



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Cradle to Cradle

Life cycle assessment of a clay brick

Extraction & manufacturing (A1, A2 & A3)

Firstly, the clay is extracted from a clay quarry and transported usually a very short distance as facilities used to manufacture the bricks neighbour quarry locations. The extraction of the clay requires both machine and man power, water also plays a big part as it is used for controlling dust particles and helps processing clay prior to transport (water may not be used for each two purposes).

An approximate 2,000 gallons of water is used to produce one ton of clay brick (Manningenterprizes.com, 2020) , the mining process uses fos-



Construction & assembly (B1, B2, B5)

Clay bricks are mainly used for building dwellings which go hand-in-hand with mortar, wasted construction materials come at 5% from bricks and a bigger 25% from mortar. Brick waste can be easily reused in many instances.

In general, load bearing walls created using clay bricks are low maintenance for decades with the aid of façade waterproofing cream. Maintenance only occurs when evident hairline cracks or mortar deterioration become visible. Repairs will require a skilled craftsman to replace the mortar or bricks, after a long period the original construction process will need to be repeated.



End of life (C1, C2, C3 & C4)

Deconstruction of clay bricks usually consist of wrecking ball machinery and men with sledge hammers, usually clay bricks are carefully extracted because of they're widely available at cost effective prices.

Bricks that can be salvaged are recycled back into construction, if not they are transported to factories where they are downcycled to aggregates which have many uses such as cement and render.



Potential of reuse (D)

If transported to a landfill site, they are more than often chosen after a while to be grinded down into aggregates if not by constructors who want certain materials or sizes of material.

References;

Building & Decor. (2020). Clay brick LCA: From cradle to cradle - Building & Decor. [online] Available at: <https://www.buildinganddecor.co.za/clay-brick-lca-from-cradle-to-cradle/> [Accessed 13 Feb. 2020].

Manningenterprizes.com. (2020). Manning Enterprizes | Life Cycle Of A Brick. [online] Available at: <https://manningenterprizes.com/life-cycle-of-a-brick/> [Accessed 13 Feb. 2020].

4theregion.org.uk. (2020). The University of Wales Trinity Saint David (UWTSD). [online] Available at: <https://www.4theregion.org.uk/the-university-of-wales-trinity-saint-david-uwtsd/> [Accessed 13 Feb. 2020].