

ANNEX NO. 1 DRAFT OF PRE-BEP TEMPLATE

The template will be filled by the OB 2 CONTRACTOR to start BIM within the project

The text written in red must be filled in by the OB 2 CONTRACTOR.

The meaning Contractor hereinafter is the same as OB 2 CONTRACTOR.

1 The basic identification data of the document

Client: ŠKO-ENERGO, s.r.o.

Contractor: Valmet Oy

Contract No.: XXXXXXXX

This document was created in accordance with the documents "Concept for introducing the BIM method in the Czech Republic" (hereinafter referred to as the "Concept") according to Government Resolution No. 682 of 25/09/2017 and valid standards (especially ČSN ISO 19650).

2 Communication and information sharing

The exchange of information throughout the design and construction phase will take place in the Common Data Environment (CDE). Goals of the BIM project from the point of view of CDE use:

- centralization of communication and information sharing,
- archiving of information and its metadata,
- digitization of existing processes of information transfer and communication within the project,
- implementation of work procedures within the CDE.

3 Passportization

- the visualization/model will be the source of the building object's basic visualization
- the project documentation/ the drawing part will be produced from the information model,
- spatial coordination/coordination will be carried out using a model.

4 Information models according to the stage of the project/documentation for the building construction execution (DPS)

- the visualization/model will be used for the creation of visualizations,
- the project documentation/ the drawing part of the PD will be produced from the information model,
- spatial coordination/coordination will be carried out using a model,
- the bill of quantities/the model will be a source for the bill of quantities,
- the time schedule/ a simulation will be performed on the model.

5 Time schedule for handover of models

The contractor will complete the expected schedule for the models handing over.

6 Duties and responsibilities

As a part of the project processing, from the point of view of information modelling, it is necessary to define the duties/roles of individual participants, their job content and responsibility for the project.

Duties/roles shall be clearly defined along with the extent of responsibilities.

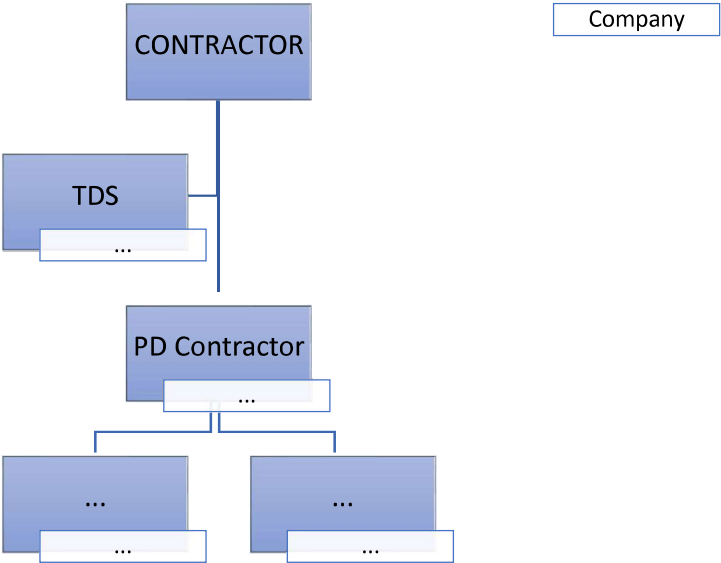
This document and all its annexes must be kept continuously up to date. If there is a need to change the document or its annexes, it is obligation of the responsible people below mentioned to submit proposed changes for approval.

Position	Description
Project manager	The Person responsible for managing the project on the CLIENT's part.
BIM project manager	<p>The Person responsible for BEP compliance in the project on the CLIENT's part. His/her activities are as follows:</p> <ul style="list-style-type: none"> • preparing and updating the BIM Execution Plan (BEP) in cooperation with the BIM Coordinator, • monitoring compliance with the BEP document by all participants, • checking data handed over by the CONTRACTOR, according to the BEP, • final checks and inspection of information models before handing over the completed building construction to the CLIENT, • related services, the need of which will emerge following the adjustment of the BEP during the project implementation, • active participation in solving the problems that have arisen and proposing their solutions, • he/she is directly responsible to the project management on the CLIENT's part. <p>He/she does not approve and does not discuss the CONTRACTOR'S questions regarding the technical solution from the point of view of the project solution.</p>
Data Environment Administrator	<p>The responsible person delegated by the CLIENT, whose activities are as follows:</p> <ul style="list-style-type: none"> • Administration of the common data environment for the whole project team (including the CLIENT) throughout the course of the project, • training of users.
Chief project engineer	The person responsible for the technical solution of the given part on the CONTRACTOR'S part.
BIM coordinator	<p>The person responsible for BEP compliance by the CONTRACTOR, whose activities are as follows:</p> <ul style="list-style-type: none"> • management of project teams according to the agreed EIR (Exchange information requirement by the CLIENT) and BEP, • checking the information models filling, evaluating the correctness of the data contained in the information models and handing over the BIM to the project manager, • active submission of BEP changes proposals, • active participation in solving the problems that have arisen and proposing their solutions, • control of the project's goals fulfilment in view of the project milestones, • reports directly to the project's chief engineer.
Lead Model Maker	<p>The Person delegated by the CONTRACTOR responsible for the models of the given part. His/her activities are as follows:</p> <ul style="list-style-type: none"> • management of model makers to the extent defined by BEP, • creation of project standards that complement the missing standards in the BEP, and submitting them for approval to the BIM coordinator, • he/she is responsible for the correctness of the information model for the given profession.
Model Maker	<p>A person delegated by the contractor. Its activities are as follows:</p> <ul style="list-style-type: none"> • responsibility for a given model/set of models.

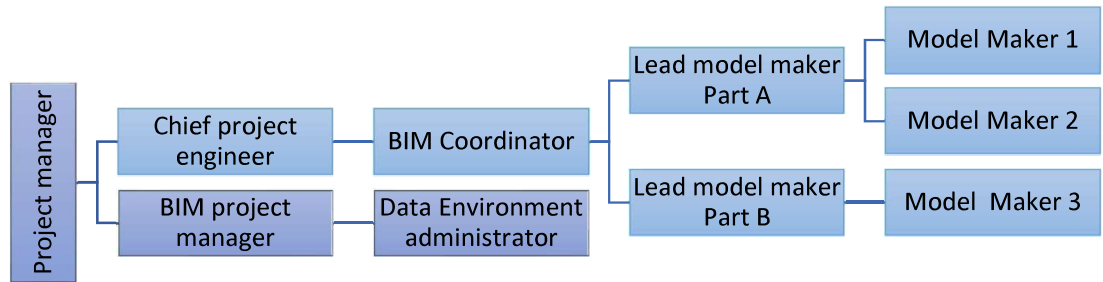
The relationship matrix of responsibility within the BIM project is clearly shown in the following two schemes (company's, name's).

Company's scheme

Organizational chart of the OB 2 CONTRACTOR's structure with the division of responsibilities within the BIM project



Name Scheme



Contact Persons

Position	Company /Organization	First name and Surname	E-mail	Phone
Project Manager	ŠKO-ENERGO	Ondřej Hlaváček	Ondrej.Hlavacek2@sko-energo.cz	+420732172761
BIM Project Manager	di5 architekti inženýři	Tomáš Minka	Minka@di5.cz	+420603552534
Data Environment Administration	di5 architekti inženýři	František Berka	Berka@di5.cz	+420720432238
Chief Project Engineer - BFB	Valmet Oy	Topi Saarenpää	topi.saarenpaa@valmet.com	+358401259150

Chief Project Engineer - CFB	Valmet Oy	Jussi Norja	jussi.norja@valmet.com	+358408675482
BIM Coordinator	Valmet Oy	Andrey Abrosimov	andrey.abrosimov@valmet.com	+358503076407
Lead Model Maker	Valmet Oy	Ville-Samuli Aulen	ville-samuli.aulen@valmet.com	+358505292414
Model Maker	Valmet Oy	Andrey Abrosimov	andrey.abrosimov@valmet.com	+358503076407
Others	-	-	-	-

7 Technological infrastructure

Software tools

The list of tools used (including versions and data format) and their methods of application for the project processing.

Software tool	Tool short	Version	Data format
EVERYTHING 3d	E3D	2.1	Dabacon database
SOLIDWORKS	SW	2020	.SLDASM .SLDPRT .SLDRW
TEKLA	TEKLA	TS2022	.db1

Project documentation and models will be handed over in a pre-agreed format by the CLIENT, according to the points mentioned below.

The following items will be used for the model handing over:

- Native format,
- Open format IFC.

List of tools used.

The List of modelled PS and SO with assigned tools in which they will be processed.

Overview of modelled PS and SO	Short of the SW tool
E3D / Piping, Electrical for Object Space reservation, Instrumentation, Control & automation for object space reservations, Obstruction Models.	E3D
Tekla and its models imported through *.ifc into E3D or native E3D / Civil and Structural	TEKLA
Solid works and its models imported through *.step into E3D or native E3D / Mechanical	SW

8 Units and coordinate systems

Units and coordinate systems are defined for all information models and will contain this information. Every and each model will also include a height setting.

The positioning system is used.

System of height coordinates.

Unit	Short	Min. number of significant digits
Length	millimetre	mm
Mass	Kilogram	Kg

Force	Kilonewton	KN
Movement	Newton Metre	Nm
Area	Square Meter	M ²
Temperature	celsius	°C
Pressure	Pascal	Pa

9 Information model requirements

Models must be compact and built efficiently within the modelling tool. Within the project processing one model may not exceed 200 MB in size. Exceptions are possible after approval by the BIM project.

Every and each model is created by means of elements that are represented by their 3D graphics and attached information. The graphic detail of the elements generally needs to be chosen in such a way that it fulfils the specified goals and legislative requirements.

In general, it can be said that the model is created stepwise, according to the steps of the building construction execution and the interface of the structures corresponds to the real interface. If there are cases where this is not possible, these deviations need to be specified and clearly described in this document.

Models nomenclature methodology

Each model will have a unique designation. In case of splitting models to more files, they must be clearly identifiable. The model's name contains the project identifier, the project stage, the documentation part and the PS/SO identifier.

The contractor will propose a nomenclature methodology.

List of models

PS/SO Name	Model Name
Equipment	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Piping	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Piping Supports	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Ducting with Supports	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Cable trays	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
E & I	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Construction steels	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Doors	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Rooms	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Foundations	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Walls and Roofs	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Platforms and Handrails	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number
Stairs and Ladders	Project prefix-Production Line-Process-Sub Process-Equipment-Rev- Number

Axis system

The axis system will be located in the centre of the modelling tool space. Axes names will be the same in all models.

Graphic detail of the model

One of the basic steps of using the BIM method is the creation of an information model. It is not necessary for all the information to be situated only in one model, on the contrary, it is desirable to have several models available.

The information model ensures the consistency of information and is the source of project documentation (ground plan, section, view, etc.). It is not desirable for PD production to modify locally the projection of given views (ground plan, section, view, etc.) and supplement or modify the projection in such a way that only a part of the goal for the project documentation creation is fulfilled.

Each model consists of individual elements that are defined graphically. The graphic detail for the individual stages will correspond to Decree No. 499/2006 Coll., on the documentation of building constructions, as amended.

Other requirements for the creation of models are mentioned in the following subchapters, according to individual logical units. The requirements for the significant elements of the model are defined. Not all elements that make up the model are listed here. Unless defined otherwise, the OB 2 CONTRACTOR will supply the given elements in the model according to the general rules in this document and to the best of their knowledge and conscience.

During processing, the model may show deficiencies as far as graphical details is considered, but the graphical detail must never be an obstacle to the fulfilment of the objectives given by this document. The necessary details can be prepared within the 2D documentation.

Duplications of the same elements are not permitted, unless specified otherwise.

In general

The individual elements of the model must correspond to the real construction.

The BIM model must be consistent – the same elements will be always modelled in the same way throughout their entire BIM model and in individual partial BIM models.

Individual BIM model elements will be modelled by the relevant categories in accordance with the given SW (e.g. a wall will be modelled by a wall and not be a general model. etc.). Model categories of the relevant SW will be mapped to the appropriate IFC categories (IfcProductType) in accordance with the IFC definition, ČSN ISO 16739 (73 0109).

Elements having the same function in the object will be placed into the same IFC category (IfcProductType) in accordance with the IFC definition, ČSN ISO 16739 (73 0109).

Inclusion of elements in the universal category IfcBuildingElementProxy is not desirable and is subject to the CLIENT's approval in the BEP.

The initial export to IFC must include the entry of GUID in the BIM model parameters. Each subsequent export where GUID have already been included will adhere to the same value and will not be overwritten. Following each IFC export, the GUID must be also saved in the native data of the BIM model.

Groundwork

Groundwork models respect the designed shape of the structures and the geology and hydrogeology identified.

Foundation

Foundation footings, belts or slabs are modelled as objects corresponding to the drawing of shape in the relevant stage of the project documentation.

For deep foundations, the design dimensions of piles are defined for coordination. The reinforced cage or elements fitted for piles tests are not modelled. For special foundations (micropiles, land ties, nails), the length and diameter of a borehole, the length and diameter of a borehole, as well as the borehole root length and diameter are defined

Masonry constructions, concrete constructions, and reinforced concreting

Blocks of concrete monolithic constructions (pillars, walls, ceilings, overflow structures, etc.) will be modelled as complete units. Each dilatation unit will be modelled separately. There is no requirement to model the reinforcing bars setting.

Networks and relocations

The model will include the route of related networks and relocations. Network objects will be modelled in design dimensions. The model of network objects dimensionally corresponds to the project documentation.

Air conditioning

The expected shape will be modelled which will define the spatial requirements. HVAC components (fans, valves, intake vents - blinds) will be modelled with design dimensions defining the spatial requirements of these elements.

Openings fillers

The elements must correspond to the actual construction dimensions of the openings. The structure of filling (doors and windows) will correspond to reality. It is possible to simplify the frame profiles, the outer dimensions of the profiles must always be observed. Additional parts of the openings filling do not need to be modelled (door inserts, etc.).

Penetrations

All vertical and horizontal penetrations through constructions are modelled in real positions and sizes. The penetrations must clearly define the static and construction openings.

Pipes and pipe routing

The pipeline and the equipment placed on the pipeline must have realistic external dimensions.

Mechanical equipment and end elements

Mechanical equipment and end elements are modelled in realistic external dimensions.

Electrical installation

All models will respect the division into high-voltage current, low-voltage current, CCTV and IT (using parameters, model division, etc.). The models will contain the main cable routes, and all fitted elements (e.g. switch cabinets, sockets, switches, boxes, etc.). There is no requirement to model individual cables. The wiring diagram does not need to be solved in the modelling tool. Cable guards are parts of the model.

Informational detail of the model

Information detail requirements define the parameters attached to individual elements. These parameters serve as a carrier of non-geometric information of the elements.

The OB 2 CONTRACTOR can add other parameters to the elements, as needed. New parameters can only be introduced during the creation of the model by responsible persons specified in the BEP.

Geometric information will always be read from the model, it is not permissible to fill in this data manually. Non-geometric information are parameters filled in manually, semi-automatically or automatically and provide additional information about the element.

Model elements of the TZB will be mutually linked by the system tool “system” (or similarly in accordance with the used SW). Thanks to that, these elements will be combined into logical and technical units according to professions and functional branches. This functional link must be also recorded in the attributes of the relevant elements.

10 Handover of Information models

The models will be delivered with all the information and settings that are necessary for the production of project documentation according to the object composition, spatial coordination and other requirements as a part of an arrangement of this document.

Models will not contain working and temporary settings that could increase the data size of models, except for passing off milestones for collaboration purposes.

The model maker will provide the CLIENT with partial models of individual building objects and at the same time one overall model by means of only one file or a file referring to partial models.

All models will be handed over in the native formats of information modelling tools and the IFC format.

In cases required by chap. 16.1 of the EIR, the attributes in the submitted BIM models will be recorded bilingually (in Czech and English). This applies to both their names and to the recorded values of properties of the elements.

Dial values will be kept in bilingual form, in the English and the Czech language.

11 Method of coordination of information models

All models will be properly coordinated with each other. The coordination takes place in a pre-agreed and agreed software product, the results of coordination are transmitted through coordination protocols.

One coordination model of the building construction will be created for the whole building construction. This will consist of sub-models of individual SOs, PSs or sub-models of agreed parts (i.e. the scope of a sub-model may

not always respect the division into SOs, PSs). This model is used for mutual coordination of sub-models, for collision detection, for displaying the entire building construction, for displaying individual stages of construction across the object structure, creating overall sections, etc.

The coordination model is a separate file that contains sub-models.

The models are handed over to the CLIENT coordinated, without obvious coordination defects and deficiencies.

12 Method of information exchange within the project

Data exchange will take place via the Common Data Environment (CDE).

The CDE is operated by the CLIENT throughout the duration of the project and provides a number of licenses to the OB 2 CONTRACTOR.

The exchange of data between the OB 2 CONTRACTOR and the CLIENT will take place exclusively via a common data environment. The CDE will be the only one source of information that collects, maintains, and send out important approved documents.

Positions and duties within CDE

Position	Company / Organization	Name and Surname	E-mail	Authorization
Project Manager	ŠKO-ENERGO	Ondřej Hlaváček	Ondrej.Hlavacek2@sko-energo.cz	+420732172761
BIM Project Manager	di5 architekti inženýři	Tomáš Minka	Minka@di5.cz	+420603552534
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Lead Model Maker	Valmet Oy	Ville-Samuli Aulen	ville-samuli.aulen@valmet.com	+358505292414
Model Maker	Valmet Oy	Andrey Abrosimov	andrey.abrosimov@valmet.com	+358503076407
Others	Valmet Oy	Maria Hernesniemi	maria.hernesniemi@valmetpartners.com	+358504605892

Basic layout of folders

The OB 2 CONTRACTOR will propose a basic division of components according to their good practice.

Document statuses

In accordance with ČSN EN ISO19650, the following statuses are recorded for all documents (without exception) within the CDE:

- Work in progress (the document is being developed / its revision is in progress) (
- Shared (the document is shared with the CLIENT / sent for approval by the CLIENT),
- Published (the document that passed the WF approval process and was approved by the CLIENT
- Archived (the document that passed the WF approval process and was not approved by CLIENT

The “archived” status is used for the purpose of preservation of an overview of all information containers that have been shared and published in the course of the information management process, and of audit records about their sequential involvement.

Approval procedures (workflow)

They will be supplemented after the contract is signed.

File marking system

All project documents will be marked in a unified manner and named in accordance with the Client's method (particularly in case of document shares through the CDE). The marking system principle is described in the form of an example in Annex A13, document „PA7-2_2024-06-17 BCDE - značení dokumentace.xlsx“.

The marking system will be further specified with PMC's participation in the course of the preparation of BEP.

13 Bill of quantities / Dimension Statement

The Dimension statement will be created according to the selected price list system. The information model is the source of the data and manual calculations are minimized unless otherwise specified in exceptional cases. It is required to link the model to the creation of the Dimension statement in the main volumes, i.e. excavations, reinforced concrete structures. No binding is required for formwork calculation. A list of elements will also be generated from the model.

The dimension statements included in the list of works must match the dimensions included in the model.

14 Annexes

It will be supplemented in the BEP.