Canadian Transportation Agency
Office des transports du Canada

Code of Practice: Aircraft Accessibility for Persons with Disabilities

For fixed-wing aircraft with 30 or more passenger seats

Making Transportation Efficient and Accessible for All

available in multiple formats

Canada

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Table of Contents

Introduction

A. The Canadian Transportation Agency

The Canadian Transportation Agency is a quasi-judicial administrative tribunal of the federal government. Under Canadian legislation, the Agency has the responsibility for ensuring that persons with disabilities obtain access to this country's transportation system by eliminating unnecessary or unjustified barriers.

One way in which it can achieve this goal of accessible transportation is to develop and administer accessibility standards covering the transportation network under federal jurisdiction. Other ways include resolving complaints and consulting with stakeholders.

B. The Purpose of this Code

The purpose of this Code of Practice is to improve the accessibility of air travel for persons with disabilities. Two sets of regulations regarding accessible transportation have been implemented by the Agency:

1. The *Air Transportation Regulations*, Part VII, Terms and Conditions of Carriage of Persons with Disabilities: ensures that air carriers provide uniform services to passengers with disabilities travelling in Canada on aircraft with 30 or more passenger seats so that they may confidently expect to travel with a minimum, reliable and consistent level of service.
2. The *Personnel Training for the Assistance of Persons with Disabilities Regulations*: ensures that personnel in the air (as well as the federal rail and marine) transportation network have the knowledge, skills and attitudes necessary to assist passengers with disabilities in an effective and sensitive fashion.

With this Code of Practice, the Agency is addressing the physical accessibility of equipment used in air transportation. Where possible, it avoids precise measurements and rigid descriptions of exact procedures to be followed. Instead, it offers practical, functional, operations-oriented solutions to problems faced by persons with disabilities who travel by air.

During the time the Code was being developed, the Agency strived to foster harmonization with standards implemented in the United States and with international standards developed by the International Civil Aviation Organization (ICAO) and the European Civil Aviation Conference (ECAC).

The Code was produced by the Agency in close consultation with its Accessibility Advisory Committee. This Committee is made up of representatives of organizations of and for persons with disabilities as well as representatives of industry, manufacturers and other government departments. The Committee plays a key role in making concrete gains in the accessibility of the federal transportation network; it provides the Agency with guidance and a forum for consultation as it develops and reviews standards and explores issues; and it allows stakeholders to share information and gain knowledge about the Agency and each other.

C. Administration

The Agency will conduct periodic monitoring of compliance with this Code, undertake activities to enhance compliance, and report the findings to its Accessibility Advisory Committee.

In addition, periodic reviews of the Code will be undertaken. Any problems identified will be addressed through consultations with the Accessibility Advisory Committee, and any proposed amendments to be distributed to the public for comment will be made with input from this Committee.

Throughout this process, the Agency will continue to exercise its authority to deal with individual complaints to determine whether there is an undue obstacle to the mobility of persons with disabilities.

The Code

Section 1 – General

1.1 Carriers and Aircraft Covered by this Code

It is expected that this Code of Practice will be followed by all Canadian[1] air carriers that provide passenger service, especially those that provide scheduled and resaleable charter passenger service. In general, this Code applies only to fixed-wing aircraft with 30 or more passenger seats used for providing passenger service, and only to those areas of an aircraft that may be used by the general public.

In determining whether an aircraft is subject to this Code, an air carrier should consider a passenger seat as a seat on board an aircraft that is ordinarily occupied by a passenger.

There are a few instances, however, where this Code refers to only large aircraft. Also, air carriers that lease a foreign-registered aircraft for longer than 90 days for operational requirements or to replace an aircraft undergoing maintenance or servicing are urged to make every effort to ensure that the aircraft satisfies the criteria set out in this Code of Practice.

1.2 When and How Air Carriers Should Follow this Code

The Canadian Standards Association's *B651* standard*, Accessible Design for the Built Environment,* contains many criteria that are applicable to accessibility features on aircraft, such as accessible controls and operating mechanisms, handrails, signage and grab bars. Air carriers are invited to refer to this standard and, where it is appropriate to do so, to adopt the technical specifications it contains.

It should be kept in mind that safety onboard aircraft is the responsibility of Transport Canada (not the Agency) and, in this regard, Transport Canada has made safety regulations under the *Aeronautics Act*. There is nothing

[1] As defined in the *Canada Transportation Act*.

in this Code of Practice that relieves any air carrier from complying with the provisions of any of these safety regulations.

It should also be emphasized that this Code presents minimum standards that air carriers are expected to meet. Carriers are urged, however, to exceed these standards wherever feasible and to consult with consumer groups when developing and testing new designs.

Section 2 – Accessibility Criteria

2.1 Signage

Signage provided on an aircraft to aid passengers should satisfy the criteria set out below, which can be found in the most current version of the Canadian Standards Association's *B651* standard. (Since safety and crew signage are regulated by Transport Canada, they are not covered by these specifications.)

Signage should be positioned to avoid shadow areas and glare.

Characters and symbols should be glare-free and presented in contrasting colours.[2]

Letters should be sans serif, numbers should be Arabic and both should have at least a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.

Characters, symbols and pictographs on tactile signs should be raised at least 0.8 mm and should be between 16 mm and 50 mm high. If a tactile sign is mounted on a wall, its centre should be at a height of 1500 mm plus or minus 25 mm from the floor.

If symbols and pictographs are supplemented with braille, the tactile sign should be placed directly below the pictograph or symbol and presented in Grade One Braille that meets the standards of the Canadian Braille

[2] "Contrasting colours" means a light colour on a dark background or a dark colour on a light background, with light on dark being preferable for signage.

Authority in English and in *Braille intégral* that meets the standards of the *Comité interministériel sur la normalization du braille* in French.

2.2 Lighting

Lighting on an aircraft, except reading and other lighting under the control of a passenger, should be directed and controlled so as not to create glare or shadows.

Lighting should not result in any sharp contrasts in intensity throughout the passenger cabin.

2.3 Integrated Boarding Stairs

Integrated boarding stairs on an aircraft should have uniform riser heights and uniform tread depths. The height of the first step on and last step off should not exceed the uniform riser height.

The tread surfaces of the stairs should be firm and non-slippery and should not create glare.

The top outer edge of each step should be marked by a contrasting colour strip that runs the full width of the step and is readily apparent from both directions of travel.

Handrails should be provided on both sides.

If structural limitations of an aircraft prevent any of the above criteria from being satisfied, an air carrier should provide assistance to a person with a disability in ascending and descending the stairs, if requested.[3]

2.4 Handrails

Handrails on integrated boarding stairs should be sturdy, rounded, smooth and slip-resistant. They should have an exterior diameter that permits easy grasping and not have any obstructions that could break a handhold.

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[3] If there are no structural limitations, this in no way reduces an air carrier's responsibility to provide requested assistance in boarding and deplaning as required by the terms and conditions of carriage provisions contained in Part VII of the *Air Transportation Regulations.*

Handrails should be colour contrasted from their surrounding area or marked with a contrasting colour strip that runs the full length of the handrail.

Handrails should also return to a wall or the head and foot of the stairs in a smooth curve.

If structural limitations of an aircraft prevent the above criteria from being satisfied, an air carrier should provide assistance, if requested, to a person with a disability in ascending and descending the stairs.[4]

2.5 Floor Surfaces

Floor surfaces on an aircraft should be glare-free and slip-resistant.

2.6 Seats with Floor Space to Accommodate a Service Animal

Each class section of the passenger cabin of an aircraft, e.g. first class, business class, economy class, should have a number of passenger seats, other than exit row seats, that each provides enough floor space for a service animal[5] to lie down.

This section should be read in conjunction with Appendix 3, the *Implementation Guide Regarding Space for Service Dogs Onboard Large Aircraft.*

2.7 Tactile Row Markers

Tactile markers to indicate row numbers should be placed on overhead bins or on passenger aisle seats.

This section should be read in conjunction with Appendix 4, the *Implementation Guide Regarding Tactile Row Markers Onboard Large Aircraft*.

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[4] If there are no structural limitations, this in no way reduces an air carrier's responsibility to provide requested assistance in boarding and deplaning as required by the terms and conditions of carriage provisions contained in Part VII of the *Air Transportation Regulations.*

[5] "Service animal" means an animal that is required by a person with a disability for assistance and is certified, in writing, as having been trained to assist a person with a disability by a professional service animal institution.

2.8 Supplemental Passenger Briefing Cards

An air carrier should provide large print and braille supplemental passenger briefing cards on an aircraft that include a recommendation that passengers make sure they receive a personal briefing.

A sufficient number of these cards (at least two is recommended) should be made available in 14 point or larger sans serif type with dark characters on a light background and in Grade Two Braille that meets the standards of the Canadian Braille Authority in English and in *Braille abrégé étendu* that meets the standards of the *Comité interministériel sur la normalisation du braille* in French.

2.9 Communication of Announcements

If an air carrier makes announcements to passengers, such as announcements concerning stops, delays, schedule changes, connections, onboard services and claiming of baggage, the carrier should have the means within the aircraft of visually and verbally providing these announcements to persons with disabilities.

2.10 Storage Space for Passenger-Owned Wheelchairs

If the configuration of an aircraft with 100 or more passenger seats permits it, the aircraft should have storage space in the passenger cabin to carry at least one manually-operated folding or collapsible wheelchair owned by a passenger.

If it is not possible to carry a passenger's manual wheelchair in the cabin, an air carrier should make every reasonable effort to ensure that the passenger has prompt access to their own wheelchair stored in the baggage compartment of the aircraft. This access should be granted not only at their destination, but also at every stop between their origin and destination at which the passenger requests the use of their wheelchair and all passengers are permitted to deplane.

2.11 Armrests

At least 50 per cent of the aisle armrests on the passenger aisle seats in a newly manufactured aircraft should be movable. If possible, the passenger seats with movable aisle armrests should be evenly distributed throughout the aircraft.

For existing passenger seats in aircraft that are being replaced with newly manufactured passenger seats, the aisle armrests on the newly manufactured passenger seats should be movable. This practice should continue until such time as the above criteria concerning 50 per cent movable armrests and even distribution are satisfied.

Also, in those instances where the space around a passenger seat in first or business class permits the transfer of a passenger to and from an on-board wheelchair without the requirement to lift the passenger over the armrest, that seat can be considered as one with a movable armrest for the purpose of satisfying the 50 per cent and even distribution criteria.

With respect to passenger seats in first or business class that do not have enough space for such a transfer and whose current design does not permit the armrest to be movable, air carriers are encouraged to explore new designs and technology that would result in a passenger in an on-board wheelchair being able to transfer with ease to and from these seats.

2.12 Washrooms

A wheelchair-accessible washroom is made accessible to persons with disabilities by including features related to space and the location of fixtures so that they are usable by a person in an on-board wheelchair.

There are two categories of aircraft: those with one aisle and those with more than one aisle. Aircraft with more than one aisle have more space. Air carriers are therefore expected, as set out below, to have these aircraft designed or retrofitted to include a wheelchair-accessible washroom. Carriers are also encouraged to be innovative and to pursue the possibility of having a washroom on these aircraft that is large enough to accommodate a person in an on-board wheelchair and their attendant.

Aircraft with only one aisle have space limitations that, in most cases, prevent a washroom from having enough room to accommodate a person in an on-board wheelchair. For this reason, air carriers are not expected to have these aircraft designed or retrofitted to include a wheelchair-accessible washroom. However, these aircraft are still expected to have a washroom that contains accessibility features other than those space and location features that would make it accessible to persons in an on-board wheelchair. Again, carriers are encouraged to be innovative and to pursue possibilities of devising means to accommodate a person in an on-board wheelchair in a washroom on these aircraft.

2.12.1 Washrooms on Aircraft with More than One Aisle

For all aircraft with more than one aisle, at least one washroom should be accessible to persons with disabilities including persons in an on-board wheelchair. This means that the washroom should satisfy the criteria set out in Appendix 1.

2.12.2 Washrooms on Aircraft with One Aisle

For all aircraft with one aisle, at least one washroom should be accessible to persons with disabilities with the exception of persons in an on-board wheelchair. This means that the washroom should satisfy the criteria set out in Appendix 2.

2.13 On-board Wheelchairs Provided by Air Carriers

On an aircraft with a washroom able to accommodate a person in an on-board wheelchair, there should be, at all times, at least one on-board wheelchair. The on-board wheelchair should have a design that permits easy transfer of an occupant and easy manoeuvering of the chair, with assistance, in the aircraft. It should have footrests, armrests that are movable or removable, an occupant restraint device and wheel locks.

In some instances, a person may be able to use a washroom that cannot accommodate an on-board wheelchair but is not able to reach the washroom from a passenger seat without the use of an on-board wheelchair. To satisfy a request for this type of wheelchair made in

advance by such a person, an air carrier that operates an aircraft with 60 or more passenger seats that does not have a washroom able to accommodate an on-board wheelchair should ensure that it can carry an on-board wheelchair in the passenger cabin of such an aircraft.

Section 3 – Maintenance

An air carrier should have procedures in place to ensure that all aircraft accessibility features are maintained in good working order.

APPENDIX 1: Washrooms Accessible to Persons with Disabilities, Including Persons in On-board Wheelchairs

1. Identification

The washroom should be identified by the international symbol of access in pictograph and tactile form by or on the door.

2. Privacy

The washroom should afford privacy to a person in an on-board wheelchair.

3. Doors

The doorway should be wide enough to accommodate a person in an on-board wheelchair and should have enough space outside the door to manoeuvre that wheelchair.

If thresholds are necessary, they should not be more than 13 mm high and they should be bevelled.

Door handles, pulls, latches, locks and other operational devices should be mounted at a height that permits use by a person in an on-board wheelchair. They should be operable with one hand and minimal force and should not require fine finger control, tight grasping, pinching or twisting of the wrist. They should also be colour contrasted from their surrounding area.

4. Floor Space

The floor space should permit a person in an on-board wheelchair to enter the washroom and use all the washroom facilities.

5. Toilets

The toilet should have a height and location that allow easy transfer for a person in an on-board wheelchair.

The toilet should have a flush control that is colour contrasted from its surrounding area. The flush control should be operable with a closed fist and minimal force or be automatically controlled.

The toilet should have a back support if there is no seat lid, and a toilet paper dispenser within reaching distance that does not interfere with the grab bars.

6. Grab Bars

The washroom should have fixed or flip-up grab bars that are sturdy and conveniently located – on the wall behind the toilet, if possible, and on one of the walls beside the toilet. They should have a height and length that permit use by a person in an on-board wheelchair.

Grab bars should be rounded, free of any sharp or abrasive element and slip-resistant. They should have an exterior diameter and a clearance from the wall surface to which they are attached that permit easy grasping.

Grab bars should be colour contrasted from their surrounding area or marked with a contrasting colour strip that runs the full length of the bar. They should also return to the wall in a smooth curve.

7. Sinks, Faucets and Other Controls

The sink should be positioned so that it is usable by a person in an on-board wheelchair.

Faucets and other controls should be colour contrasted from their surrounding area. They should be operable with a closed fist and minimal force or be automatically controlled.

8. Accessories

Accessories, such as soap dispensers, towel dispensers and waste receptacles, should be easy to use and positioned so that they are usable by a person in an on-board wheelchair.

These accessories should be colour contrasted from their surrounding area and identified by tactile signs.

9. Mirrors

The mirror should be mounted so that it is usable by a person in an on-board wheelchair.

10. Coat Hooks

The coat hook should have rounded edges and not project more than 40 mm from the wall.

It should be positioned so that it is usable by a person in an on-board wheelchair.

11. Call Buttons

The washroom should have a call button that is colour contrasted from its surrounding area and identified by a tactile sign.

The call button should be positioned so that it is usable by a person in an on-board wheelchair. It should be operable with one hand and minimal force and not require fine finger control, tight grasping, pinching or twisting of the wrist.

APPENDIX 2: Washrooms Accessible to Persons with Disabilities, Not Including Persons in On-board Wheelchairs

1. Doors

Door handles, pulls, latches, locks and other operational devices should be operable with one hand and minimal force and should not require fine finger control, tight grasping, pinching or twisting of the wrist. They should also be colour contrasted from their surrounding area.

2. Toilets

The toilet should have a flush control that is colour contrasted from its surrounding area. The flush control should be operable with a closed fist and minimal force or be automatically controlled.

The toilet should have a back support if there is no seat lid, and a toilet paper dispenser within reaching distance that does not interfere with the grab bars.

3. Grab Bars

The washroom should have fixed or flip-up grab bars that are sturdy and conveniently located – on the wall behind the toilet, if possible, and on one of the walls beside the toilet.

Grab bars should be rounded, free of any sharp or abrasive element and slip-resistant. They should have an exterior diameter and a clearance from the wall surface to which they are attached that permit easy grasping.

Grab bars should be colour contrasted from their surrounding area or marked with a contrasting colour strip that runs the full length of the bar. They should also return to the wall in a smooth curve.

4. Faucets and Other Controls

Faucets and other controls should be colour contrasted from their surrounding area.

They should be operable with a closed fist and minimal force or be automatically controlled.

5. Accessories

Accessories, such as soap dispensers, towel dispensers and waste receptacles, should be easy to use, colour contrasted from their surrounding area and identified by tactile signs.

6. Coat Hooks

The coat hook should have rounded edges and should not project more than 40 mm from the wall.

7. Call Buttons

The washroom should have a call button that is colour contrasted from its surrounding area and identified by a tactile sign.

The call button should be operable with one hand and minimal force and not require fine finger control, tight grasping, pinching or twisting of the wrist.

APPENDIX 3: Implementation Guide Regarding Space for Service Dogs Onboard Large Aircraft

Introduction

This implementation guide provides information for Canadian air carriers subject to the Code of Practice *Aircraft Accessibility for Persons with Disabilities* (Air Code) and the *Air Transportation Regulations* (ATR) on the carriage of persons with disabilities travelling with service dogs.

The ATR states that on aircraft with 30 or more seats, the carrier must accept a service animal (such as a service dog) for carriage without charge, provided that the animal is required by a person for assistance and is certified in writing as having been trained to assist a person by a professional service animal institution.

Section 2.6 of the Air Code, which applies to fixed-wing aircraft with 30 or more passenger seats used by Canadian air carriers, states that "Each class section of the passenger cabin of an aircraft, e.g., first class, business class, economy class, should have a number of passenger seats, other than exit row seats, that each provides enough floor space for a service animal to lie down."

While this implementation guide applies to section 2.6 of the Air Code, it should be read in conjunction with other sections of the Air Code.[6]

The objective of section 2.6 of the Air Code is to ensure that air carriers provide sufficient floor space to permit the service animal to remain on the floor at the person's seat while ensuring that both the person with a disability and the service animal can travel safely. Sufficient space will also

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[6] In particular, reference is made to section 1.2 of the Air Code which, in part, addresses safety considerations. Safety on board aircraft is the responsibility of Transport Canada Civil Aviation, and air carriers are required to conduct their operations in accordance with the *Canadian Aviation Regulations* made pursuant to the *Aeronautics Act*. In no way do the *Air Transportation Regulations* or the Codes of Practice relieve air operators from complying with the provisions of any safety regulations made under the *Aeronautics Act*.

prevent injury and extreme discomfort to the person and will ensure the animal is able to carry out its duties.

The Air Code defines "service animal" as "an animal that is required by a person with a disability for assistance and is certified, in writing, as having been trained to assist a person with a disability by a professional service animal institution." While many different types of animals are used by persons with disabilities to provide assistance in daily living (e.g., dogs, pigs, ferrets, monkeys and miniature horses), dogs are the most commonly used.

At the time of developing this implementation guide, research indicates that professional service animal training institutions in Canada only certify dogs as trained assistance animals. Therefore, the scope of this implementation guide is limited to space on aircraft for persons with disabilities travelling with service dogs.

In addition to the two above-noted requirements, a service dog must be properly harnessed in accordance with standards established by a professional service animal institution.

Consultation Process

In the development of this guide, the Agency consulted with Canadian air carriers and professional service dog training institutions. Questionnaires were distributed to seven air carriers and to four professional service dog training institutions.

The data gathered from the air carrier questionnaire dealt with such issues as:

- the information persons with disabilities who travel with service dogs are asked to provide;
- the factors taken into consideration by the carrier when determining which seat to assign to a passenger travelling with a service dog; and
- the typical floor space dimensions at passenger seats in each of the different classes on the aircraft.

The training institutions were asked for information regarding the size and physical characteristics of the breeds of dogs typically used as service animals, as well as estimated dimensions of floor space (length, width and height) for large, medium and small dogs to lie down and manoeuvre. In addition, training institutions assessed the impact of the duration of a flight on a service dog's ability to remain sitting or lying down at the passenger's seat and factors air carriers should consider when assigning seating for a passenger with a disability travelling with a service dog.

The consultation also included a viewing of various aircraft types and configurations by Agency staff, and by representatives from air carriers and service dog training organizations. The viewings permitted the measurement of various sizes of dogs and of floor space used by the trainers and service dogs seated at different rows in different areas of aircraft cabins.

Measurements were taken with the dogs in a standing position and reflect:

- the length from the tip of the nose to the base of the tail;
- the height from shoulder bone to floor; and
- the width between hind quarters.

The approximate dimensions found in this guide are based on the data collected during this exercise. They can be used by air carriers in determining how best to provide sufficient floor space to be shared by persons with disabilities and their service dogs. This space should be sufficient to allow the dog to lie down without lying on the passenger's feet or legs to ensure that the passenger and their dog can share the space safely and without extreme discomfort.

Finally, consultations were held with the Agency's Accessibility Advisory Committee, following which this implementation guide was prepared.

This implementation guide is not intended to dictate the manner in which a carrier ensures that a person and their service dog can travel safely.

For example:

- In some instances, it will not be necessary to assign extra seating to provide sufficient floor space, in which case, only one seat will be assigned to the person with a disability travelling with a service dog.
- In other cases, such as when the service dog is larger or the aircraft configuration limits the amount of unimpeded space, air carriers may be required to provide an extra seat in order to ensure that the floor space is sufficient.

Factors to Consider

Dialogue between the carrier and a person with a disability travelling with a service dog

In order to ensure that appropriate accommodation can be arranged, persons with disabilities who travel with service dogs are expected to discuss their needs with the carrier at least 48 hours in advance of travel. Holding this dialogue in advance of the flight:

- allows the carrier to effectively plan seat assignments;
- saves time; and
- alleviates stress for both the passenger and the carrier's personnel at the time of boarding.

While carriers may delay the assignment of a specific seat or seats, persons with disabilities travelling with service dogs need assurance that they will be able to travel safely. Leaving the determination of sufficient space to the day of travel or even until boarding is likely to jeopardize the carrier's ability to meet the objective of section 2.6 of the Air Code.

Further dialogue will be needed if there is a change in aircraft after the traveller has confirmed a reservation in order to ensure that the new seating assignment will provide sufficient floor space.

When connecting flights are operated by another carrier, the originating carrier should communicate to the connecting carrier the need to accommodate the person and service dog in order to ensure sufficient floor space will be provided.

Carriers should develop policies and procedures to ensure that:

- When a request is made **at least 48 hours prior** to a scheduled flight departure, persons with disabilities travelling with service dogs will be assigned seating with sufficient floor space.
- When a request is made **less than 48 hours prior** to departure, the air carrier will make a reasonable effort to provide the service.

Carriers must ensure that carrier personnel who interact with persons with disabilities are made aware of these policies and procedures, as prescribed by the Agency's *Personnel Training for the Assistance of Persons with Disabilities Regulations*.

Floor Space Considerations

The space to accommodate a person with a disability and their service dog has been set out in this implementation guide in four sets of floor area measurements, based on a range of dog sizes. These measurements reflect the approximate requirement for unimpeded space, which may include the space under a seat or seats in front of the person with a disability. However, they do not include space under the seat occupied by the person where there is a luggage restraint bar.

Objects that impede usable space, such as electrical boxes, entertainment and safety equipment, foot rests, and seat fasteners, affect the ability of service dogs to use the space under the seat or seats in front of the person with a disability. In some cases, the existence of impediments will necessitate the use of some floor space at an adjacent seat to ensure that the passenger and their service dog can share the space safely and without extreme discomfort.

The space to accommodate a person with a disability and their service dog is reflected in terms of a range of approximate dimensions, in recognition of:

- differences in aircraft configurations;
- service dogs' abilities to curl; and
- the various sizes of service dogs.

If a carrier is able to accommodate a passenger with a disability and a service dog safely, and without extreme discomfort, in a space that is smaller than those identified in the section "Approximate amount of floor space to accommodate persons with disabilities and their service dogs," then the carrier will have been deemed to have met the objective of section 2.6 of the Air Code. Conversely, some persons with disabilities and their service dogs may have space requirements that exceed those set out in this implementation guide.

When determining the amount of floor space required to accommodate persons with disabilities and their service dogs, the passenger and the carrier have a shared responsibility in terms of the information needed to make this determination.

The following are factors that the carrier should determine during the dialogue with the person with a disability travelling with a service dog:

- The size of the service dog that will need to be accommodated (i.e., the dog's weight, height and length). This will enable the carrier to take appropriate steps to ensure that the accommodation they plan for the person with a disability and the service dog will meet actual needs.
- Whether the person with a disability has any physical characteristics that may affect how the person and the service dog will share the space (e.g., the person has long legs, large feet or is unable to bend one or both knees).

In addition, the following factors should be considered when determining the required amount of floor space:

- A service dog should not stay in a tight curl for any significant period of time. The ability of the service dog to curl will vary, depending on its size, breed and flexibility.
- Entry paths of seat rows affect the space available for a service dog to lie down. An entry path for this purpose is measured from the front of the seat cushion to the back of the seat in front of the person with a disability. The entry path must be wide enough for the dog to get in and out of the row without having to be squeezed through the space.

- Tails and paws must be kept protected from carts, feet, etc. for the safety of the dog, as well as other passengers and crew members.
- Sufficient floor space is needed for both the service dog to lie down on the floor at the seat of the person with a disability and for the person's legs and feet, while ensuring that they can both travel safely. Some encroachment by the service dog into the person's floor space may be acceptable. The carrier should ensure that sufficient space will be available to allow the person with a disability to sit with their legs and feet in a position which will not result in an unacceptable level of discomfort or the service dog lying on the person's feet or legs.
- Sufficient leg room is necessary at the seat of the person with a disability so that the service dog is in front of the person's legs. This is to avoid the person having to place their legs over a service dog in a confined space which may result in injury to the person if the dog is startled or gets up quickly for any reason.
- Assigning a person with a disability and their service dog to a seat with the fewest impediments (e.g., electrical boxes, entertainment and safety equipment, footrests, seat fasteners) means less chance that the service dog will injure itself or accidentally damage equipment.
- Using space under the seat or seats in front of the person with a disability may be necessary to accommodate the extremities of large and extra-large service dogs while small and medium dogs, depending on the height of the space from the floor to the seat base, may be able to use more of this space for their bodies.
- In order to be usable, the space under the seat in front of a person travelling with a service dog must be unimpeded space and must provide enough clearance to allow the dog to enter and exit this space without injury. For example, small and medium-sized dogs may typically use as much as 25.4 cm (10 inches) of the under-seat space, where the space from the floor to the underside of the seat base measures 26.67 cm (10.5 inches).
- A large dog may typically use as much as 38.1 cm (15 inches) under the seat, where the back of the seat in front slopes from 36.83 cm (14.5 inches) down to 26.67 cm (10.5 inches) at the underside of the seat base. At seats for which the space under the seat is 26.67 cm

(10.5 inches) from the floor to the underside of the seat base, as much as 20.32 cm (8 inches) may be included as usable space. In this case, a minimal portion of the dog's body and its legs may fit under the seat.

- An extra large dog's legs and head may take up to 25.4 cm (10 inches) under the seat where the back of the seat in front slopes from 36.83 cm (14.5 inches) down to 26.67 cm (10.5 inches) at the underside of the seat base. At seats for which the space under the seat is 26.67 cm (10.5 inches) from the floor to the underside of the seat base, the dog's legs may partly fit in the under-seat space.
- Space under seats which provide less than the above-noted clearances may not be usable by the service dog.

Approximate Amount of Floor Space to Accommodate Persons with Disabilities and Their Service Dogs

It is recommended that carriers refer to both the weight and size measurements reflected in the following section, when determining sufficient space for a particular person and their service dog.

Small Service Dogs

Approximate weight of dogs: 7 to 11 kilograms (15 to 25 pounds)

Approximate size of dogs in standing position:

- length: 45.72 to 55.88 cm (18 to 22 inches)
- height: 20.32 to 40.64 cm (8 to 16 inches)
- width: 12.7 to 17.78 cm (5 to 7 inches)

Unimpeded floor space to accommodate a person with a disability and their service dog (area measurements) – minimum space required: 2268 square centimetres (352 square inches).

Medium Service Dogs

Approximate weight of dogs: 12 to 25 kilograms (26 to 55 pounds)

Approximate size of dogs in standing position:

- length: 58.42 to 86.36 cm (23 to 34 inches)

- height: 38.1 to 53.34 cm (15 to 21 inches)
- width: 15.24 to 20.32 cm (6 to 8 inches)

Unimpeded floor space to accommodate a person with a disability and their service dog (area measurements) – Minimum space required: 3871 to 4903 square centimetres (600 to 760 square inches).

Large Service Dogs

Approximate weight of dogs: 26 to 39 kilograms (57 to 85 pounds)

Approximate size of dogs in standing position:

- length: 88.9 to 101.6 cm (35 to 40 inches)
- height: 53.34 to 66.04 cm (21 to 26 inches)
- width: 17.78 to 21.59 cm (7 to 8.5 inches)

Unimpeded floor space to accommodate a person with a disability and their service dog (area measurements) – Minimum space required: 4916 to 5787 square centimetres (762 to 897 square inches).

Extra-large Service Dogs

Approximate weight of dogs: 40 to 46 kilograms (88 to100 pounds)

Approximate size of dogs in standing position:

- length: 104.14 to 116.84 cm (41 to 46 inches)
- height: 63.5 to 73.66 cm (25 to 29 inches)
- width: 20.32 to 25.4 cm (8 to 10 inches)

Unimpeded floor space to accommodate a person with a disability and their service dog (area measurements) – Minimum space required: 6190 to 8681 square centimetres (959 to 1346 square inches).

Timeframe for Implementation

While this Guide generally provides information that air carriers may find useful to establish an assessment process to ensure that sufficient space is provided to a person with a disability travelling with a service dog, the

Agency recognizes that carriers need time to develop and implement uniform policies in this regard.

Air carriers are to therefore implement their uniform policies in accordance with this Guide as soon as possible, but no later than December 1, 2009.

Domestic Flights

In the domestic context, this timeframe for implementation is not to be interpreted as a waiver to comply with the regulatory requirements set out at subsections 149(1) and 149(2) of the ATR, which applies to air carriers in respect of domestic services operated with aircraft that have 30 or more passenger seats.

The ATR states that on aircraft with 30 or more passenger seats, the carrier must accept a service animal (such as a service dog) for carriage without charge, provided that the animal is required by a person for assistance and is certified, in writing, as having been trained to assist a person by a professional service animal institution.

Furthermore, if the animal is properly harnessed in accordance with standards established by a professional service animal institution, the air carrier shall permit the animal to accompany the person on board the aircraft and to remain on the floor at the person's passenger seat.

Until uniform policies in accordance with the Guide are in place, carriers must address requests for extra space on domestic flights on a case-by-case basis to ensure compliance with subsections 149(1) and 149(2) of the ATR.

International Flights

With respect to international flights operated by Canadian air carriers with aircraft having 30 or more passenger seats, the Air Code sets out the expectation that enough floor space will be provided. This space should be sufficient to allow the dog to lie down and to ensure that the passenger and their dog can share the space safely and without extreme discomfort.

Until uniform policies in accordance with the Guide are in place, carriers must address requests for extra space on international flights on a case-by-case basis to ensure they meet the objective of section 2.6 of the Air Code.

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APPENDIX 4: Implementation Guide Regarding Tactile Row Markers Onboard Large Aircraft

Introduction

The Canadian Transportation Agency has developed this guide to help Canadian air carriers in implementing section 2.7 of the *Code of Practice: Aircraft Accessibility for Persons with Disabilities* (the Air Code). This section addresses tactile row markers onboard large aircraft.

Section 2.7 of the Air Code applies to fixed-wing aircraft with 30 or more passenger seats used by Canadian air carriers. It states that: "Tactile markers to indicate row numbers should be placed on overhead bins or on passenger aisle seats."

While the implementation guide applies to section 2.7, it should be read in conjunction with other sections of the Air Code.[7]

The objective of section 2.7 of the Air Code is to enhance independent access to aircraft and assist persons who are blind or who have visual impairments in locating their seat on board. This objective can be met through the use of permanent or removable tactile row markers, either of which can be located on overhead bins or on aisle seats.

Notwithstanding the objective of section 2.7 of the Air Code, the Agency also recognizes that some persons may prefer the assistance of carrier personnel to locate their seats.

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[7] In particular, section 1.2 of the Air Code recognizes the Canadian Standards Association Standard CAN/CSA-B651-95 Barrier-Free Design (superseded by Standard B651-04, Accessible Design for the Built Environment) as an appropriate reference and invites carriers to adopt, where appropriate, the technical specifications it contains.

In addition, section 1.2 of the Air Code recognizes the requirement that air carriers comply with safety regulations. Safety on board aircraft is the responsibility of Transport Canada Civil Aviation and air carriers are required to conduct their operations in accordance with the *Canadian Aviation Regulations* made pursuant to the *Aeronautics Act*. No part of the *Air Transportation Regulations* or the Air Code relieves air carriers from complying with the provisions of any safety regulations made under the *Aeronautics Act*.

To develop this guide, the Agency undertook preliminary consultations with seven Canadian air carriers and three national organizations of the blind in order to obtain feedback on this guide. Further consultations were then held with the Agency's Accessibility Advisory Committee.

Dialogue between the Carrier Cabin Crew and the Passenger

Carriers are encouraged to be consistent in the location and the type of tactile markers within their own fleet. However, the Agency recognizes the need for flexibility in the type and placement of tactile row markers in light of factors such as different aircraft designs.

As there are various ways carriers can assist passengers in locating assigned seats, a dialogue on seat location should be held between the carrier cabin crew and the passenger upon boarding. Whenever possible, this dialogue should occur before boarding by other passengers.

To facilitate this discussion and to ensure that sufficient time is available for way-finding, persons who are blind or who have visual impairments and who require assistance in locating their seat should identify themselves to the carrier at the boarding gate. When possible, these persons can then be allowed to pre-board.

Upon boarding the aircraft, the passenger should be briefed by the cabin crew on the following:

- the type of tactile row markers being used in the aircraft to allow the passenger to find their seat on their own (i.e., whether the markers are permanent or removable);
- the characteristics and location of the row identifiers (e.g., whether the row number is in raised characters and/or Braille and whether they are located on the overhead bins or on the aisle seats); and,
- the row number, side of the aisle and location of the passenger's seat within the row.

Permanent Tactile Row Markers

Where a carrier chooses to install permanent tactile row markers on the overhead bins or the aisle seats, the row number should be identified in

both raised characters and Braille. Where it is not possible to do so, raised characters are preferable as the proportion of persons who are blind or who have a visual impairment who read Braille is relatively small.

Carriers who, at the time of issuance of this guideline, already provide permanent tactile row markers that identify the row number in only one format (raised characters or Braille) are not expected to replace them. However, it is desirable to add the other format, possibly during scheduled maintenance or retrofitting of an aircraft.

Tactile markers are readable when they satisfy the following criteria, as recognized by the Agency in section 2.1 of the Air Code:

- markers should be positioned to avoid shadow areas and glare;
- characters and symbols should be glare-free and presented in contrasting colours;[8]
- letters should be sans serif, numbers should be Arabic and both should have at least a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10;
- letters and numbers should be raised at least 0.8 mm and should be between 16 mm and 50 mm high; and,
- braille should be located at the bottom of the sign and presented in Grade One Braille that meets the standards of the Canadian Braille Authority in English and in *braille intégral* that meets the standards of the *Comité interministériel sur la normalisation du braille* in French.

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[8] "Contrasting colours" means a light colour on a dark background or a dark colour on a light background, with light on dark being preferable for signage.

In terms of the colour contrast, CSA B651-04 contains useful information, including the following: "Examples of colours that contrast more than 70% are navy blue with matte white (95%), apple green with white (72%), and silver with saddle brown (70%). Colour combinations that should be avoided include yellow/grey, yellow/white, blue/green, red/green, black/violet, and red/black."

Removable Tactile Row Markers

A carrier may choose to use removable tactile row markers on overhead bins or aisle seats as an alternative to permanent tactile row markers.

Where permanent or removable tactile markers that are located on overhead bins are too high for a passenger to reach, a removable tactile marker should be used on the aisle seat.

If removable tactile row markers are used, they should be employed so as to not draw unwarranted attention to the passenger.

Alternate Means of Providing Independent Access to and from Seats

At the time of the writing of this implementation guide, the principal means of providing independent access to and from seats for persons who are blind or who have visual impairments consists of tactile row markers. However, the objective of section 2.7 of the Air Code could also be met using technological way-finding methods.

One such potential technology is Radio Frequency Identification (RFID). The type of RFID system that could be used in this context consists of an antenna and transceiver, as well as a transponder (also called a tag). The tag contains information − in this case, the seat number − that is transmitted to a transceiver which reads and transfers the information to a processing device such as a hand-held reader.

Should carriers choose to provide such devices, or similar technological methods of way-finding, they may also want to consider whether the device or method meets the needs of persons who are also deaf or hard of hearing. Such technology may require testing and certification before it is employed in flight.

If carriers are able to find alternate means to offer persons who are blind, or who have a visual impairment, a level of way-finding that provides them with the ability to independently find their seats, they will be deemed to have met the objective of section 2.7 of the Air Code.

Timeframe for Implementation

Where full implementation has not already taken place, the expectation is that carriers, through the use of this guide, will meet the objective of section 2.7 of the Air Code by March 31, 2010.

Although the installation of permanent tactile row markers may not be possible within this timeframe, removable tactile row markers should be employed, either as an ongoing method of providing independent access to a person's seat, or as a temporary solution until such time as permanent tactile row markers can be installed.

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