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Simultaneous interpreting — Permanent booths — Requirements

Interprétation simultanée — Cabines permanentes — Exigences

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Foreword

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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 fourth edition cancels and replaces the third edition (ISO 2603:1998), which has been technically revised.

Introduction

A number of basic aspects shall be considered when equipping a conference venue with permanent 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.

This document addresses the following:

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.

Simultaneous interpreting — Permanent booths — Requirements

1 Scope

This document provides requirements and recommendations for building and renovating permanent booths for simultaneous interpreting in new and existing buildings. This document also ensures the usability and accessibility of booths for all interpreters, including those with special needs.

It is applicable to all types of permanent booths, using built-in or portable equipment.

In conjunction with either this document or ISO 4043, 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 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation*

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

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

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 into 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

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

Note 1 to entry: ISO 4043 applies to mobile booths.

3.3
control booth
room where the control instruments are located, and from where the technical equipment is managed

3.4
video display
electronic device that represents information in a visual form

4 Location of booths

4.1 General requirements

When new conference rooms are being 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, circulation within buildings, accessibility and usability according to ISO 21542. Conference interpreters experienced in technical consultancy shall be consulted from the earliest stages of planning together with suppliers and specialists such as architects and project engineers.

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

4.2 Specific requirements

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

Depending on how the conference hall is used, the booths shall be placed in such a way that the interpreters have an unobstructed view of the main speakers. In situations where extended language regimes require the use of booths on two levels, video displays may be used to provide a view of the speakers in the booths situated on the upper level.

Booths shall be raised above the floor of the hall in order to give the interpreters a clear view (see 4.5) of all proceedings in the hall, and of all visual aids such as a projection screen and displays. The view from the booths into the hall shall not be obstructed by people standing in the way or by building components such as columns. Accordingly, the booth floor shall be no less than 60 cm above the hall floor, assuming a level floor.

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

4.3 Control booth

If present, the control booth shall be placed close to the interpreting booths in order to facilitate access and enable visual communication between the technician and the interpreters and to provide the technician with a clear view of all proceedings, including speakers and use of the projection screen. Interpreters shall have a facility whereby they can communicate directly with the control booth. The technician shall have safe, quick and easy access to the booths and the conference room. See also ISO 20109:2016, C.2.

4.4 Access to booths

There shall be quick and easy access to the booths from the hall and between booths.

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.

4.5 Visibility

A direct, unobstructed view of the entire conference room, including a projection screen and the rostrum is essential. If the booths are located to one side of the conference 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 of the rostrum and the projection screen without the interpreters having to bend or incline the body.

In very large halls, where the rostrum and/or projection screen are more than 20 m away, video displays shall be used (in accordance with ISO 20109:2016, B.2)

— if the distance between the booths and the screen is ≥3 times the screen's diagonal, or

— if the booths are located behind the main speakers or on an upper level.

The interpreters' booths shall be sited in such a way that columns and pillars allow interpreters to have clear view of the projection screen, the rostrum and speakers without having to make any additional movements. Materials used shall be such that they do not inhibit visibility of the projection screen and the rostrum (e.g. non-glaring glass).

5 Building standards for booths

5.1 General

Each booth shall be wide enough to accommodate the required number of interpreters seated comfortably side by side, each with sufficient table space to work on (see 6.6) with documents and electronic devices spread alongside each other. The booth shall be high and deep enough to provide the required volume of air to enable adequate temperature control and draught-free air renewal (see 5.6), as well as sufficient space for the occupants to enter and leave without disturbing one another.

NOTE Permanent booths providing space for only one interpreter are not compliant with this document.

5.2 Minimum dimensions

The size of a permanent booth (see Figure 1) is governed by the need to provide each interpreter with sufficient work space and air volume. The following minimum dimensions shall apply:

— width: 2,50 m;

— depth: 2,40 m;

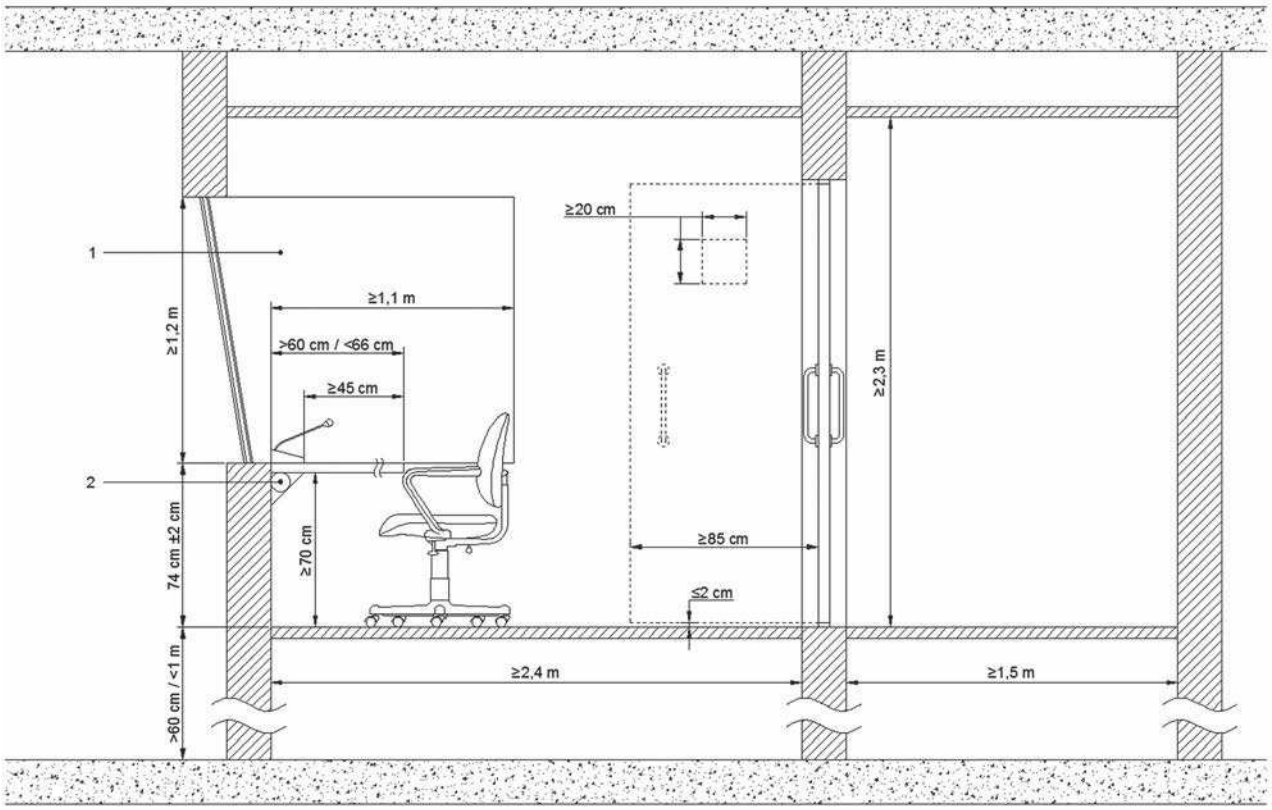
— height: 2,30 m.

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

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

For conference 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 and, to avoid standing waves, the two side-walls should not be exactly parallel.



Key

1 side window

2 cable duct

Figure 1 — Booth dimensions

5.3 Doors

The doors shall be hinged, operate silently and provide satisfactory acoustic insulation (see 5.5). They shall be no less than 85 cm wide in accordance with ISO 21542, and they shall not interconnect booths through side-walls. The threshold shall not exceed 2 cm. On the booth door, there shall be either a light outside the door, indicating that a microphone is on inside the booth, or an observation port-hole (no less than 20 cm × 20 cm).

Doors shall have a firm vertical handle, but no latch, and shall close automatically and silently.

Assigned languages and channels should be indicated on, or adjacent to, doors.

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

5.4 Windows

Each booth shall have front and side windows (see Figure 1).

The front window shall consist of a single uninterrupted pane of glass and span the full width of the booth. The height of the pane shall be at least 1,20 m from the working surface upwards. For upper-level booths, the windows should be adapted to guarantee an ergonomic gaze-angle and a maximum view of the conference hall. The lower edge of the front window may therefore be lower than the working surface.

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

To ensure a maximum, 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). The panes shall be mounted in such a way as to avoid vibration, glare from hall lighting and mirror effects from inside the booth.

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

Depending on the type of work lighting used (see 6.2) and for acoustic reasons (5.5), front panes may have to be inclined.

5.5 Acoustics

The booths shall open onto an area not normally used by participants, 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 and walls in booths and corridors shall be covered with sound-absorbent material.

NOTE Good results have been achieved by attaching fabric of sufficient thickness to walls and perforated ceiling panels (see 5.6.1, 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.

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 conference room.

The following values, measured *in situ* after implementing all technical installations, shall apply:

— room/booth: $R'_w = 48$ dB

— booth/booth: $R'_w = 43$ dB

— booth/corridor: $R'_w = 41$ dB,

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

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

The A-weighted equivalent sound pressure level (L_{Aeq}) generated by the air-conditioning system (see 5.6), lighting (see 6.2) and other sound sources shall not exceed 35 dB(A).

Reverberation time according to ISO 3382-2 inside the booth (booth unoccupied) shall be between 0,3 s and 0,5 s measured in octave bands of 250 Hz to 8 000 Hz, or in one-third octave bands of 100 Hz to 5 000 Hz.

5.6 Heating, venting and air conditioning

As booths are working places occupied throughout the day, adequate hydrothermal conditions and air quality are required.

5.6.1 Hydrothermal conditions

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

The temperature shall be controllable between 20 °C and 25,5 °C by means of an individual regulator in each booth, according to 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.

5.6.2 Air quality

Adequate ventilation is required to limit concentration values of indoor pollutants. Carbon dioxide concentration shall not exceed 0,1 % in the booths.

A minimum air renewal of seven times per hour shall be provided in booths in order to meet this goal in standard conditions.

The ventilation air-flow shall be operated automatically by programmable timer or presence detection. The air-flow may also be regulated by the use of direct CO_2 measure sensors. In the absence of such sensors, the ventilation air supply shall be 100 % fresh (i.e. not recycled) and adequately filtered. Each booth shall be able to control the air conditioning system independently.

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

5.6.3 Soundproofing

Air ducts shall not transmit sound from booth to booth or from other sources (see 5.5) and shall not pass through walls separating booths. To comply with acoustic requirements for technical services, noise-generating appliances such as expansion chambers and fire-shutters shall be located outside the booths.

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

5.7 Cable ducts

Ducts suitable for looping control cables and associated connectors both from booth to booth 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 made easy and should not require the use of special tools.

6 Booth interior

6.1 General

Booth surfaces shall be non-reflecting, fire-resistant, non-allergenic and non-toxic. They shall be appropriately sound-absorbent (see 5.5) and easy to clean and shall neither attract nor collect dust.

6.2 Lighting

The lighting in the booth shall be independent of the lighting in the hall as the latter may have to be darkened for projections and presentations.

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

Booths shall be provided with three different lighting systems: one for work, one for general purposes and one for emergency lighting. Lighting for work and for general purposes shall be dimmable.

The work light source shall be an individual adjustable compact table lamp (in accordance with ISO 20109) that provides light for the individual working surface available to each interpreter.

For general lighting, the overhead light source shall be 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 working surface, documents, fixtures and other equipment. The switch shall be placed by the booth door.

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

Both systems, which shall include 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 coverage of the required light intensity over the whole working surface of the booth. All light sources shall generate as little heat as possible and have a colour temperature of 3 000 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 otherwise provide two levels: one, in the range of 100 lx to 200 lx and the other, of at least 350 lx (all values to be achieved at working surface level).

6.3 Electricity supply

On the working surface, near each interpreter's work station there shall be at least one electricity outlet, together with a 5 V, at least 2 A USB A-type charging socket.

6.4 Internet connection

All interpreters shall be provided with Wi-Fi access, except if confidentiality or security reasons call for the use of a cabled Internet connection.

6.5 Colours

The colour scheme in the booth shall be appropriate for the restricted working space (soft, light colours, subtle pastel shades), at least on side and front walls and on ceilings. Matt finishes shall be used for all surfaces in the booth in order to avoid reflections.

6.6 Working surface

The working surface shall be firm enough to be used as a writing table, for studying documents and for resting laptops or tablets on it.

It shall be horizontal and covered with shock-absorbent material to deaden noise that would otherwise be picked up by the microphones. The underneath surface shall have a smooth finish.

The characteristics of the working surface shall be as follows:

a) position: at the front of the booth and spanning the full width of the room, thereby affording the seated interpreter an unobstructed view of the proceedings in the hall; care shall be taken to avoid the transmission of vibration through booth walls;

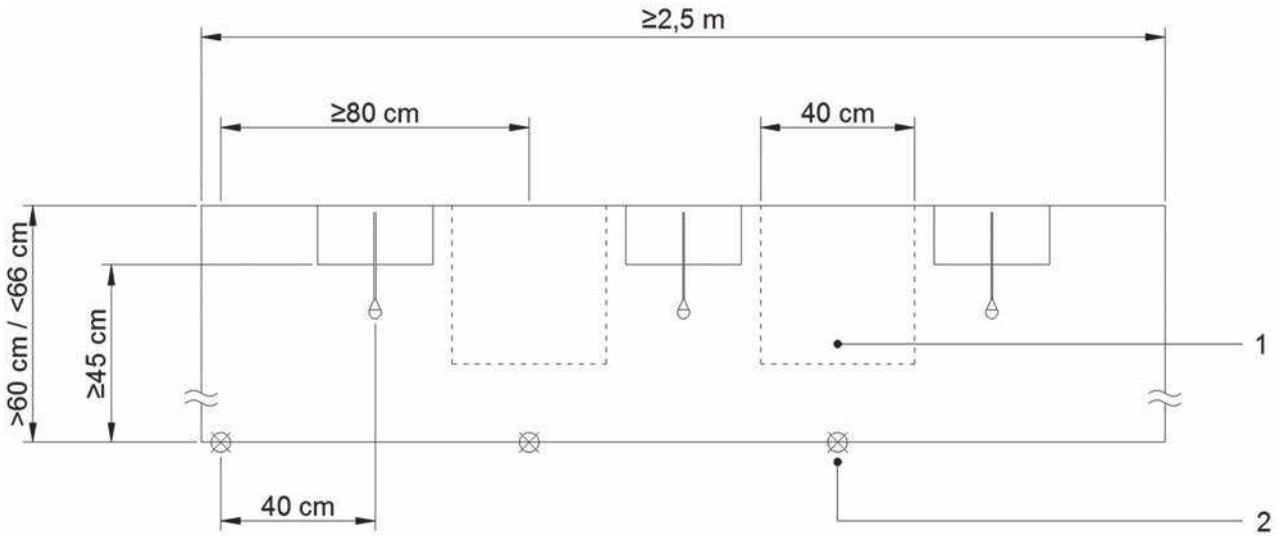
b) height: 74 cm to 76 cm from the floor level of the booth;

c) depth: 60 cm to 66 cm; full depth to be used (i.e. the space must be clear of fixtures and other equipment); at least 45 cm of free space between the edge of the working surface and the front of the interpreter's console;

d) leg room: minimum depth 45 cm, minimum height 70 cm; not obstructed by working surface supports or cabling and cable ducts;

e) suitable for the installation of recessed video screens between the interpreter consoles (see Figure 2).

One 3,5 mm non-locking TRRS connector for each interpreter may be provided on the edge of the working surface, 40 cm to the left of the interpreter console's axis (see Figure 2). The connector shall comply with ISO 20109:2016, 5.2.



Key

1 position of recessed video screen

2 TRRS connector

Figure 2 — Working surface

6.7 Storage for documents and equipment

Shelving, or trays for documents or equipment, shall not be placed under the working surface, but should be located towards the rear of the booth within easy reach of the interpreter.

6.8 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.

Electromagnetic radiation in workplaces may be regulated (see e.g. Directive 2013/35/EU).

7 Facilities for interpreters

7.1 Interpreters' room

There should be an interpreter's room near the booths for the exclusive use of interpreters and technicians when they are not on immediate duty. It should have a private entrance and daylight.

The room should serve the following purposes:

a) as an office;

b) for relaxation and for interpreters on standby.

All interpreters shall be provided with Wi-Fi access, except if confidentiality or security reasons call for the use of cabled Internet connection.

The interpreters' room shall be equipped according to ISO 20109.

7.2 Toilets

Toilets shall be available within easy reach of the booths.

Bibliography

[1] ISO 4043, *Simultaneous interpreting — Mobile booths — Requirements*

[2] ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption*

[3] ISO 20108, *Simultaneous Interpreting — Quality and transmission of sound and image input — Requirements*

[4] Directive 2013/35/EU, *Electromagnetic fields*

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