# **INDUSTRY OVERVIEW**

This and other sections of this [REDACTED] contain information relating to the industry in which the Group operates. Certain information and statistics contained in this section have been derived from various official and publicly available sources. In addition, certain information and statistics set forth in this section have been extracted from a market research report commissioned by the Company and prepared by Ipsos, an independent market research agency. The Directors believe that the sources of such information and statistics are appropriate and have taken reasonable care in extracting and reproducing such information and statistics. The Company and the Sponsor have no reason to believe that such information or statistics is false or misleading in any material respect of that any fact has been omitted that would render such information or statistics false or misleading in any material respect. However, such information and statistics have not been independently verified by the Company, the Sponsor, the [REDACTED], any of the Underwriters, their respective directors and officers or any other parties involved in the [REDACTED]. No representation is given as to the accuracy or completeness of such information and statistics.

#### SOURCES OF INFORMATION

The Group has commissioned Ipsos, an independent market research agency which is principally engaged in the provision of market research consultancy services, to conduct a detailed analysis of the podium facade and curtain wall works industry Hong Kong at an aggregate fee of HK\$578,000. The Directors consider that such fee reflects market rates. To provide the above analysis, Ipsos combined the following data and intelligence gathering methodology: (a) primary research via in-depth telephone conversations and face to face interviews with key knowledge leaders; (b) secondary desk research by gathering background information and to support facts and identify trends on the industry; and (c) performing client consultation to facilitate the research including in-house background information of the client (such as the business of the Group). The information and statistics as set forth in this section have been extracted from the Ipsos Report.

Ipsos is wholly-owned by Ipsos Group S.A.. Founded in Paris, France, in 1975 and publicly-listed on the NYSE Euronext Paris in 1999, Ipsos Group S.A. acquired Synovate Limited in October 2011 and employs approximately 16,000 personnel worldwide across 88 countries. Ipsos Group S.A. conducts research on market profiles, market size, share and segmentation analyses, distribution and value analyses, competitor tracking and corporate intelligence.

Analysis in the Ipsos Report are based on the following assumptions:

- It is assumed that there are no external shocks such as financial crisis or natural disasters which could affect the demand for and supply of the facade and curtain wall works in Hong Kong over the forecast period; and
- It is assumed that the global economy remains in steady growth across forecast period.

Forecast models and figures in the Ipsos Report are based on the following assumptions:

• GDP value in Hong Kong from 2011 to 2015 and forecast from 2016 to 2020;

## **INDUSTRY OVERVIEW**

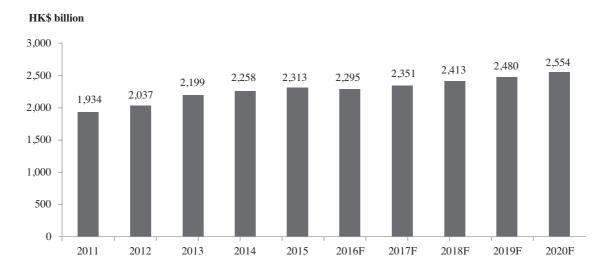
- Gross output value of construction works performed by main contractors at constructions sites in Hong Kong from 2011 to 2015 and forecast from 2016 to 2020;
- Revenue of the podium facade and curtain wall works industry from 2011 to 2015 and forecast from 2016 to 2020;
- Historical average daily wage of direct labour related to podium facade and curtain wall works industry in Hong Kong from 2011 to 2015; and
- Historical price trend of key materials used in the podium facade and curtain wall works industry in Hong Kong from 2011 to 2015.

The Directors confirm that, to the best of their knowledge, information and belief after making reasonable enquires, there has been no adverse change to the market information since the date of the Ipsos Report which may qualify, contradict or have an impact on the information in this section.

#### CONSTRUCTION INDUSTRY IN HONG KONG

The GDP value of Hong Kong increased from approximately HK\$1,934 billion to approximately HK\$2,313 billion from 2011 to 2015, with a CAGR of approximately 4.6%. The increase was mainly attributable to the development of tertiary industry including finance, tourism and real estate. From 2016 to 2020, it is expected that the GDP value of Hong Kong will grow from approximately HK\$2,295 billion to approximately HK\$2,554 billion, at a CAGR of approximately 2.7%, due to the openness of Hong Kong banking system which attracts investors to invest in the property and infrastructure sectors, such as the construction of Hong Kong-Zhuhai-Macau Bridge and Guangzhou-Shenzhen-Hong Kong Express Rail Link, connecting Hong Kong to its adjacent areas.

#### GDP value of Hong Kong

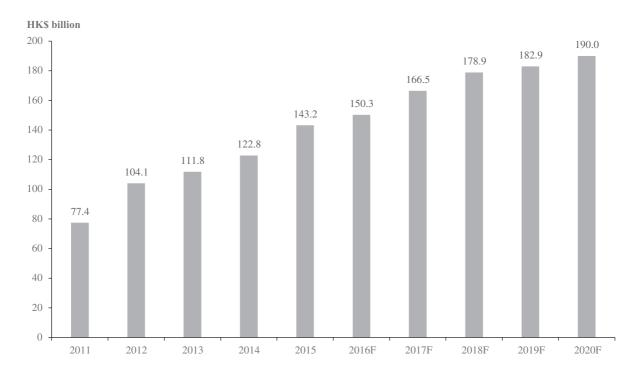


Sources: Census and Statistics Department, HKSAR; International Monetary Fund (IMF); Ipsos research and analysis

Construction projects in Hong Kong can be categorised into (i) public sector projects where main contractors are employed by the Hong Kong government or statutory bodies; and (ii) private sector projects.

# **INDUSTRY OVERVIEW**

# Gross output value of construction works performed by main contractors at construction sites in Hong Kong



Sources: Census and Statistics Department, HKSAR; 2016 Policy Address; 2016-17 Budget; Construction Industry Council, HKSAR; Hong Kong Institute of surveyors, HKSAR; Ipsos research and analysis

The total gross output value of construction works performed by main contractors at construction sites in Hong Kong increased from approximately HK\$77.4 billion in 2011 to approximately HK\$143.2 billion in 2015, at a CAGR of approximately 16.6%. The significant growth was due to the rising demand of commercial and residential buildings, renovation and revitalisation of industrial buildings and implementation of large-scale public infrastructure projects such as the Public Housing Development Program, Kai Tak Development and Hong Kong-Zhuhai-Macau Bridge.

It is expected that the total gross output value of construction works performed by main contractors at construction sites in Hong Kong will increase from approximately HK\$150.3 billion in 2016 to approximately HK\$190.0 billion in 2020 at a CAGR of approximately 6.0%. This is mainly attributed to the Hong Kong government's initiatives to increase the supply of public housing and commercial land as well as the commencing and upcoming infrastructure projects.

#### PODIUM FACADE AND CURTAIN WALL WORKS INDUSTRY IN HONG KONG

Facade generally refers to the exterior surface of a building. Based on the location of the building where the facade is installed, facade can be further segmented into podium facade and curtain wall. There is the general trend for distinguishing the building skin from its structure, which has led to the development of podium facade and curtain wall works industry to be a distinct sub-sector of the construction industry. For the podium facade works segment, it generally refers to the external surface of the podium or atrium portion of a building, which is typically made of a combination of different

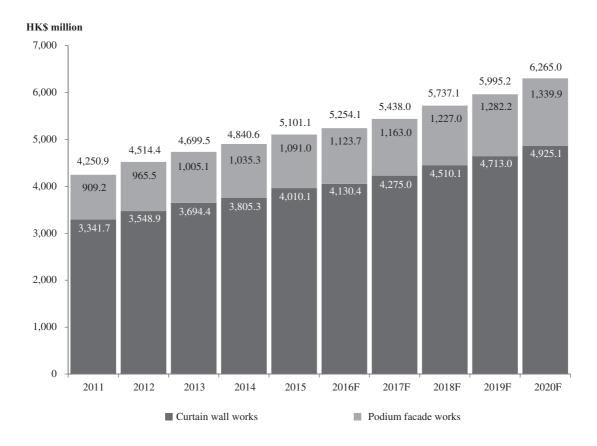
## **INDUSTRY OVERVIEW**

materials, such as glass, granite and other cladding materials. Podium facade works mainly relate to the provision of engineering consulting and building services in relation to podium facade and related works to residential buildings, retail stores, commercial buildings, office buildings and public facilities in Hong Kong. Such works generally include (i) associated cladding and glazing works such as shop fronts, skylight, canopy, balustrades and window walls; and (ii) repair and maintenance services.

For the curtain wall works segment, it generally refers to the external surface of a building above the podium or atrium. Glass, aluminium plate and various types of stone are common materials for curtain wall works. Curtain wall works mainly relate to the provision of engineering consulting and building services in relation to curtain wall and related works to residential buildings, retail stores, commercial buildings, office buildings and public facilities in Hong Kong. Such works include (i) associated cladding and glazing works such as aluminium claddings, louvres, skylight; and (ii) repair and maintenance services.

The revenue of the podium facade and curtain wall works industry increased from approximately HK\$4,250.9 million in 2011 to approximately HK\$5,101.1 million in 2015, at a CAGR of approximately 4.7%. The growth was attributed to the increasing number of building projects and the rising project fee of podium facade works and curtain wall works.

### Revenue of the podium facade and curtain wall works industry in Hong Kong

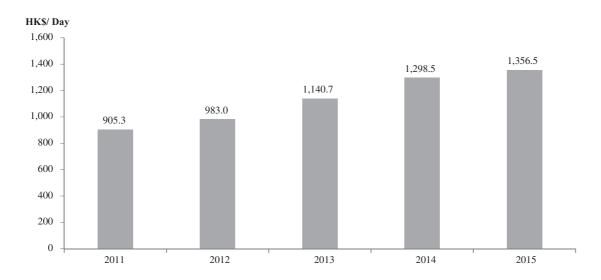


Source: Ipsos research and analysis

## **INDUSTRY OVERVIEW**

The revenue of the podium facade and curtain wall works industry is expected to continue its rising trend from approximately HK\$5,254.1 million in 2016 to approximately HK\$6,265.0 million in 2020, at a CAGR of approximately 4.5%. Such growth is mainly driven by the increase of land supply for public and private residential buildings under the development plan for North East New Territories New Development Areas and conversion of government properties into commercial use. The continuous development of the New Territories is likely to bring business opportunities to the podium facade and curtain wall works industry in Hong Kong.

Average daily wage of direct labour related to the podium facade and curtain wall works industry in Hong Kong



Sources: National Bureau of Statistics, PRC; Census and Statistic Department, HKSAR; Ipsos research and Analysis

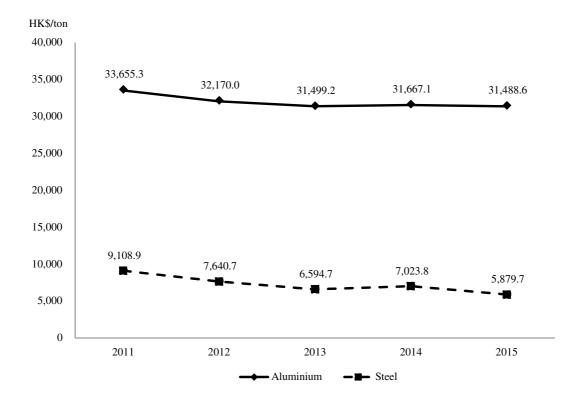
According to the Ipsos Report, the average daily wage of direct labour related to podium facade and curtain wall works industry increased significantly from approximately HK\$905.3 in 2011 to approximately HK\$1,356.5 in 2015, at a CAGR of approximately 10.6%. The increase in average daily wage was mainly caused by the insufficient labour supply to the podium facade and curtain wall works industry.

Due to the aging problem and the decreasing trend of the younger generation who are willing to join the construction workforce, the supply of direct labour for various types of construction works decreased. Since the supply of direct labour related to podium facade and curtain wall works was insufficient, the industry offered higher daily wage to attract more people to join the workforce for performing the related works.

## **INDUSTRY OVERVIEW**

# KEY MATERIALS USED IN PODIUM FACADE AND CURTAIN WALL WORKS INDUSTRY IN HONG KONG

# Price trend of aluminium and steel in Hong Kong

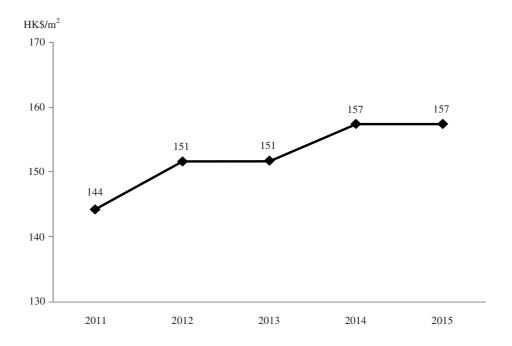


Sources: UN Comtrade; International Trade Administration (ITA), International Steel Statistic Bureau (ISSB); National Bureau of Statistics, PRC and Ipsos research and analysis

The price of aluminium slightly decreased from approximately HK\$33,655.3 per ton in 2011 to approximately HK\$31,488.6 per ton in 2015, at a negative CAGR of approximately 1.6%. The price of steel decreased from approximately HK\$9,108.9 per ton in 2011 to approximately HK\$5,879.7 per ton in 2015, with a negative CAGR of approximately 10.4%. The decreasing trend was primarily due to the overproduction of such materials in the PRC. The economic slowdown in the PRC led to the slower growth of aluminium and steel consumption as compared to that of the production.

#### **INDUSTRY OVERVIEW**

## Price trend of glass in Hong Kong



Sources: National Bureau of Statistics, PRC; Census and Statistic Department, HKSAR; Ipsos research and analysis

According to the Census and Statistic Department, the price of glass slightly increased from approximately HK\$144 per m<sup>2</sup> in 2011 to approximately HK\$157 per m<sup>2</sup> in 2015, with a CAGR of approximately 2.2%. The demand for glass increased in accordance with the expansion of property market in the PRC from 2011 to 2015 since glass is widely used in buildings to serve various purposes of design and function.

# MARKET DRIVERS TO THE PODIUM FACADE AND CURTAIN WALL WORKS INDUSTRY IN HONG KONG

The podium facade and curtain wall works industry in Hong Kong was supported by demand from the increasing number of residential buildings, commercial buildings and public infrastructure from 2011 to 2015. The increasing number of building projects will provide growth momentum to the podium facade and curtain wall works industry.

## It is common for curtain wall and podium facade being applied to the residential buildings.

Light weight curtain wall system has been applied to residential buildings since the regulation allowed certain thickness of the curtain wall to be accounted for the gross floor area. Therefore, curtain wall was widely adopted which boosted the curtain wall works industry. As the podium facade works included the construction of lobby and entrances of the residential buildings, the podium facade works industry was also boosted with the increasing number of new residential buildings.

## **INDUSTRY OVERVIEW**

The podium facade and curtain wall works industry was driven by the design trend of commercial buildings and retail shops. The retail industry expanded in the past few years with increasing number of commercial buildings and expansion of retail brands. High-end podium facade and curtain wall works have become a design trend and are more commonly applied to commercial buildings and retail shops, which the related works generally include the construction of exterior outlook of retail shops and shopping malls. It is expected that the design trend of commercial buildings and retail shops will boost the demand for podium facade and curtain wall works.

It is notable that the Hong Kong government has massively invested in infrastructure projects. Podium facade and curtain wall works are not necessarily required for all infrastructure projects but they are required when the infrastructure projects are affiliated with commercial and/or other types of building constructions. For instance, podium facade works were required in Kai Tak Cruise Terminal as part of its exterior envelope was constructed in podium facade. Currently, Hong Kong Children's Hospital is being constructed in Kai Tak Development Area and based on the information disclosed on the hospital's website, the envelope of the building is being constructed in the curtain wall and the entrance of the building is expected to be constructed in podium facade. In addition, podium facade works are required as the part of station buildings and entrances in railway infrastructure projects. For example, podium facade works were required in the construction of Ocean Park Station on the South Island Line. The West Kowloon Terminus of Guangzhou-Shenzhen-Hong Kong Express Rail Link is under construction and podium facade works are expected to the carried out for the exterior envelope of the terminus. The thriving infrastructure activities will drive the demand for podium facade and curtain wall works.

# FUTURE TRENDS AND DEVELOPMENTS OF THE PODIUM FACADE AND CURTAIN WALL WORKS INDUSTRY IN HONG KONG

The designs and technologies of podium facade and curtain wall works industry are changing. The future trend in the podium facade and curtain wall works industry is driven by the increasing demand for new production and material technologies which including the requirement to produce facade and curtain wall works with new geometric shapes and larger panes of glass.

The glass can be fabricated to increase the energy efficiency. Increasing energy efficiency is also likely to be a key future trend. It is expected that there will be an increase demand for high performance energy efficient systems that use specially fabricated glass in order to minimise solar energy gain while allowing maximum visible light transmission. Energy efficiency is becoming increasingly important to property developers as a way to reduce building running costs.

One-stop design and build solution is becoming more important. The capability of providing one-stop design and build solution is also becoming progressively important. Podium facade and curtain wall works contractor which provides one-stop design and build solution, ranging from facade or curtain wall system design, shop drawings, structural calculations, building materials procurement and project management, tends to attract more business opportunities. This is crucial to the contractor because developer or main contractor can save time and financial cost to search for multiple parties to perform different stages of works, and thus prefer to engage with contractor who is able to complete and manage the entire podium facade and curtain wall project. As a result, the capability to provide one-stop solution became an important factor to be more competitive.

## **INDUSTRY OVERVIEW**

#### **ENTRY BARRIERS**

The supply of experienced design engineer is insufficient in the podium facade and curtain wall works industry. It is an industry norm that contractors in the industry maintain a team of designers because of the one-stop solutions approach. Due to the complexity with the application and combination of multiple types of construction materials, experienced designers are important for contractors to prepare the design for submitting tender for podium facade projects. However, the supply of experienced designer is insufficient in the industry, the new entrants could face a challenge to hire experienced designer for the design works.

Supply of direct labour is insufficient in the industry. As the supply of direct labour is limited and insufficient in the industry, it is difficult for the new entrants to have relatively stable source of direct labour. Moreover, the stable source of direct labour is directly related to project schedule. Any delays of the project schedule will result in penalty and negative impact to the player's reputation.

**Proven track record is important in the industry.** When selecting a podium facade and curtain wall works contractor, the developer or main contractor will consider the track record and reputation of the podium facade and curtain wall works contractor in terms of quality of works, design capability and project management. New entrants to the industry may find difficulties in obtaining projects because they have limited job references.

#### OPPORTUNITIES AND CHALLENGES

The trend of environmentally friendly buildings is likely to drive the podium facade and curtain wall works industry. The growing trend for green building materials is likely to be the growth driver for the development of podium facade and curtain works industry in Hong Kong due to the increasing demand for refurbishments, additions and alterations to existing buildings to improve the energy efficiency and sustainability. It is expected that the demand for environmental friendly podium facade and curtain wall materials will increase in the future.

The Kai Tak area development will be an opportunity for the podium facade and curtain wall works industry in Hong Kong. The Kai Tak area development is a complex project including facilities such as a multi-purpose sports complex, metro park, cruise terminal, hotels, a hospital, housing, as well as other commercial and entertainment construction projects. These facilities often require substantial podium facade and curtain wall works, and it will potentially increase the demand for podium facade and curtain wall works. As the Kai Tak area will be developed up until around 2021, this development project will contribute to the growth of the podium facade and curtain wall works industry in Hong Kong.

Insufficient experienced and skill labour in the construction industry. The construction industry in Hong Kong has been facing the problem of labour shortage and aging workforce. According to the Hong Kong Construction Industry Council, there were 367,377 registered workers in April 2016, of which approximately 42.4% of them have been in the construction industry for more than 10 years and were aged over 50. With the aging labour force, the industry is also struggling to attract and retain skilled workers as a significant number of experienced and skilled workers are lured to Macau as large-scale construction projects are taking place there. Moreover, the young people are less willing to enter into the construction industry which has worsened the labour shortage issue.

## **INDUSTRY OVERVIEW**

Increasing operating cost is leading to lower profit margins. The podium facade and curtain wall works contractors have been facing increasing construction costs. The increase in operating costs is attributed to the increasing wage trend of construction workers. The average wage of construction workers in Hong Kong increased from approximately HK\$62.9 per hour in 2011 to approximately HK\$91.2 per hour in 2015, at a CAGR of approximately 9.7%. Such increase in labour costs consistently raised the total operating costs of the podium facade and curtain wall works industry, while the lower profit margins for the projects may become a threat to the industry.

# COMPETITIVE LANDSCAPE OF THE PODIUM FACADE AND CURTAIN WALL WORKS INDUSTRY IN HONG KONG

The curtain wall works industry in Hong Kong is dominated by top tier players in the market, which is considered mature and consolidated with approximately 20 major companies performing curtain wall works in the industry. There are approximately five market players considered to be the top tier market players dominating the industry. In terms of the revenue of the curtain wall works industry in Hong Kong in 2015, the top five players dominated collectively accounted for approximately 56.1% of the market share while the remaining market players accounted for approximately 43.9% of the market share and the Group accounted for approximately 0.3% of the market share.

The podium facade works industry in Hong Kong is smaller than the curtain wall works industry and is dominated by major market players. There are approximately 20 major companies that perform podium facade works in Hong Kong, of which about five major players dominated the podium facade industry in Hong Kong. In terms of the revenue of the podium facade works industry in Hong Kong in 2015, the top five market players collectively accounted for approximately 62.1% of the total market share while the remaining players accounted for approximately 37.9% of the market share. The Group ranked second and accounted for approximately 18.0% of the total revenue of the podium facade works industry in Hong Kong. The following table sets forth a detailed ranking, in terms of revenue, of the players in the podium facade works industry in Hong Kong in 2015:

Company name	Principal business activities	Estimated revenue in 2015  HK\$ million	Market share (approximately) %
Competitor A	Competitor A provides services in design, fabrication and installation of podium facade and curtain wall works.	199.3	18.3
The Group	The Group provides (i) one-stop design and build solutions; and (ii) repair and maintenance services in relation to podium facade and curtain wall works.	196.0	18.0

# **INDUSTRY OVERVIEW**

Company name	Principal business activities	Estimated revenue in 2015 HK\$ million	Market share (approximately) %
Competitor B	Competitor B provides (i) structural engineering works; and (ii) trading of building material products.	124.5	11.4
Competitor C	Competitor C provides services in design, fabrication and installation of curtain wall and podium facade.	100.0	9.2
Competitor D	Competitor D provides design, supply and installation of curtain wall and podium facade services and related works.	56.9	5.2
Others	N/A	414.3	37.9
Total		1,091.0	100.0

Source: Ipsos research and analysis