

# Walls, Walks, and Universal Access

Exploring Your Options - Exploring the Guidelines  
January 25<sup>th</sup>, 2013

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# Purpose:

**To discuss Hardscape Materials/Mediums,  
2010 ADA Guidelines - and their updates,  
2012 International Building Code (IBC),  
State & Local Building Codes,  
And the effects they have on us as designers and installers.**



# ADA Factors

## When Designing and Installing Walkways and Plazas

- “On or after *March 15, 2012*, all newly constructed or altered facilities must comply with all of the requirements in the 2010 Standards.”
- ADA Guidelines can be found at:  
<http://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards.pdf>
- A comparative text comparing the 1991 Standards to the 2010 Standards can be found at:  
<http://www.ada.gov/regs2010/2010ADAStandards/Guidance2010ADAstandards.htm>





# ADA Factors

## When Designing and Installing Walkways and Plazas

- Slopes of walking surfaces – slopes/cross-slopes – *Sections 402/403*
- Use of Ramps & Stairs – *Sections 405/504*
- Curb Ramps – *Section 406*
- When & how to use handrails and guards – *Sections 504/505/1005*
- Walkway obstructions – Drainage grates, etc. – *Section 302*
- Flush curb heights and edges; thresholds – *Section 303*
- Detectable Warnings – where, when, and how much? – *Section 705*



# ADA Factors

## When Designing and Installing Walkways and Plazas

- A Free ADA Compliance Checklist for Construction can be found at:  
[www.adachecklist.org](http://www.adachecklist.org)

### ADA Checklist for Readily Achievable Barrier Removal

#### Priority 1 – Approach & Entrance



Project \_\_\_\_\_

Building \_\_\_\_\_

Location \_\_\_\_\_

Date \_\_\_\_\_

Surveyors \_\_\_\_\_

Contact Information \_\_\_\_\_

**An accessible route from site arrival points and an accessible entrance should be provided for everyone.**



# Building Code Factors

## When Designing and Installing Walkways, Plazas, Walls and Stairways.

- Locations of “Means of Egress” and Accessible Routes
- Sizes of Stairs + Ramps – Minimum and Max. Dimensions
- When and Where to use Handrails – *Section 1012 “Handrails”*
- When and Where to Use Pedestrian Guardrails – *Section 1013 “Guards”*

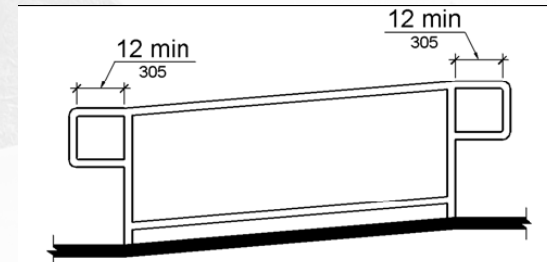
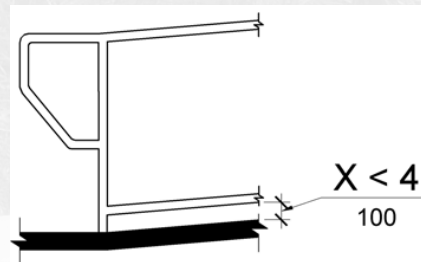
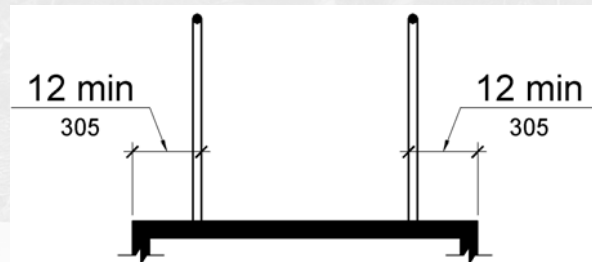




# Ramps and Walkways

## Definitions and Constraints

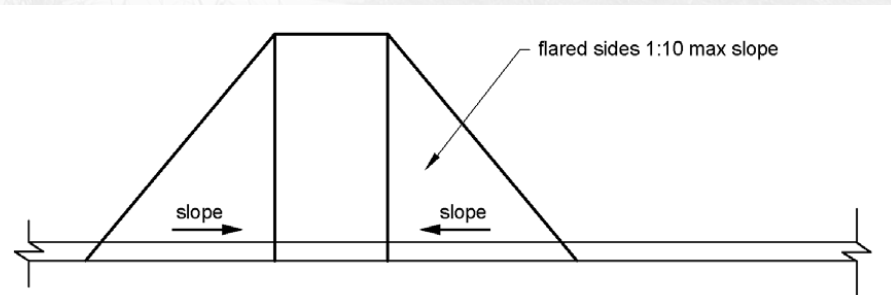
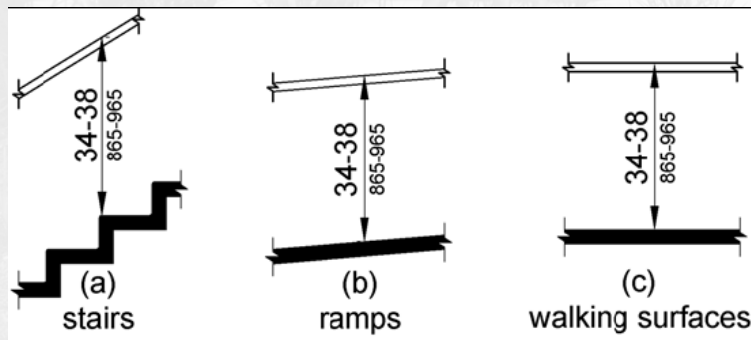
- Accessible Walkways.
  - Running slopes not more than 1:20 (5%)
  - Cross-slopes not exceeding 1:48 (2%)
- Ramps (new construction).
  - Minimum Ramp slope 1:20 (5%)
  - Maximum Ramp slopes 1:12 (8.3%)
  - 5'-long Landings required every 30" rise max.
  - 12" Extended surface
  - Curb or Barrier Edge Protection <4"



# Ramps and Walkways

## Definitions and Constraints

- Handrails required on ramps.
  - Extensions 12" at top and bottom
  - Heights – 34"-38"
- Curb Ramps.
  - Maximum flared side slopes 1:10 (10%)
  - Maximum Ramp slopes 1:12 (8.3%)





# Ramps and Walkways

## Definitions and Constraints

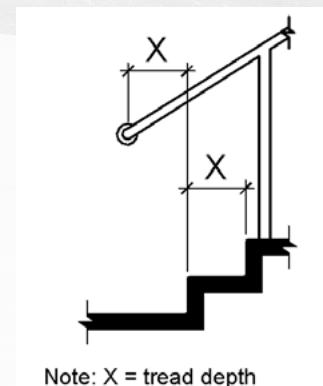
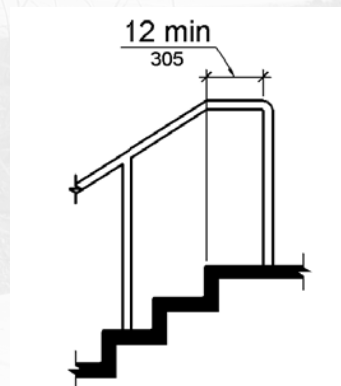
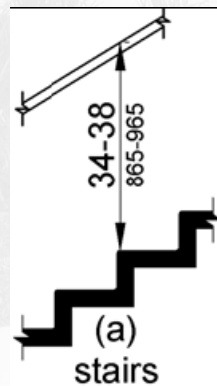
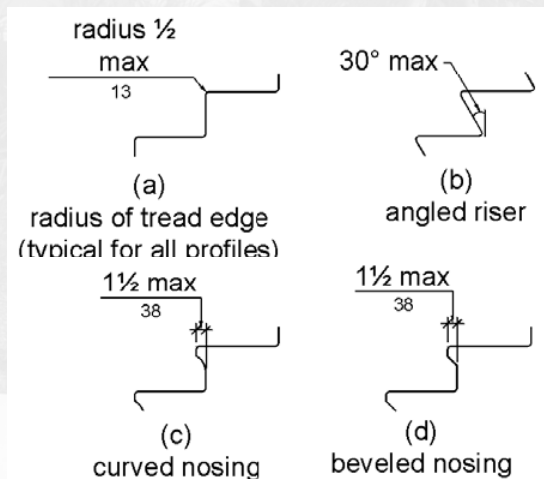
- Detectable Warnings – Raised Truncated Domes (RTD's).
  - Required in 1991 Standards – 2010 only at transit platforms
  - The use of RTD's has not been continued although designers continue to use them.



# Stairs

## Common Standards

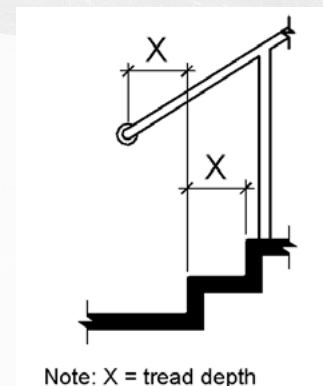
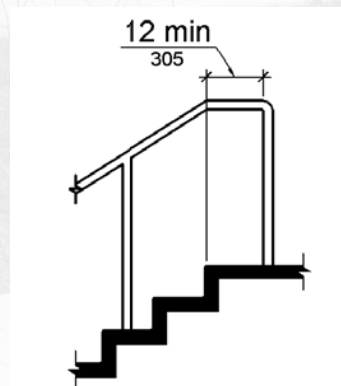
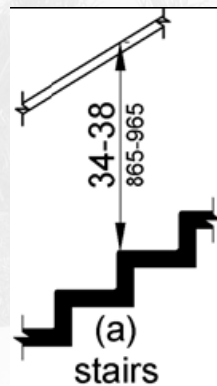
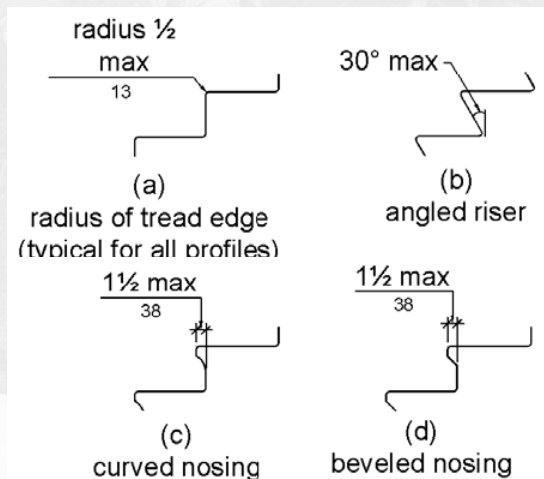
- Treads – uniform.
  - Minimum depth – 11”
  - Maximum depth – None. Regular intervals are preferred
  - Slope: 1:48 max.
- Risers – uniform.
  - Minimum height – 4”
  - Maximum height – 7”



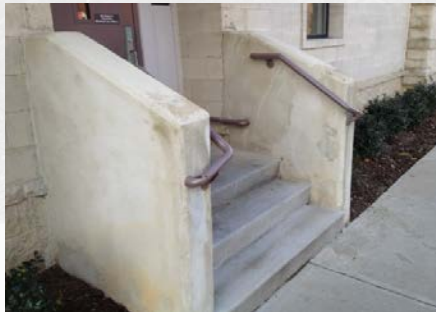
# Stairs

## Common Standards

- Nosings.
  - ½” radius, max. at leading edge of tread.
- Handrails.
  - Height – 34”-38”
  - Extensions – 12” at top, Length of last tread at bottom









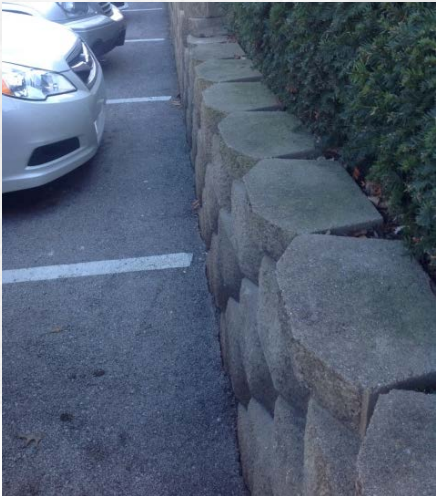
# Retaining Walls

## Design and Construction Considerations

- Wall design heights by law – Is an engineer's sealed plan necessary for your size of wall? KBC is 4'+; Lexington is essentially 3'+
- Does the wall need reinforcement?
- Does there need to be a drain-tile to reduce hydro-static pressure?
- Does the wall provide vertical drops 30"+?
- Are Pedestrian guard rails needed? (IBC requires at 30")
- Batter factor – adequate space? (root damage, structures, prop. lines)
- Types of retaining walls



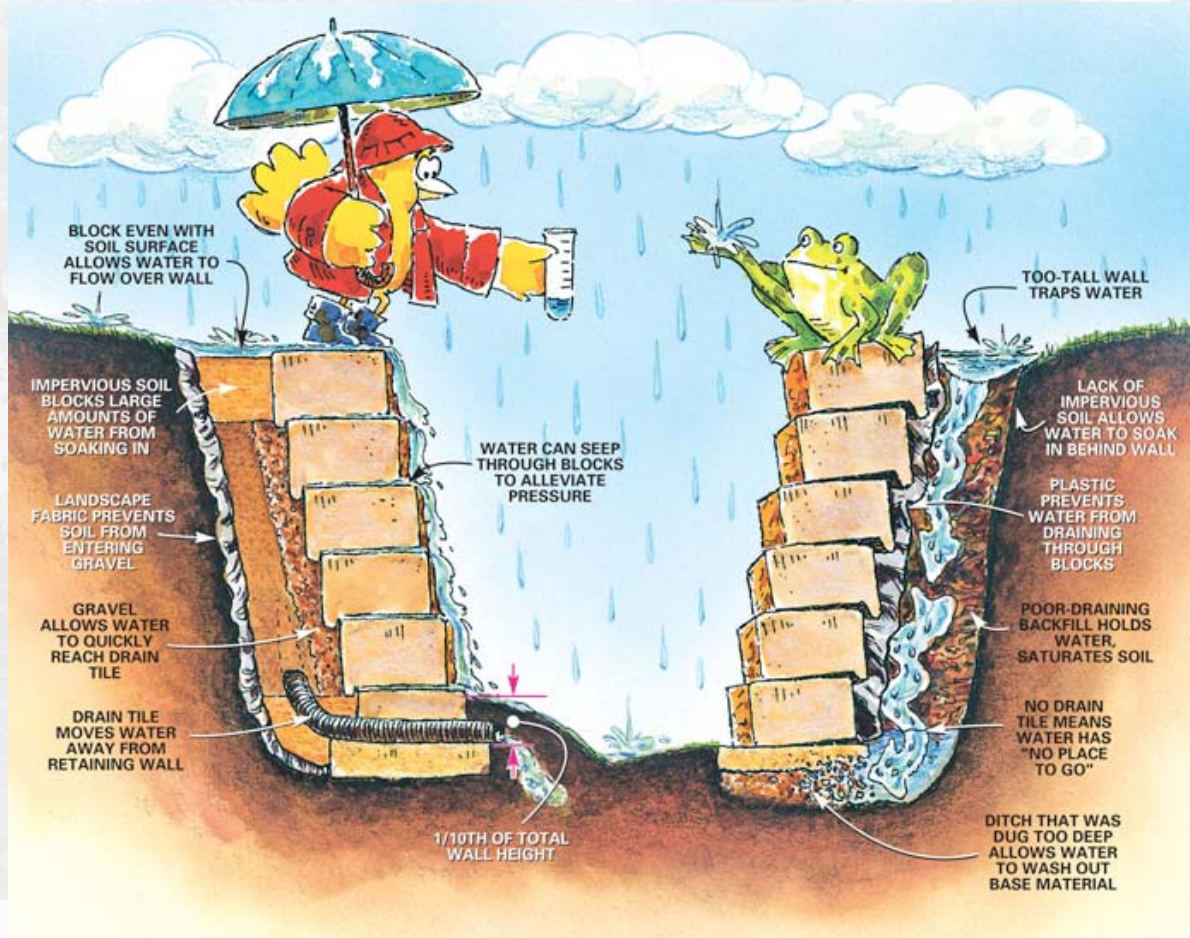






# Retaining Walls

## Design and Construction Considerations



# Pavement Mediums And Design Considerations.

- Conventional Concrete & Porous Concrete
- Conventional Asphalt & Porous Asphalt
- Manufactured Clay or Concrete Pavers & Permeable Pavers
- Fieldstone – Stepping Stones
- Gravel, Crushed Stone & Decomposed Stone
- Wooden Unit Paving/Pavers
- Wooden/Synthetic Boardwalks





# Pavement Mediums And Design Considerations.

- Is the route stable, firm and slip-resistant?
- Design Considerations:
  - Surface material;
  - Surface firmness and stability;
  - Surface slip resistance;
  - Changes in level and tread obstacles;
  - Size and design of openings.





# Conventional Concrete

- Commonly used pedestrian paving surface
- ADA compliancy is dependent upon surface treatments and installation conditions & slope
- Common Surface Treatments:
  - Broom Finish; Light, Medium, and Heavy – Yes
  - Exposed Aggregate – Yes
  - Stamped – Textured (bush-hammered, etc.) – Yes
  - Trowel Finish – No
  - Polished – No
  - Stained and Painted – Dependent upon slip-resistance



# Conventional Concrete

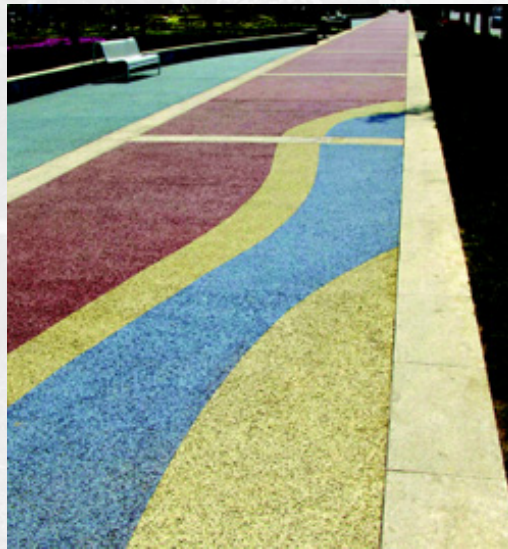
- Pros:
  - Highly durable – wears well
  - Firm/Stiff
  - Able to custom color
  - Relatively inexpensive
  - Easy to obtain
  - Fairly simple to form and install – nearly all-year
- Drawbacks:
  - Must be allowed to dry and harden – not instantaneous
  - Typically more labor intensive to install





# Porous Concrete

- Becoming Increasingly Popular – “Green” pavement solution
- Typically ADA compliant – Gradation of aggregate and void spaces are a driving factor



# Conventional Asphalt

- Common on Streets, crossings, driveways and recreational trails
- ADA compliancy is primarily dependent upon slope and cross-slope
- Common Surface Treatments:
  - Rolled finish - Yes
  - Stamped and colored – Yes



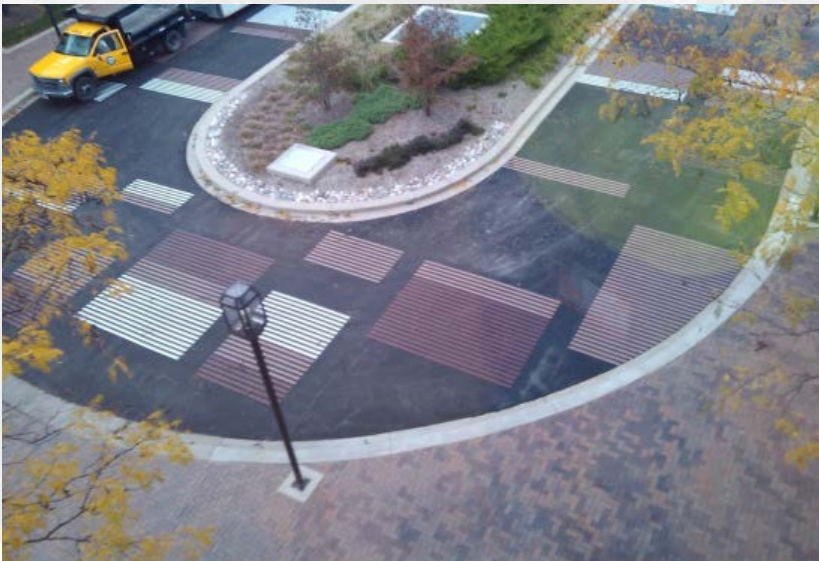


# Conventional Asphalt

- Pros:
  - Inexpensive
  - Flexible
  - Quick to install
- Drawbacks:
  - Can stretch and warp causing rutting – Tripping hazards, etc.
  - Lifespan is shorter than concrete
  - Color tends to wear off
  - Limited window for installation



# Conventional Asphalt





# Porous Asphalt

- Increasingly Popular, like concrete – “Green” pavement solution
- Typically ADA compliant – Sizes of aggregate and open space is a driving factor
- Similar installation methods and machinery



# Clay or Concrete Pavers & Permeable Pavers

- Increasingly Popular – “Green” pavement solution
- Pricing is becoming highly competitive with concrete & asphalt
- Typically ADA compliant – Joints in some permeable paving can pose a problem
- Available in many colors, shapes, styles and patterns – Raised Truncated Dome Pavers (RTD’s)
- Perm. pavers may be open-gridded or standard brick/paver dims.
- Can be installed on both rigid and flexible bases





# Clay or Concrete Pavers & Permeable Pavers

- Pros:
  - Highly durable – wears well (simple removal/repair)
  - Easy to obtain and fairly simple & fast to install
  - Instantaneous usability
  - Aesthetic – multiple colors, patterns
- Drawbacks:
  - Quantity/Volume heavily drives install price
  - Typically more labor intensive to install on small-scale sites



# Fieldstone and Stepping Stone Patios and Garden Paths.

- Easy to find and popular for homeowners
- Typically installed in a manner that is not ADA compliant
- Pricing is wide-ranged depending on material selection
- Stone can be split, cut or thermally finished...
- Available in an endless variety colors, sizes and shapes
- Not often found in commercial applications
- Can be installed very simply with and without a base





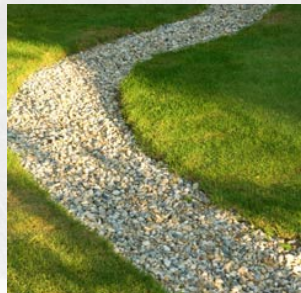
# Fieldstone and Stepping Stone Patios and Garden Paths.

- Pros:
  - Easy to obtain. Most are simple & fast to install
  - Aesthetic – multiple colors, patterns, materials and shapes
- Drawbacks:
  - Not generally ADA compliant



# Gravel, Crushed Stone & Decomposed Stone

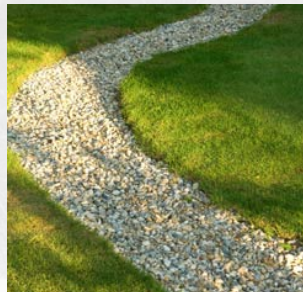
- Semi-Permeable – A somewhat “Green” pavement solution
- Pricing is generally lower than unit paving and concrete
- Not Always ADA compliant – Not necessarily stable or slip-resistant  
(But exceptions are made for recreational trails)
- Available in various types of stone and sizes
- Can be used in trail surfacing to plaza pavement





# Gravel, Crushed Stone & Decomposed Stone

- Pros:
  - Somewhat green – can be porous
  - Easy to obtain and install
  - Can be Aesthetic – multiple colors
- Drawbacks:
  - Must be properly installed to insure stability
  - Can rut if improper drainage



# Gravel, Crushed Stone & Decomposed Stone



Louisville's  
Waterfront  
Park

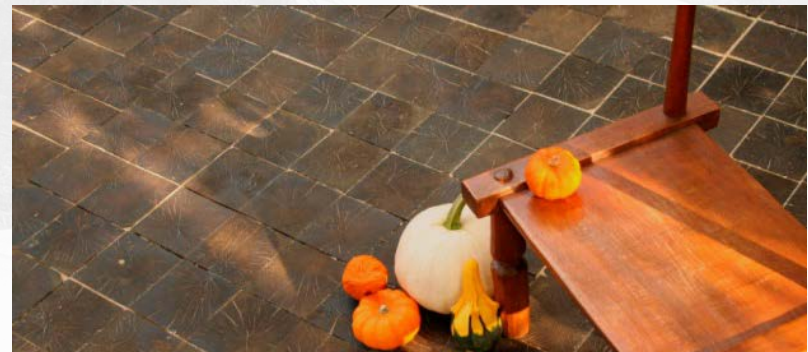




# Wooden Unit Pavers

## An old technique revived.

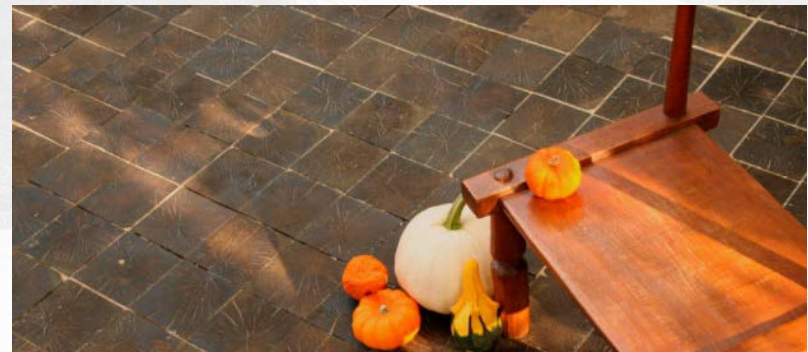
- Historically used and fairly uncommon – Can be “Green”
  - Pavement uncovered in N. Midwest from approx. 1909
- Pricing is varied by types of wood and base materials
- Typically ADA compliant – Joints in older pavement and on poorly constructed bases may express problems.



# Wooden Unit Pavers

## An old technique revived.

- Pros:
  - Fairly durable
  - Easy to repair & simple to install
  - Instantaneous usability
  - Aesthetic – Produces a more muffled sound
- Drawbacks:
  - Quantity/Volume heavily drives install price
  - Typically more labor intensive to install on small-scale sites
  - Requires the use of processed lumber – possibly salvage wood

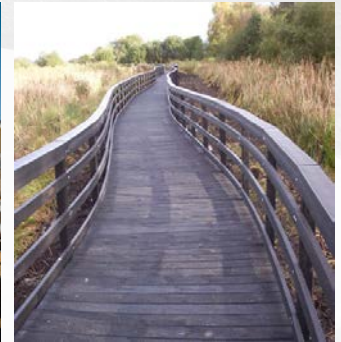




# Boardwalks

## Natural and Synthetic Decking.

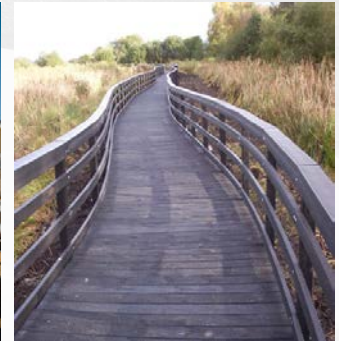
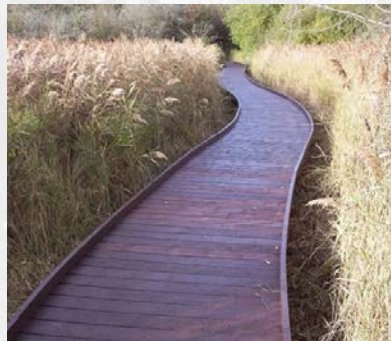
- Commonly used in Kentucky recreationally as part of scenic trails
- Typically ADA compliant – rails and plank spacing
- Guardrails of some form are generally preferred; required by code for drops larger than 30” vertically.
- Curbs or barriers are required to eliminate wheelchairs from rolling off of the deck/platform (2” min. ).- *Section 1005.3.1*



# Boardwalks

## Natural and Synthetic Decking.

- Pros:
  - Provide accessibility in otherwise inaccessible areas
  - Easy to repair – most materials are readily available
  - Instantaneous usability
  - Aesthetic – Can be used to emphasize views, etc.
- Drawbacks:
  - Limited life-spans
  - Limited by capabilities of pier system in place

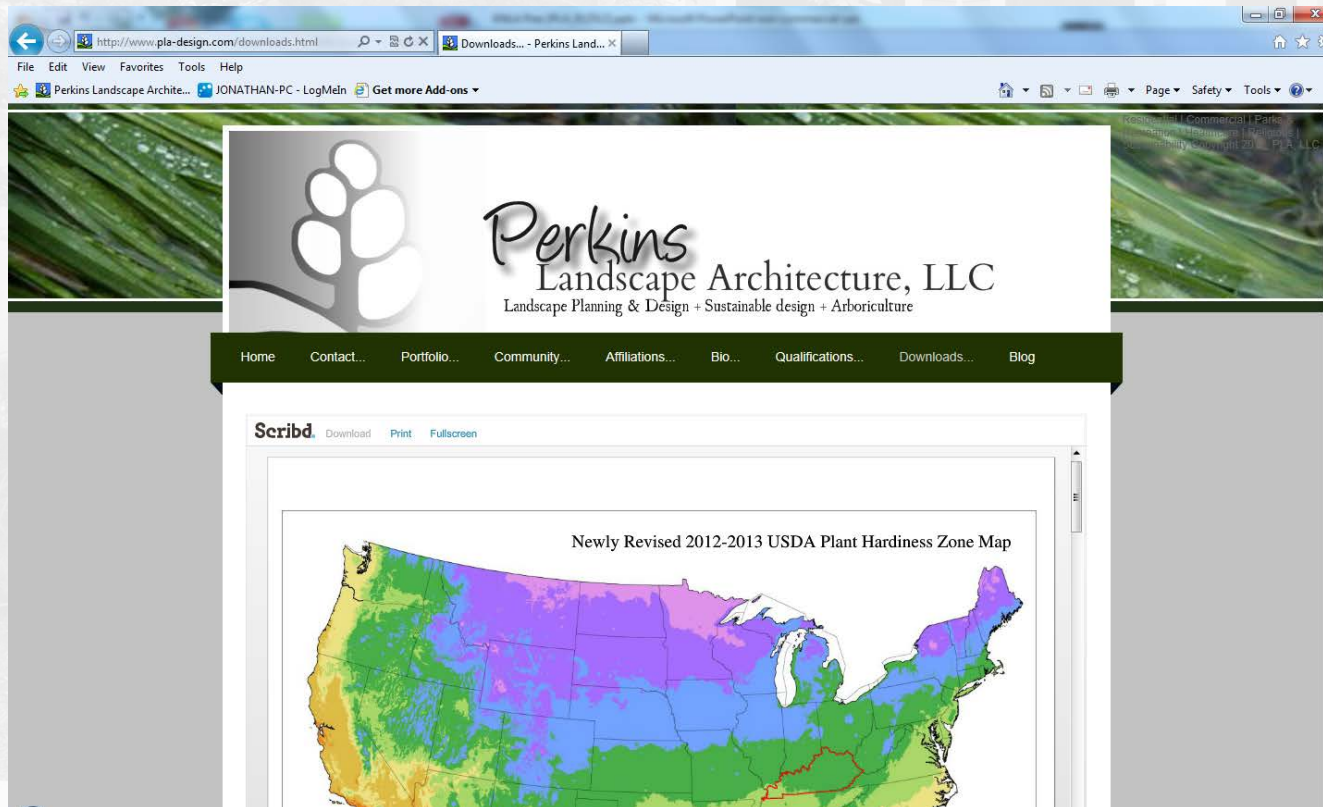




# QUESTIONS???

*Feel Free to Download This Presentation in PDF  
format from my Website at:*

<http://www.pla-design.com/downloads.html>



The screenshot shows a web browser window displaying the website for Perkins Landscape Architecture, LLC. The website features a logo with a stylized plant and the text "Perkins Landscape Architecture, LLC" and "Landscape Planning & Design + Sustainable design + Arboriculture". A navigation menu includes links for Home, Contact, Portfolio, Community, Affiliations, Bio, Qualifications, Downloads, and Blog. The main content area shows a Scribd document titled "Newly Revised 2012-2013 USDA Plant Hardiness Zone Map" with a map of the United States color-coded by hardiness zones. The browser's address bar shows the URL "http://www.pla-design.com/downloads.html".



## **Sources/Image Credits:**

<http://www.familyhandyman.com>

<http://home.howstuffworks.com>

<http://www.ia.nrcs.usda.gov>

<http://www.archiexpo.com/prod/canjaere/wood-pavers-68932-507967.html>

<http://www.landmarklawnandgarden.com>

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<http://art-exterior.blogspot.com>

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<http://www.concretethinker.com/applications/Pervious-Paving.aspx>

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