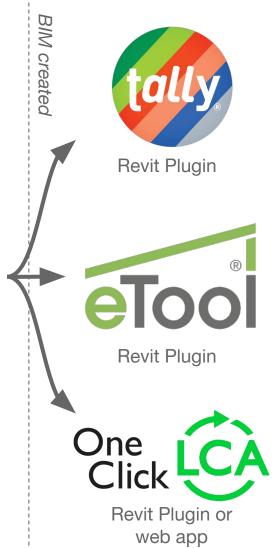# What tools should Stanford use to internally assess embodied carbon in construction?

BIM created

epic.

Early-stage tool aiming to give a glimpse at embodied and operational carbon of different project designs before any models are created. Requires only basic building specs (floor area, uses, zip code, etc.).

- Doesn't account for Life Cycle stage C (end of life) or renovations
- Coarse database (though based on 2016-2021 data)
- System boundary: A1-A4, B1-B7
- Cost: Free
- Time needed: minutes

tally®
Revit Plugin

+ Created specifically for US use
+ Direct exports to EC3
- Doesn't include mechanical equipment, landscaping, or conveyances
- Data points are from 2017
- System boundary: A1-A4, B2-B5, C2-C4, D
- Cost: $695/yr
- Time needed: minutes to a few hours

eTool®
Revit Plugin

- Data points are between 5-15 years old
- Only recently included US
- System boundary: A1-A4, C1-C4, D2-D5
- Cost: $600-3840/yr depending on features

One Click LCA
Revit Plugin or web app

+ Underlying data are verified for time representativeness
- System boundary: A1-A4, B1-B7, C1-C4, D (depends on data available)
- Cost: Quote needed
- Time needed: minutes to a few hours

EC3

Late-stage tool aiming to inform product procurement decisions.

+ Free
+ Links directly with Tally or BIM
+ Transparent EPD database
+ Data specific to California
+ Used by Microsoft
- Only accounts for Life Cycle stage A (extraction, manufacturing)
- Anecdotal issues with wood products
- Time needed: minutes per product/material

Feasibility/Programming   *Schematic Design*   *Design Development/ Construction Documents*

Labels correspond to Stanford PDP phases in which the corresponding tool(s) would be most appropriately used

Tools that were excluded from this chart: *Athena Impact Estimator, because most recent US data are from 2015, many data points older; Beacon, because of lack of EPD specificity as well as no further development of the tool since 2020; OpenLCA, because tool is designed more for individual product footprinting than whole-building LCA.*

For more background on this diagram, *see here.*