



**International
Standard**

ISO 17651-2

**Simultaneous interpreting —
Interpreters' working
environment —**

**Part 2:
Requirements and
recommendations for mobile
booths**

*Interprétation simultanée — Environnement de travail des
interprètes —*

Partie 2: Exigences et recommandations pour les cabines mobiles

**First edition
2024-01**

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 document 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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This document was prepared by Technical Committee ISO/TC 37, *Language and terminology*, Subcommittee SC 5, *Translation, interpreting and related technology*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS A07, *Translation and Interpretation services*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces the third edition of ISO 4043:2016, which has been technically revised.

The main changes are as follows:

- the document has been generally updated due to technological developments;
- requirements have been formulated in a technology-neutral way;
- the structure of the various parts of the ISO 17651 series has been aligned;
- a novel approach to booth ventilation has been introduced.

A list of all parts in the ISO 17651 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document concerns mobile booths for simultaneous interpreting. Mobile booths are designed to be temporarily set up and used in a variety of locations not equipped for the hosting of multilingual events, for the duration of the event. This document also describes their installation and use with a direct view of the room in which the communicative event takes place.

There are a number of things to be taken into account when designing and installing mobile booths. Interpreting is an activity that requires high levels of concentration, therefore the working environment has to meet the highest standards to minimize stress.

This document addresses the following:

- a) workplace setting of spoken language interpreters;
- b) visual communication between interpreters and participants at an event;
- c) sound insulation from the noise transmitted from the booth's environment to a booth;
- d) dimensions, mass and handling.

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Simultaneous interpreting — Interpreters' working environment —

Part 2: Requirements and recommendations for mobile booths

1 Scope

This document specifies requirements and recommendations for the design, use and siting of mobile booths for simultaneous interpreting. The main features of mobile booths that distinguish them from permanent booths are that they can be dismantled, moved and set up in a room. This document also ensures the usability and accessibility of booths for all interpreters.

This document is to be used in conjunction with ISO 20109, which contains requirements and recommendations for the equipment necessary for simultaneous interpreting. For requirements and recommendations for mobile booths which do not have a direct view of a room, see ISO 17651-3.¹⁾

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, lowering 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 21542:2021, *Building construction — Accessibility and usability of the built environment*

EN 1335-1, *Office furniture — Office work chair — Part 1: Dimensions – Determination of dimensions*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

1) Under preparation. Stage at the time of publication: ISO/CD 17651-3.2:2024.

— IEC Electropedia: available at <https://www.electropedia.org/>

**3.1
interpreter**

person who interprets

[SOURCE: ISO 20539:2023, 3.1.13]

**3.2
interpreting**

interpretation

rendering spoken or signed information from a source language into a target language in spoken or signed form, conveying both the meaning and language register of the source language content

[SOURCE: ISO 20539:2023, 3.1.11]

**3.3
simultaneous interpreting**

mode of *interpreting* (3.2) performed while a speaker or signer is still speaking or signing

Note 1 to entry: The activity requires specialized equipment.

[SOURCE: ISO 20539:2023, 3.4.12, modified — Note 1 to entry has been added]

**3.5
booth**

simultaneous interpreting booth

self-contained unit enclosing the *interpreter's* (3.1) workspace

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

[SOURCE: ISO 20539:2023, 3.5.2.1]

**3.6
permanent booth**

permanent simultaneous interpreting booth
booth (3.5) structurally integrated into a facility

[SOURCE: ISO 20539:2023, 3.5.2.2]

**3.7
mobile booth**

mobile simultaneous interpreting booth

free-standing *booth* (3.5) assembled from modular components which can be transported and set up at a variety of facilities

[SOURCE: ISO 20539:2023, 3.5.2.3]

**3.8
video display**

electronic device which represents information in a visual form

[SOURCE: ISO 20539:2023, 3.5.2.43]

4 Location

4.1 Room characteristics

When selecting a room in which to set up mobile booths and equipment, sufficient space shall be provided to position them appropriately (see also 4.2) so that the room itself and the booths constitute a well-balanced unit in terms of layout, people flow, accessibility and usability in accordance with ISO 21542.

The room shall be properly heated or cooled and ventilated, with a CO₂ level not exceeding 1 000 parts per million.

Rooms and booths shall be located away from any sources of disturbance, such as kitchens, public corridors and passageways.

In order to facilitate speech intelligibility:

- a) the A-weighted equivalent sound pressure level, L_{Aeq} , generated by the air-conditioning system, lighting and other sound sources, shall not exceed 40 dB(A), in accordance with ISO 3382-1;
- b) the room should not cause reverberation or echoes exceeding the values recommended for the type of room in accordance with ASNZS 2107.

NOTE ASNZS 2107 also specifies methods of measuring the background sound level and the reverberation time in unoccupied spaces.

Where appropriate, panels of absorbing material should be used to reduce sound reflection.

The surface under the booth shall not cause electrostatic charge leading to harmful discharge, which can damage electric and electronic devices. Wherever the flooring of the room does not meet this requirement, adequate measures to protect against electrostatic discharge shall be provided.

The room shall have electrical outlets of adequate power.

The room should receive daylight.

Specialized entities or interpreters with expert knowledge of booths, qualified technicians or suppliers of such equipment shall be consulted.

4.2 Siting and visibility

A sufficiently large area shall be provided for the booths to be placed together, in such a way that the interpreters have a direct view of the entire room, including the rostrum, speakers, signers and all visual aids such as projection screens and displays. Booths shall also be situated in such a way that no columns, pillars or people standing obstruct the interpreters' view.

Booths should open onto areas only accessible to interpreters and staff supporting the work of interpreters.

The booths shall not be placed adjacent to any sources of noise or vibrations, except when sufficient sound insulation is provided.

Care shall also be taken to prevent disturbing sound effects resulting from all types of sources, including those located on other levels than the one where the booths are located.

Booths shall be raised at least 0,3 m above the flooring of the room to give the interpreters a clear view of all proceedings (see [Figure 1](#)), bearing in mind the distance from the speakers and the height of the speakers' platform and assuming a level floor. Where necessary, a platform shall be used, provided that it is stable and covered with sound-absorbing material (e.g. carpeting), offers safe access for all interpreters, and does not creak.

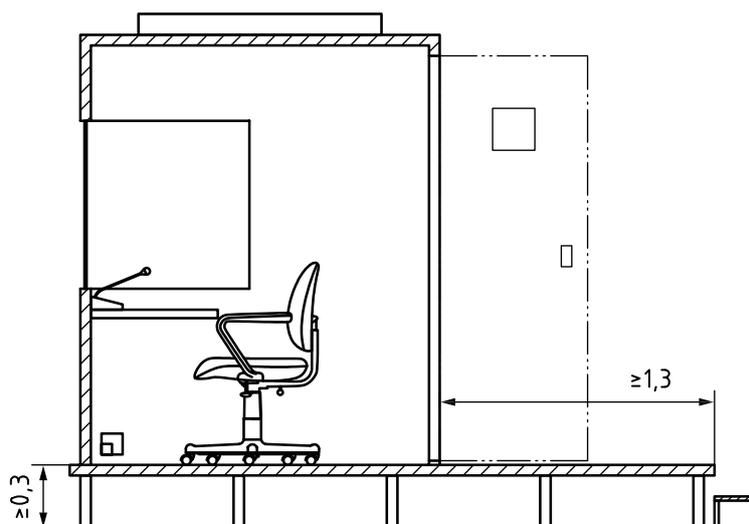


Figure 1 — Sideview of a mobile booth on a platform

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

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

Booths shall be grouped in such a way as to facilitate visual contact, as well as cabling, between them.

If the booths are located to one side of the room, the angle of the interpreters' line of vision towards a screen should be no less than 35°, taking the edge of the booth as a reference. The purpose of this is to give the interpreter a clear view without having to bend forward or sideways.

For extended language regimes, booths on two levels may be used. If mobile booths are placed in a two-tier construction, the necessary scaffolding and access to the upper level shall be sturdy, stable, soundless and fully secured. Special attention shall be paid to the ventilation of the lower booths.

In very large rooms, where the rostrum and/or projection screen are more than 20 m away, video displays (see 6.8) shall be used to provide a view of the speakers if the distance between the booths and the screen is ≥ 3 times the screen's diagonal measurement. See ISO 22259:2019, Annex F.

If booths are situated behind the speakers, video displays shall be used; these should be used in booths situated on the upper level.

4.3 Accessibility

Access to the booths shall be provided by an unhindered, safe and adequately lit passage, at least 1,20 m wide (see Figure 1). When possible, there should also be a separate access from outside the room.

Access to the room past the booths should be avoided.

When required, booths accessible to persons with disabilities shall be supplied.

4.4 Technical control and technical support staff

The technical control should be placed close to the interpreting booths, so that visual communication between the technical support staff and the interpreters is possible.

The technical control should be easily accessible for the technical support staff.

The technical support staff should have a clear view of the entire room, including the rostrum, speakers, signers and all visual aids, such as projection screens and displays.

The technical control may be installed:

- on a table;
- in a rack;
- in a booth that conforms to the requirements and recommendations of a mobile booth for simultaneous interpreting.

Interpreters shall be able to communicate directly with the technical support staff, who shall have safe, quick and easy access to the booths and the room.

5 Design

5.1 General requirements

Each booth shall accommodate interpreters comfortably seated side by side, each with sufficient table space to work on (see 6.4) and space to spread documents and place electronic devices.

Mobile booths are designed for non-permanent use in a variety of locations. They shall provide at least the required sound insulation (see 5.5.1) and sound absorption (see 5.5.2). 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 for at least five years.

The booth's external surfaces shall be non-reflecting. Materials used shall be fire-retardant or non-flammable in accordance with ISO 1182 and ISO 11925-3, as well as odourless, non-allergenic and non-toxic. They shall cause no irritation to the eyes, skin or respiratory tract. They shall be anti-static and easy to maintain.

Booths should be manufactured to be accessible to persons with disabilities.

5.2 Dimensions, mass and handling

5.2.1 Dimensions

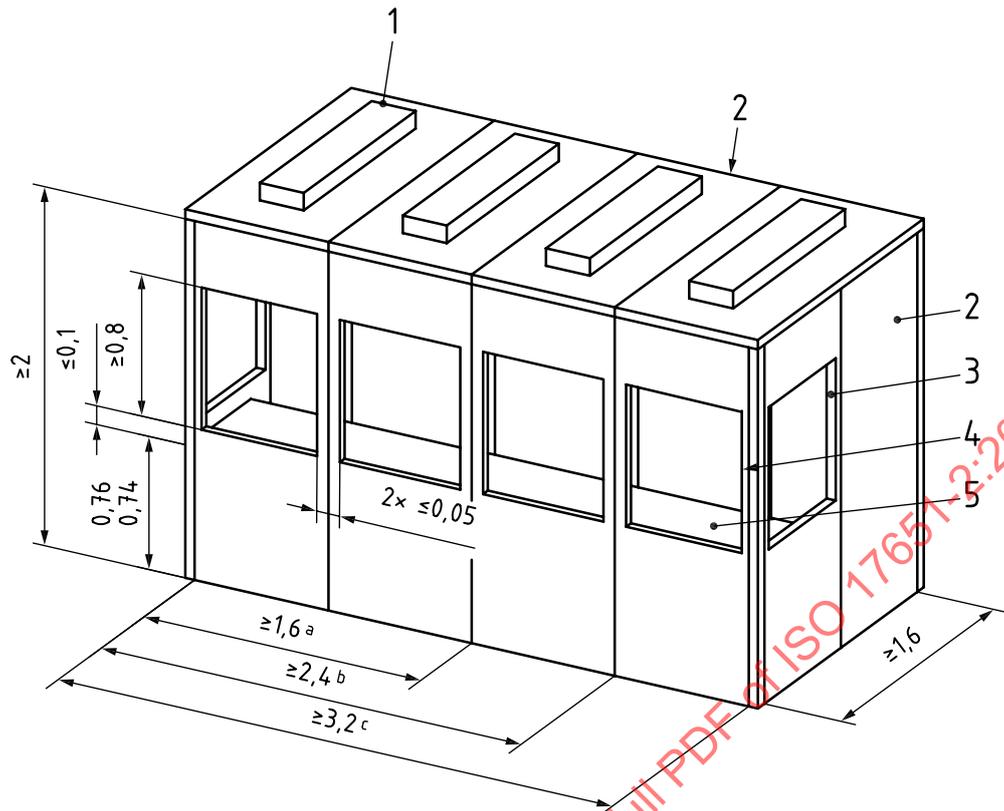
The size of a mobile booth (see Figure 2 and Figure 3) is governed by the need to provide each interpreter with sufficient workspace, while at the same time allowing them to enter and leave the booth without disturbing one another. Enough space shall also be provided to ensure adequate ventilation and temperature control (see 5.6).

The following minimum internal dimensions shall apply:

- a) width:
 - 1) for no more than two interpreters: 1,60 m;
 - 2) for no more than three interpreters: 2,40 m;
 - 3) 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.

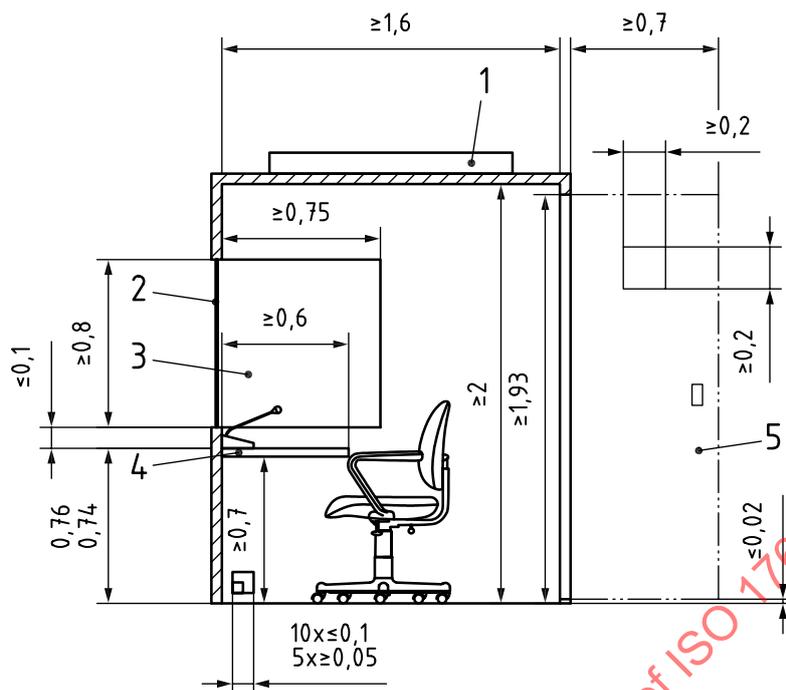
NOTE Table-mounted hoods and single-person booths do not conform to this document.



Key

- 1 ventilation units
- 2 door panel (at the back or in one of the side walls)
- 3 side window
- 4 front window
- 5 work surface
- a For two interpreters.
- b For two or three interpreters.
- c For up to four interpreters.

Figure 2 — Dimensions of mobile booth for two, three or four interpreters



Key

- 1 ventilation unit
- 2 front window
- 3 side window
- 4 work surface
- 5 door

Figure 3 — Sideview of a mobile booth

5.2.2 Mass and handling

In accordance with ISO 11228-1, the mass of a single component of a mobile booth shall not exceed 25 kg.

The booth shall be designed in such a way that it can be handled, assembled and dismantled by a single person.

5.2.3 Transport and storage

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

5.3 Doors

See [Figure 2](#) and [Figure 3](#).

A booth shall have a hinged door that opens outwards, shall provide satisfactory acoustic insulation (see [5.5.1](#)), and shall provide direct access from the room and platform. The door shall operate silently without a lock, and shall have a handle. The door shall measure at least 0,70 m wide \times 1,93 m high. The threshold shall not exceed 0,02 m.

It shall be possible to fit the door at the back or in one of the side walls of the booth.

There shall be an observation porthole of no less than 0,2 m \times 0,2 m in the door.

For booths accessible to persons with a disability, doors should be at least 0,85 m wide, in accordance with ISO 21542:2021, 9.1.1.1.

Curtains or baffles shall not be used instead of doors.

5.4 Windows

A booth shall have front and side windows (see [Figure 2](#) and [Figure 3](#)).

Front windows shall span the whole width of the booth. They shall extend upwards for at least 0,8 m from no more than 0,1 m above the work surface.

Side windows, of at least the same height as the front windows, shall extend from the front windows for at least 0,75 m along the side wall, continuing for at least 0,1 m beyond the free edges of the work surface.

For maximum visibility towards the room, the vertical support of each window shall be no more than 0,05 m wide and shall not be in the central field of vision of any work position.

Windowpanes shall be made of colourless, anti-glare glass that is clean and free from scratches that can impair visibility.

5.5 Acoustics

5.5.1 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 room 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 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 room to a booth, and vice versa.

Table 1 — Booth to 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](#).

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, shall be made in a booth installed in a room in which it is possible to mimic normal working conditions as closely as possible.

5.5.2 Sound absorption

Reverberation and sound reflection shall be reduced by using suitable sound-absorbing materials on inside surfaces. In accordance with ISO 3382-2, reverberation time inside the booth (with the booth unoccupied)

shall be between 0,3 s and 0,5 s measured in octave bands from 250 Hz to 8 000 Hz, or in one-third octave bands from 100 Hz to 5 000 Hz.

5.6 Ventilation

See [Figure 2](#) and [Figure 3](#).

Booths shall be fitted with a ventilation system that renews the air at least eight 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 ventilation system shall be designed in such a way that it is easily replaceable and does not cause any perceptible mechanical vibration.

The CO₂ level in the booths shall not exceed 1 000 parts per million. The booths shall be fitted with a CO₂ detector, which shall be placed in the middle, halfway between the work surface and the ceiling of the mobile booth. The detector shall give a visual warning only.

The ventilation system shall ensure proper circulation and avoid draughts.

The equivalent A-weighted sound pressure level inside the booth caused by the ventilation system shall not exceed 35 dB(A), measured in the centre of the booth, 1,25 m above floor level.

Ventilation units in each ceiling element and vents located low at the back of the booth are recommended.

5.7 Cable passages

Cable passages in the side or front panels of the booths should be no less than 0,05 m × 0,05 m and no more than 0,1 m × 0,1 m, 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.

5.8 Language displays

The language names and their assigned channel numbers shall be made available.

This may be achieved by:

- using a single display for all available languages;
- installing displays above the front window of each booth;
- hanging displays from one of the corners of the front window inside each booth without obstructing the interpreters' view of the room.
- any digital means.

Available languages and their channel numbers shall also be indicated on, or adjacent to, the booth doors.

6 Booth interior

6.1 General requirements

The booth's interior surfaces shall be non-reflecting. Materials used shall be appropriately sound-absorbing (see [5.5.2](#)).

6.2 Colours

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.

6.3 Lighting

The equipment shall fully conform to ISO 8995-1 with regard to luminance, glare limitation and colour quality.

Each booth shall be provided with at least two different lighting systems for work. They shall be dimmable.

The first lighting system for work shall consist of an overhead light source of at least 350 lx. It shall be positioned in such a way as to avoid shadows being cast by the working interpreter on the work surface, documents, fixtures and other equipment.

The second lighting system for work shall be an individual compact, table-top, low-heat, adjustable lamp that provides light for the individual work surface available to each interpreter.

No light source shall cause flicker or reflections on booth windows or the work surface.

All lighting systems, including dimmers and transformers, shall be free of magnetic interference and audible noise. They shall be designed in such a way as to avoid any inductive electrical interference in neighbouring microphone circuits. Their operation shall be completely silent.

The work and general lighting combined shall provide the required light intensity over the whole work surface of the booth. All light sources shall generate as little heat as possible and have a colour temperature of 2 700 K to 4 000 K.

The relevant switches shall be within easy reach of the interpreter and shall provide continuous intensity control over a range of 100 lx to 350 lx, or provide two levels: one in the range of 100 lx to 200 lx, and the other of at least 350 lx (all values shall be achieved at work surface level).

6.4 Work surface

See [Figure 2](#) and [Figure 3](#).

The work surface shall be firm enough to be used as a writing table, for studying documents, and for placing electronic devices such as laptops or tablets.

It shall extend across the full width of the booth. It shall be horizontal and covered with shock-absorbing material to reduce noise that would otherwise be picked up by the microphones. The underside shall have a smooth finish.

At least one grommet per work position shall be provided for easy cabling and to prevent cabling from being obstructive.

The following dimensions shall apply:

- a) height: between 0,74 m and 0,76 m from the floor;
- b) total depth: at least 0,6 m;
- c) leg-room: no less than 0,45 m deep and 0,70 m high.

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

6.5 Electricity supply

On the work surface, near each interpreter interface, there shall be at least one electricity outlet, together with a charging solution for interpreters' electronic devices.

Electrical wiring shall be designed in such a way that it is not influenced by other building circuitry.