



June 2024

CHINA REPORT

CONSTRUCTION PROCUREMENT AND
COST INTELLIGENCE

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Bucknall

OFFICES AROUND THE WORLD

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Angola

Luanda

Botswana

Gaborone

Kenya

Nairobi

Mauritius

Quatre Bornes

Mozambique

Maputo

Namibia

Windhoek

Nigeria

Lagos

Seychelles

Victoria

South Africa

Cape Town

Durban

Pretoria

Stellenbosch

MIDDLE EAST

Qatar

Doha

Saudi Arabia

Riyadh

United Arab Emirates

Abu Dhabi

Dubai

ASIA

North Asia

Beijing

Chengdu

Chongqing

Guangzhou

Guiyang

Haikou

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Shanghai

Shenyang

Shenzhen

Wuhan

Wuxi

Xian

Zhuhai

South Asia

Bacolod

Bohol

Cagayan de Oro

Cebu

Clark

Davao

Ho Chi Minh City

Iloilo

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Sheffield

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Warrington

Euro Alliance

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Poland

Portugal

Romania

Serbia

Spain

Sweden

OCEANIA

Australia

Adelaide

Brisbane

Cairns

Canberra

Coffs Harbour

Darwin

Gold Coast

Melbourne

Newcastle

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Sydney

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Seattle

Toronto

Tucson

Waikoloa

Washington DC

America Alliance

Mexico City

QIANHAI REFORM PILOT PROJECT – EXPERIENCE OF EPC CONTRACT APPLICATION

In order to implement the spirit of documents such as the Plan for Comprehensively Deepening the Reform and Opening-up of Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone issued by the CPC Central Committee and the State Council, the Notice on Several Measures for Promoting High-quality Development of Construction Industry in Guangdong Province issued by the General Office of the People's Government of Guangdong Province, and the Measures for Accelerating High-quality Development of Modern Construction Industry in Shenzhen issued by the General Office of the Shenzhen Municipal People's Government, effectively facilitate the deep integration in construction fields of Shenzhen and Hong Kong, promote the integration of the Hong Kong construction industry into the development of Qianhai, drive the international transformation of the construction service industry of Chinese Mainland, explore and establish a project construction management system that connects with Hong Kong and Macao rules and international prevailing rules on the basis of reasonable consideration of the differences between the institutional environments of the two places, Qianhai Authority hereby formulated the Reform Scheme for Connection of Hong Kong and Macao Rules in Qianhai Construction Project Management System with the consent of the Shenzhen Municipal Government and officially released it in May 2023.

RLB was fortunate to participate in the construction of a school project in Qianhai as a whole-process cost consultant, which is one of the pilot projects of the reform scheme and has applied many reform measures. RLB has gained relevant experience from this.

This document shares the construction experience from the perspective of EPC contract application.



EPC (Engineering, Procurement and Construction) General Contract

EPC (Engineering, Procurement and Construction) is also known as the turnkey general contracting mode. The Employer signs a general contract with the General Contractor (GC) to entrust the design, procurement, construction and commissioning services of the Project to the GC for implementation. The Employer is only responsible for the overall, principle-based, and objective control. The organization and implementation of the design, procurement and construction shall be subject to the unified planning, organization, commanding and coordination and the whole-process control. However, the Employer can flexibly incorporate surveying content within the scope of the contract or include certain stages of the design within the scope of the contract according to the project's needs.

QIANHAI REFORM PILOT PROJECT – EXPERIENCE OF EPC CONTRACT APPLICATION

I. Reform Scheme for EPC Contract Application:

The EPC (Engineering, Procurement and Construction) general contracting mode, which involves contract awarding after feasibility approval, was adopted with reference to the common practices in Hong Kong and internationally, and in accordance with the actual situation of Chinese Mainland. The whole-process cost consultant was introduced to assist the Employer in the whole-process cost consultation and contract management. A design-oriented whole-process engineering consultant was introduced to assist in the preparation of the Employer's requirement documents, complete the conceptual design of the Project (optional), participate in bidding, coordinate with the Surveyor and the Supervisor, and cooperate in construction management. The GC established an architect design team to complete the subsequent preliminary design and detailed design of the Project, give full play to its own advantages in construction technology, design management and overall coordination ability, shorten the construction period, complete the project with high efficiency and quality, and truly bring into play the advantages of the EPC general contracting mode.

II. Practice in EPC Contract Application:

Unlike projects involving EPC contract application in Hong Kong and internationally, projects in Chinese Mainland still need to be submitted to the government for special approval before bidding under the premise that the budget estimate has not been approved (see Note 1). Therefore, in the early stage of the Project, through coordination between Qianhai Authority and Qianhai Construction & Investment Holding Group Co., Ltd. (the Employer), bidding was approved to be carried out on the basis of conceptual design drawings and the Employer's Requirements after the approval of the feasibility study.

In June 2023, the bidding for the EPC General Contract was completed. Most of the work within the scope of the contract was contracted on a lump sum basis, with the purpose of encouraging the EPC General Contractor to actively manage and achieve the objectives of the construction period and cost management through active control. In view of the high risk of underground foundation works in Qianhai Area, the pile foundation works were still measured and priced as per the tentative bill of quantities.



Note 1: According to Article 39 of the Regulations on Government-invested Projects of Shenzhen Special Economic Zone, the general contracting mode can be adopted for projects with clear construction content and proven technical schemes. For government-invested projects in the general contracting mode, contracts shall be awarded after the preliminary design or the approval of the total budget estimate of the Project is completed. If it is really necessary to award any contract in advance, the approval by the Municipal Government shall be obtained.

QIANHAI REFORM PILOT PROJECT – EXPERIENCE OF EPC CONTRACT APPLICATION

II. Practice in EPC Contract Application: (Continued)

The comparison among the EPC mode of the pilot project, the traditional mode, and the design-construction integration mode in Hong Kong is as follows:

	Traditional Mode	Design-Construction Integration Mode in Hong Kong	Design-Construction Integration Mode in Pilot Project
Design and construction	<ul style="list-style-type: none"> The design and construction stages are clearly defined. Design-> Bidding-> Construction 	<ul style="list-style-type: none"> Bidding (Employer's Requirements)-> Bid (Preliminary Design)-> Detailed Design + Construction 	<ul style="list-style-type: none"> Bidding (Employer's Requirements + Conceptual Design)-> Preliminary Design + Detailed Design + Construction
Contractual arrangements	<ul style="list-style-type: none"> Employer <-> Design Team Employer <-> GC Employer <-> Independent Contractor Employer <-> Surveyor 	<ul style="list-style-type: none"> Employer <-> GC <-> Design Team + Supply + Construction Subcontracting Employer <-> Surveyor 	<ul style="list-style-type: none"> Employer <-> GC <-> Design Team (Preliminary Design and Subsequent Design Stages) + Supply + Construction Subcontracting Employer <-> Whole-process Engineering Consultation (Conceptual Design + Survey + Supervision) Employer <-> Surveyor Employer <-> Contracts for Engineering Insurance, Other Third Party Consultants, Third Party Monitoring/Inspection, etc.
Designer/ Architect Role	<ul style="list-style-type: none"> Design and supervision Project leader Contract administrator/ executor Falling into the scope of the Employer's team 	<ul style="list-style-type: none"> Design Falling into the scope of the GC's team 	<ul style="list-style-type: none"> Conceptual design and design supervision falling into the scope of the Employer's team Preliminary design and subsequent design stages falling into the scope of the GC's team
GC's Engagement	<ul style="list-style-type: none"> Construction stage 	<ul style="list-style-type: none"> DB stage 	<ul style="list-style-type: none"> Design (starting from the preliminary design) and construction stage
Responsibilities and risks	<ul style="list-style-type: none"> The Contractor shall be responsible for procurement and construction 	<ul style="list-style-type: none"> Design, procurement and construction shall be undertaken by a single GC 	<ul style="list-style-type: none"> Design (starting from the preliminary design), procurement and construction shall be undertaken by a single GC
Work of Quantity Surveyor/ Cost Consultant	<ul style="list-style-type: none"> Bill of quantities Interim payment (according to schedule) Substantial engineering changes 	<ul style="list-style-type: none"> Interim payment (according to milestone) Minor changes 	<ul style="list-style-type: none"> Interim payment (design fees paid by milestone/ construction and installation costs paid according to milestone and monthly progress) Minor changes with costs calculable (lump sum for the majority of activities)

III. Summary of Advantages and Disadvantages of EPC Contract:

The EPC mode is adopted for the general contract of the pilot project, and it has distinct advantages and disadvantages. The detailed analysis is as follows:

Analysis and Suggestions on Advantages and Disadvantages of EPC Contract and Its Measurement and Pricing Mode

<p>Advantages: The certainty of the construction period is high, which is beneficial to ensure that the school can deliver on schedule.</p> <ul style="list-style-type: none"> High certainty of the construction period; Incorporating the professional opinions and experience of the contractor at the design stage is beneficial for the implementation of the Project. This enhances the competitiveness of the bidding price, which includes the design aspect. The responsibility is borne by the contractor as far as possible to encourage the contractor to actively manage and facilitate the progress of the Project; Claim disputes on the cost and construction period are reduced, which is conducive to the progress of the Project; Same team for design and construction – partnership facilitating the progress of the Project. 	<p>Disadvantages: High requirements for preliminary preparation and long time are required for bid planning.</p> <ul style="list-style-type: none"> The pre-qualification and the preparation of the Employer's Requirements taking a long time; The bidder invests significant resources during the bidding period; there are few construction contractors with capability and experience to participate in the bid. Relatively high complexity of bid evaluation; It is difficult to define and quantify changes, and there is a lack of detailed description of standards and requirements in the contract. The contractor will complete the Employer's requirements at the minimum cost. Perhaps, the contractor only controls the construction cost without fully considering the lifecycle cost.
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QIANHAI REFORM PILOT PROJECT – EXPERIENCE OF EPC CONTRACT APPLICATION

The key to the success of the EPC mode:

- The Employer's requirements (including design, quality, progress, construction management and cost control) are clearly determined, and the Employer has a high degree of clarity on the quality of specific items.
- Before bidding and bid awarding, the functional orientations of all aspects of the Project, including architecture, structure, M&E, refined decoration, facade decoration, landscape, etc., are very important.
- The Employer's intent and wishes (Employer's Requirements) need to be clearly formulated before bidders are invited so that the proposals submitted by bidders have a common basis. The "Employer's Requirements" are very important, so the preparation period is very long. According to investigation, it usually takes at least four months or even half a year to prepare the Employer's Requirements for the EPC mode in Hong Kong. The more detailed the "Employer's Requirements" are, the lower the chance of disputes arising between both parties during future acceptance.
- Quality of design and engineering is not a primary consideration.
- The construction scope and design requirements are not changed much after bid awarding.
- The Employer's requirements shall be decided as early as possible.
- Experienced organizations shall be found to prepare the Employer's Requirements/Design Specifications/Engineering Specifications.
- Contractors with experience in design and construction shall be found: The Employer shall carefully select bidders, and only enterprises with design and construction strength and high reputations can be shortlisted for the bidder list. Technology and strength alone are not enough. The enterprises shall be familiar with the EPC mode, have a deep understanding of the Employer's Requirements, possess strong cooperation and communication skills, devote itself to work together with the Employer to seek common development, and realize the Employer's requirements in construction products instead of only pursuing economic benefits.

IV. Summary of Key Points and Difficulties in EPC Contract Application:

Key points and difficulties in bidding:

1. How to determine the bidding control price?

There is no bidding control price for construction projects in Hong Kong, and the base price is only for reference. The index method is usually used to estimate for design and construction integration projects. However, for EPC general contracting of pilot projects that must be subject to public bidding according to law, the bidding control price must be issued according to regulations.

The preparation idea of the bidding control price determined in the final report of the pilot project is as follows: the bidding control price shall be prepared based on the bidding scheme drawings and the Employer's Requirements (including technical specifications), with reference to the indicators of benchmarking projects, and in accordance with market conditions. The maximum bid price shall be determined by drawing inspiration from common practices in Hong Kong projects, exploring a method not completely relying on quotas, calculating according to drawings, referring to the cost data of similar projects, market inquiry, and comparing feasibility study estimates on the same basis. The benchmarking analysis is very critical. It is necessary to, based on the characteristics of the pilot project, carefully make differentiation analysis on the characteristics and technical parameters of benchmarking projects, and then determine scientific and reasonable benchmarking values as appropriate.

2. The contract unit price is mainly in the form of a unilateral index. How to determine the change unit price? How to adjust the difference?

Due to the limited response time and software format restrictions, the bidder fails to attach detailed breakdown of price components at the time of bid response as planned. At the time of final report, it is determined that an independent backup list without quantities but with unit price will be attached at the time of issuing of bidding documents. The unit price in the backup unit price list will be used to calculate the change cost of the lump sum part (only limited to changes with costs to be calculated according to the special terms and conditions of the contract) and for process cost analysis as instructed by the Employer. The downward floating rate of the unit price in the backup list is the same as that in the contract.

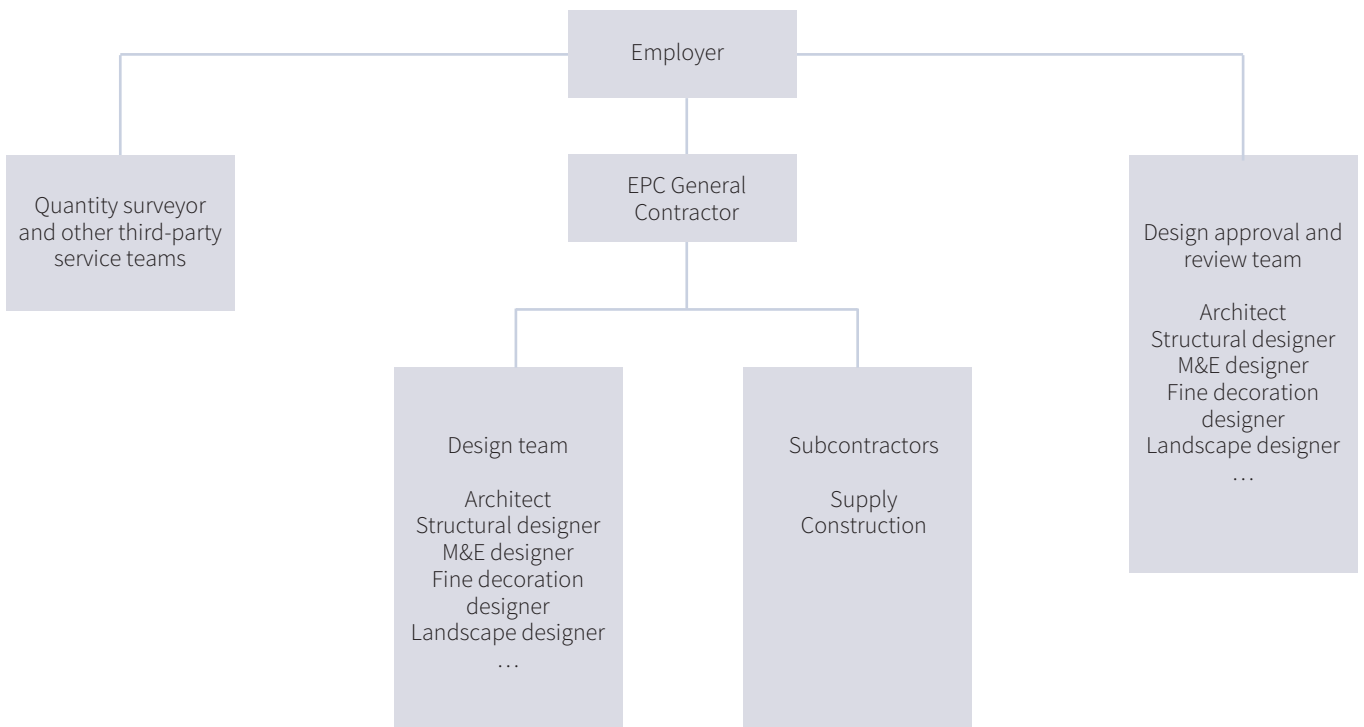
The proportion method shall be adopted for difference adjustments, only suitable for reinforcement and concrete. At the time of issuing of bidding documents, the upper limit of the proportion shall be calculated and set with reference to the design structure scheme and in accordance with the content index determined by benchmarking, and the bidder shall fill in the cost proportion of the materials with difference adjustments within the unilateral index.

QIANHAI REFORM PILOT PROJECT – EXPERIENCE OF EPC CONTRACT APPLICATION

IV. Summary of Key Points and Difficulties in EPC Contract Application: (Continued)

Key points and difficulties in contract management:

1. After the contract was signed, new requirements of the school resulted in a project that must be subject to bidding according to law, which is beyond the scope of EPC general contracting, deviates from the typical EPC contract framework (as shown in the figure below), and is not conducive to giving full play to the advantages of single EPC General Contractor responsibility system for project progress promotion and communication skills, devote itself to work together with the Employer to seek common development, and realize the Employer's requirements in construction products instead of only pursuing economic benefits.



2. The EPC General Contractor tends to complete the Project at a low cost. The Employer and the management consultant team must strictly monitor the performance of the EPC General Contractor in the process according to the Employer's Requirements, so as to reduce the quality loss caused by the EPC General Contractor only focusing on controlling the construction cost without fully considering the lifecycle cost.

It can be seen from the above that the clear determination of contracting scope and construction standards before bidding is very critical to the success in EPC contract application. In the past, EPC contracts were usually applied to some projects with clear functions but little attention paid to decorative effects, such as tunnels, roads and bridges, plants, data rooms, warehousing and logistics rooms, etc. For the pilot school project, on the basis of the details of general scheme drawings, focus will be given to determining the list of delivery interfaces, the list of main decorative materials and the brand list of the school at the bidding stage to ensure that the building quality meets the expectations of the Employer.

AVERAGE WHOLESALE PRICES OF SELECTED BUILDING MATERIALS IN SELECTED CITIES OF CHINA (RMB)

(All rates described are at 1st Quarter 2024 Prices)

Building materials		Beijing	Chengdu	Chongqing	Guangzhou	Hangzhou	Nanjing	Shanghai	Shenyang	Shenzhen	Tianjin	Wuhan	Xian	
1	Reinforcement bar HPB300 10mm	¥/t	4,913	4,252	4,213	4,514	4,444	4,311	4,567	4,343	4,488	4,220	4,148	4,310
2	Reinforcement bar HRB400E 10mm	¥/t	4,768	4,250	4,193	4,569	4,315	4,472	4,360	4,124	4,471	4,070	4,192	4,147 HRB400
3	Reinforcement bar HRB400E 25mm	¥/t	4,449	4,065	4,020	4,476	4,184	4,322	4,215	4,004	4,285	3,937	4,039	4,147 HRB400
4	Reinforced concrete Grade C30 5-25mm aggregates P8 waterproofing (exclude pumping fee)	¥/m³	442	495 include pumping fee	332 include pumping fee, non-waterproof	551	480 include pumping fee	442	645	284 non-waterproof	601	445	466	595 include pumping fee
5	Timber Formwork local commonly used materials	¥/m³	2,305	4,274	1,868	1,523	1,780	1,869	-	2,011	2,614	2,112	2,203	2,188
6	Portland cement Grade 42.5(bulk)	¥/t	437	397	435 bagged	463	378	399	447	329	439	481	336	522
7	Sand Rough/mixed	¥/t	88	140	198 extra fine sand	182	146 Gross sand	220 Coarse sand	190	66	164	94	143	172
8	Hot rolled equal -leg angle steel 45-50x3-6mm	¥/t	4,648 Q235B 50	4,286 Q235 L50x50x5	4,333 Q235B 4-8mm	4,550	4,461 Q235B	4,450 Equal-leg angle steel	4,252 Equal-leg angle steel 36-40 x 3-5mm	3,996	4,614 Angle steel	3,914	4,194 Equal-leg angle steel 45-50 x 3-5mm	4,270
9	Galvanized steel sheet 1.0mm	¥/t	5,842	6,855 0.5 - 1.2mm	5,410 Galvanized coil, 1.0x1250xC	5,314	5,615	4,963 Hot dip galvanized steel sheet Q235B	4,142 Hot rolled steel sheet Q235 δ≥2.0	5,259 Continuously hot-dip zinc- coated steel sheet 1.00-2.5 Z275 (two-sided)	5,616	4,977	4,843 Hot rolled steel sheet Q235 δ≥1.0	5,293
10	Seamless steel pipe 108x3.5-4mm	¥/t	5,562 108 x 6mm	7,138	5,033 108 x 4.5mm	5,185	6,045 108x4-8mm	5,187	5,867 108x3-4.5mm #20	5,010 68-159	5,648 Seamless steel pipe	4,841	4,896 108x4.5-5mm	5,010
11	Galvanized welded steel pipe 20mm 26.75x2.75mm	¥/t	6,053	6,137	5,490 Hot dip galvanized steel pipe Q235/Q195 DN15-20	7,022 Galvanized water, gas transportation pipe	5,642 20*2.8mm	5,620 Hot dip galvanized steel pipe DN15~DN32	4,939 Φ20 mm	5,323 DN25~DN32	5,944 Hot dip galvanized steel pipe	5,245	5,617 20x2.75mm	5,247
12	Hot-rolled steel channel Grade a steel #16-18mm	¥/t	4,683	4,217 Q235 #16mm	4,363 Q235B 16-22#	4,619	4,430 Q235B	4,327 Steel channel	4,433 Q235 16#	4,068 5~30#	4,601 Steel channel	3,852	4,296	4,160
13	Glass FG	¥/t							1,703					
14	Aluminium al	¥/t							18,993					
15	Copper cu	¥/t							69,397					
16	Dry-mixed plastering mortar DPM10	¥/t	303	421	287	481	338	399	404	376	-	343	316	392
17	Prefabricated laminated slab 150kg/m³	¥/m³	3,293 140kg/m³	2,267 This information price is according to concrete 350 yuan /m³, reinforcement 3 yuan /kg	2,570 140kg/m³	3,310 130-160kg/m³	2,553	3,028	3,434	-	-	3,773 140kg/m³	2,969	4,083
18	APP Modified Bitumen Waterproofing membrane 3mm PY	¥/m²	39 SBS II PY PE PE3	54 APP-I-PY-PE-PE4.0	27 PY-I-PE/D-3.0mm	34	29 PY-I-D-3mm	37	29 APP-I-PY-PE	36 SBS 3mm-25°C	34 SBS 3mm	37 SBS 3mm	27	-
19	JS Cementitious Waterproofing Coatings Type I two-component	¥/kg	15	18 JS-II	9 JS-II (two-component)	14	9	8	-	9	12	14	21 Noncurable rubber modified asphalt waterproofing coating	-

Notes:

- The above prices (except items 13, 14, 15) are based on either guiding price from websites or periodicals published by local construction cost management office ;
- Items 13 in the above table are based on closing price by the 10th trading day of month published by Zhengzhou Commodity Exchange (www.czce.com.cn/cn/index.htm), as a general reference price for all areas;
- Items 14 & 15 in the above table are based on closing price by end of month published by Shanghai Futures Exchange (www.shfe.com.cn), as a general reference price for all areas;
- "-" means local price is not available;
- The unit price in the above table is VAT.

AVERAGE DAILY WAGES OF WORKERS FOR CONSTRUCTION INDUSTRY IN SELECTED CITIES OF CHINA (RMB)

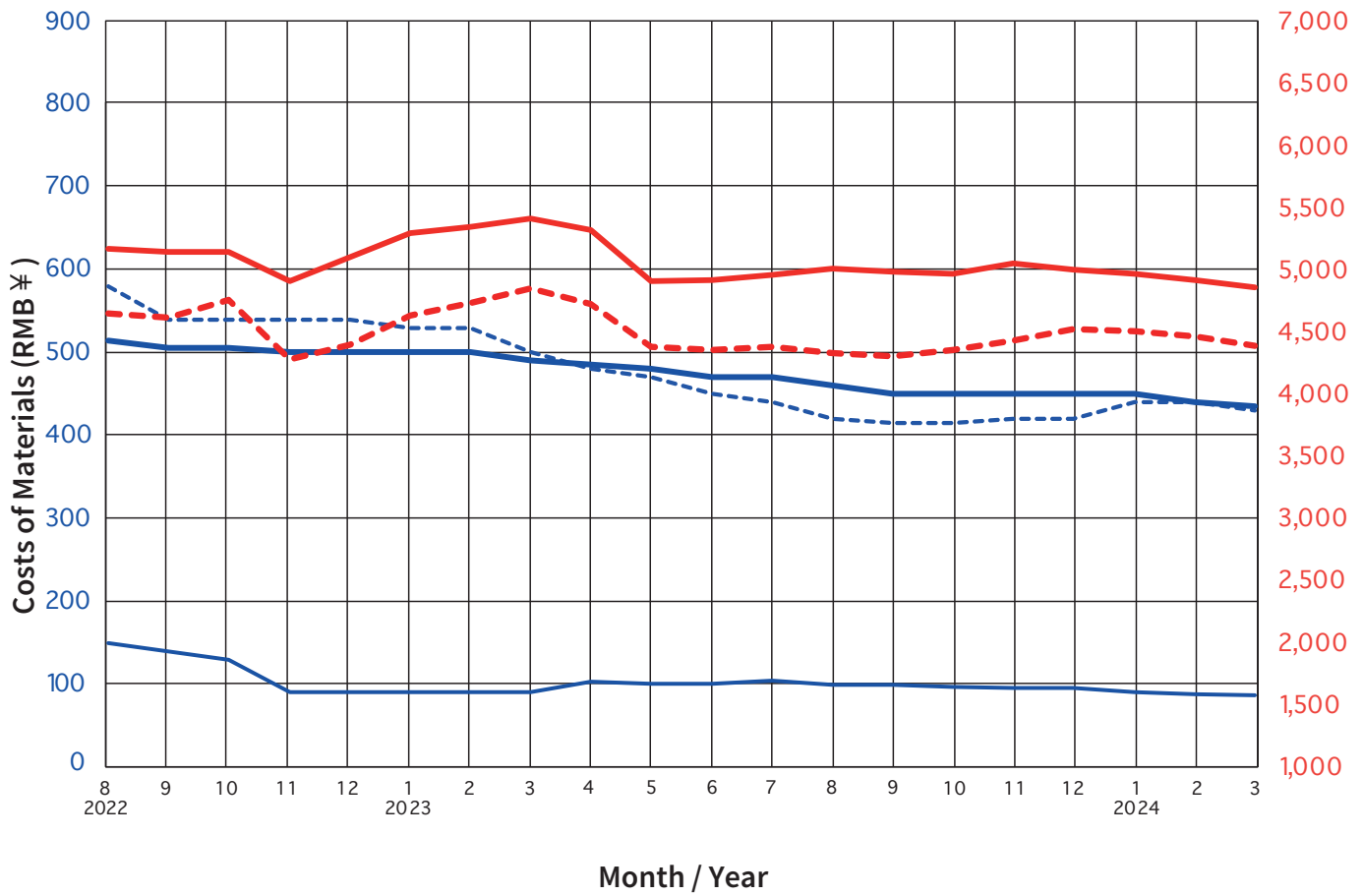
(All rates described are at 1st Quarter 2024 Prices)

Selected Trades (according to the general public standards)		Beijing	Chengdu	Chongqing	Guangzhou	Hangzhou	Nanjing	Shanghai	Shenyang	Shenzhen	Tianjin	Wuhan	Xian
1	Joiner (construction)	391	351	278	322	307	299	378	281	400 Decoration Joiner	345	271	360
2	Painter	351	257	247	307	276	275	403	265	351	308	216	350
3	Formwork erector	400	326	294	327	316	302	378	269	403	324	271	380
4	Plasterer (normal)	353	277	238	307	267	249	398	281	351	328	190	290
5	Bar Bender	378	307	277	327	307	292	388	235	376	322	258	320
6	Bricklayer (masonry)	362	281	239	312	316	268	378	276	357	325	242	280
7	E&M worker	340	252	237	307	263 Metal worker	255 Metal worker	394	260	360 Average plumber/ electrician	297	227	290
8	Concretor	323	273	244	307	260	263	378	187	347	300	226	284
9	Waterproofing worker	376	239	232	297	278	270	388	264	329	321	214	320
10	Plasterer (Surface)	436	286	264	317	282	275	422	309	403	345	232	310
11	Scaffolder	394	312	284	327	328	276	437	289	402	333	259	350
12	Welder	374	311	242	312	309	270	437	267	364	322	227	310
13	Rigger	317	252	201	302	271	260	379	279	337	276	211	280
14	Glazier	353	252	222	307	261	252	388	233	350	277	190	340
Average daily wage (1-14)		368	284	250	313	289	272	396	264	366	316	231	319

Notes:

1. Various types of daily wage are based on construction market price, which are updated in real time. The data covers commercial, residential and industrial development project; the rate is based on the weighted daily rates received from 2-4 contractors;
2. Labour costs include: basic wage, allowances, benefits, etc. i.e. all expense payable to workers;
3. Daily rate is based on 8 hours per day, excluding overtime allowance;
4. All trades are based on general labour.

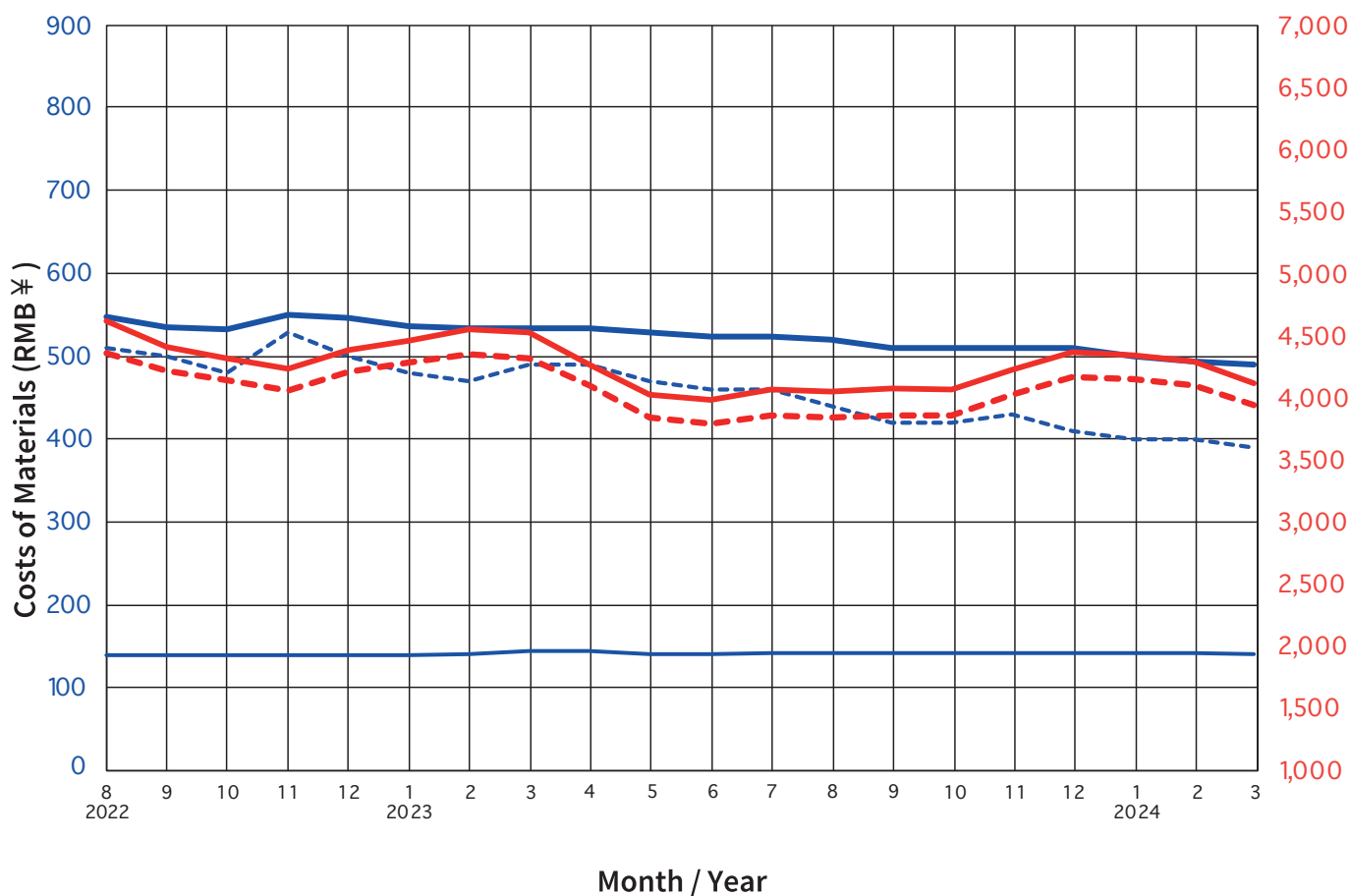
Wholesale Prices of Selected Building Materials in Beijing



Building Materials		Wholesale Prices of Selected Building Materials in Beijing																						
		2022					2023												2024					
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Reinforcement bar HPB300 10mm	¥/t	5,166	5,140	5,143	4,910	5,096	5,290	5,346	5,413	5,320	4,910	4,913	4,960	5,010	4,983	4,966	5,053	4,996	4,966	4,913	4,860			
Reinforcement bar HRB400E 25mm	¥/t	4,649	4,612	4,756	4,279	4,396	4,632	4,729	4,849	4,726	4,376	4,356	4,382	4,326	4,302	4,352	4,429	4,519	4,502	4,459	4,386			
Portland cement Grade 42.5 (bulk)	¥/t	580	540	540	540	540	530	530	500	480	470	450	440	420	415	415	420	420	440	440	430			
Reinforced concrete Grade C30 5-25mm aggregates P8 waterproofing (exclude pumping fee)	¥/m ³	515	505	505	500	500	500	500	490	485	480	470	470	460	450	450	450	450	450	440	435			
Sand (rough/mixed)	¥/t	150	140	130	90	90	90	90	90	103	101	100	104	99	99	97	96	95	90	88	87			

(Source: www.bjzj.net)

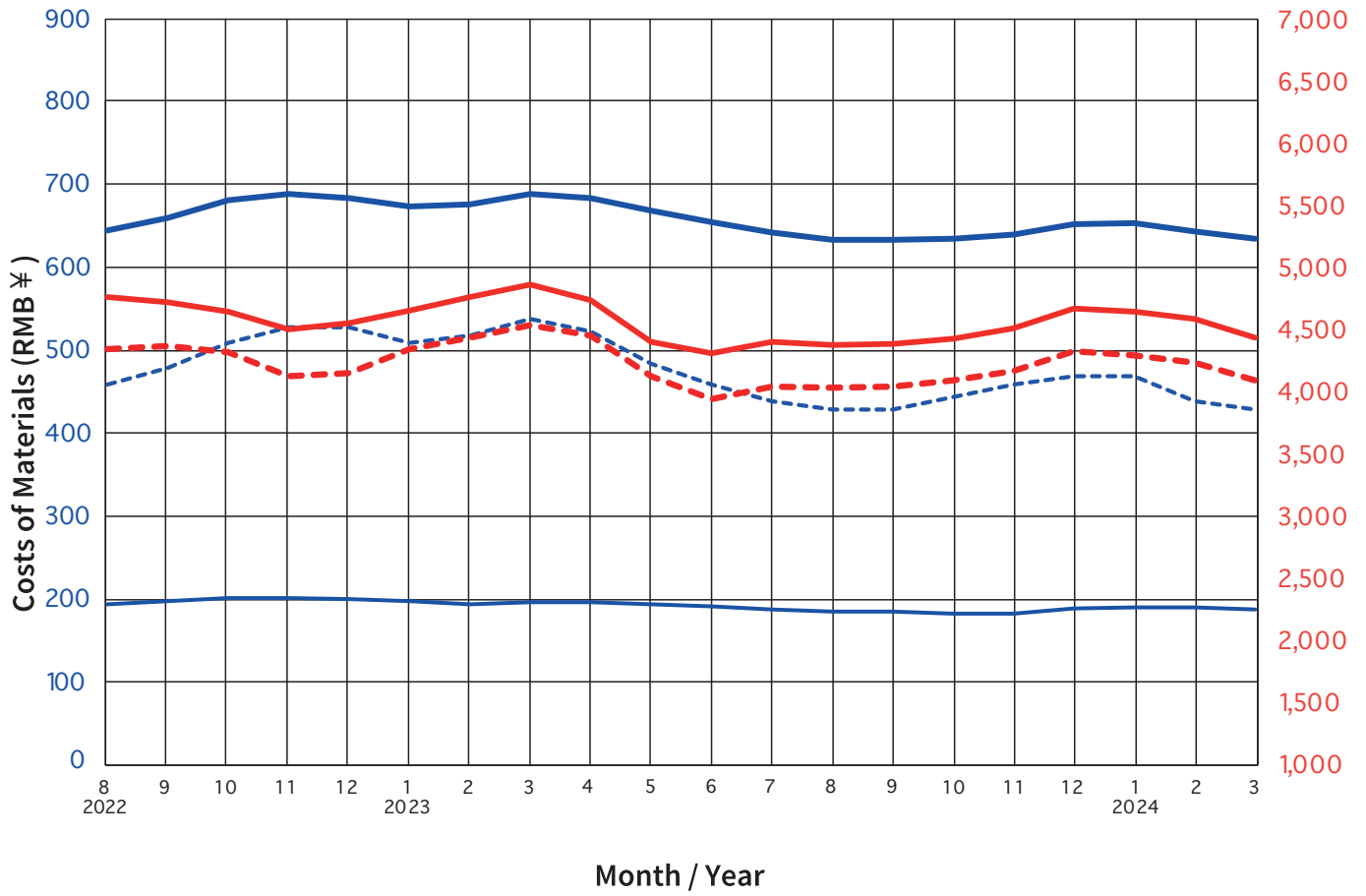
Wholesale Prices of Selected Building Materials in Chengdu



Building Materials		Wholesale Prices of Selected Building Materials in Chengdu																						
		2022					2023												2024					
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
Reinforcement bar HPB300 10mm	¥/t	4,623	4,416	4,322	4,238	4,390	4,465	4,554	4,527	4,270	4,031	3,982	4,071	4,053	4,077	4,070	4,226	4,373	4,343	4,294	4,118			
Reinforcement bar HRB400E 25mm	¥/t	4,363	4,217	4,142	4,061	4,207	4,287	4,355	4,319	4,100	3,841	3,788	3,861	3,843	3,862	3,861	4,026	4,173	4,152	4,104	3,939			
Portland cement Grade 42.5 (bulk)	¥/t	510	500	480	530	500	480	470	490	490	470	460	460	440	420	420	430	410	400	400	390			
Reinforced concrete Grade C30 5-25mm aggregates P8 waterproofing (exclude pumping fee)	¥/m ³	548	536	533	550	547	537	534	534	534	529	524	524	521	510	510	510	510	500	495	490			
Sand (rough/mixed)	¥/t	138	138	138	138	138	138	140	143	143	140	140	141	141	141	141	141	141	141	141	139			

(Source: www.sceci.net)

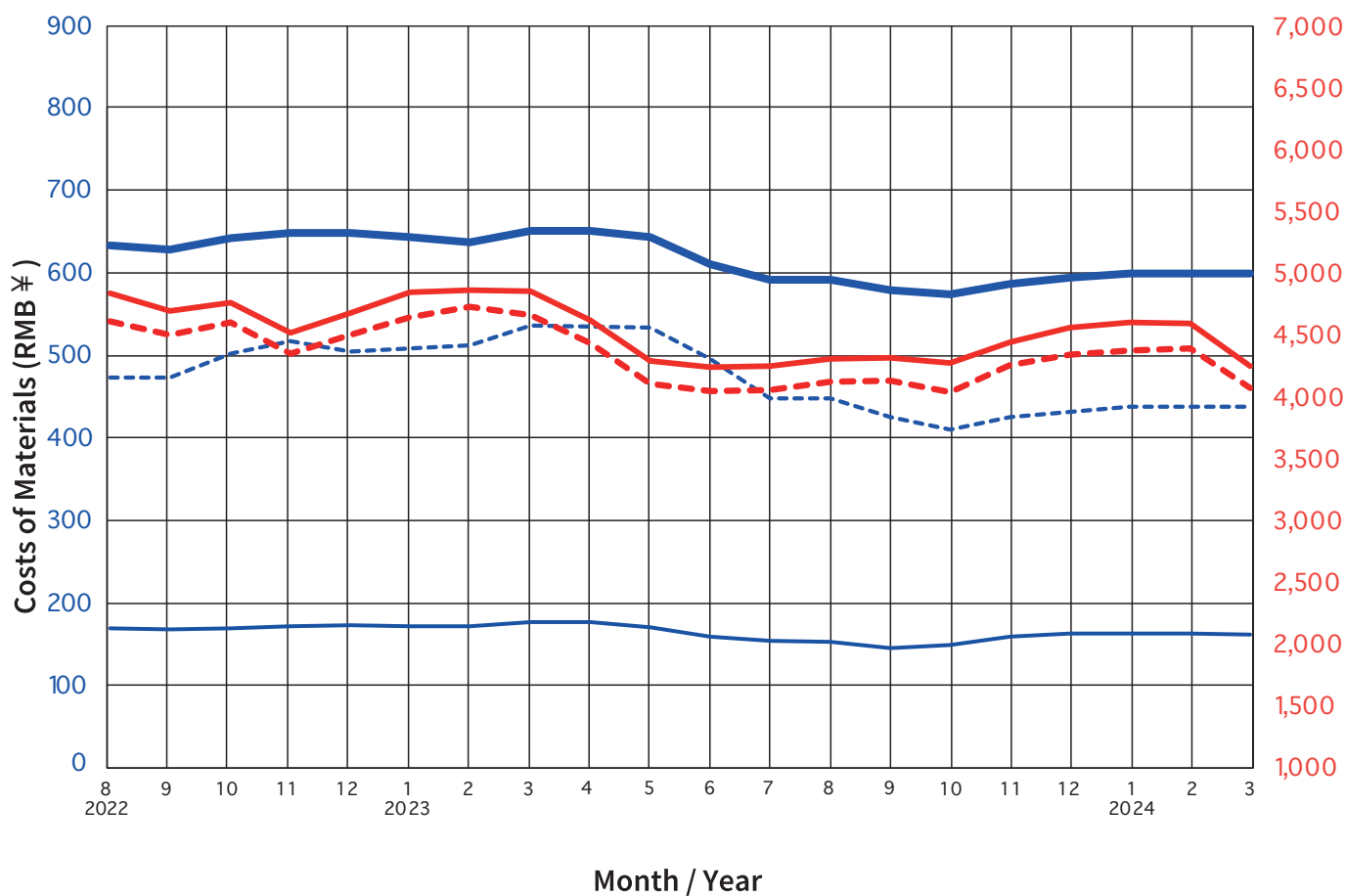
Wholesale Prices of Selected Building Materials in Shanghai



Building Materials			Wholesale Prices of Selected Building Materials in Shanghai																			
			2022					2023												2024		
			Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Reinforcement bar HPB300 10mm	¥/t	—	4,775	4,730	4,655	4,515	4,560	4,660	4,770	4,875	4,750	4,410	4,320	4,415	4,385	4,395	4,435	4,525	4,685	4,655	4,600	4,445
Reinforcement bar HRB400E 25mm	¥/t	⋯	4,350	4,375	4,330	4,135	4,165	4,350	4,450	4,545	4,460	4,140	3,955	4,055	4,045	4,055	4,100	4,180	4,335	4,300	4,245	4,100
Portland cement Grade 42.5 (bulk)	¥/t	⋯	460	480	510	530	530	510	520	540	525	485	460	440	430	430	445	460	470	470	440	430
Reinforced concrete Grade C30 5-25mm aggregates P8 waterproofing (exclude pumping fee)	¥/m ³	—	647	662	683	690	686	675	678	690	685	670	657	644	635	635	637	642	654	655	645	636
Sand (rough/mixed)	¥/t	—	195	199	203	203	201	199	195	198	198	195	192	189	186	186	184	184	190	191	191	188

(Source: <https://ciac.zjw.sh.gov.cn/>)

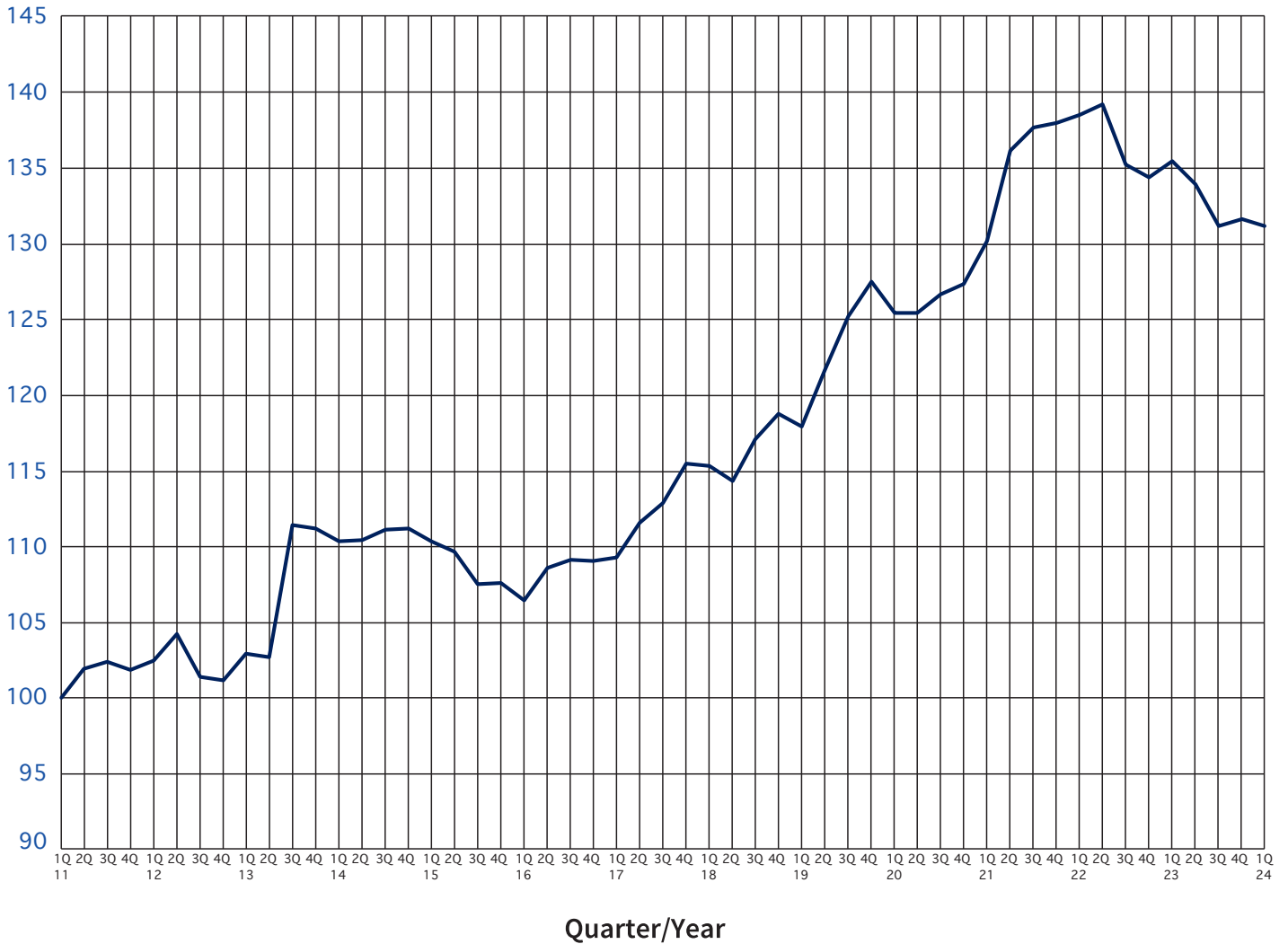
Wholesale Prices of Selected Building Materials in Shenzhen



Building Materials		Wholesale Prices of Selected Building Materials in Shenzhen																				
		2022					2023											2024				
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Reinforcement bar HPB300 10mm	¥/t	—	4,845	4,700	4,770	4,523	4,685	4,851	4,873	4,864	4,624	4,302	4,247	4,255	4,311	4,326	4,278	4,449	4,563	4,605	4,604	4,256
Reinforcement bar HRB400E 25mm	¥/t	---	4,620	4,506	4,609	4,354	4,511	4,647	4,739	4,664	4,439	4,116	4,057	4,059	4,133	4,139	4,048	4,266	4,346	4,380	4,395	4,079
Portland cement Grade 42.5 (bulk)	¥/t	475	475	504	519	506	510	513	538	536	535	497	449	449	427	411	427	433	439	439	439
Reinforced concrete Grade C30 5-25mm aggregates P8 waterproofing (exclude pumping fee)	¥/m ³	—	634	630	643	650	650	645	638	652	652	645	612	593	593	580	576	588	595	601	601	601
Sand (rough/mixed)	¥/t	—	171	170	171	174	174	173	173	178	178	172	161	155	154	147	151	161	164	164	164	163

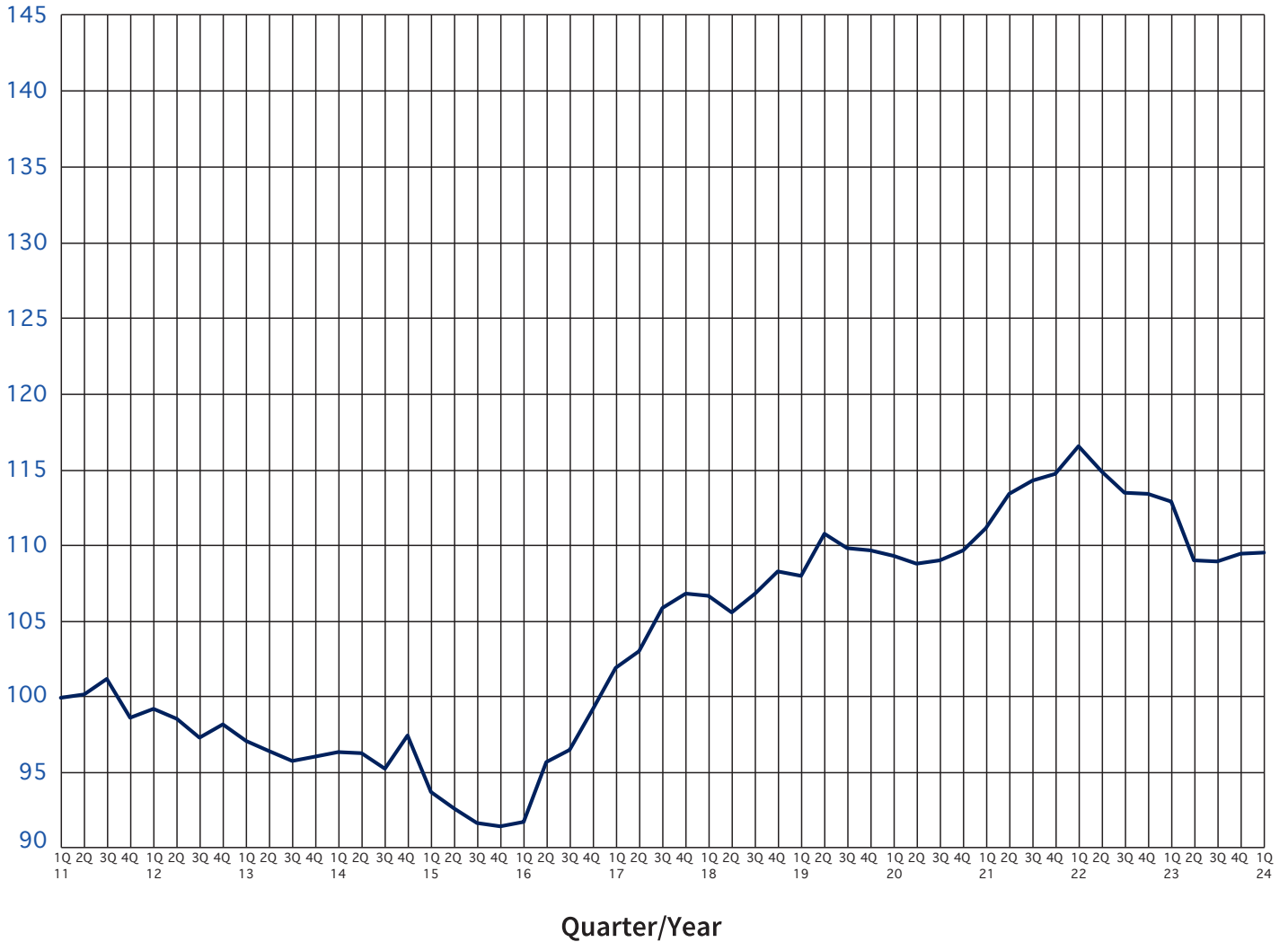
(Source: www.szcost.cn)

Construction Cost indices in Beijing

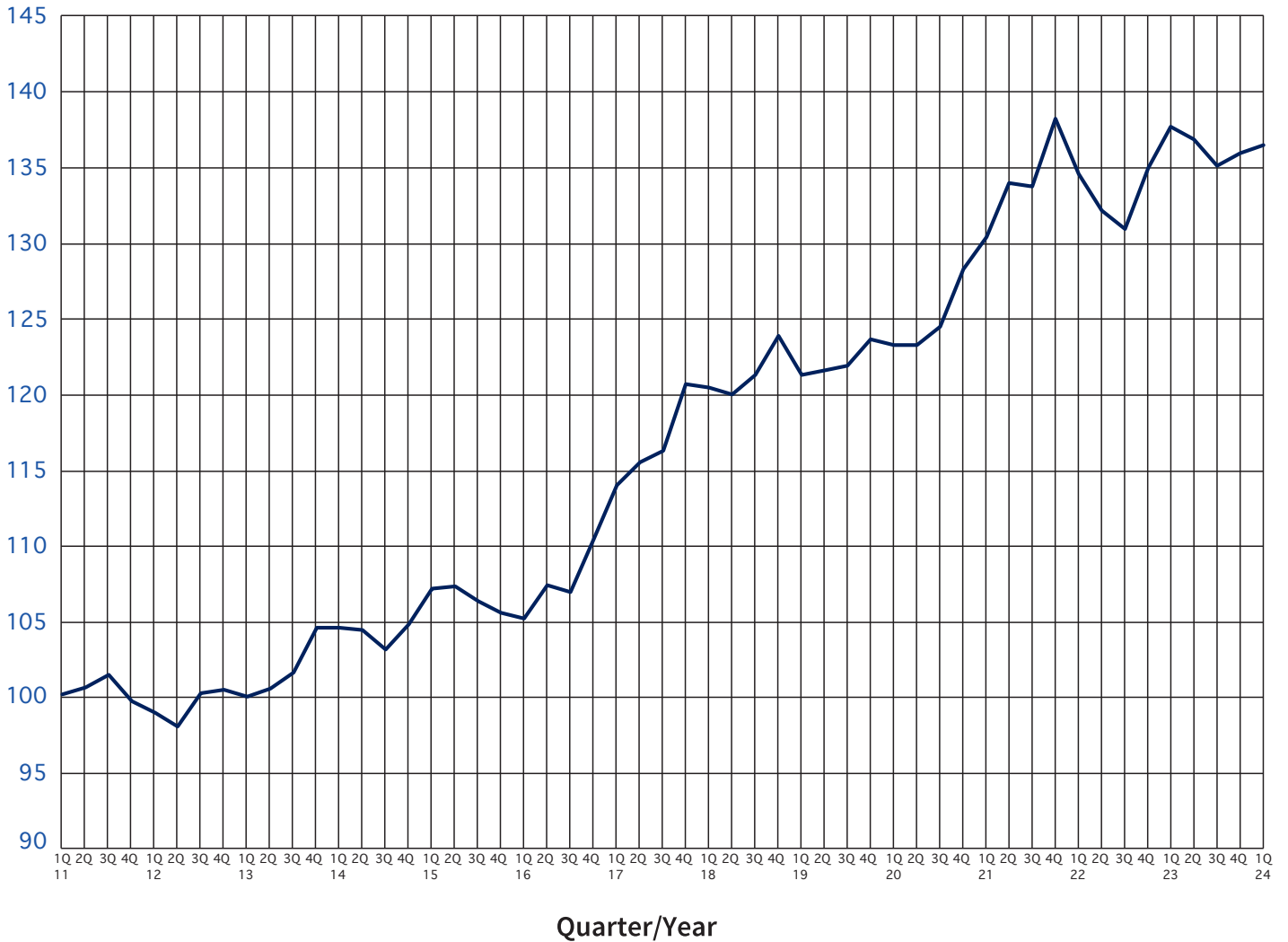


Quarter	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	100.00	102.41	102.86	110.31	110.35	106.41	109.21	115.32	117.90	125.38	130.11	138.45	135.37	131.15
2	101.88	104.19	102.64	110.43	109.61	108.56	111.55	114.29	121.61	125.42	136.13	139.18	133.88	
3	102.38	101.37	111.35	111.10	107.50	109.13	112.84	117.03	125.13	126.58	137.63	135.18	131.14	
4	101.81	101.13	111.19	111.12	107.57	109.03	115.45	118.74	127.44	127.33	137.92	134.34	131.56	

Construction Cost indices in Chengdu

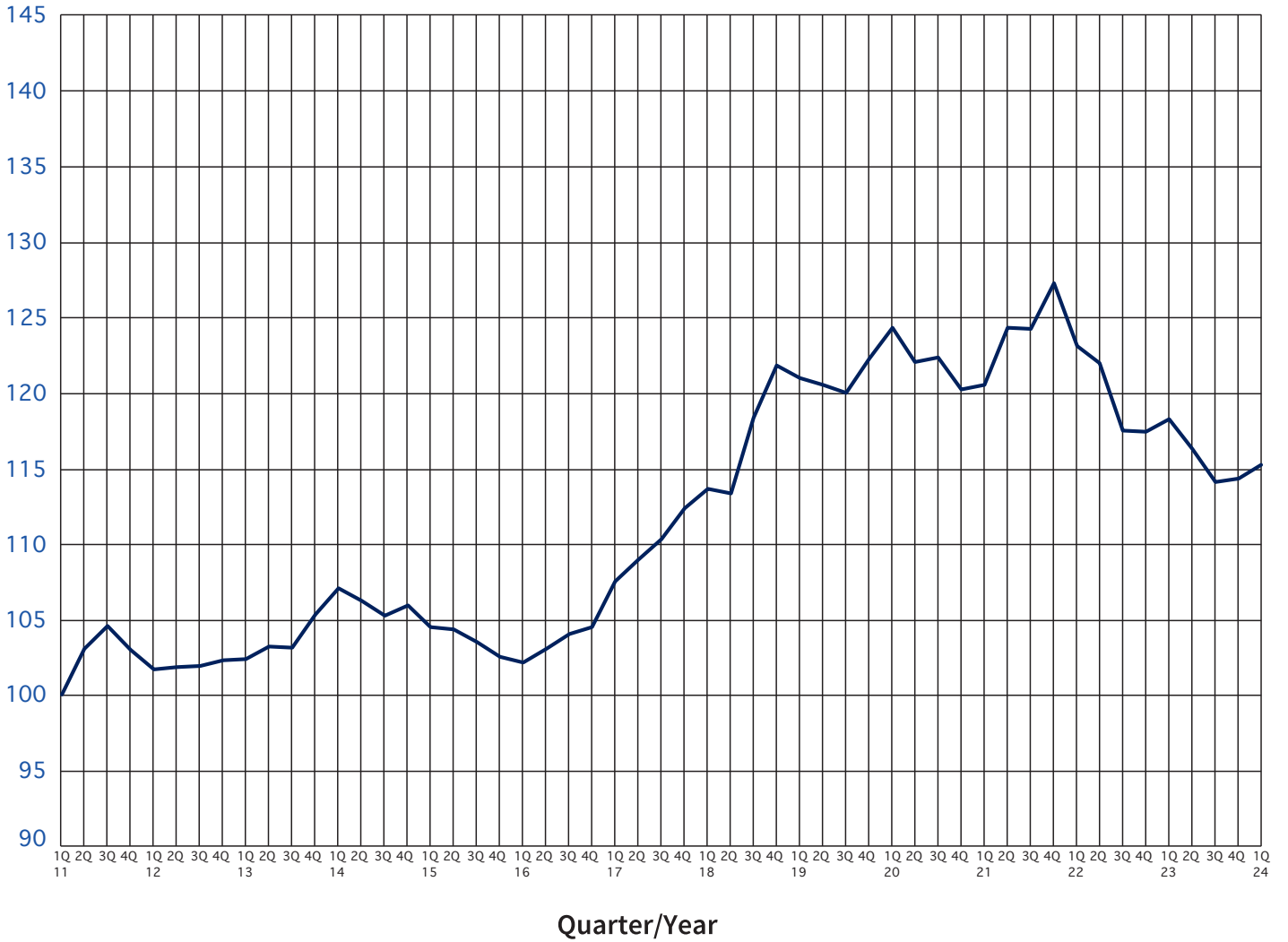


Construction Cost Indices in Shanghai



Quarter	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	100.00	98.73	99.87	104.44	107.03	105.02	113.90	120.43	121.23	123.28	130.41	134.66	137.77	136.52
2	100.45	97.84	100.40	104.24	107.20	107.24	115.43	119.96	121.55	123.22	134.02	132.21	136.94	
3	101.30	100.10	101.46	103.01	106.16	106.82	116.24	121.23	121.84	124.50	133.81	130.97	135.17	
4	99.52	100.31	104.44	104.64	105.42	110.29	120.63	123.87	123.59	128.32	138.30	135.04	136.04	

Construction Cost Indices in Shenzhen



OFFICES IN HONG KONG, MACAU, MAINLAND CHINA AND KOREA

HONG KONG

15th Floor
The Buy Hub
17 Kai Cheung Road, Kowloon
Bay, Kowloon Hong Kong
Telephone: 852 2823 1823
Facsimile: 852 2861 1283
E-mail: hongkong@hk.rlb.com

MACAU

Alameda Dr. Carlos D'
Assumpção
No. 398 Edifício CNAC 9^a
Andar I-K
Macau SAR
Telephone: 853 2875 3088
Facsimile: 853 2875 3308
E-mail: macau@mo.rlb.com

BEIJING

Room 1803-1809, 18th Floor
East Ocean Centre
24A Jian Guo Men Wai Avenue
Chaoyang District
Beijing 100004
China
Telephone: 86 10 6515 5818
E-mail: beijing@cn.rlb.com

CHENGDU

Room 2901-2904, 29th Floor
Square One
18 Dongyu Street
Jinjiang District
Chengdu 610016
Sichuan Province
China
Telephone: 86 28 8670 3382
E-mail: chengdu@cn.rlb.com

CHONGQING

Room 1-3 & 17-18, 39/F,
IFS Tower T1,
No. 1 Qinyun Road,
Jiangbei District,
Chongqing 400024,
China
Telephone: 86 23 6380 6628
E-mail: chongqing@cn.rlb.com

GUANGZHOU

Room 1302-1308
Central Tower
5 Xiancun Road
Guangzhou 510623
Guangdong Province
China
Telephone: 86 20 8732 1801
E-mail: guangzhou@cn.rlb.com

GUIYANG

Room E, 12th Floor
Fuzhong International Plaza
126 Xin Hua Road
Guiyang 550002
Guizhou Province
China
Telephone: 86 851 8553 3818
E-mail: guiyang@cn.rlb.com

HAIKOU

Room 1705, 17th Floor
Fortune Centre
38 Da Tong Road
Haikou 570102
Hainan Province
China
Telephone: 86 898 6672 6638
E-mail: haikou@cn.rlb.com

HANGZHOU

Room 1603, 16th Floor North
Tower, Modern City Centre, No.
161 Shao Xing Road, Xia Cheng
District
Hangzhou 310004
Zhejiang Province
China
Telephone: 86 571 8539 3028
E-mail: hangzhou@cn.rlb.com

NANJING

Room 1201, 12th Floor South Tower
Jinmao Plaza
201 Zhong Yang Road
Nanjing 210009
Jiangsu Province
China
Telephone: 86 25 8678 0300
E-mail: nanjing@cn.rlb.com

NANNING

Room 2203, 22nd Floor
Block B, Resources
Building, No. 136 Minzu Road
Nanning 530000
Guangxi Province
China
Telephone: 86 771 589 6101
E-mail: nanning@cn.rlb.com

SHANGHAI

22nd Floor
Greentech Tower
436 Hengfeng Road
Jingan District,
Shanghai 200070
China
Telephone: 86 21 6330 1999
E-mail: shanghai@cn.rlb.com

SHENYANG

25th Floor
Tower A, President Building
No. 69 Heping North Avenue
Heping District
Shenyang 110003
Liaoning Province
China
Telephone: 86 24 2396 5516
E-mail: shenyang@cn.rlb.com

SHENZHEN

Room 4510-4513,
Shun Hing Square Diwang
Comm. Centre
5002 Shennan Road East
Shenzhen 518001
Guangdong Province
China
Telephone: 86 755 8246 0959
E-mail: shenzhen@cn.rlb.com

WUHAN

Room 3302, 33rd Floor,
Heartland 66 Office Tower
688 Jinghan Avenue
Qiaokou District
Wuhan 430030
Hubei Province
China
Telephone: 86 27 6885 0986
E-mail: wuhan@cn.rlb.com

WUXI

Room 1410-1412, 14th Floor Juna
Plaza,
6 Yonghe Road
Nangchang District
Wuxi 214000
Jiangsu Province
China
Telephone: 86 510 8274 0266
E-mail: wuxi@cn.rlb.com

XIAN

Room 1506, 15th Floor, Tower F
Chang'an Metropolis Center
88 Nanguan Zheng Street,
Beilin District,
Xian 710068,
Shaanxi Province
China
Telephone: 86 29 8833 7433
E-mail: xian@cn.rlb.com

ZHUHAI

Room 803-804, 8th Floor
Taifook International Finance
Building
No. 1199 Jiu Zhuo Road East,
Jida
Zhuhai 519015,
Guangdong Province
China
Telephone: 86 756 333 0997
E-mail: zhuhai@cn.rlb.com

SEOUL

(Yeoksam-Dong, Daon Building)
8th Floor, 8 Teheran-ro 27-gil
Gangnam-Gu
Seoul 06141
Korea
Telephone: 82 2 582 2834
Facsimile: 82 2 563 5752
E-mail: seoul@kr.rlb.com

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