All About Garage Doors

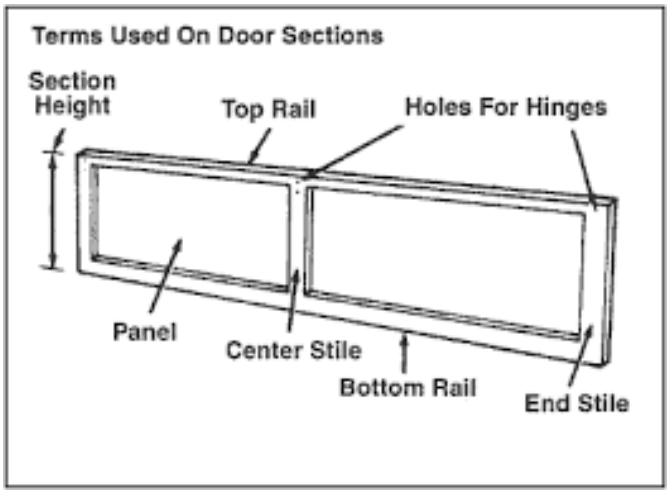
By Roy Bardowell, CDDC

Homeowners are completely in the dark when it comes to understanding how their garage door functions. All they see is a wall that can go up and down. Other than that, it's a blank. In this piece, I will try and make some sense of it.

The DOOR: In California, most garage doors are a one-piece design usually 15-16 feet wide and 7 feet high. This size door can handle two vehicles, except most of the time the garage becomes a storage center.

Everywhere else sectional door types dominate. A door that is 8-10 feet wide would be considered as a one car door for a one car garage. Doors 14-18 feet wide will be installed on a two-car garage. The height of 7 feet is universal in most of the US and many other countries.

The first garage doors were solely made from wood. In the 1970's garage door production turned to sheet steel panels that had a wood grain texture pressed into them to simulate a wooden look. Sectional garage doors are described as so because the finished wall is made of multiple sections mounted on top of the next.



The 4-5 sections or panels as commonly called are connected by hinges at structural points along the inside of the door. The supports are known as styles. There are end styles at each end and the support styles between the ends are called center styles. All styles will have a hinge attached that keep the sections in line.

Residential door sections are typically 21 inches tall. Four sections equal 84 inches of height (7 feet) which is the industry norm. With a few exceptions like vans or raised SUV's most vehicles will fit under a 7-foot-high opening.

Your garage door is a stand-alone system. Meaning it is designed to be moved up and

down manually. When a door is experiencing problems, it will be difficult to move using one hand. Many times, a homeowner will not consider the counterbalancing system has faulted and will purchase a motor operator to compensate for the broken door. Pure & Simple; If you can't lift a door manually—neither will the motor. If you could find the strongest motor and install it, weaker components will soon fail. The best course of action when having a garage door problem, is to bring in garage door experts to repair the faulted parts.

Commercial garage doors are always sold in two-foot increments. On commercial buildings the main height requirement is usually 12 or 14 feet high which will allow a semi-truck and trailer to slide underneath. Manufacturers of commercial door sections make the panels 2 feet tall for simple calculations. A 12 or 14-foot-high door needs 6 or 7 two-foot sections respectively and so on. A 20-foot-high door will need 10 sections.

Residential doors are calculated in 3-inch increments and can be manufactured in any width. By manufacturing panels 18 and 21 inches tall, you can configure sections to meet nearly any door height. A door frame that is 6 foot 6 inches high (78 inches), would need two 18 inch and two 21-inch-tall sections which equals 78 inches of height.

The panels are designed to interface seamlessly. So there are options for different door heights simply by configuring other panel heights. 7-foot-6inches or an 8-foot-high garage door are optional. In that case the builder must be aware in advance so he can provide the higher frame work and ceiling height.

I have had questions on how to install a higher door after the final construction, but it is only possible if there is enough head room and back room. If you have the room, then another section or two may be added or replaced to give you the desired effect. I don't recommend trying this yourself. There are too many safety variables with the counterbalancing springs that only a door guy could figure out and has the special tools to install a special sized garage door.

If your vehicle is too high to go into your garage, better get ready to move, purchase a lower vehicle, or get used to parking outside. I know one case where a guy excavated the garage floor to make 8 more inches, just so his raised pick-up truck could fit. The cost was out of this world and was useless because he soon sold the truck and changed it for a lower height pick-up truck.

Purchasing a home without ample room for your car in the garage is surely bad planning. Measure your vehicle length first before

searching for homes. Most builders today provide a 7-foot-high opening for the garage and will allow for 20 feet of depth. I have also saw a few ads where a builder is promoting a 7 foot-6-inch-high door. Even a standard pick-up truck will fit under a standard sized high door of 7 feet.

A garage depth is usually just around 20 feet deep, but if you bought a truck with a raised suspension, you will need 7 feet- 6 inches or higher frame height. Extended vehicles will need over 20 feet of depth. Actually, most two car garages will have a floor size of 20x 20 feet, which will provide 400 square feet of flooring. In this case your door will have likely have 5 sections instead of the usual four sections found on 7-foot-high doors.

Most doors will compose of three different section types. You will have a bottom section, 2 or 3 intermediate sections, and then finally the top section. It is important to be aware all three section types will be different and cannot be interchanged. Only the 2 or 3 intermediate sections will be alike and can be juggled if needed. Other steel items will be the bottom and top brackets that also hold rollers seen in the doors four corners.

DOOR HARDWARE: Either way, all the sections will be linked by hinges. On the sides of the inside of the door the hinges will hold ten to twelve 2-inch rollers that guide and glide the sections through the steel tracks. the hinges on the end styles will be numbered 1- 4. Each numbered hinge will be different. On commercial doors the numbered hinges can go all the way to #11. The steel hinges can come in thicker gauges for when heavier sections must be employed. Thicker hinges like 14 gauge will outlast the door itself.

The TRACKS: The residential steel tracks come in three configurations. Ten, Twelve, and 15-inch radius. For extreme cases when there is a very low ceiling, a low headroom track (LHR) will be required. This type of track will flip a door back faster and with less headroom than is usually required. The radius dictates how high and close to the ceiling the door will go when opened.

Commercial door tracks come in higher radius configurations, so the heavier sections will flow more easily. Heavier doors will

require a thicker stronger track. The option to purchase 2-inch commercial track is available, but if you want the ultimate strength, 3-inch commercial track is optional at a higher cost.

A door will roll through the higher radius tracks (15" +) more easily and with less resistance. Less resistance also means less stress and plying on the hinges. Hinges under more stress will loosen, bend, and eventually fracture. If your hinges are wearing out or breaking, you will need a heavier gauge going forward. If you try and replace a hinge, check for the hinge number stamped on the lower half of the hinge. The hinges with the rollers inserted will be numbered. 1-5. The number 1 hinge will be between the bottom and next intermediate section. You should never replace a numbered hinge with an incorrect number or your door may have too much space between the door and outside weather seal. On the other hand, the wrong number hinge will project the door toward the frame causing the door to bind and drag on the weather seal.

SPRINGS: Many doors on the east coast will employ extension type springs because they are mostly manufactured east of the Mississippi River. Torsion springs are the latest equipment available to lift a garage door and also has safer attributes. Either spring is carefully calculated and is responsible for lifting the garage door from the ground and successfully hold the door open. That's right! It's the springs that lift a door—not the motor operator.

After that, #2, #3, hinges are normal and the optional #4 or #5 hinges going upwards if you have a door that is higher than 7-foot. Besides the counter-balancing springs, the hinges and rollers play a huge roll in garage door performance. If you have a noisy door, you can do wonders by spraying silicon lubricant on the hinges. Other than that, it is also a good idea to periodically replace the rollers. Rollers that wear-out can become dangerous because they can slip out from the track when the full weight of the door is fully open. I guess I don't need to explain; you don't want a 300-pound wall to fall from the ceiling onto your car or a pet or family member. This is not fear-mongering. This condition has happened many times when a garage door went a long time without maintenance.

MOTOR-OPERATOR: The best convenience you can give yourself is by having an operator installed on your door. Motor operators when set up correctly can have the added benefit of extending the life of your door and its hardware by controlling the speed of the door. Like I mentioned earlier, it's not the operator that lifts the door—it's

the springs; however, once the correct springs are employed, it is easy for the motor operator to move your door up and down. If the door is not well balanced you will have trouble lifting the door with one hand. Even though there are many brands available for DIY, I never recommend this course. Many times, the DIY operators are built with price only considerations and cheap really means CHEAP! A professionally installed door operator will be set up better and safer. The main reason NOT to DIY is your door may need service or repairs first and because the springs and steel cables are under extreme tension, you shouldn't mess with the dangerous components without having the special tools and knowledge to stay safe.

ER's report 10,000 injuries every year when a homeowner loosened a part under extreme tension and caused the steel component to go into orbit. If you get struck in the head, his is only one of the worst-case scenarios, and has been fatal on occasion. Most of the time a finger or hand is broken or seriously injured. If you like your fingers-don't mess with the springs.

I would be wrong not to mention—Safety First! JUST BE-AWARE!

Roy Bardowell, CDDC, served as Operations Manager at Guardian Access & Door Hardware until 2014. He has been in the door and operator industry since 1973 and is known as one of the industry's most experienced operator technicians and trainers. Roy received the IDEA Commitment to Excellence award in 2008 and IDA's Jerry R. Reynolds Volunteer Service Award in 2017. Contact him at roythedoorman@gmail.com