

Client: Wits University (Johannesburg)

Value: R 35 million

Services: Structural and Civil Design Professional Services

Project Duration: Nov 2019 – Current

# Wits Health Science Teaching Centre, Johannesburg

## Structural and Civil Design Professional Services

### The Task

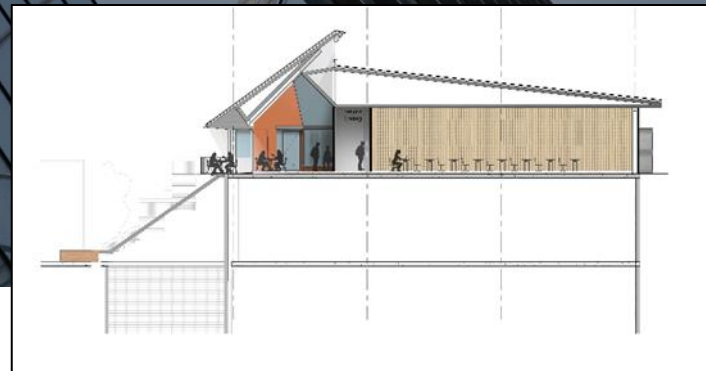
Nurizon was appointed to design the structural and civil works for the new teaching centre for Wits Health Sciences, located in Parktown Johannesburg, South Africa. The Wits Health Sciences department is looking to expand the capacity of the teaching centre by adding a lecture hall that will be able to accommodate an additional intake of  $\pm 800$  students. The teaching centre is to be built on top of an existing roof slab of the health sciences building.

### Design Services

The design concept was initially undertaken by the Architect to ascertain how best the new structure would fit into the existing building. At the outset, a major engineering challenge was to determine whether the existing structure would be able to withstand the additional loads imposed on the structural elements without failure. To reduce the loading of the structure, a lightweight steel structure with minimal concrete works was proposed. This challenged the team to find a workable solution to ultimately yield an economical design for ease of construction and minimal disruption to the campus.

As part of the detail design, a portal frame steel structure with a suspended moulded fibreglass floor decking supported by cellular structural beams was designed and subsequently constructed. The portal frame loads were transmitted directly to the existing columns.

Structural integrity tests to confirm the design capacity of the existing foundations, columns and soil bearing pressure were conducted. Rebar Scanning, Core Drilling and Concrete Strength testing were the tests done on the



### The Result

The project was successfully completed on time despite the considerable challenges, in terms of available capex budget, constructability issues including working in a live environment with constant movement, tight deadlines and extreme health and safety considerations due to the COVID-19 pandemic.

