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Simultaneous interpreting — Interpreters' working environment —

Part 1: Requirements and recommendations for permanent booths

Interprétation simultanée — Environnement de travail des interprètes —

Partie 1: Exigences et recommandations pour les cabines permanentes

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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 fourth edition of ISO 2603:2016, 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 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 permanent booths for simultaneous interpreting which have 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 building permanent 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 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.

Simultaneous interpreting — Interpreters' working environment —

Part 1:
Requirements and recommendations for permanent booths

1 Scope

This document specifies requirements and recommendations for the design of permanent booths for simultaneous interpreting in new or existing buildings. 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 permanent booths which do not have a direct view of the room in which a communicative event takes place, 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 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation*

ISO 717-2, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 2: Impact sound insulation*

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

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

ISO 7730, *Ergonomics of the thermal environment — Analytical determination and interpretation of thermal comfort using calculation of the PMV and PPD indices and local thermal comfort criteria*

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

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 16283-2, *Acoustics — Field measurement of sound insulation in buildings and of building elements — Part 2: Impact sound insulation*

ISO 20109, *Simultaneous interpreting — Equipment — Requirements*

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

1) Under preparation. Stage at the time of publication: ISO/CD 17651-3-2:2024.

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

— 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
signed language
language which uses a combination of hand shapes, orientation and movement of the hands, arms or body, and facial expressions

[SOURCE: ISO 20539:2023, 3.1.7]

3.4
signed language interpreting
interpreting (3.2) between two *signed languages* (3.3) or between a signed language and a spoken language

[SOURCE: ISO 20539:2023, 3.4.3]

3.5
simultaneous interpreting
mode of *interpreting* (3.2) performed while a speaker or signer is still speaking or signing

[SOURCE: ISO 20539:2023, 3.4.12]

3.6
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]

3.7
permanent booth
permanent simultaneous interpreting booth
booth (3.6) structurally integrated into a facility

[SOURCE: ISO 20539:2023, 3.5.2.2]

3.9
control booth
room from which technical equipment and the quality of audio and video signals are managed

[SOURCE: ISO 20539:2023, 3.5.2.5]

3.10
interpreter interface
equipment containing controls used by the *interpreter* (3.1) to facilitate *simultaneous interpreting* (3.5)

EXAMPLE Controls for listening, viewing, speaking, signing.

[SOURCE: ISO 20539:2023, 3.5.2.8]

3.11
video display
electronic device which represents information in a visual form

[SOURCE: ISO 20539:2023, 3.5.2.43]

3.12
overlay
substitution of part of an image by another image

[SOURCE: ISO 20539:2023, 3.5.2.44]

4 Location

4.1 Room characteristics

When rooms are designed, booths shall be integrated into the structure so that the room itself and the booths constitute a well-balanced unit in terms of layout, people flow within buildings, accessibility and usability in accordance with ISO 21542.

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, 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.

Booths shall receive as much indirect daylight from the room as possible.

Specialized entities or interpreters with expert knowledge of booths shall be consulted from the earliest stages of planning, together with suppliers and specialists, such as architects and project engineers.

4.2 Siting and visibility

Booths shall be placed 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 or pillars obstruct the interpreters' view.

Booths shall be raised above the floor so that the interpreters' view cannot be obstructed by people standing in the way. Accordingly, the booth floor shall be no less than 0,6 m above the room floor, assuming a level floor.

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.

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 (see 6.8) shall be used; these should be used in booths situated on the upper level.

4.3 Accessibility

It shall be possible to quickly, easily and safely access:

— one booth from another booth;

— all booths from the room;

— all booths from outside the room.

A minimum of 10 % of the booths, rounded up to the next whole number, shall be accessible to persons with a disability, in accordance with ISO 21542.

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 permanent booth for simultaneous interpreting.

If not present in the room, a central technical control should be available in the venue.

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.

Permanent booths providing space for no more than one interpreter do not conform to this document.

5.2 Dimensions

The size of a permanent booth (see Figure 1) 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. The booth shall also be high enough and deep enough to provide the required volume of air to enable adequate temperature control and draught-free air renewal (see 5.6).

The following minimum internal dimensions shall apply:

— width: 2,50 m;

— depth: 2,40 m;

— height: 2,30 m.

Different dimensions can apply for a booth for signed language interpreting.

NOTE 1 Good results for this case have been obtained with the following internal dimensions:

— width: 5,00 m;

— depth: 4,00 m;

— height: 2,30 m.

Signed language interpreters with expert knowledge of booths shall be consulted.

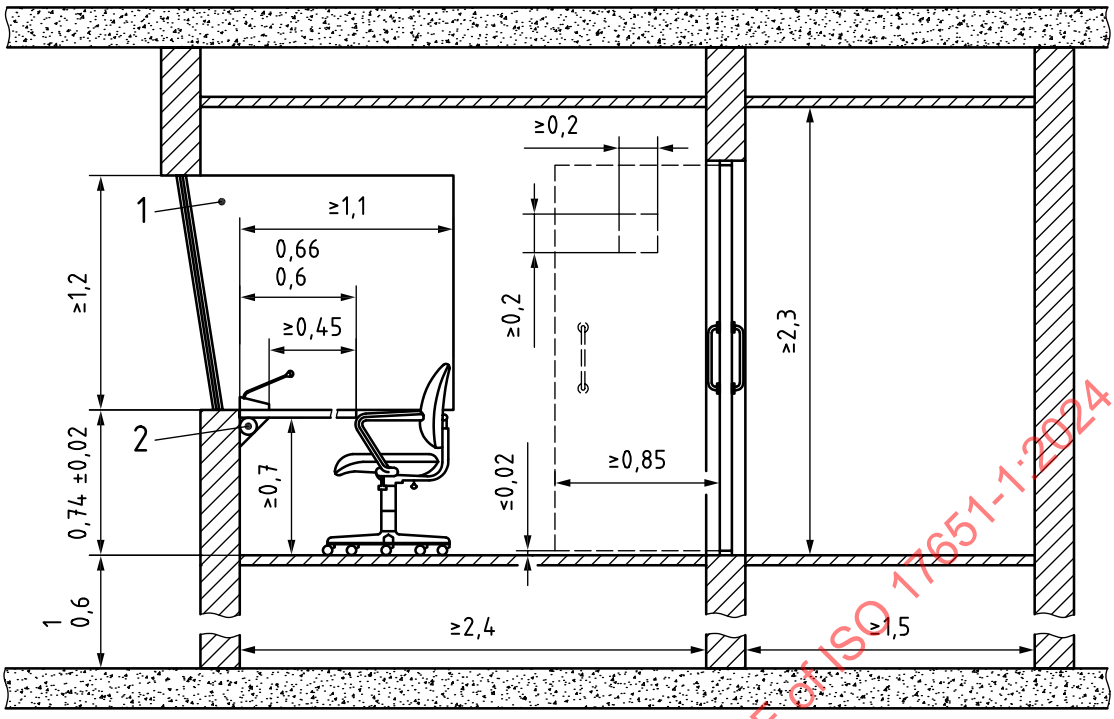
For rooms with up to six booths, one or more of them should be at least 3,20 m wide to cover the need for the continuous presence of three interpreters.

For rooms with more than six booths, all booths shall be at least 3,20 m wide.

To avoid resonance effects, the three dimensions of the booth should be different from one another. To avoid standing waves, the two side-walls should not be exactly parallel.

NOTE 2 Where feasible, additional height can assist draught and temperature control.

Dimensions in metres



Key

1 side window

2 cable duct

Figure 1 — Booth dimensions

5.3 Doors

See Figure 1.

The doors shall be hinged, shall operate silently and shall provide satisfactory acoustic insulation (see 5.5.1). They shall have a handle, but no latch, and shall close automatically and silently. The threshold shall not exceed 0,02 m.

There shall be either a light outside the door to indicate that a microphone is on inside the booth, or an observation porthole of no less than 0,2 m × 0,2 m in the door.

There shall be no doors between booths. Doors shall be no less than 0,85 m wide, in accordance with ISO 21542:2021, 9.1.1.1. Wheelchair access to the workplace can be regulated.

Sliding doors, curtains or baffles shall not be used instead of doors.

5.4 Windows

Each booth, including the control booth, shall have front and side windows (see Figure 1).

NOTE Booths adjacent to the side wall of the room do not need to have windows on both sides.

The front window shall consist of a single uninterrupted pane of glass and span the full width of the booth. It shall extend upwards for at least 1,20 m from the work surface (see 6.4).

For upper-level booths, the windows should be adapted to guarantee an ergonomic gaze-angle and a view of the room that is as complete as possible. The lower edge of the front window may therefore be lower than the work surface (see Figure 2).

Side windows, of at least the same height as the front window, shall extend from the front window for at least 1,10 m along the partition between booths.

To ensure an unobstructed view from the booths, there shall be no vertical supports dividing the panes.

Front and side windows shall be made of colourless, anti-glare glass that meets sound insulation requirements (see 5.5.1). The panes shall be mounted in such a way as to avoid vibration and reflections from the room and the booth lighting.

Depending on the type of work lighting used (see 6.3) and for acoustic reasons (5.5.1), front panes may be inclined.

If booth windows are curved, they shall not distort the view.

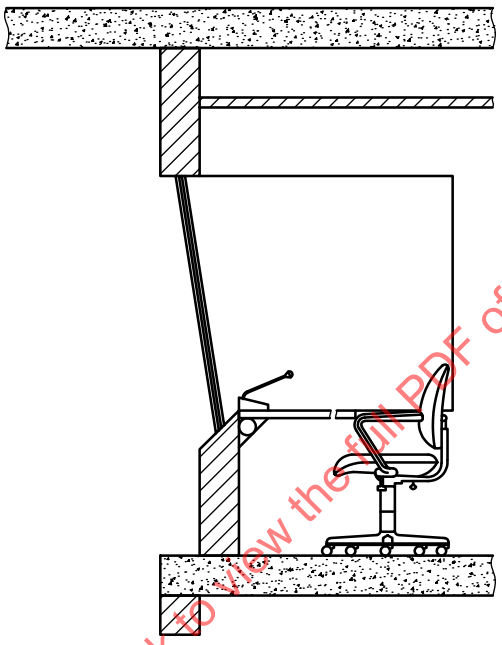


Figure 2 — Upper-level booth windows

5.5 Acoustics

5.5.1 Sound insulation

The booths shall open onto corridors not normally used by the participants of the communicative event, members of staff or the public. They shall not be adjacent to any sources of noise or vibration except when sufficient insulation is provided. Floors, walls and roofs in booths and corridors shall be covered with sound-absorbing material.

NOTE Good results have been achieved by attaching fabric of sufficient thickness to walls and perforated ceiling panels (see 5.6.3, NOTE). Material with a weighted absorption coefficient of $\alpha_w \geq 0,6$ (according to ISO 11654) is suitable.

Where the flooring is hollow, care shall be taken to prevent sounding-box effects from footsteps.

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.

Particular attention shall be given to providing soundproofing:

— between the booths;

— between the booths and the control booth;

— between the booths and the interpreters' corridors;

— between the booths and the room.

For airborne sound insulation, the following values, measured in situ after implementing all technical installations, shall apply:

— room/booth: $R'_w \geq 48$ dB;

— booth/booth: $R'_w \geq 43$ dB;

— booth/corridor: $R'_w \geq 41$ dB,

where R'_w, the weighted apparent sound-reduction index, is defined in ISO 717-1 and measured in accordance with ISO 16283-1.

For impact sound insulation, the following values, measured in situ after implementing all technical installations, shall also apply:

— roof: $L'_{n,w} \leq 46$ dB;

— floor: $L'_{n,w} \leq 46$ dB,

where $L'_{n,w}$, the weighted normalized impact sound pressure level, is defined in ISO 717-2 and measured in accordance with ISO 16283-2.

Cable ducts (see 5.7) shall be properly soundproofed to prevent noise transmission from one booth to another.

The A-weighted equivalent sound pressure level, L_{Aeq}, generated by the air-conditioning system (see 5.6), lighting (see 6.3) and other sound sources shall not exceed 35 dB(A).

5.5.2 Sound absorption

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

5.6.1 General

Booths are places used for work and are occupied throughout the day. Air quality, temperature, humidity and air velocity shall be adequate.

5.6.2 Air quality

Adequate ventilation is required to limit indoor pollutants. CO_2 concentration shall not exceed 1 000 parts per million in the booths.

Air shall be renewed at least seven times per hour in booths in order to meet this goal.

The airflow shall be controlled automatically by a programmable timer or presence detection. The airflow may also be regulated by the use of CO_2 detectors. In the absence of such detectors, the air supply shall be 100 % fresh (i.e. not recycled) and adequately filtered.

It shall be possible to control the air conditioning system independently for each booth.

The corridors behind the booths shall also be equipped with sufficient ventilation. Recycled air may be acceptable in this case.

5.6.3 Temperature, humidity and air velocity

The control for the air-conditioning system for interpreters' booths shall be independent from that of the rest of the building and the room.

The temperature shall be controllable between 20 °C and 25,5 °C by means of an individual regulator in each booth in accordance with ISO 7730.

Relative humidity shall be between 40 % and 70 %.

Air velocity shall not exceed 0,2 m/s. Air inlets and outlets shall be placed in such a way that interpreters are not exposed to draughts.

NOTE Good results have been obtained by introducing the air through a perforated ceiling and extracting it through vents at the rear of the booth, in the floor or on the rear wall.

Swirl diffusers should be avoided.

5.6.4 Soundproofing

Air ducts shall not transmit sound from one booth to another or from other sources into booths (see 5.5.1) and they shall not pass through walls separating booths. To conform to acoustic requirements, noise-generating appliances such as expansion chambers and fire-shutters shall be located outside the booths.

NOTE Good results have been obtained with air duct systems which supply and extract air and have silencers attached.

5.7 Cable ducts

Ducts suitable for cables and associated connectors, both from one booth to another and into the booths, shall be provided. After the cables have been inserted, the ducts shall maintain the sound insulation values of the walls they cross.

Access to ducts should be easy and should not require the use of special tools.

5.8 Language displays

The language names and their assigned channel numbers shall be clearly indicated in the room.

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.

Available languages and their channel numbers shall also be clearly indicated on, or adjacent to, the booth doors and, in rooms with many booths, at the entrance of each corridor giving access to booths.

5.9 Electromagnetic radiation levels

Electromagnetic radiation shall be reduced to such a level that direct biophysical effects and other indirect effects caused by electromagnetic fields are avoided.

Regulations can apply to electromagnetic radiation in workplaces (e.g. see Directive 2013/35/EU).[5]

6 Booth interior

6.1 General requirements

Booth interior 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. They shall be appropriately sound-absorbing (see 5.5.2) and shall neither attract nor collect dust.

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 lighting in the booth shall be independent of the lighting in the room, so that the latter can be darkened for projections and presentations.

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

Each booth shall have at least four different lighting systems: two for work, one for general purposes and one for emergencies. Lighting systems for work and for general purposes 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 and 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.

The lighting system for general purposes shall be a second overhead light source installed at the back of the booth.

The emergency light shall be placed above the door.

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

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-absorbent material to deaden noise that would otherwise be picked up by the microphones. The underside shall have a smooth finish.

The work surface shall:

a) be positioned at the front of the booth, thereby affording the seated interpreter an unobstructed view of the proceedings in the room; care shall be taken to avoid the transmission of vibration through booth walls;

b) be at a height of 0,74 m to 0,76 m from the floor level of the booth;

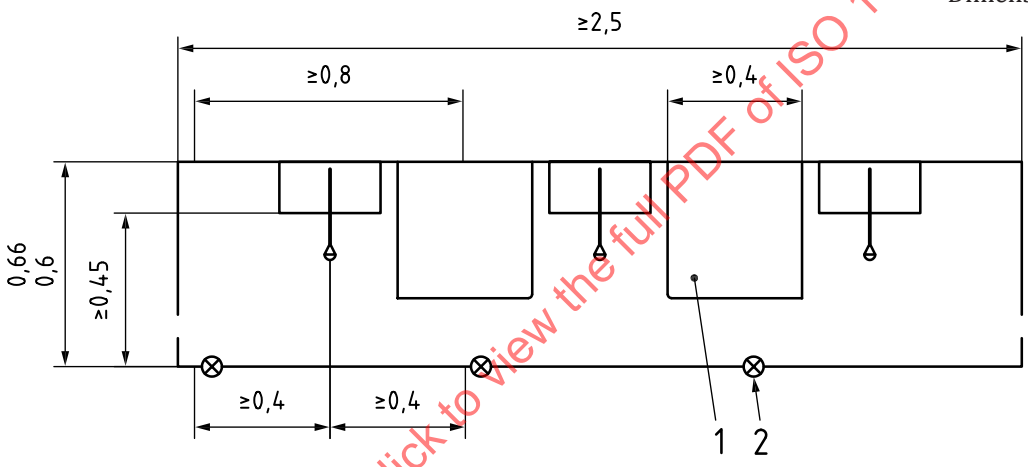
c) have a depth of 0,6 m to 0,66 m; full depth usable (i.e. the space shall be clear of fixtures and other equipment); there shall be at least 0,45 m of free space between the edge of the work surface and the front of the interpreter interface;

d) allow leg room of at least 0,45 m in depth and 0,7 m in height, not obstructed by work surface supports or cabling and cable ducts;

e) allow for the installation of recessed video screens between the interpreter interfaces (see Figure 3).

One headphone/headset connector for each interpreter should be provided on the edge of the work surface, 0,4 m to the left of the interpreter interface's axis (see Figure 3). The connector shall conform to ISO 20109.

Dimensions in metres



Key

1 position of recessed video displays

2 position of headphone/headset connectors

Figure 3 — Work surface

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.

6.6 Internet access

All interpreters shall be provided with internet access. Confidentiality or security requirements for the event shall be considered.