



NORDLANDSSYKEHUSET
NORDLÁNDÁ SKIHPPJIVVISSO

HELSE  NORD

NEW ACUTE HOSPITAL, STOKMARKNES

Development and solutions



**PRESENTATION AT THE IFHE
WORLD CONGRESS 2012**

**Architect MNAL Svein Erik Tøien
BOARCH arkitekter as**

Commissioner: Nordlandssykehuset HF

Architect: BOARCH arkitekter as

Consultant structural engineering: Rambøll as

Consultant technical engineering: Norconsult as

Project administration: Hospitalitet as/ Hartmann Prosjektrådgivning as

MAIN NUMBERS

Population in capture area: Appr. 30.000 inhabitants

Function area: Appr 8000 m²

Gross area: Appr 14.900 m²

Budget frames: Appr 900 mill. NOK

Start construction: September 2010

Project planned finalised: August 2014

Normal beds incl maternity ward: 69

Observation beds: 5

Surveillance beds : 5

Post-surgery beds : 5

Outpatient treatment rooms: 26

Daycare places; dialysis, medical and surgical: 17 (7+5+5)

Operating theaters: 3+1

Birth rooms: 2

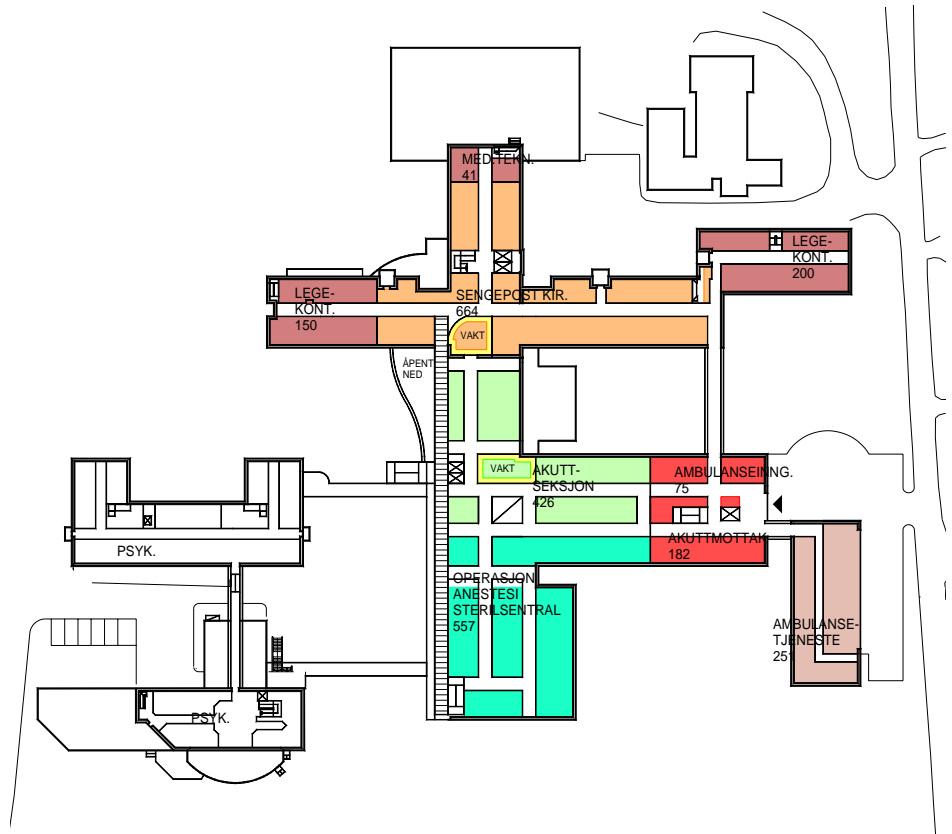
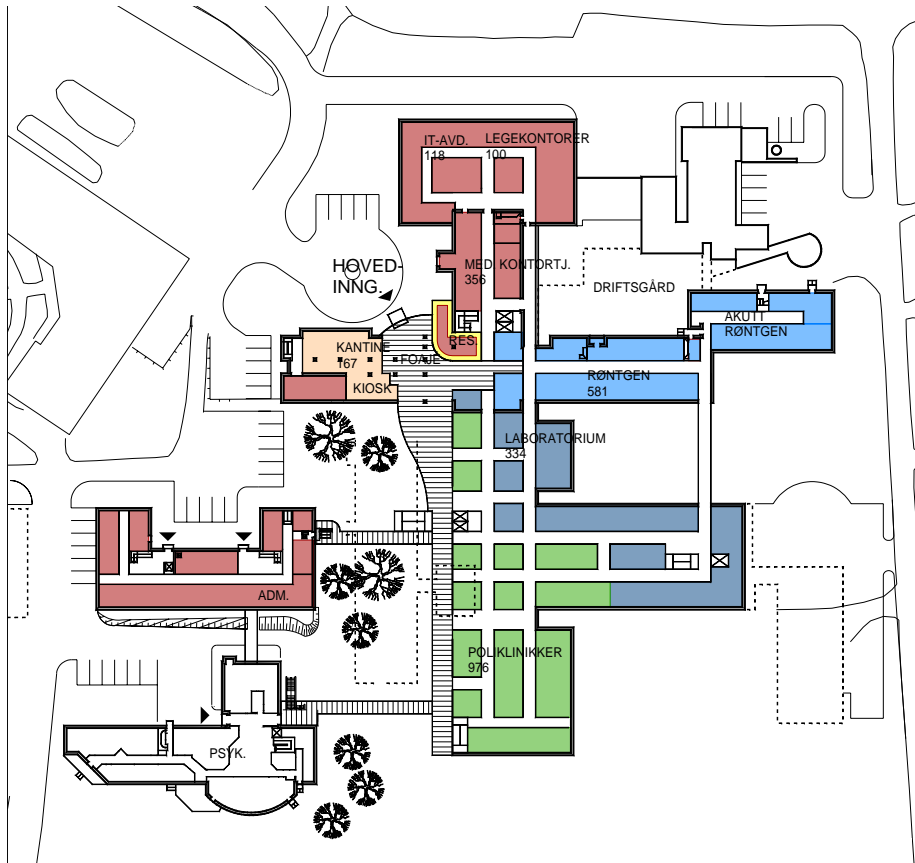


HSH Stokmarknes skisseprosjekt 17.06.03

Year 2000 – Existing environment

BOARCH arkitekter as ProsjektPartner Bodø as Intekno as Ingeniørtjeneste as

Optimistic start – the existing structure is assumed to be fit for future use, demanding total renovation and reconfiguration...

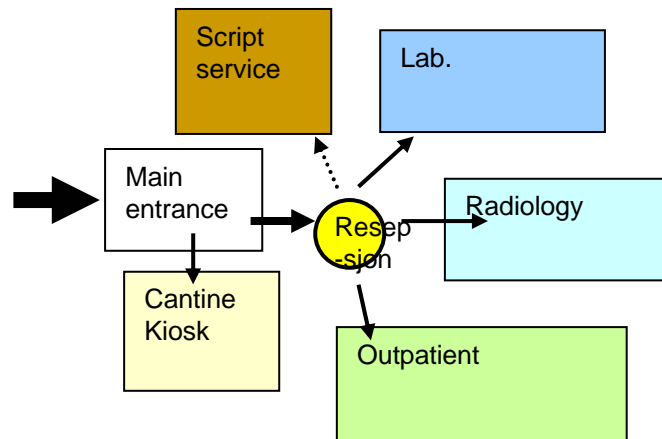


HSH Stokmarknes generalplan

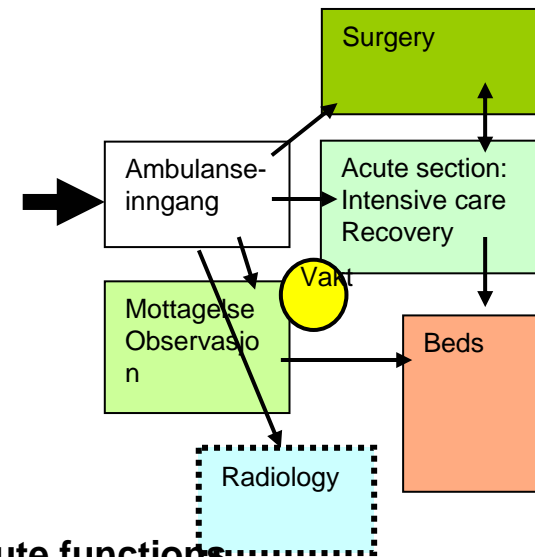
2001 – GENERAL PLAN

BOARCH arkitekter as ProsjektPartner Bodø as Intekno as Ingeniørtjeneste as

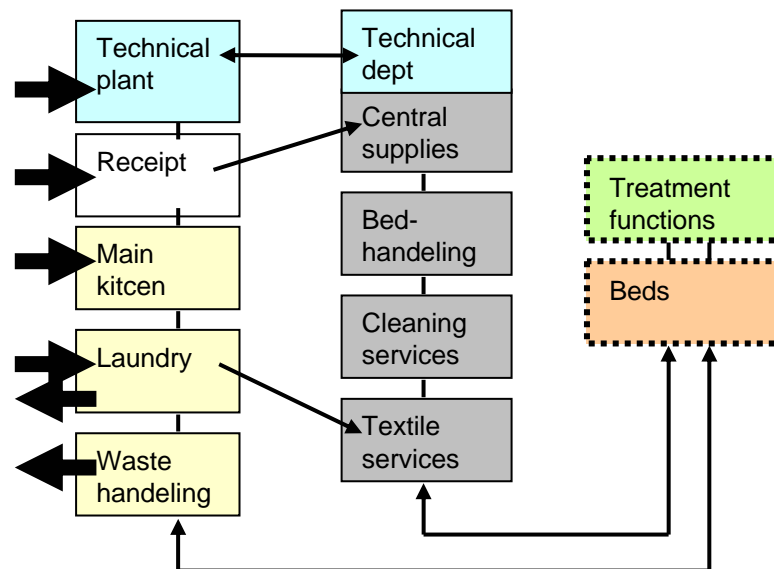
...A simple pattern for logical grouping of functions was developed



Public/outpatient functions



Acute functions

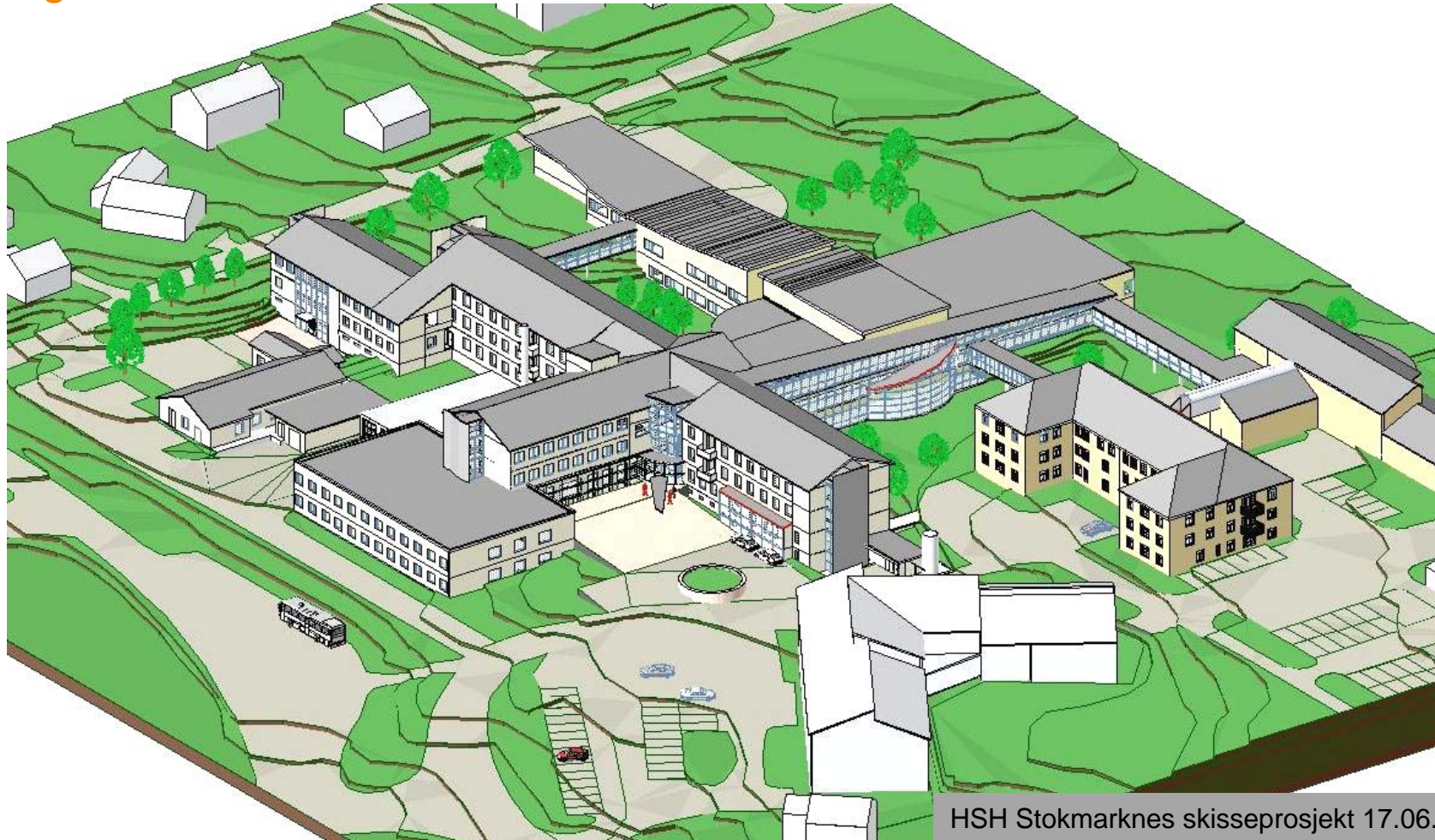


Technical and administrative functions

HSH Stokmarknes skisseprosjekt 17.06.03

Grouping of functions

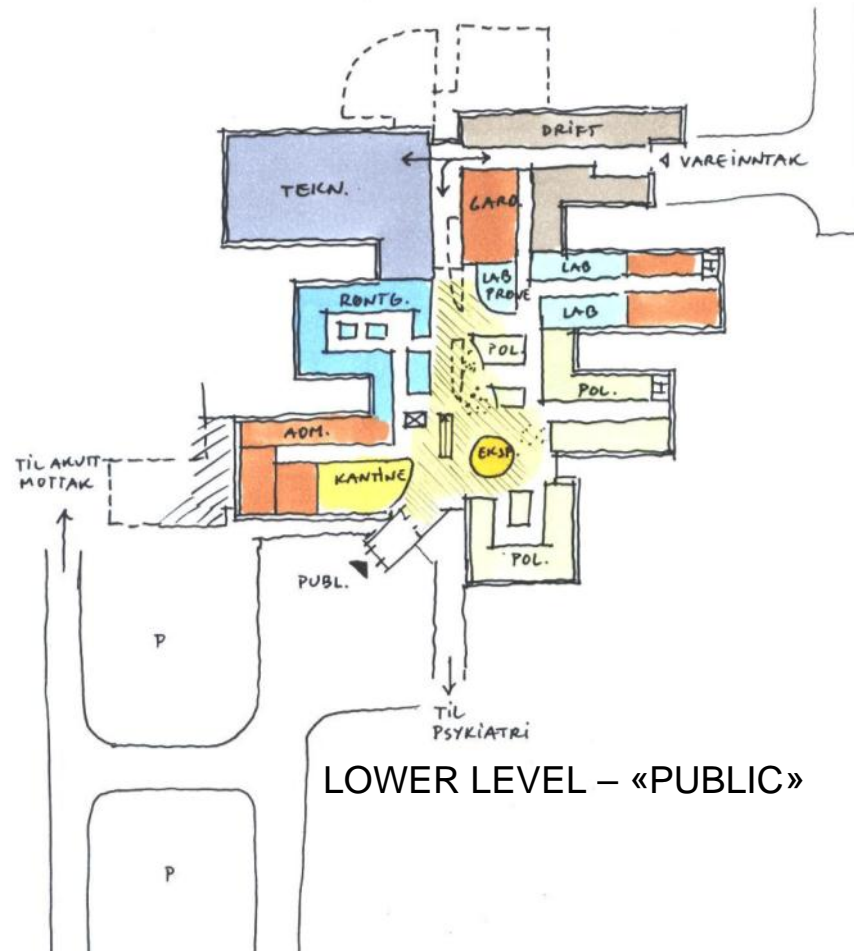
... and a first complete schedule for renovation and extensions to the hospital, is commissioned, compensating low building heights with creative use of glass and levels



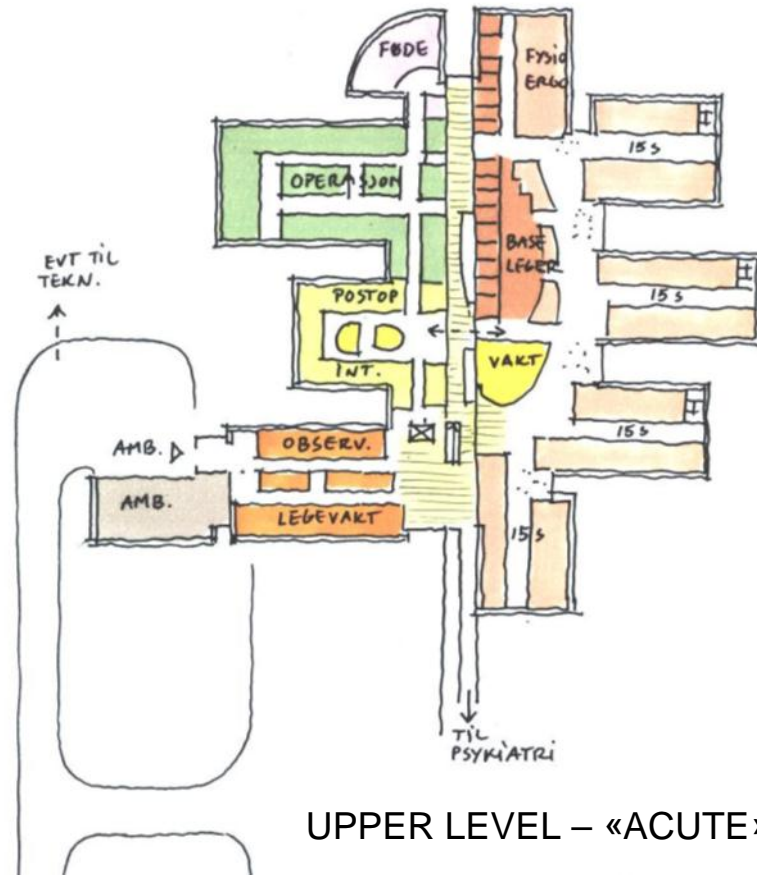
HSH Stokmarknes skisseprosjekt 17.06.03

SKETCH PROJECT 2003

... then, a year later, the regional health administration got a new director of medical profession, putting forth a strong urge to build new, instead of mending the old stuff...



LOWER LEVEL – «PUBLIC»



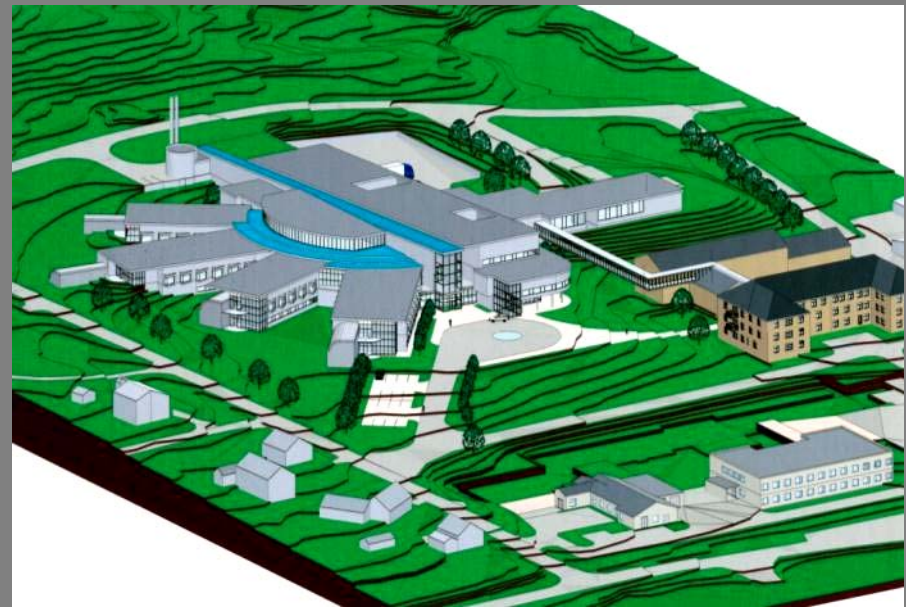
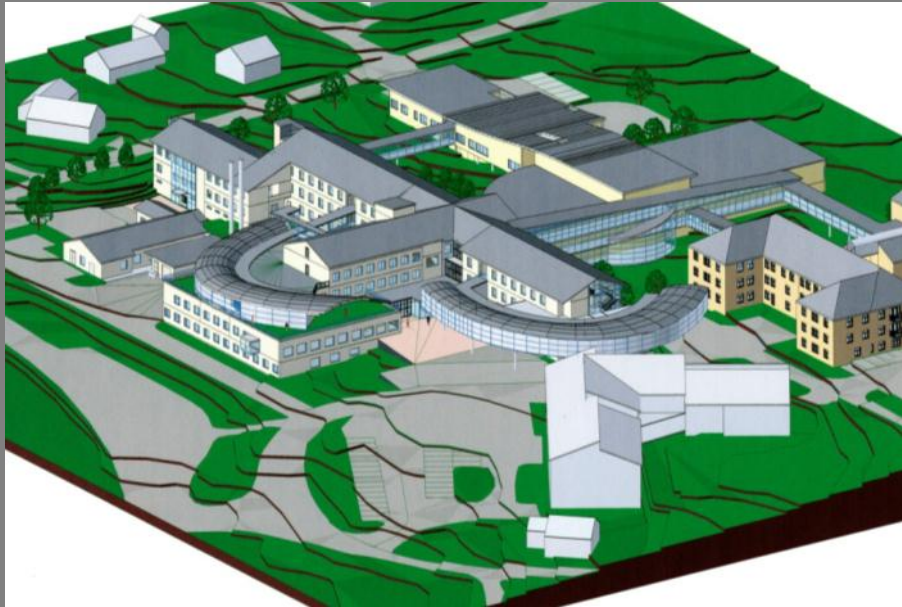
UPPER LEVEL – «ACUTE»

HHF Stokmarknes idéprosjekt nybygg 25.02.04

2004 – SCETCH FOR A COMPACT, NEW HOSPITAL

BOARCH arkitekter as

Two alternative sketch projects followed, analyzing the differences in cost, and concluding that building new is the most economic solution.



HHF Stokmarknes skisseprosjekter 29.11.2004

2004 – SKETCH PROJEKT 2-3

BOARCH arkitekt as ProsjektPartner Bodø as Intekno as Ingeniørtjeneste as

The project was then challenged on flexibility and generality. A period of thorough analysis and studies, led by SINTEF health, followed...



HHF Stokmarknes skisseprosjekt 2008

NEW CONSIDERATIONS – SINTEF ENGAGED

BOARCH arkitekter as ProsjektPartner Bodø as Intekno as Ingeniørtjeneste as

... the users were invited to participate actively...



HHF Stokmarknes skisseprosjekt 2008

USER PARTICIPATION – TRYING OUT LAYOUTS

BOARCH arkitekter as ProsjektPartner Bodø as Intekno as Ingeniørtjeneste as

... and the architects challenged the “usual” patterns of hospital layouts...

All beds and acute functions on one level



Beds in 2 levels



All beds in one level, divided from acute functions



Beds in 3 levels



NLSH Vesterålen utvikling skisseprosjekt 2008

SCETCH PROJECT 4 – 2008: INITIAL STUDIES

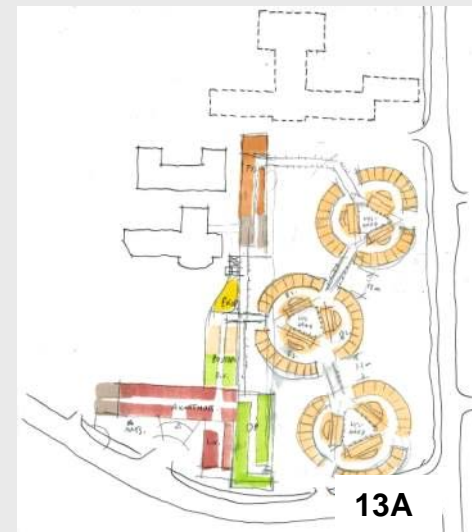
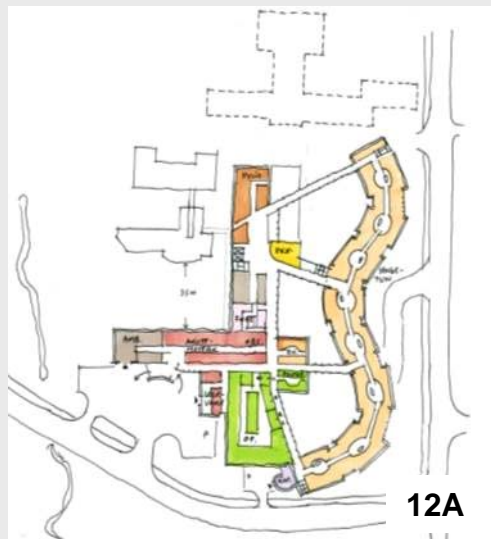
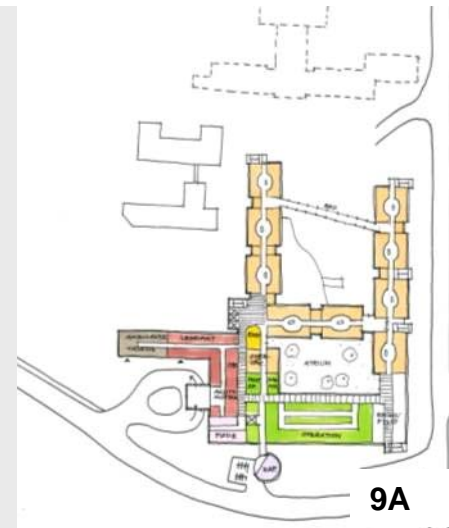
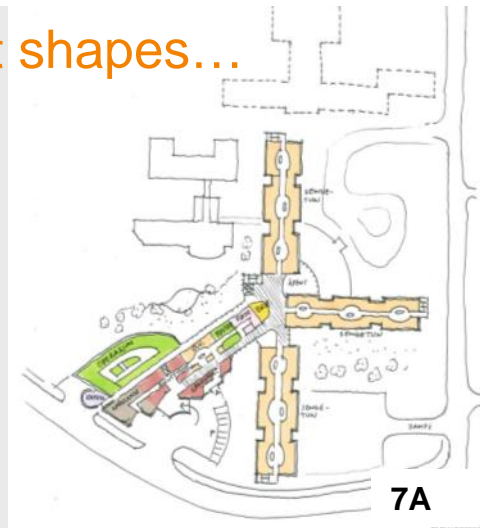
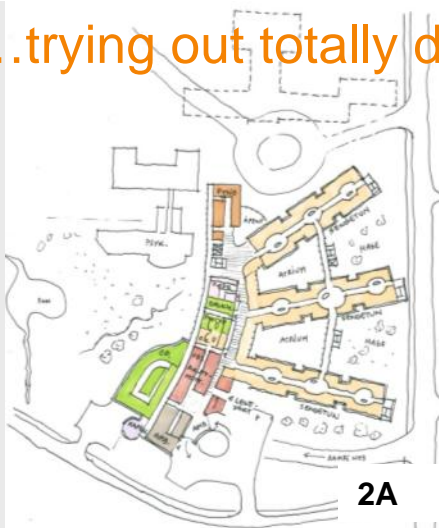
BOARCH arkitekter as ProsjektPartner Bodø as Norconsult as

A hand-drawn diagram of a boat hull cross-section. The hull is shown in a symmetrical, elongated shape with a pointed bow and stern. The interior is divided into several sections by vertical lines, representing the internal structure. The hull is colored in a light yellow or tan color, with darker yellow or orange sections indicating the internal structure. The diagram is a simple line drawing with some shading to indicate depth and structure.

NLSH Vesterålen utvikling skisseprosjekt 2008

BOARCH arkitekter as ProsjektPartner Bodø as Norconsult as

...trying out totally different shapes...



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SCETCH PROJECT 4 – 2008: INITIAL STUDIES

2008 – closing down to 5 alternatives



2B



7A



9B



14A



8A

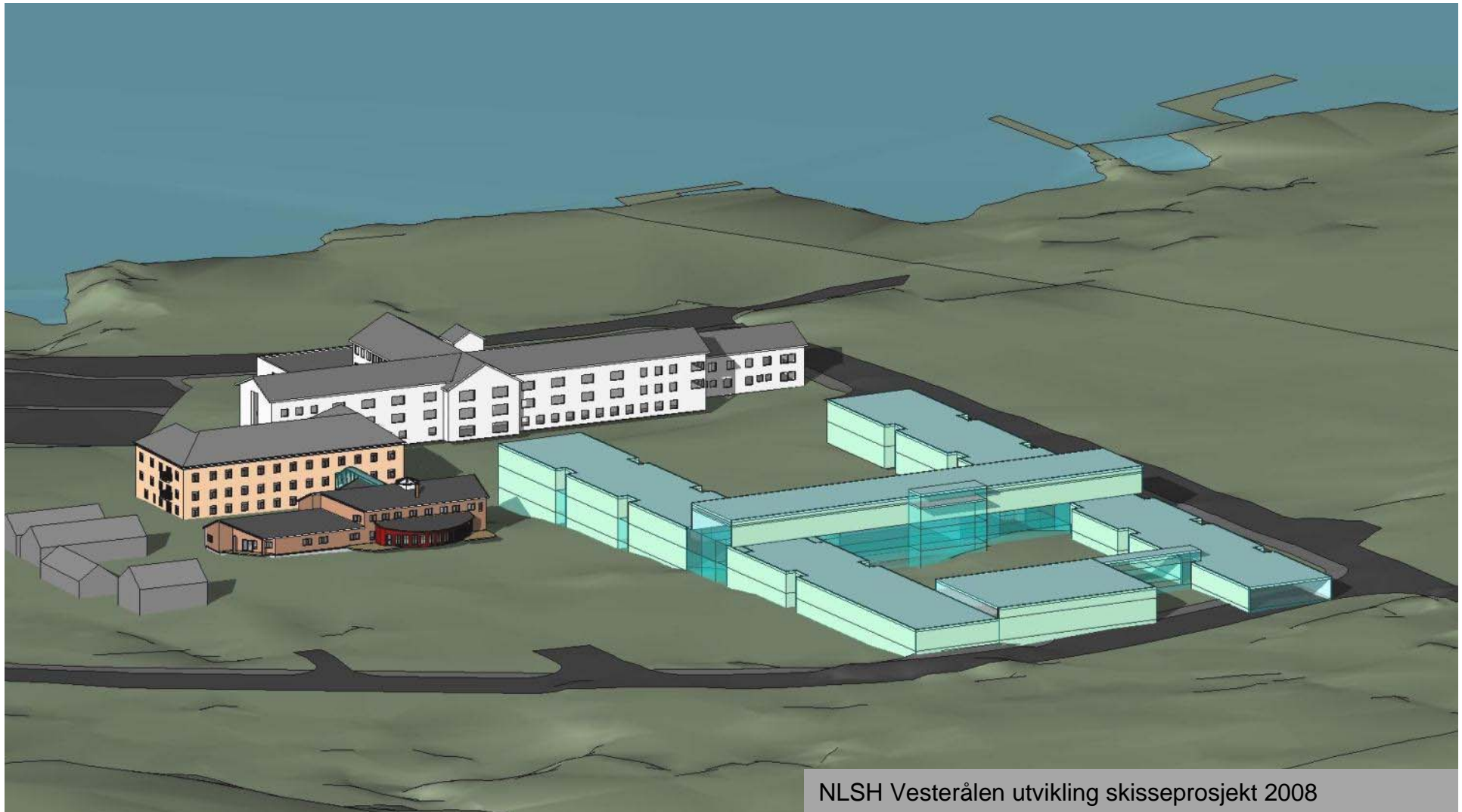


NLSH Vesterålen utvikling skisseprosjekt 2008

SCETCH PROJECT 4 – 2008: INITIAL STUDIES

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2008 – one model showing signs of final layout



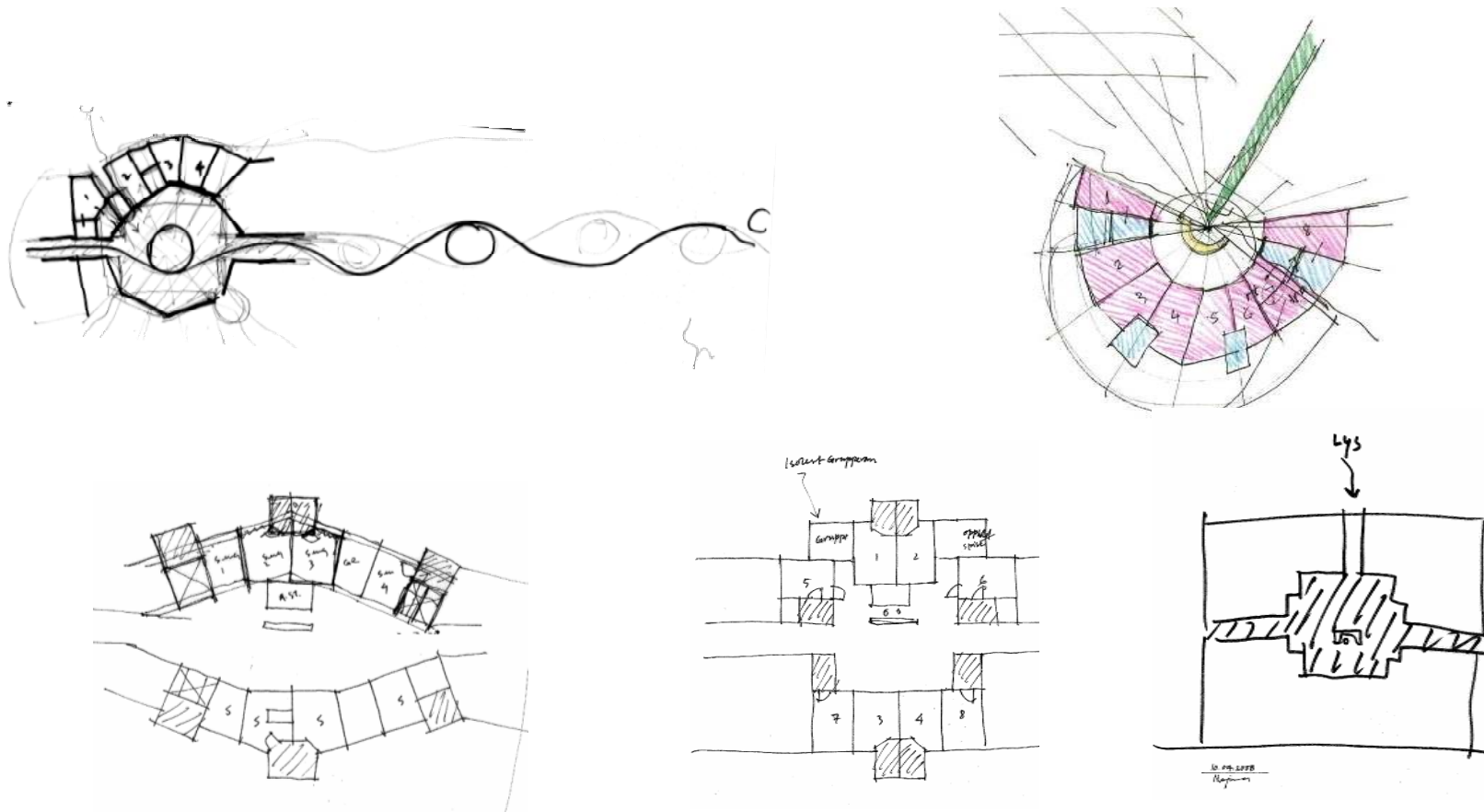
NLSH Vesterålen utvikling skisseprosjekt 2008

Alternativ 9B

3D from south

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Brainstorming for bed clusters – concluding that daylight into the middle of the clusters is essential



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Bed clusters – early ideas

- Bending fasade to minimize length

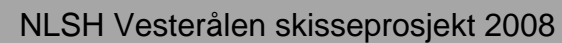


NLSH Vesterålen utvikling skisseprosjekt 2008

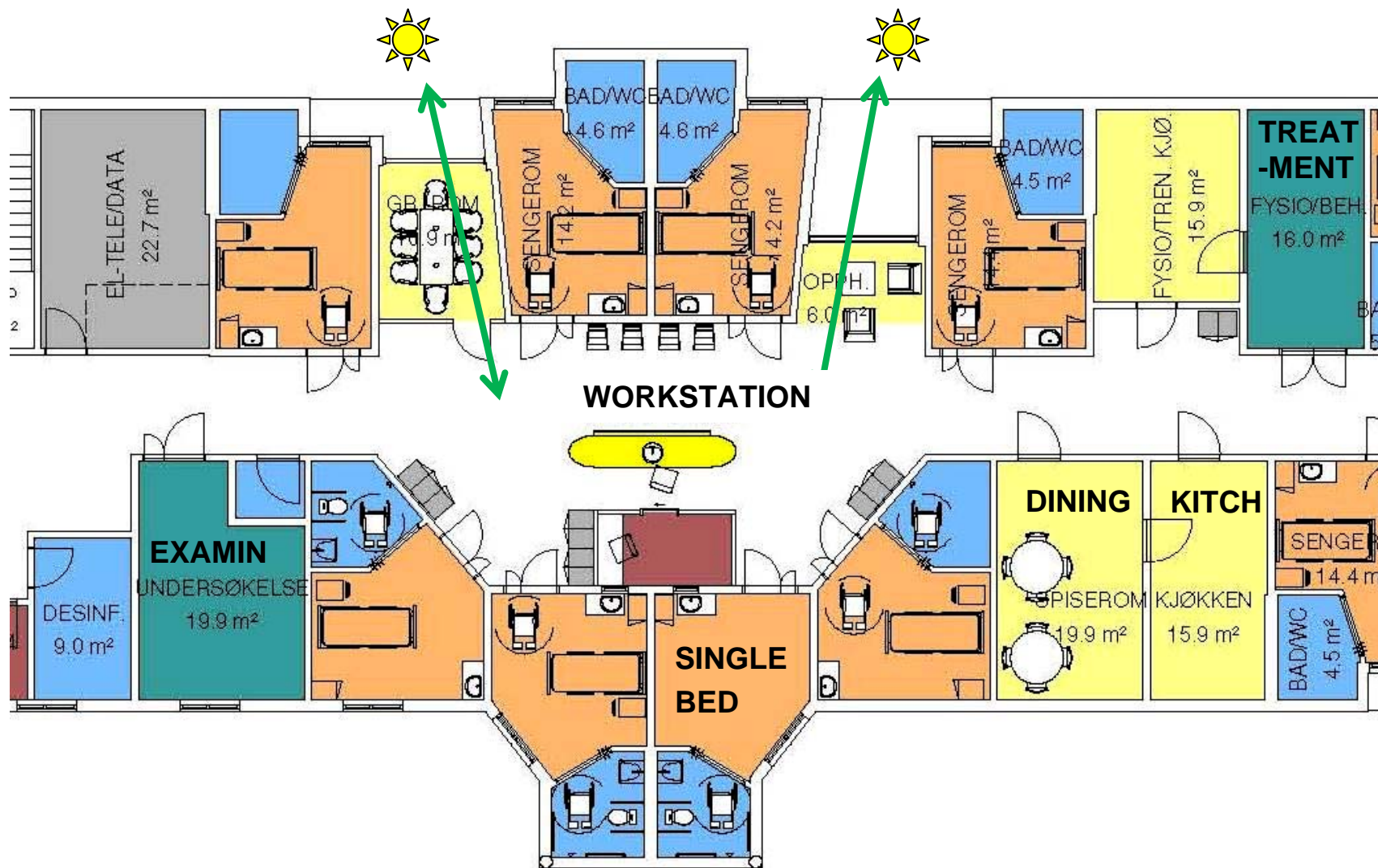
Sengeområde – bad til alle rom

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- Gross/net factor appr. 1,7
- Length 3 bed clusters appr. 78 m



18



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Bed cluster – scheme

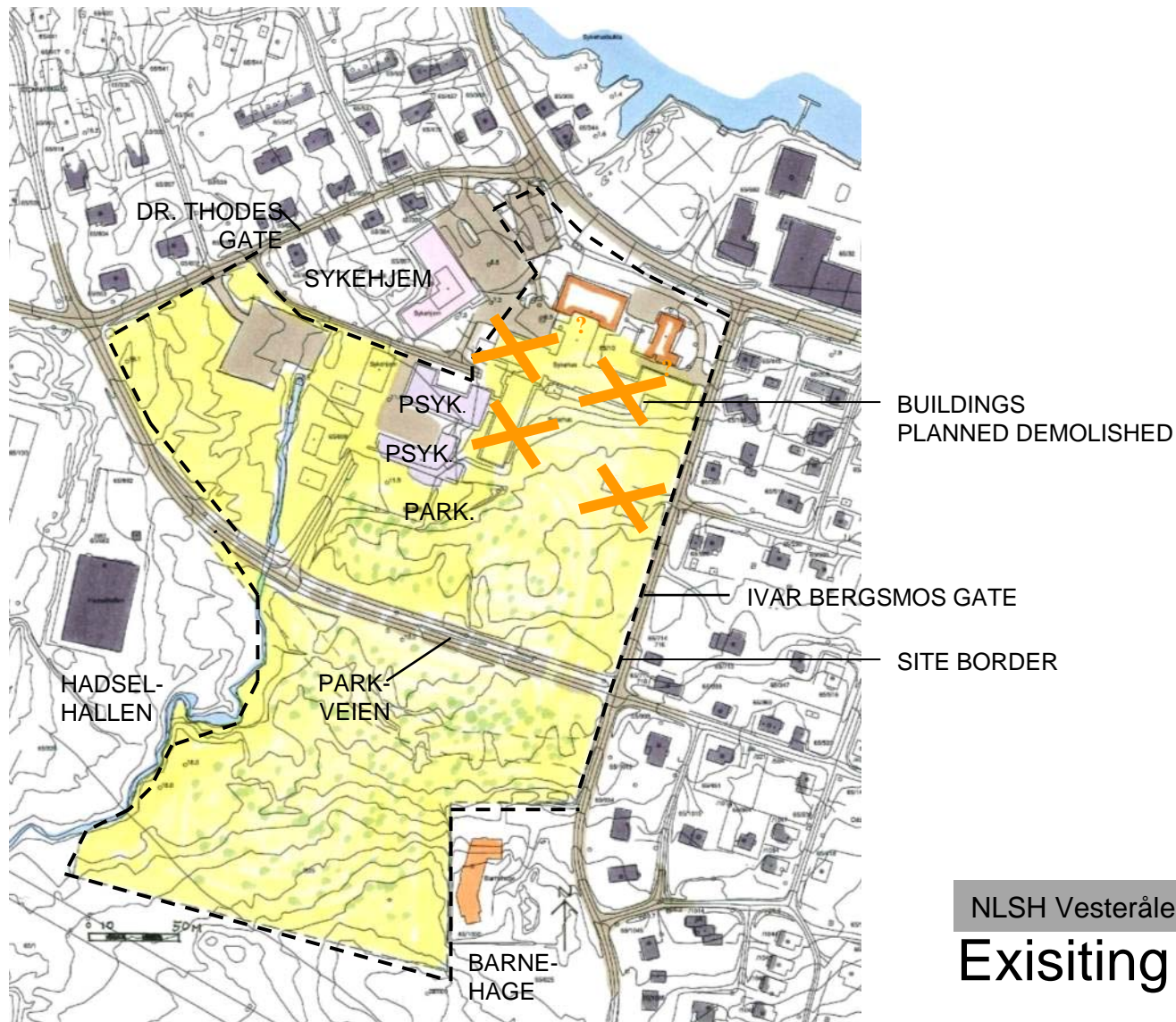


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The site in 2009 - before construction start

BOARCH arkitekter as ProsjektPartner Bodø as Norconsult as

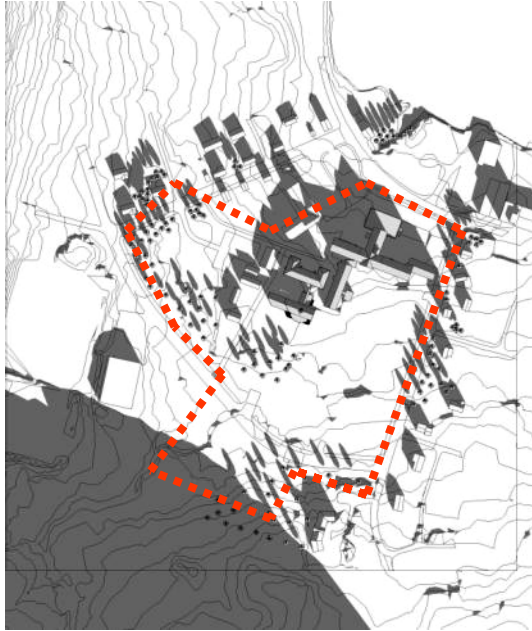
Most of the existing hospital buildings are planned demolished after completion of the scheme



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Existing site -

Cad-generated sun studies – revealing a shadowy southern part of the site from october to march



Kl. 10



Kl. 12

HHF Stokmarknes skisseprosjekter 29.11.2004

Sun studies of existing site
12. october/3. march kl 10 og 12

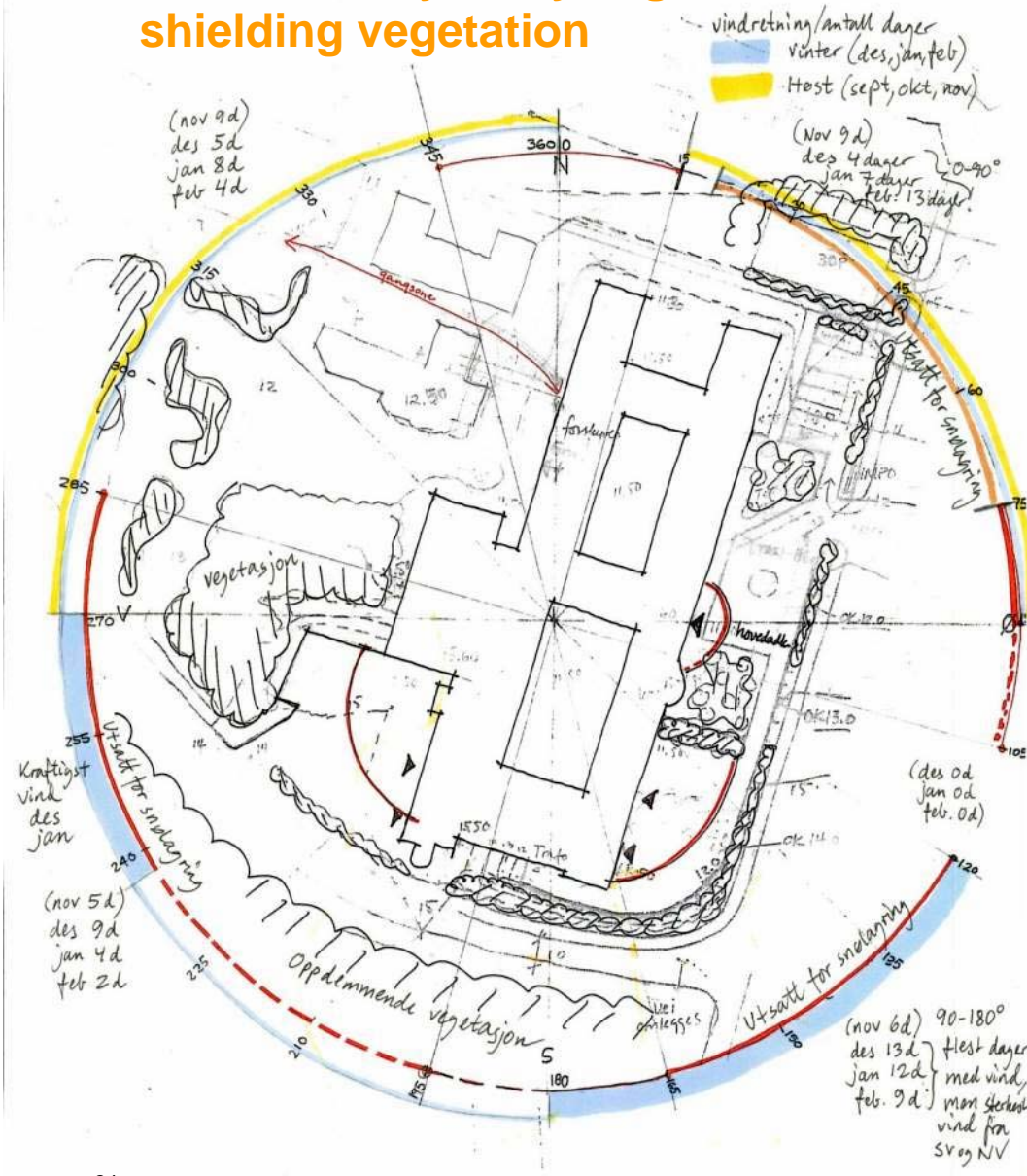


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Sun studies of the buiding model

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Climate study analyzing wind and snowdrift – revealing needs for shielding vegetation



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Alternative 9C Climate analysis

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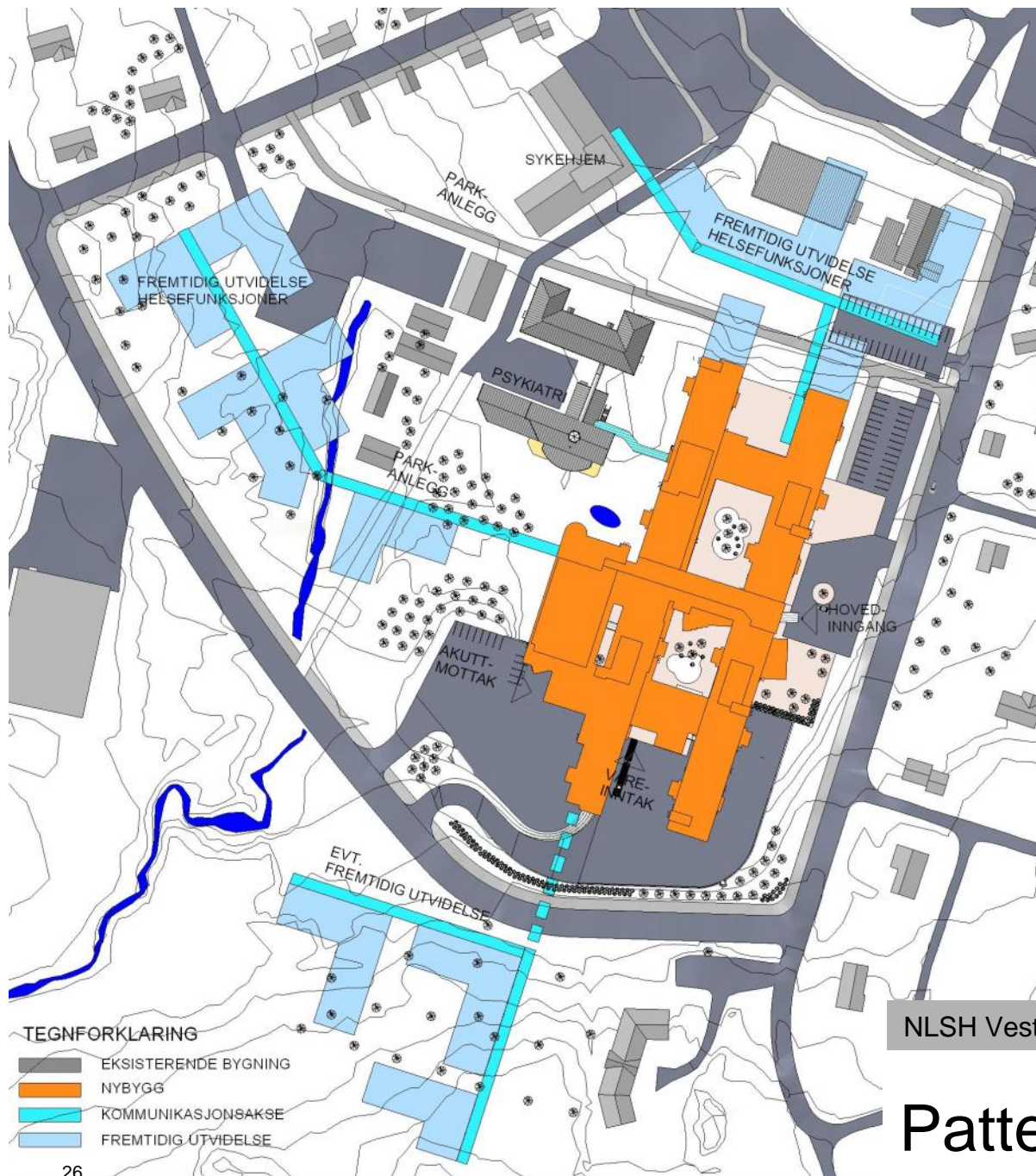
Wind-damping vegetation and atriums for exercise is part of the scheme



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Sketch outdoor facilities

Possible expansion
in three directions



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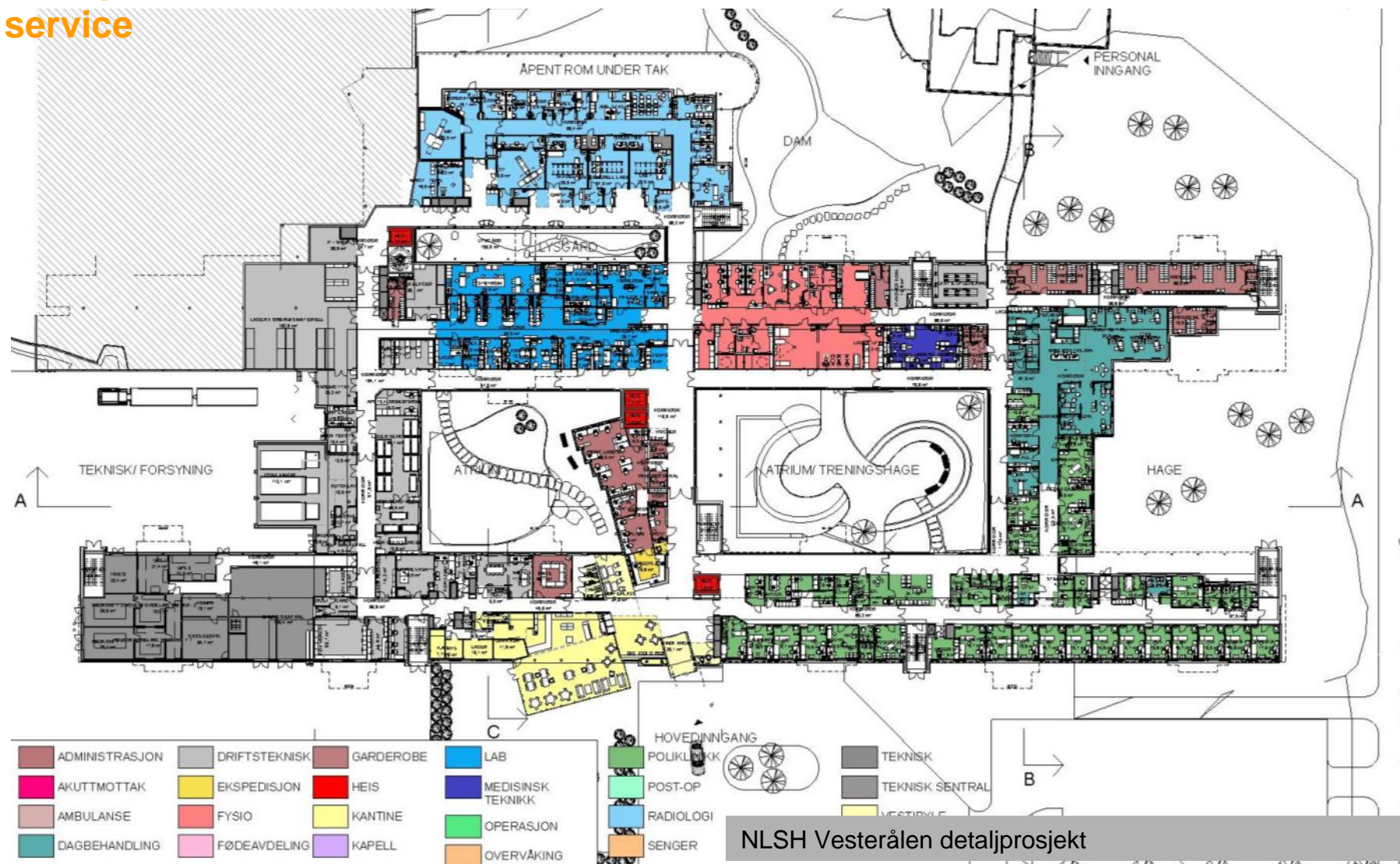
Pattern of expansion

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Site plan

Plan ground floor: Main entrance, outpatient functions and technical service



Ground floor

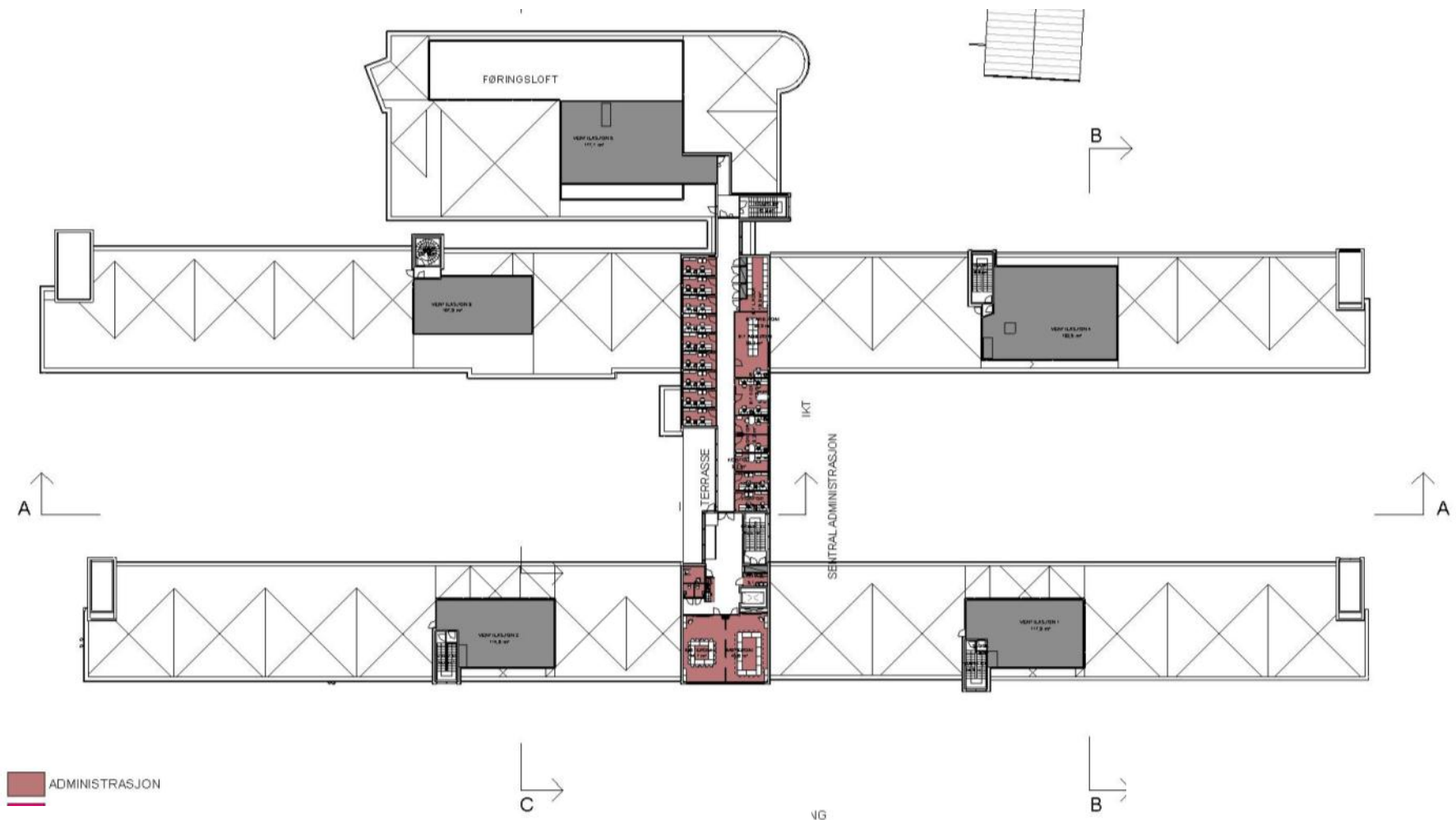
Upper/first floor: Acute entrance and inpatient functions



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First floor

Administration and ventilation plants



NLSH Vesterålen detaljprosjekt

Second floor



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Perspective main lobby

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Visibilty between the workstations was crucial in the layout

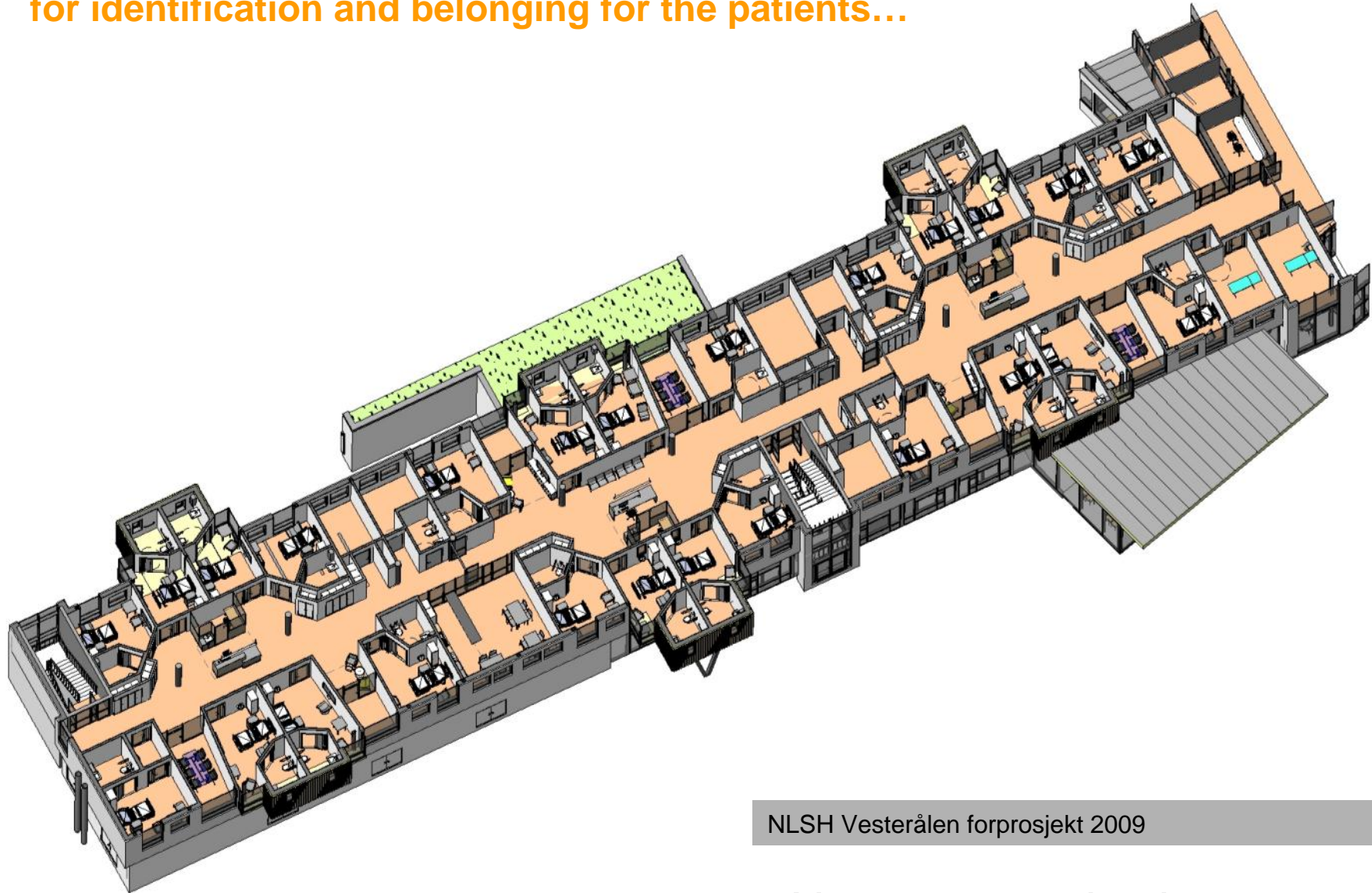


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Perspective 3 bed clusters in a row

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Each bed cluster has its defined «square», a defined architectural place for identification and belonging for the patients...



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Aksonometry bed area



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Aksonometri sengetun

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Environment in one bed cluster...



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Perspektiv sengetun - I

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... seen across



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Perspektiv bed cluster - II

Environment in bedroom, with large bay window



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Perspective bedroom

Each bed cluster features a zone for patient resting near the workstation, and with access to wintergarden/multi-use space



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Perspective patient zone

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...used for childrens
play...



Lekerom.....
ALØ v/BOARCH arkitekter 28.05.2009



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Vinterhage/lekekrok

BOARCH arkitekter as ProsjektPartner Bodø as Norconsult as

Kontraster som plast og treverk.....



Naturtema.....

40

Plante- og taktiltets-rom.....
ALØ v/BOARCH arkitekter 28.05.2009

...or plant/tactile room...



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Vinterhage/taktil-/planterom

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The main expedition is easily found by the main entrance



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Main expedition

Circulation areas with daylight and views for orientation



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Corridor by surgical area

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Extensive use of glass for contact between functions



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Surveillance area

INTERIØR KONSEPT

VEGG KORRIDOR,
OVERFLATE FAST &
LØST INVENTAR:
NCS S0500-N

VINYL GULV:
TARKETT
IQ NATURAL 173

HVITPIGMENTERT EIK
DETALJER I FAST
INVENTAR

GARDIN:
ALMEDAHL'S "UNI
75689-3"

GRØNT FARGETEMA: FONDVEGG & TEKSTILER



LAMMHULTS "CINEMA SPORT",
H450mm, I GABRIEL "COMFORT
0049"

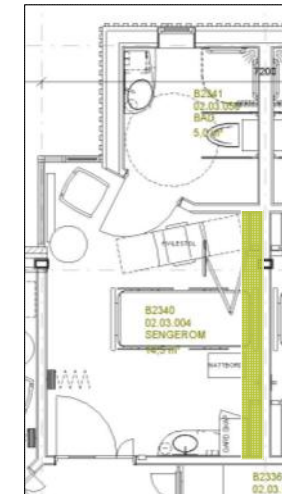


NORTHERN
LIGHTING "DOKKA"
PENDEL I KROM TIL
SENGEROM



OFFECCT "GRIP" HVITT SIDEBORD, H440mm, M.
TILHØRENDE BLOMSTERVASE (BORDPLATE I
CORIAN)

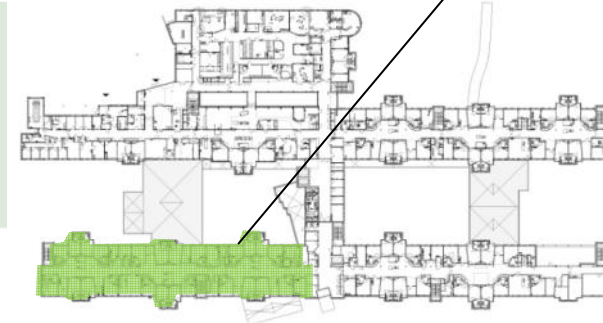
HELLAND "GENT" HVILESTOL, H460mm, I GABRIEL "COMFORT 0049"



FONDVEGG
SENGEROM, TUN B1:
BUTINOX 5757 "FRI"

FONDVEGG
SENGEROM, TUN B2:
NCS S 2030-G80Y

FONDVEGG
SENGEROM, TUN B3:
NCS S 2010-G30Y

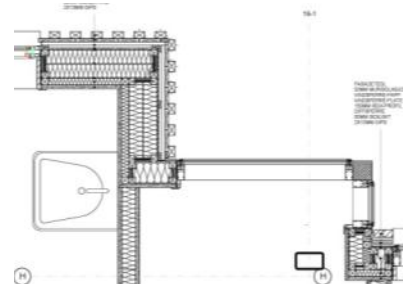
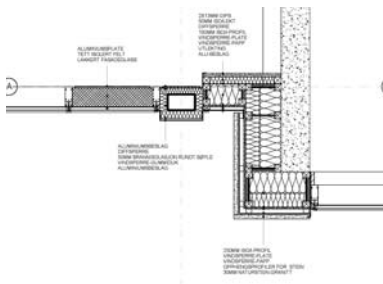
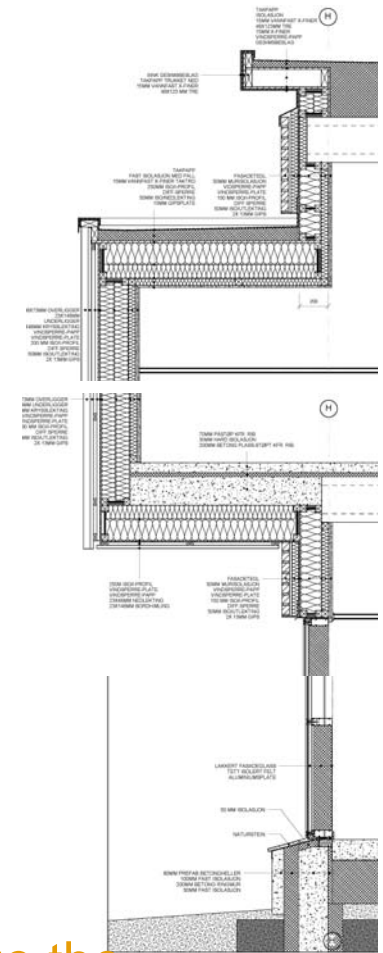


BOARCH arkitekter as

PLAN 2, FLØY B: SENGEROM
NLSH VESTERÅLEN



Glass, aluminium, brick, stone and wood combined to emphasize the different elements of the building



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Facade materials and details

BOARCH arkitekter as

ProsjektPartner Bodø as

Norconsult as

Gross building height 4,5 m, and flat beam-and-slab constructions allow flexibility for future changes in technical facilities



NLSH Vesterålen forprosjekt 2009

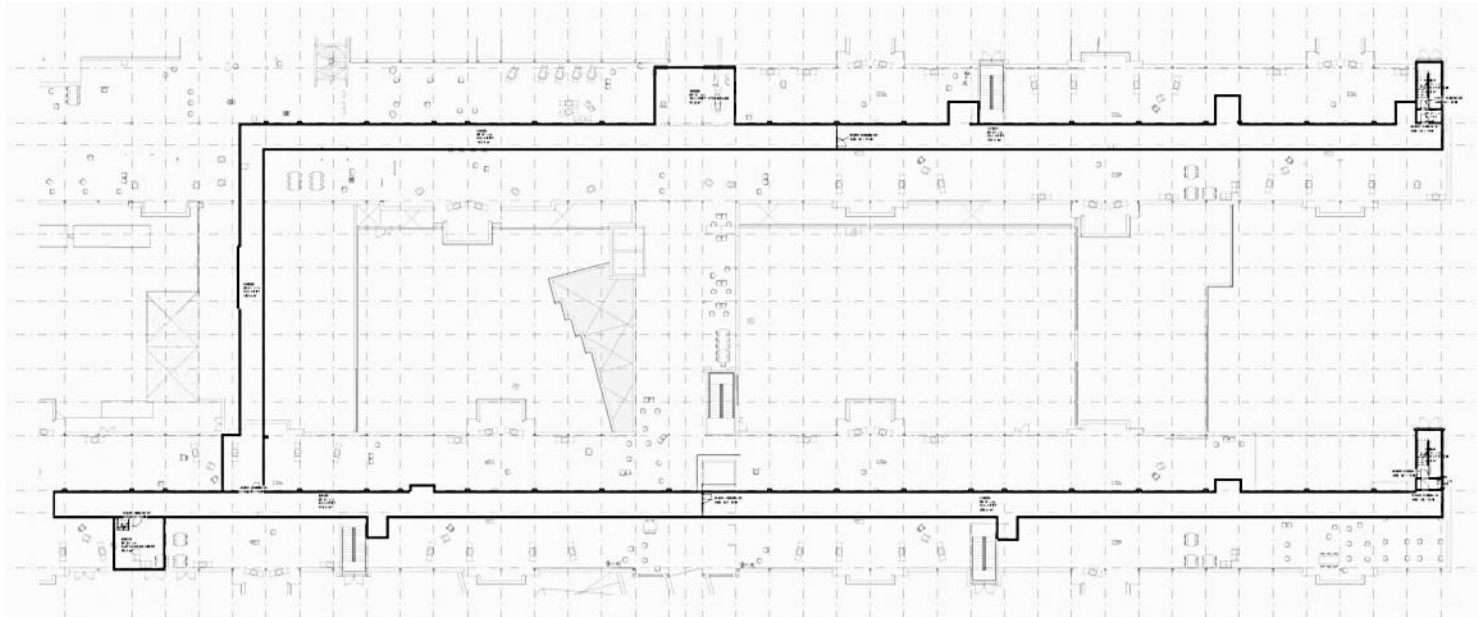
Constructions

BOARCH arkitekter as

ProsjektPartner Bodø as

Norconsult as

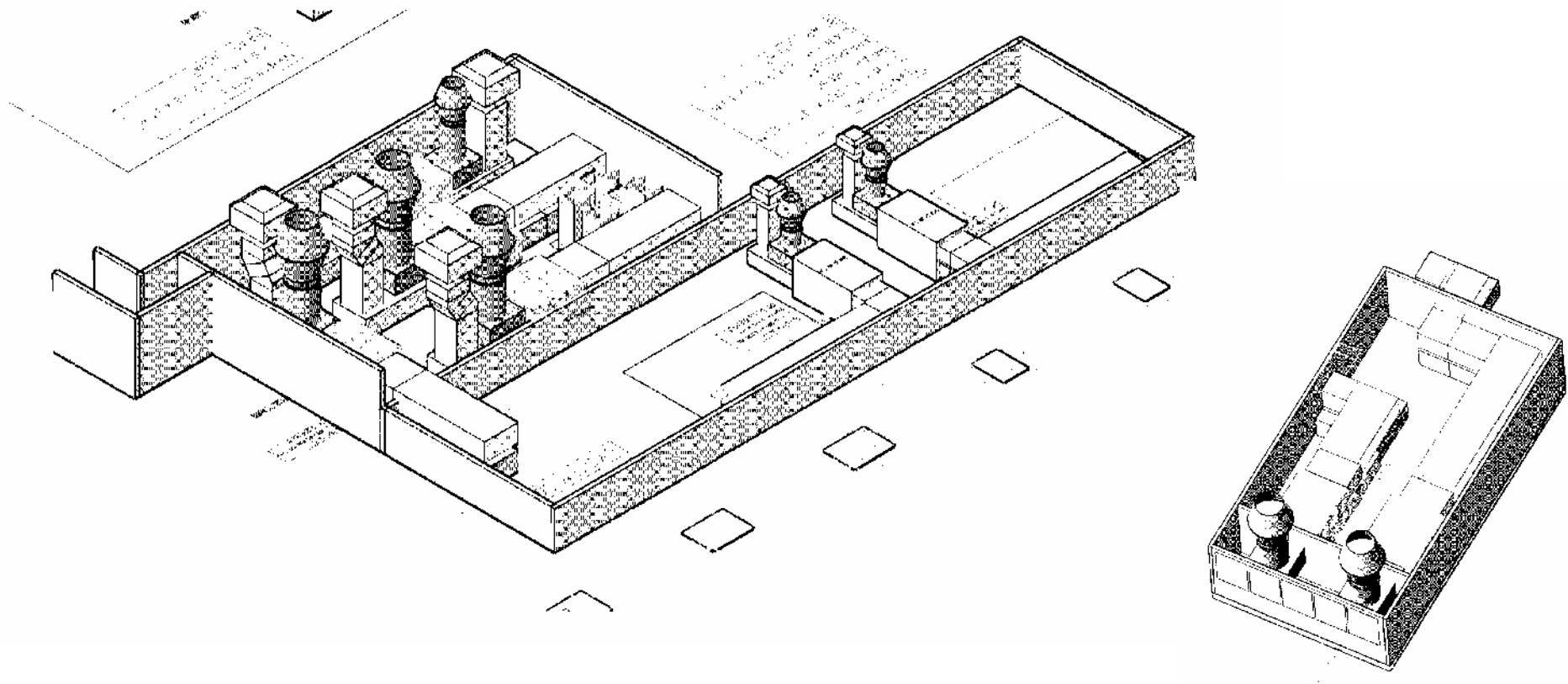
Main technical supplies are conducted via subway, passing along the core of the building wings. Economical limitations put a hold to establishing a complete basement...



NLSH Vesterålen detaljprosjekt

Plan kulvert

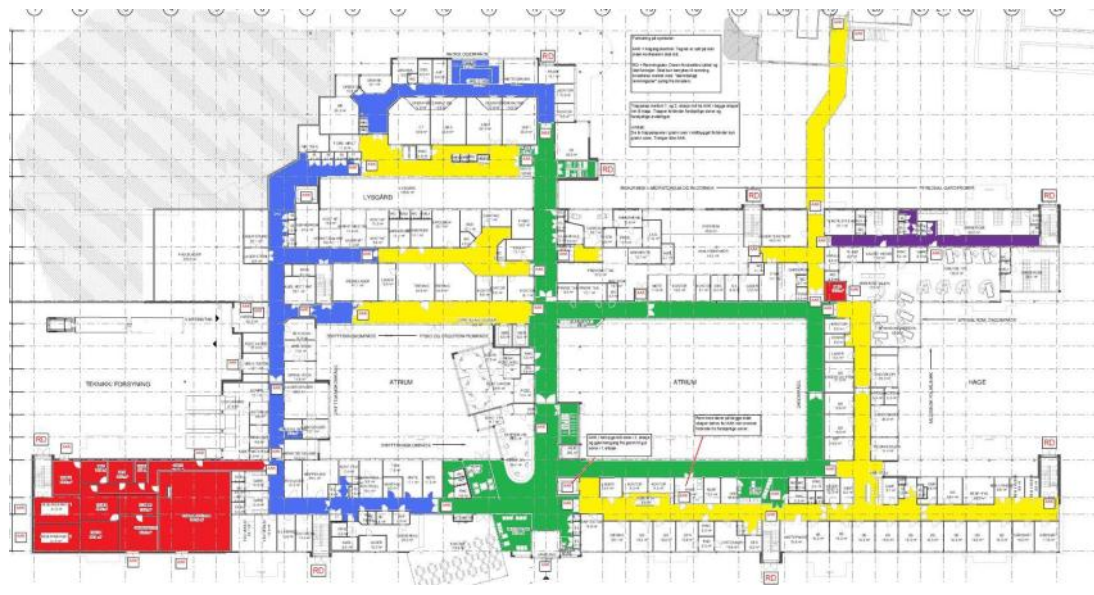
Ventilation plant rooms are located on roof, central on each wing, minimizing distances and duct dimensions. Calculated energy consumption 284 kWh/m² and year



NLSH Vesterålen forprosjekt 2009

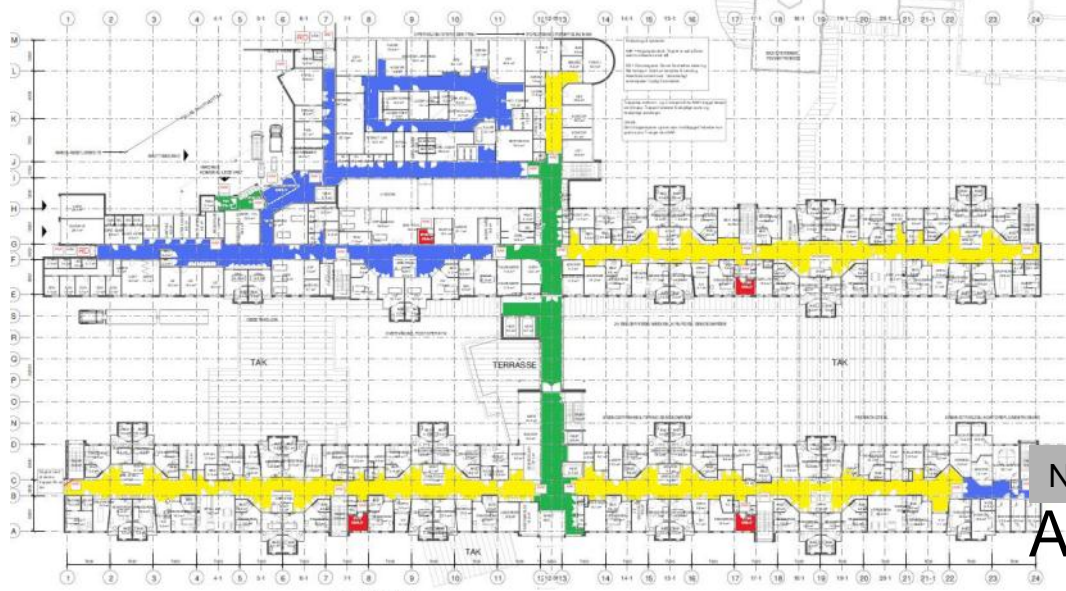
Ventilation, heating

Security combined with openness – ensured through extensive zoning



Tegnforklaring:

- Åpen sone
- Delvis åpen sone
- Lukket sone
- Lukket felles sone
- Låste rom



NLSH Vesterålen forprosjekt 2009

Access, control and security



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Perspective from north east



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Perspective from south west



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Atrium south



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Atrium north – training garden

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NLSH Vesterålen detail project

Building site dec. 2011



NLSH Vesterålen detail project

Building site january 2012