Use of Environmental Product Declarations in Industry

This survey has been designed to assess how Environmental Product Declarations (EPDs) are currently used in industry. The survey is divided into three main sections. After consenting to take part in the survey, the first assesses current use and understanding of EPDs. The second seeks to gauge how EPDs can be improved to better support design decisions. The third collects information about your profile (no personal data is collected, the survey is anonymous) that will be used to categorise responses and analyse trends within the responses. We intend to publish the results of the survey, helping you see how EPDs are being used across industry, and to inform the next generation of EPDs.

Thank you for taking your time to complete this survey. The survey is a part of the research project "*Towards net-zero carbon buildings: tackling uncertainty when predicting the carbon footprint of construction products and whole buildings*" at the University of Bath. For more information regarding the project please see: https://researchportal.bath.ac.uk/en/projects/towards-net-zero-carbon-buildings-tackling-uncertainty-when-predi

Participants are asked to refer to the Participant Information Sheet (link below) prior to consenting to take part in the following survey: https://drive.google.com/file/d/1GHrW2x_d8IBhvqvz3unLxXauL8lZKHTG/view?usp=drivesdk

The survey discusses the design stages, outlined by the Royal Institute of British Architects (RIBA). For individuals who are unfamiliar with the RIBA design stages refer to Figure 1 from the RIBA Plan of Work 2020.
Overview: https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work.

Consent for use of responses

Participation in this study includes the collection of anonymous responses based on professional experiences in the building design process. At no point in time throughout this survey will you be asked to provide personal nor sensitive data. All responses are anonymised and all respondents are able to withdraw from the survey at any point in time. By submitting your responses to this survey you are consenting to allow your responses to be used in the presented study.

1. Do you consent to have your responses used in an academic study conducted by the University of Bath:

- ◯ I agree to the University of Bath keeping and processing the data that I provide during the course of this survey and my consent is conditional upon the University complying with its duties and obligations under the Data Protection Act.
- ◯ I do not consent to participate in this survey

Current Use of Environmental Product Declarations in Industry

The following questions have been formulated to assess how industry practitioners are currently using Environmental Product Declarations (EPDs) in practice and more specifically within the building design process. Please answer the questions based on your experience.

2. What is your level of familiarity with the following standards?

	Very Unfamiliar	Unfamiliar	Somewhat Unfamiliar	Neutral	Somewhat Familiar	Familiar	Very Familiar
EN 15804 - Environmental product declarations - Core rules for the product category of construction products	○	○	○	○	○	○	○
EN 15978 - Assessment of environmental performance of buildings	○	○	○	○	○	○	○
ISO 14040 - Life cycle assessment. Principles and framework	○	○	○	○	○	○	○
ISO 14044 - Life cycle assessment. Requirements and guidelines	○	○	○	○	○	○	○
ISO 21930 - Core rules for environmenta							

environmental product declarations of construction products and services	○	○	○	○	○	○	○
PAS 2050 - Specification for the assessment of the life cycle greenhouse gas emissions of goods and services	○	○	○	○	○	○	○
PAS 2060 - Specification for the demonstration of carbon neutrality	○	○	○	○	○	○	○
PAS 2080 - Carbon management in infrastructure	○	○	○	○	○	○	○

3. How long do you normally have to evaluate design alternatives at early stage design?

- ◯ Less than an hour
- ◯ Less than half a work day
- ◯ one work day
- ◯ 2-3 working days
- ◯ up to a work week
- ◯ more than one work week
- ◯ Other

4. How many options of material palettes do you typically consider for a design alternative?

- ◯ only 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ more than 5

5. Do you use Environmental Product Declarations (EPD) during the design process for a building?

- ◯ Yes
- ◯ No
- ◯ N/A

6. What is your level of engagement with EPDs?

0	1	2	3	4	5	6	7	8	9	10

Have not looked at an EPD

Able to find suitable EPDs and critically interpret the information presented

7. How often do you engage with EPDs?

- ◯ Daily
- ◯ A couple of times a week
- ◯ Weekly
- ◯ Monthly
- ◯ Yearly
- ◯ Never
- ◯ Other

8. Do you consider environmental impacts of materials and design alternatives during the design process?

- ◯ Yes
- ◯ No
- ◯ N/A

9. Do you use any of the following to acquire carbon information during the design process? (Select all that apply)

- [ ] ICE Database
- [ ] Suggested values from industry guidance documents
- [ ] Academic published literature
- [ ] In-house developed assessment tools
- [ ] Externally developed assessment tools
- [ ] Other

10. What is the predominant reason for using EPDs in the building design process?

- ◯ Product level comparison
- ◯ Input into building level carbon assessment tool
- ◯ Input into life cycle assessment (LCA) software
- ◯ Other

11. What additional activities do you use EPDs for?

12. How do you access EPD information?

- ◯ PDF
- ◯ XML / Digitised format (eg. ecoplatform)
- ◯ Within external building life cycle assessment (LCA) software (eg. oneclickLCA)
- ◯ via industry database (eg. ICE Database)
- ◯ Other

13. How do you use or apply EPD information in assessments? (select all that apply)

- ☐ Manually - in a spreadsheet
- ☐ Integrated into an in-house tool
- ☐ Automatically - part of external LCA software
- ☐ Other

14. When do you use EPDs in the design process? (select all that apply)

- [ ] 0 - Strategic Definition
- [ ] 1 - Preparation and Briefing
- [ ] 2 - Concept Design
- [ ] 3 - Spatial Coordination
- [ ] 4 - Technical Design
- [ ] 5 - Manufacturing and Construction
- [ ] 6 - Handover
- [ ] 7 - Use

15. When do you think it is appropriate to use the following types of information?
0-Strategic Definition (S.D.); 1 - Preparation and Briefing (P&B); 2 - Concept Design (C.D.); 3 - Spatial Coordination (S.C.); 4 - Technical Design (T.D.); 5 - Manufacturing and Construction (M&C); 6 - Handover (H); 7 - Use (U)

	0 - S.D.	1 - P&B	2 - C.D.	3 - S.C.	4 - T.D.	5 - M&C	6 - H & 7 - U
Generic Average	○	○	○	○	○	○	○
Manufacturer Specific	○	○	○	○	○	○	○
Facility Specific	○	○	○	○	○	○	○
Product Specific	○	○	○	○	○	○	○
Time Specific	○	○	○	○	○	○	○
Supply Chain Specific	○	○	○	○	○	○	○

16. Do you use EPDs to help make element or building scale design decisions?

- ◯ Yes
- ◯ No
- ◯ n/a

17. If yes, what decisions do you use EPDs to inform?

18. Do you use EPDs to compare material and/or product alternatives

- ◯ Yes
- ◯ No
- ◯ n/a

19. If yes, what information from an EPD do you use when making your comparison? (Select all that apply)

- [ ] Product Information
- [ ] Reference Service Life
- [ ] Declared Unit
- [ ] Scope of Life Cycle Stages
- [ ] Environmental Indicators
- [ ] Scenario Assumptions
- [ ] Cut-off Criteria
- [ ] Data Quality
- [ ] Other

20. Do you use EPDs to compare materials within the same product category (i.e. one type of steel against another type of steel)?

- ◯ Yes
- ◯ No
- ◯ n/a

21. Do you use EPDs to compare different material types (i.e. steel versus concrete, etc)?

- ◯ Yes
- ◯ No
- ◯ n/a

22. Which of the following environmental indicators do you consider in your assessment: (Select all that apply)

- [ ] Global Warming Potential - Total
- [ ] Global Warming Potential - fossil fuels
- [ ] Global Warming Potential - biogenic
- [ ] Global Warming Potential - land use and land use change (LULUC)
- [ ] Ozone Depletion
- [ ] Acidifcation
- [ ] Eutrophication aquatic freshwater
- [ ] Eutrophication aquatic marine
- [ ] Eutrophication terrestrial
- [ ] Photochemical ozone formation
- [ ] Abiotic depletion potential for non-fossil resources
- [ ] Abiotic depletion potential for fossil resources
- [ ] Water use

- [ ] Other

23. From your experience, how suitable are EPDs for the following building element classifications for your designs?

	Very Unsuitable	Unsuitable	Somewhat Unsuitable	Neutral	Somewhat Suitable	Suitable	Very Suitable
Substructure	○	○	○	○	○	○	○
Superstructure	○	○	○	○	○	○	○
Facade	○	○	○	○	○	○	○
Internal Elements	○	○	○	○	○	○	○
Finishes	○	○	○	○	○	○	○
Services	○	○	○	○	○	○	○

24. What is the likelihood for you to specify:

	Very Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Very Likely
materials with no knowledge of its environmental impact	◯	◯	◯	◯	◯	◯	◯
novel materials	◯	◯	◯	◯	◯	◯	◯
materials without published EPDs	◯	◯	◯	◯	◯	◯	◯

25. What is the most common reason for you to exclude a material from your design?

26. What information do you look at when using EPDs on projects? (Select all that apply)

- [ ] General information
- [ ] Date of issue and valid until date
- [ ] Product information
- [ ] Reference service life
- [ ] Technical specification of product
- [ ] Declared unit
- [ ] Scope of life cycle stages
- [ ] Cut-off criteria
- [ ] Data quality
- [ ] Environmental impacts (indicators)
- [ ] Resource use
- [ ] Output flows and waste categories
- [ ] Other

27. How important are the following aspects of an EPD when using its data for design purposes?

	Very Unimportant	Unimportant	Somewhat Unimportant	Neutral	Somewhat Important	Important	Very Important
Validity Date	○	○	○	○	○	○	○
Standard	○	○	○	○	○	○	○
Geographic Scope / Region	○	○	○	○	○	○	○
Functional / Declared Unit	○	○	○	○	○	○	○
Scope of Life Cycle Stages	○	○	○	○	○	○	○
Breakdown of GWP (total, biogenic, fossil, LULUC)	○	○	○	○	○	○	○
Impact Categories (other than GWP)	○	○	○	○	○	○	○
Scenario Assumptions	○	○	○	○	○	○	○
Data Quality	○	○	○	○	○	○	○

Cut-off Criteria	◯	◯	◯	◯	◯	◯	◯
Interpretation of Results	◯	◯	◯	◯	◯	◯	◯

Informing the next generation of EPDs

The following questions are intended to provide insight for how industry would like to see EPDs developed to better support the design process of buildings.

If you have not used EPDs directly or are not familiar with the typical contents of EPDs please refer to the following EPD to support your answers: https://api.environdec.com/api/v1/EPDLibrary/Files/8d0a16a5-41dd-49e4-9fcf-08d8f8b9d146/Data
Alternatively, the above EPD can be accessed by searching "Swedish sawn dried timber of spruce or pine" at https://www.environdec.com/library

28. How easy is it to understand the information presented in an EPD

0	1	2	3	4	5	6	7	8	9	10

Incomprehensible Fully Understandable

29. What aspect of an EPD is easiest to understand?

30. What aspect of an EPD is most challenging to understand?

31. How clear is it to understand the type of EPD (i.e. industry average, product specific, etc.)?

0	1	2	3	4	5	6	7	8	9	10

Incomprensible Fully Understandable

32. How much do you trust the values presented in EPDs?

0	1	2	3	4	5	6	7	8	9	10

Do not trust Highest level of trust

33. Please provide some context for the score you've provided to the previous question.

34. How much uncertainty do you think are in the values presented in the following types of EPDs?

	No Uncertainty	+/- <10%	+/- 11-20%	+/- 21-30%	+/- >30%	Unsure
Industry Average	◯	◯	◯	◯	◯	◯
Multi-product	◯	◯	◯	◯	◯	◯
Product Specific	◯	◯	◯	◯	◯	◯
Plant Specific	◯	◯	◯	◯	◯	◯

35. What influences the amount of uncertainty in an EPD?

36. Should uncertainty information be included within an EPD?

- ◯ Yes
- ◯ No
- ◯ Unsure

37. If yes, how would you like uncertainty information presented?

38. If no, please explain:

39. Should data quality be included in a standardised metric?

- ◯ Yes
- ◯ No
- ◯ Unsure

40. What should be considered within the data quality metric?

41. Should the standardised data quality metric be qualitative (i.e. descriptive) or quantitative (i.e. numeric)

- ◯ Qualitative (descriptive)
- ◯ Quantitative (numeric)
- ◯ Unsure
- ◯ Other

42. Should any other additional information, not previously discussed, be included in EPDs that is not currently reported in EPDs?

43. If more information is provided within an EPD, how much ***MORE*** time would you be willing to spend when looking at an EPD?

- ◯ <1 minute
- ◯ <5 minutes, but more than 1 minute
- ◯ <10 minutes, but more than 5 minutes
- ◯ <15minutes, but more than 10 minutes
- ◯ more than 15 minutes
- ◯ Other

Personal Profile

The final section aims to build a profile that can be used to categorise your responses without acquiring any personal information that can be used to identify you. No personal details are asked for and all responses are anonymised.

44. What is your profession?

- ◯ Structural Engineer
- ◯ Architect
- ◯ Building Services Engineer
- ◯ Civil Engineer
- ◯ Contractor
- ◯ Sustainability Consultant
- ◯ Other

45. What country do you work in?

46. What region are your projects predominantly located in:

Please select at most 2 options.

- [ ] United Kingdom (UK)
- [ ] Europe (excluding UK)
- [ ] North America
- [ ] South America
- [ ] Asia
- [ ] Africa
- [ ] Middle East
- [ ] Australasia/Oceania
- [ ] Other

47. What sector are your projects predominantly classified as?

Please select at most 2 options.

- [ ] Small-scale Residential
- [ ] Large-scale Residential
- [ ] Institutional
- [ ] Industrial
- [ ] Office
- [ ] Commercial
- [ ] Education
- [ ] Cultural
- [ ] Infrastructure
- [ ] Other

48. What is the typical (above ground) size of projects that you work on?

- ◯ 1-3 floors
- ◯ 4-6 floors
- ◯ 7-9 floors
- ◯ 10-16 floors
- ◯ 17-40 floors
- ◯ >40 floors

49. What is your position:

- ◯ Graduate
- ◯ Senior Engineer / Architect
- ◯ Associate
- ◯ Director
- ◯ Executive Officer
- ◯ Other

50. What is the size of organisation you work for?

- ◯ 1 person (self-employed)
- ◯ 2-9 people
- ◯ 10-24 people
- ◯ 25-49 people
- ◯ 50-99 people
- ◯ 100+ people

51. Please indicate how frequently you are involved with the following RIBA design stages?

	Not Involved (0%)	<25%	<50%	50%	<75%	<100%	All Projects (100%)
0 - Strategic Definition	◯	◯	◯	◯	◯	◯	◯
1 - Preparation and Briefing	◯	◯	◯	◯	◯	◯	◯
2 - Concept Design	◯	◯	◯	◯	◯	◯	◯
3 - Spatial Coordination	◯	◯	◯	◯	◯	◯	◯
4 - Technical Design	◯	◯	◯	◯	◯	◯	◯
5 - Manufacturing and Construction	◯	◯	◯	◯	◯	◯	◯
6 - Handover	◯	◯	◯	◯	◯	◯	◯
7 - Use	◯	◯	◯	◯	◯	◯	◯

52. Total years of experience in profession:

53. Total years of experience conducting life cycle assessments / carbon assessments:

Final Comments and Thoughts

Thank you for taking your time to complete the survey. Your input is greatly appreciated.

Your responses to this survey are anonymous and you will not be contacted based on your responses. Your responses will be used with the *Tackling uncertainty when predicting the carbon footprint of construction products and buildings* research project at the University of Bath. More information regarding the project can be found here: https://researchportal.bath.ac.uk/en/projects/towards-net-zero-carbon-buildings-tackling-uncertainty-when-predi

54. Please provide any final comments and/or feedback you wish to say (not previously covered in the survey questions) that you feel is pertinent to the covered topics.

55. How relevant do you think the discussed topics are for current practice:

0	1	2	3	4	5	6	7	8	9	10

Not at all relevant Extremely relevant

56. How easy was it for you to complete the survey:

0	1	2	3	4	5	6	7	8	9	10

Not at all easy Extremely easy