Example name: *Erlangen City Hall, Germany*

Template completed by:
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Photographs

For installations

BISTS Location: *Erlangen, Germany, 49°35'N 11°1'E*
Climate Type: *Dfb*
Building Use: *Public Building*

Level of BISTS integration
2. Added to the design

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

Type of BISTS:

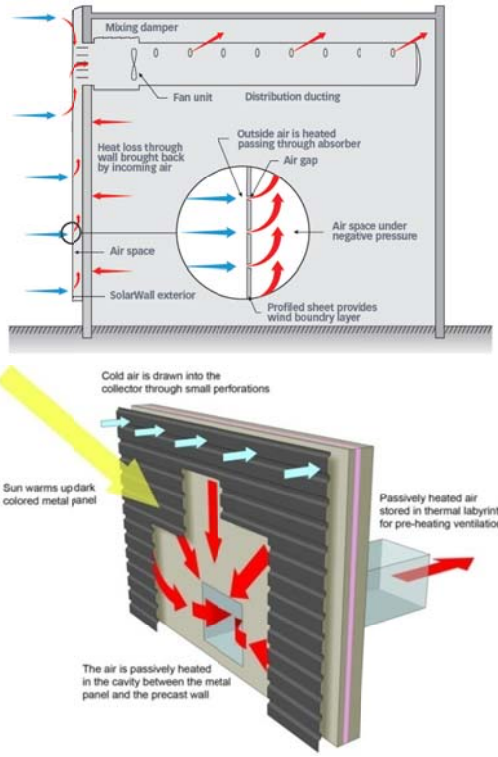
~~Active~~/Passive/~~Hybrid~~
delete as appropriate

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

Building element:

√ Facade
O Roof
O Other: ……..
tick all that apply

Drawings/Sketches/Cross-sections



BISTS characteristics:

SolarWall technology was chosen for several reasons. Apart from its ability to provide savings and significantly reduces of CO_2, the system requires no maintenance and has no moving parts. This was an extremely important issue, because the system was placed above the ground level, and therefore it would not be easily accessible after the completion of the construction.

Stage of Development: Responsible: *Company.*

O	Idea/Patent	……..
O	Prototype	……..
O	Demonstration	……..
O	Integral building element	……..
√	Commercially available	SolarWall

tick all that apply

BISTS description and context

The architect integrated 150 m² of panels on the tall office building between the 6th and 14th floor. The bold design is extremely "eyecatching", and manages to fulfill both the esthetic demands and the production of hot air.
It is basically a second shell which is mounted on the outer walls of the building, and heats the air and then leads it inside the building.

System viability

The system is used on an average of 60 hours per week, and preheats 3000 cfm of ventilation air that is used in the building. Regarding the reduction of emissions, the solar system eliminates nearly 30 tonnes of CO_2 emissions per year!

Modelling and simulation tools developed/used

For example….new modules/types created for established simulation programs, stand-alone modelling, use of generalised codes, model outcomes, validation and accuracy. Design tools developed

BISTS Performance data Based on: O Estimation O Detailed simulation *CANMET's monitoring report.* 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://solarwall.com/media/download_gallery/SolarWall_SellSheet.pdf* *http://solarwall.com/media/download_gallery/cases/ErlangenCityHall_Y05_SolarWallCaseStudy.pdf*	

INSTRUCTIONS

Please fill in as much information as possible.

Tick where appropriate.

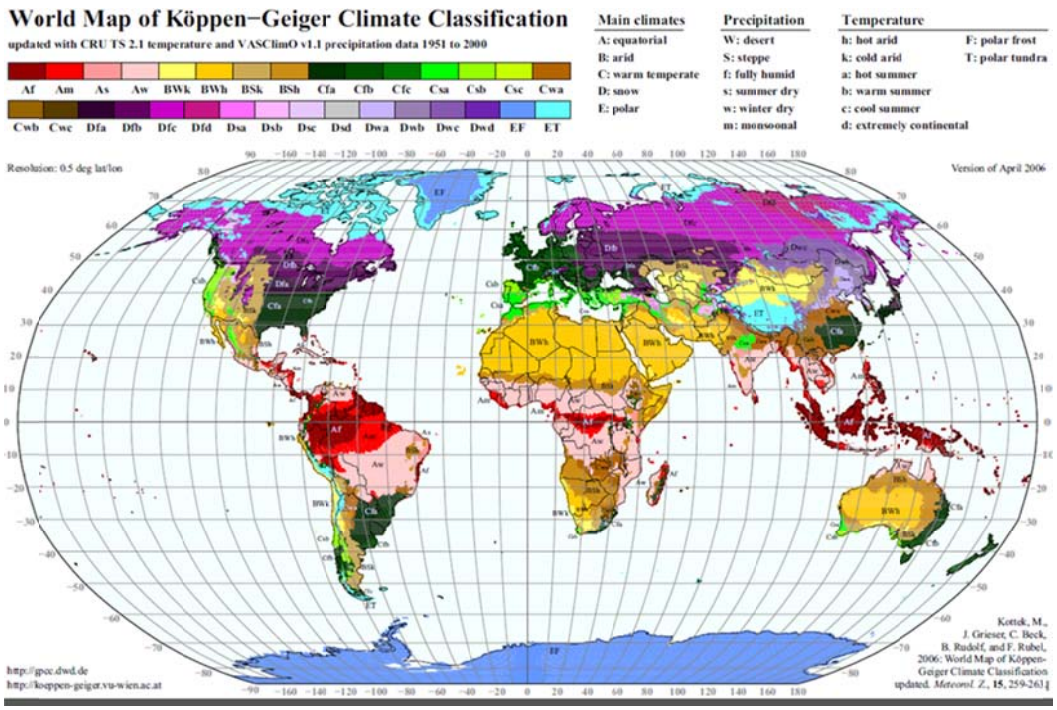
Text in red is suggested guidance. Insertinformation in provided space, removing red text as appropriate

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'