



Boverket

Myndigheten för samhällsplanering,
byggande och boende

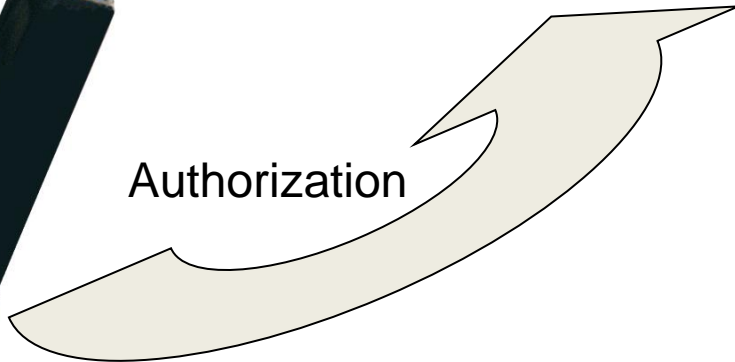
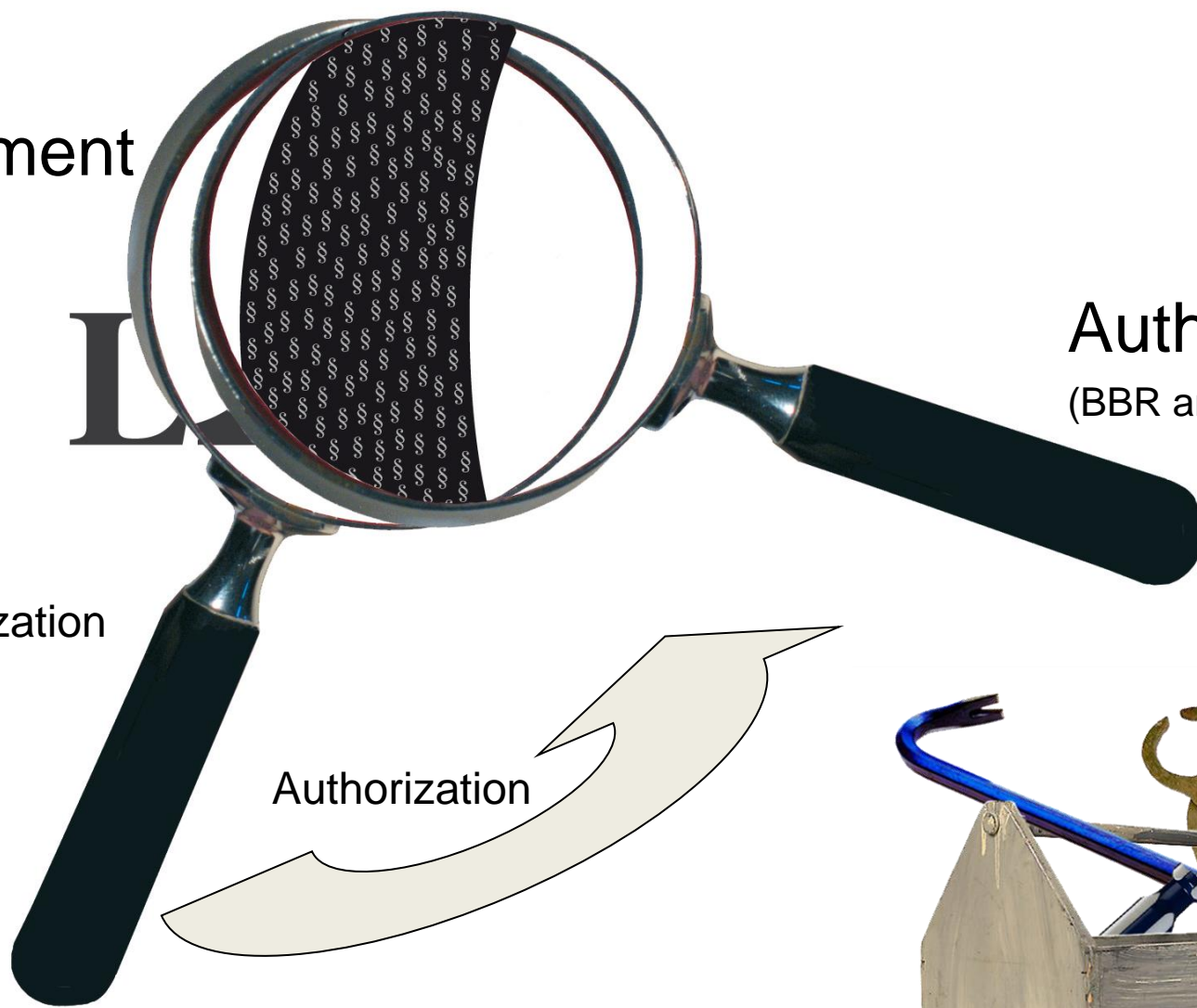
Verification of Swedish building regulations (BBR and EKS)

Anders Larsson

Parliament
(PBL)

Authority
(BBR and EKS)

Law



Government
(PBF)



General
recommendations

The legislative system



- The Planning and Building Act (PBL)
- The Planning and Building Ordinance (PBF)
- Boverket's building regulations – mandatory provisions and general recommendations (BBR)
- Boverket's mandatory provisions and general recommendations on the application of European design standards (Eurocodes) (EKS)

BBR



The content of BBR;

1. [Introduction](#)
2. [General rules for buildings](#)
3. [Accessibility, dwelling design, room height, and utility rooms](#)
4. Mechanical resistance and stability
5. [Safety in case of fire](#)
6. [Hygiene, health and environment](#)
7. [Protection against noise](#)
8. [Safety in use](#)
9. [Energy management](#)



EKS

(Application of the European construction standards)



Content of the EKS

The different Euro codes are;

1. EN 1990, Euro code – Basis of structural design
2. EN 1991, Euro code 1 – Action on structures
3. EN 1992, Euro code 2 – Design of Concrete structures
4. EN 1993, Euro code 3 – Design of Steel structures
5. EN 1994, Euro code 4 – Design of composite Steel and Concrete structures
6. EN 1995, Euro code 5 – Design of timber structures
7. EN 1996, Euro code 6 – Design of masonry structures
8. EN 1997, Euro code 7 – Geotechnical design
9. EN 1998, Euro code 8 – Design of structures for Earthquake resistance
10. EN 1999, Euro code 9 – Design of aluminium structures

The process

Building Permit



A Building Permit is required to:

- Erect a new building
- Make extensions to a building
- Use a building for new purposes
- Make external alterations

The process

Notification

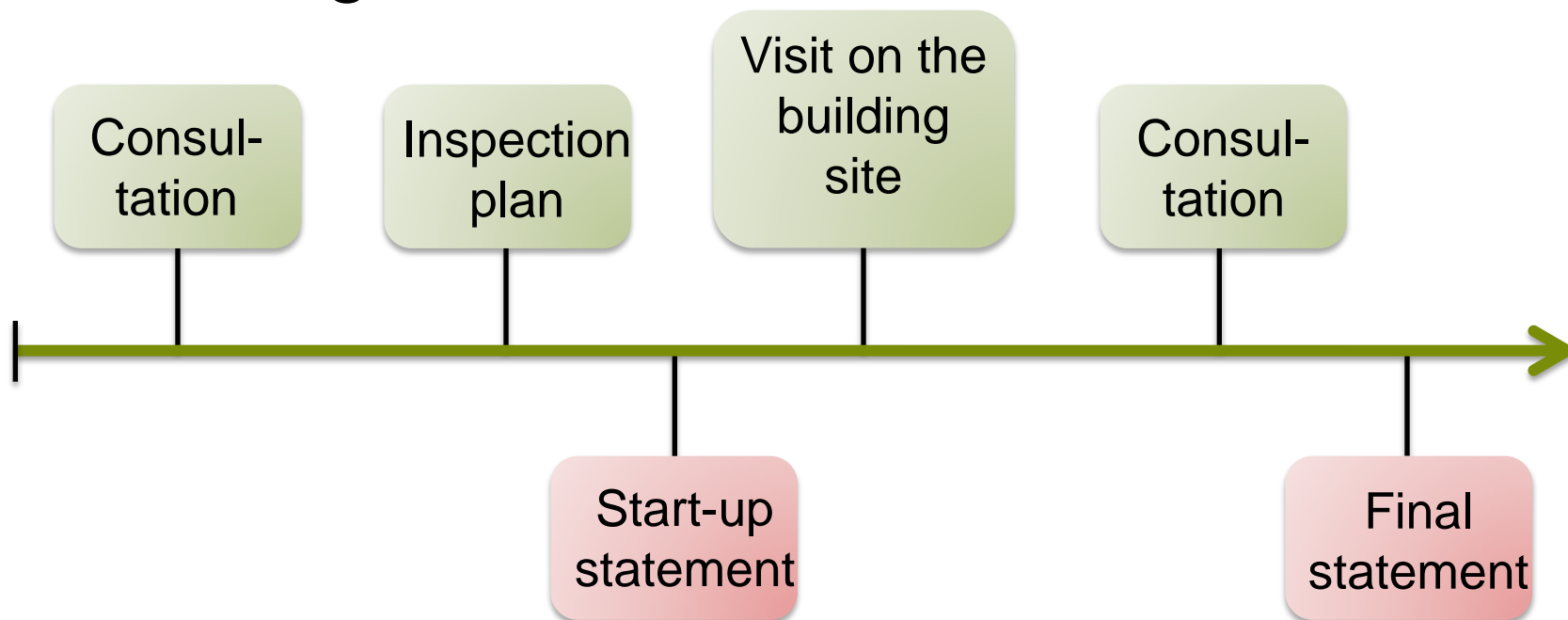


If a Building Permit is not required,
a Notification is required for:

- Alterations that affect the load-bearing structure or substantially affect the layout plan
- Installation or substantial alteration of elevators, fireplaces, flues or ventilation constructions
- Installation or substantial alteration of facilities for water supply or sewage
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The process

Building works



The process

Actors

- The Local Building Committee (The Building Inspector)
- The Client/owner (The person building or ordering the building to be built)
- The Responsible for Inspections and verifications

If the Local Building Committee finds lack of competence in the organization of the Client/owner it may demand that experts in certain areas should be contracted by the Client/owner;

- Cultural values
- Accessibility
- Energy
- Fire safety

The process

Responsibilities

The Client/owner is solely responsible towards the Building Committee.

Designers and contractors are responsible towards the Client/owner via civil agreements.



Verification



The client/owner has to ensure that the finished building meets the requirements set out in PBL, PBF, BBR and EKS.

Verification may be made either at the design stage, the construction stage, in the finished building or any combination thereof.

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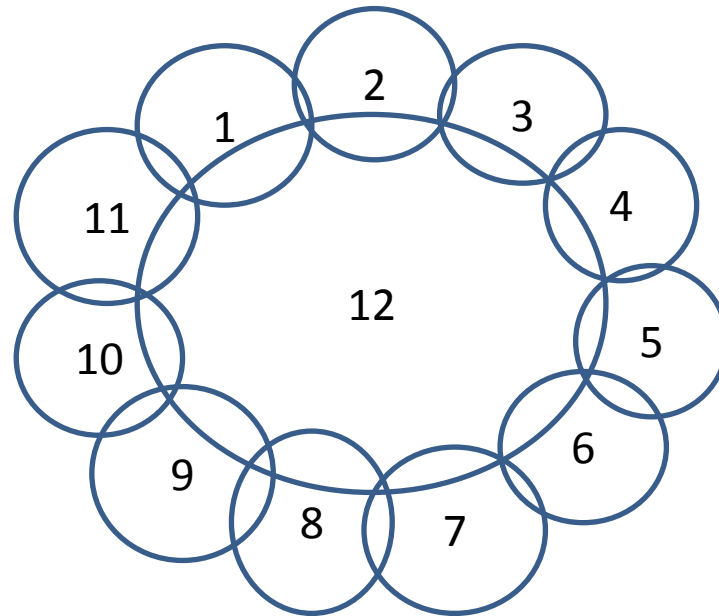
The inspection plan



The inspection plan is used to point out what should be checked, who should do it, how it should be done etc.

It shall be relevant for the project in question and can be more or less extensive depending on the actual situation, i.e. the complexity of the project, the competence provided in the organization etc.

Chain of security, EKS Section A



Chain of security, EKS Section A

1. Durability, article 7
2. Project design, article 12
3. Design models and methods, article 10
4. Design, article 9 (Calculation and testing)
5. Materials, article 11
6. Blueprints and other documents (not explicit)
7. Design inspection, article 13 (Class 2 and 3, EKS Sec. B)
8. Execution, article 12
9. Acceptance inspection, article 14
10. Inspection of execution, article 15
11. Documentation, article 18
12. Connecting Link (not explicit)

Fire safety - design



Section 5:11 BBR:

Fire safety protection shall be designed, developed and verified through

- prescriptive design or
- analytical design.

The inspection plan is used to check that relevant methods and solutions are applied.

Fire safety documentation



A fire protection documentation shall be prepared.

It shall include information about:

- Conditions for the fire protection
- How the completed building's fire protection is designed
- Verifications that the fire protection complies with the relevant requirements

How to ensure that proper building materials are used



The choice of building materials has to be made in such a way that you can be sure they will be suitable for the intended use.

Construction products with certified properties;

- CE-marked,
- Type-approved and/or factory production controlled
- certified by an accredited body
- made in a factory which has a manufacturing and production control that is continuously monitored

CE-marking



- Products covered by a harmonised European standard, hEN, must be delivered followed by a declaration of performance, DoP, together with a CE mark
- If not covered by such a hEN the manufacturer can have a voluntary developed European technical assessment, ETA, made, from which a CE-mark can be evolved from.
- A designated Technical body, TAB, can help with this.

Type-approval, certification of products or continuously monitored factory production



The alternatives;

- the old Swedish type-mark,
- certification of products or
- continuously monitored factory production

can only be used if it is not possible to CE-mark the product.



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Thank you for your attention!

Anders Larsson