

**CITY OF NEW YORK
DEPARTMENT OF BUILDINGS**

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of the Material and Equipment Acceptance (MEA) Division.

Patricia J. Lancaster, A.I.A., Commissioner

**MEA 186-02-E
Report of Material and Equipment Acceptance Division**

- **Manufacturer** - Finnforest OY, Kerto Division, Lohja Finland
- **Trade Name** - **MASTER PLANK®**
- **Product** - Laminated Veneer Lumber
- **Pertinent Code Sections** - RS 10 Subchapter 10, Article 7
- **Prescribed Tests** - Tension, Compression, Shear and Bending
- **Laboratory** - VTT Technical Research Centre of Finland
- **Test Reports** - RTE30434/95, Sampling, Bending, Size Effect, Flatwise Bending, Tension, Compression Parallel to Grain, Compression Perpendicular to Grain, Horizontal Shear (beam), Horizontal Shear (plank), the Quality Control Manual.
Extrapolation of design values was sealed by Isaac Sheppard, New York State Professional Engineer License No. 042942
- **Description** - **MASTER PLANK** is manufactured from spruce (*Picea abies*). After debarking, the logs are stored in a water basin.

The manufacturing process starts with the cutting of the logs to peeler length. Then they are rotary peeled into veneers, which are dried. After the drying process the veneers are sorted according to their moisture content, surface appearance and density. Inferior veneers are rated. In order to get a more uniform quality of the characteristics of the product, the veneers are in turn placed in different stacks. The size and location of knots and other discontinuities are then spread.

The adhesive used is a phenol-formaldehyde adhesive. The adhesive fulfils the requirements given for glue bonding class 3 of EN 314-2. This bonding class is designed for exposure of plywood to weather over sustained periods. Additionally, the adhesive fulfils the requirements given in ASTM D2559, DIN 68705 BFU 100 and BS 6566 Part 8/Type WBP.

The application of the glue on the veneers is one-sided. The glued veneers are laid up to a continuous panel, so that the overall grain direction of each veneer is the same as the length direction of the panel. The scarf joints of the veneers are tapered and gradually shifted in the layers. The panel is pressed in a hot press. After the pressing the panel is sawn into beams.

- **MASTER PLANK** members are available in thicknesses from ¾" to 3 1/2" and nominal depths of 3 ½" to 24" and lengths up to 60 feet.
- **MASTER PLANK** can be used as structural members in applications such as beams, joists, decking, rafters, truss chords, or wood I-joist flanges.

The allowable stresses for MASTER PLANK follow:

MASTER PLANK® 2.0E Design Values^{1,2,3,4}	
Beam MOE (True)	2,000,000 psi
Beam MOE (Apparent, includes shear)	1,900,000 psi
Beam Bending	2900 psi
Beam Tension	2300 psi
Beam Compression Parallel	2700 psi
Beam Compression Perpendicular	870 psi
Beam Shear	265 psi
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Plank MOE (True)	2,000,000 psi
Plank MOE (Apparent, includes shear)	1,900,000 psi
Plank Bending	3200 psi
Plank Compression Perpendicular	435 psi
Plank Shear	200 psi

1. The bending size effect factor is $(12/d)^{0.15}$. This translates in to a factor of 1.203 for 3.5 inch, 1.124 for 5.5 inch, 1.078 for 7.25 inch, 1.073 for 7.5 inch, 1.040 for 9.25 inch, 1.036 for 9.5 inch, 1.010 for 11.25 inch, 1.002 for 11.875 inch, 0.977 for 14 inch, 0.958 for 16 inch, and 0.941 for 18 inch depths.
2. The COV for the MOE value to use is 0.11.
3. The repetitive member factor on bending to use is 1.04.
4. The tension value is $2300 \text{ psi} \times (55/L)^{0.125}$ where L is LVL length in inches and no less than 55.
5. Adjustments to the allowable design stresses, except for E and compression perpendicular to grain, shall be in accordance with the New York City Building Code.

Recommendations - MASTER PLANK as described above shall be accepted on condition that all uses, locations and installations shall comply with all the applicable requirements of the New York City Building Code and on further condition that the design provisions and specifications as listed in the above laboratory report shall apply and on further condition that:

- 1) Structures designed using **MASTER PLANK** shall conform to the manufacturer's specifications except that the appropriate design load(s), deflection limitation(s) and other performance standards of the New York City Building Code shall apply.
- 2) **MASTER PLANK** shall be for interior use only and stamped MEA 186-02-E on each beam.
- 3) **MASTER PLANK**, when stored out of doors or exposed to wet weather conditions during construction, shall be inspected by the user for swelling or warping and be replaced if damaged.
- 4) The glue used shall not delaminate during a fire.
- 5) All shipments and deliveries of such material shall be provided with a permanent marking suitably placed, certifying that the materials shipped or delivered is equivalent to those tested and accepted for use, as provided for in Section 27-131 of the Building Code.