Dow Performance Silicones

Dow Unveils Raffles City Chengdu's Green Facade

DOWSIL™

Case Study: Raffles City Chengdu



City and Country
Chengdu, China

Products*
- DOWSIL™ 993N Structural Glazing Sealant
- DOWSIL™ 995 Silicone Structural Sealant
- DOWSIL™ 791 Silicone Weatherproofing Sealant

Key Participants
- **Architect**
  Steven Holl Architects
- **Façade Consultant**
  Meinhardt Façade Technology Co., Ltd.
- **Façade Installation**
  Shenyang Yuanda Aluminium Industry Engineering Co., Ltd. (Chengdu Branch)
- **Developer**
  CapitaLand China

*Prior to February 2018, products listed were branded as Dow Corning.

Project Description

- Designed by architect master Steven Holl, Raffles City Chengdu is constituted of an A-Level office building (75,645 square meters), a shopping mall (73,784 square meters), a five-star hotel (43,228 square meters), a service apartment (13,214 square meters) and a boutique office area (27,671 square meters).
- The irregularly shaped construction has large overhangs and pores, that echoes the China Central Television Headquarters.
- The energy saving measures include a ground source heat pump system, heat recovery system, Chilled water storage, energy management system, rainwater recycling system, green roof, as well as the use of local and recycled materials.
- The curtain wall reaches 55,000 square meters in area and the low emissivity, energy saving insulating glass units (IGU) use a single silver Low-E glass, which perfectly combines the ability to allow high penetration of natural light while blocking solar radiation.
- Was awarded the Gold Level Pre-Certification in Leadership in Energy and Environmental Design (LEED) by the US Green Building Council.

50+ YEARS PROVEN PERFORMANCE

Following Raffles City Shanghai and Raffles City Beijing, Raffles City Chengdu has become another mixed used development under CapitaLand's "Raffles City" brand in China. Located in Chengdu's city center, the surrounding area has a convenient transport network and is surrounded by high-quality office towers, residential buildings, retail malls, restaurants and many other places for rest and relaxation. Raffles City Chengdu will become a landmark building in the city, and a new destination for local consumers, tourists and business travelers.

Project Challenge

Due to the unique design of Raffle City Chengdu, the construction of particular sections of the curtain wall applied a vertical outward tilt design, which presented a number of strict architectural requirements. Not only does this affect the building's appearance and environmental efficiency, it also impacts the building's overall safety. The curtain wall also uses Fluorocarbon Coating Aluminum, and test samples revealed that when polish the Fluorocarbon Coating from the Aluminum, it can affect the curtain wall's long-term structural adhesive bonding. Therefore, guaranteeing the design's feasibility, safety and durability is a problem faced by both designers and contractors.

Effective Solutions

Since entering China, Dow is committed to raising construction safety and upholding the protection of businesses and customers. The company has promoted a comprehensive quality inspection system in the western parts of China that crack down on fake and inferior products, while promoting the protection of intellectual property as well as employing a responsible attitude when servicing the customers and businesses.



To overcome challenges faced during the design and construction process, Dow has continuously provided professional advice to both designers and contractors since the beginning of the project.

1. To solve the issues regards curtain wall's vertical outward tilt design, Dow confirmed the right sealant width design that fits the outward tilting curtain wall following a thorough examination of the blueprint.
2. To overcome the challenge posed by the fluorocarbon coating aluminum to the curtain wall's long-term structural adhesive bonding, Dow recommended that when silicone is applied to the aluminum, DOWSIL™ 1200 OS Primer or DOWSIL™ Primer-C should be used based on repeated adhesion tests. This not only eliminates the need to polish the Fluorocarbon Coating, but also better ensures its long-term structural adhesive bonding. The working hours are reduced while building safety is increased.
3. During the curtain wall construction process, Dow, alongside consultants Meinhardt and Chengdu Yuanda jointly conducted comprehensive performance testing to continually improve upon technical issues discovered throughout and through this process, a solid working relationship has been established between the three parties.
4. Apart from superior safety performances, DOWSIL™ sealants offer high quality sealing and adhesive properties, which ensure temperature and sound insulation as well as a reduction in energy consumption. This proven silicone technology can also help this building to withstand against earthquakes, acid rain, typhoon, extreme humidity and heat, as well as erosion from UV radiation.

Dow provides this project with an integrated solution, including the supply of high performing silicone products and professional technical support. As a result, the correct usage of DOWSIL™ products is ensured to maximize product performance and durability.

About Quality Bond™

Quality Bond™ lifts silicone sealing and bonding to the highest level through the instigation of standards of best practice in quality control, quality assurance and product application by specialist silicone fabricators and applicators. Quality Bond™ allows customers and specifiers to share in Dow's industry-leading expertise and benefit from our proven global performance track record. For more information, please visit qualitybond.com.

Contact Us

Dow is collaborating with industry professionals around the world to develop solutions to improve the energy efficiency of buildings for a more comfortable environment. Learn more about Dow's full range of High Performance Building solutions by visiting us online at **consumer.dow.com/construction**.

Dow has sales offices, manufacturing sites and science and technology laboratories around the globe. Find local contact information at **consumer.dow.com/ContactUs**.

Images: dow_8658420611, dow_42974383660, dow_42974386883

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

© 2018 The Dow Chemical Company. All rights reserved.

30023848 Form No. 63-1202-01 A