

An Analysis of the Affordability of Various Exterior Cladding Options for New Residential Construction

April 1, 2023

Executive Summary

A review of the most common exterior cladding materials was conducted. It was determined that standard and premium vinyl siding and polypropylene were always three of the most affordable options available.

Purpose of the analysis

Dr. Elliot Eisenberg is an internationally acclaimed economist as well as the Chief Economist for GraphsandLaughs, LLC. Dr. Eisenberg was asked to provide this analysis by the Vinyl Siding Institute to establish that independent, objective data confirm that vinyl siding is a key factor in the affordability of new housing and that restrictions and prohibitions on the use of vinyl siding unnecessarily increase housing prices and further exacerbate the housing affordability crisis.

Data Sourcesⁱ

Assumptions and Methodology

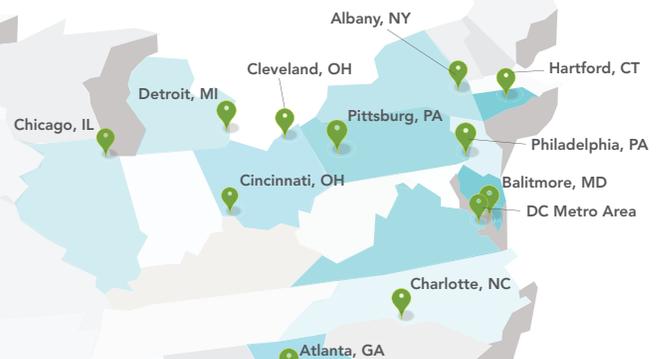
Cladding types that were included in this analysis

1. Vinyl, standard, D4.040
2. Vinyl, premium, D4.048
3. Polypropylene, D7
4. Fiber cement, painting included 5/16" thick, X 4-3/4" reveal
5. Brick, Brick veneer masonry, red brick
6. Stucco, 3-coat, float finish with mesh on wood frame, 1" thick
7. Cedar Clapboard, A grade 1/2'X8X, includes staining and caulking

These cladding types were examined because they include 99.9% of all exterior siding choices used in single-family residential homes constructed during the calendar year 2021. Calendar 2022 data is not yet available. These products are widely available, and their properties are well understood.

Markets examined, including the U.S. Census Bureau region

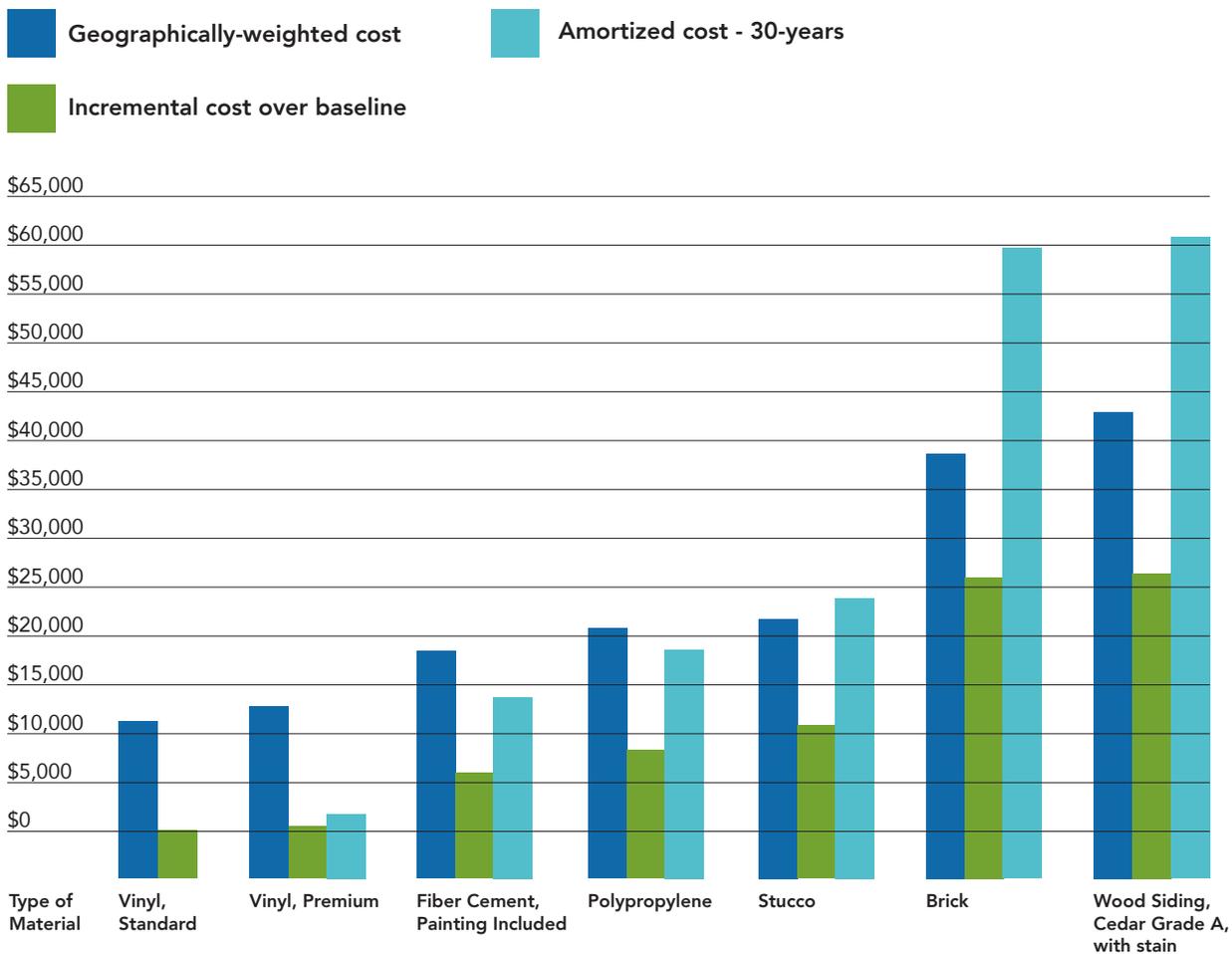
The markets were selected for several reasons including a need to better understand the intersection between these building materials and housing affordability.ⁱⁱ



The methodology utilized was as follows

1. RSMeans cost data for each of the seven exterior cladding materials was obtained for each of the twelve market cities.
2. The U.S. Census Bureau Survey of Construction ("SOC") data for the calendar year 2022 was reviewed and it was determined that the typical new single-family home constructed during that period was 2,274 square feet.
3. Cost data by cladding type by city was multiplied by 2,274 square feet to obtain the local cost of each material including trim and painting, where applicable, and installation costs.
4. There were four cities each in the Northeast, Midwest, and South, so each city was given a weight of 25%.
5. Data from the SOC was obtained to show the utilization of each cladding type, for single-family completions for each of the three regions.
8. The city costs were weighted by geographic location and cladding type to come up with a geographically-weighted cost across all cities and regions.
9. The differential between the lowest cost product, standard vinyl siding, and all other cladding types were calculated.
10. The differential was utilized to compute the additional monthly payment on a typical, 6.5% 30-year conventional mortgage, along with the full amortized cost over 30 years.

The findings are as follows



Affordability analysis

For this portion of the analysis, Dr. Eisenberg relied upon data from the National Association of Homebuilders regarding the number of households that are priced out of the market as home prices rise. A link to the study is here: [National Association of Homebuilders - Table 1. US Households Priced Out of the Market by Increases in House Prices, 2022](#). NAHB finds that for each \$1,000 increase in the median home price, 117,932 households are priced out of the market. Applying this price increase data to the above analysis results as follows:

Key conclusions

Type of Material	Additional monthly cost 30 year mortgage	Number of households priced out
Vinyl, Standard	N/A	N/A
Vinyl, Premium	\$6	105,580
Fiber Cement, Painting Included	\$40	748,116
Polypropylene	\$52	973,913
Stucco	\$68	1,259,374
Brick	\$166	3,093,632
Wood Siding, Cedar Grade A, with stain	\$168	3,135,585

In an analysis of 12 housing markets located in the Northeast, South, and Midwest, vinyl and polypropylene siding are always among the four most affordable options for exterior cladding of new, single-family residential construction, when evaluated both by square foot cost and overall cost as installed on a typical single-family home of 2,274 square feet. These results would be equally valid for homes of any size.

Further, because standard vinyl, premium vinyl, and polypropylene siding are always among the four least expensive exterior cladding options, regulations or codes which prohibit or limit the use of vinyl or polypropylene unnecessarily increase the cost of the final product, which always reduces affordability and worsens the housing shortage.

This analysis was performed by: Dr. Elliot Eisenberg, Ph.D., President of GraphsandLaughs, LLC, and Alex Fernandez, Senior Director of Advocacy at the Vinyl Siding Institute.

Dr. Eisenberg is an internationally acclaimed economist and public speaker. He earned a B.A. in economics with first-class honors from McGill University in Montreal, as well as a Masters and Ph.D. in public administration from Syracuse University. Eisenberg is the Chief Economist for GraphsandLaughs, LLC, a Miami-based economic consultancy that serves a variety of clients across the United States, and was formerly a Senior Economist with the National Association of Home Builders in Washington, D.C. He is the creator of the multifamily stock index (the first nationally recognized index to track the total return of public firms principally involved in the ownership and management of apartments), the author of more than 100 articles, and is a regular consultant to several large real estate professional associations, financial institutions, and investment advisory groups.

Alex Fernandez is the Senior Director of Advocacy at the Vinyl Siding Institute. He earned his B.A. in international relations from Florida International University in Miami, Florida and his JD from the University of Dayton in Dayton, Ohio. Part of his advocacy effort includes a focus on housing affordability and construction material regulations. While at VSI he has helped passed numerous bills to help ease the cost of housing including housing bills in Oklahoma, Texas, Arkansas, and Tennessee.

¹For purposes of this analysis, Dr. Eisenberg relied on construction cost data obtained from RSMMeans, a product of Gordian, which provides accurate and up-to-date construction estimating cost data that helps owners, architects, cost engineers, contractors, and others to project and control the cost of both new building construction and renovation projects. For purposes of estimating the median square footage of new single-family residential homes, Dr. Eisenberg used data from the Survey of Construction (SOC) performed by the United States Census Bureau.

²This report excludes regions west of the Rocky Mountains and the far Southwest because the cladding materials used in those regions are not sufficiently diverse to allow reliable conclusions about cost and preference.