Hyatt Regency Walkways: The Ethical Issues

By Olivier Dragon

Report written by Yamama Khadduri

Team 3

March 12, 2003
Overview

- Ethical Issues in Engineering
- Summary of the Events
- Technical Issues
- Stakeholders
- Consequences of the Tragedy
- What About Software Engineering?
Ethical Issues in Engineering

- Responsibilities
  - Public
  - Engineering Profession and Collegues
  - Ourselves as Human Beings
- Quality
- Reliability
- Safety
The Hyatt Regency Tragedy

- Hyatt Regency Hotel
- Kansas City
- Suspended Walkways
- 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} Floors
- 2\textsuperscript{nd} and 4\textsuperscript{th} Connected

Figure 1: Hyatt Walkways Before Collapse [8]
Main Figures

- Crown Center Redevelopment Corp.
- Jack D. Gillum & Associates, Ltd. (G.C.E.)
- Patty Berkebile Nelson Duncan Monroe Lefebvre (PBNBDML)
- Eldridge Construction & Havens Steel Co.
- H&R Inspection, QA Officials
- Jack D. Gillum
- Daniel M. Duncan
- Seiden-Page
Project Birth

- Summer 1977: First plans
- April 1978: Contracts signed for design
- December 1978: Contracts for construction
- Duncan in charge of design drawings
- Rod design changed by Havens
- Duncan Approves
Project Evolution

- January 1979: Architect notified of change
- February: Shop drawings sent to G.C.E.
- October: Roof collapses during construction
- Seiden-Page Investigates Failure
- J. Gillum and D. Duncan Report
- July 1980: Construction Completed
Failure

- July 17, 1981: Tea-dance party
- Walkways collapse
Technical Causes

- Design and shop drawings inconsistencies
- Change in suspending rods design
- Wrong load calculations
Technical Causes (cont'd)

Figure 2: Support Rod Design Change [8]
Technical Causes (cont'd)

Figure 3: Ceiling rods after [6]
Technical Causes (cont'd)

Figure 4: Collapsed walkways and 3rd floor still hanging [6]
Technical Causes (cont'd)

Figure 5: Connection box deformation [6]
Human Causes

- No verification of changes
- Improper Communication
- Too much trust in Duncan
Stakeholders

- Crown Center Redevelopment Corp: Owner
  - Interested in lowest cost
  - No on-site inspection
  - Should have had inspections
- Jack Gillum, Principal of G.C.E.
  - Design and build the Hyatt Regency Hotel
  - Too much responsibility to junior engineer
  - Insufficient supervision
  - Fulfilled Interests?
Stakeholders (con't)

- Daniel Duncan: Junior engineer at G.C.E.
  - Project Success
  - Flawed Design
  - Impromptu Decisions
  - Overconfidence in his Design
- Society
  - Lives of victims
  - Families of lost ones
  - Witness traumatised
  - Engineering Profession
Aftermath

- 114 people died
- 200 others injured
- Kansas City investigations
  ✴ Technical Team
  ✴ Ethical Team
Aftermath (cont'd)

- Duncan, Gillum and G.C.E. found guilty
- Licenses Revoked
- Fair sentence? To who?
- Was the sentence hard enough?
What about Software Engineering?

- New profession
- Same responsibilities
- No change is a small change
- Differences?
  - Problem definition
  - Mathematical tools
  - Formal verification methods
References


