

COMPLETED PROJECT

ETC.

UNDERCONSTRUCTION  
PROJECT

CONTENT

ACTIVITIES

NEW PROJECT



June 2020

# Insights



There is no better feeling than knowing ASHRAE recognizes members outstanding achievements and contributions in the heating, ventilation and air conditioning and refrigeration industry. This recognition exemplifies the dedication and exemplary efforts of the members and indeed a place where you can find great minds and appreciation is also felt with the heart.

Among other ASHRAE members, **Mr. Wichai Laksanakorn** is also a recipient of the following awards:

- 🎯 **Distinguished Service Award** for his continuous faithful service and with exemplary effort and outstanding performance for the Society.
- 🎯 **50-Year Member Award** for being a Fellow/Life member of ASHRAE and for serving the Society as the Director & Regional Chair of the Society's Region XIII in 2010 – 2013 representing the Malaysia, Hong Kong, Singapore, Philippines, Taiwan and Thailand Chapters.

Mr Wichai, the Founder and Chair of **W. and Associates Consultants, Co., Ltd.**, is always gratified to learn that ASHRAE as a whole has always performed so well and that the award was such a pleasure for him to receive.



*June 2020*

DATE

A handwritten signature in dark ink, appearing to read "Wichai".

Founder and Chairman

# COMPLETED PROJECTS

## TWINPALMS RESIDENCES MONTAZURE



### TWINPALMS RESIDENCES MONTAZURE

**Location:** @Kamala Beach Road, Phuket, Thailand

**Owner:** Kamala Beach Resort and Hotel Management Co., Ltd.

#### Project Summary:

Eight 3-Storey Low-rise condominiums with 75 units in total.  
Construction area is estimated at 11,640 sq.m.

#### W&A Responsibility:

- Mechanical, Electrical and Plumbing System Design.

### Project Information

Perfect for beach lovers and placed directly on the seafront, this new Phuket boutique hotel offers a truly luxurious stay. Twinpalms MontAzure is a member of Small Luxury Hotels of the World and located on Kamala Beach on the up-market west coast of Phuket Island.

Featuring 46 beautifully appointed Suites and Penthouses, all with amazing views of either the ocean, the pool or the nearby mountains.

## ARK OFFICE



### ARK OFFICE

**Location:** @Narathiwat Ratchanakarin Road, Bangkok, Thailand

**Owner:** Sathorn Prime Property Co., Ltd.

#### Project Summary:

A 20-Storey office building.  
Gross floor area (GFA): 38,000 sq.m.

#### W&A Responsibility:

- Mechanical, Electrical and Plumbing System Design.  
- Construction Management

### Project Information

Sathorn Prime's 20-storey office building is located near the intersection of Sathorn and Narathiwat roads in the heart of Bangkok's thriving Sathorn -S ilom business district. A short walk from Chong Nonsi BTS skytrain station, the building is surrounded by multinational corporations and major attractions.

The building offers plenty of advantages for businesses seeking spacious, well-appointed offices in this highly connected part of the city.

# COMPLETED PROJECTS

## CHIA TAI BUILDING (HEADQUARTER)



### CHIA TAI BUILDING (HEADQUARTER)

**Location:** @Phra Khanong, Bangkok, Thailand

**Owner:** Chai Tai Co., Ltd.

#### Project Summary:

Office building with construction area is estimated at 18,443 sq.m.

#### W&A Responsibility:

- Mechanical, Electrical and Plumbing System Design.

### Project Information

The design concept was to create a contemporary building, with clean, simple lines and timeless architecture. Creates a productive work environment which enables collaboration and interaction within the company. The double volume interior spaces allow users a visual of activities in different areas of the building.

COMPLETED PROJECTS

## TAWANDANG 1999 FACTORY, CHAI NAT



### TAWANDANG 1999 FACTORY, CHAI NAT

**Location:** Amphoe Hankha, Chai Nat, Thailand

**Owner:** Tawandang 1999 Company Limited.

#### Project Summary:

Refinery & production factory with construction area of 53,489 sq.m.

#### W&A Responsibility:

- Construction Management

### Project Information

With plenty of greenery in its compound, the factory is equipped with state-of-the-art facilities for fermentation, distilling and production using expertise from Europe, North America and Asia. The distillery's production is fully automated and relies on a team of whisky masters with 30 years' experience in liquor fermentation.

The distillery, which is known as a "factory resort", is on an 816-rai (130.5-hectare) plot in Hankha district.

COMPLETED PROJECTS

# UNDERCONSTRUCTION PROJECTS

## BANYAN TREE, KRABI



### BANYAN TREE, KRABI

**Location:** @Krabi, Thailand

**Owner:** TCCCL Andaman Resort Company Limited.

#### Project Summary:

72 luxurious suites and villas with own private pool.  
Construction area is estimated at 70,000 sq.m.

#### W&A Responsibilities:

- Civil and Structural Design
- Site Drainage

### Project Information

#### SIMPLICITY IS THE ULTIMATE SOPHISTICATION

Banyan Tree Hotels & Resorts has created yet another locally-infused sanctuary offering a place to rejuvenate the mind, body and soul in a truly awe-inspiring location. Banyan Tree Krabi is located approximately 30 minutes from Ao Nang heading up the coast on the partially-isolated, but gorgeous Tubkaek Beach. The resort is located at the northern end of the beach and is in close proximity to the Hat Noppharat Thara - Mu Ko Phi Phi National Park.

# UNDERCONSTRUCTION PROJECTS

## THE RESERVE SUKHUMVIT 61 HIDEAWAY



### THE RESERVE SUKHUMVIT 61 HIDEAWAY

**Location:** @Sukhumvit 61, Bangkok, Thailand

**Owner:** Pruksa Real Estate Public Co., Ltd.

**Project Summary:**

Two 7-Storey Low-rise condominium buildings with 164 units. Construction area is estimated at 5,200 sq.m.

**W&A Responsibility:**

- Quantity Surveying Service

### Project Information

Designed with 'Your own private residential sanctuary' concept, The Reserve 61 Hideaway outperforms all others in its class. The 'Nestling in nature' architecture concept, awe-inspiring interior décor, grand relaxing mood and tone, top-notch facilities, glittering infinity pool, and magnificent urban landscape - all co-exist flawlessly in an unexpected, secluded yet highly convenient location in the middle of Thonglor-Ekkamai district.

## THE LINE SATHORN



### THE LINE SATHORN

**Location:** North Sathorn Road, Bangkok, Thailand

**Owner:** Sansiri Public Co., Ltd.

**Project Summary:**

A 46-Storey High-rise condominium with 327 units in total and auto parking building. Construction area is estimated at 32,000 sq.m.

**W&A Responsibility:**

- Mechanical, Electrical and Plumbing System Design.  
- Civil and Structural Design

### Project Information

THE LINE SATHORN

Concept "SIMPLICITY IN EVERY THING" by Sansiri

Location in the heart of city, next to BTS Surasak station only 0 meters, with many amenities Innovation for smart innovation and smart design.

# NEW PROJECT

## MULBERRY GROVE SUKHUMVIT



### MULBERRY GROVE SUKHUMVIT

**Location:** @Sukhumvit Road, Bangkok, Thailand  
**Owner:** Magnolia Quality Development Corporation Limited (MQDC)  
**Project Summary:**  
A 37-Storey High-rise condominium with 285 units in total.  
Construction area of 38,620 sq.m.

#### W&A Responsibilities:

- Project/ Construction Management
- BIM Manager

### Project Information

"DESIGN FOR FINEST INTERGENERATION LIVING"

Mulberry Grove innovates and develops the finest intergeneration living communities, enhancing family well-being and bonding through holistic design and services in lively, healthy, and sustainable environments.

Intergeneration spaces add joy to the life of every family. In this inviting space each generation can share ideas, find inspiration and make precious memories together in a place called home.

## VANIT PLACE AREE



### VANIT PLACE AREE

**Location:** @Phaholyothin Road, Bangkok, Thailand  
**Owner:** Laemthong Enterprise Company Limited.  
**Project Summary:**  
Grade A office building with 598 car parking spaces.  
Construction area is estimated at 70,000 sq.m.

#### W&A Responsibility:

- Mechanical, Electrical and Plumbing System Design

### Project Information

Vanit Place Aree office for rent in Bangkok near Ari BTS station

- Grade A office building in Bangkok's trendiest neighborhood
- Office and retail spaces for rent with EIA approved
- Built for aiming LEED-Gold certification
- Total lettable area of 33,510 sq.m. with 598 car parking spaces
- 1,880 sq.m. office floor plate and 3 meters high ceiling
- 2 minutes walk from Ari BTS

# NEW PROJECT

## EYSE SUKHUMVIT 43



### EYSE SUKHUMVIT 43

**Location:** @Sukhumvit 43, Bangkok, Thailand

**Owner:** Singha Estate Public Co., Ltd.

#### Project Summary:

Two 7-Storey condominium buildings with 107 units in total.  
Construction area is estimated at 20,725 sq.m.

#### W&A Responsibilities:

- Civil and Structural Design

### Project Information

The project is developed with the concept of "Embrace Your Hidden Fascination", where the emotions and lifestyle are expressed through contemporary impressionistic art, which conveys vibrancy, liveliness, and happiness throughout the living experience.

NEW PROJECT

## MGALLERY RESIDENCES, MONTAZURE LAKESIDE



### MGALLERY RESIDENCES, MONTAZURE LAKESIDE

**Location:** @Kamala Beach, Phuket, Thailand

**Owner:** Kamala Beach Resort and Hotel Management Co., Ltd.

#### Project Summary:

39 Low-rise buildings from 2-5 storeys.  
The project is located on 22 rai (35,200 sq.m.) of land.

#### W&A Responsibility:

- Mechanical, Electrical and Plumbing System Design

### Project Information

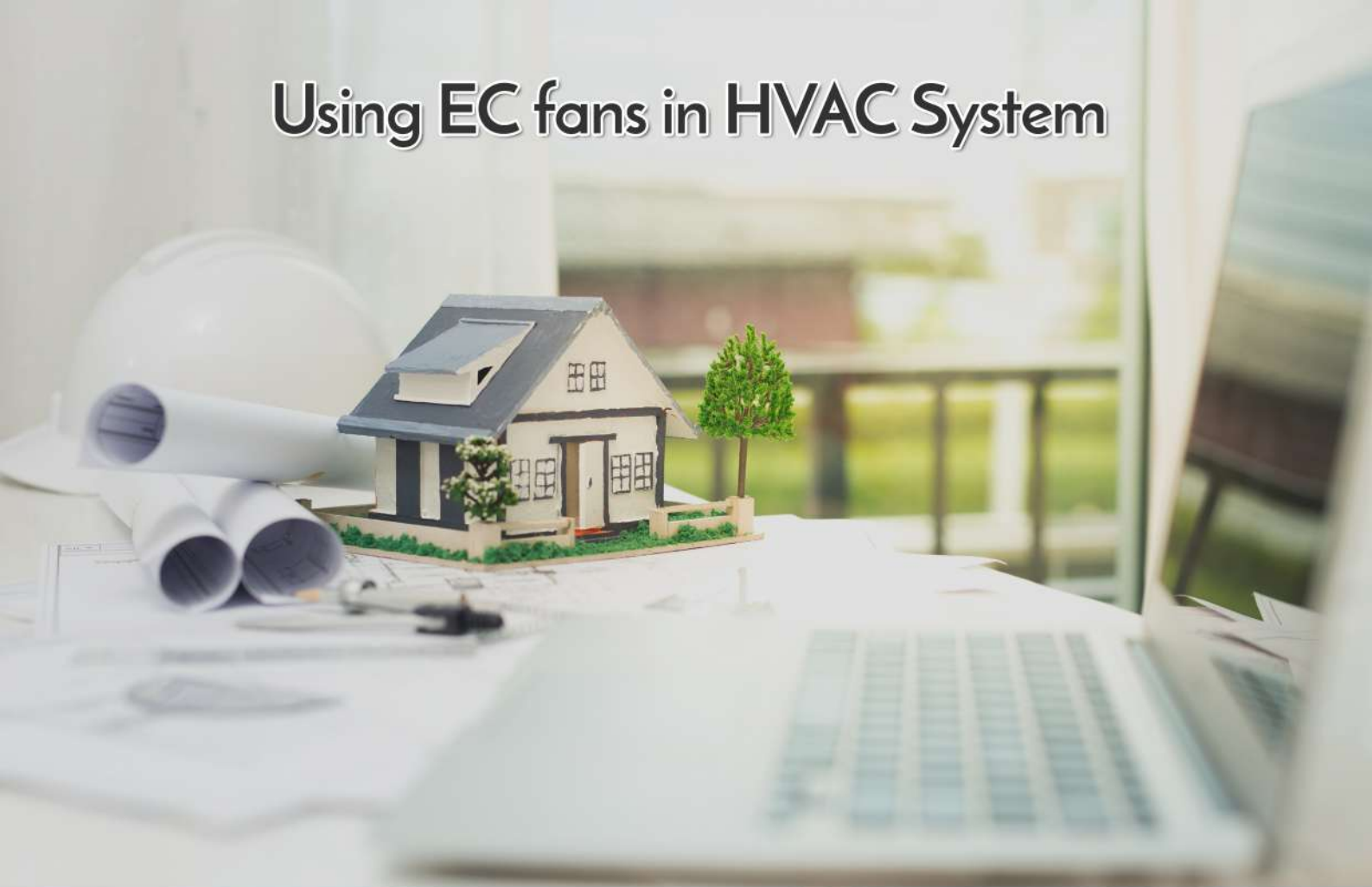
Freehold lakeside condominium

Situated in the heart of Phuket's premier master planned community, MontAzure Lakeside ideally placed at the foothills of this expansive blend of forested mountains cascading down to absolute beach frontage.

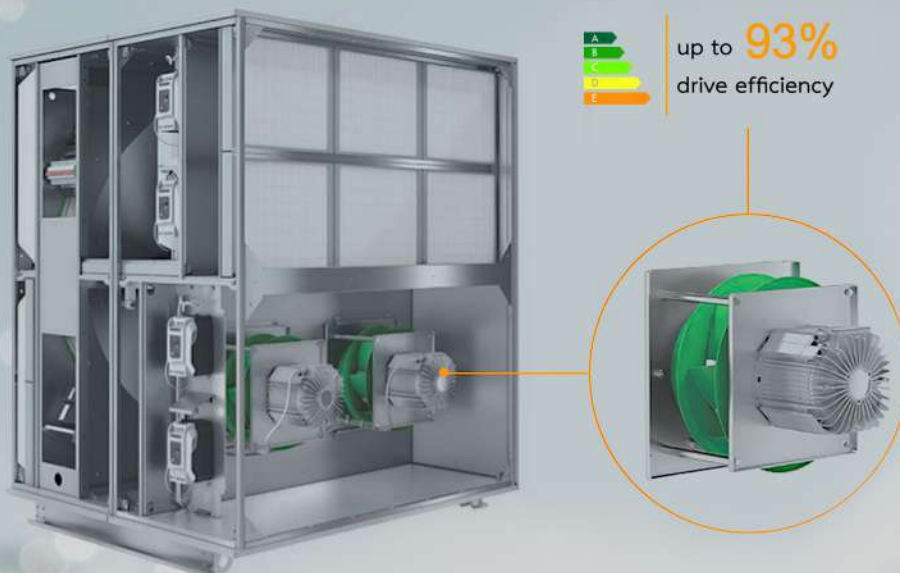
The project stands out for its main idea to create a separate closed community. The community will include additional amenities and services for owners and residents of the complex.

NEW PROJECT

# Using EC fans in HVAC System



As a new technology in recent years, EC fan which has the advantages of AC fan and DC fan can convert AC power input to DC power output by the way of electronic rectification to achieve the goal of energy savings. It also means, the longer EC fan uses, the more energy it saves.



**Figure 1:** EC fans in Air Handling Unit

## What are EC fans?

A motor is an essential part in equipment and devices which consumes electric to generate desired output. In air conditioning and ventilation units, fan motors are typically asynchronous AC motors, responsible for driving the impeller by belt technology. It takes up a significant amount of space in AC devices which make installation complicated. Furthermore, belt driven systems need replacement and maintenance due to wearing parts. Asynchronous drives are low in efficiency levels and have a negative implication in most appliances' power consumption.

As a new technology in recent years, EC fan which has the advantages of AC fan and DC fan can convert AC power input to DC power output by the way of electronic rectification to achieve the goal of energy savings. It also means, the longer EC fan uses, the more energy it saves.

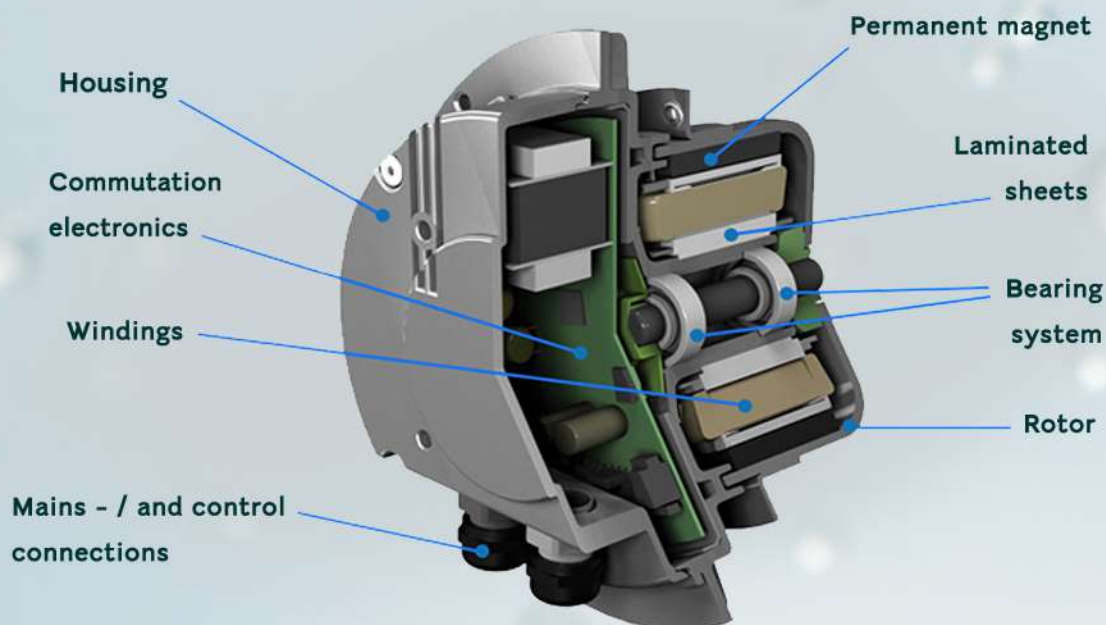


**Figure 2:** AC direct drive fan motor



**Figure 3:** EC direct drive fan motor

In these viewpoints, EC technology is a greater alternative. An EC (Electronically Commutated) fan has a brushless, permanent magnet DC motor with an electronic PC board controlling a fan rotor and achieves an efficiency level of up to 90% which mean not only the primary energy will be utilized, but also heat loss will be reduced providing longer service life.



**Figure 4:** EC motor components

### How do EC fans affect energy efficiency?

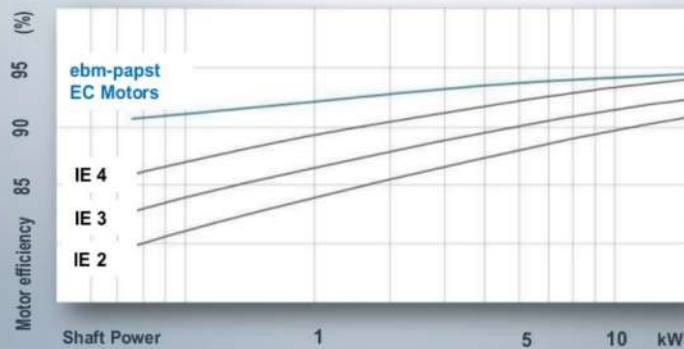
EC fans can encourage in increasing the efficiency of any device such as in a cooling system, if you keep the refrigerant pressure constant instead of rising and falling it as the fans turn on and off, it will lessen the pressure on the compressor which further result in energy saving.

The interface of electronics, aerodynamics, and motor means that EC fans are not only surpass in energy efficiency ability but due to the enhanced commutation method and the aerodynamic impellers, they function very quietly. Moreover, varied speed control of EC fans makes it possible to adjust the air volume to the requirements.

EC fans comprise of compact motors, which allow them fully substitutable with Air-Conditioned products for retrofit. So instead of spending money on the purchase of brand-new equipment, replacement of EC technology into existing appliances is possible as a retrofit installation.

## Energy efficiency ErP Directive

**Motors:** minimum of IE3 - for motor sizes > 7.5kW (0.75kW from Jan 17)  
**Fans:** minimum efficiency for individual fan types. Min efficiency level will increase from Jan 2020



Energy savings resulting from ErP legislation

**ebm-papst calculate**  
*(using ebm-papst fan sales across Europe)*

1.75 TWh saving / year Jan 13 – Dec 14  
 3.25 TWh saving / year Since Jan 15

**Figure 5:** Motor efficiency comparison chart

### Using EC technology in HVAC Systems

Heating, Ventilating and Air Conditioning (HVAC) system are designed to heat or cool an environment. The importance of an HVAC system is increased when it comes to designing big office buildings or naturalistic controlled environment. A rapid air movement from one place to another is highly needed to maintain a cooling and heating system simultaneously in an HVAC system. As an old method, AC motors were used largely to maintain air driving force, but due to their disadvantage of running only on full power, they are not the better choice nowadays. Replacing AC motors with advanced Electronically commutated (EC) motors are a better choice as they are efficient and function quietly.

EC fans are now used widely in numerous applications, both for recently manufactured appliances and for retrofit into existing equipment such as refrigeration condensers, computer room AC units, and general HVAC systems.

### EC fans advantages over traditional fan & motor technology

Item	Description	Traditional Fans	EC Fans
1	Energy consumption.	Normal	Lower
2	Maintenance of high-efficiency level at normal speed.	No	Possible
3	Speed control such as lower motor noise.	No	Possible
4	Integrated adjustable speed control competences to permit fan performance to match changing air movement requirements without energy uneconomical damping.	No	Yes
5	Need for external line devices for electric protection.	Yes	No
6	Remote monitor via analog or digital communication ports.	No	Possible
7	Motors can be replaced for retrofits.	Difficult	Easy
8	Heat dissipated into the airflow.	Normal	Lower

## Installation Considerations

- ECM needs a software setup to start operating under indicated parameters.
- They can be programmed, encoded and addressed before being delivered to the site. It reduces the work time on site.
- When using EC fans for a fire-mode process, the capacity to supersede all internal controls should be considered.

## Overall

ECM or EC fans are an alternative and striking solution for many HVAC applications, posing a number of benefits over old-fashioned AC motors, chiefly for AHU fan upgrades.

## Reference

- <https://www.sunonusa.com/using-ec-fans-in-hvac-system/>
- *Ebmpapst presentation*

## CONTACT US

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### W.AND ASSOCIATES GROUP

Head Office : 55 Ramkhamhaeng 18 (Maen Khian 3)  
Huamark, Bangkok, 10240 THAILAND  
Website : [www.wasso.co.th](http://www.wasso.co.th)



+66(2) 318 8533



+66(2) 718 8398



[info@wasso.co.th](mailto:info@wasso.co.th)