

Annex A
(informative)

Tables for nominal density of construction materials, and nominal density and angles of repose for stored materials

Table A.1 - Construction materials-concrete and mortar

Materials	Density γ [kN/m ³]
concrete (see EN 206) lightweight density class LC 1,0 density class LC 1,2 density class LC 1,4 density class LC 1,6 density class LC 1,8 density class LC 2,0 normal weight heavy weight mortar cement mortar gypsum mortar lime-cement mortar lime mortar	9,0 to 10,0 ¹⁾²⁾ 10,0 to 12,0 ¹⁾²⁾ 12,0 to 14,0 ¹⁾²⁾ 14,0 to 16,0 ¹⁾²⁾ 16,0 to 18,0 ¹⁾²⁾ 18,0 to 20,0 ¹⁾²⁾ 24,0 ¹⁾²⁾ > ¹⁾²⁾ 19,0 to 23,0 12,0 to 18,0 18,0 to 20,0 12,0 to 18,0
¹⁾ Increase by 1kN/m ³ for normal percentage of reinforcing and pre-stressing steel ²⁾ Increase by 1kN/m ³ for unhardened concrete	
NOTE See Section 4	

Table A.2 - Construction materials-masonry

Materials	Density γ [kN/m ³]
masonry units	
clay masonry units	see prEN 771-1
calcium silicate masonry units	see prEN 771-2
aggregate concrete masonry units	see prEN 771-3
autoclaved aerated masonry units	see prEN 771-4
manufactured stone masonry units	see prEN 771-5
glass blocks, hollow	see prEN 1051
terra cotta	21,0
natural stones, see prEN 771-6	
granite, syenite, porphyry	27,0 to 30,0
basalt, diorite, gabbro	27,0 to 31,0
tachylyte	26,0
basaltic lava	24,0
gray wacke, sandstone	21,0 to 27,0
dense limestone	20,0 to 29,0
other limestone	20,0
volcanic tuff	20,0
gneiss	30,0
slate	28,0
NOTE See Section 4.	

Table A.3 - Construction materials-wood

Materials	Density γ [kN/m ³]
<p>wood (see EN 338 for timber strength classes)</p> <p>timber strength class C14</p> <p>timber strength class C16</p> <p>timber strength class C18</p> <p>timber strength class C22</p> <p>timber strength class C24</p> <p>timber strength class C27</p> <p>timber strength class C30</p> <p>timber strength class C35</p> <p>timber strength class C40</p> <p>timber strength class D30</p> <p>timber strength class D35</p> <p>timber strength class D40</p> <p>timber strength class D50</p> <p>timber strength class D60</p> <p>timber strength class D70</p>	<p>3,5</p> <p>3,7</p> <p>3,8</p> <p>4,1</p> <p>4,2</p> <p>4,5</p> <p>4,6</p> <p>4,8</p> <p>5,0</p> <p>6,4</p> <p>6,7</p> <p>7,0</p> <p>7,8</p> <p>8,4</p> <p>10,8</p>
<p>glued laminated timber (see EN 1194 for Timber strength classes)</p> <p>homogenous glulam GL24h</p> <p>homogenous glulam GL28h</p> <p>homogenous glulam GL32h</p> <p>homogenous glulam GL36h</p> <p>combined glulam GL24c</p> <p>combined glulam GL28c</p> <p>combined glulam GL32c</p> <p>combined glulam GL36c</p>	<p>3,7</p> <p>4,0</p> <p>4,2</p> <p>4,4</p> <p>3,5</p> <p>3,7</p> <p>4,0</p> <p>4,2</p>
<p>plywood</p> <p>softwood plywood</p> <p>birch plywood</p> <p>laminboard and blockboard</p>	<p>5,0</p> <p>7,0</p> <p>4,5</p>
<p>particle boards</p> <p>chipboard</p> <p>cement-bonded particle board</p> <p>flake board, oriented strand board, wafer board</p>	<p>7,0 to 8,0</p> <p>12,0</p> <p>7,0</p>
<p>fibre building board</p> <p>hardboard, standard and tempered</p> <p>medium density fibreboard</p> <p>softboard</p>	<p>10,0</p> <p>8,0</p> <p>4,0</p>
<p>NOTE See Section 4.</p>	

Table A.4 - Construction materials-metals

Materials	Density γ [kN/m ³]
metals	
aluminium	27,0
brass	83,0 to 85,0
bronze	83,0 to 85,0
copper	87,0 to 89,0
iron, cast	71,0 to 72,5
iron, wrought	76,0
lead	112,0 to 114,0
steel	77,0 to 78,5
zinc	71,0 to 72,0

Table A.5 - Construction materials- other materials

Materials	Density γ [kN/m ³]
other materials	
glass, broken	22,0
glass, in sheets	25,0
plastics	
acrylic sheet	12,0
polystyrene, expanded, granules	0,3
foam glass	1,4
slate	28,0