GLOSSARY OF WHEELCHAIR TERMS AND DEFINITIONS

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SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

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PREFACE

This glossary is the final product of a two year project funded by the Paralyzed Veterans of America (PVA) Education Foundation. The overall goal of this project is to advance clinical practice in the field of wheelchair seating by promoting the adoption of standardized terminology related to wheelchairs and wheelchair seated posture. The field of wheelchair seating is interdisciplinary, and clear communication among team members is critical to effective decision making and positive outcomes for the consumer. There are many terms related to wheelchairs defined in technical standards, published by the International Organization of Standardization (ISO) and the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA). However, these ISO and RESNA standards are costly to purchase and often technically complex and difficult to use. There is a clear need for accessible, clinically friendly resources containing accurate up to date information on terminology used in this growing field.

The first outcome of this project, a resource manual titled *A Clinical Application Guide to Standardized Wheelchair Seating Measures of the Body and Seating Support Surfaces* [1], was completed in February of 2013, with a revised edition published in July of 2013. The primary purpose of this clinical guide was to translate a highly technical international standard, ISO 16840-1 (2006) [2] into a format and language that is easy to understand and clinically useful. It describes the standardized terms for measures of the seated person's body and seating support surfaces, and includes detailed descriptions, illustrations, sample measurement methodologies, and comments on clinical relevance. This resource manual does not include terms for labeling wheelchairs and their components, nor terms for measurements of the wheelchair frame or base – as these were not a part of the ISO 16840-1 (2006) standard.

Scope

This glossary, the final product in this project, includes a comprehensive, searchable list of terms and definitions related to wheelchairs, wheelchair seating, and wheelchair seated posture. It is comprised of four primary sections. **Section 1.0 Wheeled Mobility Device Types and Related Terms** includes terms for labeling the primary categories and types of wheeled mobility devices, terms for wheelchair operators, and terms related to the transportation of wheelchairs in motor vehicles. **Section 2.0 Wheelchair Components and Features** includes terms used to label wheelchair components, their styles and features. **Section 3.0 Seating Support System** includes terms used to label the postural support devices used in wheelchair seating systems, as well as postural support device types and features. **Section 4.0 Angular and Linear Dimensions** includes measurement terms that define and differentiate the angular and linear dimensions of a wheelchair seated person's body, the seating support surfaces and the wheelchair frame.

Methodology

The project team created an initial list of over 1500 terms retrieved from 19 reference sources. Sources included ISO and RESNA technical standards [2-5], RESNA position papers [6-9], books [10-14], articles and policy documents [15-18], a terminology guide developed by the Consortium for Assistive Technology Outcomes Research (CATOR) [19] and the clinical guide

described above [1]. Additionally, the team reviewed two relevant articles [20, 21] and minutes from an ISO committee meeting in which terminology was discussed [22], as well as several manufacturers' websites and order forms. There were numerous duplicate terms as expected, as well as similar terms defined and used differently. This comprehensive process also revealed multiple inconsistencies within the technical standards themselves, requiring the project team to adapt many of the terms and/or definitions currently in existing ISO or RESNA standards. ISO and RESNA standards are routinely reviewed and revised, and in fact, two of the primary standards accessed for this glossary are currently in the process of being revised: ISO 7176 -26 (2007) [3] and ISO 16840-1 (2006) [2]. The recommendations from this work will be communicated to the relevant ISO standards committees to inform the current revision process.

The project team used their expertise and best judgment to edit down the number of terms and their definitions for consistency and practical use, giving preference to terms and definitions defined in technical standards, guides to technical standards, and the comprehensive work of Shoemaker, et al. at CATOR [19, 20]. Finally, the terms and definitions were reviewed and edited multiple times to create the final list included in this glossary.

How to Use this Glossary

The terms in this glossary are organized by function and use, not alphabetically. However, each term is numbered sequentially and can be found either by looking in the table of contents or the index. The numbering system also reflects a hierarchy, where types and subtypes of a term are numbered correspondingly. To assist with understanding the hierarchy used to label and define categories of wheeled mobility devices, see the Appendix. This hierarchy is an adaptation of the Mobility-Related Assistive Technology Device Classification developed by Shoemaker, et al. at CATOR [19].

If there is an abbreviation for a term, it is included in parenthesis after the term. For some terms, an acceptable alternative term is listed under the preferred term (not bolded). Usually these acceptable alternative terms are simply a shortened version of the term. Under each definition, the primary source from which the term and/or the definition was extracted is listed. If the term and definition were taken verbatim from a single source, it is named. If the term and/or definition were edited in any way, the words "adapted from" will precede the source name, or names if multiple sources were used to develop the definition. Some terms were added and defined by the project team, and in this case the source is listed as the Glossary of Terms and Definitions (GTD) Project Team.

There are many terms currently in use that because of similarity, duplication or unclear meaning, should be replaced by terms in this glossary. To help us move toward a common vocabulary, these "deprecated" terms are listed under the preferred term. They are also listed in the index, so the reader can find the preferred term by looking up the deprecated term.

Future Work Needed

There is currently no single resource containing a comprehensive list of accepted wheelchair related terms and definitions that is freely accessible and practical to use for health care professionals in the field of wheelchair prescription, service delivery, public policy and research. We hope that this glossary represents a first and foundational step toward addressing this need.

However, much work is left to be done, as there is a need for greater stakeholder input regarding the current list of terms as well as additional terms that should be added to future versions. In particular, several important terms were left out of the section on wheelchair frame components and styles. There is currently significant inconsistency in this area, both in terms used to label styles of components as well as how dimensional measures are defined. Therefore, this is an area that requires significant input from a consortium of representatives from wheelchair and seating manufacturers. Additionally, there were other categories of terms that the team decided to leave out of this initial version of the glossary. This included a set of clinical terms (such as terms for common medical diagnoses, postural deformities, and joint range of motion) that while useful for our industry, are adequately defined elsewhere. However, stakeholders may disagree and future versions of this glossary could include these commonly used clinical terms.

It is our hope that future grants will enable us to continue this work. Feedback on this initial version needs to be gathered, and discussions with manufacturers, suppliers and clinicians needs to be facilitated. Achieving the goal of a common vocabulary will ultimately help therapists, suppliers and other stakeholders involved in wheelchair prescription improve the quality and efficiency of their service delivery, with improved outcomes for consumers.

TABLE OF CONTENTS

Section 1.0 WHEELED MOBILITY DEVICE TYPES AND RELATED TERMS

1.1 Primary Types of Mobility-Related Assistive Technology Devices

Term	Definition
1.1.1 mobility-related assistive technology device (MRATD) <u>*Deprecated:*</u> *mobility assistive equipment*	Assistive technology device that augments or replaces ambulation for individual with mobility limitations, which is used for daily functioning to enhance mobility (walking or moving along a surface). Includes ambulation aides and wheeled mobility devices. Excludes: Devices used for specific recreational activities such as mopeds or golf carts, and devices that are worn (e.g. lower extremity orthoses or prostheses.) *Source: Adapted from CATOR Terminology Guide*
1.1.2 ambulation aid (AA) walking aid	Mobility-related assistive technology device that supports and assists the user when walking in an upright standing position with feet on the ground. Includes crutches, canes, walkers and gait trainers. Excludes: Manual wheelchairs, power wheelchairs and other wheeled mobility devices. *Source: Adapted from CATOR Terminology Guide*
1.1.3 wheeled mobility device (WMD)	Mobility-related assistive technology device that provides wheeled mobility in a sitting, lying or standing position for persons with impaired mobility. Includes manual and power wheelchairs, scooters (POVs), toilet and shower wheelchairs, prone mobility carts and other unique mobility devices. Excludes: Ambulation aids *Source: GTD Project Team*
1.1.4 manual wheeled mobility device (MMD) manual mobility device	Wheeled mobility device used by an individual with mobility limitations that relies on an occupant or attendant to provide manual power for its operation. Includes manual wheelchairs, adapted stretchers or prone carts. Excludes: Ambulation aids, power mobility devices *Source: CATOR Terminology Guide*

Term	Definition
1.1.5 power wheeled mobility device (PMD) power mobility device	Wheeled mobility device used by an individual with mobility limitations that relies on power control for its operation. Includes power wheelchairs, scooters (POVs) and other devices such as powered prone carts. Excludes: Ambulation aids, manual mobility devices *Source: CATOR Terminology Guide*
1.1.6 wheelchair	Wheeled mobility device with a seating support system for a person with impaired mobility, intended to provide mobility in a seated position as its primary function. Includes manual and power wheelchairs Excludes: Devices such as prone mobility carts that provide mobility in a non-seated position. *Source: Adapted from ISO 7176-26, 4.11*

1.2 Manual Mobility Devices

Term	Definition
1.2.1 manual wheelchair (MWC)	Wheelchair which relies on an occupant or an assistant for manual propulsion. *Source: Adapted from ISO 7176-26, 4.12*
1.2.2 standard upright manual wheelchair standard manual wheelchair *Deprecated:* *handrim-drive manual wheelchair*	Manual wheelchair with two propelling wheels and no variable positioning options such as tilt or recline. *Source: Adapted from CATOR Terminology Guide and ISO 7176-26, 4.13*
1.2.2.1 standard manual wheelchair with NON-adjustable frame	Standard upright manual wheelchair that has no adjustability in frame or seat height. Note: Some wheelchairs may have adjustable arm and/or foot supports. *Source: GTD Project Team*
1.2.2.2 standard manual wheelchair with SINGLE-adjustment frame	Standard upright manual wheelchair that has the ability to adjust the vertical location of the wheel axle and casters the same amount in order to change seat to floor height, with no other frame adjustments possible. *Source: GTD Project Team*

Term	Definition
1.2.2.3 standard manual wheelchair with MINIMAL-adjustment frame	Standard upright manual wheelchair with limited ranges of frame adjustments, which can include limited rear wheel axle and caster housing adjustments to allow changes in overall seat to floor height as well as front versus rear seat to floor height to create an inclined seat frame. These wheelchairs may also include back support angle adjustments. *Source: GTD Project Team*
1.2.2.4 fully configurable standard manual wheelchair	Standard upright manual wheelchair with adjustable frame geometry that allows for optimal configuration for the occupant, with a larger range of adjustment of front and rear seat to floor heights as well as horizontal rear axle adjustment. Wheelchairs in this category are also available in multiple seat dimensions of 1” increments to achieve custom fit and a wide range of front frame geometry and foot support options. Includes wheelchairs which have a wide range of adjustability in the field, as well as those with welded frames containing minimal adjustability in the field. *Source: GTD Project Team*
1.2.3 sport specific manual wheelchair	Manual wheelchair specifically designed for participation in a sport (e.g. racing, tennis, rugby, basketball). *Source: Adapted from CATOR Terminology Guide*
1.2.4 variable positioning manual wheelchair	Manual wheelchair that has the ability to provide the occupant alternative positions to upright sitting, including tilt, recline, combination of tilt and recline, lateral tilt or standing. These wheelchairs typically have dependent mobility bases (4 small wheels, designed to be propelled by an attendant), however some have options for a standard mobility base with two larger propulsion wheels. *Source: Adapted from CATOR Terminology Guide*
1.2.4.1 manual wheelchair with recline	Variable positioning manual wheelchair with a mechanism that allows the back support to pivot posteriorly, increasing the seat to back support angle. *Source: Adapted from CATOR Terminology Guide*
1.2.4.2 manual wheelchair with tilt	Variable positioning manual wheelchair with a mechanism that allows the seat to tilt posteriorly without changing the seat to back support angle. *Source: Adapted from CATOR Terminology Guide*

Term	Definition
1.2.4.3 manual wheelchair with tilt and recline	Variable positioning manual wheelchair with a mechanism that allows the back support to pivot (increasing the seat to back support angle) and/or the seat to pivot (without a change in seat to back support angle). *Source: Adapted from CATOR Terminology Guide*
1.2.4.4 manual wheelchair with lateral tilt	Variable positioning manual wheelchair with a mechanism that allows lateral tilting of the seating support system in the frontal plane. *Source: GTD Project Team*
1.2.4.5 manual standing wheelchair *Deprecated:* *stand-up wheelchair*	Variable positioning manual wheelchair capable of transporting an occupant in a seated position that also has the capability to raise and maintain the occupant in a standing position. *Source: Adapted from ISO 7176-26-4.1.17, and Breaux, et al.*
1.2.4.6 dependent pediatric variable positioning wheelchair	Variable positioning manual wheelchair specifically designed for pediatric occupant that has a dependent 'stroller-style' mobility base with no options for large propulsion wheels. These wheelchairs have either an integrated or removable seating system with multiple positioning component options, and with the capacity for growth. *Source: Adapted from CATOR Terminology Guide*
1.2.5 transport wheelchair *Deprecated:* *push wheelchair, push chair* *transport chair* *rollabout chair* *companion chair*	Lightweight manual wheelchair designed for propulsion by an attendant with no large propulsion wheels that is foldable and has upholstery seating. Includes adult transport wheelchairs and pediatric adaptive strollers with limited positioning components. *Source: Adapted from CATOR Terminology Guide*
1.2.5.1 aisle wheelchair	Transport wheelchair intended to be used in narrow aisles such as on aircraft. *Source: Adapted from ISO 7176-26, 4.17*
1.2.5.2 adult transport wheelchair *Deprecated:* *push wheelchair, push chair* *transport chair* *rollabout chair* *companion chair*	Transport wheelchair designed for an adult occupant that is foldable with integrated upholstery seating. *Source: CATOR Terminology Guide*

Term	Definition
1.2.5.3 pediatric adaptive stroller pediatric transport wheelchair *Deprecated:* *stroller* *push wheelchair, push chair* *transport chair* *rollabout chair* *companion chair*	Transport wheelchair designed for a pediatric occupant that is foldable with integrated upholstery seating. Positioning features, if available, are integrated with, or added to, the upholstery seating; it is not designed to accept separate specialized seating or positioning components. *Source: Adapted from Breaux, et al.*
1.2.6 ADL- specific manual wheelchair	Manual wheelchair whose primary function is not to provide mobility, but rather to support a specific ADL function, such as showering, bathing or toileting. Includes shower wheelchairs and toilet wheelchairs. *Source: GTD Project Team*
1.2.6.1 shower wheelchair *Deprecated:* *shower chair*	ADL-specific manual wheelchair intended to be used in the shower. *Source: ISO 7176-26, 4.1.15*
1.2.6.2 toilet wheelchair *Deprecated:* *toilet chair*	ADL-specific manual wheelchair intended to be used over a toilet. *Source: ISO 7176-26, 4.1.16*
1.2.7 other manual mobility devices	Manual mobility device designed to provide mobility in a position other than sitting. Includes prone carts and adapted stretchers. Excludes: Manual wheelchairs *Source: GTD Project Team*

1.3 Power Mobility Devices

Term	Definition
1.3.1 power wheelchair (PWC) *Deprecated:* *electrically powered wheelchair* *electric wheelchair* *powered chair, power chair* *powered wheelchair*	Wheelchair in which the motor power is derived from an integral source of electric power. *Source: Adapted from ISO 7176-26, 4.18*

Term	Definition
1.3.2 power wheelchair with integrated seating <u>*Deprecated:*</u> *electrically powered wheelchair with integral seat*	Power wheelchair with a seating system and drive system that cannot be separated. *Source: Adapted from ISO 7176-26, 4.1.10*
1.3.3 powerbase wheelchair	Power wheelchair with a powerbase (containing the drive control system, batteries and wheels), which can be separated from the seating system. *Source: Adapted from ISO 7176-26, 4.4.3*
1.3.4 specialty power wheelchair	Power wheelchair with unique features designed for a specific function. Includes power stair climbing wheelchair and balancing wheelchair.
1.3.4.1 balancing wheelchair	Power wheelchair that electronically maintains the balance of the wheelchair. *Source: ISO 7176-26, 4.1.12*
1.3.4.2 stair climbing wheelchair	Power wheelchair capable of climbing stairs. *Source: GTD Task Group*
1.3.5 scooter POV – Power operated vehicle	A power mobility device designed to provide mobility in a sitting position, with a platform style base that serves as both the foot support and the structural support for the wheels, seating system and steering mechanism. These devices have a captain style seat and/or back support without attached foot support, and a tiller to control movement and steering functions. Includes 3-wheeled scooters and 4-wheeled scooters. *Source: Adapted from CATOR Terminology Guide and ISO 7176-26, 4.19*
1.3.6 other power mobility devices	Power mobility device designed to provide mobility in a position other than sitting. Includes power prone carts and unique devices such as the Segway. Excludes: Power wheelchairs and scooters *Source: Adapted from CATOR Terminology Guide*

1.4 Wheelchair Operators

Term	Definition
1.4.1 operator	Person who operates the wheelchair. Note: Can be either the occupant or the assistant *Source: 7176-26, 4.2.1*
1.4.2 occupant *Deprecated:* *user*	Person sitting in the wheelchair. *Source: Adapted from ISO 7176-26, 4.2.2*
1.4.3 assistant *Deprecated:* *attendant* *carer*	Person, other than the occupant, who maneuvers the wheelchair. *Source: ISO 7176-26, 4.2.3*

1.5 Transportation of Occupied Wheelchairs

Term	Definition
1.5.1 wheelchair-tiedown and occupant-restraint system (WTORS)	Complete restraint system for wheelchair-seated occupants comprised of equipment for wheelchair tiedown and a belt type. *Source: ISO 7176-26, 4.11.1*
1.5.2 occupant restraint	System or device intended to restrain a motor-vehicle occupant during an impact in order to prevent ejection, and prevent or minimize contact with the vehicle interior components and other occupants. Note: Securement points may be located on hardware. *Source: ISO 7176-26, 4.11.16*
1.5.3 forward facing	Orientation in which the wheelchair-seated occupant faces the front of the vehicle with the wheelchair reference plane within ten degrees of the longitudinal axis of the vehicle. *Source: ISO 7176-26, 4.11.2*
1.5.4 rearward-facing	Orientation in which the wheelchair-seated occupant faces the back of the vehicle with the wheelchair reference plane within ten degrees of the longitudinal axis of the vehicle. *Source: ISO 7176-26, 4.11.3*

Term	Definition
1.5.5 wheelchair tiedown	Wheelchair securement device or system designed to secure a forward-facing wheelchair in place in a motor vehicle. Note: The term wheelchair tiedown refers primarily to systems that use straps. The term wheelchair securement refers primarily to systems in which the wheelchair is secured by a docking-type system that does not require the use of straps or other manually operated devices. *Source: ISO 7176-26, 4.11.4*
1.5.6 four-point tiedown	Wheelchair tiedown system that attaches to the wheelchair frame at four separate securement points and also attaches to the vehicle at four separate anchor points. *Source: ISO 7176-26, 4.11.5*
1.5.7 four-point strap-type tiedown	Four-point tiedown that uses four strap assemblies to secure the wheelchair in the vehicle. *Source: ISO 7176-26, 4.11.6*
1.5.8 clamp-type tiedown	Method of wheelchair tiedown that uses mechanical linkages and/or grips that require manual positioning of the end-fittings on the wheelchair. Note: Tightening of the tiedown on the wheelchair may be either by manual effort or by an external power source that is operated by an electrical switch. *Source: ISO 7176-26, 4.11.7*
1.5.9 docking-type tiedown	Method of wheelchair tiedown by which portions of the wheelchair structure, or add-on components fastened to the wheelchair, align, mate and engage with a docking tiedown device fastened to the vehicle, upon maneuvering of the wheelchair into position in the vehicle. Note: Securement of the wheelchair can occur automatically during wheelchair engagement, or could require manual intervention through operation of a mechanical lever or electrical switch. Release of the wheelchair will usually require operation of a mechanical lever or electrical switch. *Source: ISO 7176-26, 4.11.8*

Term	Definition
1.5.10 docking tiedown device docking securement device	Assembly of fixtures and components designed for installation in motor vehicles for the purpose of securing a wheelchair by engaging with, and locking onto, securement points on the wheelchair frame or on wheelchair securement adaptors attached to the wheelchair frame. *Source: ISO 7176-26, 4.11.9*
1.5.11 universal docking interface geometry (UDIG)	Specifications for the size, shape, and location of wheelchair securement points, including surrounding clear zones, intended for use with a variety of docking tiedown devices installed in a wide range of vehicles. *Source: ISO 7176-26, 4.11.10*
1.5.12 strap	Length of webbing material used in a wheelchair tiedown. *Source: ISO 7176-26, 4.11.11*
1.5.13 wheelchair tiedown adaptor wheelchair securement adaptor	Hardware that is attached temporarily or permanently to the wheelchair frame to accommodate wheelchair securement by a wheelchair tiedown device. *Source: ISO 7176-26, 4.11.12*
1.5.14 anchor point	Point (area) on a vehicle interior component, floor, or wall to which an anchorage is attached. *Source: Adapted from ISO 7176-26, 26, 4.11.13*
1.5.15 anchorage	Assembly of components and fittings by which loads are transferred directly from the wheelchair tiedown to the vehicle, or from the occupant restraint to the vehicle, or wheelchair, or wheelchair tiedown, or vehicle interior component. *Source: ISO 7176-26, 4.11.14*
1.5.16 securement points	Points on the wheelchair to which wheelchair tiedowns are connected. *Source: ISO 7176-26, 4.11.15*
1.5.17 three-point belt *Deprecated:* *three-point restraint*	Occupant-restraint assembly comprised of both a pelvic belt and a shoulder belt that connect together near the hip of the occupant. *Source: ISO 7176-26, 4.11.17*

Term	Definition
1.5.18 shoulder belt *Deprecated:* *upper torso restraint*	Portion of the occupant restraint intended to limit movement of the chest and head by application of restraint forces to the shoulders and chest. *Source: ISO 7176-26, 4.11.18*
1.5.19 pelvic belt lap belt *Deprecated:* *lap restraint* *pelvic restraint*	Belt restraint assembly intended to limit movement of the pelvis. *Source: ISO 7176-26, 4.11.19*
1.5.20 head restraint	Device intended to limit rearward displacement of the wheelchair occupant's head. *Source: ISO 7176-26, 4.11.20*
1.5.21 restraint harness	Occupant-restraint assembly consisting of at least one belt designed to provide pelvic restraint and two belts that restrain the upper torso by applying forces to both shoulders. *Source: ISO 7176-26, 4.11.21*
1.5.22 belt	Length of webbing material used as part of an occupant restraint or postural support device. *Source: ISO 7176-26, 4.11.22*
1.5.23 airbag *Deprecated:* *inflatable restraint system*	Supplemental occupant-restraint system, consisting primarily of a sensor or sensors, diagnostics, inflators(s), and module(s), which inflates a bag in certain types of vehicle crashes to assist in preventing the occupant(s) from impacting the interior portions of the vehicle. *Source: ISO 7176-26, 4.11.23*

Section 2.0 WHEELCHAIR COMPONENTS AND FEATURES

2.1 Basic Frame Components and Styles

Term	Definition
2.1.1 wheeled mobility base mobility base	Supporting structure of the wheelchair that includes the drive or propulsion system and wheels, excluding the seating system. *Source: Physical Rehabilitation (2014)*
2.1.2 wheelchair frame	Wheeled mobility base of a manual or power wheelchair that has a tubular frame construction, including the seat rail, back posts, arm support assembly, foot support assembly and wheels. Excludes: Integrated or non-integrated seating system components. *Source: GTD Project Team*
2.1.3 dependent wheelchair frame dependent mobility base	Wheelchair frame designed for attendant propulsion, with 4 small caster wheels and no large propulsion wheels. *Source: GTD Project Team*
2.1.4 folding frame	Frame with components under the seat which can be collapsed. *Source: Adapted from CATOR Terminology Guide, and ISO 7176-26, 4.1.14*
2.1.5 rigid frame	Frame with components under the seat that are fixed and non-foldable. Note: Some rigid frame wheelchairs have fold-down back posts. *Source: Adapted from CATOR Terminology Guide, and ISO 7176-26, 4.1.13*
2.1.6 back post	Vertical component of the wheelchair frame that is attached to the seat rail and provides the structure for the back support. *Source GTD Project Team*
2.1.7 seat rail seat frame	Horizontal component of the wheelchair frame that provides the structure for the seat. *Source: GTD Project Team*

Term	Definition
2.1.8 arm support assembly *Deprecated:* *armrest assembly*	Combination of the arm support and its attachment and/or mounting hardware, as a unit. *Source: Adapted from Waugh & Crane (2013) and ISO WG11-211 PSD Definitions*
2.1.9 lower leg support assembly *Deprecated:* *footrest assembly* *front rigging* *hanger* *legrest* *legrest assembly*	Combination of the lower leg frame, lower leg support and foot support, and their mounting and/or attachment hardware, as a unit. *Source: Adapted from ISO 7176-26, 4.7.12*
2.1.10 powerbase	Wheeled mobility base of a powerbase wheelchair that contains the drive system, batteries and wheels, and which can be separated from the seating system. *Source: Adapted from ISO 7176-26, 4.4.3*
2.1.11 captain's chair *Deprecated:* *captains seat* *van style seat*	A one or two-piece automotive-style seat mounted on a rigid seat frame, with cushioning material in both the seat and back support components, covered in cloth, vinyl, leather or equivalent as upholstery, and designed to serve as a complete seating support system for the user. It may have arm supports that can be fixed, swingaway, or detachable. It may or may not have a head support, either integrated or separate. Note: A captain's chair is a type of integrated seating system used in some power wheelchairs. *Source: Adapted from Medicare LCD Definitions*
2.1.12 non-adjustable rehab seat	Seating and seat frame system for power wheelchairs or scooters that includes a solid seat pan, pre-contoured upholstered padded back support and flip up, padded arm supports that has minimal ability to make adjustments to the configuration of the seat frame dimensions or angles. *Source: GTD Project Team*
2.1.13 adjustable rehab seat frame	Seat frame system for power wheelchairs that includes a solid seat pan and back posts (may or may not include pre-contoured, upholstered back support) with adjustability of seat to back support angle and seat frame depth. Also accommodates use of additional postural support devices and multiple styles of arm support and/or lower leg support assemblies. *Source: GTD Project Team*

2.2 Back Post Components and Styles

Term	Definition
2.2.1 fixed back posts	Back posts that are welded to the seat frame and not removable, they may be straight or have an 8 degree bend near the top of the post. *Source: Adapted from CATOR Terminology Guide*
2.2.2 angle adjustable back posts	Back post that is bolted to the seat frame and allows the angle between the seat rail and the back post to be changed. *Source: GTD Project Team*
2.2.3 depth adjustable back posts	Back posts that are bolted to the seat frame and allow the back support to be moved forward or backward to increase or decrease the available seat frame depth of the wheelchair. These back posts are also angle adjustable. *Source: GTD Project Team*
2.2.4 height adjustable back posts	Back posts that have a top portion which can be raised or lowered. Back post receivers are usually welded to the seat frame and do not allow change in back post angle. *Source: Adapted from CATOR Terminology Guide*
2.2.5 fold-down back posts	Back posts that fold down for transportability. *Source: Adapted from CATOR Terminology Guide*
2.2.6 dynamic back posts	Back posts that have a mechanism (either polymer or spring) which allows passive rearward movement of the back posts within a range, initiated by the occupant's movements. Typically they are designed to return to a baseline orientation when the force is reduced or removed. *Source: GTD Project Team*
2.2.7 rigidizer bar	Horizontal bar that connects the right and left back posts to each other, either through permanent welds to the back posts or a bolt-on mechanism. *Source: GTD Project Team*
2.2.8 back post release mechanism	Mechanism that allows the back posts to be folded forward for transportation. *Source: GTD Project Team*

Term	Definition
2.2.9 push handle *Deprecated:* *push brace*	Component designed to be grasped by the hand of an assistant to propel or tip the wheelchair. *Source: ISO 7176-26, 4.4.19*
2.2.10 add-on push handle	Push handle that is bolted onto the back post or rigidizer bar of a wheelchair, may be foldable, adjustable or fixed. *Source: Adapted from CATOR Terminology Guide*
2.2.11 handgrip	Material covering on the push handle where the hand grasps. Note: The handgrip may be integrated with or separate from the push handle. *Source: ISO 7176-26, 4.4.20*
2.2.12 stroller handle	Horizontal extension to the standard push handles, connecting the right and left sides, which may be adjustable or non-adjustable, fixed or removable. *Source: GTD Project Team*

2.3 Other Wheelchair Frame Options and Accessories

Term	Definition
2.3.1 anti-tip device *Deprecated:* *anti-tipper* *anti-tipping lever*	Device that limits the extent of tipping of a wheelchair and that may operate in forward, rearward or lateral directions of instability. *Source: ISO 7176-26, 4.4.21*
2.3.2 clothing guard *Deprecated:* *arm support panel* *armrest panel* *skirt guard*	Component that provides a barrier between the occupant and the wheel. *Source: ISO 7176-26, 4.7.30*
2.3.3 spoke guards	Plastic disks that are attached to and cover the spokes. *Source: CATOR Terminology Guide*
2.3.4 suspension	Mechanism of a device that is intended to reduce vibration. *Source: CATOR Terminology Guide*

Term	Definition
2.3.5 frame suspension system	Features with shock absorbing properties (springs or elastomers) that are added to a wheelchair frame, either at the seat and frame interface, or at the frame and wheel interface. *Source: GTD Project Team*
2.3.6 caster suspension system	An elastomer shock absorber located in the caster fork. *Source: GTD Project Team*

2.4 Drive System Type

Term	Definition
2.4.1 one-arm drive	Type of manual wheelchair propulsion system that has two hand rims located on one of the drive wheels, designed to allow for propulsion with one arm. *Source: Adapted from CATOR Terminology Guide*
2.4.2 lever-drive	Type of manual wheelchair propulsion system that uses a lever or levers to propel and steer the wheelchair. *Source: Adapted from ISO 7176-26, 4.1.4*
2.4.3 geared hub drive	Type of manual wheelchair propulsion system that has a gear mechanism on the drive wheel that allows a user to select the level of force propulsion (low or high gear ratio) appropriate for different preferences and environmental conditions. *Source: Adapted from CATOR Terminology Guide*
2.4.4 handrim-activated power-assist drive *Deprecated:* *power assist* *pushrim-activated power assist*	Type of manual wheelchair propulsion operated with a combination of human power and electrical power, where the activation of the electrical power is through application of a torque, displacement or force to the handrim or handrims. *Source: Adapted from ISO 7176-26, 4.4.5*
2.4.5 power add-on unit	Component that converts a manual wheelchair to a power wheelchair. *Source: CATOR Terminology Guide*
2.4.6 direct drive	Power wheelchair drive system in which the motor is directly coupled to the wheels, through a gear box. *Source: Cook & Hussey (2008)*

Term	Definition
2.4.7 friction drive	Power wheelchair drive system that applies a driving force through a roller, attached to a motor that is pressed against a tire on power wheelchairs. This type of drive system was often used in older power add-on units. *Source: Cook & Hussey (2008)*
2.4.8 belt/chain drive	Power wheelchair drive system that uses a belt or chain to connect a pulley on the wheel axle to the motor pulley. This type of drive system was used on older wheelchairs, and has mostly been replaced by direct drive systems. *Source: Adapted from Cook & Hussey (2008)*

2.5 Wheels and Steering

Term	Definition
2.5.1 drive wheel	Wheel that transmits drive power and guides the wheelchair, but does not steer. Example: Large propulsion wheels in a standard upright manual wheelchair; rear wheels of a rear-wheel drive scooter with a pivot wheel in front. *Source: ISO 7176-26, 4.5.1*
2.5.2 maneuvering wheel	One of a pair of wheels that are attached to the left and right side of the wheelchair, which transmits drive power, guides the wheelchair, and steers the wheelchair by rotating with different speed and/or direction. Example: The wheels with handrims on a standard upright manual wheelchair that also has casters. *Source: ISO 7176-26, 4.5.2*
2.5.3 guide wheel	Wheel that guides the wheelchair but does not transmit drive power and does not steer. Example: Rear wheels of a front-wheel drive scooter with a pivot drive wheel in front are guide wheels. *Source: ISO 7176-26, 4.5.3*

Term	Definition
2.5.4 pivot wheel	Wheel that steers the wheelchair by changing its orientation to the wheelchair frame, but does not transmit drive power. Example: Wheel at the end of the tiller of a three-wheeled scooter, which is driven by its two rear wheels. *Source: ISO 7176-26, 4.5.4*
2.5.5 pivot drive wheel	Wheel that transmits drive power and that steers the wheelchair by changing its angular orientation to the wheelchair frame. Example: A front wheel drive scooter has a pivot drive wheel in the front. *Source: ISO 7176-26, 4.5.5*
2.5.6 caster wheel	Small wheels that are in contact with the ground during normal operation of the wheelchair and cannot be used for arm propulsion. They have a horizontal axle that swivels about a vertical axis. *Source: Adapted from ISO 7176-26, 4.5.6 and CATOR Terminology Guide*
2.5.7 caster assembly	Combination of the caster wheel, caster wheel axle, caster fork, caster stem, caster stem housing, bearings and tires. *Source: ISO 7176-26, 4.5.7*
2.5.8 caster fork *Deprecated:* *caster support*	Component of the caster assembly to which the caster wheel is connected, comes in a variety of sizes dependent on wheelchair type. Note: A caster fork does not necessarily have a fork design. *Source: Adapted from ISO 7176-26, 4.5.8*
2.5.9 caster fork adjustment	Refers to the height adjustability of the caster, either fixed height or adjustable height, and in conjunction with the caster size and caster stem size, provides a variety of different seat heights dependent on wheelchair type. *Source: Adapted from CATOR Terminology Guide*
2.5.10 caster stem	Shaft that the caster fork is attached to that fits into the caster stem housing and allows the caster fork, caster wheel and caster wheel axle to rotate about a vertical axis. *Source: ISO 7176-26, 4.5.9*

Term	Definition
2.5.11 caster stem housing	Component of the caster assembly which is connected to the wheelchair frame and contains the bearings in which the caster stem rotates. *Source: ISO 7176-26, 4.5.10*
2.5.12 caster housing adjustment	Refers to the angle adjustability of the caster housing. *Source: CATOR Terminology Guide*
2.5.13 trailing position	Alignment of the caster wheel relative to the wheelchair. *Source: ISO 7176-26, 4.6.10*
2.5.14 forward trailing position	Trailing position when the wheelchair is driving straight ahead in the forward direction. *Source: ISO 7176-26, 4.6.11*
2.5.15 rearward trailing position	Trailing position when the wheelchair is driving straight backwards. *Source: ISO 7176-26, 4.6.12*
2.5.16 axle plate	Plate mounted to the rear frame of the wheelchair that provides adjustment of the rear wheel either vertically or horizontally as well as camber adjustment to improve wheel access and ergonomics for occupant. *Source: GTD Project Team*
2.5.17 quick-release axles	Type of axle in which depression of the center button of the rear wheel axle allows the wheel to be removed from the frame. *Source: CATOR Terminology Guide*
2.5.18 rear wheel axle adjustability	Refers to the adjustability of the rear wheel location, either adjustable vertically, horizontally or both. *Source: Adapted from CATOR Terminology Guide*
2.5.19 handrim *Deprecated:* *pushrim*	Outer, circular component of the maneuvering wheel intended for propelling a manual wheelchair with an upper limb. *Source: 7176-26, 4.5.11*
2.5.20 handrim type	Refers to the style or type of material of the handrim such as: anodized aluminum, chrome, foam coated, vinyl or plastic-coated, titanium, contoured/ergonomic or with projection knobs. *Source: Adapted from CATOR Terminology Guide*

Term	Definition
2.5.21 handrim spacers	Structures, often called ‘tabs’, placed in between the handrim and the wheel rim in order to create space for the fingers. *Source: GTD Project Team*
2.5.22 contoured handrims ergonomic handrims	The span between the wheel rim and the handrim is enclosed to allow contact of the user’s palm with the hand rim. *Source: Adapted from CATOR Terminology Guide*
2.5.23 handrim with projection knobs	Handrim that includes either ‘vertical’ projections that extend straight up from the handrim or ‘oblique’ projections that are angled at approximately 45 degrees to the side. *Source: Adapted from CATOR Terminology Guide*
2.5.24 spoke wheel	Type of wheel in which the hub and wheel rim are connected by steel or aluminum spokes. *Source: Adapted from CATOR Terminology Guide*
2.5.25 mag wheel	Type of wheel in which the hub and wheel rim are connected by molded plastic with three or more spokes in a solid place. *Source: Adapted from CATOR Terminology Guide*
2.5.26 high performance wheel	Type of wheel made of lightweight materials (e.g. carbon fiber) that aid in shock absorption and increase strength of wheel. *Source: Adapted from CATOR Terminology Guide*
2.5.27 pneumatic tire	Type of tire with an air-filled inner tube. *Source: CATOR Terminology Guide*
2.5.28 semi-pneumatic tire	Type of tire with a solid rubber or plastic insert that allows the wheelchair to continue to move if the pneumatic tire is punctured. *Source: CATOR Terminology Guide*
2.5.29 solid tire	Type of tire that has no insert and consists of hard plastic or rubber. *Source: CATOR Terminology Guide*

Term	Definition
2.5.30 airless insert	Pneumatic tire insert filled with foam or other material instead of air (also referred to as flat-free or no-flat tires). *Source: Adapted from Cook & Hussey (2008)*
2.5.31 steering system	Combination of parts, mechanical and/or electrical, that control the direction of travel of the wheelchair. *Source: ISO 7176-26, 4.46*
2.5.32 tiller	Bar fitted to a pivot wheel(s), for turning the pivot wheel(s) in steering. *Source: ISO 7176-26, 4.4.7*

2.6 Wheel Dimensional Characteristics

Term	Definition
2.6.1 wheel axle horizontal location *Deprecated:* *horizontal location of wheel axle* *center of gravity* *center of gravity adjustment*	Horizontal distance in the anterior-posterior direction from the front of the wheelchair back post to the center of the drive wheel axle. *Source: Adapted from ISO 7176-26, 4.6.5*
2.6.2 wheel axle vertical location	Vertical distance from the front of the wheelchair back post at top of seat rail to the center of the drive wheel axle. *Source: Adapted from ISO 7176-26, 4.6.6*
2.6.3 rear wheel spacing	Horizontal distance between the outside edge of the wheelchair back post and the inside edge of the drive wheel tire, measured at the top of the tire. Note: This linear dimension defines the amount of space between the back posts and the drive wheel. *Source: GTD Project Team*
2.6.4 wheel diameter *Deprecated:* *propelling wheel diameter*	Outer diameter of the wheel. *Source: ISO 7176-26, 4.6.1*

Term	Definition
2.6.5 handrim diameter	Outer diameter of the entire handrim. Note: The handrim diameter is not the smaller diameter of the handrim tube. *Source: ISO 7176-26, 4.6.2*
2.6.6 handrim spacer length *Deprecated:* *tab length*	Length of the handrim spacer, which determines the space between the outside of the wheel rim and the inside of the handrim. *Source: GTD Project Team*
2.6.7 camber	Alignment of a wheel in the frontal plane (front view), expressed as the angle between vertical and a plane perpendicular to the axis of the wheel. Note: Camber is usually expressed in degrees. Camber is negative if the top of the wheel is angled inward, zero if the wheel is vertical, and positive if the top of the wheel is angled outward. *Source: Adapted from ISO 7176-26, 4.6.3*
2.6.8 toe *Deprecated:* *toe-in* *toe-out*	Alignment of a wheel in the transverse plane (top view), expressed as the angle between the forward longitudinal x-axis of the Wheelchair Axis System and a plane perpendicular to the axis of the wheel. Note 1: Toe is a measurement of how much a pair of wheels (typically the drive wheels) are turned in or out from a straight-ahead position. When the wheels are turned in, toe is positive (+). When the wheels are turned out, toe is negative (-). Note 2: Toe is usually expressed in degrees. A non-zero value of toe usually indicates a misalignment. *Source: Adapted from ISO 7176-26, 4.6.4*
2.6.9 caster cant	Angle between the caster stem and vertical, measured in the frontal plane as viewed from the front. Note 1: Caster cant is usually expressed in degrees. Caster cant is negative if the top of the caster stem is angled inwards, zero if the caster stem is in line with the vertical, and negative if the top of the caster stem is angled outwards. Note 2: A non-zero value of caster cant usually indicates a misalignment. *Source: Adapted from ISO 7176-26, 4.6.8*

Term	Definition
2.6.10 caster rake *Deprecated:* *caster stem angle*	Angle between the caster stem and vertical in the fore-aft direction, measured in the sagittal plane as viewed from the side. Note 1: Caster rake is usually expressed in degrees. Caster rake is positive if the top of the caster stem is in front of the bottom, zero if the caster stem is aligned with the vertical, and negative if the top of the caster stem is behind the bottom. Note 2: A non-zero value of caster rake usually indicates a misalignment. *Source: Adapted from ISO 7176-26, 4.6.7*

2.7 Wheel Location

Term	Definition
2.7.1 power drive wheel location	Refers to the fore-aft location of the wheel that is directly controlled by the motor in a power wheelchair. *Source: Adapted from CATOR Terminology Guide*
2.7.1.1 rear-wheel drive	Power drive wheel location in which the drive wheels are in the rear of the wheelchair, with caster wheels in front and anti-tip wheels posterior to the drive wheels *Source: Adapted from CATOR Terminology Guide*
2.7.1.2 mid-wheel drive	Power drive wheel location in which the drive wheels are in the middle of three pairs of wheels, with caster wheels both in front and behind the drive wheels. *Source: Adapted from CATOR Terminology Guide*
2.7.1.3 center-wheel drive	Type of mid-wheel drive in which the drive wheels are located in the center and equidistant from the front and rear caster wheels. *Source: Adapted from CATOR Terminology Guide*
2.7.1.4 front-wheel drive	Power drive wheel location in which the drive wheels are located forward of the center of gravity of the power wheelchair with caster wheels in the rear of the chair. Note: Front wheel drive power wheelchairs may have anti-tip wheels in front of the drive wheels. *Source: Adapted from CATOR Terminology Guide*

Term	Definition
2.7.2 manual drive wheel configuration	Refers to the fore-aft location of the propelling wheel in a manual wheelchair designed for independent propulsion. Includes standard rear-wheel propulsion, front-wheel propulsion, mid-wheel propulsion and reversible propulsion. *Source: Adapted from CATOR Terminology Guide*
2.7.2.1 rear-wheel propulsion *Deprecated:* *standard configuration*	Manual drive wheel configuration in which the propulsion wheels are located at the rear of the wheelchair. *Source: Adapted from CATOR Terminology Guide*
2.7.2.2 mid-wheel propulsion	Manual drive wheel configuration in which the propulsion wheels are located in the middle of three sets of wheels, with caster wheel(s) in front of and behind the drive wheels. *Source: Adapted from CATOR Terminology Guide*
2.7.2.3 front-wheel propulsion *Deprecated:* *reverse configuration*	Manual drive wheel configuration in which the propulsion wheels are located at the front of the wheelchair for improved maneuverability. *Source: Adapted from CATOR Terminology Guide*
2.7.2.4 reversible propulsion	Manual drive wheel configuration which is adjustable, allowing the location of the propelling wheel to be reversed from a standard rear-wheel propulsion to front-wheel propulsion. *Source: GTD Project Team*

2.8 Braking, Motors and Batteries

Term	Definition
2.8.1 wheel lock parking brake	Means of keeping a wheelchair stationary that does not require continuous force from the operator and does not require continuous power from the wheelchair. Includes push to lock, pull to lock or retractable scissor locks. *Source: Adapted from ISO 7176-26, 4.4.16*
2.8.2 push-to-lock wheel locks	Wheel locks that are mounted to the upper tube of the wheelchair side frame. Pushing action engages the lock. *Source: Adapted from CATOR Terminology Guide*

Term	Definition
2.8.3 pull-to-lock wheel locks	Wheel locks that are mounted to the upper tube of the wheelchair side frame. Pulling action of the lever toward the user engages the lock. *Source: Adapted from CATOR Terminology Guide*
2.8.4 retractable (scissor) wheel locks	Wheel locks with a scissor or 'butterfly' design that are mounted under the wheelchair seat frame or to the lower tube of the side frame. *Source: Adapted from CATOR Terminology Guide*
2.8.5 attendant operated wheel lock	Wheel lock mechanism designed to be engaged by an attendant and out of reach of the occupant. *Source: GTD Project Team*
2.8.6 wheel lock extension	Accessory that lengthens the lever of the wheel lock handle. *Source: Adapted from CATOR Terminology Guide*
2.8.7 automatic brake	Brake that applies automatically after the power wheelchair stops and/or when no power is supplied to the wheelchair. *Source: Adapted from ISO 7176-26, 4.4.17*
2.8.8 running brake	Means of stopping or slowing the wheelchair. Note: The running brake may include one or more of the following types of brake: dynamic brake, regenerative brake and friction brake (either fail-safe or manually applied). *Source: ISO 7176-26, 4.4.18*
2.8.9 motor	Component of the drive system of a power wheelchair that receives signal from the power wheelchair controller and translates it into rotation of the drive wheels. *Source: GTD Project Team*
2.8.10 two-pole motors	Type of motor in which the electricity enters the motors through two points. This type of motor is installed in power wheelchairs intended for indoor use because of their lower torque. *Source: CATOR Terminology Guide*

Term	Definition
2.8.11 four-pole motors	Type of motor in which the electricity enters the motors through four points and is installed in power wheelchairs intended for indoor and outdoor use because of their greater power. *Source: CATOR Terminology Guide*
2.8.12 gearless brushless motor	Type of motor which has fewer moving mechanical parts with improved durability, efficiency and reduced operating noise. *Source: CATOR Terminology Guide*
2.8.13 tracking technology	Motor technology that helps a power wheelchair to travel in a true forward direction on various terrains. Commonly used with alternative drive controls, but can be used with a joystick input device. *Source: Adapted from CATOR Terminology Guide*
2.8.14 battery pack	Removable battery compartment that contains one or more batteries. *Source: ISO 7176-26, 4.4.23*
2.8.15 battery size	Refers to the group size of the battery (i.e., based on the batteries dimensions). Examples include Group 22, Group 24 and U1 batteries. *Source: Adapted from CATOR Terminology Guide*
2.8.16 on-board battery charger	Battery charger that is built into a power mobility device and cannot be removed without the use of tools. *Source: Adapted from ISO 7176-26, 4.4.26*
2.8.17 off-board battery charger	Free-standing, self-contained battery charger separate from the power mobility device. *Source: Adapted from ISO 7176-26, 4.4.27*
2.8.18 carry-on battery charger	Off-board battery charger intended for transportation on a power mobility device. *Source: Adapted from ISO 7176-26, 4.4.28*

2.9 Power Wheelchair User Interface

Term	Definition
2.9.1 controller	An electronic system or device including microprocessor and other related electronics that retrieves and converts input signals from the occupant into output signals that activate powered components of the wheelchair. *Source: Adapted from ISO 7176-26, 4.4.2 and CATOR Terminology Guide*
2.9.1.1 non-expandable controller	Controller in which only a standard proportional joystick can be used as the input device. It may have the ability to control up to 2 power seating actuators through the drive control and incorporate an attendant control. *Source: CATOR Terminology Guide*
2.9.1.2 expandable controller	Controller capable of accommodating standard and alternative joysticks, non-proportional driver controls, and/or operate 3 or more powered seating functions through the input device. It may also be able to operate other electronic devices, a separate display for alternate drive control devices, and an attendant control. *Sources: Adapted from CATOR Terminology Guide*
2.9.2 drive control	Refers to the characteristics and method by which the occupant directs the speed and direction of travel of the wheelchair. *Source: GTD Project Team*
2.9.2.1 proportional (analog) drive control	A type of drive control in which a user's drive command (a physical action initiated by the wheelchair user) is transformed into a corresponding and comparative movement, both in direction and in speed, of the wheelchair. *Source: Adapted from CATOR Terminology Guide*
2.9.2.2 non-proportional (digital) drive control	A device that transforms a user's discrete drive command (a physical action initiated by the wheelchair user, such as activation of a switch) into perceptually discrete changes in the wheelchair's speed, direction, or both. Selecting a switch determines the direction of the wheelchair, but speed and acceleration are pre-programmed. *Source: Adapted from Medicare LCD Definitions*

Term	Definition
2.9.2.3 standard drive control	A type of drive control in which the occupant uses a standard proportional joystick to drive the power wheelchair. *Source: GTD Project Team*
2.9.2.4 alternative drive control	A type of drive control or input device, other than a standard proportional joystick, used to operate a power wheelchair. An alternative drive control system may include proportional input devices such as alternative joysticks or touch pads, or non-proportional input devices such as switched joysticks, mechanical or electronic switch arrays or sip-n-puff device. Alternative drive control system can only be used on power wheelchairs that accommodate expandable electronics. *Source: Adapted from Breaux, et al.*
2.9.2.5 mechanical switch drive control	A type of non-proportional digital drive control in which the user activates mechanical switch(es) through direct pressure and the switch selected determines the direction of the wheelchair. *Source: Adapted from CATOR Terminology Guide*
2.9.2.6 electronic switch drive control	A type of non-proportional digital drive control in which electronic switches are activated by movement, rather than direct contact, and the switch selected determines the direction of the wheelchair. Includes use of fiber optic and proximity switches. *Source: Adapted from CATOR Terminology Guide*
2.9.3 input device	Component which serves as the interface between the occupant and the controller by which the occupant operates the powered features of the wheelchair, such as driving at a desired speed and/or direction, as well as operating seat functions. *Source: CATOR Terminology Guide*
2.9.3.1 standard proportional joystick	Proportional input device with a lever that has an infinite 360 degree range of movement, such that the range and direction of movement of the lever results in a corresponding movement of the wheelchair in both speed and direction. *Source: Adapted from CATOR Terminology Guide*

Term	Definition
2.9.3.2 alternative joystick	Proportional joystick that requires smaller range and force to deflect the lever. *Source: Adapted from CATOR Terminology Guide*
2.9.3.3 non-proportional joystick switched joystick	Non-proportional input device with a lever that moves in a limited number of discrete directions (usually 4 or 8), such that movement of the lever in a specific direction determines the direction of travel of the wheelchair, but the speed is preprogrammed. *Source: Adapted from Cook & Hussey (2008)*
2.9.3.4 sip-n-puff device	A non-proportional digital input device and system that activates power to the motors with two signals: a blowing action (puff) and sucking action (sip). By modulating the sip and puff signals, 4 directions of movement can be achieved. *Source: Adapted from CATOR Terminology Guide*
2.9.3.5 touch-pad (tablet control)	A type of proportional input device similar to a mouse pad on a laptop computer. *Source: Adapted from CATOR Terminology Guide*
2.9.4 latched switch control	A programmable feature of a non-proportional drive control system in which the motor turns on when the switch is activated and released, and remains on until the switch is activated again. *Source: Cook & Hussey (2008)*
2.9.5 momentary switch control	A programmable feature of a non-proportional drive control system in which the motor is only activated while the switch is pressed, requiring continued pressure or activation for continued movement of the wheelchair. *Source: Cook & Hussey (2008)*
2.9.6 stop switch	A switch that allows for an emergency stop when a power wheelchair with a non-proportional drive control is operating in the latched mode. *Source: Adapted from Breaux, et al.*

2.10 Seat Frame Variable Positioning Features

Term	Definition
2.10.1 type of manual tilt	Refers to the location of the point of rotation, or pivot point, of the tilt mechanism. Includes rear pivot tilt, forward pivot tilt, center pivot tilt and floating pivot tilt. *Source: Adapted from CATOR Terminology Guide*
2.10.1.1 rear pivot tilt	Type of tilt feature in a manual wheelchair with tit, in which the point of rotation is located near the rear of the wheelchair seat frame, thus achieving the desired tilt by raising the front of the seat frame relative to the rear. *Source: Adapted from CATOR Terminology Guide*
2.10.1.2 forward pivot tilt	Type of tilt feature in a manual wheelchair with tilt, in which the point of rotation is located under the front of the wheelchair seat frame, thus achieving the desired tilt by lowering the rear of the seat frame relative to the front. *Source: Adapted from CATOR Terminology Guide*
2.10.1.3 center pivot tilt	Type of tilt feature in a manual wheelchair with tilt, in which the point of rotation is located under the center of the wheelchair seat frame, thus achieving the desired tilt by both raising the front of the seat frame and lowering the rear of the seat frame. *Source: Adapted from Cook & Hussey (2008)*
2.10.1.4 floating pivot tilt	Type of tilt feature in a manual wheelchair with tilt, created from springs and dampeners, which evenly distributes the center of gravity through the wheel base throughout the tilt range. *Source: Adapted from CATOR Terminology Guide*
2.10.2 power seat functions	Electrically powered variable positioning features offered in some powerbase wheelchairs which have a separate seat frame. Examples: Power recline, power tilt, power elevating lower leg supports, power lateral tilt, power seat elevation and power standing. *Source: GTD Project Team*

Term	Definition
2.10.2.1 power recline	A power seat function that allows the back support to pivot posteriorly, increasing the seat to back support angle. Note: Power recline systems may also incorporate power elevation of the lower leg support assembly. *Source: GTD Project Team*
2.10.2.2 power tilt	A power seat function that allows the seat to tilt posteriorly without changing the seat to back support angle or the seat to lower leg support angle. *Source: GTD Project Team*
2.10.2.3 power lateral tilt	A power seat function that allows lateral tilting of the seating system in the frontal plane, changing the seat frontal angle and back support frontal angle, without changes to the seat to back support angle or seat to lower leg support angle. *Source: GTD Project Team*
2.10.2.4 power seat elevation	A power seat function that allows raising and lowering the whole seating system, changing the seat to floor height without altering the angular orientation of the seating supports. *Source: RESNA Position Paper-Seat Elevating Devices*
2.10.2.5 power standing	A power seat function that is capable of raising the occupant from a seated to a standing position by changing the orientation in space of all primary seating support surfaces. *Source: GTD Project Team*
2.10.3 memory seating	A feature of some power seat function electronics in which powered positioning sequences can be pre-set to meet the occupant's needs. *Source: CATOR Terminology Guide*
2.10.4 power recline shear reduction	A feature of some power recline mechanisms in which a separate motor and/or a mechanical linkage moves the back support up or down during the recline cycle, in order to maintain height alignment with the occupant's posterior trunk through the arc of recline. *Source: Adapted from CATOR Terminology Guide*

Section 3.0 SEATING SUPPORT SYSTEM

3.1 Major Category Terms

Term	Definition
3.1.1 body support system *Deprecated:* *postural support system*	Items which together are intended to directly support or contain the body of the occupant of a wheeled mobility device, or other positioning device, intended for use in a sitting, lying or standing position. A body support system is comprised of individual postural support devices, and may include a seat, back support, foot support and lateral trunk supports, or a full body support surface such as a mattress or nighttime positioning device. *Source: Adapted from ISO 7176-26, 4.7.1 and ISO WG11-211 PSD Definitions*
3.1.2 seating support system seating system *Deprecated:* *postural support system*	Body support system used in a device intended to support the occupant in a sitting position; specifically those parts of a wheelchair, positioning chair or other seated mobility device which are intended to directly contact, support or contain the body of the occupant, including the seat, back support, arm support, lower leg support and foot support. *Source: Adapted from ISO 7176-26, 4.7.1 and ISO 7176-26, 4.7.2*
3.1.3 postural support device assembly	A postural support device and its appropriate attachment and/or mounting hardware, as a unit. Example: A head support assembly refers to the head support plus its attachment and mounting hardware. *Source: Adapted from Waugh & Crane (2013) and ISO WG11-211 PSD Definitions*
3.1.4 postural support device (PSD)	Structure, which is a component of a body support system, that has a surface intended to contact a part of the occupant's body and is used to perform one or more functions including modifying or accommodating the occupant's posture, managing tissue integrity and/or providing sensory input. Examples of postural support devices used in a seating support system are the back support, head support, medial knee support or lateral trunk support. *Source: Adapted from ISO 7176-26, 4.7.3 and ISO WG11-211 PSD Definitions*

Term	Definition
3.1.5 postural support device component	Parts of a postural support device including the contact surface, support materials and support structure. Example: A pre-contoured back support is typically comprised of a foam pad (contact surface and support materials) and a rigid shell (support structure) *Source: Adapted from ISO 7176-26, 4.7.6 and ISO WG11-211 PSD Definitions*
3.1.6 contact surface support surface contact face	The part of the postural support device that is intended to contact the occupant's body. *Source: Adapted from ISO 7176-26, 4.7.7, ISO 16840-1 and Waugh & Crane (2013)*
3.1.7 postural support device mounting hardware	Hardware that is attached to the postural support device (PSD), usually onto the rigid supporting structure of the PSD, which provides the interface to the attachment hardware. Note: Some PSDs are mounted directly to the wheelchair or another PSD by their attachment hardware, without an interfacing piece of mounting hardware. *Source: Adapted from ISO WG11-211 PSD Definitions*
3.1.8 postural support device attachment hardware	Hardware that attaches the postural support device (PSD) to the wheelchair frame or another PSD via the interfacing mounting hardware. *Source: Adapted from ISO WG11-211 PSD Definitions*
3.1.9 integrated postural support device	Non-removable postural support device built into the structure of the wheelchair or other positioning device. *Source: Adapted from ISO 7176-26, 4.7.4*
3.1.10 integrated seating system	Non-removable seating support system built into the structure of the wheelchair frame or positioning device. *Source: Adapted from CATOR Terminology Guide*
3.1.11 seating support surfaces	All of the contact surfaces in a seating support system intended to contact the occupant's body. *Source: Adapted from Waugh & Crane (2013)*
3.1.12 primary support surfaces	The contact surfaces of the postural support devices in a seating support system that are the primary weight bearing components, including the back support, seat, arm supports and foot supports. *Source: Adapted from Physical Rehabilitation (2014)*

Term	Definition
3.1.13 secondary support surfaces	The contact surfaces of the postural support devices in a seating support system that provide secondary support, which may include the head support, lateral trunk supports, medial and lateral knee supports, lateral thigh supports, and anterior chest supports. *Source: Adapted from Physical Rehabilitation (2014)*

3.2 General Postural Support Device Characteristics

Term	Definition
3.2.1 recline	To change the orientation of a posterior support (back support, head support or lower leg support) in the sagittal plane, in a rearward direction from a vertical position, so that the top of the support is more posterior than the bottom of the support. Note: Reclining the back support by definition changes both the back support sagittal angle and the seat to back support angle. *Source: Adapted from ISO 7176-26, 4.8.1*
3.2.2 procline	To change the orientation of a posterior support (back support, head support or lower leg support) in the sagittal plane, in a forward direction from a vertical position, so that the top of the support is more forward than the bottom of the support. *Source: Adapted from Ward (1994) and Waugh & Crane (2013)*
3.2.3 incline	To change the orientation of an inferior support (seat, arm support or foot support) in the sagittal plane, in an upward direction from a horizontal position, so that the front of the support is higher than the back of the support. *Source: Adapted from Ward (1994) and Waugh & Crane (2013)*
3.2.4 decline	To change the orientation of an inferior support (seat, arm support or foot support) in the sagittal plane, in a downward direction from a horizontal position, so that the front of the support is lower than the back of the support. *Source: Adapted from Ward (1994) and Waugh & Crane (2013)*

Term	Definition
3.2.5 tilt *Deprecated:* *tilt-in-space*	To change the orientation of a wheelchair's seating support system in the sagittal plane while maintaining the seat to back support angle and seat to lower leg support angle constant. *Source Adapted from ISO 7176-26, 4.8.2*
3.2.6 planar *Deprecated:* *linear*	A seating support surface which is flat when not loaded with body weight. *Source: GTD Project Team*
3.2.7 pre-contoured *Deprecated:* *contoured*	A seating support surface that is generically shaped, or curved. *Source: Adapted from ISO 7176-26, 4.8.12*
3.2.8 custom contoured *Deprecated:* *molded*	A seating support surface that is uniquely shaped to match the body contours of the wheelchair occupant. *Source: Adapted from ISO 7176-26, 4.8.13*
3.2.9 fixed	Intended not to be moved, detached or adjusted. *Source: ISO 7176-26, 4.8.3*
3.2.10 removable *Deprecated:* *detachable*	Capable of being detached without the use of tools. Examples: Removable arm support assembly, removable lower leg support assembly, removable wheel. *Source: ISO 7176-26, 4.8.10*
3.2.11 angle adjustable	Intended to be repositioned by pivoting to a different orientation or angle, with or without the use of tools. Examples: Angle adjustable back support, angle adjustable lateral support, angle adjustable lower leg support assembly. *Source: Adapted from ISO 7176-26, 4.8.7*
3.2.12 flip-up	Intended to be rotated upward out of position without the use of tools, while remaining attached to the wheelchair or seating support system. Example: Flip up foot support *Source: ISO 7176-26, 4.8.8*

Term	Definition
3.2.13 flip-down	Intended to be rotated downward out of position without the use of tools, while remaining attached to the wheelchair or seating support system. Example: Flip-down medial knee support. *Source: GTD Project Team*
3.2.14 swing-away	Intended to be rotated inward and outward, moving into and out of position without the use of tools while remaining attached to the wheelchair or seating support system. *Source: Adapted from ISO 7176-26, 4.8.9*
3.2.15 modular	Composed of standardized units or sections for easy construction or arrangement. Note: The term is used to describe a postural support device or wheelchair. *Source: ISO 7176-26, 4.8.11*
3.2.16 occupant adjustable *Deprecated:* *user adjustable*	Intended to be adjusted, moved or set up by the occupant without the use of tools. *Source: ISO 7176-26, 4.8.4*
3.2.17 assistant adjustable	Intended to be adjusted, moved or set up by the assistant without the use of tools. *Source: ISO 7176-26, 4.8.5*
3.2.18 tool adjustable	Intended to be adjusted, moved or set up with the use of tools. *Source: ISO 7176-26, 4.8.6*
3.2.19 tension adjustable	Adjustable by cords or straps in order to change the contour of the support surface. *Source: Adapted from ISO 7176-26, 4.8.14*

3.3 Primary Seating Supports

Term	Definition
3.3.1 seat *Deprecated:* *seat bottom* *seat support*	Postural support device intended to contact and support the inferior surface of the buttocks and thighs, whether integrated or removable, to support the occupant in a sitting position. Note: A seat is a type of inferior support. *Source: Adapted from ISO 7176-26, 4.7.8*
3.3.1.1 integrated wheelchair seat	Non-removable seat built into the structure of the wheelchair or other positioning device, which can be rigid or non-rigid. Includes integrated sling seats and integrated solid seats. *Source: Adapted from ISO 7176-26, 4.7.4*
3.3.1.2 integrated sling seat sling seat	Integrated wheelchair seat consisting of flexible upholstery material(s). Note: Some sling seats are intended as a sitting surface for the occupant, and others are intended to be a support structure on which to place a seat cushion. *Source: Adapted from ISO 7176-26, 4.7.16*
3.3.1.3 integrated solid seat	Integrated, rigid wheelchair seat (not consisting of flexible upholstery material) intended to be a sitting surface for the occupant. Example: Captain's chair *Source: Adapted from ISO 7176-26, 4.7.17*
3.3.1.4 wheelchair seat pan	Rigid structure integrated into or attached to the seat frame of a wheelchair, intended to be a support structure on which to place a seat cushion.
3.3.1.5 seat cushion *Deprecated:* *seat pad* *seat pillow*	Separate, removable seat intended to perform one or more functions including modifying or accommodating the occupant's sitting posture, managing tissue integrity and/or providing comfort. *Source: Adapted from ISO 77176-26, 4.7.15*
3.3.1.6 solid seat insert *Deprecated:* *solid insert* *rigid seat insert* *rigidizer* *sag compensator*	Additional, removable support structure inserted below the seat cushion, either inside or outside the cushion cover, which is used without removing the integrated wheelchair seat sling. *Source: Adapted from ISO 7176-26, 4.7.20*

Term	Definition
3.3.1.7 inclined seat *Deprecated:* *seat dump* *sloping seat* *wedge seat*	A seat that is angled in the sagittal plane (fore-aft direction), where the front of the seat is higher than the back of the seat. Note: An inclined seat has a positive seat sagittal angle. *Source: Adapted from ISO 7176-26, 4.7.18*
3.3.1.8 declined seat	A seat that is angled in the sagittal plane (fore-aft direction), where the front of the seat is lower than the back of the seat. Note: A declined seat has a negative seat sagittal angle. *Source: Adapted from Waugh & Crane (2013) and Ward (1994)*
3.3.1.9 anti-thrust seat	A seat with a pre-ischial support surface intended to inhibit forward movement of the ischial tuberosities. *Source: Adapted from ISO 7176-26, 4.7.19 and Sprigle, et al. (2001)*
3.3.1.10 pelvic contour area *Deprecated:* *posterior well*	Describes area of depression at back of seat cushion, intended for pelvic loading and/or to accommodate buttock shape. *Source: GTD Project Team*
3.3.2 back support (BS) *Deprecated:* *back* *backrest* *seat back*	Postural support device intended to contact the posterior surface of the sacral, lumbar and/or thoracic segments of the trunk to provide support to the torso. Note 1: A back support is a type of posterior support, and is synonymous with the term “posterior trunk support”. *Source: Adapted from ISO 7176-26, 4.7.9*
3.3.2.1 integrated wheelchair back support	Non-removable back support built into the structure of the wheelchair or other positioning device, which can be rigid or non-rigid. Includes integrated sling back supports and integrated solid back supports. *Source: Adapted from ISO 7176-26, 4.7.4*
3.3.2.2 integrated sling back support sling back	Integrated back support consisting of flexible upholstery material(s). *Source: Adapted from ISO 7176-26, 4.7.21*
3.3.2.3 integrated solid back support solid back support	Non-removable back support with a rigid surface that is intended to provide contact and support to the occupant’s torso. *Source: Adapted from ISO 7176-26, 4.7.22*

Term	Definition
3.3.2.4 biangular back support	A two-section back support with an angle in between the lower and upper sections, where the lower back support section is intended to contact the posterior surface of the buttocks/pelvis, and the upper back support section is intended to contact the posterior surface of the thoracic area of the trunk. *Source: GTD Project Team*
3.3.2.5 I-back	Back support with a more narrow width in the middle to allow lateral trunk supports to be adjusted inward without using offset hardware or spacers. *Source: GTD Project Team*
3.3.2.6 T-back	Back support with a wider width at the top than at the middle and lower portions. *Source: GTD Project Team*
3.3.3 lower leg support (LLS) *Deprecated:* *calf pad*	Postural support device intended to contact the posterior surface of the lower leg to provide support. Note: A lower leg support is a posterior support. Example: Calf support *Source: Adapted from ISO 7176-26, 4.7.11*
3.3.4 foot support (FS) *Deprecated:* *foot board* *foot box* *foot bucket* *foot platform* *footplate* *footrest*	Postural support device intended to contact the inferior surface of the foot to provide support to the foot and lower leg. Note: A foot support is an inferior support, and is synonymous with the term “inferior foot support”. *Source: Adapted from ISO 7176-26, 4.7.10*
3.3.5 arm support (AS) *Deprecated:* *armrest*	Postural support device intended to contact the inferior surface of the forearm to provide support to the upper extremity. Note: An arm support is an inferior support, and is synonymous with the term “inferior forearm support”. *Source: Adapted from ISO 7176-26, 4.7.13*
3.3.6 head support (HS) *Deprecated:* *headrest* *neck ring* *occipital ring*	Postural support device intended to contact the posterior surface of the head to provide support to the head. Note: A head support is a posterior support, and is synonymous with the term “posterior head support”. *Source: ISO 7176-26, 4.7.14*

3.4 Secondary Seating Supports

Term	Definition
3.4.1 anterior support	Postural support device intended to contact the anterior surface of a body segment. Note: Anterior supports can be flexible or rigid. Examples: Anterior trunk support, anterior knee support. *Source: ISO 7176-26, 4.7.23*
3.4.1.1 anterior head support	Postural support device intended to contact the anterior side of the head. Note: Anterior head supports can be flexible or rigid. *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.2 anterior shoulder support	Postural support device intended to contact the anterior side of the shoulder. Note: Anterior shoulder supports can be flexible or rigid. *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.3 anterior trunk support	Postural support device intended to contact the anterior side of the trunk. Note: Anterior trunk supports can be flexible or rigid. *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.4 anterior pelvic support	Postural support device intended to contact the anterior side of the pelvic segment. Note: Anterior pelvic supports can be flexible or rigid. Examples: Pelvic positioning belt, rigid pelvic stabilizer *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.5 pelvic positioning belt *Deprecated:* *pelvic strap* *hip belt*	A flexible anterior pelvic support designed to contact the front part of the pelvis or hip area, intended to assist with maintaining a specific position and orientation of the pelvis. *Source: Adapted from Breaux et al.*
3.4.1.6 rigid pelvic stabilizer	A rigid anterior pelvic support comprised of a single padded bar or dual padded supports intended to be positioned below the anterior superior iliac spines of the pelvis, or proximal thighs. *Source: Adapted from Cook & Hussey (2008)*

Term	Definition
3.4.1.7 anterior knee support (AKS) *Deprecated:* *knee block* *knee strap*	Postural support device intended to contact the anterior surface of the knee area. *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.8 anterior lower leg support	Postural support device intended to contact the anterior surface of the lower leg. Note: Anterior lower leg supports can be flexible or rigid. *Source: Adapted from ISO 7176-26, 4.7.23*
3.4.1.9 ankle strap	A flexible anterior support intended to contact the front of the ankle in order to help maintain the user's foot on the foot support. *Source: Adapted from Breaux et al.*
3.4.2 posterior support	Postural support device intended to contact the posterior surface of a body segment. Note: Posterior supports can be flexible or rigid. Example: Back support, lower leg support, head support *Source: ISO 7176-26, 4.7.24*
3.4.2.1 posterior upper arm support *Deprecated:* *elbow block* *humeral block* *protractor*	Postural support device intended to contact the posterior surface of the upper arm. *Source: Adapted from ISO 7176-26, 4.7.24*
3.4.2.2 posterior foot support	Postural support device intended to contact the posterior surface of the foot, behind the heel. Note: Posterior foot supports can be rigid or flexible. Example: Heel loop. *Source: Adapted from ISO 7176-26, 4.7.24*
3.4.3 medial support	Postural support device intended to contact the medial side of a body segment. Note: A medial support can be flexible or rigid. Examples: Medial knee support, medial foot support *Source: ISO 7176-26, 4.7.25*

Term	Definition
3.4.3.1 medial knee support (MKS)	Postural support device intended to contact the medial surface of one knee. *Source: Adapted from ISO 7176-26, 4.7.25*
3.4.3.2 medial knee support block *Deprecated:* *pommel* *abductor* *abductor wedge*	Postural support device intended to contact the medial surface of both the right and left knees. *Source: Adapted from ISO 7176-26, 4.7.25 and Physical Rehabilitation (2014)*
3.4.3.3 medial thigh support *Deprecated:* *leg adductor support* *leg dividing support*	Postural support device intended to contact the medial surface of the thigh. Examples: Medial thigh strap, medial thigh support surfaces in contoured seat cushion *Source: Adapted from ISO 7176-26, 4.7.25 and Sprigle, et al. (2001)*
3.4.4 lateral support *Deprecated:* *lateral pad* *side support*	Postural support device intended to contact the lateral surface of a body segment. Note: A lateral support can be flexible or rigid. Examples: Lateral trunk support, lateral knee support, lateral foot support *Source: ISO 7176-26, 4.7.26*
3.4.4.1 lateral head support (LHS) *Deprecated:* *head side support* *lateral headrest*	Postural support device intended to contact the lateral side of the head. *Source: Adapted from ISO 7176-26, 4.7.26*
3.4.4.2 lateral forearm support	Postural support device intended to contact the lateral surface of the forearm. *Source: Adapted from ISO 7176-26, 4.7.26*
3.4.4.3 lateral trunk support (LTS) *Deprecated:* *body side support* *lateral pad* *lateral thoracic pad* *lateral thoracic support* *scoliosis pad* *trunk pad*	Postural device intended to contact the lateral side of the trunk. *Source: Adapted from ISO 7176-26, 4.7.26*

Term	Definition
3.4.4.4 lateral pelvic support (LPS) *Deprecated:* *hip block* *hip guide* *hip pad* *lateral hip support*	Postural support device intended to contact the lateral side of the pelvic segment, defined as the region from the posterior buttocks to slightly distal to the greater trochanter. *Source: Adapted from ISO 7176-26, 4.7.26 and Sprigle, et al.(2001)*
3.4.4.5 lateral thigh support *Deprecated:* *adductor* *adductor pad* *adductor wedge* *leg block* *leg pad* *leg strap* *thigh block* *thigh strap*	Postural support device intended to contact the lateral side of the thigh, in the region from just in front of the greater trochanter to just in front of the femoral condyle. *Source: Adapted from ISO 7176-26, 4.7.26 and Sprigle, et al. (2001)*
3.4.4.6 lateral knee support (LKS) *Deprecated:* *adductor* *adductor pad* *adductor strap*	Postural support device intended to contact the lateral surface of the knee, in the area of the lateral femoral condyle. *Source: Adapted from ISO 7176-26, 4.7.26*
3.4.4.7 lateral lower leg support	Postural support device intended to contact the lateral side of the lower leg. *Source: Adapted from ISO 7176-26, 4.7.26*
3.4.5 superior support	Postural support device intended to contact the superior surface of a body segment. Note: A superior support can be flexible or rigid. *Source: ISO 7176-26, 4.7.27*
3.4.5.1 superior forearm support *Deprecated:* *forearm hook* *forearm strap*	Postural support device intended to contact the superior surface of the forearm. *Source: Adapted from ISO 7176-26, 4.7.27*
3.4.5.2 superior thigh support *Deprecated:* *thigh strap*	Postural support device intended to contact the superior surface of the thigh. *Source: Adapted from ISO 7176-26, 4.7.27*

Term	Definition
3.4.5.3 superior foot support *Deprecated:* *toe cup* *toe loop*	Postural support device intended to contact the superior surface of the foot. *Source: Adapted from ISO 7176-26, 4.7.27*
3.4.6 inferior support	Postural support device intended to contact the inferior surface of a body segment. Note: An inferior support can be flexible or rigid. Examples: Seat, foot support, arm support, inferior thigh support, inferior pelvic support *Source: ISO 7176-26, 4.7.28*
3.4.6.1 inferior pelvic support *Deprecated:* *obliquity pad*	Postural support device intended to contact the inferior surface of the pelvic segment. *Source: Adapted from ISO 7176-26, 4.7.28*
3.4.6.2 inferior thigh support *Deprecated:* *thigh wedge*	Postural support device intended to contact the inferior surface of the thigh. *Source: Adapted from ISO 7176-26, 4.7.28*
3.4.6.3 arm trough	An arm trough is a special type of inferior forearm support that incorporates posterior, medial and/or lateral support surfaces into a single postural support device intended to support and contain the forearm. *Source: Breaux et al.*
3.4.7 circumferential support	Postural support device intended to contact a body segment on at least three sides. Note: Circumferential supports can be flexible or rigid. *Source: Adapted from ISO 7176-26, 4.7.29*
3.4.7.1 circumferential neck support *Deprecated:* *circumferential cervical support* *collar*	Postural support device intended to contact the neck on at least three sides. *Source: Adapted from ISO 7176-26, 4.7.29*
3.4.7.2 circumferential ankle support *Deprecated:* *ankle hugger*	Postural support device intended to contact the ankle on at least three sides. *Source: Adapted from ISO 7176-26, 4.7.29*

3.5 Materials and Material Properties Used in Seat Cushions

Term	Definition
3.5.1 air	A low density fluid with minimal resistance to flow. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.2 solid	A substance that does not flow perceptibly under stress. Under ordinary conditions retains its size and shape. *Source: NPUAP-SSSI (2007)*
3.5.3 gel	A semisolid system consisting of a network of solid aggregates, colloidal dispersions, or polymers which may exhibit elastic properties (can range from a hard gel to a soft gel). *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.4 viscous fluid	A fluid with relatively high resistance to flow of fluid. *Source: NPUAP-SSSI (2007)*
3.5.5 viscoelastic fluid	A relatively incompressible substance that flows under small stresses and exhibits both elastic and viscous properties. *Source: NPUAP-SSSI (2007)*
3.5.6 viscoelastic foam	A type of porous polymer material which conforms in proportion to the applied weight. The material exhibits dampened elastic properties when load is applied. *Source: Draft RESNA SS-1 Section 1*
3.5.7 elastomer	Any of various polymers having the elastic properties of natural rubber, being able to resume its original shape when a deforming force is removed. *Source: Draft RESNA SS-1 Section 1*
3.5.8 open cell foam	Light weight cellular material resulting from the introduction of gas bubbles into a reactive polymer. There is no barrier between cells, and gases and liquids can pass through. *Source: Adapted from Sprigle, et al. (2001) and Draft RESNA SS-1 Section 1*

Term	Definition
3.5.9 closed cell foam	Light weight material resulting from the introduction of gas bubbles into a reacting polymer. There is a barrier between cells that prevents gases or liquids from passing through. *Source: Adapted from Sprigle, et al. (2001) and NPUAP-SSSI (2007)*
3.5.10 elastic foam	A resilient porous polymer material which deforms in proportion to the applied weight and returns to its original shape after a deforming force is removed. *Source: Draft RESNA SS-1:2001*
3.5.11 convoluted foam	Cushion surface composed of convex protrusions separated by depressions or sulci; often called 'egg-crate' but includes checkerboard and other designs. The specifications for convoluted foam generally include the total thickness of the pad and the thickness of the base (measured from the bottom to the lowest point of the valley). *Source: Sprigle et al. (2001)*
3.5.12 flexible matrix	Cellular flexible arrays employed in support surfaces. *Source: Sprigle et al. (2001)*
3.5.13 non-deforming foam or matrix	Support material that does not deflect or deform under clinical loads; often used in cushion bases and characterized by high stiffness. *Source: Sprigle et al. (2001)*
3.5.14 overlay	An additional support surface designed to be placed directly on top of an existing surface. *Source: Draft RESNA SS-1 Section 1*
3.5.15 air cushion	A cushion with an impermeable membrane containing air. *Source: Sprigle et al. (2001)*
3.5.16 water cushion	A cushion with an impermeable membrane containing water. *Source: Sprigle et al. (2001)*
3.5.17 cushion with displacing solid elements	A cushion made of solid, relatively incompressible components that displace under load. *Source: Sprigle et al. (2001)*

Term	Definition
3.5.18 active support surface	A powered support surface with the capability to change its load distribution properties with or without applied load. *Source: Draft RESNA SS-1 Section 1*
3.5.19 air fluidized	A feature of a support surface that provides pressure redistribution by forcing air through a granular medium (e.g., beads) producing a fluid state. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.20 alternating pressure	A feature of a support surface that provides pressure redistribution via cyclic changes in loading and unloading as characterized by frequency, duration, amplitude, and rate of change parameters. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.21 reactive support surface	A powered or non-powered support surface with the capability to change its load distribution properties only in response to applied load. *Source: Draft RESNA SS-1 Section 1*
3.5.22 bonded	Adhesion of a material by any means (heat, glue, etc). *Source: Sprigle et al. (2001)*
3.5.23 segmented	Material whose surface is divided into separate and distinct segments of grid top design. *Source: Sprigle et al. (2001)*
3.5.24 cell/bladder	A means of encapsulating a support medium. *Source: Draft RESNA SS-1 Section 1*
3.5.25 cut-out	Disruption or removal of material at the surface of a cushion to alter the load-bearing characteristics of the surface or to create a space for an insert of material; a cut-out by definition does not reflect the shape or form of the human body. *Source: Sprigle et al. (2001)*
3.5.26 zone	A segment with a single pressure redistribution capability. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*

Term	Definition
3.5.27 stiffness	The degree of firmness of a material determined by measuring its force-deflection response; reported as Indentation Force Deflection (IFD), if known. *Source: Sprigle et al. (2001)*
3.5.28 envelopment	The ability of a support surface to conform, so to fit or mold around irregularities in the body. *Source: Draft RESNA SS-1 Section 1*
3.5.29 immersion	Depth of penetration (sinking) into a support surface. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.30 critical immersion	The state at which increased deformation of the support surface has the effect of concentrating and increasing localized pressure. *Source: Draft RESNA SS-1 Section 1*
3.5.31 dampening	Ability of the cushion to soften on impact. *Source: Cook & Hussey (2008)*
3.5.32 fatigue	The reduced capacity of a surface or its components to perform as specified. This changed may be the result of intended or unintended use and/or prolonged exposure to chemical, thermal or physical forces. *Source: Draft RESNA SS-1 Section 1*
3.5.33 bottomed out	Sate of cushion deformation at which no increase in cushion deformation occurs when further loading is applied. *Source: ISO 7176-26, 4.8.15*
3.5.34 life expectancy	The defined period of time during which a product is able to effectively fulfill its designated purpose. *Source: Draft RESNA SS-1Section 1 and NPUAP-SSSI (2007)*
3.5.35 pressure redistribution *Deprecated:* *pressure reduction* *pressure relief*	The ability of a support surface to distribute load over the contact areas of the human body. *Source: Draft RESNA SS-1 Section 1*

Section 4.0 ANGULAR AND LINEAR DIMENSIONS

4.1 General Reference Terms - Axis Systems

Term	Definition
4.1.1 global coordinate system	A three dimensional coordinate system that is made up of a fixed origin, external to the wheelchair and the person, located on a level floor, with three orthogonal axes in which the vertical +Y axis extends upward opposite to the direction of gravity. *Source: Adapted from ISO 16840-1(2006)*
4.1.2 local axis system	A component of the global coordinate system used to define the orientation of a single body segment or a support surface relative to the orientation of the axes in the global system. A local axis system is not fixed, and can move and/or rotate in space. This allows the orientation of the axes in a local axis system to be compared to either the global coordinate system or another external local axis system for measurement of angular deviations. *Source: Adapted from ISO 16840-1(2006)*
4.1.3 wheelchair axis system (WAS)	A local axis system with a fixed origin located on a level floor directly below the midpoint of the two drive wheel axles of a wheelchair (or as specified if the wheelchair has more than 2 drive wheels), and three orthogonal axes: the vertical +Y axis extends upward opposite to the direction of gravity, the +X axis extends anteriorly towards the front of the wheelchair, and +Z axis extends laterally towards the right side of the wheelchair. The wheelchair axis system is coincident with the global coordinate system, and is thus used as the external zero reference system from which to define the orientation of body segments and seating support surfaces for the measurement of absolute angles. *Source: Adapted from ISO 16840-1(2006)*
4.1.4 support surface axis system (SSAS)	A local axis system with a specified origin and orthogonal axes used to define the location and linear dimensions of seating support surfaces. The origin is located at the seat reference point (midpoint of the intersection of the seat and back support reference planes), and the axes are labeled according to the same right-hand rule convention used in the global coordinate system *Source: Adapted from ISO 16840-1(2006)*

4.2 General Reference Terms - Planes

Term	Definition
4.2.1 reference plane	Nominal plane specified by a measurement standard to ensure comparability of results. *Source: ISO 7176-26, 4.10.2*
4.2.2 wheelchair ground plane	Plane representing the surface on which the wheelchair rests. *Source: ISO 7176-26, 4.10.3*
4.2.3 sagittal plane	A vertical plane running from front to back that divides the body or any of its parts into left and right sides. Note 1: Hip flexion and extension are examples of body movements that occur in the sagittal plane. Note 2: The sagittal plane is defined by the XY axes of the wheelchair axis system. *Source: Waugh & Crane (2013)*
4.2.4 frontal plane	A vertical plane running from side to side that divides the body or any of its parts into anterior and posterior parts. Note 1: Shoulder abduction and adduction, and lateral neck flexion are examples of body movements that occur in the frontal plane. Note 2: The frontal plane is defined by the YZ axes of the wheelchair axis system. *Source: Waugh & Crane (2013)*
4.2.5 transverse plane	A horizontal plane that divides the body or any of its parts into upper and lower (or superior and inferior) parts. Note 1: Pelvic, trunk and neck rotation are examples of body movements that occur in the transverse plane. Note 2: The transverse plane is defined by the XZ axes of the wheelchair axis system. *Source: Waugh & Crane (2013)*
4.2.6 wheelchair sagittal reference plane	Vertical plane in the longitudinal centerline of the wheelchair. This plane is the same as the sagittal XY plane of the wheelchair axis system. *Source: Adapted from ISO 7176-26, 4.10.4*

Term	Definition
4.2.7 support surface reference plane	An imaginary plane that lies along the contact surface of a postural support device used to represent the orientation of that support surface for measurement purposes. *Source: Waugh & Crane (2013)*
4.2.7.1 back support reference plane *Deprecated:* *trunk reference plane*	An imaginary plane that lies along the contact surface of the back support, used to represent the orientation and location of the back support for measurement purposes. *Source: Adapted from ISO 7176-26, 4.9.2*
4.2.7.2 seat reference plane *Deprecated:* *thigh reference plane*	An imaginary plane that lies along the contact surface of the seat, used to represent the orientation and location of that support surface for measurement purposes. *Source: Adapted from ISO 7176-26, 4.9.1*
4.2.7.3 lower leg support reference plane *Deprecated:* *lower leg reference plane* *leg reference plane*	An imaginary plane that lies along the contact surface of the posterior lower leg support used to represent the orientation and location of that support surface for measurement purposes. In the absence of a posterior lower leg support, it is an imaginary plane that connects the front of the seat to the back of the foot supports. *Source: Adapted from ISO 7176-26, 4.9.3*
4.2.7.4 foot support reference plane	An imaginary plane that lies along the contact surface of the foot support, used to represent the orientation and location of that support surface for measurement purposes. *Source: Adapted from Waugh & Crane (2013)*

4.3 General Reference Terms - Positions, Points and Lines

Term	Definition
4.3.1 seated reference position (SRP)	A hypothetical, baseline seated position in which all body segments are at 90 degrees to one another and all body segment local axes are aligned with the axes in the global coordinate system, resulting in all body segment absolute angles equaling 0 degrees in this position. Thus, the Seated Reference Position is also known as the “zero reference position” of the body. *Source: Adapted from Waugh & Crane (2013)*

Term	Definition
4.3.2 support surface reference position (SSRP)	A hypothetical, baseline seating support system position in which all support surfaces are at 90 degrees to one another and all support surface local axes are aligned with the axes in the global coordinate system, resulting in all support surface absolute angles equaling 0 degrees in this position. Thus, the Support Surface Reference Position (SSRP) is also known as the “zero reference position” of the seating support system. *Source: Adapted from Waugh & Crane (2013)*
4.3.3 seat reference point	Imaginary point, used for making measurements that is the midpoint of the intersection of the seat reference plane and the back support reference plane. Note: The seat reference point coincides with the origin of the support surface axis system (SSAS). *Source: Adapted from ISO 7176-26, 4.9.4 and Waugh & Crane (2013).*
4.3.4 wheelchair center point	Midpoint of the line between the centers of the fixed wheels. *Source: RESNA WC-1 Section 5, 3.43*
4.3.5 body centerline	Vertical line falling on the midsagittal plane of the body, as viewed from the front in the frontal plane. *Source: ISO 16840-1(2006)*
4.3.6 body segment line	A line defined by two designated body landmarks, either palpated or calculated, used in determining absolute and relative angles of body segments. Examples: Sagittal trunk line, frontal lower leg line, transverse thigh line *Source: Adapted from Waugh & Crane (2013)*
4.3.7 support surface reference line	An imaginary line lying on the support surface reference plane that represents one of the support’s local axes, used in determining the orientation (absolute angle) of that seating support surface. *Source: Waugh & Crane (2013)*

Term	Definition
4.3.8 support surface geometric center (SSGC)	An imaginary point at the geometric center of the contact surface side of a postural support device. It is defined as the point of intersection of two or more lines joining the furthest points from the edges of a contact surface and located along the surface. This point is used to measure the linear location of that postural support device in the ISO 16840-1 (2006) measurement standard. *Source: Adapted from ISO 16840-1(2006)*

4.4 General Reference Terms - Directional Terms

Term	Definition
4.4.1 anterior	In front of, or towards the front of the body or body segment. Note: 'Anterior' is a directional term used to indicate the front side of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*
4.4.2 posterior	In back of, or towards the back/rear of the body or body segment. Note: 'Posterior' is a directional term used to indicate the back side of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*
4.4.3 superior	Above, or towards the top of the body or body segment. Note: 'Superior' is a directional term used to indicate the top side of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*
4.4.4 inferior	Below, or towards the bottom of the body or body segment. Note: 'Inferior' is a directional term used to indicate the bottom side of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*

Term	Definition
4.4.5 lateral	On the outside of a body segment. Note: 'Lateral' is a directional term used to indicate the outside surface of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*
4.4.6 medial	One the inside of a body segment. Note: 'Medial' is a directional term used to indicate the inside surface of a body segment for the purpose of labeling seating support surfaces. *Source: GTD Project Team*

4.5 General Reference Terms - Angles

Term	Definition
4.5.1 relative angle	Angle formed between two body segments or two support surfaces. *Source: Adapted from ISO 16840-1 (2006)*
4.5.2 absolute angle	Angle which represents the orientation in space of a single body segment or seating support surface relative to a global coordinate system. *Source: Adapted from ISO 16840-1 (2006)*
4.5.3 sagittal angle ($_{sang}$)	Absolute angle which represents the orientation in space of a single body segment or seating support surface in the sagittal plane, viewed from the side. *Source: Waugh & Crane (2013)*
4.5.4 frontal angle ($_{fang}$)	Absolute angle which represents the orientation in space of a single body segment or seating support surface in the frontal plane, viewed from the front. *Source: Waugh & Crane (2013)*
4.5.5 transverse angle ($_{tang}$)	Absolute angle which represents the orientation in space of a single body segment or seating support surface in the transverse plane, viewed from the top. *Source: Waugh & Crane (2013)*

4.6 General Reference Terms - Linear Dimensions

Term	Definition
4.6.1 width (w)	Linear dimension of a seating support surface measured in the Z-axis direction (medial-lateral) on a line parallel to the support surface reference plane. *Source: Waugh & Crane (2013) and ISO 16840-1 (2006)*
4.6.2 length (l)	Linear dimension of a seating support surface measured in the Y-axis direction (up-down) on a line parallel to the support surface reference plane. Note: There is an exception to the definition of “length” when measuring contours; see contour-length, contour-depth *Source: Waugh & Crane (2013) and ISO 16840-1 (2006)*
4.6.3 depth (d)	Linear dimensions of a seating support surface measured in the X-axis direction (fore-aft) on a line parallel to the support surface reference plane. Note: There is an exception to the definition of “depth” when measuring contours; see contour-length, contour-depth *Source: Waugh & Crane (2013) and ISO 16840-1 (2006)*
4.6.4 height (h)	Linear dimension representing the placement, or location, of a specified point on a postural support device, measured from an external reference point. *Source: Waugh & Crane (2013) and ISO 16840-1 (2006)*
4.6.5 thickness (t)	Linear dimension of a seating support surface measured perpendicular to the support surface reference plane. *Source: Waugh & Crane (2013) and ISO 16840-1 (2006)*
4.6.6 contour-width (c-w)	Linear dimension of a concave area of a back support or seat cushion, measured in the Z-axis direction from side to side. *Source: GTD Project Team*
4.6.7 contour-length (c-l)	Linear dimension of a concave area of a back support or seat cushion, measured from top to bottom (back support) or back to front (seat cushion). *Source: GTD Project Team*

Term	Definition
4.6.8 contour-depth (c-d)	Linear dimension measured perpendicular to the support surface reference plane that represents the depth of the concavity in a contoured back support or seat cushion. Contour-depth is measured from the most distal edge of the lateral contour to the deepest part of the contour area. *Source: GTD Project Team*

4.7 Body Segment Angles

Term	Definition
4.7.1 thigh to trunk angle (THI-TK) *Deprecated:* *hip angle*	The relative angle between the thigh and the trunk, viewed from the side. Note: The angle that is above the thigh is measured. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.2 thigh to pelvis angle (THI-PS) *Deprecated:* *hip angle*	The relative angle between the thigh and the pelvis, viewed from the side. Note: The angle that is above the thigh is measured. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.3 thigh to lower leg angle (THI-LLG) *Deprecated:* *knee angle*	The relative angle between the thigh and the lower leg, viewed from the side. Note: The angle that is behind the lower leg is measured. *Source: Waugh & Crane (2013)*
4.7.4 lower leg to foot angle (LLG-FT) *Deprecated:* *ankle angle* *foot angle*	The relative angle between the lower leg and the foot, viewed from the side. Note: The angle that is above the foot is measured. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.5 sagittal pelvic angle (PS_{sang})	The angle of orientation of the pelvis in the sagittal plane with respect to the horizontal, viewed from the side. Note: A posterior pelvic tilt is a positive sagittal pelvic angle, and an anterior pelvic tilt is a negative sagittal pelvic angle. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*

Term	Definition
4.7.6 sagittal trunk angle (TK_{sang})	The angle of orientation of the trunk in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.7 sagittal thigh angle (THI_{sang})	The angle of orientation of the thigh in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.8 sagittal head angle (HD_{sang})	The angle of orientation of the head in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.9 sagittal upper trunk angle (UTK_{sang})	The angle of orientation of the upper trunk in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.10 sagittal sternal angle (ST_{sang})	The angle of orientation of the sternum in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.11 sagittal abdominal angle (AB_{sang})	The angle of orientation of the abdominal segment in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.12 sagittal lower leg angle (LLG_{sang})	The angle of orientation of the lower leg in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.13 sagittal foot angle (FT_{sang})	The angle of orientation of the foot in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.14 frontal pelvic angle (PS_{fang})	The angle of orientation of the pelvis with respect to the horizontal, viewed from the front. Note: A left pelvic obliquity is a negative frontal pelvic angle, and a right pelvic obliquity is a positive frontal pelvic angle. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.15 frontal sternal angle (ST_{fang})	The angle of orientation of the upper trunk with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*

Term	Definition
4.7.16 frontal trunk angle (TK_{fang})	The angle of orientation of the whole trunk with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.17 frontal head angle (HD_{fang})	The angle of orientation of the head in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.18 frontal lower leg angle (LLG_{fang})	The angle of orientation of the lower leg in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.19 frontal foot angle (FT_{fang})	The angle of orientation of the foot in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.20 transverse pelvic angle (PS_{tang})	The angle of orientation of the pelvis in the transverse plane with respect to the wheelchair Z-axis, viewed from the top. Note: A left pelvic rotation is a positive transverse pelvic angle, and a right pelvic rotation is a negative transverse pelvic angle. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.21 transverse trunk angle (TK_{tang})	The angle of orientation of the trunk in the transverse plane with respect to the wheelchair Z-axis, viewed from the top. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.22 transverse head angle (HD_{tang})	The angle of orientation of the head in the transverse plane with respect to the wheelchair Z-axis, viewed from the top. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.23 transverse thigh angle (THI_{tang}) *Deprecated:* *abduction angle* *adduction angle*	The angle of orientation of the thigh in the transverse plane with respect to the wheelchair X-axis, viewed from the top. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*
4.7.24 transverse foot angle (FT_{tang})	The angle of orientation of the foot in the transverse plane with respect to the wheelchair X-axis, viewed from the top. *Source: Waugh & Crane (2013) and ISO 16840-1(2006)*

4.8 Body Linear Dimensions

Term	Definition
4.8.1 buttock/thigh depth *Deprecated:* *sitting depth* *thigh length* *user seat depth*	The distance from the most posterior point of the buttocks to behind the knee (the popliteal fossa), for a seated person. *Source: Waugh & Crane (2013)*
4.8.2 ischial depth	The distance from the back of the buttocks to the ischial tuberosities in the desired sitting posture. *Source: Waugh & Crane (2013)*
4.8.3 maximum sitting depth	Maximum horizontal distance from the most posterior aspect of the trunk to the most forward popliteal fossa (behind knee.) *Source: Waugh & Crane (2013)*
4.8.4 foot depth *Deprecated:* *foot length*	Maximum distance from rear of the heel to tip of the longest toe. *Source: Waugh & Crane (2013)*
4.8.5 forearm depth *Deprecated:* *arm length* *forearm length*	The distance from the most posterior point of the elbow to the styloid process of the wrist. *Source: Waugh & Crane (2013)*
4.8.6 lumbar curve depth	Linear distance from the most posterior point of the buttocks to the spinous process of the most anterior point of the lumbar spine. Note: Measures the depth of the lumbar curve in the sagittal plane. *Source: Waugh & Crane (2013)*
4.8.7 thoracic curve depth	Linear distance from the most posterior point of the buttocks to the most posterior point of the thorax measured perpendicular to the sagittal upper trunk line. Note: Measures the depth of the thoracic curve in the sagittal plane. *Source: Waugh & Crane (2013)*

Term	Definition
4.8.8 trunk depth	The maximum depth of the torso from the most posterior point of the thorax to the most anterior point of the trunk. Note: Measures the depth, or thickness of the trunk in the sagittal plane. *Source: Waugh & Crane (2013)*
4.8.9 occiput depth	The maximum horizontal distance between the back of the head and the back of the trunk while seated in the desired sitting position. *Source: Waugh & Crane (2013)*
4.8.10 elbow height	The vertical distance from the top of the sitting surface to the inferior aspect of the elbow in the sitting position. *Source: Waugh & Crane (2013)*
4.8.11 axilla height	The distance from the top of the sitting surface to the axilla, measured parallel to the trunk in the sagittal plane, but vertically in the frontal plane. *Source: Waugh & Crane (2013)*
4.8.12 scapular height	The distance from the top of the sitting surface to the inferior angle of the scapula, measured parallel to the trunk in the sagittal plane, but vertically in the frontal plane. *Source: Waugh & Crane (2013)*
4.8.13 shoulder height	The distance from the sitting surface to the top of the shoulder, measured parallel to the trunk in the sagittal plane, but vertically in the frontal plane. *Source: Waugh & Crane (2013)*
4.8.14 PSIS height	The vertical distance from the sitting surface up to the posterior superior iliac spine (PSIS) of the pelvis. *Source: Waugh & Crane (2013)*
4.8.15 occiput height	The distance from the top of the seat support surface to the occiput of the head, measured parallel to the trunk in the sagittal plane, but vertically in the frontal plane. *Source: Waugh & Crane (2013)*

Term	Definition
4.8.16 thigh height	The vertical distance from the top of the seat support surface to the occiput of the head, measured parallel to the trunk in the sagittal plane, but vertically in the frontal plane. *Source: Waugh & Crane (2013)*
4.8.17 maximum sitting height	The vertical distance from the top of the seat support surface to the top of the head in sitting. *Source: Waugh & Crane (2013)*
4.8.18 lower leg length	The length of the lower leg from back of knee to bottom of heel. *Source: Waugh & Crane (2013)*
4.8.19 sternal length	The distance from the lower sternal notch to the upper sternal notch, measured parallel to the sternum. *Source: Waugh & Crane (2013)*
4.8.20 hip width	The distance between the outside of the hips, including non-compressed soft tissue, measured at the level of the greater trochanters and parallel to the line between the right and left anterior-superior iliac spines (ASIS's). *Source: Waugh & Crane (2013)*
4.8.21 waist width	The maximum horizontal width of the waist measured at the level of the umbilicus. *Source: Waugh & Crane (2013)*
4.8.22 chest width	The maximum width of the upper trunk measured at the midpoint between the upper and lower sternal notches, measured perpendicular to the sternum. *Source: Waugh & Crane (2013)*
4.8.23 shoulder width	Maximum horizontal distance between the outer borders of the upper arms, with the arms at the side. *Source: Waugh & Crane (2013)*
4.8.24 head width	The width of the head above the level of the ears. *Source: Waugh & Crane (2013)*
4.8.25 knee width	Width of each knee across the femoral condyles. *Source: Waugh & Crane (2013)*

Term	Definition
4.8.26 internal knee width	Horizontal distance between the inside (medial surfaces) of the right and left knees measured at the medial femoral condyles. *Source: Waugh & Crane (2013)*
4.8.27 external knee width	Horizontal distance between the outside (lateral surfaces) of the right and left knees measured at the lateral femoral condyles. *Source: Waugh & Crane (2013)*
4.8.28 external thigh width	Horizontal distance between the outside (lateral surfaces) of the thighs at their widest point. *Source: Waugh & Crane (2013)*
4.8.29 internal foot width	Horizontal distance between the inner borders of the feet, measured at most anterior-medial point on forefoot. *Source: Waugh & Crane (2013)*
4.8.30 external foot width	Horizontal distance between the outer borders of the feet, measured at most anterior-lateral point on forefoot. *Source: Waugh & Crane (2013)*
4.8.31 maximum lower body width	The maximum horizontal distance between the most lateral parts of the lower body (includes buttock/thighs, lower legs and feet). *Source: Waugh & Crane (2013)*
4.8.32 maximum sitting width	Maximum horizontal distance between the most lateral part of the upper body (includes trunk and head) and the most lateral part of the lower body (includes buttock/thighs, lower legs and feet). *Source: Waugh & Crane (2013)*
4.8.33 lateral knee to centerline	Horizontal distance from the outside of the knee to the centerline of the seat, measured at the lateral femoral condyle and parallel to the front edge of the seat. *Source: Waugh & Crane (2013)*
4.8.34 medial knee to centerline	Horizontal distance from the inside of the knee to the centerline of the seat measured at medial femoral condyle and parallel to the front edge of the seat. *Source: Waugh & Crane (2013)*

Term	Definition
4.8.35 occiput to centerline	Horizontal distance from the occipital protuberance to the back support vertical centerline. *Source: Waugh & Crane (2013)*
4.8.36 occiput to C7	Vertical distance from the occiput to the C7 vertebra measured parallel to the trunk. *Source: Waugh & Crane (2013)*

4.9 Seating Support Surface Angles

Term	Definition
4.9.1 seat to back support angle (S-BS) *Deprecated:* *seat to back angle* *seat to backrest angle* *backrest angle* *hip angle*	The relative angle between the seat and the back support reference planes, viewed from the side. Note: The angle that is above the seat is measured. *Source: Waugh & Crane (2013)*
4.9.2 seat to lower back support angle (S-LBS)	The relative angle between the seat and the lower back support reference planes, viewed from the side. Note: The angle that is above the seat is measured. *Source: Waugh & Crane (2013)*
4.9.3 seat to upper back support angle (S-UBS)	The relative angle between the seat and the upper back support reference planes, viewed from the side. Note: The angle that is above the seat is measured. *Source: Waugh & Crane (2013)*
4.9.4 seat to lower leg support angle (S-LLS) *Deprecated:* *seat to leg angle* *leg to seat surface angle*	The relative angle between the seat and the lower leg support reference planes, as viewed from the side. Note: The angle that is behind the lower leg support is measured. *Source: Waugh & Crane (2013)*
4.9.5 lower leg support to foot support angle (LLS-FS) *Deprecated:* *footrest to leg angle* *foot support angle*	The relative angle between the lower leg support and foot support reference planes, viewed from the side. Note: The angle that is behind the lower leg support is measured. *Source: Waugh & Crane (2013)*

Term	Definition
4.9.6 back support sagittal angle (BS_{sang}) *Deprecated:* *back angle* *backrest angle* *back support angle* *backrest inclination*	The angle of orientation of the back support in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.7 back support frontal angle (BS_{fang})	The angle of orientation of the back support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.8 back support transverse angle (BS_{tang})	The angle of orientation of the back support in the transverse plane, with respect to the wheelchair Z-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.9 seat sagittal angle ($SEAT_{sang}$) *Deprecated:* *seat tilt* *seat angle* *seat plane angle* *seat slope* *seat inclination*	The angle of orientation of the seat in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.10 seat frontal angle ($SEAT_{fang}$)	The angle of orientation of the seat in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.11 seat transverse angle ($SEAT_{tang}$)	The angle of orientation of the seat in the transverse plane with respect to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.12 lower leg support sagittal angle (LLS_{sang})	The angle of orientation of the lower leg support in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.13 lower leg support frontal angle (LLS_{fang})	The angle of orientation of the lower leg support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*

Term	Definition
4.9.14 lower leg support transverse angle (LLS_{tang})	The angle of orientation of the lower leg support in the transverse plane, with respect to the wheelchair Z-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.15 foot support sagittal angle (FS_{sang})	The angle of orientation of the foot support in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.16 foot support frontal angle (FS_{fang})	The angle of orientation of the foot support in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.17 foot support transverse angle (FS_{tang})	The angle of orientation of the foot support in the transverse plane, with respect to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.18 head support sagittal angle (HS_{sang})	The angle of orientation of the head support in the sagittal plane with respect to the vertical, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.19 head support frontal angle (HS_{fang})	The angle of orientation of the head support in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.20 head support transverse angle (HS_{tang})	The angle of orientation of the head support in the transverse plane, relative to the wheelchair Z-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.21 arm support sagittal angle (AS_{sang}) *Deprecated:* *armrest angle* *arm support angle*	The angle of orientation of the arm support in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.22 arm support frontal angle (AS_{fang})	The angle of orientation of the arm support in the frontal plane with respect to the horizontal, viewed from the front. *Source: Waugh & Crane (2013)*

Term	Definition
4.9.23 arm support transverse angle (AS_{tang}) *Deprecated:* *armrest internal rotation* *armrest external rotation*	The angle of orientation of the arm support in the transverse plane, with respect to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.24 lateral head support sagittal angle (LHS_{sang})	The angle of orientation of a lateral head support in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.25 lateral head support frontal angle (LHS_{fang})	The angle of orientation of a lateral head support in the frontal plane relative to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.26 lateral head support transverse angle (LHS_{tang})	The angle of orientation of a lateral head support in the transverse plane, with respect to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.27 lateral trunk support sagittal angle (LTS_{sang})	The angle of orientation of a lateral trunk support in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.28 lateral trunk support frontal angle (LTS_{fang})	The angle of orientation of a lateral trunk support in the frontal plane, with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.29 lateral trunk support transverse angle (LTS_{tang})	The angle of orientation of a lateral trunk support in the transverse plane, with respect to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.30 lateral pelvic support sagittal angle (LPS_{sang})	The angle of orientation of a lateral pelvic support in the sagittal plane with respect to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*

Term	Definition
4.9.31 lateral pelvic support frontal angle (LPS_{fang})	The angle of orientation of a lateral pelvic support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.32 lateral pelvic support transverse angle (LPS_{tang})	The angle of orientation of a lateral pelvic support in the transverse plane relative to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.33 lateral knee support sagittal angle (LKS_{sang})	The angle of orientation of a lateral knee support in the sagittal plane relative to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.34 lateral knee support frontal angle (LKS_{fang})	The angle of orientation of a lateral knee support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.35 lateral knee support transverse angle (LKS_{tang})	The angle of orientation of a lateral knee support in the transverse plane relative to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.36 medial knee support sagittal angle (MKS_{sang})	The angle of orientation of a medial knee support in the sagittal plane relative to the horizontal, viewed from the side. *Source: Waugh & Crane (2013)*
4.9.37 medial knee support frontal angle (MKS_{fang})	The angle of orientation of a medial knee support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.38 medial knee support transverse angle (MKS_{tang})	The angle of orientation of a medial knee support in the transverse plane relative to the wheelchair X-axis, viewed from above. *Source: Waugh & Crane (2013)*
4.9.39 anterior knee support sagittal angle (AKS_{sang})	The angle of orientation of an anterior knee support in the sagittal plane relative to the vertical, viewed from the side. *Source: Waugh & Crane (2013)*

Term	Definition
4.9.40 anterior knee support frontal angle (AKS_{fang})	The angle of orientation of an anterior knee support in the frontal plane with respect to the vertical, viewed from the front. *Source: Waugh & Crane (2013)*
4.9.41 anterior knee support transverse angle (AKS_{tang})	The angle of orientation of an anterior knee support in the transverse plane relative to the wheelchair Z-axis, viewed from above. *Source: Waugh & Crane (2013)*

4.10 Seating Support Surface Linear Dimensions - Seat

Term	Definition
4.10.1 seat width	Distance between the lateral edges of the seat contact surface, measured along the centerline. *Source: Waugh & Crane (2013), adapted ISO 7176-26, 4.9.5*
4.10.2 effective seat width	Distance between any lateral support surfaces (e.g., arm supports, lateral pelvic supports) that limit the space at the occupant's hips. *Source: ISO 7176-26, 4.9.6*
4.10.3 seat width at bottom seat footprint width	Distance between the lateral edges of the bottom surface of the seat cushion, measured along the centerline. *Source: Adapted from Sprigle, et al. (2001)*
4.10.4 seat depth *Deprecated:* *actual seat depth* *total seat depth* *seat surface depth*	Distance from the back edge to the front edge of the contact surface side of the seat, measured along the centerline. *Source: Adapted from Waugh & Crane (2013) and ISO 7176-26, 4.9.7*
4.10.5 effective seat depth *Deprecated:* *functional seat depth* *set-up seat depth*	Distance from the back support surface to the most forward point of the seat contact surface. More specifically, the distance from the intersection of the back support and seat reference planes to the intersection of the seat and lower leg support reference planes. *Source: Adapted from ISO 7176-26, 4.9.8, and Waugh & Crane (2013)*

Term	Definition
4.10.6 seat depth at bottom seat footprint depth	Distance from the back edge to the front edge of the bottom surface of the seat cushion, measured along the centerline. *Source: Adapted from Sprigle, et al. (2001)*
4.10.7 seat thickness	The distance from the top to the bottom of the unloaded seat in the area intended for pelvic loading, approximately 150 mm from the rear edge of the seat. *Source: Waugh & Crane (2013); Adapted from Sprigle, et al. (2001)*
4.10.8 seat thickness at front inferior thigh support thickness	The thickness of the front of the unloaded seat cushion in the area intended for thigh loading. *Source: Adapted from Waugh & Crane (2013)*
4.10.9 pelvic contour-width	The width from side to side of the concave area intended for pelvic/buttock support in the rear of a seat cushion. *Source: GTD Project Team*
4.10.10 pelvic contour-length *Deprecated:* *anti-thrust depth* *ischial well depth*	The length from back to front of the concave area intended for pelvic/buttock support in the rear of a seat cushion. *Source: Adapted from Waugh & Crane (2013)*
4.10.11 pelvic contour-depth *Deprecated:* *pelvic contour height*	The distance from the top of the seat surface in the pelvic contour area, to the top of the lateral edge of the seat, in the area designed for buttock support in a seat cushion with unloaded contour. Note: Contour-depth is a dimension measured perpendicular to the support surface reference plane. *Source: Adapted from Sprigle, et al. (2001) and Waugh & Crane (2013)*
4.10.12 lateral thigh support height	The distance from the top of the seat surface intended to support the distal thigh to the top of the lateral thigh support, in a seat cushion with contour at the front edge. *Source: Waugh & Crane (2013); adapted from Sprigle, et al. (2001)*
4.10.13 medial thigh support height *Deprecated:* *abductor height*	The distance from the top of the seat surface intended to support the distal thigh to the top of the medial thigh support, in a seat cushion with contour at the front edge. *Source: Waugh & Crane (2013); adapted from Sprigle, et al. (2001)*

Term	Definition
4.10.14 seat surface height at front edge *Deprecated:* *seat height* *seat to floor height*	Vertical distance from the floor to the top of the seat at its front edge, in the area intended for distal thigh loading. *Source: Waugh & Crane (2013); adapted from ISO 7176-26, 4.9.9*
4.10.15 seat surface to foot support *Deprecated:* *seat to foot support* *foot support to seat surface* *foot support to seat length* *footrest height*	The distance from the top of the seat to the top of the foot support. More specifically, the linear distance from the top of the seat at its front edge in the area intended for distal thigh loading, to the back edge of the foot support contact surface, measured parallel to the lower leg support reference plane. *Source: Adapted from Waugh & Crane (2013)*

4.11 Seating Support Surface Linear Dimensions – Back Support

Term	Definition
4.11.1 back support width	Distance between the lateral edges of the back support contact surface, measured along the centerline. *Source: Waugh & Crane (2013); adapted ISO 7176-7, 4.9.10*
4.11.2 inside back support width	Distance between the most distal, inside surface of the lateral support surfaces of a pre-contoured back support, taken across the back support at its center. Note: Represents the inside contact surface width. *Source: GTD Project Team*
4.11.3 outside back support width	Distance between the most distal, outside surface of the lateral support surfaces of a pre-contoured back support, taken across the back support at its center. Note: Represents the outside width of the back support at the front, not including the supporting structure or shell. *Source: GTD Project Team*
4.11.4 overall back support width *Deprecated:* *outside shell width*	Maximum distance between the most lateral edges of a back support, including the supporting structure or shell. *Source: GTD Project Team*

Term	Definition
4.11.5 back support assembly width	Distance between the most lateral edges of a back support, including the supporting structure or pan and the attaching hardware. *Source: GTD Project Team*
4.11.6 back support length	Distance between the bottom edge and the top edge of the contact surface side of the back support, measured along the centerline. *Source: Adapted from Waugh & Crane (2013)*
4.11.7 back support thickness	The thickness from front to back of the unloaded back support, measured at the bottom. *Source: Waugh & Crane (2013)*
4.11.8 back support height	The distance from the top of the seat to the top of the back support, measured along the centerline. *Source: Waugh & Crane (2013); ISO 7176-26, 4.9.11*
4.11.9 back support contour-depth	Depth of the lateral support surface in a pre-contoured back support, measured from the center of back support contact surface to farthest projection of lateral. Note: Contour-depth is a dimension measured perpendicular to the support surface reference plane. *Source: GTD Project Team*

4.12 Seating Support Surface Linear Dimensions - Head Support

Term	Definition
4.12.1 head support width	Linear distance between the lateral edges of the head support contact surface, measured along the centerline. *Source: Adapted from Waugh & Crane (2013)*
4.12.2 inside head support width	Linear distance between the most distal, inside surface of the lateral support surfaces of a pre-contoured head support, taken across the support at its center. Note: Represents the inside contact surface width. *Source: GTD Project Team*

Term	Definition
4.12.3 outside head support width	Linear distance between the most distal, outside surface of the lateral support surfaces of a pre-contoured head support, taken across the support at its center. Note: Represents the outside width of the head support at the front, not including the supporting structure or shell, but including the thickness of the pad or support material. *Source: GTD Project Team*
4.12.4 overall head support width	Linear distance between the most lateral edges of a head support, including the supporting structure or shell. *Source: GTD Project Team*
4.12.5 head support length	Distance between the bottom and top edge of the contact surface side of the head support, measured at the centerline. *Source: Waugh & Crane (2013)*
4.12.6 head support thickness	Linear distance from the front to the back of the unloaded head support, measured at the bottom at the centerline. *Source: Waugh & Crane (2013)*
4.12.7 head support height	The distance from the top of the seat to the top of the head support. *Source: Waugh & Crane (2013)*

4.13 Seating Support Surface Linear Dimensions - Foot Support

Term	Definition
4.13.1 foot support width	Distance between the lateral edges of the foot support contact surface, measured along the centerline. *Source: Waugh & Crane (2013)*
4.13.2 foot support depth	Distance from the back edge to the front edge of the foot support contact surface, measured along the centerline. *Source: Waugh & Crane (2013)*
4.13.3 foot support effective depth	Linear distance from the lower leg support reference plane to the most forward point on the front edge of the foot support structure. *Source: Adapted from Waugh & Crane (2013)*

Term	Definition
4.13.4 foot support thickness	Distance from the top to the bottom surfaces of the foot support, measured at the midpoint of the front edge. *Source: Waugh & Crane (2013)*
4.13.5 foot support clearance *Deprecated:* *footrest clearance*	Vertical distance from the floor to the lowest part of the foot support assembly. Note: Represents the height of the clear space under the foot support. *Source: Adapted from ISO 7176-26, 4.9.14*

4.14 Seating Support Surface Linear Dimensions - Arm Support

Term	Definition
4.14.1 arm support width	The distance between the lateral and medial edges of the arm support contact surface, measured along the centerline. *Source: Waugh & Crane (2013); adapted ISO 7176-26, 4.9.16*
4.14.2 arm support depth *Deprecated:* *armrest length* *arm support length*	The distance from the back to the front of the arm support contact surface, measured at centerline. *Source: Waugh & Crane (2013)*
4.14.3 arm support thickness	The thickness from the top to the bottom surfaces of the arm support. *Source: Waugh & Crane (2013)*
4.14.4 arm support height *Deprecated:* *armrest height*	The distance from the top of the seat to the top of the arm support at the center. *Source: Waugh & Crane (2013); adapted 7176-26, 4.9.17*
4.14.5 distance between arm supports *Deprecated:* *distance between armrests*	Horizontal distance between the innermost parts of the two arm supports. *Source: ISO 7176-26, 4.9.20*

4.15 Seating Support Surface Linear Dimensions - Lateral and Medial Support

Term	Definition
4.15.1 lateral support depth	Linear distance from the back edge to the front edge of the contact surface side of the lateral support measured along the centerline. *Source: Waugh & Crane (2013)*
4.15.2 lateral support length	Linear distance between the top edge and the bottom edge of the contact surface side of the lateral support, measured at centerline. *Source: Waugh & Crane (2013)*
4.15.3 lateral support thickness	The thickness from the inside to outside surfaces of the lateral support component. *Source: Waugh & Crane (2013)*
4.15.4 lateral trunk support height	The distance from the top of the seat to the top of the lateral trunk support. *Source: Waugh & Crane (2013)*
4.15.5 medial support depth	Linear distance from the back edge to the front edge of the contact surface side of the medial support measured along the centerline. *Source: Waugh & Crane (2013)*
4.15.6 medial support length	Linear distance between the top edge and the bottom edge of the contact surface side of the medial support, measured at centerline. *Source: Waugh & Crane (2013)*
4.15.7 medial support thickness	The thickness from the inside to outside surfaces of the medial support component. *Source: Waugh & Crane (2013)*

4.16 Postural Support Device (PSD) Linear Location Measures

Term	Definition
4.16.1 postural support device location (PSD_{loc})	Linear location of a postural support device in three dimensions, as defined by the x, y and z distances from the origin of the Support Surface Axis System (0,0,0s) to the Support Surface Geometric Center of the PSD ($SSGC_{PSD}$), measured parallel to the x, y and z axes of the Support Surface Axis System. Note 1: The seat reference point coincides with the origin of the Support Surface Axis System (0,0,0s). Note 2: A PSD location measure is therefore comprised of three numbers representing the distance from the seat reference point to the center of the PSD, in the direction of each of the three axes x, y and z. Example: Right lateral trunk support location = (2”, 8.5”, 4”). *Source: Adapted from ISO 16840-1(2006)*
4.16.2 postural support device vertical location (PSD_{yloc})	Linear location of a postural support device in the vertical (up-down) direction, as defined by the singular Y distance from the origin of the Support Surface Axis System (0,0,0s) to the Support Surface Geometric Center of the PSD ($SSGC_{PSD}$), measured parallel to the Y axis of the Support Surface Axis System (SSAS). Note 1: The seat reference point coincides with the origin of the Support Surface Axis System (0,0,0s). Note 2: A PSD’s vertical location measure is therefore comprised of one value representing the distance from the seat reference point to the center of the PSD, in the vertical Y direction. Example: Right lateral trunk support vertical location = 8.5” *Source: Adapted from ISO 16840-1(2006)*

Term	Definition
4.16.3 postural support device AP location (PSD_{xloc})	Linear location of a postural support device in the anterior-posterior (fore-aft) direction, as defined by the singular X distance from the origin of the Support Surface Axis System (0,0,0s) to the Support Surface Geometric Center of the PSD ($SSGC_{PSD}$), measured parallel to the X axis of the Support Surface Axis System (SSAS). Note 1: The seat reference point coincides with the origin of the Support Surface Axis System (0,0,0s). Note 2: A PSD's AP location measure is therefore comprised of one value representing the distance from the seat reference point to the center of the PSD, in the horizontal X direction. Example: Right lateral knee support AP location = 16" *Source: Adapted from ISO 16840-1 (2006)*
4.16.4 postural support device lateral location (PSD_{zloc})	Linear location of a postural support device in the lateral (side to side) direction, as defined by the singular Z distance from the origin of the Support Surface Axis System (0,0,0s) to the Support Surface Geometric Center of the PSD ($SSGC_{PSD}$), measured parallel to the Z-axis of the Support Surface Axis System (SSAS). Note 1: The seat reference point coincides with the origin of the Support Surface Axis System (0,0,0s). Note 2: A PSD's lateral location measure is therefore comprised of one value representing the distance from the seat reference point to the center of the PSD, in the lateral Z location. Example: Left medial knee support lateral location = -6" *Source: Adapted from ISO 16840-1(2006)*

4.17 Wheelchair Frame Linear Dimensions

Term	Definition
4.17.1 seat frame depth	Distance from the front of the back post to the front edge of the seat rail. *Source: GTD Project Team*
4.17.2 seat frame width	Distance between the lateral outside edges of the seat rails, measured in the front. *Source: GTD Project Team*

Term	Definition
4.17.3 front seat frame width	Distance between the lateral outside edges of the seat rails at the front. This term can be used instead of “seat frame width” to differentiate the seat frame width at the front vs. rear of frame, to determine degree of taper in seat rails from rear to front. *Source: GTD Project Team*
4.17.4 rear seat frame width	Distance between the lateral outside edges of the seat rails at the rear. This term can be used instead of “seat frame width” to differentiate the seat frame width at the front vs. rear of frame, to determine degree of taper in seat rails from rear to front. *Source: GTD Project Team*
4.17.5 front seat frame height	Vertical distance from the floor to the top of the seat rail at its highest point, typically at the end of the seat rail or at the front frame bend. *Source: GTD Project Team*
4.17.6 rear seat frame height	Vertical distance from the floor to the top of the seat rail at the rear, just in front of the back post. *Source: GTD Project Team*
4.17.7 seat sling to foot support seat pan to foot support *Deprecated:* *seat sling to footrest* *seat to foot support* *seat to footrest length*	The distance from the top of the seat sling or seat pan at its front edge to the top back edge of the foot support. *Source: GTD Project Team*
4.17.8 handgrip height	Vertical distance from the ground to the handgrip reference points of the wheelchair. *Source: RESNA WC-1 Section 5, 3.12*
4.17.9 handgrip reference point	Outer most lateral point at half length of the handgrip (midpoint of the lateral side of the handgrip). *Source: Adapted from RESNA WC-1 Section 5, 3.13*
4.17.10 ground clearance	Shortest distance between the ground and any part of the wheelchair that is not a wheel. *Source: ISO 7176-26, 4.3.8*

4.18 Wheelchair Overall Dimensions and Mass

Term	Definition
4.18.1 overall wheelchair depth *Deprecated:* *overall length* *full overall length*	Horizontal distance between the most forward and most rearward points of the wheelchair when it is ready for use, with any lower leg supports, foot supports and any anti-tipping devices attached, and with casters in a forward trailing position. *Source: Adapted from ISO 7176-26, 4.3.1 and RESNA WC-1 Section 5, 3.9*
4.18.2 reduced overall wheelchair depth	Horizontal distance between the most forward and most rearward points of the wheelchair when it is ready for use with any lower leg support assemblies removed, and with casters in a forward trailing position. *Source: Adapted from RESNA WC-1 Section 5, 3.29*
4.18.3 occupied wheelchair depth *Deprecated:* *full occupied length*	Distance between the most forward and most rearward points of the wheelchair and/or occupant when it is ready for use and occupied. *Source: Adapted from RESNA WC-1 Section 5, 3.29*
4.18.4 wheelbase	Distance between the ground contact points of the front and rear wheels of the wheelchair, measured in a direction parallel to the forward direction of movement. *Source: ISO 7176-26, 4.3.7*
4.18.5 overall wheelchair width	Distance between the outermost side-to-side points of the wheelchair when fully opened and ready for use, measured in a direction perpendicular to the forward direction of movement. *Source: Adapted from ISO 7176-26, 4.3.2*
4.18.6 occupied wheelchair width	Distance between the outermost side-to-side points of the wheelchair and/or occupant (including hands and elbows), when it is ready for use and occupied measured in a direction perpendicular to the forward direction of movement. *Source: RESNA WC-1 Section 5, 3.19*
4.18.7 overall wheelchair height	Vertical distance from the ground to the uppermost point of the wheelchair when it is ready for use, inclusive of seating support system components, and with the back support in the upright position. *Source: Adapted from ISO 7176-26, 4.3.3*

Term	Definition
4.18.8 occupied wheelchair height	Vertical distance from the ground to the uppermost point of the wheelchair and/or occupant when it is ready for use and occupied, inclusive of seating support system components, and with the back support in the upright position. *Source: Adapted from RESNA WC-1 Section 5, 3.18*
4.18.9 wheelchair footprint	Space outlined on the horizontal wheelchair ground plane by projecting vertically down from the outermost edges of the structural members of the wheelchair, including the arm support and lower leg support assemblies, with the seating system in its most upright position if adjustable. *Source: Adapted from ISO 7176-26, 4.10.6*
4.18.10 turning diameter *Deprecated:* *turning radius* *turning circle*	Diameter of the smallest cylindrical envelope in which the occupied wheelchair can be driven in a circle through 360°. *Source: ISO 7176-26, 4.3.9*
4.18.11 stowage height *Deprecated:* *overall height folded*	Vertical distance from the ground to the uppermost point of the wheelchair when folded and/or dismantled for transport or stowing purposes. *Source: ISO 7176-26, 4.3.6*
4.18.12 stowage depth *Deprecated:* *overall length folded*	Distance between the most forward and most rearward points of the wheelchair when folded and/or dismantled for transport or stowing purposes, with drive wheels and lower leg support assembly removed. *Source: Adapted from ISO 7176-26, 4.3.4*
4.18.13 stowage width *Deprecated:* *overall width folded*	Minimum distance between the two outermost side-to-side points of the wheelchair when folded and/or dismantled for transport or stowing purposes, with drive wheels and lower leg support assembly removed. *Source: Adapted from ISO 7176-26, 4.3.5*
4.18.14 mass of heaviest part	Mass of the heaviest part of the wheelchair when dismantled for transport or stowing purposes. *Source: RESNA WC-1 Section 5, 3.16*
4.18.15 maximum occupant mass *Deprecated:* *maximum user mass*	Maximum mass of the occupant specified by the wheelchair manufacturer. *Source: ISO 7176-26, 4.10.1*

Term	Definition
4.18.16 total wheelchair mass	Mass of the wheelchair when ready for use, but unoccupied. *Source: Adapted from ISO 7176-26, 4.3.12*

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INDEX – ALPHABETICAL

A **B** **C** **D** **E** **F** **G** **H**
I **K** **L** **M** **N** **O** **P** **Q**
R **S** **T** **U** **V** **W** **Z**

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

U

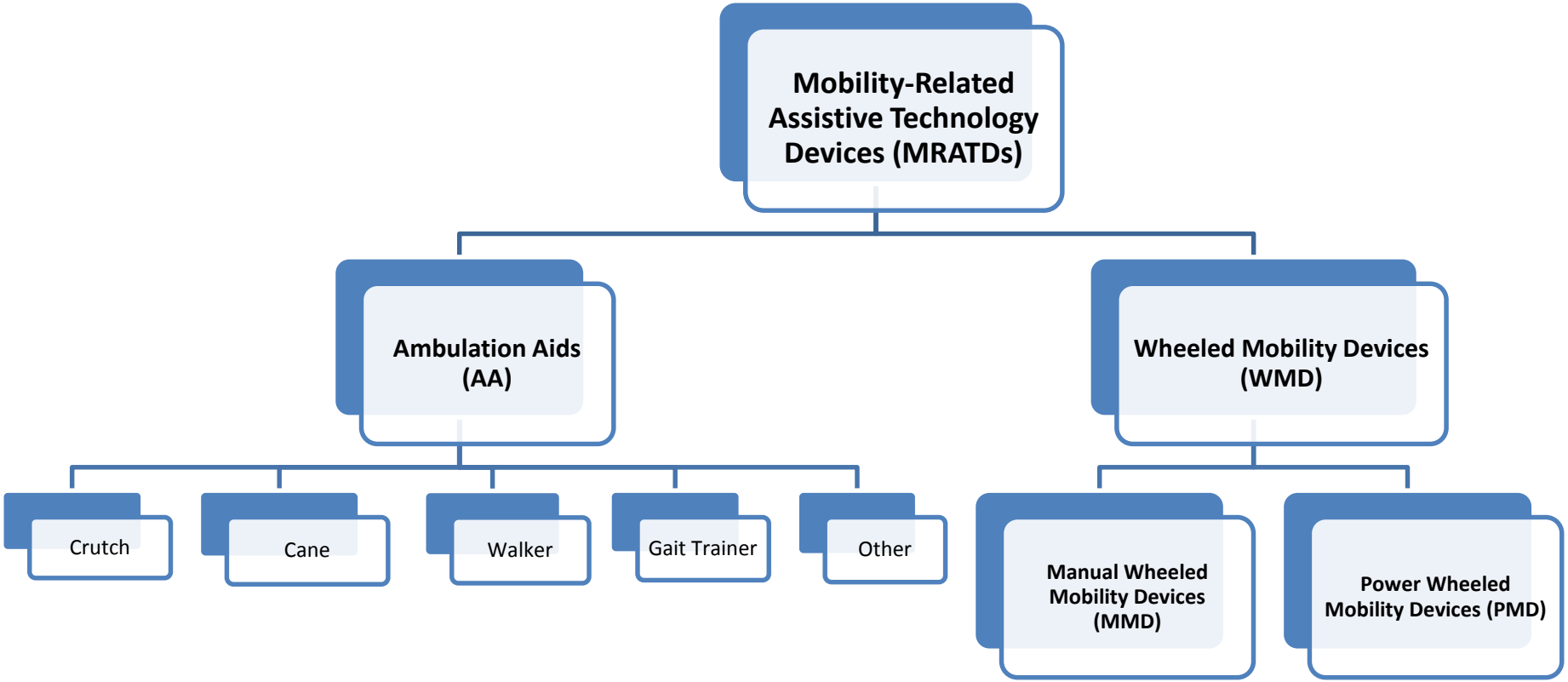
V

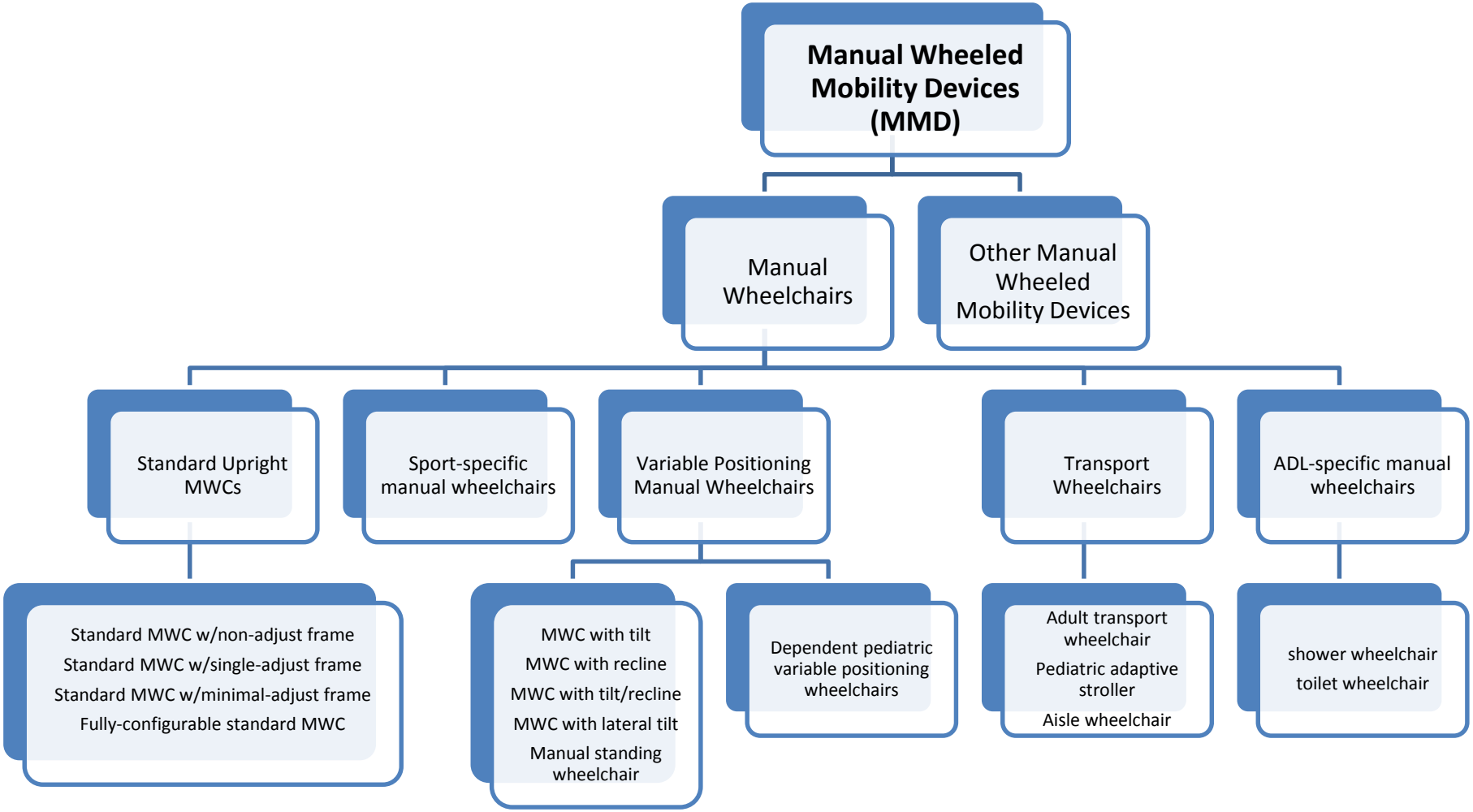
W

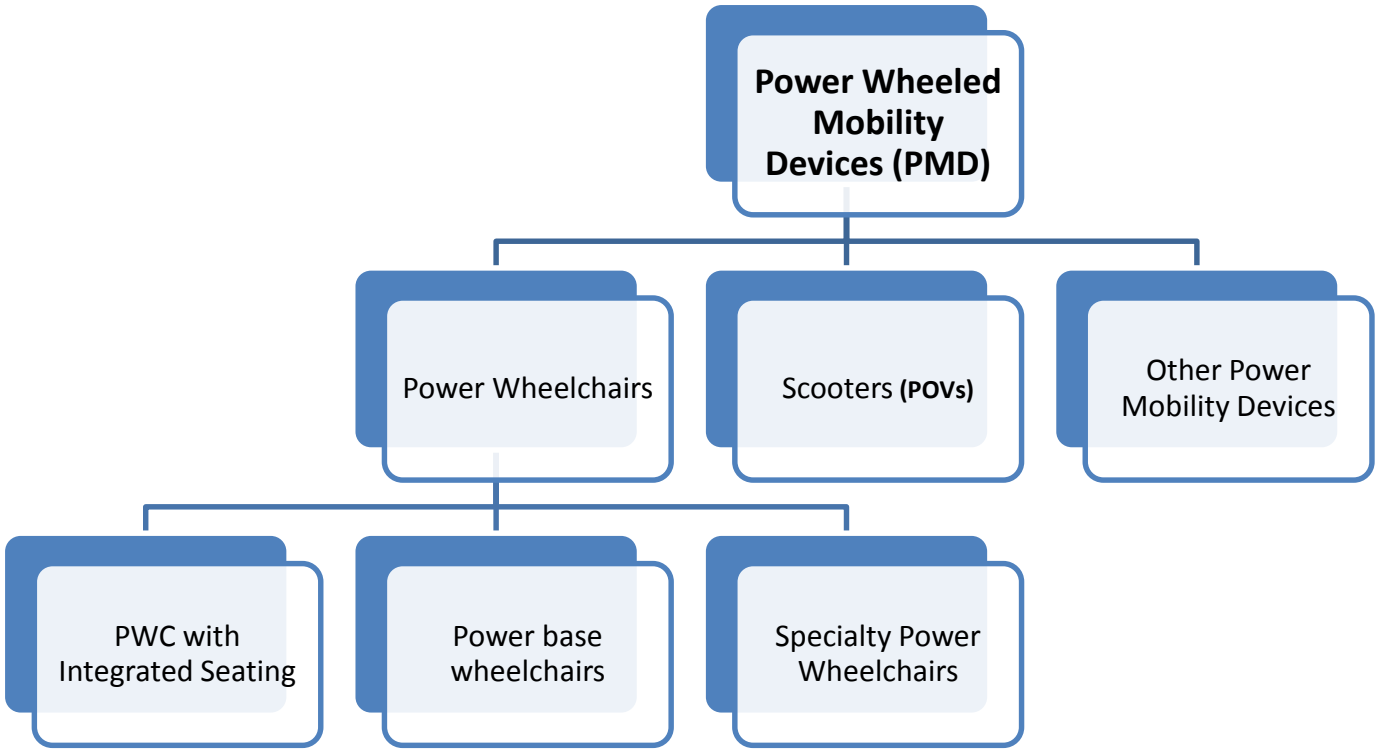
Z

APPENDIX: Wheeled Mobility Device Classification Scheme

Adapted from Shoemaker, et al (2010)


Mobility-Related Assistive Technology Devices (MRATDs)
Ambulation Aids (AA)
Wheeled Mobility Devices (WMD)
Crutch
Cane
Walker
Gait Trainer
Other
Manual Wheeled Mobility Devices (MMD)
Power Wheeled Mobility Devices (PMD)


Manual Wheeled Mobility Devices (MMD)
Manual Wheelchairs
Other Manual Wheeled Mobility Devices
Standard Upright MWCs
Sport-specific manual wheelchairs
Variable Positioning Manual Wheelchairs
Transport Wheelchairs
ADL-specific manual wheelchairs
Standard MWC w/non-adjust frame
Standard MWC w/single-adjust frame
Standard MWC w/minimal-adjust frame
Fully-configurable standard MWC
MWC with tilt
MWC with recline
MWC with tilt/recline
MWC with lateral tilt
Manual standing wheelchair
Dependent pediatric variable positioning wheelchairs
Adult transport wheelchair
Pediatric adaptive stroller
Aisle wheelchair
shower wheelchair
toilet wheelchair


Power Wheeled Mobility Devices (PMD)
Power Wheelchairs
Scooters (POVs)
Other Power Mobility Devices
PWC with Integrated Seating
Power base wheelchairs
Specialty Power Wheelchairs