

**CITY OF TUCSON
DEVELOPMENT STANDARD NO. 2-09.0
BICYCLE PARKING FACILITY DESIGN REQUIREMENTS**

BICYCLE PARKING FACILITY DESIGN REQUIREMENTS

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2-09.0.0 BICYCLE PARKING FACILITY DESIGN REQUIREMENTS

2-09.1.0 GENERAL.

- 1.1 Purpose. The purpose of this Development Standard is: 1) to carry out the purpose of Sec. 3.3.0, Motor Vehicle and Bicycle Parking Requirements, of the City of Tucson *Land Use Code (LUC)* which is to provide reasonable requirements for off-street parking for vehicles and bicycles, and 2) to provide design guidelines for bicycle facilities in accordance with regulations listed in the City of Tucson *LUC*.
- 1.2 Application. This Standard will apply when required by the City of Tucson *LUC* or when mandated by regulations enforceable by the City.
- 1.3 Definitions. Definitions for words used in this Standard are found in Sec. 6.2.0 of the *LUC* or the Development Standards Glossary.

2-09.2.0 FACILITY SERVICE LEVELS.

- 2.1 Minimum Requirements. The minimum requirements for classes of bicycle parking facilities required by Sec. 3.3.4 of the *LUC* are described below.
- 2.2 Class 1- Long -Term Bicycle Parking. The covered, secured bicycle parking facility protects against direct sunlight and theft of the entire bicycle and of its components and accessories by the use of:
 - 1. Bicycle lockers;
 - 2. Check-in facilities;
 - 3. Monitored parking;

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4. Restricted access parking; or
5. Other means which provide the level of security as approved by the City of Tucson Development Services Department (DSD) Director.

(Examples of desirable Class 1 bike parking are shown in *Figure 1*.)

2.3 Class 2- Short-Term Bicycle Parking.

The facility provides a stationary object to which the operator can lock the bicycle (refer to Sec. 2-09.5.3 and Figures 2 and 3). Short-term bicycle parking must provide a secure, two-point support system that supports the bicycle and allows the user to securely lock the frame and wheels. Short-term bicycle parking must also not have sharp edges that can be hazardous to pedestrians, particularly persons with visual disabilities. Artistic bike parking is acceptable provided it has two points of support, does not have sharp edges, and meets siting criteria described in Sec. 2-09.4.0.

Acceptable racks include “inverted U”, “A”, “H”, and “M” racks, post and loop racks, artistic racks, and others. Bicycle parking facilities can provide for paired parking using a single rack anchored in concrete. Multiple rack bicycle parking generally consists of two to four racks connected together as one larger unit that accommodates four to eight bicycles. Racks are designed to accommodate two bicycles, with one bicycle placed on each side of the rack.

Examples of desirable Class 2 bike parking are shown in Figures 2 and 3. Examples of undesirable bike parking that do not provide two-point support or have other undesirable characteristics are shown in Figures 4 through 7.

2-09.3.0 ACCESS TO BICYCLE PARKING FACILITY.

- 3.1 Bike Lanes. Access from a public right-of-way to on-site bicycle facilities will be provided.
- 3.2 Pedestrian Sidewalks. The bicycle access through the development will be separate from pedestrian ways. Vehicular access may be used as bicycle access. Bicycle access to a parking facility may cross a pedestrian way at a right angle.

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2-09.4.0 PARKING LOCATION. All required Class 1 and Class 2 bicycle parking facilities will be located on site with access both to the public right-of-way and with pedestrian access to the main entrance of the principal use. Employee bicycle facilities may be separated from patron bicycle facilities.

- 4.1 Proximity to Main Entrances. Class 2 bicycle parking facilities will be located no more than 50 feet from the main building entrance(s) and will be along the front side of the building as well as along other sides of the building that have entrances (see Figure 8). Bicycle parking must not obstruct the approved pedestrian access.
- 4.2 Employee Parking. Class 1 bicycle parking facilities will be located as reasonably as possible for the convenience of the employee.
- 4.3 Separation from Automobile Parking. Bicycle parking facilities will be separated from vehicular parking and drive areas by a barrier or sufficient distance to prevent damage to the parked bicycles.
- 4.4 Visibility. Class 2 bicycle parking facilities will be clearly visible from the adjacent sidewalks, drives, and the main entrance(s)

2-09.5.0 BICYCLE PARKING LAYOUT AND SECURITY MEASURES. The following design criteria apply primarily to Class 2 facilities. Class 1 facilities, because of the additional security level, may not be subject to all of the parking layout design requirements. Class 1 facility layout is determined on a case-by-case review.

The design of a bicycle parking facility will ensure that required bicycle supports are designed so that bicycles may be securely locked to them without undue inconvenience. Each required bicycle parking space will be accessible without moving another bicycle.

- 5.1 **Bicycle Parking Space Dimensions.** Bicycle parking facilities typically provide for row parking with a rack or for paired parking using a center inverted U rack or similar rack as the anchor. Examples of inverted U-racks, A-racks, and post and loop racks are shown in Figures 2 and 3.
 - A. Multiple rack bicycle parking or single posts or racks placed in a row will allow a minimum seventy-two (72) inch length per bicycle parking space and a minimum thirty (30) inches between outer spaces of posts or racks. (Figure 9).
 - B. A minimum of thirty-six (36) inches will be provided between a bicycle parking space and a perpendicular wall or other obstruction measured

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from the end of the bicycle rack to the perpendicular wall. A minimum of thirty (30) inches will be provided between a bicycle parking space and a parallel wall or other obstruction as measured from the side of the bicycle rack to the parallel wall (Figure 9).

- 5.2 Aisle Width. A five (5) foot wide access aisle measured from the front or rear of the seventy-two (72) inch long parking space will be provided beside each row or between two (2) rows of bicycle parking. (Figure 9) In high traffic areas where many users park or retrieve bikes at the same time, such as at schools or colleges, the recommended minimum aisle width is 72 inches.
- 5.3 Anchoring and Locks. The bicycle supports will accommodate:
- A. Locking the frame and both wheels to the support with a U-shaped shackle lock if the front wheel is removed.
 - B. Locking the frame and one (1) wheel to the support with a U-shaped lock if both wheels are left on the bicycle.
 - C. Locking the frame and both wheels to the rack with a chain or cable not longer than six (6) feet without removal of the front wheel.
 - D. Bicycle racks and posts must be securely anchored in concrete.
- 5.4 Lighting. Lighting will be provided in a bicycle parking area such that all facilities are thoroughly illuminated and visible from adjacent sidewalks, or parking lots or buildings, during hours of use.
- 5.5 Covering for Class 1 Parking. Covering for Class 1 bicycle parking facilities may include any durable material that provides shade protection.
- 5.6 Parking Area Delineation. Areas set aside for bicycle parking must be clearly marked and reserved for bicycle parking only. The parking area will be delineated by striping, curbing, or by other equivalent method. Bicycle parking locations near roadways, parking lots or drives must be protected from damage by motor vehicles by use of bollards, curbs, concrete planters, landscape buffers, or other suitable barrier devices.

2-09.6.0 FACILITY MAINTENANCE. All bicycle parking facilities will be maintained in a manner that accommodates the use for which they are required.

- 6.1 Maintenance. Bicycle parking facilities will be maintained in good condition and kept clear of debris or other accumulated refuse.

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- 6.2 Surface of Outdoor Parking. The surface of an outdoor parking facility may be surfaced in the same manner as the motor vehicle parking area or with a minimum of one (1) inch thickness of one-fourth (1/4) inch aggregate material. This surface will be maintained in a smooth, durable, and well-drained condition.

2-09.7.0 MODIFICATIONS AND APPEALS.

7.1 Modifications.

- A. New Development. A modification to the requirements of this Standard may be requested of the Community Design Review Committee (CDRC) provided the modification is found to be justified and consistent with the intent and purpose of this Standard.

The CDRC review and decision will be as per Administrative Directive 1.02-9, included as part of the Development Standards Book as Standard 1-01.0.

- B. Existing Development. Existing Development that is required to be brought up to current code may request a modification from the City of Tucson Bicycle and Pedestrian Program Coordinator, if it can be shown that there is no practical way to meet these Standards. The requested modification may be forwarded to the Bicycle Advisory Committee (BAC) for review and recommendation at the discretion of the Bicycle and Pedestrian Program Coordinator.

- 7.2 Appeals. Appeals to decisions made by the CDRC under this Standard are to the Zoning Examiner. The process of appeals will follow the format established in Sec. 5.4.4.1 of the *LUC*.

2-09.8.0 LIST OF FIGURES

- Figure 1 - Acceptable Bike Locker Designs
- Figure 2 - Acceptable Bike Rack Designs with Two Point Support
- Figure 3 - Acceptable Bike Rack Designs with Two Point Support and Artistic Rack Designs
- Figure 4 - Unacceptable Bike Rack Designs with Single Point Support
- Figure 5 - Unacceptable Bike Rack Designs that Poorly Accommodate Bikes
- Figure 6 - Unacceptable Bike Rack Designs that are Hazardous to Pedestrians
- Figure 7 - Unacceptable Bike Rack Designs that Offer Insufficient Security for Bikes
- Figure 8 - Required Bike Parking Location
- Figure 9 - Required Bike Parking Space Dimensions

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Lockers that properly secure bicycles.

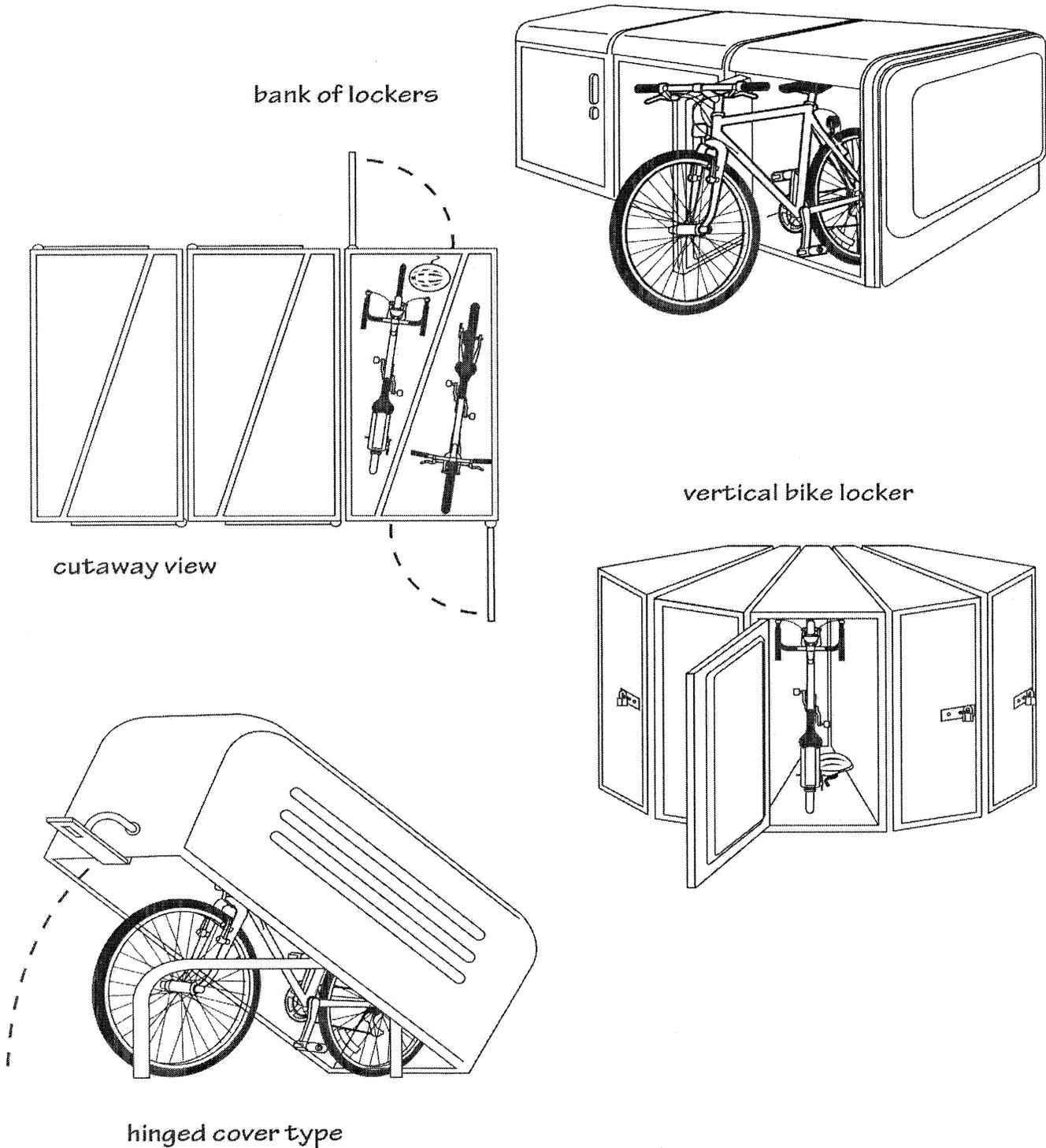


FIGURE 1 – ACCEPTABLE BIKE LOCKER DESIGN

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Racks that properly support bicycles.

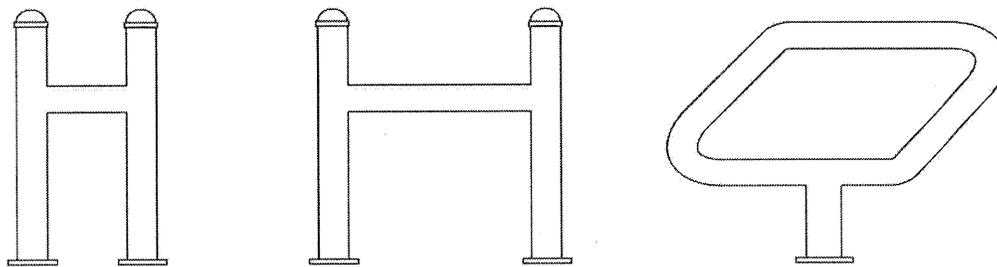
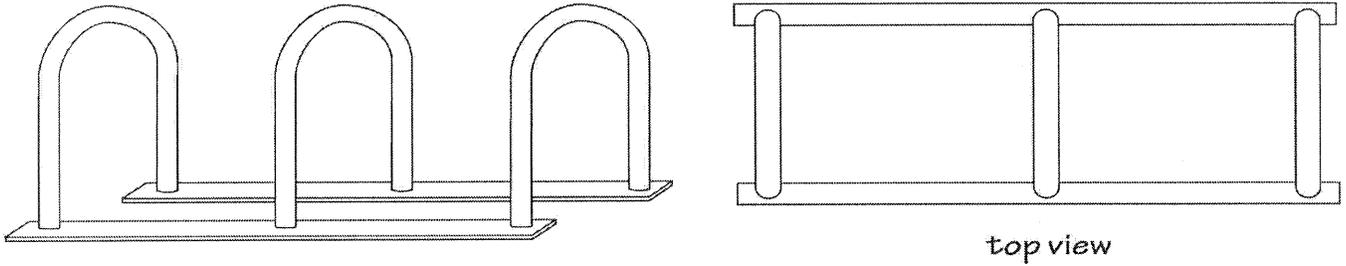


Good designs with two-point, 'flat panel' support. These allow for easy access and locking of frame and two wheels. These designs present no sharp edges to pedestrians.

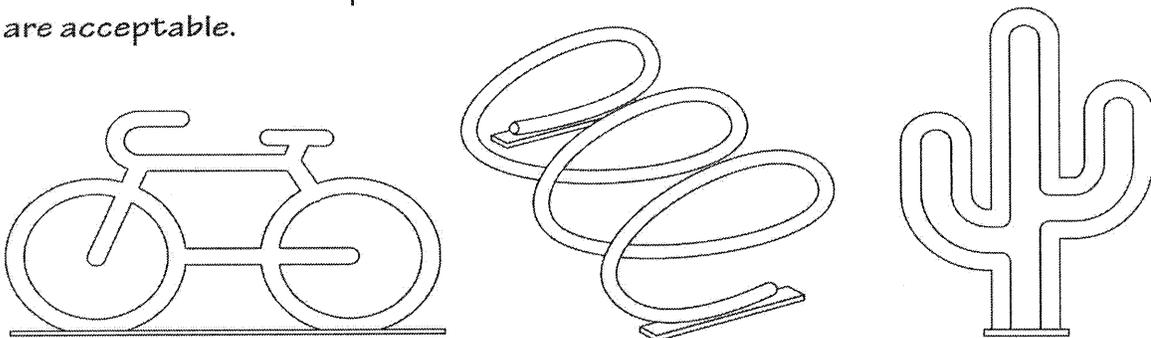
FIGURE 2 – ACCEPTABLE BIKE RACK DESIGNS WITH TWO POINT SUPPORT

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Racks that properly support bicycles.



Artistic designs that provide two-point support and do not have sharp edges are acceptable.

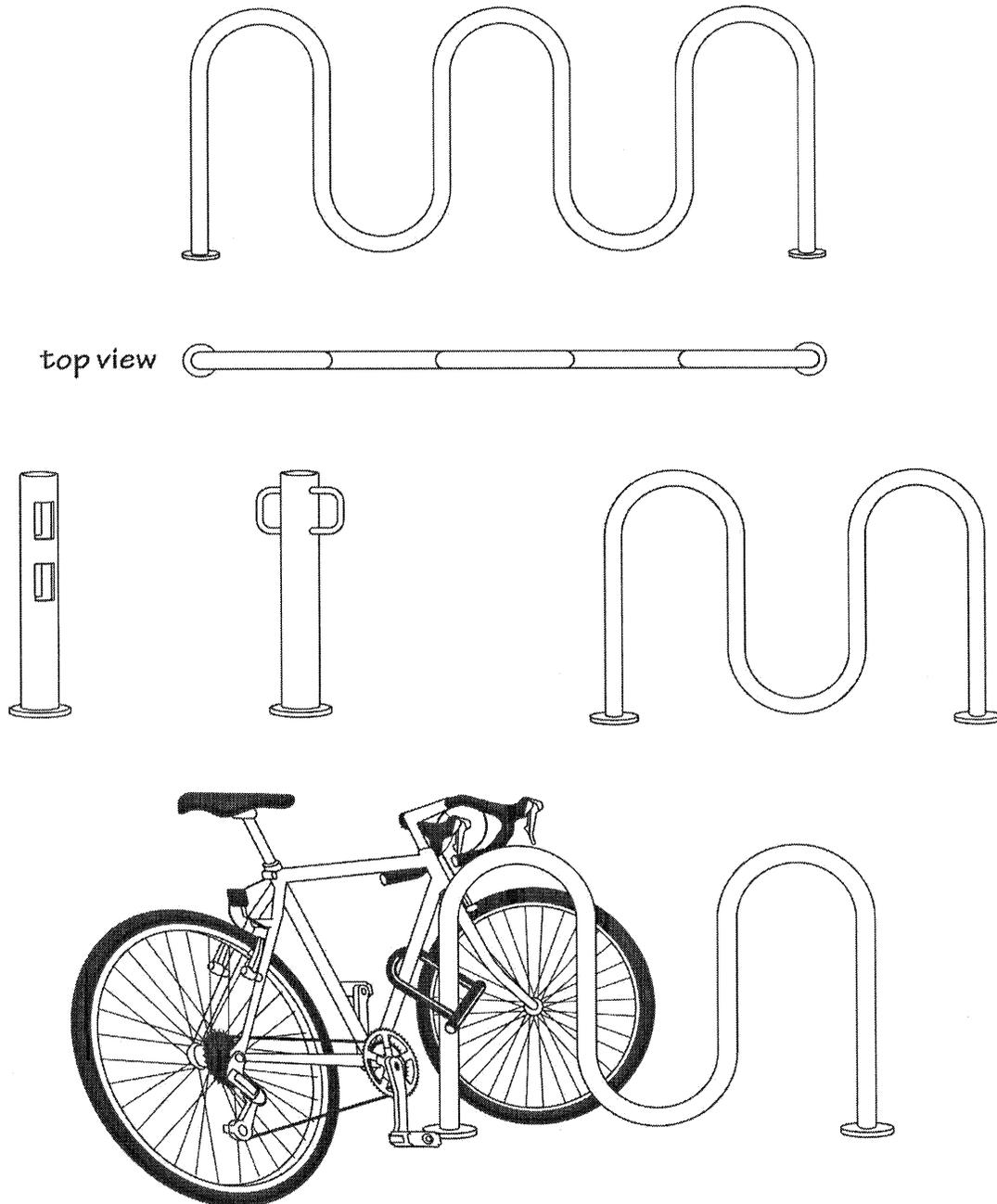


Good designs with two-point, 'flat panel' support. These allow for easy access and locking of frame and two wheels. These designs present no sharp edges to pedestrians.

FIGURE 3 – ACCEPTABLE BIKE RACK DESIGN WITH TWO POINT SUPPORT AND ARTISTIC BIKE RACK DESIGNS

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Racks that don't properly support bicycles.

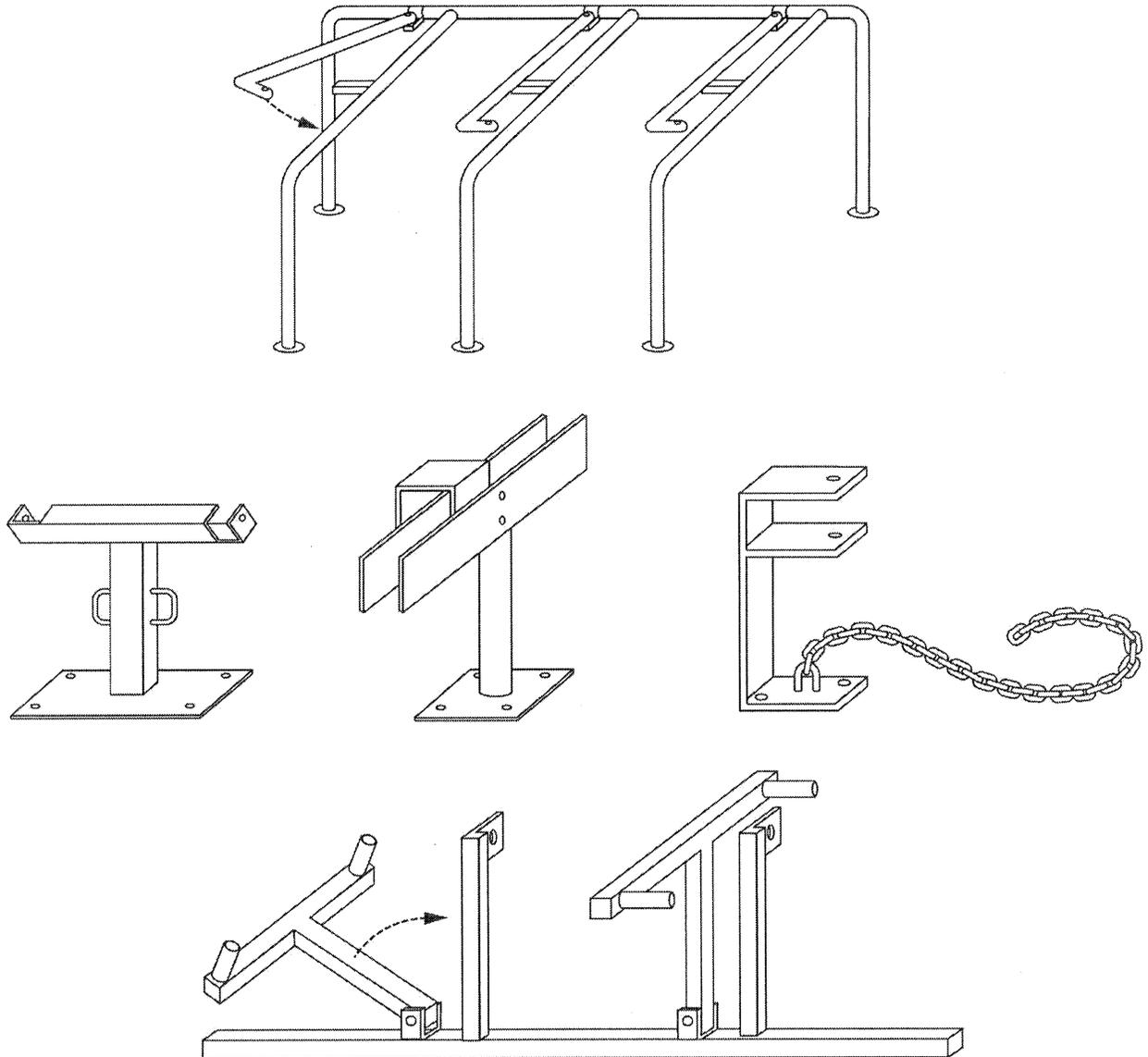


These designs don't provide two-point support for bicycles. Bicycles can fall over easily and damage the finish. Bicycles could also fall into pedestrian right-of-way. Single post designs with sharp edges can be hazardous to pedestrians with visual disabilities.

FIGURE 4 – UNACCEPTABLE BIKE RACK DESIGNS WITH SINGLE POINT SUPPORT

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Racks that poorly accommodate bicycles.

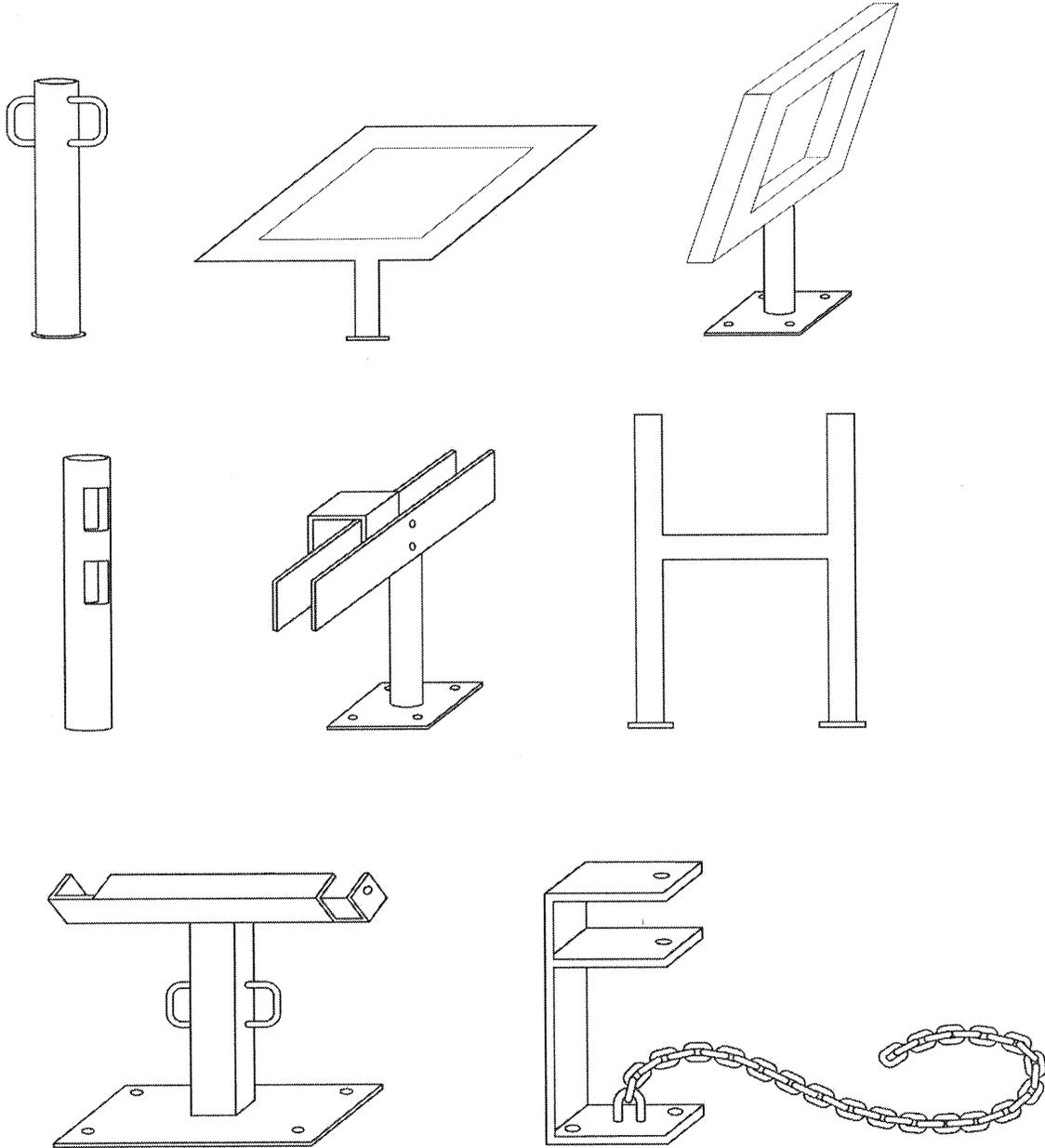


These designs are made to accommodate traditional 'double diamond' frames with small diameter steel tubes. They don't often fit modern bicycle designs, large diameter aluminum frame tubes or full suspension bicycles. These types of racks can cause paint and frame damage to bicycles and can be a hazard to persons with visual disabilities.

FIGURE 5 – UNACCEPTABLE BIKE RACK DESIGNS THAT POORLY ACCOMMODATE BICYCLES

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Rack designs that present hazards to pedestrians.

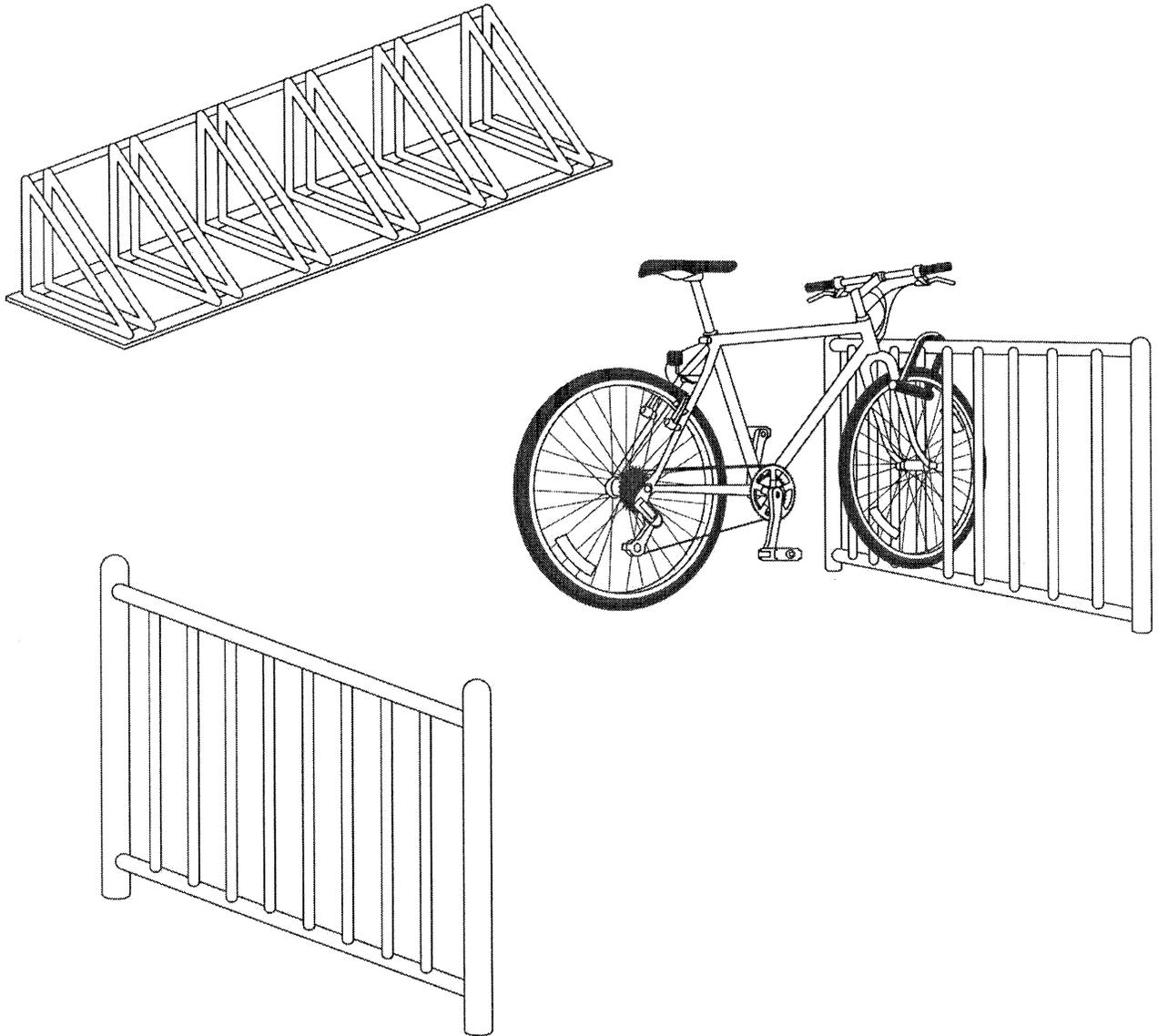


These designs present sharp edges and can be a hazard to pedestrians, especially persons with visual disabilities.

FIGURE 6 – UNACCEPTABLE BIKE RACK DESIGNS THAT ARE HAZARDOUS TO PEDESTRIANS

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Racks that permit bicycle theft and can cause wheel damage.



Obsolete designs that only allow for locking of one wheel when used as designed. These types of racks contribute to the problem of bicycle theft. Also, because the rack only supports one wheel, rims can be easily bent.

FIGURE 7 – UNACCEPTABLE BIKE RACK DESIGN THAT OFFERS INSUFFICIENT SECURITY FOR BICYCLES

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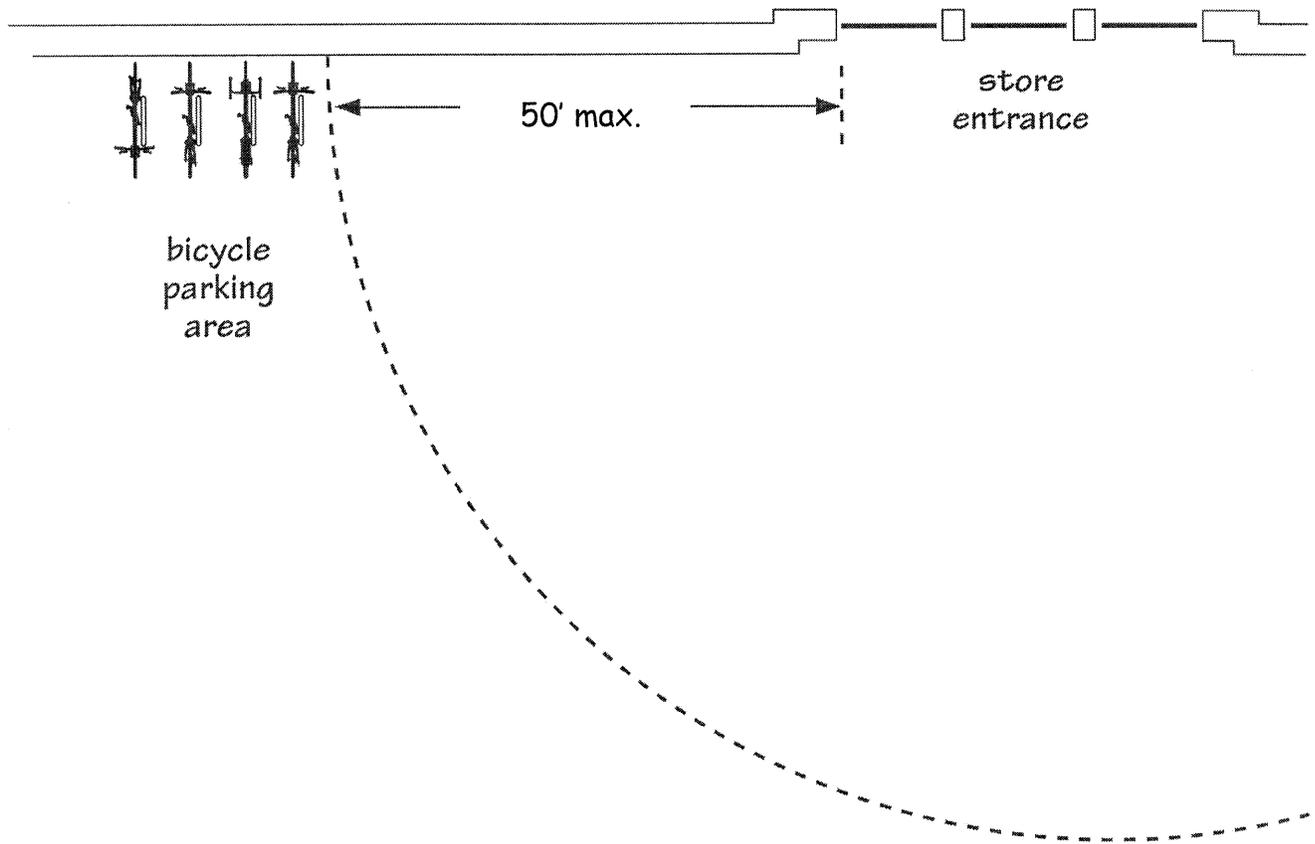
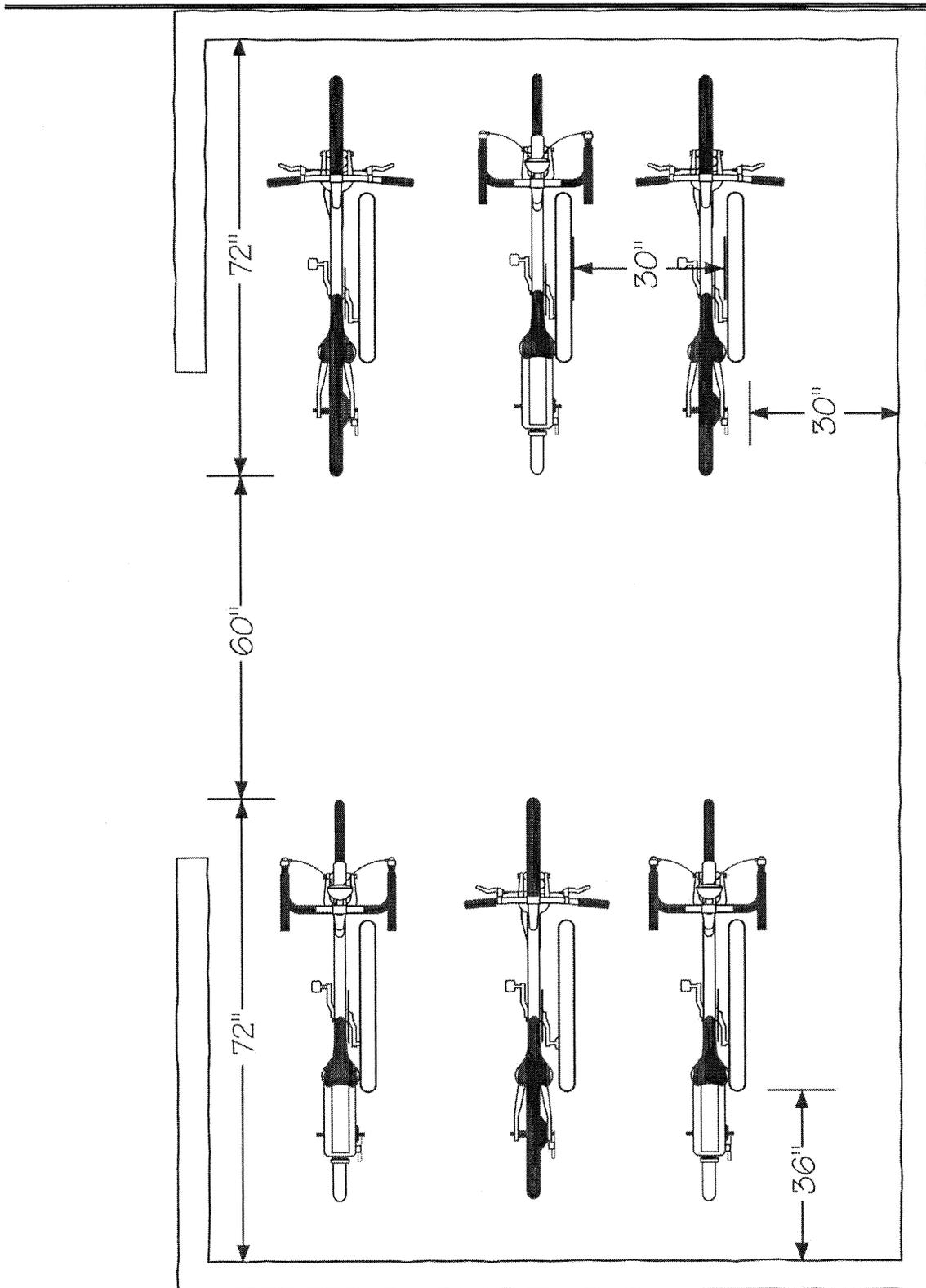


FIGURE 8 – REQUIRED BIKE PARKING LOCATION

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Minimum clearances for bicycle racks.

FIGURE 9 – REQUIRED BIKE PARKING SPACE DIMENSIONS