

**Risk and Weight Factors used in contingency assessment.**  
**The contingency  $C=\sum R_i W_i$  is added as a fraction of the base cost.**

<b>Risk Factor</b>	<b>Technical</b>	<b>Design</b>	<b>Cost</b>	<b>Schedule</b>
<b>0</b>	Not used.	Detailed design more than 50% complete	Not used.	Not used.
<b>1</b>	Existing design, off-the-shelf hardware.	Not used.	Off-the-shelf or catalog item.	Not used.
<b>2</b>	Minor modifications to an existing design.	Not used.	Vendor quote from established drawings	No schedule impact on any other item.
<b>3</b>	Extensive modifications to an existing design.	Not used.	Vendor quote with some design sketches.	Not used.
<b>4</b>	New design; nothing exotic.	Preliminary design more than 50% complete; some analysis done.	In-house estimate based on previous experience.	Delays completion of non-critical path subsystem item.
<b>6</b>	New design; different from established designs, existing technology.	Not used.	In-house estimate for item with minimal experience but related to existing capabilities.	Not used.
<b>8</b>	New design; requires some R&D, but does not advance the state-of-the-art.	Conceptual design phase; some drawings; many sketches.	In-house estimate for item with minimal experience and minimal in-house capability.	Delays completion of critical subsystem item.
<b>10</b>	New design; development of new technology; advances state-of-the-art.	Not used.	Top-down estimate from analogous programs.	Not used.
<b>15</b>	New design; well beyond current state-of-the-art.	Concept only.	Engineering judgment.	Not used.

<b>Weight Factor</b>	2%	2%	1%	1%
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## Contingency Assessment Example

Example: Let's take a cost item labeled, "Project Management Control System Development." This system is to be the same as was developed for past projects, so there is not much new to be developed.

- Technical risk would best be described as "minor modifications to an existing design." That gives us a technical risk factor of 2, and a weight of 2%.
- For design risk, there is a "detailed design more than 50% complete," so we have a design risk factor of 0, and a weight of 2%.
- Cost risk would best be described as "vendor quote from established drawings," as we are using consultants from the company that has developed this system for us in the past. That gives us a cost risk factor of 2, and a weight of 1%.
- Schedule risk might be described as "delays completion of critical subsystem item," giving us a schedule risk factor of 8 and a weight of 1%.

Summing together, we have

$$\begin{aligned}\text{Contingency} &= (2 \times 2\%) + (0 \times 2\%) + (2 \times 1\%) + (8 \times 1\%) \\ &= 14\%\end{aligned}$$

for that particular cost item.