[Title of Document] Claims

[Claim 1]

A partition wall to be constructed in a single-runner staggered-stud pattern or a single-runner staggered-pad pattern, comprising:

a wall end portion which is butted against a different wall or a column in continuity therewith and which is exposed to architectural spaces at least partially; and

an end post located at said wall end portion and constituted from first and second end post elements, and a gap spacing said end post elements to be separated from each other and configured to interrupt a propagation of a solid vibration or to insulate a path to propagate the solid vibration;

wherein an interior finishing panel to define one of the architectural space on one side of the partition wall is fixed to said first end post element and another interior finishing panel to define the other of the architectural space on an opposite side of the partition wall is fixed to said second end post element,

wherein said first and second end post elements are positioned at said wall end portion in a positional relationship such that the end post elements are shifted relative to each other in a wall core direction and the gap extends between the end post elements in a wall thickness direction;

wherein said wall end portion is butted against a vertical surface of said different wall or said column in a form of a butt joint, and said first end post element is positioned in close proximity to or in contact with a surface of an interior finishing material of said different wall or said column, or a substrate face of said different wall or said column without installation of the interior finishing material, and said second end post element is positioned in an inside space of the partition wall,

wherein said partition wall is a lightweight partition wall with a hollow structure, which possesses a sound-insulation performance corresponding to a TL_D value equal to or greater than 50,

wherein a runner constituting the partition wall is a steel runner, and each of said first and second end post elements is a steel stud having substantially the same width as that of a steel stud constituting each of intermediate posts of the partition wall,

wherein each of the intermediate posts is erected in a staggered formation with use of a runner spacer for the steel stud, and the first and second end post elements are erected at said wall end portion,

wherein each of said panels on both sides of the partition wall is constituted from a substrate layer board and a surface layer board securely adhered to each other, the substrate layer board is a gypsum board with a

thickness ranging from 20mm to 25mm, and the surface layer board is a gypsum board with a thickness ranging from 8mm to 13mm,

wherein protrusions of the substrate layer board and the surface layer board of at least one of the interior finishing panels extend in the wall core direction toward a terminal end of the partition wall from said second end post element, dimensions of the protrusions are set to be equal to or smaller than 80mm, and a dimension of said gap is set to be in a range from 10mm to 40mm, and

wherein an air-tight joint structure is formed by a sealing material or sealing materials interposed between each of terminal end edges of said substrate layer and surface layer boards constituting each of said panels and said surface of the interior finishing material or said substrate face.

[Claim 2]

The partition wall as defined in claim 1,

wherein a buffer material is integrally attached to an outside surface of said first end post element, and an outside surface of the buffer material is in contact with an inside face of the substrate layer board or slightly spaced apart therefrom.

[Claim 3]

A method for constructing a partition wall in a single-runner staggered-stud pattern or a single-runner staggered-pad pattern, wherein a wall end portion of the partition wall is butted against a different wall or a column in continuity therewith so as to be exposed to architectural spaces at least partially, comprising:

constituting an end post to be located at an end portion of the partition wall, from first and second end post elements;

spacing said end post elements to be separated from each other to form a gap therebetween for interrupting a propagation of a solid vibration or insulating a path for propagating the solid vibration;

fixing to said first end post element, an interior finishing panel for defining one of the architectural spaces on one side of the partition wall, and

fixing to said second end post element, an interior finishing panel for defining the other of the architectural spaces on an opposite side of the partition wall,

wherein said first and second end post elements are positioned at said wall end portion in a positional relationship such that the end post elements are shifted relative to each other in a wall core direction and the gap between the end post elements extends in a wall thickness direction, said

wall end portion is butted against a vertical surface of said different wall or said column in a form of a butt joint, said first end post element is positioned in close proximity to or in contact with a surface of an interior finishing material of said different wall or said column, or a substrate face of said different wall or said column without installation of the interior finishing material, and said second end post element is positioned in an inside space of the partition wall,

wherein said partition wall is a lightweight partition wall with a hollow structure, which possesses a sound-insulation performance corresponding to a TL_D value equal to or greater than 50,

wherein a runner constituting the partition wall is a steel runner, and said first and second end post elements are steel studs, each having substantially the same width as that of a steel stud constituting each of intermediate posts of the partition wall,

wherein the intermediate posts are erected in a staggered formation with use of runner spacers for the steel studs, and the first and second end post elements are erected at said wall end portion,

wherein each of said panels on both sides of the partition wall is constituted from a substrate layer board and a surface layer board, the substrate layer board is a gypsum board with a thickness ranging from 20 to 25mm, the surface layer board is a gypsum board with a thickness ranging from 8 to 13mm, the substrate layer board is securely fixed to each of said first and second end post elements, and the surface layer board is adhered onto the substrate layer board,

wherein protrusions of the substrate layer board and the surface layer board of at least one of the interior finishing panels extend in the wall core direction toward a terminal end of the partition wall from said second end post element, dimensions of the protrusions are set to be equal to or smaller than 80mm, and a dimension of said gap is set to be in a range from 10mm to 40mm, and

wherein an air-tight joint structure is formed by a sealing material or sealing materials interposed between each of terminal end edges of said substrate layer and surface layer boards constituting each of said panels and said surface of the interior finishing material or said substrate face.

[Claim 4]

The method as defined in claim 3, wherein a buffer material is integrally attached to an outside surface of said first end post element, and an outside surface of the buffer material is in contact with an inside face of said substrate layer board or slightly spaced apart therefrom.

[Claim 5]

A method of sound-insulation of a partition wall for improving a sound-insulation performance of the partition wall to be constructed in a single-runner staggered-stud pattern or a single-runner staggered-pad pattern, wherein the partition wall has a wall end portion butted against a different wall or a column in continuity therewith in a condition that the wall end portion is exposed to architectural spaces at least partially, and wherein the method is applied to the partition wall possessing a sound-insulation performance corresponding to a TL_D value equal to or smaller than 57, for improving the TL_D value up to a value ranging from 58 to 65 comprising:

dividing an end post to be located at an end portion of the partition wall, into first and second end post elements,

spacing said end post elements to be separated from each other to form a gap for interrupting a propagation of a solid vibration or insulating a path for propagating the solid vibration,

fixing to said first end post element, an interior finishing panel for defining one of the architectural spaces on one side of the partition wall, and

fixing to said second end post element, an interior finishing panel for defining the other of the architectural spaces on an opposite side of the partition wall,

wherein said first and second end post elements are positioned at said wall end portion in a positional relationship such that the end post elements are shifted relative to each other in a wall core direction and the gap between the first and second end post elements extends in a wall thickness direction, said wall end portion is butted against a vertical surface of said different wall or said column in a form of a butt joint, said first end post element is positioned in close proximity to or in contact with a surface of an interior finishing material of said different wall or said column, or a substrate face of said different wall or said column without installation of the interior finishing material, and said second end post element is positioned in an inside space of the partition wall,

wherein said partition wall is a lightweight partition wall with a hollow structure,

wherein a runner constituting the partition wall is a steel runner, and said first and second end post elements are steel studs, each having substantially the same width as that of a steel stud constituting each of intermediate posts of the partition wall,

wherein the intermediate posts are erected in a staggered formation with use of runner spacers for the steel studs, and the first and second end post elements are erected at said wall end portion,

wherein each of said panels on both sides of the partition wall is constituted from a substrate layer board and a surface layer board, the substrate layer board is a gypsum board with a thickness ranging from 20 to 25mm, the surface layer board is a gypsum board with a thickness ranging from 8 to 13mm, the substrate layer board is securely fixed to each of said first and second end post elements, and the surface layer board is adhered onto the substrate layer board,

wherein protrusions of the substrate layer board and the surface layer board of at least one of the interior finishing panels extend in the wall core direction toward a terminal end of the partition wall from said second end post element, dimensions of the protrusions are set to be equal to or smaller than 80mm, and a dimension of said gap is set to be in a range from 10mm to 40mm, and

wherein an air-tight joint structure is formed by a sealing material or sealing materials interposed between each of terminal end edges of said substrate layer and surface layer boards constituting each of said panels and said surface of the interior finishing material or said substrate face.