IBCI Conference 2003

Carraig Mhacaire Rois

Building control in Norway and the Norwegian regulatory system

Olav Ø. Berge
Director General

NATIONAL OFFICE OF BUILDING TECHNOLOGY AND ADMINISTRATION
Structure of the authorities - Norway

THE GOVERNMENT

MINISTRY OF LOCAL GOVERNMENT AND REGIONAL DEVELOPMENT

NATIONAL OFFICE OF BUILDING TECHNOLOGY AND ADMINISTRATION

MINISTRY OF THE ENVIRONMENT

CENTRAL OFFICE OF HISTORICAL MONUMENTS

COUNTY GOVERNOR

LOCAL AUTHORITY
Norway
Hierarchy of building regulations

1. Building act
2. Building Regulations
   - (Local rules)
   - Standards (NS, EN, ISO)
   - Building Research Design Sheets
Regulatory system - levels

Level 1 - building code
  functional requirements

Level 2 - guide lines
  performance criteria

Level 3 - specifications (standards etc)
  accept criteria
Building Research Design Sheets
Subseries

Architectural Planning

Building Details

Building Management and Maintenance
Building Research Design Sheets -
Tool for quality management

- BRDS satisfy the building regulations (functional requirements)
- BRDS have references to the building regulations
- The Guidelines for the Building Regulations give references to the BRDS
- BRDS are coordinated with the Norwegian standards
- BRDS give acceptable solutions
The vision

Building defects accounts for 2.5% of the annual turnover of the construction industry

More stringent rules setting out clear levels of liability, improved control, qualifications and more effective sanctions shall result in improved quality of the built environment
<table>
<thead>
<tr>
<th>Causes of building defects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Client specifications</td>
<td>20 %</td>
</tr>
<tr>
<td>Insufficient design</td>
<td>20 %</td>
</tr>
<tr>
<td>Design faults</td>
<td>20 %</td>
</tr>
<tr>
<td>Faults in execution</td>
<td>30 %</td>
</tr>
<tr>
<td>Products and materials</td>
<td>10 %</td>
</tr>
</tbody>
</table>
Changes in the Act

- From building control to surveillance of control
- New procedural rules
- Need for improved knowledge
- Approval of firms for design and execution
- Systems
- New rules for accountability
- Improved quality
Local authority tasks

• To ascertain that the actors have adequate competence
• To ensure that that the planning of and the execution of control is adequate
• To participate in the preliminary conference as required
Documentation of compliance with the code

- Preliminary conference
  - Current regulations

- Solution
  - Concept
  - Framework permit

- Solution
  - Design
  - Building permit

- Execution
  - Control
  - Final works «as built»
Clients tasks

May be instructed to rectify in case of:

- areas of liability not having assigned competent actors
- there being difficulty in clarifying the actor responsible to rectify faults

The client has a duty to:

- ensure that the framework conditions as specified at the preliminary project meeting is made known
- that works exempt from requirement to apply for building permit complies with the regulations.
New areas of liability

Design /application → execution → completion

Accountable applicant
- Accountable designer
- Accountable designer
- Accountable designer

Accountable coordinator
- Accountable contractor
- Accountable contractor
- All accountable parties

Control
- Internal/independent
- Internal/independent
- Internal/independent
Classification of works

Class 1
simple works with
minor consequences

Class 2
small degree of difficulty and
medium consequences
medium degree of difficulty
and minor to medium
consequences

Class 3
medium degree of difficulty
and serious consequences
large degree of difficulty and
minor, medium or large
consequences
<table>
<thead>
<tr>
<th>Role</th>
<th>Activity</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant</td>
<td>Building design</td>
<td>2</td>
</tr>
<tr>
<td>Designer and design controller</td>
<td>Architectural</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Building physics</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Structural</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Geotechnical</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical services</td>
<td>2</td>
</tr>
<tr>
<td>Contractor and execution controller</td>
<td>Digging, trenching</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Concreting</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Building works</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sanitary &amp; plumbing works</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sprinkler</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Ventilation</td>
<td>2</td>
</tr>
</tbody>
</table>
Control plans

- Framework permit
- Building program/design
- Internal control /-independent control
- Building permit
- Control plan for design
- Control plan for execution
- Completion
Conditions for approval of firms

registered company
educational level of staff
experience
knowledge of the planning and building act
quality system
# Surveillance Report

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commencing without bldg permit</td>
<td>27%</td>
</tr>
<tr>
<td>Faulty execution</td>
<td>14%</td>
</tr>
<tr>
<td>Inadequate control</td>
<td>22%</td>
</tr>
<tr>
<td>Inadequate application</td>
<td>15%</td>
</tr>
<tr>
<td>Faulty design</td>
<td>5%</td>
</tr>
<tr>
<td>Inadequate deviation handling</td>
<td>3%</td>
</tr>
<tr>
<td>Occupation before authorisation</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
</tbody>
</table>
Quality Systems Ranking

a) the system is adequate and in use
b) the system exists, but should be improved and employed

c) the system should be improved and will be checked on renewal (no immediate action)

d) the system has shortcomings and must be improved (Requirements will be specified)
e) the system has serious shortcomings, or is not in use. (Requirements will be specified)
f) the system is evidently not in existence
   Documentation shall be submitted without delay.
## Quality systems
### Statistical survey 52 firms

<table>
<thead>
<tr>
<th>Categories</th>
<th>total</th>
<th>a)</th>
<th>b)</th>
<th>c)</th>
<th>d)</th>
<th>e)</th>
<th>f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Architects</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Consultants</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 House builders</td>
<td>16</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4 Contractors</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 Other builders</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Plant contractors</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7 Building services</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8 Contr. managemnt.</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Specialist cont.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10 Turnkey contractors</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Where to place the quality bar
The vision

- All information necessary to submit a complete application for building permit shall be available on internet
  - Applications may be sent, fees may be paid and permits may be received by internet
  - Status and progress in passing the plans may be monitored by internet
Application on Internet

Company system

Project hotel

Statistical Planning

NOBTA

Application hotel
• standard base
  necessary
  information
• Local authority status

LA.by-laws

Local Authority passing permit
On the web

www.be.no