

Variation Orders

FIDIC Contracts




Professional
CONTRACTS MANAGEMENT

[Find us on LinkedIn](#)

Variation Orders **in Construction**

- **Causes of Variation Orders**
- **Types of Variations**
- **When Changes Are not Considered Variations**
- **Common Reasons for Change Orders**
- **Parties Involved in Change Orders**
- **Scope of Change Orders:**
- **Key Considerations for Valid Variation Orders**
- **The Construction Variation Management Process**
- **Variation in FIDIC Contracts**
- **Grounds for Contractor's Objections to Variations in FIDIC 2017**
- **Reasons Why Contractors Reject Variations Despite Compensation**
- **Obligation to Start Variation Work Before Price Agreement**
- **Managing Variations in FIDIC: Key Considerations**

Variation Orders in Construction

Change orders are official documents issued to modify the original scope of work outlined in a construction contract. These changes may involve adjustments to the form, type, quantity, or specifications of the work, and must be issued in writing by an authorized party. The use of change orders is often favored because it streamlines the process of assigning additional work under the existing contract, avoiding the delays and complexities of issuing a new, separate contract.

The project engineer has the right to issue additional instructions or modifications at any stage during the project, even up to the issuance of the preliminary handover certificate. The contractor is obligated to follow these instructions, as refusal may be considered a breach of contract, provided that the contract's variation clauses cover the changes. However, compliance does not absolve the contractor of liability. If the changes result in financial loss or project delays, the contractor is entitled to compensation.

Effectively managing variations is crucial to ensuring that construction projects remain on track, meet client expectations, and stay within the bounds of contractual agreements. It involves documenting and evaluating these changes, determining their impact on project costs and schedules, and reaching a consensus on how to address them within the framework of the construction contract.

1. Types of Variations:

- Alterations to the design or engineering plans.
- Modifications to quantities of work or materials.
- Changes in the quality of work or materials.
- Adjustments due to environmental or logistical challenges.
- Alterations in the sequence or method of execution.

2. Causes of Variation Orders:

- Changes in client requirements or vision.
- Technological advancements.
- Economic or environmental shifts.
- Statutory changes.
- Geological anomalies.
- Non-availability of specified materials.
- Design errors or omissions.
- Poor coordination between project stakeholders.
- Owner's financial difficulties.

3. When Changes Are Not Classified as Variations?

1. The difference between the quantities in the bill of quantities and those executed on-site, according to contractual drawings, does not constitute a change. Only excess work beyond contractual requirements qualifies as a variation.
2. Changes arising from contractor negligence
3. If the contract lacks provisions allowing for modifications outside the agreed scope, the contractor cannot be forced to execute them, even if the changes aim to improve the project.

4. Common Reasons for Change Orders:

1. Inadequate design, cost estimation, or preparation of tender documents.
2. Design changes prompted by the employer's needs.
3. Unforeseen site conditions, such as unexpected soil anomalies.
4. Legal requirements, including compliance with new building codes or environmental regulations.

5. Parties Involved in Change Orders:

- Employer-initiated changes.
- Contractor-initiated changes, including proposals for alternative solutions or changes due to site conditions.

6. Scope of Change Orders:

Change orders typically involve one or more of the following:

- Increasing, reducing, or omitting quantities of work.
- Changing the quality, type, or specifications of materials or work.
- Modifying levels, locations, or dimensions of project elements.
- Executing additional work beyond the contract scope but necessary for project completion.
- Altering the sequence or timing of work from the agreed-upon schedule.
- Changing the method of execution compared to what was assumed in the original contract.
- Temporary halting, delaying, or suspending work.

7. Key Considerations for Valid Variation Orders:

1. **Necessity:** The variation must serve a valid project purpose.
2. **Authority:** The issuer must have the contractual right to authorize changes.
3. **Scope:** Variations should affect only the scope of work, not the entire contract.
4. **Timing:** Changes must be issued before the Taking Over Certificate (TOC).
5. **Legal Provision:** A valid variation clause in the contract is essential.
6. **Assessment:** Variations must be properly categorized as additions or omissions to the scope of work.
7. **Documentation:** All variation orders must be issued in writing and confirmed within a stipulated time frame.

8. The Construction Variation Management Process

Managing variations effectively ensures that projects stay on track and within contractual obligations. Here is a step-by-step breakdown of the process:

1. **Cost and Time Impact Assessment:** Upon identifying a variation, the first step is assessing its impact on costs and schedule. This is crucial for understanding how the change will affect the project.
2. **Request Approval from the Client:** The contractor submits a formal request outlining the proposed variation's details, reasons, cost implications, and time delays.
3. **Contractor Proposes Value Engineering Savings:** Sometimes, the contractor may propose cost-saving alternatives or solutions, sharing any savings with the client if accepted.

4. **Issue Engineer Instruction (EI):** Upon approval, the client's engineer issues an EI, formally instructing the contractor to proceed with the variation. This ensures clear communication of scope changes.
5. **Contractor Submits Detailed Impact Assessment:** After receiving the EI, the contractor prepares a comprehensive impact assessment, including revised schedules and updated cost estimates.
6. **Review by Engineer's Representative:** The contractor's assessment is reviewed by the engineer's representative, ensuring that proposed costs and time adjustments are reasonable.
7. **Engineer's Final Review and Approval:** The engineer evaluates the impact assessment and confirms whether the variation aligns with the project's contractual and technical requirements.
8. **Prepare and Sign Variation Order:** A formal Variation Order is drafted, signed by both the client and the contractor, and becomes a legally binding part of the contract.

 **Join our LinkedIn Group**
Professional Contracts Management




Professional
CONTRACTS MANAGEMENT
Find us on LinkedIn

Variation in FIDIC Contracts

Variations are a critical aspect of construction contracts, especially in projects governed by the **FIDIC** (International Federation of Consulting Engineers) contract forms. They allow for flexibility in modifying the scope of work and accommodating changes that are inevitable during a project. However, the proper management of these variations, including valuation and impact on time and cost, is crucial to maintaining the contractual relationship and avoiding disputes.

1. FIDIC 1987: Clause 51.1 [Variations]

Clause 51.1 of the FIDIC 1987 Red Book grants the Engineer the authority to issue instructions for variations or alterations to the scope of work. This clause provides a flexible framework for executing the project while allowing for adjustments to meet the Employer's needs. Variations under this clause typically fall into the following categories:

- **Increase or Decrease in Quantity:** Changes in the quantity of work specified in the original contract.
- **Omission of Work:** The removal of work from the contract scope, provided the Employer or another contractor does not execute the omitted work.
- **Change in Character or Quality:** Modifying the specifications or quality of materials, such as upgrading from standard to premium flooring.
- **Alteration of Levels, Lines, Positions, and Dimensions:** Adjustments to physical positioning or dimensions.
- **Execution of Additional Work:** New work necessary for project completion, such as landscaping that was not part of the original scope.
- **Changes in Sequence or Timing:** Altering the order or timing of construction activities to address issues such as weather conditions or logistical challenges.



[Find us on LinkedIn](#)

2. FIDIC 1999 and 2017: Clause 13 [Variations and Adjustments]

In the FIDIC Red Book (1999 and 2017 editions), Clause 13 covers the rights and obligations related to variations, with more structured provisions compared to the 1987 version. Key sub-clauses include:

- **Sub-Clause 13.1: Right to Vary**
 - The Engineer has the authority to issue variations, and the contractor is obligated to execute them unless exceptions apply.
- **Sub-Clause 13.2: Value Engineering**
 - This encourages contractors to propose variations that could reduce costs or improve project performance. Savings resulting from value engineering may be shared between the Employer and Contractor.
- **Sub-Clause 13.3: Variation Procedure**
 - **Variation by Instruction:** The Engineer issues a formal instruction for the variation.
 - **Variation by Request for Proposal:** The Engineer requests the contractor to submit a proposal for a variation.
- **Sub-Clause 13.4: Provisional Sums**
 - Provides a mechanism to handle uncertainties in the project scope through provisional sums.
- **Sub-Clause 13.5: Day Work**
 - Allows for payment of additional work on a time and material basis when it is difficult to value using contract rates.
- **Sub-Clause 13.6: Adjustments for Changes in Laws**
 - Enables price adjustments if new laws or regulations affect the project.
- **Sub-Clause 13.7: Adjustments for Changes in Cost**
 - Permits adjustments to the contract price to account for fluctuations in costs.

3. Grounds for Contractor's Objections to Variations in FIDIC 2017

Under the 2017 FIDIC conditions, contractors have certain rights to object to variations under specific circumstances:

1. **Difficulty in Procurement:** If obtaining the necessary materials or equipment for the variation is either prohibitively expensive or time-consuming.
2. **Health, Safety, or Environmental Impact:** If the variation negatively affects health, safety, or environmental standards.
3. **Impact on Performance Bond:** If the variation could delay the provision of the performance bond or place excessive financial burdens on the contractor.
4. **Compliance with 'Fit for Purpose':** If the variation may prevent the contractor from meeting the contract's 'fit for purpose' requirement.

It is not necessary for the contractor to prove that the variation will definitively cause these issues; a reasonable likelihood of impact is sufficient to raise objections.

4. Reasons Why Contractors May Reject Variations Despite Compensation:

Contractors may reject variations, even if they offer compensation, for several reasons beyond just financial gain. These reasons are often strategic or practical, considering the broader impact on the project. Here are some common reasons:

1. Impact on Project Schedule

- **Delays and Disruption:** Variations can significantly alter the project schedule, especially if they involve complex or additional work. Even with compensation, the contractor may face challenges completing the project within the agreed timeframe. Delays can lead to liquidated damages, penalties, or reputational harm.
- **Re-sequencing of Work:** A variation may require changing the sequence of construction tasks, disrupting the contractor's workflow and affecting subcontractors, materials, or logistics.

2. Risk of Unforeseen Complications

- **Unknown Scope of Work:** Even with compensation, variations might introduce unforeseen technical challenges or require new expertise. Contractors may avoid risks that could lead to further complications, such as design changes that impact the structural integrity of a building.
- **Unclear Specifications:** If the variation lacks detailed or clear specifications, the contractor may be reluctant to proceed, fearing that incomplete instructions could lead to further disputes or misunderstandings.

3. Resource Constraints

- **Labor and Equipment Availability:** The contractor may lack the necessary resources, such as skilled labor or specialized equipment, to implement the variation within the required timeframe. This could strain the contractor's operations or force them to hire additional resources, increasing costs and risks.
- **Existing Commitments:** Contractors often manage multiple projects simultaneously. Taking on additional work through a variation could lead to overextension and negatively impact their other projects.

4. Procurement and Supply Chain Issues

- **Material Availability:** If the variation requires materials that are difficult to source or have long lead times, the contractor may reject the variation to avoid project delays or the risk of cost overruns.
- **Price Volatility:** In cases where material prices are volatile, even with compensation, the contractor might still be exposed to financial risk if the costs escalate beyond expectations.

5. Cash Flow and Financial Risk

- **Payment Uncertainty:** Even though compensation is offered, contractors may be concerned about the timing and certainty of payment for the variation work. Cash flow is critical, and delayed payments could strain the contractor's financial stability.
- **Exposure to Additional Costs:** Variations can introduce additional overhead, insurance, and administrative costs. If the compensation does not adequately cover all indirect expenses, the contractor may find the variation financially unattractive.

6. Performance Guarantees and Bonds

- **Impact on Performance Bond:** Some variations could affect the terms of performance bonds or guarantees that the contractor is required to provide. If the variation increases the value of the work or extends the project timeline, it could require extending or increasing the performance bond, which may not be feasible or cost-effective for the contractor.

7. Health, Safety, and Environmental Concerns

- **Health and Safety Risks:** Variations that increase safety risks (e.g., working at higher elevations, introducing hazardous materials) might be rejected even if compensated, as they increase the contractor's liability and could lead to accidents or violations.
- **Environmental Impact:** Some variations may raise concerns about environmental compliance, requiring additional permits or mitigation measures that the contractor might not be prepared to manage.

8. Contractual Ambiguities and Legal Risks

- **Contractual Clauses:** Contractors may be wary of variations that introduce ambiguities or potential legal disputes. For instance, a variation might conflict with existing contract terms or create confusion about responsibilities, potentially leading to future litigation.
- **Scope Creep:** Contractors are often cautious about variations that lead to "scope creep," where incremental changes accumulate and significantly alter the project's scope, making it harder to manage and deliver within budget or on time.

9. Reputation and Relationship with Employer

- **Employer Relationship:** Contractors may reject variations if they feel that the changes are unfair or excessive, potentially harming their relationship with the employer. Contractors value fairness and trust, and frequent or unreasonable variations might signal poor project management on the part of the employer.
- **Reputational Risk:** If variations lead to poor project outcomes (e.g., delays, quality issues), the contractor's reputation could suffer, impacting their ability to secure future contracts.

10. Long-Term Strategic Considerations

- **Opportunity Costs:** Accepting a variation could prevent the contractor from pursuing more profitable projects elsewhere. If a variation significantly extends the timeline, it may hinder the contractor's ability to bid on other projects that offer better margins or strategic advantages.
- **Business Focus:** Some contractors may have specific areas of expertise and prefer not to take on variations that fall outside their core competencies. A variation requiring specialized work could distract the contractor from their primary focus, increasing risk and reducing efficiency.

5. Obligation to Start Variation Work Before Price Agreement

The Employer and Engineer often argue that, under FIDIC Red Book Sub-Clause 13.1, it is a breach of contract for a contractor to refuse to start variation work even if the price is still under negotiation. The clause states that the contractor must execute each variation unless they promptly notify the Engineer of specific issues, such as difficulties obtaining goods or a substantial disruption to the work sequence.

However, the contractor can reasonably question whether it is fair to begin work without agreeing on the cost. FIDIC promotes fairness and balance in contracts, emphasizing that all clauses must be interpreted in context. The fourth paragraph of Sub-Clause 13.1 supports this view by stating that the contractor should not alter permanent works without the Engineer's instruction or approval.

The Employer/Engineer's interpretation overlooks key principles of contract interpretation. FIDIC's framework requires both instruction and approval before a contractor proceeds with variation work. Sub-Clause 1.1.6.9 further defines a variation as a change that must be instructed or approved under Clause 13. Moreover, the principle of "Noscitur a Sociis" in legal interpretation suggests that "instructs" and "approves" are used synonymously in this context.

Courts have also upheld that "or" can be used synonymously with "and" (as in *Deepak Fertilisers v. Davy McKee* and *Hilton Hotels v. Hotel Services Ltd.*), supporting the contractor's stance that both instruction and approval are needed before commencing variation work. Additionally, the rule of "expressio unis est exclusion alterius" implies that the mention of one excludes the other—meaning the obligation to proceed applies to the original works but not to varied works without approval.

Finally, Sub-Clause 13.3 states that ongoing works must not be delayed while awaiting a response, but this refers to the original works, not variations. FIDIC makes a clear distinction between "works" and "varied works" in its contract terminology,

In conclusion, a contractor is not obliged to begin varied works without prior agreement on cost and approval from the Engineer, as FIDIC contracts must be interpreted with fairness and in full context.

6. Managing Variations in FIDIC: Key Considerations

- **Valuation of Variations (FIDIC Clause 12):** Variations are typically valued using existing contract rates, or, if not applicable, through new rates agreed upon by the parties. Disputes often arise over disagreements on the valuation of variations, making this a key area for negotiation.
- **Variation Orders and Subcontractors:** If variations affect subcontracted work, the main contractor is responsible for managing these changes with the subcontractor, and relevant terms in the subcontract must be adhered to.
- **Extensions of Time (EOT):** Variations often cause delays. If a variation impacts the project schedule, the contractor may be entitled to an extension of time, an important consideration in large-scale projects.
- **Provisional Sums (FIDIC Clause 13.4):** The use of provisional sums allows for more structured management of variations that arise from anticipated but undefined work at the time of signing the contract.
- **Day Work (FIDIC Clause 13.5):** For work that cannot be valued through standard rates, day work provides a method of compensation based on the actual hours worked and materials used.
- **Dispute Resolution:** FIDIC provides mechanisms for resolving disputes arising from variations, including the **(DAB)** and arbitration.
- **Concurrent Delay and Variations:** When variations lead to delays, it is important to assess whether the delay was caused solely by the variation or if other concurrent delays (e.g., contractor-caused delays) are also involved, as this impacts time extension and compensation claims.

- **Engineer's Role in Variations:** The Engineer plays a key role in managing variations, from issuing instructions to assessing their cost and time impact. Effective communication between the contractor and Engineer is essential to minimizing disputes.
- **Early Warning Mechanisms:** FIDIC encourages contractors to promptly notify the Engineer of circumstances that may lead to a variation, helping to manage the process efficiently.
- **Mitigation of Costs:** Contractors must minimize the impact of variations by re-sequencing work, sourcing alternative materials, or adjusting methodologies to reduce costs and delays.
- **Risk Allocation:** Variations often involve a reallocation of risks between the Employer and Contractor. Understanding how risks are shared under the FIDIC contract is vital to managing changes effectively.

Conclusion

Variations are an inevitable part of any construction project, and FIDIC contracts provide a structured process to manage them. By understanding the rights and obligations set out in the contract, both Employers and Contractors can navigate variations in a manner that minimizes disputes and promotes the successful completion of the project.

