CLAIMS

1. A wooden load-bearing wall having a structure in which a gypsum-based load-bearing board is to be fastened to a wooden wall base used in a wooden framework construction method or a framework wall construction method by a fastener, the wooden load-bearing wall comprising:

a main member or a core member formed from a board-shaped hardened gypsum containing an inorganic fiber and an organic-based strength enhancer that exert a lateral nail resistance of 500 N or more, and a paper covering at least front and back sides of the main member or the core member, the main member and the paper or the core member and the paper constituting the load-bearing board,

wherein a thickness of the load-bearing board is less than 12 mm,

wherein a surface density or a surface weight of the load-bearing board specified as a mass per unit area of a wall surface is in a range from 6.5 kg/m^2 to 8.9 kg/m^2,

wherein an ultimate displacement value ($\delta u2$) of greater than 20×10^{-3} rad as a value of the ultimate displacement value ($\delta u2$) of the load-bearing wall measured by an in-plane shear test using a test piece with a wall length of 1.82 m, and

wherein a correction value (Pu') is greater than 7.6 kN as the correction value (Pu') of an ultimate strength (Pu) determined based on the ultimate strength (Pu) and a plasticity (μ) of the load-bearing wall measured by the in-plane shear test.

2. The wooden load-bearing wall according to claim 1, wherein a measurement value of a yield strength (Py) by the in-plane shear test is greater than 7.6 kN.

3. The wooden load-bearing wall according to claim 1 or 2, wherein the correction value (Pu') of the ultimate strength (Pu) is 8.0 kN or more, the measurement value of the yield strength (Py) of the load-bearing wall measured by the in-plane shear test is 8.0 kN or more, or both the correction value (Pu') and the measurement value of the yield strength (Py) are 8.0 kN or more.

4. The wooden load-bearing wall according to any one of claims 1 to 3,

a specific gravity of the gypsum-based load-bearing board is set to be 0.96 or less.

5. A method of constructing a wooden load-bearing wall fastening a gypsum-based load-bearing board to a wooden wall base used in a wooden framework construction method or a framework wall construction method by a fastener, the method comprising:

fastening the gypsum-based load-bearing board to the wooden wall base, in which a surface density or a surface weight of the load-bearing board having a thickness of less than 12 mm specified as a mass per unit area of a wall surface is in a range from 6.5 kg/m^2 to 8.9 kg/m^2, and the gypsum-based load-bearing board is constituted by a main member or a core member formed from a board-shaped hardened gypsum containing an inorganic fiber and an organic-based strength enhancer that exert a lateral nail resistance

of 500 N or more, and a paper covering at least front and back sides of the main member or the core member; and

obtaining a correction value (Pu') of greater than 7.6 kN as the correction value (Pu') of an ultimate strength (Pu) determined based on the ultimate strength (Pu) and a plasticity (μ) of the load-bearing wall measured by the in-plane shear test in addition to obtain an ultimate displacement (δu2) of the load-bearing wall measured by an in-plane shear test using a test piece with a wall length of 1.82 which is greater than 20×10^{-3} rad (δu2).

6. The method according to claim 5, wherein a specific gravity of the gypsum-based load-bearing board is set to be 0.96 or less.

7. The method according to claim 5 or 6, wherein a measurement value of a yield strength (Py) as measured by the in-plane shear test is greater than 7.6 kN.

8. The method according to any one of claims 5 to 7, wherein the correction value (Pu') of the ultimate strength (Pu) is increased to 8.0 kN or more, the measurement value of the yield strength (Py) measured by the in-plane shear test is increased to 8.0 kN or more, or the correction value (Pu') is increased to 8.0 kN or more and the measurement value of the yield strength (Py) is 8.0 kN or more.

9. A method of increasing a co-efficient of effective wall length of a wooden load-bearing wall constructed by fastening a gypsum-based load-bearing

board to a wooden wall base used in a wooden framework construction method or a framework wall construction method by a fastener, the method comprising:

constituting the load-bearing board by a main member and a paper or a core member and the paper, the main member or the core member formed from a board-shaped hardened gypsum containing an inorganic fiber and an organic-based strength enhancer that exert a lateral nail resistance of 500 N or more, and the paper covering at least front and back sides of the main member or the core member;

setting a thickness of the load-bearing board is less than 12 mm;

reducing a surface density or a surface weight of the load-bearing board specified as a mass per unit area of the wall surface to a value in a range from 6.5 kg/m^2 to 8.9 kg/m^2;

obtaining an ultimate displacement value ($\delta u2$) of greater than 20×10^{-3} rad as a value of the ultimate displacement value ($\delta u2$) of the load-bearing wall measured by an in-plane shear test using a test piece with a wall length of 1.82 m; and

obtaining a correction value (Pu') of greater than 7.6 kN as the correction value (Pu') of the ultimate strength (Pu) determined based on the ultimate strength (Pu) and a plasticity (μ) of the load-bearing wall measured by the in-plane shear test.

10. The method according to claim 9, wherein a specific gravity of the gypsum-based load-bearing board is set to be 0.96 or less.

11. The method according to claim 9 or 10, wherein a measurement value (Py) of a yield strength

measured by the in-plane shear test is greater than 7.6 kN.

12. The method according to any one of claims 9 to 11, wherein the correction value (Pu') of the ultimate strength (Pu) is 8.0 kN or more, the measurement value (Py) of the yield strength (Py) measured by the in-plane shear test is 8.0 kN or more, or both the correction value (Pu') and the measurement value (Py) are 8.0 kN or more.

13. A gypsum-based load-bearing board of wooden load-bearing wall fastened to a wooden wall base used in a wooden framework construction method or a framework wall construction method by a fastener, the gypsum-based load-bearing board comprising:

a main member or a core member formed from a board-shaped hardened gypsum containing an inorganic fiber and an organic-based strength enhancer that exert a lateral nail resistance of 500 N or more, and a paper covering at least front and back sides of the main member or the core member to constitute the load-bearing board,

wherein a thickness of the load-bearing board is less than 12 mm,

wherein a surface density or a surface weight of the load-bearing board specified as a mass per unit area of the wall surface is in a range from 6.5 kg/m^2 to 8.9 kg/m^2,

wherein an ultimate displacement (δu2) of the load-bearing wall measured by an in-plane shear test using a test piece with a wall length of 1.82 m is greater than 20×10^{-3} rad (δu2), and

wherein a correction value (Pu') is greater

than 7.6 kN as the correction value (Pu') of an ultimate strength (Pu) determined based on the ultimate strength (Pu) and a plasticity (μ) of the load-bearing wall measured by the in-plane shear test.

14. The gypsum-based load-bearing board according to claim 13, wherein a specific gravity of the load-bearing board is set to be 0.96 or less.

15. The gypsum-based load-bearing board according to claim 13 or 14, wherein the gypsum-based load-bearing board has a laminated structure in which a surface or a surface layer of the core material is covered with a gypsum board paper.

16. The gypsum-based load-bearing board according to any one of claims 13 to 15, wherein the main material or the core material of the gypsum-based load-bearing board contains an organopolysiloxane compound as an anti-degradation agent to prevent deterioration of the load-bearing strength.

17. The gypsum-based load-bearing board according to any one of claims 13 to 16, wherein the gypsum-based load-bearing board has a lateral nail resistance of 980 N or less.

18. The gypsum-based load-bearing board according to any one of claims 13 to 17, wherein the measurement value (Py) of the yield strength measured by the in-plane shear test is greater than 7.6 kN.

19. The gypsum-based load-bearing board according to any one of claims 13 to 17, wherein the correction value (Pu’) of the ultimate strength (Pu) is

increased to 8.0 kN or more, the measurement value (Py) of the yield strength measured by the in-plane shear test is increased to 8.0 kN or more, or the correction value (Pu') is increased to 8.0 kN or more and the measurement value (Py) is 8.0 kN or more.