



Digital BIM-based process for BIPV

Digital product data models

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EXECUTIVE SUMMARY

The aims of this report are:

- (1) Give an overview of potentialities of BIM (Building Information Modelling) for the BIPV process and products referring to the available international standards and approaches;
- (2) Describe in a systematic way BIM-based workflows and tools in relation with the main BIPV process stages;
- (3) Present an overview of available BIM-based objects for BIPV products to describe the state of play, regulations and standards; and
- (4) Report case-studies of some BIPV projects developed with a BIM approach and/or tools to share real experiences on how to implement BIPV processes in BIM.

The overall goal is to prepare with this analysis the international work towards coherent open BIM-standards for BIPV, which will be as well supported by IEA Task 15 working groups in the period 2024-2027. An overview of the BIPV process was conducted representing the main process phases, the main activities, and the main outputs produced by the involved stakeholders.

The report reviews the concepts of BIM and openBIM®, the current BIM standards scenario, the benefits of BIM for BIPV, and how can BIM potentially affect BIPV process stage. The study also provided the national state of play about digital BIM-BIPV products in six regions, and their digital structure/schema/framework/standard for describing BIPV product and categorize BIPV data. A list of current BIM-BIPV product database, online portals and libraries is included in the report.

The study reviews the BIM tools for BIPV design, modelling, and simulation, and how digital objects are handled in these tools. Furthermore, this report reviews five specific BIM-based BIPV tools and workflows for design and simulation, three BIM-BIPV showcases and case studies, as well as seven research activities on BIM and BIPV.

As a conclusion, this report suggests preliminary inputs for BIPV product data management in a BIM-based approach, further BIM/BIPV research regarding digital product data models, pre-normative recommendations and standards, and geometrical and informative parameters to support LOIN definition.