



# Interior Doors Life Cycle Cost Analysis

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## Introduction

### **What is the Life Cycle Cost Analysis (LCCA)?**

This study explores a door's life cycle and the associated replacement and maintenance costs. We will discuss the costs associated with initial investment, operation, cleaning and maintenance for the following door types: wood veneer, plastic laminate (P-LAM), hollow metal and Acrovyn® Doors.

### **Why did we perform this study?**

The goal of this study is to objectively evaluate cost savings supplied by Acrovyn Doors compared to other options in today's door industry. We explore the ways in which doors undergo routine maintenance and replacement while providing realistic cost estimates to help you choose.

### **Which areas are we investigating?**

- Initial investment costs
- Operating costs
- Maintenance and service costs

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EXPLORE:

Wood Veneer

Plastic Laminate

Hollow Metal

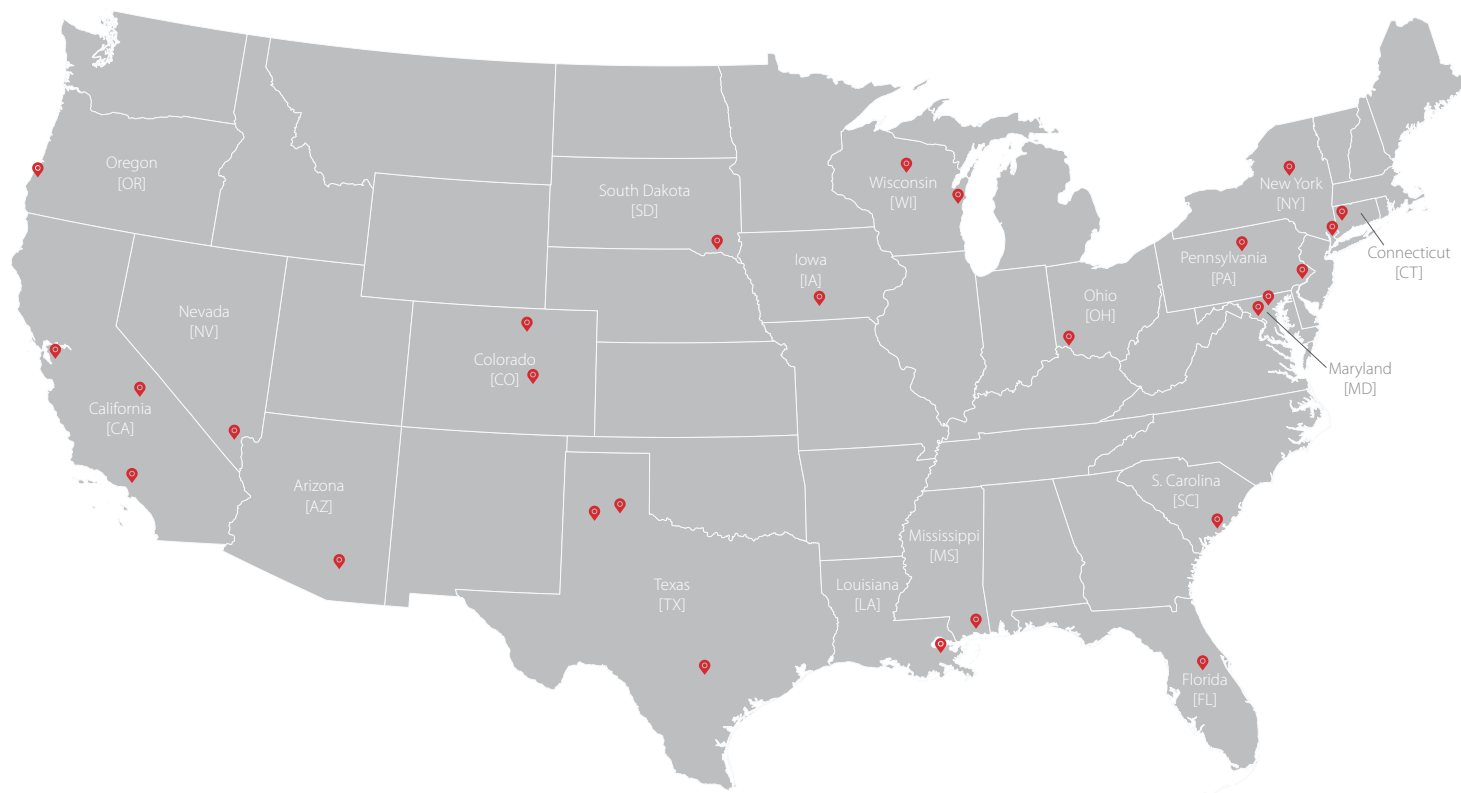
Acrovyn® Doors

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## How did we perform our research?

We collected data from over 30 hospitals, hotels, schools, assisted living and skilled nursing facilities across the United States.



\*List of facilities available upon request.

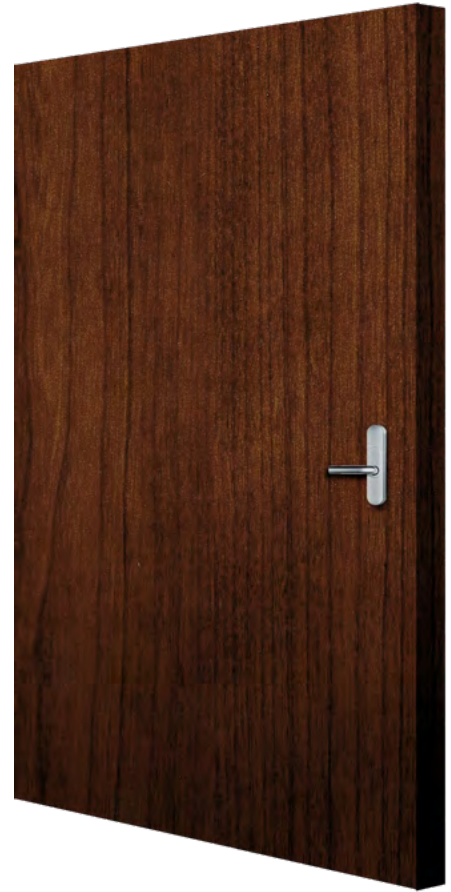
## Wood Veneer Doors

Wood veneer doors are comprised of a thin piece of stained wood treated with or without a protective varnish. These lightweight doors are often specified because of their economical investment cost and are ideal for low-traffic environments, such as offices, closets or private bathrooms. They typically have a warm, non-institutional appearance with an array of color options, but often face peeling edges and impact-related damage.

### Repair Methods

Heavily damaged wood veneer doors must be sanded down to prepare them to be repaired. Damaged areas are puttied, and the entire door is cured. The door repair is finished after being painted and then cured one final time.

Doors with minor but noticeable damage are touched up with wood putty and stained. This “band-aid” process is typically repetitive.



Initial investment cost		
Total initial investment cost	\$150,000	
Operating cost (labor & material replacement)		
	1 Year	10 Years
Number of doors replaced	36	360
Material replacement cost	\$10,800	\$108,000
Labor replacement cost	\$5,761.80	\$57,618
Maintenance cost		
Repairs (quantity)	214	2,140
Labor/material repair cost	\$18,005.96	\$180,060
<b>True total cost</b>	<b>\$495,678</b>	

Repair cost breakdown	
Prep area (10 minutes x \$0.97)	\$9.70
Labor to sand door (25 minutes)	\$24.25
Labor to apply putty (15 minutes)	\$14.55
Labor to paint door (35 minutes)	\$16.98
Labor to clean up work area (10 minutes)	\$9.70
Cost of putty	\$5.00
Cost of paint	\$3.96
<b>Total</b>	<b>\$84.14</b>

Based on purchasing 500 wood veneer doors; 3670 non-rated with standards preps.

## Plastic Laminate Doors

Plastic laminate doors are comprised of a surface layer that is adhered to the door's core. Core materials are typically made from wood, particle or composite materials. Like wood veneer doors, plastic laminate doors are best suited for low-traffic environments, like offices, closets and private bathrooms. These doors boast low initial investment costs but are difficult and time consuming to repair, and are susceptible to scratches and dents. Plastic laminate doors are appealing because they offer a variety of aesthetic options and colorways.

### Repair Methods

Plastic laminate doors are difficult to repair. The door must be moved to a workshop to be de-skinned, prepped, covered with adhesive, re-laminated and set aside to cure. Facilities will repair an average of four plastic laminate doors per month.

On average, three plastic laminate doors needed to be replaced per month due to chipping and splitting from damage caused by carts, equipment and heavy foot traffic. These costs are determined according to the average number of doors repaired and replaced each year.



Initial investment cost		
Total initial investment cost	\$162,500	
Operating cost (labor & material replacement)		
	1 Year	10 Years
Number of doors replaced	30	300
Material replacement cost	\$9,750	\$97,500
Labor replacement cost	\$3,783.00	\$37,830
Maintenance cost		
Repairs (quantity)	42	420
Labor/material repair cost	\$11,400.90	\$114,009
<b>True total cost</b>	<b>\$411,839</b>	

Repair cost breakdown	
Time to remove and repair door (100 minutes x \$0.97)	\$97.00
Labor to de-skin the door (60 minutes)	\$58.20
Preparation time for a new P-LAM installation	\$24.25
Cost of (2) laminate sheets	\$80
Cost of Type 1 adhesive	\$12.00
<b>Total</b>	<b>\$271.45</b>

Based on purchasing 500 P-LAM doors;  
3670 non-rated with standards preps.

## Hollow Metal Doors

Hollow metal doors are made from metal/aluminum and may feature a cardboard core. These doors are suitable for environments with medium traffic including industrial buildings, stairwells, exterior doors and elevator lobbies. Hollow metal doors are attractive because of their low initial investment costs and can be customized with paint for added aesthetic impact, but are typically institutional-looking and are easy to dent and scratch.

### Repair Methods

Hollow metal doors also require regular maintenance to alleviate chipped paint and preserve a clean look. On average, every hollow metal door will need to be repainted twice each year, resulting in a constant flow of labor and repair costs.



Initial investment cost		
Total initial investment cost	\$175,000	
Operating cost (labor & material replacement)		
	1 Year	10 Years
Number of doors replaced	36	360
Material replacement cost	\$12,600	\$126,000
Labor replacement cost	\$5,238.00	\$52,380
Maintenance cost		
Repairs (quantity)	1,469	14,690
Labor/material repair cost	\$30,760.86	\$307,609
<b>True total cost</b>	<b>\$660,989</b>	

Repair cost breakdown	
Painting labor (35 minutes)	\$16.98
Paint cost	\$3.96
<b>Total</b>	<b>\$20.94</b>

Based on purchasing 500 hollow metal doors; 3670 non-rated with standards preps.

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## Acrovyn Doors

Acrovyn Doors are made with a sturdy inner core and are clad in Acrovyn, a sheet material known for its long lifecycle and relentless durability. Acrovyn Doors feature rounded, field-replaceable stiles and edges that are resistant to consistent abuse. These doors are ideal for high-traffic areas and are easy to maintain. Their edges and stiles are easily replaceable when damaged, which is far more economical than replacing the entire door, and eliminates downtime or facility disruption. Acrovyn Doors are available in a plethora of colors and styles, and can even integrate custom designs or artwork.

### Repair Methods

Acrovyn Doors stand up to consistent use and impacts, meaning that they do not require maintenance or repairs. If damage occurs to an Acrovyn Door's rounded edges, they can be replaced for free through the Edge of a Lifetime guarantee.



Initial investment cost		
Total initial investment cost	\$371,500	
Operating cost (labor & material replacement)		
	1 Year	10 Years
Number of doors replaced	0	0
Material replacement cost	\$0	\$0
Labor replacement cost	\$0	\$0
Maintenance cost		
Repairs (quantity)	0	0
Labor/material repair cost	\$0	\$0
<b>True total cost</b>	<b>\$371,500</b>	

Based on purchasing 500 Acrovyn Doors;  
3670 non-rated with standards preps.



## Conclusion

Each door type has its own pros and cons, and costs add up over time. While doors with lower initial investment costs may appear as the more attractive solution, it's crucial to consider how much it will cost to maintain your purchase over a long period of time.



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TRUE total cost over 10 years				
	Wood Veneer	P-LAM	Hollow Metal	Acrovyn Doors
Initial investment cost	\$150,000	\$162,500	\$175,000	\$371,500
Operating costs	\$165,618	\$135,330	\$178,380	\$0
Maintenance & service costs	\$180,060	\$114,009	\$307,609	\$0
<b>Totals</b>	<b>\$495,678</b>	<b>\$411,839</b>	<b>\$660,989</b>	<b>\$371,500</b>