



## NEC3 and the Allocation of Risk in the Northern Ireland Construction Industry

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# NEC3 AND THE ALLOCATION OF RISK IN THE NORTHERN IRELAND CONSTRUCTION INDUSTRY

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**Abstract.** *This paper examines the impact of additional clauses of contract in Government Contracts in Northern Ireland (NI). Through a Delphi Process and on-line questionnaire it found 5 Z clauses created additional risk for contractors: Z3, Z5, Z8, Z9, and Z10. It was found that these impacted in different ways: Z9 is most likely to stop contractors tendering, Z10 in relation to FOI is the most likely to stop contractors from carrying out the work and Z5 impact is unlikely to be able to be absorbed. In light of the publication of NEC4 in June, these clauses need re-examined for NI construction work.*

**Keywords:** NEC3; Z Clauses; Procurement; Contracts

## 1. Introduction

The Institution of Civil Engineers (ICE) reviewed its standard Conditions of Contract (COC) for construction in September 1985 [1]. This resulted in the development of the New Engineering Contract (NEC) [2]. The main benefits accrued from the new COC were [3]:

- *Simplicity and clarity*, where the COC was written in simple language, easily understood by non-legal professionals and having clearly defined terms which could be understood in a similar way across a range of types of contracts [4]. This increased understanding from improved communication, contributed to removing litigation on construction projects using the NEC COC between 1993 and 1997 [5].

- *Flexibility*, the need to cover a range of types of work from design to construction and maintenance suggested the need for a suite of contracts [6]. The NEC suite was expanded and currently includes 39 documents, as of April 2013, including an addition, the Professional Services Short Contract [7].

- *A stimulus to good management*, the contract clauses are time bound and guide the user by providing milestones that need to be met throughout the contract but it needs to be resourced correctly [8].

After piloting the NEC in NI, in May 2006, the Department of Finance and Personnel (DFPNI) chose it as *the preferred form of contract for construction works and services undertaken by Departments, their Agencies, Non-Departmental Public Bodies and Public Corporations* [9]. Worldwide endorsements for the NEC followed; in addition, the Professional Service contract was selected by the Association for Project Management as its standard form for appointing project managers [10], and has delivered on many large projects such as the London 2012 Olympic Games venues [11].

### **1.1. NEC3 and NEC4 sections**

NEC3 and NEC4 COC contain 5 standard components: 1. Core clauses, 2. Main Option clauses, 3. Secondary clauses, 4. Cost components and 5. Contract data [12, 13].

One of the differences between the NEC4 (release date June 2017), and NEC3 is the plugging of gaps requiring additional conditions of contract [14]. These are known as Z clauses and NEC4 was proposed to minimise their use [14]. However, the Z Clauses used in Northern Ireland (NI) do not match the new insertions.

### **1.2. Z Clauses**

The use of Z clauses has caused consternation within the construction industry, with suggestions they contribute to legal issues when they amend core clauses within the NEC suite [14]. Some suggest, as a result, that Z clauses should never be used in an NEC contract. While this is a contentious viewpoint, it is widely accepted, that Z clauses should not amend the core clauses within the NEC contract, or transfer risk from the client to the contractor as this is outside the spirit of the NEC [15]. Solicitors, such as Hawkswell Kilvington, (2013) [16] suggest that the clarity and simplicity that led to the initial need for NEC are often missing from the Z clauses added as *mechanisms to amend and/or insert wording into the NEC3 core clauses*, making them *difficult to understand*. These amendments in relation to risk has a large impact on contract successful completion.

In February 2015, within the NI local Executive Government, Procurement Guidance Note PGN 01/15 Standardisation of NEC3 Engineering and Construction Contract Z Clauses [17] was published providing a standard set of Z Clauses for Government contracts. Minor alterations took place in April 2015, July 2015, and September 2016.

### ***1.3. Z Clause Contents***

The Z clauses contained within PGN 01/15 are an exhaustive list and contain 15 core clauses (Z1 to Z15, Table 1) and 13 discretionary clauses (Z16 to Z28) [17]. Core Z clauses are mandatory on all NI Government NEC contracts [17], and will be the focus of this research. Discretionary clauses are to be used depending on individual project circumstances [17]. While some consultation took place before adoption this research seeks to identify the impact in relation to risk transfer that Z clauses produce. This examination has not previously been carried out and this research seeks to fill this knowledge gap as the literature suggests this is critical to success [14, 15, and 16].

## **2. Research method**

### ***2.1. Two Stage method***

The Research progressed through a two-stage process. An initial ‘Expert Delphi’ panel determined the risk allocated to each of the mandatory core Z clauses and consensus identified risk transfer for each. The top ranked Z clauses which reallocated risk to the contractors were then examined through an on-line questionnaire survey following a pilot.

### ***2.2. The Delphi Panel***

The Delphi process is a research instrument to reduce a range of responses from knowledgeable individuals to ascertain expert group consensus on a certain subject matter [18].

Brockhoff (1975) [19] suggests that under ideal circumstances, Delphi groups can perform well even with a number as small as four. However, a prerequisite for good performance is that the panel must be homogeneous in its construction. As all participants involved in this research were employed within the construction industry and members of professional institutions it can be determined from this prerequisite that the panel is homogeneous, allowing a small group. Boje and Murnighan (1982) [20] provide further evidence of good small group performance having investigated panel sizes of 3, 7 and 11. The panel for this research contained 5 experts. Table 1 indicates how they met the criteria.

Table 1. Delphi Panel Criteria

<b>Attributes necessary</b>	<b>Criteria</b>	<b>Achieved with panel</b>
Member of the Construction industry	100 % of panel	5 out of 5 <b>adequate</b>
Membership of Professional Body	100 % of panel	5 out of 5 <b>adequate</b>
Male / Female	Equal number	3 – 2 <b>adequate</b>
Public / Private Sector	Equal number	3 public – 2 private <b>adequate</b>
Knowledge of Government construction procurement	100 % of panel – Extensive knowledge	5 out of 5 <b>adequate</b>
Knowledge of NEC Contracts.	100 % of panel Full knowledge	5 out of 5 <b>adequate</b>
Willing to take part in Delphi Process	100 % of panel	5 out of 5 <b>adequate</b>

Following consensus of 80 % being achieved, a criteria used for medical research [21], which is higher than that required in construction, a pilot and main on-line survey followed.

### **2.3. Survey software used**

The Limesurvey™ package supplied both the pilot and the full structured questionnaire. Responses were stored and analysed directly via the Limesurvey™ software for basic statistics and using the Relative Importance Index (RII).

### **2.4. Survey validity and response statistics**

Thirteen contracts were awarded in the year since PGN 01/15 came into force (Table 2). It can be noted that Contract 6 and 7 were lots and therefore only one response was received as the survey examined different types of contract. Therefore responses were sought from 12 and 6 entirely completed responses were received equating to 67 % of the financial value of contracts let in NI in the year following the introduction of the Z Clauses. Rubin and Babbie (2009) [22] state a minimum response rate of 50 %. Subsequent analysis met this criterion. These contractors tender for 13 contracts above the European Threshold on average per year.

Table 2. Contracts awarded since PGN01/15

No.	Award Date	Contract Value £	Name
18100	6/2/2015	777,640.00	Mascott Construction
17607	13/2/2015	499,359.00	William Coates
16738	16/3/2015	8,249,200.29	Woodvale Construction
18875	4/6/2015	473,999.98	QMAC Construction
18922	27/7/2015	1,688,000.86	QMAC Construction
17750	14/8/2015	15,815,542.57	Lowry Building & Civil Engineering
17750	14/8/2015	16,632,595.35	Whitemountain Quarries
20265	18/8/2015	475,605.00	Quinns Automatic
44	3/11/2015	685,070.57	Quinn Automatic
17	19/10/2015	541,695.22	Cleary Contracting
66	5/1/2016	747,844.72	Dawson Wam
7	4/3 2016	1,482,095.09	Capita Property & Infrastructure
50	25/3/2016	11,729,200.00	JH Turkington & Sons Ltd

Section 3 provides the findings of both the Delphi panel and the survey. Five point Likert Scales were used with the middle value being no change, 1 and 2 suggest a move towards the Contractor and 4 and 5 towards the Client. In relation to number of tenders/ ability, similarly, 1 and 2 indicate an increase in number or decrease in ability, whereas 4 and 5 is a decrease in number or an increase in ability.

### 3. Findings of the Delphi Panel

#### 3.1 Clauses Examined

The core clauses in Table 1 were examined and ranked by the Delphi Group. Consensus of 80% agreement was reached on the first iteration. The top five Z clauses which the panel determined transfer the most risk to the contractor are: **1.Z9** Recovery of Sums. The Delphi panel suggested that Z9 clause was a significant risk to the contractor, both in commercial and reputational terms, and the risk remained even when no longer employed on that contract. (100% consensus), **2.Z10** Information and Data. The panel determined risk to the contractor, from Freedom of Information (FOI) requirements about the contractor and FOI requests from the contractor. It was felt by the panel that FOI request responses required a level of expertise that the contractor may not possess, and there was danger that in fulfilling these requests, they may conflict with other security and confidentiality clauses. (100% consensus), **3.Z1** Additional Conditions of Contract. As Z1 activated the other specific clauses in the contact it was ignored to concentrate on

specific clauses, **4.Z3** Subcontracting. Risks identified from Z3 were; the contractor being responsible for the work of the sub-contractor, not being able to replace a sub-contractor without the authority of the project manager, and having to replace a sub-contractor if so determined by the project manager. Because of this clause the contractor may experience significant difficulty managing subcontractors, if a subcontractor withdraws from the project or is determined as not being of the expected standard. (80 % consensus), **5.Z5** Termination. Risks from receiving a certificate of unsatisfactory performance from the client that would result in exclusion from government tenders for a period of 12 months were identified. The panel also considered the process of recovering funds from the contractor after a termination was unclear – Contract rates or the Replacement contractors’ rate. The terminated contractor would not have any control on the decision. (80 % consensus) and **6.Z8** Assignment and Novation. Risk resulted from the right to assign or novate their rights under the contract to another party without the consent of the contractor. In contrast, the contractor was not able to assign or novate their rights without the consent of the employer. (80 % consensus). The five specific Z clauses (ignoring the General Z1) above, were alone in achieving the 80 % consensus from the Delphi Panel and were examined in the contractors’ survey.

Table 3. Z Clauses examined by Delphi

No	Clause Name	Purpose
Z1	Z Clauses	Brings the Z Clauses into the contract
Z2	Identified & Defined Terms	Introduces and defines new terms to the contract.
Z3	Subcontracts	Forces Contractors to name subcontractors at PQQ and Tender stages
Z4	Payment	Deletes and replaces Clause 50 and 51 of the contract. Reduces assessment time to 3 Days and deals with payment if an invoice is not received.
Z5	Termination	Amends clauses and inserts additional clauses regarding the termination of the contract. Amends clause 90 of the NEC3 contract to allow additional reasons of termination by the client. These are; 1.Un-qualified person as defined by clause Z2 11.2 (122), 2. The issuing of an unsatisfactory performance certificate.
Z6	Option W2	Makes a reference to Northern Ireland rather than UK legislation.



Z7	Option Y(UK)2	Makes a reference to Northern Ireland rather than UK legislation. This also establishes the Employers/ Project Managers notification as the payment notice.
Z8	Assignment & Novation	Enables the Contractor or employer to novate or assign their obligations and rights under the contract to other persons but only with the Employers permission.
Z9	Recovery of Sums	Allows the Employer to offset any payment owed by the contractor on other contracts between the contractor and Contracting Authorities
Z10	Information & Data	Establishes requirements on the contract regarding Freedom of Information, Information Sharing Agreements, protection and security of personal data and confidentiality, transparency and publicity.
Z11	Prevention of Fraud	Obliges the contractor to attempt to prevent fraud regarding the contract and introduces a reason for termination by the Employer due to any public sector fraud.
Z12	Bribery Act 2010	Introduces a reason for termination regarding the Bribery Act 2010 on any public service contract and create an obligation on the contractor.
Z13	Contract Monitoring	Gives the Employer the right to appoint a Construction Contract Monitor CCM as a way for the employer to satisfy themselves as the accountability and governance of the contractors systems and procedures. Allows any fees for information incurred by the contractor due to requests by the CCM to be claimed under a compensation event
Z14	Tax compliant	The Contractor has to notify the Employer in writing of any non tax-compliant occasions within 5 days and the steps the contractor is taking to address the matter. The Employer if not satisfied may terminate the contract.
Z15	Application to Northern Ireland.	To correct discrepancies in the contract where the contract refers to UK Legislation, when Northern Ireland legislation is in force.

## 4. Survey Results

### 4.1. NEC Contract Use and alterations

Contractors were evenly split on whether the NEC3 COC was the best for Government to use. The other competing contract was the JCT conditions and it was suggested as *it was less resource intensive* as NEC was *not administered correctly*. Five out of the six respondents considered that the NEC3 conditions should be used unaltered by Z Clauses. Qualitative reasons provided were – *Z clauses often undermine the intent of the contract, a lot of consideration was made in drawing up the NEC and carefully balancing risks between employer and contractor. Some employers are undermining the spirit of NEC with Z clauses, and Z Clauses can be misused, they can make the contract ambiguous as a result. Project management can be hampered and the project is likely to cost more, or take longer to complete.* Therefore the contractors consider that misuse of additional clauses causes ambiguity and risk avoidance.

### 4.2. Z Clause Risk Balance

Table 4 indicates the Z Clause package overall was considered by contractors to have transferred the risk towards the contractor by 25 %. Z3 created the greatest risk for the contractor in relation to subcontractor involvement, followed jointly in second by Z9 and Z10. Z3 and Z5 created little additional risk.

Table 4. Z Clause Risk Balance

	Overall	Z3	Z5	Z8	Z9	Z10
Mean	2.5	2	3	3	2.33	2.33
Rank		1	4	4	2	2

Table 5 indicates Z9 in relation to the recovery of sums is the most likely to stop contractors tendering. Z10 with its FOI requirements is the most likely to inhibit contractors from carrying out the work. While Table 4 indicates the new Z5 added little additional risk, the risk in termination creates the greatest impact, with organisations unlikely to be able to absorb it.

Table 5. Z Clause Analysis

	Z3	Z5	Z8	Z9	Z10
<b>Change in the Amount of Tendering</b>					
Mean	3.17	3	3	2.83	3.17
Rank	2	4	4	1	2
<b>Organisations Ability to carry out the Works</b>					
Mean	2.83	2.67	3	2.83	2.67
Rank	3	1	4	3	1
<b>Organisations Ability to carry the Additional Risk</b>					
Mean	2.17	1.83	2.67	2.17	3
Rank	2	1	4	2	5

## 5. Conclusions

The paper examined the use of the NEC3 COC in Northern Ireland. Contractors were evenly split on whether the government was correct in choosing the NEC3 COC with some suggesting JCT for construction contracts. However, the majority supported the use of NEC3 if it had been administered correctly. They suggest its implementation without Z Clauses. The impact of PGN 01/15 cannot therefore be minimised as the clauses transfer an additional 25 % towards the contractor. This research examined the resulting impacts of this transfer for the first time. It used a Delphi Panel and On-line Questionnaire survey. Consensus was reached from the Delphi group that 5 Z clauses created additional risk for contractors: Z3, Z5, Z8, Z9, and Z10 (Table 3). Of these, Z9 recovery of sums is most likely to stop contractors tendering. Z10 in relation to FOI is the most likely to inhibit contractors from carrying out the work and Z5 created the greatest impact, with organisations unlikely to be able to absorb its affects. As the introduction of NEC4 does not overlap, it will not alleviate the issues of the risk transfer of the Z Clauses if they are retained. As a result, Government in NI need to examine these findings going forward.

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