The Use of NEC: Engineering and Construction Contract

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FOREWORD
This paper is based on the NEC: Engineering and Construction Contract (Second Edition) published by the Institution of Civil Engineers in 1995. Although it describes in some detail the main contract form, included are details of the Engineering and Construction Short Contract which is one of the same “family” of contracts, with the same in-built philosophies, and which can be used for simple and straightforward work of any value.

Of necessity the descriptions of the contract and its procedures have been simplified and summarised. Anyone who is considering using the contract should refer to the documentation itself and seek professional advice on its application.

TRADITIONAL CONTRACT PROCUREMENT
Traditionally the procurement of civil engineering construction projects has used one of the editions of the ICE Conditions of Contract or similar. These Conditions were first issued in 1945 although their origins go back even further in time. To their considerable advantage they are legally tried and tested, and a custom of usage has developed by their extensive and successful use over the years.

When all work can be identified, a project can be completely designed and detailed and a Bill of Quantities produced then these standard Conditions are a very capable form to use. However, if there are uncertainties of the scope or detail of the work required which might require change, then the relative inflexibility of this form of contract starts to make itself felt since they are reliant on the Contractor pricing a Bill of Quantities to give a contract price.

NEC: ENGINEERING AND CONSTRUCTION CONTRACT (ECC)
The New Engineering Contract or “NEC” originated under this name in 1991 and changed to its current name with the publication of the second, and current, edition in 1995.

It has much more recent origins and probably reflects more closely current procurement routes and needs. The contract is not only for civil engineering construction, but is intended to be used for any construction or building work. There is a range of payment options within the contract which deal with the level of physical uncertainty often found in many construction projects.

The ECC is a procedurally based contract, requiring the parties to take certain actions in certain circumstances. The ECC procedures give the opportunity for both parties to jointly provide more robust control and achieve increased certainty of project cost outcome. This positive management approach encourages co-operation and provides a good basis for the use of partnering arrangements, leading to a reduction in disputes.

This compares with the generally reactive management approach in traditional forms of contract with problems being dealt with in a less structured way. This does not reflect against the traditional forms, merely that the required management procedures in ECC are more robust and require people to interface on matters sooner.

The ECC is written in plain, readily understood, commercial English. This has caused some unease to new users, perhaps because of what people have become used to over a long period of time.

The role of the Engineer or Architect in traditional forms of contract, with the potentially conflicting responsibilities, is not used in NEC and decisions and directions are dealt with directly by the Employer (through his Project Manager) and the Contractor.
THE OBJECTIVES OF THE ECC.

The Engineering and Construction Contract is intended to achieve three principal objectives:

- **Flexibility** - in accord with a multi-disciplined approach.
- **Clarity** - to be exportable and understandable and lead to fewer disputes.
- To be a stimulus for **good management** by all parties.

- **Flexibility** is achieved by:
  - core clauses which are used in all contracts and a choice of one of six main payment options to allow the Employer to choose the payment mechanism which is best suited to a specific contract.
  - a range of secondary options for any combination of core and main option e.g. price adjustment for inflation, retention etc.
  - the full extent of possible subcontracting from 0 - 100%
  - the use of a "Schedule of Contract Data" for the assembly of specific data for a particular contract.

- **Clarity** is achieved by:
  - use of ordinary language, concise sentences and the avoidance of legal jargon.
  - a simple structure and clause numbering system providing easy access to clauses.
  - flow charting of procedures defining the logic of the procedures and sequences which need to be enabled by the clauses.

- **Stimulus to good management** is achieved by:
  - the main options allow the optimum contract strategy to be chosen.
  - clear and precise management roles for the Employer's team comprising the project manager, the supervisor and the designer.
  - the Employer's risks are clearly defined in the Compensation Events.
  - standard procedure for assessment of Compensation Events based on forecast effects on actual cost and time. The Employer is able to choose the solution most in his interest.
  - the avoidance of subjective decisions by the provision of precise bases for decisions and actions to be taken.
  - an early warning procedure, the Contractor and Project Manager have duties to warn each other and co-operate.
  - the Contractor is motivated to maintain an updated and realistic programme including Method and Resource Statements.
  - ECC procedures are based on practical construction procedures and are therefore available as a working document and not merely for reference when there is a dispute.

THE ECC FAMILY OF CONTRACTS

All parties involved in the project delivery process can be employed under one of the “family” of integrated NEC contract forms which allows the parties to benefit from back-to-back contractual arrangements. The family comprises:

- The Engineering and Construction Contract
- The Engineering and Construction Subcontract
- The Professional Services Contract
- The Adjudicators Contract
- The Engineering and Construction Short Contract
- The Engineering and Construction Short Subcontract
- The Engineering and Construction Term Services Contract (consultation version)
PROCUREMENT STRATEGY DECISIONS

The Employer usually considers what might be the most appropriate contract strategy after feasibility stage and before any design or construction has been undertaken. Factors to take into account in deciding which of the main options to use from within the Engineering and Construction Contract system include the following:

- How clearly identified are the Employer’s requirements
- What is the likelihood of change to those identified requirements
- How important to the Employer is certainty of price
- What views prevail on the allocation of risk
- Which party is to be responsible for design
- How important is early commencement and/or rapid completion
- Does the Employer need flexibility in the contractual arrangements

The result should be a statement of the chosen procurement strategy and the range of main and secondary options to be used. The advantage of using Engineering and Construction Contract is that, whatever variations in strategy between different contracts within a project are adopted, the majority of the procedures, based upon the Core Clauses, will be common to all contracts. This flexibility allows the procurement of projects to be matched in a commercially realistic way to the Employer’s required outcome.

The ECC has a complete range of payment options such as priced contracts, target and cost reimbursable contracts, a management contract together with the use of either bills of quantities or activity schedules. With the six main options and a range of secondary option clauses each individual contract can be tailored from a set of standard clauses with little or no change to the standard documentation or the standardised procedures. The NEC contract procedures can be actively used as a management tool and decisions regarding design liability and risk can be allocated to the most appropriate party.

The traditional use of a Bill of Quantities is also increasingly being questioned and more Employers are seeing advantages in the use of priced activity schedules available with ECC, often for no other reason than the simpler administration which results. This does, however, lead to an increase in work and cost to the Contractor for the preparation of the priced activity schedule. The use of activity schedules can be considered advantageous to the Employer, as the risk of accuracy of the quantities of work is transferred from the Employer to the Contractor. It is essential, however, that there is a clear statement of the required scope of works in order that the activity schedule covers the full extent of the work required.

There is a notable increase in the use of target cost contracts which has possibly been encouraged by the increasing use of partnering arrangements. There is also an increasing tendency for greater Contractor involvement in design, with the increasing use of various design and build contracts.

RISK IDENTIFICATION AND MANAGEMENT

Before deciding on a procurement strategy, the risk events which can affect the project objectives should be identified and appropriately allocated. The fundamental principles of risk allocation are:

- Risks should be allocated to the party best able to control them prior to their occurrence
- Risk allocation should encourage good management by the party who carries the risk
- Motivation is provided by the financial consequence
- Risks should not be allocated to a party who is unable to sustain their consequences
- Risks which are outside the Contractor's control should usually be allocated to the Employer
Where risk allocation is split, the split should reflect each party’s ability to influence the likelihood of occurrence and effect.

The contract should not be cluttered up with risks of small likelihood and impact.

It is now generally accepted that the interests of the Employer are best served by limiting the risks carried by the Contractor to those he can control better than the Employer. The ECC allows the Employer to implement a policy of risk allocation which maximises the benefit and minimises the effects of time and cost.

The ECC uses risk allocation to encourage good management of the project with the risks allocated to the party most able to respond to them. There are two opportunities to manage risk allocation, firstly by the choice of the contract main option, and secondly by making an appropriate allocation of risk by the choice of the secondary options.

**PROJECT ORGANISATION**

In the Engineering and Construction Contract there is no role that is the equivalent of the Architect or Engineer such as is used in traditional contracts. The contract sets out the roles of the following parties :-

- **The Employer**
  The Employer will normally appoint a Project Manager and a Supervisor. The actions of the Project Manager and Supervisor are independent of each other.

- **The Project Manager**
  The Project Manager’s role is to manage the project on behalf of the Employer with the intention of achieving the objectives of the Employer for the completed project. He has authority to change the work, to instruct the Contractor and generally to apply his managerial and engineering judgement. His role is defined in the contract in terms of the actions and decisions he is to take and it is assumed that he has the Employer’s authority to carry out these actions and make decisions which are required of him within time limits stated in the contract.

- **The Supervisor**
  The Supervisor is appointed by the Employer to check that the Works are carried out in accordance with the Works Information. His role is defined in the Engineering and Construction Contract in terms of the actions and decisions he is to take. His role may include testing of materials and workmanship and observing tests which the Contractor carries out. He is also concerned with identifying and correcting Defects and certifying Defects when he issues the Defects Certificate.

- **The Adjudicator**
  The Adjudicator is appointed jointly by the Employer and Contractor and only becomes involved when a dispute is referred to him. As a person independent of both the Employer and Contractor he is required to give his decisions within stated time limits. If either party does not accept the decision then they may proceed to arbitration. The Adjudicator's fee is shared equally between the parties.

- **Delegation**
  The contract enables the Project Manager and Supervisor, after notifying the Contractor, to delegate their actions. The Guidance Notes make the point that the Project Manager will not normally delegate actions to the Supervisor, or the other way round, but in smaller contracts it is accepted that it may be convenient and practical to do so.
OVERVIEW OF CONTRACT MAIN AND SECONDARY OPTIONS

- MAIN OPTIONS

The ECC has six main options one of which must be chosen for each contract. These are:-

- Option A - Priced contract with activity schedules
- Option B - Priced contract with bills of quantities
- Option C - Target contract with activity schedules
- Option D - Target contract with bills of quantities
- Option E - Cost reimbursable contract.
- Option F - Management contract.

- Options A and B are priced contracts in which the risks of being able to carry out the work at the agreed prices are largely borne by the Contractor.
- Options C and D are target contracts in which the Employer and Contractor share the financial risks in an agreed proportion.
- Options E and F are two types of cost reimbursable contract in which the financial risk is largely borne by the Employer.

For convenience the range of contracts available within the standard ECC documentation can be conveniently split as follows:-

- Priced contracts
- Target Cost contracts
- Cost-reimbursable contracts

- PRICED CONTRACTS

Priced contracts are normally used when the Employer is able to provide the Contractor with a definitive description of what is required. This does not necessarily mean a complete design, but a clear statement of what is required e.g. as a scope design, performance specification and a statement of the purpose of the project.

- Option A (with activity schedules)

An activity is a discrete part of the whole works as defined in the Works Information. Establishing the quantities of work involved to achieve the completion of each activity is the responsibility of the Contractor. The price for each activity is in effect a lump sum for that activity and must include for everything necessary to complete the activity. Contractors are not paid for changes in quantity of the permanent work, unless an instruction changes the Works Information. This transfers some risk to the Contractor. The sum of the tendered lump sums for each of the activities is the tendered Price for the whole of the Works.

Activity schedules are activities in the programme for which the Contractor gets paid when he has completed that activity. The activity schedule is therefore closely linked to the construction programme prepared by the Contractor. It is therefore sensible to arrange that the Contractor also prepares the detail and breakdown of the activity schedule.

It is likely that the total administrative and management input from commencement of construction to settlement of final account is slightly less under Option A compared with a conventional contract form, and slightly more under option B. With the apparent practical advantages of activity schedules over bills of quantities there is evidence that more experienced users are moving away from option B towards option A.

- Option B (with bills of quantities)

Bills of quantities are the usual payment mechanism for work procured under the traditional procurement method and generally the works are substantially designed before tenders are sought from Contractors. They do, however,
have some fundamental flaws, the most significant being that the cost is not always directly proportional to quantity of work due to the financial build up of the contract and problems often result whenever the scope of work changes.

Most standard methods of measurement assume the work is fully detailed and the tender bills of quantities require the design to be finalised at tender enquiry.

**TARGET COST CONTRACTS**

**Options C (with activity schedule) and Option D (bill of quantities)**

Target cost contracts are appropriate where the scope of works is sufficiently developed for the Contractor to be able to price the works. The tendered Price based on either the Activity Schedule or the Bill of Quantities is the Target Cost.

The Contractor is not paid according to the Activity Schedule or the Bill of quantities but is reimbursed his Actual Costs plus a Fee, for his overheads and profit, in the same way as in a cost reimbursable contract. However, any total cost over run or under run, when compared to the Target Cost, is shared between the Contractor and Employer in a pre-agreed way. This arrangement motivates the parties to the contract to decrease costs.

Greater Employer involvement in the day-to-day management is essential in this form of contract and unfamiliar administrative procedures, which include open book accounting, may lead to higher administrative costs. They are therefore less likely to be as suitable for low value contracts.

**COST REIMBURSABLE CONTRACTS**

**Cost Reimbursable contract: Option E.**

Under option E of the ECC, the Contractor is reimbursed his Actual Costs plus a Fee for his off site overheads and profit. This Fee is calculated by applying the fee percentage, given at tender by the Contractor, to Actual Cost.

It therefore gives little incentive for the Contractor to minimise costs during construction, but this particular strategy may be appropriate where time or quality are overriding priorities or where the scope is not known eg emergency work.

**Management contracts : Option F**

Option F includes for both management contracts and construction management contracts. They are not the same and approach the procurement route in different ways. The Contractor is paid Actual Costs, which include the actual total costs of subcontractors plus a Fee. The Fee is calculated by applying a tendered fee percentage to the Contractor's Actual Costs.

In management contracts design, construction and installation are intended to be subcontracted by the main Contractor using the ECC subcontract agreement. The Contractor’s principal role is management of the works packages.

In construction management contracts all the works contracts are let between the Client and works contractors as main contracts, but are administered on behalf of the Client by a construction manager. To use the construction management approach, the Employer would let the construction management and the design contracts on the Professional Services Contract and the works packages on the ECC.
PAYMENT OPTIONS

The range of payment options within NEC offer differing financial risk considerations and incentives:

<table>
<thead>
<tr>
<th>NEC Option</th>
<th>Incentives</th>
<th>Financial Risks</th>
<th>Other Risks</th>
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</thead>
<tbody>
<tr>
<td>Option A – priced contract with activity schedule</td>
<td>Payment on completion of activity encourages progress</td>
<td>With Contractor to complete the works within the tendered price</td>
<td>Contractor usually bears the risk of the completeness and accuracy of the activity schedule</td>
</tr>
<tr>
<td>Option B – priced contract with bill of quantities</td>
<td>Contractor motivated to keep within his tendered price</td>
<td>With Contractor to complete the works within the tendered price</td>
<td>Employer usually bears the risk of the completeness and accuracy of the bill of quantities</td>
</tr>
<tr>
<td>Option C – target cost with activity schedule</td>
<td>Shared financial incentive encourages co-operation to reduce cost</td>
<td>Shared on a pay/gain basis</td>
<td>Contractor bears the risk of the completeness and accuracy of the activity schedule</td>
</tr>
<tr>
<td>Option D – Target cost with bill of quantities</td>
<td>Shared financial incentive encourages co-operation to reduce cost</td>
<td>Shared on a pay/gain basis</td>
<td>Employer usually bears the risk of the completeness and accuracy of the bill of quantities</td>
</tr>
<tr>
<td>Option E – Cost reimbursable</td>
<td>No real incentive</td>
<td>Employer</td>
<td>Project outturn cost uncertain</td>
</tr>
<tr>
<td>Option F – Management contract</td>
<td>No real incentive</td>
<td>Employer</td>
<td>Project outturn cost uncertain</td>
</tr>
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- **SECONDARY OPTIONS**
  Whichever main option is chosen, many of the procedures and systems necessary to administer the contract will stay the same. To further refine the contract strategy, secondary options are chosen:

- **Option G: Performance bond and Option H: Parent company guarantee**
  These secondary options enable the Employer to re-claim monies should the Contractor fail to perform, or go into liquidation. The performance bond is more commonly used because payment is not dependant on the parent company. The form and amount of the bond or guarantee must be stated in the Contract.

- **Option J: Advanced Payment to the Contractor**
  This would be appropriate when the Contractor will incur significant “up front” costs before the start of work which generates income. For instance, for the provision of extensive common facilities for the use of other contractors, the provision of specialist equipment etc.. The amount of the Payments is stated in the Contract together with any requirements for a bond or security.

- **Option K: Multiple currencies (used only with Options A and B)**
  Used in priced contracts only. Cost reimbursable and management contracts have their own particular arrangements.
• **Option L: Sectional Completion**
  Should be included in the Contract when the Employer requires parts of the works (Sections) to be completed before the whole of the works. This includes what work is to be completed in each section.

• **Option M: Limitation of the Contractor's liability for his design to reasonable skill and care**
  Without this clause, the standard of liability in most construction contracts is generally taken to be “fitness for purpose”. This option reduces the liability to “reasonable skill and care” and is the more usual standard for any design consultancy.

• **Option N: Price adjustment for inflation (used only with Options A, B, C and D)**
  This option enables the Employer to carry the risk of inflation. Without the clause the Contractor carries that risk.

• **Option P: Retention (used only with Options A, B, C, D and E)**
  The retention free amount and the retention percentage must be stated.

• **Option Q: Bonus for early Completion**
  Where the Employer receives benefit from early completion, this clause enables some of this benefit to be given to the Contractor, thus motivating early completion.

• **Option R: Delay damages and Option S: Low performance damages**
  What are usually referred to as liquidated damages in other construction contracts are called delay damages in the ECC. Low performance damages can only be applied where performance specifications are used and enable the contract to be completed, albeit with reduced performance.

• **Option T: Changes in the law**
  This clause removes from the Contractor the financial consequences which might arise from a change in the law.

• **Option U: The Construction (Design and Management) Regulations 1994 (to be used for contracts in the UK)**
  These Regulations apply to the majority, but not all, of construction work in the UK. This clause should be included when the Regulations apply. This ensures that a legitimate instruction given by the Planning Supervisor has contractual effect.

• **Option V: Trust Fund**
  The Trust fund option was written in response to the Latham recommendation that they be used as a means of ensuring payment down the contractual chain should one party fail financially. However there appears little enthusiasm for its use.

• **Option X: Partnering Agreement**
  This option enables a multi-party partnering agreement to be implemented.

• **Option Y(UK)2: The Housing Grants, Construction and Regeneration Act 1996**
  Amendment dated April 1998. This option applies in the UK only where the Act applies and sets down the requirements relating to payment and the parties statutory right to adjudication "at any time".

• **Option Y(UK)3: Contracts (Rights of Third Parties) Act 1999**
  This inclusion of this option enables the rights of any third parties to be written out.
Option Z: Additional conditions of contract
This allows additional conditions to be added to further tailor the contract strategy. This may include adding or deleting compensation events. The flexibility inherent in the NEC system is designed so that amendments to the contract are kept to a minimum.

Should it be necessary to amend standard clauses it is recommended that all the changes are shown under Option Z. This ensures that all the changes are highlighted.

THE WORKS INFORMATION AND SITE INFORMATION
The Works Information is the key set of documentation included in the contract in which the Employer sets out the complete scope and requirements for the construction of the works and including:

- The Site Information
  - general arrangement and location drawings, working and detail drawings and specifications very much in the traditional manner.
  - particular requirements in relation to the delivery and storage of materials.
  - particular requirement with regard to health and safety including the inclusion of a health and safety plan for the project.
  - a statement of those parts of the works to be designed by the contractor and the extent and details of any design brief, procedural requirements etc..
  - the requirements with regard to completion of the whole or parts of the works.
  - details of the other contractors, the areas of the site they will occupy and the times.
  - details of subcontracting arrangements.
  - the requirements for additional information to be provided by the contractor in support of the programme for the works.
  - details of the testing requirements and arrangements.
  - a statement with regard to title of materials etc. when they are removed from site.

The Site Information is information which describes the Site and its surroundings and is included in part one of the Contract Data. Normally only factual information is given. It might include the following:

- Subsoil investigations, records and test results.
- Reports obtained by the Employer.
- References to publicly available information about the Site.
- Information about plant and services.
- Information about piped and other services.
- Information about buildings, structures etc adjacent to or on the Site.

EMPLOYER’S RISK AND COMPENSATION EVENTS
Compensation events are events, which, if they occur and do not arise from the Contractor’s fault, entitle the Contractor to be compensated for any effect on both the Prices and the Completion Date. The assessment of a Compensation Event may entitle the Contractor to additional payment and also to additional time. In some cases they may result in reduced payment. The Contractor is paid on the basis of his Actual Costs or forecast Actual Cost for the compensation event.

Compensation events are listed in the core clauses, the main and secondary options and the contract. The Contract also permits the Employer to insert additional compensation events or delete the stated compensation events. Compensation events are the stated Employer’s risks, all other risks are borne by the Contractor, and this is a normal contractual position.
COMPENSATION EVENTS

The Contract lists eighteen compensation events which are intended to apply to all the main options:-

(1) Changing the Works Information – Changes to the works may comprise deletion or addition of work or alteration to work and are effected by a Project Manager's instruction to change the Works Information. Only the Project Manager has the power to change the Works Information.

(2) Possession of the Site - The Employer does not give possession of a part of the Site by the later of its possession date and the date required by the Accepted Programme.

(3) Provision by the Employer – Failure by the employer to provide something which he is contractually required to provide by the date given for providing it in the Accepted Programme is a compensation event.

(4) Stopping Work - The Project Manager gives an instruction to stop or not to start any work.

(5) Work of the Employer or Others – The Employer or Others do not work within the times shown on the Accepted Programme or within the conditions stated in the Works Information.

(6) Reply to a communication - The Project Manager or the Supervisor do not reply to a communication from the Contractor within the period required by the contract.

(7) Object of value or historic interest - The Project Manager gives an instruction to deal with an object of value, historic or other interest.

(8) Change of decision – The Project Manager or Supervisor changes a decision previously communicated to the Contractor.

(9) Withholding an acceptance - The Project Manager withholds an acceptance for a reason not stated in the contract.

(10) Searching - An instruction by the Supervisor for the Contractor to search for a defect is a compensation event unless the search is needed because the Contractor gave insufficient notice of doing work which obstructed a required test or inspection.

(11) Delayed tests and inspections - Any test or inspection done by the Supervisor which causes unnecessary delay is a compensation event.

(12) Physical conditions - The Contractor encounters physical conditions which :-

- are within the Site
- are not weather conditions
- which an experienced Contractor would have judged to have such a small chance of occurring that it would have been unreasonable for him to have allowed for them.

The criteria for judging the physical conditions is that the Contractor is considered to have taken into account :-

- The Site Information
- publicly available information referred to in the Site Information.
- information obtainable from a visual inspection of the Site.
other information which an experienced Contractor could reasonably be expected to have or to obtain.

The Employer is responsible for inconsistencies in the Site Information and the Contractor is assumed to have taken into account the physical conditions least favourable to the party which put forward the document (contra preferentum rule).

(13) **Adverse weather** - Rather than rely on subjective generalisations about 'exceptionally inclement weather' normally included in standard forms of contract, the Engineering and Construction Contract includes a more objective and measurable approach.

Weather data, compiled by an independent authority and agreed by both Parties beforehand, is made available establishing the levels of selected relevant weather conditions for the Site for each calendar month which have had a period of return of more than ten years. Relevant weather might include daily rainfall, monthly cumulative rainfall, cold weather and snow.

A weather measurement, the value of which by comparison with weather data identified in the contract, is shown to occur on average less frequently than once in ten years is an Employer’s risk. Weather which the weather data show likely to occur within a ten-year period is a Contractor's risk, in relation to both cost and time.

Additional measurements can be added in the Contract Data for measurements relevant to the particular Site or to particular operations to be carried out.

(14) **Employer’s risk event occurs** - The Employer’s risks are stated in the contract and include claims due to faults of the Employer and loss or damage due to the Employer's use of the works. These are the usual risks borne by the Employer and include matters such as ‘force majeure’.

(15) **Employer's use of the works** - The Employer may use part of the works before Completion and he takes over that part. If take over occurs before the Completion Date, it is a compensation event.

(16) **Materials etc. for tests** - If the Employer does not provide materials for tests etc. as required by the contract and as stated in the Works Information.

(17) **Assumptions about compensation events** - In asking the Contractor for a quotation, the Project Manager may state assumptions and the assessment is based on these assumptions. If the Project Manager later changes the stated assumptions it becomes a further compensation event.

(18) **Employer's breach of contract** - This an ‘umbrella’ clause to include breaches of contract by the Employer within the compensation event procedure, providing it is notified before the Defects Date.

There are additional compensation events possible by the use of a bill of quantities:-

- **Re-rating due to change to quantities** – The contract permits tendered rates in bills of quantities to be changed if the re-measured quantities differ from those billed. A compensation event occurs when:-
  - the difference causes the Actual Cost per unit quantity to change, and
  - the measured value of the item involved is significant to the extent that it is more than 0.1% of the tender sum.
- **Change in quantities** – a difference between the measured quantity of work for an item and the billed quantity which delays Completion is a compensation event.
• **Errors in bill of quantities** - The Project Manager is required to correct mistakes in the bill of quantities which are:
  - departures from the method of measurement, or
  - due to ambiguities or inconsistencies.

**PARTICULAR ISSUES**

• **Preparation of NEC tender inquiry documents**
The use of ECC requires more rigorous preparation of tender inquiry documents since no aspect of change to the stated scope of works is the responsibility of the Contractor. The Employer is required to provide the necessary information setting out the project requirements in the Works Information included in the contract. The Works Information is, therefore, the ruling document clarifying the Contractor’s responsibilities and ensures that he is in a position to tender with more confidence and provide a more realistic price to the Employer.

• **Contractor’s design**
In order to optimise the design and eliminate unnecessary cost, flexibility in the design arrangements are often necessary. Increasingly Employers are using Contractor designs of the permanent work on the basis that the Contractor will use his expertise and consider “buildability” in the design, with the result that the design is both safer and cheaper to build. ECC can accommodate this requirement to any extent of Contractor design.

• **Programme and time**
The philosophy in relation to a formalised construction programme between the traditional forms of contract and ECC is quite different. Most traditional forms require the production of a construction programme and it’s updating if it becomes unrepresentative of actual progress. Traditionally the contract programme often becomes a vehicle for the consideration of delay and the justification for extending the time for completion.

ECC, however, envisages the programme being used by all parties to consider progress, delays, delays to completion and to enable the regulation of future actions to achieve an acceptable outcome. It can be particularly helpful in looking at alternative scenarios for carrying out additional work or dealing with delays and assist in providing the optimum solution against the project objectives.

• **Early warning procedure**
This is seen by many as the “jewel in the crown” of ECC. The contract places an obligation on the parties to each notify the other of any matter which could increase the total of the Prices, delay Completion or impair the performance of the works in use. The notifying party can also call a meeting to discuss the matter and the other party is obliged to attend.

The importance of this requirement is that the parties are motivated to identify problems as early as possible and have a proactive approach to jointly find a solution, rather than putting off decisions or ignoring their resolution. The procedure covers any matter and has no consideration as to whose fault it was, or where the liability lies. The desired outcome is to provide agreed solutions to problems before they have any adverse effect on progress.

• **Valuation of change and compensation events**
There is a fundamental difference in the valuation of change. Under traditional forms of contract the change is usually instructed by the Engineer or Architect, and the price is subsequently determined, based on the tender pricing structure in the Contract. The pricing of change is often carried out some considerable time after the work is carried out, creating uncertainty in the eventual outturn cost to the Employer and delay costs are usually dealt with as a separate issue.
Under NEC, whenever possible, the Contractor is required to submit a quotation for the changes to both time and cost based on Actual Cost or forecast Actual Cost as defined in the contract. The Project Manager’s acceptance of that quotation, or his own assessment, implements the change. The intention is that, whenever possible, the cost and time implications are established before the implementation of the change. The ECC approach has the advantage that the Project Manager knows what costs the Employer is committed to, usually before the changed work is started.

- **Disputes Resolution**

  The ICE Conditions of Contract offer Conciliation and Arbitration as dispute resolution procedures together with Adjudication in accordance with the Housing Grants Construction and Regeneration Act 1996.

  NEC offers a choice of tribunal which, in effect, means arbitration or litigation. Adjudication is also included and, in the United Kingdom, this is a revised procedure in accordance with the Housing Grants Construction and Regeneration Act 1996. For contracts outside the UK or outside the coverage of the Act the standard adjudication provisions included in the contract can be used.

**NEC: ENGINEERING AND CONSTRUCTION SHORT CONTRACT**

**Introduction**

The following notes are an introduction to the Engineering and Construction Contract and explain some of the particular features and some of the differences with the Engineering and Construction Contract (black book).

1. **Objectives**

   The EC Short Contract has been designed for use with contracts for engineering and construction work which do not require sophisticated management techniques. The EC Short Contract is not considered to be a minor works form as it imposes no financial ceiling on the value of projects on which it can be used. It has been developed as an alternative to the Engineering and Construction Contract for contracts which:
   - do not require sophisticated management techniques
   - comprise straightforward, uncomplicated work
   - impose only low risks on both the employer and the contractor.

   and particularly its focus on good management of the relationship between the two parties to the contract and, hence, of the work included in the contract.

   It can be used in a wide variety of commercial situations, for a wide variety of work and in any location. It is intended that users of the Short Contract will range from larger organisations which carry out numerous simpler contracts to the domestic householder who needs a user-friendly contract to engage a contractor for a single project.

   It is a clear and simple document using language and a structure which are straightforward and easily understood. The Short Contract shares the same characteristics as the existing NEC family with the key features which are shared between the Engineering and Construction Contract and the Short Contract of flexibility, clarity and stimulus for good management. Indeed many of the provisions are exactly the same. The Short Contract simply omits provisions which can be dispensed with in low risk or less complex projects (e.g. acceptance of subcontractors) and some procedures have been redrafted where the approach could be simplified (e.g. early warning).

   Existing users of the NEC family of contracts will immediately recognise that the Short Contract is structured in the same style as the Engineering and Construction Contract. There are provisions for early warnings, programmes and compensation events, though they have been shortened to suit the simpler nature of the contracts on which it will be used.
A notable difference from Engineering and Construction Contract is that the role of Project Manager is not included, the contractual interfaces being directly between the Employer and Contractor. There are also spaces for inserting insurance and dispute provisions.

The Short Contract does not have the facility for main and secondary options but the Employer can insert additional conditions in the Contract Data and the use of a Price List which allows the flexibility of using lump sums or rates.

There is no facility for early-warning meetings. However, this is adequately covered by the requirement for the parties to make and consider proposals for how the effect of a notified matter can be avoided or reduced.

The essential defects clauses from Engineering and Construction Contract are retained, though the facility to accept a defect is excluded.

The form can be used as a subcontract to a Short Contract main contract or as an alternative to the Engineering and Construction Subcontract.

2. Complete package
The Short Contract is published as a complete package and includes Conditions of Contract and pre-printed forms which are:-

- Title page
- Contract Data
- Contractor's offer
- Employer's acceptance
- Price List
- Works Information
- Site Information.

When all the forms have been completed for a particular contract the package will comprise the complete contract document, together with the drawings and anything referred to in the Works Information.

4. Time
The Contract Data allows the Employer to state his requirements for a programme and the essentials of starting date, Completion and submission of programme are covered.

5. Payment methods
No optional clauses are provided but flexibility in choice of payment mechanisms is maintained by the use of the Price List which is explained in the box printed above it together with the box in the Contractor's Offer. This will allow a range of payment methods to be used including:-

- lump sum (including activity schedules)
- bill of quantities
- schedule of rates (no quantities available at tender)
- payment for time and materials expended (cost reimbursable)

6. Payment
The Contractor is required to apply for payment. This is different to the Engineering and Construction Contract, where the Project Manager assesses and certifies payment and takes into account any application made by the Contractor.
7. Compensation events
The list of compensation events is a shortened form of the Engineering and Construction Contract, but mention should be made of the following:-

- Loss of Plant and Materials or damage to the works is included, though this is notably absent from the Engineering and Construction Contract.
- The weather provisions have been condensed into periods each of at least one full working day, which are in total more than one seventh of the contract period.
- An event which delays completion by more than 2 weeks and which the contractor could not reasonably have prevented or controlled or which would have had such a small chance of occurring, and is not one of the other events, is a compensation event.

8. Contract Data
The Contract Data is found at the front of the document. Engineering and Construction Contract users will recognise the layout of the forms which are clear and simple in their content and structure covering the names of the Parties, the contractor's offer and the employer's acceptance, dates, the provision for retention, and naming of the Adjudicator.

9. Works Information
The Works Information is also familiar to Engineering and Construction Contract users in specifying or describing the works and any constraints on how the Contractor provides the works.

CONCLUSIONS
A construction contract is basically no different to any other commercial arrangement which requires the delivery of a specific outcome to a specified quality, at an acceptable cost and in an acceptable time. As well as the need to control quality there is also the need to monitor the progress of the project realistically and control outturn cost, particularly where there are financial constraints or limitations. Certainty of outcome is important if the Employer’s capital investment is to perform as intended in terms of his business and that value for money is achieved.

The ECC standard form of contract is able to respond to these requirements by virtue of the flexible contract strategy which enables the optimum procurement strategy to be used, based on the Employer’s objectives. Each individual contract can be tailored from a set of standard clauses, rather than the changing of standard clauses on a ‘bespoke’ basis. The early warning and compensation event procedures encourage good proactive management and the increased and improved ability to control time, cost and quality should, therefore, become a realistic expectation with benefits to all parties to the contract.

* Copies of the NEC Contracts are available from Thomas Telford Publishing