

**WILL TRAINING STOP THE KILLING FIELDS?
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Construction has increasingly become a deadly business -- especially in New York, where laborers routinely dangle from skyscrapers, all part of a building boom that has defied the national slowdown according to **SUSAN DONALDSON JAMES** about a year ago in her article, **Construction Worker Deaths Spike**.

The question, *Will training stop the killing fields?* has haunted me personally for a long time. Almost every authoritative text, piece of published research or contemporary writing on construction health and safety refers to training as **the** vehicle to improved health and safety performance. But is it? Is this claim supported by the evidence? Consider that globally the construction industry spends billions of rands on health and safety training each and every year. However, despite this significant 'investment' the claims of Susan James continue to ring true confirmed by evidence from around the world. Construction sites everywhere continue to be killing fields.

For example, across the United States, construction ranks as the most dangerous industry, accounting for about 20 percent of all work-related fatalities. Arguably, the rise in construction fatalities can be explained by a deadly mix of untrained workers given the shortage of skills, lax attention to health and safety regulations and contractors who cut corners. This view is echoed by the Health and Safety Executive in the United Kingdom when it found that the skills shortage in the industry resulted in increased reliance on inexperienced workers, coupled with difficulties verifying competence. The 2008 Census of Fatal Occupational Injuries, released on August 20, showed that construction had 969 fatalities in 2008, the largest number when compared with other industries. Transportation and warehousing ranked second, with 762 deaths.

Table 1. Fatalities in U.S. construction in 2008 by employee type

TOTAL	CONSTRUCTION	SUPERVISORS/ CONSTRUCTION MANAGERS	CARPENTERS	EQUIPMENT OPERATORS	LABORERS
5,071	969 (19,1%)	14%	7%	6%	22%

Table 2. Fatalities in U.S. construction in 2008 by exposure

TRANSPORTATION	CONTACT WITH OBJECTS AND EQUIPMENT	FALLS	EXPOSURE TO HARMFUL SUBSTANCES	FIRES AND EXPLOSIONS	ASSAULTS AND VIOLENCE
24,8%	20,8%	34,4%	13,6%	2,6%	3,8%

Table 3. Fatalities in U.S. construction in 2008 by industry sector

RESIDENTIAL	NON-RESIDENTIAL	HEAVY AND CIVIL	TRADE CONTRACTORS
9,6%	2,1%	19,5%	68,8%

Incidentally, the number of engineers and architects killed in construction in the U.S.A. in 2008 was 29 and 4 respectively. No one is excluded from the possibility of becoming a fatality statistic!

In the United Kingdom, the trend is replicated as even there construction has the largest number of fatal injuries compared to other industrial sectors. Data from the Health and Safety Executive for the period 2007-2008 shows that 31% of all fatal injuries were in the construction industry - 72 fatal injuries to workers, and 3,764 major injuries to workers.

In Australia, a senior research analyst, Ian Woods argues that the cost of workplace injury carried by Australian employers is an average 6 per cent of profit. Worse, the total of workplace injury costs in the

Australian construction industry borne by employees, employers and the community equals 98 per cent of the industry's operating profit. Further, high workers' compensation and medical costs as a result of poor OH&S performance can reduce the ability of a construction company to compete.

In South Africa, the scenario is no different as evidenced in the recent CIDB Construction Health and Safety in South Africa report which cites the number of fatalities as 162 for the period 2007-2008. According to FEMA the number of fatalities that were registered with them in 2007 was 60. Further, the dominating causes of fatalities were motor-vehicle accidents (MVAs) (47%), struck by (17%) and falls on to different levels (17%) and multiple injuries caused 47% of fatalities. Construction has the 3rd highest number of fatalities per 100, 000 workers

Recently, I created a daily Google Alert for accidents and fatalities on construction sites around the world. I printed and filed the instances in a 75mm LeverArch binder. I had to cancel the alert after a few weeks because I could not keep up with the number of reports.

Indeed our sites have become killing fields!

Since 2007 I have been working on refining a model shown in Figure 1 to improve the health and safety performance of South African construction. This model consists at present in no order of importance of 6 enablers, namely:

1. Management commitment and involvement:
 - The importance given to construction H&S by management where H&S is an organizational value and not just a priority;
2. Worker empowerment:
 - The engagement and/or involvement of workers in key aspects of H&S such as the development of H&S policy, H&S plans, risk assessments, H&S inspections and audits, H&S feedback forums, Safe Work Procedures (SWPs) and contractor selection;
3. **Training and resources:**
 - **Training of workers in SWPs as part of construction activities and, for example, the proper use of PPE and provision of appropriate PPE, orientation and induction; materials, tools and equipment; and welfare facilities;**
4. Project planning and supervision:
 - Involves consideration of H&S when choosing construction methods, materials, and supervision;
5. Vision and policy:
 - Involves the importance within the organization of H&S and the setting of strategic H&S goals such as elimination of hazards at source; zero tolerance of poor H&S; and
6. Appointments:
 - The employment of staff and workers trained in construction H&S.

Again, training emerges as a key enabler for improved health and safety performance in our industry. According to the Health and Safety Executive Research Report 156, *Causal Factors in Construction Accidents*, training is seen as a solution to all problems, but with content that is superficial.

In a comparative study with Singapore, which significantly and regularly outperforms our industry relative to health and safety, where 300 and 325 respondents respectively participated in a survey conducted simultaneously in both countries using a 32 statement survey instrument, I found the following areas of disparity of construction H&S performance to be, namely

- a general lack of management commitment and involvement;
- inadequate supervisory environment; and
- a lack of training and low levels of competence.

Table 4. Comparative statistics: Singapore vs South Africa

Region	Fatality rate (per 100, 000 workers)	Accident rate (per 100, 000 workers)
Singapore	9.8	7 452
South Africa	19.2	14 626

These findings confirm the need for what the model strongly hints at, namely multi-stakeholder commitment and involvement across all phases of construction projects. Health and safety training, if it is to impact our industry positively, cannot therefore only be targeted at construction workers on site. Perhaps the answer to our question lies precisely in the possible previous misdirected focus on training of workers.



Figure 1. Model for H&S improvement

The percentage of training done by various categories of employers within a major South African organization is shown in Table 5. It is insightful that 34% of top management and 33% of site workers had not received any H&S training.

Table 5. Extent of H&S training

Percentage of category trained in H&S (%)		
Top management	Site management	Other workers
66.0	82.0	67.0

What then should this multi-stakeholder education and training address? A few suggestions of topics might be useful.

1. *Design for Health and Safety*

- Application of the hierarchy of risk control where only if (i) is not possible should (ii) be considered:
 - i) Elimination of hazard at source;
 - ii) Substitution;
 - iii) Use of barriers to isolate and/or segregate;
 - iv) Use of administrative procedures;
 - v) Use of warning systems; and
 - vi) Use of personal protective equipment.
- Hazard Identification and Risk Assessment which is required in terms of South African health and safety (H&S) legislation and regulations. A written HIRA is useful and provides an auditable trail of the design and the risk-reduction process followed. A HIRA conducted during the design phase

identifies potential hazards and the related risks and can reduce or eliminate potential exposure of workers during the construction process, or maintenance, or deconstruction.

- Conducting of constructability reviews with the minimum objective of improving the ease of construction and quality of completed projects with H&S in mind.
- Compilation of H&S specifications that are both project- and site-specific
- Minimizing VOs underpinned by an understanding of not only their cost but also their H&S implications

2. Price for H&S

- Acceptance by all parties especially clients that construction H&S costs in the same way that the facilities provided to workers in, say, the automotive industry cost purchasers of vehicles
- Pricing of H&S not merely in the form of a provisional or lump sum given the legislative requirement to ensure adequate financial provision for H&S
- Pre-qualification and appointment of, for example, contractors on the basis of H&S performance and adequacy of financial allowance
- Understand the implications of the H&S specification with respect to the cost implications

3. Schedule or Program for H&S

- Development of induction programs that are not only generic but also directly related to the project schedule or program
- Alignment of all H&S training with the project schedule or program that includes toolbox talks and pre-task briefings

4. Construct for H&S

- Understanding of the implications of the H&S specification
- Application of the hierarchy of risk control especially before considering the use of Personal Protective Equipment and where their use cannot be avoided that all users of PPE are trained in their proper use and maintenance
- Hazard Identification and Risk Assessment training for everyone including all workers and empowerment to refuse to work without harassment and/or victimization where health and safety may be threatened
- Conducting constructability reviews
- Re-engineering of high risk activities such as for example, the elimination of the use of ladders on projects
- Consideration of ergonomic challenges such as working in confined spaces or using awkward body positions

- Development and implementation of H&S management systems that include, for example, project- and site-specific H&S plans, H&S method statements and safe work procedures

5. Educate for H&S

- Re-curriculation of all courses at higher education institutions that produce BE professionals to include H&S and all of the above topics
- Revision of continuous professional development requirements by all professional bodies to include H&S

What about government? Many well-intentioned government-driven initiatives have had unintended consequences. These include the Expanded Public Works Program, preference for labor-intensive construction over off-site prefabrication and pre-assembly, establishment of the Construction Education and Training Authority, and Broad Based Black Economic Empowerment. Consequences have been, for example, entry into the industry of opportunists looking for a quick buck, employment of uninitiated workers who have no idea of the hazards involved in construction activities, short-term employment without significant skills development and transfer, production of layers of bricks rather than bricklayers, decline of the requisite training that underpins the construction sector, and a pre-occupation with playing the numbers game.

The revision of the Construction Regulations provides the opportunity for an improved enabling H&S legislative framework. We have previously given input into this process and can only hope that the recommendations will be taken seriously that have been included in the H&S Status Report released by the Construction Industry Development Board on June 11 this year. One of these is the development of multi-lingual guidelines accompanied by examples to directly address the pervasive misunderstanding and confusion. Another which speaks directly to our question is the upskilling of the OH&S inspectorate on a structured and coordinated basis given the challenges of working with a performance driven legislative framework and the extent of the requisite knowledge base to adequately perform the H&S inspectorate function.

What about the Master Builders South Africa? The MBSA has historically provided an H&S service to its members and it should be applauded for its H&S initiatives. The MBSA conducts a national H&S competition, and the MBAs conduct regional H&S competitions and an H&S star grading scheme. However, despite all its laudable efforts, the poor H&S record of the industry demands that still more needs to be done. However, the reality is that the MBSA cannot go it alone.

So will training stop the killing fields? Education is needed over training, so as to promote intelligent knowledge rather than unthinking rule-based attention to health and safety. Perhaps our model will provide an answer (Figure 2). The improvement in H&S performance will not be achieved despite each of the enablers which include training without LEADERSHIP. Therefore, training by itself will not stop the killing fields. Without leadership the killing fields will sadly continue.

Workers are the biggest victims. "They fall one day, they are in a coma, the employer never visits them in the hospital and moves on to the next illegal worker," according to a New York attorney "It's like replacing the widget in a factory."

The time has come to recognize the national importance of stopping the killing fields. The time has come for leaders everywhere to stand up. It is time that government in the form of the Departments of Labor, Public Works, Housing and Education, the Council for the Built Environment together with all six Councils, the Construction Industry Development Board, SAFCEC, the MBSA, the labor movement in the form of COSATU and NUM, and education institutions join hands in the H&S improvement effort. As someone once said, H&S is everyone's business. Only then will the killing fields stop.

In conclusion I borrow the words of the Minister of Labor at the H&S Summit when he said, *Julle weet wat om te doen! Nou doen dit! You know what to do! Now do it!*



Figure 2. Need for leadership

Finally, I close with the words of Edmund Burke: *The only thing necessary for the triumph of evil is for good men to do nothing*

And there are only good men and women here. Aluta continua! Thank you.