

WHEELCHAIR, POSITIONING AND AMBULATION AIDS CATEGORY

DEVICE LISTING APPLICATION PACKAGE

MANUFACTURERS & DISTRIBUTORS

Assistive Devices Program

Ministry of Health and Long-Term Care

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ASSISTIVE DEVICES PROGRAM

1. PROCEDURE FOR THE INCLUSION OF WHEELCHAIRS, POSITIONING DEVICES and AMBULATION AIDS IN THE ASSISTIVE DEVICES PROGRAM PRODUCT MANUAL

Introduction

The Assistive Devices Program (ADP) will pay 75% of the ADP price towards the purchase of certain mobility and positioning devices (seating) for people who have a chronic physical disability and who meet all the applicable eligibility criteria.

Wheelchairs, Positioning and Ambulation Aids which are covered by ADP include:

- Manual wheelchairs and bases (plus options and accessories)
- Power Add-On devices for manual wheelchairs
- Paediatric specific specialty strollers
- Power wheelchairs and bases (plus options and accessories)
- Power scooters
- Forearm crutches
- Wheeled walkers and paediatric walking frames
- Paediatric standing frames
- Positioning devices (seating) for wheelchairs
- Power dynamic tilt and recline systems, power elevating legrests

All manual and power wheelchairs/bases, power scooters, power add-on devices for manual wheelchairs, strollers, wheeled walkers, paediatric walking frames and dynamic positioning devices must undergo a technical and clinical evaluation at a designated testing centre prior to inclusion in the Program. All products must meet the federal (e.g. Medical Device Establishment Licence MDEL) and provincial regulations where applicable.

In order to list devices with the Program the manufacturers/distributor responsible for the product in the Canadian market must complete the ADP application form. The ADP application, when complete will confirm that the manufacturer/distributor has a minimum of \$2 million liability insurance for the product in question, warrants the product for a minimum of 24 months and that the product meets flammability requirements (CAL 117 or equivalent).

Evaluation Procedure

1. The manufacturer/distributor must complete the Application for Equipment Listing and forward it to the ADP with the following documentation:
 - Owner's Manual (draft acceptable)
 - Product Order Form (draft acceptable)
 - Technical/Service Manual (draft acceptable)
 - Prior Testing Disclosure Form – with mandatory sections completed (do not include other test reports)
 - Product technical specifications and picture (may be included in owner's manual)

- Dealer cost and suggested list prices in Canadian dollars
2. The statement of support for device listing must be submitted by manufacturers who do not have devices currently listed in the ADP product manual.

Statements from ten (10) authorizers from seven (7) different locations are required, indicating their support for having the product listed in the ADP product manual. This procedure will ensure that a demand/market for the product exists across the province. Authorizers are not required to test the device with their clients but must have seen the device demonstrated.

3. The application and product information will be sent to the Senior Program Coordinator to determine whether the device appears to meet the criteria for ADP listing.
4. a) For Positioning Devices (Seating)
 - i) The manufacturer/distributor will provide information and pricing on the standard device and custom sizing of the device. The ADP will not consider multiple listings for the same device.
 - ii) The ADP will review the above information and determine approval for listing in the Positioning for Mobility Product Manual.
 - iii) The manufacturer/distributor may be required to demonstrate the use of the device to the ADP Senior Program Coordinator.
- b) For New Wheelchairs, Ambulation Aids and Dynamic Positioning Devices
 - i) The ADP will review the information provided and, if acceptable, will advise the manufacturer/distributor in writing to contact a designated testing centre for the evaluation of the device.
 - ii) The manufacturer/distributor will contact the designated testing centre and make arrangements to demonstrate a production quality sample of the device to be tested, including options and/or alternate parts as requested, to the evaluation team and will provide the required documentation to the testing centre (see Appendix A for checklist of required documentation).
- (c) The manufacturer/distributor will pay an evaluation fee to the testing centre:
 - \$1010.00 for walkers/paediatric walking frames
 - \$1830.00 for manual wheelchairs
 - \$2160.00 for power add-on devices for manual wheelchairs
 - \$3390.00 for power wheelchairs and motorized scooters
 - \$2385.00 for power dynamic seating devices
5. Upon completion of the evaluation, the testing centre will send the technical and clinical reports to the ADP.

Product Listing

1. The ADP will determine the conditions under which a device will be accepted for listing in the product manual and the manufacturer/distributor will be advised in writing. Where applicable a copy of the evaluation reports from the testing centre will be included with the list of conditions.
2. Modifications to the device may be necessary to meet the ADP criteria for product listing. The device may have to be resubmitted to the designated testing centre for re-evaluation prior to ADP listing. Fees for re-evaluation are set by the testing centre.
3. The ADP determines and assigns prices and catalogue numbers for all devices approved for listing in the product manuals.
4. Devices approved for listing are assigned to the appropriate device type generic category in consultation with the testing centre(s).
5. The manufacturer/distributor is responsible for informing the ADP registered vendors of the assigned ADP catalogue number and price of newly listed devices.

Product Upgrades and Second Generation Models for ADP Approved Devices

A Manufacturer/distributor, who has made alterations/improvements to devices currently listed by the ADP, may request that these products be listed as product upgrades.

Procedure:

1. The manufacturer/distributor must complete the Application for Funding of Changes/Modifications/New Options to ADP Approved Devices and forward to the ADP with the following documentation:
 - Owner's Manual (draft acceptable)
 - Product Order Form (draft acceptable)
 - Technical/Service Manual (draft acceptable)
 - Prior Testing Disclosure Form – Complete those sections impacted by the changes. (do not include other test reports)
 - Product technical specifications and picture (may be included in owner's manual or other product literature)
 - Dealer cost and suggested list price in Canadian dollars
2. The ADP and designated testing centre will review the information (see Appendix B for a checklist of required documentation to be provided to the testing centre).
3. The manufacturer will pay an evaluation fee of \$200.00 to the testing centre to review product upgrade documentation that takes up to a maximum of two hours to complete. An additional \$110 per hour will be charged for reviews that require more than two hours to complete.

4. The designated testing centre will advise the ADP and the manufacturer/distributor as to whether clinical and/ or technical evaluation will be required in order to consider listing of the device. The testing centre will set a fee for the evaluation.

ASSISTIVE DEVICES PROGRAM

2. GUIDELINES FOR SELECTION OF PRODUCT SAMPLE TO BE PROVIDED FOR ADP EVALUATION

These guidelines are intended to be used by companies who are submitting an application to the Assistive Devices Program (ADP) for a new or changed product listing.

These guidelines are intended to help applicants predetermine the features of a product sample that will be submitted for demonstration and/or testing requested as part of the ADP Product Evaluation Process.

Having a product sample with features selected according to these guidelines available at the time of the submission of the ADP application will facilitate a timely evaluation. Products submitted that do not comply with these guidelines will protract the evaluation process.

These guidelines are intended to provide comprehensive information to cover most products. Exceptions that don't fit these guidelines are expected. Applicants may email either Test Centre specific questions regarding the application of these guidelines to a particular product, particularly when conflicting options are an issue.

The guidelines are based on the rationale that the Test Centre would like to evaluate a product sample that would be a usual clinical configuration but would test a worst case set-up within that configuration. It is acknowledged that it is not feasible to test every configuration or combination of options. Therefore the emphasis will be on seeing new options or most usual options if none are new.

If features are required for a certain device type classification, those features must be included on the product test sample supplied for evaluation to qualify for that type classification.

Overall Guidelines for All Product Samples

The product sample provided must be representative of the manufacturer's written technical specifications and product claims.

A production quality sample must be provided. No prototype devices will be accepted for evaluation. Product samples previously used for demonstration purposes are strongly discouraged.

The product must be provided with the same set-up as it would be presented to a consumer for use: it should be fully assembled and adjusted by a qualified company representative. This also includes all labels affixed (including product identification, serial number and warnings/cautions), and an owner's manual.

Adjustable products should be provided in the least stable configuration.

Any new options or features not previously evaluated should be included with the product sample provided for evaluation. (i.e. If there are two new armrest styles available samples of both should be provided.) If a product has options that have been evaluated at a Test Centre previously those options do not have to be included. If there is a choice between possible options and features previously reviewed please select one that would represent a usual choice for this product.

If the Applicant intends to have a product listed in both adult and paediatric categories, both an adult and a paediatric configuration of the product should be provided. (If there are paediatric specific options please include them with the paediatric sample.)

Any other features not included in these guidelines but unique to the product should be included.

Guidelines for Manual Mobility Devices (Adult Types 1-5 and Paediatric Types 1-6)

For standard adult sized products a product sample with the seat size closest to 18 inches wide by 16 inches deep is preferred.

For standard paediatric sized products a product sample with the seat size closest to 14 inches wide by 14 inches deep is preferred.

Manual products should be provided with front riggings, armrests, seat, back, wheel locks, cushion, seat belt and anti-tip devices. Anti-tips must be provided if required to meet minimal static stability criteria.

Largest rear/drive wheel size is preferred.

Largest caster size and fork is preferred.

If the product has features that can be set up for very different uses (i.e. a configuration for independent propulsion and a configuration for propulsion by an attendant) supply two product samples each reflecting the alternate configuration.

Quick release rear axle is preferred if available.

Guidelines for Manual Positioning Features

If an adjustable angle back and a manual dynamic recline feature are both available and can be accommodated on the same product sample please provide this configuration.

If only an adjustable angle back or a manual dynamic recline feature can be accommodated please provide the product sample with the feature that provides the greatest range.

If an adjustable angle seat and a manual dynamic tilt feature are both available and can be accommodated on the same product sample please provide this configuration.

If only an adjustable angle seat or a manual dynamic tilt feature can be accommodated please provide the product sample with the feature that provides the greatest range.

If a manual positioning feature only is under review, provide the feature on an ADP approved chair that it would be used on. (See Guidelines for Manual Mobility Devices for wheelchair configuration.)

Guidelines for Power Mobility Products (Adult Types 1-3, Paediatric Types 1-4, Power Add-on, Power Scooters)

For standard adult sized products a product sample with the seat size closest to 18 inches wide by 16 inches deep is preferred.

For standard paediatric sized products a product sample with the seat size closest to 14 inches wide by 14 inches deep is preferred.

All power devices must be set with standard factory settings and these settings must be provided in writing with the product. It must be possible for the Test Centre to verify that the settings are correct. If a programmer is required to do this, then the programmer and written instructions for the programmer must be provided.

All power devices must include fully charged batteries in good condition and the CSA approved battery charger that will be provided with the product. If more than one charger option is available please provide both (i.e. on-board and off-board chargers.)

The drive wheel should be the standard drive wheel provided. If there are options, the largest drive wheel is preferable.

The caster diameter should be the standard caster size provided. If there are options, the largest caster is preferable.

If there is a range of standard wheelbase sizes available, the shortest, narrowest wheelbase size available should be provided. If the wheelbase is adjustable it should be provided adjusted to the shortest wheelbase size.

It is not expected that specialty control options would be provided on the product sample but that documentation should be included explaining these options.

Standard joystick control options are expected on the product sample unless a new option is being made available that has not been previously reviewed by the ADP.

If there are options for motors, standard motors are expected to be provided with the product sample. It is expected that if different motor packages significantly alter the performance of the product that this information will be provided in writing for the ADP.

If suspension is a standard feature it should be included.

Power mobility products should be provided with front riggings, armrests, seat, back, wheel locks, cushion, positioning belt and anti-tip devices. Anti-tips must be provided if required to meet minimal static stability criteria.

Power add-on devices must be provided for testing on an ADP listed manual wheelchair that is fully equipped for use (i.e. footrests, armrests, seat, back, cushion, anti-tips, and wheel locks.)

If different seating system options are available for the power mobility product and those options have been evaluated previously by a Test Centre then the most common/usual seating system for this product should be supplied with the product for testing.

If a power elevating seat is an option on the product, and although the ADP does not fund this option, the product must be provided with it if it has not been evaluated previously on another ADP listed product.

If a power mobility device can be dramatically reconfigured so as to significantly impact testing results (i.e. configured for front or rear wheel drive by reversing seat) then supply two product samples one with each configuration.

Guidelines for Power Dynamic Positioning Products

New power dynamic positioning products must be provided on an ADP approved base. If the base and positioning system are both new to the ADP then testing can occur at the same time on the same product sample. (All applicable guidelines related to power mobility devices apply.)

If listing is sought for both power dynamic tilt and power dynamic recline it is preferred that one product sample be provided with both features. If it is not possible to have all available options on the same product sample, more than one product sample may be provided.

If power dynamic positioning can be combined with manual positioning, the manual positioning must be included. For example if power tilt is offered with a manual dynamic recline feature the product should be provided with this set up. If both an adjustable angle back and a manual dynamic recline are options then the manual option that provides the greatest range should be provided. If both a power recline and a manual dynamic recline option are available the power recline option should be provided and a manual dynamic recline option should be provided on a second test sample if the manual dynamic recline range is greater than the power recline range.

Wheeled Walkers (Adult Wheeled Walkers Types 1-3, Paediatric Specific Wheeled Walkers, Paediatric Specific Walking Frames)

For wheeled walkers all of the following options should be provided when applicable: slowing/running brakes, wheel locks or parking brakes, seat/sitting support, back support, basket, handgrips with arm support, and handle height extensions.

Generally the tallest and narrowest configuration should be supplied for testing. If frame geometry or weight capacity varies significantly over the different sizes of one model more than one sample may be requested for evaluation.

ASSISTIVE DEVICES PROGRAM

3 a). MINIMAL TECHNICAL CRITERIA FOR WHEELED WALKERS (Revision 4 – October 2006)

Scope

These criteria are to be used by the ADP for the evaluation of wheeled walkers. Both adult and paediatric walkers will be evaluated by these criteria. Note that although some criteria specify test loads as a percentage of maximum user capacity as per ISO testing standards, testing at test centres will only be conducted with loads pertaining to a maximum user capacity of 250 pounds. For products with a higher weight capacity, reliable and credible evidence must be supplied by the applicant to support this claim. Evidence of Criterion #1 must also be supplied by the applicant as testing pertaining to this criterion will not be conducted at the test centre.

Criteria

1.
 - i.) The walker must undergo 200, 000 cycles of loading at 80% of the maximum user weight at a frequency of no more than 1 Hz on a surface traveling at 0.4 m per loading cycle. The device must not undergo any permanent deformation.
 - ii.) Must have sufficient mechanical integrity (welds, bolted joints, structural members, wheels, etc.) to withstand reasonable fatigue or impact. The walker must operate without safety hazard or compromised performance.
2.
 - i.) Must have at least two (2) wheels with
 - ii.) a diameter no less than 75 mm and
 - iii.) any tips must have a diameter of no less than 35 mm.
 - iv.) Fully equipped, the mass of the device must be less than 13 kg.
3. In the least stable configuration while loaded with 25 kg distributed across the cane handles, the walker must have
 - i.) forwards stability on an incline of 15 degrees,
 - ii.) backwards stability on an incline of 7 degrees and
 - iii.) sideways stability on an incline of 6 degrees.
4.
 - i.) If a wheeled walker is supplied with a seat (either standard or optional), the device must be equipped with parking brakes.
 - ii.) If pressure brakes are present, a warning label must be prominently affixed advising the user to ensure the device is sufficiently stable before attempting standing/sitting or sitting/standing transfers.
 - iii.) Any parking brakes present must prevent the device from rolling more than 10mm/min on inclines up to an angle of 6 degrees while loaded with 50% of the maximum user weight.

(Note: Paediatric-Specific Walking Frames (MW6) are exempt from Criteria 4.i and 4.ii)

 - iv.) If equipped with hand-activated brakes, each running brake mechanism must have a grip width of no more than 75 mm and

- v.) the activation and release of each parking brake must not exceed a pushing force of less than 60 N or
 - vi.) the activation and release of each parking brake must not exceed a pulling force of less than 40 N.
5. When the seat is statically loaded to 120% of the maximum user weight,
- i.) the device must not undergo an overall deflection of more than 5% (as measured from the point of load application) and
 - ii.) the device must not undergo any plastic deformation for any component while loaded.
- When the cane handles are statically loaded to 120% of the maximum user weight,
- iii.) the device must not undergo an overall deflection of more than 5% (as measured from the point of load application) and
 - iv.) the device must not undergo any plastic deformation for any component while loaded.
6. i.) When in operating configuration, the walker must not be able to be inadvertently folded.
- ii.) Must not undergo any crimping or permanent deformation when hand-adjustable fasteners are tightened using a torque of 3.4 Nm.
 - iii.) When the handle is fastened to the walker using a torque of 3.4 Nm, one must not be able to rotate the handle about its stem when a force of 70 N is statically applied normal to the midpoint of the handgrip's longitudinal axis.
 - iv.) Must have all handgrips securely affixed to the device and
 - v.) with a diameter of between 30mm and 50mm and
 - vi.) a length of no less than 105mm.
7. i.) Owner's manual/user instructions must be provided and
- ii.) must include information on how to safely use all of the features of the device, how to make adjustments, and how to clean and maintain the device. User documentation should be appropriately illustrated and reflect the product which it is intended for.

ASSISTIVE DEVICES PROGRAM

3 b). CLASSIFICATION GUIDELINES FOR WHEELED WALKERS (Revision 1 – October 2006)

Scope

These criteria are to be used by the ADP for the purpose of classifying adult and paediatric wheeled walkers into one of three types. All devices must meet all applicable ADP Minimal Technical Criteria for Wheeled Walkers and must be eligible for listing with the ADP.

Adult Wheeled Walker – Type 1 (MW1)

Product description:

Walker type most suitable for hard flat surfaces. Not the most suitable for uneven terrain or heavy use. Some are equipped with brakes, optional seats, baskets or trays.

Criteria:

1. Must be an adult size walker.
2. Must have at least two(2) wheels.
3. Must have a braking system if equipped with a seat.

Adult Wheeled Walker – Type 2 (MW2)

Product description:

Walker type most suitable for hard flat surfaces. Generally designed for light outdoor use. Able to traverse minimally varying terrain.

Criteria:

1. Must be an adult sized walker.
2. Must have four(4) wheels, hand braking system, and seat.
3. Wheels are usually less than 18 cm (7 inches) in diameter.
4. Tires are smooth and suitable for hard flat surfaces.

Adult Wheeled Walker – Type 3 (MW3)

Product description:

Walker type most suitable for active use on most terrains. They are more stable and more smoothly traverse varying terrain and transitions.

Criteria:

1. Must be an adult sized walker.
2. Must have four(4) wheels, each of which must have a diameter of 18.0 cm (7 inches) or greater and a width of 22 mm or greater.

3. In the least stable configuration, the walker must have forwards stability to an angle of 15 degrees, backwards stability to an angle of 9 degrees and sideways stability to an angle of 9 degrees, while loaded with 40 kg.
4. Must have available a seat, back support, running brakes and parking brakes.
5. Must not have pressure brakes.
6. Must have tires which are durable, strong and provide good traction.
7. Must have ground clearance of greater than 5 cm. (2 inches), as measured from the lowest part of the frame not closer than 4 cm. (1.5 inches) to any part of the closest wheel.

Paediatric Specific Wheeled Walker (MW4)

Product description:

Walker type most suitable for use on hard flat surfaces.

Criteria:

1. Must be a paediatric sized walker.
2. Must have at least two(2) wheels.

Paediatric Specific Wheeled Walker (MW5)

Product description:

Walker type most suitable for active use on most terrains.

Criteria:

1. Must be a paediatric sized walker.
2. Must have four(4) wheels, each of which must have a diameter of 18.0 cm (7 inches) or greater and a width of 22 mm or greater.
3. In the least stable configuration, the walker must have forwards stability to an angle of 15 degrees, backwards stability to an angle of 9 degrees and sideways stability to an angle of 9 degrees, while loaded with 12 kg.
4. Must have available a seat, back support, running brakes and parking brakes.
5. Must not have pressure brakes.
6. Must have tires which are durable, strong and provide good traction.
7. Must have ground clearance of greater than 5 cm. (2 inches), as measured from the lowest part of the frame not closer than 4 cm. (1.5 inches) to any part of the closest wheel.

Paediatric Specific Walking Frame (MW6)**Product Description:**

These walkers are similar to MW4, with additional sitting support built in, such as a sling seat or a saddle seat. The seat is intended to provide the child with some support. In the event of weakness or falls the seat should not encourage the child to propel themselves while sitting. The device should facilitate ambulation.

Criteria:

1. Must be paediatric sized.
2. Must have four wheels.
3. Must have a sitting support such as a sling or saddle seat.
4. Wheel locks are not a requirement.

ASSISTIVE DEVICES PROGRAM

4 a). MINIMAL TECHNICAL CRITERIA FOR MANUAL WHEELCHAIRS (Revision 8 – October 2006)

Scope

These criteria are to be used by the ADP for the evaluation of manual wheelchairs; wheelchairs which do not rely on an integral electric power source and drive system for translational motion. Both adult and paediatric chairs will be evaluated using these criteria. Testing indicates a standard test load of 75 kg for adult size products and 25 kg for paediatric products assuming an adult seat size of 18X16 inches and paediatric seat size of 14X14 inch seat. For products claiming a heavy duty or bariatric weight capacity, reliable and credible evidence must be supplied by the applicant to support this claim. Evidence of Criterion #1 must also be supplied by the applicant as testing pertaining to this criterion will not be conducted at the test centre. Products with manually operated dynamic tilt and/or recline features must also meet applicable *ADP Minimal Technical Criteria for Tilt/Recline Systems*. Products intended to be listed as Type 6 must also meet *ADP Minimal Technical Criteria for Paediatric Specific Specialty Stroller*.

Criteria

1. a) The product must pass the Two Drum Fatigue Test (minimum 200,000 cycles) as in ISO 7176-8.

The product must pass the Curb Drop Test (minimum 6666 cycles) as in ISO 7176-8.

The construction of the device must be such that it has sufficient mechanical integrity (welds, bolted joints, structural members, and wheels) to withstand reasonable fatigue or impact without safety hazard or compromised performance.
- b) The design of the device must include shrouds or guards to protect the user from moving parts on the wheelchair, except wheels and up to 50 mm (2 inches) of their axles.
2. a) The device must not have dimensions exceeding a maximum width of 70 cm (27 inches), assuming a 51 cm (20 inches) seat width and must have a minimum ground clearance of 50 mm (2 inches) under the wheelchair frame.
- b) Must have static stability in least stable configuration (including any non-dynamic positioning features) while bearing an ISO test dummy (75 kg for adult chairs or 25 kg for paediatric chairs) in any plane, at inclinations as specified below:

	Wheelchair Type	Inclination (°)
1	Standard	10
2	Lightweight Standard	6
3	Lightweight Performance	6
4	High Performance Rigid	1
5	Manual Dynamic Tilt	10

Additionally, if anti-tip devices were used to achieve the minimum stability requirements listed above, those devices must either be permanently affixed to the wheelchair or there must be a label permanently affixed cautioning against the removal of the anti-tips.

3. Must have a rolling resistance, while carrying the appropriate ISO test dummy (75 kg for adult chairs or 25 kg for paediatric chairs), of less than 44 N during acceleration to a velocity of 1.8 m/s and 22 N at a constant velocity of 1.8 m/s.
4.
 - a) Must have wheel locks which hold on an incline of at least 12 degrees in both forward and rearward directions when loaded with the appropriate ISO test dummy (75 kg for adult chairs or 25 kg for paediatric chairs).
 - b) Must be able to engage wheel locks to achieve Criterion 4.a) with a force of less than 100N.
5. Must have available an owner's manual and/or product literature that provides the necessary information for the safe and proper use and maintenance of the product. Product sample must be representative of manufacturer's written technical specifications and product claims.

ASSISTIVE DEVICES PROGRAM

4 b). CLASSIFICATION GUIDELINES FOR MANUAL WHEELCHAIRS (Revision 3 – October 2006)

Scope

Chairs will be classified once the ADP testing requirements have been met. The requirements include among others, an engineering and clinical evaluation. The guidelines are used to classify manual wheelchairs into one of five ADP types. The types reflect a combination of features such as the weight of the chair, the options and adjustments of the chair and the type of frame construction i.e. folding, rigid or tilt.

The criteria apply to both adult and paediatric categories, unless otherwise specified. Generally, devices with seat widths of 15 inches or greater would be classified as an adult type and 14 inches or less would be considered a paediatric type. If the wheelchair has features that meet the criteria of more than one category the chair will be classified in the category that best describes it. Chairs may be compared to other devices already listed to assist in this process.

Definitions

A fully equipped chair is considered to have armrests, legrests, anti tips, wheels, and wheel locks. Standard seat sizes of 18X16 inches for adult and paediatric of 14X14 inches are assumed in the weight measurement.

A suitably adjustable rear axle is defined as an axle which can be repositioned in at least four(4) different locations with respect to the frame for a cumulative unidirectional distance of greater than 5 cm (2 inches). An axle with vertical seat to floor adjustment must also have corresponding caster housing adjustments.

Standard Manual Wheelchair – Type 1

Appropriate clients: Wheelchair type most suitable for user who is not consistently independently mobile and/or requires minimal to no adjustments to accommodate postural and mobility requirements.

Chair characteristics: These chairs are typically of heavier construction and have limited adjustability and options. Different seat to floor heights are usually achieved by changing the wheel size.

Criteria:

1. Weighs, fully equipped, greater than 17.2 kg (38 lbs.) for adult wheelchairs and 15.9 kg (35 lbs.) for paediatric wheelchairs.
2. Foldable frame.
3. Not equipped with a suitably adjustable rear axle.
4. For paediatric wheelchairs the device allows for minimal growth potential.

Lightweight Standard Manual Wheelchair – Type 2

Appropriate clients: Wheelchair type most suitable for user who is independently mobile and/or requires some adjustments to accommodate postural and mobility requirements.

Chair characteristics: The chairs are of lighter weight than the standard category. There may be some axle adjustment, for example horizontal movement or positions, but is limited in terms of camber angle, vertical adjustment and corresponding caster housing adjustments.

Criteria:

1. Weighs, fully equipped, between 11.3 kg (25 lbs.) and 17.2 kg (38 lbs.) for adult wheelchairs, and 11.3 kg (25 lbs) and 15.9 kg (35 lbs) for paediatric wheelchairs.
2. Foldable frame.
3. Limited axle adjustment.
4. For paediatric wheelchairs only, the devices allow for some but limited growth potential.

Lightweight Performance Manual Wheelchairs – Type 3

Appropriate clients: Wheelchair type most suitable for the very active user who requires altered wheel placement and/or optimal postural support and mobility.

Chair characteristics: The chairs are of lighter weight than a standard chair and offer maximum ability to customize the chair to the client. This includes maximal axle adjustment (horizontal, vertical, camber), caster housing adjustment and many options such as hanger angle, rear wheel and caster size etc. The frame construction may be foldable or rigid.

Criteria:

1. Weighs, fully equipped, between 11.3 kg (25 lbs) and 17.2 kg (38 lbs) for adult wheelchairs, and 11.3 (25 lbs.) and 15.9 kg (35 lbs.) for paediatric wheelchairs.
2. Foldable or rigid frame.
3. Rear axle is suitably adjustable or, the rear axle position need not be adjustable if it is customized for each client at the time of the prescription (rigid frame)
4. Front casters must provide a range of adjustability to fully accommodate the range of rear axle positions.
5. For paediatric wheelchairs only, the devices allow for maximal growth potential.

Lightweight High Performance Rigid Manual Wheelchairs – Type 4

Appropriate client: Suitable for the very active user who requires postural support and altered wheel placement for optimal manoeuvrability.

Chair characteristics: The wheelchairs are the lightest available with the most capability to fine tune the chair to the user's physical requirements. The frame construction is rigid.

Criteria:

1. Weighs, fully equipped, less than 11.3 kg (25 lbs) for both adult and paediatric wheelchairs.
2. Rigid frame
3. Rear axle is suitably adjustable or, the rear axle position need not be adjustable if it is customized for each client at the time of the prescription.

4. Front casters must provide a range of adjustability to fully accommodate the range of rear axle positions.
5. For paediatric wheelchairs only, the devices allow for maximum growth potential.

Manual Dynamic Tilt Wheelchairs – Type 5

Appropriate client: Suitable for the user who cannot maintain an upright posture through the use of seating components alone or who can not effectively weight shift to relieve pressure.

Chair characteristics: The chairs offer manual dynamic tilt.

Criteria:

1. Must be equipped with a tilt in space feature.
2. For paediatric wheelchairs only, the devices allow for maximal growth potential.

Paediatric Specific Specialty Strollers – Type 6 (PAEDIATRIC TYPE ONLY)

Appropriate client: Suitable for the user who is not independently mobile.

Chair characteristics: The products are comprised of a stroller frame and upholstery, foot support, seat and back supports, headrest, chest and pelvic positioning straps (harness), abductor and wheels. Usually foldable.

Criteria:

1. Must meet *ADP Minimal Technical Criteria for Paediatric Specific Specialty Stroller*.
2. The devices allow for maximal growth potential.

ASSISTIVE DEVICES PROGRAM

5 a). MINIMAL TECHNICAL CRITERIA FOR POWERED MOBILITY DEVICES

(Revision 8 – October 2006)

Scope

These criteria are to be used by the ADP for the evaluation of electrically powered wheelchairs and scooters. An **electrically powered mobility device** is defined as a device that has three or more wheels and utilizes self-contained electrical energy to ultimately produce translational motion.

Both adult and paediatric devices will be evaluated using these criteria. Testing indicates a standard test load of 75 kg for adult size products and 25 kg for paediatric products assuming an adult seat size of 18X16 inches and paediatric seat size of 14X14 inch seat. For products claiming a heavy duty or bariatric weight capacity, reliable and credible evidence must be supplied by the applicant to support this claim. Evidence of Criterion #1 must also be supplied by the applicant as testing pertaining to this criterion will not be conducted at the test centre. Products with dynamic tilt and/or recline features must also meet applicable *ADP Minimal Technical Criteria for Tilt/Recline Systems*. Testing procedures follow ISO testing standards, unless indicated otherwise.

Criteria

1. a) i. The product must pass ISO Two Drum Fatigue Test (minimum 200,000 cycles) as in ISO 7176-8.
 - ii. The product must pass ISO Drop Test (minimum 6666 cycles) as in ISO 7176-8.
 - iii. The product must have sufficient mechanical integrity (welds, bolted joints, structural members, wheels, etc.) to withstand reasonable fatigue or impact without safety hazard or compromised performance.
 - iv. The product must have sufficient integrity of electric/electronic components and assemblies to provide continuous duty operation without safety hazard or compromised performance.
 - b) i. The design of the device must include shrouds or guards to protect the user from moving parts on the wheelchair, except wheels and up to 50 mm (2 inches) of their axles;
2. a) The device must have the following dimensions:
 - i. a maximum width of 70 cm (27 inches), assuming a seat width of 51 cm (20 inches)
 - ii. a minimum ground clearance of 50 mm (2 inches) and
 - iii. a minimum turning radius of no more than 90 cm (35 inches).

- b) The device must have static stability in any plane (adjusted to its least stable configuration including any non-dynamic positioning features) at an inclination of at least 12 degrees when bearing an ISO test dummy.
- 3.
- a) The device must be stable while accelerating with full power on uphill inclines of 9 degrees.
 - b) The device must be stable while turning at 1.5 times the minimum radius at maximum speed, when loaded with an ISO test dummy.
 - c) The device must have a maximum speed less than 15 km/hr and must be capable of reaching a speed of at least 4 km/hr.
 - d) The device must be able to climb a 40 mm (1.6 inches) curb in the forward direction with a 50 cm (19.6 inches) run-up.
- 4.
- a) The device must have wheel locks and/or automatic brakes which prevent the wheelchair from rolling on an incline of at least 12 degrees.
 - b) Must have wheel locks and/or automatic brakes which:
 - i. are operable in the absence of battery power and
 - ii. require an activation force of less than 100 N.
 - c) Must have automatic braking which stops the chair within a distance of 0.3 m for every km/hr while moving forward at maximum speed.
- 5.
- a) Must have a manual override which (ISO 7176-14:7):
 - i. requires a force of less than 60 N to activate, when measured in the most advantageous position;
 - ii. requires a force of less than 100 N to push the chair when engaged;
 - iii. cannot be partially engaged;
 - iv. can be activated in the absence of battery power or in the case of any electrical malfunction; and
 - v. is explained by a label prominently affixed to the device.; and
 - vi. does not allow the mobility device to be driven when automatic brakes are not engaged.
 - b)
 - i. It must not be possible to drive the wheelchair when the battery charger is connected to the battery set and supply mains.
 - ii. The device must be equipped with a battery power level indicator.
 - iii. The device must be supplied with a battery charger that is CSA approved.

- iv. A battery connection and circuit protection diagram in accordance with ISO 7176-14 6.1 shall be clearly visible when batteries are uncovered.
- c)**
 - i. All user-accessible connectors must be polarized.
 - ii. No user-accessible connectors are interchangeable (ISO 7176-14 6.5).
 - iii. The wheelchair must respond to drive commands in an expected manner during a loss of electrical connection to each of the controller, the power supply the input device and the drive system.
- d)**
 - i. All wires shall be routed and secured in such a manner that they cannot be snagged on furniture or any other protrusion or be damaged by or interfere with any moving part of the wheelchair. (ISO 7176-14 6.6).
- 6.**
 - a)**
 - i. Must have available an owner's manual and/or product literature
 - ii. that provides the necessary information for the safe and proper use and maintenance of the product
 - iii. which includes a battery wiring diagram.

ASSISTIVE DEVICES PROGRAM

5 b). CLASSIFICATION GUIDELINES FOR POWER WHEELCHAIRS (Revision 3 – October 2006)

SCOPE

These guidelines are to be used for purpose of classifying power wheelchairs into one of three ADP types. To be classified, all power wheelchairs must be ADP accepted devices, whether newly accepted or previously accepted. The criteria apply to both adult and paediatric power wheelchair types, unless otherwise specified. Generally devices with seat widths of 15 inches or greater would be classified as an adult type and 14 inches or less would be considered a paediatric type. Also paediatric types generally have a smaller footprint and paediatric specific options available. If the wheelchair has features that meet the criteria of more than one type, the chair will be classified as the type that best describes it.

Type 1 Power Wheelchair

Appropriate Clients:

Primarily for the client who requires power for mobility but does not require a lot of adaptive accessories or seating modification. Primarily for the user who requires minimal adjustments to support independent mobility.

Chair Characteristics:

This is a basic power wheelchair with conventional seating. Seating is generally fixed in structure but may accommodate manually operated accessories. There is some customization of the electronics possible, and the frame is possibly foldable for transportation, but is not easily portable. The device is most suitable for indoor/outdoor, hard/flat terrain. The device is generally not suitable for all terrain.

Criteria:

- | | |
|---|---|
| • SEATING | Fixed with few adjustments; may accommodate manually operated accessories |
| • FOLDABILITY | Possibly foldable frame |
| • CONTROL OPTIONS | Few control options are available |
| • PERFORMANCE ADJUSTABILITY | Few performance adjustments are available |
| • WHEEL SIZE, DIAMETER AND WHEEL THICKNESS OR FOOTPRINT | Small tire footprint |
| • AVAILABLE POWER | Moderate available power |
| • SPEED | Moderate available speed |

Type 2 Power Wheelchair

Appropriate Clients:

Primarily for the client who requires special controls and adapted seating options. Primarily for the user who requires postural support, modifications to electronics, and other specific options to support independent mobility.

Chair characteristics:

This is a rehab power wheelchair that can accommodate more complex seating. The device allows for a lot of modification to modular seating and/or customization to electronics and other features. It may accommodate power seating options. The device is suitable for indoor/outdoor use on most terrains.

Criteria:

- SEATING Must have adjustable seating, possibly modular;
may accommodate power options
- FOLDABILITY Difficult to fold
- CONTROL OPTIONS Many control options are available
- PERFORMANCE ADJUSTABILITY Numerous performance adjustments
- WHEEL SIZE, DIAMETER AND WHEEL THICKNESS OR FOOTPRINT Large tire footprint on all wheels
- AVAILABLE POWER Abundant available power
- SPEED Abundant available speed

Type 3 Power Base

Appropriate Client:

Primarily for the client who requires ongoing changes in postural support, modifications to electronics, and other specific options to support independent mobility. The client is very active and requires greater chair functionality than the average rehab client. The client's environment requires hill climbing, rough terrain traversing, greater speed and/or long distance capabilities.

Chair characteristics:

This wheelchair is designed for very active use. Extreme changes in seating are possible without requiring any modification of the base device. The device is suitable for both indoor and outdoor on all terrain and has greater speeds, range, curb and incline climbing ability and durability than typically found in Type 2.

Criteria:

- SEATING Must accommodate power tilt and may accommodate other power options
- FOLDABILITY Difficult to fold
- CONTROL OPTIONS Many control options are available
- PERFORMANCE ADJUSTABILITY Numerous performance adjustments
- WHEEL SIZE, DIAMETER AND WHEEL THICKNESS OR FOOTPRINT Large tire footprint on all wheels
- AVAILABLE POWER Abundant available power
- SPEED Abundant available speed

ASSISTIVE DEVICES PROGRAM

6. MINIMAL TECHNICAL CRITERIA FOR TILT/RECLINE SYSTEMS (Revision 5 – October 2006)

Scope

These criteria are to be used by the ADP for the evaluation of tilt/recline systems. Both adult and paediatric devices will be evaluated using these criteria.

Definitions

A **manually operated tilt/recline system** is defined as a tilt/recline system that:

- a) requires an externally applied force (applied by the user or attendant) to tilt and/or recline the system;
- b) is either integral to or adapted to a wheeled mobility base, either power (paediatric only) or manual (both paediatric and adult); and
- c) is intended to be used repetitively during the day while the wheelchair is occupied.

An **electrically-operated tilt/recline system** is defined as a tilt/recline system that:

- a) requires electric power to activate the tilt/recline system; and
- b) is either integral to or adapted to a wheeled mobility base, either power or manual.

Criteria

The system as a whole shall be considered a wheelchair, and as such, must, in addition to the following criteria, adhere to all appropriate ADP criteria for wheelchairs. Refer to *ADP Minimal Technical Criteria for Manual Wheelchairs* and *ADP Minimal Technical Criteria for Powered Mobility Devices*. A tilt/recline system adapted to a base already accepted according to the aforementioned criteria must continue to meet these criteria after adaptation.

1.
 - a. The device must have the following angular dimensions:
 - i. a seat angle which does not exceed 60 degrees from the horizontal;
 - ii. a recline angle which does not exceed the horizontal plane;
 - iii. a combined tilt/recline angle which does not exceed the horizontal plane; and
 - iv. a seat-to-back angle which cannot be made less than 80 degrees, while occupied.
 - b. Must have static stability in the least stable tilted/reclined position to an inclination of at least 6 degrees in any orientation, while carrying the appropriate ISO test dummy (75 kg for adult systems and 25 kg for paediatric systems).
2.
 - a. Manual tilt/recline systems must require a force of less than:
 - i. 80 N, or a torque of less than 3.4 Nm, to activate the manual recline mechanism when measured in the most advantageous position.

- ii. 150 N to initiate the recline system from the upright position;
 - iii. 150 N to return the fully reclined seat to the upright position (with no tilt)
 - iv. 150 N to return the fully reclined seat to the upright position (with full tilt)
 - v. 80 N, or a torque of less than 3.4 Nm, to activate the manual tilt mechanism when measured in the most advantageous position.
 - vi. 150 N to initiate the manual tilt;
 - vii. 150 N to return the fully tilted seat to the upright position (with no recline)
 - viii. 150 N to return the fully tilted seat to the upright position (with full recline)
3. a. i. All tilt/recline systems must have a range-limiting device of mechanical operation, which is present to prevent operation of the system beyond the range described in Criteria 1.a.
- ii. The tilt/recline system must perform according to claims (eg. range, drive lock out and speed reduction features.)
- b. Manual tilt/recline systems must have a locking mechanism that will:
- i. securely lock the seat and seatback in any position up to a maximum as described in Criteria 1.a.; and
 - ii. automatically lock the seat and seatback into position when the activation mechanism is released, whether intentionally or inadvertently.
- c. Electrical tilt/recline systems must be controlled by either a momentary contact switch or a latching switch combined with an alternate site "kill" switch.

ASSISTIVE DEVICES PROGRAM

7. MINIMAL TECHNICAL CRITERIA FOR PAEDIATRIC SPECIFIC SPECIALTY STROLLER (Revision 2 – October 2006)

Scope

These criteria are to be used for the evaluation of paediatric specific specialty stroller; wheeled bases that are not designed to be propelled by the occupant.

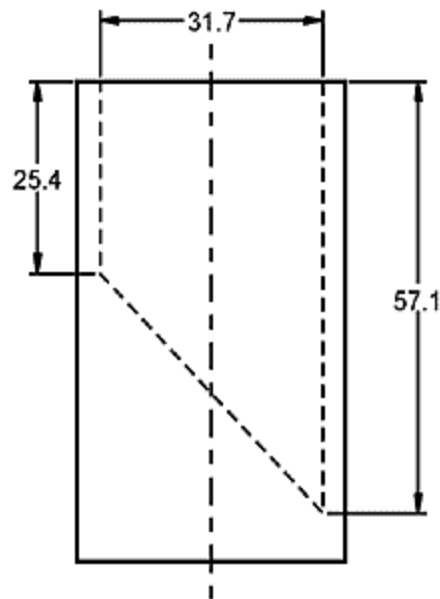
Criteria

1. The system (base & seating components) as a whole shall be considered a wheelchair, and as such, must, in addition to adhering to the following criteria, adhere to all ADP appropriate criteria for wheelchairs. Refer to *ADP Technical Criteria for Manual Wheelchairs*.
2. Must meet all applicable *ADP Minimal Technical Criteria for Tilt/Recline Systems*.
3. The attendant braking device's release mechanism must be out of hand reach and foot reach of an occupant seated in the product.
4. Every product that folds must be designed and constructed to prevent inadvertent folding.
5. Every component of a product that is small enough to be placed in the truncated right cylinder described in Figure 1 must be so fitted or affixed to the product that it will not become detached from the product when subjected to a force of 90 N applied in any direction.
6.
 - a) Every metal part of a product must be free of burrs, sharp points, sharp corners and projections.
 - b) Every cut edge of the metal tubing of a product must be smoothly finished to eliminate rough or sharp edges, corners or points, or must be protected by a cap that will remain in place when subjected to a force of 90 N applied in any direction.
 - c) Every exposed wooden or plastic part or parts of a similar hard material must be smoothly finished to eliminate rough or sharp edges, cracks and other defects.
 - d) The threaded end of every bolt of a product must be protected by an acorn nut or other device suitable for the purpose of preventing injury to the occupant.
7. Every open hole in a metal, plastic or wooden component or in a component of similar hard material that is accessible to an occupant of the product:
 - a) must be of such size or shape that if it admits a rod 5.5 mm in diameter it will also admit a rod 10 mm in diameter; and

- b) if the minor dimension of the hole is between 5.5 mm and 10 mm, the hole must have a depth that is not greater than the minor dimension.
8. Every dependant wheeled mobility base which is equipped with a seating unit must have mechanisms which secure the seating unit to the base.
9. The owner's manual or product literature must list the occupant size and weight ranges recommended by the manufacturer.

Small Parts Cylinder

A cylinder of the design and dimensions shown in Figure 1 shall be used for the purpose of measuring component referred to in Criteria #5.



- Notes:
- Not to scale
 - All dimensions in mm

FIGURE 1.

APPENDIX A

Items Required by the Test Centre for Evaluation of New Products

Instructions:

Please complete this checklist and include it with the package to go to the assigned Test Centre.

Where possible electronic versions of this material are preferred.

Documentation can be sent prior to the product demonstration, particularly if in electronic format.

Checklist:

___ copy of *ADP Application for Equipment Listing*

___ product sample(s) as described in *Guidelines for Selection of Product Sample to be Provided for ADP Evaluation*. List features, sizes, and options of the product sample and attach a product order form completed to reflect the product sample.

___ Owner's Manual (draft acceptable)

___ Product Order Form (draft acceptable)

___ Technical/Service Manual(s) (draft acceptable)

___ *Prior Testing Disclosure Form* (Do not include other testing reports.)

___ product technical specifications and picture (separate brochure or included in Owner's Manual)

___ Product Evaluation Fee

Product Name: _____

Manufacturer: _____

Applicant Name: _____

Date all items above supplied to designated test centre_____.

APPENDIX B

Items Required by the Test Centre for Evaluation of Changes/Modifications/New Options to ADP Listed Devices

Instructions:

Please complete this checklist and include it with the package to go to the assigned Test Centre.

Where possible electronic versions of this material are preferred.

***Note:** A product sample need only be provided if requested after the initial documentation review. (See *ADP Procedure for the Inclusion of Wheelchairs, Positioning and Ambulation Aids in the Assistive Devices Program*).

The evaluation fee is not required in advance and the applicant will be invoiced based on the time required to complete the review. (See *ADP Procedure for the Inclusion of Wheelchairs, Positioning and Ambulation Aids in the Assistive Devices Program*).

Checklist:

___ copy of the *Application for Funding of Changes/Modifications/New Options to ADP Approved Devices*

___ Owner's manual (draft of changes acceptable)

___ Product order form (draft acceptable)

___ Technical/service manual(s) (draft acceptable)

___ *Prior Testing Disclosure Form* (Do not include other testing reports. Only sections related to changes due to the modifications/new options need to be filled in.)

___ product technical specifications and picture (separate brochure or included in Owner's Manual)

___ only if requested* product sample(s) as described in *Guidelines for Selection of Product Sample to be Provided for ADP Evaluation*

Product Name: _____

Manufacturer: _____

Applicant Name: _____

Date all required items above supplied to designated test centre_____.