



www.igpassivhus.se




Kent Pedersen


THE WORLD'S FIRST PASSIVE HOUSE CERTIFIED TENNIS HALL

Tommy Wesslund and Simone Kreutzer

IG Passivhus Sverige



IG Passivhus Sverige


We are:

Certified Passive House Experts
15 years experience in passive house design


Architecture, envelope, HVAC, energy coordination, etc.

References:
Development of passive house building systems
Development of passive house windows


Certified passive houses in Sweden, e. g.:
Daycare centers, single-family homes, tennis hall

CEPH education and seminars

National and international collaborations





DESIGNER



CERTIFIED PASSIVE HOUSE DESIGNER




IGPH

Simone Kreutzer

Robin Fritzson

Tommy Wesslund


**INTRESSEGRUPP
PASSIVHUS**


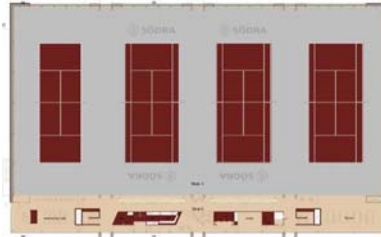

Passivhouse tennis hall Södra in Växjö

Architecture

Architectural competition 2011
 200 participating architects
Winning entry, from Denmark- Kent Pedersen

Reference area: 3600 m²
 Compact structure
 All-glazed southern facade
 4 tennis courts, height 9,0 m to the north
 Two-story section to the south with reception, café, conference room, fitness, locker room, and technical facilities

Downstairs below ground level

Source: Kent Pedersen
Author: SK


**INTRESSEGRUPP
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Passivhouse tennis hall Södra in Växjö






Requirements:

Wooden structure
 Highest energy efficiency
 Concept hall

Our assignment:

Energy coordination
 Technical coordination
 QA
 Education
 Compiling for certification




Source: Kent Pedersen
Author: SK



The passive house Södra Tennis Hallen is to be certified by an independent authority, approved by the International Passive House Institute

Energy requirement max 15 kWh/m²a
 Effect goal max 10 W/m²
 Verified in the energy calculation program PHPP

Air leakage n₅₀ max 0,1 h⁻¹ at 50 Pa pressure difference, measured in a Blower Door test

Heat camera screening will be performed during pressure test to ensure air tightness and absence of thermal heat bridges

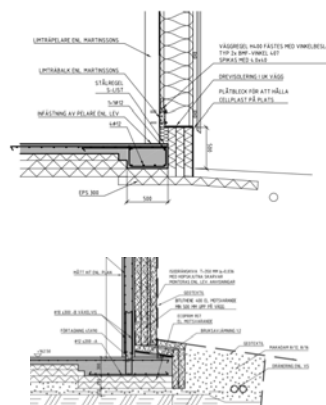


Source: IGPH

Author: SK



Certified passive houses - Planning and quality assurance



Source: IGPH

Author: SK

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Facade systems

The slide displays technical drawings and thermal simulations of facade systems. On the left, there are two detailed cross-sections of a facade assembly with various layers and components labeled. In the center, there are two simplified cross-sections showing the overall structure. On the right, there are two thermal simulation images showing heat flow through the facade, with a color scale from blue (cold) to red (hot).

Source: IGPH, Wicona
Author: SK

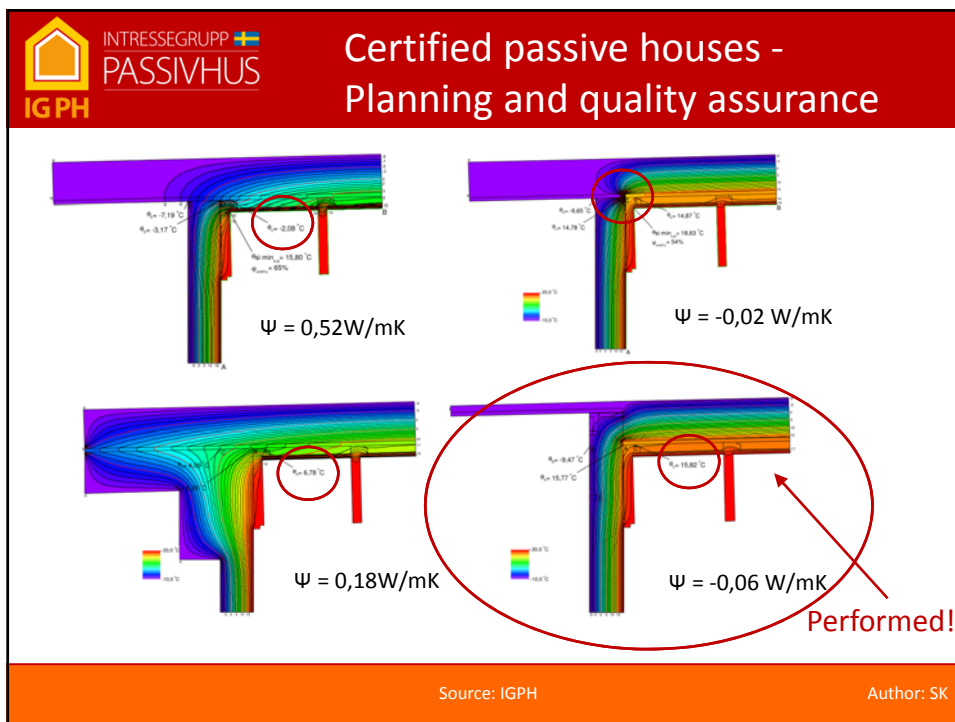
INTRESSEGRUPP PASSIVHUS
IGPH

Certified passive houses - Planning and quality assurance

The slide illustrates the planning and quality assurance for certified passive houses. It includes a technical drawing of a window frame assembly on the left, a photograph of a modern building with a dark facade on the top right, and a detailed cross-section of a window frame on the bottom right. A red arrow points to a specific detail in the window frame cross-section.

Originally planned:
Passing sheet metal

Source: IGPH
Author: SK



INTRESSEGRUPP PASSIVHUS IGPH

Installation overview

Ventilation system

2 air handling units with high maximum air volumes (1600 l/s and 1300 l/s)

- First rotating heat exchanger certified for passive houses
- Pre heating and cooling with four boreholes
- Tennis hall unit recirculates air from tennis courts
- All air handling is demand-controlled (humidity controlled in shower area, CO₂ controlled in conference rooms, CO₂ and temperature controlled in the hall)

Heating system

District heating

Distribution:

- Via air in the hall
- Via water (radiators) in the rest of the building

Source: IGPH Author: SK

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Certified passive houses - Construction and quality assurance




Source: IGPH Author: SK

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Certified passive houses - Construction and quality assurance




Source: IGPH Author: SK



INTRESSEGRUPP
PASSIVHUS

PHPP


RESULTS



Byggnad	Passivhus11 Anders Thomsén
Ordningsnummer	VÅX 30
Adress	Åbygrändsberget
Postnummer och ort	VÅX 30
Land	Sverige
Byggnadsår	2012
Byggherrens namn	Anders Thomsén
Byggherrens adress	
Byggherrens telefon	
Projektledare	Kenneth Thomsén ABRIKORSTORGET, ÅBY
Adress	Åbygränd Å114 91
Postnummer och ort	SE-23022 Malmö
VVS-konstlärare	Anders Thomsén
Adress	Åbygränd Å114 91
Postnummer och ort	SE-23022 Malmö
Byggnadsår	2012
Antal lägenheter	
Antal personer	
Driftarens namn	
Driftarens adress	
Driftarens telefon	

Resultat från provberäkning	
Specifikt värmebehov	5 kWh/(m²·a)
Resultat från provberäkning	0,1 h ⁻¹
Specifikt primärenergibehov	103 kWh/(m²·a)
Specifikt värmebehov	17 kWh/(m²·a)
Specifikt värmebehov	8 kWh/(m²·a)
Specifikt värmebehov	1 kWh/(m²·a)
Specifikt värmebehov	8 kWh/(m²·a)
Specifikt värmebehov	8 kWh/(m²·a)

Resultat från beräkning med BNB	
Specifikt värmebehov med BNB	31 kWh/(m²·a)



Source: IGPH

Author: SK



INTRESSEGRUPP
PASSIVHUS

Simone Kreutzer and Tommy Wesslund

IG Passivhus Sverige

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Tommy@igpassivhus.se

Passive house consultants and certified energy experts with 12 years experience in passive house development in Germany and Sweden.

Development of systems for single-family housing
Energy coordination in several Swedish passive house projects.

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