

# Working Group 3



# Types of systems to consider

- The Action will cover many forms of solar collecting methodologies with a particular focus on:
  - thermosiphonic units,
  - integrated collector storage units,
  - forced circulation systems,
  - evacuated tube collector systems and
  - various low concentration compound parabolic units.



# Geographic coverage

- Three generic European regions are considered, to fully explore the Pan-European nature of STS integration:
    - Southern Mediterranean,
    - Central Continental and
    - Northern Maritime Europe.
- } These present distinct characteristics with respect to BISTS as all STS are sensitive to incidence angle effects which are strongly related to the latitude.
- The Action consortium presents a critical mass of European knowledge, expertise, resources, skills and R&D in the area of STS, which should support the creation of innovative ideas and concepts.

# What we mean by Building Integration

- A solar thermal system is considered to be building integrated, if for a building component this is a prerequisite for the integrity of the building's functionality.
- If the building integrated STS is dismantled, dismantling includes or affects the adjacent building component which will have to be replaced partly or totally by a conventional/appropriate building component.
- This applies mostly to the case of structurally bonded modules but applies as well to other cases, like in the case of replacing with BISTS one of the walls in a double wall façade.

## WG3 Investigation of new applications for innovative BISTS

- The **objectives** for WG3 are:
  - To develop innovative BISTS designs for various applications
  - To fabricate BISTS prototype configurations to the extent own funding allows
  - To characterize prototypes of these novel BISTS in indoor and outdoor conditions
- This WG will work on:
  - Domestic, commercial and industrial buildings
  - Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure
  - Industry applications
  - New prefabricated products
  - In terms of solutions the ultimate objective is to design market ready products



## WG3 Investigation of new applications for innovative BISTS

- These will be fulfilled through the following tasks:
  - **Task 3.1 Design of innovative BISTS designs**
    - Domestic (including hybrid, include retrofit of historic buildings) : Jasna, Sandra, Manolis, Stefan, Trevor, Tim
    - Commercial/Industrial (including hybrid) : Aggelos, Simon, Inigo, Kostas, Charalambos
  - **Task 3.2 Fabrication of BISTS prototypes: Aggelos, Manolis, Tim, Inigo**
  - **Task 3.3 Characterisation of novel BISTS indoors and outdoors to assess the actual performance in real conditions**
    - Indoors: Aggelos, Christoph
    - Outdoors: Stefan, Manolis, Kostas, Inigo
    - System integration: Sandra, Aggelos, Inigo

## TASKS – WG3:

- D.3.1. Review of current STS and the suitability of integration onto building structures for domestic, commercial and industrial buildings (Month 6->12): **Aggelos, Manolis, Christoph, Inigo, Jasna**
- D.3.2. Annual STSM for PhD students and Early-stage researchers on design, fabrication and characterisation of innovative integrated STS/ RES (Month 6, 18, 30, 42): **STSM Manager**
- D.3.3. Annual Training School to disseminate expertise to PhD students and Early Stage Researchers (Month 18, 30, 42). Topics will include design, fabrication and characterisation of innovative integrated STS/ RES: **SG**
- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure (Month 36): **Mervyn, Sandra, Christoph, Tim**
- D.3.5. Report on the performance of new integrated STS/RES prototypes: A country performance comparison with geographic diversity (South, Central and North Europe), (Month 42): **Simon, Aggelos, Stefan**
- D.3.6. Handbook for architects and building services engineers on the developed BISTS solutions for the design market ready products. (Month 46): **Coordinated by WG4** (next slide).