CLAIMS

1. A laminated acoustic building panel comprising a first substrate layer, a second substrate layer bonded to the first layer by an adhesive layer, the panel having a dynamic Young's modulus of 0.1 to 5 GPa and a damping loss factor of 5 - 30% (η = 0.05 – 0.3), wherein the ratio of the adhesive to the applied surface area of the substrate is 80 - 250 g/m^2.

2. A laminated acoustic building panel as claimed in any preceding claim, in which at least one the substrate layers comprises a sheet of gypsum or plasterboard.

3. A laminated acoustic building panel as claimed in any preceding claim, in which the adhesive has a dynamic Young's modulus (at 20^{o}C) of 0.1 to 50 MPa at 100 Hz and/or 0.5 MPa to 100 MPa at 1000 Hz and a loss factor of at least 50% (η > 0.5).

4. A laminated acoustic building panel as claimed in claim 1 or claim 2, in which the adhesive has a dynamic Young's modulus (at 20^{o}C) of 0.1 to 0.5 MPa at 100 Hz and/or 0.5 MPa to 100 MPa at 1000 Hz and a loss factor of at least 50% (η > 0.5).

5. A laminated acoustic building panel as claimed in any preceding claim, in which the adhesive comprises an acrylic-based adhesive.

6. A laminated acoustic building panel as claimed in any preceding claim, in which the adhesive comprises a hot-melt adhesive.

7. A laminated acoustic building panel as claimed in any preceding claim, in which at least one the substrate layers comprises a sheet of fibre reinforced gypsum or fibre reinforced plasterboard.

8. A laminated acoustic building panel as claimed in any preceding claim, in which at least one the substrate layers comprises a sheet of cement wallboard.

9. A laminated acoustic building panel as claimed in any preceding claim, in which at least one the substrate layers comprises a sheet of wood wallboard.

10. A laminated acoustic building panel as claimed in any preceding claim, in which at least one the substrate layers comprises a sheet having layers of material which are laminated together.

11. A laminated acoustic building panel as claimed in any preceding claim, in which the substrate sheets are formed of identical material.

12. A laminated acoustic building panel as claimed in any preceding claim, in which the substrate sheets are of identical thickness.

13. A laminated acoustic building panel as claimed in any preceding claim, in which each substrate layer has a thickness of 6 to 25 mm.

14. A laminated acoustic building panel as claimed in any preceding claim, in which the ratio of the adhesive to the applied surface area of the substrate is 100 - 150 g/m^2.

15. A laminated acoustic building panel as claimed in any of claims 1 to 13, in which the ratio of the adhesive to the applied surface area of the substrate is 80 - 100 g/m^2.

CLAIMS

1. A laminated acoustic building panel comprising a first substrate layer, a second substrate layer bonded to the first layer by an adhesive layer, the panel having a dynamic Young's modulus of 0.1 to 5 GPa and a damping loss factor of 5-30% (η=0.05-0.3), wherein the ratio of the adhesive to the applied surface area of the substrate is 80-250 g/m^2 and wherein the adhesive has a dynamic Young's modulus (at 20° C.) of 0.1 to 50 MPa at 100 Hz and/or 0.5 MPa to 100 MPa at 1000 Hz and a loss factor of at least 50% (η>0.5).

2. A laminated acoustic building panel as described in claim 1, in which at least one the substrate layers comprises a sheet of gypsum or plasterboard.

3. A laminated acoustic building panel as claimed in claim 1 or claim 2, in which the adhesive has a dynamic Young's modulus (at 20° C.) of 0.1 to 0.5 MPa at 100 Hz and/or 0.5 MPa to 100 MPa at 1000 Hz and a loss factor of at least 50% (η>0.5).

4. A laminated acoustic building panel as described in claim 1 in which the adhesive comprises an acrylic-based adhesive.

5. A laminated acoustic building panel as described in claim 1 in which the adhesive comprises a hot-melt adhesive.

6. A laminated acoustic building panel as described in claim 1 in which at least one the substrate layers comprises a sheet of fiber reinforced gypsum or fiber reinforced plasterboard.

7. A laminated acoustic building panel as described in claim 1 in which at least one the substrate layers comprises a sheet of cement wallboard.

8. A laminated acoustic building panel as described in claim 1 in which at least one the substrate layers comprises a sheet of wood wallboard.

9. A laminated acoustic building panel as described in claim 1 in which at least one the substrate layers comprises a sheet having layers of material which are laminated together.

10. A laminated acoustic building panel as described in claim 1 in which the substrate sheets are formed of identical material.

11. A laminated acoustic building panel as described in claim 1 in which the substrate sheets are of identical thickness.

12. A laminated acoustic building panel as described in claim 1 in which each substrate layer has a thickness of 6 to 25 mm.

13. A laminated acoustic building panel as described in claim 1 in which the ratio of the adhesive to the applied surface area of the substrate is 100-150 g/m^2.

14. A laminated acoustic building panel as described in claim 1 in which the ratio of the adhesive to the applied surface area of the substrate is 80-100 g/m^2.