

SECURITY CONSIDERATIONS FOR SECURE ROOMS LOCATED IN VARIED USE FACILITIES

BACKGROUND

The intent of this bulletin is to provide the requirements and guidelines for the design of partitions, ceilings, floors, doors and hardware suitable for gun locker (storage) room, server room or cash room containment, located in varied use facilities such as a shopping mall or a provincial building.

The requirements defined herein are in addition to any requirements necessitated by the Alberta Building Code or other applicable standards (CSA, CAN, etc.).

The final security requirements must be reviewed with the Minister for final approval.

DESIGN CONSIDERATIONS

The building classification and building code analysis will determine whether any combustible materials are allowed within proposed partition assemblies.

For security breach, there are two main aspects that should be considered. The first consideration is that the partition be designed to limit 'forced entry' from the outside by 'others' who may have knowledge of the room's contents. The second consideration [applying to gun locker rooms only] is 'ballistics' related. Adjacent spaces within the building need to be safeguarded from damage or injury in the event of an accidental discharge of a gun from within the room.

Floors and ceilings may need to have special consideration for any room that does not have a concrete floor slab (above and below). See ceiling requirements following.

Doors and door hardware need special consideration for these types of rooms. See door requirements following.

SECURE PARTITIONS FOR A GUN LOCKER ROOM

TYPES OF PARTITIONS

TYPE 1; Cast-in-place reinforced concrete of minimum 100mm thick (to detention Level B

protection) is a reliable option for satisfying both security breach concerns. Partition should extend

from floor to underside of structure above. Should economics or existing conditions make this option impractical, consider one of the subsequent partition types.

TYPE 2; Concrete masonry units (CMU's) of minimum 150mm thick with cores filled with concrete mortar (to detention Level B protection) is a reliable option for satisfying both security breach concerns. Partition should extend from floor to underside of structure above. Should economics or existing conditions make this option impractical, consider one of the subsequent partition types.

TYPE 3; Framed partition consisting of 92mm steel studs at 400mm o.c. (size gauge of studs to carry applied load), 16mm gypsum board applied over steel studs each side, a single or double layer of bullet resistant fibreglass panel (sized to provide detention Level B protection) applied over the gypsum board each side, and a second layer of 16mm gypsum board applied over the fibreglass panels each side. Partition should extend from floor to underside of structure above.

TYPE 4; Where building classifications permit combustible construction, 2 layers of 19mm plywood could be substituted for the fibreglass panels in option 3 above.

Alternatively there are other proprietary options that can be considered providing that the ballistic and break-in protection (to a detention Level B protection) is satisfied. One such system is the 'Structo-Core Security Wall System' (www.usg.com) which consists of a heavy plaster finish on both sides of a (proprietary designed) expanded metal core.

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SECURE PARTITIONS FOR A SERVER ROOM OR CASH ROOM

TYPES OF PARTITIONS

TYPE 5: Cast-in-place reinforced concrete of minimum 100mm thick (to detention Level B protection) is a reliable option for satisfying security breach concerns. Partition should extend from floor to underside of structure above. While not an economical option for building a new room, this may be a practical option in situations where a concrete walled room exists.

TYPE 6: Concrete masonry units (CMU's) of minimum 150mm thick with cores filled with concrete mortar (to detention Level B protection) is a reliable option for satisfying security breach concerns. Partition should extend from floor to underside of structure above. While not an economical option for building a new room, this may be a practical option in situations where a concrete masonry unit walls exists.

TYPE 7: Framed partition consisting of 92mm steel studs at 400mm o.c. (size gauge of studs to carry applied load), 16mm gypsum board applied over steel studs each side, expanded and flattened metal mesh applied over the gypsum board each side, and a second layer of 16mm gypsum board applied over the expanded and flattened mesh. Recommended minimum expanded mesh should be manufactured from 10 gauge steel and be 19mm in size with 23.4mm SWD and 52.8mm LWD and 1.8mm x 2.6mm strand. Partition should extend from floor to underside of structure above.

TYPE 8: A single layer of 1.2mm galvanized sheet steel in place of the expanded and flattened metal mesh in TYPE 7 above.

SECURE CEILINGS FOR A GUN LOCKER ROOM

TYPES OF FLOORS AND CEILING ASSEMBLIES

For rooms that have a cast-in-place concrete floor above and below or has a steel deck above (for the roof in the case of a room on the uppermost storey of a building), there is no further consideration needed for 'forced entry' consideration. Ensure that there are no openings such as for major ductwork or hatches within the room. For ballistic protection, suggest

providing a substantial suspended ceiling (such as 2 layers of 16mm gypsum board) to limit ricocheting, in the case of an accidental incident. Similarly, for the floor, suggest using a soft material such as a rubber floor tile.

In cases where additional 'forced entry' and 'ballistic protection' measures are needed, consider suspended steel stud framing at 400mm o.c. with protection on one side (exposed side) as in Partition Type 3, Type 4 or related proprietary option above.

SECURE CEILINGS FOR A SERVER ROOM OR CASH ROOM

TYPES OF FLOORS AND CEILING ASSEMBLIES

For rooms that have a cast-in-place concrete floor above and below or has a steel deck above (for the roof in the case of a room on the uppermost storey of a building), there is no further consideration needed for 'forced entry' consideration. Ensure that there are no openings such as for major ductwork or hatches within the room.

In cases where additional 'forced entry' measures are needed, consider suspended steel stud framing at 400mm o.c. with protection on one side (exposed side) as in TYPE 7 or TYPE 8 above.

Alternatively, there are other proprietary options that can be considered providing that the break-in protection (to a detention Level B protection) is satisfied. One such system is the 'TrussDek Ceiling System' (www.trussbilt.com) which consists of a heavy gauge suspended metal panels.

SECURE DOORS AND HARDWARE FOR A GUN LOCKER ROOM, SERVER ROOM OR CASH ROOM

TYPES OF DOORS, FRAMES AND HARDWARE

For doors and frame assemblies, a heavier gauge such as 14 (2.0mm) should be considered, in conjunction with heavier tempered glass for any openings used in the door slabs. Detention door hardware should be used.

CONTACT

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