

BUSINESS REVIEW 2019



Welcome to ECAS' 2019 Business Review!



The last decade was truly a remarkable time for ECAS. We experienced exponential growth not just in business, but in the way we practise our profession. We proudly embraced excellence in all aspects of doing

business, and we did not fall short as we persistently pursued validation in the form of certifications and awards.

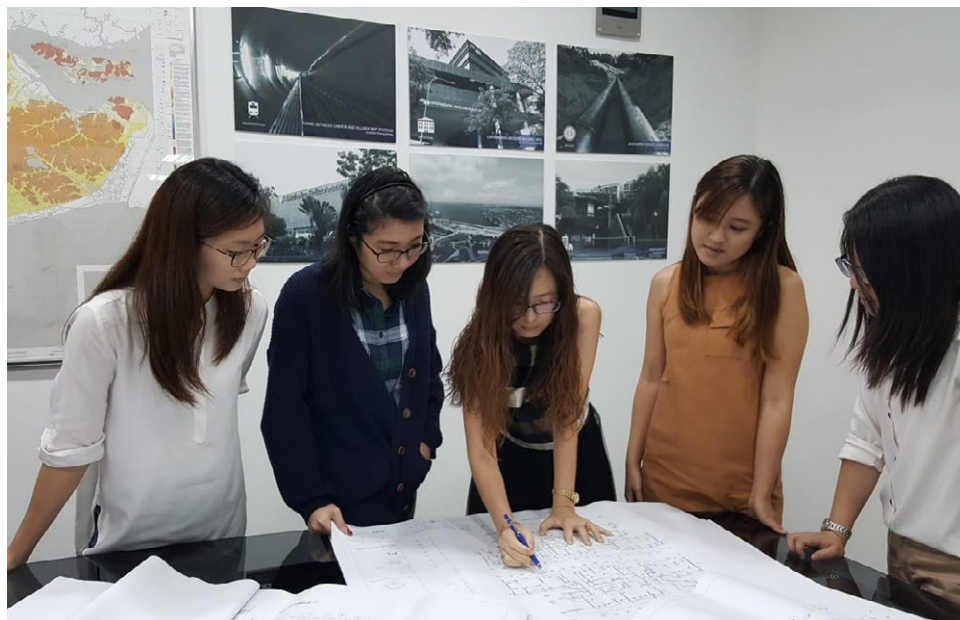
Being more critical in achieving our successes and meeting our clients' demands reaped benefits for us and definitely added value to our brand of service. Focusing in new construction technologies such as Prefabricated Prefinished Volumetric Construction (PPVC) and Mass Engineered Timber (MET) significantly improved our site productivity and efficiency.

In the next decade, we will continue to learn and adopt new technologies and adapt to changes in the built environment sector. We will strive to stay ahead of our game.

In everything we do, we hope to inspire future generations of engineers to make a difference in our community.

We look forward to a fruitful 2020 ahead and we hope you will continue to join us in our journey.

Kind regards,
Chan Ewe Jin
Managing Director



Women in the Built Environment

Built Environment is committed to equity and diversity in the Built Environment professions. Public perception has changed for women in this industry. Women graduate with engineering degrees is increasing. Courses at universities have more attendance by females than ever before.

Professional organizations, vocational training and lawmakers play a vital role in attracting more women in pursuing careers in the built environment - which historically, has been predominantly composed of men. The emphasis on supporting women is greater than ever. Women are attracted to this field as today's workforce has put a high value on work-life balance. Technology has reshaped the skill sets for jobs in built environment, More women are now attracted to this field and have started to build their strong career paths.

Large contractors these days are actively seeking young women engineers whom they can employ, mentor and move into the management positions. Women in senior roles change the culture and dynamics of a workplace. It shows their capabilities are equal valued, regardless of their gender.

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Prefabricated Prefinished Volumetric Construction (PPVC)

Prefabricated Prefinished Volumetric Construction (PPVC) refers to a construction method whereby free-standing 3-dimensional modules are completed with internal finishes, fixtures and fittings in an off-site fabrication facility before it is delivered and installed on site

PPVC system integrated with BIM journey. Today many developers have adapted to PPVC system for infrastructure and low-high rise buildings. The key benefits of PPVC include:

Improved Productivity

PPVC can potentially achieve a productivity improvement of up to 40% in terms of manpower and time savings, depending on the complexity of the projects.

Better Construction Environment

As bulk of the installation activities and manpower are moved off-site to a factory controlled environment, it can minimise dust and noise pollution and improve site safety.

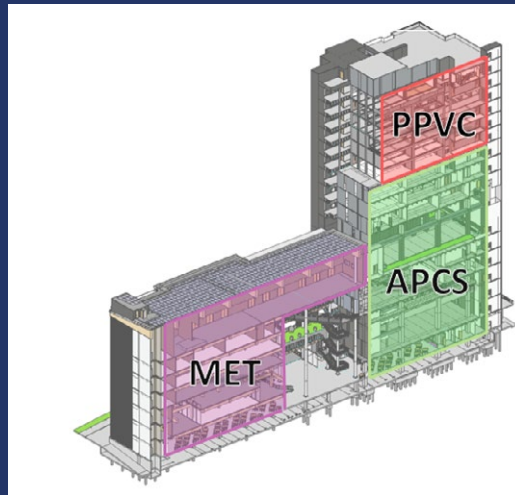
Improved Quality Control

Off-site fabrication can result in higher quality end products through quality control in a factory-like environment. Systematic procedure that add value to the construction and production process, produce standardize modules to decrease the defect of design.

Some of our PPVC projects are:

- PE Project: Adult Disability Home @ Pasir Ris
- PE Project: Mayflower Primary School
- AC project: Kallang Polyclinic
- AC Project: JTC-Space @ Tuas

Project in Focus: BCA Academy



Superstructure

The superstructure comprises of one (1) 16-storey reinforced concrete (RC) building and one (1) 7-storey timber building. The 16-storey RC building is to be built with two precast systems, namely the Advanced Precast Construction System (APCS), from storey 1 to storey 11, and the Prefabricated Prefinished Volumetric Construction (PPVC), from storey 12 to roof. The 7th storey timber building is to be built with the Mass Engineered Timber (MET) material.

For the RC building, the APCS is deemed to form a multi-storey continuous frame, while each PPVC unit is assumed to be a portal frame with pin connection at its column base. The RC building has two lift cores and two staircase cores. The lateral load resistance structure from storey 1 to storey 11 is thus a combination of the continuous frame and the core wall system. From storey 12 to roof the lateral load is mainly resisted by the core wall system.

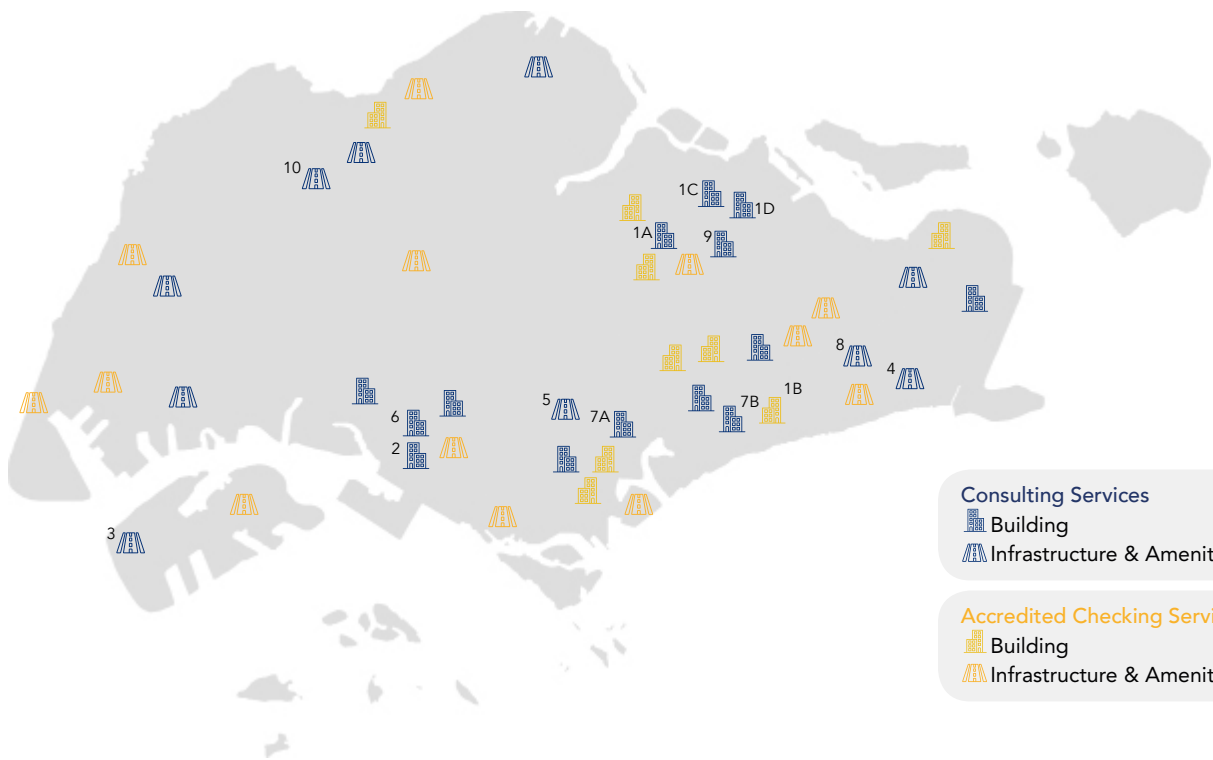
Substructure/First Storey



Both the RC building and the MET building rest on the 1st storey slab integrated with the basement through basement wall. The 1st storey slab together with the basement is to be built with cast in-situ concrete. The gravity load, as well as the lateral load, is transferred down to the pile foundation beneath the basement slab via RC columns and core walls at basement level.



Foundation

The foundation adopted for this proposed development will be spun piles with sizes 500mm and 600mm. The spun pile capacity and details may be referred to in the piling plan.

Projects Completed in 2019



Consulting Services
 Building
 Infrastructure & Amenities

Accredited Checking Services
 Building
 Infrastructure & Amenities



PERI 5A PACKAGE

Upgrading to existing schools under PERI phase 5 at North Vista, Yu Neng, Greendale & Horizon Primary Schools

JTC FLATTED FACTORY

Redecoration and Refurbishment Works to existing flatted factory on Block 20, 67, 69 & 71 Ayer Rajah Crescent

JURONG ISLAND PIPE RACKS

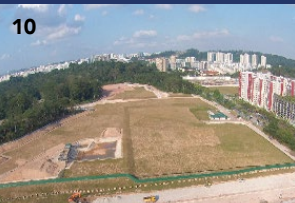
Feasibility study for the construction of pipe rack and consultancy services for the related works

CONTRACT ER521

Works at Slip Road from Pan Island Expressway to Airport Boulevard

CONTRACT ER381

Design and Construction of covered linkway, drainage systems, single-cell RCB & vehicular bridge at Balmoral Road / Bukit Timah Road Junction and Newton Circus



NATIONAL UNIVERSITY OF SINGAPORE CAMPUSES

Interior work to existing LT27-LT29, upgrade faculty of dentistry building to a new medical science library and fix out works to Data Storage Institute

JALAN BESAR & KAKI BUKIT COMMUNITY CLUBS

Full consultancy services for the upgrading of Jalan Besar and Kaki Bukit Community Clubs with a new extension

TAMPINES SUBSTATION

Addition and alteration to a 3-storey 66kV substation at Tampines Link (NDB172)

PUNGGOL FIRE STATION AND NEIGHBOURHOOD POLICE CENTRE

New development of combined Punggol Fire Station and NPC and ancillary works

TENGAH AIRBASE

New erection of a single storey RC building, dog kennels and ancillary works with external civil works within Tengah Airbase

Awards Received in 2019



ECAS proudly received the Construction Productivity Merit Award – Advocates (Consultant). The firm-level award was introduced in 2013, to recognise outstanding developers, consultants, builders and specialist contractors for their achievements in improving productivity.

Assessments are made on efforts toward designs, construction methods, processes and/or technologies adopted that have significant productivity impact on their projects.

Women in the Built Environment

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Often women offer and contribute to the team from different perspectives, hence making the team stronger and better posed to complete the project on time and on budget. They are doing amazing things out there. It is important that they are being acknowledged.

ECAS strongly advocates for the youth and women to pursue careers in the built environment.

About ECAS Consultants Pte Ltd

ECAS Consultants Pte Ltd is a leading multidisciplinary engineering firm offering design consultancy, accredited checking, construction supervision, and inspection services to clients of the public and private sector for a range of projects in Singapore.

The company is ISO 9001 certified for Quality, ISO 14001 certified for Environment protection, and OHSAS 18001 certified and bizSAFE STAR for Safety in the workplace. ECAS counts on Professional Engineers and more than 200 employees to support our clients in their projects.

Capabilities

Road and Bridge Engineering | Rail Engineering | Building Engineering | Tunnel Engineering |
Infrastructure Engineering | Geotechnical Engineering | Structural Engineering | Environmental Engineering |
Mechanical Engineering | Traffic Planning

Services

Design Consulting Services | Construction supervision | Assessment and investigation | Design Review |
Design for Safety Building Information Modelling (BIM) | Steel and Rebar Detailing | Project Management

Industries

Real Estate | Industrial | Utilities | Transportation | Infrastructure | Institutional