

# County of Henrico

## HOMEOWNER'S ENHANCEMENT GUIDE

Updates for Today's Lifestyles



# County of Henrico

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Updates for Today's Lifestyles

### ACKNOWLEDGEMENTS

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HOMEOWNER'S ENHANCEMENT GUIDE

TABLE OF CONTENTS

**Chapter 1: Welcome Home ..... 1**

Introduction.....2

An Owner's Manual for Your Home .....3

Buying A Piece of the American Dream -  
Tracing the Rise of Suburbia .....4

Don't Move - Improve! ..... 5

What is Curb Appeal? .....6

**Chapter 2: The Ranch ..... 7**

Ranch Background .....8

Small Ranch House Parts and Variations.....10

Large Ranch House Parts and Variations.....11

Creating Curb Appeal.....12

Ideas for Additions - Small Ranch.....16

More Ideas for Additions - Small Ranch .....17

Ideas for Additions - Large Ranch.....18

More Ideas for Additions - Large Ranch.....20



TABLE OF CONTENTS

**Chapter 3: The Cape Cod ..... 21**

- Cape Cod Background .....22
- Cape Cod House Parts and Variations .....25
- Creating Curb Appeal.....26
- Ideas for Additions - Traditional Cape .....28
- More Ideas for Additions - Traditional Cape.....29
- Ideas for Additions - Modern Cape .....30
- More Ideas for Additions - Modern Cape.....32

**Chapter 4: The Split Level ..... 33**

- Split Level Background .....34
- Split Level House Parts and Variations .....36
- Creating Curb Appeal.....37
- Ideas for Additions.....38
- More Ideas for Additions .....40

**Chapter 5: The Colonial Revival..... 41**

Colonial Revival Background .....42

Side Hall Colonial Revival Parts and Variations .....43

Center Hall Colonial Revival Parts and Variations.....44

Creating Curb Appeal.....45

Ideas for Additions - Side Hall Colonial .....47

More Ideas for Additions - Side Hall Colonial.....49

Ideas for Additions - Center Hall Colonial .....50

More Ideas for Additions - Center Hall Colonial.....52

**Chapter 6: The Bungalow..... 53**

Bungalow Background .....54

Bungalow House Parts and Variations .....55

Creating Curb Appeal.....56

Ideas for Additions - Hipped or End Gable Bungalow .....58



TABLE OF CONTENTS

**Chapter 6: The Bungalow, continued**

More Ideas for Additions - Hipped or End Gable Bungalow....**59**  
Ideas for Additions - Side Gable Bungalow .....**60**  
More Ideas for Additions - Side Gable Bungalow .....**62**

**Chapter 7: Making the Most of Your Yard ..... 63**

Maintaining Your Yard.....**64**  
Enhancing Your Yard.....**66**  
What's In Your Garden? .....**67**  
Before You Go Any Further.....**68**  
In the Yard - Green, Green, and Greener Still .....**69**  
Consider These Green Ideas.....**70**  
Making the Most of Your Ranch Yard.....**72**  
Making the Most of Your Cape Cod Yard .....**74**  
Making the Most of Your Split Level Yard .....**76**

**Chapter 7: Making the Most of Your Yard, continued**

Making the Most of Your Colonial Revival Yard .....78  
Making the Most of Your Bungalow Yard .....80

**Chapter 8: New Houses in the Neighborhoods..... 83**

New Construction .....84  
Materials .....88

**Chapter 9: Going Green:**

**Save Energy, Water, and Money!..... 93**

What Does It Mean to Be Green .....94  
Where is the Money Going? .....95  
Adding On - The Green Way .....102

**Chapter 10: Aging in Place ..... 103**

What is Aging in Place? .....104  
What Can You Do? ..... 105



TABLE OF CONTENTS

**Chapter 11: Organizing Your Project: Planning, Funding and Working with Contractors..... 109**

Planning Your Project..... 110

What Do the Contractors Say? ..... 111

Where's the Money? ..... 112

Visiting the Permit Center ..... 115

Working with Contractors..... 117

Working Together ..... 120

**Appendices**

Appendix A: Inside and Out: Seasonal Maintenance ..... 121

Appendix B: Glossary and Resources..... 127





# HOMEOWNER'S ENHANCEMENT GUIDE

## Chapter 1: Welcome Home



## INTRODUCTION

This guide is intended for homeowners and prospective purchasers of older homes, that may be in need of modernization and enhancement to the appearance of the house and property. Elements of the guide would be of value for newer homes as well.

Henrico County has approximately 35,000 houses that were constructed between 1945 and 1975. These homes represent approximately 40% of the single-family houses in the County. Much of this housing is well built of quality materials, such as brick and hard wood flooring. The neighborhoods are conveniently located with excellent schools.

Given the age, size and configuration of many of these homes; they are in need of renovation and/or additions in order to compete with more modern housing. This guide provides homeowners with a number of ideas and tools to modernize and enhance their homes and property.

By enhancing the appearance of your property you can increase your property value and contribute to the desirability of your neighborhood, making it easier to sell your house when the time comes. The County of Henrico

**THE HOUSE OF EASE**

- REYNOLDS WRAPPED FOR YEAR ROUND COMFORT** (Illustration of a house with a roof wrap)
- SHINGLES of REYNOLDS ALUMINUM** - The permanent roof—heat-reflective
- GUTTERS and DOWNSPOUTS of REYNOLDS ALUMINUM** —Never need painting
- EXTERIOR TRIM and SOFFIT** - No peeling, warping, buckling —no rust streaks
- LUXURY LOOK IN WINDOWS** - Lasting beauty and performance
- ALUMINUM DUCTWORK** - Saves up to 10% on heating and cooling
- ALUMINUM HARDWARE** - Exterior and interior —lasting beauty
- ALUMINUM SHUTTERS** - Never warp or rot
- SIDING of REYNOLDS ALUMINUM** - Never needs painting for weather protection
- REYNOLDS ALUMINUM FLASHING** - Rust-free, non-staining—low cost
- VENT FLUES and CHIMNEYS** - Permanent—no replacement necessary
- ATTIC VENTS of REYNOLDS ALUMINUM** - Maintenance-free No painting

**FOR LEISURE LIVING**

- ☆ EXTRA BEAUTY
- ☆ EXTRA COMFORT
- ☆ EXTRA EASE OF MAINTENANCE

**FOR INCREASED RESALE VALUE**

made with **REYNOLDS ALUMINUM**  
as featured in the **"HOUSE OF EASE"**

A selling feature in many Henrico County subdivisions such as Wedgewood Park, the House of Ease featured many elements manufactured by Reynolds Aluminum. These optional items included windows, siding, gutters and roof shingles.

is dedicated to preserving and revitalizing its mature neighborhoods and developed this guide as a means to help property owners envision an improved and more comfortable home for the future. The importance of maintaining and enhancing the housing stock is recognized in the County's Vision 2026 Comprehensive Plan, which calls for further study of neighborhoods characterized by a more mature housing stock. This guide is an important step in the implementation of the Comprehensive Plan.

As Classic As Wedgewood Ware

**WEDGEWOOD PARK**

**THE DRESDEN**  
BASE PRICE \$22,000  
ALUMINUM PACKAGE \$24,950.00

featuring the **"HOUSE OF EASE"**  
made with **REYNOLDS ALUMINUM**

Homes in this 1960s subdivision off Parham Road had close to 2,000 square feet of living space and quarter-acre lots.

## AN OWNER'S MANUAL FOR YOUR HOME

Think of this guide as an owner's manual for your home. It can help you accomplish:

- improving your home and site maintenance
- increasing the curb appeal of your house and yard
- making your property more energy and water efficient
- incorporating universal design (handicap accessibility) ideas that may help you stay in your house as you age
- planning for new landscaping
- planning an addition
- building an appropriate new house in a mature neighborhood
- picking a contractor and guidance to help the project run as smoothly as possible
- financing your project

The guide is organized in two ways. For improvements that are specific to the style of the house, there are individual chapters for the most popular styles found in the county: Ranch, Cape Cod, Split Level, Colonial Revival and Bungalow. For enhancements that are applicable to any style of house, the chapters are arranged by subject and include: Making the Most of Your Yard, New Houses in the Neighborhoods, Going Green, Aging in Place and Organizing Your Project: Planning, Financing and Working with Contractors. The Appendices also contain a wealth of valuable resources and reference material including a series of checklists for seasonal maintenance.

The Ranch style is by far the most common house style found in Henrico County's mid-century neighborhoods.

### LOOK FOR TIP SYMBOLS THROUGHOUT THIS GUIDE



energy



water



"green"



recycle



aging in place



check with the permit center

These symbols highlight useful tips for your property.

### HENRICO HOUSES BUILT BETWEEN 1945 AND 1975



**60%** Ranch



**20%** Cape Cod or Colonial Revival



**14%** Split Level



**6%** Bungalow



## BUYING A PIECE OF THE AMERICAN DREAM - TRACING THE RISE OF SUBURBIA IN AMERICA

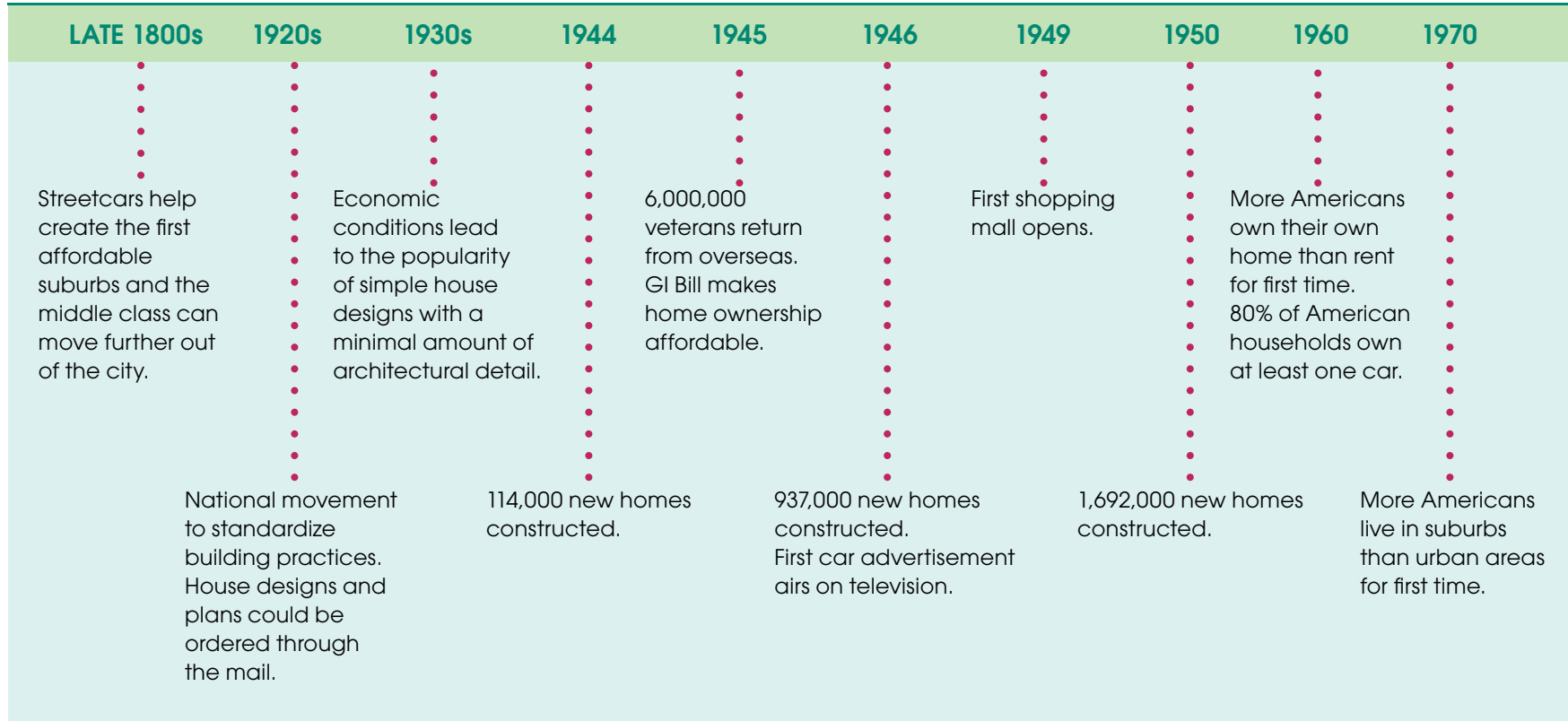


Photo from Life Magazine



## DON'T MOVE - IMPROVE!

Your children love their school and you have great neighbors. So, don't move – improve.

Like most homeowners, there are probably things you like and dislike about your home:

### SMART CHOICES ABOUT HOME IMPROVEMENTS INCLUDE THOSE THAT:

- Accentuate the character of your house
- Provide increased energy efficiency
- Relate to the way you live and use your house
- Protect your investment
- Increase the pride you have in the ownership of your home
- Allow you to continue to live there as you age (in place)

### CHECK OUT THE COUNTY OF HENRICO WEBSITE

The information in this guide is also available on the County's website and in all public libraries:

<http://www.henrico.us/departments/revit/>

### ON THE POSITIVE SIDE, YOUR HOME PROBABLY HAS:

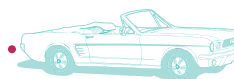


- good location, convenient to shopping
- established neighborhood
- decent lot size
- mature landscaping
- quality construction

### THE SHORTCOMINGS OFTEN INCLUDE:



- wear and tear due to the age of the house
- drafts and leaks leading to energy inefficiency
- lack of an open floor plan
- small kitchen
- too few bathrooms and/or bedrooms
- no garage



## WHAT IS CURB APPEAL?

Small changes can make a big difference in the exterior look of your house. Often called curb appeal, these projects accent your home through new plantings, entrance elements, color schemes, and materials.

### AS YOU CHOOSE ELEMENTS FOR YOUR PROJECT CONSIDER:

- The size and scale of your house
- The style of the house
- How you would like to use your outdoor spaces
- How changes will look from inside the house and from the street

### WHEN YOU ARE CHOOSING COLORS AND MATERIALS:

- Echo the materials used in the construction of the house
- Build on the design of existing elements
- Repeat existing plant, paving, railing and other materials

Remember that you can complete your project in stages. Make a plan, complete what you can afford now and do more each year as your budget allows.



A typical Henrico County ranch style house is shown here in its original form. It appears low to the ground due to its low pitched roof and windows that are grouped to appear wider than they are tall.



This illustration shows how the original ranch style house can be given Colonial Revival curb appeal.

- small-paned replacement windows that are taller and more narrow
- traditional window trim details
- louvered shutters
- pedimented entry portico
- brick walkway and traditional plantings

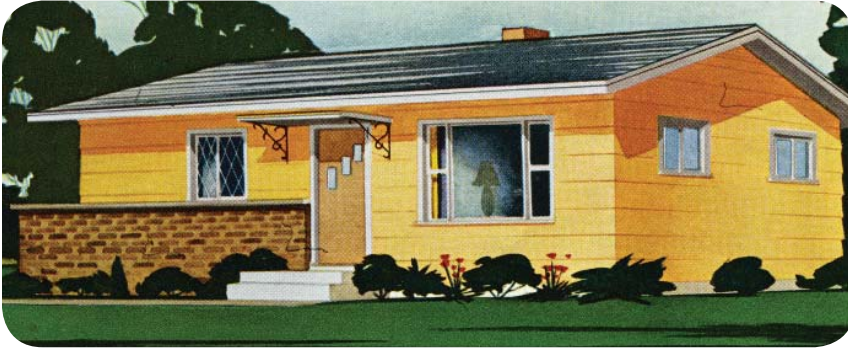


# HOMEOWNER'S ENHANCEMENT GUIDE

## Chapter 2: The Ranch

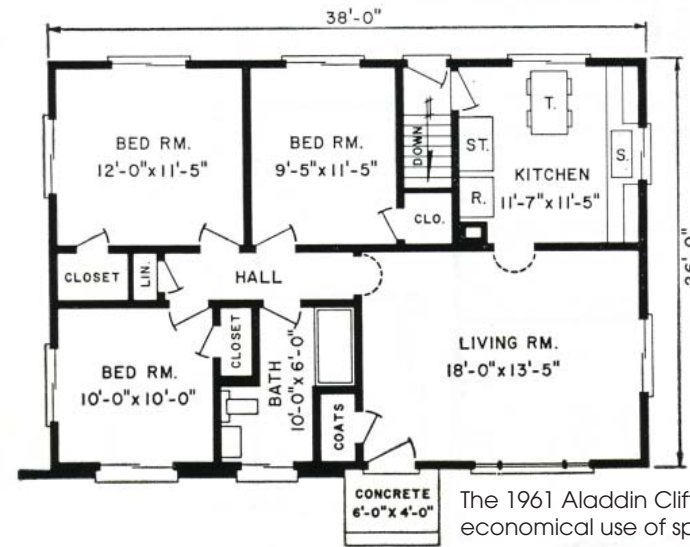


## RANCH BACKGROUND



As the car became an indispensable part of everyday life, the need for public transportation diminished and suburbs flourished. Lots became larger because there was no longer a need for proximity to streetcar stops. Small, one-story houses were built on lots with room for future expansion and larger ranches spread across the majority of the lot width. Modern features such as picture windows and sliding glass doors were incorporated into designs for the first time.

Almost sixty percent of the homes constructed in Henrico County between 1945 and 1975 are Ranch style houses. They are found in practically every neighborhood in the county. The earlier examples tend to be smaller and answered the need for immediate housing at the end of World War II. As the suburbs grew away from the city and lot sizes increased, the houses became larger to accommodate growing “baby boom” families.



The 1961 Aladdin Clifton made economical use of space.

### LIKES:

- Low cost for heating and cooling due to small size
- Quality construction materials
- Divided rooms
- Adaptable to a variety of improvements

### DISLIKES:

- No dining room
- Only one full bath
- No entry hall - door opens directly into living room
- Lacks easy connection from house to back yard
- Minimal closet space
- No space for a washer/dryer
- Cramped kitchen
- Modern furniture is too big for spaces
- No master suite
- Rooms are too small



.....

**LIKES:**

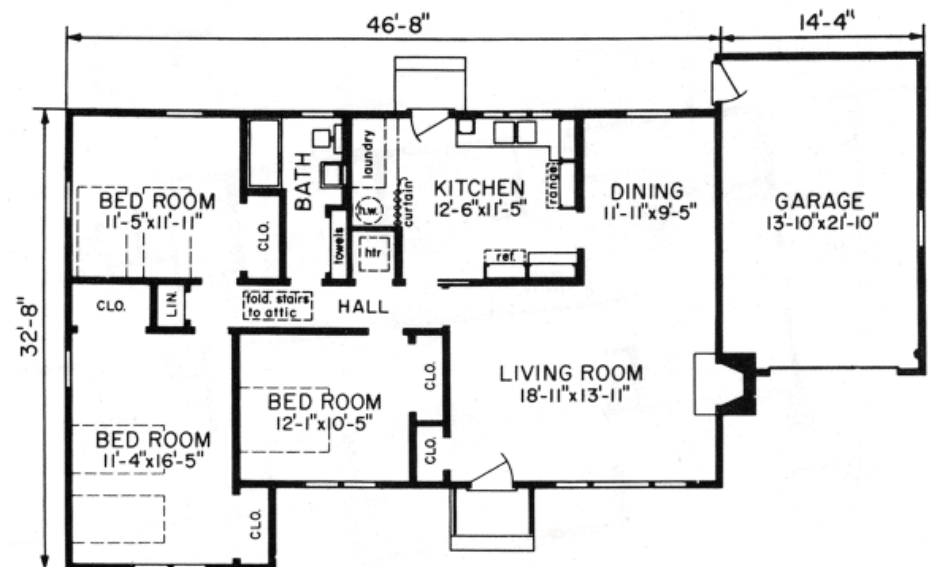
- Single floor living
- Open floor plan
- Solid, well-built, quality materials
- Designed for growing families

**DISLIKES:**

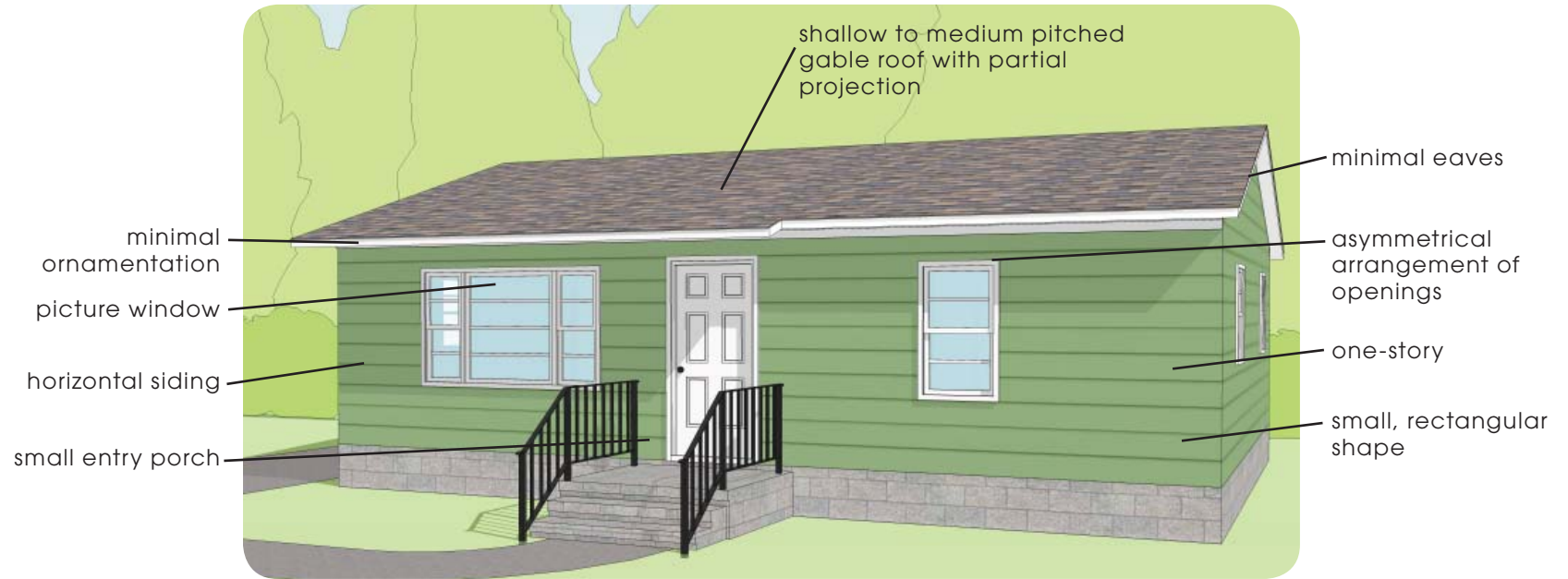
- Lack of defined entry
- No master suite
- Lack of storage space
- Needs additional bathroom



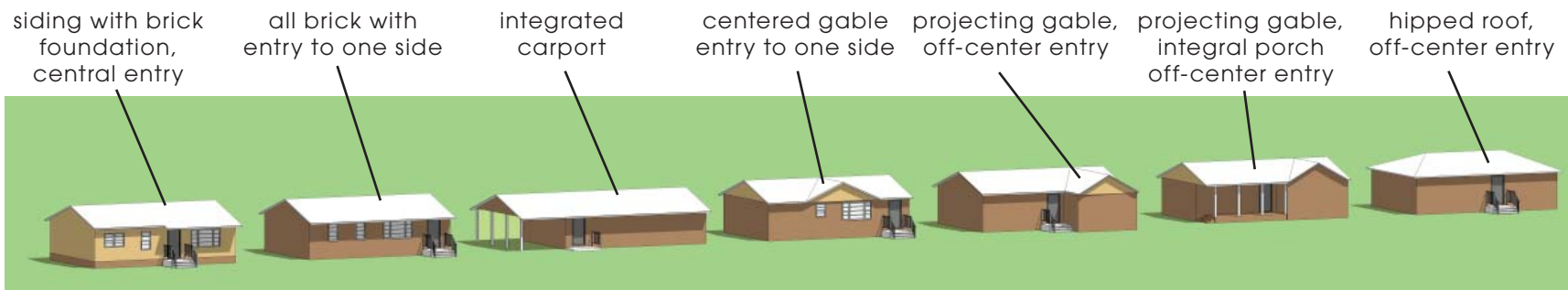
Advertisements for the Modern Ranch R-135 plan touted that it provided “every practical living comfort.”



## SMALL RANCH HOUSE PARTS AND VARIATIONS



### MATERIAL, ENTRANCE, GABLE AND ROOF VARIATIONS



## LARGE RANCH HOUSE PARTS AND VARIATIONS



### MATERIAL, GABLE, ROOF AND GARAGE VARIATIONS



## CREATING CURB APPEAL



Before



Plantings anchor the foundation and a new pendant light fixture provides light at the covered entry stoop. A new coat of blue paint on the shutters further updates the front of the house.



The brick walk reinforces the connection of the house to the street and neighborhood. Window boxes provide seasonal color and appear to lengthen the windows for a traditional look.



New, smaller paned windows, molded trim surrounding the door, and side railings all add to the enhanced traditional appearance.





Before



Enhanced planting beds provide seasonal color and a brick sidewalk repeats the house material.



Repainting the front door and adding a new full-view storm door enhance the entry. Classical trim around the front door, and a new post and railing further enhance the entry.



Dark shutters add interest to the gable end and complement the shade of the new roof. Small-paned replacement windows add visual interest. A low picket fence accented with plantings defines the yard.



## CREATING CURB APPEAL



Before



The house receives colorful accent plantings and bright shutters. Removal of the awning is an instant update.



A new paneled front door and covered entry provide additional visual interest. A deep yellow paint color coordinates with the shutters and door. The brick sidewalk complements the accent color used on the house.



The use of a warmer tone asphalt roof reinforces the tones used in the earlier enhancements. Small-paned replacement windows add a traditional element.





Before



Repainting the front door and shutters in a darker color provides an instant update. A flowering shrub adds seasonal color.



Adding foundation plantings and mulch, and window boxes that coordinate with the shutter color provide additional visual appeal.



The original, horizontally oriented, aluminum windows are replaced with more traditional, vertical, small-paned windows. The new darker roof material provides a visual anchor and means less noticeable staining from tree debris.



## IDEAS FOR ADDITIONS - SMALL RANCH



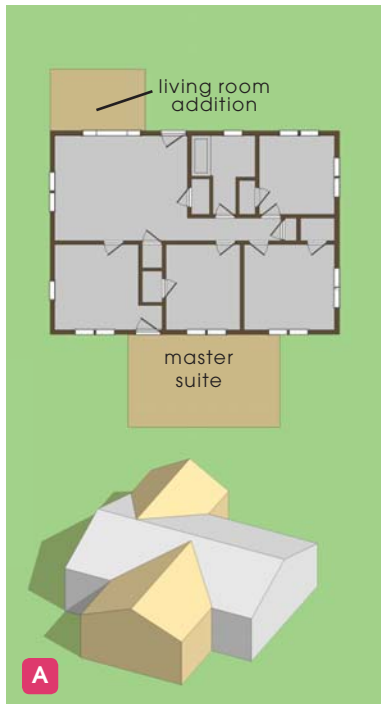
EXISTING PLAN



EXISTING FRONT VIEW



EXISTING REAR VIEW



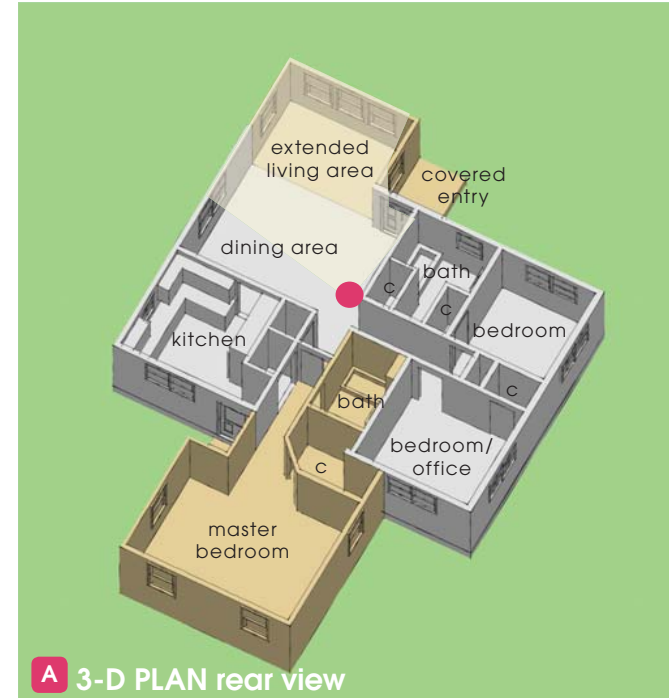
one-story gable-roofed front and rear additions



A FRONT VIEW with addition



A FRONT VIEW with addition & site enhancements



A 3-D PLAN rear view

This one-story addition creates an extended living area at the front of the house and a master suite at the rear.



Green/Energy Efficient elements in this plan include:

- Energy Star windows
- recycled content/natural fiber carpet and upholstery
- paints with low levels of volatile organic compounds (VOC)
- natural light from windows reduces energy need
- lighting fixtures that accept compact fluorescent bulbs (CFL)

See Chapter 9  Going Green for more ideas.





**MORE IDEAS FOR ADDITIONS - SMALL RANCH**

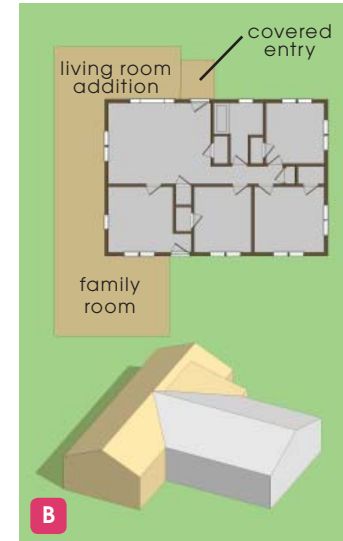


**A INTERIOR VIEW**

Many smaller ranch style houses were built with an eating area incorporated into the kitchen rather than a separate dining room or dining area. This view is taken from the location of the large dot in the 3-D plan rear view and shows how an extension to the front of the existing living room can help to create a dining area adjacent to, rather than in, the kitchen.

As originally built, it was common for these smaller houses to have three bedrooms but only one bathroom. To create another bathroom, the bedroom next to the kitchen was used to provide a connection to a master bedroom addition, a large closet, and a second bathroom.

**“It will be so nice not to SHARE a BATHROOM with the kids”**



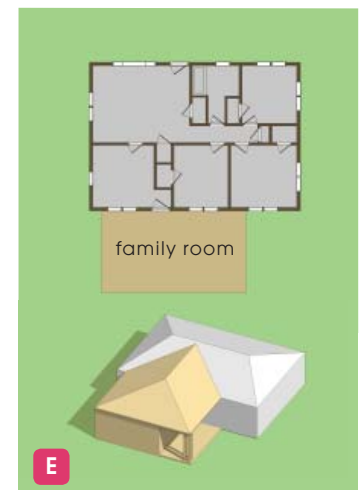
**B** one-story cross-gable addition to front, side and rear



**D** one-story, hipped roof side addition



**C** one-story, gabled roof side addition

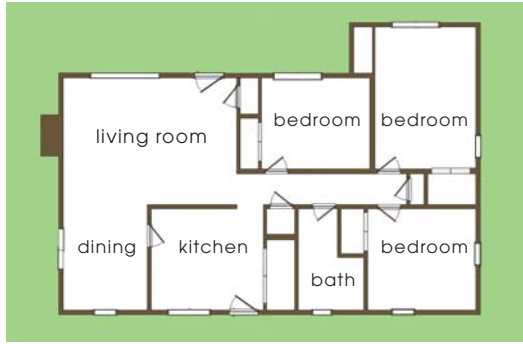


**E** one-story, hipped roof rear addition with porch



## IDEAS FOR ADDITIONS - LARGE RANCH

See page 20 for additional ideas **B C D E**



EXISTING PLAN



EXISTING FRONT VIEW

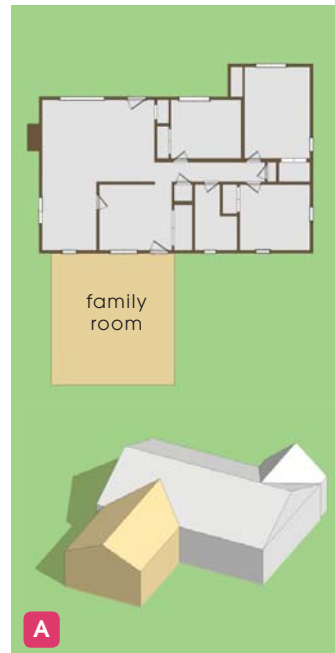


EXISTING REAR VIEW



EXISTING PLAN with new master suite

How about being able to create a master suite without putting an addition on the house? Consider expanding into an adjoining bedroom which can provide space for an additional bathroom and home office as well as new closet space.



one-story, gabled roof rear addition

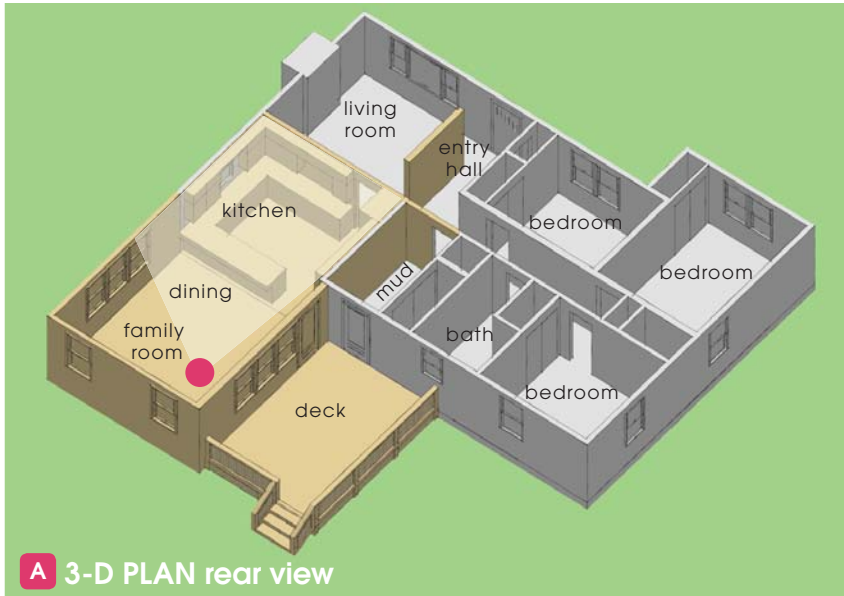


**A** REAR VIEW with addition



**A** REAR VIEW with addition & site enhancements





**A 3-D PLAN rear view**

This one-story addition creates an entry hall and provides a family room area for casual gatherings.

**“Finally, I can have a large enough PLACE to ENTERTAIN my family and friends”**




**A INTERIOR VIEW**

By looking towards the front of the house from the corner of the new family room, the open floor plan of the newly enlarged kitchen and dining area shows how a new gathering and entertaining space can be created. The kitchen is expanded into the former dining space and part of the new addition provides a new dining area. The former laundry space is enlarged to create a mudroom/laundry with a door to the new deck.



Universal Design elements in this plan include:

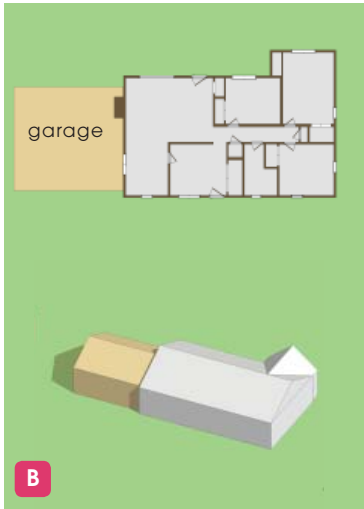
- wide exterior and interior openings/doorways
- kitchen counter with open space/shelving beneath and variety of counter heights

See Chapter 10  Aging In Place at the back of the report for more ideas.



## MORE IDEAS FOR ADDITIONS - LARGE RANCH

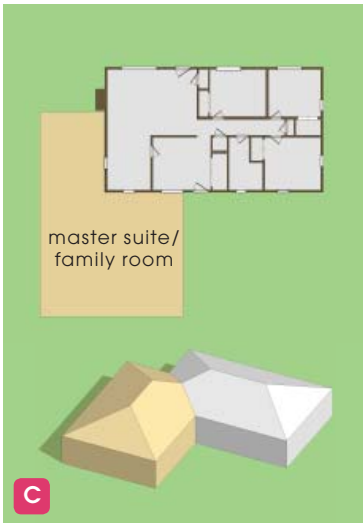
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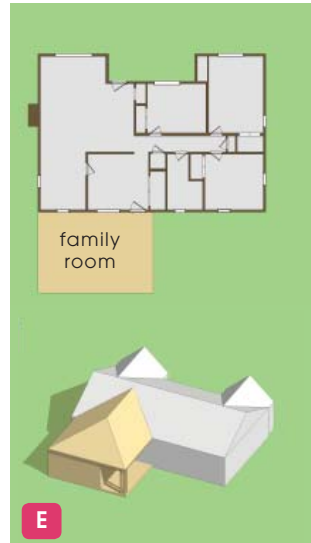
**B** one-story, gabled roof side extension



**D** one-story, gabled roof side extension



**C** one-story, hipped roof side and rear extension



**E** one-story, hipped roof rear ell with porch



**B** FRONT VIEW with garage addition



**B** REAR VIEW with garage addition



HOMEOWNER'S ENHANCEMENT GUIDE

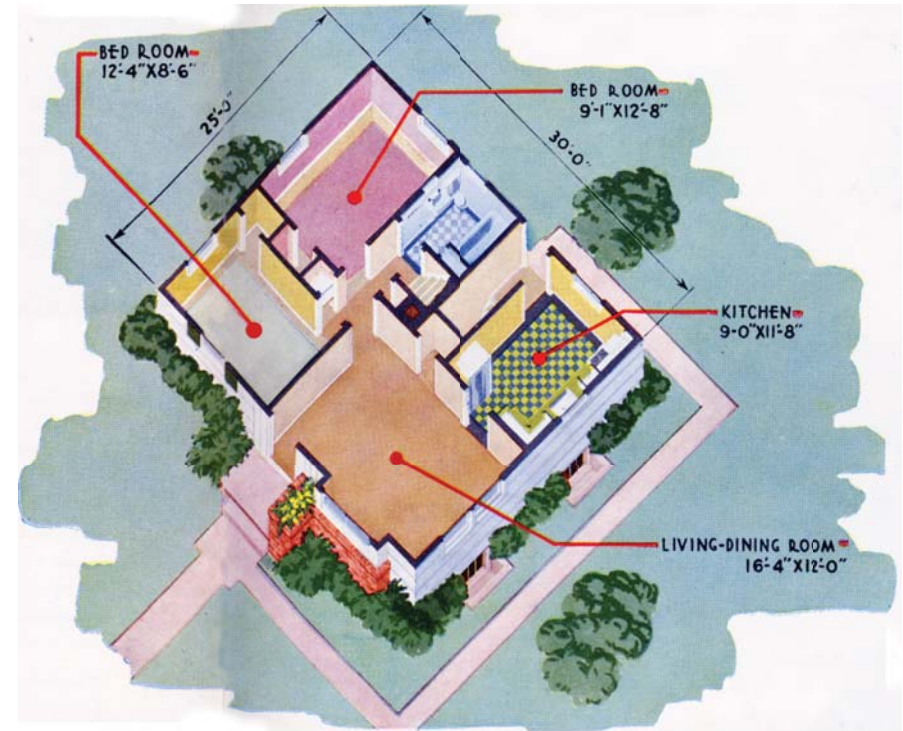
Chapter 3: The Cape Cod



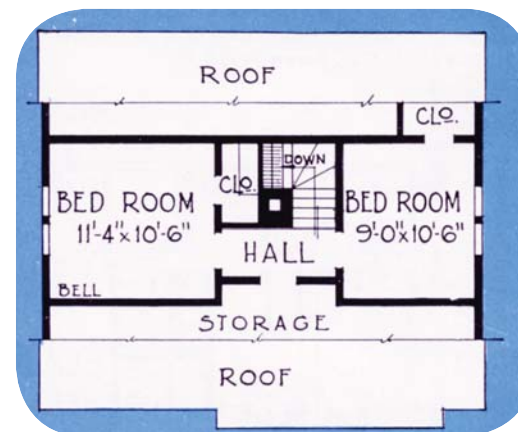
## CAPE COD BACKGROUND



The Cape Cod is loosely based on the homes of this country's early settlers in eastern Massachusetts. Small, affordable, and traditional, these one and one-half story houses were most popular between 1920 and 1960 and are of a timeless design. Built as starter houses, many original designs included plans for additions to be made later. The steep pitch to the roof and end gable windows allowed expansion into the attic space. These houses were originally constructed both with and without dormers and are found with varying levels of Colonial Revival details. The largest concentration of Cape Cod houses, usually of brick construction, occurs in the northern and western parts of the County.



A birds-eye view of the 1949 National Bell shows the floor plan and room dimensions.



A plan for possible expansion into the attic of the 1949 National Bell accommodates two additional bedrooms.

**LIKES:**

- Easy to transform
- Timeless, sensible design
- Affordable
- Room to expand into attic
- First floor bedroom
- Mature plantings

**DISLIKES:**

- Needs more light
- Kitchen too small and isolated
- Lacks space for kids to play
- No informal entertaining space
- Need space for a home office
- Not enough room for storage
- Only one bathroom
- No entry hall
- Lacks deck or rear porch to connect to backyard
- Maintenance issues with some original materials



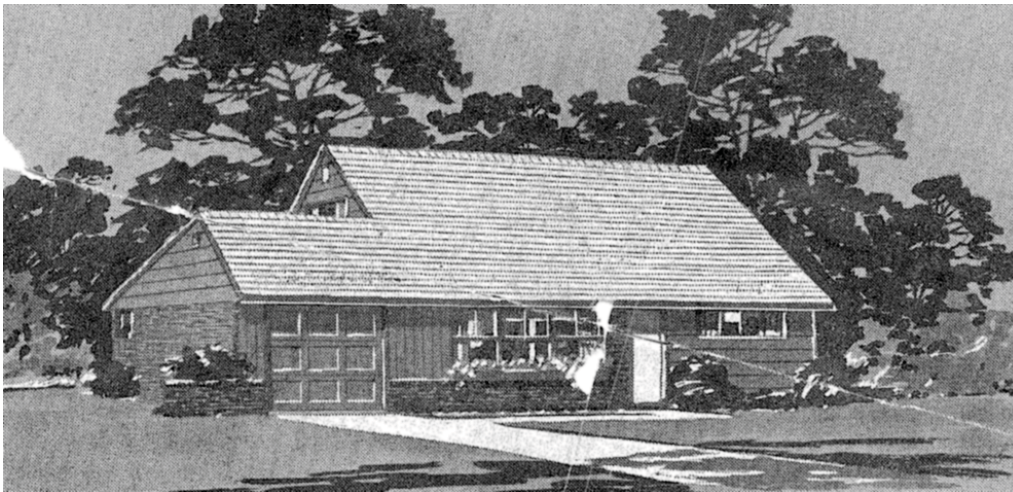
The 1949 National Bell offered a variety of exterior choices with the same interior plan.



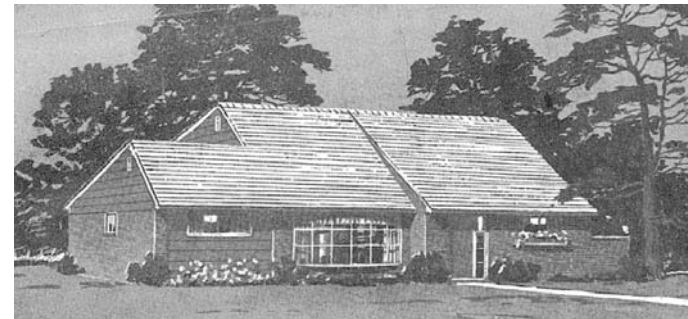
In some Henrico County neighborhoods, there is a modern version of the cape. It has a very steep roof, an attached garage, and a modern design for windows and entry. The appearance of this house style is similar to known Levitt designs. There were six Levitt house designs built in large subdivisions throughout the eastern United States. They were advertised as “the most perfectly planned communities in America” and were integral to providing affordable housing to returning veterans.

# *This is Farmington!*

*Richmond's Newest, Most Beautiful Community of*  
**“FANTABULOUS” Homes**



A 1957 advertisement for the Farmington subdivision advertised “the Special” (pictured above) available to veterans for \$300 down and \$75.50 a month. These images and accompanying text appeared as an “Announcement in Richmond Newspapers” on June 30, 1957.



“The Regent” was another model available in the Farmington subdivision.

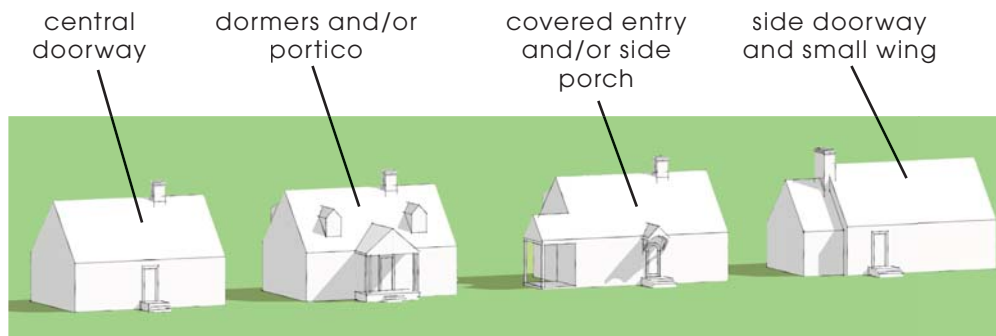




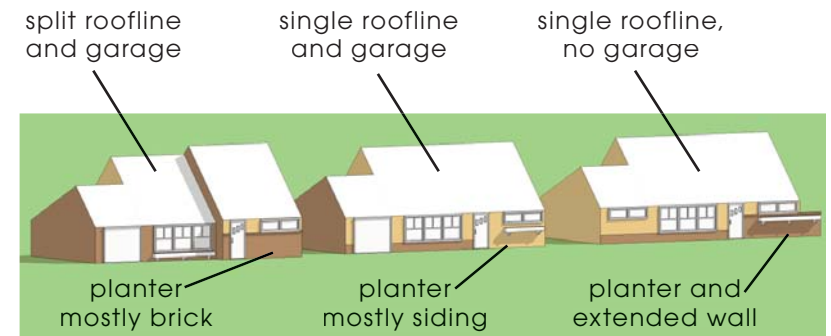
## CAPE COD HOUSE PARTS AND VARIATIONS



### TRADITIONAL CAPE COD MASSING VARIATIONS



### MODERN CAPE COD MASSING VARIATIONS



## CREATING CURB APPEAL



Before



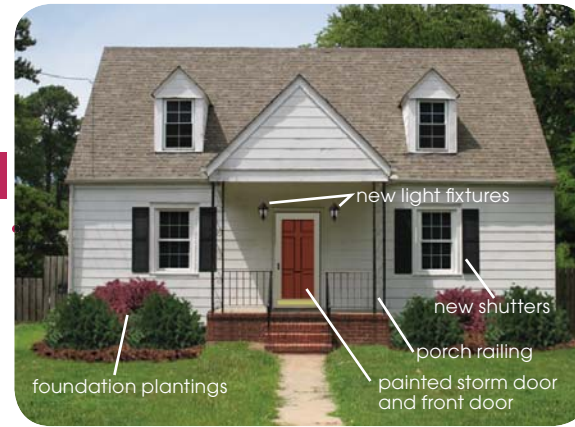
Plantings soften the foundation, a railing helps to enclose the entry porch and Colonial style light fixtures provide light by the front door. Painting the front door a traditional accent color and adding dark shutters provides an inexpensive update.



Paint the siding a warm color that coordinates with the new shutters and painted door. A new brick walk is accented with plantings and window boxes provide additional color.



The final step includes enlarging the first floor windows and new shutters. The iron porch railings and supports are replaced with wood or a composite material and painted the same color as the trim. Dentil cornice moldings accent the eave. The roof covering is replaced with new darker shingles.





Before



Plant flowers in the window box for seasonal color. Add new foundation plantings under windows.



Replace the roof with a darker color that will show less dirt and debris from the site trees. Paint the window box, front door and garage door an updated accent trim color. Add a front walk and enlarge the front stoop to create an outdoor seating area.



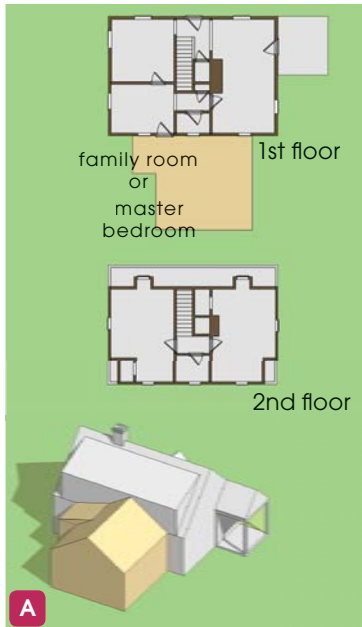
Add dormers to provide additional light on the second floor. Replace the main bank of windows with three grouped double-hung sash windows with small panes. Use a similar pane size when replacing other windows.



## IDEAS FOR ADDITIONS - TRADITIONAL CAPE



EXISTING PLAN



A

one-story hip-roofed rear addition



EXISTING REAR VIEW



A REAR VIEW with addition



A REAR VIEW with addition & site enhancements



EXISTING FRONT VIEW



A 3-D PLAN rear view

The footprint of the one-story, hipped roof rear addition provides space for a master bedroom or family room and an additional bathroom for the house.



## MORE IDEAS FOR ADDITIONS - TRADITIONAL CAPE



**A** INTERIOR VIEW

A new master bedroom and bathroom addition viewed from the location of the dot in the 3-D plan rear view provides one-story living for the homeowner. A new ramp along the side of the house leads to a handicap accessible side entry. The bathroom features a five-foot turning radius, grab bars and a shower with no curb. In the bedroom, the flat screen television mounted to the wall leaves floor space open for maneuverability. By including universal design items in a remodeling plan, costly retrofits can be avoided if needed at a later time.

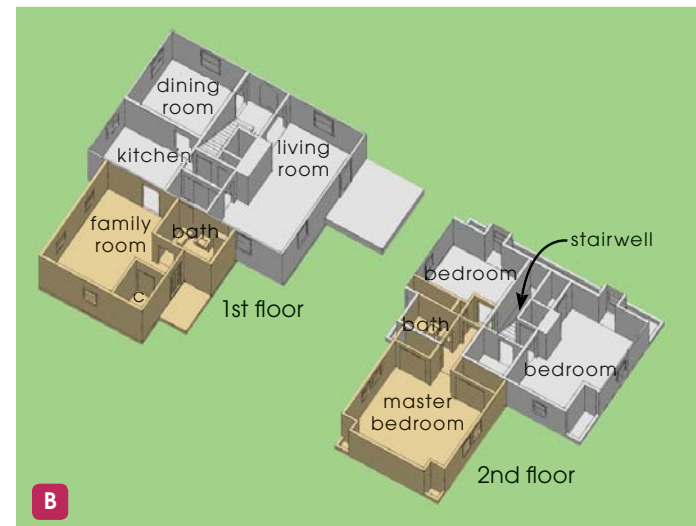
See Chapter 10  Aging In Place for more ideas.

**“I never thought I could love this HOUSE  
as much as I do since we added on”**



**B**

two-story, gable-roofed rear addition with side porch



**B**

This two-story addition has a footprint similar to the one-story master bedroom addition **A** but exchanges one-story living for a family room. The new master bedroom suite is located on the second floor. By including a closet and full bath, the family room may later be converted to a first-floor bedroom.

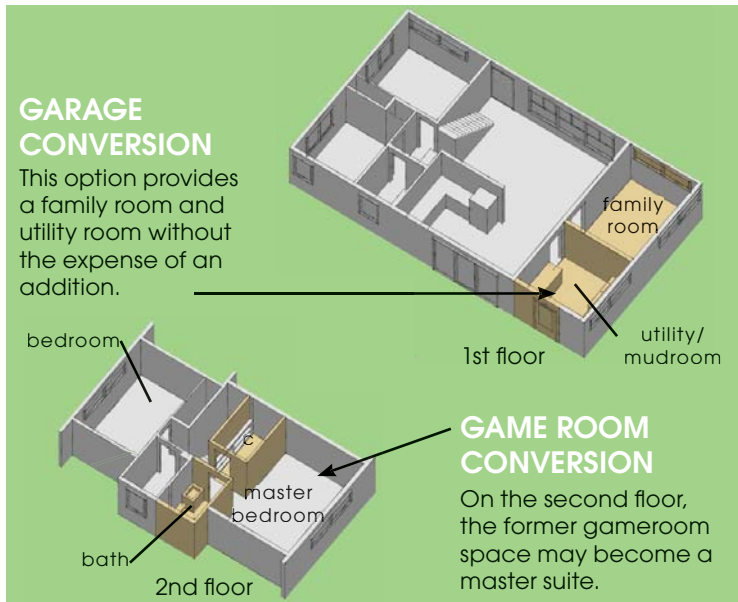


## IDEAS FOR ADDITIONS - MODERN CAPE

See page 32 for additional ideas **B C D**



EXISTING PLAN



EXISTING PLAN



EXISTING FRONT VIEW



EXISTING REAR VIEW



one-story, gable-roofed rear addition

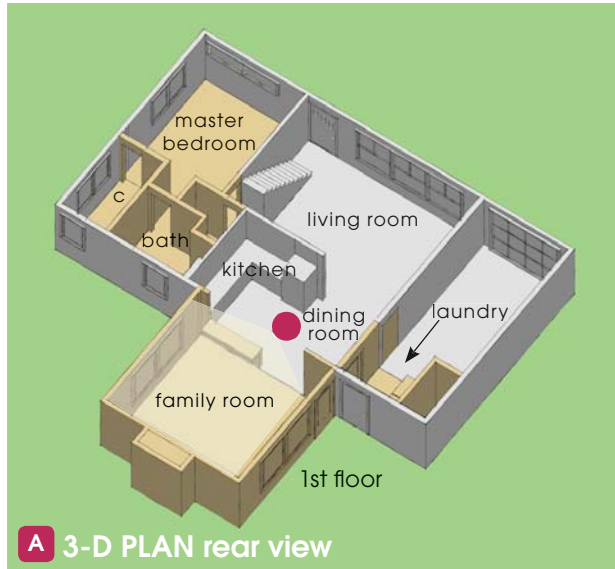


**A** REAR VIEW with addition



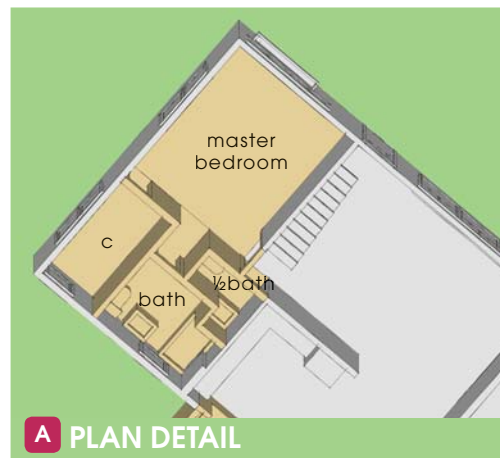
**A** REAR VIEW with addition & site enhancements





**A** 3-D PLAN rear view

The addition of a family room helps to open up the kitchen area and provides a connection to the backyard.



**A** PLAN DETAIL

This detail of the 3-D plan rear view above shows the two first-floor bedrooms combined into an accessible master suite and half-bath.



**A** INTERIOR VIEW OF ADDITION

The new family room addition is pictured here, from the dot location on the 3-D plan rear view, looking out from the newly opened-up kitchen. The fireplace is the focal point of the room although there is plenty of room for a television as well. The vaulted ceiling adds to the room's feeling of spaciousness.



Green/Energy Efficient elements in this plan include:

- Energy Star windows
- wood from renewable sources used for cabinetry
- woodwork made and installed by local carpenter
- recycled content/natural fiber carpet and upholstery
- natural light from windows reduces energy need

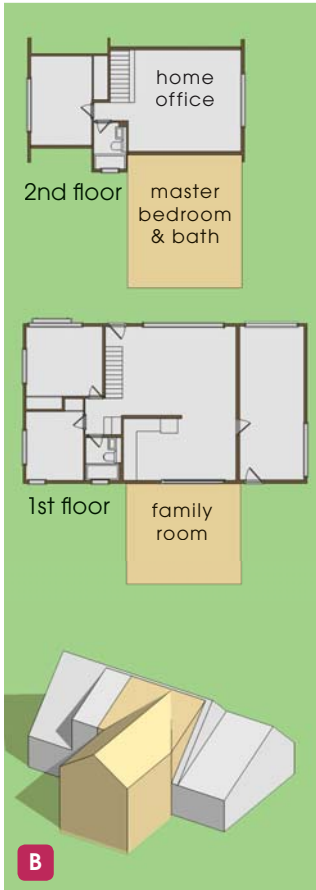
See Chapter 9  Going Green for more ideas.

**“Updating the FLOOR PLAN convinced us to stay in the house rather than move to a newer subdivision”**



## MORE IDEAS FOR ADDITIONS - MODERN CAPE

Continued from page 30.



two-story, gable-roofed rear addition



shed-roofed dormer doubled in size



single shed-roofed dormer expanded to full-width





HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 4: *The Split Level*

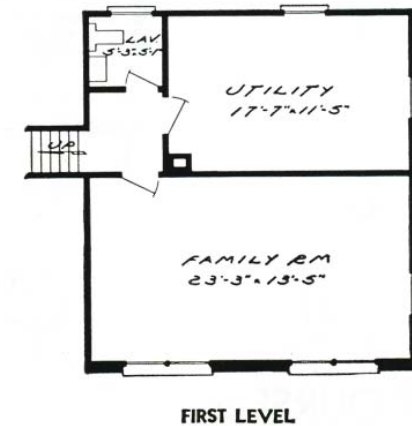
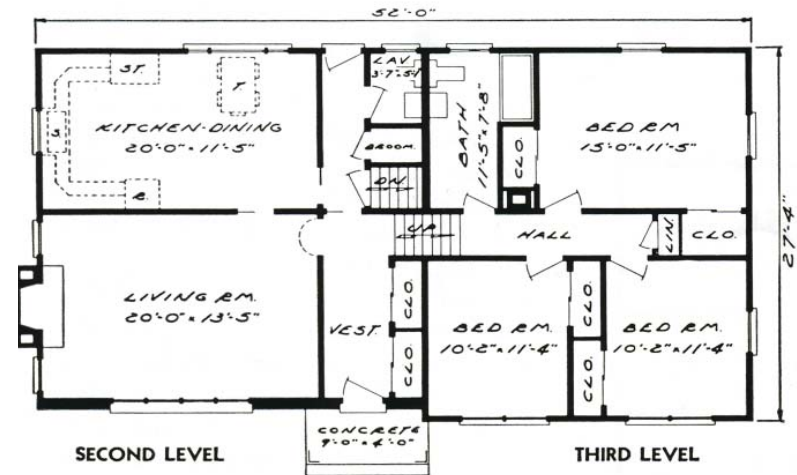


## SPLIT LEVEL BACKGROUND



The Split Level house answered the need of families that outgrew the small post-World War II houses such as the cape cod and smaller ranches. Split Level designs created separate spaces for different family activities, especially watching television and playing stereos. The noisy living area, the territory of the teenager, was placed on the lower level with bedrooms above. The main entry to the house and a quiet, adult living area were located in the single-story wing. Split Level houses, sometimes called raised ranches, were a welcome change from the more traditional styles in both appearance and room arrangement.

Split Level houses are found throughout Henrico, with the highest concentration in the western half of the county. Advertisements for Wedgewood Park highlight the “House of Ease” which was “a milestone in the utilization of Reynold’s Aluminum, the 20th century’s most remarkable building material.” Available at an additional cost, the “House of Ease” features included aluminum shingles, gutters, downspouts, exterior trim and soffit, windows, ductwork, hardware, shutters, siding, roof flashing, vents, flues, and chimneys. All were advertised to increase the resale value of the house and lower maintenance or save energy.



An original illustration and floor plan for the 1961 Aladdin Cornell.

**COMPARE!**

**THIS OUTSTANDING RICHMOND COMMUNITY OFFERS...**

- Near Ridge Primary School
- Near New Tuckahoe Junior High
- Near Douglas Freeman High School
- Near Westbury Shopping Center
- West End Transit Bus To Willow Lawn Shopping Center

**Proctor Realty Company, Inc.**  
 REALTORS • EL 5-6547 • INSURERS  
 4818 Grove Avenue Richmond 26, Virginia

*THIS IS IT!*

**Come Out and See**

**BEAUTIFULLY WOODED**

**Wedgewood Park**

A carefree living community with large rolling lots fully landscaped with beautiful shrubbery and large tall shade trees located in Richmond's beautiful West End.

**Proctor Realty Company, Inc.**  
 REALTORS • EL 5-6547 • INSURERS  
 4818 Grove Avenue Richmond 26, Virginia

**FEATURING**

*Luxurious Homes in Wooded*

**Wedgewood Park**  
 built by Craig-Neil Corp.

Represented by

**Proctor Realty Company, Inc.**  
 REALTORS • EL 5-6547 • INSURERS  
 4818 Grove Avenue Richmond 26, Virginia

These original brochures advertise the Wedgewood Park subdivision located off of Parham Road near its intersection with Three Chopt Road. The development highlighted high quality materials used in construction, low-maintenance features, and modern amenities such as intercoms, incinerators and central air-conditioning.

**DESIGNED WITH CARE!  
 THERE'S NONE SO RARE!  
 PLEASE COMPARE!**

Compare the above home any in it's price range!

- Carrier Forced-Air Heat
- Real Expandable Attics Suitable For Future 4th Bedroom
- Family-Size Eat-In Kitchens
- 2 Full Baths
- Select Brick Exteriors
- Solid Masonry Construction
- Wood-Burning Fireplaces
- Big Utility Rooms
- Walk-In Closets
- GE Built-In Oven and Counter Top Range
- Double Sinks in Kitchen

**GE Built-In Oven and Surface Burners**  
 Choice of 5 Exciting Colors

**NuTone Built-In Clock and Chime**  
 Stunning, modern design plus chord tones. Attractive to the eyes, pleasing to the ear. Flush with wall — no clock outlet needed.

**Carrier Forced Air Heat**  
 Comfort Conditioned Heating

**LIKES:**

- Separation of spaces
- Dedicated space for the family/recreation room
- Lower level has windows since it isn't all below ground
- Mature plantings, trees

**DISLIKES:**

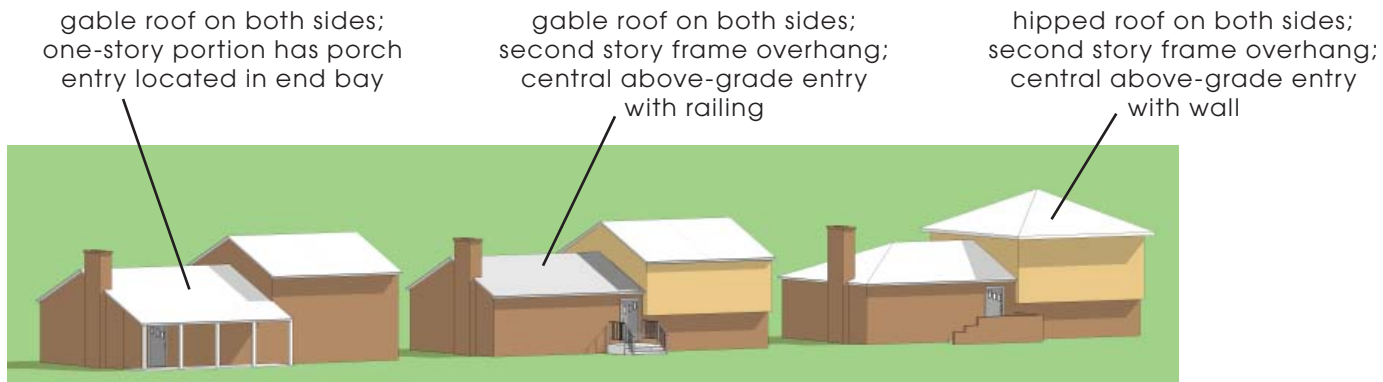
- Too many stairs
- Lack of open floor plan
- No casual gathering space on main level
- Hard to heat and cool consistently
- Not enough storage
- May only have one full bath
- No master suite



## SPLIT LEVEL HOUSE PARTS AND VARIATIONS



## SPLIT LEVEL ROOF AND ENTRY VARIATIONS



## CREATING CURB APPEAL



Before



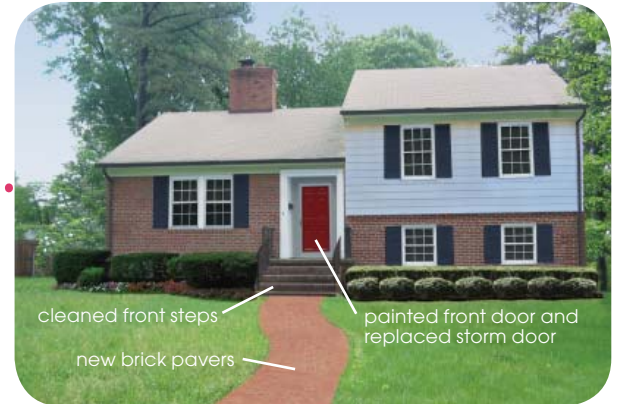
Paint shutters a darker color for a traditional look and less cleaning! Add evergreen foundation plants and seasonal color.



Paint the front door an accent color and replace the storm door to highlight it. Add brick pavers to the front walk and clean the front steps for a welcoming entry.

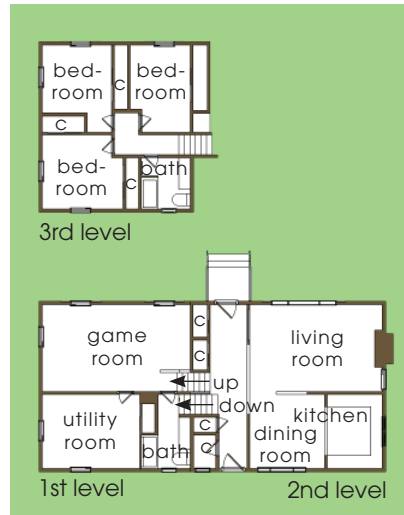


Add color with plantings and a window box. The new darker roof coordinates with the shutters. Reflective materials added to roof shingles allow darker colors to reduce heat gain.



## IDEAS FOR ADDITIONS

See page 40 for additional ideas **B C D E**



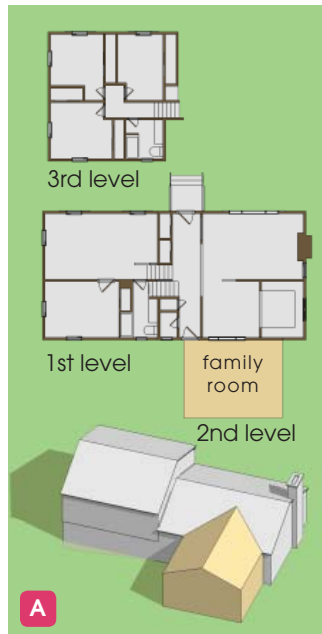
EXISTING PLAN



EXISTING FRONT VIEW



EXISTING REAR VIEW



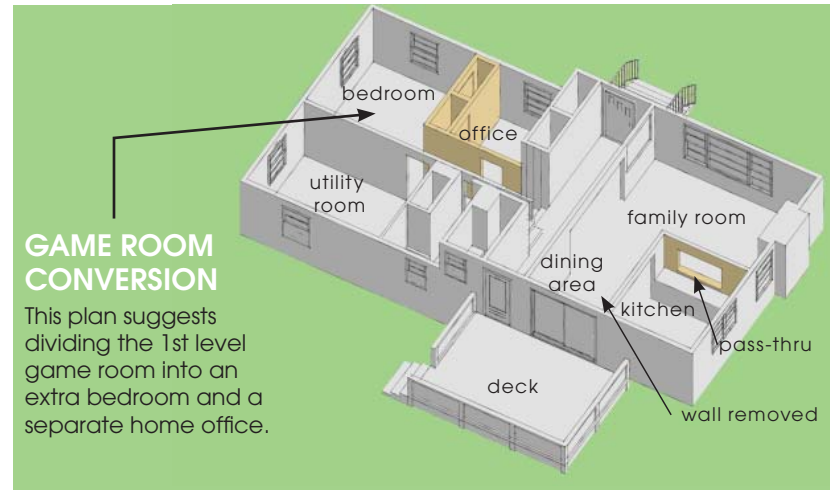
one-story, gable-roofed rear 2nd level addition



**A** REAR VIEW with addition



**A** REAR VIEW with addition & site enhancements



### GAME ROOM CONVERSION

This plan suggests dividing the 1st level game room into an extra bedroom and a separate home office.

EXISTING PLAN

Sometimes small changes can make a big difference in the way you use your house and your enjoyment of it. Shown above, on the second level, a wall is removed between the kitchen and dining area. A pass-through connects the kitchen to the living room which can now function as a family room. Sliding glass doors lead from the dining area to the new deck and reinforce the connection of the house to the yard.

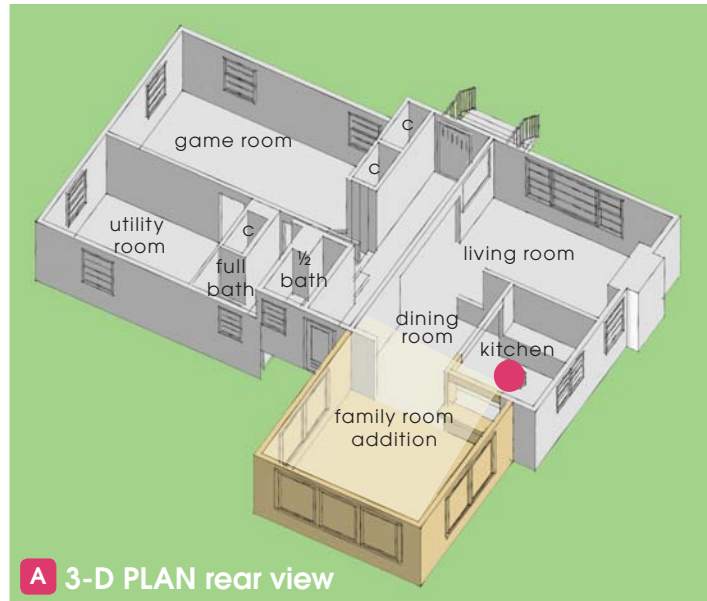


Green Design elements in this plan include:

- finding new ways to use existing rooms and stay within the same footprint rather than adding square footage
- use of materials that have recycled content, are from sustainable sources, and that have low volatile organic compounds
- Energy Star certified sliding glass doors

See Chapter 9  Going Green for more ideas.







This one-story, gable-roofed rear addition provides additional living space in a modest footprint. The vaulted ceiling adds a spacious feeling to the new room.

**“We just don’t have the money for a big addition to the **HOUSE** but it doesn’t seem like the house fits our lifestyle anymore”**



This view taken from the location of the dot on the 3-D plan rear view looks through the new kitchen pass-through to the family room addition at the rear of the one-story portion of the house. A part of the dining room wall has also been removed. Windows on all three sides of the addition increase the connection of the house to the outdoors. A window seat provides additional seating for family or guests. The 270 degree view allows the homeowner to view the entire backyard including the children’s play area.

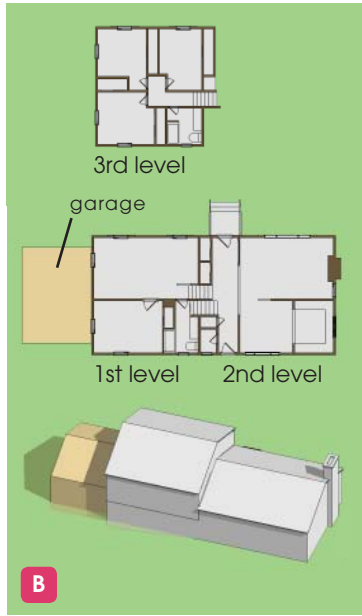
 With this much window space, make sure to invest in the most energy efficient windows you can afford.

For more tips on going  green and saving energy, see Chapter 9.



## MORE IDEAS FOR ADDITIONS

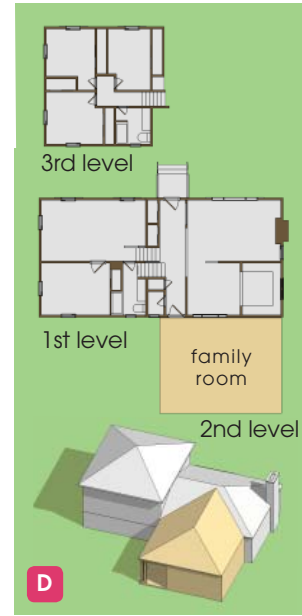
Continued from page 38.



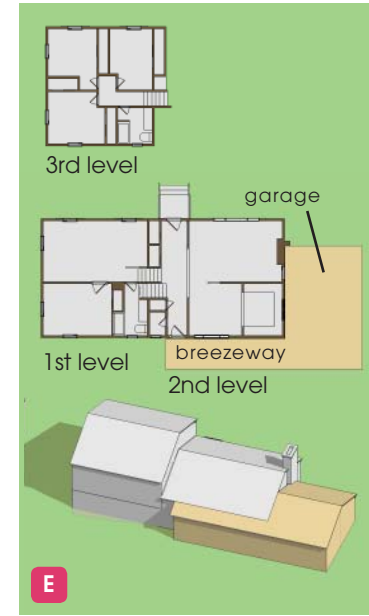
one-story, garage addition



two-story, gable-roofed rear addition



one-story, hip-roofed rear addition with side porch



one-story, garage addition with breezeway connection to kitchen

“It would be the perfect **HOUSE** if there was a garage and the family room wasn’t in the basement”



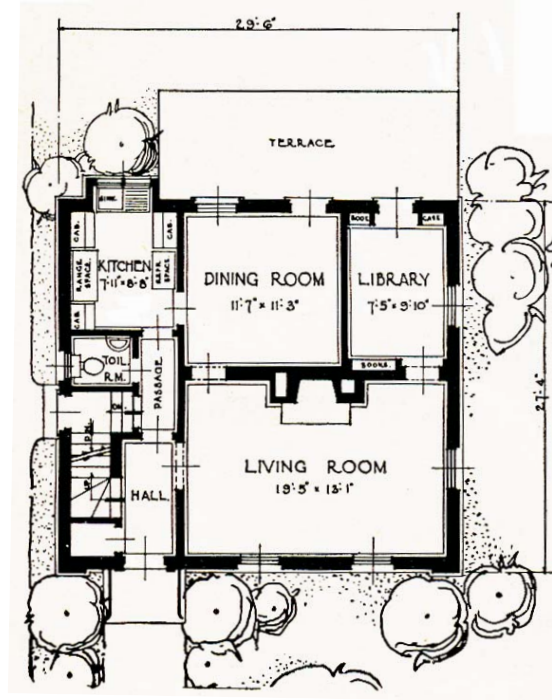


HOMEOWNER'S ENHANCEMENT GUIDE

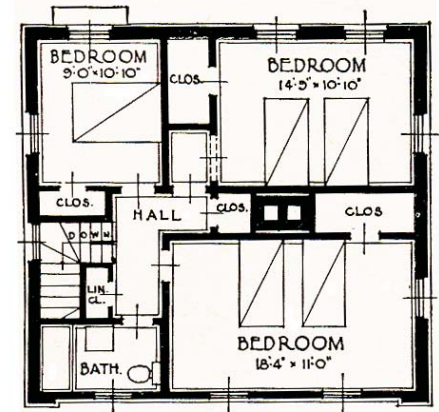
Chapter 5: *The Colonial Revival*



## COLONIAL REVIVAL BACKGROUND



The Sears Honor-Bilt "Amherst" plan remained popular for many years, after its introduction in 1935, due to its practical floor plan.



The Colonial Revival style is based loosely upon the Georgian and Federal styles of the late-eighteenth and early-nineteenth century. It regained popularity after the country's centennial in 1876 and is one of the country's most enduring house styles.

Colonial Revival houses in Henrico are clustered in the western portion of the county. They tend to be brick and may have either a central or side entry. Other adaptations include an asymmetrical arrangement of windows on the front of the house.

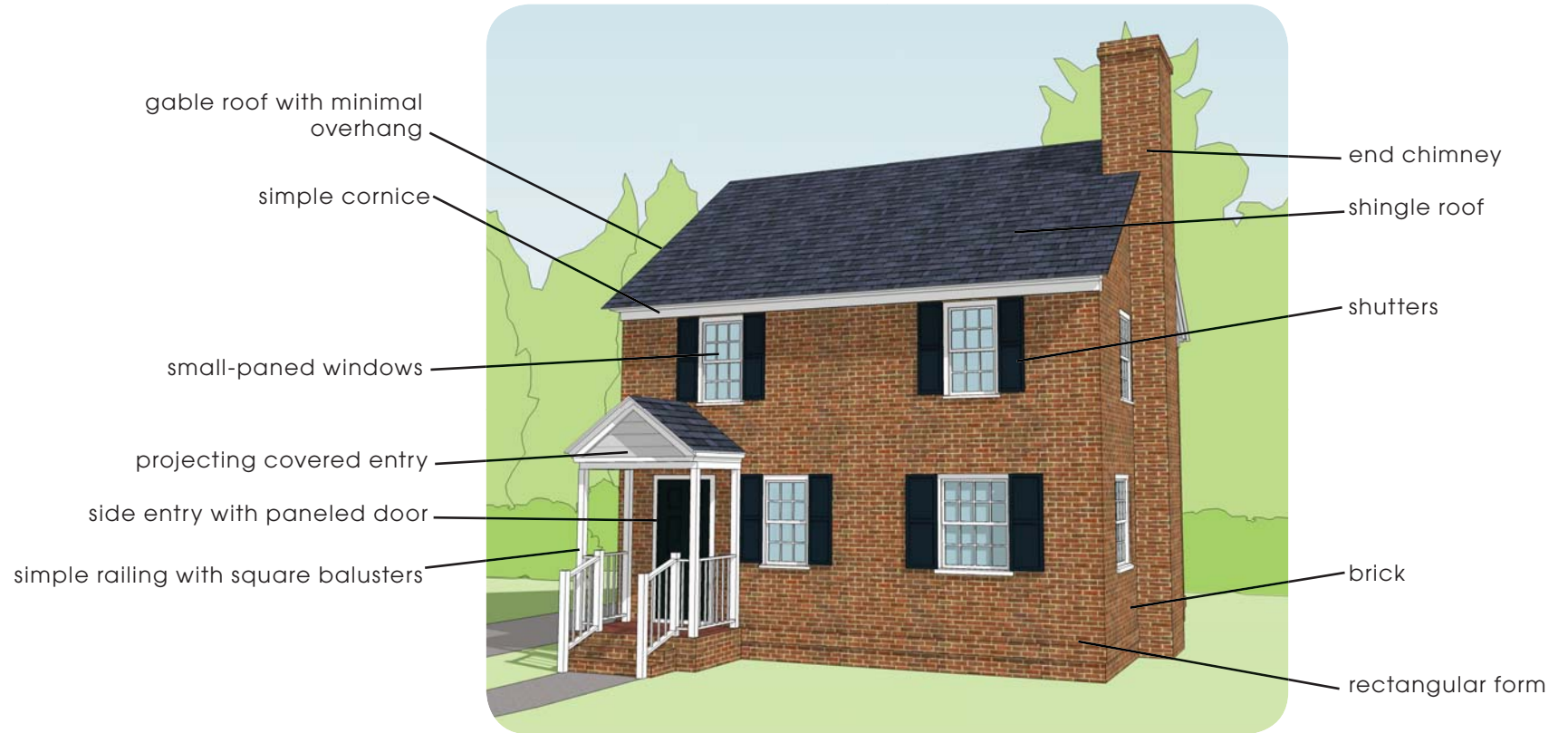
### LIKES:

- Traditional appearance/classic design
- Room for a growing family
- Functional floor plan
- Good cross-ventilation

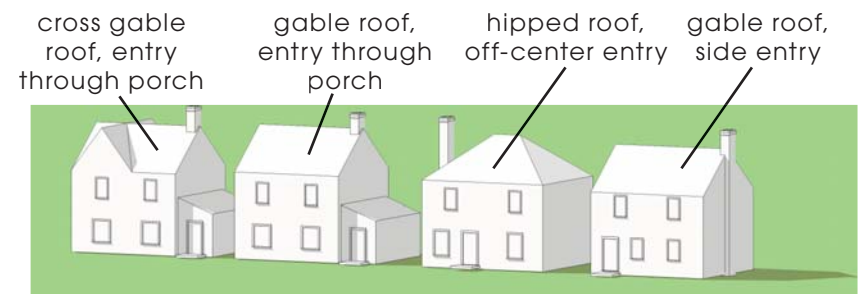
### DISLIKES:

- All bedrooms are upstairs
- Not enough bathrooms
- Defined formal rooms
- No open space for family

## SIDE HALL COLONIAL REVIVAL HOUSE PARTS AND VARIATIONS



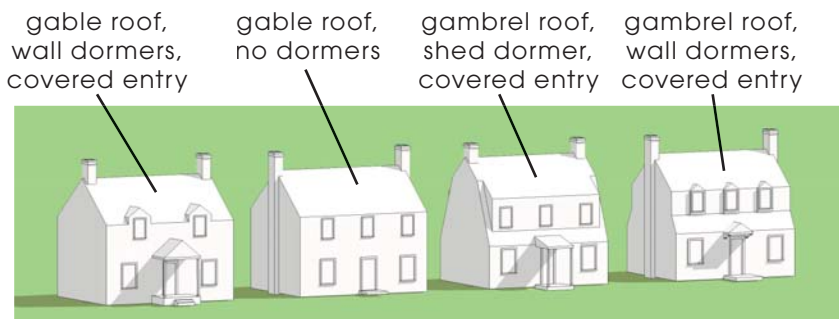
### ROOF AND ENTRY VARIATIONS



## CENTER HALL COLONIAL REVIVAL HOUSE PARTS AND VARIATIONS



### ROOF, DORMER, AND ENTRY VARIATIONS



## CREATING CURB APPEAL



Before



An evergreen hedge at the foundation anchors the house to its site. Additional plantings provide colorful accents near the front door. The shutters and door have been freshly painted in a traditional dark green. The new slate walkway has been also been added.



A new dark gray roof provides a pleasing visual contrast with the brick.



The transformation is completed when a new classical portico replaces the existing awning, replacement windows are installed, the trim receives a fresh coat of white paint, and additional plantings are used to provide seasonal color.



## CREATING CURB APPEAL, continued



Before



The traditional appearance of this house is updated by the removal of the broken pediment above the door. The remaining classical trim strengthens the impact of the entrance. A darker paint color accents the shutters and door. Foundation plantings provide color and help anchor the house to the site.



A new curved brick walkway is accented with small evergreens on each side. Staining the concrete or adding brick or stone is another option.

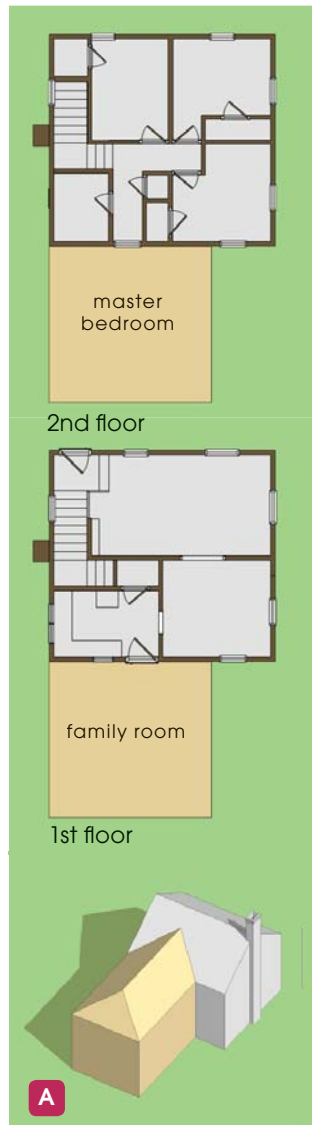


A darker roof and new classical portico, with a hipped roof and Chippendale railing complete the transformation.



## IDEAS FOR ADDITIONS - SIDE HALL COLONIAL

See page 49 for additional ideas **B** **C** **D**



two-story, hip-roofed rear addition



EXISTING PLAN



EXISTING FRONT VIEW



**A** REAR VIEW with addition



EXISTING REAR VIEW



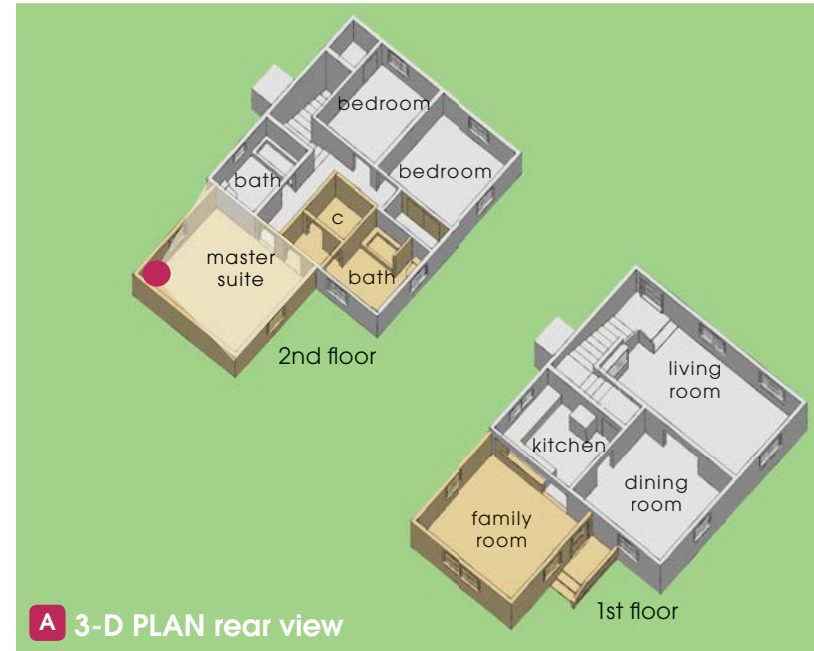
**A** REAR VIEW with addition & site enhancements



## IDEAS FOR ADDITIONS - SIDE HALL COLONIAL, continued



The master bedroom, viewed here from the location of the dot in the 3-D plan rear view, is located on the upper level of a two-story addition. The placement of the addition allows the original bathroom to be retained and uses the existing hall to connect to the new construction. The space formerly occupied by the rear bedroom has been modified to become closet and bathroom space for the master suite. The space below the new master suite is designed as a family room with a new rear entrance.



This two-story addition adds a family room with a master bedroom above. An existing bedroom on the second floor is converted to a master bathroom and closet.

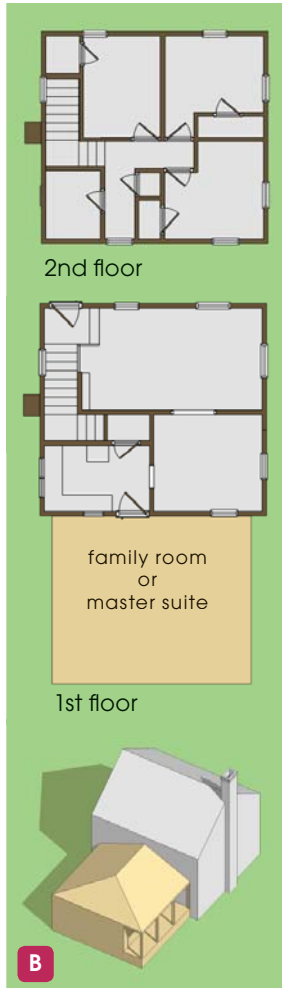
**“It’s so nice to FINALLY have a  
SECOND bathroom”**



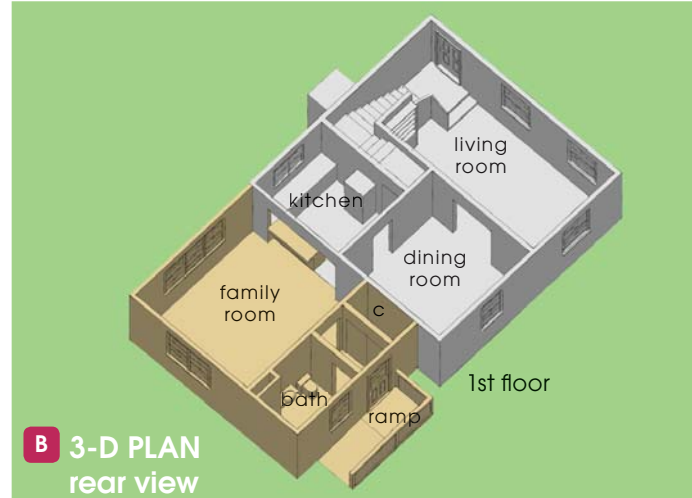


## MORE IDEAS FOR ADDITIONS - SIDE HALL COLONIAL

Continued from page 47.

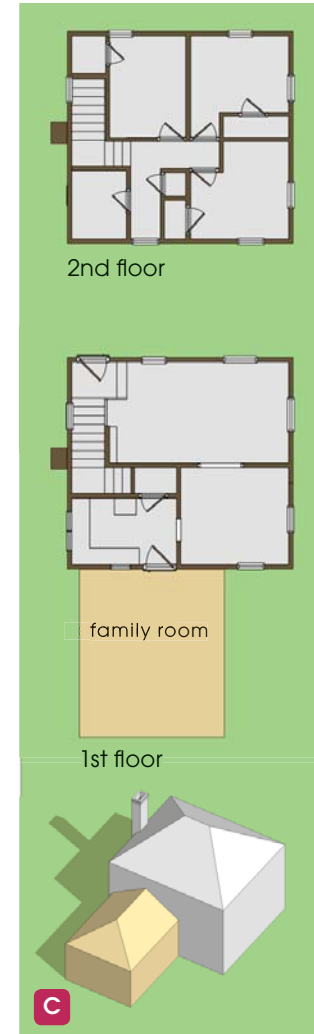


**B** one-story, hip-roofed addition with side porch

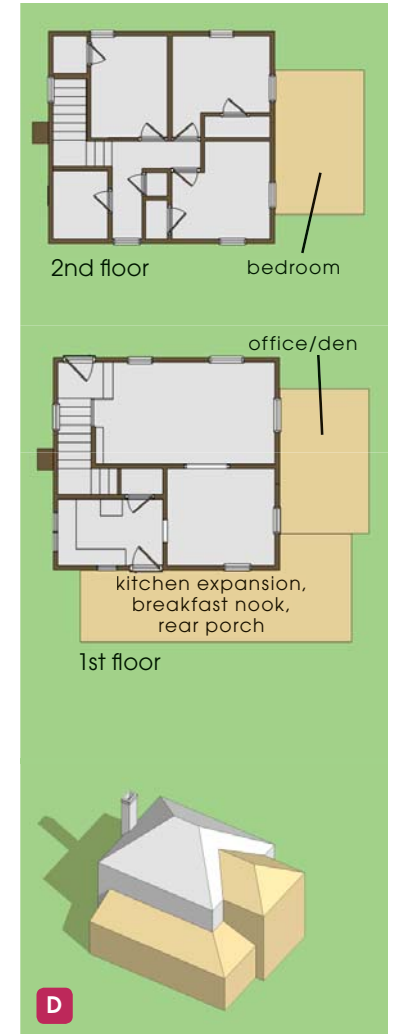


**B** 3-D PLAN rear view

This one-story addition adds a family room and adjoining bathroom and storage space. It could easily function as a master suite if one-story living was needed. The rear entrance has an extended stoop and ramp with a traditional railing and provides an accessible entry into the house.



**C** one-story, hip-roofed rear addition



**D** one-story, hip-roofed wrap-around and two-story side wing

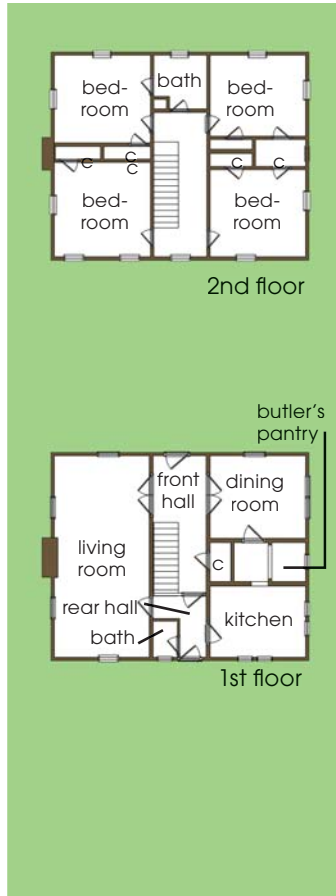


## IDEAS FOR ADDITIONS - CENTER HALL COLONIAL

See page 52 for additional ideas **B C D E**



one-story, hip-roofed rear addition with hip-roofed porch



EXISTING PLAN



EXISTING FRONT VIEW



EXISTING REAR VIEW

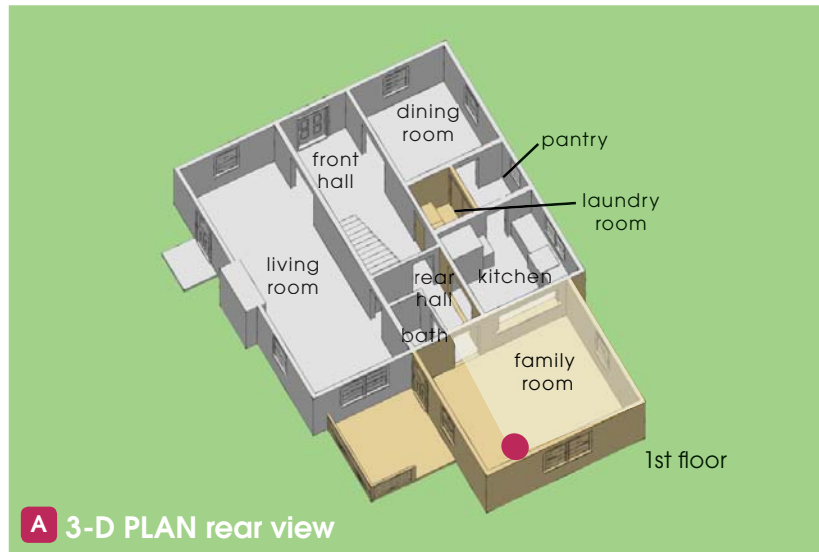


**A** REAR VIEW with addition



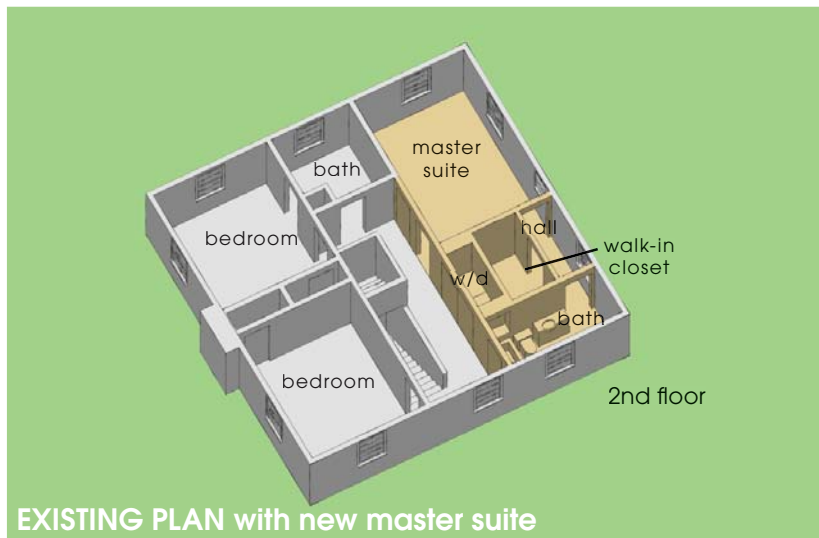
**A** REAR VIEW with addition & site enhancements





**A** 3-D PLAN rear view

This one-story addition provides a family room that opens onto a covered porch facing the rear yard.



**EXISTING PLAN with new master suite**

Modifying the plan upstairs may alleviate the need for a two-story addition.



This view shows the new family room looking into the kitchen. A large opening has been cut through the former exterior wall to visually connect the kitchen to the newly constructed gathering space. Stools and a counter create a casual eating space.

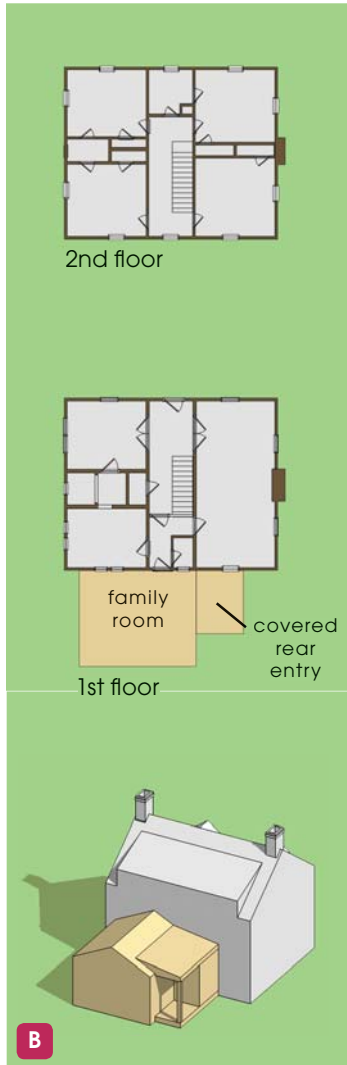
Upstairs, the original plan has been modified to create a master suite. One of the four bedrooms has been converted into a new master bathroom, alleviating the need for everyone to share the single original bathroom. A hall and walk-in closet connect the master bedroom to the new bathroom.

**“By combining two bedrooms on the second floor into a new MASTER SUITE we were able to save money and only build a one-story ADDITION”**

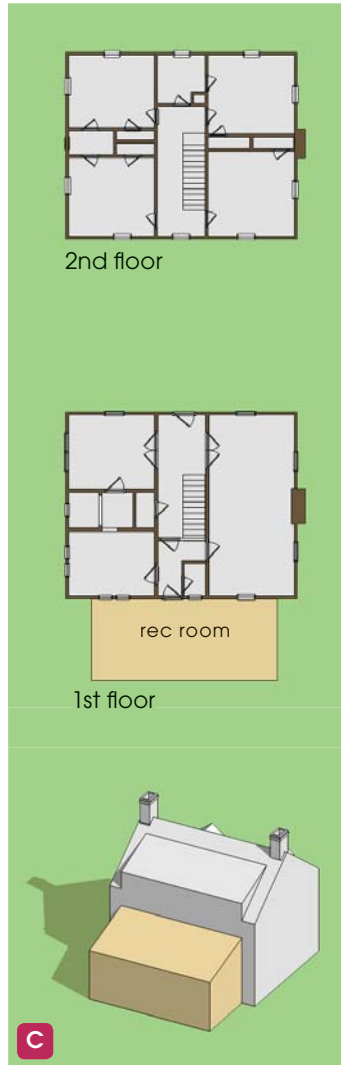


## MORE IDEAS FOR ADDITIONS - CENTER HALL COLONIAL

Continued from page 50.



one-story, gable-roofed rear addition with shed-roofed rear entrance



one-story, shed-roofed rear addition



two-story, gable-roofed rear addition with shed roofed porch



two-story, side addition with gable roof and rear shed dormer



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 6: *The Bungalow*

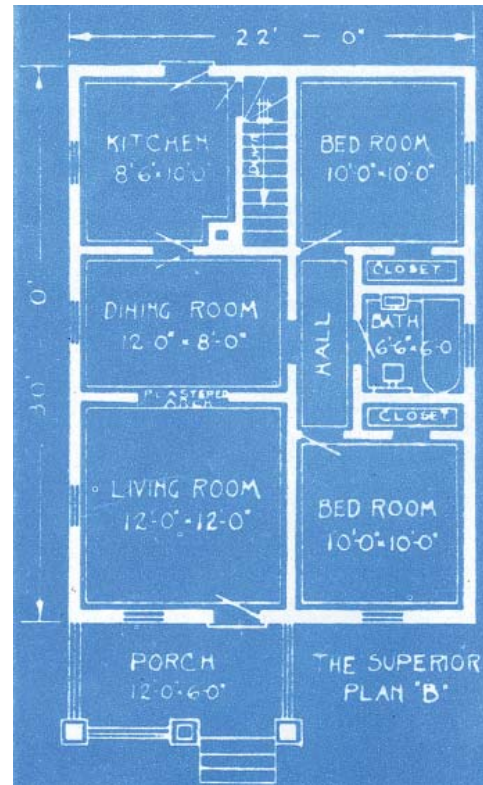


## BUNGALOW BACKGROUND



Bungalows were a popular style for small suburban houses in the first half of the twentieth century. In Henrico County, they are found in neighborhoods near the city line and in earlier outlying areas such as Highland Springs, Sandston, and Lakeside. Most often, these one to one and one-half story houses are built on a narrow lot. Plans usually came from pattern books and ready-to-build kits were available from Sears, Roebuck and Montgomery Wards among others.

The terms Craftsman or Arts and Crafts are frequently used to describe the features of these houses. The Arts and Crafts movement was a reaction to the increase in mass-produced and machine-made goods. It celebrated the return to handcrafted elements and natural materials. Wood trim was often stained rather than painted, metal hardware and light fixtures had a hammered appearance, and color schemes favored earth tones. Built-in cabinetry and Mission style furniture were often constructed of dark-stained oak.



An original illustration and floor plan for the 1945 Superior Bungalow.

### LIKES:

- Architectural character
- Sensible layout
- Informal arrangement of rooms
- Small scale
- Location
- Easy access to yard
- Quality materials
- Scale and materials relate to adjacent homes
- Front porch
- Light-filled rooms
- Good air flow

### DISLIKES:

- Aging materials
- Not enough storage
- No master suite
- Lacking casual living space
- Kitchen too small and enclosed
- Only one bathroom

## BUNGALOW HOUSE PARTS AND VARIATIONS



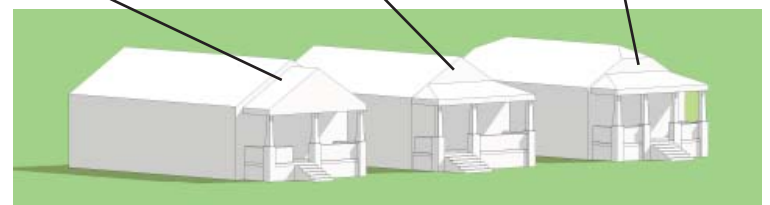
### SIDE-GABLED ROOF WITH VARIATIONS OF DORMERS

wide gable    narrow gable    full-width shed    single shed



### END-GABLED ROOF AND PORCH VARIATIONS

end gable with gable-roofed porch    end gable with shed-roofed porch    clipped end gable with shed-roofed porch



## CREATING CURB APPEAL



Before



New informal plantings provide seasonal color. A clean sidewalk provides added appeal.



Paint trim an earth-tone, such as tan, to reinforce the connection to outdoors and natural materials. Do the work yourself and this new look is very cost-effective! A small deciduous tree and colorful annuals add interest in the front yard.



A new, stained wood Craftsman-style door and an Arts and Crafts light fixture reinforce the style of the house. A flagstone walkway with plantings replaces the concrete path.







Before



Flowers in planters and foundation plantings soften the front porch. A new Craftsman style porch light fixture complements the style of the house.



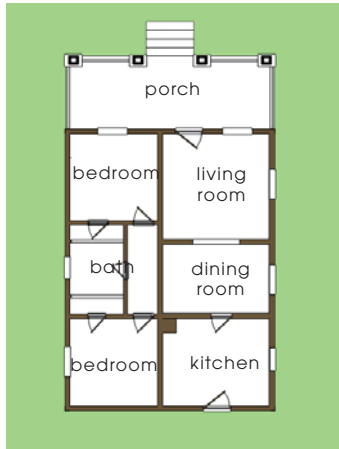
New porch railings have been installed between the brick piers. The storm door has been painted to match the trim.



A lawn replaces the asphalt in front of the house and provides an ideal location for a flowering tree. A brick front walk connects the house to the street and the front steps and other concrete have been cleaned. The house has received a fresh coat of paint.



## IDEAS FOR ADDITIONS - HIPPED OR END GABLE BUNGALOW



EXISTING PLAN



EXISTING FRONT VIEW



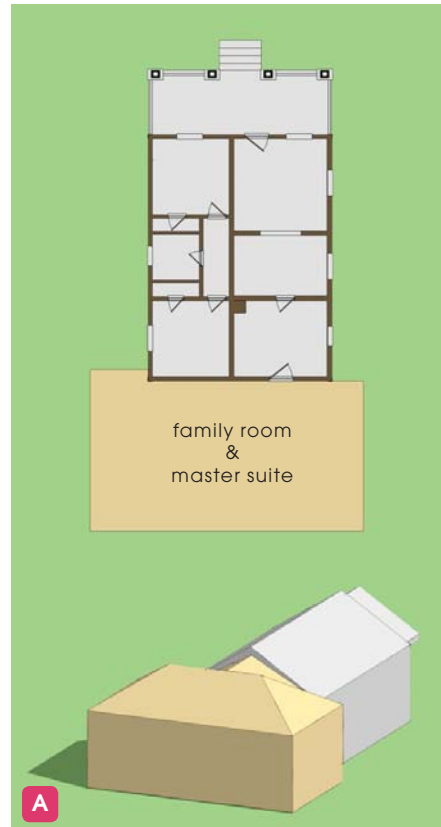
EXISTING REAR VIEW



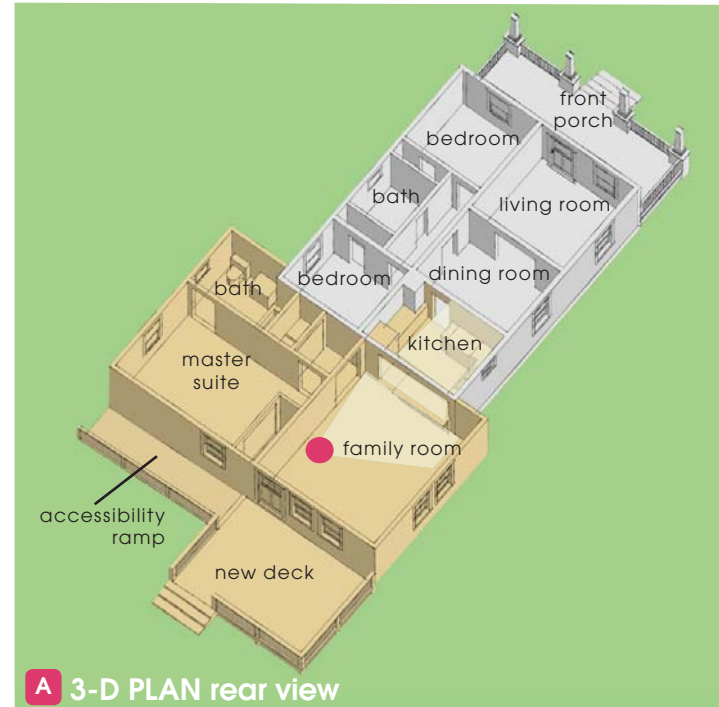
A REAR VIEW with addition



A REAR VIEW with addition & site enhancements



one-story, hip-roofed addition



A 3-D PLAN rear view



Universal Design elements in this plan include:

- accessibility ramp located along the rear wall of the addition
- wide exterior and interior openings/doorways
- bathroom with wide turning radius for wheelchair

See Chapter 10



Aging In Place at the back of the report for more ideas.



## MORE IDEAS FOR ADDITIONS - HIPPED OR END GABLE BUNGALOW

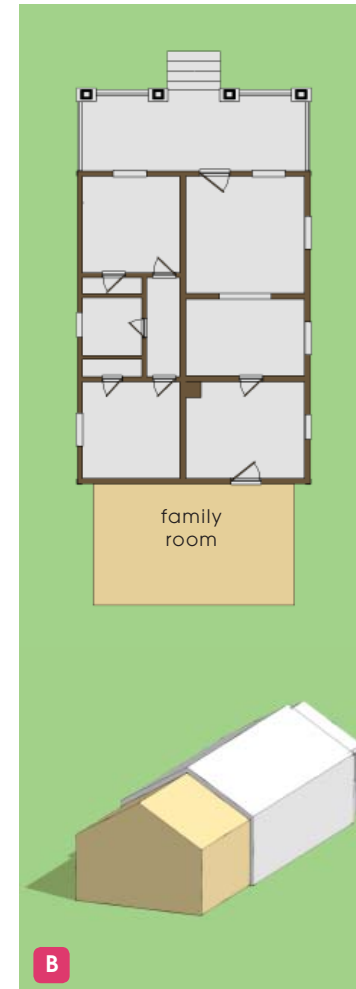


**A** INTERIOR VIEW

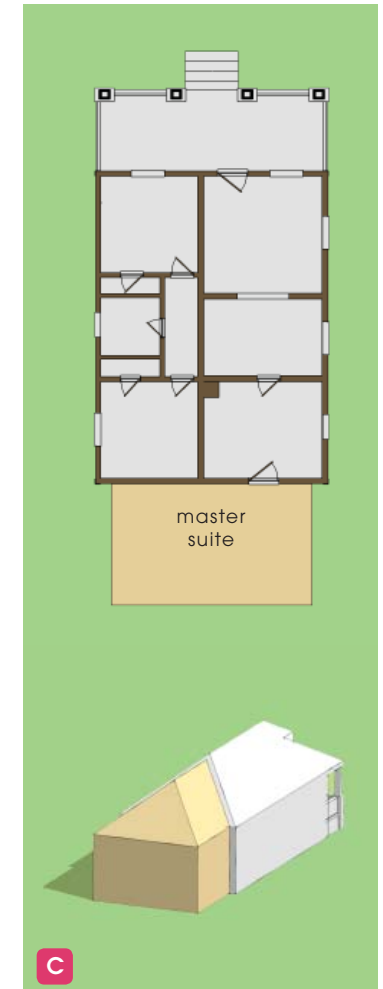
This one-story addition answers many of the dislikes common to owners of bungalow style houses and keeps the features that make this style of house unique. The interior view taken from the location indicated by the dot on the 3-D plan rear view shows how modern furniture and cabinetry can update this older home.

The remodeled kitchen now opens directly to the new family room. It, in turn, connects to the new deck and creates a great space for family gatherings and casual entertaining. The adjacent master suite features a handicap accessible bathroom and more closet space.

**“Can this HOUSE accommodate our growing family?”**



**B**  
one-story, end gable-roofed  
rear addition

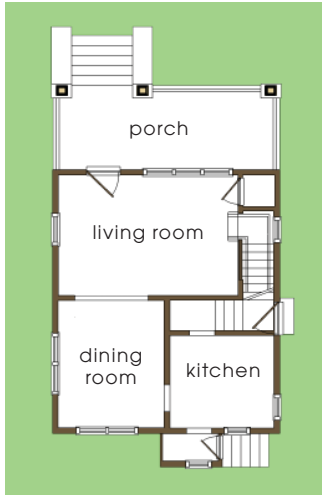


**C**  
one-story, hip-roofed  
rear addition



## IDEAS FOR ADDITIONS - SIDE GABLE BUNGALOW

See page 62 for additional ideas **B C D**



EXISTING PLAN



EXISTING FRONT VIEW



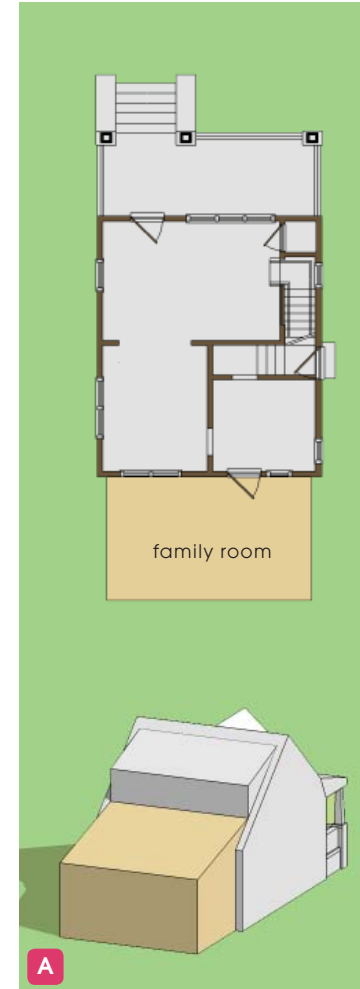
EXISTING REAR VIEW



**A** REAR VIEW with addition



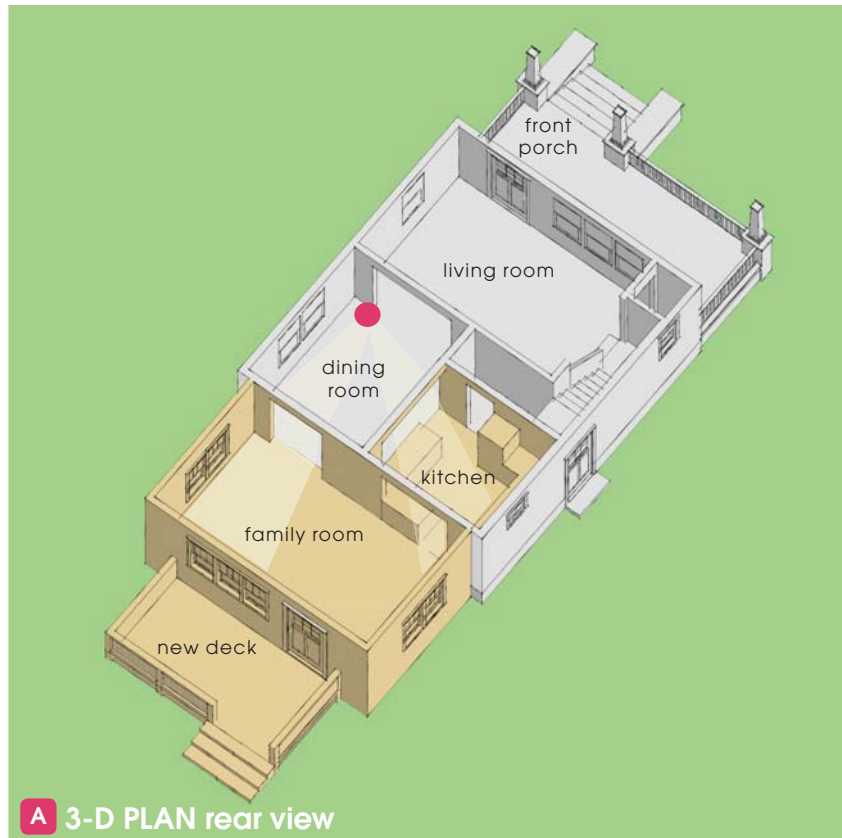
**A** REAR VIEW with addition & site enhancements



**A** one-story, shed-roofed rear addition

“It would be nice to have a **ROOM** where we can have **FRIENDS** over to watch the game or a movie”





Use:

- Renewable, composite or recycled materials for the deck
- Recycled content insulation in walls and ceilings
- Low VOC paint
- Carpet that can be recycled

See Chapter 9: Going Green  Save Energy, Water and Money for more.



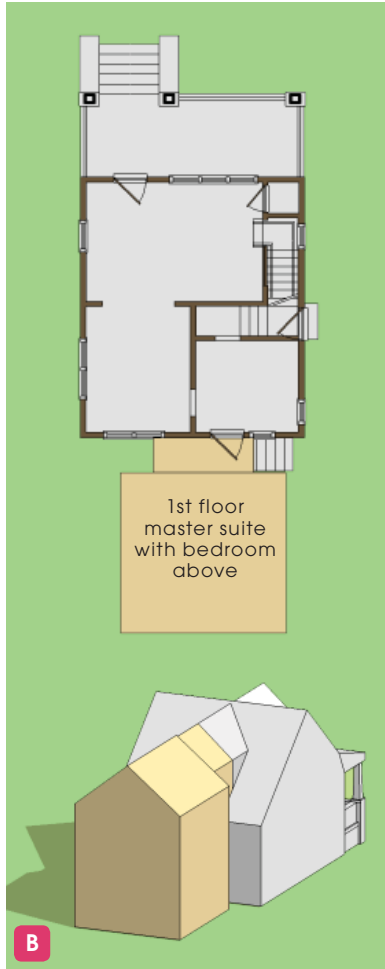
By adding a single-story addition to this two-story bungalow, the living space on the first floor is greatly increased. A two-story addition of the same size would allow for a master suite on the upper level. The interior view from the dot location on the 3-D plan rear view shows how open this new floor plan feels.

The removal of a portion of the kitchen wall and a large opening from the dining room into the family room unify this space. The new family room repeats the grouped windows found on the front of the house, and the paired windows on the side walls allow more natural light into the new room and connect it to the outdoors.

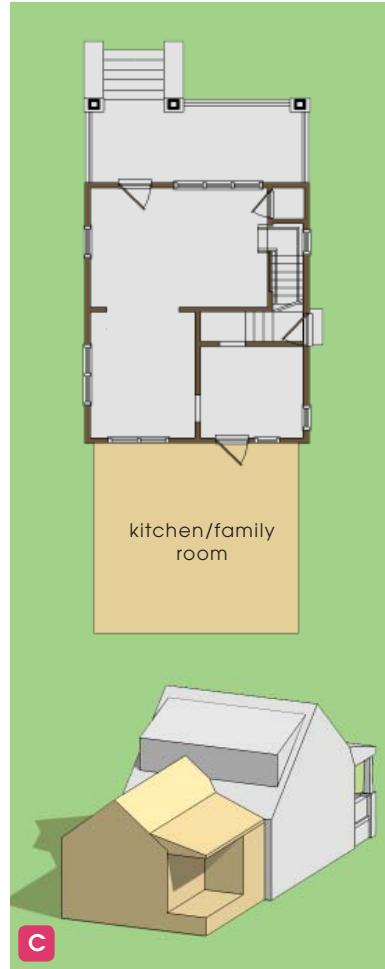


## MORE IDEAS FOR ADDITIONS - SIDE GABLE BUNGALOW

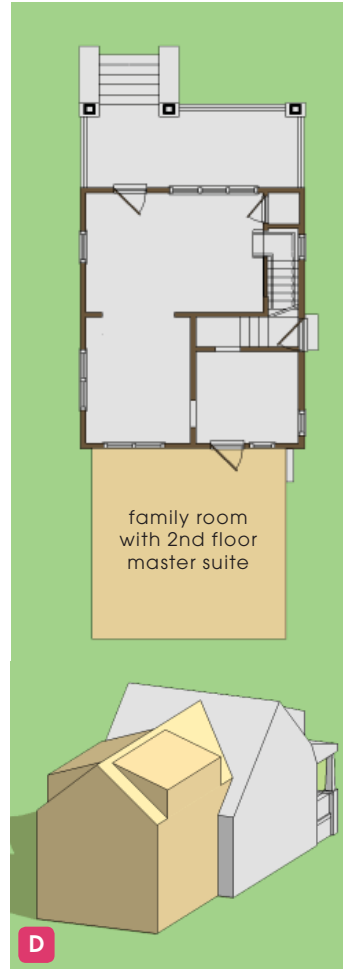
Continued from page 60.



two-story, gable-roofed addition with hyphen at dormer location



one-story, gable-roofed rear addition with side porch



two-story, gable-roofed addition with shed dormers



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 7: *Making the Most of Your Yard*



## MAINTAINING YOUR YARD

This chapter takes a look at maintaining your yard and plantings and gives you ideas for enhancements to your site. The suggestions relate to the information found in other chapters including Aging in Place and Going Green.

### A SEA OF GREEN

Most mid-century homes are surrounded by lawn and most homeowners find themselves in a cycle of cutting grass, fertilizing and controlling weeds. By following the steps on this page, you can create a healthy lawn, reduce the chemicals needed, and water more efficiently.

You may also want to consider reducing the amount of lawn you have by:

- Increasing planting beds devoted to drought-tolerant native plants
- Constructing raised beds for vegetable gardens
- Planting shade and/or fruit trees
- Using foundation plantings

### FREE SOIL TESTS AND MORE

To learn how to receive a free soil test, enroll in the Henrico SMART Lawns program, and find links to insect and disease identification resources, visit the Henrico County Extension website:

<http://www.henrico.us/extension/>

Lawn Maintenance	Spring/Summer	Fall	Annual	As Needed
Use crabgrass preventer.	mid-March			
Measure lawn to get square footage, test soil, and amend as needed.	mid-spring			
Rake to remove thatch build-up.	mid-spring			
Mow lawn leaving grass 3" high to shade roots and reduce watering need.	●			
Sharpen mower blades after every 10 hours of mowing.				●
Aerate and overseed to help prevent weeds in spring.		●		●
Treat grubs. Predator nematodes are an organic option available by mail order and are very effective.	summer			
Fertilize lawn (only if needed after testing) Use your own compost or an organic product.	●	●		
Treat annual weeds. Try corn gluten for non-toxic pre-emergent weed control.	●	●		
Water deeply. When there is no rain, water 1" inch every 5-7 days early in the morning.				●



## Tree & Shrub Maintenance

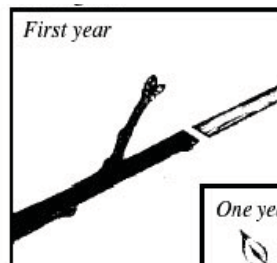
	Spring/Summer	Fall	Annual	As Needed
Trim bushes so that nothing touches house.	●			
<ul style="list-style-type: none"> <li>Prune spring flowering shrubs after they have bloomed.</li> </ul>	●			
Have certified, licensed, insured arborist remove weak, dead, or rotten trees or large branches that may fall on house.	●			
Mulch plants with 2-3" of mulch. Keep mulch away from trunks.	●	●		
Research new plants before purchasing. Make sure they are Zone 7 hardy and healthy.	spring	●		
Inspect plants for disease and provide treatment.	weekly			

### GUIDES TO SUCCESSFUL PRUNING

Follow the path below on Virginia Cooperative Extension website for downloads of this series on pruning:

<http://pubs.ext.vt.edu/index.html>

Click on: Lawn & Garden  
Then: Trees, Shrubs & Groundcover



This heading diagram is courtesy of the Virginia Cooperative Extension.



### LET THERE BE LIGHT

Remember that plants need light to grow. Don't prune shrubs into a triangle with the widest part at the top or you will get no new growth on the lower branches.

### WHEN TO PRUNE

Prune spring flowering shrubs as soon as they have bloomed. Many of these shrubs set buds for the next year's blooms on new spring growth, so do not wait. Summer and fall flowering shrubs should be pruned in the fall or very early spring before they start to grow. Diseased or dead branches can be removed at any time of the year.

### HOW TO PRUNE

#### Thinning

This pruning method involves cutting the growth down to the ground and should be used for multi-stem shrubs that are too dense. A good rule of thumb is to take out no more than 1/3 of the branches. It is also a good idea to remove some of the older branches each time.

#### Heading

A great technique for helping a shrub to look its best! By cutting a branch back to a healthy bud pointed inward, you can direct new growth to fill in holes inside the shrub. If you cut back to an outward facing bud, the growth will occur in that direction.

#### Shearing

Most useful for evergreens, this technique can help you create a hedge by clipping new growth every spring.



## ENHANCING YOUR YARD

After you've taken care of your existing lawn, plantings, and trees it may be time to think about enhancing your yard.

Two great ways to get ideas are:

- Visit local public gardens such as the Lewis Ginter Botanical Garden and Maymont. They have many different types of display gardens and information on the plants in them.
- Drive through your neighborhood and other neighborhoods that have houses similar to yours in size and scale. Note what you like.



This view of the Lewis Ginter Botanical Gardens shows a mass planting of spring bulbs in front of the conservatory.

### LEWIS GINTER BOTANICAL GARDEN

Located in Henrico County, the 80-acre Lewis Ginter Botanical Garden was founded in 1981. The themed gardens include a healing garden, a rose garden, a sunken garden, an Asian valley, a wetland garden, a Victorian garden, a perennial garden, conifer garden and a children's garden.

[www.lewisginter.org](http://www.lewisginter.org)

### MAYMONT HOUSE AND GARDENS

Established in 1886, this 100-acre park includes an Italian garden, a Japanese garden, an arboretum, a butterfly trail, a cactus garden, a walled garden with bulbs, annuals and perennials, an herb garden, a Virginia native landscape, a daylily and daffodil garden and a vegetable garden.

[www.maymont.org](http://www.maymont.org)



## WHAT'S IN YOUR GARDEN?



A playset can be a welcome addition to the backyard but be sure to provide some shade.



A pervious pavement patio can expand your outdoor entertaining area and reduce water runoff.



Raised beds and vertical trellises can increase the yield of your garden without increasing its size.

Once you've driven through neighborhoods, visited public gardens, and looked through magazines and books, it's time to figure out what it is that you really want from your garden.

### FRONT YARD GARDENS

These public spaces provide a chance for you to enhance the “curb appeal” of your home. The plantings should frame the view of the house from the street, reflect the style of the house, and the arrangement of doors and windows. Common front yard elements include: walkways, foundation plantings, trees, lawn, groundcover, and lighting.

### BACK YARD GARDENS

The space behind your house is your private outdoor space and should function for the way you use that space. Just like the inside of your house, your outdoor space can be divided into areas for each use.

If you are thinking about a backyard improvement project you should probably consider how you use, or would like to use, this outdoor space for:

- Kids
- Pets
- Exercise
- Entertaining
- Gardening

Common backyard elements include: trees, shrubs, lawn, groundcover, play areas, work areas, areas for relaxing and entertaining, lighting, patios and decks, fences or hedges, vegetable gardens, water features, compost piles, sheds, and arbors or trellises.



## BEFORE YOU GO ANY FURTHER...

### CONSIDER THESE GARDEN DESIGN PRINCIPLES

These design principles can help you simplify the process of designing a new space in your yard and help you to integrate it into your existing plantings.

**Balance.** A formal or symmetrical planting arrangement means that there is a balanced arrangement of plants of equal size and shape on each side of the yard.

An informal or asymmetrical arrangement allows more freedom in design, as the plantings do not need to be alike on both sides.

**Repetition.** Repeat plants with similar shapes, colors, textures, and scent throughout the garden.

**Proportion.** Use plants that are of an appropriate scale for your house and yard. Consider the mature size of the plant, not the size when you plant it.

**Transition.** Design the garden so that there are no abrupt changes in color, height, or texture.

**Variety.** Keep it simple when it comes to the number of elements and colors to provide a sense of harmony to the garden.

**Sequence.** Repeat colors, forms and lines to create visual interest.

**Emphasis.** Use focal points such as a trellis, arbor, fountain, bench, or special plant to provide direction.



The symmetrical facade of this bungalow lends itself to a balanced arrangement of trees and shrubs.



The asymmetrical facade of this split level often looks best when a more informal planting style is used.



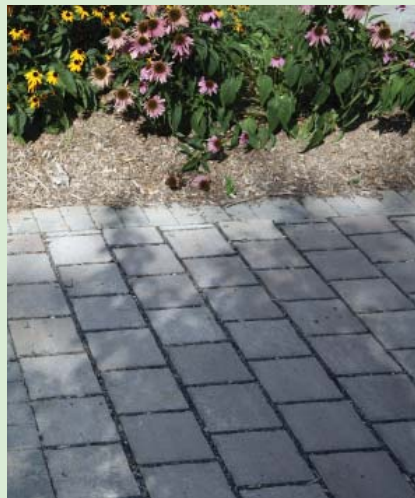
## IN THE YARD - GREEN, GREEN, AND GREENER STILL

### PLANTINGS



- Plant deciduous trees and shrubs on the south side of the house to shade the house in summer and allow the sun to warm the house in winter.
- Plant evergreen trees on the north and northwest to block winter winds.
- Shade your air-conditioning unit by planting a large shrub or small tree 3 - 4 feet away to block the afternoon sun.
- Using drought-tolerant plants and grass reduces the need for watering.

### PAVING



- Limit the amount of paved area. Shade any paved surfaces to reduce heat gain.
- Use permeable paving techniques rather than hard mortar and concrete or asphalt so water can pass through and pollutants are filtered. Options include stone, brick, porous aggregates, open-jointed blocks, pervious concrete and porous asphalt.

### LIGHTS



- Use a programmable timer or motion sensor for outdoor lights.
- Upgrade outdoor light fixtures to energy efficient models or solar-powered lights.



## CONSIDER THESE GREEN IDEAS

### GOOD BUGS CAN HELP LIMIT CHEMICAL USAGE

- Beneficial insects and plants can reduce the need for chemicals and help reduce run-off that pollutes nearby rivers and streams.
- Ladybugs eat aphids. Plant nectar-producing plants such as daisies and alyssum and herbs such as mint and dill to attract ladybugs.
- Sage deters cabbage moths and flea beetles.
- Garlic is a natural pest repellent.
- Plant companion plants to keep harmful insects at bay. Your local garden center can help you match plants.
- Bats provide natural pest control. Attract them by adding a bat house, a water feature, and by planting night-blooming native flowering plants such as evening primrose, nicotiana, and cleome.
- Encourage worms in your soil by avoiding harsh chemicals, occasional deep watering, and providing good organic material such as compost.
- Use a hose to remove aphids, leafhoppers and spider mites from plants.
- Water in the morning to reduce growth of powdery mildew and other diseases that thrive in humid conditions.
- Diatomaceous earth, an organic white powder, is non-toxic to humans and pets and harmful to insects such as fleas, ticks, pillbugs, slugs, and snails.



### GO NATIVE!

Consider using plants native to Virginia.

### BENEFITS

- Reduces the need to water or fertilize once the plants are established.
- Resists most pests and diseases so no chemicals are needed.
- Attracts wildlife by providing food and shelter.

### VIRGINIA NATIVE PLANT SOCIETY

The Virginia Native Plant Society encourages the use of native plants. Native plant lists for Henrico County, which falls between the Coastal Plain and Piedmont regions, can be found on their website.

Brochures available for download include:

“Meet the Natives: A Guide for Growing and Using Native Plants”

“Do I Have to Mow All That: A Guide to Reducing Lawn, Attracting Birds and Butterflies and More”

[www.vnps.org](http://www.vnps.org)

### NATIONAL AUDUBON SOCIETY

Create a Healthy Back Yard through reducing the need for pesticides, using native plants, providing a habitat for birds, and composting your yard and kitchen waste.

[www.audubon.org](http://www.audubon.org)





A rain barrel collects water from a downspout for use in the garden.



Native plants, water, and food can help attract wildlife to your backyard.

## GOING GREEN IN THE GARDEN

**Use a rain barrel.** By collecting rainwater from your roof, you can reduce the costs to water your lawn and garden and reduce runoff.

**Use mulch.** Wood mulch will hold in moisture around trees and plants.

**Water early.** By avoiding the hottest part of the day you will reduce waste through evaporation.

**Establish a compost pile or bin.** It reduces waste in the landfill and can be used to fertilize your plants for free. Pick a level, shaded, well-drained area away from trees.

**Start a home garden.** What you grow yourself reduces what you need to buy at the store, saves you money, provides fresh healthy vegetables and fruits, and reduces energy used in transportation.



### ESTABLISH A COMPOST PILE

Recycle yard waste and kitchen scraps into fertilizer for your lawn and garden. Visit the Virginia Cooperative Extension website to get started @

<http://pubs.ext.vt.edu/426/426-703/426-703.html#L1>

### MAKE A RAIN BARREL

Click on the link below for a material list, necessary tools and instructions.

<http://www.epa.gov/Region3/p2/make-rainbarrel.pdf>

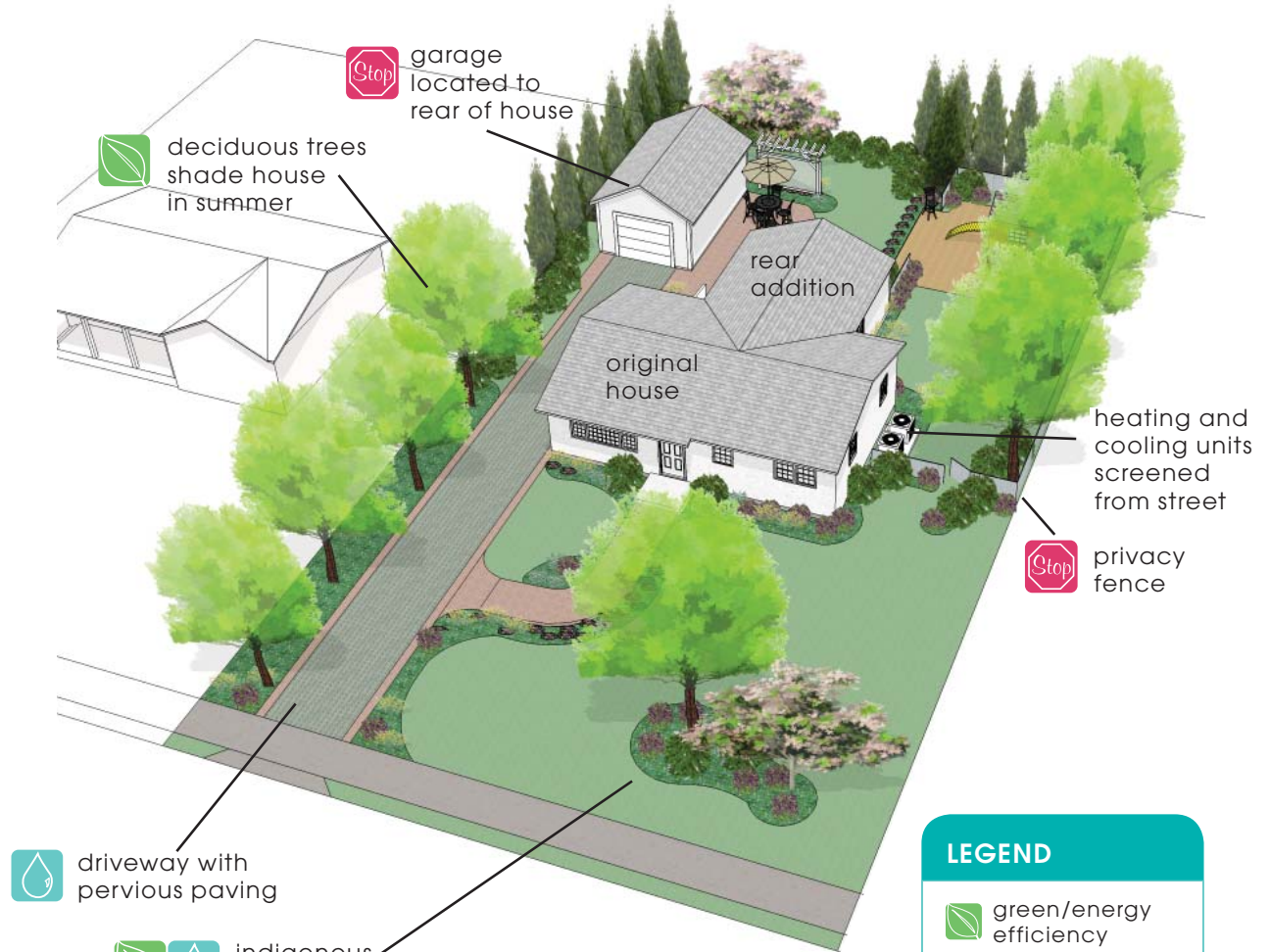


## MAKING THE MOST OF YOUR RANCH YARD



These illustrations of the site of a simple ranch style house as seen in many Henrico County neighborhoods show a number of improvements:

- plantings in the front yard accentuate the style of the house and are native plants that require less water and maintenance
- trees at the side lot line provide screening of the driveway from the neighbors view
- permeable pavement driveway that prevents runoff
- garage located to the rear of the lot contributes the sense of enclosure of an outdoor eating area
- paved surfaces provide access to the handicap ramp located along the new addition
- outdoor dining is screened for privacy by an arbor
- evergreen trees at the rear lot line provide a windbreak and year-around backdrop








**LEGEND**

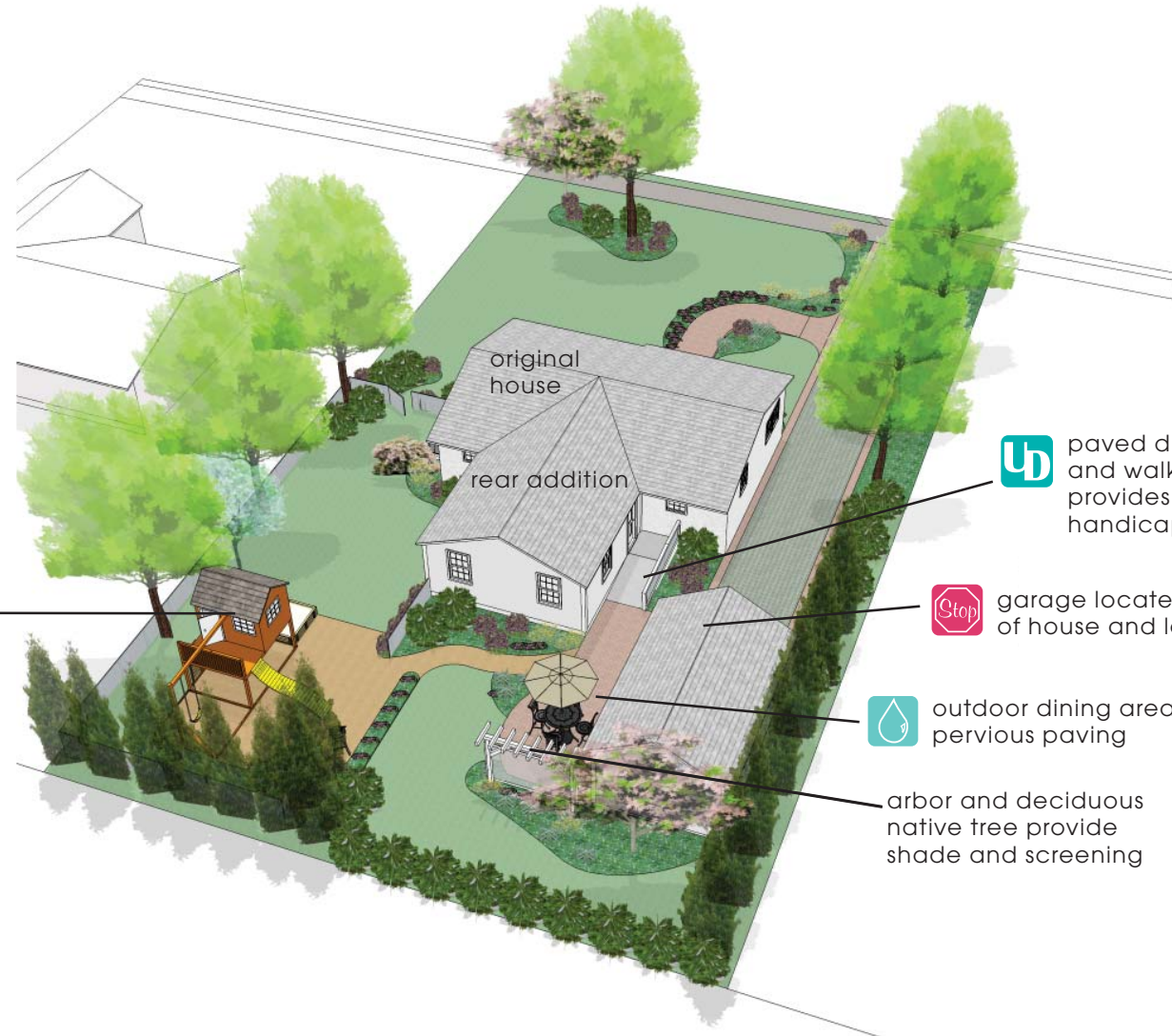
- green/energy efficiency
- water efficiency
- reduce/reuse/recycle
- Universal Design
- Check with Permit Center









LEGEND


-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center



  shaded playhouse and swingset

 paved driveway and walkway provides access to handicap ramp

 garage located to rear of house and lot

 outdoor dining area with pervious paving

arbor and deciduous native tree provide shade and screening








## MAKING THE MOST OF YOUR CAPE COD YARD

The Cape Cod house style is one of the most enduring and traditional small house designs in the United States. This illustration uses a variation of the house style found in some Henrico County neighborhoods that incorporates a side porch. Possible site improvements include:

- front walkway that connects to the sidewalk
- permeable pavement ribbon driveway which requires less paving than a traditional driveway
- trees located to provide shade for parked cars
- handicap access to a side entry with connecting pavement from the driveway
- screened trash and recycling storage
- privacy fence in the backyard softened by deciduous trees
- storage shed attached to a blank wall on the side of the house
- a water feature that can be run by a solar powered pump to avoid electrical connections
- outdoor dining area
- raised vegetable garden beds for accessible gardening
- transition areas covered in crushed stone or stepping stones for drainage and reduced heat gain



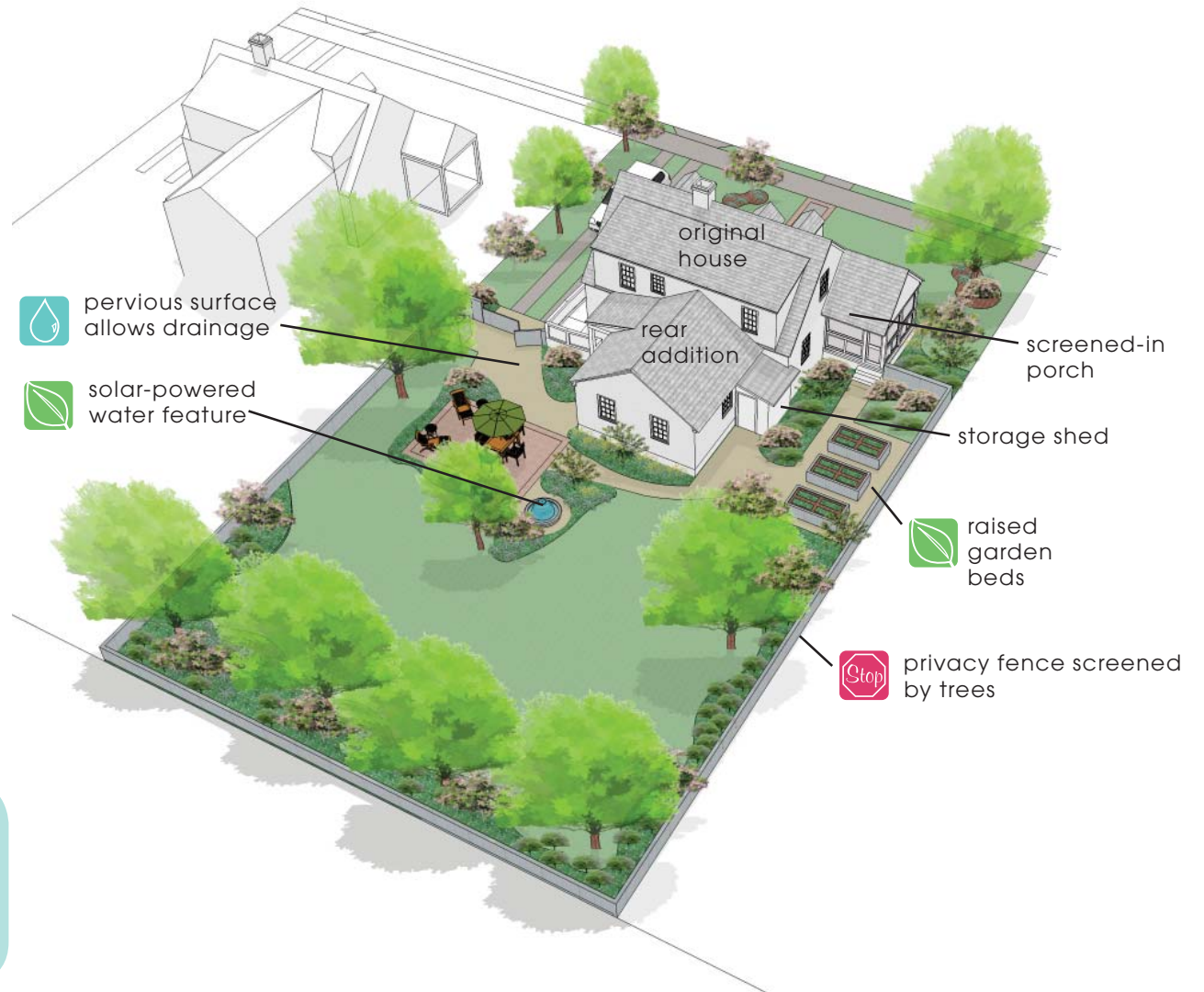
### LEGEND

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center



LEGEND

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center



For more information on solar-powered water features visit :

[www.solarwaterfountains.org](http://www.solarwaterfountains.org)



## MAKING THE MOST OF YOUR SPLIT LEVEL YARD

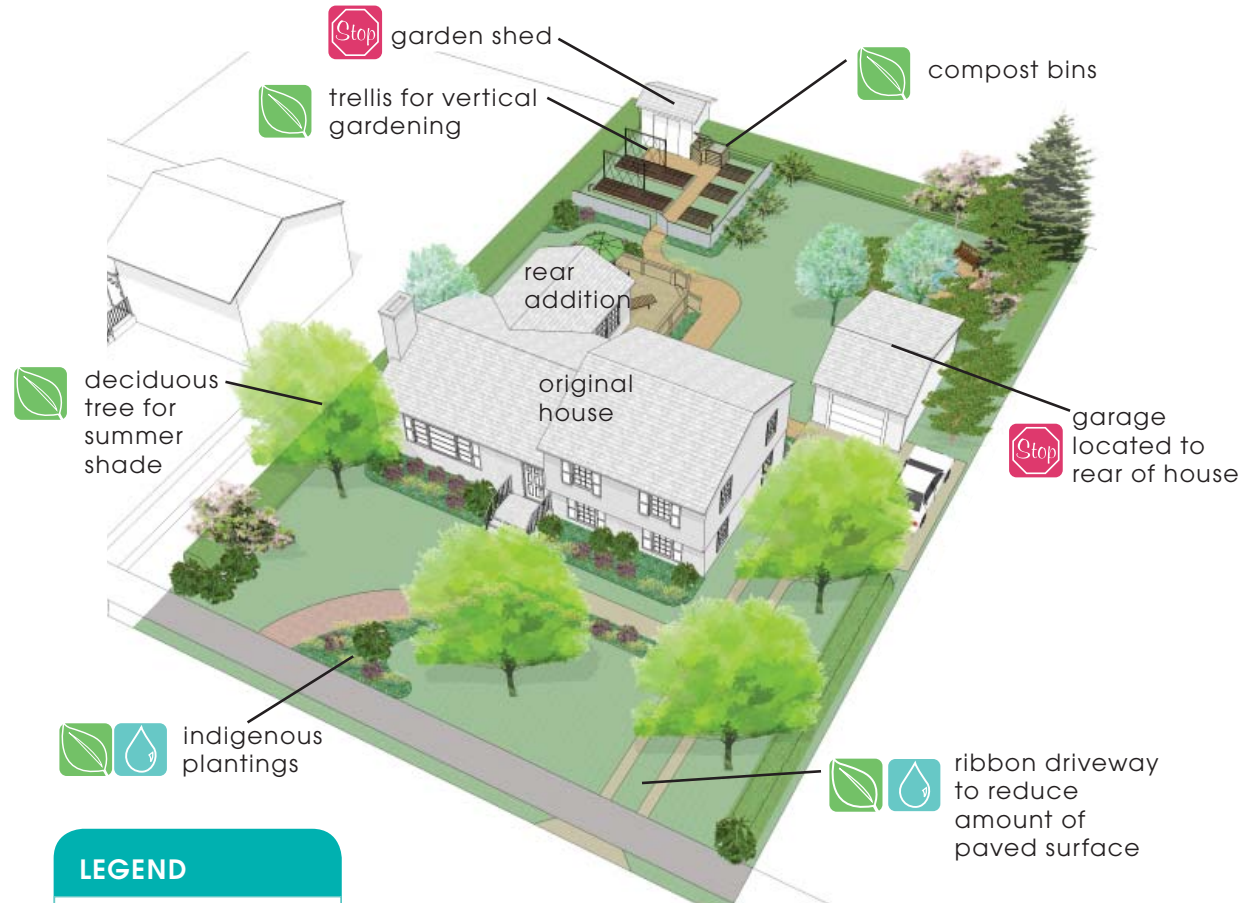


The Split Level house was originally built for growing families. These houses were often built on larger lots than the earlier small ranches, bungalows and Cape Cods. These enlarged lots give homeowners more options for enhancements such as:






- large deck for entertaining
- garden plot and shed for vegetable gardening
- compost bins
- natural habitat to attract wildlife
- garage
- rainbarrels
- evergreen hedge to provide privacy and screening

Note that many of these outdoor features and the house are shaded and that the site is planted with native or indigenous plantings to reduce the need for watering.

Where pavement is illustrated, it should be permeable to reduce runoff.





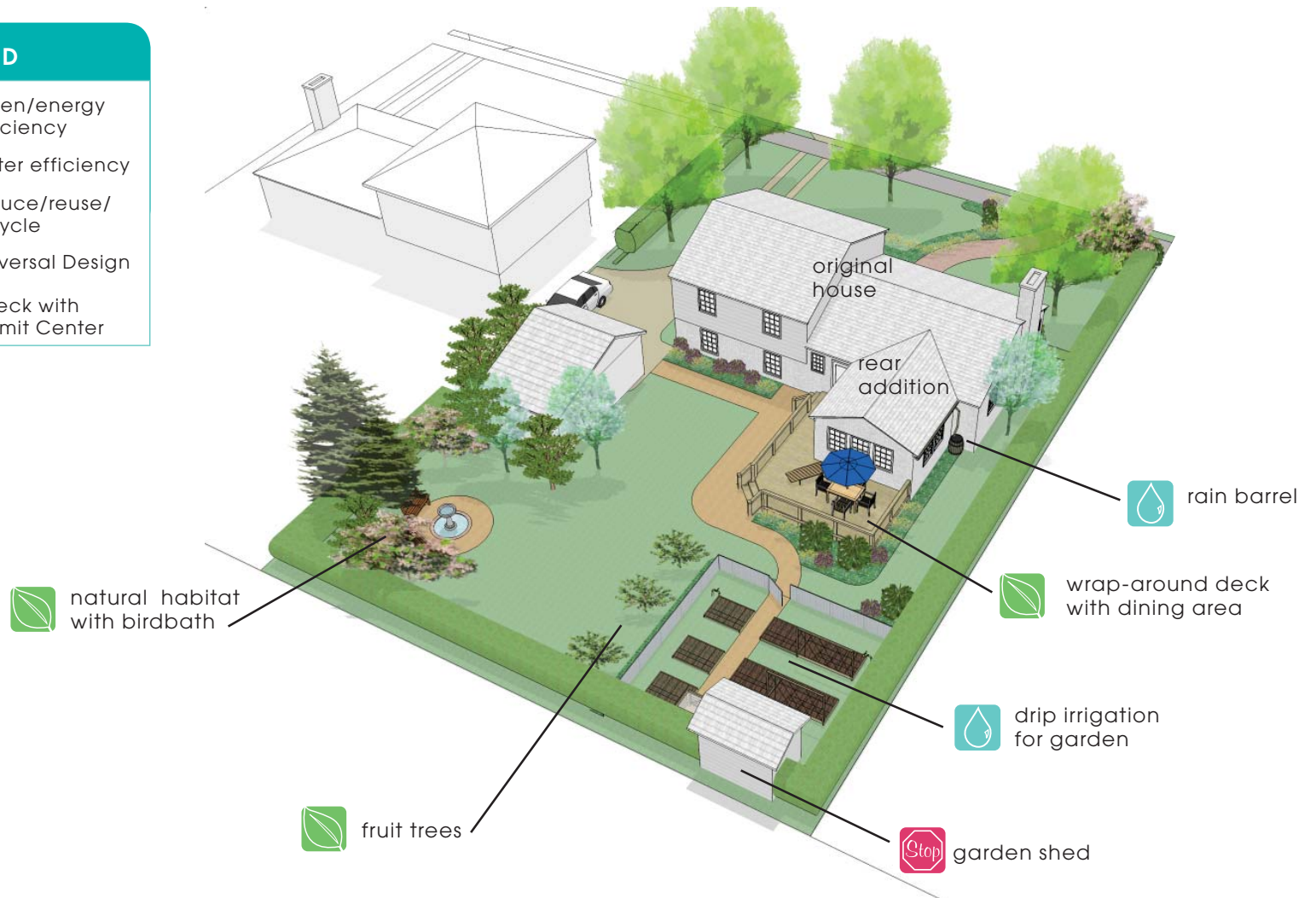
**LEGEND**

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center



LEGEND

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center

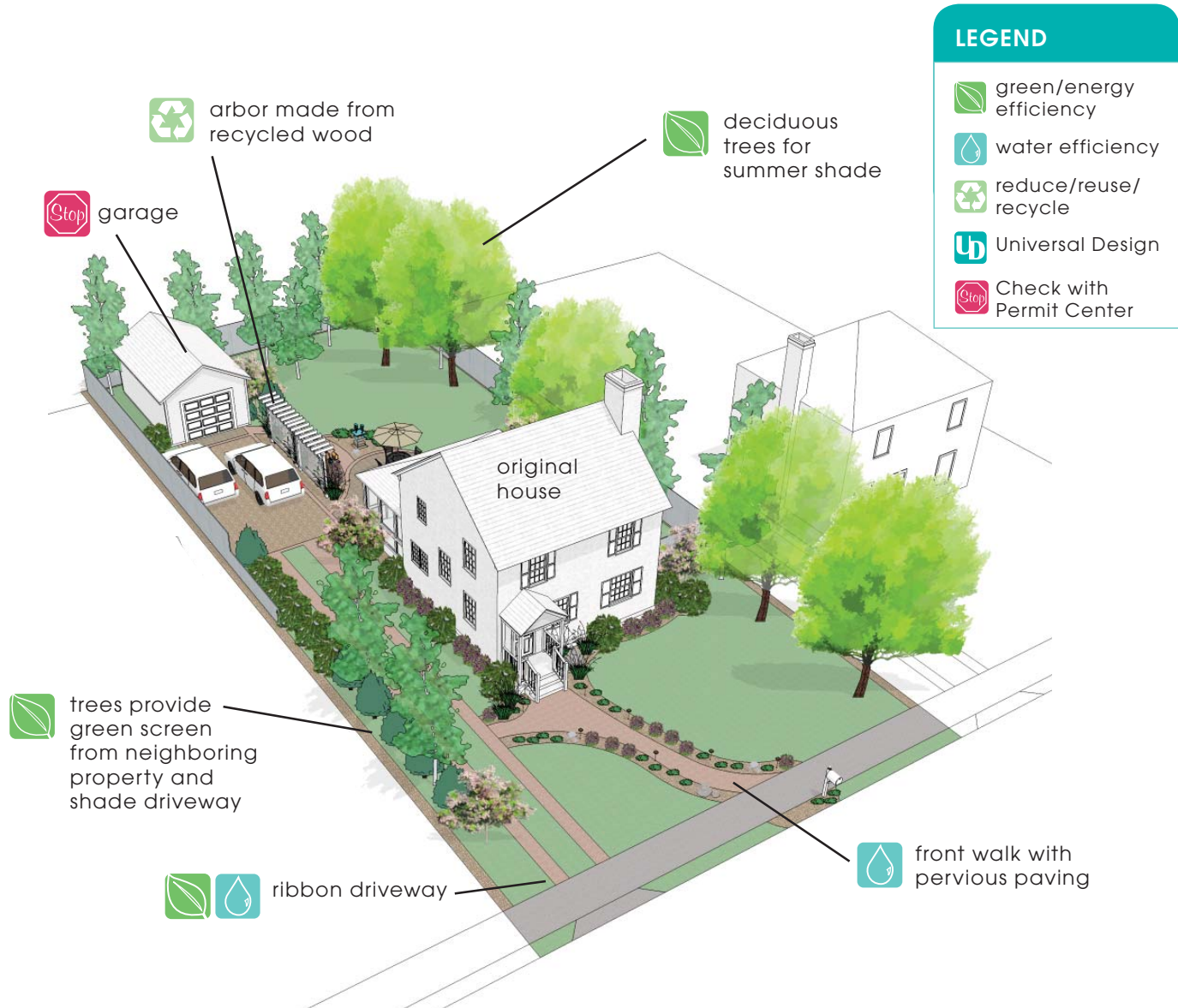


## MAKING THE MOST OF YOUR COLONIAL REVIVAL YARD




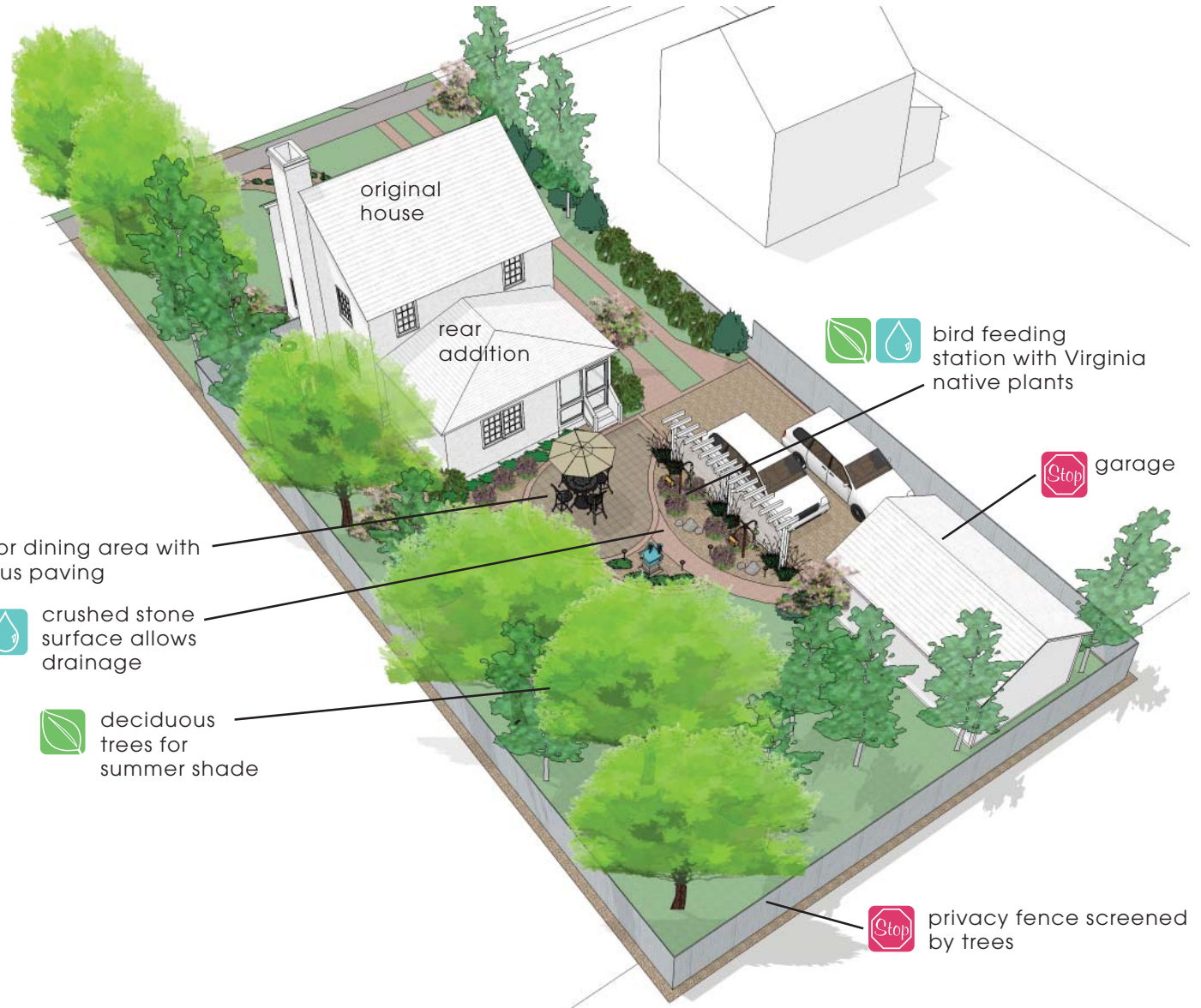
One of the country's most enduring house styles, the brick Colonial Revival house is especially identified with Virginia. These houses often look best when traditional plantings are used to accent the classic architecture. Additional traditional elements may include:


- brick walkway
- ribbon driveway
- evergreen plantings
- Virginia native plants
- shrubs and trees used for energy efficiency and screening
- structural elements including a garage and/or arbor
- outdoor dining/entertaining area
- bird-feeding station





LEGEND


-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center




 outdoor dining area with pervious paving

 crushed stone surface allows drainage

 deciduous trees for summer shade

  bird feeding station with Virginia native plants

 garage

 privacy fence screened by trees



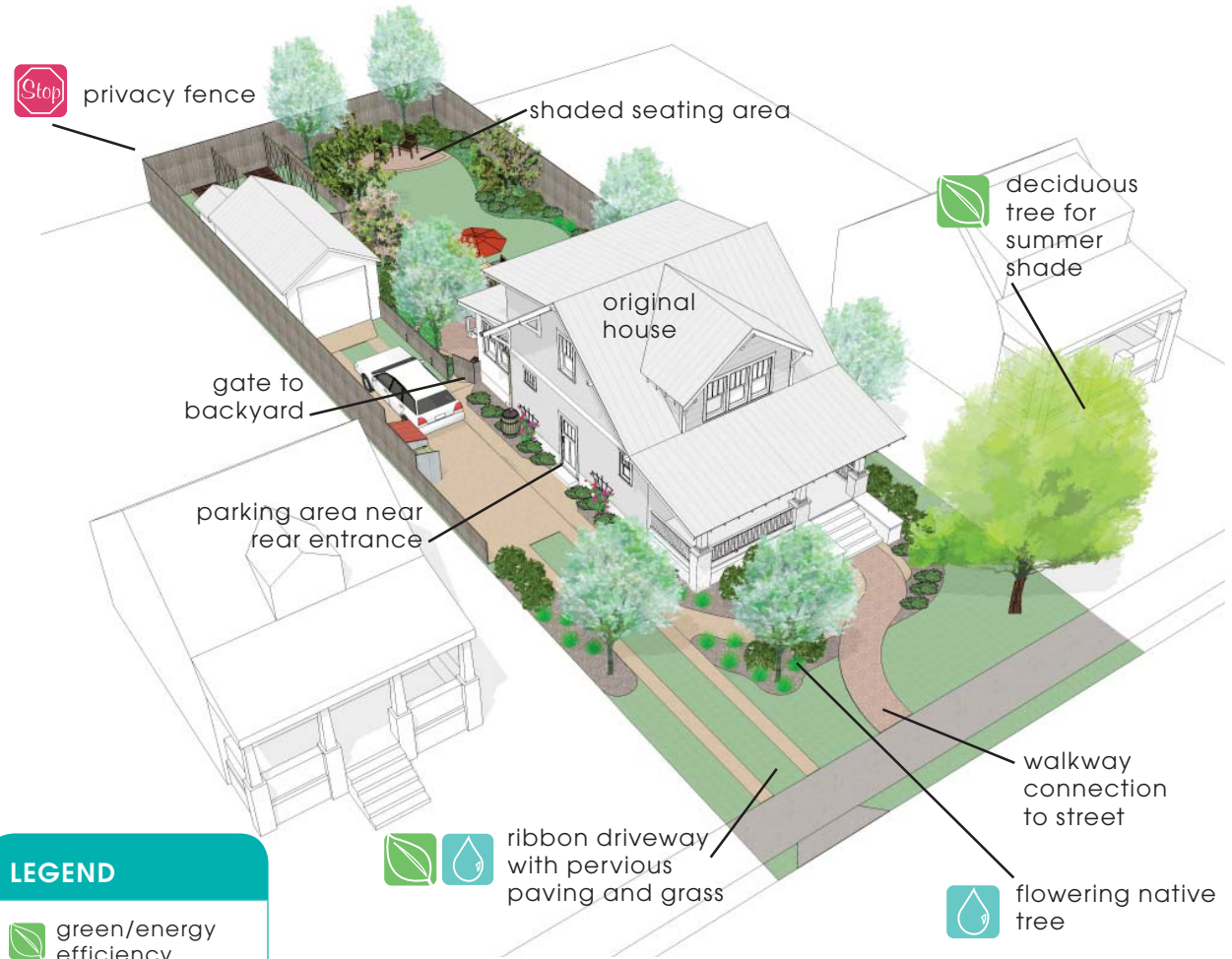
## MAKING THE MOST OF YOUR BUNGALOW YARD








As found in Henrico County, small Bungalow style houses are often located in neighborhoods that were on streetcar lines which provided transportation in the days before everyone owned a car. Small lots allowed many houses to be built within walking distance to streetcar stops. Today, these small houses on small lots may provide challenges for the homeowner wishing to expand their living space outdoors and needing to park multiple vehicles.

These illustrations show some possible ways to address these challenges:

- ribbon driveway with permeable paved parking pad for two single-loaded cars
- possible single-car garage with attached garden shed
- vegetable garden with trellises for vertical gardening
- outdoor seating areas
- deck with dining area

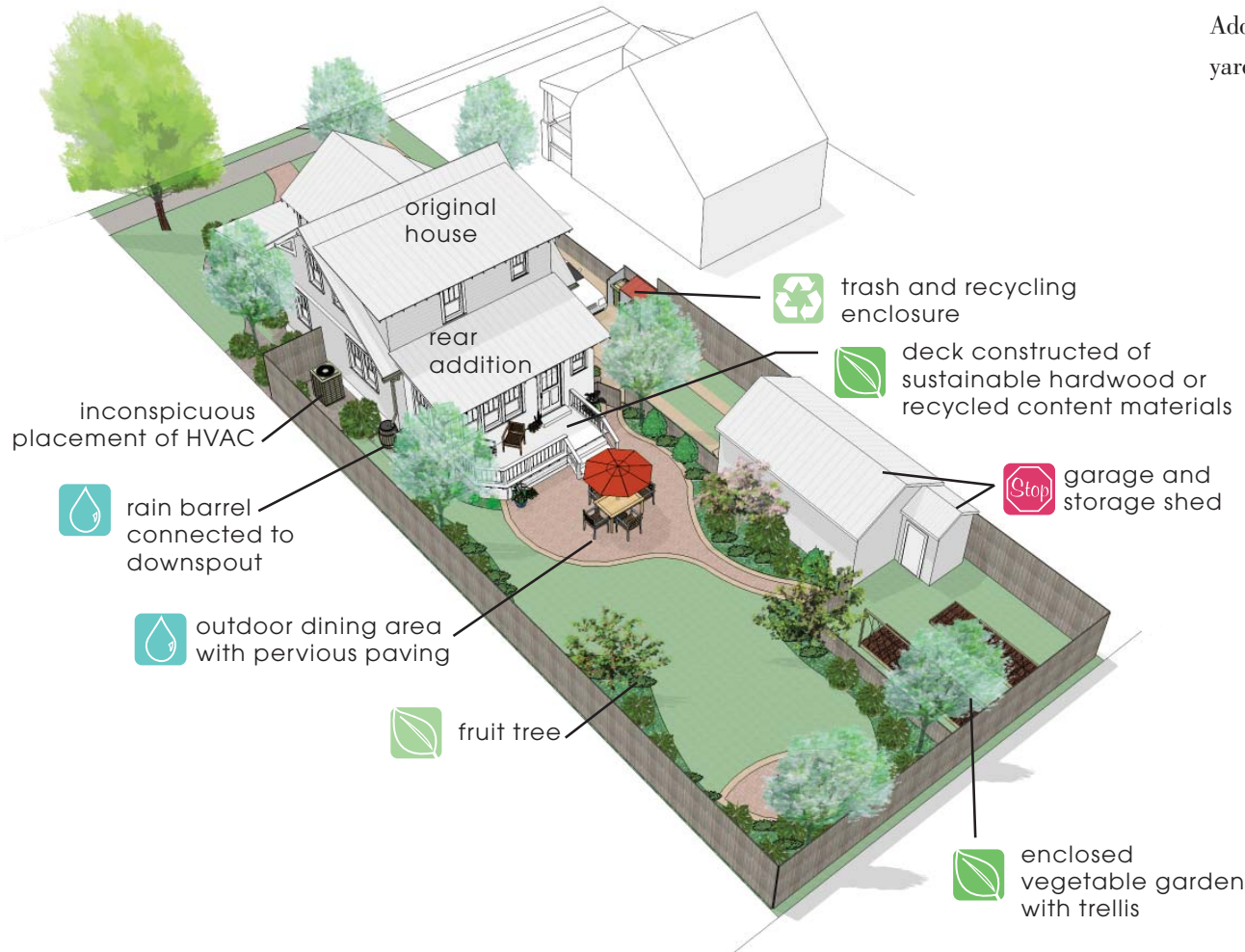


**LEGEND**

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center








Additional items to enhance Bungalow yards include:

- rain barrels to capture rainwater for watering the garden and other plantings
- walkways to connect the front yard to the driveway and to the sidewalk or street
- native plantings to reduce water usage
- trees planted to provide shade for house and outdoor areas

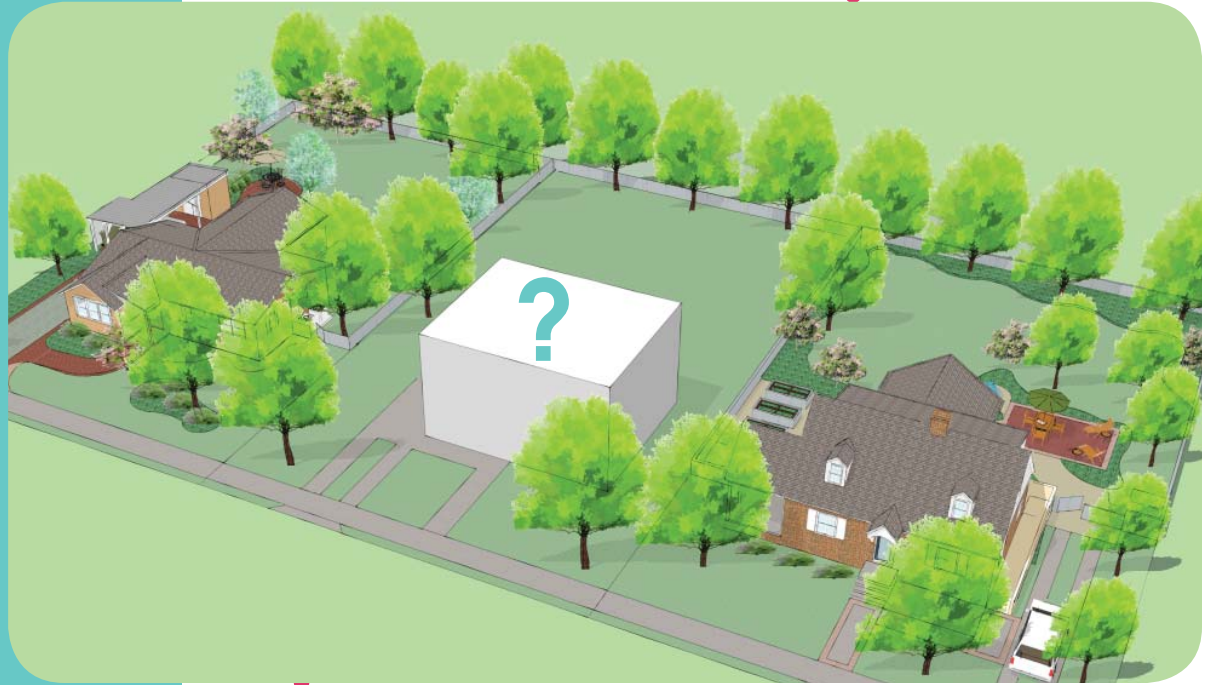
**LEGEND**

-  green/energy efficiency
-  water efficiency
-  reduce/reuse/recycle
-  Universal Design
-  Check with Permit Center



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 8: *New Houses in the Neighborhoods*



## NEW CONSTRUCTION

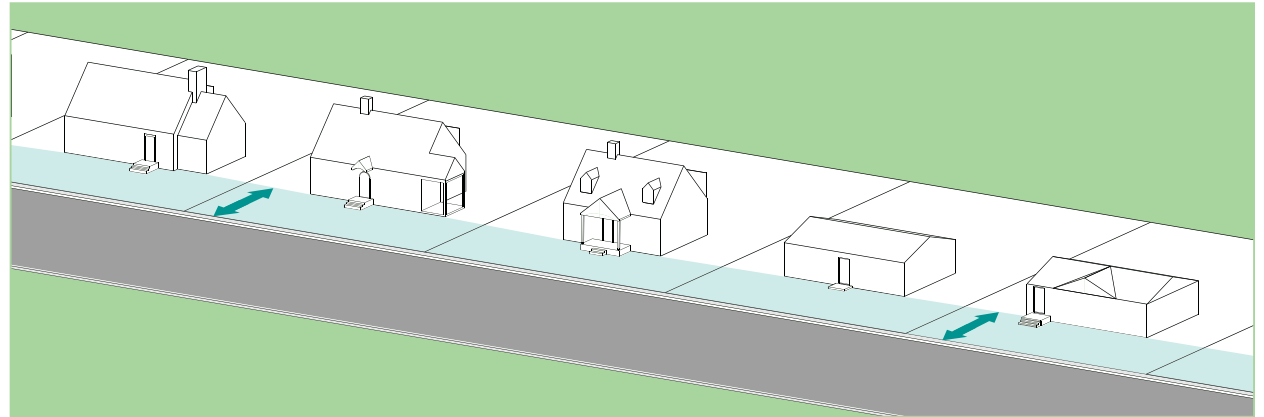
There are limited opportunities for new single-family home construction in most of Henrico County's mid-century neighborhoods. The chance to build a new house can provide an exciting opportunity to create new designs that respect the proportions, styles, and materials used in the construction of the original neighborhood.

## LOCATION AND ORIENTATION

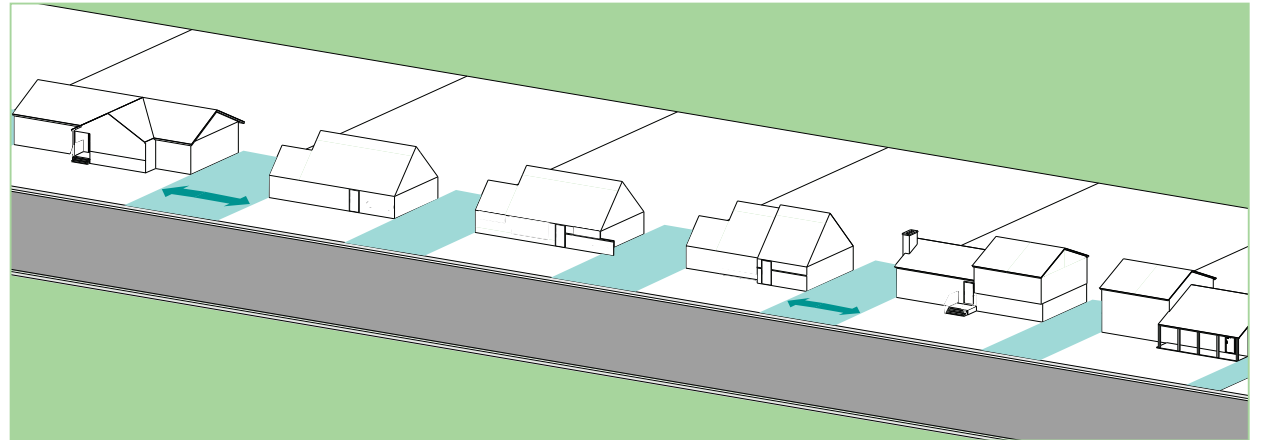
Most houses on Henrico neighborhood streets have a similar depth of front yard and the spacing between houses gives a rhythm to the street. New houses should be sited in a similar way and the front door should face the street.



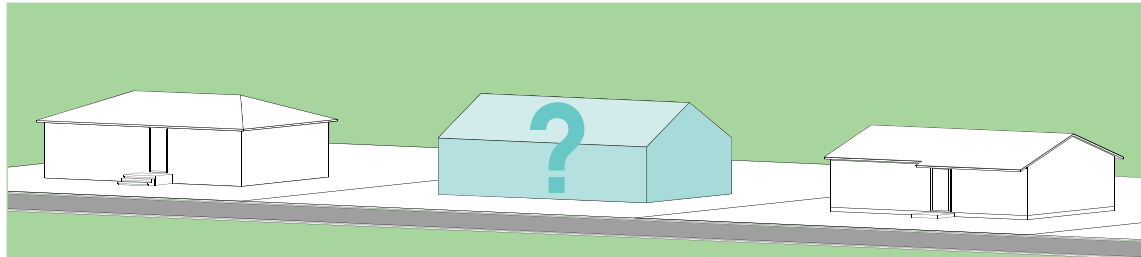
The new house, seen in the foreground, is oriented to the street and respects the setback of adjacent houses.



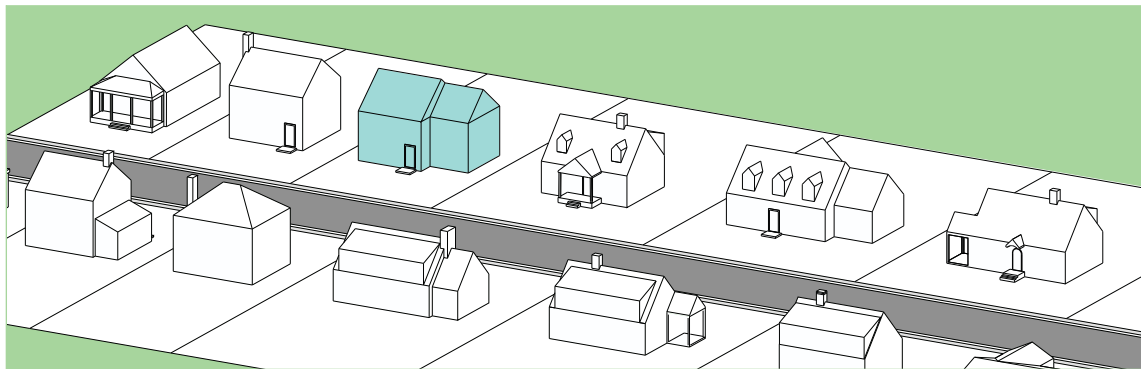
Block by block, houses in Henrico County neighborhoods have a consistent setback from the street as illustrated by the blue shaded area and arrows.



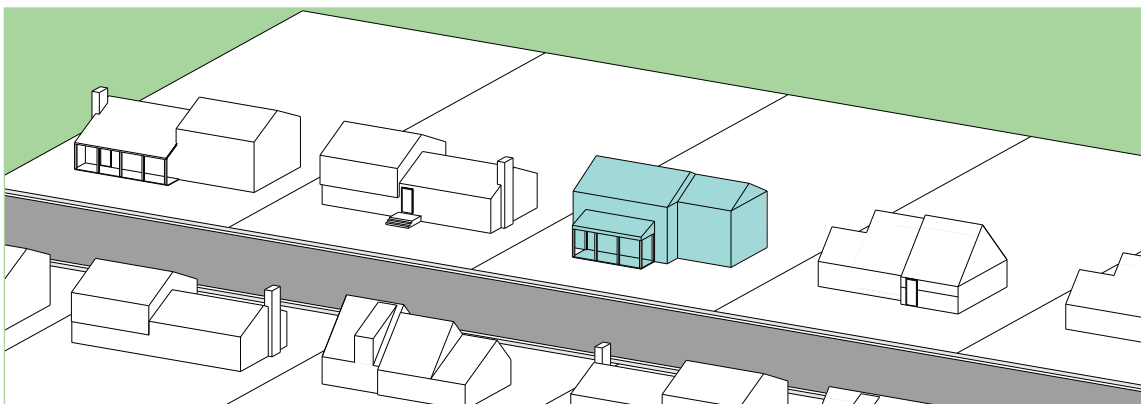
The spacing between houses built in the same time period in each neighborhood is consistent as illustrated by the blue shaded areas and arrows.



It can be a challenge to find the right design for new construction in an existing neighborhood.



The shaded house above provides an example of appropriate size, scale, and massing in neighborhoods with smaller scale houses.



In neighborhoods where houses are slightly larger, the shaded house may have an appropriate mass for new construction.

## DESIGN

The design of a new house in a neighborhood does not need to be a copy of the existing houses, but should be compatible in size, scale, and massing.

Most neighborhood houses are simple rectangles, some with small rectangular additions. By keeping the shape of the house simple, it will complement the existing houses on the street.

The arrangement of windows and doors on the front of the house should be similar to those found on adjacent houses.



The new house pictured above shares a similar size, scale and simple massing with its neighboring structures.



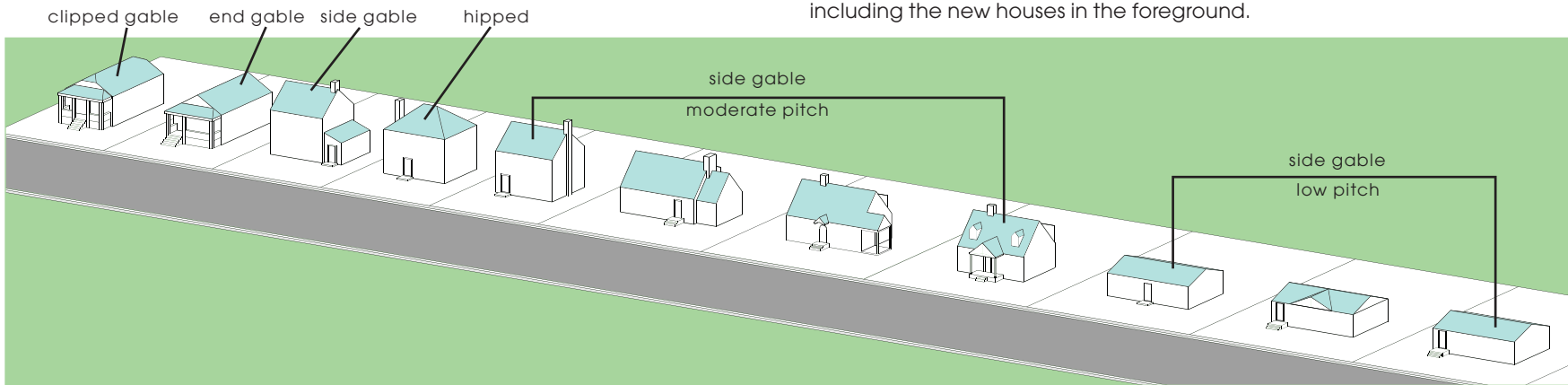
## NEW CONSTRUCTION, continued

### ROOF

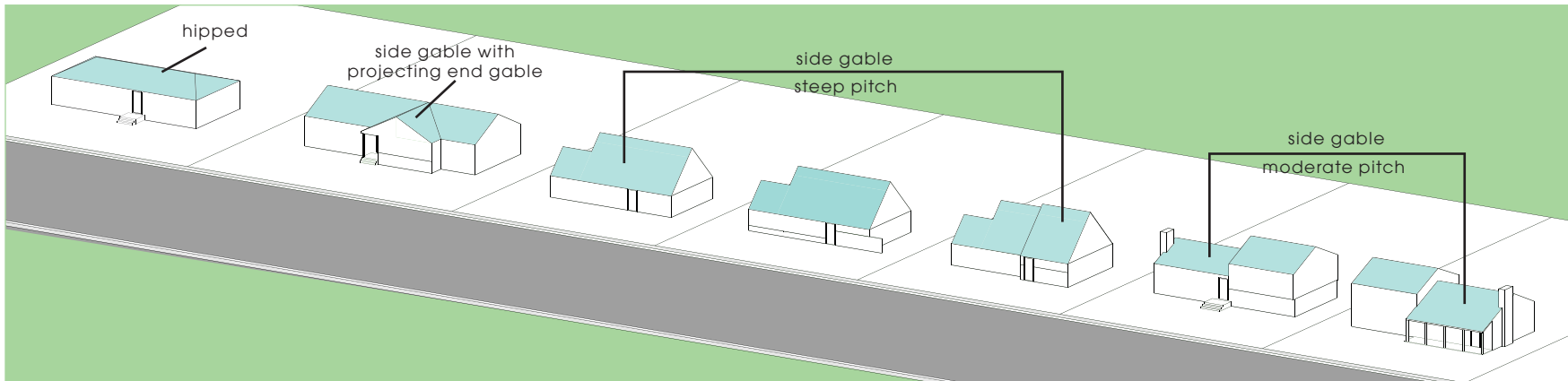
Most existing houses in Henrico County's mid-century neighborhoods have either gable or hipped roofs, or a combination of the two. Look at other houses on the street to determine the most prevalent roof form and pitch.



This street view shows the rhythm created by repeated gable roof forms including the new houses in the foreground.



Roof forms are often dictated by the style and size of the house, as shown above.



Larger houses often use more than one roofline to help reduce the perceived mass of the structure and reinforce the human scale.





An unadorned cornice and cornerboard can provide a minimum amount of traditional detail to a newly constructed residence.

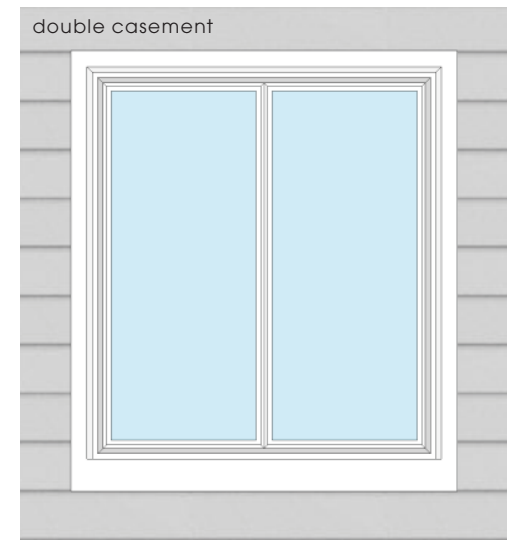
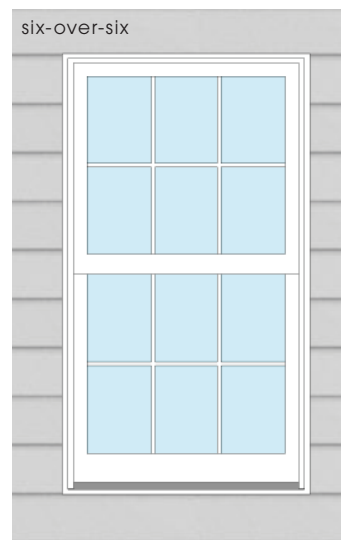
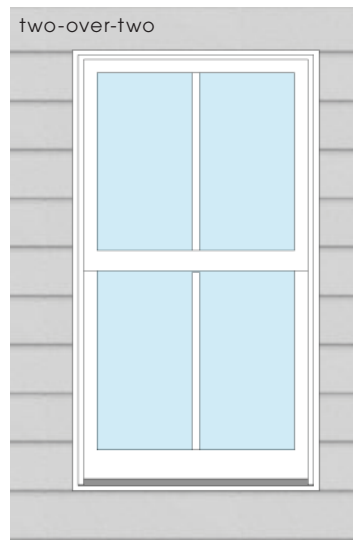
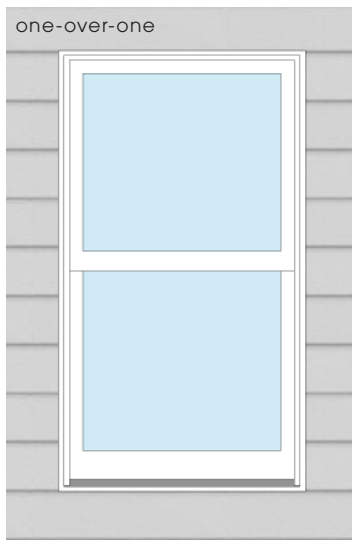


Adding molding to the cornice provides more visual interest and is appropriate in Cape Cod and Colonial Revival style neighborhoods.

## DETAILS

Henrico County’s mid-century houses generally have simple traditional details. Older neighborhoods with Bungalow and Colonial Revival style houses have the most architectural details. The neighborhoods with Cape Cods, Ranches, and Split Level houses built after World War II have fewer details.

New construction will be most compatible if it follows the precedent of the existing houses in the neighborhood.



The windows styles illustrated above are among those that may be appropriate for new construction in Henrico County’s mid-century neighborhoods.



## MATERIALS

The most prevalent materials used in mid-century house construction in Henrico County are brick, wood, and artificial siding. Windows are either wood or aluminum. Most roofs are covered in asphalt shingles.

In new construction, you may be able to take advantage of newer materials that approximate the appearance of traditional siding. Some materials, such as fiber cement, may offer a wider range of design options. Among these materials are:



This laminated shingle roof provides three-dimensional visual interest.

## ROOF MATERIALS

### COMPOSITION SHINGLE - lasts 15-30 years

+	<b>economical, lightweight, easy for homeowner to install</b>
-	<b>lacks texture, definition</b>

### LAMINATED SHINGLE - lasts 40-50 years

+	<b>creates three-dimensional interest, more fire-resistant than composition shingles</b>
-	<b>more expensive than composition shingles</b>

### STANDING SEAM METAL (ALUMINUM) - lasts 50 years

+	<b>fire-resistant, recyclable, can be installed over composition shingles, available in panels and shingles, doesn't rust, available pre-painted</b>
-	<b>conducts heat, expensive</b>

### ARTIFICIAL SLATE - variable

+	<b>made from recycled materials, weighs less and is less expensive than natural slate, replicates appearance of historic material</b>
-	<b>can be expensive to install, relatively new products with a variety of formulations, durability not proven in all cases, can fade</b>







Fiber-cement siding was installed to meet a simple corner board.

## SIDING

### ENGINEERED WOOD PRODUCTS

+	low cost, stable, less imperfection than hardwoods, paintable
-	cut ends need to be sealed to prevent water damage

### VINYL

+	inexpensive, available with insulated foam backing, unlikely to rot or peel
-	dark colors may fade, available colors limited, should not be painted

### FIBER-CEMENT

+	fire-resistant, termite-proof, no cracking or rotting, needs painting less frequently than wood, available urethane coating
-	more expensive than other options



## MATERIALS, continued

### TRIM MATERIALS

#### ENGINEERED WOOD

+	inexpensive, can be repaired like wood, treated to resist moisture and insect damage
-	decorative trim not always available, needs painting

#### VINYL/CELLULAR PVC

+	doesn't twist or rot, no knots, long lengths available, can be painted
-	not easy to fix damaged areas

#### FIBER-CEMENT

+	not affected by temperature and humidity changes, termite resistant, non-combustible
-	needs to be painted or stained, decorative details not available



Ensure that the cornerboards are of an adequate thickness that the siding does not extend beyond the plane of the trim.



A contrasting paint scheme allows this simple trim to make a statement.





Smooth siding and traditional trim details are an appropriate choice in many of Henrico's mid-century neighborhoods.

### URETHANE

+	lightweight, can be shaped to resemble traditional trim profiles, can last as long as the building, paint lasts longer than on wood
-	more expensive than other options, affected by temperature and humidity changes

### VINYL-CLAD WOOD

+	does not need to be painted, resists cracking, peeling, chipping
-	hard-to-find, only available for window and door trim, may not last as long as other options



Wood-grained fiber-cement trim complements the similarly textured siding.



## MATERIALS, continued

### WINDOW MATERIALS

#### VINYL-CLAD WOOD

+	low-maintenance, resists warp or rot, available with wood interior that can be stained/painted
-	limited colors, can crack in cold weather, exterior cannot be painted

#### FIBERGLASS

+	low-maintenance, interior/exterior can be painted, as energy efficient as wood, durable
-	limited availability and sizes, more expensive than aluminum or vinyl

#### COMPOSITE

+	more energy efficient than vinyl, can be painted, some made with recycled materials
-	more expensive than vinyl but less than traditional wood

#### ALUMINUM-CLAD WOOD

+	low-maintenance, resists warp or rot, wood interior can be stained/painted
-	more expensive than traditional wood, exterior cannot be painted

#### VINYL

+	does not require painting, affordable, less expensive than traditional wood
-	limited color options, cannot be painted, may get brittle and leak over time, colors may fade



New windows should be accompanied by appropriate trim as seen in this traditional vinyl-clad wood, double-hung window example.



These aluminum-clad wood casement windows may be appropriate when a less traditional appearance is sought.

#### LOOK FOR THE ENERGY STAR LABEL

Energy Star windows can help reduce your energy bills by 7-24%.

[www.energystar.gov/index.cfm?c=windows\\_doors.pr\\_windows](http://www.energystar.gov/index.cfm?c=windows_doors.pr_windows)

All Energy Star windows carry a label from the National Fenestration Rating Council. This non-profit organization measures the ability of a window to keep your house warm in the winter and cool in the summer.

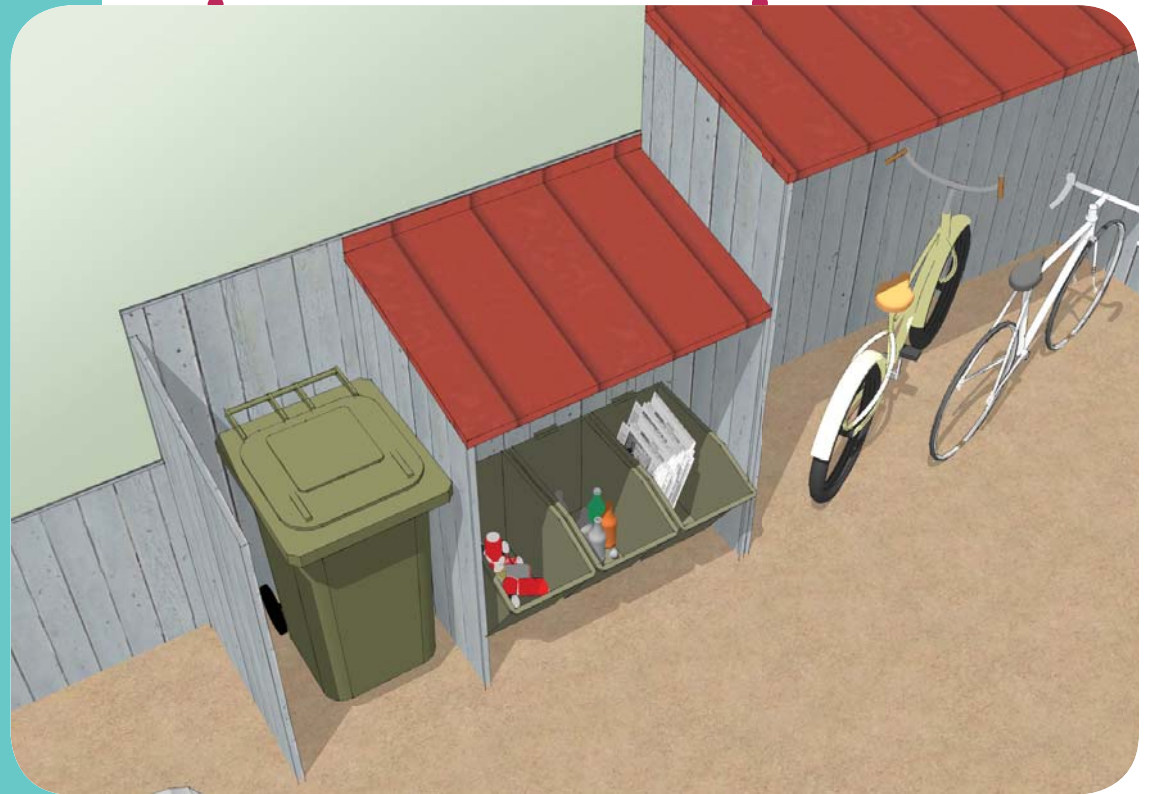
<http://www.nfrc.org/label.aspx>

For more tips on  replacement windows, see Chapter 9.



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 9: Going Green: Save Energy, Water, and Money!



## WHAT DOES IT MEAN TO BE GREEN?

Being green is about considering the impact you have on the environment. Recycling soda cans and plastic water bottles is a good start. There are also various simple projects you can complete around your house that will help reduce the energy and water you use and lower your utility bills. Using natural products and materials can also have health benefits. And when the time comes to sell your “green” house, you may be able to ask a higher price if it is more energy efficient than your neighbors.

### FOR INFORMATION ON FEDERAL ENERGY EFFICIENCY TAX CREDITS VISIT:

[www.energystar.gov/index.cfm?c=tax\\_credits.tx\\_index](http://www.energystar.gov/index.cfm?c=tax_credits.tx_index)

You'll also hear the word “sustainability” talked about. This means considering whether products are made from renewable raw materials and the amount of energy used to manufacture and transport them to a store near you. The goal of sustainability is to provide what we need for living today without compromising what is available to future generations.

### ESTABLISH A RECYCLING CENTER AT HOME

By sorting household recyclables by type:

- glass bottles and jars
- #1 or #2 plastic bottles
- metal cans and foil products
- newspapers and mixed paper

You'll be ready for curbside pick-up or occasional drop-off at one of the Henrico County Recycling Centers.

### FIND YOUR CLOSEST RECYCLING CENTER:

[www.henrico.us/utility/solidwaste/recycling.html](http://www.henrico.us/utility/solidwaste/recycling.html)

## REDUCE, REUSE, RECYCLE

### 1. Buy materials that are

- non-toxic
- clean, non-polluting
- renewable
- abundant
- durable
- natural
- have recycled content
- locally grown or manufactured

### 2. Select products and materials that are

- energy efficient
- take advantage of natural sources of energy

### 3. Choose quality products that

- will last longer and reduce the need to replace
- work better and need less maintenance and new parts

### 4. Look for previously owned products rather than buying new. Donate or recycle products for which you no longer have a need.

### 5. Keep it local

- help reduce the energy consumed in transportation
- contribute to local economy

## WHERE IS THE MONEY GOING?

### HOME ENERGY AUDIT

While professional home energy audits are available, they are not free. By conducting your own, and using online resources, you can save enough money to fix the leaks you find and start reaping the benefits of a more efficient home.

#### HOW TO FIND LEAKS

Professional energy audits use a blower door to depressurize your house and check for air leaks. You can approximate this by following the steps below during months when it is noticeably cooler outside than inside:

1. Close windows, exterior doors, and fireplace flues.
2. Turn off combustion appliances such as gas furnaces and water heaters.
3. Turn on all exhaust fans (kitchen and bathroom) or use a large window fan to move air out of rooms.
4. Using a damp hand, follow "Where To Look for Leaks" to detect the movement of cool air which will alert you to the location of leaks.

#### WHAT TO DO WHEN YOU FIND LEAKS

A Do-It-Yourself Guide to Sealing and Insulating @ [www.energystar.gov/index.cfm?c=diy\\_diy\\_index](http://www.energystar.gov/index.cfm?c=diy_diy_index)

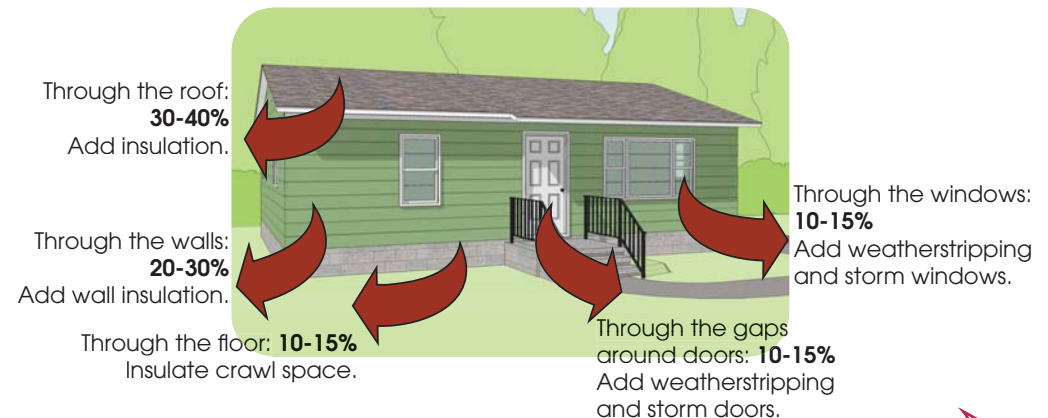


#### WHERE TO LOOK FOR LEAKS

Once you've sealed your house following "How To Find Leaks" check these locations for the infiltration of cool air from outside.

1. Holes in walls for plumbing pipes
2. Gaps around the chimney at the roof
3. Recessed lights between heated and unheated spaces
4. Inside cupboards and closets
5. Electrical outlets and switch plates
6. Window frames and base boards
7. Windows and doors
8. Attic hatches and fans
9. Window air-conditioning units

#### IF YOU HAVE AIR LEAKS, HERE'S WHERE YOUR MONEY IS GOING AND WHAT YOU CAN DO ABOUT IT:



## WHERE IS THE MONEY GOING?, continued

### EXTERIOR HOUSE ELEMENTS

Almost every choice you can make about the exterior of your house now has a green option. These suggestions can help cut down on summer cooling costs:

- consider reflective roof materials to reduce heat gain
- pick light colors for painted exterior walls
- mount shutters on hinges so they can be closed to block sun and wind
- add trees or a porch to shade the house in summer

### INCREASE YOUR INSULATION AND SAVE 20-30% ON HEATING AND COOLING

1. Add insulation in walls, floors, ceiling, and crawlspaces. The higher the R-value listed on the product, the more energy savings. Recommended ranges for the R-value of insulation in Henrico County are:

- Attic: 38-60
- Wall Cavity: 19-21
- Floor: 19-38
- Basement Wall: 13-19
- Crawl Space Wall: 19-30

### CAULKING AND WEATHERSTRIPPING CAN SAVE 5-30% OF YOUR ENERGY COSTS

1. Weatherstrip between doors and windows and their frames to prevent drafts and air leaks.
2. Use rubber gaskets behind outlets and switch plates on exterior walls.

### MYTH:

Replacing old windows with new double glazed windows will result in enormous savings as windows and doors are the primary source of home air leakage.

### TRUTH:

Only 15% of air leakage is through windows. An existing single-glazed window with a storm window provides roughly the same sealing as a new double-glazed window and costs a lot less.

### EXISTING WINDOW FIXES:

- **SASH LOCK**  
Use to increase the seal between the upper and lower sash and reduce air leakage.
- **WEATHER-STRIPPING**  
Add to your existing windows and increase their efficiency by up to 50%.
- **INTERIOR OR EXTERIOR STORM WINDOWS**  
Use with your existing windows rather than replacing your windows. Storm windows can reduce heating and cooling costs by up to 30%.

Avoid installing storm windows or doors with an unpainted metal finish. Purchase units that are the color of your trim or paint them to match.

- **HIRE A LOCAL CONTRACTOR**  
To fix existing windows and keep the money in Henrico County.

Department of Energy's Insulation Fact Sheet  
[www.ornl.gov/sci/roofs+walls/insulation/ins\\_07.html](http://www.ornl.gov/sci/roofs+walls/insulation/ins_07.html)





## OUT WITH THE OLD, IN WITH THE NEW - WINDOWS THAT IS

### BENEFITS OF REPLACEMENT WINDOWS

#### 1. Energy Efficiency

EnergyStar windows can save Henrico homeowners an average of \$497 dollars in utility bills when replacing the house's single-pane windows.

(According to the EnergyStar website)

#### 2. Maintenance

Many replacement window options are constructed of weather-resistant materials reducing or eliminating the need to paint! Options for tilt-in and rotating windows simplify window cleaning.

#### 3. Change in Design

Update the look of your house by changing the number or orientation of the panes without changing the size of the opening.

#### 4. Added Value

Replacement windows can be one of the best home improvement projects when it comes to the return on your investment. Enhancing the curb appeal of your home can set it apart from others in the neighborhood when it comes time to sell.

#### 5. Reduce Noise Pollution

The thicker the glass and the more room between panes, the quieter your house will be.

### WHAT TO LOOK FOR

- Pick replacement windows that have a low-e coating. This means that the glass is coated with thin layers of metal that reflect solar heat from the outside in the summer and help heat your home in the winter.
- Look for windows that have two layers of glass with an inert gas- or air-filled gap between the glass that acts as insulation.
- A standard double-pane window still allows 75% of the sun's heat into your home. EnergyStar windows reduce heat gain, keeping you cooler in the summer and warmer in the winter.
- Choose windows with warm edge spacers – the spacers between the two panes of glass are typically aluminum. Look for steel, foam, or fiberglass to further reduce heat transfer.
- Windows are rated by U-factor: look for units with a rating of .30 or less for maximum energy efficiency.

### COST

The price range for a standard 30" by 48" vinyl window is usually between \$150 and \$500 depending on features, with an additional cost for installation.

#### 1. Sash Replacement

The most affordable option, this requires that the frame is in good condition, and involves just the replacement of the operable part of the window, leaving the original frame visible.

#### 2. Panning of Frame

To get the look of a completely new window without the demolition involved in a complete tear-out, the operable part of window is removed, but the frame is kept and covered with a material to match the new window.

#### 3. Complete Tear-out

With this option the window, frame and sash are removed. Because it involves disturbing walls it has the highest associated cost.

### FINDING A NEW HOME FOR YOUR OLD WINDOWS

Check with local architectural salvage companies or the Richmond Metropolitan Habitat for Humanity ReStore for their guidelines on donations of salvaged windows and other building materials.

[www.richmondhabitat.org/restore.html](http://www.richmondhabitat.org/restore.html)



## WHERE IS THE MONEY GOING?, continued

### LIGHTING



Turn off lights when not in use. This can cut 10% of your electricity costs.

Replace the most frequently used bulbs with compact fluorescent lights (CFL). Although they cost more, each light lasts 10 times longer than an incandescent bulb and can save you \$30 in electricity over its lifetime.

### COMPUTERS AND ELECTRONICS



Set your computer to power down or "sleep" after 20 minutes of inactivity.

Plug electronic devices, appliances with an adaptor, and lights into a power strip that can be switched off when not in use. Many home electronics and appliances use electricity when they are turned off (phantom load), accounting for up to 40% of all household electricity usage.

### TO FIND OUT YOUR CURRENT ENERGY USAGE

[www.energystar.gov/index.cfm?fuseaction=HOME\\_ENERGY\\_YARDSTICK.showGetStarted](http://www.energystar.gov/index.cfm?fuseaction=HOME_ENERGY_YARDSTICK.showGetStarted)

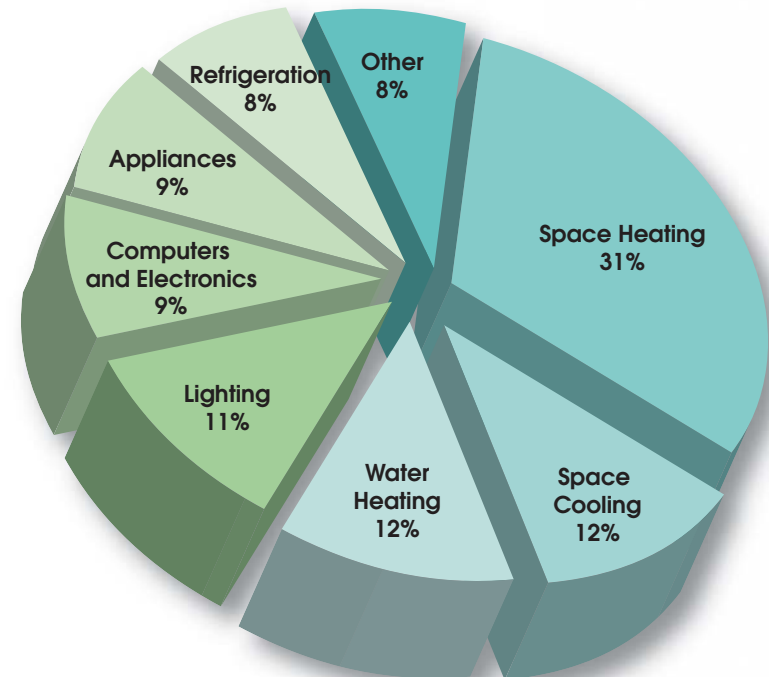
### MYTH:

Money can be saved by not turning fluorescent lights on and off.

### TRUTH:

Little energy is used to turn fluorescent lights on and they should be turned off if not needed.

### BREAKDOWN OF TYPICAL HOUSEHOLD ENERGY USE

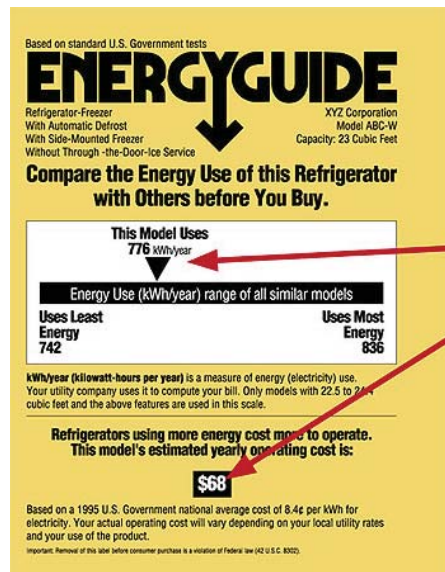


**MYTH:**

Warm water rinsing of clothes and dishes is more effective than cold water.




**TRUTH:**

Clothes and dishes get just as clean with a cold water rinse.



Use the EnergyGuide label to help in comparison shopping between different models of new appliances. The further to the left the triangle in the white box is, the less energy the appliance uses. The black box below shows the annual energy cost for that model.

**APPLIANCES**

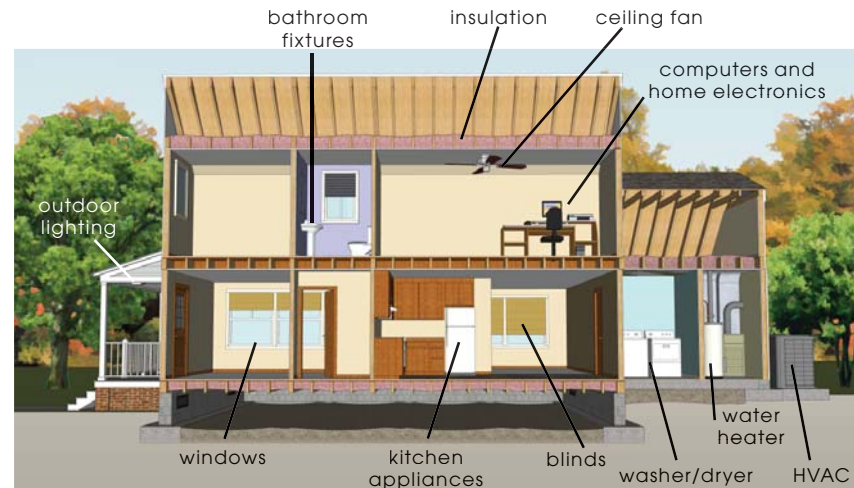
<b>SAVE</b>	Unplug your second refrigerator and save \$150 a year.
<b>SAVE</b>	Set your hot water heater to 120 degrees. Water heating accounts for 12% of the average utility bill. Each 10 degree reduction saves 3-5% in energy costs. The lower temperature also reduces mineral build up, corrosion, and possible scalding.
<b>COST \$0</b>	Run the dishwasher, clothes washer, and dryer only when full and use the energy saving setting.
<b>\$0</b>	Dry clothes on a clothesline.
<b>\$</b>	An insulating blanket for your water heater can pay for itself in one year.
<b>\$\$</b>	Consider an ENERGY STAR-rated replacement if your water heater is over 7 years old. Tankless water heaters reduce energy consumption by heating water on demand rather than using energy to keep previously heated water hot. 
<b>\$\$\$-\$\$\$\$</b>	Replace dishwashers and clothes washers built before 1994 with ENERGY STAR models. A new clothes washer can save more than \$100 in electricity annually and 20 gallons of water for each load. Using cold water can save an additional \$60. 
<b>\$\$\$</b>	Replace your refrigerator with an ENERGY STAR rated unit if it was built prior to 1990. Refrigerators account for up to 10% of home energy use. Those built before 1990 use two to three times more energy than new models. 



## WHERE IS THE MONEY GOING?, continued

### HEATING AND COOLING

<b>SAVE</b>	Reduce heating bills by opening blinds and curtains on the south side of your house to let the sun provide no-cost heat.
<b>SAVE</b>	Reduce cooling bills in the summer by closing curtains and blinds on the southwest side of the house to prevent heat gain.
<b>SAVE</b>	Close your fireplace damper when not in use to prevent air leakage. An exception to this is in the spring, when your damper can be used to ventilate your house without the need for air-conditioning.
<b>COST</b>	Use a programmable thermostat.
<b>\$</b>	<p>Programmed properly, these devices can save 10% a year on heating and cooling costs.</p> <p>Winter - set to 68 degrees when you are home, lower at night and 55 degrees if you are away for more than 4 hours.</p> <p>Summer – set to 78 degrees when you are home and 85 degrees when you are away for 4 hours or more.</p>
<b>\$</b>	Properly seal ducts, especially those in unheated or uncooled spaces. Leaks in ducts can significantly reduce system efficiency.
<b>\$-\$</b>	<p>Install a ceiling fan to make a room seem 5% cooler.</p> <p>Look for ceiling fan/light combinations with the EnergyStar label. They are up to 50% more energy efficient than older models.</p>
<b>\$\$\$</b>	If you need to replace your heating system, choose the highest efficiency model you can afford. New units are more efficient so make sure you don't get a larger unit than you need.



The graphic above shows a number of areas in your house where you can make energy and water efficiency upgrades.

#### MYTH:

- Turning down the thermostat at night and when you are gone results in higher costs from the need to reheat the house.
- Running the air conditioning all the time is more efficient than shutting it off until needed.

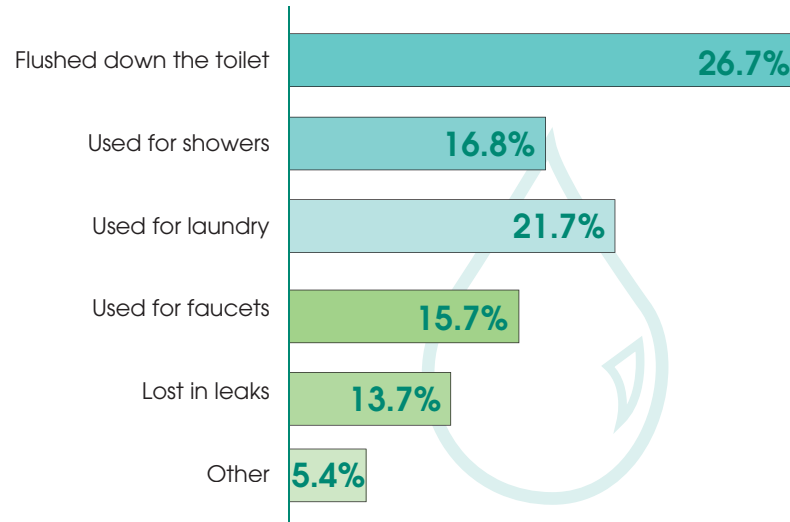
#### TRUTH:

- Unless you use a heat pump, you will save money by turning the heat down when it is not needed.
- You save energy by not running the air conditioner.



## AVERAGE U. S. HOUSEHOLD WATER USAGE

The average U.S. household uses 146,000 gallons of water per year.



### WATER EFFICIENCY - WHAT TO DO FIRST?

The most cost efficient options are eliminating leaks in toilets and replacing toilets that are not low-flow models.

Look for this label when buying a new faucet and you may save enough water annually to do 14 loads of laundry.



## WATER - INDOORS AND OUTDOORS

### Try the water leakage test

- Shut off all water fixtures in the house.
- Read the meter at the street.
- Check the meter after 20 minutes.
- House is leak-free if meter has not moved.

### CONSERVE WATER

<b>SAVE</b>	<b>Take shorter showers.</b> Each extra minute in the shower uses 5-10 gallons of water.
<b>SAVE</b>	<b>Turn off</b> the water when you brush your teeth, clean vegetables, wash dishes.
<b>SAVE</b>	<b>Use a broom,</b> rather than a hose, to clean paved surfaces.
<b>SAVE</b>	<b>Reduce</b> the amount of water your toilet uses per flush. Add two plastic bottles weighted with sand or pebbles to your toilet tank.
<b>COST \$</b>	<b>Fix leaky faucets.</b> A slow drip can waste almost 50 gallons of water a week.
<b>\$</b>	<b>Install low-flow showerheads and faucet aerators.</b> These modifications can save 25-60% of your water consumption in these locations and the energy cost of heating that water.
<b>\$</b>	<b>Check your toilet for leaks.</b> A leaky toilet can waste 100 gallons of water a day. To test, add a little food coloring to the toilet tank. If you begin to see color in the bowl without flushing, you have a leak and need to adjust or replace the flush valve.
<b>\$</b>	<b>Fix leaks</b> in hoses, faucets, and couplings.
<b>\$\$</b>	<b>Replace</b> your old toilet with a new, low-flow model.



## ADDING ON - THE GREEN WAY

1. If possible, site the addition to take advantage of natural light. Use south facing windows which allow the sun to help heat the addition in winter and lead to lower heating bills (passive solar).
2. Plant deciduous trees and/or install awnings to help shade the addition in summer.
3. Take advantage of natural ventilation.
4. Install operable windows on the east and west sides to provide cross ventilation.
5. Consider transoms above doors that can be opened for additional ventilation.
6. Use a whole-house fan and ceiling fans to provide additional air flow.



The samples above are tongue-and-groove bamboo flooring. It takes as little as three years from planting for bamboo to mature. This compares with decades for most hardwoods and up to 120 years for oak.

## LOOK FOR THESE GREEN MATERIALS

- **Counters**  
Green choices for countertops include concrete, native stone, glass tiles, and renewable wood products.



- **Flooring**  
Consider bamboo instead of traditional hardwood floors. Choose woods that are certified and come from responsibly managed forests. The Forest Stewardship Council provides one such certification. Choose natural fiber carpet or a synthetic that has a high recycled content.



- **Paint**  
Look for the Green Seal logo to know that you are purchasing paints that are non-toxic and have low volatile organic compounds (VOCs are a leading source of pollutants).

- **Solar**  
If you are planning to replace your roof and a large part of it faces south, look at the new options for solar shingles and panels. While there is a large initial cost, they could pay for themselves in 5 - 7 years.



Visit the U.S. Green Building Council's  
Green Home Guide  
[www.greenhomeguide.org/](http://www.greenhomeguide.org/)



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 10: *Aging In Place*



## WHAT IS AGING IN PLACE?

Aging in place is also called universal design. As it relates to design and construction, it combines ease of use for all ages and ability levels with safety for all occupants. With a little advance planning, the ideas in this chapter can be incorporated seamlessly and invisibly into a remodeling project or new addition.

Many of these suggestions are low in cost but can make a tremendous difference if you become temporarily or permanently disabled or wish to stay in your home as you age.

The baby boomers, born between 1946 and 1964, account for almost 27% of the population of the United States - 77 million people. As they age, many will develop functional limitations, some severe. By the time the average American is 75 years old, there is a greater than 50% chance that they will have a functional limitation, and a 20% chance that their limitation will be severe.

Most seniors, 85%, want to age in place but 90% of their houses will not allow them to remain at home as they develop functional limitations. By making improvements now, we can create lifetime homes that can age with their owners and have features that will help the house sell when the time comes.



This bathroom view shows how an accessible sink, grab bars, and a shower with a wide door and a fold-down seat can be easily incorporated into a universal design.

### AARP

The American Association of Retired Persons, AARP, website offers more detailed information on retrofits to your home.

[www.aarp.org](http://www.aarp.org)

### NAHB - CAPS

The National Association of Homebuilders maintains a list of certified aging-in-place specialists.

[www.nahb.org/caps](http://www.nahb.org/caps)



## WHAT CAN YOU DO?

### OUTSIDE

**Spend less time maintaining the yard and exterior of the house!**

1. Plant low-maintenance shrubs and trees. Many plants are offered in dwarf varieties that will grow more slowly and mature at a small size, therefore, reducing the need to prune frequently.
2. Leave brick unpainted. Natural brick surfaces are low-maintenance.
3. Install low-maintenance siding. Many options are available including fiber-cement, vinyl, and metal. Compare warranties and recycled content.
4. Provide a step-free, 2'10" wide entrance from the walkway, driveway, decks, and patio spaces into the main level of the house.

### CARPORIT/GARAGE

**Don't add on without looking at these considerations!**

1. Consider a sloped pad/floor to eliminate the need for a ramp.
2. Ensure that the height and width can accommodate a lift and raised roof van.

### ENTRY

**It's easy to make the transition from outside to inside accessible and safe!**

- **INSTALL** a sensor light at the entry.
- **LOCATE** the doorbell at an accessible level.
- **ADD** both high and low peepholes for safety.
- **INCLUDE** a bench to put packages on while opening the door.

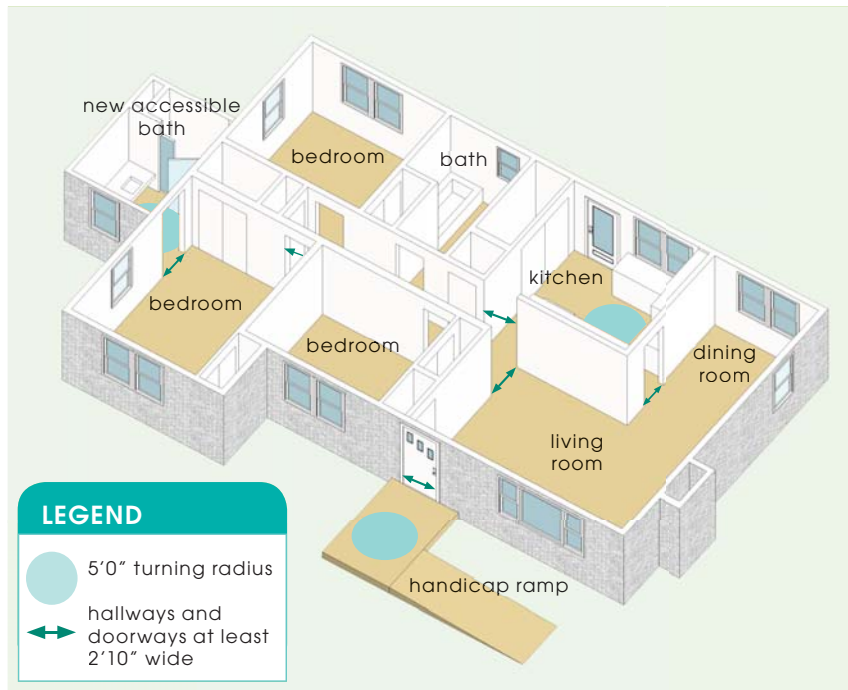
### FLOOR PLAN

**If you're remodeling, plan ahead and update your floor plan!**

- **REMOVE** any existing steps between rooms on the same level.
- **LOCATE** a bedroom and full bathroom on the main living level.
- **LEAVE** a 5'0" turn space in the main living area, kitchen, and at least one bedroom and bathroom.
- **PROVIDE** a hallway at least 2'10" wide.
- **CONSIDER** an addition with universal design features that can serve as a children's playroom, home office, room for caregiver or be easily converted for an aging parent.



## WHAT CAN YOU DO?, continued



Simple modifications such as increased doorway width and planning for a 5'0" turning radius in major rooms will increase the functionality of your house should a family member experience decreased mobility. This diagram shows an appropriate turning radius at the front door, in the kitchen, and in the new accessible bathroom as denoted by the blue circles.

### MAKE YOUR OWN HOME EMERGENCY EXIT PLAN

The ReadyAmerica website of the Federal Emergency Management Administration (FEMA) provides a number of readiness publications available for download including how to develop an emergency exit plan.

[www.ready.gov/america/publications/allpubs.html](http://www.ready.gov/america/publications/allpubs.html)

## INTERIOR OPENINGS

Do you know how wide your doorways are now?

- **INCREASE** the width of doorways to at least 2'10" wide to allow clear passage.
- **USE** lever handles instead of doorknobs.
- **PLACE** new windows so that sill height is lower for ease of operation.



Lever handles are easier to grip than traditional doorknobs.

**Develop a HOME EMERGENCY EXIT PLAN and test it out - ESPECIALLY if there are family members with decreased mobility.**



## WHAT CAN YOU DO?, continued

.....

### DID YOU KNOW?

55% of all fall injuries among those 65 and older occur in the home, another 23% outside, near the house.

Source: AARP

### STAIRWAYS, LIFTS, ELEVATORS

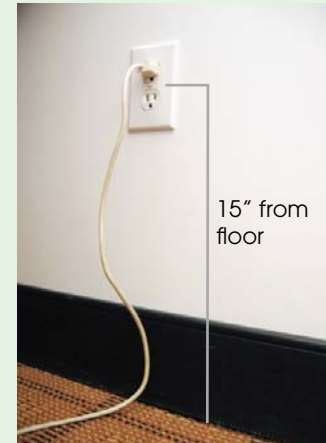
A simple injury can make some of these improvements necessary.



- Incorporate handrails on both sides of the stairways.
- Ensure that there is adequate stairway lighting.
- Consider use of contrasting colors on treads and risers and for top and bottom steps.
- New stairways should be at least 4' wide to accommodate a future lift.

### ELECTRICAL, LIGHTING & HVAC

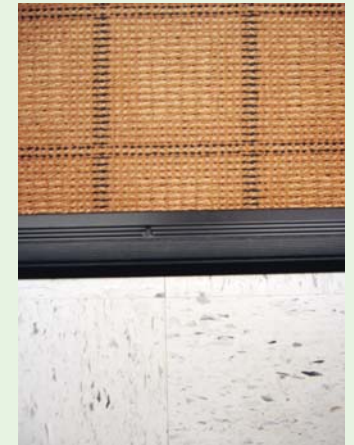
Update wiring and switches and bring your house into the 21st century!



- Place wall switches no higher than 48" from the floor. Raise receptacles to no less than 15" from the floor.
- Replace conventional light switches with rocker, touch or motion sensor switches.
- Wire the house for intercom, security, and computers.
- Place HVAC equipment so that filters are easily accessible.

### FLOORING SURFACES

Test how safe your floors are by walking through your house at night, without the lights on.



- Use slip-resistant, glare-free, smooth surfaces throughout house.
- Choose low-pile carpet with firm padding for carpeted areas.
- Indicate a change in surface levels with a color or texture contrast.



## WHAT CAN YOU DO?, continued

### BATHROOM



1. Install contrasting banding on countertops to define the edge.
2. Use a curb-free shower pan for barrier-free shower access with a minimum opening of 2'10." Add a fold-down seat or built-in bench/shelf.
3. Choose an adjustable height showerhead. Pick fixtures with anti-scald/pressure-balanced features.
4. Mount shower controls so that they can be easily reached from outside the enclosure.
5. Incorporate grab bars into the design or allow for their later placement.
6. Vary the height of vanities to accommodate those shorter or taller than average.
7. Pick faucets with lever handles or pedal controls.
8. Choose a wall-hung sink with a slanted panel to hide pipes.
9. Consider a toilet with a seat height of 17" to 19".

### KITCHEN



1. Vary the heights of countertops to accommodate children, adults, and seated cooks.
2. Install contrasting banding on countertops to define edge.
3. Use pulls rather than knobs. They are easier for small or arthritic hands to operate.
4. Consider the placement of appliances for universal access. Elevating the dishwasher and using refrigerator drawers are two options.
5. Choose appliances that have easily readable and accessible controls.
6. For wheelchair access, incorporate open space under the sink, a prep area, and the cooktop.
7. Choose base cabinets with pull-out trays, turntables, and open shelving.
8. Pick faucets with lever handles or pedal controls and anti-scald/pressure-balanced features.

**CHANGES** to your **BATH AND KITCHEN** can be **USEFUL NOW** for kids and later for you.



HOMEOWNER'S ENHANCEMENT GUIDE

Chapter 11: Organizing Your Project: Planning, Funding, and Working with Contractors



## PLANNING YOUR PROJECT

Taking the time to plan your project can save both money and time once the project gets underway. Depending upon how involved your project is, there are a numbers of resources available. You may want to start with the home project section at your local library or bookstore. Local home improvement stores also have a great selection of publications and offer free seminars.

Kitchen and bath designers can be valuable resources if your project includes either of these rooms. Those designers with the most training have either CKD (kitchen) or CBD (bath) certification.

If you are thinking about an addition, you may want to consider consulting an architect (AIA) to help you expand your living space in a creative and environmentally sensitive way. Those with special training in green building practices have LEED after their names.

Architects can also help you with specifications for your project. This means helping you to pick out (specify) all the materials at the beginning rather than selecting them as you go or having your contractor making the design decisions for you because he didn't have enough guidance.

### 1 Have a plan.

Write down everything your project includes - be specific. Design professionals can help you with this task.

The National Association of Homebuilders (NAHB) suggests the following sources for ideas when planning a project:

- TV shows
- websites, books, magazines
- friends and family
- remodeling professionals
- manufacturers and suppliers
- walking/driving around the neighborhood

The NAHB has many useful pages and links on their website and you can sign up for their free e-newsletter for homeowners at <http://www.nahb.org>

To find an architect that fits your project:

<http://architectfinder.aia.org/>

To find a certified kitchen or bath designer, tips and inspiration:

<http://www.nkba.org/>



## WHAT DO THE CONTRACTORS SAY?

A questionnaire was sent to home improvement contractors working in Henrico County to find out more about the projects in which most homeowners are interested. The response from approximately 75 contractors shows that over half complete at least ten projects a year and that two-thirds of their clients are likely to ask about energy efficient products. Of course, these results only highlight the larger projects for which a contractor is often needed. There are many smaller projects that homeowners can undertake themselves including exterior and interior painting and new plantings to name a few.

### 2 Consider what projects are popular and why.

This survey can help make you aware of the types of projects that are popular in Henrico County, what they cost, and the return you may see on your investment.

### REMODELING

Kitchen and bath remodeling projects are the most common in Henrico County according to local home improvement contractors. Not only are these the most popular projects but they also will usually result in a return on your investment of 70 to 80% – as long as you don't over-improve. Almost three-quarter of the remodeling projects completed by Henrico area contractors cost less than \$50,000. Other popular remodeling projects include removing walls to combine rooms into new spaces, enclosing porches, finishing attic spaces, and converting a garage to living space. The payback for these projects is variable and often depends on the market in individual neighborhoods.

### EXTERIOR ENHANCEMENT

Henrico County homeowners wishing to enhance the exterior of their house most frequently hire a contractor to replace old siding, windows, and doors. These projects typically have a payback percentage of over 80% making them amongst the most cost-efficient exterior enhancement projects. Adding dormers or a porch may result in a payback of 70-80%.

### ADDITIONS

In general, additions are more costly than remodeling projects. Contractors surveyed reported that 59% of their projects cost between \$25,000 and \$75,000. The most popular additions include kitchen expansions, family rooms, decks and master suites. These projects all have similar payback of between 70% (master suite) and 80% (kitchen). Other common additions include rear or side porches, garage additions or conversions, home office additions, workshops or storage additions, and raising the roof to add an additional story. Among these, the highest return on investment (70-75%) is often the addition of a garage, deck, or second story.

Return on investment ranges were figured based on the Hanley-Wood *Remodeling Cost vs. Value Report 2008-2009*.



## WHERE'S THE MONEY?

### 3 Identify possible project funding sources.

There are a variety of private lending sources, government funded programs, and even a partial Henrico County real estate tax abatement.

One of the most important considerations for any home improvement project is financing. The simplest method of financing, of course, is cash. Otherwise, you'll want to check with local banks, credit unions, and your current lender to see what types of loans they offer. The most common financing options are a rehabilitation loan, home improvement loan, a home equity line of credit, a home equity loan (second mortgage), and a cash-out refinancing of your current mortgage.

#### Cash

If you have cash in savings to pay for your remodeling project, this may be the best way to finance your home improvements. But be sure to consider the fact that, by paying in cash, you tie up money that could be earning interest in other investments. In other words, you need to look at the interest rate that you would be charged by financing the project and compare this to the interest you could earn by investing these funds.

Also, remember that interest payments on a home improvement loan may be tax-deductible, while you can't write off the expenses of a remodeling project paid for in cash. Crunch the numbers and meet with a financial advisor to determine whether paying in cash will really pay off in the long run.

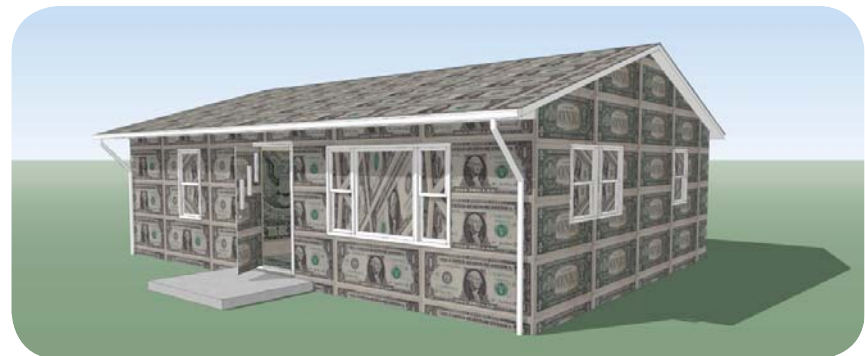
#### Conventional Rehabilitation Loans

Rehabilitation loans are available for prospective homebuyers that want to use one loan to purchase and fix up an existing property. The paperwork for this type of loan takes much longer to complete than a conventional home loan but if you are willing to wait you can often secure a lower interest rate and more affordable closing costs. The first step is to check with local lenders to see if they offer rehabilitation loans, find out if you qualify, and the requirements that need to be met.

#### Home Improvement Loans/Mortgages

Two special loans administered through the Federal Housing Administration (FHA) are the Title I and Section 203(k) programs. A Title I loan allows you to borrow up to \$25,000 for improvements to a single-family home. These are fixed-rate loans that FHA insures against the risk of default. Loans must be made by an approved Title I lender.

The 203(k) program is not as well known, but if you are looking to purchase a fixer-upper, it is a terrific opportunity. It allows homeowners to receive a single, long-term, fixed or adjustable rate loan that covers both the acquisition and rehabilitation of the property. To obtain a loan under the 203(k) program, you must use an FHA-approved lending institution. Most mortgage lenders are approved to make loans through this program.





### HOME EQUITY LOANS AND LINES OF CREDIT

Using these methods, you are borrowing against the equity in your house. It is best not to borrow more than seventy-five percent of the home's value minus what you owe on the mortgage.

● Current home value	\$250,000
● 75% of that value	187,500
● Size of mortgage	150,000
● Amount of loan	37,500

A good rule is to use a loan if you need the funds for a single project and a line-of-credit if you have a number of projects to be completed over time.

### Home Equity Line of Credit

A home equity line of credit is a form of revolving credit in which your home serves as collateral. This allows you to tap into these funds whenever you need it. The credit line is usually set at 75 to 80 percent of the appraised value of your home minus the balance of the first mortgage. Your credit history and ability to pay may also be considered in determining the amount of credit available.

Home equity lines of credit usually carry a variable interest rate that is figured by adding a margin to the current prime rate or some other index. Other costs associated with setting up a line of credit may also apply and will vary from lender to lender.

### Second Mortgage

If you are not comfortable with the open-ended nature of a line of credit (which requires discipline to ensure that you don't go way over budget), a home equity loan, or second mortgage, may be right for you. This is a fixed-rate, fixed-term loan based on the equity in your house that is paid back in equal monthly installments over a specific period of time.

### Cash-Out Refinancing

If interest rates today are significantly less than when you first purchased your house, refinancing your mortgage may be a wise move. This refinancing alternative allows you to use the accumulated equity in your home to take out a new loan to pay off your existing mortgage and then use the remaining funds for your remodeling project.

Make sure you factor in the length of time you plan to live in the house and the number of years left on your current mortgage before you decide to refinance.

Credit: National Association of Homebuilders, Fannie Mae



## WHERE'S THE MONEY?, continued

A number of programs are available to qualifying Henrico County residents in addition to the funding sources covered on the previous pages.

- **Partial Real Estate Tax Abatement**

Henrico County has a residential tax abatement program. If you are planning an addition or renovation, you may qualify for this tax abatement program. For more information and a rehabilitated structure tax exemption application, contact the Henrico County Finance Department or visit their website at:  
[www.henrico.us/departments/finance/divisions/real-estate-division/#reinvest](http://www.henrico.us/departments/finance/divisions/real-estate-division/#reinvest)

- **Elder-Homes Rehabilitation Program**

This program offers up to \$30,000 for rehabilitation of a house to bring it into compliance with Minimum Housing Quality Standards. This program is limited to income eligible elderly (62+) or disabled owners.

To see if you qualify, contact:  
[www.henrico.us/departments/revit/](http://www.henrico.us/departments/revit/)

- **Elder-Homes Emergency Repairs Program**

Offers up to \$7,500 for repairs for low-income eligible property owners.

To see if you qualify, contact:  
[www.henrico.us/departments/revit/](http://www.henrico.us/departments/revit/)

- **Henrico County Maintenance Program**

Volunteers are available on a limited basis for exterior painting, removing trash and debris and replacing roofs for low-income elderly and/or disabled county residents.  
[www.henrico.us/maint/volassist.html](http://www.henrico.us/maint/volassist.html)

## KEEPING YOUR BUDGET IN LINE

- Once you've decided how much you can afford to spend fulfilling your remodeling dreams, the real challenge is making sure you stick to this budget. So, how can you prevent your expenses from spiraling out of control?
- Plan on spending only 80 percent of what you can afford. Put the additional 20 percent in reserve to cover changes, unforeseen problems, and miscellaneous charges.
- Remember that anything not included in the original contract will cost extra. It's very easy to start tacking on hundreds and even thousands of dollars in change orders that will break both your budget and your timeline.
- Stay focused on the task at hand. Stick to the project you have planned rather than deciding that now is the time to overhaul the rest of the house.

### HOUSING AND URBAN DEVELOPMENT PROGRAMS

For more information on the programs mentioned on this page and others visit the Housing and Urban Development Department's Home Improvement page at:

[http://portal.hud.gov/portal/page/portal/HUD/topics/home\\_improvements](http://portal.hud.gov/portal/page/portal/HUD/topics/home_improvements)



## VISITING THE PERMIT CENTER

### The PERMIT CENTER

#### PERMIT CENTERS LOCATIONS:

- Western Government Center  
4301 East Parham Road  
Henrico VA 23228  
(804) 501-7280
- Eastern Government Center  
3820 Nine Mile Road  
Henrico, VA 23223  
(804) 652-3147

#### PERMIT CENTER WEBSITE

[www.henrico.us/permitcenter/](http://www.henrico.us/permitcenter/)

#### 4 Check with the Permit Center early in the design stages and definitely before work begins

By discussing your project with them, you can find out if you need a permit and if your project meets the requirements of the building code and county zoning. Even if your project falls under this list where a permit is not needed, it is best to check with the Permit Center because setback requirements still must be met.

#### What to bring on your first visit?

- A plat of your property. (If you don't have one, the Permit Center staff can assist you in obtaining one.)
- A sketch of your proposed project. It does not need to be professionally drawn.

#### When is a permit needed?

- Proposed new construction
- Proposed demolition
- Fire damage
- Adding new walls, removing walls, changing stairs, doorways, or window openings
- Replacement of more than 100 square feet of roof sheathing
- All additions
- New electrical wiring
- New plumbing
- Constructing or enclosing decks or porches
- Any accessory structure over 150 square feet
- Replacement of oil- or gas-fueled appliances
- New heat and air conditioning systems
- Removal or disruption of asbestos-containing materials

- Swimming pools over 24 inches deep or over 150 square feet and 5,000 gallons in capacity
- Retaining walls equal or greater than two feet in height (contact Permit center staff for more details)

#### When is a permit not needed?

- New siding or roof shingles
- Replacement windows and doors
- Accessory structures less than 150 square feet such as: tool and storage sheds, playhouses, and detached prefabricated structures that house the equipment of a publicly regulated utility
- Fences and privacy walls no more than six feet tall. Zoning allows fences of up to 7 feet in rear and side yards and 3½ feet in front yards
- Pools with a surface area of under 150 square feet, less than 24 inches deep and with a capacity of less than 5,000 gallons
- Replacement cabinetry, light fixtures, plumbing fixtures, and flooring
- Fire and smoke detection and alarms, if battery-powered
- Ceiling fans
- Painting/wallpapering/wall finishes



**VISITING THE PERMIT CENTER,** continued

*Zoning by District (dwellings only)*

Zoning District	Maximum Height (feet)	MINIMUM LOT AREA			MINIMUM SIDE YARD		
		Total (square feet)	Min. Lot Width (feet)	Min. Front Yard (feet)	Least Yard (feet)	Sum of Yards (feet)	Min. Rear Yard Depth (feet)
<b>R-0</b>	40	1 acre	200	50	20	50	50
<b>R-0A</b>	40	35,000	175	50	20	50	50
<b>R-1</b>	40	25,000	150	50	20	50	50
<b>R-1A</b>	40	21,500	125	45	15	40	45
<b>R-2</b>	40	18,000	100	45	15	35	45
<b>R-2A</b>	40	13,500	80	45	12	30	45
<b>R-3</b>	40	11,000	80	40	12	30	40
<b>R-3A</b>	40	9,500	70	35	10	25	35
<b>R-4</b>	40	8,000	65	35	10	25	35
<b>R-4A</b>	40	7,750	60	35	8	20	35



This chart shows the zoning districts in which most of Henrico County's mid-century homes are located. By **checking with the Permit Center**, you can find out the zoning for your neighborhood and the setbacks, which can vary by the type of improvement you are proposing. This will help you to start making plans for your project.



## WORKING WITH CONTRACTORS

### QUESTIONS TO ASK YOUR CONTRACTOR FOR A GREEN PROJECT

- What is your experience with green remodeling?
- Do you have any special areas of expertise?
- Will you use local materials/recycled content materials?
- How do you dispose of construction waste? Are there any opportunities for reuse or recycling?

#### CHECK OUT YOUR CONTRACTOR:

Better Business Bureau  
[www.richmond.bbb.org](http://www.richmond.bbb.org)

Virginia Board for Contractors  
[www.dpor.virginia.gov](http://www.dpor.virginia.gov)

Virginia Office of Consumer Affairs  
[www.vdacs.virginia.gov/consumers](http://www.vdacs.virginia.gov/consumers)

#### 5 Set up appointments with 2-3 contractors.

Provide a handout to explain the project and your budget.

Ask that they provide you with a written estimate that defines:

- Materials to be used (expect a 10% upcharge)
- Labor charges
- Start and end dates
- Total cost

#### 6 Ask the contractor a few important questions.

How long has he/she been in business?

How many projects similar to yours does the contractor complete in a year?

Ask to see proof that the contractor is licensed, bonded, and insured for workmen's compensation and liability.

#### 7 Ask around and check references.

Check with neighbors, business associates, family and friends who have recently completed projects.

Are they satisfied with the work, the price, and duration of the job? Would they hire the same contractor again?

Understand that the contractor may also wish to run a credit check on you!

- Do not:

Hire a contractor that knocks on your door and offers you an unbelievably good price but cannot provide any references.



## WORKING WITH CONTRACTORS, continued

### 8 Pick a contractor.

Make sure you feel comfortable with the contractor. You will be working closely together during the duration of the project.

- Do not:
  - Treat your contractor rudely.
  - Think that your contractor knows your tastes.

### 9 Negotiate a contract.

Make sure all the details are written down and that you read the fine print.

- What is and what is not included in the price
- A payment schedule
- How changes will be handled

Get an attorney to look over the contract.

Get a copy of everything you sign.

- Do not:
  - Accept a boilerplate/standard contract.
  - Leave the warranty of materials out of the contract.
  - Sign the contract if there are any blank spaces or if there is anything you don't understand.

### 10 Establish payment terms.

Require itemized bills that correspond to the contract.

Agree to pay at the completion of each phase.

Are you being billed for the same as the bid price? If not, ask why.

Before you make final payment to the contractor:

Ask the contractor for written proof that all subcontractors and suppliers have been paid (lien release form).





The receptionist at the Permit Center will help familiarize you with the services offered there.

**11** Make sure you have the right permits.

Check with the Permit Center to find out zoning requirements and what permits are needed for your project.

Make sure that necessary periodic code inspections are completed. If building inspections are needed, ensure that they have been completed and that the project has passed before making final payment.

**12** Locate utilities, and other underground features.

No matter how small the project, if you need a shovel you need to call Miss Utility (just dial 811) at least three days before you dig.

Also, make sure you know the location of any wells, septic fields, underground storage tanks, and any easements that may impact the location of your proposed improvements.



To find out what inspections are needed, follow this link to the County's Building Inspections Department:

[www.henrico.us/departments/bldg/residential-building-information/](http://www.henrico.us/departments/bldg/residential-building-information/)



The National Association of the Remodeling Industry offers remodeling tips, a budget worksheet, and help locating a professional remodeler in the Henrico area.

[www.nari.org](http://www.nari.org)



## WORKING TOGETHER

### WHAT CAN YOU DO FOR YOUR CONTRACTOR?

- **SET UP** a daily schedule so everyone is clear about work hours and days, and clean-up intervals.
- **MOVE** your vehicles to allow space for convenient contractor parking.
- **CLEAR** the path between the parking area and the house entrance the contractor will be using.
- **MOVE OR COVER** your household items so that the contractor has an easy place in which to work.
- **ASK** if the contractor will need space for a dumpster, material storage, hose, and outside electrical access.



At this house, in the east end of Henrico County, contractors were able to park their work truck in the driveway and were given ample outdoor workspace.





# HOMEOWNER'S ENHANCEMENT GUIDE

## Appendix A: Inside and Out: Seasonal Maintenance



## MAINTENANCE CHECKLISTS

### Foundation, Walls & Trim

	Spring	Fall	Annual	As Needed
Make sure water drains away from the house	●			
Check for unsecured vents and other openings			●	
Ensure the foundation vents are sealed and that the crawlspace vapor barrier and insulation are in good condition *	●	●		
Remove any plant material growing on the foundation				●
Inspect siding and wood surfaces <ul style="list-style-type: none"> <li>Look for staining, wavy appearance, chalking, damage, mold/mildew growth</li> <li>Look for sign of rust, rot and insect damage</li> <li>Repair open joints</li> <li>Repaint wood surfaces every 5-10 years</li> </ul>	●			● ●

\* Contact a professional before closing vents if your home has pre-existing standing water issues.

#### FOR INFORMATION ON INSULATING YOUR CRAWLSPACE

Visit the Department of Energy's Energy Savers website:

[www.energysavers.gov/your\\_home/insulation\\_airsealing/index.cfm/](http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/)

### Doors & Windows

	Spring	Fall	Annual	As Needed
Look for signs of leaks and rot at window and door sills and check that weatherstripping provides good seal		●		
Look for broken glass, loose panes and whether glazing, stops and putty are secure		●		
Clean windows and repair screens as needed	●			
Check operation of doors and windows <ul style="list-style-type: none"> <li>Ensure that weep holes in metal windows and/or storm windows are open</li> <li>Lubricate and repair</li> </ul>	●	●		●



For more information on leaks and weather stripping, see Chapter 9, Going Green: Save Energy, Water and Money

#### FOR INFORMATION ON LEAD-BASED PAINT

Visit the Department of Housing and Urban Development's website:

[www.hud.gov/offices/lead/healthyhomes/lead.cfm](http://www.hud.gov/offices/lead/healthyhomes/lead.cfm)

## Roof, Gutters & Chimneys

	Spring	Fall	Annual	As Needed
Inspect condition of roof <ul style="list-style-type: none"> <li>Look for warping, severe wear, cracking, lumps, curling, decay, loose, broken, or missing material</li> <li>Check for loose or missing flashing around vents, chimney, and other openings</li> </ul>	●			
Inspect chimney for signs for sagging, leaning, or bowing	●			
Check brick and mortar for condition	●			
Have chimney(s) inspected and cleaned*			●	
Clean and inspect gutters and downspouts <ul style="list-style-type: none"> <li>Look for signs of rust</li> <li>Make sure there are no holes, blockages, or disconnected components</li> <li>Check that gutters are sloped to prevent standing water</li> <li>Ensure that splashblocks are properly placed to direct moisture away from foundation</li> </ul>	●	●		

\* Contact a professional for help with this task

## Crawl Spaces, Sheds & Attics

	Spring	Fall	Annual	As Needed
Ensure that insulation is in place		●		
Check that fans exhaust to outdoors and that all ductwork connections are secure			●	
Check operation of garage door safety shut-off	●	●		
Check for signs of water damage	●			
Look for signs of infiltration by insects, bats, or rodents	●	●		



**MAINTENANCE CHECKLISTS,** continued

Heating & Cooling

	Spring	Fall	Annual	As Needed
Schedule inspection for central air/heat system	●	●		
Clean or replace filters				●
Vacuum air registers/return air vents/radiators	●			
Clean outdoor air intakes and screens/louvers for gas-fired heat systems		●		
Remove debris from around mechanical equipment such as heat pumps to ensure that air flows freely	●	●		
Clean A/C coils and floor drains or pans*		●		
Remove or cover window A/C units	●	●		

\* Contact a professional for help with this task

**HOW LONG WILL IT LAST?**

To find the average life expectancy of materials, systems, and appliances, visit:

[www.demesne.info/Home-Maintenance/Appliance-Life-Expectancy.htm](http://www.demesne.info/Home-Maintenance/Appliance-Life-Expectancy.htm)

Appliances

	Spring	Fall	Annual	As Needed
Clean kitchen range hood screens				●
Clean dryer vents and screens	●	●		
Clean exhaust fans outlets and screens	●			
Clean dehumidifier coils and check operations	●			
Replace filters				●



**OPEN THE DAMPER?**

Leave the fireplace damper open in the spring and summer to improve ventilation. Close it when you turn on the air-conditioning.



## Pathways, Driveways & Lighting

	Spring	Fall	Annual	As Needed
Inspect pathways for uneven surfaces and sharp edges	●			
Seal cracks in sidewalks and driveways		●		
Ensure outdoor lights are working properly	●			
Replace bulbs and reset timers				●

## Decks & Fences

	Spring	Fall	Annual	As Needed
Inspect for signs of rot or insect damage, loose boards, and projecting nails	●	●		
Seal deck		●		

## Plumbing & Electrical

	Spring	Fall	Annual	As Needed
Check washing machine and dishwasher hoses for leaks			●	
Check refrigerator drip pan - icemaker connections			●	
Check traps and drains under sinks, tubs, and showers for leaks			●	
Check toilet supply/shut-off valve			●	
Check shower-tub surrounds for leaks			●	
Check hot water heater for leaks <ul style="list-style-type: none"> <li>Drain 2 gallons of water from water heater to remove sediment from bottom of tank</li> </ul>		●		
Check water main/meter for leaks or sweating		●		
Drain exterior faucets, hoses, and sprinkling systems		●		
Clean any outdoor drains				●
Test ground fault interrupter (GFI) outlets	●			
Check smoke and carbon monoxide alarms, and replace batteries	●	●		



**SIMPLE IDEAS FOR HOME SECURITY AND SAFETY**

\$0	<p><b>Don't</b> hide keys outside.</p> <p><b>Don't</b> leave tools and ladders in your yard. They may come in handy for a would-be burglar.</p> <p><b>Don't</b> post notes to friends or family members on the outside of your house. This information may be read by someone for whom it was not intended and compromise your security.</p> <p><b>When</b> you are away, have someone you trust pick-up your mail every day or have the post office stop delivery until you return. The same goes for newspapers and any other regular deliveries.</p> <p><b>Use</b> window locks on all first floor windows.</p>
\$	<p><b>Purchase</b> deadbolt locks for all doors. Don't forget the garage and any sliding glass doors.</p> <p><b>Consider</b> placing a peephole in your front door if you cannot readily see who is standing there.</p>
\$\$	<p><b>Install</b> motion detector lights. One at the front of the house and one at the rear.</p> <p><b>Ensure</b> that there are properly functioning smoke detectors on each floor including the attic.</p> <p><b>Install</b> carbon monoxide detectors, especially if you have oil or gas heat.</p> <p><b>Place</b> fire extinguishers in the kitchen and near any fireplace.</p>
\$\$\$	<p><b>Consider</b> an alarm system not only for your protection but it may lower your homeowner's insurance premium.</p>



A home alarm can provide piece of mind when you are at work or on vacation.



HOMEOWNER'S ENHANCEMENT GUIDE

Appendix B: Glossary and Resources



## GLOSSARY

**ADDITION.** A new part such as a wing, ell, or porch added to an existing building or structure.

**AGING IN PLACE.** The ability to remain in your current residence as your circumstances change, especially in regard to mobility factors.

**ALLIGATORING.** A condition of paint failure that occurs when the layers crack in a pattern that resembles the skin of an alligator.

**ALTERATION.** Any change, modification, or addition to the exterior of any building or structure or any part thereof.

**BATTERED PIER.** A pier that tapers from the bottom up so that the top dimension is smaller than the bottom dimension. Often associated with the Craftsman style.

**BAY.** A part of a structure defined by vertical divisions such as adjacent columns or piers.

**BUILDING SETBACK.** See **SETBACK.**

**BAY WINDOW.** Fenestration that projects from an exterior wall surface and often forms a recess in the interior space.

**BOND.** The arrangement of bricks (headers and stretchers) within a wall.

**BRACKET.** A wooden or stone decorative support mounted beneath a projecting floor, window, or cornice.

**BROKEN PEDIMENT.** A pediment where the sloping sides do not meet at the apex but instead return, creating an opening that sometimes contains an ornamental vase or similar form on a pedestal.

**CASEMENT WINDOW.** Windows that are hinged at the side and open outwards.

**CASING.** Flat or molded trim; the visible, finished framing around a door or window or encasing a post or beam.

**CAULKING.** A non-hardening putty used to seal the joint at an intersection of two different materials.

**CEMENTITIOUS SIDING.** Also referred to as fiber-cement siding, it is made from portland cement, ground sand, wood fiber, and in some instances, clay. Available in a variety of historic siding profiles and shingle patterns it is more resistant to rot and insect damage than wood.

**CLAPBOARD.** Horizontally laid wooden boards that taper from the bottom to the top.

**CLADDING.** Any exterior wall covering, including masonry.

**CLASSICAL.** Pertaining to the architecture of Greece and Rome, or to the styles inspired by this architecture.

**CLIPPED GABLE ROOF.** A roof type in which the gable ends are cut back at their peaks and a small roof section is added to create an abbreviated hipped form. Also called a jerkinhead roof.

**COLUMN.** A vertical support, usually supporting a member above.

**CORNERBOARD.** The vertical board that is found at the corners of a building and covers the seam made by horizontal siding boards.

**CORNICE.** The upper, projecting part of a classical entablature or a decorative treatment of the eaves of a roof.

**CRAWL SPACE.** The space located beneath the first floor. The space has not been fully excavated and is often used for mechanical equipment.

**DAMPER.** The device in a chimney or duct that regulates airflow.



**DECIDUOUS.** Trees or shrubs that lose their leaves seasonally.

**DENTILS.** Small square blocks found in series on many cornices and moldings.

**DORMER.** A small window with its own roof projecting from a sloping roof.

**DOUBLE-HUNG SASH.** A type of window with lights (or windowpanes) on both upper and lower sashes, which move up and down in vertical grooves one in front of the other.

**DOWNSPOUT.** A pipe for directing rain water from the roof or gutter to the ground.

**EAVE.** The lower edge of the roof that extends past the walls.

**ELL.** An secondary extension or wing of a building at right angles to the length of the main structure.

**FACADE.** The front face or elevation of a building.

**FASCIA.** The horizontal member which serves as the outer edge of the eave.

**FLASHING.** Pieces of metal used for waterproofing roof joints, masonry walls, and windows.

**FOUNDATION.** The base of a building that sits directly on the ground.

**FOUNDATION PLANTINGS.** Plantings close to the house that help frame the house and anchor it to its site.

**GABLE.** The triangular face at the end of a gable roof.

**GABLE RETURN.** A gable end with the majority of the pediment removed leaving only two small sections meant to emphasize the corners of the gable.

**GABLE ROOF.** A pitched roof in the shape of a triangle.

**GAMBREL ROOF.** A roof in which the angle of pitch changes part way between the ridge and eaves.

**GLAZING.** Another term for glass or other transparent material used in windows.

**GROUNDCOVER.** Plants that grow low to the ground, help the soil to retain moisture, and conceal bare earth.

**HIPPED ROOF.** A roof with slopes on all four sides. They are more common on older houses than on those built after 1940.

**INFILL BUILDING.** A new structure built in a block or row of existing buildings.

**LIGHT.** A section of a window; the glass or pane.

**LINTEL.** A horizontal beam over an opening, carrying the weight of the wall.

**MOLDING.** Horizontal bands having either rectangular or curved profiles, or both, used for transition or decorative relief.

**PEDESTAL.** The lowest portion of a column, composed of a base, dado, and cap. Also may be an unadorned block.

**PEDIMENT.** A triangular section framed by a horizontal molding on its base and two raking (sloping) moldings on each of its sides. Used as a crowning element for doors, porticos, and windows.

**PERMEABLE PAVEMENT.** The use of materials and installation techniques that allow the movement of air and water and reduce runoff.

**PERVIOUS PAVEMENT.** See Permeable Pavement.

**PIER.** An upright structure of masonry, wood or other material serving as a principal support.

**PILASTER.** A pier attached to a wall with a shallow depth and sometimes treated as a classical column with a base, shaft, and capital.



## GLOSSARY, continued

**PITCH.** The degree of slope of a roof.

**POINTING.** Filling the mortar joint between two bricks.

**PORCH.** A covered entrance space projecting from or integrated into the facade of a building.

**PORTICO.** An entrance porch often supported by columns and sometimes topped by a pedimented roof; can be open or partially enclosed.

**PRIMER.** A base coat used prior to painting to prepare a surface.

**R-VALUE.** The ability of a material, such as insulation, to impede heat flow.

**RAFTER.** A sloped roof beam that supports the roof covering.

**RAFTER TAIL.** The portion of a rafter that extends beyond the exterior wall to support the eave.

**RAIN BARREL.** A tank or other container, often attached to a gutter downspout, that is used to collect and store rainwater for non-drinking uses.

**RAISED BEDS.** An above ground enclosure filled with soil that can be placed in a yard, or on a deck or patio to grow flowers or vegetables. At an appropriate level, such beds can reduce the need to kneel or bend over and, therefore, can be used by those with arthritis and other functional limitations.

**REPOINT.** To remove old mortar from courses of masonry and replace it with new mortar.

**REVEAL.** The depth of wall thickness between its outer face and a window or door set in an opening.

**RIBBON DRIVEWAY.** Two parallel strips of paved area separated by a grass median.

**RISING DAMP.** A condition in which moisture from the ground rises into the walls of a building.

**SASH.** The movable part of a window that hold the glass.

**SETBACK.** The distance between a building and the front, side or rear property line.

**SHED ROOF.** A simple roof form consisting of a single inclined plane.

**SHUTTER.** A hinged panel that covers a door or window opening.

**SIDELIGHTS.** Narrow windows flanking a door.

**SILL.** The horizontal water-shedding member at the bottom of a door or window.

**SPALLING.** A condition in which pieces of masonry split off from the surface, usually caused by weather.

**STANDING-SEAM METAL ROOF.** A roof where long narrow pieces of metal are joined with raised seams.

**STOOP.** A platform, generally connected to a short series of steps, that bridges the area between grade level and an entrance.

**SUSTAINABILITY.** The consideration of how consumption impacts the availability of resources and impacts the future of limited natural resources.

**SYNTHETIC SIDING.** Any siding made of vinyl, aluminum, or other material to resemble a variety of authentic wood siding types.

**TRANSOM.** The window area above a door.

**U-VALUE.** A measure of how well a material allows heat to pass through. The lower the number the better the material insulates.

**VERTICAL GARDENING.** Growing plants on trellises and arbors to maximize limited space, provide shaded areas, and screening.

**WALL DORMER.** A dormer that is flush with the facade of the building.

**ZONE 7.** A U. S. Department of Agriculture determined climate zone. Zone 7 hardiness means a plant can survive 0 to 10 degrees Fahrenheit.



## RESOURCES

### ONLINE RESOURCES

American Association of Retired Persons (AARP) — [www.aarp.org](http://www.aarp.org)

American Institute of Architects — <http://architectfinder.aia.org/>

Alliance to Save Energy — [www.ase.org](http://www.ase.org)

American Society of Interior Designers — [www.asid.org](http://www.asid.org)

Better Business Bureau — [www.richmond.bbb.org](http://www.richmond.bbb.org)

Cellulose Insulation Manufacturers Association — [www.cellulose.org](http://www.cellulose.org)

Certified Aging In Place Specialists — [www.nahb.org/caps](http://www.nahb.org/caps)

Consumer Guide to Home Energy Savings —  
[www.aceee.org/consumerguide/](http://www.aceee.org/consumerguide/)

County of Henrico (Permit Center, Community Revitalization,  
Extension Service, Recycling Centers) — [www.henrico.us](http://www.henrico.us)

Database of State Incentives for Renewables & Efficiency —  
[www.dsireusa.org](http://www.dsireusa.org)

Energy Efficient Windows Collaborative (EWC) —  
[www.efficientwindows.org/](http://www.efficientwindows.org/)

Energy Efficient Building Association (EBBA) — [www.eeba.org](http://www.eeba.org)

Energy Resource Guide for Virginia — [www.energyguide.ext.vt.edu/](http://www.energyguide.ext.vt.edu/)

Energy Star — [www.energystar.gov](http://www.energystar.gov)

Federal Energy Efficiency Tax Credits —  
[www.energystar.gov/index.cfm?c=tax\\_credits.tx\\_index](http://www.energystar.gov/index.cfm?c=tax_credits.tx_index)

Home Builders Association of Virginia — [www.hbav.com](http://www.hbav.com)

Insulation Contractors Association of America — [www.insulate.org](http://www.insulate.org)

Insulation Fact Sheet —

[www.ornl.gov/sci/roofs+walls/insulation/ins\\_01.html](http://www.ornl.gov/sci/roofs+walls/insulation/ins_01.html)

International Code Council — [www.iccsafe.org](http://www.iccsafe.org)

Interstate Renewable Energy Council — [www.irecusa.org](http://www.irecusa.org)

Lewis Ginter Botanical Garden — [www.lewisginter.org](http://www.lewisginter.org)

Maymont House and Gardens — [www.maymont.org](http://www.maymont.org)

National Association of Home Builders (NAHB) — [www.nahb.org](http://www.nahb.org)

National Association of the Remodeling Industry — [www.nari.org](http://www.nari.org)

National Audubon Society — [www.audubon.org](http://www.audubon.org)

National Kitchen and Bath Association — [www.nkba.org/](http://www.nkba.org/)

National Register of Historic Places — [www.nps.gov/nr](http://www.nps.gov/nr)

National Fenestration Rating Council (NFRC) — [www.nfrc.org](http://www.nfrc.org)

National Institute of Building Sciences —  
[www.nibs.org/betechm.html](http://www.nibs.org/betechm.html)

NC State University, The Center for Universal Design —  
[www.design.ncsu.edu/cud](http://www.design.ncsu.edu/cud)

Sealing and Insulating Guide —

[www.energystar.gov/index.cfm?c=diy.diy\\_index](http://www.energystar.gov/index.cfm?c=diy.diy_index)

Solar Fountains — [www.solarwaterfountains.org](http://www.solarwaterfountains.org)

Southface Energy Institute — [www.southface.org](http://www.southface.org)

U. S. Department of Energy —

[www.energy.gov/energyefficiency/index.htm](http://www.energy.gov/energyefficiency/index.htm)



## RESOURCES

### ONLINE RESOURCES, continued

U. S. Environmental Protection Agency — [www.epa.gov](http://www.epa.gov)

U. S. Green Building Council — [www.usgbc.org](http://www.usgbc.org)

Virginia Board for Contractors — [www.dpor.virginia.gov](http://www.dpor.virginia.gov)

Virginia Cooperative Extension (Henrico County office) —  
[www.henrico.us/extension/Virginia](http://www.henrico.us/extension/Virginia)

Cooperative Extension publications —  
<http://pubs.ext.vt.edu/index.html>

Virginia Department of Housing and Community Development —  
[www.dhcd.virginia.gov](http://www.dhcd.virginia.gov)

Virginia Housing and Development Authority — [www.vhda.com](http://www.vhda.com)

Virginia Native Plant Society — [www.vnps.org](http://www.vnps.org)

Virginia Office of Consumer Affairs —  
[www.vdacs.virginia.gov/consumers](http://www.vdacs.virginia.gov/consumers)

### SELECTED BIBLIOGRAPHY:

Conolly, M. Caren and Wasserman, Louis. *Bungalows: Updating Classic America*. Newtown, CT: The Taunton Press, 2006.

Conolly, M. Caren and Wasserman, Louis. *Ranches: Updating Classic America: Design Ideas for Renovating, Remodeling and Building New*. Newtown, CT: The Taunton Press, 2006.

Gitlin, Jane. *Capes: Updating Classic America: Design Ideas for Renovating, Remodeling and Building New*. Newtown, CT: The Taunton Press, 2006.

Harris, Cyril M. *American Architecture: An Illustrated Encyclopedia*. New York: W. W. Norton & Company, 1998.

Howe, Jeffrey W. *American House: Domestic Architecture in the USA*. London: B. T. Batsford, 2002.

Jordan, Wendy A. *Universal Design for the Home: Great Looking, Great Living Design for All Ages, Abilities and Circumstances*. Beverly, MA: Quarry Books, 2008.

McAlester, Virginia and Lee. *A Field Guide to American Houses*. New York: Alfred A. Knopf, 2002.

Polson, Mary Ellen. *Curb Appeal Idea Book*. Newtown, CT: The Taunton Press, 2006.

Schoenherr, Matthew. *Colonials: Updating Classic America*. Newtown, CT: The Taunton Press, 2006.

Susanka, Sarah. *Not So Big Solutions for Your Home*. Newtown, CT: The Taunton Press, 2006.

Venolia, Carol and Lerner, Kelly. *Natural Remodeling for the Not-So-Green House*. New York: Sterling Publishing Company, 2006.

