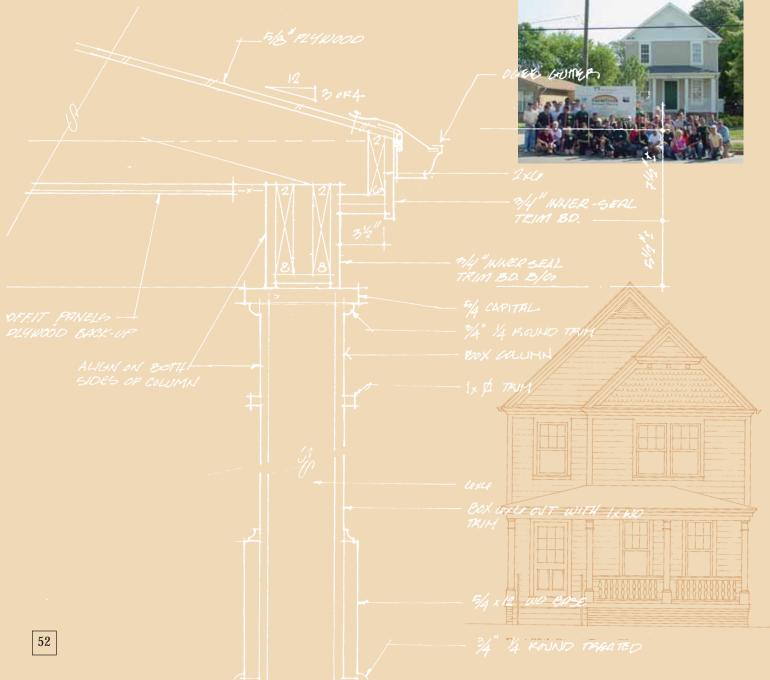
# Application

Habitat for Humanity house designs from around the country were collected to illustrate the application of the Pattern Book. On the following pages, the selected plans were transformed using a step-by-step design process and the patterns presented in this book. The original plan and elevation of each design is shown, followed by diagrams illustrating the design process.

These design transformations are followed by a collection of house designs submitted by various architects throughout the United States. The designs exemplify the patterns contained in this book while demonstrating their use at various scales of construction.

This Application section also includes a reference list of Material Manufacturers that provide materials compatible with this Pattern Book; a Glossary of Terms used in the Pattern Book; a checklist and guide for homeowners on maintaining their house; and a Resources list for further research and design guidance.





## Transformation Essentials

### Review Existing Design

In transforming an existing design of a Neighborly Habitat House, take time to review the existing drawings. Often the current design has considerable merit and can be improved into a neighborly house with key changes to the initial form and composition.

Identify the Habitat House Type (see section C) of the existing design. This will aide in reviewing the drawings and deciding the most appropriate improvements. In addition, take note of the architectural style (see section D). Often houses either lack recognizable character or contain competing architectural style details. Decide what style would best suite this transformation. The existing plan and massing can help a great deal with identification as they may make certain styles harder to achieve than others.



#### Learn from the Historic Context

If the transformed house will be built in a particular area, document the surrounding neighborhood. It can give clues as to how to best make the house fit in. Historical books on the surrounding neighborhoods, existing photographs, and postcards give clues to what people in the community value most in their existing homes and what should be considered in the house transformation. These sources can also provide information on building details such as eaves and overhangs. The images to the right are all photographs of existing neighborly houses, and they hold a great deal of useful information.







## Develop New Design Based on Existing Design

Use the Architectural Patterns section of the Pattern Book to guide your new design based on the style of the house. A wealth of products and materials are available through manufacturers and the Architectural Patterns section provides guidelines to help make the best decisions.

Changes in the design will most likely involve window proportions and compositions and architectural elements such as, eaves and overhangs, columns, and architectural details. Often there are multiple transformation possibilities. Although each transformation is unique, the process shares a number of the same considerations:

- Habitat House Type
- Adjustments to Massing and Roof
- Adjustments to Porch Placement
- Adjustments to Window and Door Composition
- Specifying New Materials and Finishes





An Example of a Transformation of a Typical House Design

Step 1: Review Existing Design The windows and door are well proportioned in this singlefamily detached house plan, although they do not create a balanced composition. The long roof makes the front elevation look too horizontal, and the porch is entered from the side, leaving a balustrade that obscures the front door.

The house lacks a defined architectural style but could be transformed into a Colonial Revival house.

## Step 2: Observe Historic Context

The surrounding neighborhood includes many one-story, gablefront houses with full front porches. Window and door compositions are usually three or five bays with a central front door. Lots are landscaped with low hedges and small ornamental shrubs.



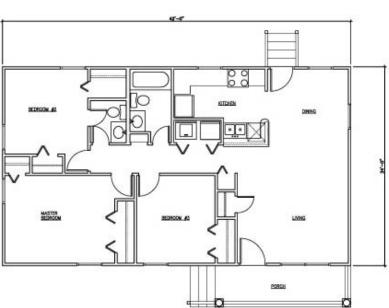


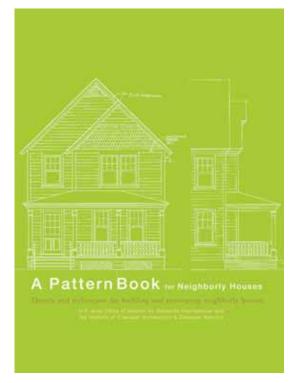
Step 3:
Consult the

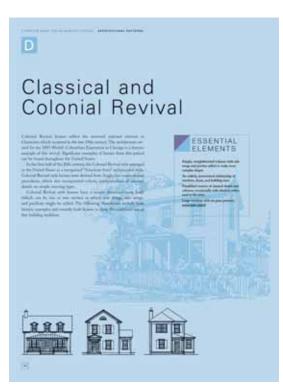
Pattern Book

Use the Pattern Book to guide the transformation of a neighborly house, particulary the Classical and Colonial Revival section for this transformation.







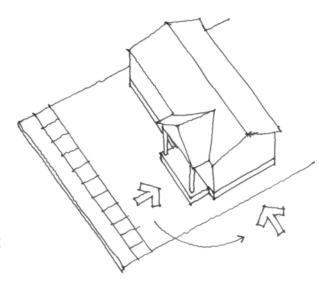


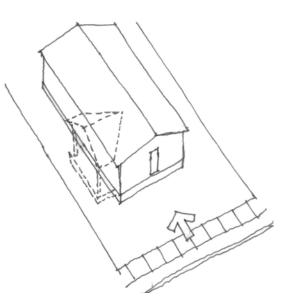
## Step 4:

Develop New Design Based on Existing Design

## Change Orientation to the Street

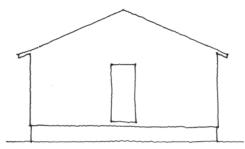
In changing the orientation, the narrow face of the house faces the street, allowing the more public parts of the house, the living room and dining room, to face the front. Two bedrooms that previously face the street now face the side of the lot and therefore have more privacy.





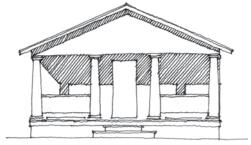
## Adjust Massing and Roof

From consulting the Architectural Patterns section of the Pattern Book, it is clear that this house already has elements of a classical and colonial house. Based on the Architectural Patterns section, adjust the pitch of the roofs. The gable front massing is already one seen in examples of classical and colonial houses in the Pattern Book as well as in historic context photos.



### Porch Placement and Design

Add a full front porch with appropriate columns and a three bay composition, allowing the center to be prominent. Review the eave detail above the porch.



### Window and Door Composition

Compose the windows and doors following the established three bay composition. The center door is prominent and welcoming.



### Materials and Finishes

Determine the material and finishing. The house may use many of the same materials as the original. Check the specified materials against those recommended in the Pattern Book. Use Pattern Book recommended materials and especially green design materials.

Review the color scheme of the house with the surrounding historical context in mind.





An Example of a Transformation of a Typical House Design

Step 1:
Review Existing Design In this single-family detached house plan, the garage dominates the front facade. The floor plan is efficient, however, and could be easily adapted into a rear-loaded site plan. The stucco detailing vaguely indicates the Mission style, although the design does not have a strong architectural character.



Step 2: Observe Historic Context

The photographs below show Mission style houses in the surround $ing\ neighborhood.$ 



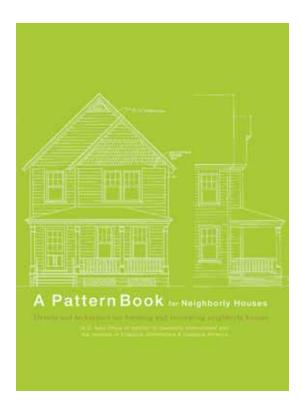




## Step 3: Consult the

Pattern Book

Use the Pattern Book to guide the transformation of a neighborly house, particulary the Mission section for this transformation.





## Step 4:

Develop New Design Based on Existing Design

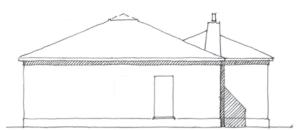
### Adjust the Plan

In the plan, relocate the garage to the rear of the house. If possible orient the garage so that it is loaded from an alley, although it may be front loaded if necessary.



### Adjust Massing and Roof

Consult the Architectural Patterns section. Change the massing to a hipped roof. Articulate the garage as a separate massing with a hipped roof at the rear of the house.



### Bay Placement and Design

Place the entrance within a front gable wing to give it a more prominent place on the facade. Add a bay window giving a public face to the house.



### Window and Door Composition

Pick appropriate windows based on the Mission style of this house. Arrange the windows and doors based on compositions illustrated in the Mission style section of the Pattern Book.





### Materials and Finishes

Pick materials appropriate to the style of the house. Consider a color scheme in keeping with the surrounding neighborhood. In addition to the Architectural Patterns section of the Pattern Book, consult the Resources page in this section for additional guidance on picking materials and finishes. Consider the design of the landscaping around the house as guided by the Landscape Patterns section.





An Example of a Transformation of a Typical House Design

## Step 1:

### Review Existing Design

This single-family detached house plan has good porch placement and simple massing but poor window proportions. Moving the kitchen back away from the front of the house would allow for larger windows on the front facade. This house could be transformed into either the Victorian or Arts & Crafts style.

## Step 2:

### Observe Historic Context

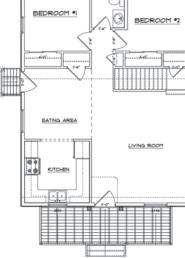
One and a half-story front gable houses with front porches are typical of the surrounding area.

## Step 3: Consult the Pattern Book

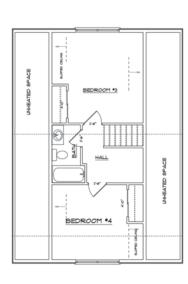
Use the Pattern Book to guide the transformation of a neighborly house, particularly the Victorian and Arts & Crafts section for this transformation.



Front Elevation



First Floor Plan



Second Floor Plan

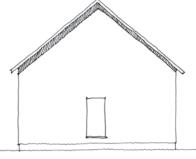


## Step 4:

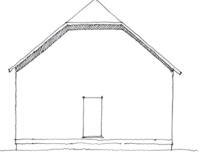
Develop New Design Based on Existing Design

Adjust Massing, Roof Pitch, and Form

Front gable houses with the pitch of the existing design are a common massing in Victorian houses as illustrated in option 1. For an Arts & Crafts elevation, as in option 2, modify the roof form and pitch.



Option 1-Victorian



Option 2-Arts & Crafts



### Adjust Window and Door Composition

Pick appropriate windows based on the Victorian style for option 1 or the Arts & Crafts style for option 2. Arrange the windows and doors based on compositions illustrated in the Victorian and Arts &Crafts style sections of the Pattern Book.







### Materials and Finishes

Pick materials and a color scheme appropriate to the style of the house. The Architectural Patterns section as well as the Material Manufacturers page in this section offer guidance. Consider landscaping options for the house.



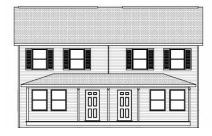


An Example of a Transformation of a Typical House Design

## Step 1:

Review Existing Design

The plan of this single-family attached house works well with the placement of the living room and the existing porch. The windows may be composed in a more orderly fashion. The current design does not have a well-defined architectural character but could be transformed into the Victorian or Arts & Crafts style.



Front Elevation



First Floor Plan

Step 2: Observe Historic Context

There is a good variety of historic house styles with full front porches in the surrounding neighborhood.

## Step 3:

Consult the Pattern Book

Use the Pattern Book to guide the transformation of a neighborly house, particularly the Victorian and Arts & Crafts sections for this transformation.



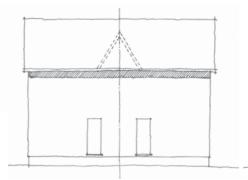
## Step 4:

Develop New Design Based on Existing Design



Adjust Massing and Roof Pitch and Form

Break the mass of the roof with a front gable dormer at the center of the facade composition.



Option 1-Victorian Option 2-Arts & Crafts





Adjust Window and Door Composition

Pick appropriate windows based on the Victorian style for option 1 or the Arts & Crafts style for option 2. Arrange the windows and doors based on compositions illustrated in the Victorian and Arts & Crafts style sections of the Pattern Book.



Materials and Finishes

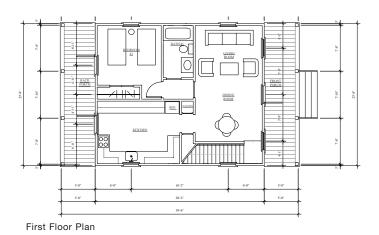
Use the appropriate style section to determine the materials and finishing of the house. The Material Manufacturers page offers recommendations for manufacturers of materials. Consider landscaping options for the house.







## **Book of Plans**



Second Floor Plan



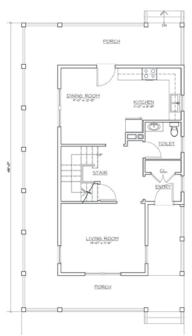
Front Elevation

Single-Family Detached House 1285 square feet 3 bedrooms

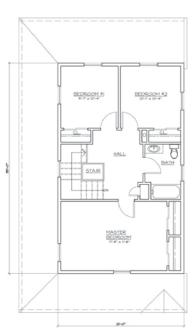
2 bathrooms

Architect: Merrill, Pastor & Colgan

www.merrill pastor.com



First Floor Plan



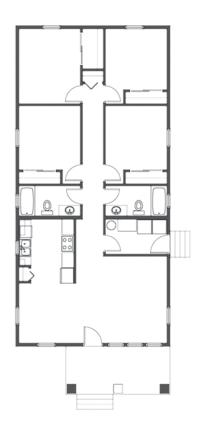
Second Floor Plan



Front Elevation



Single-Family Detached House 1415 square feet 3 bedrooms 1.5 bathrooms Architect: Richard Wilson Cameron rcameron@igrace.com



First Floor Plan



Front Elevation Option

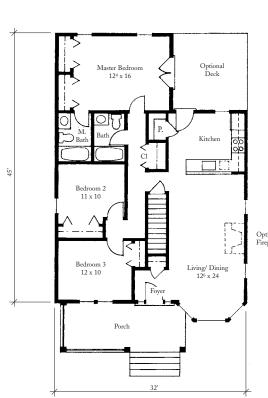


Front Elevation Option



Front Elevation Option

Single-Family Detached House 1370 square feet per unit 4 bedrooms 2 bathrooms Architect: Ritner Architectural Group Contact: Orange County, CA, Habitat for Humanity



First Floor Plan



Front Elevation



Alternative Front Elevation



Single-Family Detached House 1295 square feet 3 bedrooms 2 bathrooms Architect: Urban Design Associates

www.urbandesignassociates.com



## **Book of Plans**







Second Floor Plan



Side Elevation



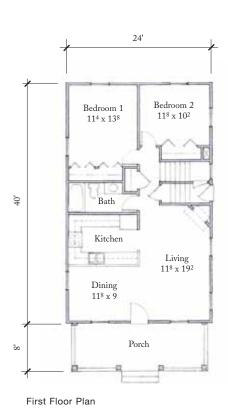
Front Elevation

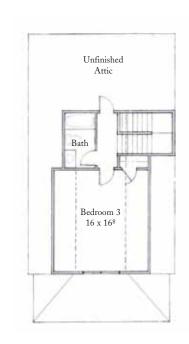
Single-Family Detached House 1226 square feet

- 3 bedrooms 1 bathroom

Architect: Pier Carlo Bontempi and Victor Deupi

vdeupi@piercarlobontempi.com www.piercarlobontempi.it







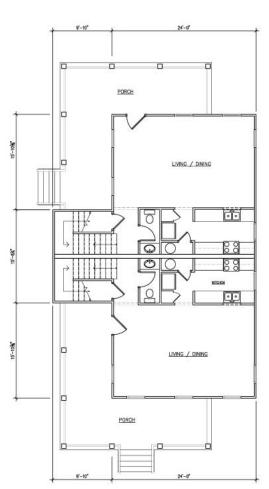


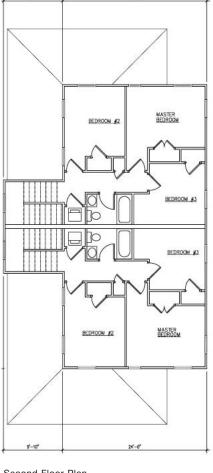
Front Elevation

Single-Family Detached House 1350 square feet

- 3 bedrooms

2 bathrooms Architect: Urban Design Associates www.urbandesignassociates.com







First Floor Plan

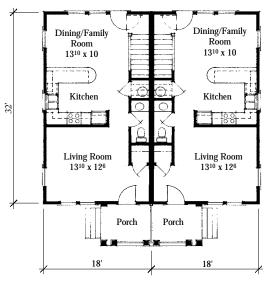
Second Floor Plan

Single-Family Attached Duplex 2 x 1220 square feet per unit

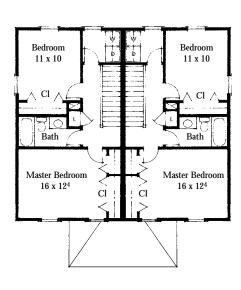
3 bedrooms

1.5 bathrooms

Architect: Mason Andrews mason.andrews@verizon.net







Second floor plan



Front Elevation



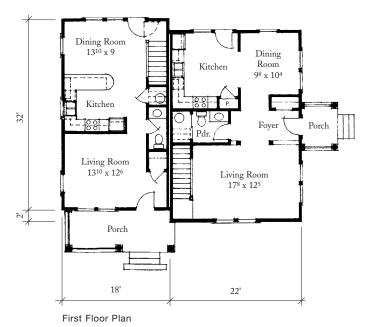
Single-Family Attached Duplex 2 x 1157 square feet

- - 2 bedrooms
  - 1.5 bathrooms

Architect: Urban Design Associates www.urbandesign associates.com



## **Book of Plans**



 $10 \ge 11^6$ Master Bedroom 14<sup>10</sup> x 11<sup>6</sup> Master Bedroom 15 x 11

Second Floor Plan



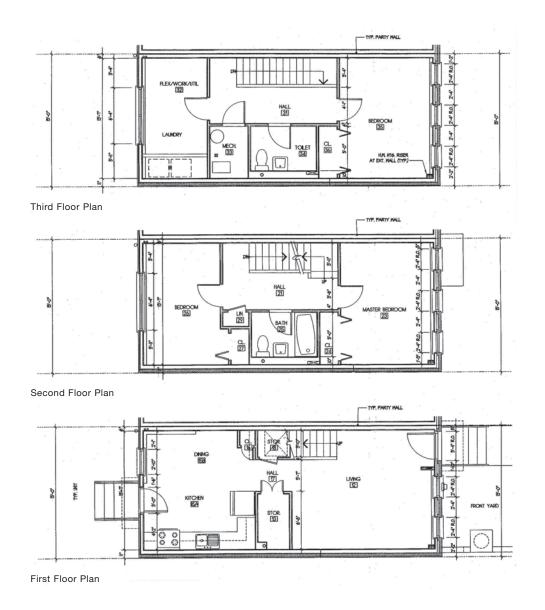
Front Elevation

Architect: Urban Design Associates www.urbandesignassociates.com

Single-Family Attached Duplex 1 x 1157 square feet, 2 bedrooms, 1.5 bathrooms 1 x 1408 square feet, 3 bedrooms, 2.5 bathrooms Architect: Urban Design Associates www.urbandesignassociates.com



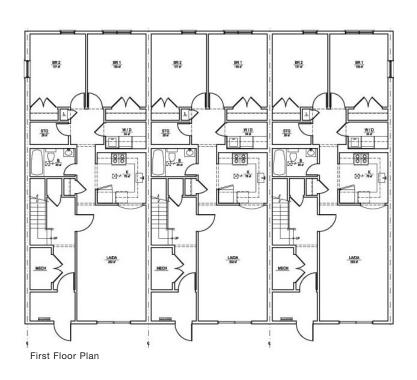
Front Elevation





Townhouse Units
1320 square feet per unit
3 bedrooms
2 bathrooms

Architect: John Ellis & Associates









**Apartment Units** 1025 square feet per unit 3 bedrooms

1.5 bathrooms

Architect: Santoriello + Groom



## Material Manufacturers

The following partial list of national manufacturers of building products, developed by Urban Design Associates, is provided as a starting point in the search for appropriate house materials. These products have been selected due to their appropriateness for the architectural styles outlined in the Pattern Book.

#### **General Resources Periodical**

CLEM LABINE'S PERIOD HOMES (http://www.period-homes.com)
The professional's resource for residential architecture.

#### Windows

MARVIN (http://www.marvin.com) Wood double-hung and casement Clad double-hung and casement with aluminum trim accessories

Replacement sash w/profiled aluminum panning Wood or clad simulated divided lights (SDL) French doors

#### CARADCO

(http://www.jeld-wen.com/windows/wood/caradco)
Wood double-hung and casement

Clad double-hung and casement with aluminum trim accessories

Wood or clad simulated divided lights (SDL) French doors

WINDSOR (http://www.windsorwindows.com)
Wood double-hung and casement
Cellular PVC Legend Series double-hung
and casement

Wood or PVC simulated divided light (SDL) Direct set transoms and sidelights

### **Entry Doors**

SIMPSON (http://www.simpsondoor.com) Wood doors: Appropriate for all styles; hard to find Arts & Crafts door (#1662) is less than \$400; several hard-to-find 2/3 light Victorian doors

NORD (http://jeld-wen.com/windows/wood/norco) Wood doors: Classical and Colonial Revival styles; some Victorian doors

THERMATRU (http://www.thermatru.com)
Fiberglass and Premium Steel Series
Steel Doors: Classical, Colonial Revival, and
Victorian styles; acceptable Arts & Crafts doors

STANLEY (http://www.stanleyworks.com) Fiberglass and steel doors: Classical, Colonial Revival, and Victorian styles

PEACHTREE (http://www.peach99.com) Fiberglass and steel doors: Classical, Colonial Revival, and Victorian styles

#### **Shutters**

SOUTHERN SHUTTER COMPANY (http://www.southernshutter.com)

J&L SHUTTERS (http://www.jlshutters.com) Stephen Fuller Signature Series (composite shutters, Permex)

#### Columns

TURNCRAFT (http://www.turncraft.com)
Architecturally correct round and square composite and wood columns

Arts & Crafts tapered square "Polybox" composite columns

COLUMN & POST (http://www.columnpost.com)
Architecturally correct round and square composite
columns

SOMERSET (http://www.somersetcolumns.com) Architecturally correct round and square wood columns and pilasters

HB&G (http://www.hbgcolumns.com)
PermaPorch system: Cellular pvc; 2 x 2 square or turned balusters with "Savannah" top rail

### **Exterior Siding** (synthetic options)

JAMES HARDIE (http://www.jameshardie.com) Hardiplank (fiber cement), lap siding, shingle, panel, and soffit products

GEORGIA-PACIFIC (http://www.gp.com) Fiber cement cladding board

## **Exterior Molding, Trim, and Brackets** (synthetic options)

CHEMCREST (http://www.chemcrest.com) Classic Moulding & Door: Crown, bed, casing, and brackets in polyurethane

AZEK (http://www.azek.com)
Cellular PVC flat sheet (4' x 8', 4' x 10' and 4' x 12')
for gables, soffits, etc.
3/4" thick trim boards, 5/4" thick trim boards
(4" and 6" widths)
Tongue-and-groove paneling

ROYAL WOOD (http://www.royalwood.com) Composite 1x trim boards, brickmould, and T&G paneling for porch ceilings

FYPON OR DURAFLEX (http://www.fypon.com)

### **Porch Ceilings**

GEORGIA-PACIFIC (http://www.gp.com) "PlyBead Classic" and T&G beaded paneling

## Fencing (synthetic options) KROY (http://www.kroybp.com)

Classic Manor Collection: Vinyl fences in traditional designs and profiles

### **Garage Doors**

DESIGNER DOOR (http://www.designerdoors.com)

CLOPAY DOORS (http://www.clopay.com)

#### **Roof Shingles and Tiles** (synthetic options)

MAJESTIC SKYLINES (http://www.majesticskylines.com) Synthetic slate

OWENS CORNING (http://www.miravistaroof.com) MiraVista specialty roofing: synthetic shakes, slate, copper, and metal Berkshire Collection: composite shingles

TAMKO ROOFING PRODUCTS (http://www.lamarite.com)
Lamarite slate composite shingles

## Resources

A Pattern Language.
Alexander, Christopher 1976 Oxford

American Architecture Since 1780. Whiffen, Marcus 1988 MIT Press

*American House Styles.*Baker, John 2002 W.W.Norton

The Architectural Pattern Book, A Tool for Building Great Neighborhoods. Urban Design Associates 2004 W.W. Norton

Identifying American Architecture.
Blumenson, John 1995 Rowman & Littlefield

The Visual Dictionary of American Domestic

Carley, Rachel 1997 Henry Holt

The Grammar of Architecture. Cole, Emily 2002 Bullfinch

Building Green Without Going in the Red. Curtis, Kathleen and Roberta Chase 2004 Citizen's Environmental Coalition

Clues to American Architecture. Klein, Marilyn W. and David P. Fogle, 1986 Starrhill Press

A Field Guide to American Houses. McAlester, V. & L. 1984 Random House

What Style Is It?
Poppeliers, John 1977 John Wiley & Sons

Traditional Details for Rehabilitation and Reconstruction.

Ramsey, C. & H. Sleeper, 1998 John Wiley & Sons

Traditional Construction Patterns, Design & Detail Rules of Thumb.

Mouzon, Stephen A. 2004 McGraw-Hill

A Concise History of American Architecture. Roth, Leland 1980 Westview Press

American Homes, An Illustrated Encyclopedia of Domestic Architecture.
Walker, Lester 1996 Black Dog & Leventhal

*The American Vignola.*Ware, William R. 1994 Dover

Prints & Photographs Online Catalog
Historic American Buildings Survey/Historic
American Engineering Record (HABS-HAER)
Collection:http://lcweb2.loc.gov/pp/hhquery.html
(search key words: state, location, houses, and drawings)

Sustainable Buildings Industry Council (SBIC) Clearinghouse for whole building design, product information, professional training, consumer education, and analytical tools: www.sbicouncil.org

## Green Design Resources

Southface Energy Institute http://www.southface.org

Whole House Energy Checklist: 50 Steps to Energy Efficiency in the Home. Passive Solar Design. http://www.southface.org/web/resources&services/publications/factsheets/sf\_factsheet-menu.htm

Energy Star http://www.energystar.gov/

Green Begins with Energystar Blue http://www.energystar.gov/ia/news\_homes/Green\_ Begins\_with\_ENERGYSTAR\_Blue.pdf http://www.energystar.gov/index.cfm?c=green\_ buildings.green\_buildings\_index

Healthy Building Network

Screening the Toxics Out of Building Materials

Healthy\_Building\_Material\_Resources.pdf

http://www.healthybuilding.net/target\_materials.html

US Environmental Protection Agency http://www.epa.gov

USGBC. U.S. Green Building Council http://www.usgbc.org

LEED. Leadership in Energy and Environmental Design. LEED for Homes http://www.usgbc.org/DisplayPage.aspx?CMSPage ID=147

ACEEE. The American Council for an Energy Efficient Economy http://www.aceee.org

Environmental Home Center http://www.environmentalhomecenter.com

Greenpeace USA http://www.greenpeaceusa.org

The Green Guide http://www.thegreenguide.com



## Glossary of Terms

Accessibility: Accessibility for people with disabilities is defined by building standards and codes that apply to new construction, renovations, and additions made to existing buildings and facilities that are covered by non-discrimination laws. Accessibility provisions in the federal Americans with Disabilities Act, the Architectural Barriers Act, and the Rehabilitation Act, apply to public buildings and facilities and to 5% of the dwelling units in any federally funded program. The Fair Housing Act Amendments of 1988 cover all newly constructed multi-family projects and require a much larger percentage of accessible units but not the same level of accessibility required by the other federal laws. It is important to note that no federal accessibility law currently covers 1-, 2-, and 3family housing units, with the exception of a very small number (5%) that are built through federally funded programs. Contrast with "Visitability" which has fewer requirements.

Apron: A raised panel below a window sill.

Arts & Crafts: Eclectic movement of American domestic architecture in the arts and architecture during the second half of the 19th century and early part of the 20th century, emphasizing craftsmanship in a regional expression.

**Balustrade:** An entire railing system including a top rail, balusters, and often a bottom rail.

**Batten:** A narrow strip of wood applied to cover a joint along the edges of two parallel boards in the same plane.

**Beaded-Profile Panels:** Panels manufactured to resemble traditional bead board.

**Boxed Eave (boxed cornice):** A hollow eave enclosed by the roofing, the soffit, and the building wall.

**Brickmold:** Window or door trim, typically 2 inches wide.

**Classical Architecture:** The architecture of Hellenic Greece and imperial Rome.

**Classical Revival:** An architecture movement in the early 19th century based on the use of Roman and Greek forms.

**Colonial Revival:** The use of Georgian and colonial design in the U.S. in the late 19th and early 20th centuries.

**Corner Board:** A board which is used as trim on the external corner of a wood-frame structure.

**Cornice:** An ornamental molding at the meeting of the roof and walls; usually consists of bed molding, soffit, fascia, and crown molding.

**Crown Molding:** Projecting molding forming the top member of a cornice, door, or window frame.

**Doric Order:** The column and entablature developed by the Dorian Greeks, sturdy in proportion, with a simple cushion capital, a frieze of triglyphs and metopes, and mutules in the cornice.

**Fascia:** Vertical board that terminates a sloped roof at the eave.

**Gable:** The vertical triangular portion of the end of a building having a double-sloping roof, from the level of the cornice or eaves to the ridge of the roof.

**Gable L:** Describes the massing of a house having a hipped roof with a projecting gable form at the front, typically two-thirds the width of the facade.

**Gable Roof:** A roof having a gable at one or both ends.

**Hipped Roof:** A roof that slopes upward from all four sides of a building, requiring a hip rafter at each corner.

**Light:** A pane of glass, a window, or a subdivision of a window.

**Lintel:** A horizontal structural member (such as a beam) over an opening which carries the weight of the wall above it.

**Louver:** An assembly of sloping, overlapping blades or slats designed to admit air and/or light and exclude rain and snow.

**Mullion and Muntin:** The vertical and horizontal members separating (and often supporting) window, doors, or panels set in series.

**Rafter Tails:** A rafter, bracket, or joist which projects beyond the side of a building and supports an overhanging portion of the roof.

**Roof Pitch:** The slope of a roof expressed as a ratio of its vertical rise to its horizontal rise.

**Shed Roof:** A roof shape having only one sloping plane.

**Side Gable:** Describes the massing of a house having the gable end (or roof ridgeline) perpendicular to the street.

**Simulated Divided Light:** Refers to a light in a window sash that is visually subdivided by applied muntins that simulates a true divided sash.

**Skirt Board:** A board set horizontally at the bottom of wall cladding.

**Soffit:** the exposed undersurface of any overhead component of a building, such as a beam, cornice, lintel, or vault.

**Stile-and-Rail:** Type of door construction that utilizes a framework of vertical and horizontal members infilled with panels.

**Tongue-and-Groove:** Method of joining materials, usually wood, where a tongue or projection in one board fits the groove of its neighbor.

**Vergeboard:** An ornamental board hanging from the rake or verge of a gable roof.

**Vernacular Architecture:** A mode of building based on regional forms and materials.

Victorian Architecture: Revival and eclectic architecture of Great Britain named after the reign of Queen Victoria (1837-1901); also its American counterpart which reached its zenith in the U.S. during the latter half of the 19th century.

Visitability: Unlike the more extensive features legally required by accessibility standards and codes, visitability involves a short list of features recommended for voluntary inclusion in virtually all new homes—single-family detached, rowhouses, etc. Visitability features are those most crucial for people to remain in their homes if they develop an impairment and to visit their neighbors as full members of the community. These features include at least one entrance without any steps on an accessible path at the front, side, or back of the home, depending on topography; all interior passage doors providing at least 32 inches of clear passage space; and at least a half bath (preferably a full bath) on the floor served by the zero-step entrance that has minimum space requirements for access by a person who uses a wheelchair. Refer also to "accessibility" which has more extensive requirements.

**Water Course or Water Table:** A board or masonry projection fixed to the foot of a wall to shoot water away from it.

**Wing:** a subsidiary part of a building extending out from the main portion or body.



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