

# Regulation concerning the use of information and communication technology (ICT) in public construction

Pursuant to Section 2(1), Section 5(1), Section 8 and Section 8a of the Danish Act on Public Construction Activities, cf. Consolidated Act no. 1712 of 16 December 2010, as amended by Act no. 623 of 14 July 2011, the following is laid down:

## *Area of application*

**1.-(1)** The Regulation applies to the construction of buildings, the conversion and extension of buildings, the renovation and maintenance of buildings, and facilities related to such buildings with regard to:

- 1) Construction with the Danish State as the Client for an estimated contract sum of DKK 5 million excluding VAT, or higher.
- 2) Construction for an estimated contract sum of DKK 5 million excluding VAT, or higher, of which at least 50 per cent is financed in full or in part by State loans or subsidies.
- 3) Construction for an estimated contract sum of DKK 5 million excluding VAT, or higher, for the use of institutions of which the operation is paid by the State, when the subsidy constitutes at least 50 per cent of the operational expenses.
- 4) Construction with a region or municipality as the Client for an estimated contract sum of DKK 20 million excluding VAT, or higher.
- 5) Construction for an estimated contract sum of DKK 20 million excluding VAT, or higher, which is financed in full or in part by loans or subsidies of at least 50 per cent from regions and municipalities.
- 6) Construction for an estimated contract sum of DKK 20 million excluding VAT, or higher, for the use of institutions of which the operation is paid by regions and municipalities, when the subsidy constitutes at least 50 per cent of the operational expenses.

(2) The Regulation does not apply to construction for which public support is granted pursuant to the Danish Act on Public Housing, etc., the Danish Act on Private Care Dwellings and the Danish Act on Urban Renewal and and Urban Development.

**2.-(1)** In conjunction with construction projects concerning renovation and maintenance, the Client may waive fulfilment of one or more of the Regulation's requirements if the costs of the fulfilment of the requirement(s) in question do not match the benefits.

(2) Nonetheless, the Client may not waive the regulations in Section 8 concerning digital invitations to tender and bids via a digital system.

## *ICT coordination*

**3.** The Client must ensure that throughout the construction project there is coordination of the overall use of ICT between all of the parties involved.

## *Handling of digital construction objects*

**4.-(1)** The Client must require that throughout the construction project digital construction objects are structured, classified, named, coded and identified on a uniform basis and to a specific degree of detail. In this respect the Client must require that the construction objects are provided with the information and characteristics that are of relevance to the subsequent management, operation and maintenance.

(2) The Client must ensure that guidelines are laid down for the handling of digital construction objects throughout the course of the construction project.

*Digital communication and projectweb, etc.*

**5.-(1)** The Client must require that a system be used for digital communication and archiving of all relevant information during the course of a construction project.

(2) The Client must ensure:

- 1) that a plan is drawn up concerning which parties are to make which information available in the system, and at which times;
- 2) that information can be obtained from the system and transferred to other systems, and that the plan that is drawn up includes specification of which transfers are required during the course of the project and on the completion of the construction work, cf. Section 10;
- 3) that the system includes access control, notifications and logs;
- 4) that it is determined which file formats are to be used; and
- 5) that it is determined which meta data is to be connected to the individual file types.

*Use of digital construction models*

**6.-(1)** As part of the competitive element of competition-based bidding rounds, the Client must require that the proposals received include digital, object-based construction models, as well as visualisations made on the basis of these models. Construction models and visualisations must document the proposals' architectural, functional and technical conditions at a specified information level.

(2) The Client must ensure:

- 1) that the competition programme outlines requirements of the models' structure and information content, cf. Section 4, based on the size, nature and complexity of the competition;
- 2) that the number and location of visualisations are determined on the basis of the size, nature and complexity of the competition; and
- 3) that object-based construction models are provided in IFC format.

**7.-(1)** During project design and execution the Client must require that object-based construction modelling be used.

(2) The Client must ensure:

- 1) that agreement is reached concerning which discipline and shared models are to be prepared;
- 2) that each of the parties with responsibility for models prepares the necessary discipline models, of which the content and use are specified in relation to the service provided by the individual party;
- 3) that discipline models are coordinated via one or several shared models for the purpose of simulation, clash detection, bill of quantities, drawings and specifications; and
- 4) that the models are made available in IFC format.

*Digital invitations to tender and bids*

**8.** The Client must require that for invitations to tender for construction works digital invitations to tender and bids are applied, by using a digital system. The tender documents must be drawn up so that, to a relevant extent, the documents can be used digitally by the bidders in conjunction with

their submission of bids, and so that bids are structured in accordance with the structure otherwise used in the construction project, cf. Section 4.

**9.** To the extent that the tender includes bill of quantities, the Client must ensure:

- 1) that bill of quantities are included in the tender documents;
- 2) that the tender documents for each contract include bills of quantities as well as relevant digital, object-based construction models from which quantities can be extracted;
- 3) that models are made available to the bidder in IFC format; and
- 4) that the tender documents show the basis on which the quantities are calculated, including the measurement rules and/or measurement methods that are used.

*Digital delivery on handing over the construction project*

**10.-(1)** In consultation with the Contractor, the Client must set requirements concerning the digital submission of the information that is deemed to be relevant for:

- 1) documentation of the construction work;
- 2) documentation of the construction project;
- 3) operation and maintenance; and
- 4) the future management of the property.

(2) The Client must ensure:

- 1) that digital delivery on the handover of the construction project is included in the agreements with advisers, contractors and suppliers;
- 2) that the agreements include the handover's extent, structure, classification, identification and formats; and
- 3) that object-based construction models are provided in IFC format.

*Digital information concerning defects*

**11.** The Client must ensure that digital lists of defects are used, which describe the registered defects in accordance with the structure determined for the project, cf. Section 4.

*Entry into force and transitional provisions*

**12.-(1)** The Regulation enters into force on 1 April 2013 and applies to construction projects that are initiated as from and including this date.

(2) Regulation no. 1381 of 13 December 2010 concerning requirements of the use of information and communication technology in construction projects is repealed as of 1 April 2013. However, the Regulation will continue to apply to construction projects that are initiated before 1 April 2013.