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The Buzz.ar by Eleena Jamil Architect

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SMJK JIT SIN
ATELIER ALAN TEH ARCHITECT

BUKIT MERTAJAM, PENANG

Paradigm Shift

Contrary to the traditional school layout where the classrooms are treated as the most important spaces of the education institution, the design of SMJK Jit Sin encourages students to learn beyond the confinement of the classrooms through a series of semi-outdoor spaces conducive to interaction and play, epitomised by the grand staircase and outdoor amphitheater and pods. All in the spirit of 'education beyond the transmittal of knowledge', to include the sharing of values and new aspirations.

Two key questions were addressed in the design of the new academic block of SMJK Jit Sin (one of the leading Cluster School of Excellence in Malaysia) – the role of schools in the 21st century and how the design of public high schools in Malaysia have evolved since its independence.

Considering the large amount of information available on the internet and digital media, teachers are less of an instructor and more of a facilitator of information today, with less emphasis on textbooks. Hence, it is important to create a learning environment for the teachers and students to connect with each other as well as the larger social circle beyond their individual classrooms. The new paradigm for the school of the 21st century is to break down the barrier of classrooms and the confined space of the teacher-centred classrooms to open up the possibility of co-learning and creative learning that is also fun and enjoyable for everyone instead of being pedagogic and controlled.

Located at the existing suburban school campus of SMJK Jit Sin at Taman Sri Rambai, Bukit Mertajam, the site has great frontage to the main entrance and an existing ceremonial padang. The project site is a 1.7-acre trapezoidal narrow site that stretches 150m from the front towards the other end with the narrowest width at 26m. The challenge is on how to orchestrate linear facilities and break them down into a clearer articulation of massing that responds to the various programmes and site contexts.

The brief initially called for only two main components: a multi-storey carpark to replace the existing surface car parks and a new academic block of classrooms and laboratories. However, after much deliberation with the school board and teaching faculty, a new design configuration of a multi-storey carpark cum facility block and new academia block was agreed upon to enhance the teaching facilities beyond the typical classroom nomenclature. The facility block houses supporting facilities that include a library, meeting rooms, art, music and dance studios as well as a history gallery that showcases the school's long history and memorabilia; while the academia block includes computer labs, robotics lab, a maker's space, a new canteen and auditorium in addition to classrooms and laboratories. The inclusion of a 200-pax capacity auditorium is seen as a great breakthrough for the architect, who envisioned it as a platform to encourage greater public participation for exchange of knowledge and ideas.

Doing away with the typical post-independence, utilitarian construction logic and planning, the building configuration is mainly driven by 'site forces' – the nature of the site in consideration of the sun path, geometry, accessibility, visibility, frontage and its existing school massing and programmes. The long site favours a shallow plan for the classrooms with single-loaded corridors, a boon for good cross ventilation and sufficient natural lighting penetration. The placement of the carpark block closest to the main entrance of the school ensures a car-free campus.

South elevation – Composition of nods, lines and plains

RIGHT, TOP ROW
The sculptural effect of the spinal stairs bring dynamism to the verandah space

RIGHT, BOTTOM
The interplay of solid and void forms the basis of the architectural massing of the building design

A primary consideration is that this will be the last plot of buildable land of the whole 8.3-acre school campus and extra care must be taken to ensure that the school can cope with the physical needs of the future. This led to a relook at the educational thrust of the 21st century and how the future of the school should evolve.

The main strategy adopted for the academic block in terms of layout planning was the extrusion of the external corridor to create a series of semi-open verandah slabs located at every floor. This means that the corridor spaces of the traditional school can now be used as an additional interaction space for the students instead of just a circulation pathway. These spaces are not defined by their functionality. In Hertzberger's terms, students are allowed to redefine the function of these intermediate spaces based on their own interpretations and needs. For example, the semi-outdoor amphitheater seating on the first floor can be a place for gathering, performance or public debate, depending on who is using it and the prevailing programme at that particular hour.

By not fixing everything to our pre-conceived ideas of teaching and learning, the school is able to evolve on its own in the future. Another design intent that was explored was the emphasising of the casual and less formal interactions among teachers and students in nurturing a fun and interactive environment for learning and play, which is somewhat lacking at many schools that emphasise on facility planning and formal expressions, with a number merely represented by colourful murals. These interactive spaces are realised through various landscaped, enhanced verandahs dispersed all over the building.

Apart from the 'triple cubes' frontage to the main *padang*, the rest of the buildings are mainly designed from the inside out. The large roof sheltering the tropical hot sun allows a series of verandah terraces to be extended out from the typical 3-metre-wide corridor.

The facades where the classrooms are located were fitted with brise-soleil to reduce 30% of the heat gained via direct sunlight while the verandahs are finished as a series of interlocking platforms with green planters and vertical metal brise-soleil that modulate the light and wind coming into the spaces within. This interplay of solid and void forms the basis of the architectural massing of the building design.

The other main design feature of the school is the five-storey high Hogwarts-like grand staircase that twists and turns from the highest floor down towards the outdoor amphitheater on the first floor. This spine connects all the strata levels almost like the MC Escher's famous drawing of the Relativity stairs and provides a sense of discovery for the visitors and users of the school.

Slated to be the first public high school in Malaysia to receive GBI-certified status, the landscape formed an integral part of the architectural design right from the conceptual design stage, to enhance the visual quality and semi-outdoor spaces of the buildings at every floor.

There are green planters and double-volume verandahs allocated for every floor to create a sense of 'grounded-ness' that encourage interaction of the users. These interlocking spaces are designed to encourage more visual and spatial connections between the floors.

A rain water harvesting tank is installed at Level 6 and the big concrete canopy roof to cater for future solar panels to be fitted on in the future. The highest landscape deck with direct sunlight exposure is proposed to be converted into an urban edible garden that introduces the students to sustainability issues, serving as an educational tool.

This project also attempted to reconcile the inherent dichotomy between building environmental performance and the architectural quality of spaces whereby the architectural quality is often sacrificed in favour of environmental and energy performance. Through an integrated and thoughtful design process, synergy is achieved between design quality and technical performance. AM

TEXT BY THE ARCHITECT

FAR LEFT **State-of-the-art auditorium**

LEFT **North-eastern facade with the brise soliel sun shading fins and hoods that reduce 30% of direct sunlight**

North elevation of triple cubes facing the *padang*

Semi-outdoor amphitheatre

LOCATION
BUKIT MERTAJAM, PENANG

PRINCIPAL USE
EDUCATION

ARCHITECT FIRM
ATELIER ALAN TEH ARCHITECT

PROJECT PRINCIPAL
AR ALAN TEH

PROJECT TEAM
CHAN CHONG CHONG (PROJECT ARCHITECT), LEONG YEE KEONG, FOONG YOU SHENG (DESIGN ARCHITECT)

DESIGN PERIOD
2 YEARS

CONSTRUCTION PERIOD
18 MONTHS

DATE OF COMPLETION
MARCH 2019

SITE AREA
40,629SQM

FLOOR AREA
20,161SQM

PROJECT COST
RM20MIL

CONTRACTOR
SPK ASAS SDN BHD

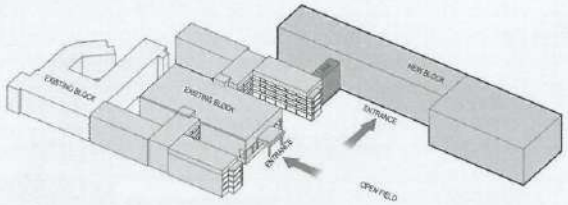
CIVIL ENGINEERING
PERUNDING LOT

M&E ENGINEER
TAFA PERUNDING SDN. BHD

QUANTITY SURVEYOR
UNITECH QS CONSULTANCY SDN BHD

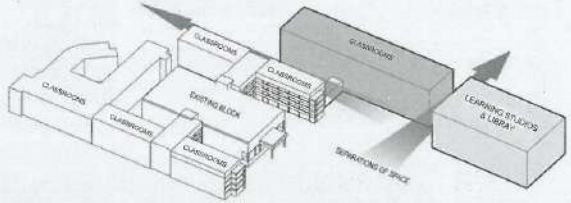
LANDSCAPING
JRD ASIA SDN BHD

PHOTOGRAPHY
LIM BOON CHENG, HERTZ ONG, TIAN TAN & AUTHOR



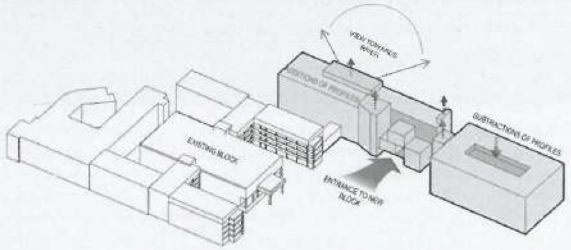
CENTRALISED ENTRANCE

Maintaining the centralised entrance to the new building that respects the ceremonial padang forecourt fronted by the existing assembly hall building.



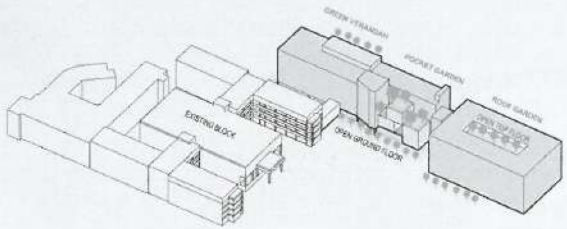
SEPARATION OF BLOCKS

Creates separation between blocks to reduce bomba access coverage and allow penetrations of daylighting and ventilation. The academic block is also positioned closer to the existing school compound for convenient access.



ADDITIONAL INTERACTION SPACES

By addition and substraction, outdoor interaction spaces are created that break down the monolithic form of the typical school massing.



OPEN FLOOR AND OUTDOOR LEARNING AREAS

Encourages human interaction and improves the quality of spaces on each floor of the building. There are also more activity areas for students throughout the building.

Section