

WHEELCHAIR TRANSPORTS

Individuals with limited mobility and confined to a wheelchair, either temporarily or long-term, may need assistance to access healthcare, recreation and leisure activities and community events. An alternate means of transportation may be necessary to assist in achieving these needs. When a wheelchair or non-standard mobility device is used in a motor vehicle as a passenger seat; the dynamics of restraint are changed drastically. It's important to take special consideration to ensure the safety of the occupant.



RECOMMENDATIONS FOR WHEELCHAIR TRANSPORTATION

When transporting persons in a wheelchair, consider the following recommendations from the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA).¹

Restrained-wheelchair occupants are 45 times more likely to sustain injuries during an accident than those restrained in a standard vehicle seat with an approved seat belt.¹ Additionally, these passengers are 15 times more likely to sustain an injury without an accident occurring.¹ Sustained injuries may result from sudden braking, acceleration or sharp turns. The occupant is usually injured in these cases due to ejection from the wheelchair or the unit tipping over. Keep in mind that a wheelchair occupant may have other physical limitations that hinder the use of their extremities to prepare for or prevent these incidents.

Wheelchair Safety Standard (WC 4) was developed by RESNA and the American National Standards Institute (ANSI).¹ It is considered to be the industry standard for wheelchair securement in motor vehicles, both public and private. WC 4 outlines a minimum level of

crash/incident safety for wheelchair-seated passengers, the use of an effective wheelchair securement system and a properly positioned, crash-tested pelvic and shoulder restraint system.

Following the manufacturer's guidelines for securing wheelchair occupants in a vehicle is recommended. If any doubt exists as to the safety or design of these units, consider transferring the occupant to an owned device or a regular approved seat if the transfer can be done safely without harm to the occupant.

Procedures for securing the wheelchair:

- The wheelchair is facing forward
- Center the wheelchair with the anchorages on the floor
- Set the brakes on both sides
- If applicable, turn off the wheelchair power

**RESTRAINED-
WHEELCHAIR
OCCUPANTS ARE
45 TIMES MORE
LIKELY TO SUSTAIN
INJURIES DURING
AN ACCIDENT...**

RECOMMENDATIONS FOR WHEELCHAIR TRANSPORTATION

- At a minimum, the front straps must be the same type and the back straps the same type
- Do not interchange systems. Use only one manufacturer's tie down system for each wheelchair
- The wheelchair is anchored at four points following the manufacturer's instructions
- Secure the hooks at the end of the straps to the appropriate position on the front and rear of the wheelchair frame
- Tighten the back first

After attachment, re-check the straps for the following:

- They are as close to a 45-degree angle as possible
- They are not attached to the wheels or any detachable

- portion of the wheelchair
- They do not bend around any object
- They are away from sharp edges or corners
- They do not crisscross
- They are not twisted
- There is no forward or reverse movement
- Both the four-point system and the three-point lap and shoulder belt are in place

Steps for securing the rider:

- Always use a three-point system
- The occupant restraint system is separate from the wheelchair securement
- The three-point system secures the rider's pelvis and torso

- Position the lap belt over the pelvis and not the abdomen
- Adjust the lap belt so it is snug
- Position the shoulder belt so that it does not cross the rider's face or neck
- Never place the shoulder belt under the rider's arm where it would cross the rib cage
- Adjust all belts to achieve firm but comfortable tension
- Never twist the belts
- Both belts should lie flat against the body

The information provided here only serves as a guideline and does not endorse any particular wheelchair types or restraint systems.

¹ American National Standards Institute (ANSI) Rehabilitation Engineering and Assistive Technology Society of North America (RESNA). (2012). ANSI/RESNA WC-4: Section 18, 19 and 20 - Wheelchairs used as seats in motor vehicles (Wheelchair Standard). Arlington, VA: RENSA

RESOURCES

wc-transportation-safety.umtri.umich.edu/

resna.org/standards/wheelchairs-and-transportation/wheelchairs-and-transportation

iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=46215

louisville.edu/research/injury-risk-assessment/research/wcsafety