Example name: *Foote School New Haven*

Template completed by:
Constantinos Vassiliades,
c.vassiliades@hotmail.com

Photographs

For installations

BISTS Location: *New Haven, CT, USA, +41°18'29.79", -72°55'40.38"*
Climate Type: *CFa*
Building Use: *Commercial*
Level of BISTS integration:
1. Applied invisibly

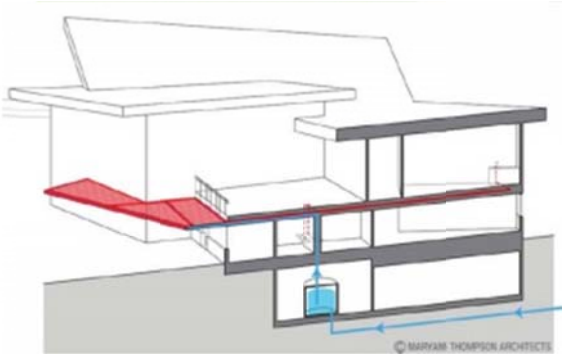
√ New Build
O Refurbishment
O Other: ……
tick all that apply

Type of BISTS:

~~Active~~/Passive/~~Hybrid~~
delete as appropriate

Function(s):
O Air heating
√ Water heating
O Combi-system
√ Cooling/ventilation/shading
O PV/T
O linked to another system (e.g., heat pump)
O Other: ……
tick all that apply

Drawings/Sketches/Cross-sections



Building element:

O Facade
O Roof
√ Other: *Louvered awning*
tick all that apply

BISTS characteristics:

The system is essentially an awning with horizontal blinds, which act as a solar thermal system, facing south and is at an angle of 45 degrees in order to take full advantage of the location and orientation of the building. It is metallic and in black color.

Stage of Development:Responsible: *Company*

O	Idea/Patent	……..
O	Prototype	……..
O	Demonstration	……..
O	Integral building element	……..
√	Commercially available	*Bio-tecture*

tick all that apply

BISTS description and context

It is the new Science and Technology building of the school group. The awning on the west side is essentially a special configuration of horizontal slats, which plays a dual role, since it provides sun protection in the western classrooms, while acting as a solar thermal system. The tubes that penetrate the blinds, get warm by the sun to provide hot water throughout the building. The use and production of energy is monitored and presented to the students, which transforms the building into a teaching tool.

System viability

For example….Economic viability (capital and running costs), maintenance, embodied energy, environmental impact and sustainability, wider social contexts

Modelling and simulation tools developed/used

It uses tubing with a utilitarian function. Provides sun protection, because it is integrated to an awning and it is fully integrated to the architectural concept.

BISTS Performance data Based on: O Estimation O Detailed simulation *Specify software(s) used* O Measurement/testing O Long-term monitoring *tick all that apply* **Performance parameters** For integrated systems: key performance indicators - *Solar savings fraction: %* *Light transmittance: %* *Solar transmittance:%* *Total solar energy transmittance: %:* *Solar heat gain factor: %* *Building fabric U-values: W/m^{2}K* *Noise, fire, etc ratings* *Other:* For separate collectors: performance rating coefficients - (EN12975, a0,a1,a2), ASHRAE, etc Other:	*Graphs for collector efficiency, seasonal energy gains, diurnal/seasonal solar fraction, etc.*
Additional information:	
Sources and references: *http://www.bio-tecture.net/downloads/commercial_casestudy.pdf*	

INSTRUCTIONS

Please fill in as much information as possible.

Tick where appropriate.

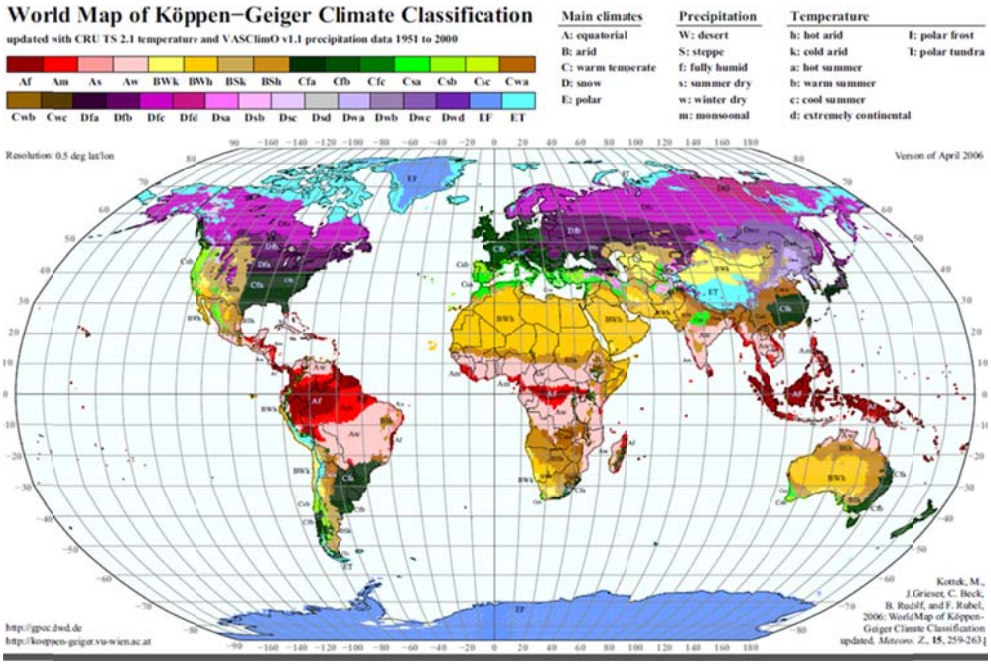
Text in red is suggested guidance. Insert in formation in provided space, removing red text as appropriate

If possible, use metric values.

If necessary, supply additional information on separate sheets

Reference listing

Köppen climate classification



(Kottek, M.,J. Grieser, C. Beck,B. Rudolf, and F. Rubel,2006: World Map of Köppen-Geiger Climate Classificationupdated. Meteorol. Z., 15, 259-263.)

Reijenga classification

The integration of PV systems in architecture can be divided into five categories:

1. Applied invisibly
2. Added to the design
3. Adding to the architectural image
4. Determining architectural image
5. Leading to new architectural concepts.

(Reijenga, TH and Kaan, HF. (2011) PV in Architecture, in Handbook of Photovoltaic Science and Engineering, Second Edition (eds A. Luque and S. Hegedus), John Wiley & Sons Ltd, Chichester, UK)

Rush classification
The architectural/visual expression of building services systems are identified as:

Level 1. Not visible, no change
Level 2. Visible, no change
Level 3. Visible, surface change
Level 4. Visible, with size or shape change
Level 5. Visible, with location or orientation change

(Rush, RD. (1986) The Building systems integration handbook Wiley, New York, USA)

Collector test standards

BS EN 12975-2 2006 'Thermal solar systems and components solar collectors - Part 2 test methods'
ASHRAE Standard 93-2010 'Methods of Testing to Determine the Thermal Performance of Solar Collectors'
ASHRAE Standard 95-1987 'Methods of Testing to Determine the Thermal Performance of Solar Domestic Water Heating Systems'