SINGAPORE

QUARTERLY CONSTRUCTION COST REVIEW

Issue 38

Arcadis Singapore Pte Ltd

2018 FIRST QUARTER

CONTENTS

SINGAPORE
MARKET OVERVIEW

Improved productivity is high on the agenda for Singapore. The need to drive Integrated Digital Delivery with mandatory adoption of technology on key projects will help the construction industry thrive and is likely to shape the market in the coming quarters.

The Singapore government has identified three core areas of focus to drive greater construction productivity and meet the targets of the Construction Industry Transformation Map:

1. 40% of construction projects to adopt Design for Manufacturing and Assembly (DfMA) by 2020.

2. New initiatives arising from the review of the 3rd Green Building Masterplan include the development of enhanced indoor environment quality for occupants, high energy efficient buildings, and a target of 80% of buildings to be Green by 2030.

3. Integrated Digital Delivery (IDD) to connect various stakeholders in building and construction projects through digital information. This involves the mandatory adoption of Building Information Modelling (BIM), the establishment of a Singapore Virtual Design and Construction Guide, development of IDD standards and allowing smaller firms to test bed IDD solutions.

Additionally, the Land Transport Authority (LTA) and Urban Redevelopment Authority (URA) are pushing for wider adoption and use of bicycles in Singapore. This includes expanding the cycle path networks and increasing the available storage space in residential towns to enhance liveability and to support Singapore's car-lite vision.

MARKET MOVEMENT

ECONOMY

Indicator			
GDP Growth per annum	Q1/16 - Q1/17 (+) 2.5%	Q4/16 - Q4/17 (+) 3.6%	Q1/17 - Q1/18 (+) 4.4%
Inflation Rate (CPI) per annum	Mar 16 - 17 (+) 0.7%	Dec 16 - 17 (+) 0.4%	Mar 17 - 18 (+) 0.2%

Source: Ministry of Trade and Industry

SUPPLY & DEMAND

Indicator			
BCA Construction Demand	Q1/17 S$4.77 Bn	Q4/17 S$7.89 Bn	Q1/18p S$6.96 Bn
BCA Construction Output	Q1/17 S$7.52 Bn	Q4/17 S$6.92 Bn	Q1/18 S$6.49 Bn

Source: Building and Construction Authority
p- denotes preliminary data

BASIC COSTS

Indicator			
BCA Concrete Price Index	Jan 18 105.8	Feb 18 105.7	Mar 18 106.0
BCA Steel Reinforcement Price Index	Jan 18 103.1	Feb 18 102.4	Mar 18 103.1

Source: Building and Construction Authority

CONSTRUCTION COST TREND

Indicator			
BCA Tender Price Index	Q1/17 96.7	Q4/17 97.2	Q1/18 97.4
Arcadis Singapore Tender Price Index	Q1/17 100.2	Q4/17 98.7	Q1/18 98.7

Source: Building and Construction Authority

1 MARKET ANALYSIS

PUBLIC SECTOR PROJECTS KEY CONTRIBUTOR OF SINGAPORE'S CONSTRUCTION MARKET

According to BCA's preliminary data for 1Q 2018, total construction demand (based on actual contracts awarded) increased by 46% to S$7 billion as compared to 1Q 2017. This was mainly attributed by public sector civil engineering projects, private sector residential projects as well as institutional and other building projects from both sectors.

Public sector construction demand of S$4.5 billion in 1Q 2018 accounts approximately 65% of the total construction demand, predominantly due to the award of institutional & others development (Woodlands Health Campus and National Skin Centre) and various civil engineering projects.

Construction demand from the private sector, on the other hand, remained at comparable level (approximately S$2.4 billion) when compared to preceding quarters, with the award of some notable projects such as the development of commercial cum recreational facilities at Mandai Park and other major residential condominium developments.

EXPECTED IMPROVEMENT IN H2 2018 AND 2019

Looking ahead, Singapore's construction industry is expected to pick up with an increased demand and a change in market sentiment as construction cost levels are no longer dropping. The upturn is leading to an optimistic outlook, and construction cost movement for 2018 is anticipated to range between -1% and +2%. This year's construction demand forecast is currently estimated to be between S$26 billion and S$31 billion with some notable projects in the pipeline including the Deep Tunnel Sewerage System, North-South Corridor, Singapore's first integrated transport corridor and Terminal 5 at Changi Airport.

On the other hand, labour costs continue to remain high due to foreign worker levies while key construction materials are also on an upward trend at the back of stronger construction demand anticipated.

INTRODUCTION OF NEW LEGISLATION

1Q 2018 witnessed the introduction of some new legislations, with façade inspections and bicycle parking provision standards included in the Budget 2018 announcement and joint LTA and URA circular in May.

Façade checks for buildings are expected to take place in the 2H 2019. Periodic inspections are set to be carried out by trained personnel and the Building and Construction Authority (BCA) and Housing Development Board (HDB) have plans to integrate technology such as drones into their inspection processes.

The LTA and URA have also announced bicycle parking provision standards, where all buildings undergoing redevelopment and reconstruction will need to comply. This is supported by an extension of the Travel Smart Grant to co-fund up to 80% of costs to adopt Travel Smart initiatives. This proactive step is to promote cycling as a mode of transport, supporting the car-lite vision for Singapore.

2 APPROXIMATE BUILDING COSTS

SINGAPORE

BUILDING TYPE	S$/m2 CFA		
RESIDENTIAL			
Terraced Houses	2,350	-	2,650
Semi-Detached Houses	2,550	-	3,000
Detached Houses	3,000	-	4,000
Average Standard Condominium	1,800	-	2,050
Above Average Standard Condominium	2,050	-	2,800
Luxury Condominium	2,800	-	4,200
OFFICE			
Average Standard Offices	2,350	-	2,650
Prestige Offices	2,650	-	2,900
COMMERCIAL			
Shopping Centres, Average Quality	2,650	-	2,800
Shopping Centres, High Quality	2,800	-	3,100
CAR PARKS			
Multi-Storey Car Parks	880	-	1,280
Basement Car Parks	1,280	-	1,730
INDUSTRIAL			
Flatted Light Industrial Buildings	1,230	-	1,380
Flatted Heavy Industrial Buildings	1,380	-	1,880
Single Storey Industrial Buildings	1,130	-	1,280
Flatted Warehouses	1,130	-	1,280
Single Storey Warehouses	1,000	-	1,280
HOTEL (Including Furniture and Fittings)			
3-Star Hotels	2,950	-	3,250
4-Star Hotels	3,150	-	3,750
5-Star Hotels	3,800	-	4,300
HEALTH			
Private Hospitals	3,800	-	4,000
Polyclinics, non air-conditioned	1,600	-	1,800
Nursing Homes, non air-conditioned	1,600	-	1,900
Medical Centres	2,900	-	3,100

The above costs are at 1st Quarter 2018 levels.

Notes:

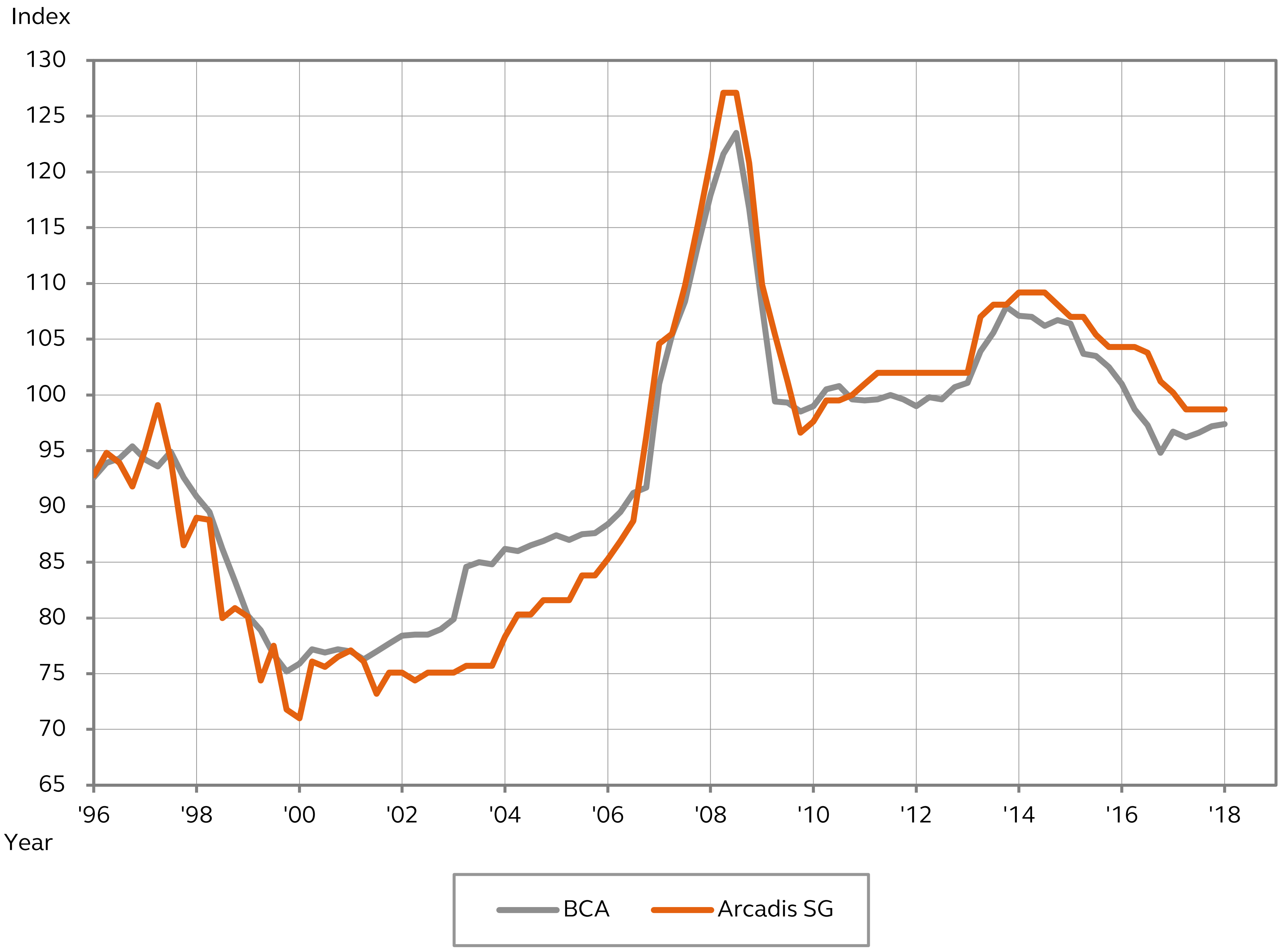
The construction costs above serve only as a guide for preliminary cost appraisals and budgeting. It must be understood that the actual cost of a building will depend upon the design, site conditions and many other factors and may vary from the figures shown. The costs per square metre are based on **Construction Floor Areas (CFA)** measured to the outside face of the external walls / external perimeter including lift shafts, stairwells, plant rooms, water tanks and the like.

All buildings are assumed to have no basements (unless otherwise stated) and are built on flat ground with normal soil conditions. The costs exclude the following:

- Professional fees
- Authorities' plan processing charges
- Land cost
- Financing charges
- Site inspectorate
- Administrative expenses
- Legal cost & disbursements
- Demolition of existing building(s)
- Furniture and fittings (unless otherwise stated)
- Operating equipment
- External works
- Prefabricated Prefinished Volumetric Construction (PPVC) / Prefabricated Bathroom Units (PBUs) / Structural steel structure
- Cross Laminated Timber (CLT) / Glued Laminated Timber (Glulam)
- Cost escalation
- Goods and Services Tax

3 TENDER PRICE INDEX
SINGAPORE

Arcadis Singapore TPI is a measure of the comparative tender price movements based on the projects handled by Arcadis Singapore Pte Ltd. The TPI reflects the tender price level of contracts let out over the years. Other than material and labour costs, it takes into account the elements of competition, risk and profits.

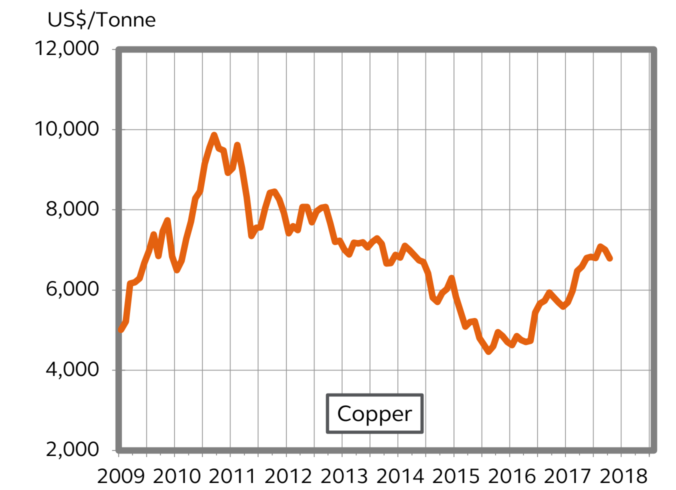


Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	1Q18
BCA*	101.3	100.0	99.7	99.8	104.6	106.8	104.0	98.0	96.7	97.4
Arcadis SG^	96.6	100.0	102.0	102.0	108.1	108.1	104.3	101.2	98.7	98.7

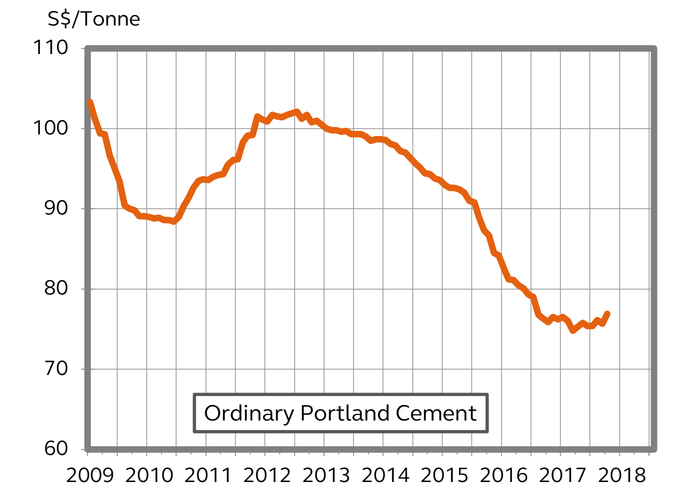
Source: * Building and Construction Authority
^ From 2009 onwards, Arcadis Singapore TPI based on 4th Quarter Index.

4 MATERIALS
SINGAPORE

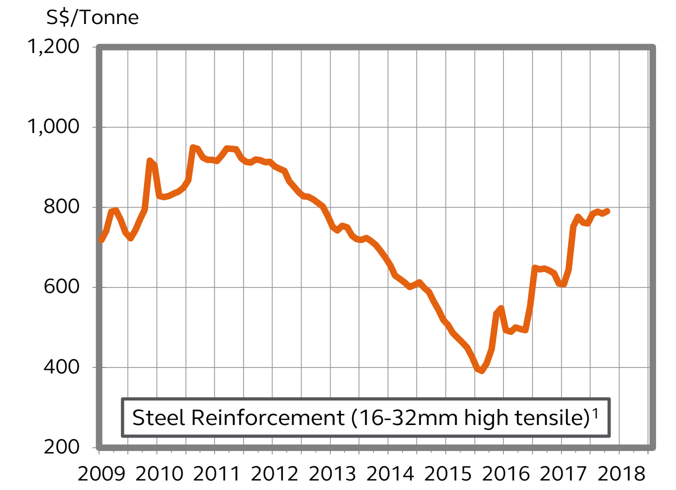
Basic Construction Materials



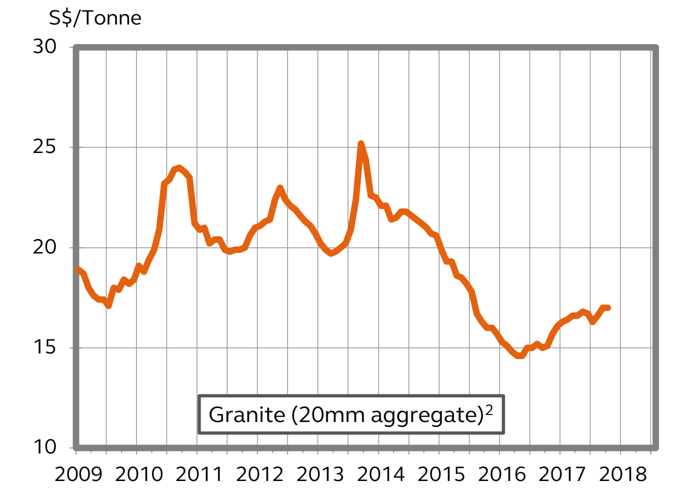
Source : London Metal Exchange



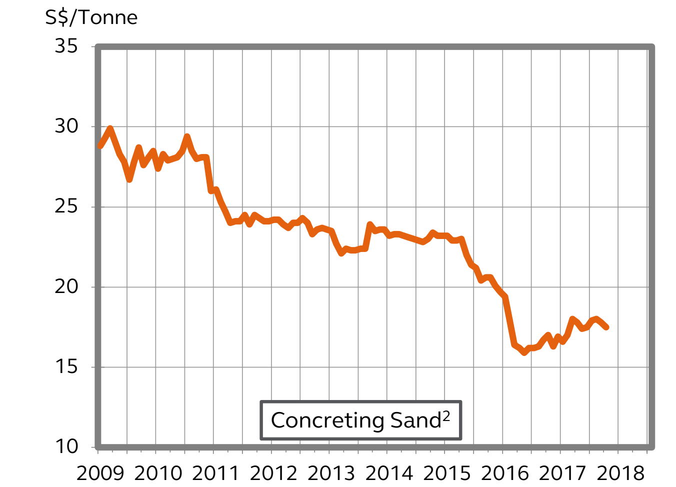
Source: Building and Construction Authority



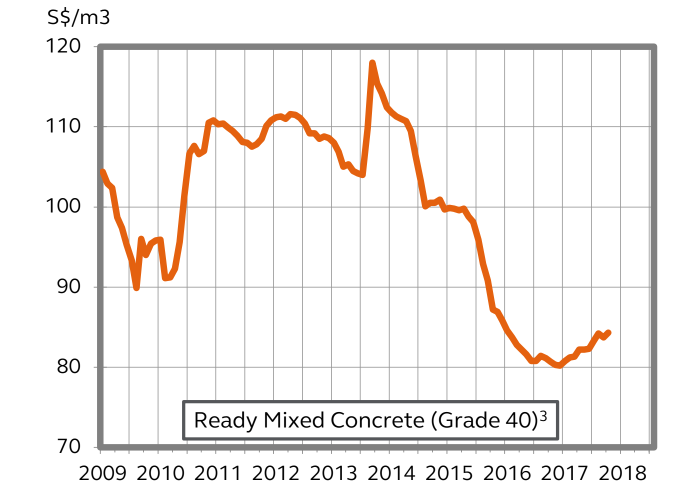
Source: Building and Construction Authority



Source: Building and Construction Authority



Source: Building and Construction Authority



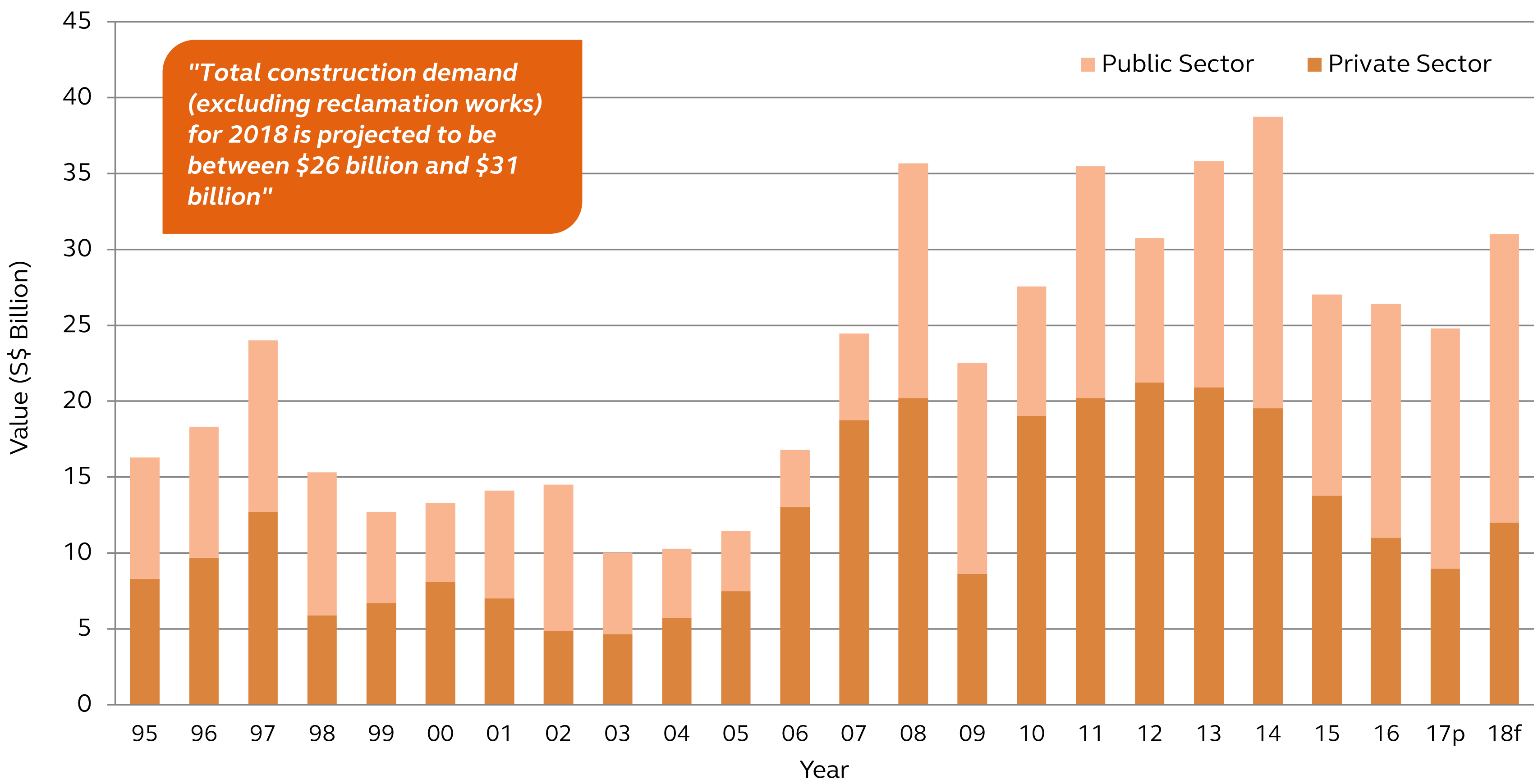
Source: Building and Construction Authority

Notes:

[1] Prices of rebar other than 16-32mm dimensions may subject to surcharge
[1] With effect from Jan 2015, the market prices of rebar (without cut & bend) are based on fixed price supply contracts with contract period 1 year or less
[2] Prices of granite and concreting sand exclude local delivery charges to concrete batching plants
[3] The market prices of ready mixed concrete are based on contracts with non-fixed price, fixed price and market retail price for Grade 40 pump

5 CONSTRUCTION DEMAND

SINGAPORE



BCA Construction Demand (Exclude Reclamation) (S$ Billion)												
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Private Sector	8.3	9.7	12.7	5.9	6.7	8.1	7.0	4.8	4.6	5.7	7.5	13.1
Public Sector	8.0	8.6	11.3	9.4	6.0	5.2	7.1	9.6	5.4	4.6	4.0	3.7
Total Value	16.3	18.3	24	15.3	12.7	13.3	14.1	14.5	10.0	10.3	11.5	16.8

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017p	2018f
Private Sector	18.8	20.2	8.6	19.0	20.2	21.2	20.9	19.5	13.8	11.0	9.0	10 - 12
Public Sector	5.7	15.5	13.9	8.6	15.3	9.5	14.9	19.2	13.3	15.4	15.8	16 - 19
Total Value	24.5	35.7	22.5	27.6	35.5	30.8	35.8	38.8	27.0	26.4	24.8	26 - 31

	1Q18
Private Sector	2.4
Public Sector	4.5
Total Value	7.0

Source: * Building and Construction Authority

Notes:

1. Construction demand refers to the total value of construction contracts awarded. It is a leading market indicator for the construction industry.
2. p - denotes preliminary data
3. f - denotes forecast

6 APPROXIMATE BUILDING COSTS FOR MAJOR CITIES

ASIA

BUILDING TYPE	Shanghai	Beijing	Guangzhou/Shenzhen	Chongqing/Chengdu
			RMB / m2 CFA	
DOMESTIC				
Apartments, high rise, average standard				
- Shell and core	2,648 - 3,053	2,660 - 3,068	2,351 - 2,606	2,315 - 2,718
- Full fit	4,561 - 5,056	4,211 - 4,627	3,491 - 3,861	3,571 - 4,277
Apartments, high rise, high end				
- Shell and core	3,232 - 3,522	3,139 - 4,553	2464 - 3,249	2,859 - 3,791
- Full fit	10,692 - 11,675	10,197 - 11,616	5,848 - 6,409	5,867 - 7,432
Terraced houses, average standard				
- Shell and core	3,069 - 3,280	3,069 - 3,584	2,653 - 2,917	2,937 - 3,571
- Full fit	N/A	6,025 - 6,532	N/A	N/A
Detached houses, high end				
- Shell and core	4,580 - 5,089	4,627 - 5,148	3,630 - 3,993	3,901 - 4,501
- Full fit	N/A	11,578 - 12,084	N/A	N/A
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	5,927 - 7,887	5,887 - 7,927	5,102 - 5,643	5,709 - 6,633
High rise offices, prestige quality	7,887 - 9,847	7,927 - 13,022	7,009 - 7,722	7,187 - 9,742
Out-of-town shopping centre, average standard	N/A	4,488 - 5,999	4,858 - 5,333	4,567 - 5,900
Retail malls, high end	8,382 - 10,824	8,118 - 11,174	7,141 - 7,847	7,187 - 10,138
INDUSTRIAL				
Industrial units, shell only. (Conventional single storey framed unit)	1,894 - 2,310	1,855 - 2,264	3,333 - 3,670	2,957 - 3,769
Owner operated factories, low rise, light weight industry	2,944 - 3,676	3,584 - 4,112	N/A	N/A
HOTEL				
Budget hotels - 3-star, mid market	6,501 - 7,979	6,640 - 8,184	6,567 - 7,227	6,323 - 7,847
Business hotels - 4/5-star	10,685 - 14,553	11,095 - 14,652	10,593 - 11,669	12,137 - 15,200
Luxury hotels - 5-star	14,553 - 17,450	14,137 - 18,183	14,428 - 15,899	N/A
OTHERS				
Underground/basement car parks (<3 levels)	5,029 - 7,009	5,128 - 5,636	3,353 - 5,359	N/A
Multi storey car parks, above ground (<4 levels)	2,587 - 3,604	3,082 - 3,122	2,402 - 2,640	2,039 - 2,548
Schools (primary and secondary)	3,590 - 4,600	3,571 - 4,613	2,660 - 2,930	2,752 - 3,062
Students' residences	2,561 - 3,584	2,528 - 3,571	1,729 - 1,940	N/A
Sports clubs, multi purpose sports/ leisure centres (dry sports)	6,521 - 8,006	6,118 - 6,164	4,930 - 5,438	N/A
General hospitals - public sector	9,728 - 12,619	8,039 - 10,065	N/A	N/A

6 APPROXIMATE BUILDING COSTS FOR MAJOR CITIES

ASIA

BUILDING TYPE	Hong Kong	Macau	Singapore	Kuala Lumpur
	USD / m² CFA *(See also exchange rates per U.S. dollar below)*			
DOMESTIC	HK$ 7.85	MOP 8.085	S$ 1.32	RM 3.92
Apartments, high rise, average standard				
- Shell and core	N/A	1,737 - 2,574	N/A	N/A
- Full fit	3,057 - 3,592	2,237 - 2,737	1,365 - 1,555	425 - 595[$]
Apartments, high rise, high end				
- Shell and core	N/A	2,574 - 3,861	N/A	N/A
- Full fit	4,102 - 4,777	3,124 - 4,774	2,125 - 3,185	900 - 1,135
Terraced houses, average standard				
- Shell and core	N/A	3,049 - 3,786	N/A	N/A
- Full fit	4,191 - 4,892	3,811 - 4,549	1,780 - 2,010	240 - 350[$$]
Detached houses, high end				
- Shell and core	N/A	3,686 - 5,311	N/A	N/A
- Full fit	5,427 - 6,178	4,649 - 6,048	2,275 - 3,030	630 - 805
OFFICE / COMMERCIAL				
Medium/high rise offices, average standard	2,994 - 3,554[*]	2,574 - 3,324	1,780 - 2,010[@]	655 - 760[$$$]
High rise offices, prestige quality	3,694 - 4,331	3,324 - 3,636	2,010 - 2,200[@]	940 - 1,280[$$$]
Out-of-town shopping centre, average standard	3,057 - 3,567	2,424 - 3,636	2,010 - 2,125	600 - 735
Retail malls, high end	4,025 - 4,790	3,811 - 4,599	2,125 - 2,350	740 - 1,020
INDUSTRIAL				
Industrial units, shell only. (Conventional single storey framed unit)	N/A	N/A	760 - 970	350 - 440
Owner operated factories, low rise, light weight industry	2,344 - 2,981	N/A	N/A	470 - 530
HOTEL				
Budget hotels - 3-star, mid market	3,885 - 4,204	3,386 - 3,836	2,235 - 2,465	1,090 - 1,520
Business hotels - 4/5-star	4,076 - 4,777	4,599 - 5,498	2,880 - 3,260	1,880 - 2,205
Luxury hotels - 5-star	4,777 - 5,541	5,498 - 6,498	2,880 - 3,260	2,095 - 2,445
OTHERS				
Underground/basement car parks (<3 levels)	3,185 - 3,822	2,012 - 2,949	970 - 1,315	390 - 545
Multi storey car parks, above ground (<4 levels)	1,911 - 2,293	1,112 - 1,462	670 - 970[@@]	245 - 320
Schools (primary and secondary)	2,510 - 2,713[**]	2,224 - 2,574	N/A	275 - 315[$$$$]
Students' residences	2,930 - 3,312	1,762 - 2,049	1,630 - 1,780	325 - 355[$$$$$]
Sports clubs, multi purpose sports/leisure centres (dry sports)	3,822 - 4,459	N/A	2,045 - 2,200	635 - 745
General hospitals - public sector	4,968 - 5,605	N/A	2,880 - 3,030	940 - 1,180

6 APPROXIMATE BUILDING COSTS FOR MAJOR CITIES

ASIA

BUILDING TYPE	Jakarta	Manila	Bangkok
	USD / m² CFA *(See also exchange rates per U.S. dollar below)*		
DOMESTIC	IDR 13573.00	PHP 51.49	BAHT 31.37
Apartments, high rise, average standard			
- Shell and core	N/A	N/A	542 - 701
- Full fit	728 - 824	925 - 1,080	717 - 893
Apartments, high rise, high end			
- Shell and core	N/A	N/A	685 - 886
- Full fit	1,001 - 1,130	1,228 - 1,679	1,071 - 1,288
Terraced houses, average standard			
- Shell and core	N/A	N/A	319 - 414
- Full fit	385 - 502	755 - 923	478 - 574
Detached houses, high end			
- Shell and core	N/A	N/A	558 - 797
- Full fit	1,048 - 1,171	1,617 - 2,742	829 - 1,004
OFFICE / COMMERCIAL			
Medium/high rise offices, average standard	718 - 794	925 - 1,083	701 - 861#
High rise offices, prestige quality	1,056 - 1,180	1,253 - 1,399	956 - 1,180##
Out-of-town shopping centre, average standard	617 - 683	733 - 896	654 - 845
Retail malls, high end	681 - 736	1,083 - 1,518	877 - 909
INDUSTRIAL			
Industrial units, shell only. (Conventional single storey framed unit)	332 - 362	458 - 516	510 - 638
Owner operated factories, low rise, light weight industry	360 - 397	647 - 756	N/A
HOTEL			
Budget hotels - 3-star, mid market	1,247 - 1,474	1,185 - 1,321	1,195 - 1,323
Business hotels - 4/5-star	1,700 - 1,836	1,335 - 1,618	1,530 - 1,753
Luxury hotels - 5-star	1,805 - 2,035	1,644 - 2,498	1,785 - 2,072
OTHERS			
Underground/basement car parks (<3 levels)	513 - 629	489 - 585	574 - 749
Multi storey car parks, above ground (<4 levels)	332 - 362	471 - 665	191 - 306
Schools (primary and secondary)	N/A	695 - 958	N/A
Students' residences	N/A	735 - 885	N/A
Sports clubs, multi purpose sports/ leisure centres (dry sports)	1,097 - 1,644	1,175 - 1,710	N/A
General hospitals - public sector	N/A	1,276 - 1,533	N/A

6 APPROXIMATE BUILDING COSTS FOR MAJOR CITIES

ASIA

BUILDING TYPE	OUTLINE SPECIFICATION
DOMESTIC	
Apartments, high rise, average standard	Shell and core, including finishes to public area, but excluding finishes to apartment units Full fit, with air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings and loose furniture
Apartments, high rise, high end	Shell and core, including finishes to public area, but excluding finishes to apartment units Full fit, good quality provisions, with air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings and loose furniture
Terraced houses, average standard	Shell and core, joined houses in row(s), excluding garden, parking, finishes and fittings to house interior Full fit, joined houses in row(s), with air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking
Detached houses, high end	Shell and core, good quality facade, excluding garden, parking, finishes and fittings to house interior Full fit, good quality provisions, with air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking
OFFICE / COMMERCIAL	
Medium/high rise offices, average standard	RC structure, curtain wall, including public area fit-out, tenant area with raised floor/ carpet, painted wall and false ceiling
High rise offices, prestige quality	
Out-of-town shopping centre, average standard	Including public area fit-out and M&E, but excluding shop fit-out
Retail malls, high end	
INDUSTRIAL	
Industrial units, shell only (Conventional single storey framed unit)	RC structure with steel roof and M&E to main distribution, but excluding a/c, heating and lighting
Owner operated factories, low rise, light weight industry	RC structure, including small office with simple fit-out and M&E, but excluding a/c and heating
HOTEL	
Budget hotels - 3-star, mid market	1) Interior decoration 2) Furniture (fixed and movable) 3) Special light fittings (chandeliers, etc.) 4) Operating Supplies and Equipment (OS&E) excluded
Business hotels - 4/5-star	
Luxury hotels - 5-star	
OTHERS	
Underground/basement car parks (<3 levels)	RC structure
Multi storey car parks, above ground (<4 levels)	RC structure, natural ventilation, no facade enclosure
Schools (primary and secondary)	Including fit-out and a/c, but excluding educational equipment
Students' residences	Including fit-out, loose furniture and a/c
Sports clubs, multi purpose sports/leisure centres (dry sports)	Dry sports (no swimming pool) and are for 'leisure centre' type schemes including main sports hall, ancillary sports facilities, changing and showers, restaurant / cafe, bar, etc. Costs include a/c, Furniture, Fittings and Equipment (FF&E)
General hospital - public sector	Excluding medical and operating equipment

Notes:

1. The costs for the respective categories given above are averages based on fixed price competitive tenders. It must be understood that the actual cost of a building will depend upon the design and many other factors and may vary from the figures shown.
2. The costs per square metre are based on Construction Floor Areas (CFA) measured to the outside face of the external walls / external perimeter including lift shafts, stairwells, balconies, plant rooms, water tanks and the like.
3. All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil and site conditions. The cost excludes site formation works, external works, land cost, professional fees, finance and legal expenses.
4. The standard for each category of building varies from region to region and do not necessarily follow that of each other.
5. "Shell and core" generally covers ONLY base building elements. "Shell" refers to overall structure and foundations, exterior walls, floors and roof, completing with common areas, staircases, lift shafts, service ducts and fire services systems to local statutory requirements. "Core" refers to fully-fitted public areas (like lobbies, corridors and lavatories) and M&E main plant and upfeed, with tenant or occupant areas unfurnished.
6. "Full fit" buildings should complete with all elements that allow the buildings to be ready for operation, including public and tenants' (or occupants') areas (i.e. with ALL finishes, fittings and M&E distributions).
7. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. dollars.
8. Hong Kong: * (i) Tenant area with screeded floor, painted wall and ceiling (ii) Facade in curtain wall/window wall ** Public authority standard, no a/c and complete with basic external works
   Singapore: @ Excluding carpet @@ Open on all sides with parapet
   Kuala Lumpur $ 6-12 units per floor, 46m2 - 83m2 per unit; excluding air-conditioning $$ Excluding air-conditioning, Kitchen cabinets and home appliances
   $$$Exclude Tenant fit-out $$$$ Standard government provisions $$$$$ University standard
   Bangkok # (i) Excluding raised floor/carpet and inter-tenancy partition (ii) Facade in windows and brick wall/pre-cast concrete panel ## Excluding raised floor/carpet and inter-tenancy partition

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