CURRENT STATUS IN THE ELABORATION OF NDPs AND NAs OF THE EUROCODES IN MOLDOVA

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Republic of Moldova Law “On quality in construction” No 721 (February 02, 1996) - the focus on major socio-economic principles:

• protection of health and lives of humans and domestic animals;

• protection of property and the environment;

• rational use of natural, material, energy and human resources.

BUILDING CAPACITIES FOR ELABORATION OF NDPs AND NAs OF THE EUROCODES IN THE BALKAN REGION

4-5 November 2014, Skopje

SNiP - construction norms and regulations
GOST - approved system of national standards

About 2,000 regulations in construction SNiP and GOST developed in the old days in the Soviet Union
Association agreement EU-Republic of Moldova

- June 27, 2014, Brussels – signing an Association Agreement with the European Union, providing entry into the EU free trade zone
- July 2, 2014, Chișinău – ratification of Moldova-EU Association Agreement by the RM Parliament

Objectives
- deeper political and economical integration between the EU and Moldova;
- adoption of the European standards in the area of economics

### Technical regulations and standards in construction ≡ Eurocodes

<table>
<thead>
<tr>
<th>Eurocode</th>
<th>Eurocode Title</th>
<th>Analogical Moldovan standard</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 1990</td>
<td>Basis of structural design</td>
<td>GOST 27751- 88</td>
<td>Reliability of structures and foundations. Principal calculation rules</td>
</tr>
<tr>
<td>EN 1991</td>
<td>Actions on structures</td>
<td>SNiP 2.01.07-85*</td>
<td>Loads and actions</td>
</tr>
<tr>
<td>EN 1993</td>
<td>Design of steel structures</td>
<td>SNiP II-23-81*</td>
<td>Steel structures</td>
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<tr>
<td>EN 1994</td>
<td>Design of composite steel and concrete structures</td>
<td>-</td>
<td>-</td>
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<tr>
<td>EN 1995</td>
<td>Design of timber structures</td>
<td>NCM F.05.01-2007</td>
<td>Wood constructions Designing timber constructions</td>
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<tr>
<td>EN 1996</td>
<td>Design of masonry structures</td>
<td>NCM F.03.02-2005</td>
<td>Masonry structures Design of masonry structural wall buildings</td>
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<tr>
<td>EN 1997</td>
<td>Geotechnical design</td>
<td>SNiP 2.02.01-83*, SNiP 2.02.03-85</td>
<td>Foundations of structures Pile foundations</td>
</tr>
<tr>
<td>EN 1998</td>
<td>Design of structures for earthquake resistance</td>
<td>SNiP II-7-81*</td>
<td>Construction in Seismic Areas</td>
</tr>
<tr>
<td>EN 1999</td>
<td>Design of aluminium structures</td>
<td>SNiP 2.03.06-85</td>
<td>Aluminium structures</td>
</tr>
</tbody>
</table>
Eurocodes implementation. Current situation

• 2010-2011 - adoption of frame Eurocodes as national ones, without national provisions (NAs).
• 2012 - theoretical comparative analysis of the parameters carried out at the national level (NDPs), with the Romanian national provisions borrowed as a basis.
• National Annexes of the Republic of Kazakhstan and the Ukraine taken into consideration, as of the countries located in seismic zones.
Elaboration of NDPs and NAs of the Eurocodes: some differences

The specific-conditions-of-use factor

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<tr>
<td>0.85-1.1</td>
<td>1.5</td>
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</table>

Values of snow loads

<table>
<thead>
<tr>
<th>SNiP 2.01.07-85 «Loads and actions»</th>
<th>Eurocode EN 1991-1-3 Actions on structures - Part 1-3: General actions - Snow loads</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kg/m² - estimated minimum, 70-80 kg/m² - estimated maximum</td>
<td>150-200 kg/m² - maximum loads</td>
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</tbody>
</table>

Ratio of the seismic load estimated by means of spectral calculation methods (Moldova) with the transition to dynamic calculation method (EU) increase by 1.4
Elaboration of NDPs and NAs of the Eurocodes

According to comparative analysis, there are differences in:
- methodology;
- terminology;
- requirements for building materials, determined by the difference of operating conditions and initial components.

• For EN Eurocode 1992 «Design of concrete structures» - over 100 parameters determined at the national level (NDPs);

• Various factors, amount of shrinkage, concrete creep, thickness of the concrete cover to reinforcement depending on operating environment and so on.
Elaboration of NDPs and NAs of the Eurocodes

Document development since 2013:
National Annex to
- EN 1990 «Basis of structural design»;
- EN 1991 «Actions on structures»;
- EN 1992 «Design of concrete structures». 
Elaboration of NDPs and NAs of the Eurocodes

CHALLENGES

- Lack of sufficient funding for approbation of national provisions;
- Lack of well-equipped testing laboratories,
- Lack of qualified personnel;
- Outdated software used for surveillance and design work.

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Eurocodes implementation. Opportunities

**SOLUTIONS**
- Cooperation agreements signed with the Romanian developers of national provisions,
- Project for funding adaptation and implementation of the Eurocodes drafted,
- National program for the implementation of the Eurocodes under development,
- The latter covering: re-equipment of testing laboratories, training of students being qualified for architecture and construction, retraining of specialists in accordance with Eurocodes-based educational and methodical literature, training of personnel for regulatory assessment body, surveillance bodies, and staff for design and construction companies.
Eurocodes implementation. Next steps

Over 1275 European standards adopted as national.

Further updating and harmonizing the existing standards and regulations with European ones, with the RM Ministry of Regional Development and Construction in charge.
Thank you for your attention!

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Useful links:

INCERCOM State Scientific and Research Institute in Construction
(www.incercom.md)

National Institute for Standardization
(www.standard.md)

National portal for construction regulations (www.ednc.gov.md)