

Ecosystem management, river conservation

By Utsav Gandhi
CAMPUS EDITOR

As part of a joint lecture presented by the IIT Armour College and the CAE department, Dr. Venkatesh Dutta, Fulbright Scholar and assistant professor of Environmental Sciences and Management at Dr. Babasaheb Ambedkar University in India, presented a heartfelt and passionate talk about his intended and ongoing efforts to clean up the Gomti, a tributary of the mighty Indian river Ganga.

Over 40 drains discharge untreated waste from the metro city of Lucknow directly into the river; the urban sprawl on the banks of the river has increased five folds over the last 100 years.

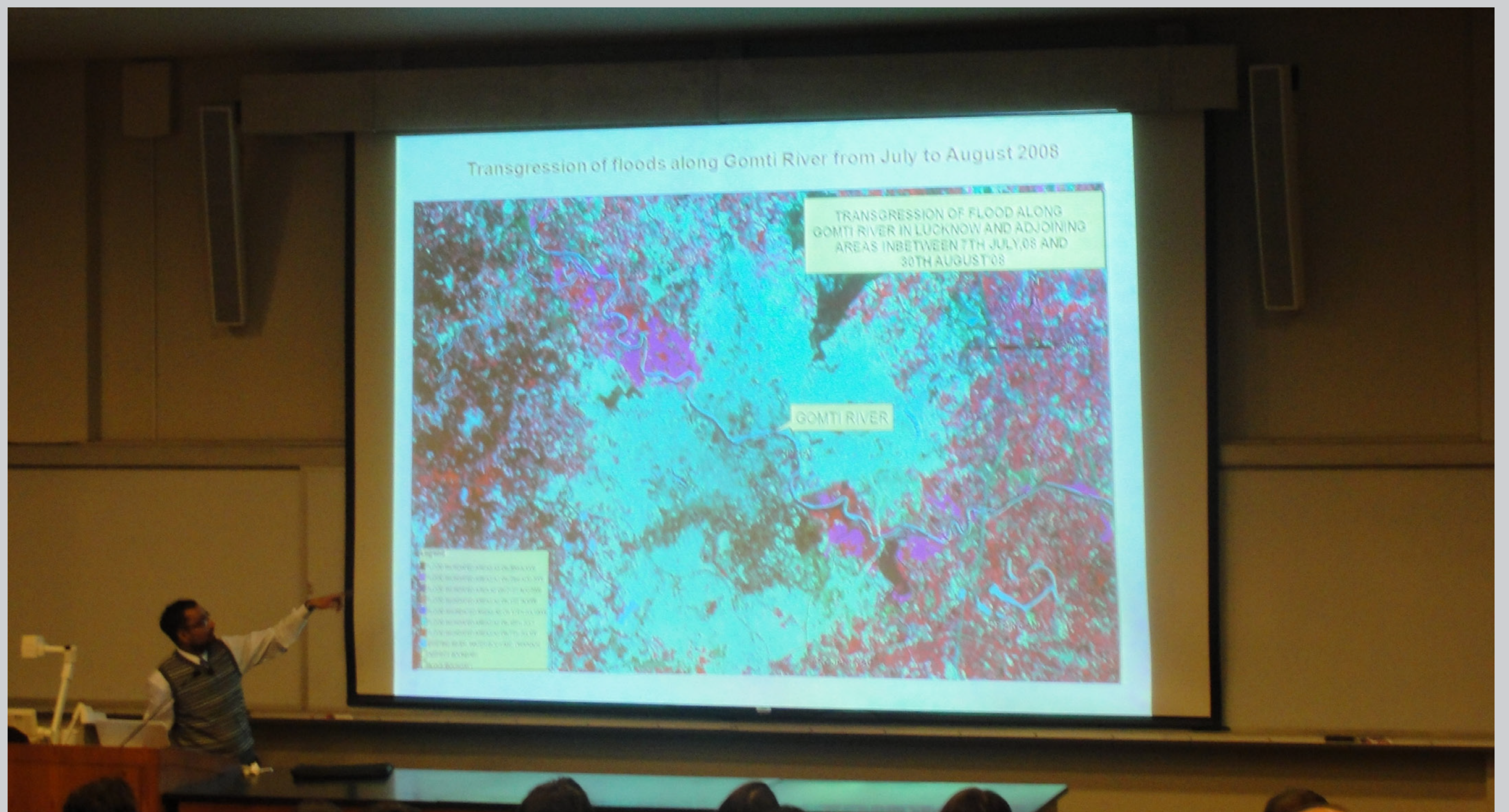
Due to the misallocation/mismanagement in the sharing of water resources among the 400 million people residing along its catchment area, there is tremendous pressure on the demand for water.

This leads to the logical question of how much developmental impact is acceptable. For what purposes can a river be used and should this be regulated? What is the final tradeoff between economic development and environmental impact?

Dr. Dutta is slowly but surely charting a small success story based on the pillars of an organized appeal to the local authorities—but even then, a lot of work needs to be done. To us budding engineers, scientists and even public policymakers, he provided an excellent example of where the skills and lessons we pick up in our classes today can be applied to bring about real change affecting world communities.

The river Ganga is considered a mother goddess in Indian cultural mythology, and Dr. Dutta introduced the audience to the spiritual significance of the river, appealing for its declaration as a World Heritage Site.

He compared the current exploitation of its ground water resources to the inconsiderate cash withdrawal from a bank account owned



by multiple users. He said that the forest cover thriving near its origin is slowly dwindling, and its fish are dying due to asphyxiation from the organochlorine agricultural pesticide waste accumulation.

While this has led to significant concern from the local/national media and authorities alike, the results, if any, are barely visible. He says that better scientific information, political will and efficient government machinery will likely serve as a starting point in reversing the problem.

He then spoke extensively about an interestingly coined “social engineering” expedition he recently undertook to the river along with another scientist, some journalists, monks, a few social activists and retired

engineers—emphasizing that a problem of this scale and magnitude can only be tackled with the interdisciplinary co-operation extended by various interest groups.

A spiritual movement was initiated, 5,000 youths were made to sign a pledge undertaking a promise to stop polluting the river, a press report was sent out each night—and slowly the group managed to gauge more complete information about the river—like the actual number of its tributaries and its real, meandering length.

Such statistics, previously recorded inaccurately, were essential if the government was to scale the true scope and measure of the work to be done. The “River Conservation

Committee” became a political manifesto—and now the elected officials are answerable to the public regarding the reversal of the river degradation.

Dr. Dutta remains hopeful that the river will flow back in its prime sometime in the future—he has declared his personal goal to see so in his lifetime.

His future goals include appealing to national and international interest groups such as the EPA, UNESCO, the Stockholm Environment Institute and the National Science Foundation for additional funding, and strengthening the movement he has initialized in the Indian heartland where the river Gomti flows.

Photo by Swasti Khuntia

College of Architecture sponsors guest lecturer

By Swasti Khuntia
LAYOUT EDITOR

IIT's College of Architecture organized a guest lecture on Merritt Bucholz's current work. Merritt Bucholz is an American architect who has set up a practice in Ireland with his partner Karen McEvoy. He's also the Dean and Professor of Architecture at the University of Limerick, Ireland. He delivered an interesting presentation on his recent work. The presentation was accompanied by amazing pictures of his projects. Some of his notable works were Elm Park Green Urban Quarter, Westmeath County Council, and Limerick County Council Headquarters.

Dr. Bucholz started the presentation with one of his finest creations: the high design and energy-efficient scheme at Elm Park. The landmark building designed by Bucholz McEvoy at Elm Park has created a new skyline for south Dublin. But the most important characteristic of this building is that it's energy efficient. He said “Letting nature do the work, Elm Park's buildings use natural ventilation and day lighting to radically reduce energy use even as they reinvent the suburbs with new ideas about density.” The building's innovative environmental features place it among the more advanced green developments in Europe. The buildings merge form and function, making beautiful use of the site's microclimate for ventilation. In Dublin, according to Bucholz, prevailing winds drive design more than sunlight. As a result, the long, narrow buildings are oriented on a north-south axis to take advantage of the westerly winds. On top of this structure, seven acres of green space tie the site and its buildings together. Far from flat, constructed slopes provide visual interest and drainage, directing runoff to large pine, maple, oak, walnut, birch, and ash trees. Stretches of grass are broken up by large shrubs and native grasses, as well as rain shelters that mimic the large supports on the buildings. Bucholz calls the landscape a “giant sponge” that

absorbs rainwater, keeping it from entering an overburdened stream that collects runoff from a bordering golf course.

He then talked about another landmark, the Siopa at Leinster House, a staff shop that exists between tree roots with pile caps supporting its fully waterproofed structural steel base. The outer shell is of glass and the roof beams support a glass canopy to one side. Both the inner finishes and the external decking are made of timber and the complete structure is built around existing, well-established trees.

The Westmeath County Council and Limerick County Council headquarters are more energy-efficient buildings designed by Bucholz. The Westmeath site is an open and transparent public service building and is carefully woven into the historical archaeological context, creating an ensemble of new and old buildings, which together bring new meaning and civic values to this site. It is created primarily with glass, timber, and concrete. The entirely naturally ventilated building maximizes passive design principles and creates an environment in balance with nature. The design of a structure in its construction and operation consumes less of the environment's natural non-renewable resources. A double facade combined with an atrium lung serve to impact all of the ventilation in the office building.

Similarly, the Limerick building is fully naturally ventilated with a bespoke structural timber brise soleil, combining environmental control and structural stability to the southwest facade. The cross ventilation of the office spaces is driven by the thermal buoyancy of the atrium behind. The exposed concrete frame of the office spaces acts as a thermal sink to keep temperatures constant, and the envelope of the building was the first to be tested for air tightness in Ireland, achieving twice the standard of new building regulations.

At the end, Bucholz answered a lot of students' questions. Overall, it was an interactive and interesting lecture which was enjoyed by the audience.

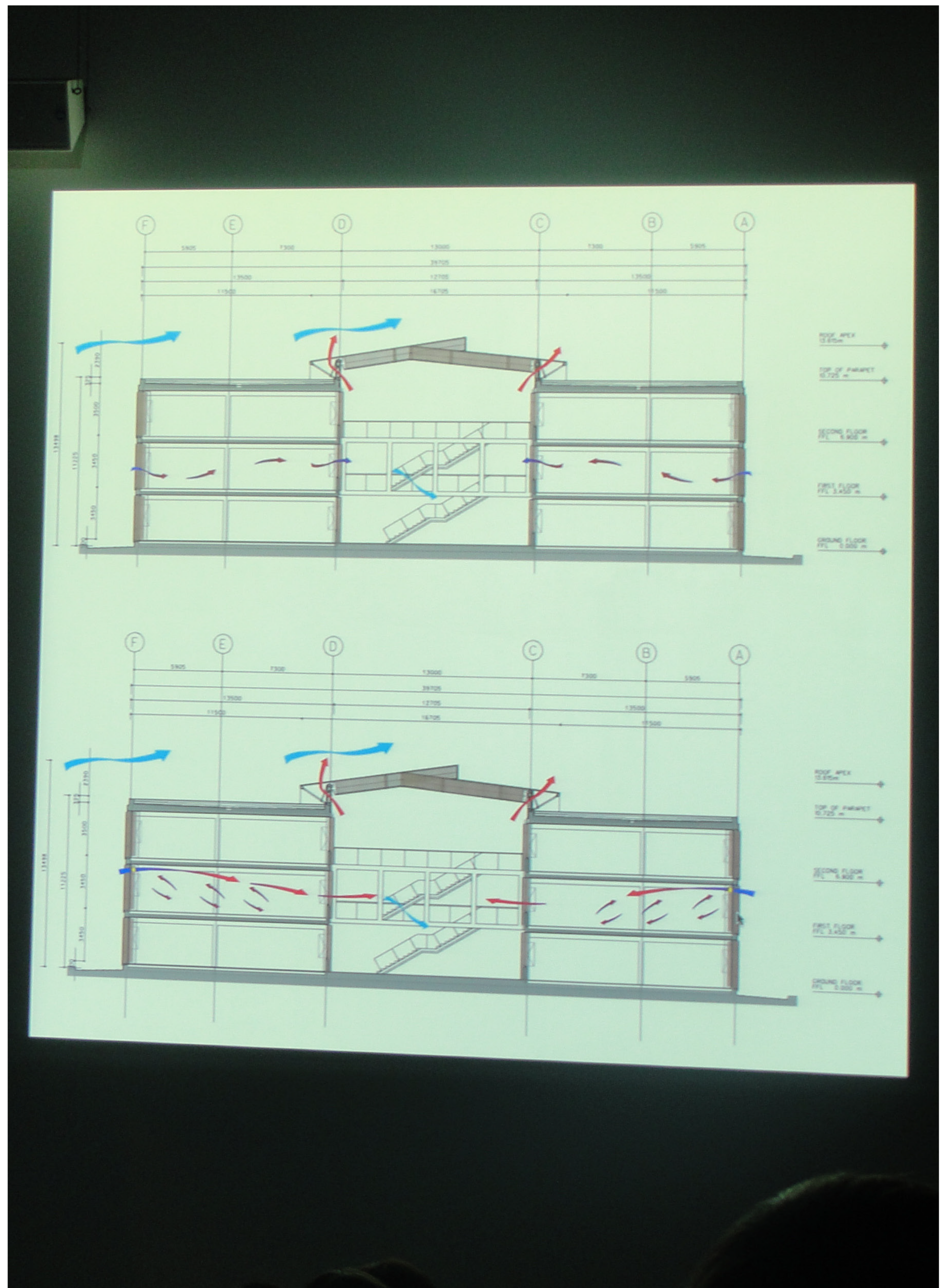


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