SHIROTEX®

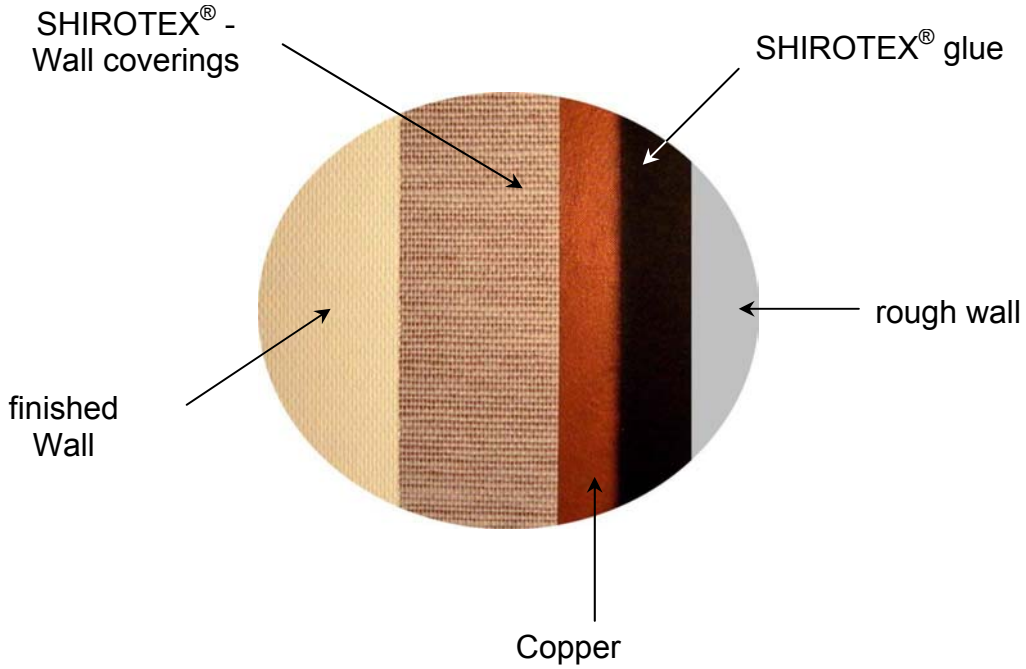
Information sheet to Wall coverings

I. General Comments

The key principle to be taken into account should a room require shielding is that not only the structural condition of the building but also the customer's wishes are relevant. This means that not only the individual project as such but virtually every room has to be considered and this requires detailed
preplanning. One general principle is that „The expenditure will drop if a lower shielding efficiency level is required" .No detailed planning is normally required if a shielding only of 20 dB up to 40 dB is needed. Detailed solutions are needed for 60 dB or higher to obtain the shielding performance.

II. Shielding a room

To ensure that the shielding is effective, the SHIROTEX® Room Shielding should be hung on all walls, ceilings and floors and each roll must be conductively connected to the next so that no gaps between them can occur. We are able to offer an attractively priced standard adhesive which is both solvent free and is diluted with water. We do however recommend an adhesive which has conductivity properties and is recommended for the gluing of the contact strips. First of all. the SHIROTEX® strips are laid both in the corners and the traverses between wall and ceiling and floor and walls.



All the cables should pass through a central port in the room. Stainless steel plates have proven the most suitable and they should be connected to the inside wall before starting the shielding work. The cables are run through the plate and the filter possibly mounted but later on.

The contact between the stainless steel plate and the door frames and the windows with the SHIROTEX® Room Shielding must be one ensuring good conductivity. Further steps must be taken both with the wall openings and wall fixtures so that no leaks occur. If, for example, suitable dowels are used the same degree of care must also be taken to ensure that the contact when shielding the room is perfect.

Wall openings, especially for air circulation or similar purposes, should be closed with honeycomb filters. It must be ensured that the honeycomb filters are the correct ones for the specific task. Doors and especially windows are the problem areas in every room shielding. Normally custom made constructions are needed and will depend on the specific needs. Besides the fundamental suitability the good contact with the wall shielding plays a primary role for the shielding of the whole room.

III. Problem Areas

Nearly every door can be **shielded** in principle at a later stage.

Besides the contact of the door leaf to the door frames, please make sure that that the contact between the door frames and the shielding does happen. Door frames are usually painted and in such a case the paint must be removed. The frames should be treated with an efficient conductive primer coating to ensure that no corrosion occurs.

Besides the contact of the door leaf to the doorframes, please make sure that that the contact between the doorframes and the shielding does happen. Doorframes are usually painted and in such a case the paint must be removed. The frames should be treated with an efficient conductive primer coating to ensure that no corrosion occurs.

A lot of the steps mentioned above can be avoided if prefabricated shielded door elements are used and many varied types are available.

As opposed to the case involving doors the shielding of windows later on is very complex and relatively expensive. The installation of prefabricated shielded window elements is well worthwhile. Frames in either wood, metal or plastic are available. One of the decisive advantages is that the installation is relatively simple and the shielding effect matches the one you had specifically required. The installation of “compromise” solutions, such as special curtains, blinds, or a supplementary window, will depend on the shielding effect required but these solutions are also possible in principle.

Once convinced that the desired shielding effect has been obtained, the next step is to undertake the “interior construction”. It is at this stage that you must make sure that the corrosion protection coating is not damaged by aggressive coatings as unsuitable paints or fillers, amongst others, could do just this.

Initially the selected wall mountings have to be fitted. If holes are to be drilled where dowels are needed , please ensure that only suitable ones are taken. This ensures that the contact between the wall shielding and the gasket and screw is perfect and that no leakage can occur anywhere. If metallic mountings are to be installed, one must take care that no antennae phenomenon occurs.

The shielding of floors can be tackled in several ways.

For double floors we would recommend that a protective film is used between the SHIROTEX® room shielding and the floor supports.

A 2-component heavy-duty Epoxy filler is available should heavy high compression loads be met.

As mentioned earlier, wall openings have to be treated with care. It is best to use a honeycomb filter when air circulation openings and similar ducts are involved. The filters are custom made and installed in each room individually.

In the case of detachable covers , care should be taken that the seal fits perfectly. Special sealing profiles are available for such cases. They contain an elastic polyurethane-foam core which is wrapped-around with a copper cloth. Self-adhesive strips on the reverse side ensure that the sealant remains attached. Furthermore, there is also an elastic, conducive sealant available in tube form for special applications.

IV. Cable

Considerable care and detailed preplanning by an Expert is essential for any aspect involving connections related to the supply of energy (electricity), telecommunications and EDP. The complexity of arriving at optimum solution necessitates the need for detailed concepts being undertaken for each individual project.

As a basic rule, any (metal) **conduits** which are led into or out of a shielded room should be filtered, and if possible, passed through a special cable duct to a central point in the room. A relatively large stainless steel plate has proven best suited for this purpose. As mentioned already, this is connected and flushed to the inside wall on a wall segment and to the room shielding **on the other.** A bolt is then fixed to the exterior side of the wall and it ´s function is to serve as the grounding (equipotential bonding) of the building.

The cables / leads enter the room via the cable ducts passing through the stainless steel plate.
The appropriate cable filter can vary sizeably depending on the shielding performance required and can be either connected to the plate or stored in a separate cupboard, Since such filters are not only very complex but can be relatively expensive the so called light wave conductors are being used increasingly especially for the EDP sector. Consequently, the expensive filter technology is superfluous as the light wave conductors do not act as antennas. Furthermore, please take care that only “compatible” metals are connected conductively to each other. An example illustrating incompatibility would be zinc and copper. The contact of the one to the other should be avoided.

V. Special types of shielding

Besides the shielding of rooms described above where a relatively high or high shielding performance is required, there are both rooms and various parts of a building where a much lower shielding efficiency is sufficient. In such a case we do not speak of the shielding but of a shadowing effect. The values required are so low that SHIROTEX® shielding need only be hung on individual walls. Only a relatively modest outlay is needed to obtain the efficiency in such cases. A typical example would be for reducing health hazards caused by radio wave radiation in non-commercial sectors. Besides the SHIROTEX® Room Shielding other special shielding blinds or curtains available.

VI. Measurements & preplanning

We recommend that measurements are made on conclusion of the work when the demands placed on the shielding efficiency are high. It documents not only the efficiency of the system but could show if any leakage had occurred and then allow one to trace it. In such a case the repair work must be done with great care.

Once again, practical experience has shown that careful preplanning by an experienced qualified Engineer can result in one ´s avoiding many problems. It may be unavoidable that problems will crop-up during the building stage if no detailed preplanning was made and the efficiency of the entire shielding system will then suffer correspondingly.

Conclusion

SHIROTEX® offers a Room Shielding System enabling one to reach good to extremely high shielding efficiencies in both private, semi-professional and professional domains. This can be achieved both relatively simply and it is simultaneously cost saving.

ROHDE KG
Gewerbering 22 - D - 91341 Röttenbach
Tel: 49 (0) 9195/923325-0 Fax: 49 (0) 9195/923325-25
www.rohde-germany.com E-Mail: mail@rohde-germany.com