

Hills scholar bags PhD for study on energy efficient architecture



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Darjeeling: A Darjeeling based Energy Engineering scholar has become the first one in the region to get a PhD degree in Building Thermal Comfort and [Environment](#) for his thesis entitled 'Study and Analysis of Adaptive Thermal Comfort Model in Darjeeling Hills'.

The above study was undertaken in the School of Engineering and [Technology](#) at Poornima University, Jaipur.

Assistant Professor of Environmental Studies at Salesian College Sonada for [over](#) 15 years, Mr Samar Thapa from Kurseong in Darjeeling district successfully defended his doctoral thesis early September.

“Thermal comfort standards are required not only to ensure good indoor climatic condition, but also to optimize the energy used in a building for heating or cooling purposes,” says Mr Thapa returning to 80 year old hill’s college after his successful doctoral thesis defense.

Explaining further on his study Mr Thapa says, “The aim of the research was to study the effect of difference in elevation which is a major factor for temperature difference in hilly terrain, on the thermal comfort of residents.”

To prove his hypothesis, Mr Thapa conducted a field survey in 10 naturally ventilated buildings of different types at five different elevations in the Darjeeling Himalayan Region of north [east India](#). A total of 2608 questionnaires based on ASHRAE Standard 55 Class II Protocol regarding the indoor occupant thermal comfort were collected from 436 subjects during the monthly survey held in the year 2015 along with the simultaneous monitoring of the indoor and outdoor environmental condition. Variations in clothing insulation and other thermal comfort parameters were seen both with difference in elevation and with outdoor environmental conditions.

The models proposed by Mr. Thapa in his thesis and in his publications in Journals like Elsevier and Springer could be used by Building Designers, Architects and [Engineers](#) in the region or elsewhere with a similar bioclimatic set up to determine the required indoor comfort condition before the building is actually built, thereby allowing them a window to incorporate passive features which can [lead](#) to a comfortable indoor condition.

This pioneering study by Mr. Thapa in this field of energy saving architecture has drawn a partnership in the prestigious project [Residential](#) Environments Project (known as RESIDE) - a four-year research project that aims to evaluate the impact of urban design on energy efficiency. The project will be implemented from October 2018 in Hyderabad, Delhi, Mumbai, Jaipur, and Darjeeling.

“It is a matter of pride for us to partner in knowledge creation in the field as the only undergraduate college selected for the task,” says Saleisan College [Principal](#) Dr George Thadathil complimenting Mr Thapa’s achievement.

“Salesian College Sonada is the only college among the selected five, while others are MNIT Jaipur, IIIT Hyderabad and other industrial partners from Mumbai and Delhi.”

Salesian College Sonada (SCS) established in 1938 is situated 6,500 feet above sea [level](#) at Gorabari village on NH55 - Siliguri Darjeeling Hill Cart Road – just two kilometers before Soanda town.

The RESIDE project aims to measure [over](#) a four year period the comfort [level](#) of housing units in five different climate zones of [India](#). It will propose policies to streamline construction industry on minimum standards as to save on energy consumption.

The project also consists of POE (Post Occupancy Evaluation) on 40 different aspects of room temperature and energy utilities.

The RESIDE project which SCS is a partner was among the four selected from among 22 applications by the Department of Science and [Technology](#) (DST), [India](#), and Engineering and Physical Sciences Research Council (EPSRC) by Newton-Bhabha [UK](#) for funding.

The Newton Bhabha Fund aims to bring together the [UK](#) and Indian scientific research and innovation sectors to find joint solutions to the challenges facing [India](#) in economic development and social [welfare](#).

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BY CM PAUL

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