The information contained in this section and other sections of this document, unless otherwise indicated, were and have been derived from various official government publications, available sources from public market research and other sources generally believed to be reliable and the market research report prepared by Frost & Sullivan which we commissioned. We believe that the sources of such information are appropriate sources for such information, and we have taken reasonable care in extracting and reproducing such information. We have no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. The information from official government sources has not been independently verified by us, the Sole Sponsor, the **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]**, *any of the* **[REDACTED]**, *any of their respective directors and advisers, or any other persons or parties involved in the* **[REDACTED]**, *and no representation is given as to its accuracy.*

SOURCE OF INFORMATION

We have commissioned Frost & Sullivan, an independent market research and consulting company, to conduct an analysis of, and to prepare a report on the passive fire protection works market in Hong Kong. The report prepared by Frost & Sullivan for us is referred to in this document as the Industry Report. We agreed to pay Frost & Sullivan a fee of HK$570,000 which we believe reflects market rates for reports of this type.

Founded in 1961, Frost & Sullivan has 40 offices with more than 2,000 industry consultants, market research analysts, technology analysts and economists globally. Frost & Sullivan's services include technology research, independent market research, economic research, corporate best practices advising, training, client research, competitive intelligence and corporate strategy.

We have included certain information from the Industry Report in this document because we believe this information facilitates an understanding of the passive fire protection works market in Hong Kong for the prospective investors. The Industry Report includes information of the passive fire protection works market in Hong Kong as well as other economic data, which have been quoted in this document. Frost & Sullivan's independent research consists of both primary and secondary research obtained from various sources in respect of the passive fire protection works market in Hong Kong. Primary research involved in-depth interviews with leading industry participants and industry experts. Secondary research involved reviewing company reports, independent research reports and data based on Frost & Sullivan's own research database. Projected data were obtained from historical data analysis plotted against macroeconomic data with reference to specific industry-related factors. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Industry Report, various official government publications and other publications.

In compiling and preparing the research, Frost & Sullivan assumed that the social, economic and political environments in the relevant markets are likely to remain stable in the forecast period, which ensures the steady development of the passive fire protection works market in Hong Kong.

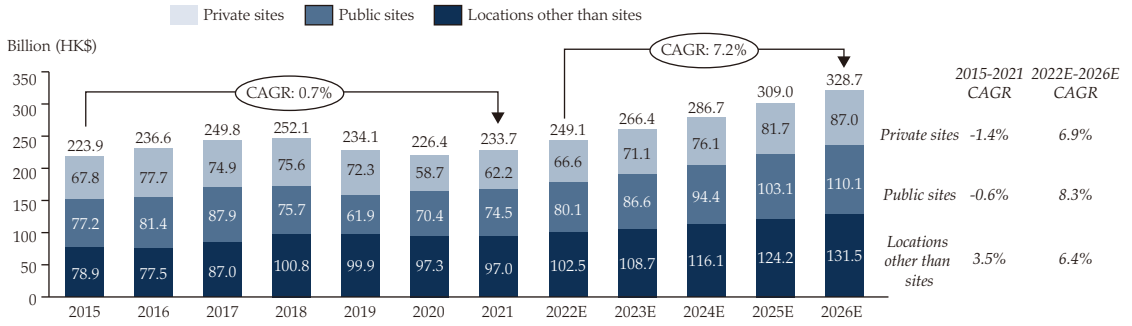
MACRO ECONOMY OVERVIEW IN HONG KONG

Gross value of construction works performed

According to the Census and Statistics Department, during 2015 to 2021, the gross value of construction works performed by main contractors in Hong Kong has increased slightly at an overall CAGR of approximately 0.7% from approximately HK$223.9 billion in 2015 to approximately HK$233.7 billion in 2021.

Given the recent recovery and resumption of global business operations, the building works in Hong Kong is expected to slow down in only short-to-mid-term. Going forward, as the HK Government is determined to increase the housing supply and community facilities, the gross value of construction works performed by main contractors is expected to attain approximately HK$328.7 billion by the end of 2026, representing a CAGR of approximately 7.2%.

Gross value of construction works performed by main contractors by sector (Hong Kong), 2015-2026E



Note: According to Census and Statistics Department, the gross value of construction works performed in locations other than sites generally refer to general trades (including decoration, repair and maintenance, and construction works at minor work locations such as site investigation, demolition, and structural alteration and addition works) and special trades (including carpentry, electrical equipment, ventilation, gas and water fitting installation and maintenance, etc).

Source: Census and Statistics Department, Frost & Sullivan Analysis

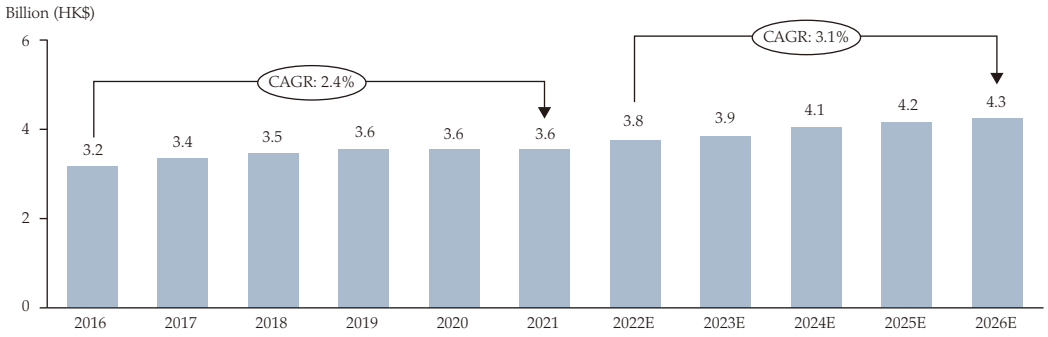
OVERVIEW OF PASSIVE FIRE PROTECTION WORKS MARKET

Introduction of building protection works market

Building protection works involve the application of appropriate building protection materials on building structures exposed to corrosion, abrasion and other natural aggressions with the ultimate purpose of making buildings more durable. Therefore, building protection works are crucial for the construction and maintenance industry and the demand for building protection works is a derived demand of the construction and maintenance industry. Building protection works include passive fire protection works, waterproof works, joint sealant works and floor works. Accordingly, passive fire protection works market can be considered a part of the building protection works market. The passive fire protection works market is a subset of the building protection works market which in turn is a subset of the construction industry. For the year ended 30 June 2022 and in terms of gross value, the passive fire protection works market in Hong Kong accounted for approximately 26.1% of the building protection works market in Hong Kong and the building protection works market in Hong Kong accounted for approximately 1.5% of the overall construction works market in Hong Kong.

The market size in terms of gross value of building protection works in Hong Kong has increased from approximately HK$3.2 billion to HK$3.6 billion during 2016 to 2021, representing a CAGR of approximately 2.4%. The growth was primarily driven by the increasing land and property supply, as well as the increasing awareness on building protection works following the rollout of the Mandatory Building Inspection Scheme. The continuous implementation of building construction projects are expected to spur the demand for building protection works, the market size is expected to attain approximately HK$4.3 billion in 2026, representing a CAGR of approximately 3.1% during 2022 to 2026.

Market size in terms of gross value of building protection works (Hong Kong), 2016-2026E



Source: Frost & Sullivan Analysis

Introduction of passive fire protection works and differences with active fire protection works

Fire safety provisions, as defined in the "Code of Practice for Fire Safety in Buildings 2011" published by the Buildings Department which provides guidance on compliance with certain fire safety requirements laid down in the Building (Construction) Regulation (Chapter 123Q of the Laws of Hong Kong) and the Building (Planning) Regulations (Chapter 123F of the Laws of Hong Kong), refers to the installations, equipment, systems, building elements or methods used in a building to achieve the fire safety objectives. The provisions include, among others, (i) active fire safety provisions; and (ii) passive fire safety provisions.

- Active fire safety provisions refer to the design and supply of the fire safety systems and installation, maintenance, alteration and addition of (i) automatic fire alarm systems (ii) water and gas suppression systems, and (iii) portable fire equipment.

- Passive fire safety provisions refer to permanent building features and architectural aspects of a building that prevent fire development and spread. Examples include fire rated doors, fire rated boards and partitions, fire and smoke dampers, smoke curtains, fire resistant coatings and plasters, linings with low combustibility, etc.

Both active fire protection works and passive fire protection works are specialist works. While active fire protection works cover installation, maintenance, alteration and addition of systems and equipment that are placed as additions to a building structure which require manual or programmed effort to trigger, passive fire protection works covers the design, supply, installation, maintenance, alteration and addition of various fire protection materials and components that prevent fire development and spread.

According to the Building (Construction) Regulation, every premise in Hong Kong shall be designed and constructed so as to (i) inhibit the spread of fire within the premise and to nearby premises by dividing the premise into compartments; (ii) provide adequate resistance to the spread of fire and smoke by the separation of different uses in a premise by compartment walls and floors and by the separation of the premise from any adjoining premise or site; (iii) maintain the stability of the premise in case of fire; and (iv) provide adequate resistance to the spread of fire over the roof of one premise to another having regard to the position of the premise. Fire resistance rating is an implemented rating system on premises in Hong Kong, with assessment criteria namely stability, integrity and insulation included to measure the level of resistance against fire.

Passive fire protection is typically implemented through multi-pronged approach. Major objectives are segmented in the following aspects:

- Fireproofing, refers to the application of chemical material to withstand potential fire damage. For instance, spraying fire resistant paint, namely intumescent paint onto metal window frames is conducive to alleviating the rate of penetration of fire and extending the amount of time to evacuate.

- Compartmentation, refers to erecting specially designed barriers and partitions to contain smoke and fire. For instance, service providers place fire rated doors strategically to inhibit the passage of flame and smoke, as well as providing clear escape path. Fire wall and fire rated board, is another compartmentation strategy that is set up to constrain the spread of fire and to protect the building's integrity.
- Firestopping, refers to the practice of filling cavities between building partitions and structures, such as cavities between walls, floors, ceilings and ventilation ducts.

The nature of works of passive and active fire protection varies significantly upon the purpose, scope of work, equipment/materials applied and licences required. The skills adopted during design, development, implementation, testing and quality assurance of passive and active fire protection works are as such barely transferrable. Accordingly, it is not an industry practice for active fire protection service providers to undertake passive fire protection works.

	Passive fire protection works	Active fire protection works
Objective	• To apply a set of stationary physical barriers to compartmentalise a building and stop potential fire from spreading	• To apply specialised equipment and systems to detect and suppress fire
Scope of work	• Involves installation, maintenance, alteration and addition of permanent building features and architectural aspects of a building that maintains structural safety and prevent spread of fire	• Involves installation, maintenance, alteration and addition of systems and equipment that are placed as additions to a building structure which require manual or programmed effort to initiate and trigger
Trade Divisions	• Categorised under building protection works under specialist works	• Categorised under electrical and mechanical (E&M) engineering works under specialist works
Equipment/ materials Applied	• Mostly structural components that act as fire retardant barriers, such as fire rated doors, fire rated boards, firestop acrylic sealant, fire resistant paints, coating and plaster and fire retardant wool	• Mostly apparatus containing an electrical circuit, such as sprinklers, fire hose reel, automatic fire alarm system, smoke/heat detectors, and some are operated manually such as fire extinguisher

Source: Frost & Sullivan Analysis

Relevant authorities in Hong Kong would inspect or assess the compliance of a construction project with applicable laws, rules and regulations upon its completion. In respect of the fire safety requirements, the registered fire service installation contractors, being the active fire protection services provider(s) in the project and not our Group, should be ultimately responsible for assisting fire service installations and equipment owners in ensuring all fire service installations and equipment (including both the active fire protection works and passive fire protection works) in building projects are in efficient working order and in compliance with the requirements as set out by the Fire Services Department. During such inspections and assessments by the Fire Services Department, passive fire protection service providers will typically work with customers, the registered fire service installation contractors and/or other responsible parties involved in the project which serve as the primary contact person(s) with the Fire Services Department. As part of the Fire Services Department inspections and assessments, the Fire Services Department will typically inspect relevant documentation and conduct physical inspection(s) of the building to assess its fire safety provisions, including active fire safety provisions and passive fire safety provisions. With respect to the passive fire safety provisions, the Fire Services Department's assessment may include checking (i) the fire safety designs submitted against the actual installation and application of passive fire

safety provisions on-site during the physical inspection or the specifications; and (ii) appropriate specification and sufficient quantity of passive fire protection materials were used in the project by reviewing (1) the relevant suppliers' fire certificates issued by the relevant suppliers of materials confirming that the specified quantity of the passive fire protection materials has been used in the relevant project; and (2) the application certificates issued by the passive fire protection service providers confirming that the relevant passive fire protection materials have been properly applied in the project.

The Buildings Department will also inspect or assess the compliance of a construction project and it has issued a Code of Practice for Fire Safety in Buildings stipulating certain requirements for achieving an adequate level of fire safety in all buildings in Hong Kong. In order to ensure compliance with relevant codes and practice notes issued by the Buildings Department such as Code of Practice for Fire Safety in Buildings and Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (App-13), the responsible party making submissions to the Buildings Department will require passive fire protection service providers to provide or procure necessary documents including (i) the relevant test reports from recognised laboratories confirming that the fire resistance performance of the specific brand(s) of materials were tested and satisfied the applicable fire resistance performance standards, generally accompanied by; (ii) the suppliers' fire certificates from such specific supplier confirming that the specified quantity of the passive fire protection materials has been used in the relevant project.

Major materials and components applied in passive fire protection works

The major materials and components applied in passive fire protection works and their usage are as follows: (1) firestop acrylic sealant: used to seal around openings and between joints in a fire-resistance-rated wall or floor assembly; (2) fire rated board: a dry wallboard consists of gypsum core and contains glass fibers and non-combustible materials that act as solid barrier against fire; (3) fire rated door: deployed to reduce spread of fire and smoke between separate compartments of a structure and maintain the escape route; (4) fire resistant paints, coating and plasters: applied on walls, ceilings and steel structures that expand during fire and serves as heat insulator; and (5) fire retardant wool: has high nitrogen and water content and therefore it needs higher levels of oxygen to burn than the surrounding environment, forming an insulating layer that prevents the spread of flames. Other than the above, metal parts and components, which mainly comprise steel-related products, are also commonly used materials in passive fire protection works.

Market size of passive fire protection works by sectors

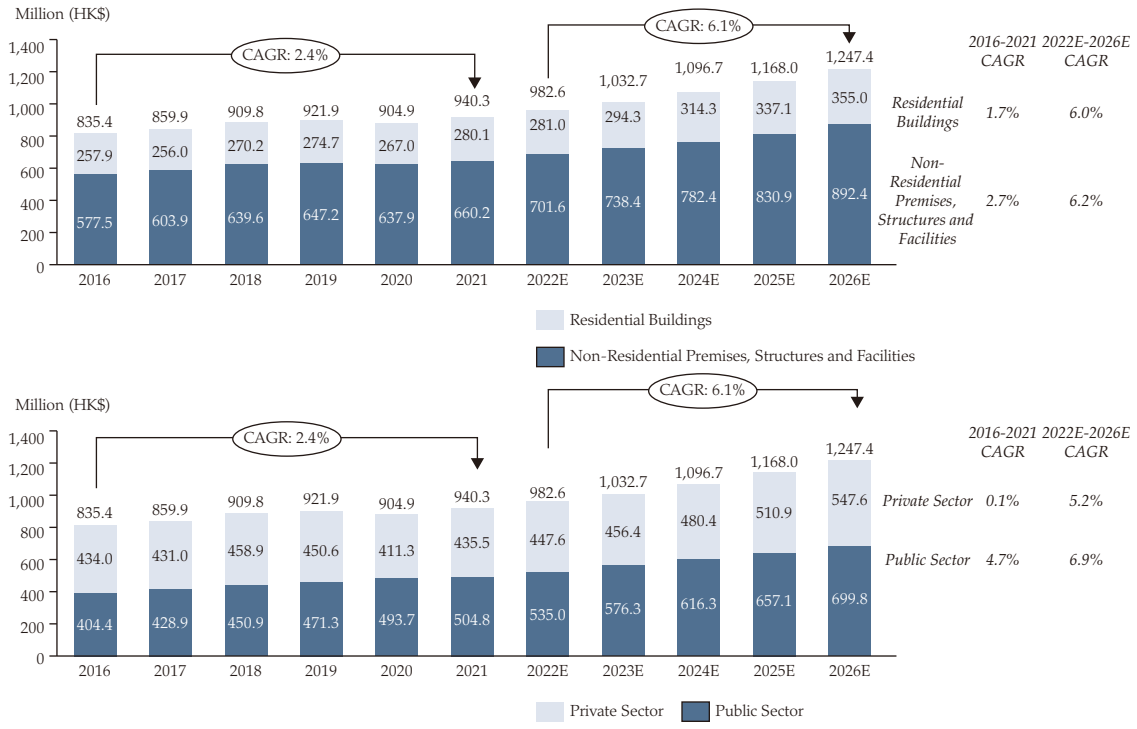
From 2016 to 2021, passive fire protection works on residential buildings and non-residential areas in Hong Kong recorded growth of approximately 1.7% and 2.7% respectively, while demand for such works from the private and public sectors recorded the growth of approximately 0.1% and 4.7% respectively. The estimated gross value of the passive fire protection works market in Hong Kong increased from approximately HK$835.4 million in 2016 to approximately HK$940.3 million in 2021, representing a CAGR of approximately 2.4%, primarily due to the sustainable development of the construction industry, stringent requirements for fire safety construction and the rollout of Mandatory Urban Renewal Program, prompting the demand for installation and refurbishment of passive fire protection systems.

From 2022 to 2026, passive fire protection works on residential buildings and non-residential areas are expected to grow at the CAGRs of approximately 6.0% and 6.2% respectively, while demand for such works from the private and public sectors are expected to grow at CAGRs of approximately 5.2% and 6.9% respectively. The rising standard for building safety and quality of works, and to a lesser extent, the increasing adoption of Modular Integrated Construction (MiC) building model would continue to boost the needs for passive fire protection systems. The adoption of MiC building model is one of the factors boosting demand for passive fire protection works. Steel is a popular choice for compartment or module building material under MiC but is generally less fire resistant than other common building materials in buildings constructed using conventional method, like concrete and bricks. More passive fire protection works are

generally required in order to achieve the same level of fire protection. Up to April 2023, there have been more than 36 construction projects in Hong Kong completed by MiC. The HK Government has actively promoted the use of MiC in public housing projects and has set a target of using MiC in 30,000 units of public housing construction from 2023 to 2027. As a result, with the increasing popularity and adoption of MiC building model, it is expected that demand for passive fire protection works will also increase.

In light of the above, the gross value of passive fire protection works in Hong Kong is forecasted to reach approximately HK$1,247.4 million in 2026, at a CAGR of approximately 6.1% from 2022 to 2026.

Market size in terms of gross value of passive fire protection works (Hong Kong), 2016-2026E



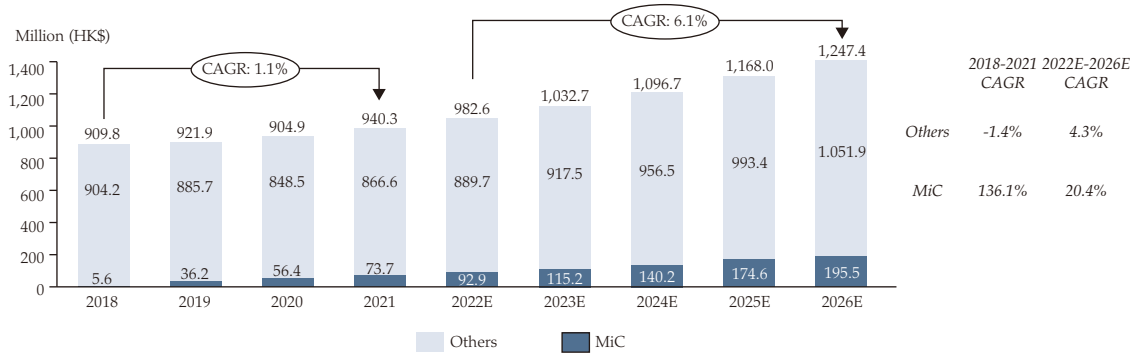
Source: Frost & Sullivan Analysis

Note: Non-residential premises, structures and facilities include commercial buildings, industrial & storage premises, service buildings, and public amenities such as transport systems, sports and recreation premises, and other utilities and plants.

As set out in the 2017 Policy Address, the adoption of MiC is promoted in the construction industry. By adopting the concept of "factory assembly followed by on-site installation" and the mode of manufacturing, labour intensive processes can be accomplished in off-site prefabrication yard with a view to enhancing productivity and cost-effectiveness. The first pilot project to adapt MiC is the construction of the Disciplined Services Quarters for the Fire Services Department at Pak Shing Kok, Tseung Kwan O, commenced in September in 2018 in Hong Kong. MiC has gained popularity in Hong Kong in recent years due to its potential to increase construction efficiency, improve site safety, and reduce construction waste. Up to April 2023, there have been more than 36 projects in Hong Kong constructed using MiC. The market size of passive fire protections works involving MiC increased from approximately HK$5.6 million in 2018 to approximately HK$73.7 million in 2021 at a CAGR of approximately 136.1%.

The HK Government has actively promoted the use of MiC in public housing projects and has set a target of using MiC in 30,000 units of public housing construction from 2023 to 2027. To support this goal, the HK Government has established a MiC Development Centre to provide technical support and training to the construction industry. The market size of passive fire protections works is expected to reach approximately HK$195.5 million in 2026 at a CAGR of approximately 20.4%.

Market size in terms of gross value of passive fire protection works (Hong Kong), 2018-2026E



Source: Frost & Sullivan Analysis

Note:

1. MiC refers to the revenue generated from the provision of passive fire protection works in MiC projects.

2. The first pilot project to adopt MiC in Hong Kong is the construction of the Disciplined Services Quarters for the Fire Services Department at Pak Shing Kok, Tseung Kwan O, commenced in September in 2018 in Hong Kong.

Market drivers and opportunities

1. Favourable fire safety construction policies and regulations

The enforcement of fire safety laws and regulations, such as the Fire Safety (Buildings) Ordinance (Chapter 572 of the Laws of Hong Kong) and Fire Safety (Commercial Premises) Ordinance (Chapter 502 of the Laws of Hong Kong), serve as pivotal impetus for owners and/or occupiers of domestic and composite buildings to take corrective measures to comply with requirements in regard to fire safety construction. Currently, installation and certificates of each passive fire protection system shall be scrutinised accordingly pursuant to industry standards administered by the Buildings Department. Simultaneously, the Buildings Department has played a crucial role over the past decades in enacting international industry standards in relation to passive fire protection works in all kinds of buildings in Hong Kong. In particular, under the Code of Practice for Fire Safety in Buildings, the Buildings Department has taken active initiatives to tighten applicable standards continuously, including adopting standard code namely BS EN 1364 published by the British Standards Institution in place of the obsolete and comparatively loosened standard code namely BS 476. The BS EN 1364 further advanced the requirement such that building elements and structures are to be tested and classified with regard to their fire separation performance and smoke tightness. Due to the general tightening fire safety regulation, considerations for necessary passive fire protection works are increasingly done during the early project planning stages with such works incorporated into the early design of new buildings construction. Accordingly, the demand for passive fire protection works has increased, particularly for new buildings. To comply with the increasing industry standard, more passive fire protection components or systems of a building or structure, namely floor-ceilings and roofs, fire doors, windows, wall assemblies, fire-resistant coatings, and other fire and smoke control assemblies, are used in new building constructions as well as in the repair and maintenance of buildings. On the other hand, with the increasing engagement from the HK Government in terms of legislation and enforcement, the demand for repair, maintenance and upgrade of passive fire protection configurations is driven in compliance with market dynamics.

2. Assistance provided for building owners

A suite of supportive measures promulgated by the HK Government has been conducive to owners and occupiers to improve overall fire safety construction condition in order to fully comply with the Fire Safety (Buildings) Ordinance and Fire Safety (Commercial Premises) Premises Ordinance. For instance, in the "2019 Policy Address", an injection of an additional HK$3.5 billion for implementing a new round of application was intended to subsidise owners of more old composite buildings to undertake fire safety enhancement measures. Accordingly, the continuous rollout of supportive measures by the HK Government shall propel the development of passive fire protection works market in Hong Kong.

3. Adoption of modular integrated construction

Modular Integrated Construction (MiC) refers to a construction whereby free-standing integrated modules (completed with finishes, fixtures and fittings) are manufactured in a prefabrication factory and then transported to site for installation in a building. Hong Kong requires fire safety in modular units built under MiC to be in the same standard of conventional buildings, so the adoption of MiC does not result in more stringent regulatory requirements for passive fire protection works. However, there is an increased demand for passive fire protection works in connection with the adoption of MiC mainly arising from the nature of and materials used in MiC. In particular, steel is a popular choice for compartment or module building material in MiC due to its lightweight nature. This is in contrast to the conventional method of using heavier materials such as concrete or bricks. However, steel structure is generally less fire resistant than other common building materials like concrete and bricks, steel is more susceptible to damage in the event of a fire, and more passive fire protection works are generally required in order to achieve the same level of fire protection. As a result, the adoption of MiC generally increases the demand for passive fire protection works over typical projects under conventional construction method. Furthermore, MiC is typically designed with less sealed junctions in order to ensure compatibility during intermodular connections and fabrication and therefore joints between two or more precast façades are subject to significant cavities and openings where fire and smoke would easily penetrate. Passive fire protection works, such as the application of firestop acrylic sealant to seal around openings and between joints, are performed to help address such issue. As such, the increasing adoption of MiC in construction projects in Hong Kong is expected to contribute to the increasing demand for passive fire protection works, to address such issues relating to MiC projects.

4. Rollout of public infrastructure projects and expediting urban development

Outlined in the Chief Executive's "2020 Policy Address", the HK Government is expected to invest substantially in infrastructure with an estimated annual expenditure of over HK$100 billion on average in the coming few years, and to strive to ensure the early commencement of capital works projects. The aforesaid policy address has also proposed raising the expenditure ceiling of each minor works funded in relation to public facilities and various infrastructure sites. The development of new town extension projects such as Tung Chung and Hung Shui Kiu, coupled with the implementation of Long Term Housing Strategy which propels continuous housing supply, are expected to spur the demand for the construction of residential, commercial, recreational units and infrastructural facilities such as the extension of mass transit railway systems, power and pumping stations, tunnels and bridges. The expedited urban development and rollout of public infrastructure projects are expected to provide long-term impetus to the passive fire protection works industry in Hong Kong.

5. Advancement in industrial standards from other economies

The industry standards of passive fire protection works industry in Hong Kong is heavily reliant on the evolvement of various international fire resistance test standards. In recent years in Europe and North America, fire safety requirements for buildings have been increasingly rigorous. With a view to attaining similar international standards, the Buildings Department of Hong Kong is expected to exert continuous influence through the rollout of advanced measures, which is expected to propel the demand for various aspects of passive fire protection works.

6. Consistent government support in the 2021 Policy Address

As outlined in the Chief Executive's "2021 Policy Address", the HK Government targets to increase the overall supply of transitional housing to 20,000 units in the coming few years by providing 5,000 additional units, and increasing the amount of funding under the relevant funding scheme to HK$11.6 billion. On the other hand, the Northern Metropolis Development Strategy was released by the HK Government in 2021, covering two district administration areas including Yuen Long District and North District, encompassing mature new towns, new development areas and development nodes, with a total land area of about 300 square kilometres to be developed into an area with highly concentrated residential units, working population and enterprises. As the demand for passive fire protection works is highly associated with the housing supply and consequentially the number of tenders circulated for both the public and private sector, the expected rise in housing supply would thereby spur the demand in the industry according to the Industry Report.

Market Challenges

1. Cyclical nature of construction industry

As a part of the construction industry, passive fire protection works market follows the cyclicality of the construction industry, which is generally considered to be highly related to macroeconomic conditions, government policies and business cycle. For example, in the event of an economic downturn, the tightened financial budgets and higher costs of financing may make project owners be more conservative in initiating new projects or investing more resources. Similarly, if there are signs of slowing down in land supply or development programmes of the HK Government, the growth of passive fire protection works market in Hong Kong may be hindered.

2. Rising cost of applicable materials and components

Majority of materials and components of the passive fire protection works industry in Hong Kong is imported from countries encompassing the PRC, Germany, Mexico, India and South Korea. In particular, the price of fire rated boards, fire retardant wool and fire resistant paints, coating and plaster, has increased considerably with a CAGR recorded at approximately 7.8%, 5.8% and 17.3%, respectively, from 2016 to 2021. With slight fluctuation of the costs of materials, the industry may encounter further uncertainty in areas of budget control and project planning. The upstream suppliers and midstream contractor may encounter certain financial burden to sustain their operation.

3. Shortage of labour and increasing labour cost

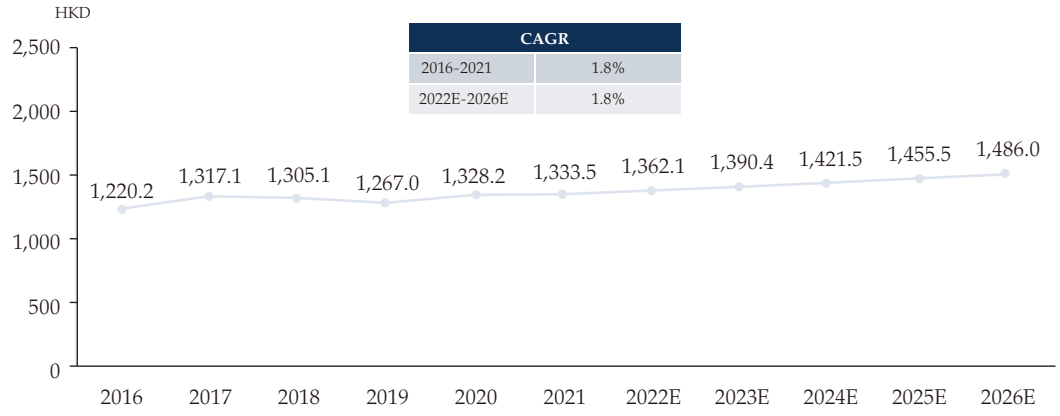
According to the Construction Industry Council, labour engaged in the passive fire protection works industry in Hong Kong, including fire service mechanical fitter and fire service electrical fitter have all categorised into the list of shortage trades. The overall labour cost in the industry has also witnessed an increase with a CAGR of approximately 1.8% recorded from 2016 to 2021. With the implementation of the Statutory Minimum Wage, the shortage of skilled workers are inflicting financial burden to the service providers.

COST ANALYSIS

Labour cost

General workers and labourers, electrical fitter, bricklayer, plasterer and painter and decorator are the general labour types in particular in the passive fire protection works industry. The average daily wages has increased from approximately HK$1,220.2 in 2016 to approximately HK$1,333.5 in 2021, representing a CAGR of approximately 1.8%. With the continued shortage of labour, the average daily wages is anticipated to reach approximately HK$1,486.0 in 2026, representing a CAGR of approximately 1.8% during 2022 to 2026.

Average daily wage of workers engaged in passive fire protection works market (Hong Kong), 2016-2026E



Source: Census and Statistics Department, Frost & Sullivan Analysis

Raw material cost

The table below sets forth the prices of key raw materials in passive fire protection works industry from 2016 to 2026, which encompasses firestop acrylic sealants, fire rated boards, fire rated doors, fire resistant paints, coatings and plasters, and fire retardant wool. In general, key raw material and components were imported from the PRC and foreign countries. The fast-growing market demand worldwide was mainly attributable to the accelerated urbanisation which resulted in a general increase in price levels. The demand driven by the rapid urban and infrastructure development in the PRC, coupled with the continuous advancement in material specifications and properties, has resulted in a surging import price in Hong Kong, particularly fire resistant paints, coating and plasters which recorded a CAGR of approximately 17.3% from 2016 to 2021. With the sustained development of the construction industry, the growth is anticipated to sustain in the forecast period. In addition to the above, steel products and pre-cast concrete are also commonly used materials in passive fire protection works.

Average import price of major or commonly used materials used in the passive fire protection works market (Hong Kong), 2016-2026E

(Unit: US$/tons)	2016	2017	2018	2019	2020	2021	2022E	2026E	CAGR (2016-2021)	CAGR (2022E-2026E)
Firestop acrylic sealant	2,495.0	1,676.0	2,729.0	2,730.0	2,762.0	3,442.0	3,682.9	4,632.1	6.6%	5.9%
Fire rated board	4,049.0	4,718.0	5,359.0	5,040.0	4,892.0	5,891.0	6,374.1	8,512.4	7.8%	7.5%
Fire rated door	2,081.0	2,028.0	2,482.0	2,959.0	2,802.0	2,836.0	3,031.7	3,914.8	6.4%	6.6%
Fire resistant paints, coating and plaster	2,623.0	3,358.0	4,448.0	4,587.0	5,416.0	5,825.0	6,809.4	9,264.2	17.3%	8.0%
Fire retardant wool	1,065.0	1,001.0	1,112.0	1,237.0	1,321.0	1,415.0	1,499.9	1,816.2	5.8%	4.9%
Pre-cast concrete	165.0	196.0	220.0	225.0	267.0	240.0	252.0	311.6	7.8%	5.4%

Source: Trade Map, Frost & Sullivan Analysis

Average wholesale prices of selected common types of steel used in passive fire protection works market (Hong Kong), 2016-2026E

Item	Unit	2016	2017	2018	2019	2020	2021	2022E	2026E	CAGR (2016-2021)	CAGR (2022E-2026E)
Galvanised mild steel – Steel plates	HK$ per tonne	11,565.8	15,108.9	17,817.8	18,314.2	17,935.3	23,610.0	27,033.5	36,642.7	15.3%	7.9%
Galvanised mild steel – Steel angles		10,177.1	11,478.0	12,287.3	11,912.6	10,316.6	15,104.0	16,327.4	18,663.8	8.2%	3.4%
Galvanised mild steel – Steel Flats		8,744.3	9,989.4	12,626.9	14,722.3	13,979.3	18,664.0	21,650.2	29,564.2	16.4%	8.1%
Metal formwork – steel plates		4,823.8	5,380.8	5,815.4	6,034.3	5,659.4	8,906.0	10,019.3	13,133.2	13.0%	7.0%

Source: Census and Statistics Department, Frost & Sullivan Analysis

COMPETITIVE LANDSCAPE OF PASSIVE FIRE PROTECTION WORKS MARKET

The passive fire protection market in Hong Kong is highly competitive and the number of market participants is approximately 500 of which less than 100 market participants specialise in passive fire protection works and other market participants are mainly building protection contractors, E&M works contractors and fitting-out works contractors. Generally, the active fire protection works contractors do not directly compete with passive fire protection works contractors.

Some market participants are able to offer one stop service from design, sourcing, installation and maintenance of fire-rated products. Some large-scale market participants further engage in vertical integration by setting up own plant for metal works to meet diversified demands.

For the year ended 30 June 2022, the passive fire protection market in Hong Kong was relatively concentrated with the five players contributing to approximately 53.6% of the entire market in terms of revenue. Our Group recorded revenue of approximately HK$240.1 million for the provision of passive fire protection works for the year ended 30 June 2022, which in terms of revenue for the year ended 30 June 2022 accounted for (i) approximately 25.5% of the passive fire protection works market in Hong Kong; and (ii) approximately 6.7% of the building protection works market in Hong Kong.

Ranking of passive fire protection works market for the year ended 30 June 2022 in Hong Kong in terms of revenue

Rank	Companies	Focus of passive fire protection service offering	Listing Status	Estimated Revenue in Year ended 30 June 2022 (HK$ million)	Market Share
1	Our Group	Comprehensive solutions including fire rated boards, fire resistant paints and fire resistant plasters	Private	240.1	25.5%
2	Sherex Engineering Limited	Fire-rated doors	Private	92.3	9.8%
3	Wing Yip Ceiling Engineering Company Limited	Fire-rated boards	Private	80.5	8.6%
4	Trigon Building Materials Limited	Fire-rated boards	Subsidiary of a Listed Company	52.6	5.6%
5	Seapark Engineering Company Limited	Fire-resistant paints	Private	38.3	4.1%
Top five subtotal				503.8	53.6%
Others				436.5	46.4%
Total				940.3	100.0%

Source: Frost & Sullivan Analysis

i. Sherex Engineering Limited is a passive fire protection services provider in Hong Kong, principally engaged in retailing and wholesale, and installation of fire-rated doors for both the public and private sector.

ii. Wing Yip Ceiling Engineering Company Limited is a ceiling and wall installation engineering company in Hong Kong and Macau, and it has participated in numerous public and private projects, including commercial buildings, schools, hospitals, hotels, plants and residential.

iii. Trigon Building Materials Limited is a wholly-owned subsidiary of a company listed on the Stock Exchange. It specialise in supply and installation of building materials such as ceiling system, wood flooring and kitchen cabinet, etc. and is engaged in the provision of passive fire protection works. The listed company is engaged in a variety of businesses: building construction, interior and renovation works, supply and installation of building materials, property development, property investment, property agency and management, project management and trading of health products.

iv. Seapark Engineering Company Limited is a passive fire protection services provider in Hong Kong with the focus on fire resistant paints, and with a focus on commercial buildings and public amenities.

v. None of the market participants listed above is engaged in the provision of active fire protection services.

According to the Industry Report, our Group had a higher market share of the passive fire protection market in Hong Kong in 2022 than any of the other top five players, mainly due to the strong focus of our Group on providing comprehensive passive fire protection services involving the offering of different types of passive fire protection materials for over 15 years. In contrast, the other top five players generally focused on certain types of passive fire protection materials only, such as fire-rated doors or fire resistant paint. Unlike our Group which specialises in passive fire protection work, some of the other top five players provides a wider scope of construction-related services which included passive fire protection services among other businesses, therefore passive fire protection is not their sole business focus. Accordingly, it is expected that other top five players would need additional effort and resources to change their business focus and expand the types of passive fire protection materials they cover, establish a similar network of relationships with customers and suppliers, and develop a relevant track record involving different types of passive fire protection materials to compete against our Group more effectively in passive fire protection works. Thus, the above is a competitive edge that our Group has over its peers, according to the Industry Report.

Entry barriers

1. *Proven track record*

Proven track record is one of the key competitive factors in the passive fire protection works industry. Credible track record for quality of works, efficient division of labour, timely delivery within budget control are the critical metrics for the companies to perform passive fire protection works. Property developers and main contractors in Hong Kong prefer working with passive fire protection contractors with a proven track record to ensure delivery of high-quality and timely services. New entrants without sound reputation built on the past collaboration with the industry stakeholders and experience in delivering passive fire protection services are thus not able to compete as effectively in the market as passive fire protection contractors with a proven track record according to the Industry Report.

In addition, as a passive fire protection contractor's track record grows, it will be able to leverage its proven track record to bid for future projects involving the same worksite as its previous projects or other worksites in the vicinity given that its experience provides familiarity with the project design and/or specific requirements involving the worksites in the area which greatly increase the success rate for bidding for such projects according to the Industry Report.

2. ***Technical know-how***

Technical knowledge is one the key barriers for new market entrants of passive fire protection works. Existing market participants generally have a strong understanding towards installation, repair and maintenance service of fire-resistance rated walls and ceilings in order to deliver quality services given the demand for such works. However, technical know-how, such as intimate knowledge of passive fire protection materials, is essential as selecting appropriate passive fire protection materials significantly affects the effectiveness of passive fire protection works. Examples of such knowledge of passive fire protection materials include familiarity with the specifications of variety of passive fire protection materials and appropriate methods of their installation or application, the effects of environmental factors such as humidity and heat on the materials, and proper handling and storage to avoid damage to such materials or reduction in their fire reduction effectiveness. Without such technical knowledge, new market participants may perform defective works such as failing to apply fire resistant paint uniformly or with sufficient thickness across structural beams to achieve the required standard fire rating, or failing to account for humidity of the environment on the applied coating of paint which may damage the effectiveness of such paint. In the event of such defective works, there is a greater risk of failure to pass the inspections and assessments of fire safety standards by the Fire Services Department or a compromise on the integrity of the building which may lead to building collapse and casualties in the event of a fire. With such technical know-how, the quality of works can be assured and the diversified demand of customer can be met.

3. ***Initial capital requirements***

Capital requirements serve as the barrier to the new entrants in the passive fire protection works market. In the passive fire protection works industry, a sufficient capital reserve is required for recruitment of workers, raw materials procurement as well as payment to workers. In addition, substantial amount of capital is needed for the issuance of surety bond. More importantly, passive fire protection contractors who have set up own plants are able to show its strong production capability for large scale projects. They are more likely to undertake sizeable projects compared with those contractors without plants. Contractors without plants might lose in the competition and exit the market afterwards.

4. ***Established relationships with suppliers of materials and ability to procure suppliers' fire certificates of fire resistant materials***

Established relationships with various suppliers of materials enable passive fire protection services providers to maintain a continuous supply of quality materials or services at a competitive pricing. In addition, it is vital that passive fire protection service providers procure suppliers' fire certificates confirming that the specified quantity of the passive fire protection materials has been used in the relevant project, which is normally one of the documents submitted for fulfilling the Fire Services Department's and Buildings Department's assessments. Given the reputational risk to the suppliers of materials if their materials are not properly applied by the relevant passive fire protection service providers in a construction project, suppliers of materials are generally only willing to provide such suppliers' fire certificates after careful assessment to its satisfaction that the relevant passive fire protection service providers are appropriately experienced to carry out the work.

Passive fire protection service providers may earn the trust of suppliers of materials over time through the suppliers of materials' experience in, and appraisal of past projects whereby they gain greater familiarity with such service providers' operations, quality of services, and staff competence. Thus, some well-established and experienced passive fire protection contractors can procure suppliers of certain popular passive fire protection materials to issue suppliers' fire certificates with greater ease than those less-experienced service providers without such trusting relationships in order to satisfy the Fire Services Department's and the Buildings Department's inspections and assessments of buildings under relevant codes and practice notes such as Code of Practice for Fire Safety in Buildings and Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (App-13) issued by the Buildings Department. Familiarity with the characteristics of various passive fire protection materials and established working relationships with various suppliers of materials facilitate the proper application of the right materials in construction projects and the procurement of suppliers' fire certificates and other relevant ancillary documents from suppliers of materials for customers which is a key part of the customers' quality control process.

Factors of competition

1. ***Comprehensive offering***

Contractors who are able to provide comprehensive passive fire protection services are generally preferred by the customers. By engaging in design and installation work as well as related information services and offering different types of fire resistant products, the passive fire protection services contractors are able to acquire and attain customers with integrated solutions. Besides, it is the rising trend in the passive fire protection services industry need to prove that it can provide high quality of services to meet higher regulatory standards and customer requirements. Passive fire protection works may involve various types of works which have a corresponding trade under the registers under the Registered Specialist Trade Contractor Scheme such as installation of fire rated doors, application of fire resistant paints, and metal work. Given that major market players and trade associations recognise the Registered Specialist Trade Contractor Scheme, subcontractors with a variety of registrations under this scheme may enjoy enhanced recognition in pertinent trades by fulfilling the registration requirements and performance standards under the Registered Specialist Trade Contractor Scheme, and thus be more attractive to customers according to the Industry Report.

2. ***Established relationship***

In general, contractors with long-established relationships are preferred by customers as they have a better understanding of customers' requirements and most importantly they are in a better position to provide customised services for customers by saving time and cost in negotiation and coordination. In addition, the long-term relationships with suppliers of materials would help passive fire protection service providers maintain a competitive pricing and stable supply. It is also crucial for passive fire protection service providers, along with manufacturer, to liaise with suppliers of materials to provide suppliers' fire certificate/procure the issuance of fire test report to customers in order to meet the regulatory standard. In addition, passive fire protection contractors and subcontractors prefer to work with customers who are able to settle their payments on time.

3. ***Industry expertise***

Industry expertise is crucial to gaining the trust of customers and industry recognition. The extensive experience in delivering passive fire protection services such as fire-resistance rated walls and ceilings installation and maintenance, is the indistinguishable asset in the market. Having an experienced management and engineering team, (i) contractors could price their tenders and quotations accurately, thereby minimising cost overrun and increasing the competitiveness of contractors; and (ii) engage in passive fire protection design in the early stage of project planning.

4. ***Approved lists of products and approved contractors***

Buildings Department has provided a list of certain approved fire protection products for reference and suppliers of materials may maintain their own list of approved contractors to recognise their partners. Service providers are keen to follow the list for fire rated products provided by Buildings Department and keen to be recognised by suppliers of materials in order to build close relationships with them. Following review and assessment, the approved contractors would be connected to the network of ongoing projects of the suppliers so that they could maintain the very highest levels of quality and support. Connected with the suppliers, the approved contractors are at the better position to identify specific opportunities by having more chances to promote products and services.

COMPETITIVE STRENGTHS OF OUR GROUP

Please refer to the section headed "Business — Competitive strengths" in this document for a detailed discussion of competitive strengths of our Group.

DIRECTORS' CONFIRMATION

Our Directors, after due and reasonable consideration, are of the view that there has been no adverse change in the market information since the date of the Industry Report which may qualify, contradict or have an impact on the information therein.