

nec NEWSLETTER



The final £207 million section of line 1 links Edinburgh's city centre with the port areas of Leith and Newhaven

NEWS

NEC4 contracts used to complete line 1 of Edinburgh's tram system

SIMON FULLALOVE EDITOR

NEC contracts have been used to complete line 1 of the Scottish capital's tram system. The City of Edinburgh Council let the £207 million project for completing its 18.5 km long high-capacity light railway under two separate NEC4 Engineering and Construction Contracts (ECC) in November 2019.

Morrison Utility Services (MUS) was engaged under an NEC4 ECC Option E (cost reimbursable contract) to clear a 'swept path' of utilities, archaeology and below-ground obstructions on the 4.7 km route from York Place in the city centre to the port areas of Leith and Newhaven. Construction and implementation of the new twin tram tracks, eight stations and communications and control systems was then carried out by Sacyr Farrans Neopul (SFN) under an NEC4 ECC Option C (target contract with activity schedule).

Turner and Townsend (T&T) was engaged under an NEC4 Professional Service Contract (PSC) to provide programme, commercial and risk management, including acting as NEC project manager and supervisor for both contracts.

Despite the challenges of working in a congested urban environment, Covid-19 and supply chain disruption, the completed line was fully opened for passenger services in June 2023, providing a direct transport link between Edinburgh's airport and seaport as well as improved cycling and walking infrastructure. The remaining signage, street lighting and landscaping were completed to the agreed programme and budget by November 2023.

Close collaboration

The council's senior responsible officer Hannah Ross says the NEC requirement for the parties to act in a 'spirit of mutual trust and co-operation' was vital to the success of the complex project. 'The unique construction strategy, with two separately contracted main contractors working side by side, required close collaboration from the outset to ensure the behaviour and mindset of each contractor were focused on the success of the project as a whole.'

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EDITORIAL

New 'Gold Standard' verification for procurement frameworks



JOHN WELCH NEC USERS' GROUP CHAIR

As I highlighted in Issue 117 (Welch, 2022), the UK government's Cabinet Office published an independent review of over 2,000 public sector construction procurement frameworks called *Constructing the Gold Standard* (Mosey, 2021). It set out 24 key recommendations to bring government and industry together to tackle waste, secure value for money and drive innovation to achieve better, faster, safer and greener outcomes.

The 'Gold Standard' was subsequently endorsed in the 2022 update of *The Construction Playbook* (HM Government, 2022). I am now pleased to report that UK industry platform Constructing Excellence and King's College London have launched a 'Constructing the Gold Standard Verification' scheme in November 2023 (Constructing Excellence, 2023). This aims to validate and verify claims made by framework providers and also provide a measure of quality for both clients who use frameworks and for suppliers who bid for frameworks.

Framework providers wishing to obtain verification are required to submit applications via Constructing Excellence, which will carry out an independent

'NEC's mission from the outset has been to, 'provide clarity, flexibility and stimulate good management' and, as I mentioned in 2022, the NEC suite of contracts complement many of the Gold Standard recommendations.'

verification and assessment on how they comply or plan to adopt each of the 24 Gold Standard recommendations. Seven clients and framework providers are currently piloting the scheme: Ministry of Justice, Environment Agency, Scape, CHIC, LHC, Places for People and Crown Commercial Service.

NEC alignment

NEC's mission from the outset has been to, 'provide clarity, flexibility and stimulate good management' and, as I mentioned in 2022, the NEC suite of contracts complement many of the Gold Standard recommendations.

At the heart of the recommendations is a drive to ensure that all public sector construction frameworks prioritise net zero greenhouse gas emissions. Through NEC option X29 on climate change, NEC users can support, incentivise and tangibly demonstrate carbon dioxide reduction initiatives on future builds across the sector.

The Gold Standard recommendations recognise the importance of improving supplier investments in modern methods of construction and other offsite technologies. NEC contracts provide several processes

that can be used to support the successful integration of offsite manufacturing into the creation and maintenance of assets.

'Golden thread'

Just as important is option X10 on information modelling, which can be selected to cover the contractual matters related to the creation or updating of an information model supporting the Gold Standard aim to create a whole-life 'golden thread' of asset information.

Early supply chain involvement is another key recommendation. NEC option X22 on early contractor involvement facilitates early appointment of the supply chain to work with consultants and others improve economic, social, safety and environmental outcomes.

Incentivisation and innovation are critical elements of any successful projects and I have previously spoken about the benefit of creating specifications that focus on required client outcomes. NEC is well structured to support this element of the Gold Standard recommendations with option X12 on

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◀ All NEC users, including those using frameworks, should familiarise themselves with the Gold Standard's recommendations

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She says a culture of teamwork was engendered from the start through use of ECC option X22 on early contractor involvement. 'During the early contractor involvement stage, time was set aside to help forge the relationships required to deliver the project. The project team also established a project charter at the outset, which was signed by all team members and set out the high professional standards we were determined to achieve.'

Ross says the project team always strove to achieve best practice in applying NEC contract processes to ensure a successful outcome. 'Both contracts were administered using Cemar software to enable proactive contract management. This included timely early warnings, with all personnel encouraged to raise them; correctly notified and assessed compensation events; and regular programme submission and acceptance.'

Overcoming challenges

T&T director of project delivery Steve Jackson says the success of the NEC-inspired collaboration was evidenced in how the project team overcame the project's many and various challenges. 'Delivering a project of this nature through a historical city coupled with significant excavation and below-ground works was no easy task. We sought to limit impact on traffic movement by combining the expert knowledge of the council as the roads authority with input from

SFN as traffic management designer and MUS as route clearance contractor, all brought together by T&T as programme manager.'

He says other challenges included the Covid-19 pandemic and widespread supply chain disruption. 'To overcome these the team deployed creative and joined-up thinking in short timescales to re-sequence works but maintain a focus on the project's critical path. Maintaining the overall programme throughout this unprecedented period could only be achieved through the input of all members of the project team appreciating the issues and coming up with solutions. As a result, the project remained on track to be delivered on programme and budget.'



The final 4.7 km of line 1 was successfully delivered by two NEC4 ECC main contracts and completed in November 2023

BENEFITS OF USING NEC

- NEC suite provided appropriate procurement options, with ECC Option E (cost-reimbursable) for route clearance and ECC Option C (target contract) for infrastructure and systems.
- NEC obligation to act in a 'spirit of mutual trust and co-operation' ensured both main contractors worked together for the good of the project and collaboratively overcame challenges.
- NEC contract processes such as early warnings, compensation events and programme submissions were efficiently managed and help to ensure the project was delivered on time and budget.

NEWS

More than 220 delegates attend the NEC Asia Pacific Conference



IVAN CHEUNG NEC ASIA PACIFIC USERS' GROUP SECRETARY

Over 220 delegates attended the annual NEC Asia Pacific conference in December 2023 at the Cordis Hotel in Hong Kong. The main theme of the one-day event was, 'Beyond boundaries: embracing change in construction through collaboration and innovation'.

Following opening remarks by NEC Asia Pacific Users' Group chair Ricky Lau, Permanent Secretary for Development (Works) at the Hong Kong government's Development Bureau, the keynote speech was given by Helen Sturdy, Head of Construction and the NEC-based ProCure23 framework at NHS England.

The morning presentations focused on how technology and innovative approaches on major NEC projects have helped to overcome challenges and improve sustainability through collaborative working. Afternoon workshops included a review on how the new NEC Engineering and Construction Contract (ECC) Hong Kong Edition will work in practice, after which there was a final panel discussion on the future of collaborative contracting.

The presentations will be made available in the NEC Community app. ○



NEC Asia Pacific Users' Group chair Ricky Lau gave the opening address

NEWS

NEC-procured projects again do well at British Construction Industry Awards

SIMON FULLALOVE EDITOR

NEC projects again featured strongly in the 2023 British Construction Industry Awards, particularly those entered by UK local authorities.

The event at London's JW Marriott Grosvenor House Hotel on 11 October 2023 saw projects delivered with NEC contracts winning or being highly commended for five of the 10 project-related awards. The others were delivered using JCT, Network Rail, IChemE and bespoke forms.

Transport winners

Leeds City Council's £81 million East Leeds Orbital Route won the Transport Project of the Year and was highly commended for the National Infrastructure Commission (NIC) Design Principles Award. The 6.8 km dual carriageway complete with cycleways, pocket parks and outdoor gyms was procured using an NEC3 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule).

Transport for London's (TfL) £700 million Bank Station Capacity Upgrade project, also delivered under NEC3 ECC Option C, was highly commended for the transport prize, while its £19 billion NEC-procured Elizabeth line was also highly commended for the NIC Design Principles Award.

Environmental prizes

Derby City Council's £7 million Mill Fleam Pumping Station project won the Environmental Project of the Year. The 4500 l/s flood defence pumping station was delivered in just 15 months using an NEC4 ECC Option A (priced contract with activity schedule). Bridgend County Borough Council's £6 million Porthcawl Sandy Bay Coast Scheme, procured using and NEC3 ECC Option A, was highly commended in the environmental category.

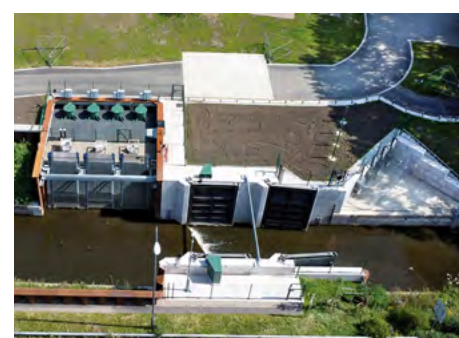
Also delivered under NEC3 ECC Option A was Milton Keynes City Council's £32 million Glebe Farm School, which was highly commended for the Social Infrastructure Project of the Year. Finally National Grid's multi-million-pound NEC4 ECC reconstruction of its fire-damaged French interconnector substation at Sellindge in Kent was highly commended for the Utility Project of the Year.

Shortlisted projects

Of the 45 project entries that were shortlisted for this year's awards, 18 were procured by NEC contracts, 13 by JCT, nine bespoke, two each for Network Rail and ICC, and one IChemE. ○



NEC-procured East Leeds Orbital Route won the Transport Project of the Year



Mill Fleam Pumping Station won the Environmental Project of the Year

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multi-party collaboration, X20 on key performance indicators, X17 on low performance damages and X29 on climate change performance.

Risk management

Finally, NEC contracts provide an excellent basis to encourage and support risk management through all stages of any project or service provision, which complements the Gold Standard recommendation that risk allocation is dealt with clearly and equitably.

I ask all NEC users to familiarise themselves with the 24 recommendations and seek the opportunity to

convert their value objectives into agreed contracts, including those procured through frameworks. The result will be delivery of better, safer, faster, greener projects and programmes of work. ○

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CASE STUDY: *Building*

NEC-based ProCure 22 framework used for Manchester's major trauma hospital

SIMON FULLALOVE EDITOR



The NEC-procured major trauma hospital has a rooftop helipad with direct lift access

NEC has been used to deliver a new state-of-the-art major trauma hospital in Manchester, UK. Client Northern Care Alliance NHS Foundation Trust procured the new Greater Manchester Major Trauma Hospital through the NEC-based ProCure 22 framework under an NEC3 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule).

The £48 million building work was let in November 2020 to NEC Users' Group member BAM Construction, a principal supply chain partner on the ProCure 22 framework, which is run by the NHS for the NHS. DAY Project Management was the NEC project manager with architect DAY Architectural, structural engineer Mott MacDonald, services engineers DSSR and BAM Se, fire consultant OFR and ProCure 22 supervisor Ross Quality.

The contract involved designing and constructing an eight-storey, 10,000 m² reinforced concrete, rain-screen-clad building on piled foundations in a severely constrained site within the grounds of Salford Royal Hospital. Its primary purpose is to provide urgent treatment for people who have suffered major trauma, such as from a serious traffic accident or fall.

The BREEAM 'excellent' building has a roof-mounted helicopter landing pad which provides direct lift access to five emergency operating theatres, 12 emergency resuscitation bays, seven inpatient beds and a suite of MRI, CT and X-ray scanners with a view to reducing time to treatment. Work started on site in February 2021 and the hospital was handed over in August 2023.

Collaboration and early warnings

Barry Cleminson, director of DAY Project Management, says the NEC requirement for the parties to act in a 'spirit of mutual trust and co-operation' was fully embraced by the project team. 'The NEC contract ensured collaborative working throughout the project. This included the need to communicate clearly any issues regarding cost and programme via early warnings and/or notification of compensation events'.

He says the NEC early warning system worked particularly well on the project. 'It provided a clear picture to the project team of all foreseeable issues and how best to action them. Early warnings with a notable impact warranted their own risk-reduction meeting to work out how best to mitigate the risk to the project, and these were undertaken with the entire project team. Any changes to the works information were then quickly and fairly agreed with the contractor through the NEC compensation event process.'

Cleminson says communication was also assured through use of the Sypro contract management system a wide range of regular meetings. 'These included monthly progress meetings, fortnightly design team meetings, weekly site walkovers, and monthly commercial and risk reviews. The NEC project manager also held quick "coffee catch ups" two to three times a week with project team members to discuss any issues, concerns or suggestions for improving the programme or quality before rolling these out to the wider project team.'



Main entrance of the new BREEAM 'excellent' rated hospital

BENEFITS OF USING NEC

- NEC requirement on the parties to act in a 'spirit of mutual trust and co-operation' helped to encourage collaborative working throughout the project.
- NEC early warning process meant that issues were identified and mitigated through risk-reduction meetings.
- NEC compensation events process ensured that changes to the works information were quickly and fairly agreed with the contractor.

CASE STUDY: *Transport*

New pier at Pak Kok on Lamma Island in Hong Kong delivered with ECC Option B

SIMON FULLALOVE EDITOR



The new NEC-procured pier extends out from the existing short reinforced concrete pier

NEC has been used successfully for the first of a series of contracts to improve public piers in Hong Kong. The Civil Engineering and Development Department of the Government of Hong Kong Special Administrative Region let the reconstruction of Pak Kok pier on Lamma Island to Yee Hop Engineering Company Limited under a HK\$56.59 million (£5.7 million) NEC3 Engineering and Construction Contract (ECC) Option B (priced contract with bill of quantities). The work started in April 2020 and was completed on time and budget in October 2022.

Pak Kok pier was the first project completed under the government's pier improvement programme. It is a stop on the passenger ferry service between Aberdeen on Hong Kong Island and Yung Shue Wan on Lamma Island, used by both locals and tourists. The old pier, which was first built by villagers and then reconstructed in the 1970s and 1990s, is a small reinforced concrete structure with a single short set of landing steps that required ferries to berth head-on.

The new much larger pier extends sideways and outwards from the old pier and provides longer landing steps on each side, allowing ferries to berth side-on. A fixed ramp on the western berth enables wheelchair users or passengers with shopping carts to access the pier step-free. Wave-reduction panels along the pier also help to improve the stability of berthing vessels, improving passenger safety. Precast concrete elements were used extensively for the new pier structure, which is topped by a new steel, timber and glass roof with solar panels. The contract also included provision of new lighting, seating, handrails, a drinking fountain, wi-fi hub, USB charging points and electronic display panels.

Collaboration and partnership

The NEC requirement on the parties to act in a 'spirit of mutual trust and co-operation' was a key to the project's success. This requirement was fully realised through the close collaboration and partnership between CEDD – which was acting as the employer, project manager and supervisor – and the contractor.

CEDD ensured that high safety standards were maintained throughout the construction work. ECC secondary option X20 on key performance indicators was used to incentivise the contractor to meet CEDD's safety objectives through a key performance indicator for the project's 'Pay for Safety Performance Merit Scheme'. Through joint efforts of CEDD and the contractor, a record of zero accidents was achieved during construction.

To minimise the impact of the Covid-19 pandemic on the contractor's cash flow, secondary option X14 on advanced payment to the contractor was also used. This enabled the contractor to request advance payment from the employer, which was repaid in instalments. It further demonstrated the mutual trust relationship between the employer and the contractor under NEC.

At the outset of the project, a common office was established in which CEDD and contractor's staff were seated next door to each other to facilitate effective communication. Working in the same space allowed the project manager's team and the contractor to collaborate more easily, share ideas, brainstorm solutions and work together to overcome any challenges that arose.

Innovation and risk

Innovative engineering solutions, such as the precast concrete pier structures, were extensively used to minimise the impact of tides on work progress, enhance worker safety and ensure quality. Comprehensive planning of the construction method and sequence was crucial. Weekly design meetings with the contractor were held to review the construction method and progress of precast element construction, share updates on any changes in design or scope, and resolve any issues or concerns that arose in a timely manner.

CEDD and the contractor prioritised early identification of risks. In line with NEC early warning processes, regular risk reduction meetings were held and a risk register was maintained to anticipate and prepare for risks by developing appropriate mitigation strategies.

The project team concludes that the close partnership between CEDD and the contractor, inspired by NEC, ensured the project was completed on time, within budget and with zero accidents. They say successful completion of the reconstruction of Pak Kok pier on Lamma Island was a testament to the power of mutual trust and collaboration.



ECC Option X20 was used to incentivise the contractor to meet the client's safety objectives

BENEFITS OF USING NEC

- NEC requirement to act in a 'spirit of mutual trust and co-operation' ensured a close collaboration and partnership between all parties.
- ECC option X20 incentivised the contractor to achieve a key performance indicator on safety, which helped to achieve zero accidents.
- ECC option X14 helped to ease the contractor's cashflow through advance payments during the Covid-19 pandemic.
- NEC early warning processes led to regular risk reduction meetings and maintenance of a risk register, helping to keep the contract on programme and budget.

CASE STUDY: *Water*

NEC used to reduce tidal flooding risk to 4,500 properties in Great Yarmouth, UK

SIMON FULLALOVE EDITOR



Plant used to improve 4 km of defences included shore- and water-based crawler cranes and limpet dams

NEC Users' Group silver member the Environment Agency has used NEC contracts to procure an award-winning five-year flood defence project in Great Yarmouth on the east coast of England.

The Norfolk seaside town has a history of flooding caused by North Sea tidal surges overtopping the banks of the Rivers Yare and Bure, most recently in December 2013. The project, known as Great Yarmouth Flood Defences Epoch 2, involved local improvements to 4 km of the town's 10 km of steel-sheet-piled and concrete flood defences. These reduce the risk of tidal flooding to around 4,500 homes, business and critical infrastructure but have become badly corroded in places.

Following a phase of early contractor involvement, the Environment Agency awarded the £30 million design-and-construction contract in February 2019 to its water and environment management framework contractor JBA Bentley under an NEC3 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule). NEC project manager Turner & Townsend and NEC supervisor Jacobs were both appointed under an NEC3 Professional Services Contract (PSC).

The work involved enhancing, refurbishing or replacing quay walls at 40 locations to ensure they would provide 1-in-200-year (0.5% annual exceedance probability) flood protection over a 30–50 years design life. Solutions included raising existing wall heights, installing cathodic protection, plating existing

sheet piles, repairing concrete capping beams and constructing new set-back (retired line) flood walls. The contractor undertook both quayside and maritime activities using a wide variety of equipment, including multiple crawler cranes, one mounted on a jack-up barge, and innovative limpet dam technology for underwater inspections and repairs.

Despite Covid-19 restrictions during the middle part of the project, it remained on time and within budget for completion in April 2023. The project won the Environment and Sustainability Initiative prize in the 2021 British Construction Industry Awards (BCIA), where a 65% reduction against the carbon baseline demonstrated a saving of over 5,500 tCO₂e. The project team was also shortlisted for the Temporary Works Initiative award in the 2022 BCIA and was voted runner-up in the 2022 NEC Martin Barnes Contractor of the Year Award.

Appropriate risk allocation

NEC project manager Guy Walker says, 'The Environment Agency has used NEC contracts for over a decade. As such the client has a strong understanding of how to use the various NEC options to provide the most appropriate allocation of risk. In this case ECC Option C was selected for the main works contract as it enabled the parties to share risks and commercial success, encouraged both to drive efficiencies during design and construction, and

gave the client financial transparency.'

He continues, 'PSC option E (cost reimbursable contract) was used for the consultancy appointments. This allowed each party to assess the time requirement on a rolling basis as the project dictated. While this put most risk on the client, the defined cost forecasting requirement gave the client sufficient visibility and control to challenge forecast time when necessary.'

Collaborative approach

Walker says the NEC requirement for parties to act in a, 'spirit of mutual trust and co-operation,' helped to ensure a highly collaborative approach from the outset. 'From the early contractor involvement phase through the highly uncertain times of the Covid-19 lockdowns and on to completion, the project team followed the core NEC principles of "mutual trust and co-operation".'

He says his mantra as project manager was, 'contract management, not contract administration.' 'To this end we set up structured monthly meetings above and beyond NEC's administrative requirements. The project team met for the required NEC early warning notification reviews and defined cost forecasts, but we also held design, compensation event and monthly progress meetings, where the accepted programme review was a key agenda item.'

Walker says a key learning from a previous project was to make the design development and review process work for everyone. 'The design was split into 21 geographical work packages, allowing the contractor's design team to focus on discrete deliverables. The works information was written to afford 21 or 28 days for design acceptance, thus stepping away from the two weeks period for reply, but providing sensible time for a thorough review. The works information also introduced the concept of "accepted with comments", which allowed the contractor to continue within certain parameters.'

He says the contractor led all design workshops and ad-hoc sessions and was a frequent and active problem solver in advance. 'Despite much of the

BENEFITS OF USING NEC

- NEC requirement on the parties to act in a, 'spirit of mutual trust and co-operation,' helped to ensure a fully collaborative approach within the project team.
- NEC flexibility enabled the client to choose a risk-sharing ECC target contract for the main design-and-build works and cost-reimbursable PSC contracts for its consultancy team.
- NEC contract mechanisms of early warnings, defined cost forecasts and programme reviews helped to ensure the complex and challenging works programme was completed ontime and budget.

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works requiring similar solutions, a “one size does not fit all” approach was adopted. This allowed the achievement of several clause 63.11 implementations which incentivised the contractor to seek cost reductions – and increase commercial gain share – through value engineering and efficiencies, local supply-chain use benefits, environmental enhancements and recycling.’

Positive behaviour

Walker says the project team displayed positive behaviour across all NEC contract processes. ‘For NEC early warning meetings, the contractor always prepared mitigations in advance to prompt discussions and ideas. Relevant parties actively

contributed to compensation event meetings when discussing the concepts and quotation requirements of each event. The project team also made frequent, positive contributions to developing and agreeing my project manager assumptions, which allowed the team to make sensible decisions on less certain change events and risk.’

He adds that the contractor allowed the client’s cost manager access to its procurement and time sheets systems to assess the amount due independently. ‘The end result of this NEC-inspired collaboration and positive behaviour was that this complex and challenging project remained on time and within budget for a completion date of April 2023, a testament to the full project team’.



The £30 million NEC-procured coastal defence scheme included plating existing steel sheet piles

PRACTICE

How to foster ‘mutual trust and co-operation’ in NEC contracts



MARK GRIFFIN GLEEDS DEL PERU

KEY POINTS

- NEC4 ECC requires the contractor, client, project manager and supervisor to ‘act in a spirit of mutual trust and co-operation’.
- This is a contractual requirement, which establishes a collaborative working relationship from the outset.
- This article explains how it can be achieved through effective communication, knowing each other’s objectives, compliance and leadership.

Clause 10.2 in the NEC4 Engineering and Construction Contract (ECC) (clause 10.1 in NEC3 ECC) states: ‘The Parties [which means the contractor and the client], the *Project Manager* and the *Supervisor* act in a spirit of mutual trust and co-operation.’ There are several things to observe within this short clause.

- It is a requirement on all the four main players in an NEC4 ECC, not just the contractor or client.
- It is a contractual obligation – it does not say ‘may’ or ‘should’ so is not optional. It is not a ‘nice-to-have’.
- It is the second clause of the contract, establishing a collaborative philosophy from the outset.
- It is separate from the clause 10.1 obligation to ‘act as stated in this contract’, emphasizing both requirements.

There are numerous other published texts available regarding the legal applicability of the clause 10.2 provision (such as Davis and Cooke, 2022 and Mante, 2023). This article examines practical ways to establish ‘a spirit of mutual trust and co-operation’. This is often not present in traditional public-sector construction contracts outside the UK, which have a strong tendency to culminate in lengthy suspensions while disputes are arbitrated.

It can be no mean feat to embed new ways of working, requiring fresh behaviours and mindsets in all parties. The following four key areas can enable this to happen successfully.

Effective communication

As in so many aspects of daily life, whether on a

project or at home, communication is fundamental. Trust is earned with open and honest communication; it cannot be forced. Trust can be built through face-to-face meetings, with attendance limited to only the people really needed to contribute to the meeting.

Short, daily face-to-face communication between the project manager and the contractor’s project director will allow a relationship to develop, whereby urgent matters can be discussed and decisions taken. This kind of fluid and informal communication should not be treated with suspicion by public auditing bodies.

Of course, some outcomes will require a formal written communication (clause 13.1), such as a change to scope or a suspension to a part of the works. But solutions can be discussed openly beforehand to avoid surprises and ensure both sides can provide their point of view and expertise to solve a problem.

Daily, informal communication should extend to each specialism within the project teams. For example, there should be daily face-to-face or telephone communication between the planners, safety specialists and cost engineers of the project manager’s and contractor’s respective teams.

Know each other’s objectives

It is tempting to assume the other party’s objectives rather than talk to each other to really understand them. The client and project manager may assume that the contractor’s objective is solely to maximise its profit from the contract, while the contractor may assume that the client’s objective is to obtain the lowest price for the works and to complete on time. However, individual objectives may include a variety of other factors.

For example, the contractor may wish to increase its pool of reliable suppliers, assure its cash flow or enhance its reputation for future projects of a similar nature. And the client may wish to meet spend targets within a fiscal cycle or have a minimal number of defects on opening day.

Each party should have had a frank and open conversation with their counterpart about all their goals for the project and what the priorities are. If both parties know each other’s goals, then they can take decisions that maximise the possibility of achieving those.

There are many in-built mechanisms in the ECC, depending on the options chosen, that help to align the client’s and contractor’s objectives, achieving a win-win outcome. Examples include the following.

- The ‘pain/gain’ mechanism in ECC Option C (target cost with activity schedule) and Option D (priced contract with activity schedule).
- Early contractor involvement (option X22).
- Multiparty collaboration (option X12) and key performance indicators (option X20).
- Whole-life cost (option X21) and climate change (option X29).
- Contractor’s proposals (‘value engineering’, clauses 16.1 and 16.2).

Comply mutually and with the contract

Parties should agree realistic dates to deliver information, design deliverables and instructions and comply with these. Each party can then plan around the other party’s commitments and report to their management, the client and external stakeholders (for example communities, ministries and the press), avoiding missed deadlines which can lead to a breakdown of trust.

Many timescales are already provided within the ECC, with sanctions for non-compliance, and bear in mind that all players have an obligation to comply with the contract (clause 10.1). However, commitments for day-to-day actions are also made frequently within meetings and these should be realistic and complied with.

Succinctly recording actions, responsible persons and deadline dates in simple meeting minutes should be seen as a collaborative action because in this way there can be no doubt about what the agreed action was and by when it should be taken. These actions should be ‘Smart’ – specific, measurable, achievable, relevant and timely.

Leading by example

It is easy for team members when entrenched on a project to fall into a pattern of constant battling with their counterparts. It is the job of the leaders on each side to rise above and set the collaborative tone and vision which their project teams can follow.

In particular, the leaders of each party should demonstrate the qualities of acting in good faith and transparently. If leaders adopt an attitude of trying to make quick wins at the expense of the other party, then their team members will most likely repeat this behaviour, leading to a breakdown of trust and co-operation within every specialism and at every level of the organisation.

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Conclusions

Fortunately, acting in accordance with the NEC4 ECC contract (as required by clause 10.1) should naturally lead to the generation of 'mutual trust and co-operation' through the contract's many collaborative mechanisms. Examples of these include the following:

- Project manager making decisions regarding certificates and compensation events in an impartial manner from the client.
- Early warnings to notify risks opportunely and deal with them together.
- Formal communications (such as instructions) in writing, avoiding ambiguity and uncertainty.
- Resolution of changes in short durations, reducing the uncertainty of both parties.

- Resolution of disputes in short durations, such as via a dispute avoidance board.
- Maintaining an accepted programme that allows planning, timely decision making, reliable communication to external stakeholders and measurement of impacts due to compensation events.
- Progressive close-out of defined cost (clause 50.9), avoiding surprises at the end of a project.
- Limited and clear reasons for the project manager not accepting the contractor's deliverables.

Summary

In summary, NEC is a radically different way of contracting where the parties are required to

collaborate through in-built core and optional contractual mechanisms. However, the behaviour of the people involved is also key to generating this spirit: they must communicate openly, understand each other's objectives, comply with commitments they make and show leadership. ○

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PRACTICE

Using X23 to extend the service period of NEC4 service contracts



ANDREW WOOLDRIDGE-IRVING GVE COMMERCIAL SOLUTIONS

KEY POINTS

- NEC4 service contracts usually specify a fixed service period.
- Option X23 allows for the service period for certain forms of contracts to be extended.
- It is important to define what services are carried out during the extended service period along with any requirements as to how the services are undertaken.

A common understanding among NEC users is that compensation events assess the effects of both time and money. Although this principle applies to many NEC forms, it is not generally the case with the following NEC4 service contracts:

- term services: Term Service Contract (TSC), Term Service Short Contract (TSSC) and Term Service Subcontract (TSS)
- facilities management: Facilities Management Contract (FMC), Facilities Management Short Contract (FMSC), Facilities Management Subcontract (FMS) and Facilities Management Short Subcontract (FMSS).
- Design Build and Operate Contract (DBOC)

For all these contracts, quotations for a compensation event comprise proposed changes to the prices, and to the performance table for the facilities management and DBOC forms.

A compensation event is only assessed for time in relation to task completion (term service contracts), project completion (FMC and FMS) or works completion (DBOC). These time assessments relate to particular work that has a corresponding date for completion.

Service period

The NEC4 term services, facilities management and DBOC contracts are essentially designed to manage a facility or asset. They are different to other NEC forms, not least because the time required to provide the service is stated in contract data as the 'Service Period' and is a set duration, usually identified

as a number of weeks or months.

Where a client is seeking to award a contract for services, the initial term of the contract is an important consideration and may be determined by several factors. These include the type and range of services to be provided, cost of tendering, transfer of resources, level of associated risk and role of the service provider.

The contract duration should provide sufficient time to achieve continuous improvement, leading to a value-for-money outcome for both parties. An increased duration is commonly required to achieve a sensible return for certain contracts, particularly where the initial investment costs are high or there is a transitional period for the transfer of resources. However, if the contract term is too long, then one or both parties may end up being bound to a contract that no longer aligns with their planned expectations.

Service contracts can include mechanisms to regulate the contract duration, including termination for convenience, contract extension as a right, contract extension as a performance reward and a contract break clause.

Extending the service period

Option X23 is an optional contract procedure for extending the service period in an NEC4 TSC, TSS, FMC, FMS and DBOC. For ease of reference, option X23 within the TSC is referred to below, although the options within the other contract forms are the same except for the different parties and named roles.

The first part of clause X23.1 states: 'The *Client* may, with the agreement of the *Contractor*, extend the Service Period by a *period for extension* up to the

maximum service period.' It is noted that this clause can only be applied where there is agreement between the parties, which should be evidenced by formal communication.

Both the period for extension and maximum service period are identified terms and require information to be completed in the contract data under the entry for option X23. Note that the maximum service period should be a sufficient period of time to account for the total duration of the initial service period and all possible extensions to this.

The second part of X23.1 states: 'The *Client* notifies the *Contractor* and the *Service Manager* of each agreed *period for extension* before its *notice date*.' Each period for extension has a corresponding notice date, which is the latest date by which a notice may be given to apply a period for extension. This date should provide a sufficient period of time for all associated required actions to be completed to facilitate a timely notice to be given. As a reminder, a notice should also comply with clause 13 in that it is communicated separately.

Note that for the TSS form, the contractor was previously required to notify itself, which appeared to be a drafting anomaly, although this requirement was deleted with the October 2020 NEC amendments.

The third part of X23.1 states: 'Each *period for extension* is agreed and applied separately and in the order set out in the Contract Data.' This effectively creates an order of precedence which requires each period for extension to be addressed sequentially. It is possible to combine two or more periods for extension, although notice must be given by the notice date that relates to the earliest period.

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Criteria for extension

Clause X23.2 states: 'If there are *criteria for extension*, the Service Period is not extended unless those *criteria for extension* are met on or before the *notice date* for the relevant *period for extension*.' This is an optional provision, with criteria for extension being an identified term that requires information to be detailed in the contract data under the entry for option X23.

It is important that any stated criteria for extension can be objectively assessed to avoid any possible ambiguity. These may also be linked to specified key performance indicators, either in conjunction with option X20 (TSC and TSS) or stated targets for

performance included within the performance table (FMC, FMS and DBOC).

The criteria for extension could operate as a performance reward mechanism. It may also be desirable to extend the service period for other reasons, for example to complete certain services where the occurrence of compensation events has created inefficiencies with the service delivery. The criteria for extension, where selected, should operate as an incentive although without applying unintended limitations.

Recommendations

Users of the TSC, FMC, DBOC and associated

subcontracts should carefully consider what criteria may be required for extending the service period and how this is presented in the contract data. They should seek agreement at an early stage to ensure that any associated governance approvals are obtained in time.

Users should detail within the contract scope what services are to be undertaken during the extended service period and what corresponding conditions or requirements may apply to the delivery of these. They should also consider how the contract procedures will operate during an extended service period, including the assessment of the price for service provided to date. ○

PRACTICE

Assuring staff costs on NEC4 option C and E contracts

DARREN WARD ORANGE PARTNERSHIP



KEY POINTS

- NEC4 ECC and PSC option C and E contracts allow the project or service manager to check the contractor's or consultant's records that ultimately support defined cost payments.
- The cost of staff working on the contract should be included in the defined cost for people and set out in the schedule of cost components.
- This article provides guidance on what to look for when auditing people costs on NEC4 option C and E contracts, particularly if the contract has been amended.

The NEC4 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule) and E (cost reimbursable contract) are widely used for procuring high-risk infrastructure projects in the UK, often alongside the simpler NEC4 Professional Service Contract (PSC) for design and other professional services.

Clauses 50.9 and 52.4 in option C and E contracts allow the project or service manager – usually delegated to a cost manager – to inspect accounts and records of the defined-cost items claimed, which includes the cost of staff working on the project. These form part of 'people' costs detailed in the schedule of cost components. Actual cost is at the heart of these inspections, so the assurance work needs to focus on payroll departments and associated payslips, employment contracts, payroll reports and timesheets.

This article sets out a simple roadmap for effective auditing of people costs on NEC4 option C and E contracts.

Read contract

The first step is to review the contract carefully for staff variations, in particular in the detailed scope information and any additional Z clauses. Next, check the reimbursement method. Frequently defined cost paid against the schedule of cost components gets substituted for pre-agreed rates. This is often done for simplicity or data protection, but it can lead to problems on long-term contracts if inflation, role churn, overtime, promotions and so on are not properly considered.

Also, even though NEC4 PSC options C and E now expect staff to be paid against the schedule of cost components, some clients amend them to the former NEC3 PSC approach of time charging at a pre-agreed rate. If there have been contract amendments, start by comparing the staff 'rules' within the schedule of cost components against an

unamended version. It is important to understand the tweaks, which are common in pensions, bonuses, sick pay and expenses, and the reasons why. Also, look to see if the wider rules specify certain roles that cannot be charged and are therefore deemed to be an overhead, and so part of the fee. Key to this will be understanding definitions in and around the working areas.

Next, check for any specific mobilisation rules in the scope. These can be many and varied but look out for pre-commencement rules which must be complied with. For example, check if résumés need to be shared in advance with the client, approved and what happens if not. Check too what rules are given if a new role is being mobilised and how the rate gets considered and calculated. Also see if there are rules on handover periods that try to limit exposure on churn and duplicate costs.

When the work or service starts and staff start being charged, the following questions should be considered.

- How detailed are the rules in the contract around time charging?
- Must a timesheet specify certain information or format?
- How detailed is the activity narrative required?
- Who (client and supplier side) has to approve the hours, and is it within a time limit?
- Are there specific rules regarding pre-authorisation of overtime?
- Which roles or grades might overtime apply to?
- Or does the contract give minimal rules? If so, what potential problems might that bring with it, for example a supplier which does not ask its staff to do timesheets, they just do central allocations.

Also, auditors must be mindful themselves of the rules under which they have been engaged, such as

whether it is just basic support for the project or service manager in ongoing monthly application-for-payment assessments, or a more generic audit, or to assist in a final assessment calculation.

Understand environment

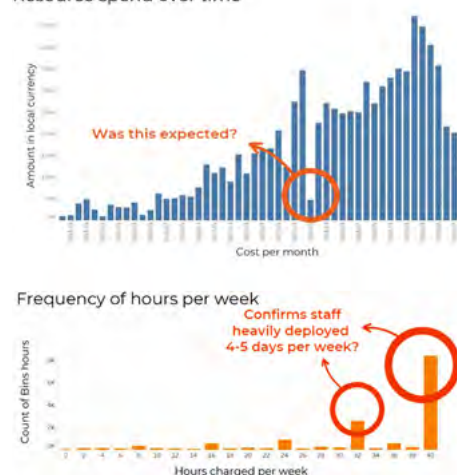
An understanding of the environment in which staff costs are prepared, controlled and reported in the project is critically important to the assurance work as this influences risk. Less control equals more risk, which in turn equals more inspection.

Start by obtaining a good background on the project and the contractor or consultant. Consider process reviews to understand preventative and detective controls to drive robust charging and application-for-payment compilation. Also gain an understanding of what additional data can be produced outside of the regular data. Assess the maturity and stability of the contractor or consultant operating open-book contracts and the supplier team in managing staff costs. Ideally good financial control should be demonstrated with respect to the day-to-day costs charged to the project.

Auditors also need to understand the physical site or office in which staff work. Things to check are the proximity to the client's team, integration of the

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Figure 1.
Examples of visualising staff cost audit data
Resource spend over time



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teams, nature of the work, expectation on charging, ratio of full-time workers to contract staff, and how the account has progressed.

Staff costs typically start early so expect a conversation with the client cost manager on cumulative staff costs, headcount, full-time employees and progress against the programme. Check if the account has been heavily reviewed to date or if costs have been disallowed, and what risks or concerns emerge from these conversations.

It is also likely that the contract explains the cost management environment relating to staff, whether this be requirements for organisation charts, resource plans, monthly budget versus actual analysis, and forecasting reports. Again, understand what these key documents indicate.

Visualise data

Intelligent data analysis and visualisation are key tools to understand how and where money has been spent (see examples in Figure 1). People data can be heavily protected by data protection rules, making analysis difficult. When contracts need proving back to actual cost, staff costs are usually anonymised, journalised or separately actualised at routine points

in time. This can be complex, but if pre-agreed rates are used, analysis is much easier as time-charge data is that bit simpler to handle.

The other issue with staff data is that there is often a lot of it, perhaps best described as high volume and low value when viewed at transaction level. However, once the data is sufficiently cleansed, analysis can quickly be undertaken. Ensure it is relevant to the rules of the contract and the project environment to reveal relevant mischarging risks.

Design tests

A thorough understanding of the environment, plus good data analysis should help shape where costs may be mischarged against the identified rules. It is also important to consider or link all the rules back to specific tests. This should identify people or trends of interest for further inspection.

Evaluate records

Beyond test design, a pragmatic sampling strategy is also needed for risk-based and other core transactions to give the assurance coverage required. For pre-agreed rates, test individual people. For actual staff costs, consider looking at auditing by

cost component. This keeps sampling simple and manageable. Remember, sampling must be relevant to the wider population, so it is important not to focus on just a few people at a certain grade or those that are a significant cost in one year.

Request the information required from the contractor or consultant and mutually agree a data-protection-compliant review process. If things appear wrong, always try to understand why and establish the root cause of the issue, such as a control problem or an isolated error. Check if the contractor's or consultant's responses hang together and whether it is necessary to widen the sampling to understand the problem better.

Write report

All examinations should follow a robust and formal recording and reporting process. Make it clear in the report what items have been in scope and what conclusions have been drawn. These should be evidence-based and not poorly thought-through extrapolations. For internal purposes, make sure there is an audit trail of the work completed and assurances obtained so they can be accessed again in future. ○

LEGAL

How to start out with NEC contracts: some advice for new NEC users



RICHARD PATTERSON MOTT MACDONALD

KEY POINTS

- NEC4 ECC and PSC have detailed programme requirements which can be challenging for new users.
- The simpler ECSC and PSSC short contracts have similar NEC early warning and compensation event processes as ECC and PSC but without the detailed programme requirements.
- New NEC users might consider starting out with low-risk, low-value construction or consultancy contracts using the ECSC or the PSSC.

So, you have heard all about NEC contracts: they are clear, super flexible and stimulate good management. In Issue 128, you may have also read the introduction to NEC early warnings (Campbell, 2023).

However, you have never used NEC before and you are in a place or country where NEC has not been used before. As such you would be right to be a little concerned about going straight into a full-blown NEC4 Engineering and Construction Contract (ECC).

Certainly you will need some serious training and support to get your first ECC tender document ready. But you are also not sure if your team and indeed if your supply chain are ready for it. So how can you get into NEC with a little less risk?

Low-risk contracts

A good way to start using NEC for construction is to find a low-risk, relatively low value, fixed-priced works scheme and use the NEC4 Engineering and Construction Short Contract (ECSC). This is much simpler than the ECC but it still has the unique NEC benefits of early warnings and compensation events. It does not have the detailed programme requirements of the ECC (see NEC Contract Board, Patterson and Parry 2023 for a comparison), making it easier for everyone to get used to NEC processes and the NEC way of working.

Another option is to start with an even lower-cost

and lower-risk NEC consultancy contract. This might be with a friendly firm that that might also be keen to learn about and test the NEC. For this you can use the NEC4 Professional Service Contract (PSC). Note that this has almost all of the same NEC processes and in most cases exactly the same clauses and words as the ECC.

Like all NEC contracts, the PSC has NEC early warnings and compensation events as well as all the programme requirements that are in the ECC. These programme requirements may be a bit extreme for a relatively simple consultancy contract. You could therefore make it easier for everyone and start your NEC experience with the much simpler NEC4 Professional Service Short Contract (PSSC). Like the ECSC, it does not have the detailed programme requirements of its bigger sibling (see NEC Contract Board and Patterson 2023 for a comparison).

Getting help

NEC runs one-day introduction courses on the ECSC, PSSC and all other contracts, which are particularly aimed at new users, along with the recently launched series of 'Getting it right' one-day workshops (see the NEC website for more details at www.neccontract.com/products/training).

Also, if you are thinking of using NEC in a country where NEC has never been used before, you

should get your proposed NEC contract reviewed by a local construction lawyer to see if any amendments are required by your local laws (Patterson and Higgins, 2021). Typically there may be minor tweaks required regarding payment timing and/or dispute resolution.

NEC has already published clauses to make the contracts fit local laws in the UK, Ireland, New Zealand and for each state in Australia. No changes are required in South Africa. NEC has also published a version of the ECC for Hong Kong and is working with the Singapore government to ensure local suitability.

In all cases, get help from someone that has used NEC before, and good luck. ○

References

- Campbell L (2023) Early warnings – an introduction for new NEC users, *NEC Newsletter* 128 (November 2023): 10.
- NEC Contract Board, Patterson R and Parry N (2023) *Comparison of the NEC4 Engineering and Construction Short Contract (ECSC) with the NEC4 Engineering and Construction Contract (ECC)*, Guidance Note, June 2023, <https://www.neccontract.com/news/comparison-of-the-nec4-ecsc-with-the-nec4-ecc/>
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- Patterson R and Higgins P (2021) Using NEC outside of the UK – an update, *NEC Users' Group Newsletter* 111 (March 2021): 10-11. <https://www.neccontract.com/About-NEC/News-and-Media/Using-NEC-outside-of-the-UK-an-update>

PRACTICE

FAQs



ROBERT GERRARD
NEC USERS' GROUP SECRETARY

This is a selection of recent questions to the NEC Users' Group helpline and answers given. In all cases it is assumed there are no amendments that materially affect the standard NEC3 or NEC4 contract referred to.

Remeasuring implemented compensation events

Question

We are a project manager on an NEC4 Engineering and Construction Contract (ECC) Option B (priced contract with bill of quantities). The contractor considers that implemented compensation events are remeasurable if quantities and rates are used to change the bill of quantities, and that the client will remain at risk for the accuracy of the quantities. Is that right?

Answer

Yes, the contractor is right. Clause 63.15 states how the bill of quantities is changed for compensation events. Note the first bullet allows the use of changed rates, changed quantities or a changed lump sum. Any compensation event could use a mixture of all those if it sensible to do so, and the rules in the second bullet can be changed if both the project manager and contractor agree. If clause 63.15 requires the use of a lump sum or, in the case of the first bullet, if the parties agree to use a lump sum to assess the compensation event, that will not be remeasured. However, if clause 63.15 requires the use of quantities and rates or, in the case of the first bullet, the parties agree to use quantities and rates to assess the compensation event, those quantities will be remeasured. That is because the 'Price for Work Done to Date' (see clause 11.2(30)) sets out how the contractor will be paid.

If there are rates and quantities in the changed bill of quantities, those revised rates and/or quantities are still used to assess the 'Price for Work Done to Date'. If a lump sum is inserted in the bill of quantities, that lump sum is paid based upon the proportion of works but the final lump sum will not be changed.

The principle of Option B is that the contractor gets paid on a remeasurement basis for the work set out in the bill of quantities which uses quantities and rates. Therefore, the client is at risk (or reward) if the quantities in the bill of quantities change when the work is remeasured. That principle does not change just because the rates and prices in the bill of quantities were added to or amended because of a compensation event.

If you want to change that, you and the contractor can agree to use lump sums for all compensation

events. Both those lump sums will have to be priced considering the contractor's additional risk of quantities changing, see clause 63.8. You and the contractor may also opt to agree lump sums for any compensation events, see clause 63.2.

As for implementation, if the assessment for a compensation event is based upon rates and quantities, those rates and quantities are used. That does not change anything as far as assessment is concerned if those quantities change. The 'Price for Work Done to Date' of the work carried out is still based upon the rules in clause 11.2(30). What implementation does do is prevent any change in the way the compensation event is assessed, that is by lump sum, by quantities or by rates.

All of the above is confirmed in page 65 of the NEC4 ECC User Guide Volume 4 *Managing an Engineering and Construction Contract*. With regard to Option B it states, 'if quantities and rates are used to change the bill of quantities, the client will remain at risk of the accuracy of quantities'.

Errors in quantities in bill of quantities

Question

We are a client using an NEC3 Engineering and Construction Contract (ECC) Option B (priced contract with bill of quantities). We have found items in the bill of quantities being over- or under-measured when compared with the requirements of the works information. Further, remeasured quantities captured under clause 60.4 seem to have a time element to them. Also, if an under-measured item were to cause delay to completion, then a compensation event for prolongation would seem be appropriate under clause 60.5, but for over-measured items there seems to be no mechanism for us to bring the completion date forwards. Could you clarify this please?

Answer

In Option B the employer takes the risk, or reward, of the quantities in bill of quantities being higher or lower. Clause 11.2(28) makes it clear that the quantities in the bill of quantities are remeasured. However, remeasurement is not the case if the change of quantities was caused by a compensation event. In that case, the compensation event is assessed based upon the effect it has, or is forecast to have, on the defined cost plus the fee, see clause 63.1. Once assessed, the bill of quantities is changed in accordance with the rules in clause 63.13.

As for clauses 60.4 and 60.5, these rely upon the change to the total quantity of work done as compared with the quantity for an item in the bill

of quantities. Therefore, it is not a compensation event if it is the cumulative effect of changes made to several items in the bill of quantities. However, it is not clear why your bill of quantities is not aligning with the works information.

If it is because of the quantities, the first paragraph of this answer deals with it. But if it is an error, ambiguity or inconsistency, clause 60.6 requires your project manager to correct the listed errors in the bill of quantities. Each such correction will be a compensation event and will be dealt with in accordance with clauses 63.1 and 63.13. Note when assessing this compensation event, the contractor is assumed to have taken the bill of quantities as correct, see clause 60.7.

As for dealing with time, the contract is consistent in that a compensation event can never result in the completion date being set to an earlier date. That is because of the wording of clause 63.3, which refers only to delays to the planned completion.

All of this is confirmed in the NEC3 *Engineering and Construction Contract Guidance Notes* on clauses 60.4 to 60.6 and clause 63.3.

Staff costs over festive period

Question

We are the project manager on an NEC4 Engineering and Construction Contract (ECC) Option A (priced contract with activity schedule). The contractor is entitled to additional time as the result of a compensation event, which has pushed some activities into a planned 2 week holiday period. We think the contractor is entitled to overhead costs for this period, while the contractor thinks it is also due staff time even though the staff are on annual leave. The contractor has included its employees' home addresses as part of the working areas in the contract data. Can staff time be included in the compensation event?

Answer

The amount of time delay is assessed as the length of time that, due to the compensation event, planned completion is later than planned completion shown on the accepted programme (clause 63.5). This is assessed using the logic on the accepted programme. If that shows the contractor taking the full 2 week break, it still can do so. When it comes back after the break, you pay for the additional time it is in the working areas. On the other hand, if you want the contractor to work through the break and it agrees, it will have to pay staff and operatives overtime rates which will further increase defined cost.

With regards to people, it is important to remember that those people whose normal place of working is in the working areas get paid whether they are working in the working areas or not. See also the different wording between the first and second bullet of item 1 in the short schedule of cost components.

You have not said what version of NEC4 ECC you are using. Following the move to home working caused by Covid-19, the 2023 version changed the wording of item 1 in the short schedule of cost components, such that most people will be paid for at the people rates if the time is spent on work on the contract. Compared to the 2017–2020 versions, there is no requirement that that work will be in the working areas.

With regards to the 'working areas' in the contract data, that term is only used as part of the definition of the 'Working Areas', which is the defined term used, see clause 11.2(20). For the 'Working Areas' to be part of the 'working areas', they have to be used only for work in the contract, see the second bullet of clause 11.2(20). 

nec DIARY

09 Jan	NEC4: ECC Project Manager Accreditation	Virtual, UK
11 Jan	NEC3: ECC Project Manager Accreditation	Virtual, UK
12 Jan	NEC3 to NEC4 ECC Project Manager Accreditation extension	Virtual, UK
15 Jan	NEC4: ECC Project Manager Accreditation	Hong Kong
22 Jan	NEC4: ECC Project Manager Accreditation	London
24 Jan	NEC4: ECC Supervisor Accreditation	Virtual, UK
29 Jan	NEC4: ECC Project Manager Accreditation	Virtual, UK
01 Feb	NEC4: Introduction to the ECC	Virtual, UK
02 Feb	NEC4: TSC Service Manager Accreditation	Virtual, HK
05 Feb	NEC4: ECC Project Manager Accreditation	Manchester
05 Feb	NEC4 Getting it Right: Preparing an ECC	Virtual, UK
09 Feb	NEC3 to NEC4: ECC Project Manager Accreditation extension	Virtual, HK
12 Feb	NEC4: ECC Project Manager Accreditation (Blended)	Virtual, UK
12 Feb	NEC4 Getting it Right: Managing an ECC	Virtual, UK
13 Feb	NEC4: ECC Project Manager Accreditation	Virtual, UK
14 Feb	NEC4: Introduction to the FMC	Virtual, UK
19 Feb	NEC4: ECC Project Manager Accreditation	Hong Kong
19 Feb	NEC4: ECC Supervisor Accreditation	London
26 Feb	NEC4: ECC Project Manager Accreditation	London
28 Feb	NEC3 to NEC4: ECC Supervisor Accreditation extension	Virtual, UK
01 Mar	NEC3: Introduction to the ECC	Virtual, UK
04 Mar	NEC4: ECC Project Manager Accreditation	Virtual, UK
04 Mar	NEC4: ECC Project Manager Accreditation	Virtual, HK
05 Mar	NEC4: Introduction to the ECC	Virtual, UK
07 Mar	NEC3 to NEC4 ECC Project Manager Accreditation extension	Virtual, UK
11 Mar	NEC4: ECC Project Manager Accreditation	London,
11 Mar	NEC4: ECC Project Manager Accreditation	Sydney, Australia
13 Mar	NEC3 to NEC4: TSC Service Manager Accreditation extension	Virtual, UK
18 Mar	NEC4: ECC Project Manager Accreditation (Blended)	Virtual, UK
19 Mar	NEC4: ECC Project Manager Accreditation	London
25 Mar	NEC4: ECC Project Manager Accreditation	Virtual, UK

Key: ECC – Engineering and Construction Contract, FMC – Facilities Management Contract, TSC – Term Service Contract, Virtual – online event running between 9 am and 5 pm local time in Britain (UK) or Hong Kong (HK).

NEC Users' Group corporate members

A warm welcome is extended to all new corporate members, highlighted in **bold** in the corporate membership category lists below. Individual memberships are also available.

PLATINUM	National Grid Plc Northumbrian Water Limited Ove Arup & Partners International Ltd Oxfordshire County Council Perth and Kinross Council Pick Everard Port of Dover Renew Group Rider Levett Bucknall Rolls-Royce Submarines Limited RPS Group Plc RWE Generation Scottish Water SKA Observatory Stantec UK Ltd Strategic Estates UK Parliament Tetra Tech Limited The Coal Authority The Orange Partnership UK Atomic Energy Authority UK Power Networks (Operations) Ltd United Utilities Water Plc Vinci Construction Management Ltd voestalpine VAE GmbH Volker Services Ltd VSL Infrafor (HK) Warwickshire County Council West Kowloon Cultural District Authority West Yorkshire Combined Authority Wood Group UK Ltd YGC Yorkshire Water Services Ltd	Leicestershire County Council M3 Surveying Limited MacKenzie Construction Limited Mott MacDonald Limited MTR Corporation National Museum Wales Nexus Rail NG Bailey Group Limited Norfolk County Council North Ayrshire Council Northern Ireland Housing Executive Northern Ireland Water Northumberland County Council Osborne Clarke Paul Y. Engineering Group Limited R J McLeod Ltd Ronez SAS Rope And Rail Ltd Serimax Shui On Construction Company Ltd South East Water Ltd South Gloucestershire Council South Lanarkshire Council Space Solutions Scotland Ltd Sutton & East Surrey Water Plc The Contracts Group Ltd The Humber Bridge Board Thinkproject UK Limited Translink Turner & Townsend Infrastructure TYPISA Limited University of Westminster Vastem Construction Limited Veale Wasbrough Vizards LLP West Berkshire Council West London NHS Trust Wilsons of Cambridge Worcestershire County Council	HLG Associates Limited Hogan Lovells Indaver Ireland Limited John Papworth Limited K&L Gates Leones Consulting Lilleker Bros Ltd LM Services Loughran Associates Limited Mannings (Asia) Consultants Ltd McAdam Design MissionCX Limited MP Infrastructure Ltd NBS Services NHS National Services Scotland NMCN PLC Norman Rourke Pryme Ltd Novi Projects Orkney Islands Council pdConsult Peak Gen Top Co Limited Peter Cousins & Associates Procom-IM Ltd Quigg Golden Ltd Relay Engineering Limited Reliance High Tech Ltd Restoration & Renewal Delivery Authority SigTech Rail Consultancy Ltd SOCOTEC Advisory Ltd Solomons Europe Ltd Stephenson Harwood Summers-Inman Construction & Property Consultants Synergie Training Taziker Industrial Limited Tenax Limited The Clarkson Alliance The Francis Crick Institute The Highland Council The Rochester Bridge Trust The Scottish Government TTL LLP Venture Engineering Projects Ltd Wallace Stone LLP Water Supplies Department, HKSAR
GOLD	1stCurve Limited Advantage RSK AECOM Arcadis Arup Atkins UK Balfour Beatty Major Projects Bedfordshire Hospitals NHS Foundation Trust Bristol City Council Cadent Gas Limited Canal & River Trust Construction & Procurement Delivery Costain Limited Currie & Brown UK Ltd Defence Infrastructure Organisation (DIO) Department For Transport Department of Health Driver & Vehicle Standards Agency East Dumbartonshire Council East Sussex County Council EGIS Esso Petroleum Co Ltd Eurovia Group Ltd Farrans (Construction) Ltd FCDO Services Freyssinet Ltd FSE Engineering Group Ltd Galliford Try Gardiner & Theobald LLP Gateshead Metropolitan Borough Council General Fusion GlaxoSmithKline GNPower Kauswagan Ltd. Co. Government Property Agency Heathrow Airport Limited Herefordshire Council Imperial College London J. Murphy & Sons Ltd John Sisk & Son Kings College London Laing O'Rourke Leicestershire County Council Lincolnshire County Council Mace Limited Meinhardt Infrastructure & Environment Ltd	Airport Authority Hong Kong Arbus Ltd Architectural Services Department, HKSAR Barhale Plc Beria Consultants Ltd Boskalis Westminster Ltd Buckinghamshire County Council Burness Paul Cambridgeshire County Council Capital Law Ltd China State Construction Engineering (Hong Kong) Ltd Chun Wo Construction & Engineering Co Ltd Civil Engineering & Development Department, HKSAR Colas Ltd Connect Plus Ltd Defence Science & Technology Laboratory Development Bureau, HKSAR Digital Beehive Drainage Services Department, HKSAR Electrical and Mechanical Services Department, HKSAR Environment Agency Faithful+Gould Gammon Engineering Construction Company Limited George Leslie Ltd Gleeds UK Hampshire County Council Highways Department, HKSAR HKCA Civil Engineering Committee Holman Fenwick Willan LLP Jacobs Kum Shing (KF) Construction Co Ltd	BRONZE Aberdeen City Council Allen Dadsell Construction Consultants AstraZeneca BAE Systems Belcan Advanced Solutions Ltd Bennetts Associates Binnies UK Limited BK Surco Ltd Black & Veatch (U.K.) Limited Breheny Civil Engineering Ltd. Caledonian Maritime Assets Limited Capital Consulting International Ltd CappKind Limited Castle Hayes Pursey LLP CCJ Group Limited Chandler KBS Ctori Construction Consultants Limited DAPS Project Management Ltd Deane Public Works Ltd Dyer & Butler Ltd Eastern Solent Coastal Partnership First Choice Homes Oldham Foot Anstey LLP Fulkers George Corderoy & Co Glanville Projects Ltd Gutteridge Haskins & Davey Ltd GVE Commercial Solutions The Highland Council The Rochester Bridge Trust The Scottish Government TTL LLP Venture Engineering Projects Ltd Wallace Stone LLP Water Supplies Department, HKSAR
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