Submission to the

Design and Place SEPP 2021 Consultation

Prepared by:

Building Products Industry Council

Rodger Hills - Executive Officer
PO BOX 3037
WESTON CREEK ACT 2611
Phone – 0438 740 240
Email – eo@bpic.asn.au

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Commentary

The Building Products Industry Council (**BPIC**) makes the following response to *the Design and Place SEPP 2021* consultation.

Most of the consultation subject is outside our organisation's area of interest and expertise, so this submission will focus only on the *Sustainability in Residential Buildings (BASIX Overview)* document, specifically the section dealing with a Materials Index. As an industry, we support the inclusion of a Materials Index within BASIX. However there is a particular aspect of the design of the Index that is of considerable concern to us. On Page 10 of the *Sustainability in Residential Buildings (BASIX Overview)* document, the following statement is made:

> *"Default factors for embodied emissions of materials will be based on the well-recognised EPiC database."*

In December 2021, BPIC wrote to the NSW Minister for Planning and Public Spaces - Minister Stokes - detailing the building products industry's concerns about the EPiC database being used inappropriately as an embodied carbon measurement tool by the NSW Government.

Principally our concerns relate to the NSW Government's contemplation of the use of Hybrid Analysis (HA) embodied carbon analysis methodologies, such as contained in the EPiC database produced by the University of Melbourne. It is BPIC's belief that the use of this methodology is inappropriate in individual embodied carbon studies of buildings and is going to cause the entire building product sector a great deal of problems.

Results from the EPiC database give inconsistent and much higher values compared to the current and internationally recognised 'process-based' methodology that is most widely used, globally accepted, based on agreed ISO standards, and reported through independently verified and registered Environmental Product Declarations (EPDs).

Use of HA (EPiC) might seem appealing, easy to use and backed by university research, but the method is intended for single country national impact economic focussed assessments - **it is not intended for individual product or project based environmental impact assessments.**

The correct 'process' based approach needs to be used when assessing building materials used in homes. The following example illustrates the 'material production embodied Greenhouse Gas CO2e impacts' for the three different carbon assessment approaches for residential timber framing products used in average sized single (211m2) and double storey (280m2) homes, and the vastly different results they generate.

House Type	'Process-based' carbon calculation	'Input-output-based' carbon calculation	'Hybrids-based' carbon calculation
Single-storey Home *Timber frame on conc slab, floor size 211m², utilises 11m³ of softwood framing*	'Process -based A1-A3 GWPF ($kgCO_2e$) = 157 $kgCO_2e/m^3$ Total embodied material CO_2 impact[1]** = 1.7 tonnes CO_2	'EPiC I-O -based A1-A3 ($kgCO_2e$) = 598 $kgCO_2e/m^3$ Total embodied material CO_2 impact = 6.6 tonnes CO_2 (380% higher)	'EPiC Hybrid -based A1-A3 ($kgCO_2e$) = 549 $kgCO_2e/m^3$ Total embodied material CO_2 impact = 6.0 tonnes CO_2 (350% higher)
Double-storey Home *Timber frame on conc slab, floor size 280m², utilises 17m³ of softwood framing*	'Process -based A1-A3 GWPF ($kgCO_2e$) = 157 $kgCO_2e/m^3$ Total embodied material CO_2 impact **= 2.7 tonnes CO_2	'EPiC I-O -based A1-A3 ($kgCO_2e$) = 598 $kgCO_2e/m^3$ Total embodied material CO_2 impact = 10.2 tonnes CO_2 (380% higher)	'EPiC Hybrid -based A1-A3 ($kgCO_2e$) = 549 $kgCO_2e/m^3$ Total embodied material CO_2 impact = 9.3 tonnes CO_2 (350% higher)

The above comparison clearly illustrates the negative perverse Greenhouse Gas CO2e outcomes that could unwittingly be assumed if the incorrect data is improperly used for residential timber framing products. The use of EPiC approach rather than process based EPD information for building products within schemes like BASIX will have disastrous unintended consequences, such as:

- **Preferentially advantaging imported products** (which come with process methodology credentials based on EPDs and ISO standards) over local Australian products (which will have significantly higher EPiC credentials that are not based on EPDs and ISO standards).
- If adopted widely, the Input/Output Hybrid (I/O H) based data, such as EPiC data will **greatly over-report NSW's embodied carbon figures for building products:**
    - For softwood timber the EPiC value of Greenhouse Gas Emissions is 549 kgCO2e/m3 compared to 181 kgCO2e/m3 using the internationally agreed EPD-backed process method of calculation. That is 3 times the amount of embodied carbon that NSW would have to report compared to other Australian and overseas jurisdictions.

- For plasterboard the EPiC value of embodied energy is 0.44 kgCO2e/kg compared to 0.096 kgCO2e/kg using the internationally agreed EPD-backed process method of calculation. That is 4.6 times the amount of embodied carbon that NSW would have to report compared to other Australian and overseas jurisdictions.

- **Invalidating all the work and the multi-millions of dollars of investment** that building product suppliers have expended to comply with international carbon measurement standards and to develop EPDs.
- **Wildly skew embodied carbon numbers across sectors, unreasonably advantaging some manufactured products over others** and a fair and equitable comparison of materials will not be possible using this approach. This is because different manufacturers use different manufacturing processes to produce the same or similar building products, which EPDs account for and the EPiC database does not.

Hybrid Analysis (HA) embodied carbon analysis methodologies like EPiC, load up, or burden, embodied carbon measurements with a range of metrics that are not only arbitrary, but that are *out of the control of the manufacturer.* As a result EPiC creates a strong disincentive for manufacturers to improve their performance. Because no matter what they might achieve, the externalities employed in the EPiC methodology will always punish them. And since EPiC methodologies are black box arrangements using hidden and proprietary algorithms, and not independently verified, there is no way for a manufacturer, government regulator, or any other third party to scrutinise the process or accurately duplicate the outcomes through other means.

Independent validation of different options is essential and clear definitions of the boundary structure is required so that information is transparent, consistent and reflects each company's true performance. In other words the user of this information is confident in comparing apples for apples.

Therefore BPIC requests that the NSW Government and the BASIX administrator in particular, cease contemplation of the inappropriate use of the EPiC system and instead adopt the current and internationally recognised 'process-based' methodology that is most widely used, globally accepted, based on agreed ISO standards, and reported through independently verified and registered Environmental Product Declarations (EPDs).

The Role of BPIC

The Building Products Industry Council (BPIC) is a national peak body representing Australia's leading building products industries and related services (listed in the footer of this document) in:

Steel	Gypsum Board	Concrete	
Insulation	Timber Products	Roof Tiles	Glass
Windows	Clay Bricks	Concrete Masonry	
Cement	Tiles	Insulated Sandwich Panels	

BPIC's members and associated companies directly employ over 200,000 Australians with more than 470,000 employed indirectly. Their collective industries are worth over $54B in annual production to the Australian economy. BPIC is a not for profit organisation governed by a Board of Directors comprised of representatives from its member organisations.

BPIC's primary objective is to provide coordinated representation of the building products industry to interested parties including Government, the construction industry, and the general public to help improve building and construction standards. We also provide a forum for discussion, information sharing and policy formulation among major product categories in the building industry. BPIC's mission is to:

- Promote regulatory reform to ensure that products meet minimum standards, code compliance, and are used in the manner for which they are intended.
- Promote public and regulatory confidence, growth and innovation in the building product sector.
- Promote and support improved, robust and nationally consistent building and construction product legislation, regulation, codes and standards.

BPIC works to fulfill these aims by gathering and supplying practical and current industry information on behalf of BPIC member organisations and other organisations and companies that are not members but follow BPIC through various means. This industry-wide approach to responding to regulatory issues, helps to ensure that Governments are informed of possible problems in the building industry and are provided with appropriate industry-considered responses. BPIC also encourages investment in skills formation, product development and industry research by helping to identify and remove regulatory impediments to innovation.