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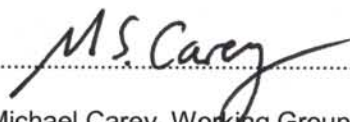
Ref:	NR/L2/ERG/24020
Issue:	3
Date:	03 December 2011
Compliance date:	03 March 2012

Level 2

Engineering assurance arrangements for Ergonomics within design and development projects

Endorsement and Authorisation

Endorsed by:


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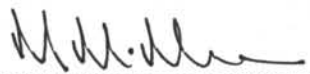
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User information

This Network Rail standard contains colour-coding according to the following Red–Amber–Green classification.

Red requirements – *No deviations, could stop the railway*

- **Red requirements shall** always be complied with and achieved.
- Red requirements shall be presented in a red box **with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of red requirements lies with the Professional Head/Standard Owner.
- Red requirements are monitored for compliance.
- Corrective actions shall be enforced if deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Amber requirements – *Controlled deviations, approved risk analysis and mitigation*

- **Amber requirements shall** be complied with unless deviation has been approved in advance.
- Amber requirements shall be presented with an amber sidebar **and with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner, or their nominated Delegated Authority.
- Amber requirements are monitored for compliance.
- Deviations **may** be permitted. Deviations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Green – *Guidance*

- Guidance is based on good practice. Guidance represents supporting information to help achieve **Red** and **Amber** requirements.
- Guidance shall be presented with a dotted green sidebar **and with the word “should” (usually in notes) or as a direct instruction**.
- Guidance is **not mandatory** and is not monitored for compliance.
- Alternative solutions may be used. Alternative solutions do not need to be formally approved.
- Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence or documentation.

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Issue record

Issue	Date	Comments
1	August 2003	
2	April 2004	Document updated to reflect new company organisation
3	December 2011	Document revised to align with other engineering assurance standards

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03 March 2012.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Reference documentation

NR/L2/EBM/STP001, *Network Rail Standards Management - Process requirements*

[NR/L2/ERG/24020/F003](#), *Project Classification Tables*

[NR/L2/ERG/24020/F004](#), *Ergonomics Project Notification*

[NR/L2/ERG/24020/F005](#), *Approval in Principle of Single Option Selection*

[NR/L2/ERG/24020/F006](#), *Ergonomics Operational Readiness Submission*

NR/L2/INI/02009, *Engineering Management for Projects*

NR/L2/INI/CP0069, *Route Requirement Management and Engineering Remit Production*

NR/L2/INI/PM/GRIP/101, *Governance for Railway Investment Projects (GRIP) – Project Management*

RT/E/S/24017, *Control Room Design Specification, Process and Guidance*

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1 Purpose

The operation and maintenance of the railway infrastructure depends on the effective and reliable performance of front-line operations and maintenance staff.

Human safety, health and performance can be affected by inappropriate design of equipment, work processes, working environments and passenger facilities. This can result in risks to individual staff operating or maintaining the railway infrastructure. It can also result in risks to the safety of passengers, and can impact on the efficient operation and maintenance of the infrastructure.

The discipline of Ergonomics focuses on the application of structured design processes and specialist knowledge to the interaction between humans, technology and work systems. The purpose of this standard is to support the structured application of ergonomics in the development or modification of railway infrastructure and supporting systems.

2 Scope

This Network Rail standard specifies the engineering assurance processes to confirm that ergonomic requirements have been addressed within infrastructure, system and equipment design projects.

This standard defines the minimum organisational responsibilities for the delivery and assurance of ergonomics during infrastructure, system and equipment design projects. These responsibilities differ in some aspects from arrangements that apply to other engineering disciplines as defined in NR/L2/INI/02009.

This standard applies to:

- the Ergonomics aspects of all projects proposed to be implemented for which Network Rail is the Infrastructure Manager, including feasibility studies and other preliminary designs;
- the development, installation, use and maintenance of all systems/equipment used in either real-time delivery of railway operations, or for infrastructure maintenance;
- proposals for temporary works (including stage-works) associated with such projects.

These assurance procedures do not apply for the following circumstances:

- projects on civil infrastructure that have no impact upon operational or maintenance tasks;
- normal day-to-day Maintenance work;
- work carried out under emergency conditions;
- assessments of existing installations, operations and equipment.

Appendix A defines a classification scheme for projects. Category 0 projects are excluded from the scope of this standard.

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Where ergonomic issues arise with equipment or activities that are outside the scope of this standard, the Professional Head (Ergonomics) should be contacted to advise on appropriate means of investigation and assurance.

3 Roles and responsibilities

NOTE 1 Generic terms have been defined for persons that will perform specific roles related to the delivery or acceptance of ergonomic aspects of a project or system. The appointment of staff to roles is made on the basis of competence and availability and is independent of Job Description, Job Title, Delivery Group or Organisational Functions. Such terms are used to provide a generic procedure that can be applied to any organisational structure.

NOTE 2 Graphical illustrations of how key roles interact on typical projects and programmes are provided in Figures 1 and 2 at the end of this section.

Ergonomics Assurance Manager

EAM

Responsible for agreeing and specifying requirements related to Ergonomics, for providing Ergonomics Approval in Principle of the Single Option Selection and for approving that ergonomics has been addressed prior to entry into service based on evidence of having met the requirements of this standard.

NOTE The role combines the functions that, in other engineering disciplines, are carried out by a Route Asset Manager (i.e. specification of discipline deliverables and Approval in Principle) and by a discipline Project Engineer (i.e. technical review and approval of ergonomics deliverables).

Ergonomics Integration Manager

EIM

Responsible for addressing the provisions of this standard across multiple projects and aspects of a major enhancement or system development programme. They are responsible for developing requirements, co-ordinating Ergonomics requirements across project workstreams, specifying Ergonomics works, co-ordination with User Acceptance Representatives, monitoring progress in addressing Ergonomic requirements, issues and risks, reviewing and approving deliverables.

Acts as EAM for project deliverables within a programme of works.

The EIM may also engage in some design development and specification works for a programme or system, that may be deemed as design works. In such circumstances, overall approval responsibilities shall revert to the Professional Head (Ergonomics) or representative to maintain a level of independence.

Contractor's Responsible Engineer

CRE, Ergonomics

Ergonomics specialist within a design organisation that is responsible for confirming that the engineering deliverables for Ergonomics satisfy the requirements of the specific Contract and follow the processes specified in this standard.

A person within the appropriate Network Rail organisation shall be appointed to undertake the duties of the CRE when Network Rail undertake the ergonomics design or assessment work within a project.

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Designated Project Engineer

DPE

Person appointed by Network Rail accountable for the co-ordination and integration of technical and engineering aspects of a specific project (as defined in NR/L2/INI/2009). In terms of this procedure, responsible for ensuring that design is co-ordinated across interacting disciplines to ensure that the ergonomic aspects of the design can be delivered.

Professional Head (Ergonomics)

Responsible for appointing the Ergonomics Assurance Manager for a specific project and for the competency of those that undertake the role.

Responsible for monitoring the quality of works delivered by projects and approval in principle of ergonomic aspects of major infrastructure enhancement or system development programmes.

Project Lead for Ergonomics

PLE

Person or Person(s) assigned by the Project Manager and responsible for implementing the provisions of this procedure within a project.

Project Manager

PM

Responsible for keeping the status of a project under review and declaring when changes result in any new elements that may require Ergonomic assessment or design.

NOTE The details of project classification are specified in Section 5 of this standard.

Sponsor

Responsible for determining and declaring when a project has any elements that are likely to require Ergonomic assessment or design and for managing the input from end users of stakeholders external to Network Rail.

NOTE The details of project classification are specified in Section 5 of this standard.

User Acceptance Representative

UAR

Person or person(s) identified by Network Operations as the primary representative for a group of end-users of a infrastructure project, system or equipment, responsible for the acceptance of both the design and the suitability for entry into service of new facilities and equipment.

NOTE This will normally be a role carried out by a manager in the line rather than a specific post.