

Preventing rotator cuff injuries in the garage door industry

Leading dealer takes steps to address growing problem



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Editor's note: Even though Omaha Door & Window (ODW) emphasizes safety, they have recently taken action to curtail an upswing in shoulder injuries by installers and technicians. Some of these injuries have turned into rotator cuff tears, which can take up to six months of recovery.

Since little attention has been given to this problem in our industry and elsewhere, we publish this article from Tom Murnan, ODW co-president, who developed a program with two physical therapists and ergonomics specialists who treat his injured workers: Chrissy Sinnott and Dr. Gabriela Vogel. Omaha Door has been in business for 57 years and was IDA's Joseph Caputo Dealer of the Year in 2005.

Shoulder injuries, specifically rotator cuff injuries, constitute a high number of injuries in the garage door industry. The cause is usually due to repetitive tasks, overhead reaching, and heavy lifting.

The risk of injuries has increased as the working population ages. Yet, little information and few safety products exist for garage door installers. The cost of these shoulder injuries is significant, arising from loss of productivity, reduced quality of life, medical bills, and increased insurance premiums.

Omaha Door & Window employees have experienced several shoulder injuries over the past five years, which leads me to believe that other door companies have had the same experience. Therefore, ODW took the initiative to begin a preventive program by first identifying target areas that could potentially lead to injury.

Preventing the problem

ODW paired up with an occupational health clinic, WorkFit, located in Omaha, Neb. WorkFit specializes in ergonomics, job demand analysis, post-offer musculoskeletal screening, onsite training, and post-accident care. First, WorkFit developed a job demand analysis to detail the physical demands of the positions at ODW.

Once the job demand analysis was completed, an ergonomic analysis was performed using different ergonomic tools such as ANSI-Z365 and RULA (Rapid Upper Limb Assessment). To complete this ergonomic analysis, an ODW installer was interviewed, videotaped, and followed for the duration of a complete residential door installment.

When does it happen?

After careful analysis of videos, measurements, and use of ergonomic assessment tools, the risk factors were broken down for six essential job functions, which are demonstrated in the photos included.

1. Unloading door sections from an upper level
2. Carrying door sections from truck rack to garage area
3. Removing old door sections and placing them back on truck
4. Installation of cable on the drum
5. Winding torsion springs
6. Installing horizontal stops



DAILY WARMUP: The ODW staff now starts each day with stretching to help prevent injuries.

Ergonomic recommendations

By using scientific measurements and ergonomic assessment tools, we concluded that there is a high risk of upper extremity and neck injuries for installers performing the listed job functions. The RULA (Rapid Upper Limb Assessment) score was 7+/7, which recommends further investigation of the task and implementation of changes.

Here are the recommendations of our physical therapists.

1 Implement a warm-up stretching program for installers and employees who work in the warehouse. After sleeping all night and sitting in a vehicle to drive to work, these employees will experience sudden heavy lifting, pushing, and pulling.

A stretching program will reduce overall fatigue, promote a neutral posture, improve the range of motion of joints, relieve stress, and improve flow of blood and oxygen to the muscles and brain. Stretching will help prevent injuries while decreasing stress and muscle fatigue.

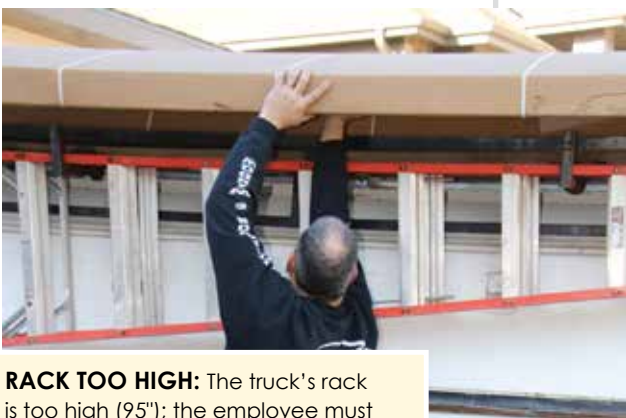
2 Place two installers on a residential job. We send two installers for heavy sandwich double-car doors, especially if they have a section of glass. We send one installer for smaller and lighter doors.



TWO ARE BETTER: When lifted by one person, heavy two-car sandwich doors also create stress on the neck, back, and shoulders, especially when setting the top section in place. Remedy: Assign two installers for heavy doors when economically feasible or, for a single installer, teach proper lifting techniques.

and add a wood wedge that puts the doors at an angle so that the sections' tailgate end is higher than the front end. The drawback is less space for some parts or tools in the truck bed. At ODW we opted for the Chevy Silverado 1500, a less-heavy-duty vehicle having an overhead rack that is about 8" shorter overall (in height) than the 2500 model we use for commercial work.

A stepladder should be used to lessen overhead reaching. A trailer is another option that keeps the load low.



RACK TOO HIGH: The truck's rack is too high (95"); the employee must be on his toes to complete the task, which increases the risk for a fall. It also stresses the neck, back, and shoulders, forcing him to reach too high for a load. Remedy: Buy a different vehicle with a lower rack height or place the sections in the truck bed.

4 Use portable lifting devices, such as a Genie Lift, Bottle Jack Lift Door Handler, mobile crane, etc., to help on the bigger jobs. The drawback is the weight and large size of these tools.

5 Using spring winder tools, such as the E-Z Ratch Torsion Spring Winder (\$325 MSRP), allows installers to face the torsion spring more directly but further away. The E-Z Ratch's long handles provide more leverage than traditional bars. However, installers must still lift the tool's handles above shoulder level unless they have enough headroom to get their shoulders above the spring.

Torq-Pro (\$2,210 MSRP) clamps easily over the winding cone and sets up quickly. Winding and unwinding is done by a cordless drill rather than a built-in motor. It fits virtually any torsion spring. It comes with the option of buying different-sized winding hubs.

Torq-Pro's advantage is that the installer does not need to raise his arms above his shoulders or get out of his power zone. Injuries at ODW have not come from winding the spring, but winding brings the potential for shoulder injury due to the repetitive arm movement.

We train our installers not to be right in front of the winding cone when using winding bars. Cones have occasionally broken during winding, exposing the installer to a serious injury from shrapnel or by falling into the spinning spring. However, when the installer moves away from the cone, he can be working outside of his power zone, causing more stress on the back, neck, wrist, and forearm.

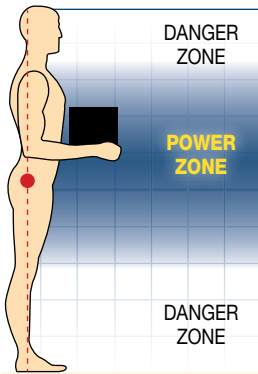


ROTATOR RISK: Turning springs can place the shoulder in an external rotation with an outstretched reaching position and can require the installer to use a push/pull force away from his body. This action increases fatigue and the risk of rotator cuff injuries. Remedy: If there is room, the installer should get above the spring so he can pull upward; otherwise, use spring-winding tools.

6 Re-bundle sections. When a bundle of multiple sections comes in (especially on double-car doors), take it apart and re-bundle it into individual sections to decrease the weight of each bundle. This requires additional cardboard to protect the sections and a bit of extra labor, but it makes the load lighter and easier to handle.

7 Provide continuous training/education. This includes training for job-specific tasks that may cause injury. For example, if there is plenty of

headroom, we train installers to climb higher on the ladder so the spring can be wound within the power zone. They will not always be able to use the power zone and proper body mechanics. However, having the knowledge of body mechanics and knowing when to apply these techniques correctly will help decrease the likelihood of injuries.



POWER ZONE: The awkward positions illustrated in all photos on pages 52 and 54 are outside of the employee's "power zone," placing him at risk for rotator cuff, hand, elbow, wrist, and back injuries and also for falls as his center of gravity changes.

The power zone for lifting is an area close to the body, between mid-thigh and mid-chest height. Comparable to the strike zone in baseball, this zone is where arms and back can lift the most weight with the least amount of effort. When working outside the power zone, the worker is forced to increase exertion of the upper extremities, thus increasing fatigue and the potential for injuries.

Prevention strategies

Through our preventive program, we've learned that several strategies can be used to reduce exposure to risk factors for shoulder and rotator cuff injuries. Installing garage doors is a demanding, physical job that requires a number of awkward physical movements that could place an employee at risk.

ODW has instituted mandatory warm-up stretches for all installers and dockworkers before work begins. Some grumbled at first, but most employees have accepted the regimen, and they are seeing its benefits. It is surprising how stiff the body can be first thing in the morning.

Athletes stretch for an extended period before games, so it is a no-brainer to do warmups before working for eight hours or more. To emphasize its importance, our upper management has been warming up with employees as well.

We hope that what we've learned — and our resulting initiative to prevent shoulder injuries — will give you some ideas on how to improve your company's approach to job function hazards and decrease the risk of injury for your employees. ■

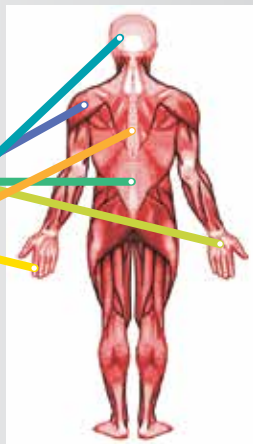


HEADING FOR TROUBLE:

Carrying heavy sections on the head also creates stress on the neck, back, shoulders, and wrists. Remedy: The installer should not use his head to balance the load; use arms only. If economically feasible, assign two installers.

Survey*: MOST LIKELY GARAGE DOOR INSTALLER INJURIES

1. Hand 48%
2. Lower Back 45%
3. Finger 35%
4. Shoulder 34%
5. Back/Spine 30%
6. Eye 24%



(All other areas were under 10%, in this order: Head, Arm, Knee, Foot, Wrist, Ankle, Neck, Elbow, Hip, Ear.)

*These results come from a nationwide D+AS survey conducted from April 22 to May 3, 2017. We asked door dealers, "Which of the following body areas are your installers and technicians most likely to injure while on the job? Consider only those injuries that incur medical costs." Respondents could choose no more than three body areas. The question was answered by 330 garage door dealers in the U.S. and Canada.

Dealer comments:

- "We get arm and shoulder injuries because we are lazy and often over-reach upwards using the impact wrench when we should be using the right-sized stepladder to get higher on the work." – Pennsylvania
- "We have started to see some chronic shoulder issues after 20 years of working on garage doors, ostensibly due to overhead lift and winding springs." – Texas
- "We had an employee who did not properly position his extension ladder. The ladder slid out from under him, and he fell and broke his shoulder and wrist. He has been out of work for almost a year." – Georgia
- "We see a lot of repetitive stress on shoulders." – Florida
- "We haven't had any recordable injuries for several years due to safety training and PPE (personal protective equipment)." – Nebraska
- "Strains due to over-lifting are common." – Hawaii
- "We are starting to see rotator cuff and repetitive motion injuries in our more experienced technicians." – Minnesota