



**2.1 Pavements**

**2.1.1 Asphalt and Concrete Pavements**

**Description/Design Approach:**

The following pavement thicknesses are based on the subgrade being of good quality. Thickness of pavements over fills and other poor soils are to be investigated and pavement design revised accordingly if required.

<b>Pavement Type</b>	<b>Applications</b>
<p><b>Asphalt Pavement, Full Depth:</b></p> <p>4" Plant mix base course with 1½" fine surface mix topping course over 6" aggregate base. (Refer to Specification Section 02511)</p>	<p>Use in play yards, court yards, walks, car parking areas and access roads for car traffic.</p>
<p><b>Asphalt Topping over existing Asphalt Pavement:</b></p> <p>1" to 1½" fine surface mix placed over existing asphalt pavement. Scarify surface and provide reflective cracking membrane over all cracks and joints after filling them. (Refer to Specification Section 02511, 02521, and 03300)</p>	<p>Use for resurfacing existing pavement to extend life, with understanding that cracks will likely still go through the new surface course. Existing pavement must be determined to be in good condition to have chance for success. Use in play yards, court yards and walks</p>
<p><b>Asphalt Topping over Concrete Pavement:</b></p> <p>1" to 1½" fine surface mix placed over Portland cement concrete base. Provide reflective cracking membrane over all joints after filling joints. (Refer to Specification Section 02511, 02521, and 03300)</p>	<p>Use over existing or concrete paving for resurfacing, with understanding that joints, score lines, and cracks will likely still go through the new surface course. Use in play yards, court yards and walks.</p>
<p><b>Asphalt Pavement with Colored Athletic Wearing Surface:</b></p> <p>Wearing surface consisting of a combination of filler and finish coats of acrylic, rounded silica particles placed over full depth asphalt pavement (3" plant mix, 1" intermediate coarse, 1 to 1.5" surface mix, on 6" aggregate base or asphalt topping (Refer to Specification Section 02533)</p>	<p>Use on tennis courts. If placed on an existing resurfaced topping, use with understanding that cracks will likely still go through the new surface course.</p>

Requirement Applies to:    ✓    **New Construction**                                    ✓    **Major Modernizations**                                    ✓    **Capital Improvement Projects**



Pavement Type	Applications
<p><b>Asphalt Pavement with Child Safety Surface:</b></p>	<p>Use on early childhood play areas - under and around play equipment. Rubber mat shall be installed in play areas with minimum coverage extending 6'-0" beyond equipment. Play equipment shall be installed a minimum of 8'-0" from any adjoining walls or fencing with rubber mat extending to walls or fencing. See US Consumer Product Safety Commission "Handbook for Public Playground Safety". Latest edition available at <a href="http://www.cpsc.gov">www.cpsc.gov</a>.</p>
<p><b>Synthetic Turf with 1¾" thick resilient infill System:</b></p>	<p>Use on football, soccer, baseball, softball fields, etc., wherever synthetic turf is required. <b>(use for new construction and replacement of previously constructed 'vertical drain' systems)</b></p>
<p><b>Asphalt Pavement with Impervious Rubber Resilient Surface:</b></p>	<p>Use on running track, pole vault and high jump areas with surface drainage.</p>
<p><b>Concrete Pavement:</b></p>	<p>Use exposed in terraces, entrances, and walkways. Use in play areas only to match existing adjacent play surface. Use as a base for asphalt topping when needed to match an existing condition. Pavement is not to be colored.</p>
<p><b>Concrete Pavement:</b></p>	<p>Use exposed for handball courts. Joints are to be outside the playing surface of each court.</p>

Requirement Applies to:    ✓    New Construction                                    ✓    Major Modernizations                                    ✓    Capital Improvement Projects



Pavement Type	Applications
<p><b>Reinforced Concrete Pavement:</b></p> <p>A 7” to 8” Portland cement concrete slab reinforced with heavy mesh equivalent to #4@12”over 6” aggregate base. (Refer to Specification Section 02521 or 03300)</p>	<p>Use in sidewalk <b>driveways</b>, roadways, parking areas, service areas, and container pads subject to heavy vehicular traffic (such as garbage truck and food service) and where heavy loading is expected. Pavement is not to be colored</p>
<p><b>Unit Pavers on Roof or Plaza Decks:</b></p> <p>Brick or asphalt pavers on asphalt setting bed (Refer to Specification Section 02515)</p>	<p>Pavers are not to be used on grade. <b>For use in roof terraces, roof top play areas, and plaza decks of existing built-up roofs being redone where a PRMA configuration with fluid applied membrane is not feasible.</b></p>
<p><b>Unit Pavers on Roof or Plaza Decks:</b></p> <p>Concrete pavers on pedestal system</p>	<p>Use in plaza decks and roof top playgrounds of new schools <b>ad existing schools, where feasible. Depending on game activity, poured concrete roof top playground may need to be utilized.</b></p>
<p><b>Concrete Pavement and Curbs outside of Street Line:</b></p> <p>Portland cement concrete pavement and curbs of thickness and reinforcement required by NYCDOT. (Refer to Specification Section 02513.)</p>	<p>For use in all concrete sidewalks, pavements, pedestrian ramps, concrete curbs, steel faced concrete curbs, drop curbs and tree pits. Follow NYCDOT requirements.</p>
<p><b>Asphalt Pavement outside of Street Line:</b></p> <p>Plant mix base course with fine surface mix topping course of thickness required by NYCDOT. (Refer to Specification Section 02513.)</p>	<p>For use in all street paving. Follow NYCDOT requirements.</p>

Requirement Applies to:    ✓    New Construction                                    ✓    Major Modernizations                                    ✓    Capital Improvement Projects



Pavement Type	Applications
<p><b>Permeable Interlocking Concrete Paver System for Permeable Paving Areas adjacent to Tree Pits in Sidewalks:</b></p>	<p>For use in sidewalk permeable paving areas adjacent to and along the curb located in-between and adjacent to individual tree pits (see Design Requirement DR 2.5.1, Section B.1.a Planting Strips). Field of pavers is to be designed using a single color and a single paver type as the Basis of Design.</p>
<p>Interlocking concrete pavers with open joints over compacted, open-graded, crushed angular stone bedding, leveling and base courses, washed and free of fines, and structural soil base. (Refer to Specification Section 02513: Sidewalk and Street Paving and 02900: Landscaping, and standard details) A 1/4” thick x 6” height galvanized steel paver edging to provide a secure edge condition wherever the field of interlocking concrete pavers with open-joints abuts a non-rigid or unpaved condition, such as the edge of a tree pit.</p>	
<p><b>Permeable Interlocking Concrete Paver System for Permeable Paving Areas without Tree Pits in Sidewalks:</b></p>	<p>For use in sidewalk permeable paving areas adjacent to and along the curb where there are no tree pits (see Design Requirement DR 2.5.1, Section B.1.a Planting Strips). Field of pavers is to be designed using a single color and a single paver type as the Basis of Design.</p>
<p>Interlocking concrete pavers with open joints over compacted, open-graded, crushed angular stone base, washed and free of fines. (Refer to Specification Section 02513: Sidewalk and Street Paving, and standard details)</p>	

Requirement Applies to:    ✓    New Construction                                    ✓    Major Modernizations                                    ✓    Capital Improvement Projects



**2.2 Barriers**

**2.2.1 Fences, Gates and Railings**

**Description/Design Approach:**

Fences and gates are typically provided to delineate NYC Department of Education Property from other public and privately owned properties

Fence Type	Location
6' or 8' High Wrought Iron Picket Fence	<ul style="list-style-type: none"> <li>Use on property line fronting streets.</li> <li>Use on property lines with adjacent properties when school property is landscaped. See Chain Link Fencing for Play Areas.</li> </ul>
4' High Wrought Iron Picket Fence	<ul style="list-style-type: none"> <li>Use within property between heavy pedestrian traffic areas and planted areas. (Fence is not required between play areas and perimeter planting strips).</li> <li>May be used at early childhood playgrounds along street frontage.</li> </ul>
15' High Chain Link Fence	<ul style="list-style-type: none"> <li>Use on property line along adjacent properties and streets fronting play areas.</li> <li>Use to segregate Jointly Operated Playground (JOP) areas from school play yard. For JOPs and Parks Department properties, coordinate with Parks Department for required fence heights.</li> </ul>
8' or 10' high Chain Link Fence	<ul style="list-style-type: none"> <li>Use on property line along adjacent properties, and paved/planted areas.</li> <li>Use to segregate parking, containerization areas from school play yard. Chain link fence height shall match Parks Department fence heights.</li> </ul>
4' high Chain Link Fence	<ul style="list-style-type: none"> <li>Use to segregate early childhood play areas from the remainder of the school play yard.</li> </ul>
Chain link fence with 1" Mesh Fabric	<ul style="list-style-type: none"> <li>Use in areas of high risk of vandalism, on 8', 10' or 15' fences.</li> </ul>
3'-6" or 4' High "Bear Claw Fence"	<ul style="list-style-type: none"> <li>Use on top of low roofs in areas of high risk of vandalism.</li> </ul>

Railings	Location
1½" diameter	<ul style="list-style-type: none"> <li>For all exterior pipe railings including barrier rails, free standing end pipe railing.</li> </ul>
1¼"-1½" diameter	<ul style="list-style-type: none"> <li>Gripping surface for all exterior hand railing for steps and /or ramp against wall.</li> </ul>

Requirement Applies to:    ✓    New Construction                    ✓    Major Modernizations                    ✓    Capital Improvement Projects



**2.2 Barriers**

**2.2.2 Guards at Mechanical Equipment**

**Description/Design Approach:**

Where mechanical equipment that requires service is located within 10' (ten feet) of an open side of a walking surface and such open side is more than 30" above the grade below, 3'-6" high guards shall be provided per Section BC **1015.6** of the **2022** NYC Building Code. Such guard(s) shall extend not less than 30" beyond each end of equipment.



**2.0 Site Construction**

**2.3 Site Equipment**

**2.3.1 Roll-on-Roll-off Compactor/Container**

**Description/Design Approach:**

The Department of Sanitation (DSNY) requires the use of “Roll-on-Roll-off” compactor/containers (Ro-Ro’s) for trash storage and removal in large New School or Addition projects with student capacity in excess of 3,000 students. In some cases this may not be feasible due to the size of the site. A Refuse and Recycling Storage Room inside the school building is still to be provided for storage of recyclables.

**A. Basic Guidelines**

The following are basic guidelines per DSNY to forecast the amount of refuse (trash) generated and the required refuse storage capacity for a particular school.

DSNY currently uses a basic formula of 5.6 lbs. of refuse/recycling materials per student on a weekly basis. Of the total refuse/recycling generated, recyclable material is approximately 35%. The Ro-Ro’s required by DSNY hold approximately 30 cu. yd. of compacted trash, or the equivalent of 550 (55 gal.) bags of loose refuse weighing approximately 30,000, lbs.

Recycling is mandated for all schools. Recyclable materials such as paper/cardboard and metal/glass/plastics (and in some locations organics) will be stored in the school building until ready for DSNY curbside pick-up. A refuse and recycling storage room shall be provided in the building. Refer to DR 1.3.1.8.

**B. Components**

**1. Roll-on Roll-off Compactor/Container**

The Ro-Ro is a 30 cubic yard dumpster with an integral self-contained compactor unit, which is picked up, emptied and returned by DSNY trucks. The ROROC/C must be planned to be located and picked up/serviced from within school property lines.

When a Ro-Ro is required, the Design Manager and Design Project Manager, AEoR, Project Officer and DSNY Survey Officer will meet at the site with school officials (Principal & Custodian (if school has such designated personnel)). The number of Ro-Ro’s will be determined by the Design Architect and DSNY, based on the size of student population, type of refuse and number of weekly pickups.

Ro-Ro location, electrical power requirements, adjustments for truck access, modifications to street curbs and sidewalks, fencing and gates, school pavements and retaining walls, etc. will be established by the AEoR to comply with SCA and DSNY Standards.

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Requirement Applies to:	✓	New Construction	Major Modernizations	Capital Improvement Projects
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2. Site Requirements

Dropped curbs at street entrances are to be provided. School fences and gates shall be wide enough and openings raised as needed to provide proper clearances for trucks. Chain link fences and chain link gates shall be provided to enclose the Ro-Ro location.

3. Truck Access

Truck access must conform to DSNY requirements. Truck access requirements vary according to the width of the street and vicinity of existing obstructions such as utility poles, trees and hydrants. A narrow street (less than 75') would require a larger curb cut and a larger gate opening. The maximum curb cut being thirty feet (30') and the minimum curb cut being Fifteen feet (15'). In all instances, a minimum overhead clearance of fourteen feet six inches (14'-6") is necessary on the way to the service area. At the service area, as the Ro-Ro is pulled onto the flatbed, it is tilted up a maximum of twenty-five feet (25') above the ground. A concrete pad of 25' wide X 50' deep minimum must be provided at the container location.

The container pads and driveway leading to the container shall be an 8" thick reinforced concrete slab placed on 6" of compacted stone base and shall have a minimum strength of 3,500 psi with a maximum water to cement ratio of 0.40.

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Requirement Applies to:	✓	New Construction	Major Modernizations	Capital Improvement Projects
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## Section 2 Site Construction

### 2.3 Site Equipment

#### 2.3.2 Flag Poles

##### **Description / Design Approach:**

All school buildings shall have a flagpole. The flagpole may be installed at one of the following locations: (listed in order of preference.)

1. A vertical pole at street level in the vicinity of the main entrance to the building.
2. Diagonal pole on the face of the building above or adjacent to the main entrance to the building.
3. Vertical/Diagonal pole on a low setback roof or roof of the building such that it is visible from the street level when approaching the building.

The height of a vertical flagpole shall be determined based on the height of the building. The flagpole shall be a minimum of 20' high and a maximum of 60' high. Appropriate structural foundation shall be provided based on the manufacturer's recommendation for installation of the flagpole and the soil condition.

If the flagpole is attached to the exterior wall (outrigger wall mount), the flagpole may not be attached at an elevation lower than 15' above the ground or curb level. The flagpole may extend to 18' from the building but no farther than two feet from the curb line at street level. For installation on the building face and installation on the roof, the flagpole shall be safely secured to structural members of the building.

Easy accessibility to lower or mount the flag shall be considered during the design process via either a window or access door.

Non illuminated flags can be displayed only from sunrise to sunset. Unless directed otherwise, the designer is to provide illumination for the flag to allow display after dark. Illumination may be by pole top luminaire or a ground/wall mounted spot light.

For projects that have to comply with the NYC Green Schools Guide, the maximum initial illuminance value specified shall meet the requirements for the light pollution reduction credit.



The size of the flag shall be proportional to the flagpole size and the wind velocity anticipated. The minimum being 3' X 5' and the maximum being 9' X 15'. Typical Pole Heights and Typical Flag Sizes are tabulated below:

Pole Height	Flag Size	Pole Height	Flag Size	Pole Height	Flag Size
60'	9' x 15'	40'	6' x 10'	25'	4' x 6'
50'	8' x 12'	35'	5' x 9'-6"	20'	3' x 5'
45'	6' x 12'	30'	5' x 8'		

Notes:

- Flag lengths for poles for typical vertical poles are typically 1/3 the length of the pole.
- Flag lengths for poles for typical vertical poles where high wind velocity is anticipated are typically 1/4 the length of the pole.
- Flag lengths for poles mounted 45-degrees to the building's vertical surface are typically 3/8 to 1/2 the length of the pole.

Consultation with the State Historic Preservation Office will be required, if an existing building has been determined to be eligible for listing on the National Register of Historic Places.



**2.3 Site Equipment**

**2.3.3 Bicycle Facilities**

**Description/Design Approach:**

- A.** To promote fitness and health benefits and to support students and/or staff who seek to commute to school by bike, bicycle parking facilities shall be provided for school buildings **in the building interior to address zoning mandated enclosed parking and on the outside of the building, if outdoor space is available, to meet Credit L2.2 of the 2019 GSG and for the existing building population, space permitting.** Bicycle racks shall be used to provide such parking spaces.
- Parking facilities shall be provided for students above third grade, part-time and full-time staff and transient users (i.e., visitors).
- B.** The number of occupants shall be calculated as follows, with the intent that this will satisfy Green Schools Guide requirements for bicycle parking, which is based on LEED for Schools **v4:**
1. Student population shall be based on **the following:**
    - a. 'Adjusted' capacity listed in the Program of Requirements (POR) for typical classrooms above the third grade.
    - b. D75 classrooms – calculate number based on percentage of typical classrooms above third grade in relation to total number of typical classrooms
  2. Adult population shall be calculated as follows:
    - a. Full-time staff
      - 1) 2 adults for each UPK, 3K, Pre-Kindergarten (PK), Kindergarten and D75 classroom.
      - 2) 1 adult for every instructional room other than UPK, 3K, PK, Kindergarten and D75 classroom.
      - 3) 5 adults for the lobby
      - 4) 1 adult for every 100 Square Feet in each office and parent's room
      - 5) A number of school aides equal to 2.5% of the unadjusted Capacity in the POR
      - 6) Kitchen staff equal to 1.5% of the unadjusted Capacity in the POR
    - b. Part time staff: One Full-Time Equivalent (FTE) staff member for each 200 student occupants or part thereof.
    - c. Visitors: one FTE visitor for every 500 student occupants or part thereof.



**C. Bicycle Spaces to be provided**

1. The Population for calculating the number of bicycle spaces required shall be computed as follows:
  - a. New Building projects:
    - Total of student population **above 3<sup>rd</sup> grade**, full-time staff, and FTE for part time staff and visitors **of the new construction**.
  - b. Additions filed as an Alt 1 addition and additions filed as a new building:
    - **For GSG required covered bike parking, total of student capacity above 3<sup>rd</sup> grade, full-time staff, FTE for part time staff and visitors based on the addition only.**
    - **For non-covered bike parking if space is available, in addition to GSG required covered bike parking the total of student capacity above 3<sup>rd</sup>, full-time staff, FTE for part-time staff and visitors based of the existing building. This shall be a rough estimate as a POR is not available for the existing building.**
2. The **total** number of bicycle parking spaces required to be provided is 5% of the Population.
3. Accessible cycle storage

Where cycle storage is provided, accessible cycle storage shall be provided as per Section 1109.9.3 of the 2022 NYC Building Code.

- a. **Ten (10)** percent of cycle storage shall be for accessible cycles, minimum one.
- b. Minimum area for the accessible cycle storage shall be 86” long and 42” wide.
- c. Provide an accessible route to the accessible cycle storage area as per ICC/ANSI A117.1-2009.
- d. Provide turning space as per ICC/ANSI A117.1-2009 section 304.
- e. Provide clear floor space for a loading area on the long side of the accessible cycle storage as per ICC/ANSI A117.1-2009 section 305.

While not mandatory, it is preferable for accessible cycle storage spaces to be located on the shortest accessible route to the school's accessible entrance.

**D. Bicycle Parking Location**

1. Zoning-required bicycle storage spaces located in the building per DR 1.3.1.12 **shall** be counted towards the required number of bicycle parking spaces **to meet GSG requirements**.
2. The **outdoor** bicycle racks shall be located on a paved area within the site and securely anchored to the pavement. A paved walkway, a minimum of 36” wide, shall be provided between the bicycle rack area and the sidewalk.

Requirement Applies to:     New Construction                       Major Modernizations                       Capital Improvement Projects



**3. Rack types**

- a. **Covered racks:** Covered racks are required to meet the 2019 GSG requirements and the preferable option is to have the racks sheltered by a building overhang or building canopy. Rack(s) with an integrated canopy shall be provided when locating the racks under the building overhang or canopy is not feasible.
- b. **Non-covered racks:** Non-covered racks for the existing building population shall be located on a paved area.

4. Such bicycle racks shall not be located within fifteen feet of building entrances or exits.

**E. Shower Facilities**

A shower facility for bike users is required to meet the GSG Credit L2.2 requirement. The shower is to be accessed off the corridor. Refer to RPS 12-22. Provide additional shower(s) based on the GSG credit requirements if needed, to be accessed off the corridor.



**2.4 Site Structures**

**2.4.1 Retaining Walls and Curbs**

**Description/Design Approach:**

- A.** Retaining walls and curbs are to be typically cast-in-place concrete. The retaining walls shall be designed as per requirements of section BC **1807** of the **2022** NYC Building Code. Besides the wall thickness determined by design, walls and curbs are to have additional reinforcement at fence posts with the following minimum thickness to reduce number and width of cracks at the posts.
  - 1. Walls and curbs supporting chain-link fences are to have a minimum of 5" concrete clear at fence sleeves each side, typically providing a width of 1'-0" for fences 10'-0" high or less and 1'-4" for fences over 10'-0".
  - 2. Walls supporting iron fences 6'-0" or less are to have a minimum width of 1'-0".
- B.** Provide ¾" expansion joints every 40'-0" maximum, with joints within 10 feet of corners. Expansion joint layout is to be shown on the plans. Place expansion joints a minimum of 2'-3" away from the fence posts.
- C.** Provide drainage mat and weep holes (or perforated drainpipe **connected** to a stone dry well at lot line condition) behind the wall to prevent saturation of the backfill.
- D.** If retaining wall is a large element of the site, provide special formliners to provide an architectural finish.
- E.** The use of modular block masonry retaining wall systems, typically comprised of a reinforced earth system and interlocking loose laid decorative blocks such as the "Versa-lok" system, is to be investigated for each project during design.

Requirement Applies to:    ✓    New Construction                                    ✓    Major Modernizations                                    ✓    Capital Improvement Projects







- 5 feet from edge of pit to hydrants
- 2 feet from edge of pit to utilities
- 7 feet from tree driveway or curb cut

- 2) Where street tree planting to meet the zoning requirement is infeasible on the site because of the existing infrastructures such as bus stops, hydrants, traffic signs etc. or for historic districts if determined by Landmarks preservation commission, additional street trees are to be provided off site at alternative location(s) as selected by DPR.
2. For existing buildings where work includes sidewalk improvements and when the replacement work is equal to or greater than 50% of the total linear footage (parallel to curb) or 50% of the total sidewalk area along a street frontage is disturbed and is to be replaced:
- a. Planting strips in R1-R5 districts
    - Provide a planting strip with non-vegetated permeable paving system.0
  - b. Street Trees
    - 1) In all Districts
      - Existing trees shall remain and provide new street trees as described in subparagraph 1.b.
    - 2) R1-R5 Districts
      - Existing trees shall remain and shall be incorporated in the new planting strip(s). For sidewalks without street trees, new street trees as described in subparagraph 1.b shall be provided within the new planting strips.