

17th ANNUAL CONFERENCE Katarina Hotel Dugopolje Split, Croatia



Education in Precast Stef MAAS Echo





History... 2008 TT-award

- Young architects and engineers are not well informed about one of the most beautiful construction materials in the world: Hollow Core floors.
- Today, many architects and engineers don't consider HC as "the standard floor-solution". They aren't aware of the many ways to construct with HC.
- As soon as a student is graduated and starts to work, he/she will use the tools and products he knows best.



History... 2008 TT-award

 Therefore it's important to inform students as soon as possible about HC and its possibilities



 Our aim is to inform students (architects, engineers,...) in such a way that they consider hollow core as the best floor solution.



Where are we today

- Statement about HC is also valid for precast in general.
- An engineer who can not design in prefab is an incomplete trained engineer.
- Today's students are tomorrow's prescribers
- Belgian precasters understood the message and started to educate students



Initiative by ECHO

- Building information sessions
 - 1 meeting each month
 - Organised by suppliers of building materials
 - Contractors/Architects
 - Short information session about one topic
 - Toppings : sense or nonsense
 - Thermal activated floors
 - Walking dinner
 - Networking



cantillana

Gyproc

Isover

VELUX

DEDBIC: M

VANDERSANDEN

Holcin

Xella



- Course for structural engineers
 - Masters in structural enigeneering
- In 2 institutes
 - Ghent (University college)
 - Choice of student to become Precast Specialist
 - Hasselt (University college)
 - Mandatory course for all students
 - Teachers are specialists from our industry
 - Base = model course Arnold Van Acker





Content

- Introduction in precast concrete
- Standardisation
- Quality control
- Precasted elements : overview
- Precastes systems for buildings
- Precasted buildings : connections
- Precasted buildings : structural stability
- Precasted buildings : structural integrity
- Precasted buildings : fire resistance
- Case study
- Prestress : losses
- Prestress : anchorage zone (end zone)





Target audience

- Graduated engineers & architects
- Experienced engineers & architects
- 5 afternoon sessions
- In cooperation with the association for civil engineers (ie-net)
- Aim
 - Disseminate knowledge
 - Make sure that our students and professionals think and communicate in the same way about precast





Content

- Same as content at University colleges
- + Architectural concrete
- + Logistics
- + Erection
- Teachers
 - Specialists from industry
 - Architects with experience in precast
- 1 case study per session









Vitruvius Academy

- Target audience = architects only
- In cooperation with the Architects association NAV.
- 1 afternoon session per province

Aim

 Open the mind of architects by explaining the possibilities of concrete in general and precast concrete in particular.



Coming up soon

- Course for Bachelor-students
 - Shift from design towards production
- Course for high-school students
 - Start as early as possible to talk about precast

Stimulearning

- Every year awards to 6 best educational projects in Belgium
- 2012 : Project by FEBE was awarded Training Engineering Students to become Precast Specialists





- 5 groups
 - Building physics
 - Deformation
 - Supports
 - Seismic behaviour
 - Introduction of prestress
- Aim :



- To create domains of expertise at each institute
- To establish long-term cooperation
- To initiate PhD-research
- To make sure that the outcome of research is in line with the needs of our industry



Deformation





Supports

- degree of restrainment
- indirect supports Shear capacity Protruding strands
- indirect supports Shear capacity Protruding wires
- indirect supports Shear capacity Mild steel



INTERNATIONAL PRESTHESSED HOLLOWCORE ASSOCIATION

Seismic behaviour

- Undulated joints Preliminary tests for lab setup
- Undulated joints Optimisation of lab setup by FEM
- Undulated joints Capacity test on scaled samples
- Undulated joints Full scale test





Introduction of prestress

- Spalling Literature study
- Spalling derivation of formula, FEM analysis
- Spalling derivation of general formula



Vergelijking modellen







Masterclasses & Seminars

2011 – Greece

- International Seminar on Earthquake resistance of Precast structures
- Cooperation with fib C6
- 2012 India
 - The design of precast concrete structures
 - 3 days of theoretical Background
 - 1 day exercises







Dissemination of knowledge

- ICCX
 - Russia
 - Brazil

Cooperation with local associations

- ABCIC (Brazil)
 - Hollow core in Europe
- Publications
 - CPI-magazine
 - Own publications
 - Why Hollow Core

•







Get more out of concrete Online contest by Febe

- During 4 weeks
- 4 x 8 questions about precast
- 1-ste price : Trip to South Africa
 - 5 students
 - +5 colleague students





1st price : trip to South-Africa

Trip to South Africa an exceptional experience





INTERNATIONAL PRESTRESSED HOLLOWCORE ASSOCIATION

Thank you

- For choosing Precast
- For choosing Hollow Core
- For your attention



