



Fraunhofer Institut  
Bauphysik



# Diagonal Test Facility

for the determination of  
flanking transmission of walls

## Technical Data

### Diagonal Test Facility P3

Height:	3,10 m
Head room to lower edge cross girder:	2,95 m
Total sketch:	89,5 m <sup>2</sup>
Total volume:	276,6 m <sup>3</sup>
Test facility's door opening area:	
width:	0,835 m bzw. 1,93 m
height:	2,00 m bzw. 2,06 m

Water connection, electric power and compressed air available

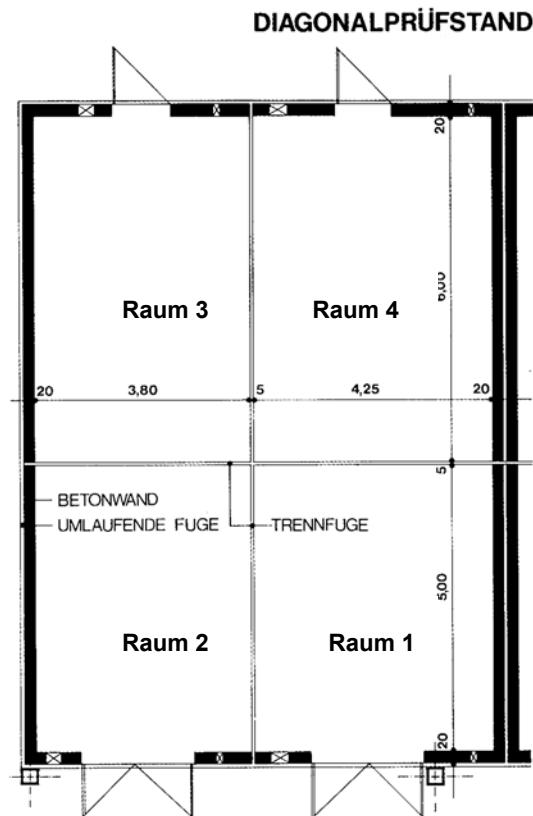
The test facility of the accredited laboratory (according to DIN EN ISO/IEC 17 025) fulfils the requirements of the standard DIN EN ISO 140, part 1 for two related rooms in each case. The test facility consists of four sections, separated by gaps.

Depending upon wall construction the test facility can be used for the determination of the standardized flanking transmission of building elements, as well as wall test facility without flanking transmission.

The support-free execution of the crosswise divided ceiling is of large advantage for the installation of objects and also for the measuring. In this way flanking walls with a total length up to 11 m can be tested with variable arrangement of the partition walls, side walls and nodal point construction.

The diagonal test facility enables among other things the investigation to the effect of additional linings at a concrete wall both regarding the passage of sound transmission and flanking transmission (at the same test object).

With the arrangement of the additional linings different situations can be simulated as on the building site (façades, internal walls, concrete walls a.s.o.).



Further possibilities are to check up the sound transmission paths in diagonal direction between room 1 and room 2 or to explore the sound transmission among related rooms above a mutual floor or adjoining room. Another option of the diagonal test facility is to investigate the vibration behaviour of various building materials by different nodal points (for example: L-, T- or cross junctions).

For the determination of the normalized flanking level difference of the flanking wall a multi layered partition wall with high sound insulation is installed between room 1 and room 4 and the sound pressure level difference between test room 1 and 4 will be specified.

For the determination of the spatial and temporal averaged sound pressure level the dodecahedral loudspeaker is moved along an inclined straight path in the source room. The microphones are moved along an inclined circular path in the source room and the receiving room. The measurement of sound pressure levels and their averaging is performed by a special building acoustic measuring system.