

NAPC CONFERENCE

PHILADELPHIA

Alternative Materials and

Their Use in Historic Districts



Alternative Materials Survey Community Participation

- Boston, Massachusetts
 - El Paso, Texas
 - Nashville, Tennessee
- Charlotte, North Carolina
 - Memphis, Tennessee
 - Jacksonville, Florida
 - Indianapolis, Indiana
 - Austin, Texas

What Are the Most Popular Alternative Materials for Historic Buildings?

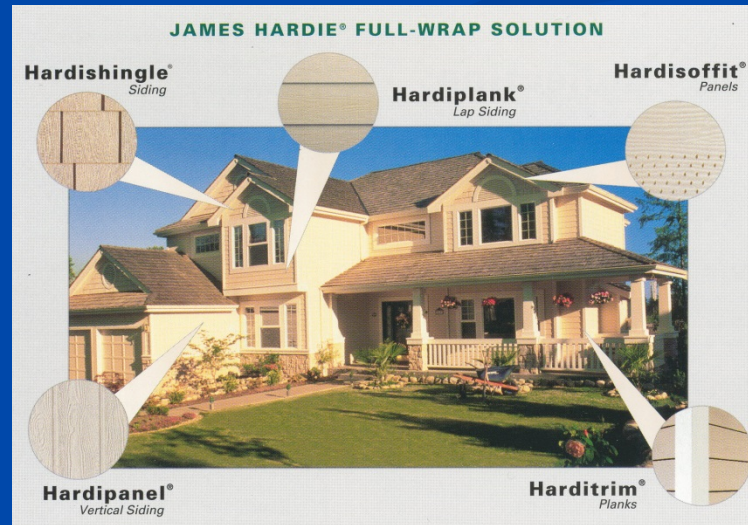
- Cementitious Siding
- Door and Garage Door Materials
- Recycled Plastic for Porch Floors
- Fiberglass and Vinyl Porch Columns
 - Synthetic Slate
 - Aluminum Clad Windows
 - Vinyl and Vinyl Clad Windows
 - Composite/Fiberglass Windows

Cementitious Siding



What is the Material?

- Cementitious siding is made from cement mixed with ground sand, cellulose fiber and other additives. Its content is approximately 45 percent Portland cement, 45 percent silica sand, and 10 percent wood fiber.
- Surface patterns include wood-grained and smooth. Any of the siding can be ordered pre-finished or ready-to-paint.



POSITIVES

- ✓ Smooth finish provides some visual compatibility with traditional wood.
- ✓ Potential longevity with some warranties guaranteed for 50 years.
- ✓ Good moisture permeability.
- ✓ Considered environmentally friendly and a “green” material.
- ✓ Bonds well with paint.

NEGATIVES

- Narrow dimensions sometimes do not match visual appearance of traditional wood.
- When applied to historic buildings original wood siding may require removal.

Acceptance of Cementitious Siding

- All cities approve cementitious siding for new primary buildings, outbuildings and rear and lateral additions.
- Indianapolis and Nashville do not allow cementitious siding as a substitute material on historic buildings.
- El Paso allows cementitious siding on rear and non-readily visible side elevations.
- Jacksonville and Memphis allow cementitious siding only on rear elevations - the bottom 24" of siding.
- Charlotte and Austin allow cementitious siding on all elevations if it matches in dimensions and profile.

Doors and Garage Door Materials



Doors and Garage Door Materials



Acceptance of Door Materials

- Metal, fiberglass and composite doors are approved on rear and non-readily visible side elevations in Boston, El Paso, Nashville, Jacksonville and Austin.
- Memphis approves metal doors on rear and non-readily visible side elevations but not composite doors.
- Metal and composite doors are not approvable in Charlotte or Indianapolis.

Acceptance of Garage Door Materials

- Nashville, Jacksonville, and El Paso allow the installation of metal, vinyl and fiberglass garage doors in traditional designs.
- Austin and Memphis allow new garage doors of steel or aluminum but do not allow vinyl.
- Indianapolis, Charlotte and Boston require wood garage doors and do not allow those of metal or vinyl.
- Design review flexibility varies depending on siting on the lot, alley visibility, or corner locations.

Porch Materials - Floors



Composite Porch Floor



What is the Material?

- Most popular alternative material is a composite product made of recycled plastic and wood. This material is considered to be “green” in that most products are made from 50% recycled plastic and 50% recycled wood products from woodworking operations such as sawdust and discarded pallets.
- There are a variety of companies which manufacture these products with the Trex Company one of the best known.
- Life expectancy is unknown. The manufacturers claim the product will last longer than wood and that the wood content will protect against fading from ultra-violet (UV) rays.

POSITIVES

- ✓ Generally not visible from public right-of-way.
- ✓ Potential longevity with some warranties guaranteed for 50 years.
- ✓ Considered environmentally friendly and a “green” material.
- ✓ Can be ordered in different colors or and can be painted to compliment house color.

NEGATIVES

- Is not an exact match to traditional wood appearance.
- Life expectancy is unknown.

Acceptance of Porch Floor Materials

- All of the communities allow composite porch floors on rear porches and side porches not readily visible from the street.
- Jacksonville and El Paso allow composite floors on front porches.
- This material can be approved in Memphis depending on how close and visible the porch is to the street.
- Charlotte, Nashville, Indianapolis, Boston and Austin do not allow this material on front porches.

Porch Materials – Fiberglass Columns



What is the Material?

- Fiberglass is a material consisting of extremely fine filaments of glass that are combined in yarn and woven into fabrics.
- Fiberglass columns are composed of very thin glass fibers which are combined with plastic resulting in a rigid material.

POSITIVES

- ✓ Fiberglass is considered to be a “green” material since its manufacturing process requires less energy than other synthetic materials.
- ✓ It appears to have good longevity and is largely made from an abundant material (sand).
- ✓ Good compatibility with appearance of Tuscan/ Classical columns.

NEGATIVES

- Not appropriate for Victorian-era houses. Is not an exact match to traditional wood appearance for milled columns.

Acceptance of Fiberglass Columns

- Austin, Jacksonville, El Paso and Indianapolis allow these types of porch columns on primary elevations if the dimensions, proportions and texture has the appearance of wood columns.
- Memphis does not allow fiberglass columns on primary elevations but does allow them on rear or non-readily visible side elevations.
- Nashville, Charlotte, and Boston do not approve these types of columns for historic rehabilitation projects on any elevation.



**Fiberglass
Columns**



Fiberglass Columns

Porch Materials – Vinyl Columns



What is the Material?

- Vinyl columns are made from polyvinyl chloride (PVC) and are manufactured to be both stand-alone columns and as a “wrap” around existing wood columns.
- Vinyl can be molded easily into a variety of column shapes and forms.

POSITIVES

- ✓ May have longevity beyond new wood columns.

NEGATIVES

- Vinyl column production highly toxic and petroleum based. Not considered a “green material.”
- The life expectancy of vinyl columns is unknown due to the amount of fading and stippling of vinyl surfaces resulting from exposure to UV rays.
- Does not have visual appearance compatibility with historic dwellings.



Vinyl Columns



Vinyl Columns



Vinyl Columns

Acceptance of Vinyl Columns

- El Paso will allow these types of porch columns on primary or secondary elevations if the dimensions, proportions and texture has the appearance of wood columns.
- None of the other cities surveyed allow vinyl columns on any elevations.

Roof Materials – Synthetic Slate



What is the Material?

- Synthetic slate is manufactured in a variety of materials. Some are made of slate and clay with reinforcing from fiberglass and resins. Others are ceramic based, while others are from recycled post-industrial rubber and plastic.
- The “greenness” of these materials varies as do their profiles and overall compatibility with historic slate.

POSITIVES

- ✓ Made from recycled products and most materials are considered to be “green.”
- ✓ Visual compatibility with historic slate.
- ✓ Less expensive than installation and replacement of slate.

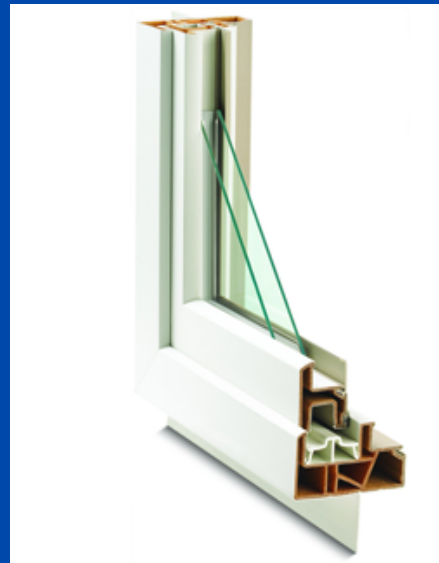
NEGATIVES

- The life expectancy of synthetic slate material is unknown. Long-term economics may favor slate repair or replacement.
- Is not an exact match to historic slate.

Acceptance of Synthetic Slate Materials

- Synthetic slate is approvable in Indianapolis, Charlotte, Jacksonville, Boston, Nashville and Austin if the original materials are clearly deteriorated and beyond repair.
- Memphis and El Paso do not currently allow the installation of synthetic slate.
- Slate was widely used in Roanoke and Lynchburg, Virginia and these cities allow the use of synthetic slate in their historic districts.

Alternative Window Materials – Aluminum, Vinyl, Vinyl Clad, Composite/Fiberglass



What are the Materials?

- Aluminum clad windows typically come with anodized or baked enamel finishes. Aluminum is used as the facing material over the wood frame for the trim, sash units and muntins.
- Vinyl windows are made of PVC (polyvinyl chloride) and glass.
- Vinyl clad windows are similar to aluminum clad in that the vinyl is wrapped over the wood frame.
- Composite materials include those made out of fiberglass and wood, and vinyl and wood.

Aluminum Clad Wood Replacement Windows: Longevity/ Maintenance

- Advantages
 - Can Have Compatible Profile and Appearance
 - Longer Life Expectancy Than Vinyl Windows
 - Can Meet NPS and Local District Guidelines
- Disadvantages
 - Comes From New Growth Wood and Aluminum – Less Sustainable
 - Appearance May Lack Some Aspects of Compatibility



Vinyl Clad Wood Replacement Windows: Longevity/ Maintenance

- Advantages
 - Longer Life Expectancy Than Vinyl Windows
 - Cost May be Less Than Wood or Aluminum Clad Windows
- Disadvantages
 - Comes From New Growth Wood and Vinyl – Less Sustainable
 - Appearance Lacks Compatibility
 - May not be Approvable by NPS and in Overlay Districts



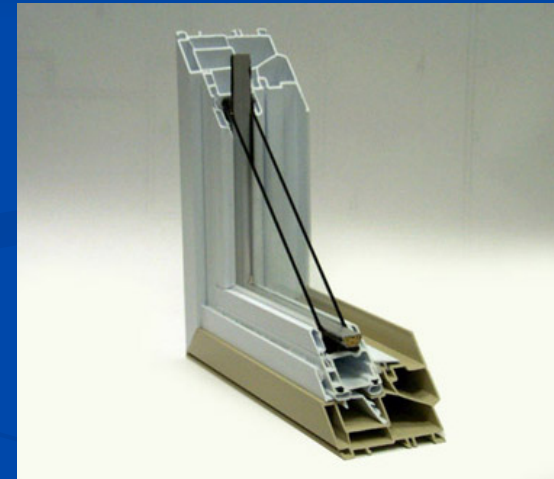
Vinyl Replacement Windows: Longevity/ Maintenance

■ Advantages

- Less Costly Initially Than Wood, Aluminum or Vinyl Clad Windows

■ Disadvantages

- Non-Sustainable Material
- Is Not Visually Compatible With Most Historic Wood or Metal Windows
- Limited Life Expectancy – One-Third of All Windows Replaced are Less Than 10 Years Old
- Difficult to Repair Due to Failing Seals and Clouding of Window – Leading to Replacement
- May not be Approvable by NPS and in Overlay Districts



Composite/Fiberglass Clad Wood Replacement Windows

■ Advantages

- May Have Compatible Profile and Appearance
- Longer Life Expectancy Than Vinyl Windows
- Fiberglass is a Recycled Material



■ Disadvantages

- Costs 30% More Than Wood or Vinyl and Aluminum Clad
- Unknown Life Expectancy
- May not be Approvable by NPS and in Overlay Districts



Acceptance of Alternative Window Materials

- Boston does not allow vinyl, vinyl clad or composite windows but does allow aluminum clad on commercial and industrial buildings on a case by case basis.
- Nashville, Indianapolis, Austin, Memphis and Charlotte do not allow the use of vinyl or vinyl clad windows on any elevations. Their guidelines allow installation of aluminum clad windows with both anodized and baked enamel finishes on primary and secondary facades.
- Memphis does allow vinyl clad and aluminum clad on rear or non-readily visible elevations. Composite window materials are allowed only above the third floor or commercial buildings.

Acceptance of Alternative Window Materials

- Indianapolis does not allow composite windows while Austin and Charlotte have yet to have requests for these materials.
- In Jacksonville and El Paso, design guidelines allow for the use of aluminum clad, vinyl, vinyl clad and composite windows as long as they match in dimensions, profile and overall appearance.
- Jacksonville does not allow for the use of anodized aluminum windows – must have a baked enamel finish.

Alternative Materials – Vinyl Fences



Acceptance of Vinyl Fences

- Vinyl fencing is not allowed under any circumstances in Nashville, El Paso, Charlotte, Indianapolis, and Memphis.
- In Jacksonville and Boston, vinyl fencing is not approvable on front yards but may be installed in rear yards or areas which are not readily visible from the street.
- In Austin, the use of vinyl fencing is “discouraged” for front yards but allowed on side and rear yards.

Alternative Materials Summary

- Cementitious siding - widely adopted and accepted in historic districts for new infill and outbuilding construction. If original wood siding has deteriorated, some cities allow the installation of this material on primary elevations while others only allow it on elevations not readily visible from a public right-of-way.
- Composite materials of recycled plastic and wood - Of the cities surveyed half allow the use of composite porch floors on the primary elevations. All of the cities surveyed allowed this material to be used on porches on side and rear elevations not visible from a public right-of-way.

Alternative Materials Summary

- Fiberglass porch columns – Austin, Jacksonville, El Paso and Indianapolis allow the installation of fiberglass porch columns on primary elevations. Memphis does not allow fiberglass columns on primary elevations but does allow them on rear or non-readily visible side elevations. Nashville, Charlotte, and Boston do not approve these types of columns on any elevation.
- Vinyl porch columns - Almost all of the Commissions surveyed do not allow the installation of vinyl columns or use of vinyl wrap on a historic house's primary or secondary elevations. The only exception is El Paso which does allow vinyl columns on primary elevations

Alternative Materials Summary

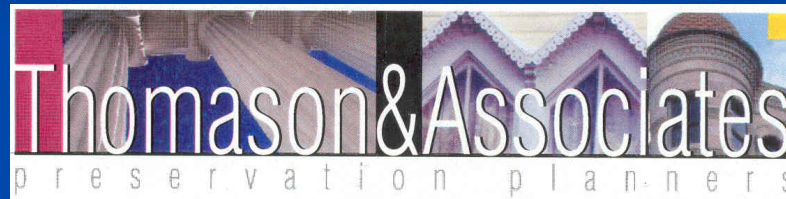
- Metal or Composite Doors – Installing new metal or composite material doors on rear elevations or secondary elevations is approvable in all of the cities except Charlotte or Indianapolis.
- Alternative material garage doors are approved in many communities as long as the designs are closely compatible with the original garage doors. Nashville, Jacksonville, and El Paso allow the installation of metal and vinyl garage doors while Austin and Memphis only allow those of steel or aluminum. Indianapolis, Charlotte and Boston require wood garage doors and do not allow those of metal or vinyl.

Alternative Materials Summary

- Synthetic slate materials have been approved in all of the cities except for Memphis and El Paso.
- Vinyl fencing is not allowed under any circumstances in five of the cities, two allow it only on side or rear yards and in Austin, the use of vinyl fencing is “discouraged” for front yards but allowed on side and rear yards.

Alternative Materials Summary

- Five of the cities do not allow vinyl or vinyl clad windows on any elevations. Memphis does not allow vinyl on any elevations facades but does allow vinyl clad on rear or non-readily visible side elevations. In Jacksonville and El Paso, design guidelines allow for the use of aluminum clad, vinyl, vinyl clad and composite windows as long as they match in dimensions, profile and overall appearance.
- Aluminum clad windows are generally approved in most of the cities on all elevations.
- Composite windows are relatively new but Memphis does allow them for upper floor commercial buildings.



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