



PRIME TIME FOR:

# RUBBER DOORS

THE FUNDAMENTAL GUIDE FOR  
EVALUATING INDUSTRIAL RUBBER DOORS

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**RITE·HITE**<sup>®</sup>  
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# RUBBER DOORS ARE BEING USED EVERYWHERE

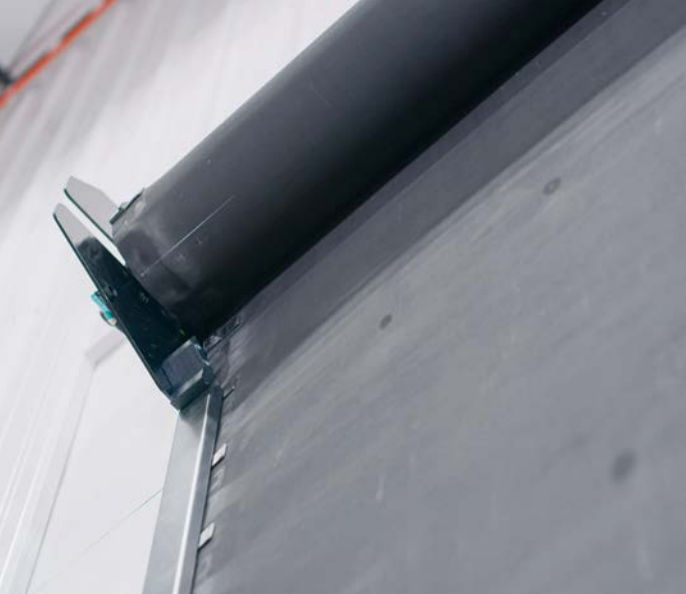
High-speed, industrial roll-up rubber doors have been on the market for decades, but they entered mainstream use in just the last 5 to 10 years, serving in a variety of applications, including loading docks and interior and exterior openings.

Rubber doors are becoming increasingly utilized and acknowledged for their durability and toughness in demanding, unforgiving environments, particularly those in the mining, pulp & paper, oil & gas and heavy manufacturing industries, as well as food processing, bus transit, steel, and military facilities. Designed and manufactured to withstand temperature extremes, high wind loads and heavy-duty cycle requirements – in addition to workplace punishment, such as impacts – rubber doors are being deployed in ever-growing numbers. And manufacturers continue to add value to their rubber door offerings – making them safer, more productive, easier to use and maintain, and even capable of linking wirelessly with data collection platforms.

This guide takes a closer look at high speed rubber doors, including their materials, components, construction, cost and safety. It also examines the features of the most advanced rubber doors on the market.



*Rubber Doors with Soft Bottom and Soft Breakaway™ Technology are increasingly being specified for loading docks and interior and exterior openings, a trend that seems to be accelerating, due to their durability and safety.*



*Header rolls up the rubber curtain on an overhead barrel.*

## What is SBR Rubber?

SBR rubber (Styrene-Butadiene Rubber) – among the most widely used rubbers produced today – is a general-purpose synthetic rubber manufactured from a copolymer of butadiene (75%) and styrene (25%). SBR is often used as a direct replacement for natural rubber because it shares similar characteristics, but at a significantly more economical cost. Similar to natural rubber, SBR offers excellent abrasion resistance and crack endurance while also aging well – despite heavy, sustained use – with good compression set and water resistance throughout its lifetime. The addition of the organic compound styrene contributes to SBR's strength, abrasion, wear and bonding properties, as well as its affordability versus natural rubber. SBR also offers superior heat-aging properties and abrasion resistance in comparison to natural rubber. Exceeding all other synthetic rubbers in consumption, SBR is used in great quantities in automobile and truck tires.

# RUBBER DOORS GO MAINSTREAM

Most commercial/industrial rubbers doors share many characteristics and features, all of which are attractive for customers operating in high traffic/high speed/high cycle environments, and those in which accidental impacts are likely or more frequent. Customers who specify rubber doors also are concerned about the effects of dirt, dust, snow and temperature extremes on their doors, in addition to high wind loads and pressure differentials caused by exterior wind exposure and positive pressure.

The distilled definition of a rubber door system is:  
**A rubberized, rugged roll-up barrier that resists impact damage, requires minimal maintenance, and withstands extremes of temperature, corrosion, wind load and duty cycle.**

Here are common rubber door attributes found in the products of several manufacturers (Figure 1):



### Curtain Materials:

¼-inch SBR (see *What is SBR Rubber?*) rubber reinforced with polyester core weave. **SBR**, or **Styrene-butadiene rubber**, is the most consumed synthetic rubber, widely used in place of natural rubber for similar applications. **SBR** is a general purpose rubber made up of 75% styrene and 25% butadiene joined in a co-polymer.



# WHAT IS A RUBBER DOOR?

## Door Components & Specifications

### Side Frame:

Galvanized self-supporting steel or extruded aluminum.



### Speed:

12-inches to 60-inches per second (typical speed options: 12, 30, 48, 60 inches per second).

### Overhead Spring Assembly:

Counterbalance spring (cycle rating 25,000-100,000). Larger, heavier doors are equipped with counterweights to assist the drive system. Some doors have no springs or counterweights, but use heavier motors and gearboxes, which increase the price.

### Lift:

Header (door rolls up on an overhead barrel)



### Safety:

- Bottom counterweight: steel channel with rubber reversing edge or soft break-away bottom edge that uses a garnet tube for counterweight
- Light curtain detection or thru-beam photo eye
- Breakaway/re-feed technology
- Reversing slack sensor



### Drive System:

Powered up/gravity down with direct drive variable speed operator (optional manual chain hoist included for most doors)

### Electrical:

Single-phase: 220V-240V.  
Three-phase: 208V, 230V, 400V, 575V.

### Curtain Retention:

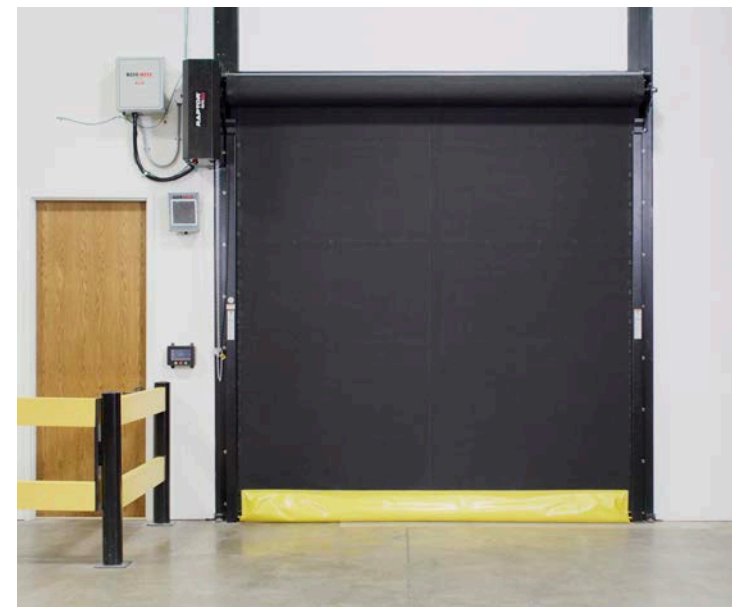
20 psf static wind load – equivalent up to 115 mph wind load.

Typical Sizes (often tailored per customer specifications):

- 6 ft. w x 7 ft. h
- 8 ft. w. x 8 ft. h
- 10 ft. w x 10 ft. h
- 10 ft. w x 12 ft. h
- 16 ft. w x 16 ft. h
- 30 ft. w x 30 ft. h

### Cost:

Materials cost and construction complexity place the retail price of high-speed rubber doors near the top end of high-performance doors – such as high-speed fabric doors – and are significantly more expensive than sectional steel or aluminum doors.





# WHY CHOOSE A RUBBER DOOR?

With the above characteristics in mind, why specify a rubber door? The rubber door's SBR curtain material is the product's most important feature. The nature of SBR rubber makes it impervious to temperature changes; the curtain material remains functional in temperatures ranging from -40°F to 180°F. The seamless sheet of rubber also blocks wind and contaminants, while its corrosion-proof material means that dirt, dust, rain and snow have little effect on it.

Apart from the complex, labor-intensive process involved in creating the curtain itself, the complete rubber door system is a simple mechanism, featuring a robust, space-conserving side frame and a lubrication-free design that resists the collection of dust and dirt. And the minimal number of moving parts means that fewer components can malfunction or suffer damage, translating into reduced maintenance requirements.

The opening and closing speed of rubber doors is nearly as fast as top-of-the-line fabric doors and significantly faster than sectional and rolling steel doors, maximizing productivity and energy savings.

## Durable

Impactability is a major asset of most commercially available rubber doors. When a rubber door is struck by a forklift, the panel is designed to break free of the guides and reset automatically or be reset

with minimal operator intervention, thereby minimizing downtime. Rolling steel or sectional doors and their components (i.e., rollers, hinges) are prone to damage when impacted, with some incidents serious enough to require the door's replacement. A typical impact to a section or rolling steel door can require \$1,000 to \$3,000 in repair costs, plus the added downtime associated with the repair work.

Curtain retention against wind load is a key consideration for selecting a rubber door. Many of these products are rated at 20 psf static wind load, which is equivalent to a 115 mph wind load. This is more than sufficient for proper functioning under most conditions. Wind load requirements are covered under American Society of Civil Engineers criteria (visit: <https://www.asce.org/asce-7/> ; or click here: [ASCE 7-16](#)).

## Enduring

As previously noted, most rubber doors are not the lowest-cost option for any facility, and the larger, more full-featured products can be at the highest price ranges. However, costs incurred over the life cycle of any commercial or industrial door should be accounted for, as these could end up being significantly higher than the upfront purchase price. Most of these costs include periodic maintenance, energy loss and premature replacement.





# RUBBER DOOR INNOVATIONS

Although this guide demonstrates relative equivalence among commercial rubber doors, some manufacturers have added value by integrating their proprietary door technologies and features into their rubber door products. These “extras” can provide better safety, easier operation and greater productivity.

## Soft Edge and Breakaway Capabilities

Most rubber doors are equipped with a rigid metal bottom bar, which can be problematic not only from a safety perspective, but also, in particular, from a maintenance standpoint. If a metal bottom edge is impacted, the result is not catastrophic, but it will require several minutes of human labor to return the bar to its



Figure 2: Rite-Hite's Soft Bottom absorbs impact without separating from the curtain and its weight assists in door closing.

operating position. A superior solution in one provider's rubber doors is a “soft breakaway,” (Figure 3) consisting of a firehose-like loop of fabric packed with small pieces of garnet. The soft bottom adds weight to the door, not only

providing a gravity assist for door closing, but also giving the edge the flexibility to resist displacement upon accidental impact. Lastly, as soft breakaway implies, its yielding consistency contributes to safety.

The same manufacturer's soft bottom edge works in tandem with an innovative breakaway feature (Figure 3) that limits the amount of human intervention needed in the event of a collision. If a truck or fork strikes the door,

this feature allows the door to safely separate from the guides. Then, without any human help, another feature re-seats (or re-feeds) the door into the guides automatically, enabling operations to continue almost immediately. Lastly, while this breakaway system enables easy door panel separation from the guides if a heavy machine impacts it, the guides will not allow unauthorized persons to push the door out manually or lift the door from the bottom, increasing security.



Figure 3: Soft Breakaway™ Technology by Rite-Hite allows damage-free separation of the door from the guides.

# RUBBER DOOR INNOVATIONS

## Advanced Controls

Decision-makers at industrial and commercial facilities should consider how operators will interface with rubber doors from an operational perspective. Not all rubber door manufacturers develop a graphical user interface (GUI) to integrate with their products. The best GUI not only enables comprehensive functionality and data gathering on door function, but it also permits the user to tie into important safety features such as an LED countdown timer, LED pre-announce and LED virtual vision (Figure 4). Additionally, the most advanced rubber door systems eliminate the need to run wire for interlocking multiple doors by using the GUI and smart technology to facilitate wireless interlocking.



Figure 4: Rite-Hite GUI, at 7 inches, the industry's largest LCD touch screen interface. The GUI provides increased safety by allowing an individual to simply access the control box settings without wearing the PPE required for accessing a live electrical panel.

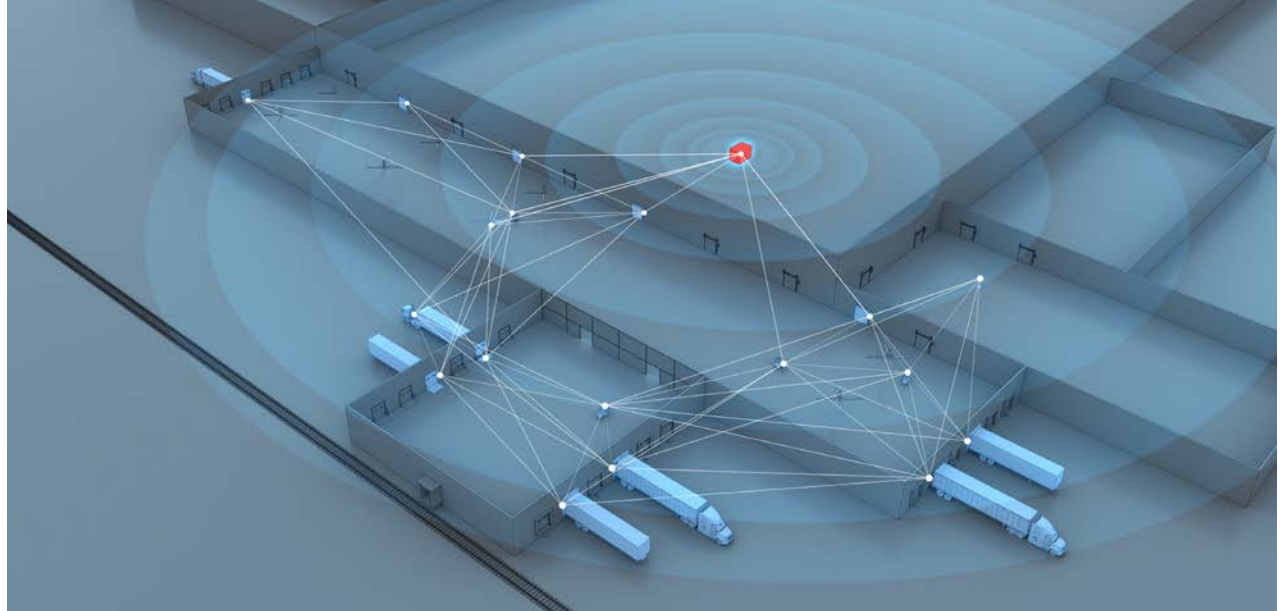


Figure 5: Exclusive to Rite-Hite, the Opti-Vu platform enables user to see what they might be missing by collecting critical functional information from their doors that they can use to make informed decisions – helping facilities reduce waste, improve safety behavior and boost productivity.

## Smart Doors

Only one manufacturer currently offers a smart-technology platform (Opti-Vu®) that taps into the tremendous data collection capabilities of its door offerings via a secure wireless network (Figure 5). The platform not only collects data, but it also distills operational information into insights and actions by applying analytics to correlate developing trends with historical data – helping to predict potential problems and proactively identify opportunities. This enables the implementation of behavioral and process changes that not only solve existing challenges, but also support continuous improvement efforts. In addition, the

manufacturer's platform provides real-time alerts when something is wrong, so managers can take immediate action.

Beyond the intrinsic and extrinsic features of a manufacturer's rubber door products is the provider itself. Buyers at industrial/commercial plants should examine the company's overall abilities and offerings, particularly its distribution network, the product warranties it provides and its customer service and support organization. All of these should be comprehensive and nationwide in scope.



## Key Takeaways

By virtue of its simple design and durable materials, the rubber door has earned a reputation as a top performer in the most punishing industrial and commercial environments. Because of that, customers are specifying them for an increasing number of loading docks and interior and exterior openings, a trend that appears to be accelerating. Top-of-the line rubber door systems incorporate the latest technologies and features to not only boost productivity, safety and ease of use, but also to future-proof these products, extending their useful life and increasing the plant's return on investment.





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