

Claims

What is claimed is:

1. A guide-way stud 140 for a partition wall structure comprising:
a web 141 and two flanges 142 approximately parallel to each other and also approximately perpendicular to the web 141,
wherein each of the flanges 142 is comprised of an upper portion 143 and a lower portion 144, wherein the distance between the flanges 142 in the lower portion 144 is lesser than the distance between the flanges 142 in the upper portion 143 and wherein the guide-way stud 140 provides for longitudinal displacement of construction board 130 attached to one or both flanges 142 in the upper portion 143 of the guide-way stud 140 during stressed state.
2. The guide-way stud 140 as claimed in claim 1, wherein the flanges 142 in the upper portion 143 and lower portion 144 are connected together by a connecting portion 145 approximately perpendicular to the upper portion 143 and lower portion 144.
3. The guide-way stud 140 as claimed in claim 2, wherein the connecting portion 145 is in the form of a step or a notch.
4. A guide-way stud 140 as claimed in claim 1, is a C-shaped profile or a I-shaped profile.
5. A guide-way stud 140 as claimed in claim 1, wherein the flanges 142 in the upper end 143 comprise peaks and troughs 146.
6. A guide-way stud 140 as claimed in claim 1 has a metal body thickness ranging between 0.5 mm to 1.5 mm.
7. A partition wall structure 100 comprising:

a wall channel 110 fixed to a construction wall 120,

a guide-way stud 140 comprising a web 141 and two flanges 142 approximately parallel to each other and also approximately perpendicular to the web 141, wherein each of the flanges 142 is comprised of an upper portion 143 and a lower portion 144, and the distance between the flanges 142 in the lower portion 144 is lesser than the distance between the flanges 142 in the upper portion 143; and

at least one construction board 130 fixed to the guide-way stud 140 at one or both flanges 142 in the upper portion 143 of the guide-way stud 140 through one or more fixing elements 150, wherein the reduced distance between the flanges 142 in the lower portion 144 of the guide-way stud 140 enables the lower portion 144 to be received within the wall channel 110 and the increased distance between the flanges 142 in the upper portion 143 of the guide-way stud 140 prevents the upper portion 143 from being received within the wall channel 110 and wherein the guide-way stud 140 allows longitudinal displacement of the construction board 130 in a stressed state without the wall channel 110 contacting the fixing elements 150 holding the at least one construction board 130 to the guide-way stud 140.

8. The partition wall structure 100 as claimed in claim 7, wherein the wall channel 110 and the guide-way stud 140 are substantially vertically mounted between a floor channel and a ceiling channel.
9. The partition wall structure 100 as claimed in claim 7, wherein the at least one construction board 130 is fixed to the flanges 142 in the upper portion 143 of the guide-way stud 140 leaving an area of clearance 160 between the wall channel 110 and the flanges 142 at the lower portion 144 of the guide-way stud 140.

10. The partition wall structure 100 as claimed in claim 9, wherein the stressed state of the guide-way stud 140 occurs during a given level of seismic force, explosions, vibrating machinery, temperature changes and other long-term gradual distortions.
11. The partition wall structure 100 as claimed in claim 7, wherein the wall channel 110 is a conventional C-shaped profile or a C-shaped profile configured to receive the guide-way stud 140.
12. The partition wall structure 100 as claimed in claim 7, wherein the construction board 130 comprises of gypsum or cement or fibre cement.
13. The partition wall structure 100 as claimed in claim 7, wherein the construction board 130 is reinforced.
14. The partition wall structure 100 as claimed in claims 7, wherein the construction board 130 comprises a polymeric binder and a plurality of fibres.
15. The partition wall structure 100 as claimed in claim 14, wherein the polymeric binder and the plurality of fibres, in combination, comprise greater than 1% by weight of the construction board.
16. The partition wall structure 100 as claimed in claim 14 or claim 15 wherein the polymeric binder comprises greater than 1% by weight of the construction board.
17. The partition wall structure 100 as claimed in claim 14 or claim 15, wherein the plurality of fibres comprises greater than 1% by weight of the construction board.

18. The partition wall structure 100 as claimed in claims 14 to 16, wherein the polymeric binder comprises starch or polyvinyl acetate.
19. The partition wall structure 100 as claimed in claim 7, wherein the construction board 130 is a drywall.
20. The partition wall structure 100 as claimed in claim 7, wherein
 - the partition is double sided having construction boards 130 at each side of the partition; and
 - the partition comprises guide-way studs 140 at one or both positions adjacent to the construction wall 120.
21. A method of constructing a partition wall structure 100 as claimed in claim 7, the method comprising the steps of:
 - fixing a wall channel 110 vertically adjacent to a construction wall 120 by mechanical fixing elements;
 - inserting a guide-way stud 140 as claimed in claim 1 vertically into the wall channel 110 with required clearance 160; and
 - fixing at least one construction board 130 on at least one side of the guide-way stud 140 by mechanical fixing elements,wherein the at least one construction board 130 is screwed or nailed to the guide-way stud 140 with required clearance 160 for displacement, wherein the clearance for displacement is adapted for allowing the longitudinal displacement of construction board 130 relative to the wall channel 110 in a direction parallel to the flanges 142 of the guide-way stud 140 during a stressed state.
22. The method as claimed in claim 21, wherein the at least one construction board 130 is fixed to the to the flanges 142 in the upper portion 143 of the guide-way stud 140.

23. The method as claimed in claim 21, wherein the partition wall structure 100 is configured such that construction boards 130 move longitudinally concomitant with the seismic force experienced during a seismic event.
24. A method of protecting a partition wall structure 100 against a given level of seismic force, the method comprising using the guide-way stud 140 as claimed in claim 1 for constructing a drywall partition such that the clearance 160 between the wall channel 110 and the flanges 142 at the lower portion 144 of the guide-way stud 140 provides for longitudinal displacement of the construction board 130 relative to the wall channel 110 without the wall channel 110 contacting the one or more fixing elements 150 holding the at least one construction board 130 to the guide-way stud 140 in a stressed state.