

Johns Hopkins Center for Injury Research and Policy

If You Build it...Do it Safely! Building Safety Into Active Living Initiatives

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The Issues

“ The way communities are designed has a great influence on how active we are. When communities are safe, well-maintained and have appealing scenery, children and families are more likely to be active. Unfortunately, many people—especially those at high risk for obesity—live in communities that lack parks and have high crime rates, dangerous traffic patterns and unsafe sidewalks.”

- Active Living Research, www.activelivingresearch.com



ACTIVE DESIGN GUIDELINES

PROMOTING PHYSICAL ACTIVITY

AND HEALTH IN DESIGN

**Over 25,000 copies of
the ADGs have been
downloaded or
distributed!**

- **Urban design** strategies for creating neighborhoods, streets, and outdoor spaces that encourage walking, bicycling, and active transportation and recreation.
- **Building design** strategies for promoting active living where we work and live and play — for example, through the placement and design of stairs, elevators, and indoor and outdoor spaces.

ACTIVE DESIGN SUPPLEMENT

PROMOTING SAFETY



First in a
series of
supplements
to the original
ADG!



Methods

- Approach to the document and language
- Brainstormed an initial list of injury prevention strategies and search terms were developed; organized according to relevance to Urban Design and/or Building Design
- Determining strategies to explore
 - Urban Design Strategies that Promote Safety (n=18)
 - Building Design Strategies that Promote Safety (n=9)



Methods

- Systematic review of the literature published from 1995 to 2012 was conducted to identify injury prevention strategies applicable to ADG objectives; also included seminal publications prior to 1995
- Strategy rated as strong, emerging, or best practice, according to the strength of the research evidence
- Peer review by several agencies



Engaging Stakeholders: Peer Review

- NYC Department of Design and Construction
- NYC Mayor's Office of People with Disabilities
- NYC Department of Transportation
- NYC Department of Buildings
- NYC Department of Health & Mental Hygiene
- CDC, Division of Unintentional Injury Prevention

Format



- Preface
- Executive Summary
- Introduction
- Urban Design Strategies that Promote Safety
- Building Design Strategies that Promote Safety
- Conclusion

AMERICAN INSTITUTE OF ARCHITECTS NEW YORK INTRODUCTION

The City of New York should be commended, anew, for developing a cogent and concise supplement to the *Active Design Guidelines* with a particular focus on safety in our built environment. This document draws upon specific examples to illustrate the most effective design strategies for achieving a more physically active – and safe – way of living in New York City.

The tenets of the *Active Design Supplement: Promoting Safety* draw upon evidence, case studies, and principles visible in New York City where injury prevention strategies increasingly align with Active Design. Through the conscientious integration of these strategies into projects of all scales, design professionals can realize buildings and neighborhoods that seamlessly integrate more healthful and active living with attention to design excellence, sustainability and safety.

The New York Chapter of the American Institute of Architects is dedicated to design excellence, professional development, and public outreach. The City's *Active Design Supplement: Promoting Safety*, produced as a partnership with the Johns Hopkins Center for Injury Research and Policy and the Society for Public Health Education, combines these goals in a well-written addendum that should be used by all architects, designers, and building owners in concert with the *Active Design Guidelines* as both reference and resource.

Joseph Allotta, AIA
2012 PRESIDENT
AIA New York

Fredric Bell, FAIA
EXECUTIVE DIRECTOR
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	Strong Evidence	Emerging Evidence	Best Practice
Urban Design Strategies (n=18)	1) Playground Equipment and Surfaces; 2) Fencing for Swimming Pools and Elevated Play Areas; 3) Traffic Calming; 4) Pedestrian Islands; 5) Placement of Bus Stops and Bus Lanes; 6) Multi-Way (All Way) Stop Sign Control; 7) Traffic Signals; 8) Crime Prevention through Environmental Design (CPTED)	1) Complete Streets; 2) In-Pavement Flashing Lights; 3) Lighting; 4) Pedestrian Overpasses; 5) Painted Designated Bicycle Lanes/Boxes/Crossings; 6) Signage; 7) Stair Features	1) Street Closures for Creating Safe Play Areas; 2) Bicycle-Sharing Systems; 3) Bicycle and Bicycle Helmet Storage
Building Design Strategies (n=9)	1) Stair Features; 2) Surfaces in Indoor Play Areas; 3) Window Guards and Balcony Railings; 4) Sprinklers; 5) Crime Prevention through Environmental Design (CPTED)	1) Indoor Pool Safety; 2) Signage; 3) Lighting	1) Bicycle and Bicycle Helmet Storage

PS/2.13**PAINTED,
DESIGNATED
BICYCLE
LANES/BOXES/
CROSSINGS**

Applicable to *Active Design Guidelines*

Objectives: 2.1, 2.3, 2.5, 2.6, 2.7, 2.11, 2.12,
2.13

Bicycle boxes can
reduce vehicle-
bicycle conflicts
because motorists
are more likely to
yield to cyclists in
boxes, and vehicles
also slow or stop
before entering
painted crossings.
Bicycle Box, NYC

- ★ Use colored, painted markings at bicycle-motor vehicle crossings, bike boxes (a.k.a., advanced stop lines) at signalized intersections, and designated bicycle lanes/routes to reduce conflicts between cyclists and motorists and to decrease the risk of injury to bicyclists.^{75,76,80}

Studies show that providing separated bicycle tracks or lanes reduces vehicle-bicycle collisions, deaths, and injuries among cyclists.^{79,84,86,87,90} Evidence also shows that greater numbers of motorists yield to cyclists in bike boxes, reducing conflicts, and that vehicles also slow or stop before entering painted crossings.^{88,90}



Example Urban Design

PS/2.13

PAINTED, DESIGNATED BICYCLE LANES/BOXES/ CROSSINGS

Applicable to *Active Design Guidelines*

Objectives: 2.1, 2.3, 2.5, 2.6, 2.7, 2.11, 2.12, 2.13.

Bicycle boxes can reduce vehicle-bicycle conflicts because motorists are more likely to yield to cyclists in boxes, and vehicles also slow or stop before entering painted crossings.

Bicycle Box, NYC

- ☆ Use colored, painted markings at bicycle-motor vehicle crossings, bike boxes (a.k.a., advanced stop lines) at signalized intersections, and designated bicycle lanes/routes to reduce conflicts between cyclists and motorists and to decrease the risk of injury to bicyclists.^{27,28,52}

Studies show that providing separated bicycle tracks or lanes reduces vehicle-bicycle collisions, deaths, and injuries among cyclists.^{26,34,56,57,58} Evidence also shows that greater numbers of motorists yield to cyclists in bike boxes, reducing conflicts, and that vehicles also slow or stop before entering painted crossings.^{59,60}

PS/3.2 SURFACES IN INDOOR PLAY AREAS

Applicable to *Active Design Guidelines*
Objective(s): 3-9.

- ★ Design indoor areas to meet or exceed the requirements published in the "Public Playground Safety Handbook" issued by the U.S. Consumer Product Safety Commission (U.S. CPSC),¹⁹ and the American Society for Testing and Materials (ASTM)'s "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use."²⁰ Play area design and construction should also incorporate accessibility for children of all abilities by complying with the "Guide to ADA Accessibility Guidelines for Play Areas".²¹ Playground surfacing and surface materials should be tested to meet the criteria of the latest issue of ASTM using the Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials.²²

To reduce the likelihood of injuries from a fall, especially head injuries, facilities with indoor play areas should consider using a material specifically designed and tested as playground surfacing. Evidence suggests that the current impact attenuation testing standard for playgrounds represents a desirable standard for protecting children from falling off playground equipment, whether indoors or outdoors.²³ Numerous studies have shown that playgrounds built with certain types of safety surfacing prevent overall injuries to children and can significantly reduce severe child head injuries.^{24,25} Playground-related injuries at North Carolina childcare centers were reduced by 22% after a law passed that required new playground equipment and surfacing in childcare facilities to follow the U.S. CPSC guidelines.²⁶

ADDITIONAL INFORMATION:

Unitary materials are available from a number of different manufacturers, many of whom have a range of materials with differing shock absorbing properties. Those wishing to install a unitary material as a playground surface should request test data from the manufacturer identifying the critical height of the desired material. The critical height value should equal or exceed the height of the highest designated play surface of the equipment.

To reduce the likelihood of injuries from a fall, surfacing under indoor play structures from which children may fall should use materials that meet safety guidelines and standards.



Example Building Design

PS/3.2

SURFACES IN INDOOR PLAY AREAS

Applicable to Active Design Guidelines

Objectives: 3.9.

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Dissemination

- Report release end of September 2012 (4,000 + copies printed), online, and press release
- Presentations to various fields: public health, architects, planners, transportation engineers, etc.
- Share document with partners
- Manuscript being prepared for ALR Special of Issue of Preventive Medicine



Conclusions Based on the Literature...

- Active design strategies are often wholly compatible with well-accepted injury prevention principles; can be implemented
- Injury prevention strategies can yield benefits across multiple active design objectives
- Further research for some strategies



Lessons Learned

- Language is important
- Visuals are important
- Engaging partners in the review process
- With new partners: need to do some education, listen, seek mutual benefits – can't feel like “one more thing to do”

Our Goal: Ensure that Safety is Here too!





Thank you!

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