ACSF Topical Lunch Summary
Rethink smart buildings – What is human-beings' role?
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Solutions in the building sector towards a more sustainable future often include smarter buildings, while the definition of "smart building" is still being debated. Scenarios include buildings equipped with highly (or even fully) automated systems coordinated through sophisticated central control; materials breakthroughs that enable a more intelligent envelope as the interface between indoor and outdoor; and a dynamic connection to a larger network that utilizes large volume of data collected continuously to optimize building operation; etc. In these scenarios, something in common is that, building users are playing a rather passive role, to only "generate" data, or their role is not addressed at all. They are often not "trusted" to make wise and consistent control decisions or considered "incompetent" to be an active part in achieving optimal performance.

However, human value, comfort, and well-being should be among the set of key indicators when the performance of built environments are evaluated, in addition to energy and emission outcomes. At individual level, level of control is believed to be an important element for human-being's environmental satisfaction. In this topical lunch, the group discussed a number of issues around the role of human-beings in future smart building concepts, as well as the broader cultural, social and psychological consequences of technological advances that are far more profound than the physical transformations in buildings they have engendered.

Topics include:
Impact of the scale of built space on perceived level of control over building systems (especially building envelope);
Human connection with passive design strategies;

The need for user override in automated systems;
The necessity of keeping distributed control;
Security concerns with hyper-centralized control and data management;
Communication and information provision to building users;
Issue of optimal control in shared space – negotiation between users of shared space, e.g. open-plan office;
Flexibility that can be enabled by technology;
Understand delivered performance (e.g. through post-occupancy evaluation) to close the loop for improving design and engineering of buildings that support both human and sustainability goals;
Culture context for smart building scenarios;
Indicators of building performance and user-related outcomes, etc.

There was also a brief discussion in the end on possible funding agencies for research on this topic.