



# AIG Global Property Construction Risk Engineering

AIG is a leading provider of risk management and loss prevention services for Commercial Property, Energy and Construction risks worldwide. Through the company's multi-disciplined Global Property division, AIG serves the worldwide property protection needs of a diverse portfolio of clients.

## Construction

AIG Global Property has one of the industry's largest and most experienced teams focused on assessing construction, property, and boiler and machinery related exposures, and is supported by a network of over 500 engineers. Our highly skilled engineering force is specialized in specific disciplines such as oil and petrochemical, chemical, mining, electrical, mechanical, civil engineering and fire protection loss control engineering services. Our loss control consultants and engineers are skilled in identifying hazards unique to construction related operations. We perform comprehensive risk evaluations and recommend solutions that combine cutting edge thinking and common sense practicality to avoid or mitigate exposures.

## Our Value Proposition

Our loss control engineering approach provides clients with unique insights. We carefully match our resources to the project phase and activities: planning and construction are evaluated by civil engineers, and testing, commissioning and start-up are appraised by engineers with sector-specific operational experience (Oil & Petrochemical, Power Generation & Utilities, Mining, etc.). Our approach is to work in partnership with our customers to develop a customized program designed to identify, mitigate and minimize or eliminate loss exposures. We adopt a flexible approach aimed at finding cost effective solutions that will result in real loss reduction. Our mission is to make a difference that directly contributes to our customers' success.

## Plan Reviews

Our fire protection experts undertake plan reviews to ensure that sprinkler systems are designed and installed in accordance with international or local standards. We assist our clients in the design and management of their construction projects to ensure that building designs not only meet relevant building regulations but also use materials that are generally accepted by the insurance market. We also



help to ensure that fire and security protection measures are appropriate to the risk. Our proven Plan Reviews can detect and identify design deficiencies in proposed new construction or refit contracts, thereby avoiding costly design errors.

## A Partnership

AIG's aim is to work in partnership with clients to achieve a successful outcome to any project by sharing our global wealth of infrastructure engineering experience. On-site risk surveys allows AIG to evaluate and discuss project specific hazards and risks and provide a detailed, comprehensive report of findings for our client, broker, underwriters and co-insurers.

## Our Business Model

AIG will appoint an experienced construction Account Engineer supported by specialist team members.

Clients benefit from a single point of contact. Our account engineers can help ensure implementation of the service plan, arrange plan reviews, track and trend risk improvements and provide consultative services for unique problems. The Account Engineer oversees the entire engineering program and provides support and advice to the client as needed.



Our risk engineers evaluate and understand the project design and contract works, identify risk exposures, and improve loss control for the mutual benefit of the Insured and Insurer. A Risk Engineering program is intended to complement Risk Management programs implemented by contractors and owners.

In consultation and cooperation with the client, AIG will develop a continuous Risk Engineering program involving regular site visits by experienced risk engineers at various times determined by the progress of the construction/erection and testing, commissioning and start-up phases of the project. The focus of each survey will depend on the construction activities underway and exposures existing at the time.

Our aim is to share experience and work together in partnership to achieve a successful outcome to the project.

## Hazards and Risks

From an insurance perspective, a number of work processes and risk factors influence loss exposure during project construction. Some of the hazards and risk areas will be assessed in detail as part of the Risk Control Program. The headings below outline some of the risk factors reviewed.

### Natural Hazards

- Earth Movement
- Windstorm
- Flood

### Fire & Explosion

- Fire detection, monitoring and protection
- Water supply
- Housekeeping and combustible loadings
- Ignition sources
- Storage
- Temporary camps and offices
- Manual fire fighting and fire brigade response
- Pre-emergency planning
- Cutting, welding and other hot works



### Construction & Erection

- Construction methods and materials
- Ground conditions and geology
- Foundations, ground improvement, piling
- Wet and marine works
- Underground works
- Critical or specialized construction equipment
- Machinery and equipment technology review
- Manufacturing
- Design (on site)
- Temporary Works and protective measures
- Demolition and de-construction
- Assembly, erection, collapse of structures
- Interfaces with existing facilities
- Utilities (existing, new and temporary)
- Implementation of international codes on construction
- Material storage on site
- Quality Assurance

### Testing and Commissioning

- Testing, commissioning and start-up procedures
- HAZOPs and HAZIDs
- Contingency planning
- Handover management including mechanical completion and commissioning
- Operational readiness
- Pre Start-Up Safety Review

### Handling - Lifting - Transport

- Packing, warehousing and storage arrangements
- Shipping
- Overland transport
- Off-loading
- Heavy lifts

### Environmental Hazards - Human Element

- Third party exposures
- Surrounding property
- Tie-ins
- Site traffic
- Security and access control
- Political risks

### Project Organization

- Project and Site management
- Resource and time planning
- Procurement and scheduling
- Risk management approach and methodology
- Contingency and emergency planning
- Personnel training
- HSE management



## Risk Control Process

### Methodology

Risk Control is focused on loss prevention and loss mitigation. The Risk Control process incorporates a number of activities, including:

- Initial review of technical specifications, drawings and procedures
- Periodic review of project program and progress
- Dialogue with client, engineers and contractors
- Site surveys

The Project Risk Control Program is an integral part of the client's risk management strategy, and is intended to provide a mutually beneficial forum for the sharing of best practices in risk management techniques.

### Site survey objectives

The main objectives of on-site risk surveys is to review and discuss project specific hazards and risks, and to provide a survey report for the client, broker, underwriters, and co-insurers which:

- Reviews project scope, organization and risk management systems.



- Reviews the proposed design, construction, testing and commissioning plans and procedures.
- Reviews the project schedule, verifies progress and identifies potential causes of delay.
- Identifies physical risks with significant consequence to the successful completion of the proposed project with regard to safety, technical performance, schedule, budget and successful handover.
- Assesses the processes and controls used by the project to identify and minimize risks which might affect project objectives.
- Identifies and reports on transit and off-site storage exposures.
- Identifies and reports on natural catastrophe perils and exposures.
- Provides Risk Improvement Recommendations where appropriate.
- Identifies and recommends contingency planning procedures to mitigate loss potential.
- Calculates loss scenario estimates (including catastrophe and non-catastrophe).

### Site survey format

Main elements of the site survey will include:

#### Initial meeting

- Introductions, agenda, project status
- Progress review
- Discuss critical design and engineering points
- Review management loss control programs
- Review outstanding recommendations
- Review any losses

#### Site tour

- Focus on key construction and loss potential exposures
- Review construction practices
- Review progress of the work and quality of equipment and workmanship

#### Pre-commissioning

- Process and testing overview
- Equipment review
- Safety processes and equipment
- Contingency plans

#### Closing conference

- Summary, observations and findings
- Risk improvement recommendation
- Plan for next site survey

The specific focus of each site survey will be dependent on project progress. In some cases, offsite manufacturing facilities may also be visited and surveyed. A project-specific agenda will usually be submitted and agreed at least two weeks prior to the visit.

### Risk survey report

A presentation with the findings of the risk survey together with any new Risk Improvement Recommendations (together with a review of the status of any previous recommendations) will be given during the close-out meeting.



Risk Improvement Recommendations will be submitted within two weeks of the site visit. A draft report will be circulated to the client for review and comment, and the final report will usually be submitted within one month of the site visit. This report may be published and provided to following markets via the broker.

## What makes AIG the right strategic partner for you?

- Global, world-class loss prevention risk engineering capabilities.
- Highly specialized construction risk engineering services and specialist support across all technical disciplines and occupancies.
- Comprehensive surveys undertaken by industry specialists producing detailed reports widely accepted by insurance market.
- A dedicated team ensuring client needs are understood and prioritized, delivering continuing advice and support to owner and contractor risk management teams.
- Proven value to our clients from collaboration, flexibility and transparency throughout the engineering program development and implementation process.

