

Engineering and Construction Contract (ECC)

INTRODUCTION

Background

The NEC Engineering and Construction Contract (ECC) (previously the New Engineering Contract) has been developed to meet the current and future needs for a form of contract to be used in engineering and construction generally, which is an improvement on existing standard contracts in a number of ways.

Purpose of guidance notes

The purpose of these guidance notes is to explain the background to the ECC, the reasons for some of its provisions and to provide guidance on how to use it.

Neither the flow charts nor the guidance notes are contract documents, nor are they part of the ECC. They should not be used for legal interpretation of the meaning of the ECC or the ECS.

Objectives

The objectives for the design of the NEC contracts were to make improvements under three main headings.

Flexibility

The ECC is intended

- to be used for engineering and construction work containing any or all of the traditional disciplines such as civil, electrical, mechanical and building work.
 - to be used whether the Contractor has some design responsibility, full design responsibility or no design responsibility.
 - to provide all the normal current options for types of contract such as competitive tender (where the Contractor is committed to his offered prices), target contracts, cost reimbursable contracts and management contracts.
- to be used in the United Kingdom and in other countries.

All the commonly used standard conditions of contract from the various sectors of engineering and construction have been reviewed in the course of designing the ECC. Some of their provisions which were peculiar to particular sectors have been omitted where they are better included in the Works Information. Where they are essential, they have been included in the ECC itself. For example, the need to make full provision for off-site manufacture and testing of work which is characteristic of mechanical and electrical contracts have been included in the ECC.

In order to achieve uniformity across these sectors, some changes of terminology have been necessary. One example is that the word 'Equipment' is used for what, in the building and civil engineering sectors, has in the past been called 'Constructional Plant'. The word 'Plant' is used in the ECC as it is customarily used in all the other engineering sectors. The traditional civil engineering and building term 'temporary works' is covered by 'Equipment' as defined in ECC Clause 11.2(11) and therefore is not used.

Clarity and simplicity

Although a legal document, the ECC is written in ordinary language. As far as possible, it uses only words which are in common use so that it is easily understood by people whose first language is not English and that it can easily be translated into other languages. It has few sentences which contain more than 40 words. Generally, longer sentences have been subdivided using bullet points to permit easier understanding. In the areas of insurance, disputes and termination, some phrases or terms which have a specific legal meaning have been retained.

It is arranged and organised in a structure which helps the user to gain familiarity with its contents. More importantly, the actions by the parties which follow from use of the ECC are defined precisely so that there should be few disputes about who is to do what and how.

The design of the ECC is based upon flow charts of the procedures to be followed by the parties named in the contract. One of the benefits of this approach to drafting has been that opportunities could be taken for simplifying the structure of the contract as well as ensuring that the procedures were not open-ended or conflicting. For example, almost all circumstances which may give rise to additional payment to the Contractor are identified as compensation events. The procedure for dealing with these events is mainly set out in the core clauses and includes review of both the cost and time implications. This contrasts with traditional forms of contract in which the procedure for compensation is different depending upon the nature of each event.

The initial impact of reading the ECC may not convey its full simplicity, in part because a number of newly defined expressions are used. The quantity of text used is much less than existing standard forms and the amount of text needed to give effect to the options is small.

The number of clauses used and the amount of text are less than in many standard forms. The ECC neither requires nor contains cross-references between clauses.

A fundamental objective of the ECC is that its use should minimise the incidence of disputes. Thus words like 'fair', 'reasonable' and 'opinion' have been used as little as possible. This does not mean that the flexibility of administering the contract has been reduced. For example, in most instances where the Project Manager is required to make a decision, the basis of his decision is stated in the contract. This will significantly reduce uncertainty about the outcome of the contract. This benefits the Contractor without constraining the freedom of action of the Project Manager acting on behalf of the Employer.

Stimulus to good

This is perhaps the most important characteristic of the ECC. Every procedure has management been designed so that its implementation should contribute to rather than detract from the effectiveness of management of the work. This aspect of ECC is founded upon the proposition that foresighted, co-operative management of the interactions between the parties can shrink the risks inherent in construction work. Developments in project management techniques and their implementation over the past 20 years have moved faster than the evolution of forms of contract. With the ECC, it is now possible to build arrangements for the different parties to contribute to the management of a project upon improved practices and to motivate all parties, by means of the contract, to apply such practices to their work.

In total, the ECC is intended to provide a modern method for employers, designers, contractors and project managers to work collaboratively. It also enables them to achieve their own objectives more consistently than has been possible using older forms of contract. Use of the ECC is intended to lead to a much reduced risk to the Employer of cost and time overruns and of poor performance of the completed projects. It should also lead to a much increased likelihood of achieving a profit for the Contractor, subcontractors and suppliers.

The two principles on which the ECC is based and which impact upon the objective of stimulating good management are:

- foresight applied collaboratively mitigates problems and shrinks risk, and
- clear division of function and responsibility helps accountability and motivates people to play their part.

A secondary but important theme is that people will be motivated to play their part in collaborative management if it is in their commercial and professional interest to do so. Reliance need not be placed upon exhortation either within the contract or outside it.

Uncertainty about what is to be done and about how the unexpected arising in the course of construction will affect what has to be done are inevitable in construction projects. The ECC allocates clearly the risks arising in these ways between the parties. However, its main task is to reduce the incidence of those risks by application of collaborative foresight. In this way, it aims to improve the outcome of projects generally for parties whose interests might seem to be opposed.

The procedures in the ECC are designed to stimulate good management. Prominent examples of these are the early warning procedure and the way in which compensation

events are dealt with. Compensation events are events which may lead to the payment to the Contractor being changed or the Completion Date being delayed.

A principle of the ECC is that the Project Manager, acting on behalf of the Employer and in communication with him, should be presented with options for dealing with the problem from which he can choose, directed by the interests of the Employer. The Contractor should be unaffected by the choice made. To achieve this, the valuation of compensation events is based upon a forecast of the impact which the change or problem will have upon the cost to the Contractor of carrying out the work ? as forecast by him at the time the event is assessed. Where, as is often the case, alternative ways of dealing with the problem are possible, the Contractor prepares quotations for different ways of tackling the problem. The Project Manager selects one on the basis of which will best serve the interests of the Employer. In some cases this will be the lowest cost solution, in others it might be the least delay solution.

The change to the Prices for the work is based upon the quotation. The Contractor carries the risk if his forecast of cost impact turns out to be wrong, but the Employer has a firm commitment. The risk to the Contractor of this method of pricing is conceptually similar to the risk he takes when pricing work at tender. It is a lesser risk because he is able to forecast costs much more accurately at the time that the problem is identified than he would have been able to do at the tender stage.

This arrangement is intended to stimulate foresight, to enable the Employer to make rational decisions about changes to the work with reasonable certainty of their cost and time implications, and to put a risk on the Contractor which is tolerable and which motivates him to manage the new situation efficiently. An important by-product is that few issues relating to valuation of the work or extensions of time are left to be settled after the event.

This approach has pervaded the drafting of the ECC and is the basis for most of the procedures which it contains. In designing the ECC, the motivation of each party in each action he is to take has been considered against good management criteria. Because this is motivation-driven, it does not appear in the words of the ECC itself but it is intended to result directly from the way in which the procedures are operated.

A typical aspect of this characteristic is the way in which the ECC makes use of the programme for design, construction and installation. Many of the detailed procedures rely upon the fact that an up-to-date and realistic programme maintained by the Contractor is used in joint decision-making between him and the Project Manager. The use of the programme (which includes method and resource statements) is defined in some detail and in such a way that, again, the Contractor is motivated to keep it up-to-date and realistic. He is not simply exhorted to do so.

Subcontracts

The ECC has been designed on the assumption that work may be subcontracted. A standard form of subcontract called the NEC Engineering and Construction Subcontract (ECS) has been published. This is very similar to the ECC but uses appropriate names for the parties and has a small number of additional provisions appropriate to a subcontract.

Use of the same text in the main contract and the subcontract provides certain back-to-back protection for main contractors using the ECS. It also has the convenience that Contractors' and Subcontractors' staff do not have to become familiar with two different sets of text and procedure. There is nothing to prevent a subcontract using a different option from that used in the main contract. An obvious example of this is where the main contract uses the management contract option but the subcontract uses one of the more conventional options. Option F (Management contract) has not been included in the ECS.

Some other changes

Two specific changes from conventional construction practice deserve mention. Firstly, subcontractors cannot be nominated. This change is made in order to simplify contract arrangements and to eliminate the clouding of responsibilities which nomination causes. Elimination of this clouding should not only reduce disputes but strengthen the motivation of the parties to manage their activities. An Employer who has reasons for using a particular contractor for part of the works can use the ECC for a direct contract alongside other contractors.

Secondly, the financial control document in the ECC can be either a traditional bill of quantities or an activity schedule. The activity schedule is a list of items with lump sum prices. The total price for the work to be done is divided between each of the items. This is a simpler document to prepare and use than the traditional bill. Neither document is used in the ECC for any purpose other than assessing payments due to the Contractor.

Application of the ECC

Although, at first reading, the ECC may appear to be similar to existing standard forms, to rely upon such an impression would be wrong. As the flow charts show, most procedures are based on good management practice and often differ from current practice in some engineering and building disciplines. This is not change for the sake of change, as the application of the principles of the ECC in pursuit of its objectives has left very little of conventional practice to be incorporated unchanged.

The user of the ECC must, therefore, study it carefully, as the words are not simply different expressions of familiar practice.

The ECC is drafted in a simple and clear style, but its differences from current practice mean that some explanation and consideration of how it will work is necessary when it is first used. These guidance notes are essential reading for people using the ECC for the first time. They will continue to be useful in training people coming into the management of projects in how to make best use of the Engineering and Construction Contract as part of the NEC System. The published flow charts should also be referred to as illustrations of the procedures on which the ECC is based.

The published documents

The convention of using italics for terms which are identified in the Contract Data of the ECC and capital initials for terms defined in the ECC has been used in these guidance notes.

Arrangement of the ECC

The ECC includes the following sections of text:

- the core clauses,
- the main option clauses,
- the secondary option clauses,
- the Schedules of Cost Components and
- the Contract Data formats.

Other documents when using the ECC will include:

- the Works Information
- the Site Information
- the Accepted Programme
- documents resulting from choosing secondary options such as Performance Bond (if submitted before Contract Date)

Depending on the choice of main option, the documents may also include:

- an activity schedule or
- a bill of quantities.

The Schedule of Cost Components is a complete identification of components of cost which is not varied from one contract to another. It is used to avoid uncertainty where Actual Cost has to be assessed in connection with any of the procedure of the contract. It is not priced.

The Contract Data are selected and completed for each contract. These data identify such things as the completion dates, the contract-specific documents (e.g. specifications and drawings), interest rates and price adjustment indices to be used.

The following volumes are published with the second edition (1995) of the ECC:

- the complete Engineering and Construction Contract (ECC),
- the NEC Engineering and Construction Subcontract (ECS),
- the flow charts,
- these guidance notes and six merged versions of the ECC
- one for each main option.

The complete ECC

This volume contains all the clauses and schedules comprising the ECC including

- core clauses ? common to all contracts,
- clauses for each of the main options A to F ? one of which should be chosen for a particular contract,
- clauses for each of the secondary options G to Z ?each available, if required, for a particular contract,
- Schedule of Cost Components, applicable to main options A to E,
- Shorter Schedule of Cost Components, applicable to main options A to E, and
- Contract Data formats parts one and two.

The EC Subcontract

This volume contains all the clauses (core and options), and schedules constituting the EC Subcontract, i.e: the form of subcontract which is the equivalent of the complete ECC and which is compatible with it. It is intended to be used for subcontracts which are let where the main contract is the ECC.

Flow charts

The flow charts show the procedural logic on which the ECC is based. They are available for reference in conjunction with these guidance notes.

Merged versions

Each merged version includes the clauses for the relevant main option located in their appropriate places amongst the core clauses. Thus, the conditions for each main option can be read together. The main option clauses are in bold print for easy identification.

The merged versions also include

- those secondary option clauses which can be used with each main option,
- the Contract Data, adapted for each main option,
- the two Schedules of Cost Components (except for Option F where they are not required). For Options A to E, these schedules differ only in the introductory paragraph.

Clause numbering

The ECC is arranged in nine sections:

1. General
2. The Contractor's main responsibilities
3. Time
4. Testing and Defects
5. Payment
6. Compensation events

7. Title
8. Risks and insurance
9. Disputes and termination

The first digit of a clause number, whether for a core clause or a main option clause, is the number of the section to which the clause belongs.

The paragraphs within each clause are numbered by the digits after the decimal point. For convenience, a paragraph is frequently referred to in these guidance notes as a clause, e.g. Clause 61.3 means paragraph 3 of Clause 61.

Where a clause or paragraph is used in more than one main option, the same number is used. The number of a paragraph, whether core or optional, is unique to the text of the paragraph.

The secondary option clauses are numbered separately and are prefixed by the option letter.

The tables in Appendix 1 of these guidance notes illustrate the integration of the main option clauses and paragraphs within the core clauses and list the secondary option clauses.

Project organisation

The project organisation assumed in the ECC involves the participants shown in Figure 1.

The ECC is used for the contract between the Employer and the Contractor. The ECS may be used for the Contractor's subcontracts. The NEC Professional Services Contract may be used for contracts with the Project Manager, the designers or the Supervisor. The NEC Adjudicator's Contract is used for the contract between the Employer and Contractor (jointly) and the Adjudicator. It may also be used in subcontracts using the ECS and in NEC Professional Services Contracts.

The roles of the Project Manager, designers and Supervisor may be combined where the objectives of the Employer are served by so doing. Similarly, any or all of these three roles may be taken by employees of the Employer. The role of the Adjudicator should neither be combined with another role nor taken by an employee of the Employer.

Roles and duties

The ECC sets out the responsibilities and roles of the following parties:

- the Employer,
- the Project Manager,
- the Supervisor,
- the Contractor,
- the Subcontractor and
- the Adjudicator

Separate functions of Employer's designer and Contractor's designer are assumed but not mentioned in the contract.

The role played by the Engineer, Architect or Supervising Officer in other standard forms is divided between the Project Manager, the Supervisor, the Employer's designer and the Adjudicator.

The Project Manager

The Project Manager is appointed by the Employer, either from his own staff or from outside. His role within the ECC is to manage the contract for the Employer with the intention of achieving the Employer's objectives for the completed project.

The Employer will normally appoint a project manager in the feasibility study stages of a project. His duties may then also include acting on behalf of the Employer and advising him on the procurement of design, on estimates of costs and time, on the merits of alternative schemes and on choosing the most appropriate contract strategy.

As contracts are placed for construction work, it is preferable to appoint the person or organisation already appointed for the whole project to act as the Project Manager on a particular contract. However, it is essential that the Project Manager for a particular

contract is sufficiently close to the work and has the time and authority to carry out his duties effectively. On very large projects, especially those including several contracts, it may be necessary to appoint a different Project Manager for each contract or for the Project Manager to delegate his responsibilities for some of the contracts.

The ECC places considerable authority in the hands of the Project Manager. It assumes that he has the Employer's authority to carry out the actions and make the decisions which are required of him. If his contract with the Employer constrains him in any way, as for example in the case of a limit on the amount which the Project Manager may authorise as a compensation event assessment, it is the responsibility of the Project Manager to ensure that all the approvals are given in time to enable him to comply with the time periods set out in the ECC. If such approvals by the Employer are not given, the Contractor has the right to raise the matter with the Adjudicator. It is not advisable to state limits on the Project Manager's authority in the additional conditions of contract as this will make settlement of disputes difficult.

The Project Manager is free to seek the Employer's views as much or as little as his relationship and contract with the Employer requires. He will normally maintain close contact with the Employer so that his decisions reflect the Employer's business objectives. He has authority to change the work, to instruct the Contractor, and generally to apply his managerial and engineering judgement. Positive management from both sides is encouraged.

The contractual role of the Project Manager is defined in terms of the actions and decisions he is to take. He is constrained from acting unreasonably in this role by statements of the basis on which he is to make each type of decision but not what decisions he is to make. If the Contractor believes that any of the Project Manager's actions or decisions is not in accordance with the contract, he may refer it to the Adjudicator (Clause 90.1).

Perhaps the strongest feature of the ECC which stimulates co-operation rather than adversarial activity is the fact that the Contractor is little concerned with the way the Project Manager decides to deal with problems which are the Employer's responsibility. If the Contractor's eventual payment is largely secure, he is not encouraged to make the worst of any problems which arise, either as regards their effect upon cost or upon the timing of the work. This feature is strengthened by the flexibility available to the Employer and the Project Manager in their pre-contract choice of main option for a particular contract ranging from price commitment to cost reimbursable. The ECC permits this choice of contract strategy without the need to resort to different standard forms.

Designers

Designers for the Employer's design are appointed by the Employer. If several designers are appointed, possibly covering different disciplines, a lead designer should be appointed.

If the design of the works depends on a process technology, for which the Employer has a licence, he will need to provide appropriate access to it as part of his contract with the designer (and also for management purposes in the Project Manager's contract).

The designer's role is to develop the design to meet the Employer's objectives to the point where tenders for construction are to be invited. If a 'design and construct' contract is envisaged, the Employer's designer's role is restricted largely to providing a performance specification together with standards for design and materials which he may wish to specify for inclusion in the Works Information.

Under the ECC the Employer's designer is not referred to in the contract between the Employer and the Contractor. However, the Employer should ensure that the Project Manager's brief includes management of the designer's activities. The Project Manager should have ready access to the designer for advice.

The Supervisor

The Supervisor is appointed by the Employer for a particular contract. He can be an in-house person or someone from outside. His role is defined in the ECC in terms of the actions and decisions he is to take. Essentially, his role is to check that the works are constructed in accordance with the contract. It is similar to that of a resident engineer or

architect who may be assisted by an inspector or clerk of works. In some circumstances it would be appropriate for the clerk of works to carry out this role

Like those of Project managers, a disputed action by the Supervisor can be referred by the Contractor to the Adjudicator (Clause 90.1)

The Adjudicator

The Adjudicator is appointed jointly by the Employer and the Contractor for the contract. The Employer should insert his choice of Adjudicator in part one of the Contract Data. If the Contractor does not agree with the choice, a suitable person will be the subject of discussion and agreement before the Contract Date. Alternatively, the Employer may propose a list of acceptable names, and the successful tenderer may be asked to select one of them to be Adjudicator. Some Employers may prefer the tenderers to propose suitable names.

The Adjudicator becomes involved, only when a dispute is referred to him. As a person independent of both Employer and Contractor, he is required to give a decision on the dispute, within stated time limits. If either Party does not accept his decision, they may proceed to the tribunal (either arbitration or the courts). Under the Adjudicator's Contract, payment of the Adjudicator's fee is shared equally by the Parties.