# Alternative Building Materials

## Historic District and Appendix G (Eligible for Waivers)


City of Dublin
OHIO, USA

**Community Planning and Development**
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# Contents

# Chapter 1

The following recommendations for applications for alternative materials have been developed by the City of Dublin to supplement the *Historic Design Guidelines* (2023 as amended) and to further guide property owners in selecting appropriate alternatives to historic building materials. These recommendations, and the term "Historic District", apply to all buildings in the City of Dublin, and Appendix G, under the Architectural Review Board (ARB) purview. These recommendations are based on the following (in order of priority):

1. **Preservation:** Preservation and repair of existing materials;
2. **Rehabilitation**: Replacement of existing materials with traditional materials; and,
3. **Reconstruction**: Use of alternative materials.

For landmark properties, the priority should be to preserve the historic building materials where possible in order to preserve the character of historic properties and the Historic District.

'Alternative' or 'substitute' material refers to the use of a non-traditional, synthetic building material in place of an original material. The alternative material may have the similar general appearance as the historic material but offers the benefits of modern technology. For additional information, please read preservation brief on "The Use of Substitute Materials on Historic Building Exteriors" (Preservation Briefs 16: The Use of Substitute Materials on Historic Building Exteriors (nps.gov))

# 1.1 Guidance and Recommendations

There are situations where it becomes necessary to use an alternative building material instead of the historic building material. Some of the reasons could be the unavailability or poor performance of the historic material, environmental pressures, or code-driven requirements that necessitate a material change. However, when using an alternative building material, it is crucial to ensure that it matches the historic material in all of its visual and physical properties. This is important to preserve the historic character of the building and minimize any negative impact on its integrity. This section provides additional information for making informed design decisions. It is meant to augment the Guidelines, not to replace them. It is important to remember that a historic and an Appendix G property is not meant to serve only the occupants and visitors of today, but future generations as well.

### *Are alternate materials worth it?*

Preservationists want to keep as many physical ties to the past as possible, yet some alternative materials can be beneficial under certain conditions. It is important to understand the pros and cons of each material, and this document seeks to do that. This is an introduction to the advantages and disadvantages of alternate material types, with the caveat that different manufacturers of the same material type are not necessarily equal.

### *New products consistently come to market; how will they be approved for use?*

It is highly recommended that design professionals and owners review all material cut sheets, warranty information, and manufacturer's recommendations, as well as those from competing material manufacturers and **at least one traditional material manufacturer or installer**. Compare warranty limitations, note recommended maintenance schedules, ask questions, and bring to ARB for Waiver consideration. Reviewing this information helps inform the cost/benefit ratio, including costs of material and labor over time. Each material has advantages and disadvantages.

### *What additional information or considerations are important?*

Material cost comparisons will vary depending on the economic climate, the availability of materials and labor, and the quality of the goods and installation, as well as the material's *useful life* and its *visual longevity.* The Historic District Code Waiver section indicates alternative materials should be of good quality, meaning the proposed material must not only appear almost indistinguishable to the historic material, but it must also maintain its appearance and function for a

considerable duration. Note that most historic materials have good longevity and will out-compete modern materials regarding appearance and function.

For example, an alternative roofing material imitating slate may claim to last 50 to 75 years, which sounds comparable to natural slate's expected 70 years. It is possible that the material can function well, complying with its warranty, but its appearance may quickly deteriorate through color fading and edge curling, making the material no longer resemble its inspiration. Some manufacturer warranties will not cover appearance-related issues, leaving the owner, neighbors, and the district with an unsatisfactory situation, not from a loss of function, but from a visual standpoint.

**Be cautious with new-to-market materials until durability can be proven. Ensure that any installation of new materials does not harm historic materials.** For example, the use of modern mortar to repoint 19th century brick masonry will cause the historic brick to break and splinter over time. It takes knowledgeable and experienced preservationists (architects, designers, and/or contractors) to ensure any installation will not cause detriment.

## 1.2 Choosing the Right Architect, Designer, or Contractor for the Job

In the State of Ohio, a licensed architect must prepare documents for all new and existing buildings, with the exception of 1, 2, or 3-family residential structures, where designers, home-builders and others can also provide design services. If you are looking to renovate your historic home or build a new home in a historic district, you may choose any architect, designer or builder; however, each has advantages and disadvantages. An architect may charge more for services, yet they have years of training and practice and can streamline projects while fulfilling the client's design requirements. **A historic preservation architect specializes in restoration and renovation projects with skill to navigate historic guidelines, especially regarding massing, scale, and proportion, as well as the complexities of building codes relative to historic structures.** For additional information, please read "*Read This Before You Hire an Architect"* (https://www.thisoldhouse.com/21015821/read-this-before-you-hire-an-architect) Regarding the actual construction work, hiring contractors who have historic building renovation and restoration experience is always beneficial.

## 1.3 Property Classification

For the purposes of this document, Historic District properties are classified into seven categories. The property classification will determine the appropriateness of each alternative building material. Not all the previously-approved alternative building materials will be suitable for all cases. This document lists the reasons for approval in order to provide guidance. The property classifications are as follows:

- Landmark Property
- Landmark Property Addition
- Landmark Outbuilding/Object

- Background Property
- Background Property Addition
- Background Outbuilding/Object

- New Construction

*Landmark Properties* are defined as any property or site which has special character, archaeological, historical, aesthetic or architectural value as part of the heritage, development or cultural characteristics of the City, State, or the United States designated as a landmark pursuant to the provision of the Code, and including all property located in the City listed on the

National Register of Historic Places. Preservation and rehabilitation strategies should be prioritized before any recommendation for using alternative material on *Landmark Property.* These are officially identified on the Historic District Map, as amended, within the *Historic Design Guidelines*.

*Landmark Property Addition* is defined as any addition to landmark properties. *Landmark Outbuilding/Object is* any accessory feature identified as Landmark on the Historic District Map, including detached structures, sheds, etc. Use of alternative building materials on *Landmark Building Addition/Outbuilding* should not negatively impact the historic context of the *Landmark Property* and its surroundings.

*Background Property* is the status assigned to buildings and other cultural resources that do not add to the historic architectural qualities, historic associations, or archaeological values for which a property is significant. An assignment of "background" status to a resource may be because the building or resource lacks historic integrity, or the resource does not individually meet the National Register criteria. *Background Property Addition* is defined as any addition to background properties. *Background Outbuilding/Object* is any outbuilding noted as Background on the Historic District Map, including detached structures, sheds, etc. Alternative materials should be used to ensure that the contextual appropriateness is met within the project's vicinity.

*New Construction* is defined as construction on a site that does not have any pre-existing background or landmark property. However, alternative materials should be used to ensure that the contextual appropriateness is met within the project's vicinity.

## 1.4 Waiver Criteria

A Waiver is required for any alternative material not listed in the Code. This document guides property owners on materials that the Board has previously approved via the Waiver process. Please refer to Historic District Code Section 153.176 (L) for more information about the Waiver purpose and applicability. For each alternative building material request, the project will go through the Waiver Review Criteria as required by Code Section 153.176 (L)(5). Approval of the Waiver by ARB is contingent on the choice of material, context and property classification.

The approved materials are under the 2023 Historic District Code, as amended. The Community Planning and Development department will update this document annually to include new products that met the Waiver criteria.

***United States Post Office, 38 W. Bridge Street***
Landmark Property
Constructed 1965
Photo Source: www.dublinohiohistory.org

***Adaptive Reuse, Fox in the Snow, 38 W. Bridge Street***
Landmark Property
Steel windows approved via Waiver, April, 2022

# Chapter 2: Alternative Building Materials

Listed below are types of building features for which the ARB may be asked to consider alternative materials. These are common features that are discussed in the Historic District Code and the Guidelines and have readily available alternatives to historic building materials. Under each building feature, there is a list of alternative materials, previously approved by the Board. The alternative building materials are approved based on each project's ability to meet the Waiver criteria. Thus, replacement materials will still have to be reviewed on an individual basis by the Planning Division and the ARB.

1. Roofs
2. Exterior Wall Materials
3. Windows
4. Exterior Doors
5. Porch and Deck Materials
6. Architectural Details, Trim and Other Details

## 2.1 Roof

*Historic District Code Section 153.174 (J)(2)(a) Permitted roof materials include dimensional asphalt composite shingles with a 25-year or greater warranty, wood shingles and shakes, metal tiles or standing seam, slate and ceramic tile*

The Board has not approved any alternative roofing material in the Historic District.

# 2.2 Exterior Wall Materials

*Historic District Code Section 153.174(J)(1)(a) Permitted building materials shall be high quality, durable materials including but not limited to stone, manufactured stone, full depth brick, brick veneer, wood siding, glass, and fiber cement siding. Historic District Code Section 153.174(J)(1)(b) Other high quality synthetic materials may be approved by the required reviewing body with examples of successful, high quality installations in comparable climates*

The Board has previously approved the following exterior wall materials with a Waiver, when the criteria are met.

### 2.2.1 LP Smart Siding

*Approved for Landmark Property | Individually Listed NRHP (Outbuilding) | Background Property*

This is an engineered wood siding where raw wood undergoes an extensive process of treating wood strands with coats of resins, waxes, and other materials for a more durable and weather-resistant material. The ARB has approved this particular product in the district, given the product's high-quality performance.

| Advantages | Disadvantages |
|---|---|
| • Ability to showcase natural warmth and texture of wood because of use of real wood<br>• Resistant to impact damage because of resin bonding<br>• Less susceptible to termite damage due to the presence of zinc borate | • Requires aesthetic maintenance<br>• Naturally flammable |

### 2.2.2 TruExterior/BoralTru Exterior Siding

*Approved for Landmark Property*

This is a product consisting of a blend of polymers and fly-ash. The combination of polymers and fly-ash delivers a durable siding material, maintaining dimensional stability. The Board has previously approved this material in locations that are susceptible to water or insect damage or where not visible at eye-level.

| Advantages | Disadvantages |
|---|---|
| • Resistant to impact damage<br>• Resistant to moisture and termite damage<br>• Excellent performance in all weather | • Possibility of shrinking<br>• Naturally flammable |

# Reference Photos

## Siding

LP Siding (smooth texture)
**Modern Male Salon** (*Commercial)*
Landmark Property
Approved September, 2021

LP Siding (smooth texture)
**94 Franklin Street** (*Residential)*
Background Property
Approved December, 2021

LP Siding (smooth texture)
***110 S. Riverview Street*** *(Residential)*
New Construction (ongoing)
Approved May, 2021

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

# 2.3 Windows

*Historic District Code Section 153.174(D)(1) Windows shall be wood, metal-clad wood, or vinyl-clad wood. The Architectural Review Board may approve other high quality synthetic materials with examples of successful, high quality installations in comparable climates.*

The Board has previously approved the following window materials with a Waiver, when the criteria are met.

### 2.3.1 Steel Frame Windows

*Approved for Landmark Property*

Steel frame windows are made from high quality steel which is welded, galvanized and powder coated. These steel-frame windows were solely approved in this case to maintain the existing International Style architecture.

| Advantages | Disadvantages |
|---|---|
| • High strength level and durable<br>• Easy maintenance<br>• Fire resistant | • Heavy material |

### 2.3.2 Vinyl Windows

*Approved for Background Property*

Vinyl Windows are made from poly-vinyl chloride, which is a synthetic plastic material. ARB had never previously approved vinyl windows under the 2021 Code; however, vinyl windows were approved in this case to match the existing windows for a more cohesive and aesthetically pleasing property.

| **Advantages** | **Disadvantages** |
|---|---|
| • Energy Efficient<br>• Easy maintenance<br>• Easy installation | • Environmental impact (the manufacturing process is highly chemical based and not environmentally friendly)<br>• Inability to match visual appeal |

# Reference Photos

## Windows

Steel Windows
***Fox in the Snow, 38 W Bridge Street***
Landmark Property
Approved April, 2022

Vinyl Windows
***60 Franklin Street (Residential)***
Background Property (ongoing)
Approved May, 2023

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

# 2.4 Exterior Doors

*Historic District Code Section 153.174(D)(1) Windows shall be wood, metal-clad wood, or vinyl-clad wood. ARB may approve other high quality synthetic materials with examples of successful, high quality installations in comparable climates. Historic District Code Section 153.174(D)(3) Doors for commercial uses along all street frontages shall be consistent with the design of principal entrances and include glass and full operating hardware in the design of the door. Exterior doors for residential uses shall also include glass, but this requirement may be met through the use of transom and/or sidelight windows.*

The Board has approved the following alternative materials for main doors and garages, maintaining the Historic District's high-quality construction and character.

### 2.4.1 Fiberglass Door

*Approved for Background Property*

Fiberglass doors mimic the look of actual wood doors and are made of reinforced plastic material. The door components are:

- Frame: Wood or a composite material
- Core: Polyurethane foam insulation
- Exterior: Compression molded fiberglass

The Board has approved fiberglass doors for an addition to a Background Property not negatively impacting the surrounding area.


*Source: www.fiberglassfiber.com*

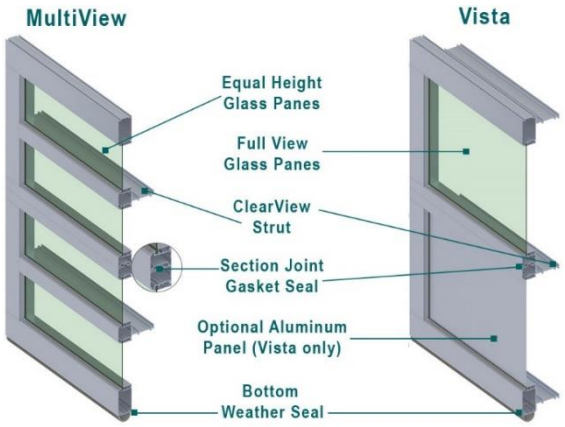
| Advantages | Disadvantages |
|---|---|
| • High strength, rigid and durable<br>• Energy efficient<br>• Easy maintenance<br>• Can be painted or stained | • UV fading |

### 2.4.2 Aluminum/Glass Garage Doors

*Approved for Background Property | New Construction |*

Aluminum garage doors, as the name suggests, are made using aluminum metal. The Board has approved a glass garage door with an aluminum frame.

The Waiver was approved for a Background Property, and deemed appropriate based on the context and age of the property. Additionally, it was approved for a new shed, not impacting the historic context of the surrounding area.




*Source: www.amarr.com*

| Advantages | Disadvantages |
|---|---|
| • Lightweight and easy maintenance<br>• Rust Resistant | • Poor insulation<br>• Low durability |

### 2.4.3 Composite Door (Garage + Front Door)

*Approved for Landmark Property Addition | New Construction |*

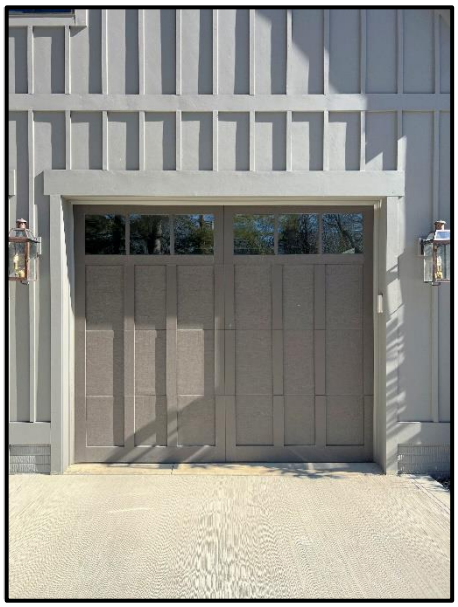
Made with a combination of materials including wood, fiberboard, polyurethane etc., composite doors have been approved for landmark property additions and for new construction, based on the location of the garage and its visual impact. These are high quality garage doors.


*Source: www.clopaydoor.com*

| Advantages | Disadvantages |
|---|---|
| • Durability<br>• Low maintenance<br>• Good Insulation | • Prone to swelling (high sun exposure)<br>• Fading |

# Reference Photos

## Doors



Composite Garage Door
***181 S High Street (Residential)***
New Construction
Approved May, 2021

Fiberglass Front Door
***94 Franklin Street (Residential)***
Background Addition
Approved December, 2021

Aluminum Glass Doors with Windows
***181 S High Street (Residential)***
New Construction
Approved May, 2022

*Left blank for annual update*

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*Left blank for annual update*

## 2.5 Porch and Deck Materials

*Historic District Code Section 153.174(J)(1)(a and b) Permitted building materials shall be high quality, durable materials including but not limited to stone, manufactured stone, full depth brick, brick veneer, wood siding, glass, and fiber cement siding. Historic District Code Section 153.174(J)(1)(b) Other high quality synthetic materials may be approved by the required reviewing body with examples of successful, high quality installations in comparable climates*

The Board has previously approved Timbertech, with a Waiver, when the criteria are met and the design is in accordance with the *Guidelines*.

### 2.5.1 Timbertech

*Approved for Background Property | New Construction |*

Timbertech is a high quality composite material made from recycled plastic and wood fibers, with a look and feel like real wood. *Historic Design Guidelines*, Section 6.6 recommends all decks and porches should be located to the rear or side of the property. The material has been approved for a background property as well as new construction, with minimum visibility from the public right of way.

| Advantages | Disadvantages |
|---|---|
| • Durable<br>• Easy maintenance<br>• Resistant to weather conditions<br>• Integral color | • Not a natural material<br>• Retain heat (hot temperature) |

# Reference Photos

## Porch and Deck

Timbertech stairs
***60 Franklin Street (Residential)***
Background Property (ongoing)
Approved May, 2023

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

*Left blank for annual update*

# 2.6 Architectural Details, Trim and Other Details

*Historic District Code Section 153.174(J)(1)(a) Permitted building materials shall be high quality, durable materials including but not limited to stone, manufactured stone, full depth brick, brick veneer, wood siding, glass, and fiber cement siding. Historic District Code Section 153.174(J)(1)(b) Other high quality synthetic materials may be approved by the required reviewing body with examples of successful, high quality installations in comparable climates*

In addition to the other alternative high quality exterior materials, the Board has approved the following low maintenance materials for the longevity of inaccessible locations.

### 2.6.1 Fypon Vents

*Approved for Background Property*

Fypon is a material made from high density polyurethane, used in a liquid state to mold custom sizes and designs. Fypon vents were approved to minimize maintenance in inaccessible locations. The vents were approved with a realistic wood texture.

| Advantages | Disadvantages |
|---|---|
| • Low maintenance<br>• Can be painted/stained<br>• Water Resistant | • Not a natural material |

### 2.6.2 Azek Trim

*Approved for Background Property*

Azek is a synthetic building material made from cellular core PVC (polyvinyl chloride) which has air pockets. It is a strong and durable building material without any wood resins. The material goes through an embossing system to create a natural-looking wood grain finish.

| Advantages | Disadvantages |
|---|---|
| • Low maintenance<br>• Durability<br>• Water Resistant | • Not a natural material |

# Reference Photos

## Architectural Details

Fypon Vents
***94 Franklin Street (Residential)***
Background Addition
Approved December, 2021

Fypon Vents
***60 Franklin Street (Residential)***
Background Property (ongoing)
Approved May, 2023

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# Appendix A

Listed below are manufacturers' names for the previously-approved alternative building materials presented herein. Including an alternate material's manufacturer here does not constitute approval or acceptance of that manufacturer or its products. Instead, this list is meant as a guide or starting point and is provided here as a resource. For any alternate material, it is highly recommended that the owner and contractors follow all manufacturer instructions and comply with all necessary requirements to receive the manufacturer's full warranty. These listed items do not (and cannot) identify every issue that may be of concern to the City of Dublin and the Architectural Review Board. New resources will be added annually.

Exterior Wall Materials

- LP Smart Siding Engineered Wood Siding & Trim for Professionals | LP Building Solutions (lpcorp.com)
- Boral Tru Siding Poly-Ash Exterior Siding & Trim | TruExterior

Exterior Doors

- Masonite Residential | High End Interior & Exterior Doors | Masonite
- Residential Aluminum 360 Series (haasdoor.com)
- Garage Doors - Clopay, America's Favorite Brand (clopaydoor.com)

Porch and Deck Materials

- Composite Decking Products & Materials | TimberTech

Architectural Details, Trim and other details

- Trim | AZEK Exteriors
- Louvers & Gable Vents | Fypon Decorative Millwork