

PRICE QUALITY METHOD (PQM)

Effective for tenders called on and after 1 June 2022

AMENDMENT LIST

Section	Details of Amendment	Date of Amendment
Section 3.1	Removed the Productivity (PD) component and updated the weightages in the table.	1 June 2022
Section 3 & 4	<p>Updated the changes to the Productivity (PD) & Quality (Q) Component in these sections.</p> <p>a) Retain the 8% allocated to the Constructability Score (C-score) Index and move the C-score Index to the Q component;</p> <p>b) Remove the Technology Adoption (TA(C)) Index and the Workforce Development (WD(C)) Index;</p> <p>c) Reallocate the affected weightage of 2% (from TA(C) & WD(C) Index) to the Q component to allow GPEs higher weightage in assessing other project related attributes under the Quality proposals</p> <p>Updated the weightages of the Quality attributes.</p>	
Annex A	Updated the examples on the scoring of the PQM score.	
Annex C	Updated the existing FAQs.	

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1.0 INTRODUCTION TO PQM

- 1.1 The Price-Quality Method (PQM) framework applies to all public sector construction tenders under the BCA Construction Workheads (CW01 & CW02) with an Estimated Procurement Value (EPV) of \$3million and above.
- 1.2 The aim of PQM is to provide a structured framework for non-price criteria to be assessed alongside price. In effect, PQM translates the qualitative attributes into quantitative scores which, when combined with the Price scores, will enable the most suitable firm that provides the best offer to be selected for award.

2.0 KEY PRINCIPLES OF PQM

- 2.1 Value for Money. Both Price and Quality attributes will be given weightages ⁽¹⁾ and scored based on the guideline provided. The bid with the highest combined Price-Quality score (i.e. PQM score) will be awarded the project.
- 2.2 Open and Transparent.
- The PQM procedures will be open and transparent. The weightages among Price and Quality components, the Quality attributes, the number of points assigned to each attribute and the method of scoring will be made known upfront in the tender.
 - All tenderers can request in writing for their individual tender performance after the tender award.

3.0 MAIN FEATURES OF PQM

- 3.1 Weightages for PQM. The following range of weightages can be considered, depending on project requirements such as the complexity of the project, and the extent of design input required from the tenderers.

Component	Weightages for Building tenders ⁽²⁾	Weightages for Civil Engineering tenders ⁽³⁾
Price	40% - 60%	50% - 70%
Quality	60% - 40%, correspondingly	50% - 30%, correspondingly

¹ Please refer to section 3.1 for weightage configurations for PQM.

² These refer to building projects classified under Contractors Registration System (CRS) Workhead CW01.

³ These refer to civil engineering projects classified under CRS Workhead CW02.


3.2 Tender Submissions. The Government Procuring Entities (GPEs) can adopt the one-envelope or the two-envelope system. A one-envelope system can be adopted for projects whereby the scoring of the specified quality attributes is based on quantified templates with no subjective judgment. An example of an objective scoring for quality attributes would be safety performance based on MOM's List of Contractors with Demerit Points. Otherwise, a two-envelope system will be adopted.

3.2.1 One-envelope System. Tenderers submit the Price and Quality together in one envelope. The Price and Quality scores will be computed at the same time.

3.2.2 Two-envelope System. Tenderers submit the Quality envelope separately from the Price envelope. GPEs would open and compute the Quality score first, before opening the Price envelope and computing the combined scores. The tenderer with the best combined score will be awarded the contract.

4.0 SCORING METHODOLOGY

4.1 Price Component

4.1.1  "Price" Score Computation. The lowest tender price will be given the maximum Price-score (P-score). GPEs reserve the right not to consider any tender bid that is abnormally low. The Price scores of the other tenderers will be inversely proportional to the lowest tender price. The formula below will be used to compute the P-score.

$$\text{Price Score (P-score)} = \frac{\text{Lowest tender price}}{\text{Tenderer's price}} \times \text{Price weightage}$$

4.1.2 If price loading is applicable under Bonus Scheme of Construction Quality (BSCQ), the new price (loaded according to the Total Price Loading Factor) will be used for computing the P-score.

4.1.3 When computing the P-score, the tenderer's price should not include provisional sums and value of nominated subcontracts.

4.1.4 Any alternative bid, by any of the firm, will be treated as a separate bid and be assessed accordingly, provided alternatives are allowed. Alternative bids are offers which functionally meet the specified technical specifications and/or terms and conditions differing from those set out in the Invitation to Tender.

4.2 Quality Component

4.2.1 The Quality score will be derived from the summation of past performance, safety performance, Constructability Score (CS) Index &/or project specific productivity attributes and GPEs' own quality attributes:

Quality score (Q-score) =	Past Performance	+	Safety Performance	+	CS Index/ Productivity Attributes	+	GPES' Own Quality Attributes
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4.2.2 Attributes under the Quality component will include:

- a) Mandatory attribute: Past Performance. This could include performance in past or ongoing projects in areas such as timeliness and quality (based on C41 reports and/or GPEs' in-house performance assessment system). To recognise contractors which have provided quality work in past projects, the past performance ⁽⁴⁾ is a mandatory attribute. Please refer to Clause 4.2.3 for the minimum weightage.
- b) Mandatory attribute: Safety Performance. This could include safety performance based on the Ministry of Manpower (MOM) Safety Demerit Point System, GPEs' in-house safety performance score or records. To give due emphasis to site safety, the safety performance is a mandatory attribute. Please refer to Clause 4.2.3 for the minimum weightage.
- c) Mandatory attribute: Constructability Score (CS) Index ⁽⁵⁾ and/or Project Specific Productivity Attributes specified by GPEs.
The score for CS Index will be pegged to the tenderer that has the highest CS Index among all tenderers.

$$\text{CS Index Score} = \frac{\text{Tenderer' s CS Index}}{\text{Highest Tenderer' s CS Index}} \times \text{Weightage}$$

- a) The tenderer with the highest CS Index will obtain full points
- b) Tenderers with no CS Index will be given the average points across all conforming tenderers
- c) For cases where less than two (i.e. only one or none) of the tenderers have CS Index, all tenderers will have 0 point for CS Index attribute.

⁴ Contractors can view their individual performance score under the electronic Builders and Contractors Registration System (eBACS).

⁵ The CS Index of each Contractor is derived by BCA based on their C-Scores (Constructability Score) of the latest 5 completed projects in the last 3 years.

For projects where the minimum Constructability Score requirement is applicable, up to 4% could be assigned to project-specific productivity attributes. The total of CS Index and other productivity attributes specified by GPEs should make up a total of 8%.

For projects that are not subject to the minimum Constructability Score requirements, the CS Index attribute will not be applicable. For such cases, GPEs have the flexibility to assign the 8% to any other quality attributes to make the total Price-Quality weightage 100%.

- d) GPEs' own Quality attributes, for example:
 - i. Relevant track records of tenderer or specific competencies that enhances the tenderer's suitability for the project;
 - ii. Project Specific Proposals including work methods and resources assigned to the project; and
 - iii. Awards or other attributes, if any.

4.2.3 The range of the weightages of the quality attributes are shown in Table 4.2.3a and 4.2.3b.

Table 4.2.3a: Range of weightages (for projects where minimum Constructability Score requirements are applicable under the Building Control (Buildability and Productivity) Regulations)

% of Overall PQM Score				
	Building			
	Civil Engineering (CE)			
Price weightage	70% (No change)	60% (No change)	50% (No change)	40% (No change)
Quality Weightage	30%	40%	50%	60%
Safety Performance	Min. 3.0% ⁽¹⁾ (No Change)	Min. 4.5% ⁽²⁾ (No Change)	Min. 6.0% ⁽³⁾ (No Change)	Min. 7.5% ⁽⁴⁾ (No Change)
Past Performance	Min. 3.0% ⁽¹⁾ (No Change)	Min. 4.5% ⁽²⁾ (No Change)	Min. 6.0% ⁽³⁾ (No Change)	Min. 7.5% ⁽⁴⁾ (No Change)
CS Index &/or project specific productivity attribute	8% (reduced from current 10%) <ul style="list-style-type: none"> • 4% to 8% for CS Index • 0% to 4% to project specific productivity attribute correspondingly 	8% (reduced from current 10%) <ul style="list-style-type: none"> • 4% to 8% for CS Index • 0% to 4% to project specific productivity attribute correspondingly 	8% (reduced from current 10%) <ul style="list-style-type: none"> • 4% to 8% for CS Index • 0% to 4% to project specific productivity attribute correspondingly 	8% (reduced from current 10%) <ul style="list-style-type: none"> • 4% to 8% for CS Index • 0% to 4% to project specific productivity attribute correspondingly
GPEs' own quality attribute	Max 16% (Increased from current 14%)	Max 23% (Increased from current 21%)	Max 30% (Increased from current 28%)	Max 37% (Increased from current 35%)

Table 4.2.3b: Range of weightages (for projects where minimum Constructability Score requirements are not applicable under the Building Control (Buildability and Productivity) Regulations)

% of Overall PQM Score				
		Building		
		Civil Engineering (CE)		
Price weightage	70% (No change)	60% (No change)	50% (No change)	40% (No change)
Quality Weightage	30%	40%	50%	60%
Safety Performance	Min. 3.0% ⁽¹⁾ (No Change)	Min. 4.5% ⁽²⁾ (No Change)	Min. 6.0% ⁽³⁾ (No Change)	Min. 7.5% ⁽⁴⁾ (No Change)
Past Performance	Min. 3.0% ⁽¹⁾ (No Change)	Min. 4.5% ⁽²⁾ (No Change)	Min. 6.0% ⁽³⁾ (No Change)	Min. 7.5% ⁽⁴⁾ (No Change)
GPEs' own quality attribute	Max 24% (GPEs have the flexibility to assign any % to project specific productivity attribute)	Max 31% (GPEs have the flexibility to assign any % to project specific productivity attribute)	Max 38% (GPEs have the flexibility to assign any % to project specific productivity attribute)	Max 45% (GPEs have the flexibility to assign any % to project specific productivity attribute)

Notes:

S/N	Original ratio of Price: Productivity: Quality	Both safety and past performance will remain at minimum 15% of the original quality percentage
1	70%: 10%: 20%	15% of 20% = 3.0%
2	60%: 10%: 30%	15% of 30% = 4.5%
3	50%: 10%: 40%	15% of 40% = 6.0%
4	40%: 10%: 50%	15% of 50% = 7.5%

4.2.4 GPEs will decide which attributes are relevant for a particular project and assign the maximum points for each quality attribute.

4.2.5 GPEs will set out the scoring method for the specific Quality attribute selected. The scoring method can adopt any of the following approaches.

a. Benchmark performance method

A benchmark performance level may be determined for a particular attribute. The benchmark performance level for this attribute can be set at 50% to 100% of the Quality points depending on how the agency wishes to treat tenderers that do better or worse than the benchmark level:

- i) For example, the benchmark performance can be set at 70% of the Quality points, and tenderers which fare worse or better can score lower or higher according to their relative performance. Alternatively, firms which fare worse can be given no points.
- ii) The benchmark performance can be set at 100% of the quality points and tenderers which do worse can score less or no points.

Illustration

For assessing quality performance based on CONQUAS scores, the benchmark performance level is set at 3 projects achieving CONQUAS score 80 points or above within the past 3 years.

If method ii) above is chosen, and the maximum points for this attribute is 10 points, tenderers having 3 or more projects achieving CONQUAS score 80 points or above within the past 3 years will all get 10 points, while those which do not meet the requirement may get less points or no points.

b. Ranking method


For some attributes such as the project specific proposal, it may be difficult to set a benchmark performance level. For such attributes, GPEs can rank the tenderers according to the relative merits of their proposals and allocate Quality points based on the ranking.

c. Banding method

Banding method is similar to benchmark performance method but the scoring is based on bands rather than with reference to a fixed benchmark. When using this method, GPEs will have to decide the range and allocated score for each band depending on how the agency wishes to treat tenderers that fall into each band.

d. Raw score method

For quality attributes such as the project specific proposal in which there will be subjective assessment involved and the scoring is based on a list of sub-attributes which describes how points will be assigned to each area of the proposal, GPEs could give any score from 0 to the maximum score assigned for the sub-attribute to the tenderer based on the extent to which the tenderer has met the specific evaluation criterion. If any specific evaluation criterion involves subjective assessment, e.g. project specific proposals, a two-envelope system will be adopted.

- 4.2.6  Quality Score Computation. The tenderer with the highest total raw quality points will be given maximum Quality score. The Quality score of the other tenderers will be calculated proportionally to the highest total Quality points. The formula below will be used to compute the Quality-score (Q-score).

$$\text{Quality score (Q- score)} = \frac{\text{Tenderer's total Quality Points}}{\text{Highest total Quality Points}} \times \text{Quality Weightage}$$

4.2.7 Optional Requirements. GPEs may choose to adopt **any** of the following optional requirements:

- a. Set a specific Quality attribute as a minimum qualifying criterion, which must be stipulated upfront in the tender documents so that potential tenderers which do not meet this criterion need not tender. This is to minimise the wastages in the firms' tendering efforts. If any GPE intends to specify track record as a minimum qualifying criterion, it should not be overly onerous such that it limits the number of eligible tenderers unnecessarily; or
- b. Set a minimum total Quality points for tenderers to meet. Tenders which do not meet the minimum total Quality points will be 'disqualified' and their Price scores will not be computed. If the two-envelope system is used, the Price envelopes from the non-conforming tenders should not be opened.

5.0 INFORMATION REQUIRED IN TENDER DOCUMENTS

5.1 The following items must be clearly made known at tender stage:

- a) Price-Quality weightage
- b) Quality attributes applicable and their assigned maximum points
- c) Scoring method for each attribute e.g. benchmark performance method or ranking method, etc. Benchmarks used in the benchmark performance method must be made known, together with how tenderers which perform better or worse than the benchmark will be scored.
- d) (if applicable) Any minimum qualifying criterion for a specific quality attribute, which, if not met, would disqualify the tenderer.
- e) (if applicable) Any minimum total quality points below which tenderers will not be further considered.

PRICE QUALITY METHOD

Annex

Enclosed Annexes

- Annex A – Illustration of Scoring Methodology
- Annex B – Frequently Asked Questions (FAQs)

Annex A – Illustration of Scoring Methodology

Case Example 1 – Scoring of Tender (CS Index is applicable)

PQM Configuration: Price: Quality = 60% : 40%

CS Index: 8%

Minimum Quality Score (other attributes): 55 points

		Tenderer A	Tenderer B	Tenderer C	Tenderer D	Tenderer E
Quality	Q (CS Index) (Index)	106.0	114.1	103.3	No Index ⁽¹⁾	126.8
	(8pts)	6.69	7.20	6.52	7.10	8.00
	Q (other attributes) (upon 100)	84.1	94.2	48.8 ⁽²⁾	64.9	83.8
	(32pts)	28.57	32.00	-	22.05	28.46
Total Q-score (40pts)		35.26	39.20	-	29.15	36.46
Price	Tender Sum (M\$)	12.5	13.0	11.7 ⁽³⁾	12.0	13.5
	P-score (60pts)	57.60	55.38	-	60.00	53.33
Total PQM score (Q-score + P-score) (100pts)		92.86	94.58	-	89.15	89.79
Overall position		2	1	-	4	3

Notes:

- 1) Tenderer D does not have a CS Index and will be given the average points across all conforming tenderers.
- 2) Tenderer C does not meet minimum total quality score and thus its tender will not be evaluated further.
- 3) The \$11.7m bid by Tenderer C has been disqualified and the next lowest bid by Tenderer D will be considered as the lowest bid.

 **Case Example 2 – Scoring of Tender (CS Index is not applicable)**

PQM Configuration: Price: Quality = 60% : 40%

Quality Score (other attributes): CS Index is not applicable and the 8% is assigned to GPEs' own quality attribute

		Tenderer A	Tenderer B	Tenderer C	Tenderer D	Tenderer E
Quality	Q (other attributes) (upon 100)	82.0	96.2	73.6	59.8	78.6
	Total Q-score (40pts)	34.10	40.00	30.60	24.86	32.68
Price	Tender Sum (M\$)	12.5	13.0	11.7	12.0	13.5
	P-score (60pts)	56.16	54.00	60.00	58.50	52.00
Total PQM score (Q-score + P-score) (100pts) (95pts)		90.26	94.00	90.60	83.36	84.68
Overall position		3	1	2	5	4

Annex B – Frequently Asked Questions (FAQs)

Q1. What is the Constructability Score (CS) Index?

- A1. The CS Index of each contractor is derived based on their Constructability Score (C-Score) of the latest 5 completed projects in the last 3 years ⁽⁶⁾. A contractor with a high CS Index will mean that the contractor has performed well in terms of adopting labour-saving construction methods and technologies in their projects. It is computed based on the following methodology:

$$\text{CS Index} = \frac{I_1 + I_2 + \dots + I_N}{N} \times 100$$

where

$$I_x = \left(\frac{\text{Contractor's Constructability Score achieved in Project x}}{\text{Legislated Minimum CS Score in Project x}} \right)$$

N = number of projects completed in the last 3 years (capped at 5 latest)

Q2. Is the CS Index attribute applicable to all projects?

- A2. The CS Index attribute is only applicable to building developments that are subject to minimum Constructability Score requirements. For projects where the CS Index attribute is not applicable, GPE can use the available weightage (i.e. 8%) to evaluate other quality attributes, including project specific productivity related attributes.

For project specific productivity related attributes, GPEs have the flexibility to select the productivity attributes based on individual projects' requirement. GPEs can also choose assign the 8% originally set aside for CS index to other quality attributes if GPEs assess that specifying project specific productivity attributes is not necessary for the project concerned.

Please refer to the latest Code of Practice on Buildability published on the BCA website for the updated requirement of minimum Constructability Score.

Q3. Can tenderers know how they fare in their tender?

- A3. To provide greater transparency on tenderers' performance so that tenderers can improve the quality of their future bids, tenderers which wish to seek feedback on their tender performance after tender award can write to the agency that calls the tender for clarifications. We seek contractors' understanding that such feedback from agencies should be taken positively for improving future tender performance.

⁶ If a contractor has less than 5 completed projects in the last 3 years, the CS Index will be based on the available number of projects completed in the last 3 years.



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PRICE QUALITY METHOD FRAMEWORK (PQM)
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