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Tender text

Guide for requesting a Madaster materials passport and / or building file

For
Building owner / developer

By
Madaster

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Context and content

This text is made available for building owners / developers by Madaster and serves as a guide on how to include a Madaster Material Passport for a building (hereinafter Building Passport) in the tender. This document contains three elements:

Chapter 1 explains the terms used and the general process for generating a Building Passport.

Chapter 2 provides sample texts that can serve as guidelines for general parts of the tender of a Building Passport.

Chapter 3 provides sample texts that can be used to describe and specify the request of a Building passport in a process-oriented, functional and technical manner.

Together, if carried out satisfactorily, this results in a high-quality and accurate Building Passport.

For any additional information, please contact Madaster info@madaster.com or by phone on +31 85 06 01 242. We are happy to assist you.

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1 Explanation of terminology and process

1.1 Building Passport; a material passport for a building

A Building Passport is a materials passport for a building and forms a digital representation('twin') of the specific building, with a focus on the materials and products used. The completeness and accuracy of this Building Passport is determined by the availability and quality of building information (source files).

a. For new buildings, more and more information is recorded in BIM models. This form of recording offers the most advantages with regard to the successful and accurate preparation of a Building Passport in the Madaster Platform.
b. For existing buildings, drawings and possible specifications are the norm. These can be translated (possibly by specialized market parties) into BIM models, or processed in an Excel template [1] in order to prepare a Building passport in the Madaster Platform.

New building

In a new-build situation, a Building Passport is created by the design team, after which the contractor and suppliers further enrich the building information into a so-called "As-Built" BIM model[2]. The Building passport can then be delivered upon delivery of the building to the building owner / developer.

Existing building

Within an existing building (for example in a renovation project) the same aforementioned "As-Built" BIM model is the desired goal. In addition, the building owner / developer can decide that the current situation must first be mapped before starting the project. This means that the elements present in the existing situation are inventoried (quantitative and qualitative) so that before the start of the project it can be determined:

a. to what extent reuse of these elements in the project is desirable / necessary and;
b. to what extent new products and materials must be supplied.

This total inventory of both to be reused and to be supplied products and materials subsequently results in the Building Passport of the new situation and in this case contains information about the products and materials that have been reused and newly supplied.

In projects, the building owner / developer will not always aim for the "As-Built" BIM model. An alternative can then be found in the use of the Madaster Excel template. This alternative solution requires (compared to the as-built variant) a reduced effort and knowledge of materials used in the building.

[1] When Excel is used as a source file, no 3D representation of the building can be generated on the Madaster platform.

[2] An "As-Built" BIM model shows how the building was effectively realized. This as-built model contains an updated and accurate representation of the actual situation. Temporary information is deleted and all elements contain verified information. The desired level of detail for this is determined per project. The as-built plans can be derived from this model.

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1.2 Information delivery: Building Information Model (BIM) and Excel

The building information with regard to the materials and products used in the building is preferably linked to a BIM model. In practice, this can be multiple BIM models, where (for example) a distinction is made between the construction, the architectural model, the installation and the interior. The combination of these models ultimately forms the basis for the Building Passport of the relevant building.

Upon delivery of the project, the BIM models must contain the as-built information. This promotes the use and keeping the models up-to-date during operation (maintenance, changes).

A BIM model can be developed in different levels of detail. This is expressed in a standard, namely: Levels of Detail (LOD). Madaster requires at least an LOD 300.

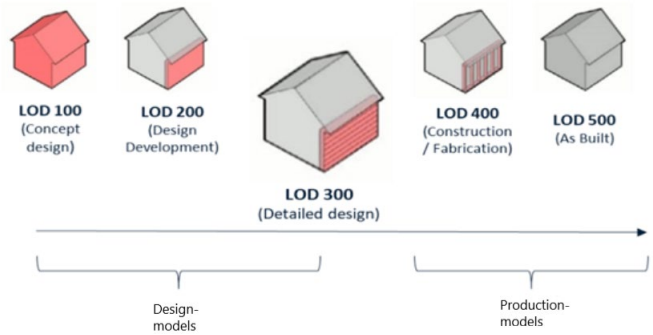

Image 1: Levels of detail

1.3 Building layers in Madaster:

Materials and products used in a building are categorized in the Madaster Platform and assigned to various building layers. This indicates the location of the materials and products in the building. In addition to architectural and constructional elements, Madaster also has the option of classifying technical installations, interiors and elements in the vicinity of the building (such as pavements, etc.). Depending on the building owner / developer's objectives, it is determined from which building layers a materials passport is expected, which ultimately results in one Building Passport.

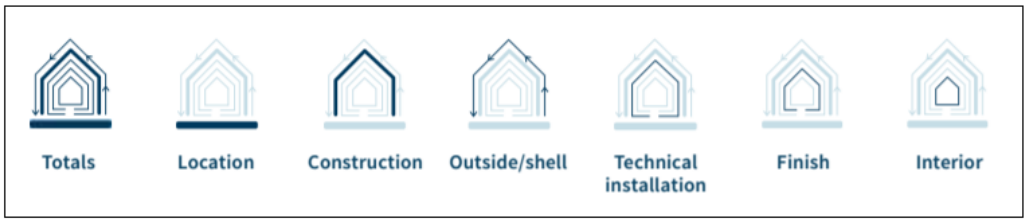

Image 2 building layers in Madaster

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1.4 Description levels of detail

To register a new or existing building in Madaster, information (data) is required from this building. The more extensive this data is available (input), the more detailed the report (output) is shown in the Madaster platform and specifically in the Building Passport. It is therefore recommended to determine the purpose and the level of detail of the Building Passport before requesting data.

1.4.1 General

A Building Passport in Madaster can be requested or elaborated on three levels, with the higher level always building on the directly underlying level. There is always the option to "step in" at a specific level and then move on to the next level at a later time. These three levels are explained in the following sections.

1.4.2 Level 1 – Material level

At this level, the Building Passport aims to reflect the materials used in a building and as such provides insight into the quantities of materials used, where these materials are located in the building and what its financial (residual) value is. At this level, no insight is obtained into the products used in the building and their underlying circular properties (degree of reuse, recycling, disassembly, etc.). As a result, insufficient insight can be given at this level into the circularity score of the building (Madaster Circularity Index).

1.4.3 Level 2 – Product level

At this level, the purpose of the Building Passport is, in addition to the materials used, also to provide insight into products (incl. their material composition) that are incorporated in the building and the location (building layer) where these products are located in the building. In Madaster a distinction can be made between 4 different types of products (volume, area, length & quantity products). Based on this additional perspective, the Building Passport makes it clearer which products have been used in the building (including numbers) and, in contrast to materials, these can potentially be "reused" at a higher level. Despite the fact that the basis is formed at level 2, insufficient insight is obtained at this level into the degree of circularity of the building, because the circular properties of the materials and products used are still largely lacking.

1.4.4 Level 3 – Including circularity

At this level, the purpose of the Building Passport is, in addition to displaying the materials and products used, also to gain insight into the degree of circularity of a building through the Madaster Circularity Index. This score is made transparent by enriching the materials and products with circular data (degree of reuse, recycling, disassembly etc.). This is the most detailed version of the Building Passport in Madaster.

1.5 Madaster documentation and manuals

Madaster offers various additional documents through its platform that are related to drawing up a Building Passport and working with the Madaster platform. For an overview of this information, please refer to the Documentation, FAQ and API section of the Madaster platform which can be reached (freely accessible) at https://docs.madaster.com/.

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2 Tender text – general

The tender text is divided into a number of segments. For the successful preparation and delivery of a Building Passport by means of the Madaster Platform by the contractor, at least the segments indicated under Chapter 3 must be included in the tender. The segments under sections 2.1 and 2.2 provide additional guidance that the building owner / developer can draw from when drawing up the tender.

Chapter 1 provides an explanation of terms used and process descriptions that may be used to clarify parts.

2.1 Introduction text

As part of this call for tender, [Building owner / developer] requests the Contractor to provide a Building Passport in the form of a Madaster registration. This Building Passport must contain at least [determine range between 90 - 100%] of the materials and products of [the building]. With the Building Passport [Building owner / developer] wants to guarantee the reuse of the materials and products, make the residual value transparent and prevent waste in a broad sense.

2.2 Description of the goal

The Building Passport serves to facilitate the reuse of materials and products in order to minimize the impact on the environment, the stock of materials and the loss of the value created. [Building owner / developer] uses the Building Passport so that:

A. Information about the materials and products used in [the building] are available to relevant stakeholders and individuals;
B. This information can be kept up-to-date after maintenance, mutations and replacements during the use phase;
C. By the building owner and / or manager and / or the parties who carry out work in [the building] on behalf of (one of) these parties;
D. Or be otherwise responsible for keeping the information about [the building] up to date.

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3 Tendertext - Specificcriteria

Explanation: In this chapter, sample texts are made available that the building owner / developer can include in the tender as specific requirements and / or conditions. A distinction is made between process-related aspects and functional and technical requirements. Together, if satisfactorily completed, they lead to a high-quality and accurate Building Passport.

3.1 Process

3.1.1 Availability

1. The Contractor draws up a digital Building Passport of the building, which is kept and made clear during the design phase, the work preparation and implementation phase and is delivered on the Madaster Platform to [Building owner / developer] in the account of [Building owner / developer] upon completion of the project.
2. The Building Passport is set up in accordance with the options in section 3.2. and provides, upon delivery, insight into at least [determine range between 90-100%] of the materials (and products) used in the building.
3. A written and oral explanation and instruction to the building owner and manager about the Building Passport and its use within the Madaster platform is part of the Contractor's obligations. The Contractor must also be available for any additional explanation and / or answering questions during the first year after delivery of the building.

3.1.2 Disassembly

1. The contractor will elaborate the way in which the building can be dismantled (and demolished for specific parts) in the form of a guideline / specifications and will be delivered to [Building owner / developer].
2. The disassembly of products is recorded by the Contractor in the Building Passport. This gives the Contractor insight into the way in which disassembly can take place in the future.
3. The relevant dismantling guidelines will be provided by the Contractor as part of the project to [Building owner / developer] upon delivery of the building as part of the Building File on the Madaster platform.

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3.2 Functional and technical

Explanation: The Building Passport can be delivered at different levels of detail. If desired, this can also be requested at different levels per building layer. The levels of detail are explained in more detail in chapter 1.4. The functional and technical specifications for each level of detail are described in the following sections. The building owner/developer selects the desired level of detail and source file per building layer in which the contractor must deliver the building passport.

The Building Passport is delivered in the following level of detail per building layer:

		To be delivered level of detail		
Select	**Building layer**	**Level 1**	**Level 2**	**Level 3**
		Material level	Product level	Including circularity
☐	Location (Site)	☐	☐	☐
☐	Construction (Structure)	☐	☐	☐
☐	Outside/shell (Skin)	☐	☐	☐
☐	Technical installations (Services)	☐	☐	☐
☐	Finish (Space plan)	☐	☐	☐
☐	Interior (Stuff)	☐	☐	☐

The following types of source files are supplied for the building passport: (The building owner / developer may also leave the decision on this to the Contractor).

		Madaster source file	
Select	**Building layer**	**BIM-/IFC-File**	**Excel template**
☐	Location (Site)	☐	☐
☐	Construction (Structure)	☐	☐
☐	Outside/shell (Skin)	☐	☐
☐	Technical installations (Services)	☐	☐
☐	Finish (Space plan)	☐	☐
☐	Interior (Stuff)	☐	☐

3.2.1 General requirements

1. The Building Passport is set up using and fitting into the structure of the Madaster platform.
2. The Building Passport must contain at least [determine range between 90 - 100%] of the elements and components "As Built", fully corresponding to the actual situation (for both existing [3] and maintained elements and newly realized elements).
3. The Building Dossier must be supplied by the Contractor as completely as possible [4] upon delivery: product sheets, certifications, ownership / lease agreements, warranty documents, maintenance instructions, user manuals, assembly and disassembly manuals and all other relevant documentation that is available, will be made available to [Building owner / developer] from the Building File in Madaster.

[3] Existing elements: it must be determined in consultation with the client whether destructive research is desirable or necessary.

[4] As complete as possible: the contractor demonstrates if the relevant documents are not available from the supplier.

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3.2.2 Requirements at level 1 – material level

1. The source files of the building to be registered in Madaster must be realized by the Contractor (and / or its partners) for each building layer, based on BIM / IFC, in the IFC file format at a minimum of LOD level 300 and delivered in accordance with BIM Basis ILS. When Excel-based registration is used, Madaster's Excel Template should be used.
2. [Building owner / developer] expects that at least [determine range between 90-100%] of the elements in the source files to be delivered (IFC and / or Excel template) contain the following data:
    a. Nl-SfB or Omniclass encoding[5];
    b. Material assignment / description;
    c. Geometric data:
        i. Quantity of the element (unit of quantity e.g. m, m2, m3);
        ii. Quantity of the element in m3 and kg and % relative to the total volume;
        iii. BIM model: export of so-called "Base quantities" in the IFC.
3. IFC file or the Excel template contains a material description for at least [determine range between 90 - 100%] of the elements, which is correctly linked to:
    a. Materials and products in a Madaster database or;
    b. the [Building owner / developer]'s own account or contractor's database in Madaster[6], or
    c. product databases linked to Madaster.

3.2.3 Requirements at level 2 (in addition to level 1) – product level

1. Overview of at least [determine range between 90 - 100%] of the products used in the building, with at least the following specifications of each product:
    a. Product name;
    b. Product code (EAN or GTIN, etc.) (if available);
    c. Product type (quantity, volume, area, length product);
    d. Specific weight / volume;
    e. Material composition;
    f. Search criteria.
2. These products are entered and made available in the account database of the building owner / developer or contractor[6].
3. The IFC file or the Excel template from Madaster contains for a minimum [determine range between 90 - 100%] of the elements a material or product description that is correctly linked to:
    a. Materials and products in a Madaster database or;
    b. the [Building owner / developer]'s own account or contractor's database in Madaster[6], or
    c. Product databases linked to Madaster.

3.2.4 Requirements at level 3 (in addition to level 1 and 2) – including circularity

1. Overview of at least [determine range between 90 - 100%] of the materials and products used in the building, including at least the following specifications of each material and product:
    a. Circular material and product properties in %:
        i. recycled material in the production phase of the product;
        ii. reused material in the production phase of the product;
        iii. material from "rapidly renewable sources" in the product's production phase;
        iv. newly produced material in the production phase of the product;
        v. functional life cycle (in years)
        vi. technical life cycle (in years)

[5] Madaster supports a variety of encoding, specific for each country.

[6] If this concerns the Contractor's own product database, this must be available to the Client via the Madaster platform.

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vii. material to be recycled in the “end-of-life” phase of the product;
viii. reusable material in the “end-of-life” phase of the product;
ix. material in the “end-of-life” phase of the product which goes to landfill and / or waste incineration.

b. Disassembly information;
c. Toxicity of the materials;

2. These products are entered and made available in the account database of the building owner / developer or contractor[6].
3. To gain insight into the circular performance of the building and the materials and products used, at least [determine range between 90 - 100%] of the materials and products from the source files will be linked to:
    a. Materials and products in a Madaster database or;
    b. the [Building owner / developer]'s own account or contractor’s database in Madaster[6], or
    c. product databases linked to Madaster.

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