



Foto: Skanska

## Who is DUKO

**DUKO** Dansk Undertagsklassifikationsordning ApS (Danish Roof Underlay Classification Scheme) is an independent supplier of information set up by principal actors working with quality in Danish building construction on a daily basis.

**DUKO was founded by** Dansk Byggeri Byggematerialeindustrien under Dansk Industri Byggeskadefonden BvB (Byggeskadefonden vedrørende Bygningsfornyelse) Statens Byggeforskningsinstitut (SBI).

**DUKO's secretariat function** is handled by the Danish Building Research Institute.

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# Choosing the wrong ROOF UNDERLAY can be expensive

## The roof underlay helps keep the water out



### ■ The underlay ensures roof tightness

At the end of the day, it is the underlay which ensures that your roof remains impervious to the snow and rain that penetrates the roof covering. Underlays can be grouped into rigid underlays, board or panel underlays intended for use without flexible sheeting, and flexible sheet underlays. One example of a rigid underlay is plywood boards covered with roofing felt, and one type of board underlay intended for use without flexible sheeting is wax-coated hardwood fibreboard. Flexible sheet underlay is supplied in rolls and, used alone, is draped as an unsupported membrane. Normally, a rigid underlay will be the most expensive and a flexible sheet underlay the least expensive.

### ■ Far too many “wrong” underlays

For many years, people have had problems with underlays that were incorrectly installed or the wrong type for the roofing used. In these cases, water can penetrate into the underlying structure of the building and result in serious damage from dry rot or fungus. This is not only inconvenient; it can also be very expensive. If a roof underlay has to be repaired or replaced, all the roofing has to be taken off first, and that is expensive.

### ■ So think twice before you choose an underlay. Selecting the wrong one can be expensive.



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**DUKO** (Dansk Undertagsklassifikationsordning ApS) is an independent Web-based information scheme whose purpose is to help developers and consultants choose the correct underlay.

**DUKO** provides an **overview** and makes it easier to find the underlay that suits your roof and building.

**DUKO** divides underlay products into different exposure classes and requires suppliers to submit documentation of the **properties** of their products.

**DUKO** helps ensure **correct installation**, also by requiring manufacturers to prepare detailed instructions in how to use the different underlay products correctly.

**DUKO** can be found at [www.duko.dk](http://www.duko.dk).



## How to use www.duko.dk



At [www.duko.dk](http://www.duko.dk), you can find out in just two steps which underlay materials best suit your roof and building.

### 1 Selecting an exposure class

Tick the boxes that apply to your building and the roof that needs an underlay. Using this information, DUKO will calculate and define the exposure class your underlay should have.

### 2 Selecting a product

Once you find out what exposure class DUKO recommends, click on the next step “Select underlay material” to find a list of DUKO-classified underlay materials.

#### Get expert advice

Building owners should always seek expert guidance in selecting the correct underlay solution. Contact an architect, an engineer or technical consultant for assistance.

## Selecting an exposure class

There are five factors that determine the requirements your underlay should meet and thus the exposure class it should belong to:

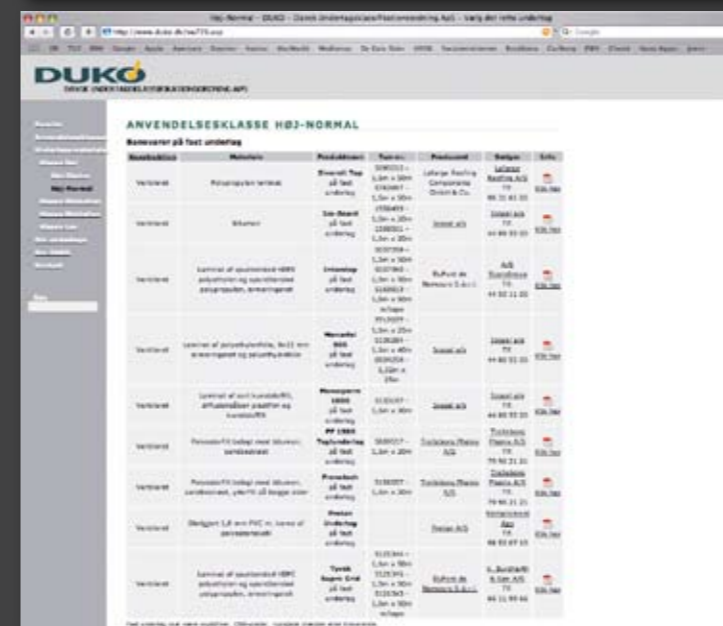
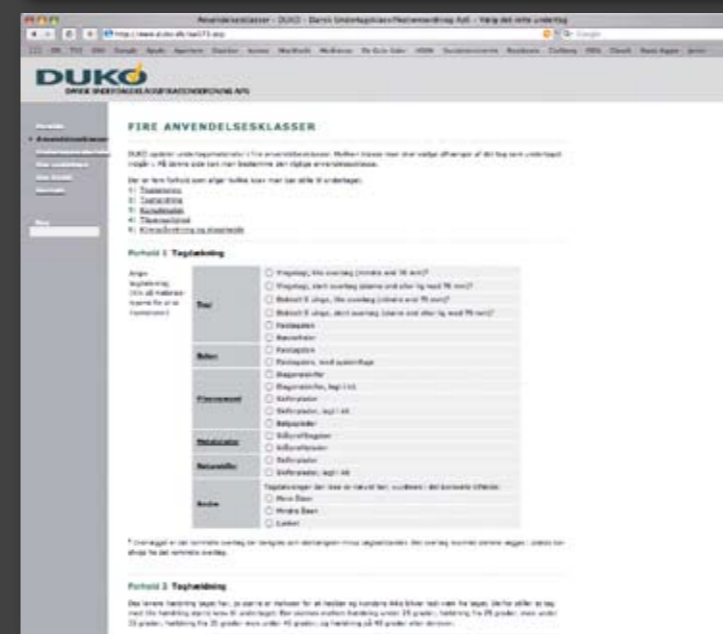
**Roofing** ■ Open roofing such as pantiles or natural slate demands more from underlay materials than more watertight roofing such as concrete tile or metal sheeting.

**Roof pitch** ■ The lower the pitch (slope) of a roof, the greater the risk that precipitation and condensate will not be drawn off and away from the roof. This is why a low-pitched roof makes greater demands on the underlay

**Complexity** ■ A simple roof with simple penetrations is low in complexity, whilst a roof with large penetrations and/or relatively difficult details is high in complexity. High complexity makes great demands on the properties of the roof underlay material.

**Accessibility** ■ It is easier to discover and repair possible damage if you have good access to the roof underlay. We differentiate between accessible and difficult-to-access underlays.

**Climate impact and storey height** ■ A location exposed to the elements can put a strain on the roof from high winds, driving rain or drifting snow. The cost of putting up scaffolding to repair any damage increases dramatically with the storey height of the building.



## Selecting a product

■ **Exposure classes**  
DUKO groups roof underlay products into exposure classes. The more that is required of the underlay in the way of reliability and quality, the higher the exposure class the underlay product should have:

■ **Lav (“Low”) – Middellav (“Medium Low”) – Middelhøj (“Medium High”) – Høj (“High”)**

Furthermore DUKO uses the supplying class Høj ekstra (“High extra”) for underlay products to be used under high demand conditions.

#### ■ Underlay products at [www.duko.dk](http://www.duko.dk)

At [www.duko.dk](http://www.duko.dk) you can find a general list of products DUKO has classified within each of the four exposure classes. This list is kept up to date by the Danish Building Research Institute (Statens Byggeforskningsinstitut), which is also the body that assigns each product a classification.

Manufacturers and suppliers can have their underlay products classified for a fee. Before a product can be assigned a classification, its manufacturer must be able to document a number of parameters such as strength, weather resistance and buildability whilst also supplying DUKO with detailed installation instructions.

The list of products is updated regularly.