

1.6.6 Embodied Energy of Commercial Interior Wall Assemblies in the U.S.

Interior Wall Type (2)	Embodied Energy (MMBtu/SF) (1)	CO2 Equivalent Emissions (lbs/SF)
2x4 wood stud (16" OC) + gypsum board (3)	0.03	2.84
2x4 wood stud (24" OC) + gypsum board (3)	0.03	2.78
2x4 wood stud (24" OC) + 2 gypsum boards (4)	0.04	4.45
Steel stud (16" OC) + gypsum board (4)	0.04	3.99
Steel stud (24" OC) + gypsum board (4)	0.04	3.64
Steel stud (24" OC) + 2 gypsum boards	0.05	5.31
6" Concrete block + gypsum board	0.21	34.02
6" Concrete block	0.19	32.34
Clay brick (4") unpainted	0.05	6.97

Note(s): Assumptions: Values are general estimations for the U.S. 60 year building lifetime. Low rise building. 1) Embodied Energy: Energy use includes extraction, processing, transportation, construction, and disposal of each material. 2) All interior walls include two coats of latex paint unless noted otherwise. 3) Rounding obscures difference in embodied energy figures: wood stud with 16" OC is 3.6% higher than wood stud with 24" OC. 4) Rounding obscures difference in embodied energy figure: wood stud wall is 19.9% higher than steel stud wall with 16" OC and 27.6% higher than steel stud wall with 24" OC.

Source(s): Athena Institute. Athena EcoCalculator for Assemblies v.3.5.2. 2010. Available at www.athenasmi.org/tools/ecoCalculator/index.html