



MountEE – Energy efficient and sustainable building
in European municipalities in mountain regions
IEE/11/007/SI2.615937

GUIDELINES FOR MODULE 5 “MAINTENANCE AND OPERATION” SUSTAINABLE:BUILDING IN MUNICIPALITIES DRAFT

Dietmar lenz, Sabine erber, Michael Braun, Karl Torghele

Dornbirn, 2 april 2013

Guidelines for Module 5 “Maintenance and Operation”

As part of the “MountEE” project, the “Sustainable:Building in the Municipality” service package (see <http://www.umweltverband.at/index.php?id=361>) is to be expanded by a Module 5, “Service and Maintenance”. An offer is also to be made concerning the evaluation of energy consumption alongside the consultation in the area of environmentally friendly cleaning.

1. Energy evaluation

Aims:

The aim of the future Module 5 is to assist municipalities in the phases following the new building or rehabilitation phase. Support for the municipalities will ensure that the constructed or rehabilitated building also achieves the planned energy consumption calculated and forecast during the consultation phase.

Reasons:

The need to provide assistance for buildings following the planning and construction phase is in particular a consequence of the ever more complex construction techniques and – especially in highly efficient buildings – of the increasing effects of user behaviour on energy consumption.

The adjustment and parameterisation of the construction techniques will thus have a particularly significant influence on both the energy consumption and the comfort experienced in the building. During the commissioning of the technical systems, the focus is above all on the functioning and smooth operation of such systems. The extent to which the configurations of the technical systems actually correspond to consumption-optimised operation is however often not analysed or can frequently only be accurately determined once the periods of use and the user behaviour have been established. These can of course be assumed when planning and adjusting the parameters for the facilities, but this will not always correspond to the actual, highly individual conduct of users.

It thus often only possible to establish optimum operating parameters for the technical facilities that correspond to the calculations following completion of the building and after a certain user familiarisation period.

Moreover, the energy consumption of solid buildings in the first year after completion is not representative, as considerable energy together with a high degree of air change is necessary to ensure the drying-out of the building.

Offer to the municipalities of Vorarlberg:

As part of Module 5 “Energy Evaluation”, the partners of the “Sustainable:Building in the Municipality” service package are offering individually tailored support for the evaluation of energy consumption and, together with the municipalities or the respective building man-

agements, are developing optimisation strategies and proposals to adapt the parameterisation of the existing construction techniques.

The following contents are in principle to be offered in respect of Energy Evaluation in Module 5:

1. Basis: detailed collection of energy consumption data

- Separate collection of the most significant energy consumption data using the KGA [*municipal building certification*] model
- Basis: calculation model with entry of individual usage profiles and building services equipment (PHPP calculation)

2. Documentation of energy consumption

- Support in collection of consumption and calculation data manually by the building manager or by entering the data e.g. in the <http://www.energycontrol.at> tool
- Calculation of the settings, parameterisations and conditions of the actual location: summer and winter temperatures, air change, user behaviour, etc.
- Definition of time intervals for documentation

3. Evaluation of energy consumption

- Comparison of calculation data with individualised usage profiles
- Parameter adjustment
- Weak point analysis and further measurements as necessary

4. Implementation of improvement measures

5. Control of the effects of the improvement measures implemented

The Client or the Building Operator will jointly decide on the basis of the actual requirements and needs which of the contents of Module 5 "Energy Evaluation" are to be applied to the specific project. An individual co-ordinated offer will then be drawn up.

The following texts should appear in the "Sustainable: Building in the Municipality Service Package" flyer:

Module 5 "Service and Maintenance"

Follow-up assistance – Evaluation of energy consumption

Aim and result

- *Optimised, energy-efficient building*
- *Agreement on calculations / energy consumption*

Contents

- *Support in collection of consumption and calculation data*
 - *Calculation of the settings, parameterisations and conditions of the actual location*
 - *Comparison of calculation data with individualised usage profiles/parameter adjustment*
 - *Weak point analysis and further measurements as necessary*
 - *Implementation/proposals of improvement measures*
 - *Control of the effects of the improvement measures implemented*
-

2. Cleaning

Aims:

To ensure the optimum ecological construction of buildings, appropriate steps will be taken in order to considerably reduce the harmful substances present in interiors.

The aim is also to perform the final building cleaning, the regular maintenance cleaning and the basic cleaning of buildings in such a way that the harmful substances in interiors are minimised. The actual cleaning tasks (i.e. maintaining value, improving surface appearance and observance of hygiene requirements) are of course also to be performed.

Cleaning must also represent value for money for the Client.

Reasons:

Examples show that the use of chemicals in cleaning can be reduced by 75% through the use of appropriate measures. Water requirements too can be reduced by 20%.

Cleaning chemicals should in principle only be used where this is actually necessary. Cleaning should as far as possible be performed using fibre technologies. If chemical products are (or must be) used, the products must comply with the requirements of the Austrian Ecolabel or the European Ecolabel.

Reducing the chemicals used in cleaning also makes matters simpler for cleaning staff. Exposure of staff to chemicals can in particular be considerably reduced.

Optimised cleaning operations should form part of the pre-planning and planning phases of building projects: surfaces that are difficult to clean or can only be cleaned using chemicals are to be avoided, while appropriate cleaning rooms should be provided to ensure efficient cleaning.

Offer to the municipalities of Vorarlberg:

As part of Module 5 "Cleaning", the partners of the "Sustainable:Building in the Municipality" service package are offering individually tailored support for the respective buildings and needs of the Client to take into account the cleaning aspects during the pre-planning, planning, implementation and utilisation phases.

The following contents are in principle to be offered in respect of Cleaning in Module 5:

1. Optimisation of planning from a cleaning perspective:

- Formulation of principles during the architectural competition
- Statement in the submitted plans and detailed plans
- Indicate various cleaning-relevant aspects in the ecological programme (e.g. hanging WC partitions, easily cleanable cloakroom, window cleaning possibilities)

2. Review of materials list

- Comments on the materials list (surfaces) provided by the architect as regards the following aspects: how often must the surfaces be cleaned, how chemical-intensive must cleaning be and what is the expected service life of the building products.

3. Support in bidding process for building cleaning

- Assistance in the development of a building cleaning concept
- Set criteria for building cleaning
- External assistance for final building cleaning

4. Development of a cleaning and care concept for regular maintenance cleaning

- Development of a concept for all rooms, surfaces and usages

5. Definition of criteria for cleaning products and fibres

- Based on the criteria of the Austrian Ecolabel or the European Ecolabel

The Client or the Building Operator will jointly decide on the basis of the actual requirements and needs which of the contents of Module 5 "Cleaning" are to be applied to the specific project. An individual co-ordinated offer will then be drawn up.

The following texts should appear in the "Sustainable: Building in the Municipality Service Package" flyer:

Module 5 Service and Maintenance Cleaning

Aim and result

- *Environmentally friendly cleaning with minimal chemical usage and minimal exposure of cleaning staff or of users to harmful substances*
- *Ensuring economical cleaning*

Contents

- *Support in the planning phase to ensure environmentally responsible cleaning*
 - *Comments on the materials list from a cleaning perspective*
 - *Support in bidding process for building cleaning*
 - *Development of a cleaning and care concept for regular maintenance cleaning*
-