



**ENGINEERS
AUSTRALIA**



Safer Construction Project

Presented By:

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Project Partners

The project was initiated by Engineers Australia and is supported by:

- Australian Contractors Association
- Property Council of Australia
- Royal Australian Institute of Architects
- Office of the Federal Safety Commissioner
- Association of Consulting Engineers Australia
- Australian Procurement and Construction Council
- Master Builders Australia

Funded and coordinated by:

Cooperative Research Centre for *Construction Innovation*.

Project partners:

John Holland, Bovis Lend Lease, WA Department of Housing and Works, Curtin University of Technology, Queensland University of Technology and RMIT.



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Project Overview

Focus

- Increase awareness of the importance of OHS within the construction industry
- Significantly reduce the number of deaths and injuries in the Australian construction industry through a voluntary code of practice in OHS
- Establish a best practice framework for safety in the construction industry



Project Outcomes Overview

Voluntary Code of Practice for Safer Construction

- Adopts a 'holistic' view of OHS in construction across
 - planning,
 - design,
 - construction, and
 - post-construction stages of a project
 - Identifies OHS best practice for
 - Clients,
 - Designers, and
 - Constructors
- in procurement, design and construction



Project Overview - Method

Stage 1: Literature review of international best practice in construction OHS

Stage 2:

- Interviews with industry stakeholders representing private/public sectors
- Survey of industry participants to identify best practice for Clients, Designers and Constructors
- Best practice case studies of construction projects (27 projects Australia-wide)
- Interviews with construction SMEs (constructors and designers)

Stage 3:

- Develop of Voluntary Code of Practice for Safer Construction Framework

Stage 4:

- Consultation with industry and other stakeholders

Stage 5: Voluntary Code of practice for Safer Construction launch



Literature Review - 'From Concept to Completion'

National & International study of best practice in construction safety

Comprehensive review to determine pre-existing OHS standards, guidelines and practices in Australia and overseas

Findings:

- *Partnerships* between those involved in concept design, construction planning, construction work, maintenance and demolition are essential to enhance construction safety
- *Clients* should assume a more prominent role in driving safety during construction, selecting 'safe' contractors and participating in safety management
- *Designers* have an important role in construction safety over the life-cycle of the construction project – often into the post-completion stages of public use (Belgium – mandated 10 years)



Best Practice Case Studies

Selection Process for Best Practice Cases

Primary Selection Criteria:

- OHS performance statistics
- Better than industry OHS performance

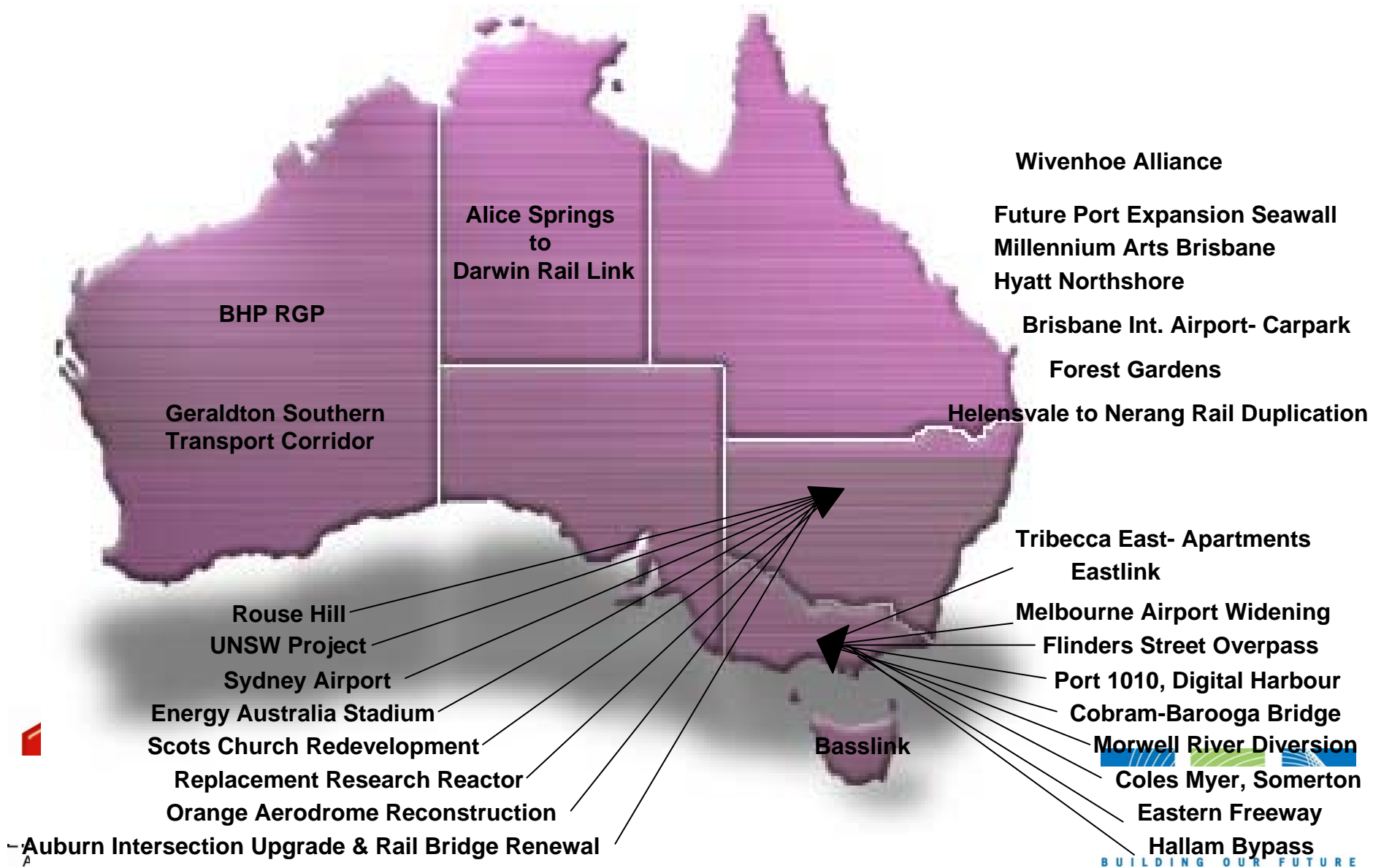
Secondary Selection Criteria:

- Demonstrated Safety Leadership
- Demonstrated Safety Commitment
- Stakeholder Engagement
- Innovation (Eg. overcoming safety challenges)

These criteria drawn from:

- Broad principles of best practice – Literature Review
- Safety Competency Framework: [Construction Site Safety Culture Project]
- National OHS Strategy 2002-2012 Priorities [ASCC]
- Building and Construction Code of Practice 1997 [APCC]
- 69 industry-based awards

Best Practice Case Studies - QUT



Findings Overview

Designer

- Integrating safety considerations in design and post-construction operation of the constructed physical asset.
- Risk identification at the design stage and continuously reviewing designs
- Designers working directly with constructors and clients to develop strategies to design for safety, risk mitigation and reviews



Findings Overview

Constructor

- Safety pre-qualification and tender specifications that included safety criteria
- submit a safety plan or site-specific safety plan, reviewed by an independent consultant on behalf of the client and then by the construction manager
- Develop a safety charter at the pre-construction stage
- Comprehensive pre-construction and construction safety planning, extensive meetings, communication and documentation to ensure safety in both design and construction.



Findings Overview

Client

- Communicate safety messages for the overall project direction
- Direct communication with personnel on-site
- Client or client representative involvement with on-site activities including inductions, safety meetings, inspections and safety walks
- All personnel issued with direct contact numbers for client representatives to discuss safety
- Client-appointed external facilitators reported directly to the client for safety goals and objectives



Voluntary Code of Practice for Safer Construction Framework

Best Practice Principles

Establish the foundation for the development of a shared responsibility for all stakeholders that can have an impact on safety performance on the construction project and within the construction industry.

Principles in Practice

A road map for what the principles look like in practice in the construction project
Demonstrates activities to be undertaken in the Project Process Cycle.

Best Practices and Vignettes

Provide a concise tool for key implementation, performance measures and key benefits.



Section 1.0 Best Practice Principles

Principle 1: Demonstrate Safety Leadership

Principle 2: Promote Safety in Design

Principle 3: Communicate Safety Information

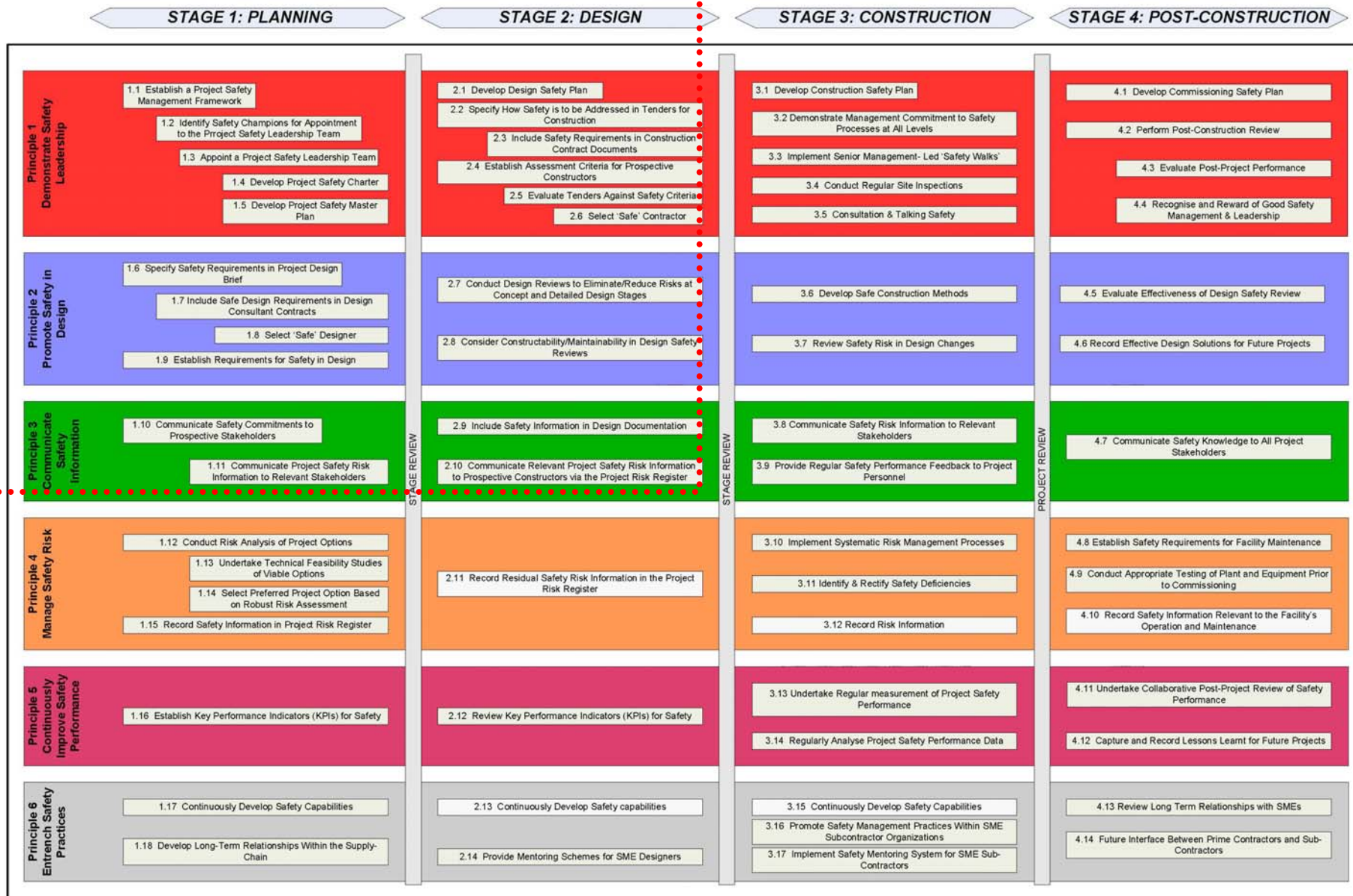
Principle 4: Manage Safety Risks

Principle 5: Continuously Improve Safety Performance

Principle 6: Entrench Safety Practices



Section 2.0 Principles in Practice



PRINCIPLES IN PRACTICE - Creating a Strong Safety Culture

This map is adapted from a best practice model developed by the School of Property, Construction & Project Management, RMIT University.

STAGE 1: PLANNING

STAGE 2: DESIGN

Principle 1 Demonstrate Safety Leadership

- 1.1 Establish a Project Safety Management Framework
- 1.2 Identify Safety Champions for Appointment to the Project Safety Leadership Team
- 1.3 Appoint a Project Safety Leadership Team
- 1.4 Develop Project Safety Charter
- 1.5 Develop Project Safety Master Plan

Principle 2 Promote Safety in Design

- 1.6 Specify Safety Requirements in Project Design Brief
- 1.7 Include Safe Design Requirements in Design Consultant Contracts
- 1.8 Select 'Safe' Designer
- 1.9 Establish Requirements for Safety in Design

Principle 3 Communicate Safety Information

- 1.10 Communicate Safety Commitments to Prospective Stakeholders
- 1.11 Communicate Project Safety Risk Information to Relevant Stakeholders

- 2.1 Develop Design Safety Plan
- 2.2 Specify How Safety is to be Addressed in Tenders for Construction
- 2.3 Include Safety Requirements in Construction Contract Documents
- 2.4 Establish Assessment Criteria for Prospective Constructors
- 2.5 Evaluate Tenders Against Safety Criteria
- 2.6 Select 'Safe' Contractor

- 2.7 Conduct Design Reviews to Eliminate/Reduce Risks at Concept and Detailed Design Stages
- 2.8 Consider Constructability/Maintainability in Design Safety Reviews

- 2.9 Include Safety Information in Design Documentation
- 2.10 Communicate Relevant Project Safety Risk Information to Prospective Constructors via the Project Risk Register

STAGE REVIEW

Section 4.0 Best Practices

Task 2.1	Specify Safety Requirements in Project Design Brief
Action	The Client will prepare a project brief that sets out the safety responsibilities of the Designer in relation to project safety. The Client will also collate all data relating to the site to be provided to the Designer.
Description	<p>The Project Safety Brief will establish performance criteria for safety in the design stage. Key stakeholders whose safety might be affected through the project lifecycle will be identified - including personnel involved in construction, occupation, maintenance, cleaning and the eventual demolition of the facility.</p> <p>The Project Safety Brief will also include the details of the Client's project safety management framework set out in Tasks 1.1 to 1.4 and specify how the Designer will be incorporated in the framework. The brief will also include a statement of the Client's requirements for safety in design - see Task 1.7 below.</p>
Key Benefits	<ul style="list-style-type: none"> ▪ From the project outset, safety in design will be a key project driver, and ▪ designers will have early notice of their obligations to promote and build safety into the project design.
Desirable Outcomes	<ul style="list-style-type: none"> ▪ Clearly documented Client requirements to provide a shared understanding of safety expectations among the Client- Designer team, ▪ clear message to the Designer that safety is a key driver of the project - to be given an equal weighting to other aspects of design - such as functionality, aesthetics, cost, program and quality, ▪ identification of project stakeholders whose interests must be considered.
Performance Measure	<ul style="list-style-type: none"> ▪ Preparation of a project safety brief relating to the design of a project.
Leadership	<ul style="list-style-type: none"> ▪ Client

BEST PRACTICE EXAMPLE



Project Deliverables and Launch

Implementation Kit

- Voluntary Code of Practice Executive Summary
- Implementation Table: Creating a strong safety culture
 - Practical guide to implementing best practice
- CD Rom of Research Reports
 - Literature review
 - Best Practice Case studies in detail
 - Report on SMEs

Project Launch: 12th September 2007
Canberra



Thank you

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