

Building Information Modeling: a number of considerations from the point of view of contract law

Everyone in the construction industry is now talking about Building Information Modeling, or "BIM" for short. The consultation document presenting the prSIA 2051 draft standard defines BIM as "a planning method in the construction industry containing the origination and management of digital models, including the physical and functional characteristics of a built asset or a landscape. The digital models thus represent an information database about matters concerning the structure or landscape. They are a reliable source for decisions during the entire life cycle, from strategic planning through to demolition". To date, however, there is no consolidated practice as to what BIM contains. That makes it impossible to make a comprehensive presentation of the contract-law aspects that are decisive for BIM in every imaginable constellation. Despite that, BIM is becoming a reality and it must, therefore, also be accorded its proper place within the decisive contracts. That is the background to the following paragraphs, which touch on a selection of aspects that particularly need to be dealt with in a BIM project – without making any claim to be exhaustive.

I. Terminology

There are various conceivable BIM constellations in a building project. In a situation in which only one of the parties involved (for instance the general planner) makes use of BIM without allowing the other parties to have access to their BIM model, we use the term "little BIM". This is the constellation in which there is the least need for clear rules. If, by contrast, several of the parties involved (owner, general planner, contractors, sub-planners, etc.) have access to the BIM model and can modify it, it is imperative to have a robust contractual basis for everything to do with BIM. This particular constellation is referred to as "big BIM". The next differentiation to be made depends on whether or not all the parties involved are using identical software. If they are indeed doing that, the term used is "closed BIM". If the persons designated in a building project are working with different software, the situation is known as "open BIM". In cases of open BIM, it is self-evident that the parties must agree on a regime for exchanging data (in other words data imports and exports),

without which the BIM project simply will not function at all. The following considerations refer in particular to big BIM projects, in which the parties involved work with different software (open BIM).

II. Project execution plan and BIM GTCs

In the absence of a definition of BIM standards in law and in the SIA set of standards, the parties must think carefully about the BIM structure and the responsibility of the parties involved before the project even starts. The BIM processes ought to be laid down in a BIM project execution plan (for which alternative names also occur, such as BIM specifications document or BIM project manual). The BIM project execution plan ("PEP") contains comprehensive definitions in particular of the tasks to be performed by the individual project participants, the project organisation, the BIM project's objectives, the project's milestones and phases, technical issues (such as interfaces and software) and the role of the BIM manager. The PEP must be declared to form an integral part of the contract of each and every project participant. That implies that it will have been determined with the parties involved in the project before the conclusion of contracts. Any subsequent modification to it would therefore represent an amendment to a contract, which would require the consent of all concerned. Since it is to be assumed that there will always be modifications to the PEP in the course of the project's life cycle and since obtaining declarations of consent from all the parties involved on each and every occasion would appear impracticable, the contract ought to make provision for the BIM manager (about whom more below) to have the right to make unilateral alterations to the PEP. That ought to be formulated in a balanced way in order to forestall the objection that the provision concerned is excessive and therefore invalid.

The PEP (which is to be understood as being primarily technical and organisational in nature) is not the same thing as the contract document, which settles the legal aspects of a particular BIM project. A uniform name for this document has not yet been established. Since, in the final analysis, it deals with general terms and conditions as far as BIM is concerned, we propose using

the term BIM GTCs. The PEP and the BIM GTCs become legally binding by all the parties involved declaring that they have the rank of an integral part of the contract when they conclude the contract.

III. Contractual provisions regarding BIM

Description and due dates

For a building project handled without BIM, the timing and scope of the performance to be delivered by a planner are basically to be taken from two regulations issued by the Swiss Society of Engineers and Architects (SIA), numbers 102 and 103. No corresponding regulation exists for BIM, and it is only possible in certain places to have recourse to the SIA standards, in particular because these standardisation works do not yet contain any descriptions of BIM deliverables, and the necessary timing for them does not correspond to the schedules envisaged in the existing SIA regulations. What is therefore of decisive importance is how the individual parties involved in a BIM project describe the deliverables required from each one of them. That is done in the PEP. By integrating that plan in the contract structure, for example in the contract between the owner and the general planner, the PEP becomes binding. It is thus essential to ensure that, when the contracts are concluded, each individual party to a contract has clearly defined tasks allotted to them and that these are laid down in the PEP.

One core element in every PEP is the provision stipulating the time at which data must be made available. It must, in particular, be clear when which planning stage is to be delivered. The term used in this respect is the level of development, or "LoD" for short. Planners would be well advised to take the agreed LoDs seriously and also the due dates applicable to each of them, because failure to deliver the data on time would mean they were defaulting. Not the least reason for avoiding that is that establishing whether or not data has been delivered punctually is going to be so much easier in future, thanks to the digital BIM models, than it has been with conventional planning methods. Before signing a contract, every planner ought therefore to verify whether delivery of the required data at the specified point in time is indeed realis-

tic and even if the data can be made available at all in accordance with the envisaged planning sequence.

Fees

There are no dependable values based on experience as to the extent to which BIM increases the workload on the planner or might even reduce it. Each planner ought therefore to consider for his or her individual case what impact the BIM activities allotted on them will have on their fees. These considerations must make their way into the pricing. With such a background, it seems at the very least to be questionable whether a fee derived from the construction costs makes sense for a BIM project. It appears, moreover, that in a BIM project there will be a shift in the bulk of the planning effort to an earlier point in time. For that reason, it is also worth evaluating the possibility of negotiating a shift in the percentage weighting of the fee for the individual SIA part-phases (i.e. moving a greater part of the fee into the actual construction phase and, depending on circumstances, even into the pre-project).

IT infrastructure and data exchange

For BIM to be able to function at all, it is indispensable for there to be agreement on what IT infrastructure is to be used. It must be clearly stated whether one of the participants in the project (for instance an institutional owner with their own BIM competence or a general planner) is to make software available to the other participants in the project (possibly charging for it) or whether they are going to have to acquire a software licence themselves (which implies that the contract defines a technical standard for data exchange). As part of the corresponding provisions, it must also be determined where the relevant data is to be saved, who is to have access to it and to what extent third parties are to be permitted – or even expected – to update the data. In the same context, a rule ought also to be laid down regarding the release of the data fed in for use by third parties. In addition to that, the contract must also contain provisions on how the BIM data is to be backed up and who is to bear the risk of data being lost.

BIM manager

The BIM processes need to be supervised and the collected data brought together and released for use by the other project participants. It may also happen that in the course of the project it becomes necessary to modify the PEP. These tasks are entrusted to the so-called BIM manager. The same principle applies once again

here, namely that a clear description of the tasks of the BIM manager must be included in the PEP (in the absence to date of any standardisation). Furthermore, the contract must state where the BIM manager fits into the organisational structure. It would be possible, in particular, for that to be with the owner, the general contractor or the general planner.

BIM coordinator

A distinction needs to be made between the BIM manager and the BIM coordinator. The typical tasks of the latter include determination of where there is need for coordination and what measures of coordination are to be adopted, checking and validation of the technical models and part-models (for instance clash detection), determination of the necessary corrections and amendments (in liaison with the overall project management and, if possible, with all the parties directly involved) and also releasing data for further processing.

Responsibility

It is usual for the BIM GTCs to contain provisions dealing with responsibility. That being so, one general rule worth considering is that each party involved in the building project is to be responsible only for their own area of activity. There ought to be no fundamental duty to check the data fed in by other parties. It is, nevertheless, advisable to include a provision requiring reporting of any errors positively detected in the data model of another party or that become so obvious when a party is working on their own data model that the defectiveness of the other party's planning would be striking even without needing any detailed auditing (by analogy with manifest deficiencies in conventional planning). The contract ought also to contain provisions dealing with liability for loss of data, liability for errors in the transmission of data and liability for mistakes that are made because of faults in the BIM software. In order to minimise the last-named risk, the exchange of data ought to be tested in a trial run under the supervision of the BIM manager. A similar procedure ought also to be adopted for handling software updates.

Acceptance and time limits

It is in the nature of a BIM project that data is constantly being made available. If the work of BIM planning is legally qualified as a contract for work and services (Werkvertrag), the question arises as to the relevant time at which the performance is approved for the purpose of establishing the guarantee time limits (Art. 371 CO). In order to avoid uncertainty here, it is recommended

that a uniform definition of the point in time for the delivery be included in the BIM contract. It is also advisable for the contract to contain clear provisions dealing with the issue of time limits for inspection and notification of defects.

Rights to use the BIM model

The BIM contract must settle questions of intellectual property law. It is evident that the parties involved in the project must be able to use the BIM data model of the other project participants to the extent that that is necessary for creating their own BIM model for the specific project. The BIM GTCs ought therefore to state that in an appropriate manner.

The contract must, moreover, contain provisions on whether or not the participants are permitted to use their BIM model for other BIM projects. The more BIM data a planner feeds in and the more time a planner has spent on perfecting their BIM model, the greater will be their motivation to be able to use the results of their work again. In certain cases, this will clash with the owner's interests, such as in instances in which the BIM data includes information that is relevant for security or if the owner has an interest in confidentiality for commercial reasons. Building owners will strive for data sovereignty. In other words, they will want to use the BIM model not just for construction of the one building but for further applications too. It might feasibly be used for the maintenance and operation of the built asset or for later projects (such as construction in a second location of a replica of a factory building that has been planned and erected in a first location or for extensions to be made to the building). It can be forecast even now that owners will push to have as many rights as possible accorded to themselves in this respect. Even if the planner is not going to be able to reject all such wishes expressed by the owner out of hand, it is, on the other hand, at least conceivable that the planner and owner may, on a case-by-case basis, agree that the planner will be able to share in the use of the BIM model in future, as long as the owner has no security or confidentiality interests that would oppose that.

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Dr. Bernd Hauck
bernd.hauck@kellerhals-carrard.ch

Dr. Fabrizio Gabrielli
fabrizio.gabrielli@kellerhals-carrard.ch

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Basel

Hirschgaesslein 11
P.O. Box 257
CH-4010 Basel
Tel. +41 58 200 30 00
Fax +41 58 200 30 11

Berne

Effingerstrasse 1
P.O. Box
CH-3001 Berne
Tel. +41 58 200 35 00
Fax +41 58 200 35 11

Lausanne

Place Saint-François 1
P.O. Box 7191
CH-1002 Lausanne
Tel. +41 58 200 33 00
Fax +41 58 200 33 11

Sion

Rue du Scex 4
P.O. Box 317
CH-1951 Sion
Tel. + 41 58 200 34 00
Fax + 41 58 200 34 11

Zurich

Raemistrasse 5
P.O. Box
CH-8024 Zurich
Tel. +41 58 200 39 00
Fax +41 58 200 39 11