

## Checklist for tender documents for Step 1 of a Total Concept method

### The tender documents should include:

- Detailed specification of the assignment.
- Demands placed on the consultant, and on the deliverables, for example, with regard to the starting date, the delivery date and the documentation that should be provided.
- A general description of the property and the building in question.

In the tender documents the methods which will be used to evaluate the tenders, other than price, can also be indicated.

### The consultant's role and responsibilities

The assignment for the energy consultant consists of creating an action package for the specified building based on the Total Concept method and it comprises the following tasks:

- *Gathering of basic information about the building and compiling technical data.*
- *Carrying out an energy audit and drawing up a list of possible measures.* This must be carried out thoroughly and include both the building envelope and the technical installations (possibly excluding the tenant's own installations). The audit must be documented with the help of check lists, notes, photographs, measurements, etc. The consultant will normally decide if additional measurements are needed and, if so, see that they will be carried through.

The consultant draws up a list of *all* the technically and practically possible measures that can significantly reduce the use of energy. ***It is not only the individual and profitable measures that are to be identified but every measure that can have a reasonable effect on energy use.*** Initially, no economic evaluation is carried out.

- *Carrying out investment cost calculations.* Cost for each proposed measure is individually estimated based on the requirements set by the property owner/client (e.g. which costs will be included) and taking into account how the implementation of measures as an action package affects the costs. Every calculation must be well-documented and conditions, assumptions, origins of input data, calculation method and the results recorded.

- *Carrying out energy calculations.* The energy balance of the building is simulated with the help of validated calculation software. Energy savings are calculated for each measure, taking also into account the effects that each of the individual measures have on each other when the action package is formed. Every calculation must be well-documented and conditions, assumptions, origins of input data, calculation method and the results recorded.
- *The composition of an action package according to the Total Concept method.* The action package is put together based on successive step by step energy calculations outgoing from the whole building and by using the Total Concept calculation tool *Totaltool*. The results are illustrated on an internal rate of return diagram. List of measures included to the profitable package, their respective cost savings and investment costs as well as other relevant economic input data used for forming the package are to be carefully documented.
- *Forming of the report about Step 1.* The report must include: a summary of the project; current status of the building; its indoor climate; its technical systems; an overview of the current energy performance and energy statistics; input data used in the calculations. It should also include documentation about all the individual proposed measures in the action package and the action package as a whole, in figures and diagrams. The information in the report must be sufficient to enable a decision about if the measures are to be carried out and the project should continue to Step 2. A template for the report is available.

### **Requirements regarding the energy consultant's resources, competency and experience**

The tender documents should state that the following information is required about the consultant:

- The consultancy company's and the consultant's personal experience of energy efficiency improvement work in non-residential buildings similar to that in the assignment.
- The consultant's resources and competency regarding energy calculations. Information should be provided regarding which approved calculation programs are to be used and what experience the consultant has of energy calculations similar to those required by the Total Concept method.
- The consultant's personal resources, competency and experience of costing. The person(s) who will carry out the work should be specified.

### **Examples of details about the property that the consultant will need when starting the work:**

The property owner/client needs to provide together with the tender documents also a description of the building(s) in question. The consultant needs to evaluate the time and resources needed for the work. For example, following information can be relevant:

- The name of the property, address, area ( $\text{m}^2$ ) including a definition of how it is measured, information about the building use and operation.
- When built, any major rebuilding work done previously?
- Requirements on indoor climate and current status with indoor climate.
- Energy use MWh/yr, kWh/( $\text{m}^2 \cdot \text{yr}$ ) - heat, district cooling (if any), the electricity use for building operation and the tenant's electricity use.
- Water use  $\text{m}^3/\text{yr}$ , l/( $\text{m}^2 \cdot \text{yr}$ ) - cold water and warm water (if it is measured separately).
- General description of the ventilation systems in the building(s), number and type of systems and units, type of heat recovery in the units, type of flow control (CAV, VAV).
- General description of comfort cooling, type and number of comfort cooling systems (type of production), distribution (air based, water based)
- General description of heat production systems (for example, district heating, bio fuel boiler, heat pump), number of systems/substations
- Description of the building envelope and condition.
- Any planned rebuilding/refurbishment work - can they be coordinated?
- Information sources available for the auditing, e.g. drawings, technical descriptions, energy statistics, access to BMS system, etc. and quality of the information (for example, hourly/monthly measurements, measurements from sub-meters, as-built drawings).