bike rooms are accessible during power shortages and provide 24/7 access to the room.
y. Integrated cycle rooms should be detectable intuitively without extensive wayfinding measures.
z. Wayfinding signage shall be clear and located at all approaches to the bike room to enable users to find the bike room easily, including the routes to/from the nearest public road or bicycling facility.
aa. Signage and wayfinding shall comply with Metrolinx DS-03 and other Metrolinx standards.
bb. Safety in design shall be promoted through considering the bike room locations where they could be in the surveillance coverage of existing CCTV or be in a highly visible location with high footfall.
cc. Where integrated secure bike rooms are located at subway and LRT projects, some elements including access control, bike racks, etc. may be provided in compliance with the other modal standards as well as requirements of the operation and maintenance party.

4.5. General Standalone Secure Bike Room Requirements

Where no significant station building or renovation is part of any project, secure bike rooms shall be provided as Standalone Secure Bike Rooms, which shall be:

a. For economies of scale where applicable, the designer shall consider the implementation of pre-engineered, prefabricated, or modular elements to reduce the cost of delivery of bike rooms. The foundation design shall consider tolerances and provision for dimensional adjustments, as necessary.
b. Located adjacent to the station building or platform and tunnel access points, and closer to the entrance than Covered Bike Parking where possible.
c. Designed to be consistent with the architectural language and materiality of the GO Shelter Family. Refer to the renderings provided and Metrolinx Architectural Standard Drawings and Specs for guidance.
d. Equipped with two points of access entailing:
    i. a primary doorway with a width of at least 1.2 metres for access and egress for accessibility purposes; and

ii. one emergency exit door for egress, complete with signage.

e. Constructed with positive drainage away from the secure bike room.
f. Placed on the site in such a way that enables pedestrian circulation on all sides or with a minimum clearance of 3 m on all sides.
g. located against a fence or a wall on the rear side with a minimum clearance of 3m on all other sides, where possible.
h. Designed and built in a fashion such that Bike Rooms can be expanded as required, where possible.
i. Foundation design for secure bike rooms shall incorporate footings in accordance with OBC Requirements and GO Transit Design Requirements Manual. Where soil conditions permit, provision of a minimum 250mm thick concrete slab-on-grade with thickened perimeters for column supports may be considered in lieu of deeper foundation solutions. For frost susceptible soils, below-grade insulation of the required thickness and the extent shall be provided.
j. Perimeter wall screens to be elevated 200mm above the slab on grade and 200mm below the roof overhang soffit to facilitate simple drainage and ventilation of the bike shelter. This solution provides a measure of protection from snow management damage.
k. Superstructure to consist of heavy gauge steel moment or braced frames with metal roof decking. Column base plates to be recessed in the floor slab without projections above the slab.
l. Fully enclosed with a perimeter security screen constructed of one or a combination of:
    i. Tempered laminated low iron glass with a bird-friendly frit.
    ii. Full Shop painted rectangular steel bar and rod grating.
    iii. shop painted 3/16" gauge 51% open area perforated steel panels.
m. Covered by a slope to drain roof constructed of:
    i. slope to drain painted steel framing.
    ii. painted structural metal deck with minimum 1m overhangs on all sides.
    iii. roof overlay board and a roofing membrane with a minimum 200mm high parapet on all sides.
    iv. back slope crickets to provide a positive slope to drains at all locations.
    v. minimum two roof drains and perimeter roof scuppers as per OBC.
n. Where building services such as electrical panels, electrical chases, and mechanical risers are required, located adjacent to exterior walls and structural columns with access to the building services from the interior of the room only. Locate services where 1m unobstructed clear access and secure footing in front of services are maintained from the bike drive aisle to prevent blockage by parked bicycles.
o. Rainwater leaders shall be integrated with any columns/column cladding chases with provision for access panel, clean out, and heat tracing; Note: power and communications shall not share columns/column cladding chases with rainwater leaders.

4.5.1. Modular Design Examples

Modular design for a standalone secure bike room shall be considered. The following table presents a range of options that can be contemplated for the design and materials. The design shall be kept in mind and allow for future expansion (i.e., additional bays) as required. Please note all the elements including structural steel, ceiling, doors, etc. should be painted white.

All materials shall perform adequately over the full life cycle expectancy of the shelter and be of the quality deemed acceptable by Mx. Refer to other Mx Design Standards for materiality performance and prescriptive requirements. Material quality, dimensions, gauge, and other characteristics are to be reviewed and approved by Mx Facilities Architecture & Engineering.

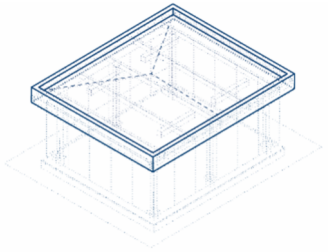
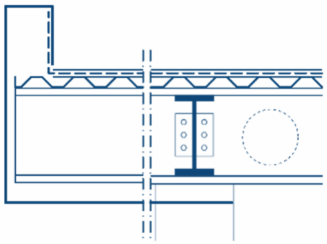
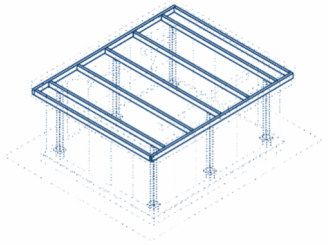
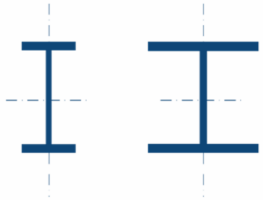
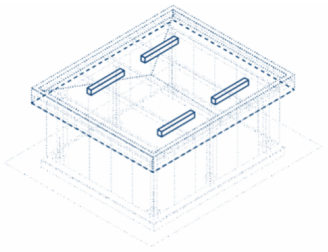
Elements	Categories	
Roof		
	R1: Exposed Structure Steel Framed Roof 	
Structure		
	S2: Structural Steel Framing shall be rectilinear including the member profile 	
Lighting		
	L1: Interior Surface mounted light 	L2: Interior Suspended light 

Table 3

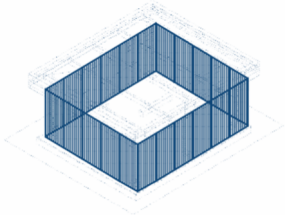
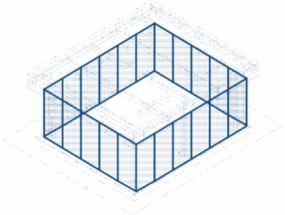
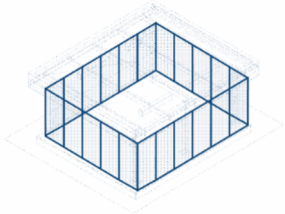
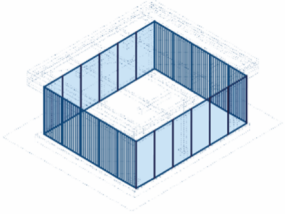
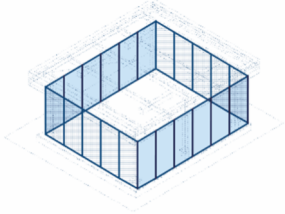
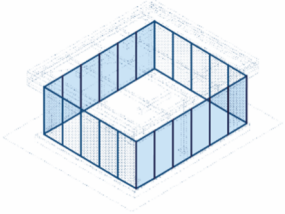
Envelope			
E1: Tempered Laminated Exterior Glazing 	E2: Modular Prefinished Steel Flat Bar Lattice 	E3: Modular Prefinished Open Steel Grating Panels 	E4: Modular Prefinished Perforated Panels 
Solution A: all facades E2 		Solution B: all facades E3 	
Solution C: all facades E4 		Solution D: long side facades E1, short side facades E2 	
Solution E: long side facades E1, short side facades E3 		Solution F: long side facades E1, short side facades E4 	

Table 4

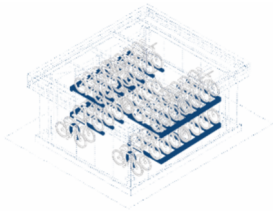
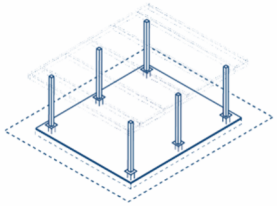
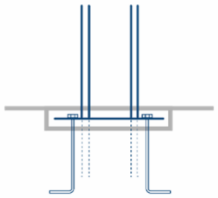
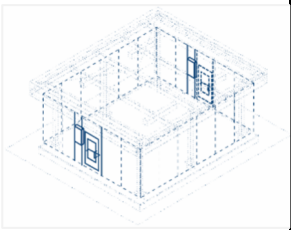
Stands *Note: other standard bike stands could be considered in agreement with Mx*			
	S1: Inverted U or Sheffield 	S2: Bar stands (vertical) 	S3: two-tiered 
Recessed Base Plates			
	F1: Recessed / concealed 		
Doors and Services			
	Entrance doors and proposed location for the electrical and communication cabinet		

Table 5

A Modular approach enables that the bike room capacity can be extended over phases, see examples below:

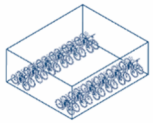
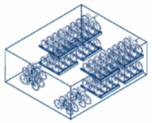
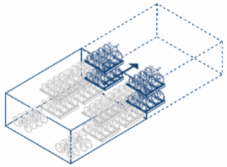
Bike Parking Density		
		
Phase 1: Low density	Phase 2: Medium density	Phase 3: High density

Table 6

All exposed glass edges shall be protected from impact including the outer edges, the top, and the bottom with continuous framing channels. Prefinished open steel grating panels and prefinished perforated metal panels shall have framing around the edges to support the material and prevent warping or deflection. The profile for all framing shall be the same for metal cladding and glazing and shall be narrow to prevent roosting. Interior glazing joints shall be butt-jointed.

4.5.2. Prefabricated Bike Rooms

The proposal of prefabricated bike rooms can also be considered given that they meet the same performance requirements as outlined in this Standard, and provide a capital and/or operational cost saving, pending Mx Engineering & Asset Management review and approval.

4.6. General Covered Bike Shelter Requirements

a. Preferably use "Inverted U" and/or "Post & Ring" rack styles. Any rack specified in the "Racks to Avoid" section of the Essentials of Bike Parking (2015), guideline published by the APBP, or revised equivalent, latest version shall not be used.
b. Constructed with capacity met or exceeded as per the 2023 GO Rail Station Access document, or revised equivalent, latest version. Flexibility is permitted in the dimensions and layout of the rooms provided they meet the requirements of the Bike Parking Configuration section.
c. Provide a roof covering that is consistent with the architectural language and materiality of the GO Shelter Family. Refer to the renderings provided and GO Standard Architectural Standard Drawings and Specs for guidance.
d. Placement of racks inside the shelter must consider the approach angle of customers; whereby racks placed next to adjacent walls or hard structures that impede entry from 2 sides have interior racks positioned suitable for one direction of entry with a minimum width of 1.2m for access aisle requirements.

4.7. General Integrated Covered Bike Shelter Requirements

Integrated Covered Bike Shelters shall:

a. Be adjoined and integrated into the station building or parking structure and integrated with the station design.
b. Be placed in highly visible locations in the vicinity of platform access points.

c. Align with the architectural language and materiality of the station building.

4.8. General Standalone Covered Bike Shelter Requirements

Only where there are no opportunities for an Integrated Covered Bike Shelter, Standalone Covered Bike Shelters may be used and shall be mounted to a slope to drain the foundation of concrete slab on grade, broom finished, and sealed.

The base of structural steel elements shall have additional corrosion resistance properties due to its proximity to standing water and salt. Base plates shall be exposed to allow for maintenance access and allow for shelter relocation as required. Provide either a concrete pad or a concrete curb for anchoring purposes. Confirm alternate designs with FAE for review and approval.

5 STANDALONE SECURE BIKE ROOM DESIGN RENDERINGS

5.1. Solution A: All Facades E2

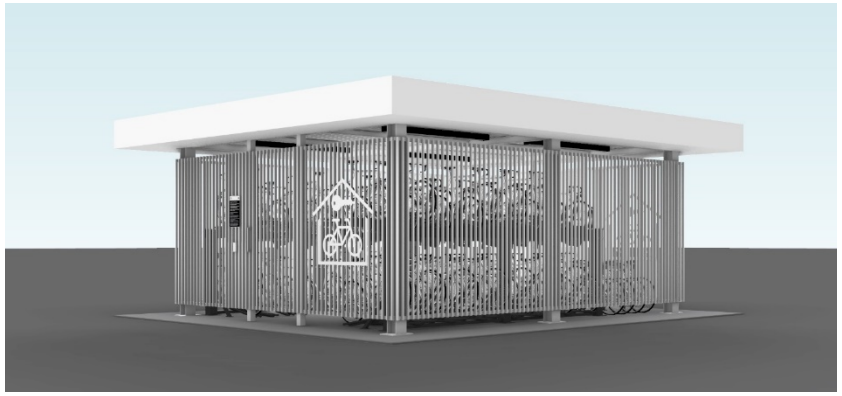


Figure 2.1

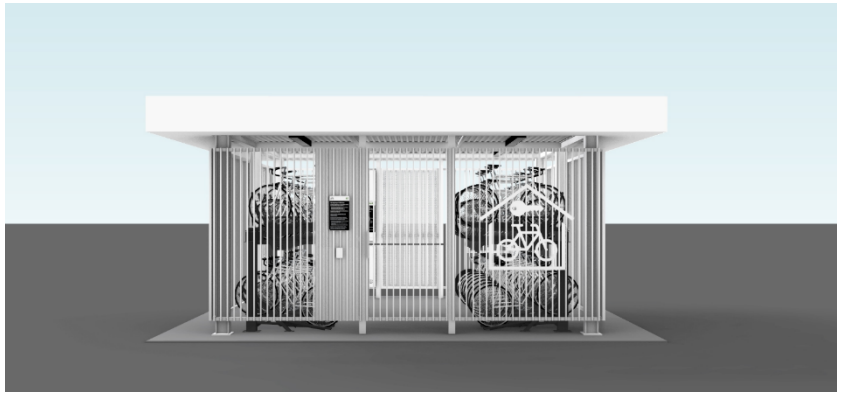


Figure 2.2

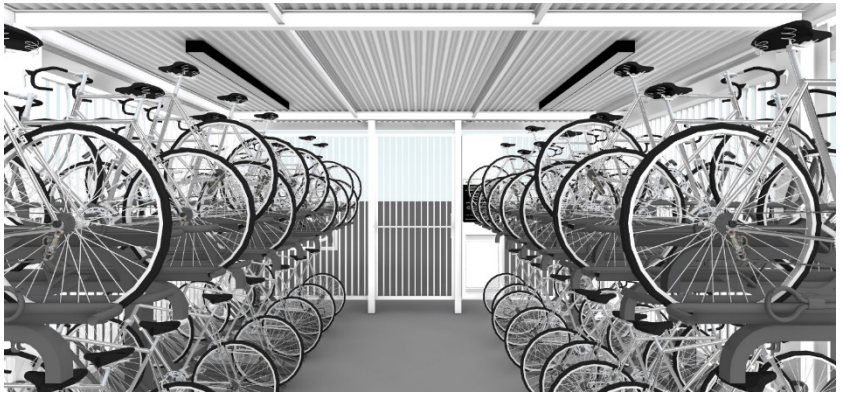


Figure 2.3

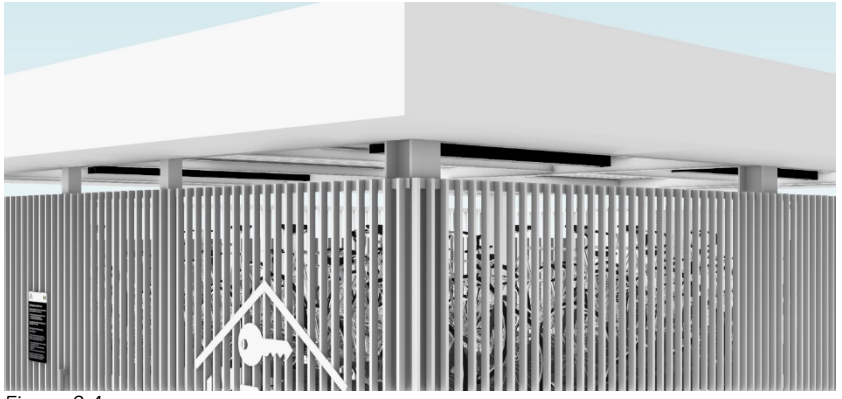


Figure 2.4

5.2. Solution B: All Facades E3

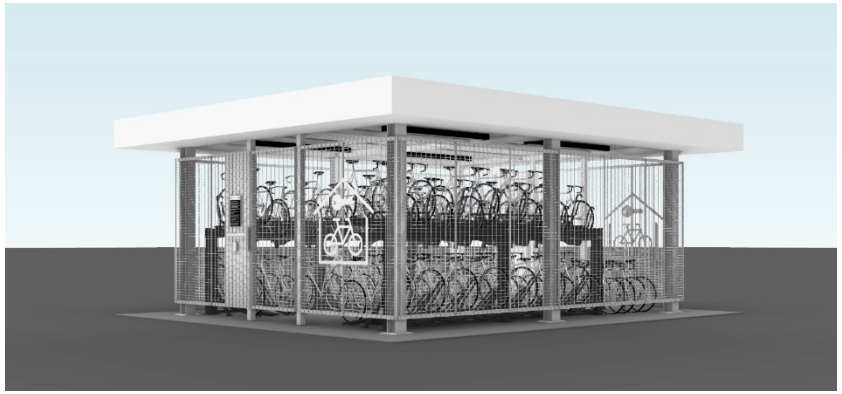


Figure 3.1

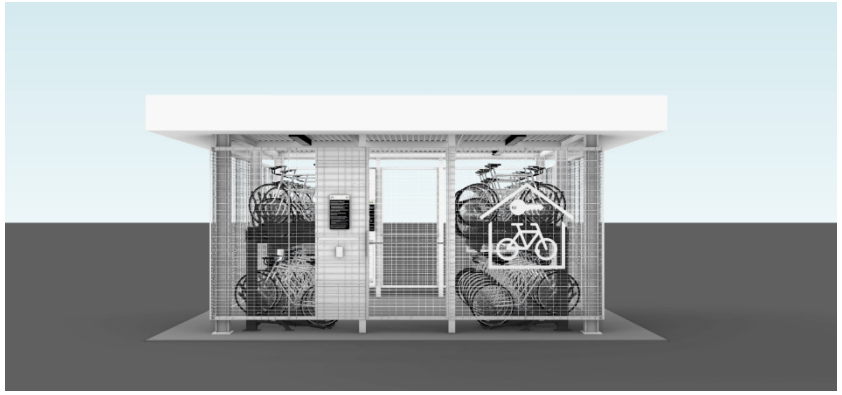


Figure 3.2

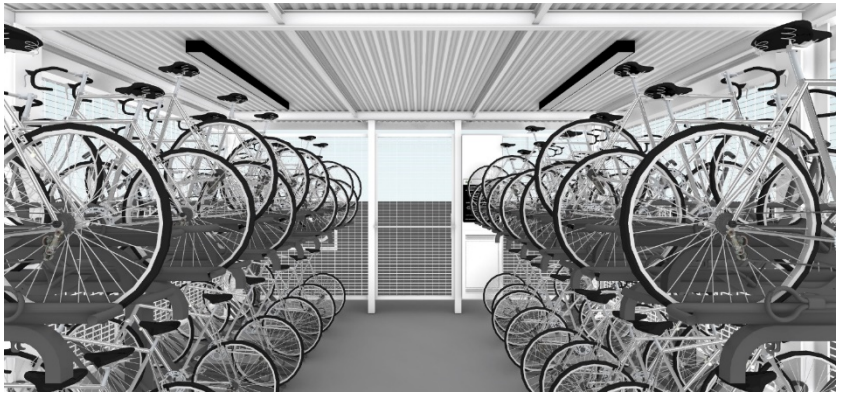


Figure 3.3

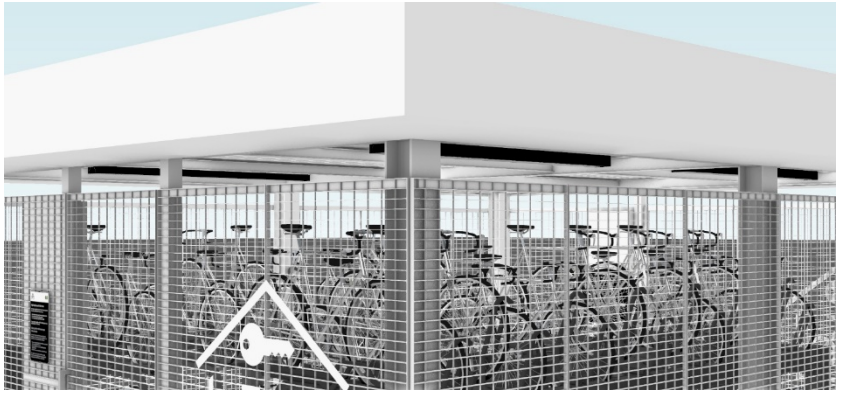


Figure 3.4

5.3. Solution C: All Facades E4

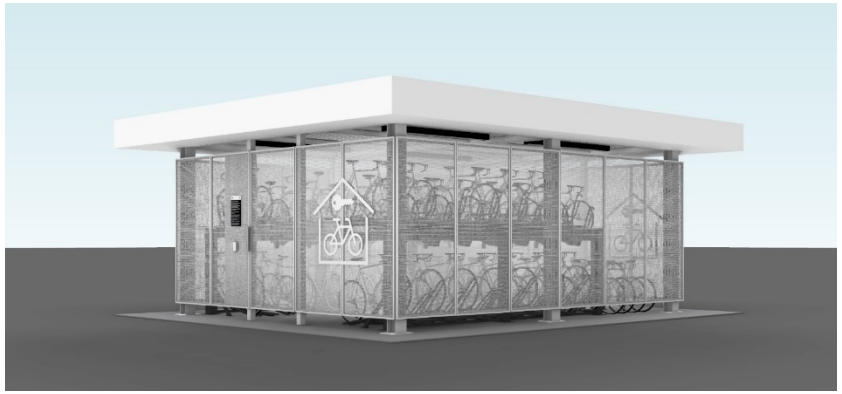


Figure 4.1

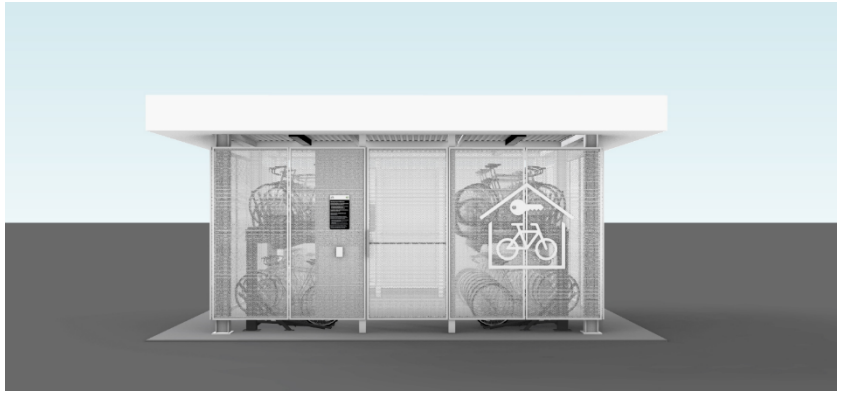


Figure 4.2

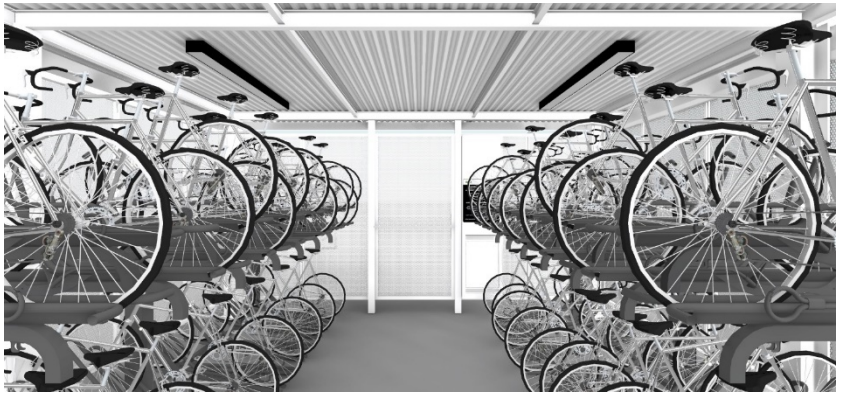


Figure 4.3

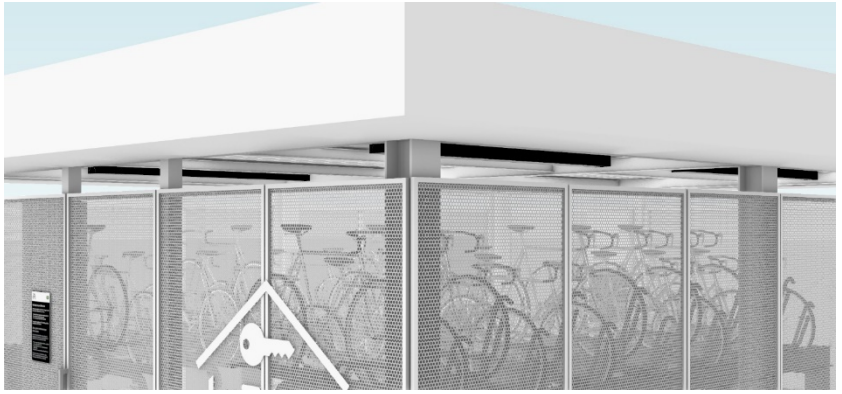


Figure 4.4

5.4. Solution D: Long Side Facades E1, Short Side Facades E2

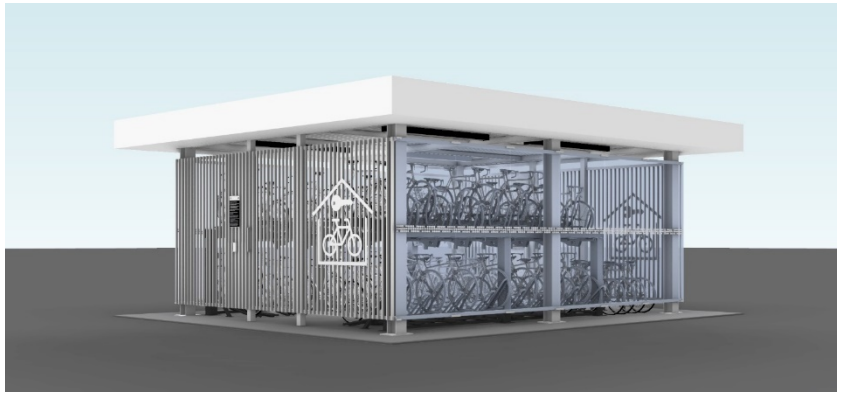


Figure 5.1

Figure 5.2

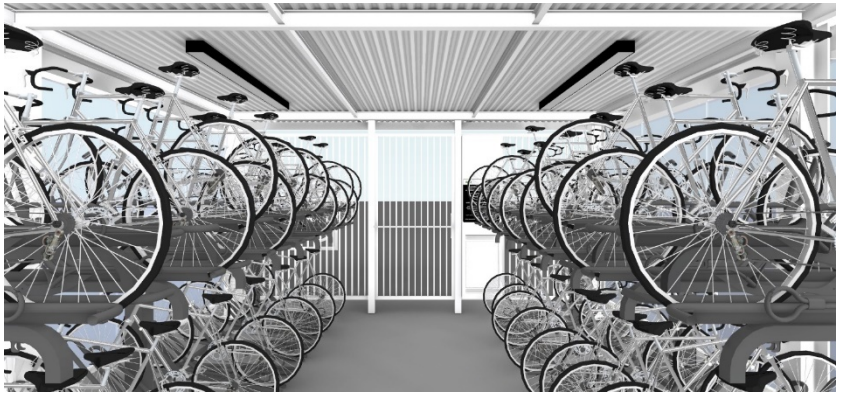


Figure 5.3

Figure 5.4

5.5. Solution E: Long Side Facades E1, Short Side Facades E3

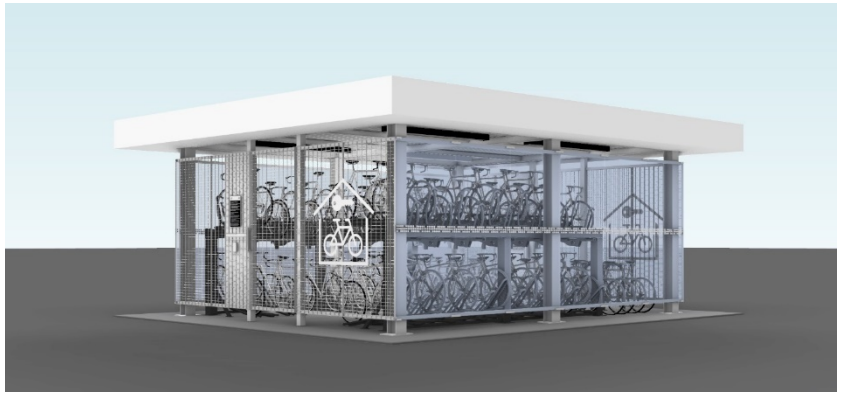


Figure 6.1

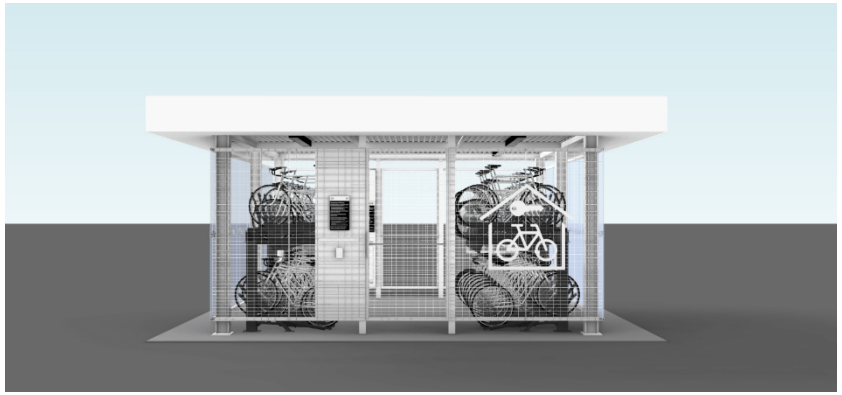


Figure 6.2

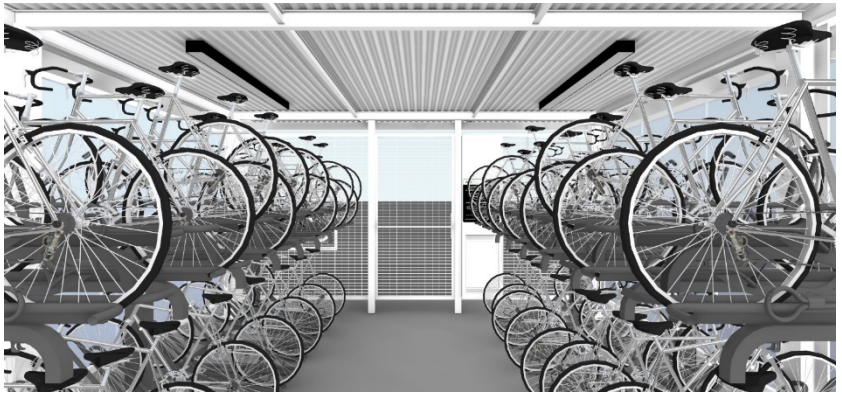


Figure 6.3

Figure 6.4

5.6. Solution F: Long Side Facades E1, Short Side Facades E4

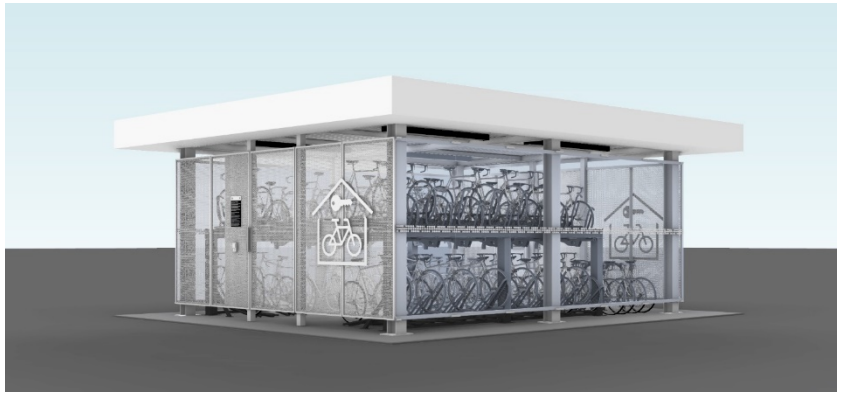


Figure 7.1

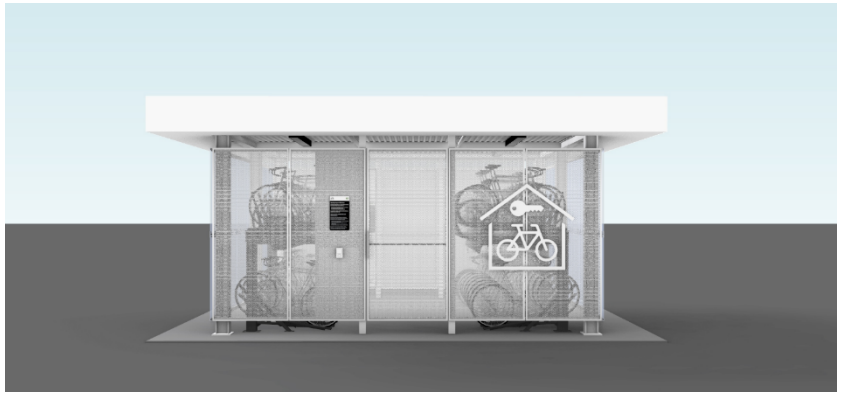


Figure 7.2

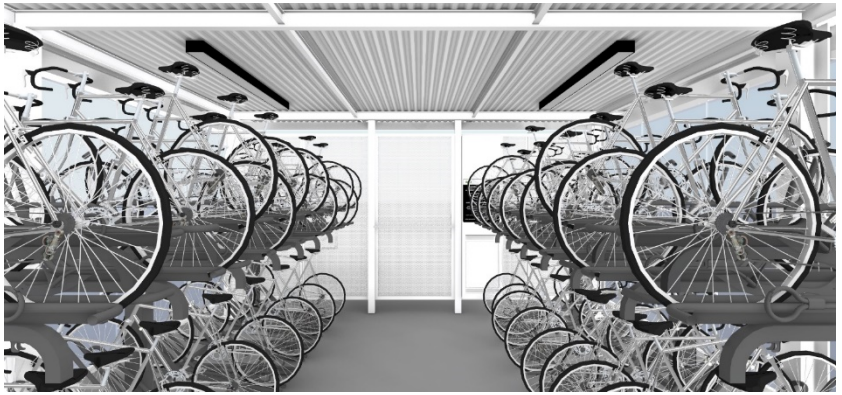


Figure 7.3

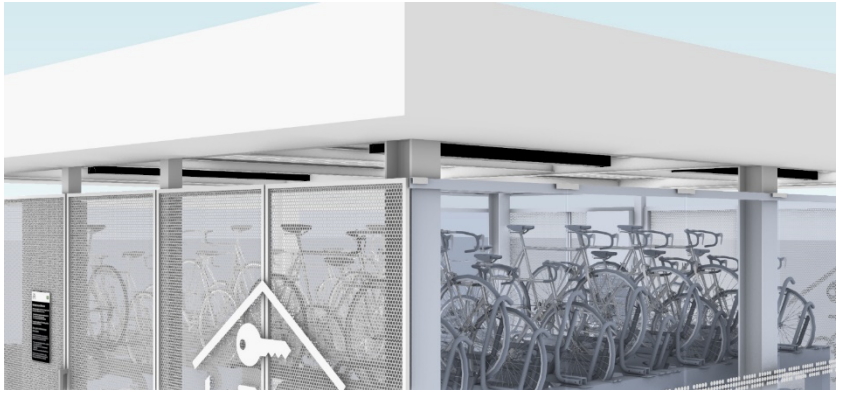


Figure 7.4

6 INTEGRATED SECURE BIKE ROOM

The integrated bike room design shall be compliant with the requirement for the DS-04 GO Station Architecture Design Standard. For bike rooms located at subway stations, DS-09 Subway Station Architecture Design Standard shall apply. Where located at Light Rail Transit stations, refer to DS-13 LRT Architecture Design Standard. Examples of the implementation of integrated bike rooms in the parking lots are presented below. Other scenarios of secure bike room building integration are to be reviewed and approved by Mx.

Figure 8: Referential GO station entry design taken from Metrolinx DS-04 Design Standard.

Examples of Integrated bike room applications in parking areas.

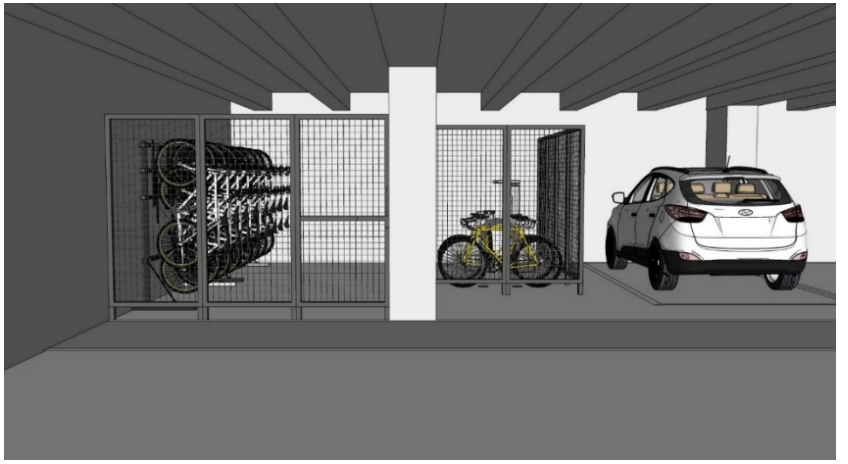


Figure 9.1

Figure 9.2

7 STANDALONE COVERED BIKE SHELTER RENDERINGS

7.1 Covered Bike Shelter (E2 Bars)

Racks and sizes are shown for demonstration purposes only.

Figure 10.1

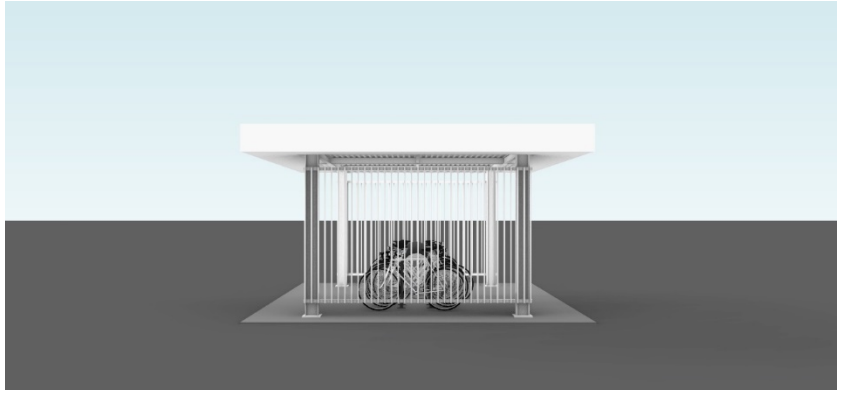


Figure 10.2

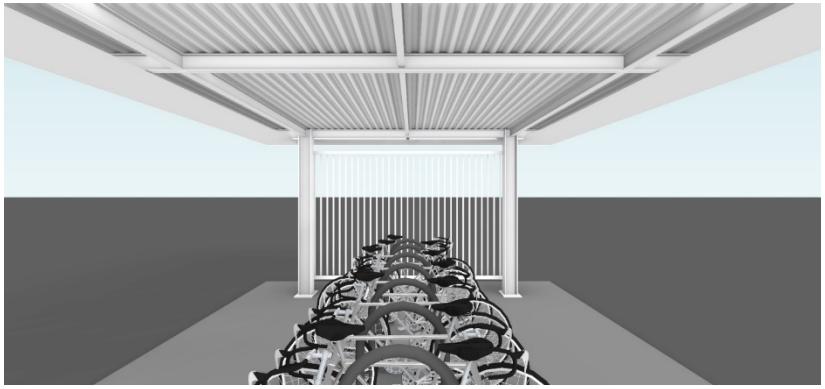


Figure 10.3

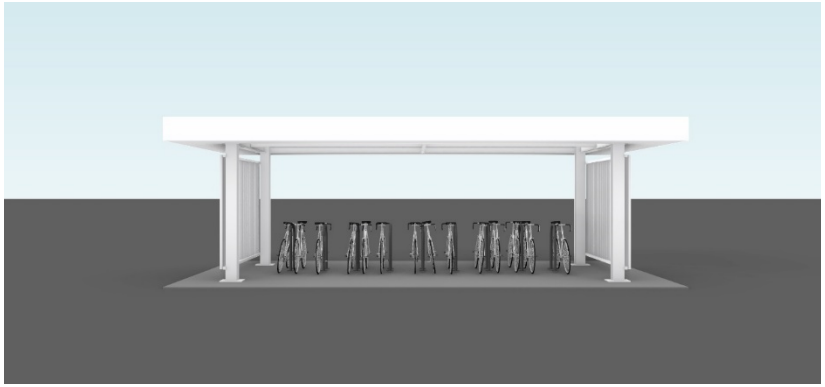


Figure 10.4

7.2 Covered Bike Shelter (E1 Glass)

Racks and sizes are shown for demonstration purposes only.

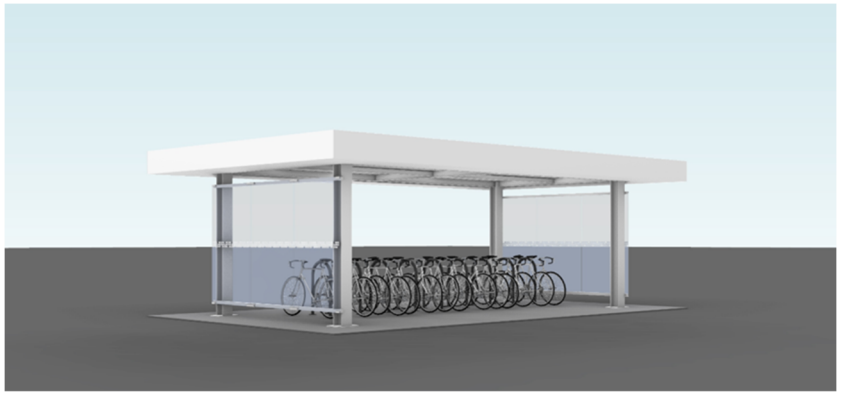


Figure 11.1

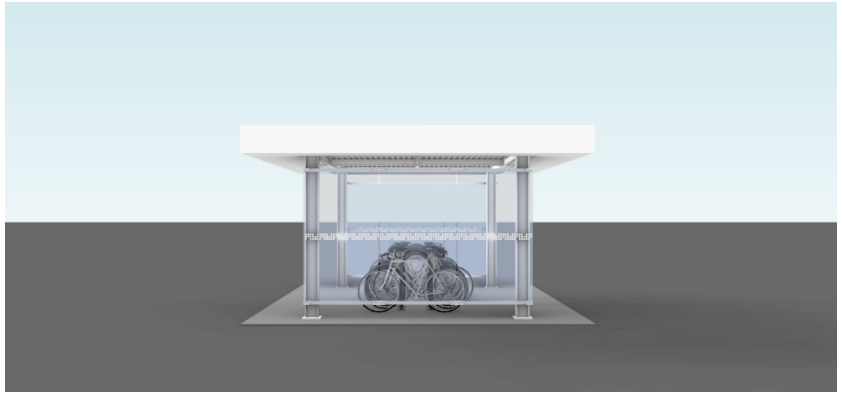


Figure 11.2

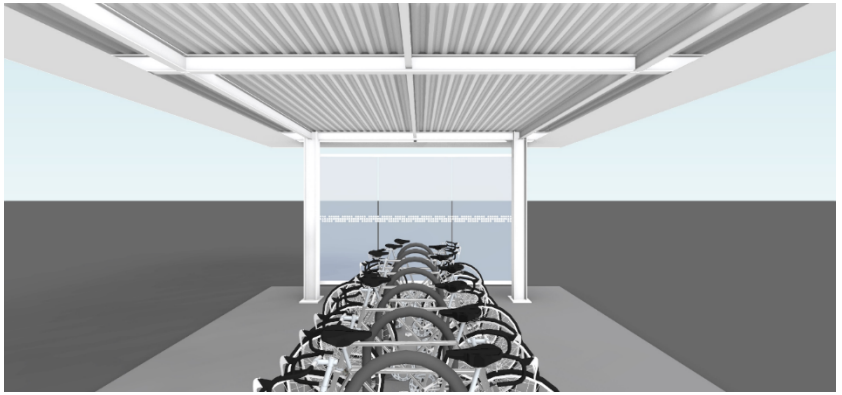


Figure 11.3

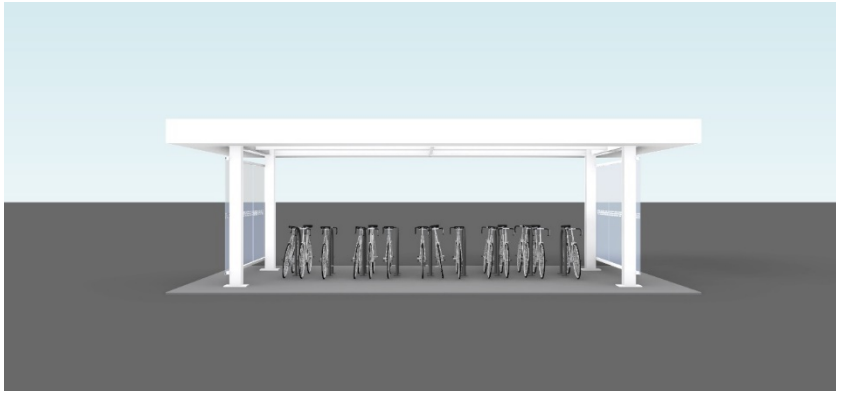


Figure 11.4

8 SECURE BIKE ROOM SIGNAGE REQUIREMENTS

Note: All signage and text paintings shall be aligned with the Metrolinx DS-03, Wayfinding Design Standard.

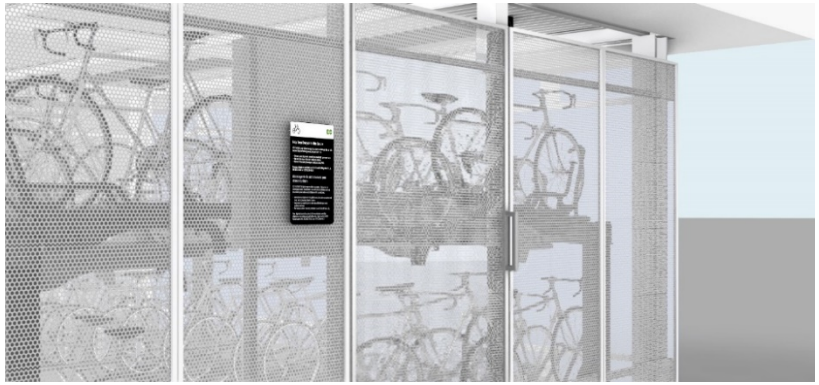


Figure 12

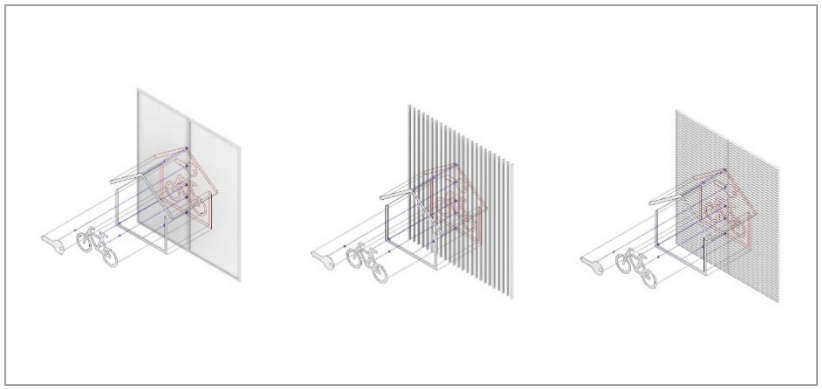
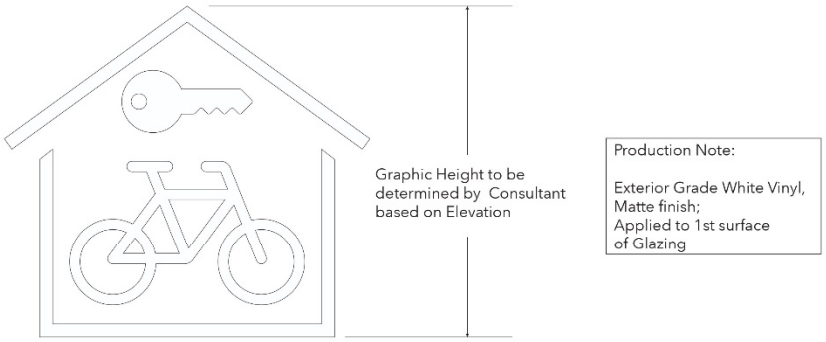


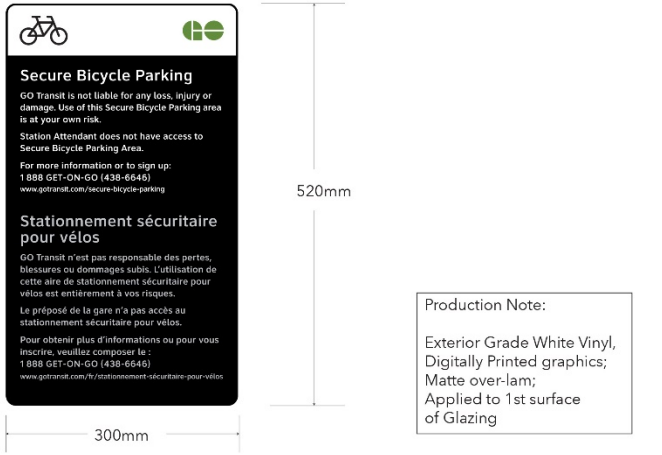
Figure 13

Design of signage shall be coordinated with the MX Wayfinding team. Where vinyl graphics are unable to be applied to the shelter cladding material, such as the prefinished steel flat bars and prefinished open steel grating panels, fabrication of extruded graphics shall be CNC-routed out of a robust material and mechanically fastened at multiple points to secure the graphic to the shelter. Vinyl graphics are to be applied on materials as per Wayfinding requirements.

SECURE BIKE SHELTER/PARKING - SIGNAGE

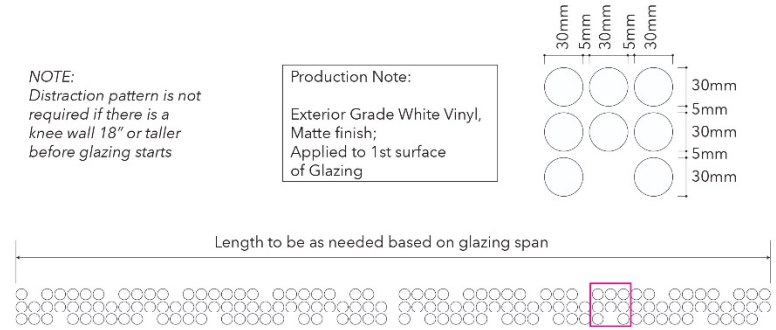


1 Vinyl Decal Supergraphic ID - Detail View
Drawing: NTS

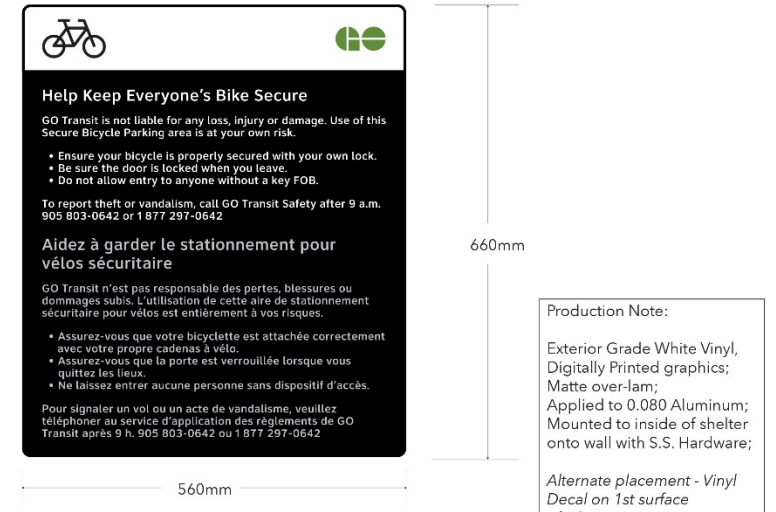


3 Vinyl Decal Information (Exterior) - Detail View
Drawing: NTS

NOTE: SIGNAGE SERVICES HAS VECTOR ARTWORK OF EACH SIGN



2 Vinyl Distraction Pattern - Detail View
Drawing: NTS



4 Information (Interior - Panel or Decal) - Detail View
Drawing: NTS

French Translations have been vetted *Drawing: NTS*

Figure 14

Exterior Signage
300mm x 520mm

Interior Signage
560mm x 660mm

Figure 15

9 PROPOSED LOCATIONS FOR ELECTRICAL AND COMMUNICATION CABINETS

Racks and bikes are shown for demonstration purposes only.

Figure 16.1

Figure 16.2

Figure 16.3

10 REFERENCE DOCUMENTS

Universal Design Standard	DS-02 Universal Design Standard
Wayfinding Design Standard	DS-03 Wayfinding Design Standard Part 1: Wayfinding Design Standard Part 2a: Sign Implementation Manual - GO Transit Edition Part 2b: Sign Implementation Manual – LRT/Subway Edition DSB-003 Train Spotting Marker Signs (Amendment Notice)
GO Station Architecture Design Standard	DS-04 GO Station Architecture Design Standard
Sustainable Design Standard	DS-05 Sustainable Design Standard
Subway Station Architecture Design Standard	DS-09 Subway Station Architecture Design Standard
Light Rail Transit Architecture Design Standard	DS-13 Light Rail Transit (LRT) Architecture Design Standard
Bus Rapid Transit Architecture Design Standard	DS-27 Bus Rapid Transit (BRT) Architecture Design Standard
Operations and Maintenance Requirements Station Services	DS-10 (Pending) STS-001 Bulletin Operations and Maintenance Requirements Station Services
Sign Implementation	Part 2b: Sign Implementation Manual - LRT/Subway Edition
Metrolinx Engineering Standards	Engineering Standards
Ontario Building Code	Ontario Building Code. Chapter 7.
Ontario Building Code Supplementary Standard	Ontario Building Code Supplementary Standard
Ontario Electrical Code	Ontario Electrical Code
Ontario Electrical Safety Code	Ontario Electrical Safety Code
Electrification Standards	Electrification Standards
Ontario Fire Code	Ontario Fire Code
Fire Life Safety and Fire Protection	TTC DM-0401-01 General Criteria – Principles
Fire Life Safety and Fire Protection	TTC DM-0102-02 - Fire Life Safety - Station Facilities

Geometric design	(TAC) Geometric Design Guide for Canadian Roads, Chapter 5 – Bicycle Integrated Design,
Traffic Control Guidelines	TAC Bikeway Traffic Control Guidelines for Canada, or revised equivalent, latest version.
	Metrolinx Hardware Specifications.
	PRESTO requirements -electrical room requirement – Section F DRM
	GO Rail Station Access 2023
	Essentials of Bike Parking (2015) guideline,
Operations & Maintenance Bulletin	Engineering Bulletin - Operations and Maintenance Requirements – Station Services
	Crime Prevention Through Environmental Design (CPTED) principles
	Enabling Works Electrification Standards and Specifications
	Go Design Requirement Manual

It is the responsibility of the project designer to ensure current standards are utilized for all Metrolinx and third-party reference standards.