

Introduction

**AAR4680 CIRCULAR STUDIO
Buildings**

Autumn 2024



circular studio
IAT

Circular studio deals with fundamental discussions about the role of the architect, critical thinking and exploration of the potential of architecture as a discipline in an era of climate change, resource consumption and destruction of nature.

As student you will be presented for various perspectives and methods, both technological, humanistic, and artistic, as part of developing a ***circular architecture***.

Introduction

AAR4680 CIRCULAR STUDIO Buildings

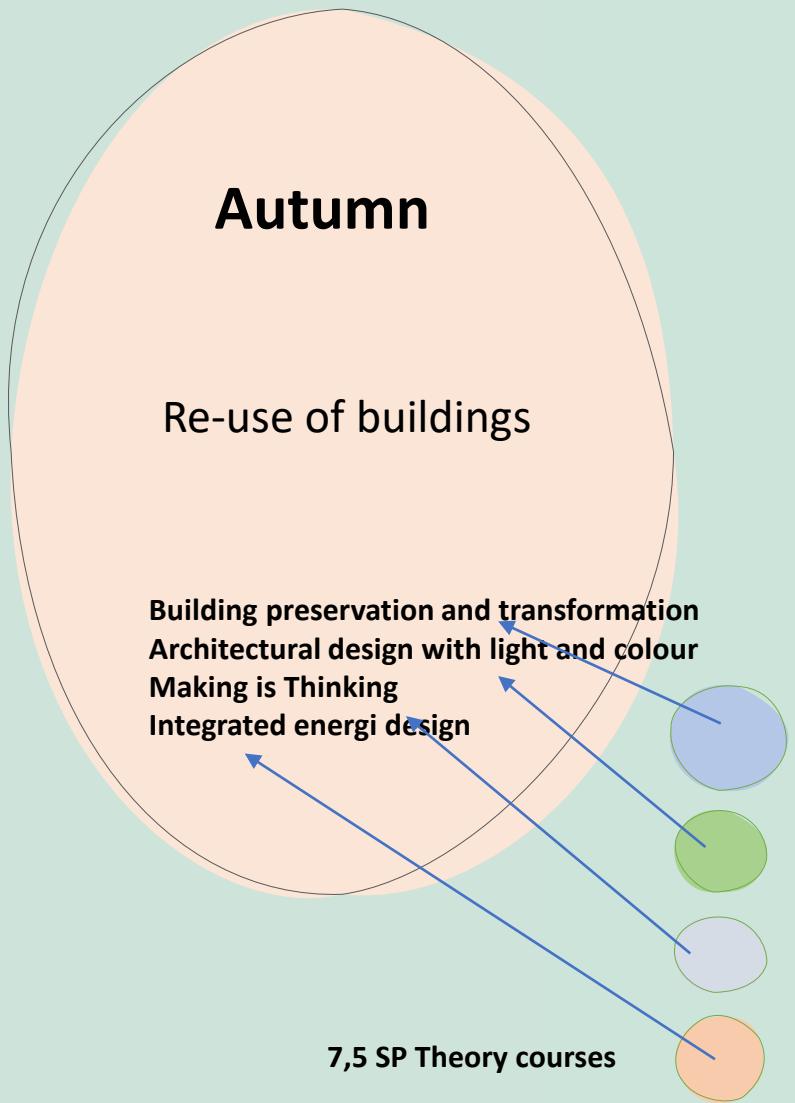
Autumn 2024

Autumn

Re-use of **buildings**

Spring

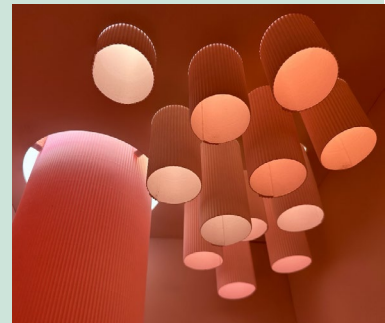
Re-use of **materials**



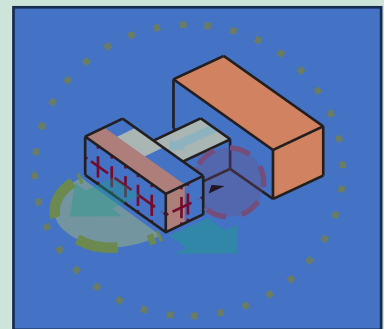
Track 1
Building
preservation &
transformation



Track 2
Architectural
design with light
and colour



Track 3
Integrated energy
design



Track 4
Making is
Thinking





**WE ARE KILLING THE PLANET WITH CONSTRUCTION AND
PRODUCTION OF BUILDING MATERIALS**

Once upon a time, buildings were moved to where they were needed in Norway



The fishing boat MK Kveldsol is towing fisherman Birger Rasmussen's house from the north side of Kasfjorden in Troms to the south side during a relocation in August 1952. Photo by Karl Mikaelson, Sør-Troms Museum.



When we abandoned this tradition, we ended up here: there are between 100,000 and 200,000 abandoned homes in Norway (SSB). The number of cold houses is much higher but has never been attempted to calculate.

If we are to make a significant contribution to the national climate account while simultaneously preserving the country's built heritage, this resource must be utilized as an alternative to building new.





OUR CASE AT HAND: ØRLANDET

CAN AIRCRAFT NOISE POLLUTION CREATE A NEW MOMENTUM FOR CIRCULARITY?



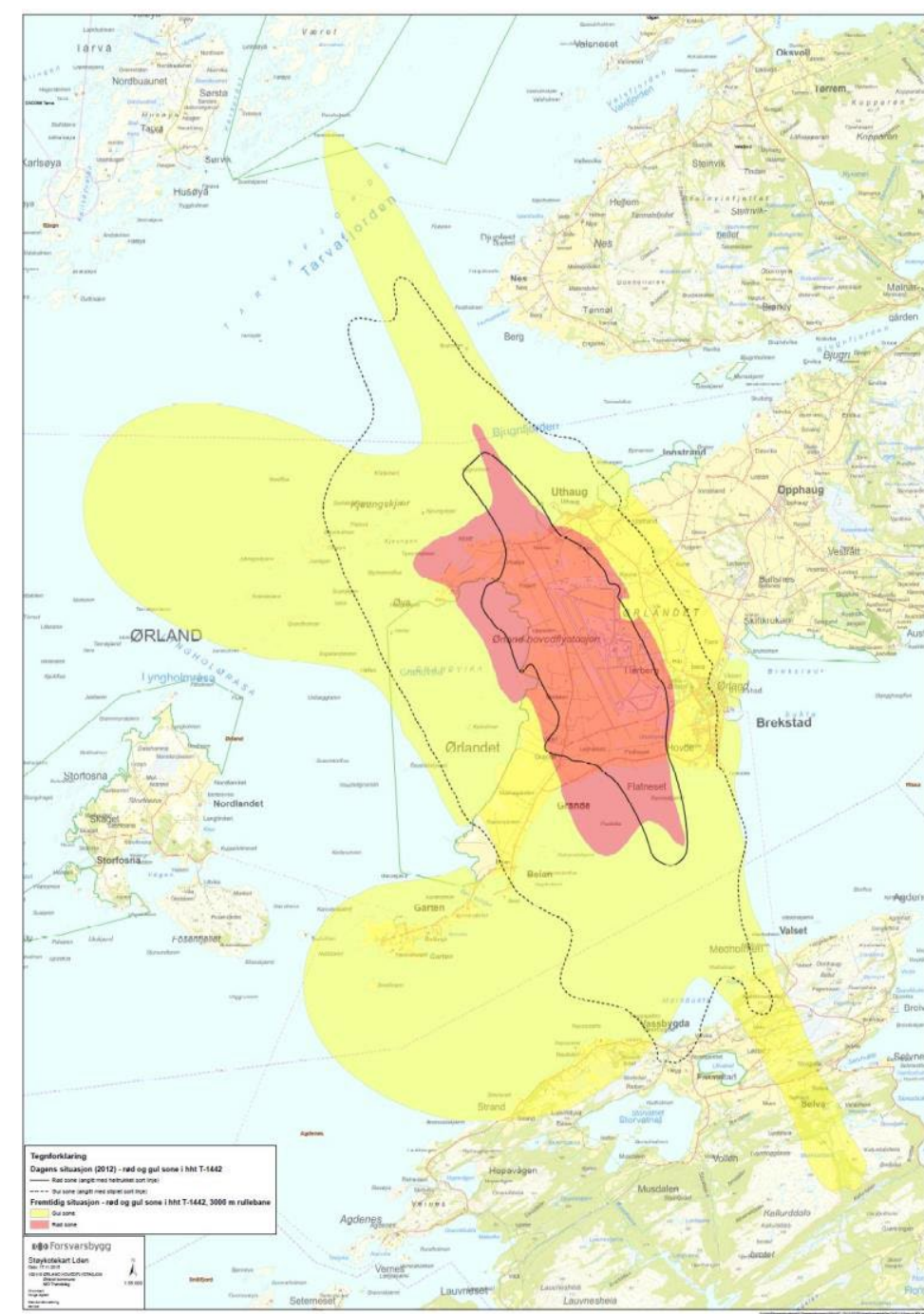
Ørland has had a military airbase since the Second World War

In 2012 the Norwegian Parliament decided to consolidate most of the country's fighter jet forces at this location.

Almost all new F35 fighter jets will be stationed in Ørland.



Military development in Ørland



BUILT COMMUNITIES ON THE MOVE

Track 1

BUILDING PRESERVATION & TRANSFORMATION
Jon Nordsteien / Trond Eide



circular studio
IAT

RECYCLING HOUSES IN ØRLAND

*Moving, relocating and
reusing existing buildings*

Building preservation
Building documentation

Autumn 2024

Institute for architecture and technology,
Research group for building preservation and
transformation



NEW NEIGHBOURHOOD OF RELOCATED AND PROTECTED HOUSES IN DOWNTOWN BREKSTAD





Visualization



Visualization

NTNU conducted a master course in building protection in 2016 and 2022, where the houses that are to be relocated was the case.



THE FLEXIBLE AND MOBILE BUILT HERITAGE OF NORWAY



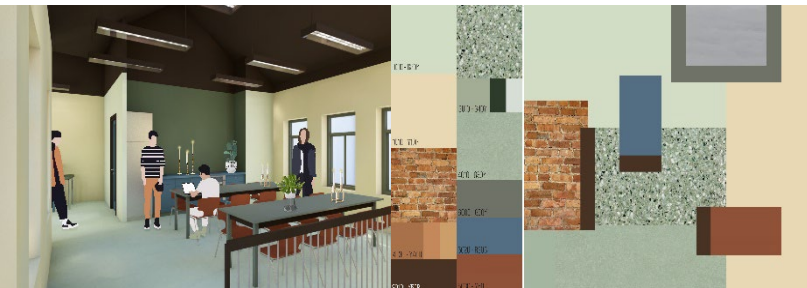
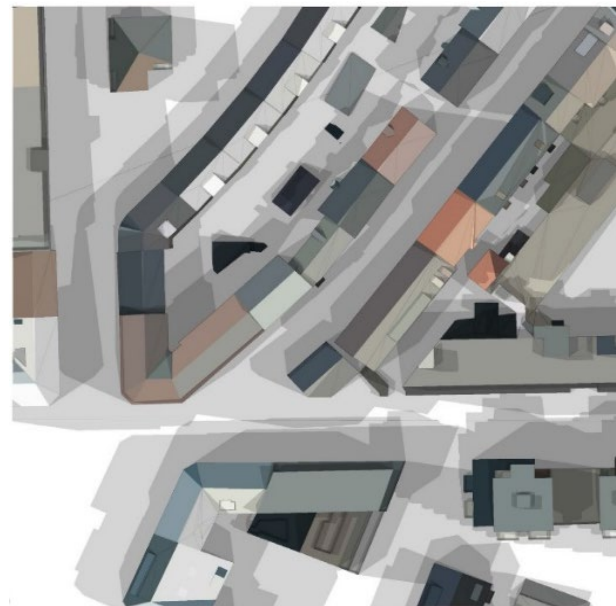
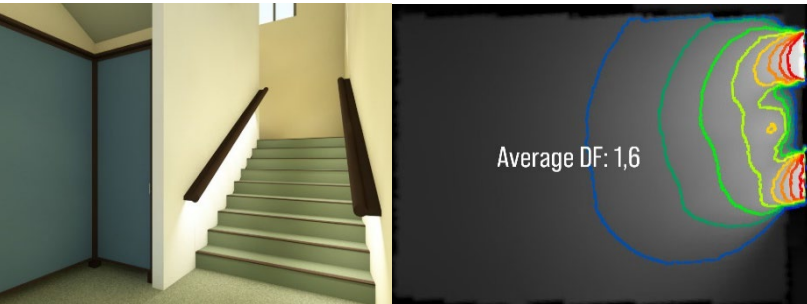
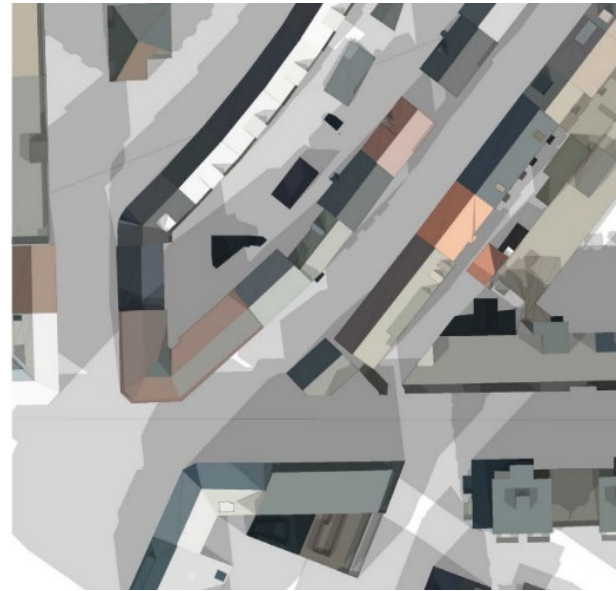
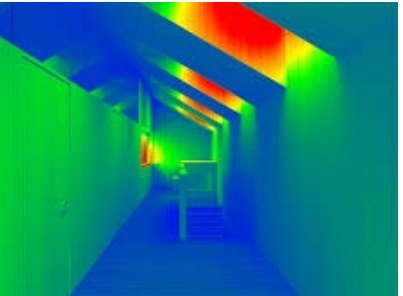
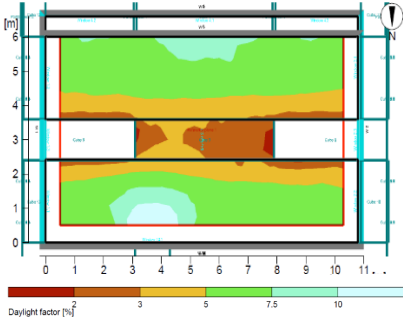
Track 2

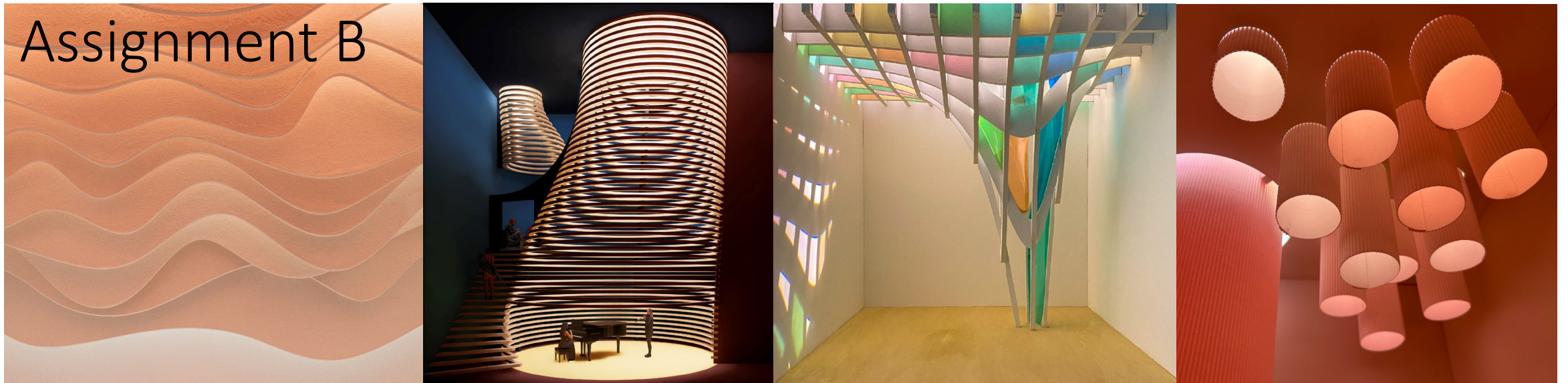
ARCHITECTURAL DESIGN WITH LIGHT AND COLOUR
Kine Angelo



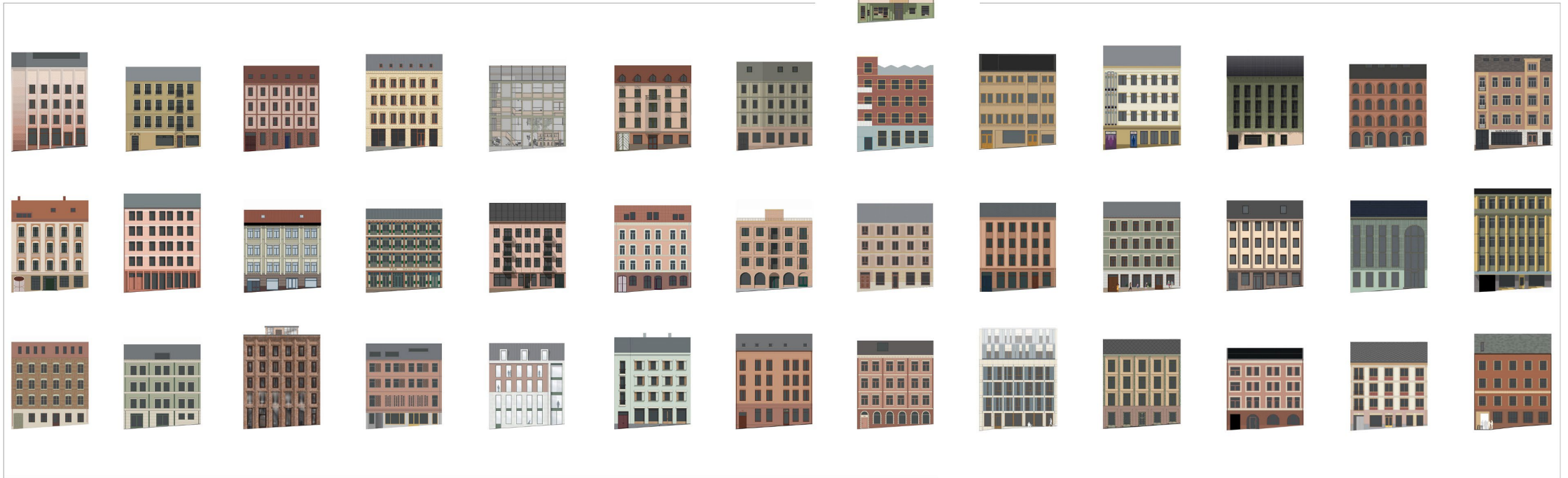
circular studio
IAT

Track 2: Architectural Design with Light and Colour

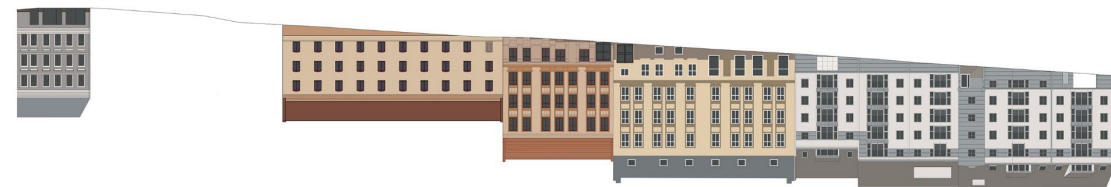




Assignment C



Urban infill project

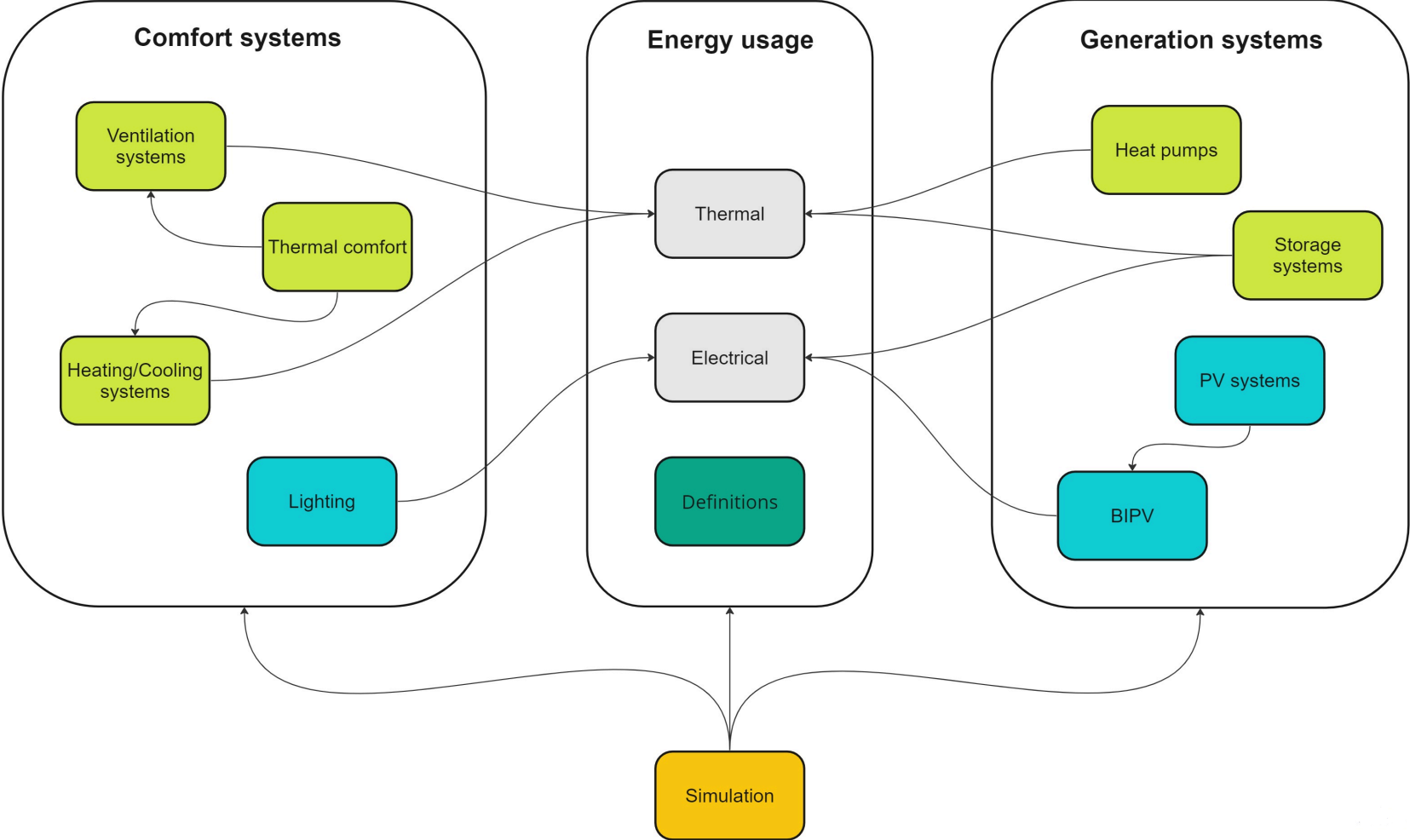


Track 3

INTEGRATED ENERGY DESIGN
Gearoid Patrick Lydon



circular studio
IAT



Learning outcome

Track 3: Integrated Energy Design

Heating

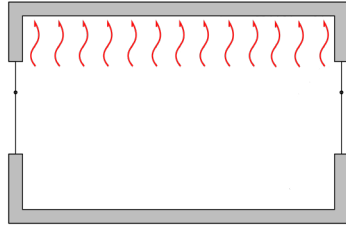
Envelope thermal properties and airtightness



Passive

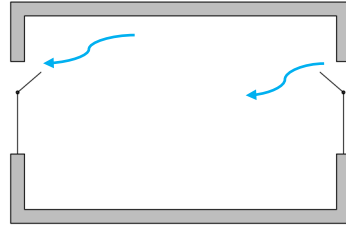
Cooling

Thermal mass
Solar gains



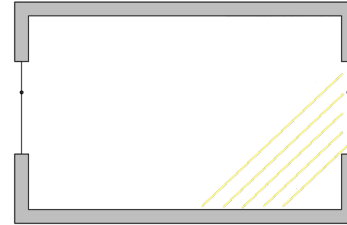
Ventilation

Natural
Control



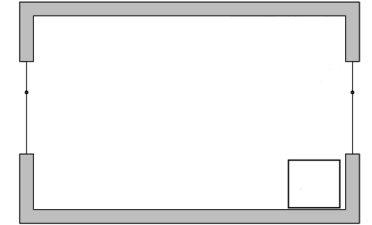
Lighting

Natural
Glare protection

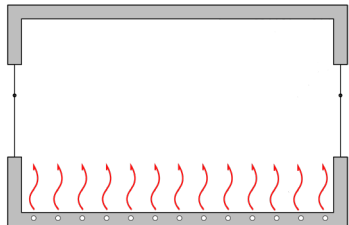


Equipment

Efficient appliances

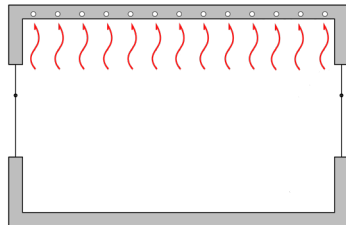


Systems compatible with renewable energy sources

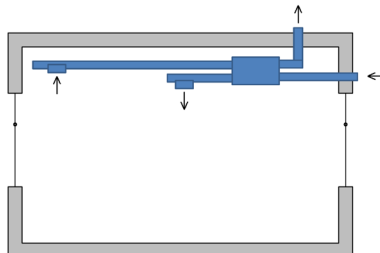


Active

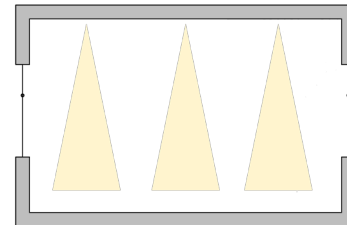
Systems compatible with renewable energy sources



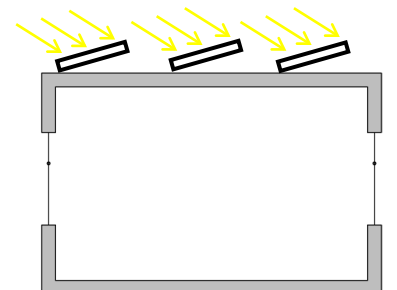
Mechanical
Heat recovery

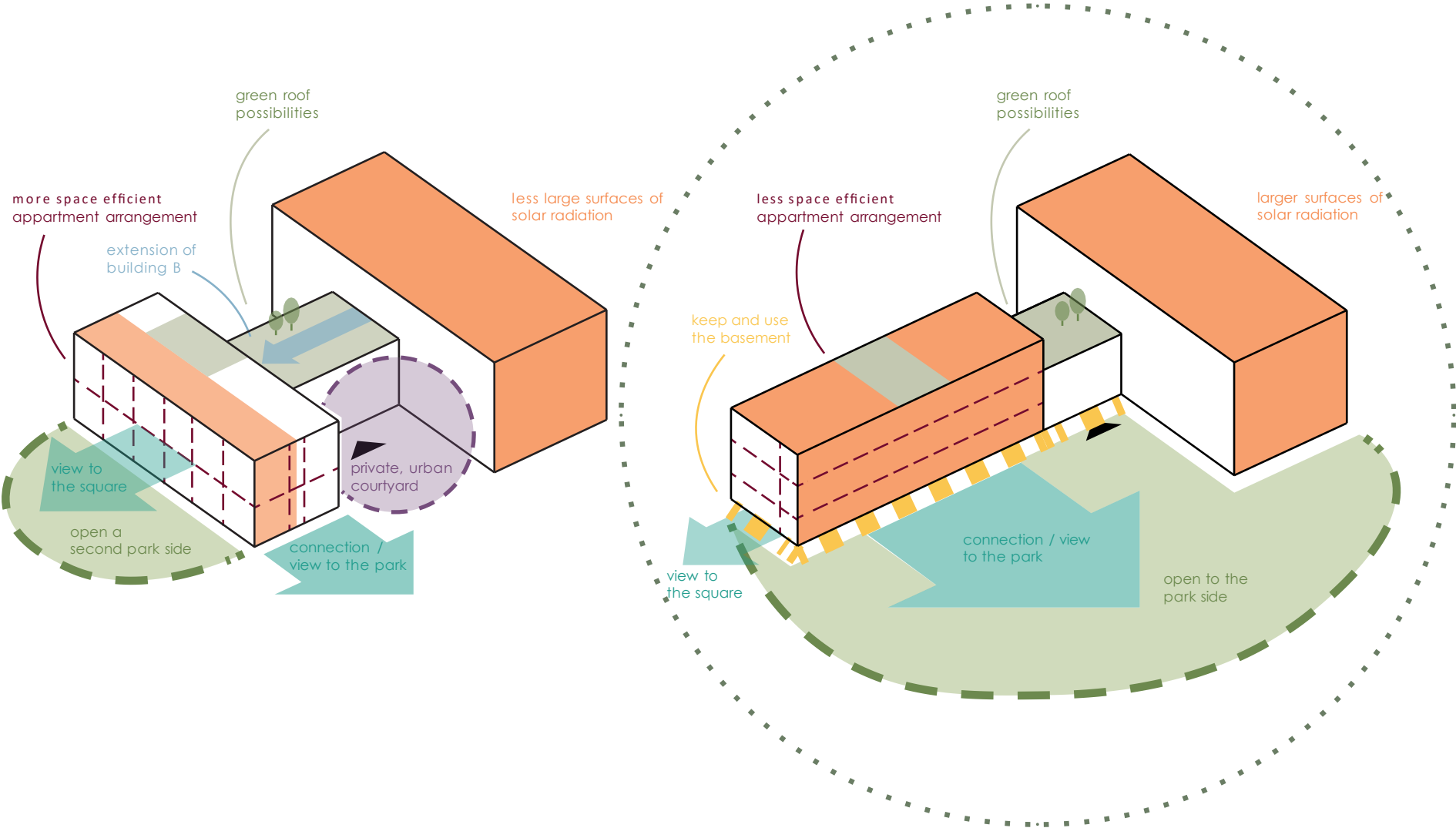


Low energy
lighting



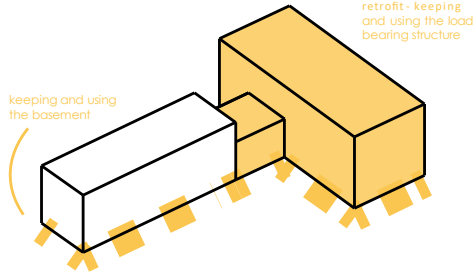
PV systems



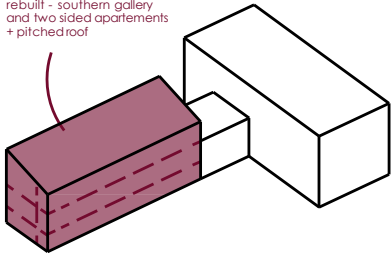


Student projects

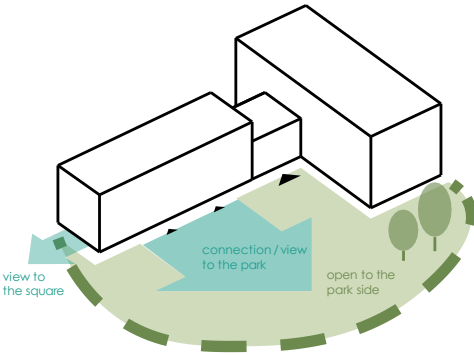
Track 3: Integrated Energy Design



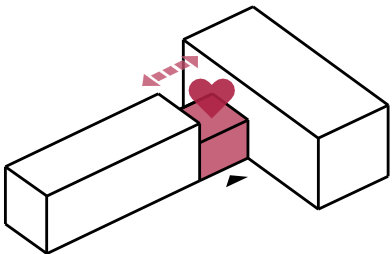
01 | retrofit



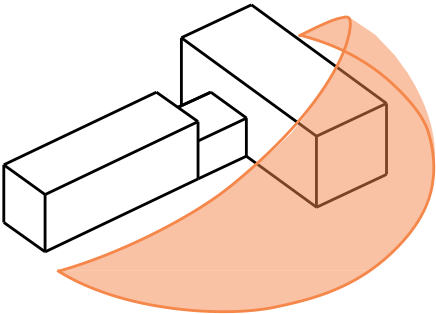
02 | rebuilt



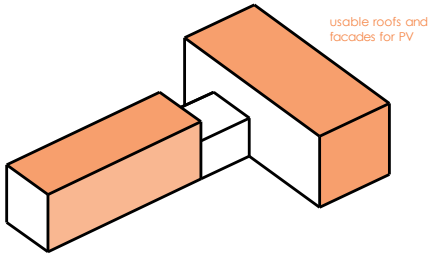
03 | create exterior connections



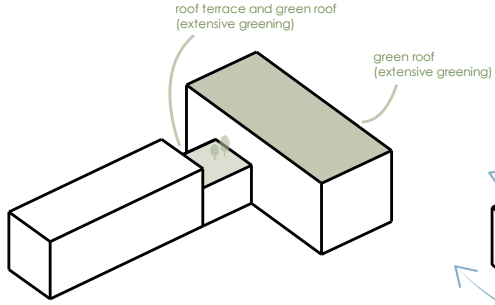
04 | create an inner center



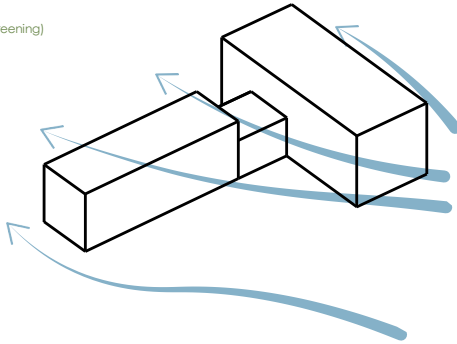
05 | align with the sun path + light



06 | use sensible surfaces for PV



07 | establish green roofs



08 | preserve wind corridors

Track 4

MAKING IS THINKING

Nina Haarsaker / Bjørn Otto Braaten



circular studio

IAT

RED ZONE exploration

Through different artistic tools and methods, balancing imagination, skills and knowledge, the aim is to explore and decode the identity and potential of the abandoned landscape and farm-buildings within the Ørlandet **RED ZONE**.



TRACK 4



MAKING IS THINKING

Workshops

Through different workshops you will be challenged in open ended explorations of uncertainty and risk – not to be feared but embraced, and how you can learn from each others creative and technical competence.



Architectural design

Based on the workshop explorations, individual architectural design projects will be developed that discuss potentials and imaginary futures for the red zone landscape and its discarded inventory, in a circular architectural perspective.

PRACTICAL INFORMATION concerning all tracks

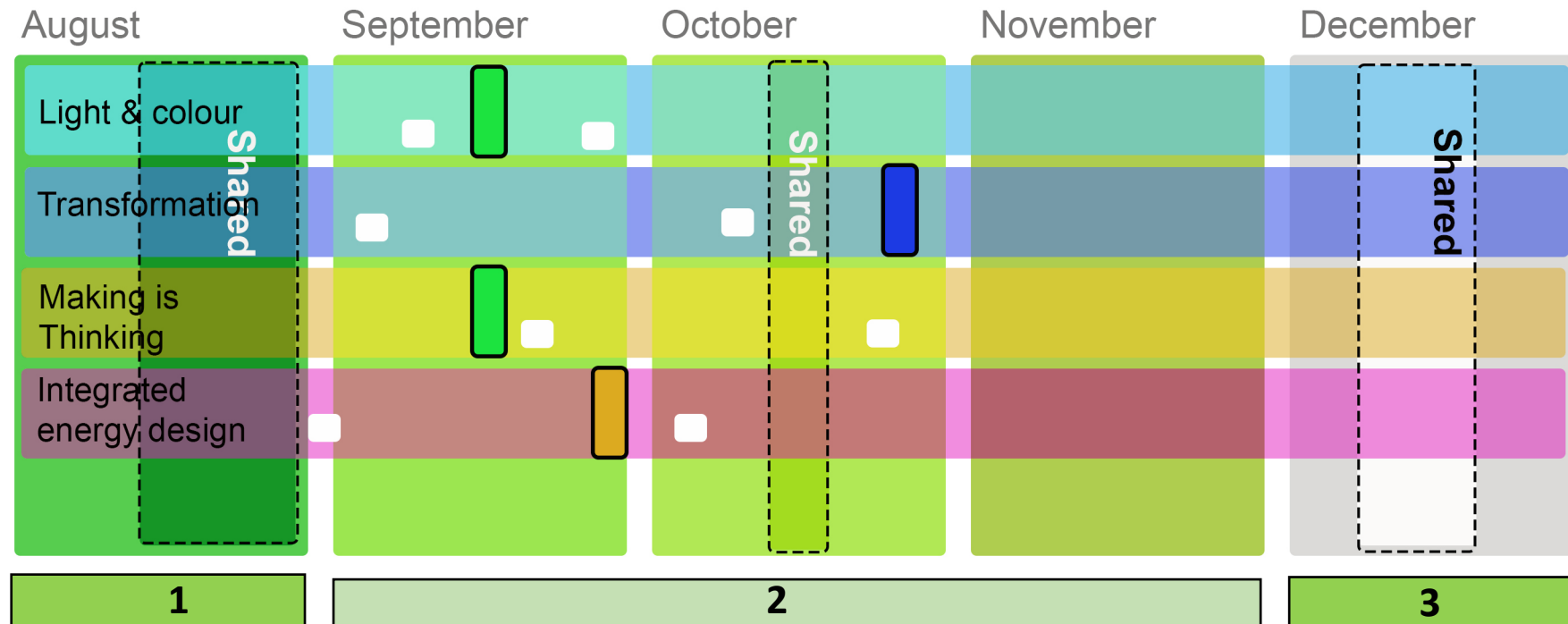


circular studio
IAT

The semester will have three phases:

1. Common kick-off. Here, you will receive an introduction to all theory courses that are related to the specialization areas. The theory courses differ in their schedule, some will be intensive at the beginning of the semester, while others accompany the design course throughout the semester.
2. Project phase, with a common mid-term event..
3. Common exhibition, final presentation, discussion, and critical reflections to round up the semester

Circular studio - Buildings AUTUMN



PLAN FOR START-UP WEEKS AAR4680 CIRCULAR STUDIO AUTUMN 2024

	Monday 19.08.	Tuesday 20.08	Wednesday 21.08	Thursday 22.08	Friday 23.08
WEEK 34		Introduction Trondheim	Deconstruct- ing building Ørlandet	Moving de- constructed building Ørlandet	Reconstruct- ing building Ørlandet
		Introduction Trondheim	Deconstruct- ing building Ørlandet	Reconstruct- ing building Ørlandet	Reconstruct- ing building Ørlandet

	Mandag 26.08	Tirsdag 27.08	Onsdag 28.08	Torsdag 29.08	Fredag 30.08
WEEK 35		Perspective 1 Issue and workmethods Trondheim	Perspective 3 Issue and workmethods Trondheim	Exhibition / presentations Trondheim	
		Perspective 2 Issue and workmethods Trondheim	Perspective 4 Issue and workmethods Trondheim	Shared wrap- up session Trondheim	

How to apply:

1. You apply for AAR4680 Circular Studio – Buildings
2. You choose priority of tracks

example:

- | | |
|---|--|
| 1 | Architectural Design with Light & Colour |
| 2 | Building Preservation and Transformation |
| 3 | Making is Thinking |
| 4 | Integrated Energy Design |

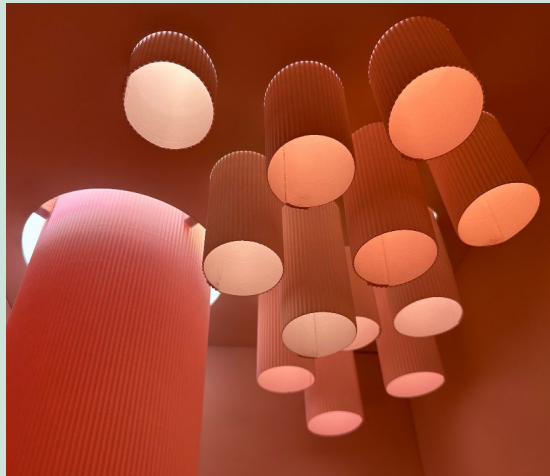


circular studio
IAT

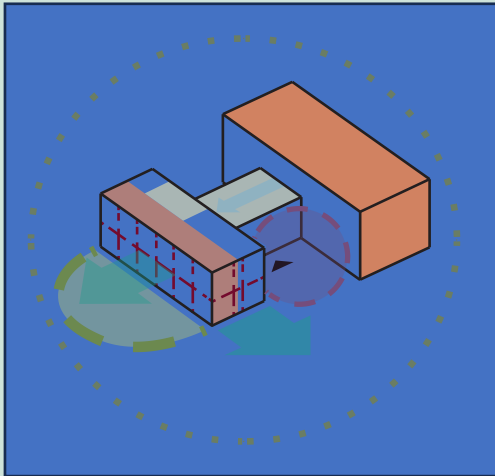
BP&T



L&C



IED



MiT



WELCOME TO



!

circular studio
IAT