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# Simultaneous interpreting — Mobile booths — Requirements

*Interprétation simultanée — Cabines transportables — Exigences*

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# Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 37, *Terminology and other language and content resources*, Subcommittee SC 5, *Translation, interpreting and related technology*.

This third edition cancels and replaces the second edition (ISO 4043:1998), which has been technically revised.


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# Introduction

A number of basic aspects are to be considered when designing and/or using mobile booths. As interpreting is an activity that requires high concentration, stress factors have to be avoided and the working environment accordingly has to meet the highest ergonomic standards and provide an environment that enables interpreters to carry out their work properly.

The design of a mobile booth is governed by four overall principles:

a) sound insulation, both from the noise transmitted from the booth's environment to a booth and vice versa, and from noise passing from one booth to another;

b) good visual communication between the interpreters and the participants in the event;

c) adequate working conditions for the interpreters, whose booths are their workplace, such as to enable them to sustain the intense effort of concentration required throughout the day's work;

d) the booth must be lightweight yet sturdy, easy to handle and assemble, and designed in such a way that it can also be easily dismantled and maintained.

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# Simultaneous interpreting — Mobile booths — Requirements

## 1 Scope

This document provides requirements and recommendations for the manufacturing of mobile simultaneous interpreting booths. The main features of mobile booths that distinguish them from permanent simultaneous interpreting booths are that they can be dismantled, moved and set up in a conference room not equipped with permanent booths. This document also ensures the usability and accessibility of booths for all interpreters, including those with special needs.

Requirements for the use and siting of mobile booths are described in Annex A.

In conjunction with either ISO 2603 or this document, ISO 20108 and ISO 20109 provide the relevant requirements both for the quality and transmission of sound and image provided to interpreters and for the equipment needed in the booths.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1182, *Reaction to fire tests for products — Non-combustibility test*

ISO 3382-1, *Acoustics — Measurement of room acoustic parameters — Part 1: Performance spaces*

ISO 3382-2, *Acoustics — Measurement of room acoustic parameters — Part 2: Reverberation time in ordinary rooms*

ISO 8995-1, *Lighting of work places — Part 1: Indoor*

ISO 11228-1, *Ergonomics — Manual handling — Part 1: Lifting and carrying*

ISO 11925-3, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 3: Multi-source test*

ISO 16283-1, *Acoustics — Field measurement of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation*

ISO 20108, *Simultaneous interpreting — Quality and transmission of sound and image input — Requirements*

ISO 20109:2016, *Simultaneous interpreting — Equipment — Requirements*

ISO 21542, *Building construction — Accessibility and usability of the built environment*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

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**3.1**
**simultaneous interpreting**
mode of interpreting performed while a speaker is still speaking or signing

Note 1 to entry: The activity requires specialized equipment.

**3.2**
**booth**
booth for simultaneous interpreting
self-contained unit enclosing the interpreter's work space

Note 1 to entry: One of the purposes of simultaneous interpreting booths is to provide sound insulation, both from the noise transmitted from the booth's external environment to the booth itself and vice versa, and from noise passing from one booth to another.

**3.2.1**
**permanent booth**
permanent simultaneous interpreting booth
*booth* (3.2) structurally integrated into a facility

Note 1 to entry: ISO 2603 applies to permanent booths.

**3.2.2**
**mobile booth**
mobile simultaneous interpreting booth
free-standing *booth* (3.2) assembled from modular components, which can be transported and set up at a variety of facilities

**3.3**
**video display**
electronic device that represents information in a visual form

## 4 General requirements

Mobile booths are designed for temporary use in a variety of locations. They shall provide at least the required sound insulation and sound absorption (see Clause 9). Booths shall be designed in such a way that they can be dismantled, maintained and re-used. Furthermore, the initial performance of the sound insulation shall be guaranteed for use at least 100 times, and handling, assembling and dismantling shall not incur additional replacement costs.

Materials used shall be easy to maintain, non-toxic, odourless, anti-static, fire-retardant or non-flammable according to ISO 1182 and ISO 11925-3, and cause no irritation to eyes, skin or respiratory tract. They shall neither attract nor collect dust.

The colour scheme in the booth shall be appropriate for the restricted working space (soft, light colours, subtle pastel shades). Matte finishes shall be used for all surfaces in the booth in order to avoid reflections.

## 5 Size, weight and handling

### 5.1 Size of booths

See Figure 1 and Figure 2.

Each booth shall accommodate the required number of interpreters comfortably seated side by side, while at the same time allowing them to enter and leave the booth without disturbing one another. Enough space shall be provided to ensure adequate ventilation and temperature control.


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The following minimum internal dimensions shall apply:

a) width:

— for no more than two interpreters 1,60 m;

— for no more than three interpreters 2,40 m;

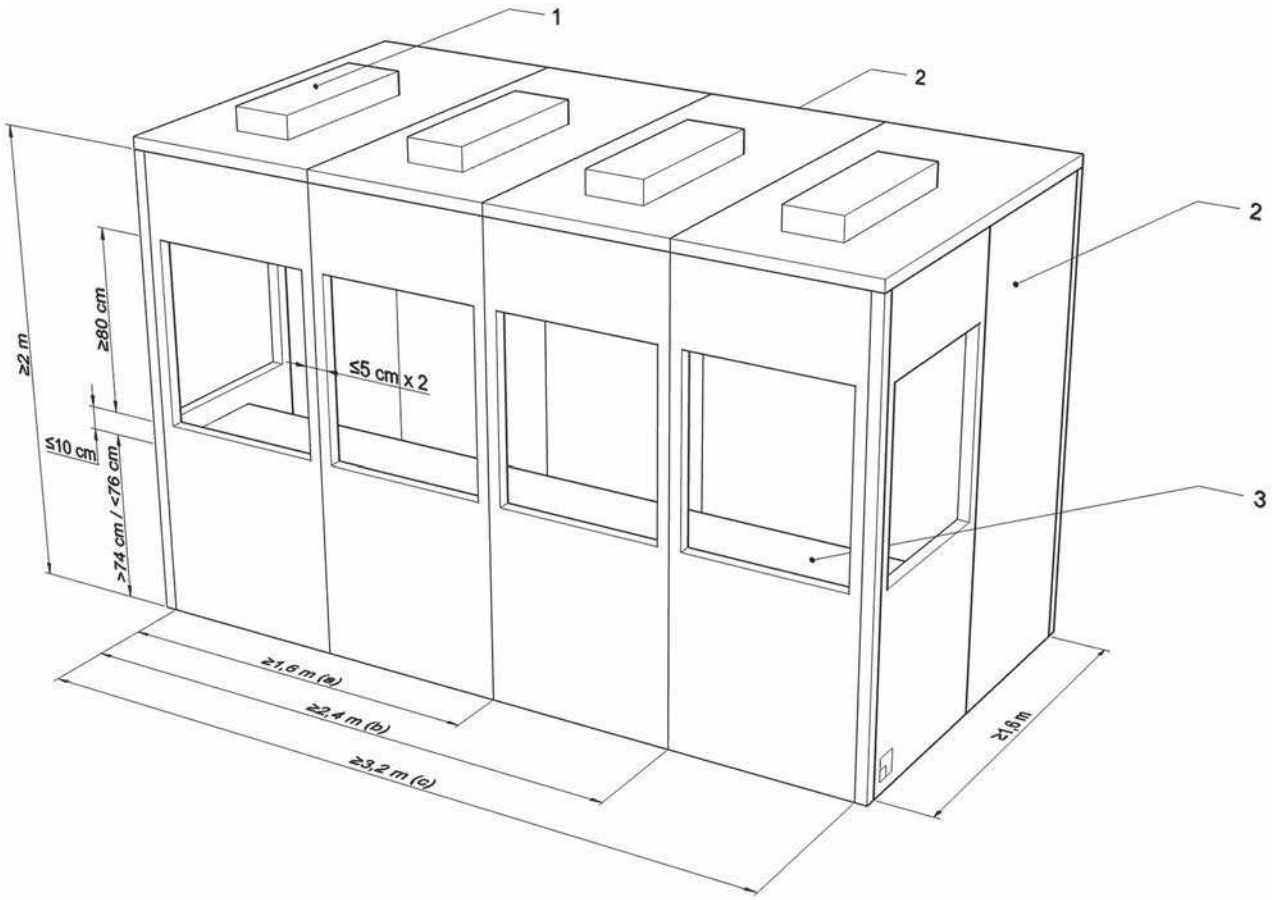
— for no more than four interpreters 3,20 m;

b) depth: 1,60 m;

c) height: 2,00 m.

The booths shall be modular and allow for the extension of a 1,60 m-wide booth to a 2,40 m-wide or 3,20 m-wide booth by adding panels.

NOTE Table-mounted hoods and single-person booths do not comply with this document.




**Key**

1 air extractor

2 door panel (may be fitted at the back or side of the booth)

3 working surface

a For two interpreters.

b For two or three interpreters.

c For up to four interpreters.

**Figure 1 — Mobile booth for two, three or four interpreters**

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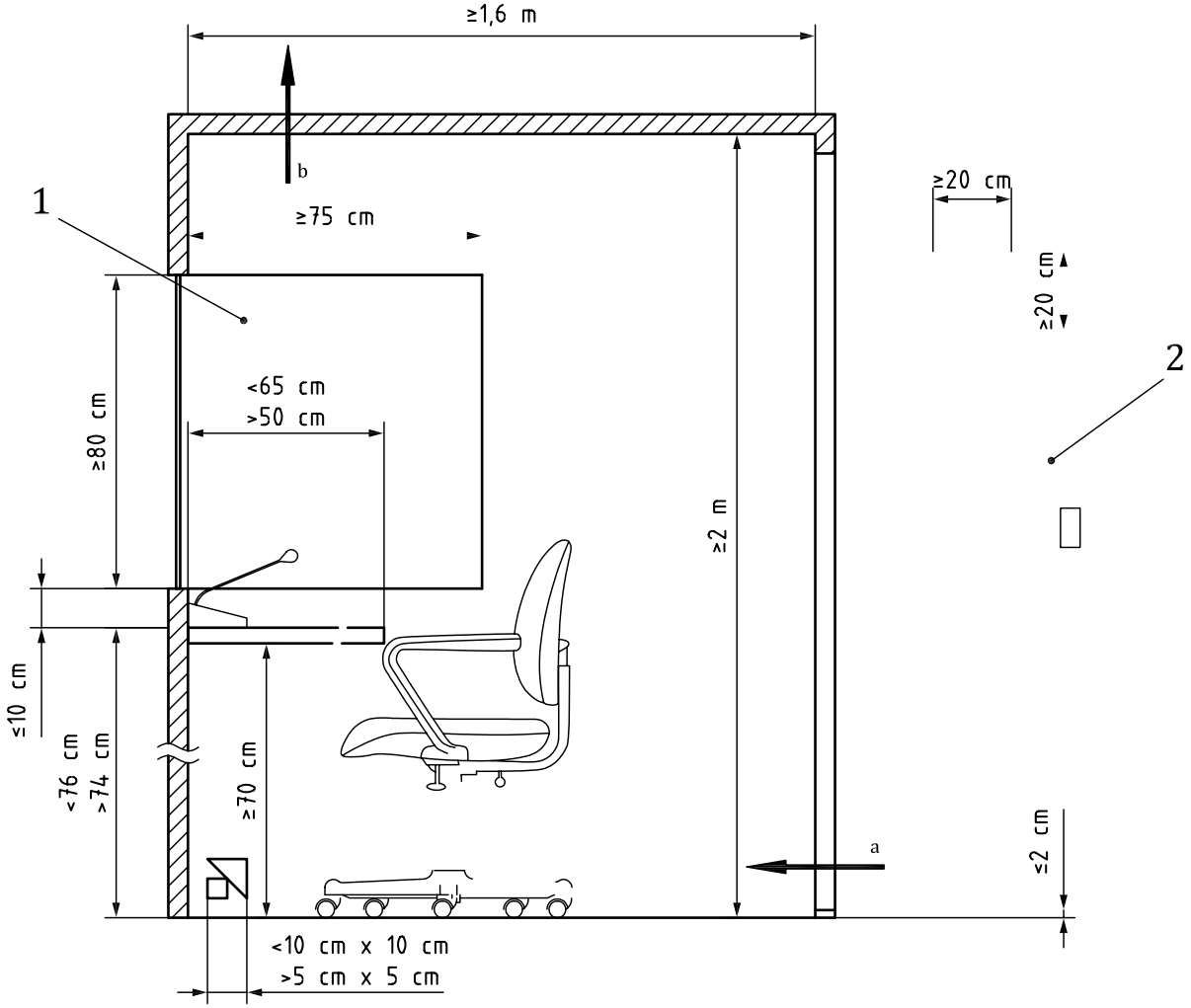


**Key**

1 side window

2 door (may be fitted at back or side of booth)

a Air inlet.

b Air outlet (extractor fan).

**Figure 2 — Sideview of a mobile booth**

## 5.2 Weight of each component

According to ISO 11228-1, the weight of a single component of a mobile booth shall not exceed 25 kg and the booth shall be designed in such a way that it can be assembled and dismantled by a single person.

## 5.3 Transport and storage

When not in use, the booths shall be transported and stored in a dry, non-smoking environment free of any odours.

# 6 Doors

Doors are essential to ensure proper soundproofing. A booth shall have a hinged door that opens outwards, and shall provide direct access from the conference room and platform. The door shall

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operate silently without a lock, the handles shall be sturdy, and the threshold shall not exceed 2 cm. There should also be an observation port-hole in the door of no less than 20 cm × 20 cm.

The door should be located at the back or on one of the side walls of the booth.

Appropriate accessibility for all people including persons with a disability shall be ensured in accordance with ISO 21542.

Wheelchair access to the workplace may be regulated.

## 7 Cable passages

Where cable passages are necessary in the side or front panels of the booths, they should be no less than 5 cm × 5 cm and no more than 10 cm × 10 cm, and access to them should be unobstructed. They shall be sufficiently soundproofed when the cables are in place so that the initial acoustical performance of the components is not affected.

## 8 Windows

See Figure 1 and Figure 2.

Each booth shall have front and side windows.

Windowpanes shall be colourless, anti-glare, clean, and free from scratches that might impair visibility.

For maximum visibility, front windows shall span the whole width of the booth. The vertical support of each window shall be no more than 5 cm wide and shall not be in the central field of vision of any working position.

Front and side windows shall extend upwards for at least 80 cm from the table surface and from no more than 10 cm above that surface. Side windows shall extend from the front windows for a minimum of 75 cm along the side wall, continuing for at least 10 cm beyond the free edges of the working surface

## 9 Acoustics

### 9.1 Sound insulation

Mobile booths shall be designed to provide insulation from any sound sources outside the booth (e.g. background noise and speech from neighbouring booths or the booth's environment) and to ensure that participants in the conference hall are not disturbed by speech emanating from the booths. Where walls are shared by booths, all sound insulation values (see Table 1 and Table 2) shall be fully met.

Sound insulation shall be checked in accordance with ISO 16283-1 as a measure of the difference in sound pressure levels ($D$), using one of the booths as the receiving room, while white or pink noise is generated in the source room (i.e. the conference room or an immediately adjacent booth).

The sound pressure levels shall be measured in one third octave bands in the source and receiving rooms, and the difference between the two sets of sound pressure levels ($D$) shall at least equal the values given in Table 1 for the noise transmitted from the conference room to a booth, and vice versa.

**Table 1 — Booth to conference room (and vice versa) — Sound pressure level differences ($D$)**

| **Frequency** | Hz | 250 | 500 | 1 000 | 2 000 | 4 000 |
|---|---|---|---|---|---|---|
| ***D*** | dB | 14 | 18 | 24 | 26 | 26 |

For the noise transmitted from booth to booth, the difference between the two sets of sound pressure levels ($D$) shall at least equal the values given in Table 2.

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**Table 2 — Booth to Booth — Sound pressure level differences (*D*)**

| **Frequency** | Hz | 250 | 500 | 1 000 | 2 000 | 4 000 |
|---|---|---|---|---|---|---|
| ***D*** | dB | 20 | 26 | 32 | 34 | 30 |

The measurement of *D* inside a booth when noise is generated outside it shall be made in a booth installed in a room in which it is possible to mimic normal working conditions as closely as possible.

### 9.2 Sound absorption

Reverberation and sound reflection shall be reduced by using suitable sound-absorbent materials on inside surfaces. Reverberation time inside the booth (booth unoccupied) according to ISO 3382-2 shall be between 0,3 s and 0,5 s measured in the octave bands from 250 Hz to 8 000 Hz, or in one-third octave bands from 100 Hz to 5 000 Hz.

## 10 Ventilation

See Figure 1 and Figure 2.

Booths shall be fitted with a ventilation system that renews the air at least 8 times an hour, without causing harmful draughts to seated occupants. Where higher rates of air renewal can be obtained, they shall be adjustable within the booth.

The $CO_2$ level in the booths shall not exceed 0,1 %. The booths shall be fitted with a $CO_2$ measurement sensor.

Extractor fans in each ceiling element should be powerful enough to meet the above requirements as soundlessly as possible, when at least 30 cm free space over the booth's roof is available.

A vent or vents shall be located low in the booth's rear wall in order to provide cool air, ensure proper circulation and avoid draughts on the interpreters' legs.

The equivalent A-weighted sound pressure level inside the booth caused by the ventilation system shall not exceed 35 dBA, measured in the centre of the booth, 1,25 m above floor level. The ventilation system shall be designed in such a way that it is easily replaceable and does not cause any perceptible mechanical vibration.

## 11 Working surface

See Figure 1 and Figure 2.

The working surface shall extend across the full width of the booth; it shall be horizontal and covered with shock-absorbent material to reduce noise that would otherwise be picked up by the microphone(s). It shall be strong enough to take the weight of the interpreter's consoles, of electronic equipment (e.g. laptops, tablets), of documents and of interpreters leaning on its surface. The under-surface shall be smooth.

At least three grommets shall be provided for easy cabling and to prevent cabling from being obstructive.

The following dimensions shall apply:

— height: between 74 cm and 76 cm from the floor;

— total depth: between 50 cm and 65 cm;

— leg-room: no less than 45 cm deep and 70 cm high.

Supporting structures shall not encroach on leg-room or obstruct movement.


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## 12 Lighting

The equipment shall guarantee full compliance with ISO 8995-1 with regard to luminance, glare limitation, and colour quality.

Each booth shall have an overhead light source dimmable in a range from 0 lx to 350 lx or above measured at working surface level. The light source shall be so positioned as to avoid shadows on the working surface, generate as little heat as possible and have a colour temperature of 3 000 K to 4 000 K.

The switch shall be inside the booth.

All lighting systems, dimmers, and transformers shall be free of magnetic interference and audible noise. They shall be designed in such a way as to avoid any interference; their operation shall be completely silent.

## 13 Electricity supply

Near each interpreter's console there shall be at least one electricity outlet per interpreter together with a 5 V, 2 A USB A-type charging socket.

## 14 Language panels

The language channel number and language name shall be clearly indicated on the booth. This may be done by placing a panel on the front of the booth above the front windows or by hanging a removable two-sided plate from one of the top corners of a front window. It should be easy and safe to attach and detach and shall not prevent interpreters from having an unobstructed view of the room.

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# Annex A
(normative)

# Requirements for the use and siting of mobile booths

## A.1 Suitability of conference rooms

**A.1.1** In selecting a room in which to set up mobile booths and equipment, it is essential to ensure there is sufficient space to position them appropriately (see also A.2.4 and A.2.5). The conference organiser should seek advice from a consultant interpreter, from suppliers of such equipment or a qualified conference technician.

**A.1.2** Rooms shall be located away from any source of disturbance such as kitchens, public corridors and passageways.

**A.1.3** Where appropriate, acoustic panels of absorbent material should be used to reduce the reflection of sound.

**A.1.4** The A-weighted equivalent sound pressure level (LAeq) generated by the air-conditioning system, lighting and other sound sources shall not exceed 40 dBA in order to provide good speech intelligibility, according to ISO 20108 and ISO 3382-1.

**A.1.5** The conference room shall be properly heated or cooled and ventilated (air-conditioning), with a $CO_2$ level not exceeding 0,1 %.

**A.1.6** The room shall have electrical connections of adequate power.

**A.1.7** A Wi-Fi Internet connection shall be provided, except if confidentiality or security reasons call for the use of a cabled Internet connection.

## A.2 Siting inside the conference room

**A.2.1** A sufficiently large area shall be provided for the booths to be placed together, in such a way that the interpreters have an unobstructed view of the rostrum and the projection screen, and are located either at the rear of the room or along one side of it. If the booths are located to one side of the conference room, the angle of the interpreters' line of vision towards the screen should be no less than 35°, taking the edge of the booth as a reference. The purpose of this is to give a direct and unobstructed view of the rostrum and the projection screen without the interpreters having to bend or incline the body.

Materials such as vertical supports, pillars and beams shall not be allowed in any way to obstruct interpreters' view of proceedings.

**A.2.2** To enable interpreters to have a clear view in conference rooms with a level floor, booths should be raised to at least 30 cm above the floor (see Figure A.1), bearing in mind the distance from the speakers and the height of the speakers' platform. Where necessary, a platform shall be used provided that it is


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stable and covered with sound-absorbent material (e.g. carpeting), offers safe access (for all, including wheelchair users) and does not creak.

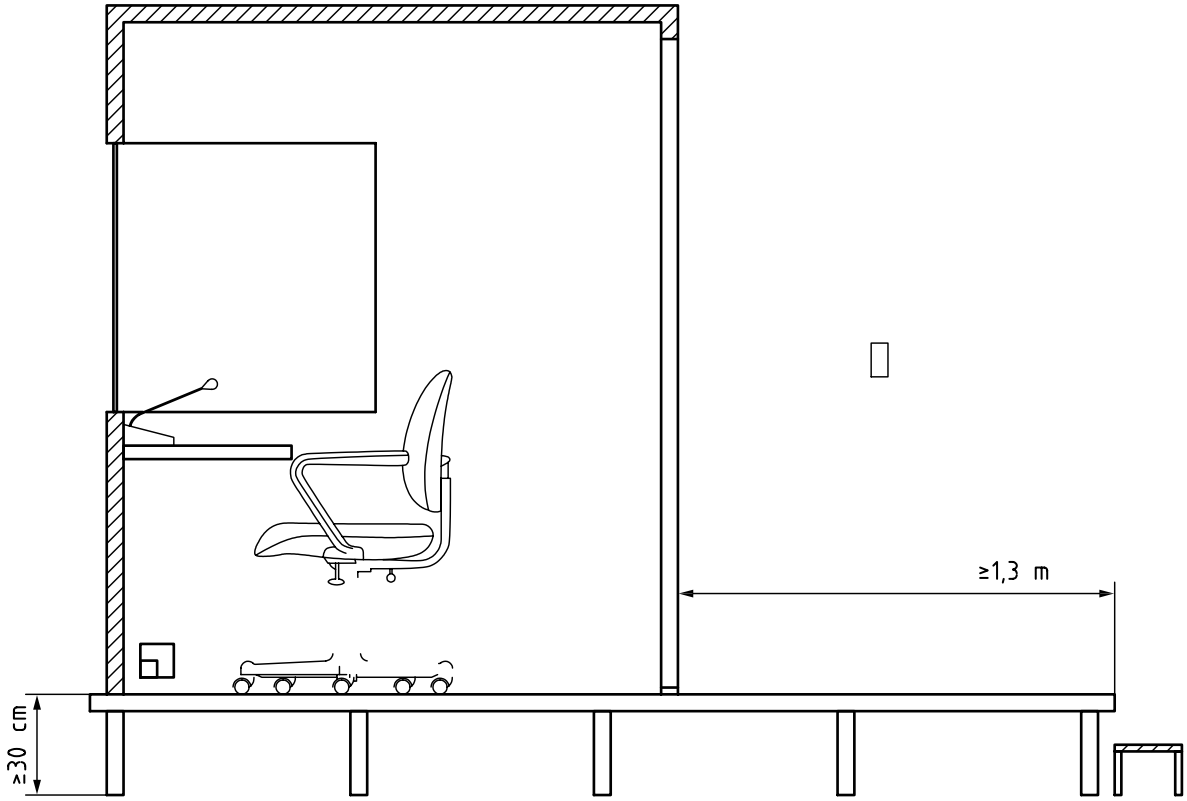


**Figure A.1 — Sideview of a mobile booth on a platform**

In rooms without carpeting, and if there is no platform, the booths shall be placed above sound-absorbent material.

**A.2.3** Video displays shall be used according to ISO 20109:2016, Clause 9 if either of the following conditions are met:

— the rostrum or projection screen is more than 20 m away;

— the distance between the booths and the screen is ≥3 times the screen's diagonal;

— the angle of the interpreter's visual line towards the screen is less than 35°;

— the booths are located behind the main speakers or at an higher level

Video displays may be placed inside or in front of the booth. It shall not obstruct the interpreters' view towards the room; it shall be placed at an ergonomic angle and its diagonal shall be proportional to the viewing distance.

**A.2.4** An accessible and safe route shall connect with the booths and shall comply with ISO 21542. Separate access to the booths should be provided where possible.

Access to the conference room past the booths should be avoided.

An adequately lit passage behind the booths at least 1,30 m wide shall be provided for access, safety and fire precautions and for wheelchair access.

**A.2.5** There shall be a gap of at least 1,50 m between the conference table or the delegates' chairs and the booths to avoid participants being disturbed by voices from the booths and vice versa.

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**A.2.6** If mobile booths are placed in a two-tier construction, the necessary scaffolding and access to the upper level shall be sturdy, stable and soundless. Special attention shall be paid to the ventilation of the lower booths.

## A.3 Siting outside the conference room

**A.3.1** In exceptional circumstances, the interpreting booths may be located outside the room in which the conference is taking place. In this case, the booths shall be located together, away from any source of disturbance such as kitchens, public corridors and passageways. Sound and image shall be transmitted to the interpreters according to ISO 20108.

**A.3.2** Where appropriate, acoustic panels of absorbent material should be used to reduce the reflection of sound.

**A.3.3** The A-weighted equivalent sound pressure level (LAeq) generated by the air-conditioning system, lighting and other sound sources shall not exceed 40 dBA in order to provide good speech intelligibility (see also ISO 20108 and ISO 3382-1).

**A.3.4** Rooms shall be properly heated or cooled and ventilated (air-conditioning), with a $CO_2$ level not exceeding 0,1 %.


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# Bibliography

[1] ISO 2603, *Simultaneous interpreting — Permanent booths — Requirements*

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