SUSTAINABILITY OF EXTERIOR MATERIALS*

	BRICK	VINYL	MANUFACT-URED STONE	STUCCO	FIBER CEMENT	PRECAST CONCRETE	EIFS
Manufacturing – Recycled Content	Contains both pre-and post-consumer recycled content, depending on manufacturer.	Some companies claim 80% recycled content but provide no test data to prove.	Information generally unknown. Some products claim 6% recycled, but no proof provided.	Little information; recycled content limited to replacing a portion of cement, only a small percentage of overall materials.	CertainTeed claims up to 30% pre-consumer recycled content. James Hardie claims no recycled content.	Can contain both pre- and post-consumer recycled content, depending on manufacturer.	Industry makes no claims about recycled content.
Manufacturing and Distribution	Waste products such as methane gas from landfills and sawdust used in production, depending on the manufacturer. At least two plants located within 500 miles of all but one of 50 largest MSAs.	PVC used in production made at locations near oil refineries, generally located only near coastal ports. This makes extraction requirements within 500 miles of a project often difficult to meet.	Manufacturing locations primarily located in South and West, requiring end product to be transported long distances. High CO_2 emissions and high-embodied energy due to the manufacture of cement, one of main ingredients.	Manufacturing locations primarily located in South and West, requiring finished product to be transported long distances. High CO_2 emissions and high- embodied energy due to the manufacture of cement, one of stucco's main ingredients.	Uses a significant amount of energy, water and silica. Manufacturing process harmful to water conservation and air quality. Some manufacturers import wood pulp from Australia and New Zealand.	Manufacturing process places burdens on fossil fuels, natural raw materials, land, energy and process emissions. Production of cement, a major ingredient of precast concrete, releases pollutants such as nitrogen oxides and sulfur compounds into air. A single plant can require a quarry of 1,000 acres. 100-900 liters of water per metric ton of clinker (used to make cement) are used that cannot be recovered.	The National Institute of Standards and Technology (NIST) confirmed that EIFS has "less global impact" in its distribution due to less fossil fuel required to ship. However, product is manufactured in only 9 U.S. locations, making it more than 500 miles to many destinations.

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Third-Party Certification	Manufacturers can achieve third-party certification for extent of recycled content, use of alternative energy, and amount of resources reduced.	No claims of third-party green certification.	National Evaluation Service, supported by the International Code Council (ICC), validates material and ensures it is acceptable since there are no building code requirements.	Certification available through Built Green.	CertainTeed has their fiber pulp certified from "sustainable managed forests." James Hardie has no certification.	No claims about certification.	No claims about certification.
Job Site – Waste Management	Reusable scrap materials, minimal packaging, very little onsite waste produced due to modular units.	Some construction waste recycled, but it represents only 2% of vinyl siding market.	All construction waste must be sent to a landfill.	All construction waste must be sent to a landfill.	Cannot recycle scrap materials. Materials must be wrapped prior to installation. Has highest pollution index of cladding materials, according to ATHENA Sustainable Materials Initiative.	Emissions from cement industry amount to 5% of all CO_2 emissions. Cement plants act as incinerators emitting hazardous air pollutants by burning used tires as well as medical municipal and toxic waste. 25% of cement kiln dust sent to a landfill.	All construction waste must be sent to a landfill.

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Job Site – Recyclability	Unfired or scrap brick recycled back into production stream. Brick from demolition can be crushed and recycled into new brick or brick chips. Brick can also be used as a sub-base material for pavements.	Cannot be recycled because of high contaminant levels. Cannot be salvaged for reuse. Recycling efforts so weak that Association of Post Consumer Plastic Recyclers labeled program a failure in 2000.	No program exists for recycling. Must be taken to a landfill at end of its life cycle.	Cannot be recycled.	Is not and cannot be recycled.	Concrete can be recycled as aggregate in new concrete paving, backfill or road base, but this is not done by all states. Only 11 states recycle concrete to new portland cement concrete.	Is not and cannot be recycled.
Consumer – Energy Efficiency	Thermal mass properties. [a.b] Homes clad in brick use 1%-2% less energy than homes with vinyl siding.[a] More thermal mass since typical brick veneer thickness is 3 inches to 3 5/8 inches.[c] High thermal mass properties allow heat to be stored and released later. [d]	[a] Higher energy efficiency claims are due to inclusion of rigid board insulation in upscale vinyl siding, but this represents only a small portion of overall vinyl siding production.	[b] Most of insulation value claimed is due to amount of building insulation in the wall.	[c] Limited thermal mass since maximum thickness is 2 inches.	[a] Homes clad with fiber cement use approximately 2%-7% more energy than homes clad with brick.	[d] High thermal mass properties allow heat to be stored and released later.	[d] Position on outside of wall eliminates thermal bridging.

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Consumer – Life Cycle, Durability	100-year life span. Low maintenance requirements.	25-year life span. Low maintenance requirements. Once damaged, it must be replaced.	Product too new for performance history.	50-year life span when well maintained. Must be painted every 2-5 years. Joints must be maintained to prevent water infiltration.	Long-term performance unknown. Continuous maintenance needed starting within 10 years.	100-year life span.	50-year life span, but is often shorter due to fire, wind or water.. Requires additional finishing and coating over time.
Consumer – Safety, Security	1-hour fire resistance rating. Offers superior resistance to wind-blown debris.	Does not provide 1-hour fire resistance rating. Cannot protect from wind-blown debris. Melts when low-E windows re-radiate heat. Burning produces dioxin and PCBs, creating health risks.	Does not provide 1-hour fire resistance rating.	Does not provide 1-hour fire resistance rating.	Does not provide 1-hour fire resistance rating.	Provides 1-hour fire resistance rating. Offers superior resistance to wind-blown debris. Material can pose serious safety hazard when fire damages panel connections and causes panels to fall.	Does not provide 1-hour fire resistance rating.

Source: Brick Industry Association