



**INSURANCE INSTITUTE FOR
ASIA AND THE PACIFIC, INC.**

Basic Non-Life Insurance Course

Engineering Insurance

Historical Background

- Engineering Insurance had its beginning during the 18th century industrial revolution in Great Britain
- The factory system of production became established in this century and accidents arising out of the use of steam plants were common
- The first boiler insurance company, the Steam Boiler Assurance Company, was formed in 1858.



Importance of Construction Insurance

- Offers comprehensive protection against loss to:
 - Contract Works
 - Construction Plant and Equipment
 - Construction Machinery
 - Liability to Third Party
- Provides financial stability to all parties in the Construction contract.
- Provide protection to investors.
- Serves as collateral and recourse of Financial Institutions.



Classes of Engineering Insurance

- Non-renewable Classes
- Renewable Classes



Engineering Insurance

➤ **Non-Renewable Classes**

- CONTRACTORS ALL RISKS (CAR)
- ERECTION ALL RISKS (EAR)

➤ **Renewable Classes**

MACHINERY BREAKDOWN (MB)
BOILER & PRESSURE VESSEL EXPLOSION
ELECTRONIC EQUIPMENT INSURANCE (EEI)
DETERIORATION OF STOCKS (DOS)
CONSEQUENTIAL LOSS



Classes of Engineering Insurance

➤ **Renewable Classes**

- These classes are intended to cover completed industrial plants and installations after their turnover and acceptance by the owner.



Classes of Engineering Insurance

➤ **Non-renewable classes**

- designed to cover buildings and other civil engineering projects during construction as well as machinery and equipment during erection or installation.
- cover commences on delivery of the materials and machinery to the site of erection or installation
- terminates when erection, installation, testing and commissioning are completed and the plant is ready for normal use by the purchaser.



CONSTRUCTION CONTRACT



TERMS COMMONLY USED

- Principal
- Bar Chart
- S – Curve
- Policy Period
- Period of Cover
- Third Party
- Contract Price
- Materials Supplied by the Principal
- Average Clause
- Principal Controlled Project/s
- Vertical Projects
- Horizontal Projects
- Wet Risks
- Testing and Commissioning



Relevant Information in the Construction Contract

- The name and the details of the Principal
- The names of all Contractors, Sub-Contractors and Specialty Contractors
- Nature of Works
- Location / Off-site Locations
- Duration of Construction
- Total Contract Price
- Insurance Requirements
- Bills of Materials/ Breakdown of Contract Value
- Bar Chart
- S - Curve



CONTRACTORS ALL RISK INSURANCE (CAR)

Contractors All Risk Insurance (CAR)

CONTRACT WORKS

- Permanent Works
- Temporary Works
- Materials Supplied by the Principal

Contractors All Risk Insurance (CAR)

CAR Insurance primarily covers Civil Works !

PROJECTS CONSIDERED AS CIVIL WORKS

- Building Constructions
 - Offices, Hospitals, Schools, Theatres, etc.
- Constructions of Roads and Bridges
- Railways, Ports and Harbors
- Airport Complex
- Dams, Canals, Irrigation Projects
- Residential Complex
- Commercial Complex
- Warehouse Complex
- Industrial Complex



Contractors All Risk Insurance (CAR)



Construction of Buildings



Contractors All Risk Insurance (CAR)



Roads and Expressways



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Contractors All Risk Insurance (CAR)

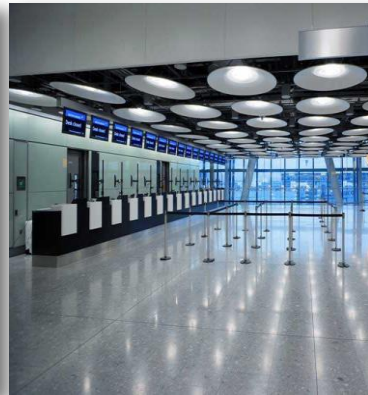


Railways



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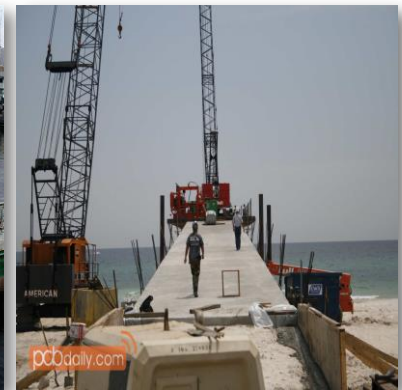
Contractors All Risk Insurance (CAR)



Airports



Contractors All Risk Insurance (CAR)



Piers and Harbors



Contractors All Risk Insurance (CAR)



Pipelines



Contractors All Risk Insurance (CAR)



Bridges



Contractors All Risk Insurance (CAR)



Tunnels



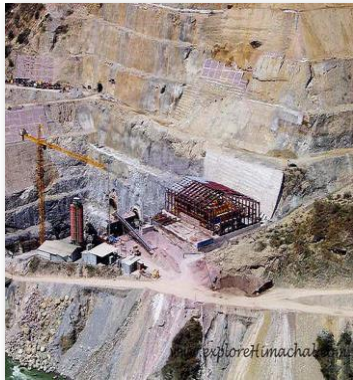
Contractors All Risk Insurance (CAR)



Irrigation Systems



Contractors All Risk Insurance (CAR)



Dams

CAR

PERIOD OF COVER

For the CAR insurance, coverage starts upon the commencement of work or after the unloading of the items at the site. Coverage expires on the date specified in the schedule or when taken over or put into service whichever is earlier.

Contractors All Risk Insurance (CAR)

PERIOD OF COVER

Start of Contract Works
(Unloading of Materials)

Completion
of Works



ERECTION ALL RISK INSURANCE (EAR)

Erection All Risk Insurance (EAR)

PROJECTS CONSIDERED AS ELECTRO - MECHANICAL WORKS

Installations of :

- Petrochemical Plants
- Power Generators
- Manufacturing Plants
- Steam Boilers
- Turbines
- Electrical Transmission Lines
- Conveyor Systems
- Power Machineries
- Control System
- Pumps, Motors, Transformers



Erection All Risk Insurance (EAR)

CONTRACT WORKS UNDER EAR POLICY

- **Permanent Erection Works**
 - Freight
 - Customs Duties & Dues
 - Cost of Erection or Installation
- **Temporary Works**
- **Civil Engineering Works**
- **Material Supplied by the Principal**



Erection All Risk Insurance (EAR)



Erection of Power Plants



Erection All Risk Insurance (EAR)



Transformers



Erection All Risk Insurance (EAR)



Compressors



Erection All Risk Insurance (EAR)



Smelting Plants



Erection All Risk Insurance (EAR)



Conveyor Systems



Erection All Risk Insurance (EAR)



Elevators and Escalators



Erection All Risk Insurance (EAR)



Air Conditioning Systems



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Erection All Risk Insurance (EAR)

INSURING PROVISIO

“ The policy will indemnify the insured for all sudden and unforeseen losses not otherwise excluded ”

For the EAR insurance, coverage starts upon the commencement of work, or after the unloading of the items at the site. Coverage expires on the date specified in the schedule, or immediately after the test loading is completed, or when taken over or put into operation whichever is earlier.



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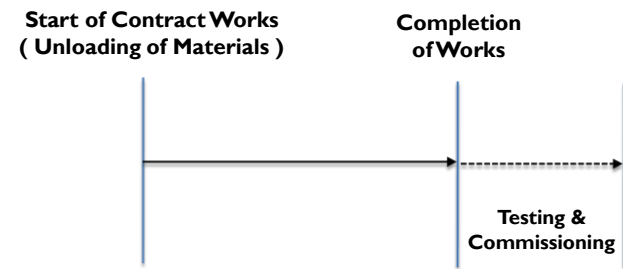
EAR

PERIOD OF COVER

For the EAR insurance, coverage starts upon the commencement of work, or after the unloading of the items at the site. Coverage expires on the date specified in the schedule, or immediately after the test loading is completed, or when taken over or put into operation whichever is earlier.

Erection All Risk Insurance

PERIOD OF COVER



Sum Insured

- The sum insured for **material damage** is the total project cost, or each item at the completion of the construction or erection inclusive of freight, custom duties, erection costs and materials supplied by the principal



COMPARATIVE ANALYSIS CAR & EAR INSURANCE

Subject Matter:

➤ CAR INSURANCE

- Covers primarily Civil Works
 - Electro-mechanical components by endorsements to cover testing and commissioning (optional)

➤ EAR INSURANCE

- Covers primarily Electro-mechanical works
- Automatically covers Civil Work components of the Installation project
- Provides cover for Testing and Commissioning for Brand New Machineries & Equipment to be installed



CAR and EAR

SCOPE OF COVERAGE

Section I - MATERIAL DAMAGE

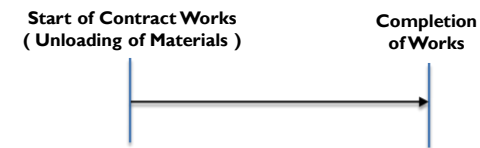
Section II - THIRD PARTY LIABILITY



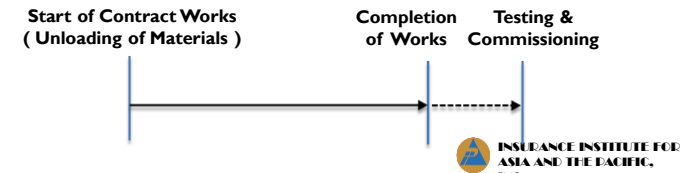
COMPARATIVE ANALYSIS CAR & EAR INSURANCE

Period of Cover:

→ CAR INSURANCE



→ EAR INSURANCE



CAR and EAR

INSURING PROVISIO

“ The policy will indemnify the insured for all sudden and unforeseen losses not otherwise excluded ”

Unforeseen and sudden physical loss of or damage to insured items during the course of their construction, from whatever cause not specifically excluded, are covered by the policy



CAR and EAR

WHO CAN BE INSURED?

- Principal
- General Contractor
- Sub - Contractors or Specialty Contractors
- Financial Institutions
- Project Manager / Consultants
- Manufacturers and/or Suppliers
- etc.



CAR and EAR

CONSTRUCTION PLANT AND EQUIPMENT

- Accommodations
- Field Offices
- Storage Facilities
- Aggregate Crushers
- Cements, Asphalt Mixing Plant
- Utilities (Electricity, Water, etc.)
- Scaffoldings



CAR and EAR

➤ CONSTRUCTION MACHINERY

- Earth Moving Equipment
- Graders, Loaders, Excavators
- Cranes
- Pile Drivers
- Elevators, lifts
- Other vehicles not licensed for road use



CAR vs EAR

- The interests insured under CAR are **civil engineering works** like buildings, roads, bridges, piers, dams.
- While for EAR, interests insured are **electrical and mechanical works** like the installation of boilers, generators, elevators, etc.



CAR and EAR

SCOPE OF COVERAGE

Section I - MATERIAL DAMAGE

- Contract Works
 - Contract price
 - Materials Supplied by the Principal
- Construction Plant and Equipment
- Construction Machinery
- Storage Facilities
- Surrounding Properties of the Insured
- Properties in Care, Custody and Control of the Insured (*)
- Cost of Clearance Debris



CAR and EAR

SCOPE OF COVERAGE

Section II – THIRD PARTY LIABILITY

- Property Damage
- Bodily Injury



CAR and EAR

EXCLUSIONS

Loss or Damage due to :

- War, Rebellion, Insurrection, Invasion, Confiscation, Nationalization
- Consequential Loss, Penalties, Loss due to Delay, Loss of Contract
- Willful Act or Willful Negligence of the Insured
- Nuclear Reactions, Explosions, Radiation or Radioactive Contamination
- Faulty Design, Cost of Replacement of Defective Workmanship or Material other than faults in Erection
- Loss to Vehicles Licensed for General Road Use or Waterborne Vessels or Aircraft
- Loss to File, Drawings, Bills, Currencies, Deeds and Checks
- Loss discovered only at the time of taking of an Inventory
- Cessation of Work whether Total or Partial
- Deductible stated in the Schedule



Examples of Perils Covered under CAR & EAR

- Fire, lightning and aircraft impact
- Accidental damage during assembly or construction due to faulty manipulation, dropping or falling, etc.
- Collapse, collision and impact
- Burglary, theft and malicious damage
- Water damage, flood, storm and tempest
- Electrical and mechanical breakdown and explosion
- Damage due to defects in material, casting, workmanship, design, plan and specification (but costs incurred in rectifying the defect would normally be excluded)
- Riot, strike, subsidence, landslide, other perils resulting from acts of nature



CAR and EAR EXCLUSIONS

Loss or Damage due to :

- War, Rebellion, Insurrection, Invasion, Confiscation, Nationalization
- Consequential Loss, Penalties, Loss due to Delay, Loss of Contract
- Willful Act or Willful Negligence of the Insured
- Nuclear Reactions, Explosions, Radiation or Radioactive Contamination
- Mechanical or Electrical Breakdown or Derangement of Contractors Plant, Equipment and Machineries
- Faulty Design, Cost of Replacement of Defective Workmanship or Material
- Loss to Vehicles Licensed for General Road Use or Waterborne Vessels or Aircraft
- Loss to File, Drawings, Bills, Currencies, Deeds and Checks
- Loss discovered only at the time of taking of an Inventory
- Cessation of Work whether Total or Partial
- Deductible stated in the Schedule

It is however possible to delete various exclusions and provide insurance cover by special agreement



Extensions to Standard Cover

- **Cross Liability.** Where the contract wordings stipulates that the insurance is to be for joint interests (principal, contractor and subcontractors) third party insurance can be granted to each party separately. This allows one insured party to take action against another and seek indemnity.
- **Maintenance Period Cover.** The insurer's liability during the maintenance period is limited to loss or damage caused by the insured in the course of operations, carried out for the purpose of complying with the obligations under the maintenance provisions of the contract.
- **Professional Fees** - following a loss, repair or reinstatement of contract or erection works may necessitate the employment of professional services such as architects or consulting engineers.
- **Inland Transit.** - loss or damage occurring during transit (not sea or air) to the contract site including loading and unloading and any transshipments storage or deviations en route.



Extensions to Standard Cover

- **Expediting Expense** - covers the extra cost of overtime rates of wages, express delivery or airfreight, in connection with repairs or replacements covered under the policy

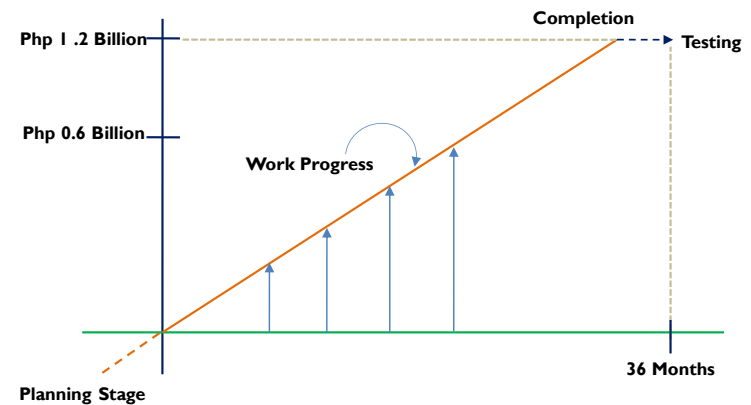


Risk Assessment/Underwriting CAR and EAR

- **Assess the contractor** and subcontractors in terms of their expertise or experience in the project to be constructed, the moral risk, and the loss experience
- **Review contract conditions** - determine the respective responsibilities of the principal and contractors, which perils must be insured, for what sum the insurance is to be provided, the duration of the project and the scope of maintenance period liability
- **Assess Work Schedule** and the method of execution of the work
- **Review Period of Construction** – Contractors prepare a plan that indicates the work progress against the total duration of the project. Usually this is a PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method) or Bar Charts
- **Assess the Site.** Factors to be considered here are the location, exposure to extraneous perils, geological characteristics and facilities for fire-fighting.
- **Review the Plans.** Shows the work to be done including design.



UNDERWRITING & RATING CONSIDERATIONS



CAR vs EAR

- The interests insured under CAR are **civil engineering works** like buildings, roads, bridges, piers, dams.
- While for EAR, interests insured are **electrical and mechanical works** like the installation of boilers, generators, elevators, etc.

CAR vs EAR

- Both the CAR and EAR provide:
 - a comprehensive and adequate protection against loss or damage to contract/erection works, construction plant and equipment and/or machinery,
 - as well as for third party claims (property damage or bodily injury) arising in connection with the execution of a construction or erection work.
 - EAR also covers testing and commissioning of the machinery/equipment installed.
- CAR and EAR are both types of “all risks” insurance.

ELECTRONIC EQUIPMENT INSURANCE (EEI)



ELECTRONIC EQUIPMENT INSURANCE

Electronic Equipment Insurance is an “all risks” coverage for electronic equipment ; such as:

- Electronic Data Processing Equipment (EDP Equipment)
- Electrical and radiation equipment for medical use such as electrocardiograph, X-ray and other radiation equipment in hospitals and medical laboratories, etc.
- Communication facilities such as telephone exchanges, radio, television and communication apparatus, etc.
- Miscellaneous equipment such as film and television studio equipment, automatic addressing, booking and broadcasting, machines, etc.



ELECTRONIC EQUIPMENT INSURANCE



EDP Equipment/Computers (Banks, Offices)



ELECTRONIC EQUIPMENT INSURANCE



Telephone Control and Relay Equipment



ELECTRONIC EQUIPMENT INSURANCE



Broadcast Equipment



ELECTRONIC EQUIPMENT INSURANCE



Other Electronic/Computerized Equipment used in various fields of Business



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section I - **MATERIAL DAMAGE**

Section II - **EXTERNAL DATA MEDIA**

Section III - **INCREASED COST OF WORKING**



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section I - MATERIAL DAMAGE

- fire, lightning and explosion, falling aircraft
- smoke, soot, corrosive gases
- water and humidity
- short-circuit and other electrical causes
- design, manufacturing, assembly and erection faults
- defects in casting and material, workshop errors, bad workmanship
- faulty operation, lack of skill, gross negligence
- malicious acts of workmen, employees, third parties
- burglary and theft
- hail, frost, typhoon and storm
- earthquake, subsidence, landslide, rockslide, tsunami



ELECTRONIC EQUIPMENT INSURANCE

TYPICAL INSURED PERILS



Lightning Damage



Power Surge Damage



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section I - MATERIAL DAMAGE

SUM INSURED

The sum insured must always be the replacement value of the insured electronic equipment (value of the new item plus custom duties, transportation and installation charges, etc.

INDEMNIFICATION

The Insurers shall indemnify the Insured by payment of the expenses required for the repair of the damage.



ELECTRONIC EQUIPMENT INSURANCE

TYPICAL EXCLUSIONS:

- War Perils, Riot, Strike, Civil Commotion, etc.
- Nuclear Perils
- Willful Act or Willful Negligence of the insured or of his representatives
- Loss or Damage caused by any faults or defects existing at the time of commencement
- Wear and Tear, Oxidation, Rusting, Erosion, Corrosion,
- Theft
- Earthquake, Volcanic Eruption, tsunami, storm, typhoon, Cyclone, Hurricane
- Replacement of Expendable Parts
- Deductible stated in the schedule



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section II – EXTERNAL DATA MEDIA

SCOPE OF COVER

Provides cover for both the material value of the external data media and the cost of restoration of lost information due to the perils under Section I.

SUM INSURED

The sum insured under this section is the material value of the insured external data media plus the estimated restoration cost of lost information.

- Value of External Media
- Additional Manpower
- Rental Cost of Alternative Premises
- Overtime / Holiday Pay
- Rental Equipment
- Etc.



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section II – EXTERNAL DATA MEDIA

INDEMNIFICATION

The Insurers shall indemnify the Insured for the cost of replacement of the damaged data media plus the actual cost of restoring lost information.



ELECTRONIC EQUIPMENT INSURANCE

SCOPE OF COVERAGE

Section III – INCREASED COST OF WORKING

SCOPE OF COVER

Covers additional expenses that may arise if the Insured's computer breaks down and it becomes necessary to hire substitute computer facilities to maintain the normal processing activities during the interruption period.

SUM INSURED

The sum insured must be equal to the cost of hiring a substitute computer for the duration of the interruption period.

INDEMNIFICATION

The Insurers shall indemnify for the necessary expenditure for the use of a substitute computer equipment during the interruption period over and above the normal expenses in the operation of the system.

