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ACCIDENT THEORY



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ACCIDENT THEORY

Theory of Accident

Accidents are defined as unplanned occurrences which result in injuries, fatalities, loss of production or damage to property and assets. Preventing accidents is extremely difficult in the absence of an understanding of the causes of accidents. Many attempts have been made to develop a prediction theory of accident causation, but so far none has been universally accepted. Researchers from different fields of science and engineering have been trying to develop a theory of accident causation which will help to identify, isolate and ultimately remove the factors that contribute to or cause accidents.

Accident Causation Theories

The domino theory

According to W.H. Heinrich (1931), who developed the so-called domino theory, 88 of all accidents are caused by unsafe acts of people, 10% by unsafe actions and 2% by “acts of God”. He proposed a “five-factor accident sequence” in which each factor would actuate the next step in the manner of toppling dominoes lined up in a row. The sequence of accident factors is as follows:



1. Ancestry and social environment
2. Worker fault
3. Unsafe act together with mechanical and physical hazard
4. Accident
5. Damage or injury.

In the same way that the removal of a single domino in the row would interrupt the sequence of toppling, Heinrich suggested that removal of one of the factors would prevent the accident and resultant injury; with the key domino to be removed from the sequence being number 3.

Multiple causation theory

Multiple causation theory is an outgrowth of the domino theory, but it postulates that for a single accident there may be many contributory factors, causes and sub-causes, and that certain combinations of these give rise to accidents. According to this theory, the contributory factors can be grouped into the following two categories:

Behavioural.

This category includes factors pertaining to the worker, such as improper attitude, lack of knowledge, lack of skills and inadequate physical and mental condition.

Environmental.

This category includes improper guarding of other hazardous work elements and degradation of equipment through use and unsafe procedures.

Accident proneness theory

Accident proneness theory maintains that within a given set of workers, there exists a subset of workers who are more liable to be involved in accidents.



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