

Schoolyard Design Guide

BOSTON SCHOOLYARD INITIATIVE



2. . . .	Table of Contents
3. . . .	Introduction
4. . . .	Play Structures
6. . . .	Surfaces
8. . . .	Painted Graphics
10. . .	Circulation and Fencing
12. . .	Landscaping
14. . .	Site Furniture
16. . .	Public Art
18. . .	Green practices
19. . .	Design Checklist
20. . .	Acknowledgements

About this Design Guide

This schoolyard design guide outlines concepts that the Boston Schoolyard Initiative has refined over the years. The community-based planning and design of BSI projects draws from the menu of components shown on the following pages. Existing site conditions are taken into consideration, along with the specific needs of each school and the surrounding neighborhood.

Each section highlights specific areas or elements that can be incorporated into a schoolyard renovation. Accompanying photos illustrate examples of these design concepts. The checklist at the end is a tool for reviewing final site plans.

We hope these ideas will inspire creative schoolyard projects in communities across the globe!



Schoolyard construction during summer when school is out



Ribbon cutting celebration with Mayor

About the Boston Schoolyard Initiative

By the mid-1990's, the state of Boston's public schoolyards was grim. Little more than barren, cracked asphalt lots, they featured minimal green space and few play structures. In order to revitalize these historically neglected spaces, the Boston Schoolyard Initiative (BSI) was founded in 1995. This innovative public-private partnership between the City of Boston, Boston Public Schools, and the Boston Schoolyard Funders Collaborative has transformed Boston's schoolyards into dynamic centers for recreation, learning and community life.

Boston Schoolyard Initiative projects cultivate significant public participation. Through a collaborative design process, landscape architects work with teachers, principals, parents, students, neighbors, community partners, and city officials to create each new schoolyard.



Schoolyard at Guild Elementary School, before renovation



After renovation



Higginson-Lewis K-8 School, schoolyard before renovation



After renovation

Description and Purpose

Play equipment is the traditional signature of a playground. It includes components designed to engage the whole body in a variety of ways - gross motor skills, coordination, balance, muscle and strength. It also provides an opportunity to stimulate social skills and collaboration as well as develop risk management skills.

Nature play can connect children with the natural world and can include “loose parts” to help promote imaginative play.

Game play areas containing chess/checker board tables, tic-tac-toe panels, etc., can allow for cognitive-based play.

Design Considerations

- ❖ When choosing a site layout consider the impact on neighbors and nearby classrooms (noise), site circulation (deliveries, buses, parking, fire lanes), safety (visibility and sight lines) and year-round temperature fluctuations (sun exposure).
- ❖ Consider number, age, and ability of users- both students and neighborhood children.
- ❖ Include equipment that allows for a range of activities such as sliding, climbing, jumping, crawling, rolling, twirling, twisting, balancing, and falling.
- ❖ Select components that will sustain interest and curiosity over time.
- ❖ Consider equipment that has potential to support teaching (use a slide to teach physics, a geodesic dome to teach geometry, etc.)

Illustrations



Natural elements to play on



Web on steel and plastic climbing structure

Illustrations



Natural “movable parts”



Geodesic dome play structure



Basketball hoop in schoolyard for student and community use



Seating and game table located near play equipment



Places for shared play and for make-believe



Low climbing wall



Climbing tube for wheelchair bound



Talking tube



Separate play structures for younger and older students



Exercise station for older students

Description and Purpose

There are a variety of schoolyard surface options depending on location and use. Material choices include asphalt, poured-in-place rubber, rubber tiles, pea gravel, compacted crushed stone, and fibar (cleaned and sized graded woodchips).

Resilient **safety surfacing** underneath play equipment is required by national and local regulations. Reference the Consumer Products Safety Commission's Public Playground Safety Handbook for further information.

Various surfaces can be incorporated into schoolyard designs to support particular use and behavior in specific areas. **Synthetic turf fields** can hold up better than grass in highly trafficked areas. **Wooden or plastic decking** can be used to create raised walkways, stages, or gathering areas. **Sand or dirt** can provide areas for digging. **Asphalt** is commonly found on schoolyards and can be transformed into areas for play, active recreation, and education with the addition of painted graphics.

Design Considerations

- ❖ Ensure that fall zones and other playground regulations are adhered to.
- ❖ Consider ease of maintenance, including cleaning and replacement.
- ❖ Use recycled materials where possible.
- ❖ Beware of toxicity associated with recycled tire rubber mulch.
- ❖ Sand areas should be protected from use as a litter box by stray animals.
- ❖ Incorporate colors and patterns into surfacing where possible.

Illustrations



Synthetic turf field



Poured-in-place rubber surface

Illustrations



Synthetic turf field (sized per youth soccer requirements)



Decking of recycled plastic lumber



Rubber safety surface, poured-in-place, with integral graphic patterns



Rubber tiles, many colors and patterns available



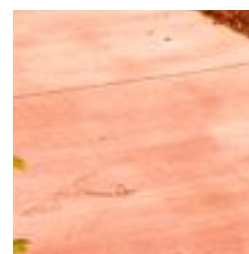
Fibar safety surface (engineered wood fiber)



Crushed stone with compacting binder



Concrete with exposed aggregate



Concrete with color added

Description and Purpose

Painted graphics can maximize the use of asphalt areas by adding educational and play value.

Options for graphics are limitless and can include games such as hopscotch and foursquare, running tracks, mazes, global or local maps, numbers grids,

symbols of local ecology or culture, etc. Markings can also be used for class management, for example indicating where various classes should line up.

Painted graphics are an affordable way to add color and visual interest to a schoolyard, and can often be created or re-painted by volunteer groups.

Design Considerations

- ❖ Look for opportunities for graphics to support curriculum connections.
- ❖ Design to encourage both large scale activity i.e., running track, and to create multiple places for use by smaller groups.
- ❖ Consider designs that help create a sense of place and reflect the culture and identity of the school and community.
- ❖ Avoid painting within vehicle traffic paths to minimize wear.



Running track that circles entire school building and passes through basketball court - example of shared use of space



100's grid - kinesthetic math and games

Illustrations



Maze path with numbers and letters



Map of the world (painted by volunteers with pre-cut stencils)



Compass rose and direction indicators



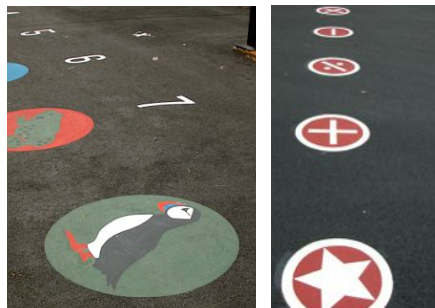
Map of local area, indicating school and nearby park



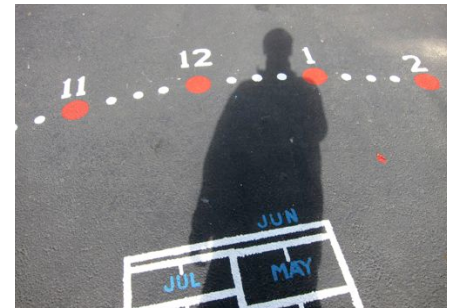
'Trike track' with lanes, traffic rotary and road signs



Four square and group games



Colorful icons for class line up lanes



User is the time indicator gnomon on a painted sundial graphic



Custom piano key graphic



Alphabet on spiral snake



Large leaf shapes with insects

Description and Purpose

The schoolyard design should provide clear cues and identification of safe places for student use that are separated from vehicular traffic.

Consider bus and car access; pick-up and drop-off areas, building entry and exit needs, fire codes and emergency vehicle access, and delivery routes.

Fencing, bollards, and paint can all define the circulation paths. Student line-up areas can be demarcated to help with class management.

Be sure to provide protection between active circulation areas and landscape plantings, and provide a separate area for trash and waste management functions.

Design Considerations

- ❖ Consider a range of materials for function, cost, aesthetics, and sustainability.
- ❖ Consider sight lines and other safety issues when placing fences and selecting heights and materials.
- ❖ Consider whether some schoolyard areas should be locked at certain times of day to prevent vandalism and crime.
- ❖ Define clear areas for parents to wait, or to enter the school, at pick up times.
- ❖ Respect existing desire line paths used by neighborhood residents across the schoolyard.
- ❖ Design for wheelchair access to various parts of the schoolyard.
- ❖ Ensure main pathways are well-lit for safe nighttime use.
- ❖ Consider green practices: permeable surfaces, on-site water management, recycled materials.
- ❖ Consider winter conditions and snow removal requirements.

Illustrations



Pipe fence defines safe path between school and bus zone



Fences of different types separate schoolyard play space both from parking area and from outdoor classroom

Illustrations



Visual barrier - inexpensive privacy screen slats added to an existing fence



Bollards protect play graphics & structures from vehicular traffic (deliveries may pass through on wheel carts)



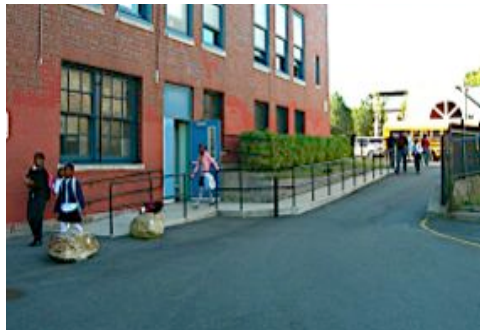
Clear marking of fire circulation lanes



Paint defines running path



Separate delivery access route



Wheelchair ramp added during construction schoolyard renovation



Protected dumpster storage area, separated from schoolyard



Temporary fence to protect new plantings

Description and Purpose

Adding **plant material** to the schoolyard helps beautify the space and creates shade, habitat, and increased air quality. Green schoolyards give urban students daily exposure to trees, shrubs, and perennial plants, and can help them develop a sense of environmental appreciation and stewardship.

Schoolyard plantings may be connected to curriculum work in many subject areas including science, math, and literacy.

Plant protection is a key element of greening the schoolyard. Plants that are not well protected have trouble surviving in active play areas.

Large trees provide natural shade and reduce the heat island effect in open expanses of asphalt.

Design Considerations

- ❖ Choose plant varieties that are durable and adapted to the local environment.
- ❖ Protect plants from active play by placing them away from foot traffic, behind fences or tree guards, or within raised beds.
- ❖ Avoid planting trees under electrical wires.
- ❖ Lawns are difficult to sustain on schoolyards and should be placed in protected areas.
- ❖ Include a diversity of plants that differ in scale and offer characteristics such as prominent seeds, cones, fruit, flowers, etc.
- ❖ Consider which varieties will provide food and habitat to birds and insects.
- ❖ Locate plant materials near building entrances, borders, sidewalks, parking, seating areas, etc.
- ❖ Consider snow removal when placing plants.
- ❖ Include plants that provide interest during different seasons of the year (winter blooms, etc.)

Illustrations



Plant selection for educational interest - native river birch with multi-stem trunk and distinctive bark characteristics



Diverse variety of low maintenance plantings protected by fence near the school entrance



Tree within active schoolyard play space protected with tree grate & guard

GOOD AND BAD PRACTICES - TREE PLACEMENT IN SCHOOLYARDS



Raised bed protects cluster of trees, shrubs & perennials



Without protection trees suffer from soil compaction & erosion



Diversity of trees and shrubs adds educational value, protected by fence on 2 sides



Repetition of same species - lost opportunity

GOOD AND BAD PRACTICES - SHRUBS AND GRASSES



Diversity of shrub type



Avoid species repetition



Spring bloom



Winter color



Evergreens



Grasses

Choose plants that display dramatic seasonal interest

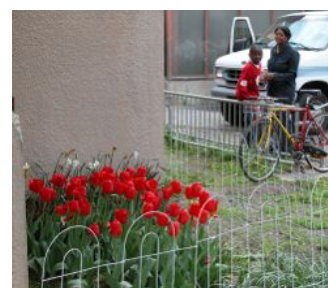
GOOD AND BAD PRACTICES - BULB AND PERENNIALS



Good protection of raised plantings behind low fence



No plantings remain without protection (conflict of use)



Bulbs planted by students, in low traffic area

GOOD AND BAD PRACTICES - LAWNS



Protected lawn at school entrance for beautification (in non-active play space)



Non-protected lawn at school front entrance where heavy use destroys grass and causes soil compaction



No lawn remains in active play space after high-intensity use by school and neighborhood

Description and Purpose

Site furniture promotes active use of the schoolyard by the school and community, providing places to meet and encouraging conversation and connection.

Elements include tables and seating, bike racks, notice boards, shade structures, trash receptacles, structures to create an outdoor stage area, large boulders and tree stumps, functional sculpture, etc.

Design Considerations

- ❖ Include seating configurations that enhance socializing and conversation.
- ❖ Place seating for parents near school entrances and play equipment.
- ❖ Maximize available shade by placing seating under trees or custom structures.
- ❖ Choose materials for durability and sustainability.

Illustrations



Trellis with built-in tables



Shade structure over parent pick-up waiting area

Illustrations



Dedicated game table, with provision for wheelchair access



Steel-mesh table for homework in after school program



Custom bench with planters and tile artwork



Small amphitheater and meeting area, cast concrete with insert places for artwork tiles



Amphitheater with markings around the circle so that a student standing in the middle becomes the gnomon of a giant sundial



Concrete seat wall, is also a landscape protection edge



Circular metal bench for a full class



Seating on cedar tree stump sections and rounded boulders

Description and Purpose

Public artwork gives a special identity to a schoolyard, and signals that the area is unique, valued, and cared for. Artwork can be integrated into the site design (gateways, fencing, seating, paving patterns) or commissioned as a stand-alone piece after the schoolyard is complete.

Art projects can vary widely in cost, from murals by volunteers to cast bronze sculptures requiring footings by a contractor.

Consider a variety of media - metal, clay, paint, tile mosaics, concrete, etc. The content may depict local history or culture, be abstract, express playfulness or whimsy, or act as a memorial. Student art can be translated into a permanent element in a fence, mural, or tile insert.

The schoolyard may also include a space for performing arts such as poetry readings, music, and small classroom performances.

Design Considerations

- ❖ Artwork may be integrated into schoolyard design through a collaboration between an artist and the project landscape architect.
- ❖ Consider a process for engaging the local community and a community-based artist in both planning and creation of artwork.
- ❖ Consider long-term maintenance of the artwork.
- ❖ Larger projects may be conceived as part of a schoolyard master plan, and completed over a period of years.

Illustrations



Custom welded and painted steel fence



Schoolyard mural (painted as summer project with teens through by Boston Youth Mural Crew)

Illustrations



Multi-color granite snake bench and planting bed



Tile mosaic by students within a retaining wall



Student collage, transferred to metal



Photographic images printed on enamel panels



Temporary prayer flag art project for Earth Day



Granite benches with carved text



Custom welded and painted steel gateway added in existing fence

Description and Purpose

Incorporating green practices into the schoolyard is a way to demonstrate and model environmentally responsible design and construction. Creating healthy places to learn, play, and build community is a way to address the environmental neglect seen in many urban neighborhoods.

Plant material can provide natural shade and cooling, improve air quality, and prevent erosion.

Renewable energy sources such as solar power, water management features such as permeable pavers, and the use of non-toxic materials are all examples of schoolyard green practices.

When designing and building the schoolyard develop a green score card, and make evident the three R's - reduce, reuse, and recycle.

Design Considerations

- ❖ Minimize carbon footprint by using locally sourced and recycled materials, and re-use materials on site where possible.
- ❖ Use materials that are renewable and manufactured in environmentally healthy and responsible ways.
- ❖ Use best practices for disposal, reuse, and handling of construction waste and debris.
- ❖ Consider the use of native plants and those that will provide animal habitat.
- ❖ Manage water by providing permeable surfaces, directing run-off into planted areas, and installing low water use plantings.
- ❖ Include solar-powered trash compactors, recycle bins, and compost bins where possible.
- ❖ Incorporate renewable energy sources such as solar and wind where possible.

Illustrations



Swale along edge of schoolyard asphalt collects and absorbs stormwater runoff



Playground equipment made with recycled plastic materials



Mural depicting the compost cycle

Use this checklist during the design and planning process, and for design review.

PLAY STRUCTURES AND ACTIVE RECREATION

- ☐ play structures for 5-12
- ☐ play structures up to 5 years
- ☐ play areas: basketball (full court / half court); baseball; kick ball; soccer; ping pong; etc.
- ☐ exercise structures
- ☐ safety surface (rubber in colors, fibar)

SURFACES

- ☐ variety of materials
- ☐ review for fall protection safety requirements

PAINTED GRAPHICS

- ☐ educational - 100 chart, math, geography, planets
- ☐ game - 4 square, hopscotch, courts, lines, track

CIRCULATION AND FENCING

- ☐ boundary & security
- ☐ privacy (with slats)
- ☐ plant protection
- ☐ separation of vehicle access & play areas
- ☐ delivery truck separation
- ☐ dumpster enclosure walls
- ☐ community access, respect shortcuts

LANDSCAPING

- ☐ diversity of planting (trees)
- ☐ diversity of border planting (shrubs/ herbaceous)
- ☐ protection of planting from active play
- ☐ plant protection - tree grates & guards
- ☐ plant protection - raised beds w/fence
- ☐ other hedges or screens, vines
- ☐ ground cover, lawn & field

SITE FURNITURE

- ☐ benches, tables & chairs
- ☐ game tables
- ☐ shade structures, bicycle racks
- ☐ signage, flags and banners
- ☐ raised beds for community gardening
- ☐ poles for shade cloth / backdrop
- ☐ seating, bleachers, stage

GATEWAY AND ENTRANCE AREA

- ☐ gateway - signature object, identification of place
- ☐ welcoming transition to schoolyard from street

PUBLIC ART ENHANCEMENTS

- ☐ murals & sculptures
- ☐ decorative gateways
- ☐ tile work

MAINTENANCE CONSIDERATIONS

- ☐ trash receptacles, quantity _____
- ☐ recycle receptacles
- ☐ compost bins & leaf cages
- ☐ tool storage

GREEN DESIGN AND SUSTAINABLE PRACTICE

- ☐ sustainable materials choices
- ☐ stormwater management and storage
- ☐ plant selection for low water use

CONSIDERATIONS FOR PLACE MAKING

- ☐ welcoming to community
- ☐ child-centered scale
- ☐ colorful and affirming
- ☐ a variety of natural and human made materials
- ☐ encourages all season use

COMMUNITY ISSUES AND FUTURE PLANNING

- ☐ communicate next steps to larger community
- ☐ review project mission statement, meeting notes and community requests
- ☐ review opportunities for community build and future community involvement
- ☐ record master plan ideas for potential future work

We also wish to thank all the educators, organizers and landscape architects who worked with the Boston Schoolyard Initiative to continually develop schoolyard designs and this guide. It was truly a collaborative effort. Contributors include:

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