

## SPECIFICATION FOR IAC STANDARD AUDIOMETRIC EXAMINATION AND MEDICAL RESEARCH ROOMS\*

- 1 ROOF & WALL CONSTRUCTION** - Roofs and walls shall be constructed from standard medical acoustic panels, 102mm thick. Outer panel faces shall be 1.6mm steel sheet while inner faces will be 0.7mm galvanised perforated steel sheet with 2.5mm diameter openings on 5.0mm staggered centres. Panels are reinforced and framed with 1.2mm channels. Average weight to be not less than 50kg/m<sup>2</sup>.
- 2 FLOOR CONSTRUCTION** - Acousti-Flote® floor shall be 102mm thick with 3.0mm steel sheet upper surface and 1.6mm steel sheet lower surface, structurally reinforced. (Control room in the 1400-A-CT series has no floor). All floors are carpeted. Average weight shall not be less than 51kg/m<sup>2</sup>. Floors shall float on properly loaded vibration isolators rated for a natural frequency of 6½ Hz for maximum elimination of structural noise.
- 3 ACOUSTIC INFILL** - for floors, walls, door and roof panels shall be sound-retardant, absorbing, inert, mildew resistant and vermin proof. Heat transfer factor shall be no more than 0.397W/m<sup>2</sup>C.
- 4 DOOR CONSTRUCTION** - IAC Noise-Lock®, flush fitting, level swing doors with magnetic seals and pull handles shall be provided with a clear opening of 838mm wide x 1855mm high. The door leaf shall be fabricated from 1.6mm thick steel sheet on the outer face with 1.2mm perforated steel sheet on the inner face and 1.2mm framing and reinforcing sections.
- 5 WALL & ROOF PANEL 'H' MEMBERS** - Wall and roof panels shall be acoustically and structurally joined together by 'H' members. One-piece, seamless, non-welded and roll formed 'H' members, constructed from 0.9mm steel shall maintain the acoustical integrity of the room.
- 6 WINDOW CONSTRUCTION** - Windows shall be 610mm x 762mm, double glazed, using 6.0mm thick safety glass, with 'pressure-sealed' aluminium trim frame.
- 7 JACK PANEL** - A jack panel consisting of three 6.0mm three-pole jack sockets and two 6.0mm two-pole sockets shall be provided beneath the window. This jack panel unit shall be designed and installed to preserve the acoustic integrity of the room.
- 8 ELECTRICAL** - All rooms are provided with tungsten lamps operated from an adjacent switch. A separate switch will control the ventilation system. All A-CT series rooms shall be provided with four (4) surface mounted, 13 amp socket outlets beneath the window in the control room. Power operation 240V, 50Hz. (All cable supplied by others).
- 9 VENTILATION SYSTEM** - Room models 400A, 401A and 401A-SE shall be provided with the IAC Tranquil-Aire® ventilation system integrated in the roof panel. All other series rooms shall have the ventilation system roof or wall mounted and be operated in conjunction with special ventilation panels. A further 260mm should be added to the height, width or length of the room, depending on the location of the ventilation system.
- 10 FINISH** - All rooms are supplied in a factory finish polyester powder coated condition. Colour: IAC white RAL 9002.
- 11 NOISE REDUCTION & SOUND ABSORPTION**  
**(a) Noise Reduction\*** - The minimum allowable noise reduction of completely assembled rooms, as tested in accordance with ASTM Standards in a recognised independent and approved laboratory, are shown in the table below.

| Noise Reduction, dB**        | OCTAVE BAND CENTRE FREQUENCY, Hz |      |      |      |      |      |      |      |                    |
|------------------------------|----------------------------------|------|------|------|------|------|------|------|--------------------|
|                              | 63                               | 125  | 250  | 500  | 1K   | 2K   | 4K   | 8K   |                    |
| All Single-Wall Rooms†       | 33                               | 31   | 39   | 50   | 57   | 61   | 68   | 62   | NIC 53             |
| All Double-Wall Rooms        | 37                               | 52   | 64   | 80   | 93   | >93  | >93  | >93  | NIC 75             |
| Sound Absorption Coefficient | 0.38                             | 0.94 | 1.19 | 1.11 | 1.06 | 1.03 | 1.03 | 1.04 | (1.10)<br>NRC 0.95 |

Noise-reduction measurements shall be made in accordance with the following ASTM Designations: E596 and, where applicable, portions of E90 and E336.

\*Defined as the measured difference between the sound pressure levels in a reverberant room, outside the booth and inside the booth.

\*\*± 3dB for field instrument accuracy.

†Excluding Model 1400-A-CT control room.

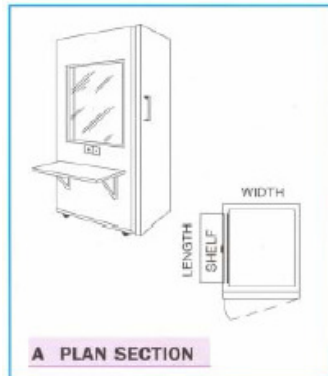
NIC - Noise Isolation Class, single number rating system for noise-reduction characteristics.

**(b) Sound Absorption** - The composite sheet metal and sound-absorbing assembly shall have a minimum overall noise reduction coefficient of 0.9 (1.10) based on sound absorption coefficients as tested in a recognised independent and approved laboratory in accordance with ASTM C423-77 as shown in the table above.

**12 ERECTION PROCEDURE** - Rooms shall be so engineered as to allow the installation of this equipment within 100mm of an existing wall.

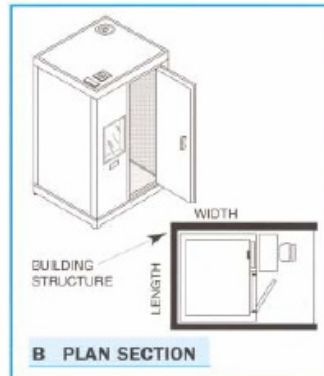
\*For a detailed specification for IAC 250 Series Mini Sound Shelter, please refer to IAC Datasheet MSS/1.00.

standard audiometric rooms



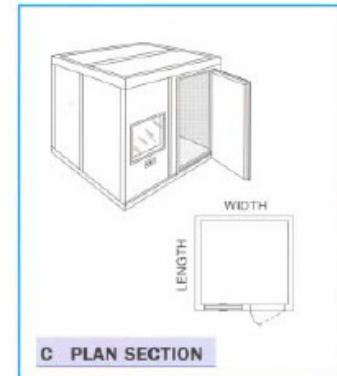
**A PLAN SECTION**

**250 Series Mini Sound Shelter** **A**  
 Smallest room in IAC range. Single wall construction, preassembled and supplied as a finished unit or in "kit" form, mounted on castors for complete mobility. For detailed specification please consult separate IAC datasheet.



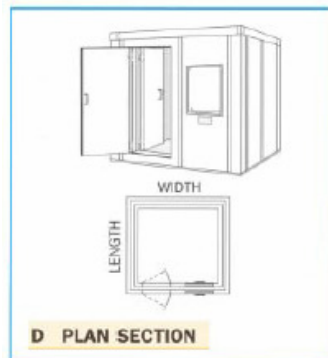
**B PLAN SECTION**

**401-A-SE 'SpaSAVER'** **B**  
 Special, compact, single wall (individual room) design with wall panel incorporating both door and window in same side. Enables room to be installed in areas of limited space (see diagram). Specification otherwise as for 400-A Series rooms, except for reduced window size (405mm wide x 610mm high) and door width (610mm).



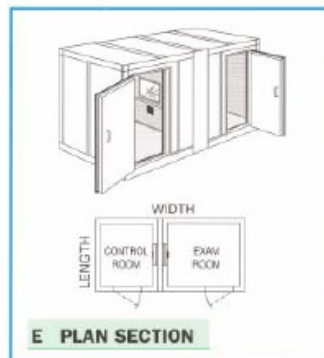
**C PLAN SECTION**

**400-A Series** **C**  
 Single-wall (individual room) construction. A single or multiple occupancy room, constructed from 102mm thick modular panels, with its own floor, floating on vibration isolators.  
 Front cover picture shows modified Model 401-A booth.



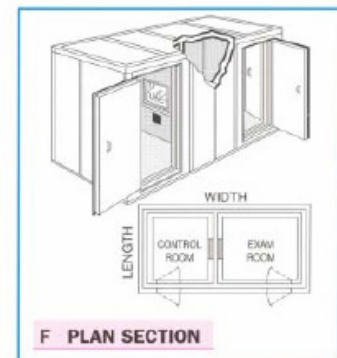
**D PLAN SECTION**

**1200-A Series** **D**  
 Double-wall (room-within-a-room) construction. Two housings constructed from 102mm thick modular panels, separated by a 102mm air space. Inner room floor floats on vibration isolators; outer wall rests on area floor.



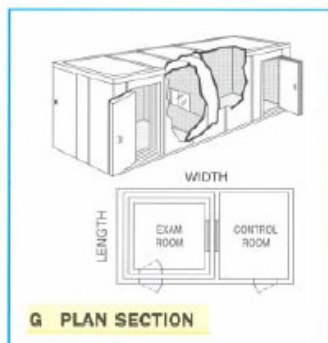
**E PLAN SECTION**

**400-A-CT Series** **E**  
 Sound suite of single-wall construction. Two special 400-A rooms joined by a vibration isolated filler piece bridging a 102mm air gap. The rooms serve as control, equipment or observation rooms and examination or subject rooms.



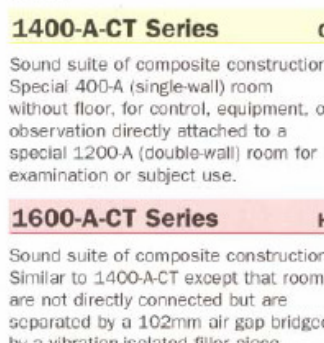
**F PLAN SECTION**

**1200-A-CT Series** **F**  
 Sound suite of double-wall construction. Consists of a 400-A-CT two-room suite contained within an outer enclosure constructed from 102mm thick modular panels.



**G PLAN SECTION**

**1400-A-CT Series** **G**  
 Sound suite of composite construction. Special 400-A (single-wall) room without floor, for control, equipment, or observation directly attached to a special 1200-A (double-wall) room for examination or subject use.



**H PLAN SECTION**

**1600-A-CT Series** **H**  
 Sound suite of composite construction. Similar to 1400-A-CT except that rooms are not directly connected but are separated by a 102mm air gap bridged by a vibration-isolated filler piece.



## SINGLE ROOM DESIGN DATA (COMPACT MODELS)

| MODEL                               | DIMENSIONS (mm) |        |        |         |        |        | ROOM WEIGHT<br>kg | VENTILATION<br>m <sup>3</sup> /min |
|-------------------------------------|-----------------|--------|--------|---------|--------|--------|-------------------|------------------------------------|
|                                     | INSIDE          |        |        | OUTSIDE |        |        |                   |                                    |
|                                     | WIDTH           | LENGTH | HEIGHT | WIDTH   | LENGTH | HEIGHT |                   |                                    |
| 250 SERIES<br>MINI SOUND<br>SHELTER | 585             | 855    | 1680   | 740     | 980    | 1945   | 295               | 2.85                               |
| 401-A-SE<br>'SpaSAVER'              | 1015            | 1220   | 1980   | 1220    | 1420   | 2320   | 890               | 2.85                               |

## SINGLE ROOM DESIGN DATA

| A<br>MODELS | DIMENSIONS (mm) |        |        |            |        |        | ROOM WEIGHT<br>kg | VENTILATION<br>m <sup>3</sup> /min |
|-------------|-----------------|--------|--------|------------|--------|--------|-------------------|------------------------------------|
|             | INSIDE          |        |        | OUTSIDE ** |        |        |                   |                                    |
|             | WIDTH           | LENGTH | HEIGHT | WIDTH      | LENGTH | HEIGHT |                   |                                    |
| 400         | 1015            | 915    | 1980   | 1220       | 1120   | 2320   | 820               | 2.85                               |
| 401         | 1220            | 1015   |        | 1420       | 1220   |        | 950               | 2.85                               |
| 402         | 1930            | 1830   |        | 2135       | 2030   |        | 2285              | 1580                               |
| 403         | 2235            | 2135   |        | 2440       | 2335   | 1890   |                   | 5.66                               |
| 404         | 2745            | 2540   |        | 2945       | 2745   | 2380   |                   | 5.66                               |
| 405         | 3050            | 2845   |        | 3250       | 3050   | 2800   | 8.50              |                                    |
| 1201        | 1220            | 1015   | 1980   | 1830       | 1625   | 2465   | 1840              | 2.85                               |
| 1202        | 1930            | 1830   |        | 2540       | 2440   |        | 3410              | 5.66                               |
| 1203        | 2235            | 2135   |        | 2845       | 2745   |        | 3990              | 5.66                               |
| 1204        | 2745            | 2540   |        | 3355       | 3150   | 4940   | 5.66              |                                    |
| 1205        | 3050            | 2845   |        | 3660       | 3455   | 5625   | 8.50              |                                    |

## TWO-ROOM SUITE DESIGN DATA

| A-CT<br>MODELS | DIMENSIONS (mm) |        |        |       |        |        |            |        |        | ROOM WEIGHT<br>kg | VENTILATION<br>m <sup>3</sup> /min |      |
|----------------|-----------------|--------|--------|-------|--------|--------|------------|--------|--------|-------------------|------------------------------------|------|
|                | INSIDE          |        |        |       |        |        | OUTSIDE ** |        |        |                   | CONTROL                            | EXAM |
|                | CONTROL         |        |        | EXAM  |        |        | COMPLETE   |        |        |                   |                                    |      |
|                | WIDTH           | LENGTH | HEIGHT | WIDTH | LENGTH | HEIGHT | WIDTH      | LENGTH | HEIGHT |                   |                                    |      |
| 402            | 1220            | 1930   | 1980   | 1830  | 1930   | 1980   | 3555       | 2135   | 2285   | 2770              | 5.66                               | 5.66 |
| 403            | 1625            | 2135   |        | 2235  | 2135   |        | 4370       | 2335   |        | 3380              | 5.66                               | 5.66 |
| 404            | 2135            | 2540   |        | 2745  | 2540   |        | 5385       | 2745   |        | 4400              | 8.50                               | 5.66 |
| 405            | 2440            | 2845   |        | 3050  | 2845   |        | 5995       | 3050   |        | 5040              | 8.50                               | 8.50 |
| 1202           | 1220            | 1930   | 1980   | 1830  | 1930   | 1980   | 3960       | 2540   | 2465   | 5400              | 5.66                               | 5.66 |
| 1203           | 1625            | 2135   |        | 2235  | 2135   |        | 4775       | 2745   |        | 6420              | 5.66                               | 5.66 |
| 1204           | 2135            | 2540   |        | 2745  | 2540   |        | 5790       | 3150   |        | 8160              | 8.50                               | 5.66 |
| 1205           | 2440            | 2845   |        | 3050  | 2845   |        | 6400       | 3455   |        | 9430              | 8.50                               | 8.50 |
| 1402           | 1830            | 2235   | 2360   | 1930  | 1830   | 1980   | 4470       | 2440   | 2465   | 4630              | 5.66                               | 5.66 |
| 1403           | 2135            | 2540   |        | 2235  | 2135   |        | 5080       | 2745   |        | 5440              | 8.50                               | 5.66 |
| 1404           | 2335            | 2945   |        | 2745  | 2540   |        | 5790       | 3150   |        | 6620              | 8.50                               | 5.66 |
| 1405           | 2640            | 3250   |        | 3050  | 2845   |        | 6400       | 3455   |        | 7575              | 8.50                               | 8.50 |
| 1602*          | 1830            | 2235   | 1980   | 1930  | 1830   | 1980   | 4675       | 2440   | 2465   | 5080              | 5.66                               | 5.66 |
| 1603*          | 2135            | 2540   |        | 2235  | 2135   |        | 5285       | 2745   |        | 5940              | 8.50                               | 5.66 |
| 1604*          | 2335            | 2945   |        | 2745  | 2540   |        | 5995       | 3150   |        | 7210              | 8.50                               | 5.66 |
| 1605*          | 2640            | 3250   |        | 3050  | 2845   |        | 6605       | 3455   |        | 8300              | 8.50                               | 8.50 |

\*Control room outside height 2285mm.

\*\*A further 260mm should be added to the height, width or length of the room depending on the location of the ventilation system.