ARCHITECTURAL ATMOSPHERE IN LEARNING ENVIRONMENTS

- DAYLIGHT IN PRACTICE

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AART / architects

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DAYLIGHT IN LEARNING ENVIRONMENTS // **SKOLEN VED SUNDET 1938**

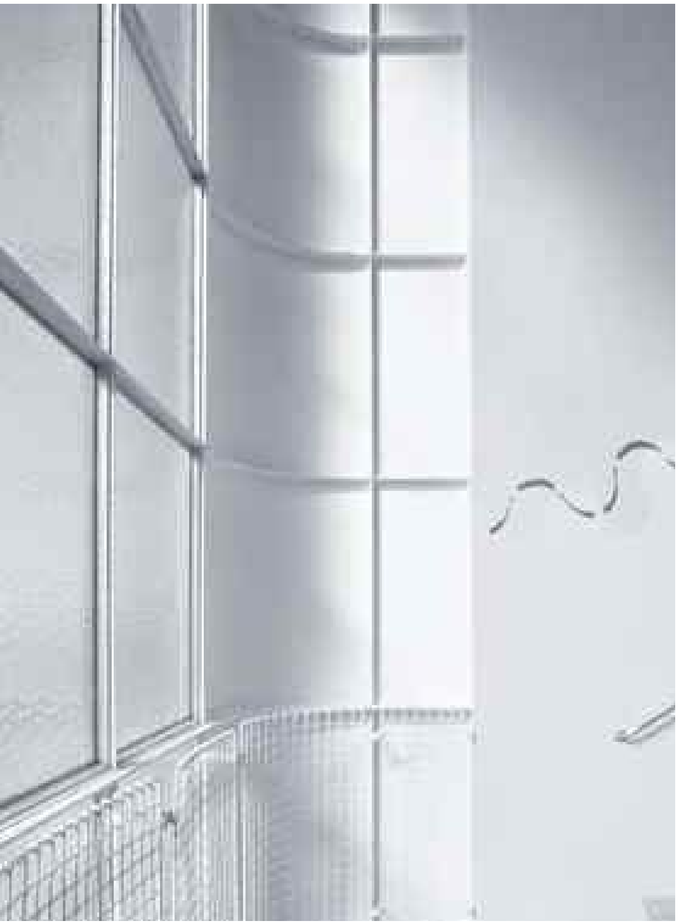


Photo: Skov- og Naturstyrelsen. Ole Akhøj.

Photo: Minby.dk. Michael Paldan.

DAYLIGHT IN LEARNING ENVIRONMENTS // **CONTEMPORARY PRACTICE IN NORWAY**

“...statistically significant effects of daylighting on human behavior [in schools]”

Hesong, Lisa et al (2002):
Daylighting Impacts on Human Performance in School

Dagslys og utsyn er nødvendig for helse, trivsel, produktivitet og læringsmiljø. Derfor kom det krav om dette i arbeidervernlovgivningen allerede tidlig på 1900-tallet. Dagens arkitekter tar ikke slike hensyn.

Bakke, Jan W. (2013): Ikke glem dagslys og utsyn,
The Norwegian Labour Inspection Authority

”TEK10 and the general focus on the environment in the social debate may have contributed to a shifted focus amongst architects - from providing optimal daylight conditions to saving energy”

Translated for the purpose of this presentaion.
Leif D. Houck (2014): Skolelys i mørke skoler

Photo: ArkitekturN

DAYLIGHT IN LEARNING ENVIRONMENTS // **CONTEMPORARY PRACTICE IN NORWAY**

- TEK10: 2 % average daylight factor

- Growing awareness - a tendency towards higher project specific requirements for average daylight factor.

How do we as practitioners translate the specified minimum requirements for daylight performance into inspiring spaces, which support the envisioned pedagogical and didactical principles in the best possible way?

LUX » **ATMOSPHERE**

"A certain tone or feeling [that] seems to fill the room..."

Gernot Böhme (Böhme 1993)

"…An experience of atmosphere consist of more than the separate parts and is an experience of totality"

Gernot Böhme (Böhme 2012)

LIGHT ATMOSPHERE // **A MULTIFACETED CONCEPT**

LIGHT SOURCE

- **light characteristics**
  daylight - artificial light
  variation - dynamics - intensity - colour
- **effect**
  functional - aestetic - symbolic
- **light information**
  expectations - experience

SPACE

- **location**
  angle - distance - geographic
- **spatial composition**
  objects and placements

light atmosphere

USERS

- **behavior**
  social - locomotion
- **human performance**
  expectations and goals
- **group characteristics**
  patients
  staff
  visitors
- **to see**
  visual system - circardian system - perceptional

TIME

- **on the time**
  day and year
- **period of influence**
  adaptation
  before - under - after

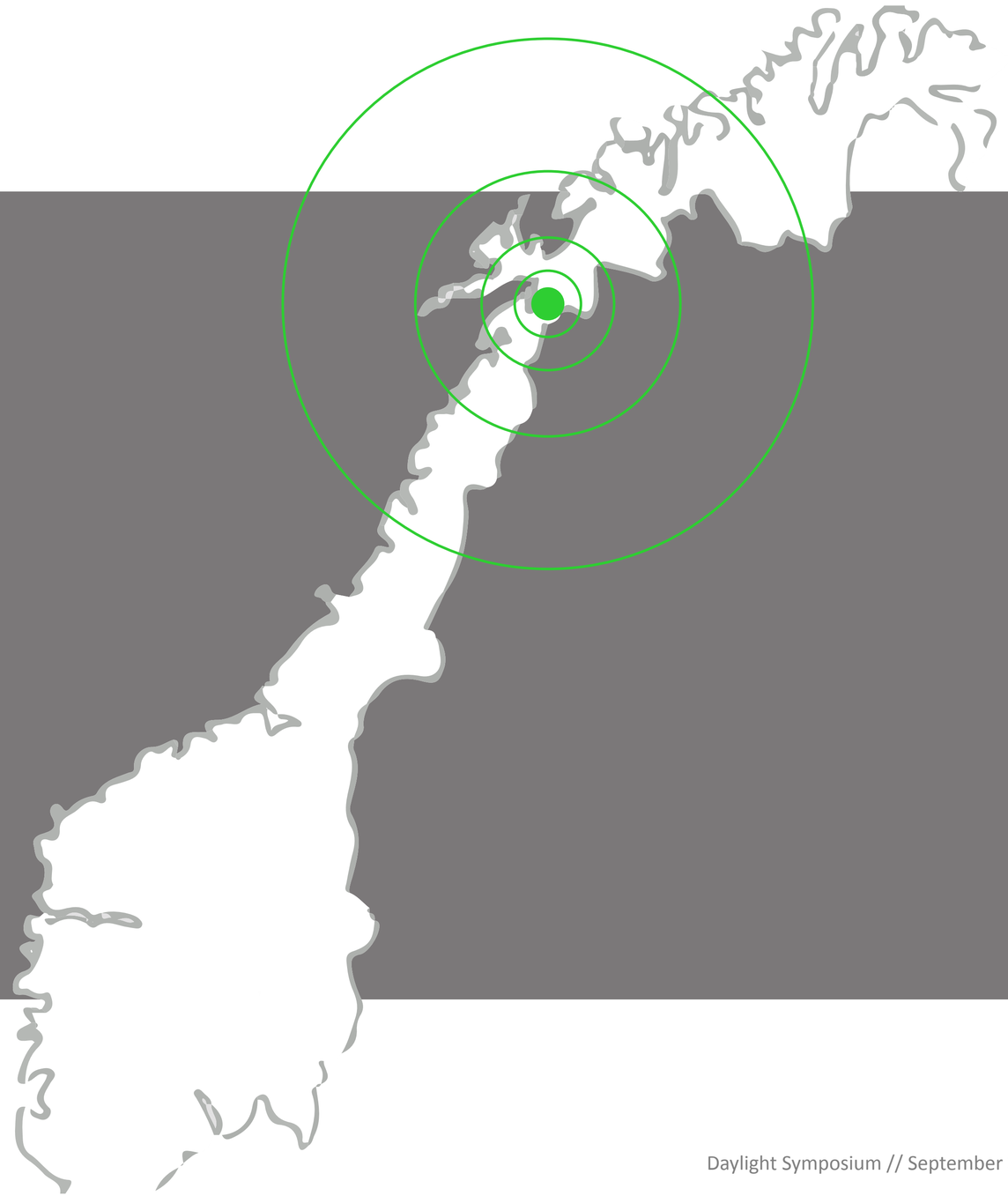
Stidsen et al. (2014): Design parameters for light atmosphere in hospital wards

CASE // **VESTMYRA SKOLE**

Vestmyra Public School
9359 m2

Location:	Fauske, northern Norway
Status:	Under construction
Developer:	Fauske Municipality
Turnkey contractor:	Hent AS
Architect:	AART Architects // Nordic - office of architecture

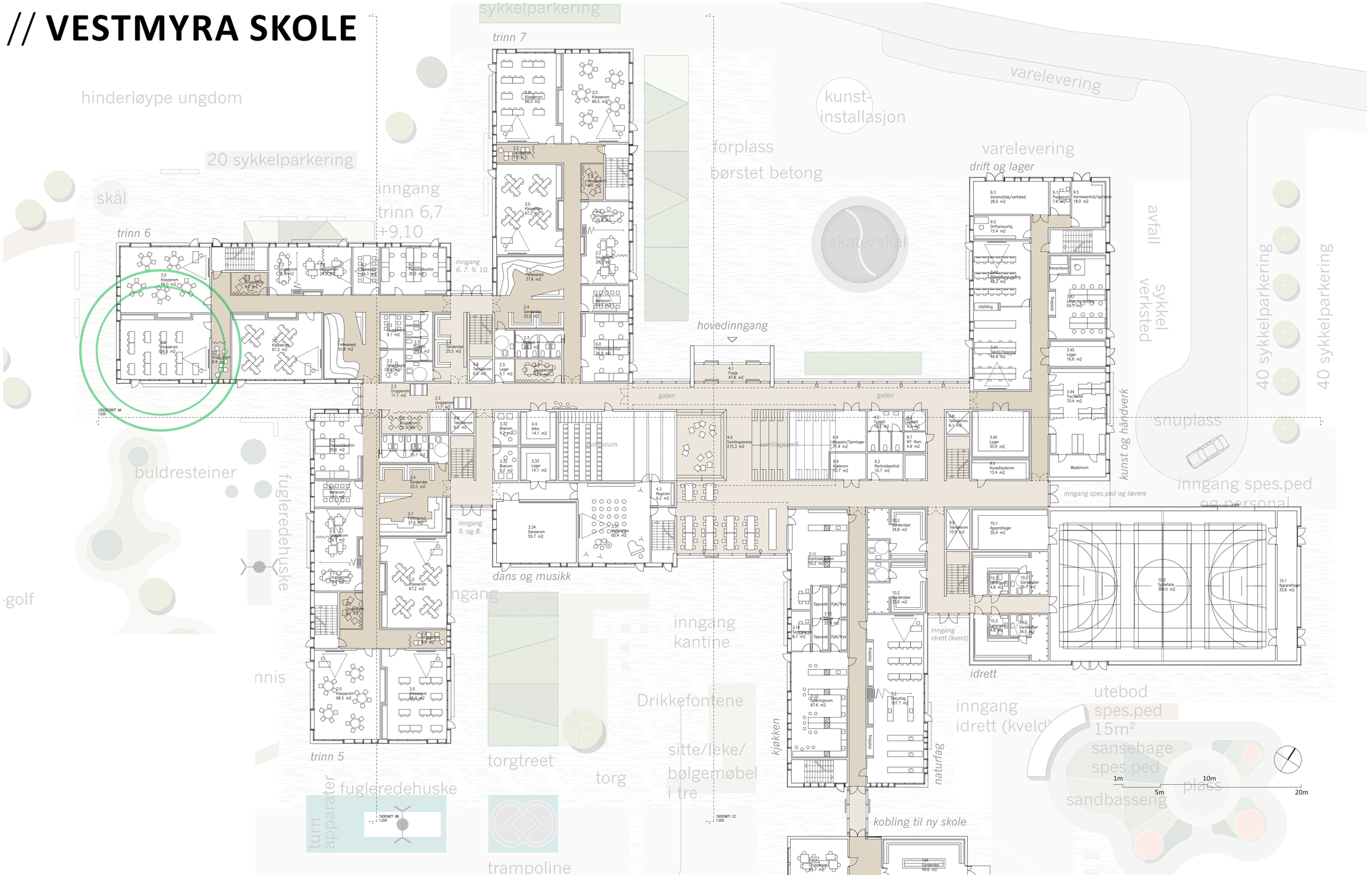
Project specific demand for 4-5% daylight factor in primary spaces.



CASE // **VESTMYRA SKOLE**

Illustration: AART Architects/Nordic Office of Architecture

CASE // **VESTMYRA SKOLE**



CASE // **VESTMYRA SKOLE**

DIFFERENTIATED LEARNING SPACES

•immersion

Photo: Colourbox

•group work

Photo: Colourbox

•presentation

Photo: http://www.gynzy.com. 18/8 2015.

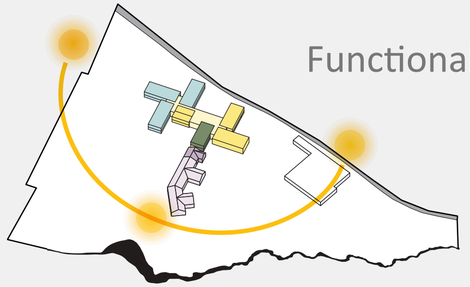
CASE // **IMMERSION**

Photo:Colourbox

CASE // **IMMERSION**

LIGHT SOURCE

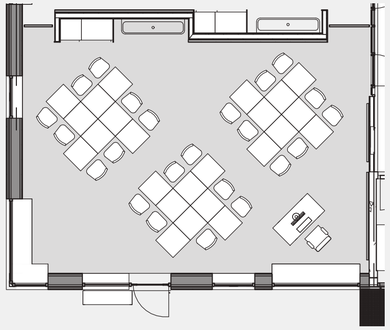
Natural daylight
Functional: DF = 5 %/shading
Aestetic: “cosy”
Seasonal variation



USERS

7th grade students
(individual work/small teams)
Familiar space

light atmosphere
IMMERSION



SPACE

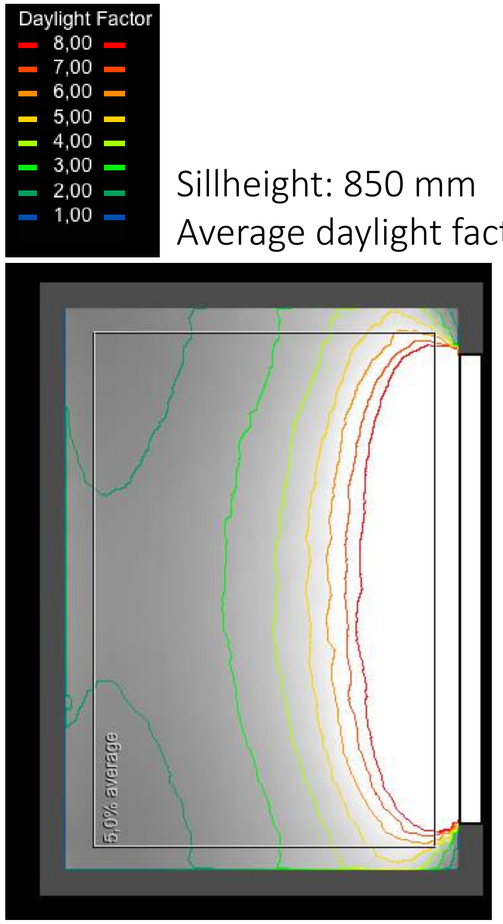
A ‘quiet’ nook
View
‘Inviting’ materials

TIME

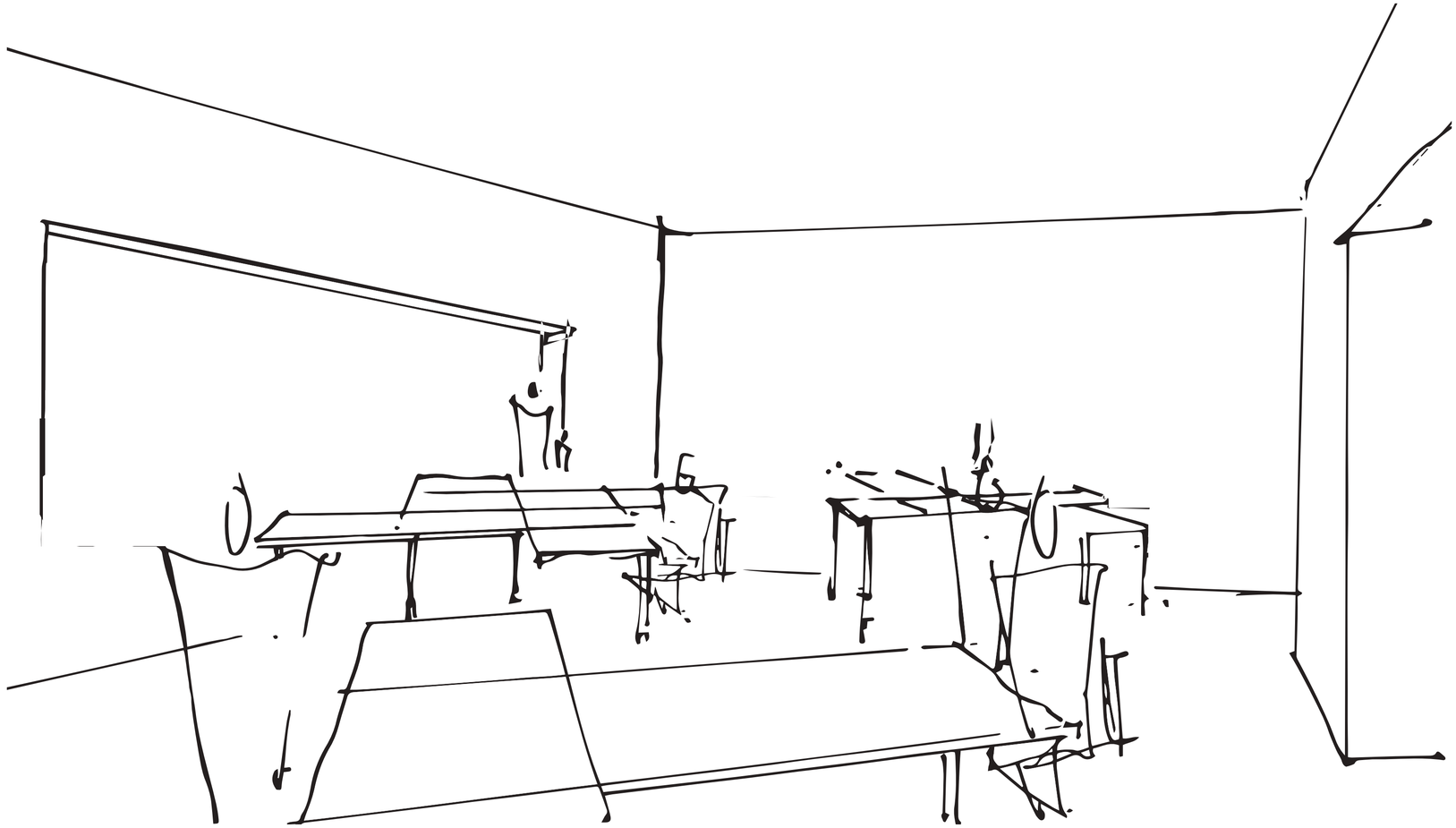
Integrated part
of lessons
15 -30 min.

CASE // FROM THE DESIGN PROCESS - DAYLIGHT STUDY

Legislative standards: 2 % average daylight factor
Project specific daylight demand: 5 % average daylight factor



Sillheight: 850 mm
Average daylight factor: 4.9 %



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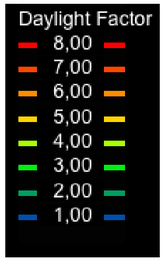
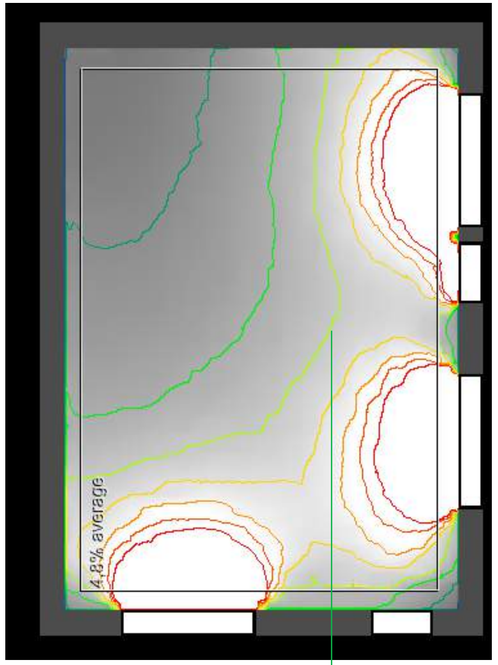
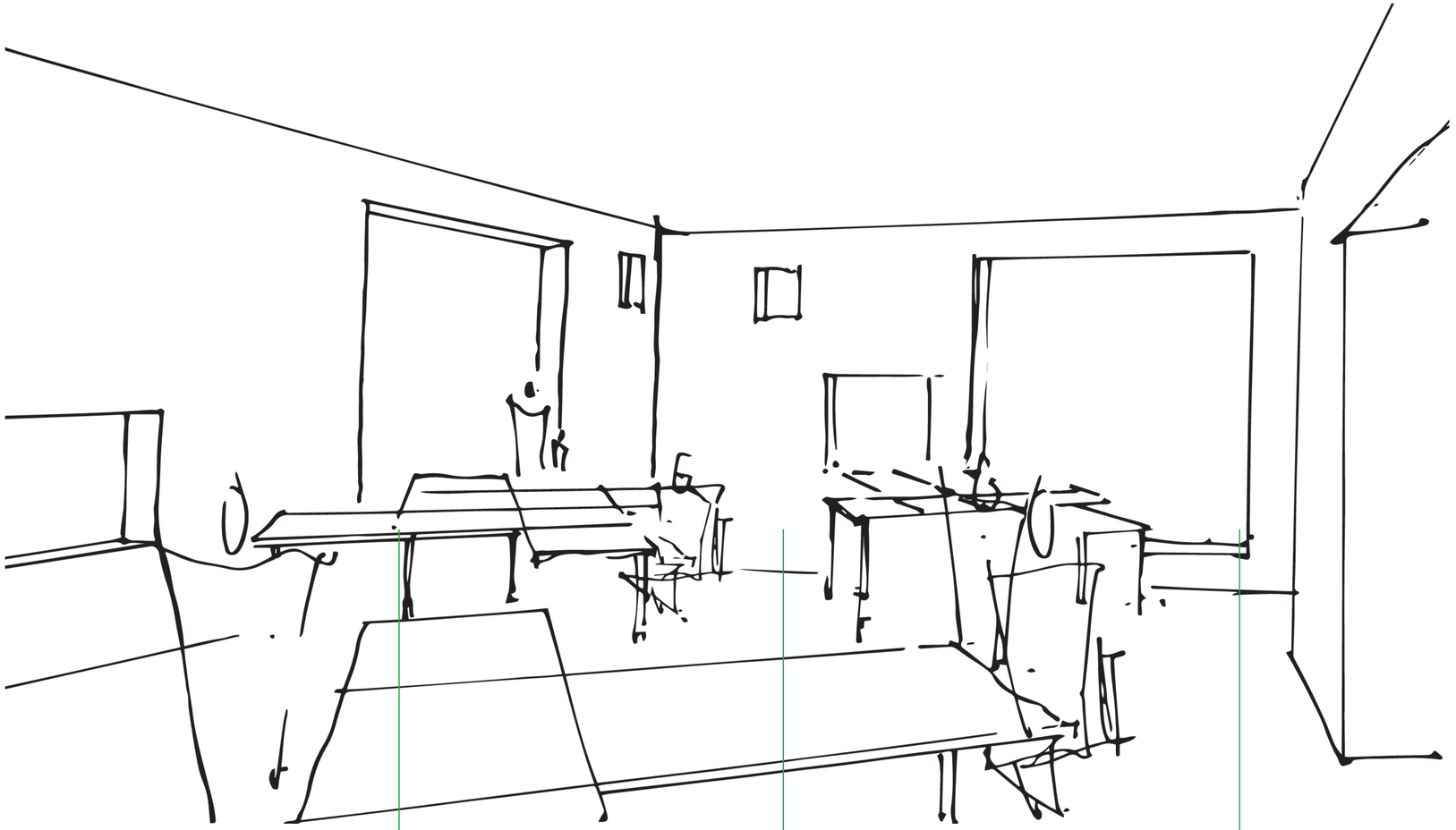


Sillheight: 450 mm
Average daylight factor: 4.8 %



Depth of the space
7x10 m



Materials
wood / cushions

Distribution and
sizing of windows

Sill height 450mm

VESTMYRA SKOLE // **UNDER CONSTRUCTION**

Photo: HENT AS

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