

IEA-SHC Task 41: Solar Energy and Architecture

Subtask B: Methods and Tools for Solar Design

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Subtask B leaders

Subtask B experts

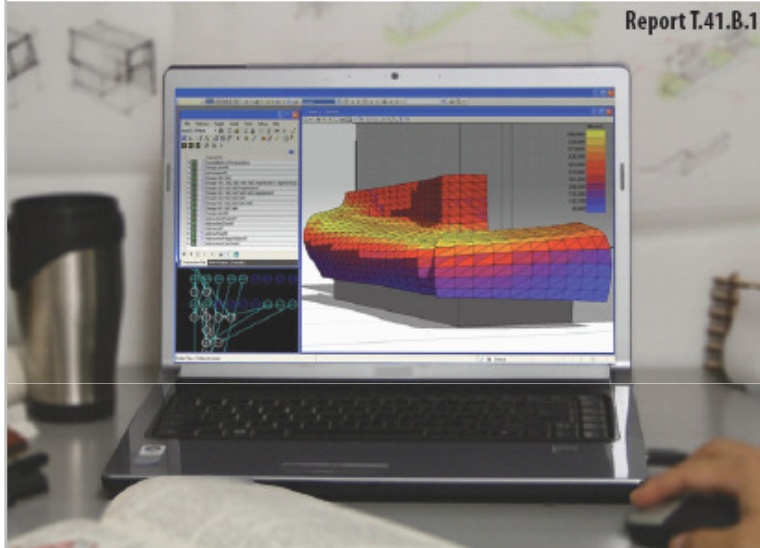
Subtask B: Methods and Tools for Solar Design

1. Comprehensive **review of existing methods and tools** that architects currently use at early design stage (EDS)
2. **Identify current barriers** that prevent architects from using the existing methods and tools for solar building design.
3. A. Provide **guidelines for architects** about solar design digital tools and their capabilities
3. B. Provide **tool developers** with needs of architects regarding digital tools for solar design
4. Develop **digital modules** for AutoCAD and ArchiCAD for easier visualization of solar components
5. In collaboration with Subtask C, **collect output data, figures and facts produced by various tools in demonstration projects**, to be included in the Communication Guidelines.
6. **Dissemination:** seminars, lectures

Task 41 - Solar Energy and Architecture

Subtask B - Methods and Tools for Solar Design

Report T.41.B.1



**State-of-the-Art of Digital Tools Used
by Architects for Solar Design**



Total of 56 software packages reviewed

- CAAD (Computer aided architectural design) tools: 23
- Visualization tools: 13
- Simulation tools: 20

Available at:

<http://www.iea-shc.org/publications>

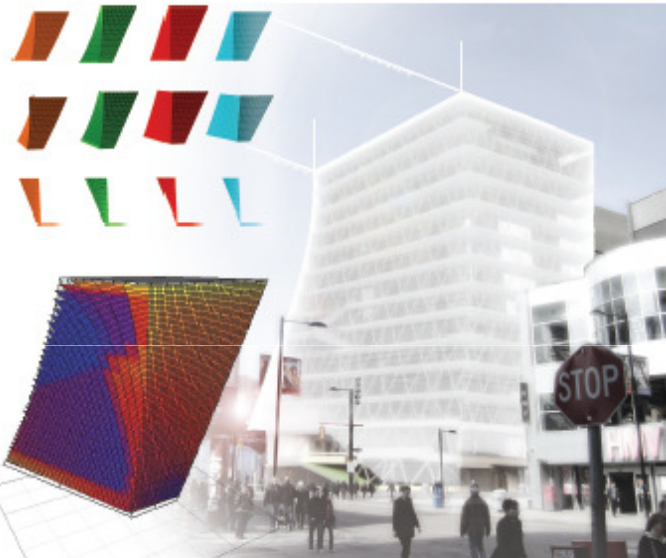
International survey

14 participating countries:

Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Norway, Portugal, Spain, South Korea, Sweden, Switzerland

May-November 2010

TASK 41 SOLAR ENERGY AND ARCHITECTURE



T.41.B.2
**International survey about digital tools
used by architects for solar design**

Subtask B: Methods and Tools for Solar Design



Available at:

<http://www.iea-shc.org/publications>

International Survey

IEATASK41_International Survey_Canadian Subtask B - Mozilla Firefox

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http://mhorvat.questionform.com/public/IEATASK41_International-Survey_Canadian-Subtask-B

Miljana's Netvibe (1633) (0 unread) Yahoo! Mail, mijlajah Create Online Surveys and Forms IEATASK41_International Survey...

IEA Task 41 Solar Energy and Architecture -International Survey- Subtask B: Design Process for Solar Architecture

Practice

2. How often do your projects include:



PHOTOVOLTAICS



SOLAR THERMAL



PASSIVE SOLAR



ELECTRICITY



HOT WATER



COOLING

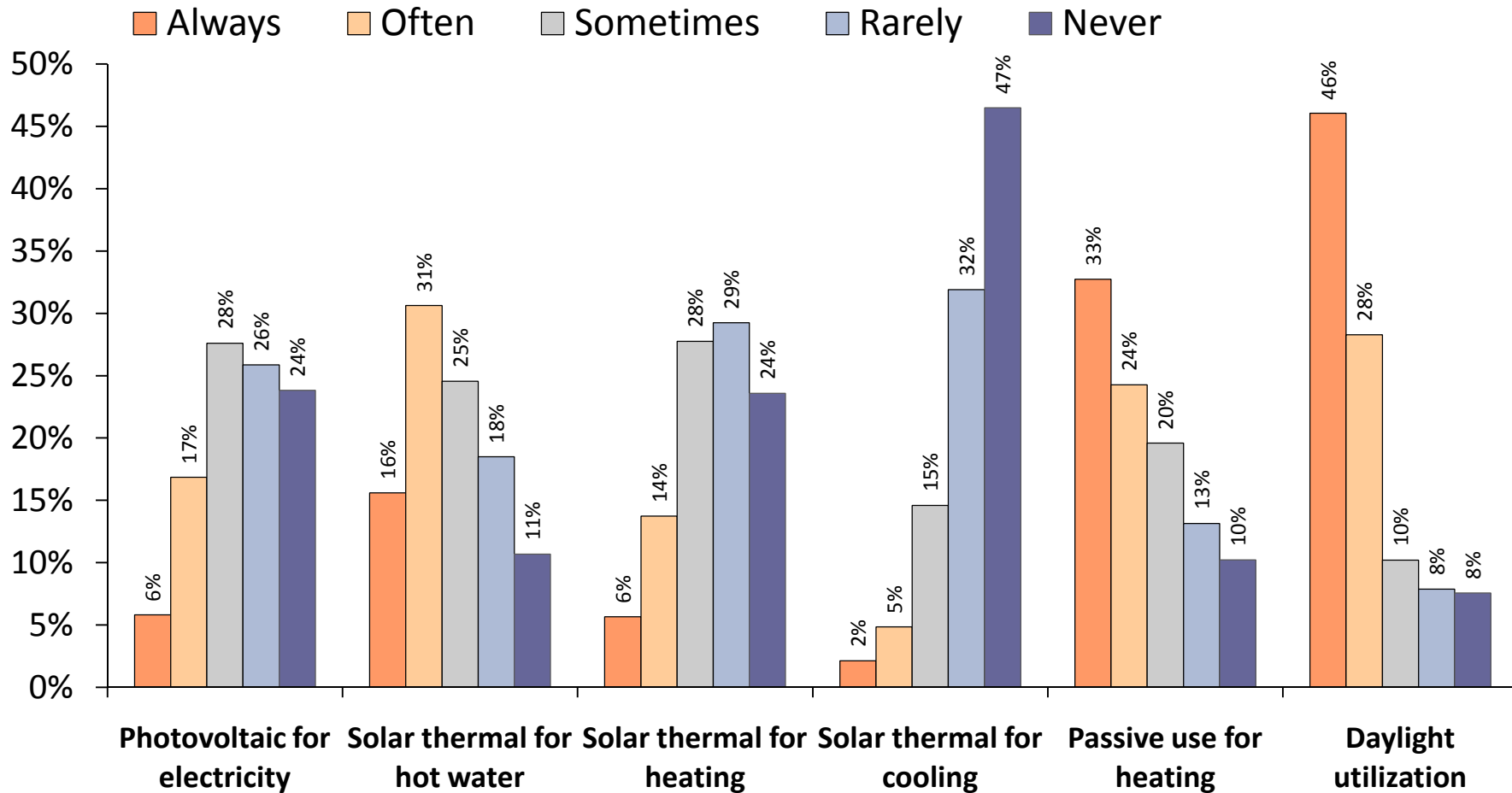


HEATING

	Always	Often	Sometimes	Rarely	Never
Photovoltaic technologies for electricity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solar thermal technologies for domestic hot water	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solar thermal technologies for heating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solar thermal technologies for cooling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Passive use of solar gains for heating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Daylight utilization strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

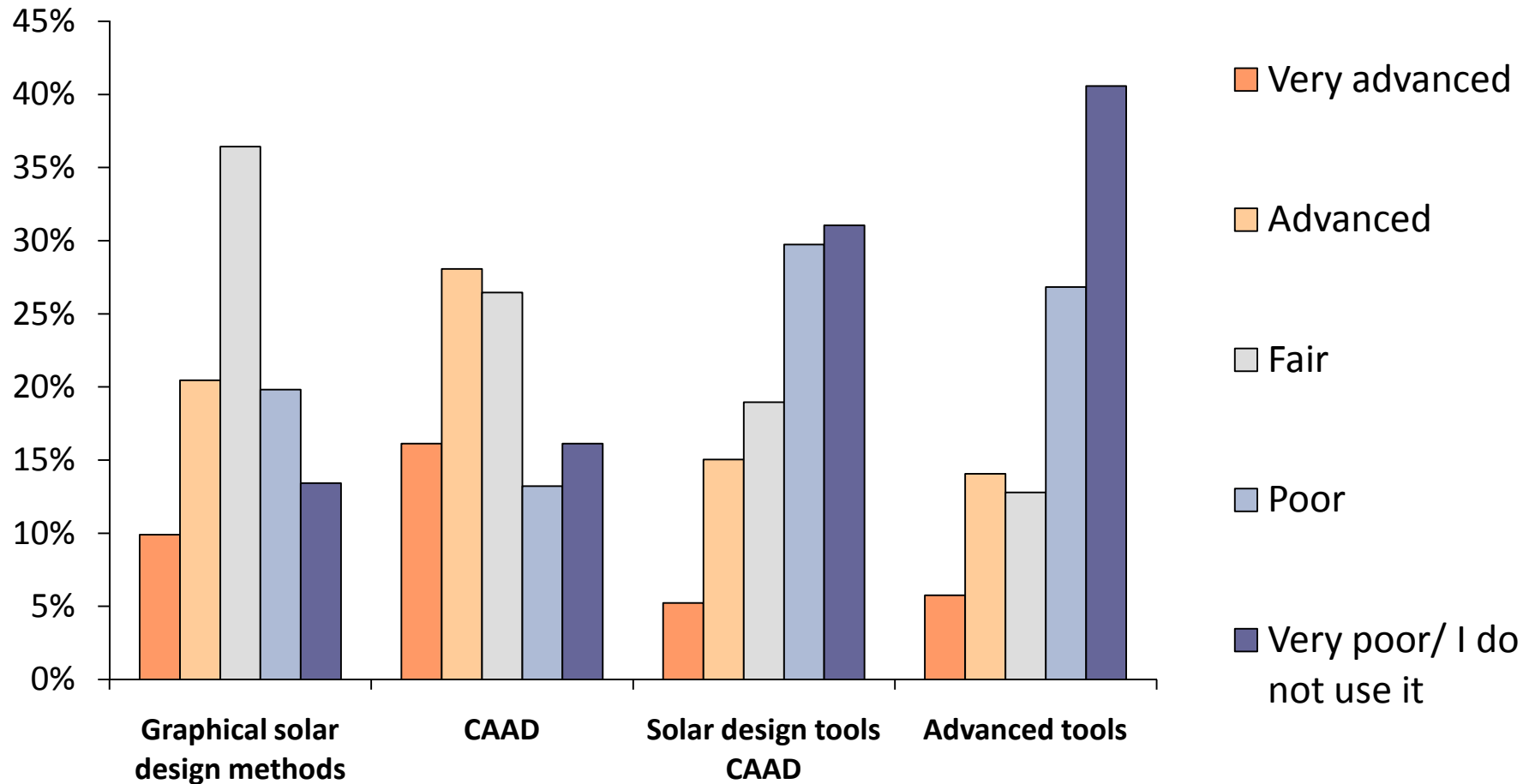
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How often do your projects include:

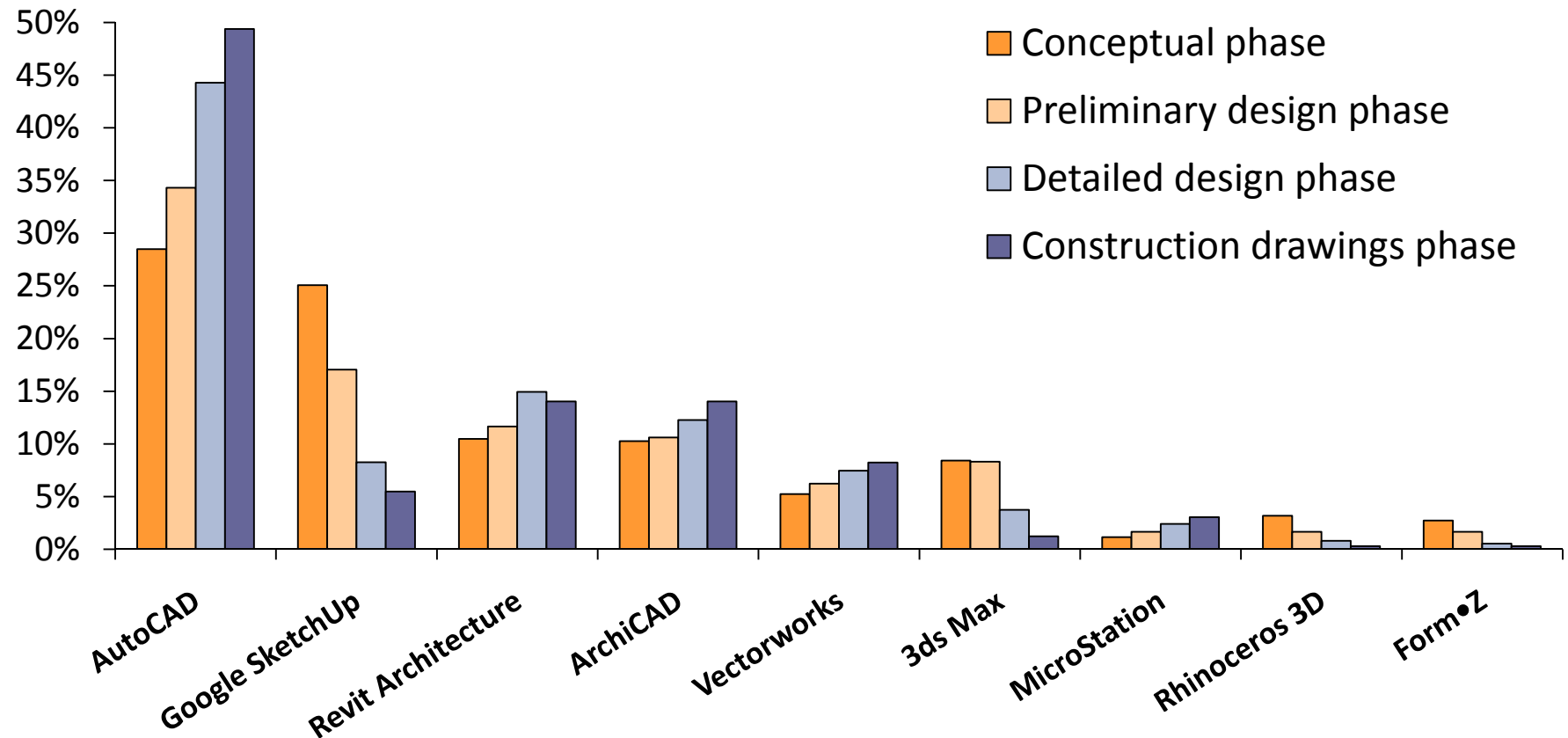


Results: current skills

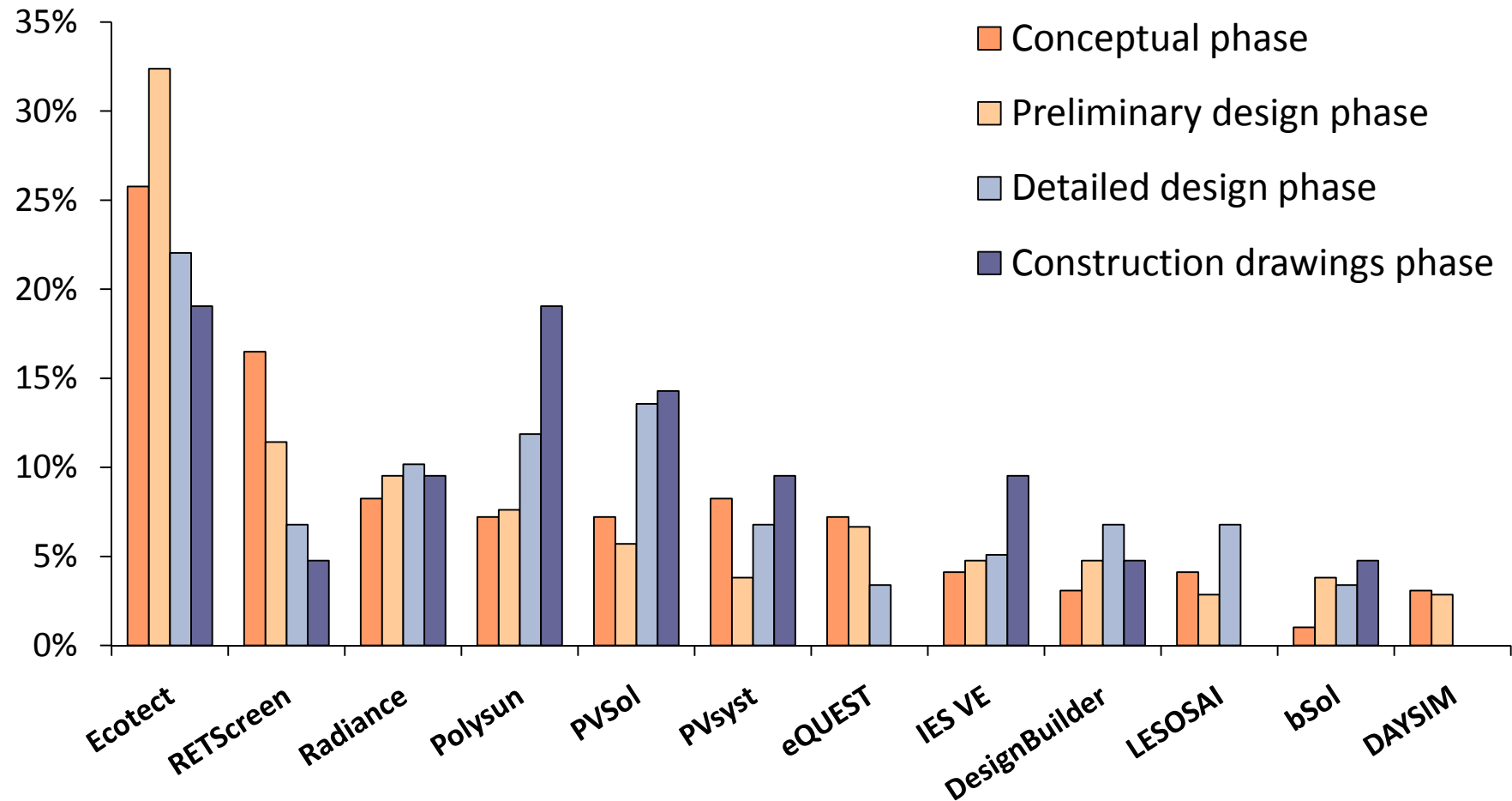
Identify your current skills with solar design tools:



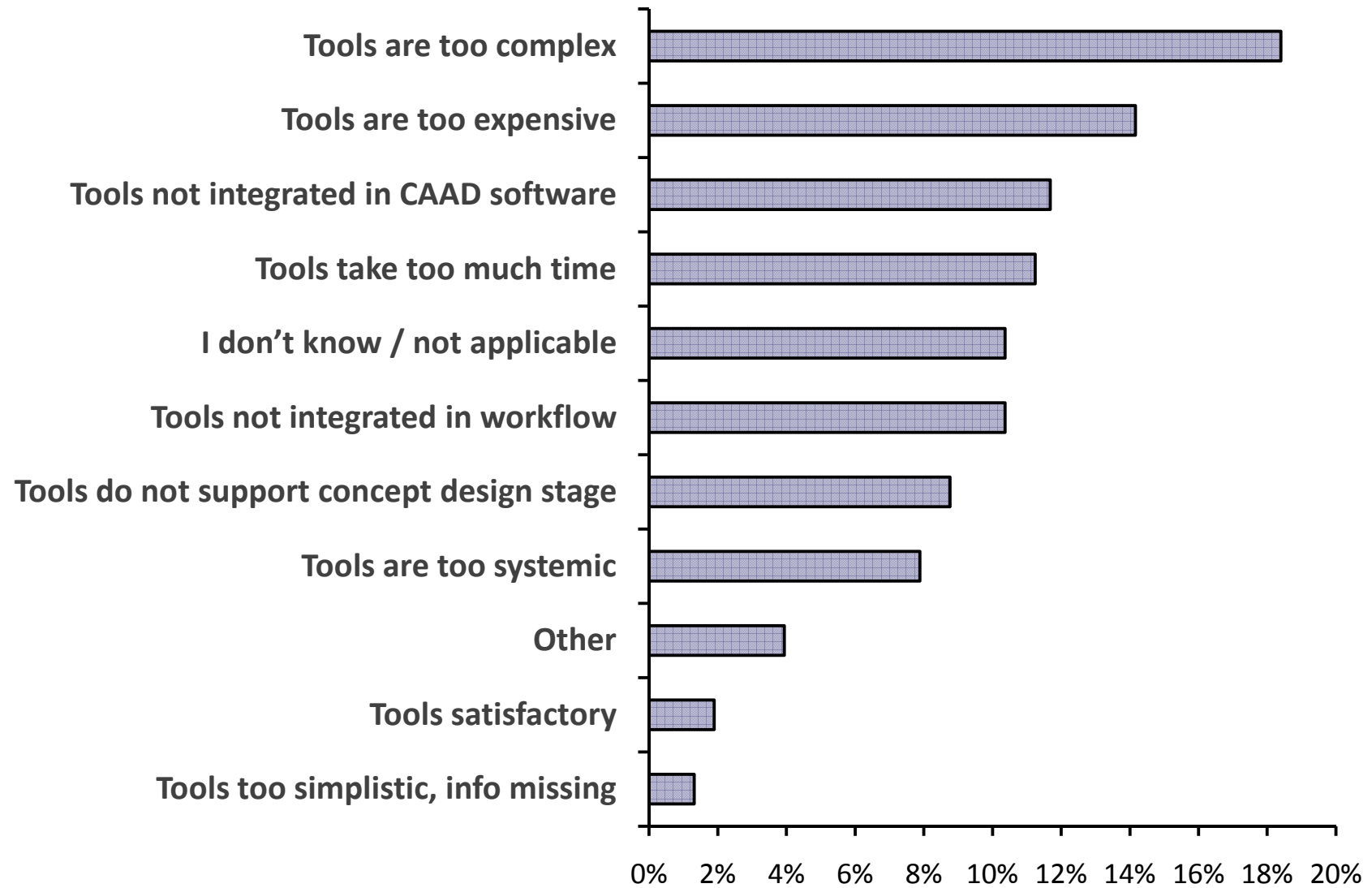
Identify in which design stage you use the following programs:



Results: simulation tools by design phase

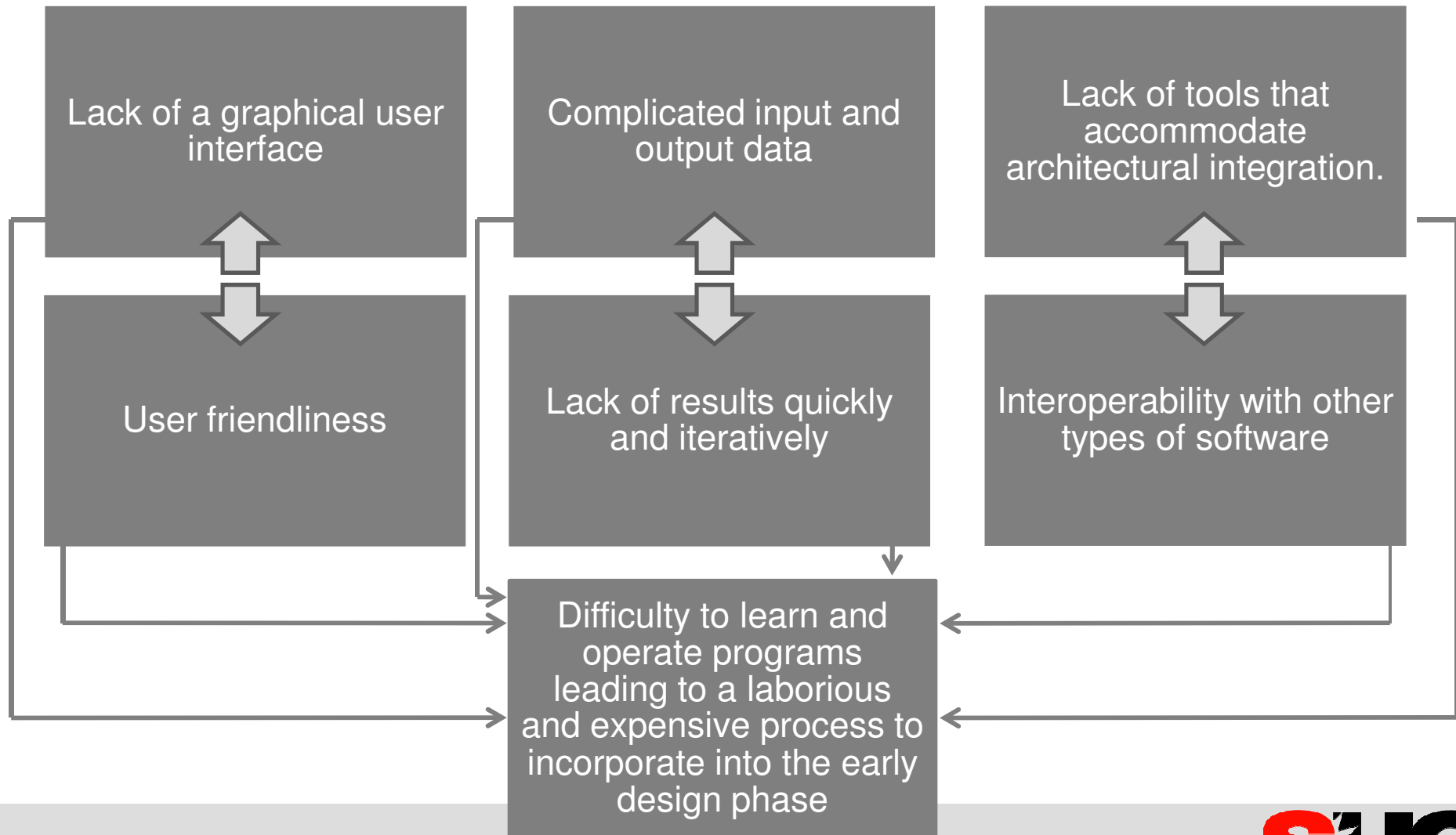


Results: Identified barriers



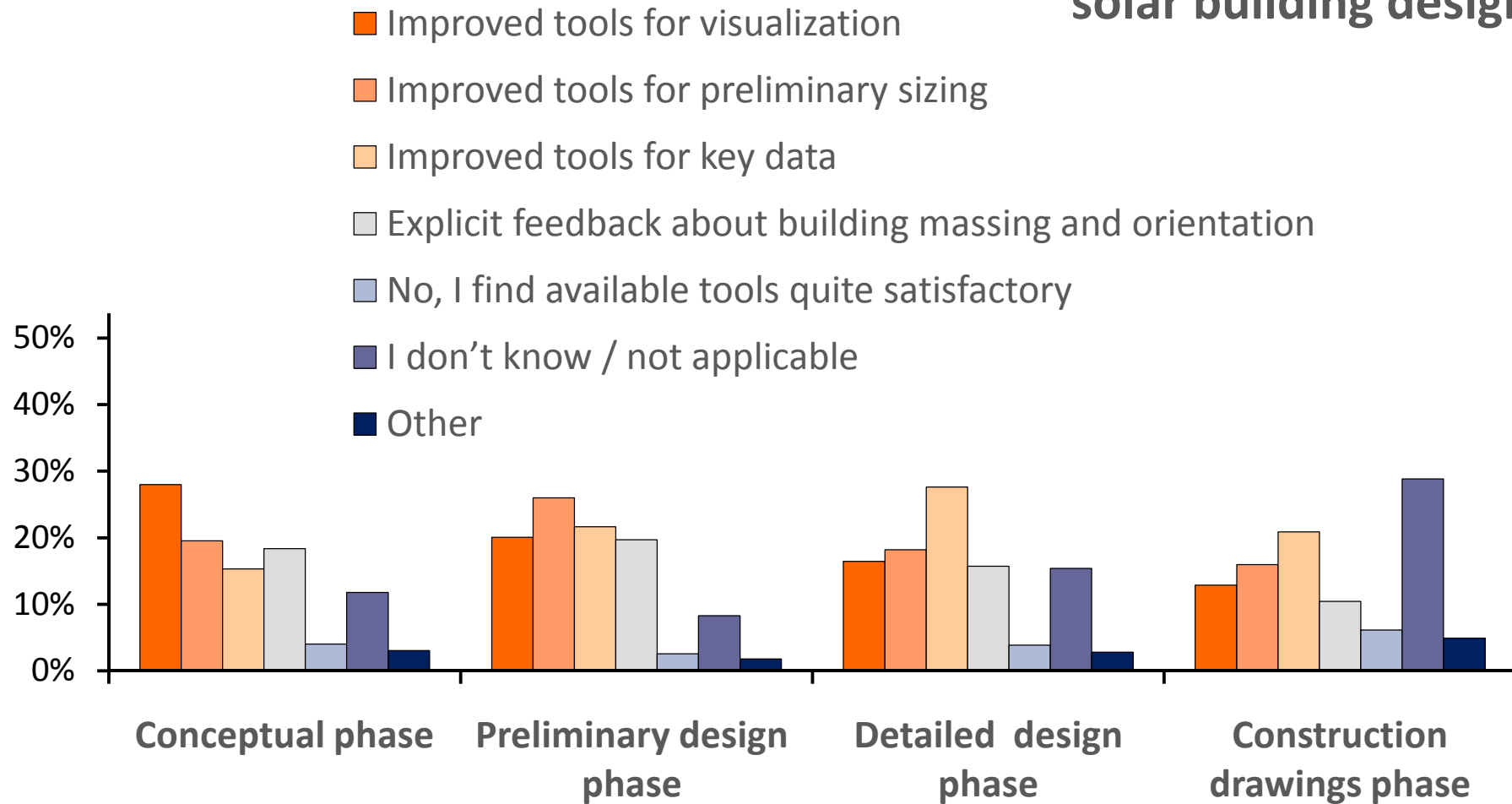
Methods and tools: exploration

Common barriers preventing architects from utilizing digital simulation tools



Results: strategies for improvements

Do you see a need for improved tools to support the integration of solar building design?



Results

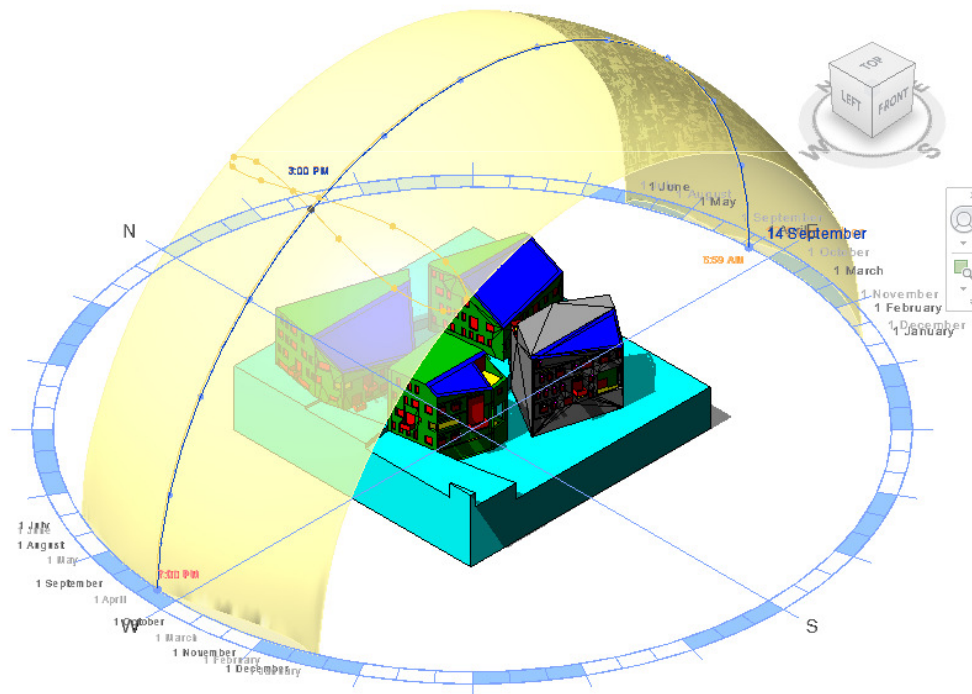


- Methods and tools are not yet well-defined and suitable for architects, especially for Early Design Phase (for active and passive solar strategies)
 - Need to adapt current tools and methods -> accelerate development of solar architecture
 - Architects do collaborate with others (IDP)
- Architects handle most decisions of solar energy themselves
- Tools used in EDP should be flexible and provide more data about solar energy
 - Limitation: low response rate

30/03/2012

Solar Energy and Architecture Innovation
and Development

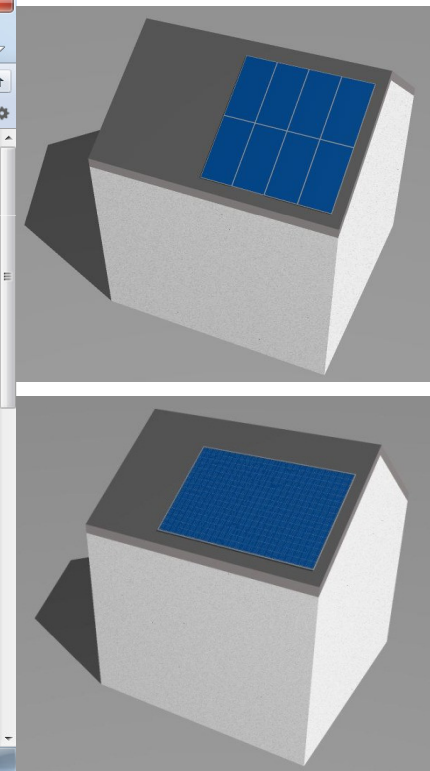
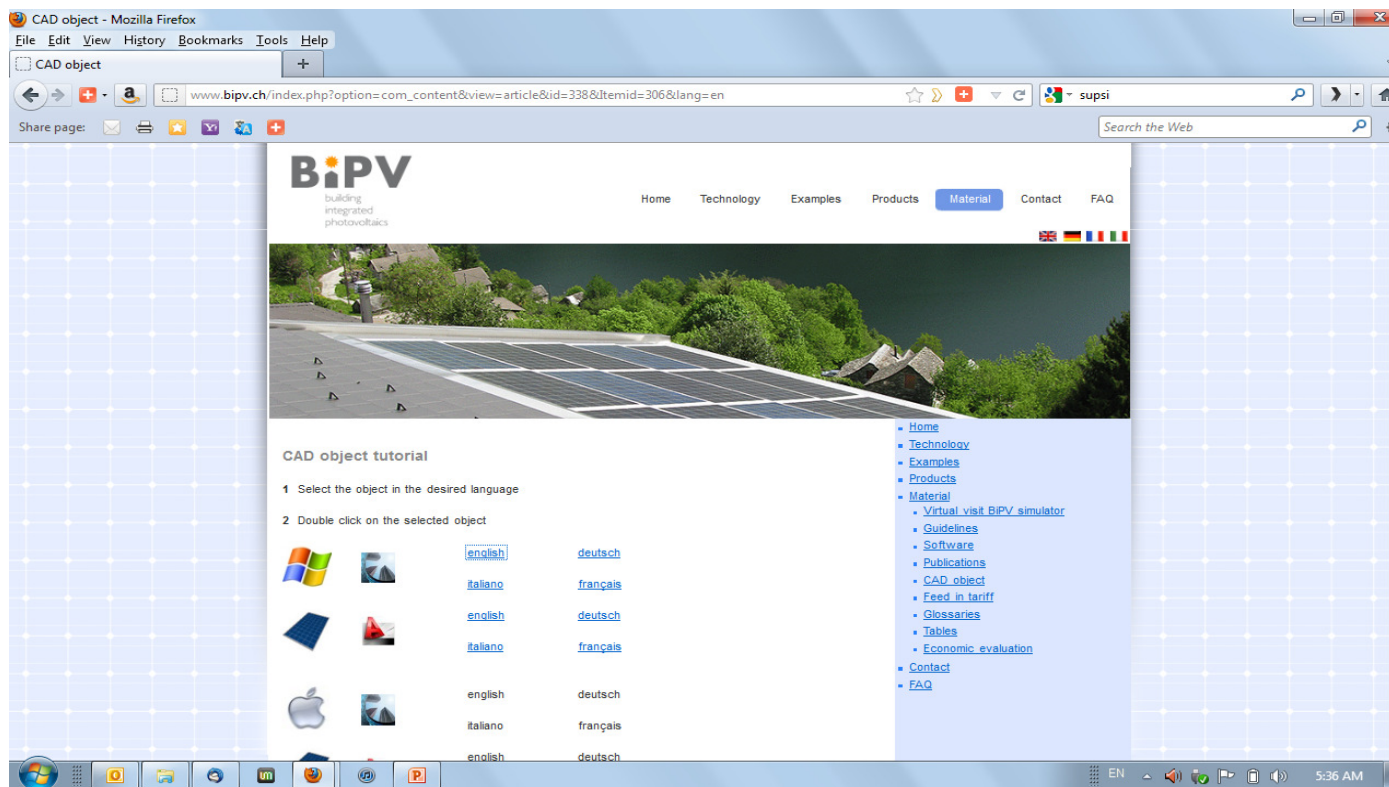
Report T.41.B.3a - Solar Design of Buildings: Guidelines for Architects on Digital Tools



Report T.41.B.3b - Solar Design of Buildings: Architects' Needs Regarding Digital Tools

DB4: CAAD objects

- for AutoCAD and ArchiCAD
- English, French, German, Italian
- The [Swiss BIPV Competence Centre website](http://www.bipv.ch)



DB6: Dissemination

- Publications
- Conferences
 - Seminars
- Continuing education sessions for architects