

GOING SOFT

Innovations for Low Carbon Urban Living
IBA Hamburg GERMANY

LIVING WITH WOOD

NESEA 2014

6 March 2014

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Principal: KVA Matx
MIT : Professor of Architecture

KVA matx



WHY SOFT?



Coating
Wallpaper
Adhesive
Plaster Internal
Brickwork
Mortar
Water Pipes
Insulation Pipes
Electrical Wires
Insulation Wires
Ductwork
Adhesive
Insulation
Anchors
Mortar Armor
Concrete Reinforcement
Etch Primer
Plaster External
Coating
...and probably more

Gold Bond

BUILDING
PRODUCTS

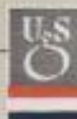
1947



NATIONAL GYPSUM COMPANY • BUFFALO, N. Y.

TECHNICAL INFORMATION

WALL & CEILING CONSTRUCTIONS



United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

GENERAL OFFICES—300 WEST ADAMS STREET, CHICAGO 4, ILLINOIS

NEW YORK
NEW ARDEN
NEWARK, N. J.
RICHMOND
RICHMOND
ALBANY
BUFFALO

WASHINGTON, D. C.
PHILADELPHIA
PHILADELPHIA
CINCINNATI
PITTSBURGH
CINCINNATI
CLEVELAND
ST. LOUIS

MEMPHIS
DENVER, CO.
MEMPHIS, TN
MEMPHIS, TN
MEMPHIS, TN
MEMPHIS, TN
MEMPHIS, TN

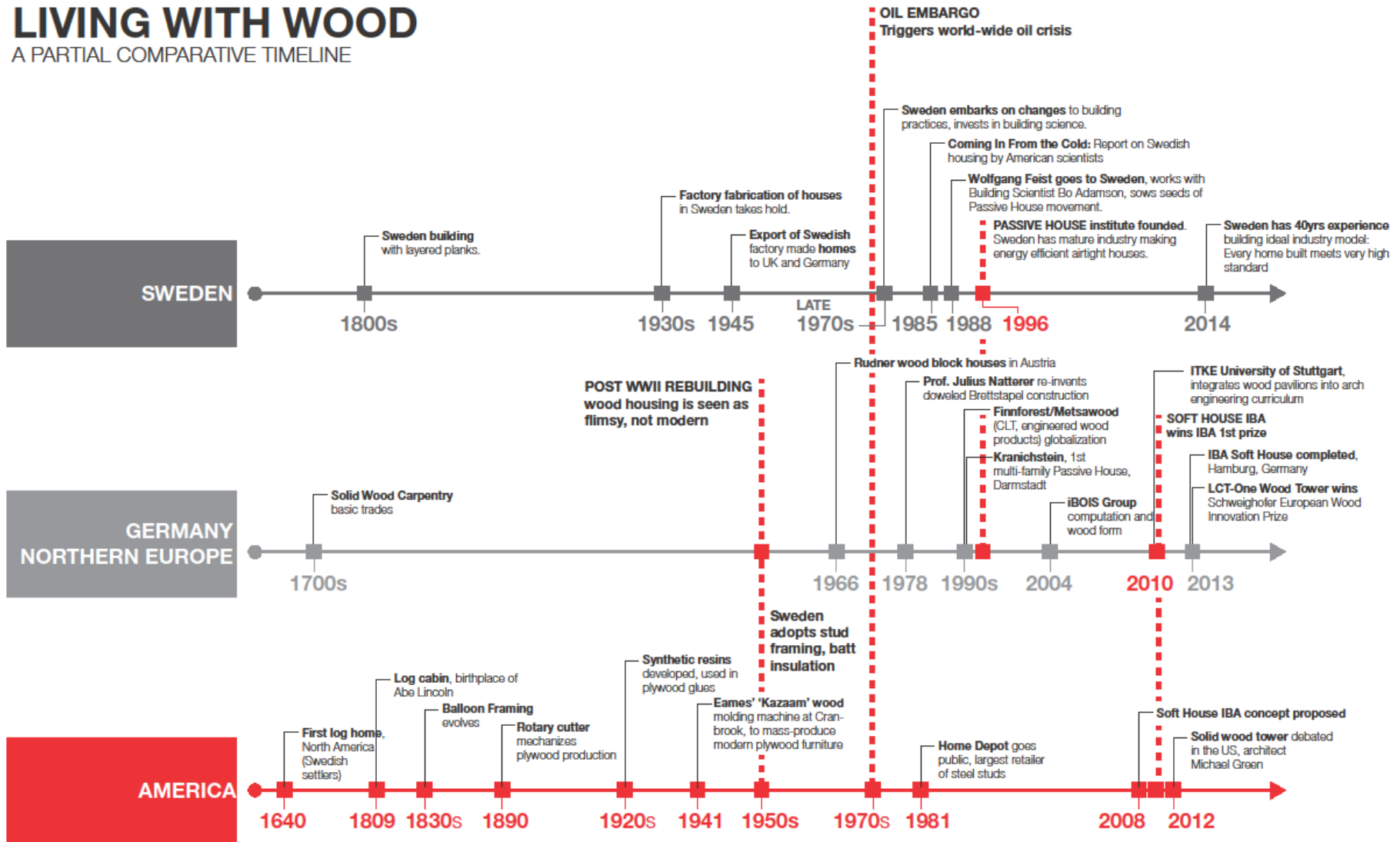
MEMPHIS
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UNITED STATES GYPSUM

LIVING WITH WOOD

A PARTIAL COMPARATIVE TIMELINE



SOFT HOUSE DESIGN CONCEPTS

SOFTWOOD

Brettstapel old /new solid-wood construction

SOFT ENERGY PATHS

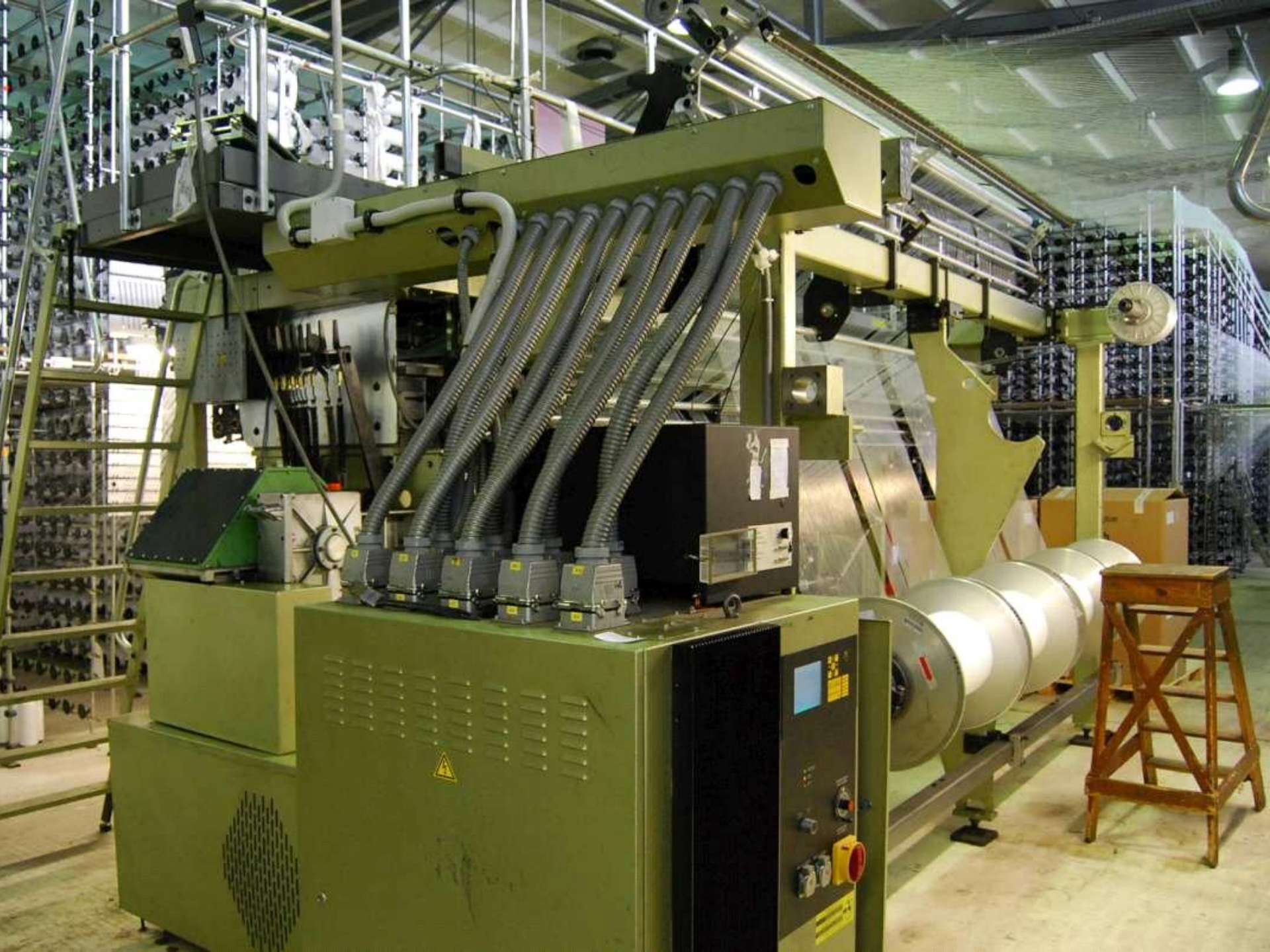
Ground water radiant heat/cool, District clean energy,
Low carbon flexible solar on-site generation

SOFTWARE

Networked furnishings and building,
responsive to the exterior environment, an active house!

SOFT POLICY

Create a desirable low carbon lifestyle



IBA HAMBURG SOFT HOUSE

International Building Exhibition /City of Hamburg
Federal Republic of Germany

35 km² sustainable Smart city development

Elbe Islands, Hamburg, Germany

5,000 new dwellings before 2020

Smart City for CO₂-neutral lifestyles

Resilient flood mitigation /climate protection

District level and on site clean energy

IBA HAMBURG SOFT HOUSE

International Building Exhibition /City of Hamburg
Federal Republic of Germany

Work/Live Row House Residential Development

IBA Design mandate for innovation

Carbon neutral Brettstapel softwood construction

Responsive Energy Harvesting Façade

Smart Building & Energy Monitoring System

LED integrated curtains

Low voltage energy distribution in curtain tracks

EXPLORE IBA IN 2013 PRESENTATION YEAR PROGRAMME

RENEWABLE WILHELMSBURG CLIMATE PROTECTION MEDIA DOCK WORLD COMMERCIAL PARK VERING GLOBAL NEIGHBOURHOOD UNIVERSITY OF NEIGHBOURHOODS OPENING OF THE SPREEHAFEN SMART PRICE HOUSES YERINGECK JETTY AT ERNST-AUGUST LOCK IBA DOCK WILHELMSBURG CENTRAL INTEGRATED ENERGY HILL WOOD 5 1/4 JOHANNA BAKERY LEARNING BY DOING PARK QUARTER VELLUX MODEL HOME HARBURG SCHLOSSINSEL EXPANSION OF THE CENTRE OF THE ELBE ISLANDS CREATIVE QUARTER SMART MATERIAL HOUSES WÄLDERHAUS GEOTHERMAL ENERGY WILHELMSBURG ENERGY BUNKER ELBE ISLAND MARINA ON THE SCHLOSSINSEL WATERHOUSES OPEN HOUSE MARINA ON THE SCHLOSSINSEL WÄLDERHAUS ENERGY BUNKER ELBE ISLAND CREATIVE QUARTER OPEN HOUSE MEDICAL CENTRE AND HEALTH ACADEMY USING BY THE KAUFHAUSKANAL GEORGSWERDER ENERGY NEW HAMBURG TERRACES GEORGSWERDER ENERGY NEW BUILDING OF THE STATE MINISTRY FOR URBAN DEVELOPMENT GATEWAY TO THE WORLD EDUCATION CENTRE ELBE HYBRID HOUSES GEORG-WILHELM COURTYARDS IBA DOCK CENTRE OF LANGUAGE AND EDUCATION

TOWARDS A NEW CITY

Invitation to IBA Hamburg's presentation year
Dear Readers,
The time has come; the first building exhibition ever held in Hamburg - IBA Hamburg - embarks on its presentation year in 2013.
Offering a wide-ranging programme to showcase its 60 projects, IBA Hamburg illustrates ways to effect the changes that 21st-century cities will need to make in terms of energy efficiency, social structures and town planning.
The opening weekend, 23-24 March, heralded the start of an eventful year for IBA. From now until 3 November 2013, IBA Hamburg invites you to personally explore the IBA projects and the seven-year IBA process: choose from any of the numerous events, daily tours and guided visits, exhibitions or professional seminars and congresses.

IBA Hamburg projects were developed to address one or more of three central issues - known as the key themes. Planned after intense study of the project area and exchanges with experts and local residents, these projects present exemplary solutions to some of the issues metropolises now face:
How can an urban community that is increasingly international realize its full potential? What forms might human interaction in the metropolis take in future? Good educational opportunities and cultural programmes are keys to a viable future coexistence of cultures on the Elbe Islands. **COSMOPOLIS**

What urban development possibilities are hidden in the border and transition areas of the metropolis? How can the "inner peripheries" become livable neighbourhoods? New spaces for the city. **METROZONES**

How may growth and sustainability be reconciled? What might constitute a climate-friendly future for the metropolis? The Elbe Islands as a case study of climate-neutral urban development: the target is a balance between local energy consumption and generation of renewable energy. **CITIES AND CLIMATE CHANGE**

The common thread running through the projects is originality with innovative force. IBA projects make life on the Elbe Islands better - the effects will last way beyond 2013. Come and visit Hamburg's Elbe Islands. Explore IBA. You are warmly welcome.

Uli Hellweg

Uli Hellweg
Managing director IBA Hamburg GmbH



Metrozones

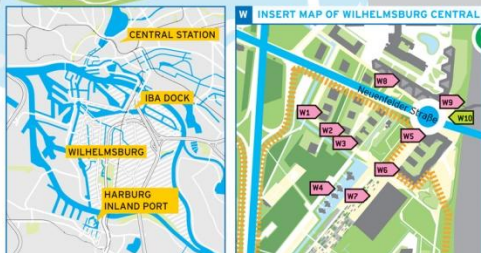


This booklet presents a selection of IBA building projects. IBA Hamburg is involved in around 60 projects: a large number of them are new buildings, but many are social and cultural projects, or projects tied to no single, specific place, such as the Education Drive to expand educational programmes, or the Renewable Wilhelmsburg Climate Protection Concept that incorporates many distinct measures (like the Top Climate Plan, or Hamburg Energy Partnerships), which are designed to make the Elbe Islands a model of climate-neutral urban development.

Cosmopolis

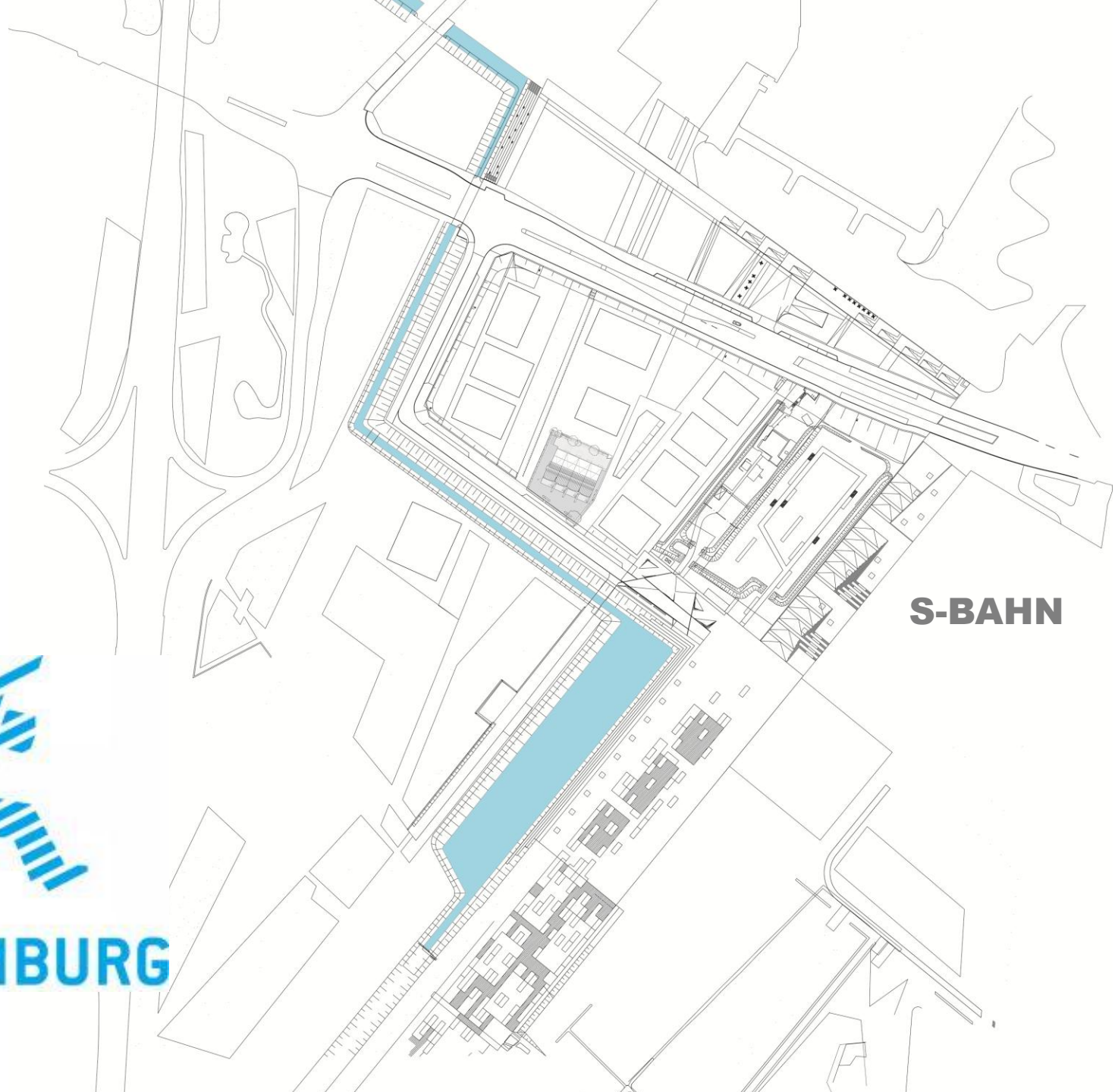


Cities and Climate Change



- IBA-bus / Exhibition
- Viewing Point
- Igs garden show site
- StadTRAD cycle station
- P Car parking
- F Ferry jetty
- HVV-ferry no. 73





S-BAHN

IBA HAMBURG SOFT HOUSE

International Building Exhibition /City of Hamburg
Federal Republic of Germany

Airtight Building Shell ≤ 0.6 ACH @ 50 Pascal pressure

Annual Heat Req't ≤ 15 kWh/m²/year (4.75 kBtu/sf/yr)

Primary Energy ≤ 120 kWh/m²/year (38.1 kBtu/sf/yr)

Window U-Value ≤ 0.8 W/m²/K

Ventilation w/ Heat Recovery @ 0.45 Wh/m³

Thermal Bridge Free Construction ≤ 0.01 W/mK

SOFT HOUSE TEAM

IBA Hamburg GmbH Public Developer

PATRIZIA Projektentwicklung GmbH Private Developer

KVA Kennedy & Violich Architecture, Ltd. Design, Prime Architect

Site Supervision Architects: 360grad+ architekten

Landscape Architects: G2 Landschaft

Structural Engineer: Knippers Helbig Advanced Engineering

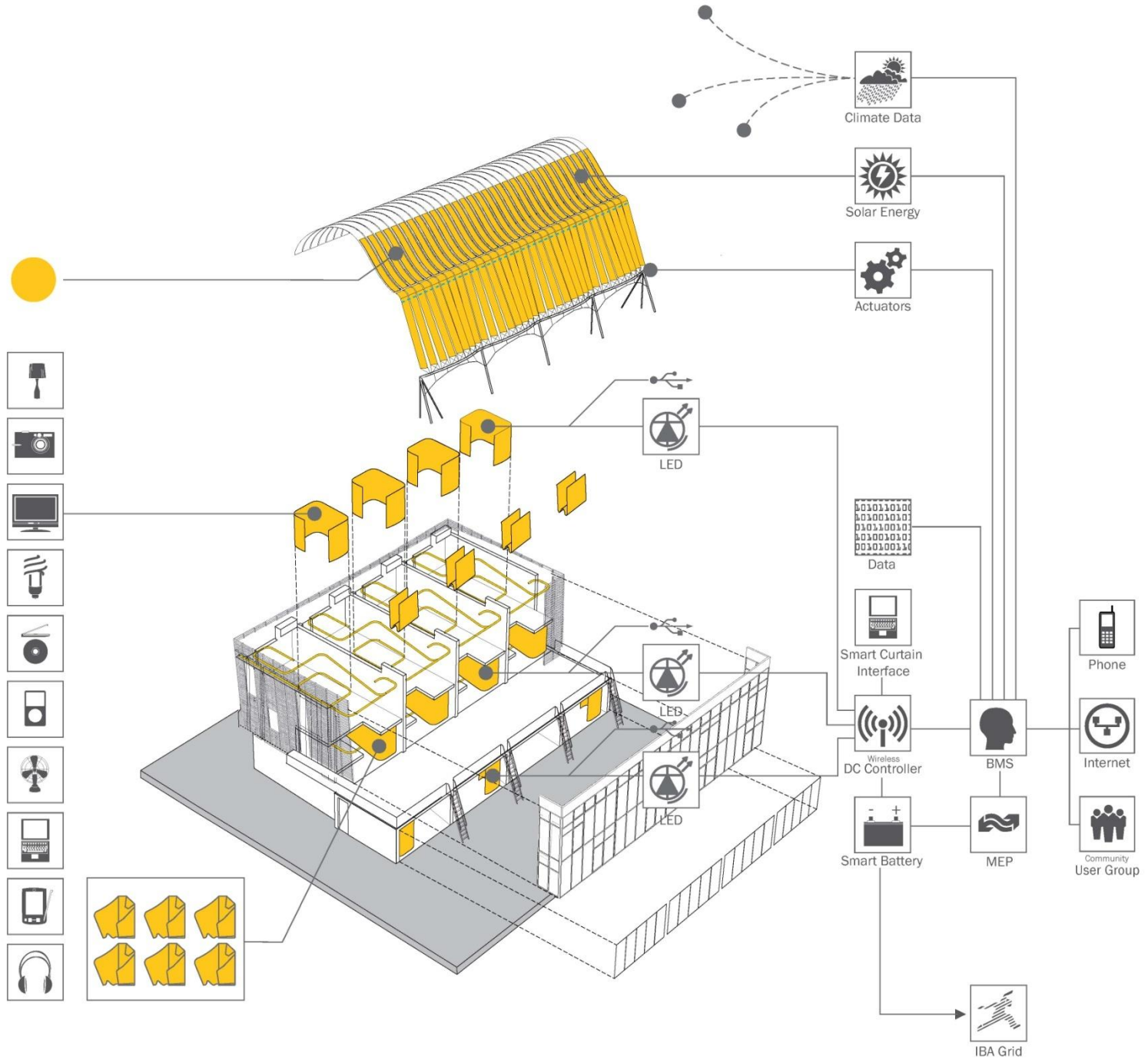
Climate Planning: Steinbeis Forschungsinstitut für Solare
und Zukunftsfähige Thermische Energiesysteme

Mechanical Engineers: Buro Happold, GmbH

Wood Construction: Holzbau Merkle, GmbH

Textile Canopy: Textilbau, GmbH







SOFT HOUSE DESIGN CONCEPTS

SOFTWOOD

Brettstapel old /new solid-wood construction

SOFT ENERGY PATHS

Ground water radiant heat/cool, District clean energy,
Low carbon flexible solar on-site generation

SOFTWARE

Networked furnishings and building,
responsive to the exterior environment, an active house!

SOFT POLICY

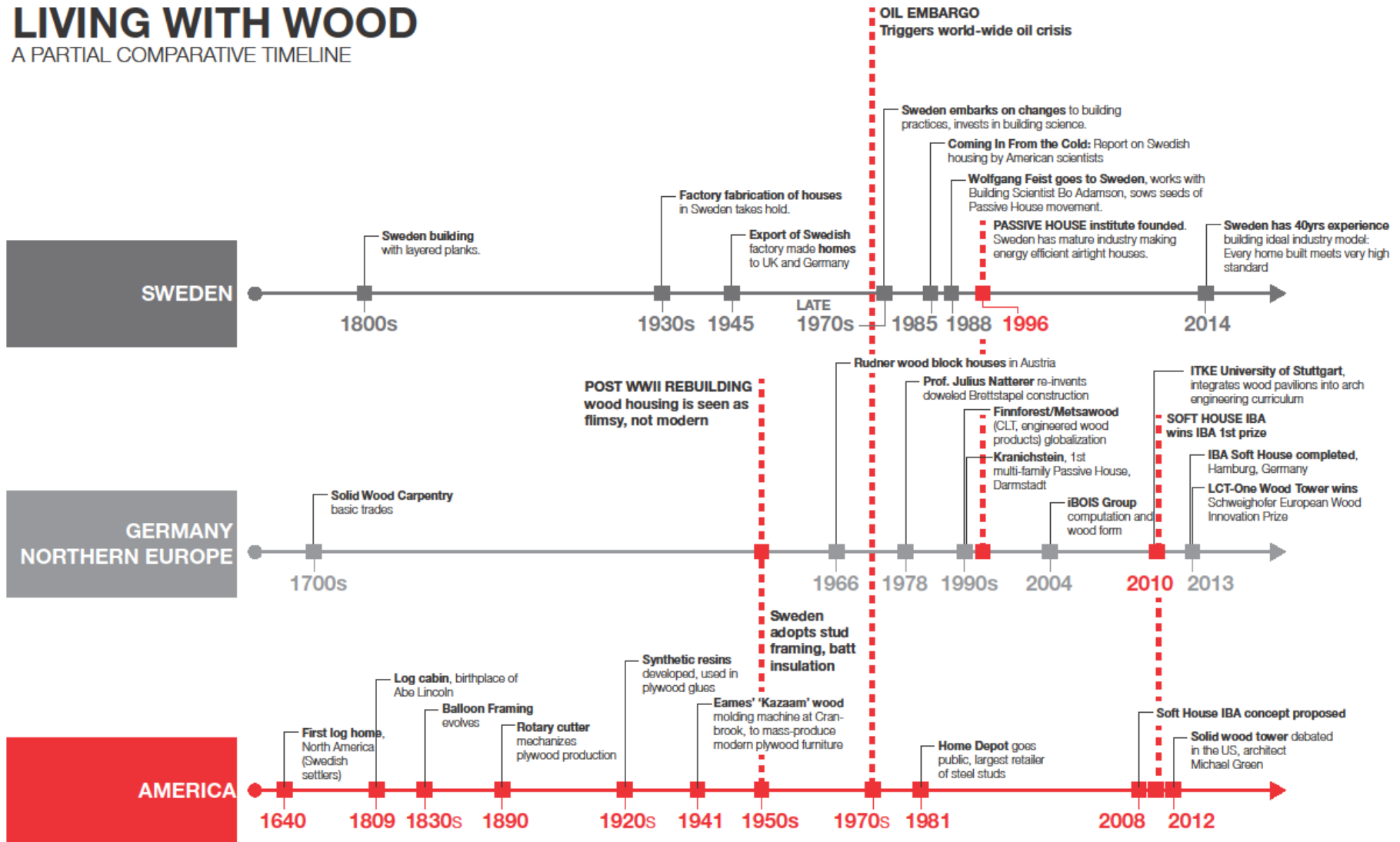
Create a desirable low carbon lifestyle



7,000 Years Ago—solid wood carpentry

LIVING WITH WOOD

A PARTIAL COMPARATIVE TIMELINE

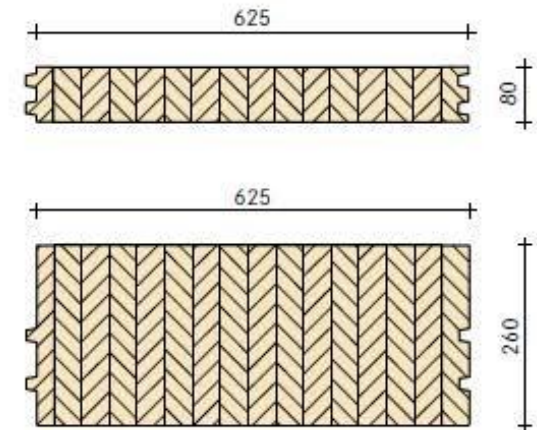


ENGINEERED SOFT WOOD BIO-GENIC DESIGN

- **Brettstapel**

- *Solid timber panels*
- *Glued, nailed, screwed or dowelled*
- *Thickness up to 260mm*
- *Lengths up to 18m*
- *Widths up to 1.2m#*
- *Floor and roof spans up to 10m+*

<http://www.brettstapel.org/Brettstapel/Home.html>





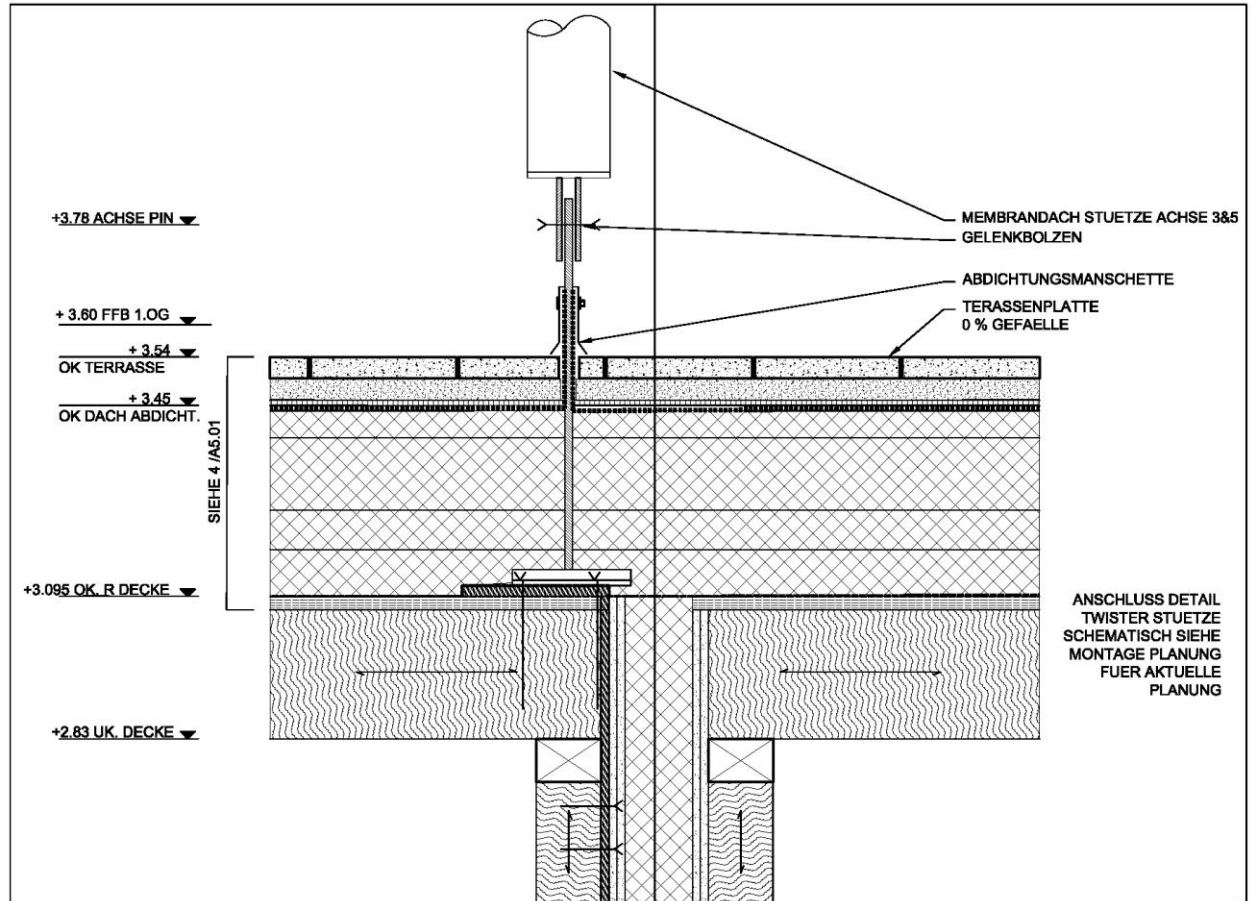
Locally produced solid wood dowelled panels



pre-fabricated solid wood panels go to the site



pre-fabricated solid wood panels on site



Smith & Wallwork Eng.

SOFT HOUSE Detail







WOOD
CUBE

ce?





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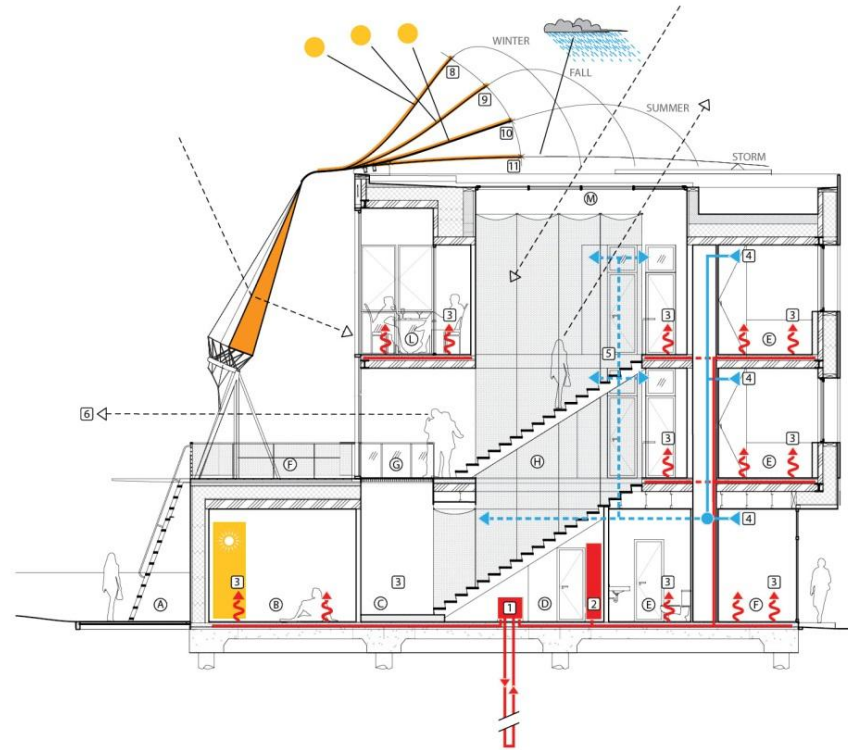
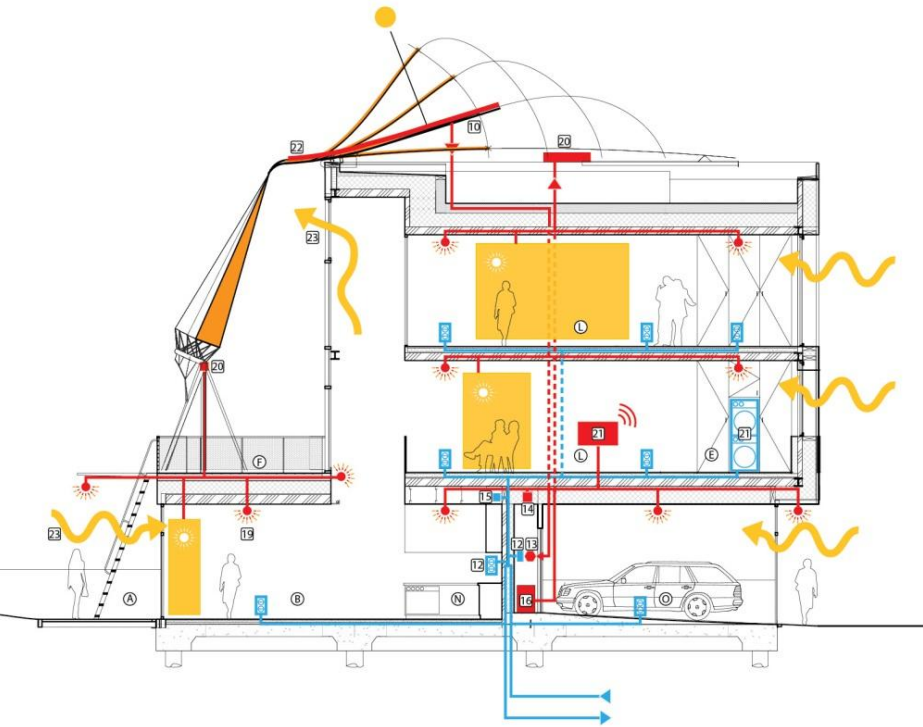
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SOFT POLICY

Create a desirable low carbon lifestyle

SOFT HOUSE COMPONENTS



- A Terrace and Private Garden
- B Living
- C Winter Garden
- D Mech. Room
- E Bath / Laundry
- F Upper Terrace / Garden
- G Bridge
- H Stairwell with Wire Mesh
- K Twister with Reflectors
- L Room

- M Skylight with Reflectors
- N Kitchen
- O Garage
- 1 Geothermal Pump
- 2 Hotwater Tank
- 3 Radiant Cooling and Heating
- 4 Mech. Ventilation Return
- 5 Mech. Ventilation Supply Beyond
- 6 Views to Park and Canal

- 7 Views to Sky and Dynamic Membrane
- 8 Winter Position
- 9 Fall Position
- 10 Summer Position
- 11 Hurricane Position
- 12 Electrical Distribution Panel and Meter (AC)
- 13 AC - DC Converter
- 14 DC Mech. Device
- 15 AC Mech. DevAice

- 16 AC Receptacle
- 17 AC Toner Appliance
- 18 Smart Curtain with Lighting and 20v. USB Connector
- 19 DC 30v. Lighting
- 20 DC Motors
- 21 DC System Controller and Wireless Dimmer
- 22 Photovoltaic Cell
- 23 Natural StackVentilation











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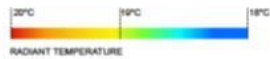
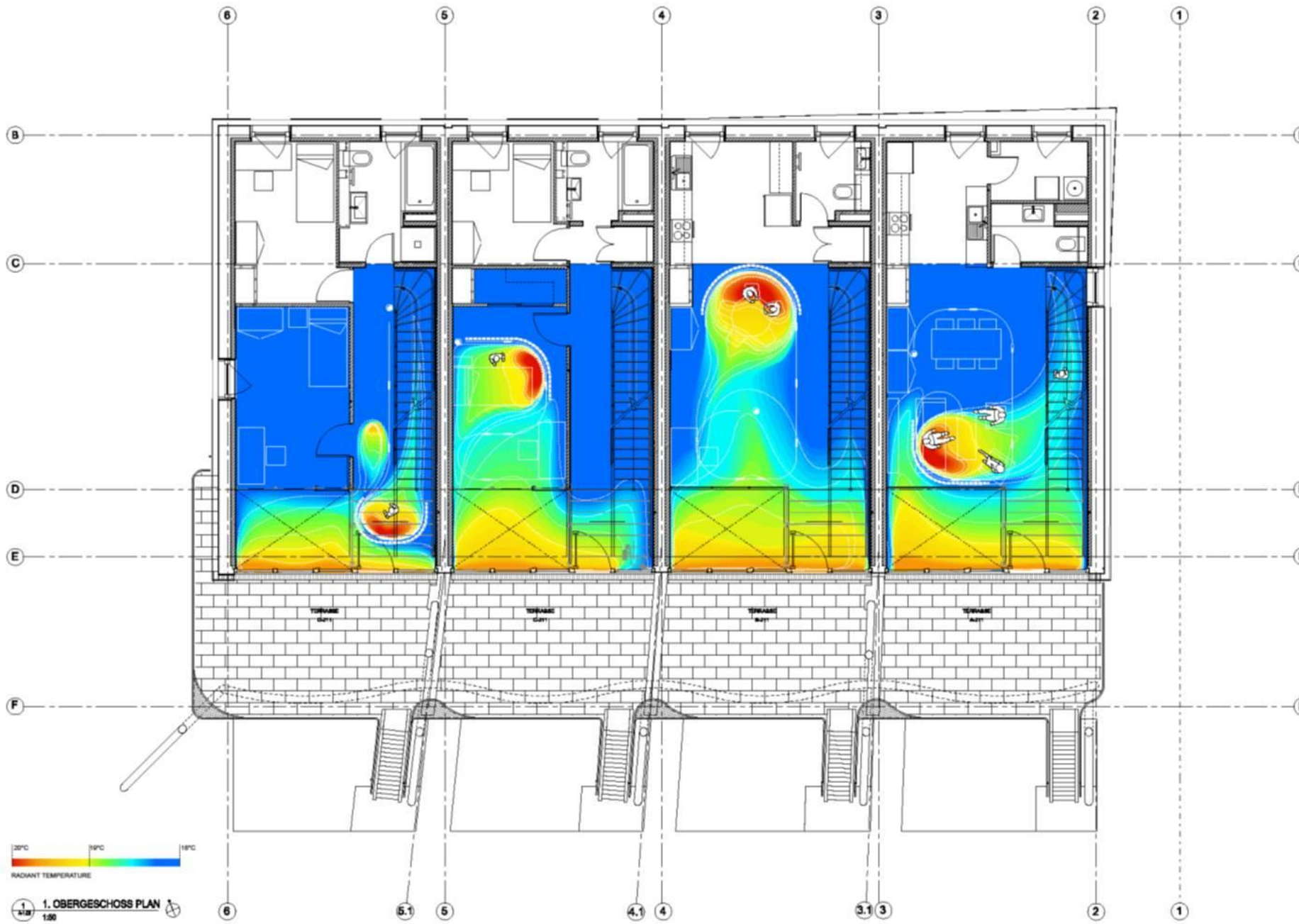
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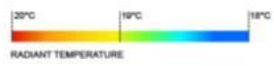
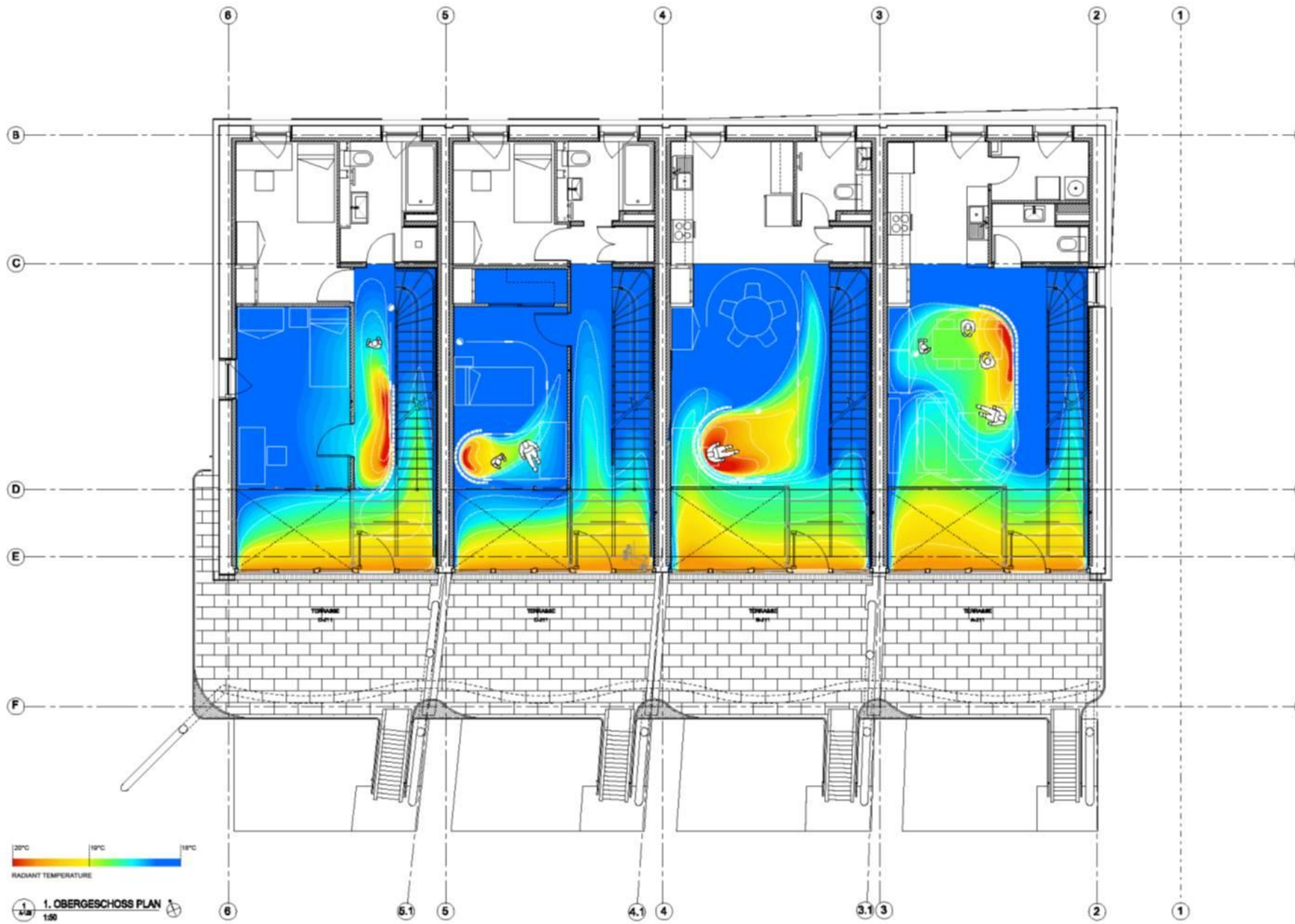
SOFT POLICY

Create a desirable low carbon lifestyle





1. OBERGESCHOSS PLAN
1:50



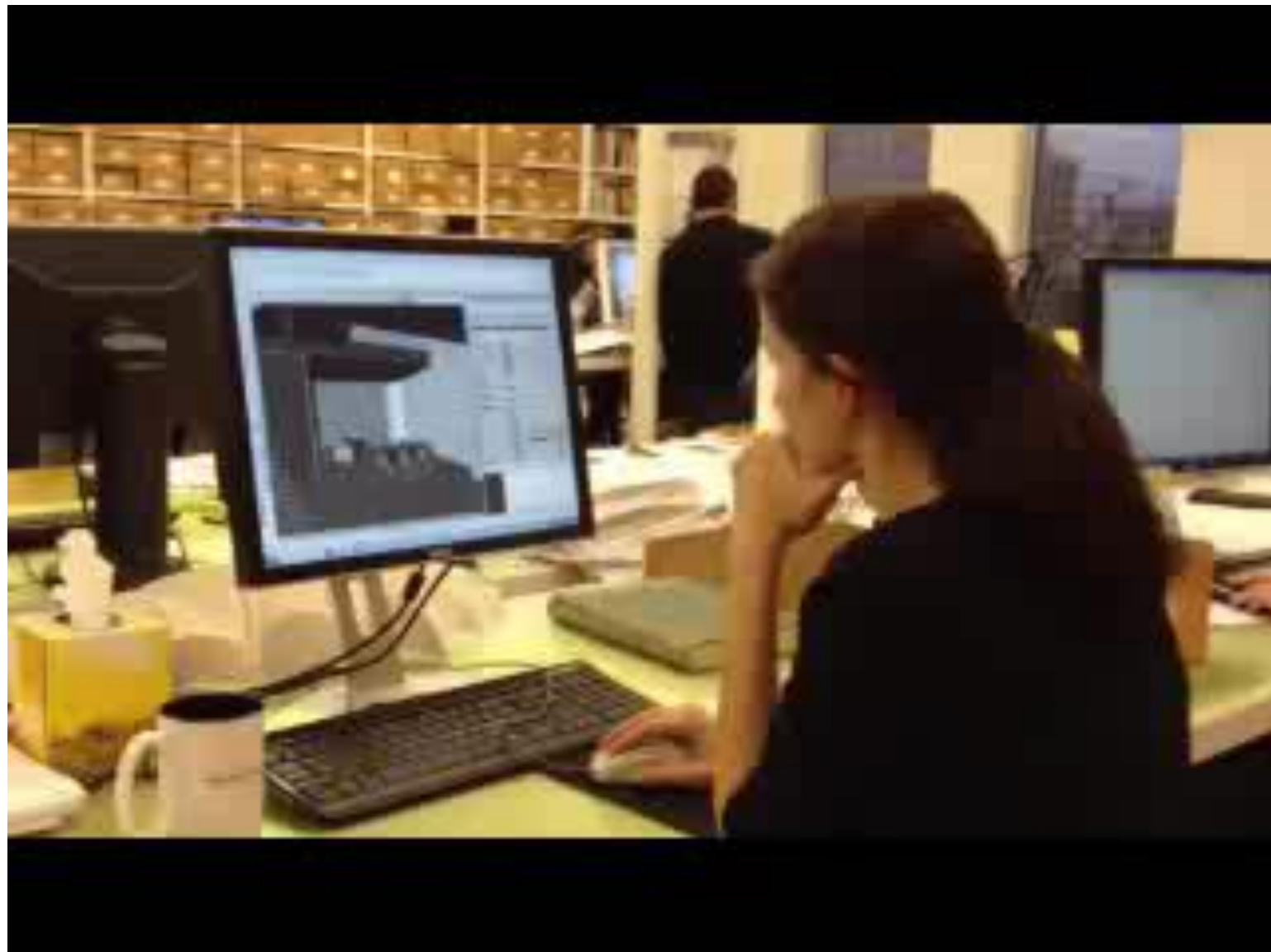
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1/50
1. OBERGESCHOSS PLAN











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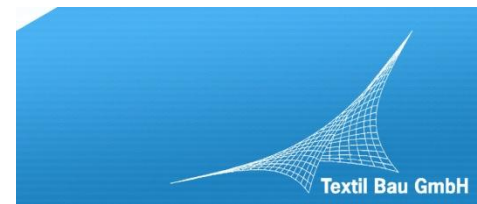


PHILIPS



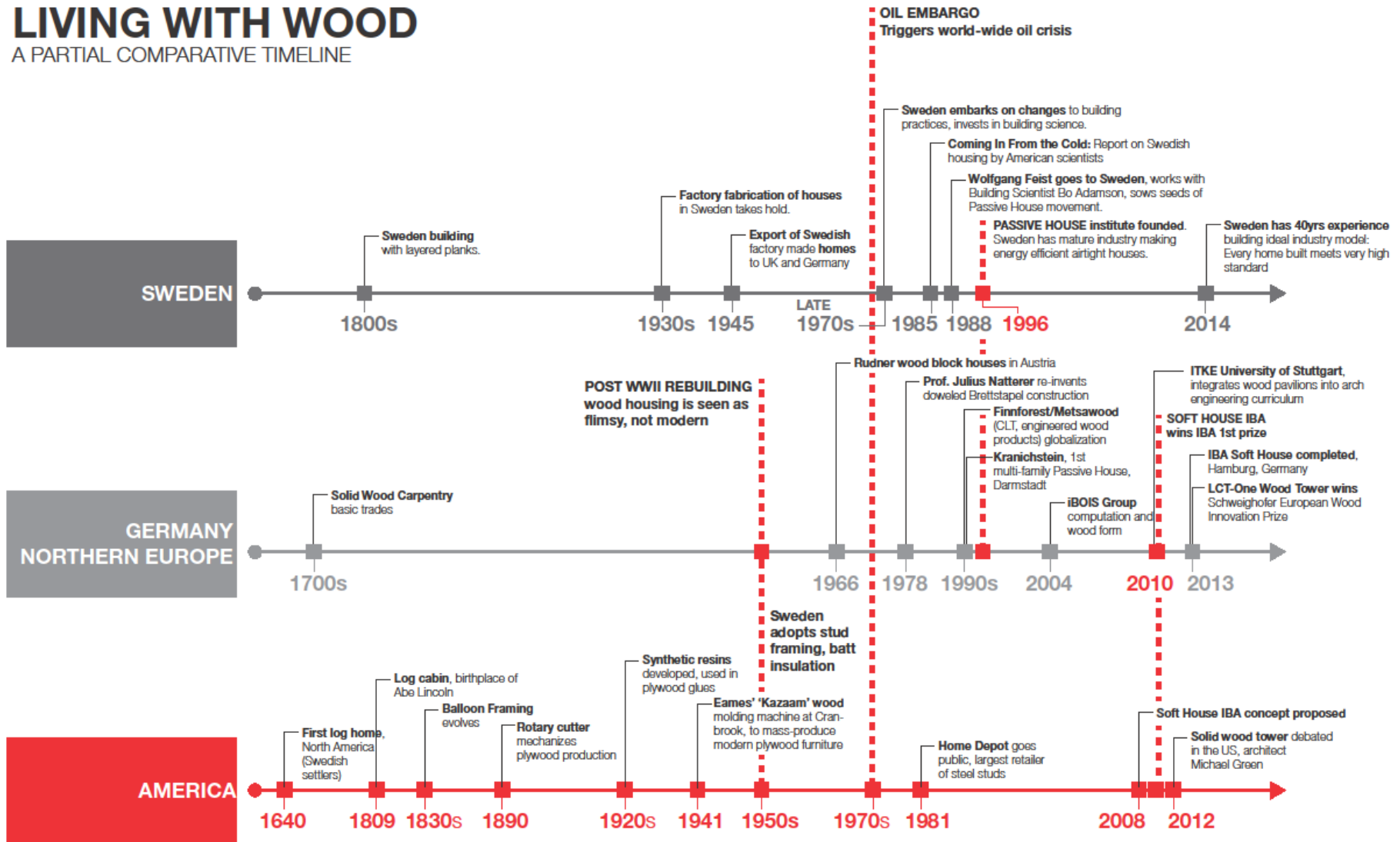
svensson
markspelle

 **- Tronics, Inc.**



LIVING WITH WOOD

A PARTIAL COMPARATIVE TIMELINE





THICKER



THICKER



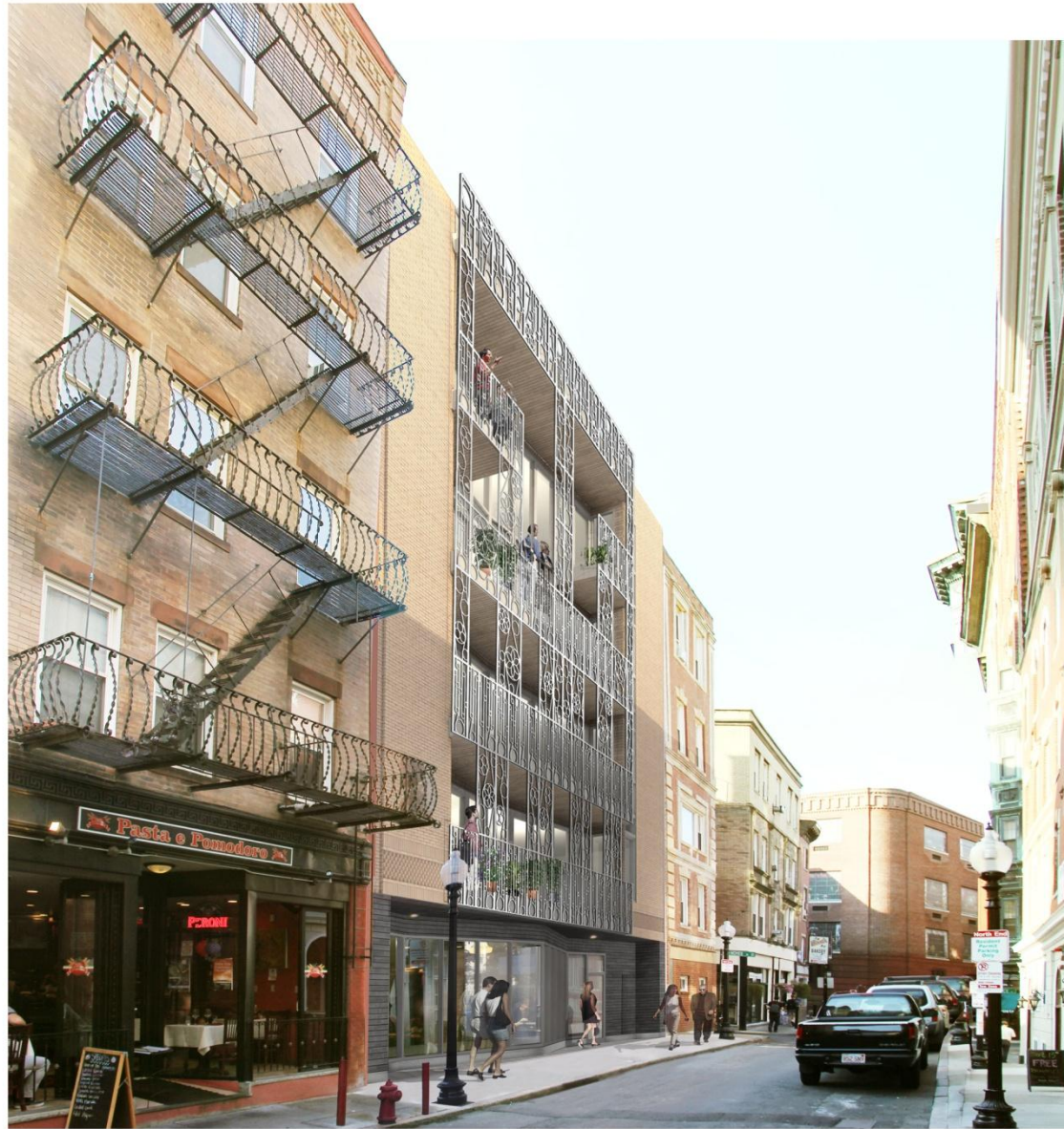
HYBRID



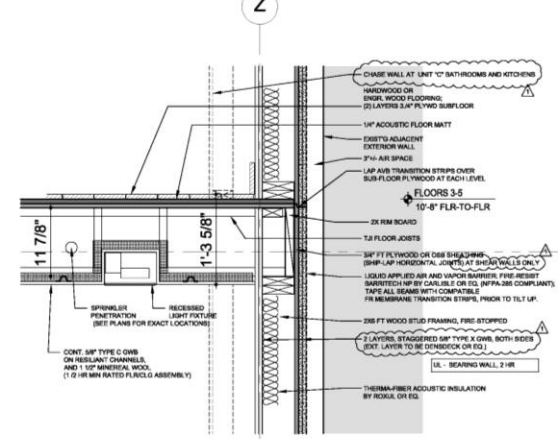
HYBRID



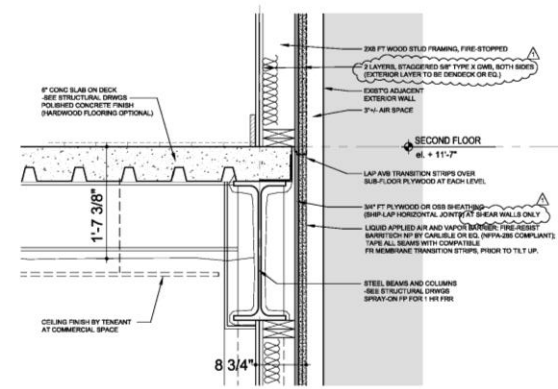
HYBRID



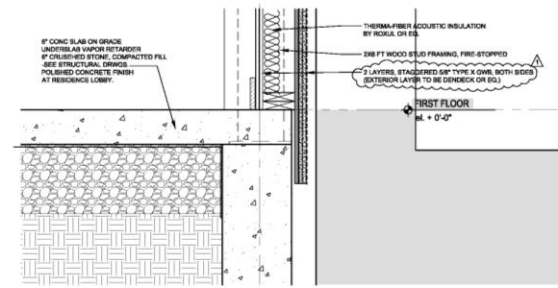
URBAN INFILL



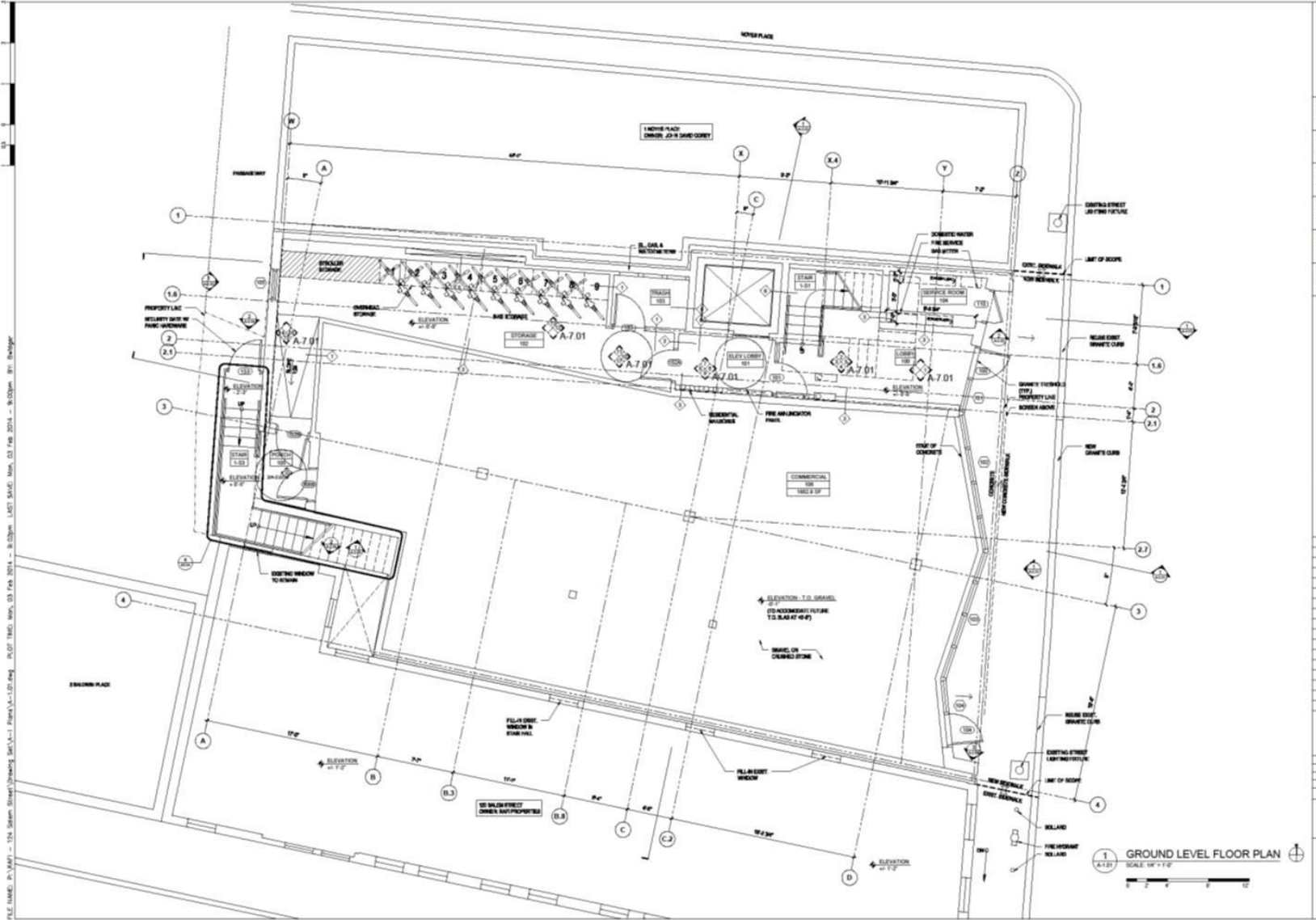
3 WALL SECTION, TYPICAL N AND S ABUTTING WALLS
1" = 1'-0"



2 WALL SECTION, TYPICAL N AND S ABUTTING WALLS
1" = 1'-0"



1 WALL SECTION, TYPICAL N AND S ABUTTING WALLS
1" = 1'-0"



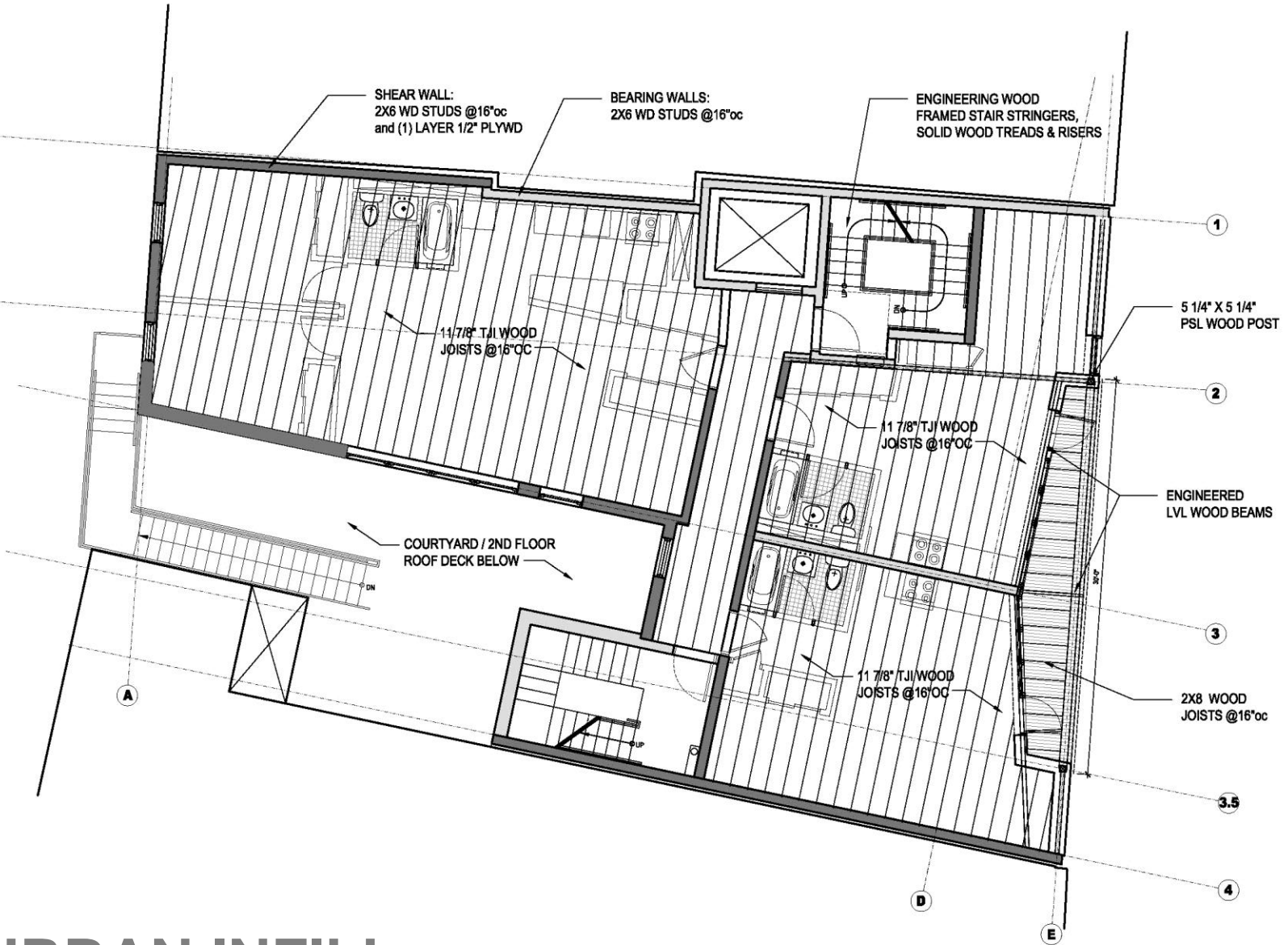
124-126 SALEM STREET DEVELOPMENT
124-126 SALEM STREET, BOSTON, MA 02113

A-1.01

DESIGN DEVELOPMENT SET

DATE: 08/20/2014
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 PROJECT NO: [Number]
 SHEET NO: [Number]

URBAN INFILL



URBAN INFILL



GOING SOFT

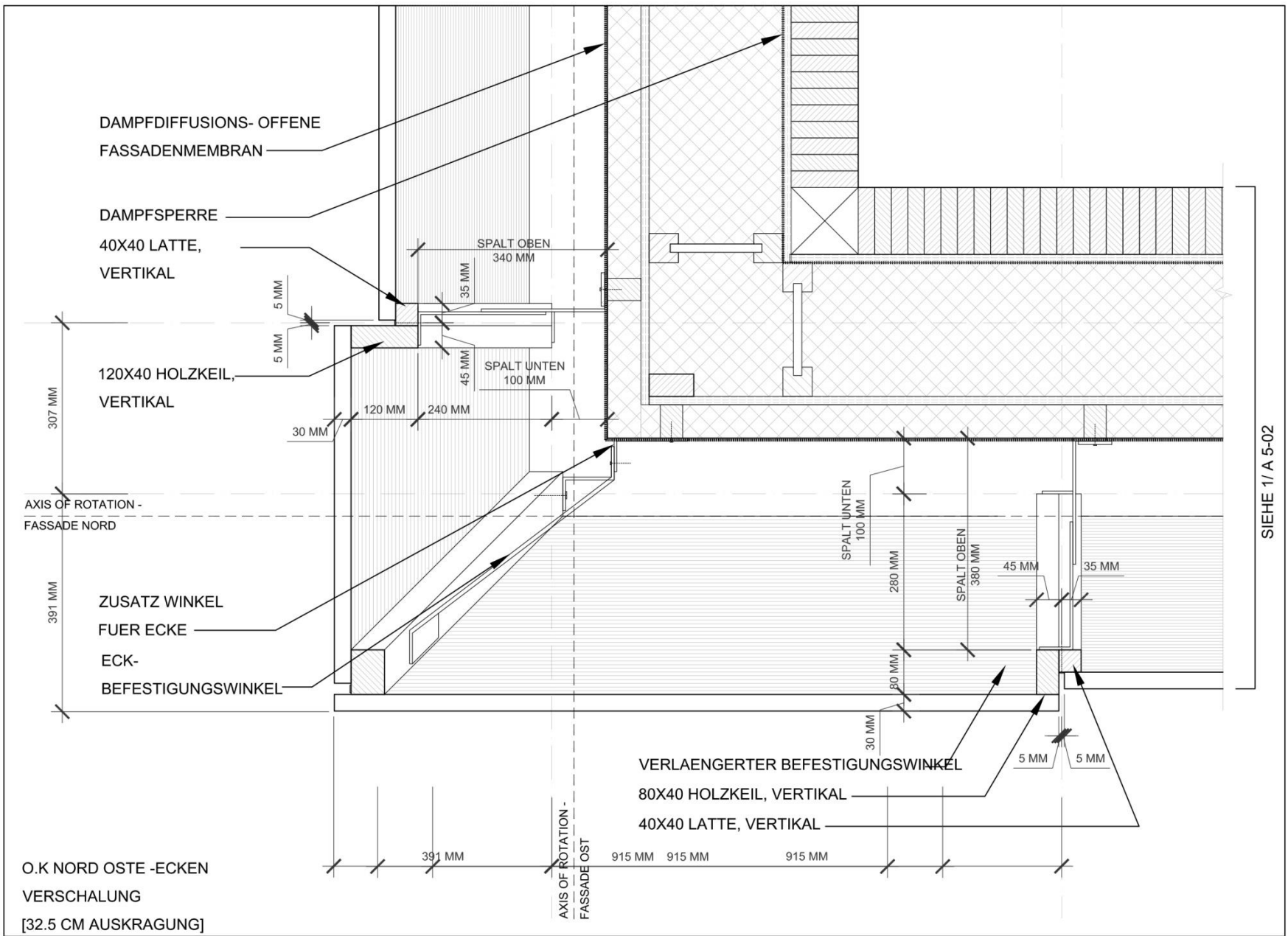
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THANK YOU!

Sheila Kennedy, AIA
skennedy@kvarch.net

Principal: KVA Matx
MIT : Professor of Architecture

KVA matx



1
A-2.05

HOLZFASSADE NORD-OST ECKE PLAN

1:10

SOFT HOUSE

Energy Harvesting Textiles





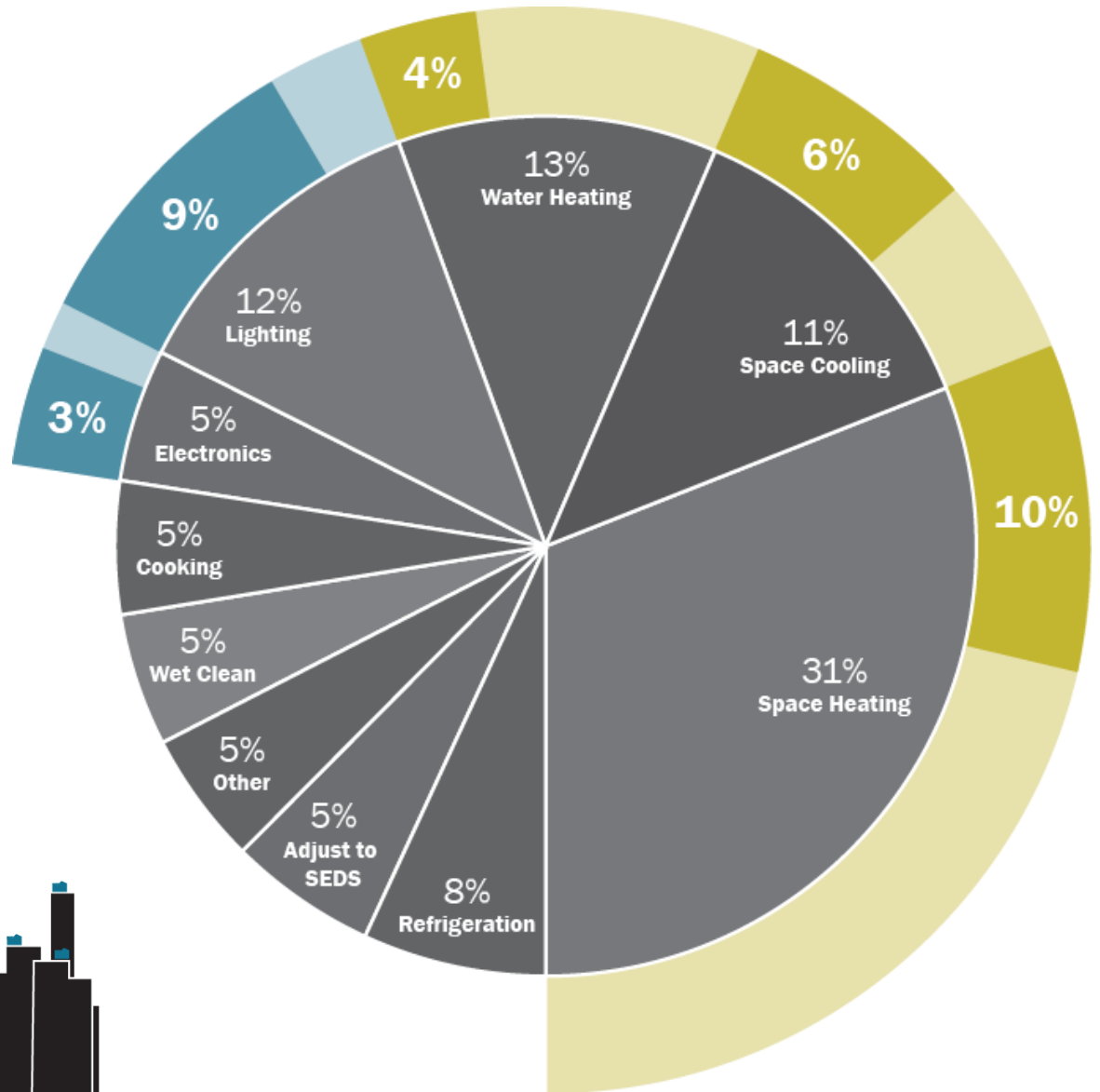
Stand Alone



Incremental Density



Urban Density Strategy



Residential Energy Use

Source: L. Glicksman, MIT .

