Teaching Module:

Prevention through Design (PtD) as a Component of Social Sustainability

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1. INTRODUCTION

Social sustainability for a workforce reflects the extent to which the workplace benefits the collective welfare, diversity, quality of life, and human rights of the employees. While the environmental and economic pillars of sustainability focus on physical and financial resources, the social aspect of sustainability focuses on people. Workers are the resource that keeps work industries alive and prosperous. Enhancing social sustainability entails being a good steward of our human resources.

Occupational safety and health (OSH) is a component of social sustainability within every work industry. Figure 1 illustrates how social OSH fits within social sustainability. Safety and health are foundational needs of all people (Maslow 1954), and these needs extend into the workplace (AON Hewitt 2012). Focusing on the construction industry, the social sustainability boundary encompasses the safety and health of all those who work in the industry: the laborers, equipment operators, engineers, architects, inspectors, and other personnel who plan, design, and construct a facility. In addition, given the nature and outputs of the industry, the boundary extends beyond the project site and the date when construction is complete. The facility users, i.e., those who occupy and use the facility after construction is complete, plus those who maintain the facility and the public who are exposed to and pass by the facility, are contained within the system boundary from a lifecycle perspective. The safety and health of all those affected by the facility throughout its lifecycle must be considered when assessing the social sustainability associated with a project.

For the construction industry, ensuring the safety and health of those impacted by the design and construction of a facility has been a challenge. The size and complexity of the industry contribute to this challenge. The construction industry is a large, single-service industry in the US, employing approximately 4.2% (6.19 million people) of the country's workforce in 2019 (BLS 2020a). Construction projects are undertaken in many different site and environmental conditions, utilize a wide range of materials and equipment, require intricate planning and coordination, and are performed by a diverse set of partners. These partners work together for just a brief period of time and often under tight budgets. As a result, the construction industry is one of the most dangerous industries to work in. The US Bureau of Labor Statistics reports that in 2019 the construction industry sustained the highest number of occupational fatalities (1,061) amongst all industries (BLS 2020b). This number of fatalities amounts to almost three fatalities per calendar day. Approximately 20% of all workplace fatalities in 2019 occurred in construction, an amount that is approximately equal to the number of fatalities in all of the other goods producing industries (agriculture/forestry, mining, and manufacturing) combined (BLS 2020b). The concerning safety performance is not limited to just fatalities. In terms of injuries and illnesses, the incidence rate per 100 full-time workers in 2019 was 2.8 for the US private construction industry (compared to 3.0 per 100 full-time equivalent workers for all industries combined), which equated to approximately 200,100 injuries and illnesses across the construction industry in 2019 (BLS 2020c; 2020d). The safety performance of the construction industry in 2019 is also not an anomaly. Each year over the past decade, almost 10 of every 100,000 workers in the US construction industry were fatally injured while working on a construction site (NSC 2020).

The annual safety performance data reveal that, while the numbers of fatalities and disabling injuries in construction have declined over the years, the construction industry still accounts for a disproportionate fatality rate compared to other industries. Further improvement is needed.

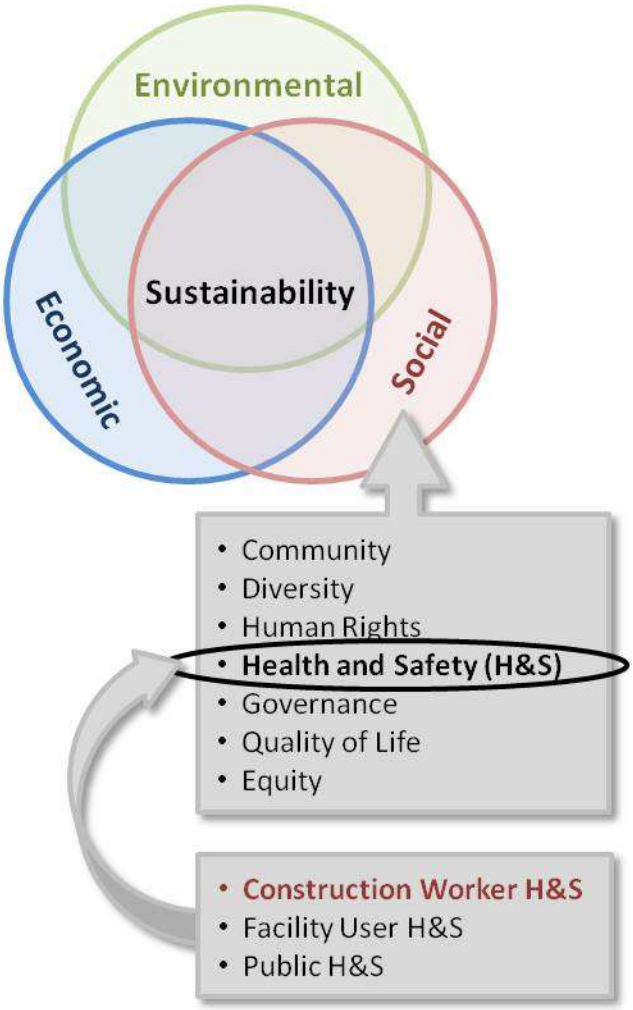


Figure 1: Health and Safety as a Component of Social Sustainability (SCSH 2018)

The construction industry has taken steps to improve safety and health in the industry. In an effort to reduce the number of worker injuries and fatalities, the industry has committed itself to persistent attention to safety and health and to giving worker safety and health high priority. A common construction company motto is "Safety first!" Targeted industry efforts have led to the development and implementation of new safety and health programs and resources. As a result, many different types of safety practices, programs, and resources now exist, including new and improved personal protective equipment (PPE), safeguards on equipment, integrated project delivery methods that permit constructability reviews during design, and administrative efforts such as precursor analysis programs, pre-task planning, drug and alcohol testing, behavior-based safety surveys, top management support, stretch and flex programs, and safety incentives. Literature is available that provides comprehensive descriptions of safety management practices

along with their benefit to safety performance (e.g., see Hinze 2006; Schaufelberger and Lin 2014; CII 2003; Rajendran and Kime 2015; Hill 2014).

However, injuries and fatalities still occur. Preventing further injuries and fatalities in the workplace requires understanding the root causes of injury and fatality incidents. Whether part of the construction operations, during the facility's use, or while maintaining the facility, theories of accident causation commonly point to primarily human behavior and, to a much lesser extent, site conditions as the starting points for injuries and fatalities. The human behavior component tends to be the predominant cause; research reveals that approximately 90% of accidents are related to human behavior (Heinrich 1959; Johnson 2011; Manuele 2011). In fact, six types of human behavior, described in Table 1, have been identified as root causes of accidents. For an accident to occur, at least one of the root causes must be present.

Table 1: Human Behavior-related Root Causes of Accidents (Gambatese et al. 2016; modified)

Root Cause	Description
Mistake / error	An unintentional miscalculation, blunder, or oversight in action or decision-making.
Absent-minded / forgetful	Unintentional pre-occupied wandering of the mind from the present such that one is unaware of one's immediate surroundings. Lost in thought such that one does not realize current actions, surrounding conditions, and immediate hazards.
Uncaring / indifferent	Showing no care or concern for personal protection or the safety of others, or giving other goals and values (e.g., profit, status, and personal opinion and feelings) higher priority than personal protection or the safety of others.
Ignorance	Lack of knowledge, experience, or information about the conditions and actions at hand.
Poor risk management	Insufficient or careless assessment of the safety risk associated with identified hazards, and faulty or inferior decision-making and control of the calculated risk.
High risk tolerance	A high permissible level of risk based on which the need for safety controls is determined.

It is important to understand as well that, when an injury/fatality incident occurs, the human behavior root causes listed in Table 1 do not need to have been exhibited by the injured worker or have taken place on the work site. The behavior could have taken place during project planning, prior to the actual work taking place. For example, a decision made by a project manager that affects the timing of the work, pressure on the workers to be productive, and overlapping of trades on a jobsite could have been the originating cause of the incident. In addition, the behavior could be the result of conditions present on the site. A decision made by a field worker, superintendent, project engineer, or architectural designer could be impacted by, or could impact, the size, shape, complexity, or other aspect of the work environment and surroundings. An injury incident is often the result of a complex network of conditions,

decisions, and actions, all of which are founded on, and impacted by, human behavior and site conditions.

1.1 Connecting Safety to Planning and Design Decisions

Studies of injury and fatality incidents suggest that many of the reasons for the incidents can be traced upstream from the building process itself and are connected to such processes as planning, scheduling, and design of the facility (Behm 2004; Whittington et al. 1992; Suraji et al. 2001). In a study of design decisions related to a microchip manufacturing facility, for example, Weinstein et al. (2005) found that decisions made during design and material selection contributed to both safe and unsafe working conditions for workers during construction. Multiple studies have been conducted over the years in an attempt to confirm, and quantify the level of, the impact that planning and design have on safety. The results of some noteworthy studies are listed below:

- Jeffrey and Douglas (1994) reviewed the UK construction industry's safety performance and concluded that 35% of the site fatalities reviewed were related to falls and could have been prevented through design decisions.
- In an analysis of 100 construction accidents conducted by industry experts, Gibb et al. (2004; Haslam et al. 2003) found that in 47% of the incidents, changes in the permanent design would have reduced the likelihood of the accidents.
- Behm attempted to link the design for construction safety concept to construction injuries and fatalities through a review of OSHA and NIOSH incident reports. Using OSHA and NIOSH fatality reports from 1990-2003, Behm (2005) linked the design to the fatal injury in 92 (42%) of the 224 NIOSH FACE reports (Behm 2005). Behm also reviewed 226 OSHA injury reports in California, Oregon, and Washington from 2000-2002 and found that in 49 (22%) of the reports, a connection to the design could be made (Behm 2004). As part of a subsequent study, an expert panel confirmed Behm's results that there is a link between the design and the incidents that resulted in injury and fatality on the site (Gambatese et al. 2008).
- In a study of the contractor's perspective, approximately 50% of the 71 contractors interviewed identified the design as an aspect or factor that negatively affects health and safety on the construction site (Smallwood 1996). Supporting this finding, when compared to other project components, the contractors ranked the design the highest with regard to impact on safety.
- Churcher and Alwani-Starr (1996) attributed design decisions or lack of planning to 63% of all fatalities and injuries that the researchers investigated in the UK.
- In a study of the relationship between design issues and work-related injuries in Australia from 2000 to 2002, Driscoll et al. (2004) found that there was either a definite or possible connection to the design in 63% of the 43 cases reviewed.

Based on the studies mentioned above and other similar studies, it is clear that decisions made during the planning and design of a facility impact the safety and health of those downstream in the facility's lifecycle. It is easy to envision, for example, that the hazards and risk associated with constructing a brick façade on the exterior of a building are different than that for a precast concrete panel façade. The choice of which type of exterior to include is made prior to the start of construction by the owner and/or architect. The extent of potential impact can be significant.

Szymberski's time-safety influence curve (see Figure 2) illustrates how the ability to influence safety changes during the lifecycle of a facility. While significant impact on safety is present during actual construction, the planning and design phases provide an opportunity to eliminate hazards before the hazards appear on the jobsite; removing the hazard ensures that there is no chance of injury. However, the ability to eliminate hazards from the jobsite diminishes as the project progresses; the constructor is left with only the ability to protect the workers from the hazards. A considerable portion of the ability to positively and effectively influence construction site safety is lost when safety is not considered until the construction phase.

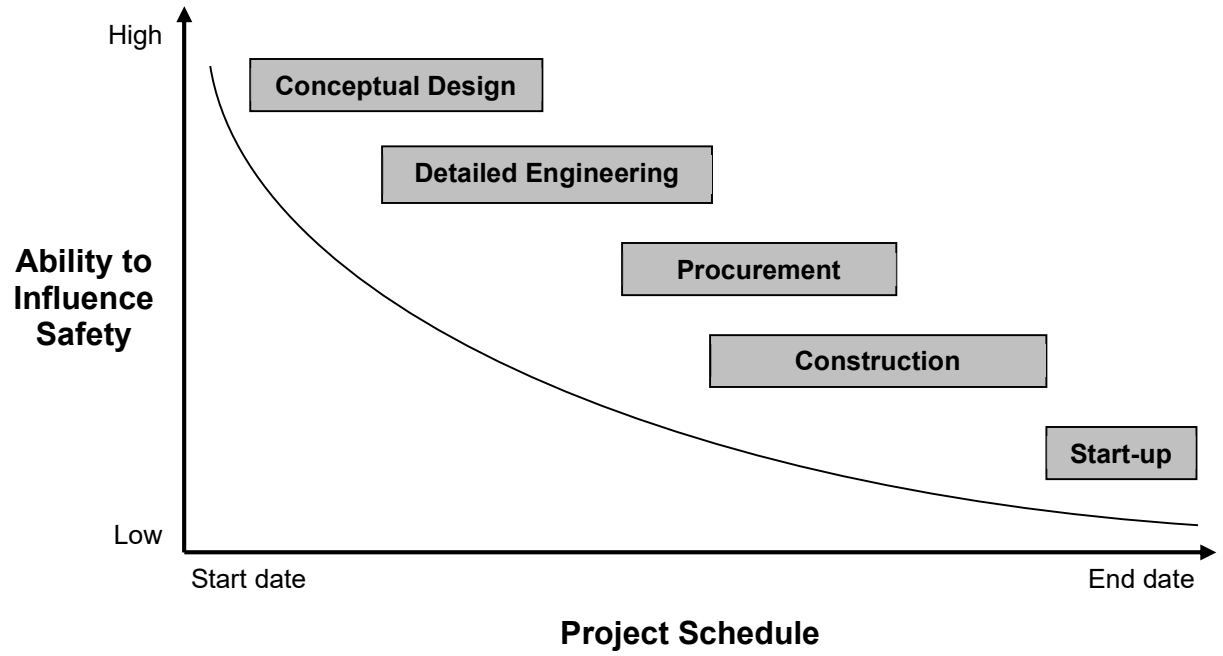


Figure 2: Ability to Influence Safety over the Project Lifecycle (Szymberski 1997)

2. PREVENTION THROUGH DESIGN (PTD) CONCEPT

Prevention through design (PtD), also referred to as "design for safety" and "safety in design," recognizes that the design of the facility or product being built along with the work environment, operations, materials, and tools impact the risk to which workers are exposed, and that we have the ability to proactively design out potential hazards to eliminate or minimize the risk and improve worker safety and health. PtD is also founded on the belief that designing out the hazards so that workers are not exposed to the hazards is the most effective and reliable approach to safety management. PtD overlaps with the concept of inherently safer design (ISD), which emphasizes avoiding hazards rather than keeping them under control through passive means (Kletz 2003).

At PtD's foundation is the "hierarchy of controls," a relationship between different types of controls. The hierarchy of controls, also referred to as "order of precedence," is well-known by safety and health professionals as a guide to follow to provide a safe and healthy work environment. Illustrated in Figure 3, the hierarchy indicates the relative effectiveness and reliability of different types of controls. The levels of control, listed from 1 to 5 in order of decreasing priority, reliability, and effectiveness, are (Manuele 1997; Andres 2002):

1. Elimination: design to eliminate or avoid the hazard
2. Substitution: design to reduce or replace the hazard
3. Engineering: incorporate safety devices on the design to protect the workers from the hazards (e.g., machine guards, guardrails, proximity alert systems, etc.)
4. Administrative: change the work operations and behavior (e.g., warning signs, training, incentives, safety policies, etc.)
5. Personal protective equipment (PPE): provide personal protective measures to protect the workers from the hazard (e.g., hardhat, earplugs, gloves, etc.)

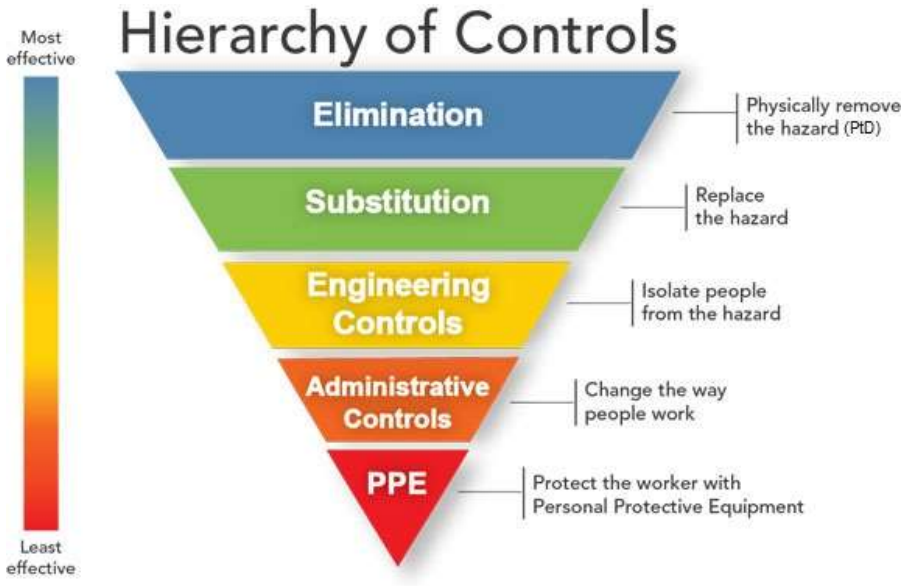


Figure 3: Hierarchy of Controls for Mitigating Hazards (NIOSH 2015)

The hierarchy indicates that it is best to eliminate the hazard if possible, as doing so will remove the hazard from the workplace and therefore eliminate the risk of injury/fatality. The reliability of the control also increases from the bottom to the top of the hierarchy, i.e., elimination and substitution are more reliable than PPE and administrative controls. Relying on human behavior to ensure that the controls are followed ignores the fact that people can be absent-minded, make mistakes, and exhibit other behaviors that are at the root of accidents/incidents (listed in Table 1). A higher level of reliability provides greater assurance that the control will be in place and that the controls will be effective at preventing the injury/fatality. When it is not possible to eliminate the hazard altogether, controls that are lower in the hierarchy may be used. In this case, those involved need to recognize that some risk remains due to the lower reliability and effectiveness of the lower-level controls, and acknowledge the need to manage the residual risk. For some cases, implementing multiple levels of control may be the best approach to mitigate all of the risk. Importantly, it should be remembered that taking no action will expose those who interact with the design to uncontrolled risk.

For the construction industry specifically, PtD is a concept that is applicable and beneficial. The PtD concept is being implemented in some regards. For example, when a facility is designed, it is designed for the safety of the end-user of the facility. Industry-standard design codes are used to eliminate known hazards (e.g., fires, falls, and slips/trips). Similarly, when designing tools and equipment, design features are incorporated (e.g., guards) that mitigate safety hazards and prevent workers from getting injured when using the tools and equipment on the job. In both cases, the targeted safety is that of the user of the design in its final form. These instances of implementing PtD are common throughout the industry, and are expected of designers (architects and design engineers). Less common, and often more difficult, is the implementation of PtD for the safety of those who will construct, maintain, and renovate the design.

Architects and engineers regularly design the permanent features of the facility for the safety and health of the facility's end-users, e.g., the building occupant, motorist, or facility operator. Implementation of the PtD concept with regard to construction worker safety and health, however, is currently limited (Tymvios et al. 2012). Traditional industry practice places the role and responsibility for worker safety and health implementation and oversight on the constructor's shoulders. Standard industry contracts, project delivery methods, design professional education and training, and an attempt to limit liability exposure are some of the factors among others that shape current practice and lead to minimal implementation of PtD for construction safety in the industry. It is clear that the current structure and culture of much of the construction industry inhibit application of the PtD concept in regard to construction site safety. As a result, architects and engineers who design the permanent features of a facility commonly focus solely on the safety and health of the facility's end-user. Consequently, the impacts of their designs on construction site safety and health are often left up to the constructor to address and mitigate after the design is complete and, as a result, safety management is limited to those controls that are lower on the hierarchy of controls.

It is important to understand that PtD focuses on the design of a facility. That is, implementing PtD entails designing the facility in such a way that safety and health hazards are eliminated or mitigated. On the other hand, PtD is not about designing the means and methods of construction such that the work is performed safely. According to the hierarchy of controls, designing the way the work is conducted is an administrative control. An understanding of what PtD is, and what PtD is not, is important to its acceptance and implementation. The lists below provide additional clarification of what PtD is and is not with respect to its application by architects and design engineers for the safety and health of construction workers (http://designforconstructionsafety.org/):

- What PtD is:
    - Including worker safety considerations in the constructability review process.
    - Making design decisions based in part on how the project's inherent risk to construction and maintenance workers may be affected.
    - Explicitly considering and placing high value on the safety of construction and maintenance workers during the design of a project, when the inherent safety risks can best be addressed.

- What PtD is not:
    - Having designers take an active role in construction safety during construction.
    - Designers specifying the means and methods of construction.
    - An endorsement of the principle that designers can or should be held partially responsible for construction accidents.

PtD requires designer involvement. PtD provides an opportunity for design professionals to participate in social sustainability practices as it relates to construction workers. PtD also requires knowledge of construction. Those performing the design must know the safety and health hazards associated with construction operations and design elements. Therefore, either the designer must be knowledgeable about the construction phase activities and the impacts of their designs on the construction phase, or designers must receive that knowledge from others. As a

result, constructor involvement is commonly a part of PtD implementation. Constructors know the safety and health hazards that exist on projects and how design elements create hazards. Designer and constructor collaboration is an important component of PtD.

When implemented, the outcomes of PtD can take many forms. It is expected that the design drawings and specifications will incorporate features, materials, and processes that mitigate potential safety and health risk to workers. Many examples of safe designs exist. For example, Toole et al. (2006) provide the following guidance for structural steel detailers to positively enhance construction site safety through design:

- Specify holes for tie lines 21" and 42" above each floor slab, safety seats for beam connections, markings for orientation, and secure connections and anchoring systems.
- Establish a clear and consistent beam marking system to help workers orient themselves to hazards in certain sections of the structure and increase erection speed.
- Where possible, specify shop welded connections instead of bolts or field welds to avoid dangerous or awkward positions for the welder or connector.
- For bolted beam connections, provide an extra "dummy" hole in which a spud wrench or other object can be inserted to provide continual support for the beam during installation of the bolts.
- Use a minimum of four (and in many cases much more than four) anchor rods to secure columns in order to prevent movement and eliminate the need for temporary bracing during placement.
- Locate plates and bolts to provide more accessible designs. In small (short-webbed) columns, flanges can inhibit access to connections for construction purposes.
- Avoid hanging connections—design to bear on columns instead.
- Familiarity with realistic dimensions can help the detailer specify connections with improved constructability to prevent pinches or awkward assemblies.
- Avoid connections or protrusions above floor framing members.

Provided below are additional examples of designs in which the safety and health of the workers has been taken into consideration (Gambatese et al. 1997; Behm 2005):

- When a parapet is included on a building, design the parapet such that it is 42" tall to meet OSHA guardrail standards. Similarly, design upper story window sills to be 42" above the floor level such that the window sills function as a guardrail during construction.
- Maintain a consistent floor layout throughout the building. Such a design not only promotes efficient production but also gives workers the opportunity to have thorough knowledge of the hazards present on each floor.
- Include built-in anchorage points in the design of the building to provide the construction and maintenance workers a place to connect fall restraint systems.
- Design components to facilitate pre-fabrication in the shop or on the ground so that they may be erected in place as complete assemblies. Reduce worker exposure to falls from elevation and being struck by falling objects.
- Design beam-to-column double-connections to have continual support for the beams during the connection process by adding a beam seat, extra bolt hole, or other redundant

connection point. Continual support for beams during erection will eliminate falls due to unexpected vibrations, mis-alignment, and unexpected construction loads.

- Minimize the number of offsets in a building plan, and make the offsets a consistent size and as large as possible. Prevent fall hazards by simplifying the work area for construction workers.
- Design underground utilities to be placed using trenchless technologies. Eliminate the safety hazards associated with trenching, especially around roads and pedestrian traffic surfaces.
- Design roadway edges and shoulders to support the weight of construction equipment. Prevent heavy construction equipment from crushing the edge of the roadway and overturning.
- Position mechanical, piping, and electrical controls away from passageways and work areas, but still within reach for easy operation. Controls which protrude into passageways and work areas, or are hard to operate, hidden, or inaccessible, create safety hazards for construction and maintenance workers.
- Allow adequate clearance between the structure and overhead power lines. Bury, disconnect, or re-route existing power lines around the project before construction begins. Overhead power lines which are in service during construction are hazardous when operating cranes and other tall equipment.
- Route piping lines which carry liquids below electrical cable trays. Prevent the chance of electrical shock due to leaking pipes.

3. PTD IN PRACTICE

Much has been gained from the implementation of PtD in practice. PtD implementation has highlighted enablers and inhibitors of its implementation, along with recognized impacts when it is implemented. Provided below are examples of enablers and inhibitors of PtD implementation and the impacts that have been recognized from its implementation. Additionally, design practices, procedures, and tools have been developed that assist PtD implementation. Examples of these PtD resources and are also provided below.

3.1 PtD Enablers

With respect to enablers, there are tools, resources, processes, and organizational cultures that assist with PtD implementation. For example, Hinze (2000) identifies a holistic approach to design as an enabler of PtD. Focusing narrowly on just the performance of the facility during the operations and maintenance phase of its lifecycle disregards the impacts of the design during construction. When designers possess a mindset that design should take into account more than just the end-user, opportunities and acceptance for PtD are revealed. A design for the entire lifecycle approach provides the foundational mindset for PtD to occur. An owner/client who is committed to safety and health throughout the project's lifecycle will motivate designers to take action and implement PtD. When owners provide the guidance and resources, designers respond with an interest in PtD and actions on the project (Behm 2005; Toole et al. 2012).

The integration of construction knowledge within the design scope and during the design phase has also been identified as an enabler of PtD (Weinstein et al. 2005; Toole et al. 2012; Atkinson and Westall 2010). Integration can take place in different forms. One means is through designer education and training related to safety, construction means and methods, and PtD (Toole 2005). Another means is to incorporate other personnel during the design phase who have the requisite construction knowledge. Ash (2000) contends that success is often found when designers and constructors work together closely, such as in design-build and construction management firms. Integrated project delivery (IPD) methods provide a means to overlap design and construction. IPD supports identifying and implementing PtD opportunities (Toole et al. 2012). A key element is the relationship between the designer, contractor, and subcontractors. Working in an integrated fashion makes the relationship closer, positive, and constructive. As a result, the relationship allows designers to design more proactively for safety (Atkinson and Westfall 2010).

Design-build is a project delivery method in which one entity develops a contract with the owner/client to provide both design and construction services. This method is seen as a good fit for the PtD concept because the design-build firm has financial incentive to design the facility to be as safe to erect as possible given that there will be fewer injuries to its own employees on site. Furthermore, design professionals and constructors are employed in the same firm, creating an environment where the communication between designer and builder is less confrontational compared to the traditional design-bid-build method of project delivery.

Another effective means for capturing construction knowledge during design is to have a construction manager, general contractor, and/or trade contractors participate in the design

review process throughout the design phase (Toole et al. 2012). One option, if allowed by the governing contracting regulations, is to hire contractors under a separate contract during the design phase to provide the needed input. It is also especially helpful if the project team members are co-located to facilitate their interaction. In addition to integrating design and construction, the presence of an explicit PtD process has been identified as facilitating its implementation (Toole et al. 2012). A formal process informs employees of the PtD concept, provides an objective and efficient process for its implementation, and provides a means for monitoring and enforcing its implementation. This process is enhanced by the use of supporting tools and resources that provide the ability to foresee the construction process and hazards, identify design-for-safety opportunities, and compare alternatives based on safety and health risk. Examples of enabling technologies are 4-D CAD systems, building information modeling (BIM), and virtual reality. Hazard identification checklists and design-for-safety databases support PtD implementation as well. The goal is to provide sufficient resources (tools, time, funding, knowledge, etc.) during the design phase to support the needs of addressing safety and health in the design.

Starting early is also a key enabler of PtD. Christensen (2011) recommends that the PtD process should be started almost as soon as the project is conceptualized. Commencing the PtD process at this time includes selecting a project team that is knowledgeable about safety, deciding on the design objectives, and agreeing that as hazards are identified, the associated risk will be assessed and mitigation techniques determined to reach an acceptable level of risk (Christensen 2011). It is important to include safety expertise within the project team from the start.

Lastly, protection against any additional liability can be provided through liability insurance policies and enable PtD. The availability of insurance policies that provide design firms protection against third-party lawsuits if they participate in PtD will give A/Es comfort in implementing PtD (Toole 2005). Such insurance policies would need to be developed and be financially acceptable. The cost of such additional policies would be borne by the design firms, and passed on to the owner through the professional design fees.

3.2 PtD Inhibitors

While the PtD concept is well-known and recognized as a best practice in the field of occupational safety and health, numerous systemic conditions and practices exist in the US construction industry which limit its formal and widespread implementation. Inhibitors of PtD in regard to construction worker safety that have been identified in previous research are related to: education and training, professional liability, regulatory requirements, industry culture and structure, resource/tool availability, designer capabilities, and financial constraints. It is important to recognize that the inhibitors are not barriers; that is, the inhibitors make PtD implementation difficult but do not prevent PtD implementation. PtD is practiced within the construction industry even with the inhibitors present. Some of the commonly recognized inhibitors are briefly described below:

- *Lack of safety in designer education and training:* Current formal education and training received by design professionals typically does not include construction worker safety (Gambatese 2003). An already full curriculum, a lack of PtD knowledge amongst faculty

teaching design courses, an absence of PtD from accreditation requirements, and a lack of appeal from industry advisory boards for including PtD in the curriculum, are some of the reasons why PtD is not explicitly included in academic design programs (Gambatese 2003). In addition, academic curricula for architects and engineers typically contain minimal content on construction means and methods and on constructability, two prerequisites for knowing how to design for safety. Future A/Es are predominantly not taught the construction process and how their designs impact the construction work. Therefore, A/Es entering the workforce have minimal understanding of not only the safety and health hazards that can exist on construction sites, but also how to design to enhance construction site safety and health. As a result, their ability to design for construction site safety is inhibited.

- *Potential for increasing professional liability exposure:* In an effort to limit their exposure to third-party lawsuits, many design professionals indicate that legal counsel specifically advises them to not become involved in construction worker safety (Hinze and Wiegand 1992; Gambatese et al. 2005). By doing so, designers attempt to distance themselves from possible third-party liability associated with an injury to a construction worker. By implementing PtD, increased exposure to third-party lawsuits is a concern. Many papers on the topic have identified fear of increased liability as an inhibitor to implementing PtD in practice (e.g., Gambatese 2008; Hecker et al. 2005; Gambatese et al. 2005; Hinze and Wiegand 1992; Toole 2005).
- *Regulatory requirements employee safety:* OSHA places the responsibility for employee safety on the employer. In a typical contracting arrangement for a construction project, the A/E firm is not the employer of the construction workers, except on design-build projects. Therefore, A/Es are commonly not concerned with adherence to the OSHA safety standards in regard to the safety of the construction workers. This separation is identified as another inhibitor to designers' interest and involvement in the PtD concept (Hecker et al. 2004; Hecker et al. 2005; Gambatese et al. 2005).
- *Industry culture and structure:* The construction industry today is fragmented. The expertise and knowledge that was once solely provided by the master builder is now essentially divided between two distinct divisions within the industry: design and construction. The fragmentation that has occurred in the construction industry impacts PtD and is identified as an inhibitor of PtD implementation (Gambatese 2008; Hecker et al. 2005). With regard to construction site safety, standard design and construction contracts reflect the industry fragmentation. Contracts for design services, for example, typically indicate that the designer shall not have responsibility for safety on the construction site and construction means and methods. Under this contract language, the designer designs the project for the client and is held accountable for the project's level of safety for the occupants of the finished product, not for the safety of the occupants while being constructed. Unless explicitly written in the contract, a designer participating in a design-bid-build project delivery arrangement is not responsible for overseeing construction worker safety (Gambatese 1998). On the other hand, standard contracts for construction stipulate that the constructor is solely responsible for safety on the construction site along with construction means and methods. The nature in which safety responsibility is apportioned in the standard design and construction contracts is recognized as an inhibitor to widespread PtD implementation (Toole 2005; Gambatese 2008; Hecker et al. 2005).

- *Competing priorities placed on a project:* Cost, schedule, quality, safety, and public recognition are examples of common project priorities that owners/clients put in place for their facilities. However, it is often difficult to meet the highest expectation for every priority. For example, higher quality often comes with greater cost. If a project goal is to reduce initial cost as much as possible, the level of quality may need to be lowered as well. When comparing different design alternatives, all of the priorities are considered concurrently. It is often the case in the construction industry that initial cost and schedule duration carry the greatest weight when compared to other project priorities. Cost and time impacts over the lifecycle of the facility are often ignored and/or difficult to quantify. Therefore, when a safe design is suggested which adds initial cost or time compared to safety measures that are lower in the hierarchy of controls, the lower-level measures are often selected in order to meet initial cost and schedule goals. Competing priorities can push selected hazard mitigation measures down the hierarchy of controls. This part of the construction industry culture inhibits the PtD concept.
- *Resource and tool availability:* Buildings, bridges, roadways, and other types of facilities are complicated. The projects consist of many different parts and pieces, all of which are designed and integrated to work within a system. The plans, elevations, sections, and details developed as part of the design documents are extensive and highly detailed. In addition, the design documents show the facility in its final form; the configuration and shape of the facility at each intermediate step during construction, and the temporary structures and equipment used for construction, are not shown. To identify the hazards related to construction, A/Es must visualize what the structure will look like at each intermediate step. Whether viewing the design documents in electronic format or on a hardcopy, it is often difficult to foresee what the hazards will be. After identifying hazards, to design out the hazards A/Es need to connect each hazard to a specific design element. Lastly, implementing the PtD concept requires that the design be revised to eliminate the hazards. Tools and resources are still being developed that can assist A/Es with these steps. A lack of readily available and easy-to-use tools has been identified as an inhibitor of the PtD concept (Gambatese 2008; Hecker et al. 2005; Gambatese et al. 2005; Hinze and Wiegand 1992; Toole 2005).

3.3 PtD Impacts

When the PtD concept is implemented on a project, the construction industry has recognized beneficial impacts. The primary objective of PtD is to prevent construction worker injuries and fatalities. It is recognized that when implementing PtD, the risk of getting injured on a project decreases, resulting in better safety performance (i.e., fewer construction worker injuries and fatalities). In addition to reduced hazards during construction, PtD is expected to benefit worker safety and health during operations and maintenance of the facilities (Gambatese et al. 2005). The parapet design described above, for example, provides protection from falling not only during construction, but also during future roof maintenance. Anchorage points for personal fall restraint systems that are designed into a structure can be used during construction and also as part of the facility's use and maintenance. The benefit of PtD in construction to operations and maintenance safety is one of the highlights of PtD compared to other temporary safety measures. Safety measures that are only present during construction have no value to the facility later in its lifecycle.

PtD is identified with improvements in other project attributes in addition to worker safety and health. Levitt and Samelson (1993) and Hinze (2006) contend that improvement in health and safety positively influences productivity, quality, time, and activity costs (see also Toole et al. 2006). PtD also increases the buildability and constructability of a project (Lam et al. 2006). Innovative designs, reduced workers' compensation premiums, and reduced environmental damage are some other outcomes of PtD (ISTD 2003, as cited in Gambatese et al. 2005). In addition to better designs, a reduction of the time from project conception to completion is expected because there is less retrofit required (Christensen 2011).

Perhaps one of the biggest impacts comes from the efforts within PtD programs to provide construction knowledge and expertise early on in the project timeline. Activities to engage constructors during design promote the uncovering of safety hazards associated with the design and the development of designs to minimize or eliminate the associated hazards. This engagement facilitates collaboration between the design and construction personnel and the optimization of their combined expertise. The greater collaboration can enhance other aspects of the project such as cost, schedule, and quality as well.

3.4 Implementation in Practice: Organization

Incorporating PtD into an organization to improve social sustainability requires attention to various aspects of an organization and its culture. Importantly, upper/top management personnel in an organization (e.g., president and CEO) need to both lead and participate. PtD leadership involves establishing a supporting culture and making sure that the needed resources are available and used. The following five steps have been identified as a road map for organizations to follow to integrate PtD within their organization (Gambatese 2009):

1. Provide education, training, and tools to designers:
    a. Include safety in architecture/engineering educational programs and professional continuing education classes.
    b. Encourage designer participation in safety events and activities.
    c. Incorporate design visualization tools in the design process (e.g., 4D-CAD)
    d. Incorporate risk assessment pro forma as part of design reviews
2. Optimize the process: right place, right time, right resources
    a. Conduct safety reviews periodically during the project development process (planning and design).
    b. Utilize integrated project delivery methods if possible to integrate design and construction knowledge.
    c. Co-locate design and construction staff.
3. Establish safety as a design criterion:
    a. Include safety as a design criterion along with cost, quality, schedule, sustainability, and other project performance criteria.
    b. Integrate safety into design standards
    c. Include safety in contracts for design.
4. Make safety a high priority:
    a. Make safety a high priority relative to other project performance goals.

   b. Assign responsibility for safety amongst the project team members.
   c. Provide authorization to modify the design for safety reasons.
5. Place value on designing for safety:
   a. Emphasize the desire to design out hazards rather than address the hazards through controls lower on the hierarchy of controls.
   b. Create a culture where design innovation to eliminate hazards is promoted.
   c. Highlight the moral and ethical responsibility to consider the safety and health of workers and the social aspects of sustainability.

3.5 Implementation in Practice: Project

Implementing a formal PtD process will facilitate its application on a project. Processes designed for application at the project level may incorporate a variety of tools and resources, and also include designer education and training. While several methods exist to implement PtD on a project, the commonality between them is early intervention, a deliberate consideration of construction safety and health, and the utilization of construction knowledge in the conceptual and design phases. Tools are available to implement PtD; they just need to be used. The following are representative examples that come from previous case study research and reviews of published literature.

Hecker et al. (2005) described the Life Cycle Safety (LCS) process developed by the Intel Corporation. In the LCS process, construction worker safety is considered along with safety in operability, maintainability, and re-tooling in the conceptual and design phases of a newly constructed manufacturing facility. Trade contractors familiar with similar facilities are hired during design to provide construction safety input during the conceptual and design phases of a project. Ad-hoc meetings with trade contractors are held to focus on specific options for evaluating implications for constructability, value engineering, and safety. A Safety in Design checklist, which evolved from previous projects, is used and provides a foundation for the LCS group. LCS reviews are conducted on every design package prepared by the design team. Figure 4 illustrates the design review process and targeted reviews for each design package along with the timing of the reviews for fast-track projects.

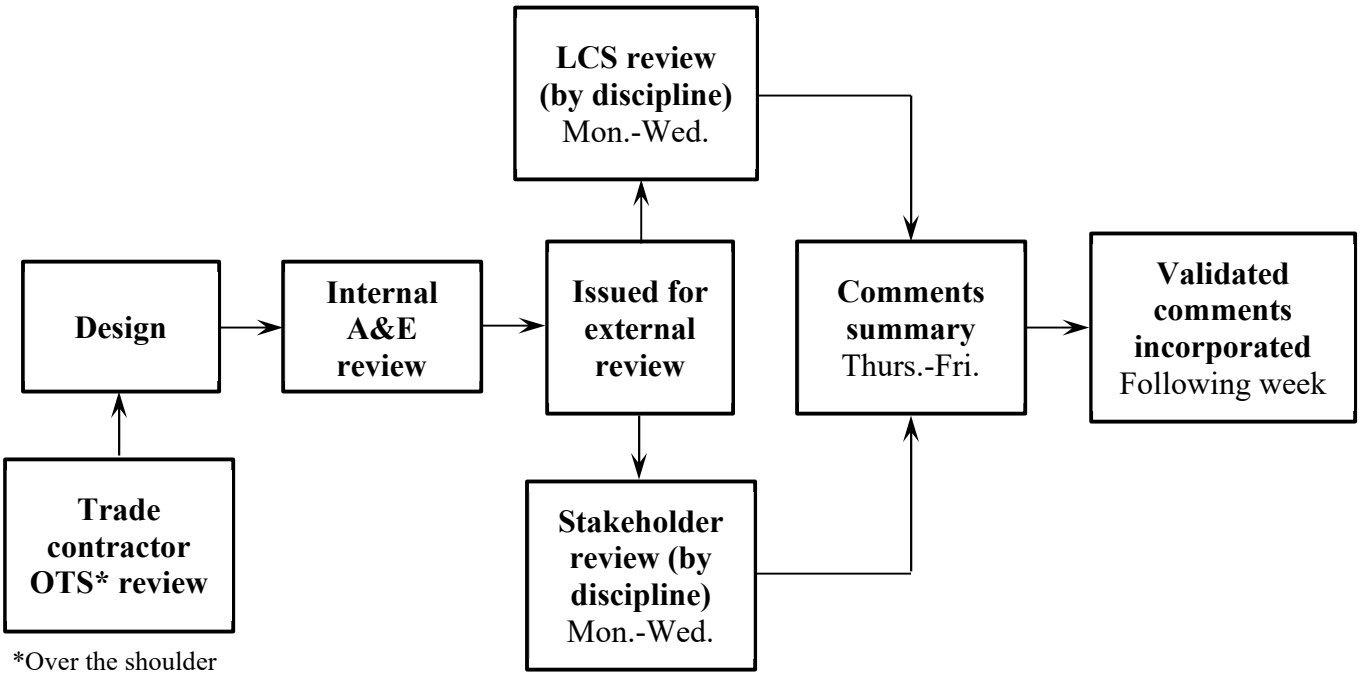


Figure 4: LCS Detailed Design Review Process (Hecker et al. 2005, modified)

In Australia, WorkCover, the occupational safety and health regulatory authority of the State of New South Wales, developed a safety in design tool titled "Construction Hazard Assessment Implication Review" (CHAIR). CHAIR's goal is to identify risks in a design as soon as possible in the life of a project and considers construction, operations, and maintenance activities (WorkCover 2001). CHAIR provides a framework for a facilitated discussion that is stimulated by guidewords or prompts such as size, height, and energy. The CHAIR process specifies that all stakeholders review the design in a prescribed and facilitated method to ensure that the occupational safety and health issues of the stakeholders are considered in the design phase of the project. It includes a conceptual design review (CHAIR - 1) and detailed design reviews for construction (CHAIR - 2) and maintenance activities (CHAIR - 3). Figure 5 illustrates the nature and timing of the CHAIR reviews.

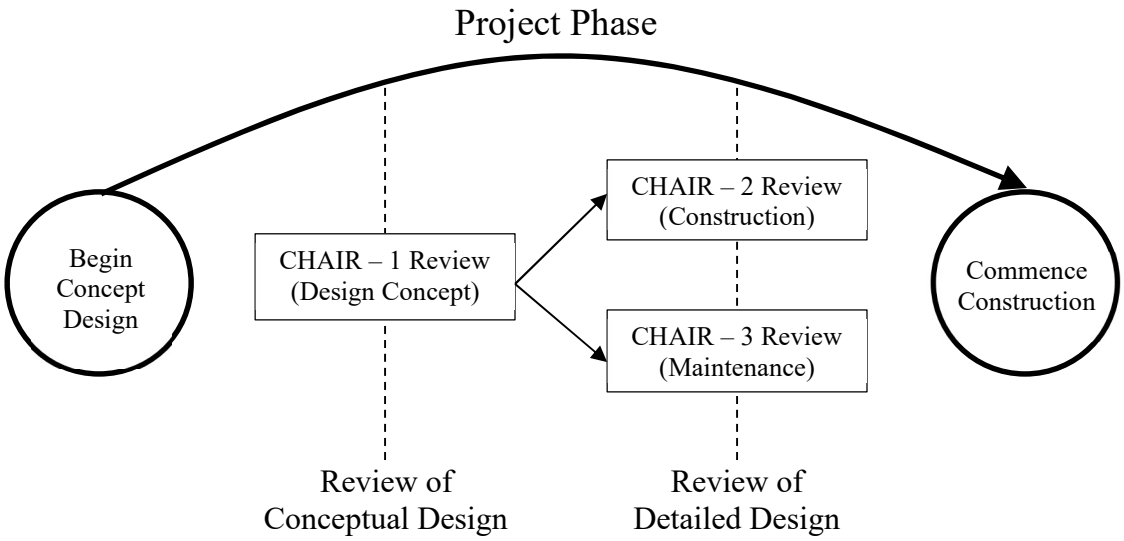


Figure 5: CHAIR process (WorkCover 2001, modified)

During the course of project planning and design, review efforts commonly take place at several milestones. For example, it is common to update the cost estimate and conduct constructability reviews at the 30%, 60%, and 90% completion of the design. Staying with this pattern, Toole and Gambatese have developed a suggested PtD process for project development and design (see Figure 6). The process incorporates key PtD activities in the conceptual phase of the design and at the 30%, 60%, and 90% points in design completion. As shown in Figure 6, the participants and recommended activities vary from one review point to another.

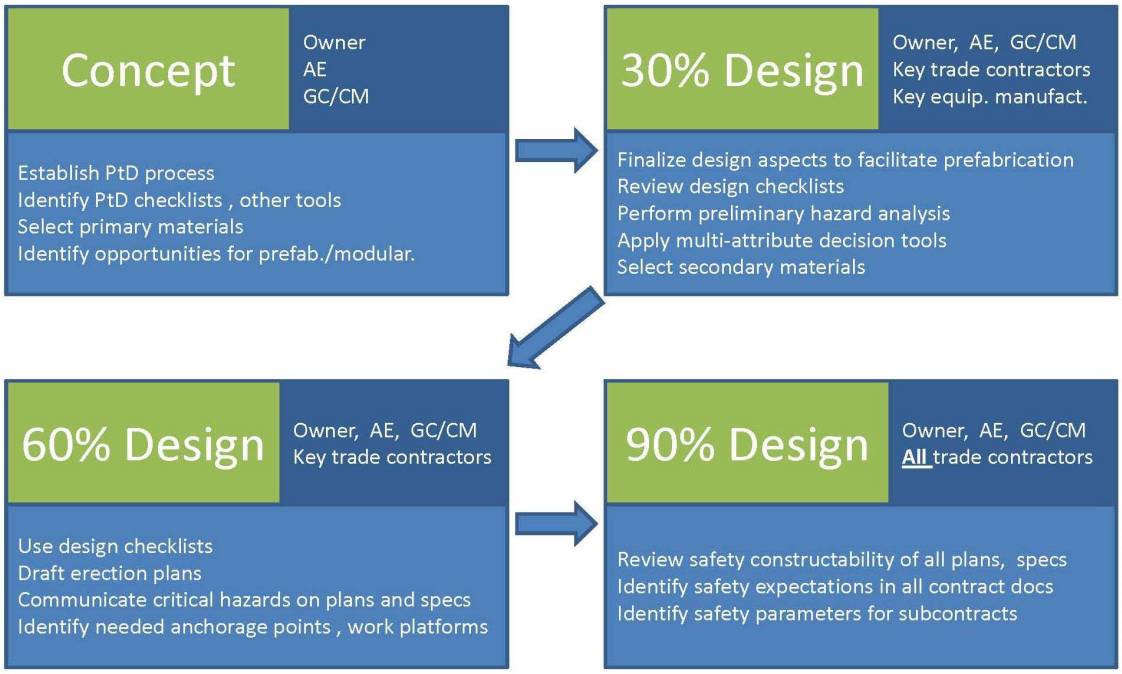


Figure 6: PtD in Project Conceptual and Detailed Design Phases

3.6 Implementation in Practice: Design Element

The complex nature of designs and construction operations often makes it difficult to identify how a design could be modified to improve safety. Being able to foresee the hazards may be difficult or impossible by simply reviewing the design drawings, at whatever their level of detail. This skill is often magnified when a designer lacks education and experience with respect to construction operations and practices, and the hazards associated with conducting construction activities in a specific manner. Further guidance is beneficial when reviewing the specific design details on a project.

Conducting a review of a design system or element entails several steps. These steps are the same as those followed when assessing any situation. Situational awareness is a motivated, active, and continuous extraction of information from an environment and the ability to use knowledge to anticipate trajectories and act effectively (Artman 2000). Figure 7 depicts how situational awareness is incorporated in the decision-making process. With respect to safety in design, situational awareness is used to determine what the hazards associated with a design could be, and the associated level of risk. After assessing the risk, a decision is made on how to proceed, keeping the hierarchy of controls in mind.

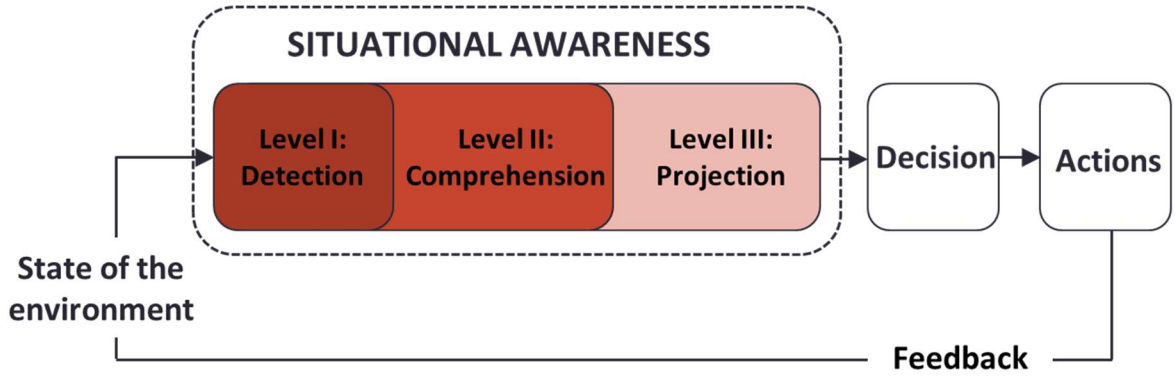


Figure 7: Situational Awareness as Part of the Decision-Making Process

It is often the case that designers need assistance with identifying the hazards associated with a design (Situational Awareness Levels 1 and 2 – Detection and Comprehension). Similar to the guidewords that are integral to the CHAIR process described above, PtD guidewords have been developed. The words focus on the actions that constructors must perform and the conditions under which the actions are performed. The guidewords are intended to prompt designers to look for specific issues in designs when conducting a design review. The following are examples of guidewords to enhance hazard recognition and identification during the design:

- Dimensions:
  - Size, weight, height, depth, shape, clearance
- Actions/Interactions:
  - Access, support, sequence, placement, connection
- Position:

    - Orientation, location
- Surroundings/Exposures:
    - Perimeters, openings, surfaces (coatings), obstructions
- Design-Human Interface:
    - Poka-yoke (mistake-proofing), buffers
- System Performance:
    - Reliability, redundancy, resiliency

After identifying and comprehending the hazards, the next step is to project the risk associated with the hazards. Risk is quantified as the product of three values: the frequency with which injuries occur that are associated with the hazard; the severity of the expected injuries; and the extent of exposure of the workers to the hazard. Care should be taken to consider all types of potential injuries and all levels of severity. To avoid bias in assessment of the risk, historical injury and fatality data should be used when possible.

When considering the safety related to a design element, the assessment should go beyond solely the worker who is constructing the design element. That is, the design review should consider all personnel on the project who may be exposed to the design element in any of its forms. The concept associated with this need is called degrees of connectivity (Gambatese and AlOmari 2016). Four types of connectivity can be anticipated from the interactions of workers with design elements and from interactions between workers. Each degree of connectivity (DoC) can be described in relation to a design element, either directly or indirectly, as follows:

1. DoC #1: A worker who is injured while working to construct the design element. The injured worker is in direct interface with the element under consideration during all phases of the element's construction.
2. DoC #2: A worker who is injured while constructing other design elements that directly attach to or interface with the design element under consideration. The worker interacts with the design element of focus in its final form.
3. DoC #3: A worker who is injured while working to construct another design element that is not directly attached to or interfaces with the design element under consideration. The injured worker is directly exposed to the design element of focus in its final form.
4. DoC #4: A worker who is injured as a result of other workers constructing, or interfacing with, the design element under consideration. The injured worker has no direct interaction with or exposure to the design element of focus in its final form. The connection of the injured worker to the design element exists through other workers.

4. LEARNING ACTIVITIES

The following activities are designed to assist with learning about the prevention through design concept and its application in practice. Each activity focuses on a different aspect of PtD that is important to its understanding and implementation. The learning activities are as follows:

1. Injury/fatality incident review for relationship to the design of the project
2. Identification of hazards related to a design and the development of alternative “safe” designs
3. Review of a legal case illustrating foreseeability and designer liability

Learning Activity 1: Incident Review for Relationship to Design

The National Institute for Occupational Safety and Health (NIOSH) oversees the Fatality Assessment and Control Evaluation (FACE) Program. The FACE Program creates and disseminates in-depth investigations and assessments of fatality incidents in the workplace. The FACE reports help educate employers and employees of the hazards present in workplaces and provide recommendations by which the hazards can be eliminated. Some states across the US participate in the FACE Program and develop FACE reports for fatal incidents that occurred in the state.

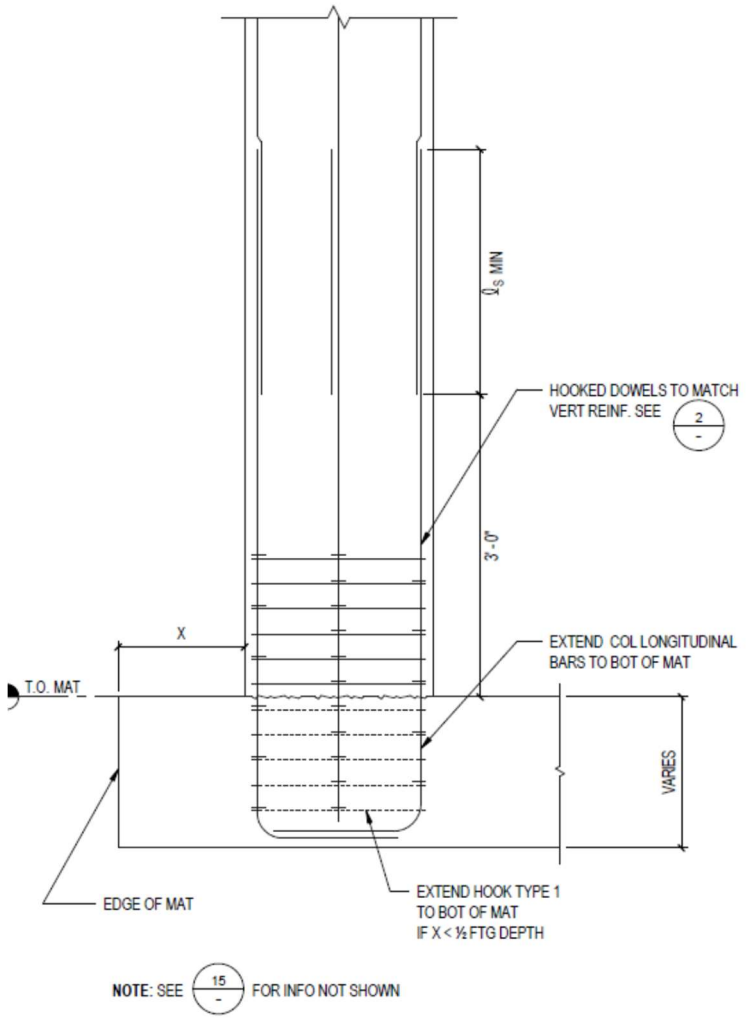
Included in the Appendix is an Oregon FACE report describing an investigation of a fatality resulting from a trench collapse. The report describes the circumstances related to the accident and provides recommendations to prevent similar incidents in the future. Review the report and answer the following questions:

a. What types of controls are recommended? Describe how effective the controls will be in preventing future accidents? For this part, create a table that presents each recommended control along with its type. For each recommended control, explain the root cause(s) of accidents that it targets, benefits of the control, and limitations on its effectiveness.
b. At the top of page 3 of the report is a statement that OR-FACE supports the prioritization of safety interventions using a hierarchy of safety controls. Briefly provide an overall assessment regarding the extent to which the recommendations as a whole adhere to this prioritization and to the PtD concept.

Learning Activity 2: Hazard Identification and Design Alternatives

Shown below is a detail drawing of the reinforcing at the base of a concrete column where the column intersects with the mat foundation. The detail is part of a set of structural drawings for a new multi-story, reinforced concrete building. A design review is being conducted to identify safety hazards that the design may present. Answer the following questions based on a review of the drawing:

a. Describe safety hazards that the design of the reinforcing steel creates for those who are constructing the column.
b. Describe ways in which the design of the reinforcing steel can be modified to eliminate or reduce the hazards.
c. Comment on the ability to recognize hazards and develop alternative "safe" designs when reviewing similar design details.



TYPICAL COLUMN REINFORCING INTO MAT

Learning Activity 3: Legal Case Review

Background:
A construction worker died when he was electrocuted while jackhammering footings in the ground at the exact location called for in the architect's plans. The jackhammer broke into a high-voltage transmission line. A legal complaint alleged negligence of the architect in failing to warn of the existence and location of the high-voltage line, specifically by not showing it on the plans prepared for construction. A trial court, without a jury, found the architect negligent in preparing plans and specifications for construction. This negligence was determined to be the proximate cause of the accident. The architect appealed the decision. The Court of Appeals of California found the architect to be negligent calling this case a paradigm case of an architect's negligence. This is the 1966 case of *Mallow v. Tucker* (245 Cal. App. 2d 700; 54 Cal. Rptr. 174) where the design professional was held liable for a construction worker's death.

Activity:
Jones v. Reeves (Supreme Court of Mississippi, 701 So. 2d 774) is a similar case involving a designer which was tried in 1997. The details of the case are attached in the Appendix. Review the case and respond to the following questions related to the case:

a. Describe the background of the case, the decision, and how it affects design practice.
b. Explain how this case relates to the concepts of negligence and foreseeability.
c. Describe any dissenting opinions and how they might relate to design practice, especially with regard to construction worker safety.

5. DISCUSSION OF LEARNING ACTIVITIES

Learning Activity 1: Incident Review for Relationship to Design

Recommended Control	Type of Control	Root Cause(s)	Benefits	Limitations
1. Employers who have employees working in trenches that are 5 feet deep or deeper must select and install appropriate protection systems for the conditions present to protect workers from cave-ins. For trenches less than 5 feet deep, examination by a competent person for potential cave-in indicators is required.	Engineering	Employer did not have appropriate equipment in place for soil type designated nor was it installed correctly. Any of the human behavior-related root causes could have led to the incident.	Successful selection of engineering controls can reduce exposure of workers to hazards, thus preventing accidents. Engineering controls have relatively high reliability.	Engineering controls are subject to failure through poor design, improper maintenance, or improper installation, thus not totally eliminating the hazard or risk.
2. Excavation work requires a designated competent person on site who has both the knowledge and authority to identify and promptly correct hazards; this includes daily inspections prior to the start of work and as needed throughout the work shift, and anytime site conditions change	Administrative	Competent person on site did not install shoring equipment, nor did he conduct required inspections after the work was complete. Likely root causes are related to competing priorities, being absent-minded, or poor risk assessment.	Increases the likelihood that hazards will be detected, and improper work procedures will be stopped before an incident occurs.	Subject to the "competence" of the designated competent person. Additionally, attempts to change the way individuals work, which has proven to be unreliable and, in some cases, ineffective over the long term.
3. To select appropriate trench protective systems for a given jobsite, the competent person should visually and manually test the soils, and also consult the shoring or shielding manufacturer's table or OR-OSHA's tables and charts designed for this purpose.	Administrative	Although competent person claimed he selected worst soil type, he never tested soil nor consulted tables to select trench system. As a root cause, it appears to be a mistake/error or lack of knowledge (ignorance).	Increases the likelihood that the competent person will conduct soils test and consult tables as required.	Limited by the fact that the competent person may ignore rules due to high risk tolerance or belief the reward of time saved outweighs the risk of a potential cave in (competing priorities).

4. Employers must provide sufficient means of safe access and egress for workers in any trench excavation of 4 feet deep or deeper, which may include ladders, ramps, or stairs.	Engineering	No ladders were in trench, nor were there any on site when accident occurred. Likely root causes are competing priorities or being absent-minded.	Increases the likelihood that workers do not fall or hurt themselves entering or exiting the trench, and provides a means of quick egress in case of emergency.	Engineering controls are subject to failure through poor design, improper maintenance, or improper installation; thus, the controls are not fully reliable and do not completely eliminate the hazard or risk.
5. Keep excavated soils (spoils) and other materials and tools at least 2 feet from the edge of any trench	Administrative	Spoils were found directly next to the trench in multiple locations. High risk tolerance or poor risk management are likely root causes, in addition to competing priorities (time vs. safety).	Will reduce the likelihood of cave-ins due to surcharge of excavated materials.	Limited by the fact that workers may ignore the rule in order to save time and excavate trench more quickly.
6. Before working in and around trenches, employees should receive training on trenching safe practices, and recognizing and reporting hazards.	Administrative	No formal training for any employees was documented regarding trench safety. Root cause: ignorance (lack of knowledge).	Increases the likelihood that workers can recognize unsafe work conditions and, thus, report them.	Workers may ignore or forget training, making it unreliable and ineffective over the long term.
7. Employers should develop and maintain a safety culture where employees are encouraged to voice concerns about unsafe work conditions.	Administrative	Despite being claimed, no documented safety meetings were recorded for company. Potential root causes: mistake/error and poor risk management.	Increases the likelihood that workers will raise concerns about unsafe work conditions.	Difficult to attain and vague in terms of setting goals to actually achieve a good safety culture. Even with a good safety culture, some workers may still ignore hazards for personal gain or due to high risk tolerance.

Although OR-FACE supports the prioritization of safety using the hierarchy of controls, it makes no recommendations in this report utilizing the upper tiers of elimination or substitution and, in fact, mainly suggests administrative controls which do not eliminate the hazard and fully reduce the risk. In the defense of OR-FACE, some engineering controls were recommended, which are recognized as more effective than administrative controls. It is of concern that current studies

have shown “that safety professionals may be stuck in an administrative control rut, fixated on identifying single causes close to the work operation” (Behm and Powell, 2014). The report strongly indicates the correctness of the previous quote, as over 71% of the controls suggested by OR-FACE were administrative in nature. Some of the key contributors to this reliance on administrative controls could be the nature of the industry and the ability to implement higher order controls during construction.

The lack of elimination or substitution control recommendations by OR-FACE in this situation may also be due to the fact the small residential construction project on which this accident occurred does not lend itself as easily to PtD as compared to larger projects and to projects that utilize integrated project delivery methods. In addition, the OSHA regulations and US law do not currently hold designers responsible for construction site safety unless contractually obligated or the designer shows apparent authority through participation or supervision of ongoing activities at the work site. Expounding on this lack of culpability at the designer level, the current OSH Act reads, “Each employer shall furnish to each of his employees employment and a place of employment which are free recognized hazards that are causing or likely to cause death or serious physical harm to his employees” (U.S.C, Title 29, Section 654). Therefore, by OSHA’s own definition of who is responsible for safety, there are inhibitors to using elimination or substitution as controls, since these must be implemented at the design level rather than by the contractor during construction after the design is complete.

Learning Activity 2: Hazard Identification and Design Alternatives

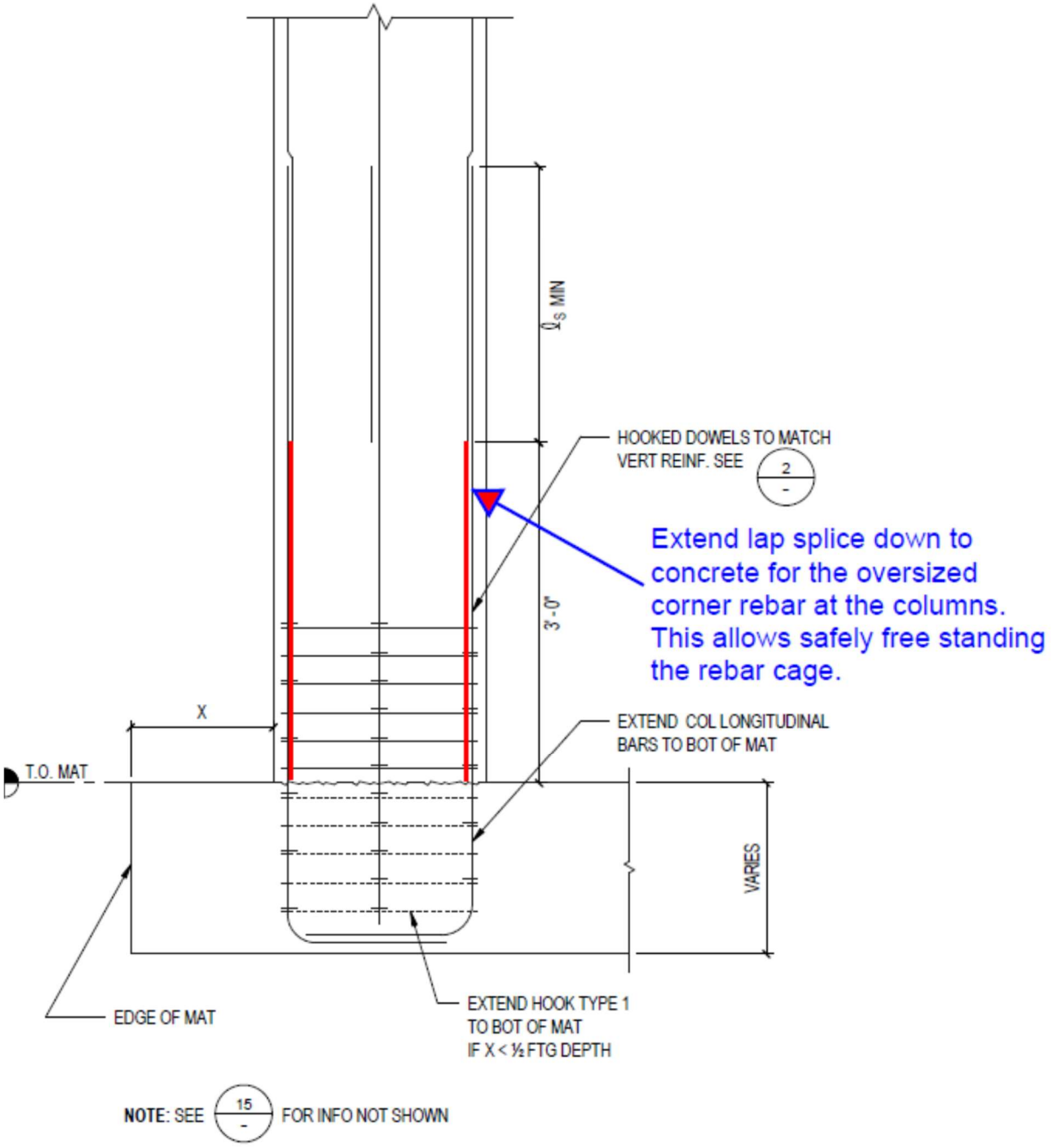
Hazards associated with the design of the reinforcing steel show up after the mat foundation has been poured and the workers are constructing the column. Multiple hazards may be present and identified. One hazard is related to the hooked dowels that extend from the bottom of the mat up into the column. Before the vertical column rebar is tied to the dowels, the exposed end of the dowels exposes workers to the risk of impalement if they fall on the dowels. Another hazard is related to the height of the splice from the top of the mat footing. During the installation of the vertical steel in the column, the dowels must be able to support the weight of the free-standing column rebar cage. The load may be significant if the rebar is fabricated in lengths that are more than one story in height. This transfer of load is through the splice between the column rebar and the dowels. In the present design, the column rebar cage is likely to be unstable given the distance from the top of the mat footing to the splice location. As designed, the detail creates a potential collapse hazard. Other safety hazards may be identified as well and may present high risk of injury.

To eliminate or reduce the hazards noted above, different types of safety controls may be implemented. Examples of controls that are consistent with the PtD concept are as follows:

- Design the hooked dowels such that there have hooks on both ends of the dowels. The hooks on the upper ends will help prevent impalement if a worker falls on the dowels from a short distance. The hooks will also help eliminate lacerations due to the exposed sharp ends of the rebar.
- Extend the vertical column bars down to the top of the mat footing such that they can rest on the footing and provide additional support for the free-standing column rebar cage. Rather than increasing the splice length, in order to maintain the same volume of steel, the column rebar splice can be lowered also. The revised design detail on the next page shows the column rebar extending down to the top of the mat footing.

The ability to recognize hazards during design that show up during construction is often difficult. Those conducting the design review need to have knowledge of construction processes in general and the likely construction process to be followed on the specific project. In addition, knowledge of the safety hazards associated with the likely construction process is needed. While this knowledge may be present, it may be difficult to apply the knowledge given the size and complexity of some projects, and difficulties associated with visualizing the work site based on 2D drawings or a 3D computer model. Additionally, the drawings only show the final product and not the actual conditions of the work site that are present during construction. Construction equipment, temporary structures, stored materials, environmental impacts, and many other site features and conditions affect safety and need to be considered as well.

After the hazards are identified, knowledge of how to change the design to make it safer is also needed. In some cases, opportunities to change the design may not be evident or may be limited due to other project objectives. Motivation to strive to use controls that are higher on the hierarchy of controls, along with placing safety high compared to other project objectives, is required.



TYPICAL COLUMN REINFORCING INTO MAT

Learning Activity 3: Legal Case Review

Legal Terminology:

Negligence and *foreseeability* are two primary terms that need to be understood by engineers and design professionals.

Negligence is the failure to exercise a reasonable amount of care in a situation that causes harm to someone or something. The majority of cases seek to answer whether a design professional was negligent in performing their duties and whether that negligence was the proximate (legal) cause of the injuries sustained in the case. In deciding the extent to which the design professional is responsible, most case law refers to architects but the concepts are generalizable to all design disciplines. The Courts have held that:

> "The responsibility of an architect does not differ from that of a lawyer or physician. When he possesses the requisite skill and knowledge, and in the exercise thereof has used his best judgment, he has done all the law requires. The architect is not a warrantor of his plans and specifications. The result may show a mistake or defect, although he may have exercised the reasonable skill required" (*Bayne v. Everham* 1917).

In seeking how to determine whether an action or inaction was negligent, the Courts have held that:

> "The liability of architects is based upon professional negligence with respect to which only those qualified in the field can testify as to the standard of competence and care possessed by professional men in the locality and whether there has been a breach of that standard of care" (*Covil v. Robert & Co. Associates* 1965).

The test of negligence has also been upheld in jury instructions. The California District Court of Appeals approved an instruction given by a trial court, which stated in part:

> "In determining whether the defendant architects' learning, skill, and conduct fulfilled the duties imposed by law, as they have been stated to you, you are not permitted to set up arbitrarily a standard of your own. The standard is that set by the learning, skill, and care ordinarily possessed and practiced by others of the same profession in the same locality, at the same time" (*Paxton v. Alameda County* 1953).

Therefore, only similar professionals can legally testify and determine if an action or inaction was negligent. Juries can only base a decision on the testimony of the design professionals and not on their own standard. Since, in the United States, the concept of designing for construction safety is not a standard practice, the overwhelming majority of designers would testify contrary to a standard of care that included this concept as standard practice.

Foreseeability is the degree to which the consequences of an action should have been considered. Foreseeability is not hindsight. The test of negligence is whether the architect could reasonably foresee the likelihood of harm to the injured person resulting from his act or failure to act. If the harmful consequences could reasonably have been foreseen and prevented, the conduct may be considered negligent. In considering foreseeability, ordinary care consists of failure to anticipate what is reasonably probable – not what is remotely possible. An individual cannot be charged with negligence because he/she failed to anticipate an unusual combination of circumstances. Therefore, the question remains as to what a Court would consider reasonably foreseeable. To obtain a legal answer we would have to return to the thought process in the test of negligence. Only similar design professionals can legally determine what is foreseeable and what is not foreseeable.

Legal Case Analysis and Discussion:

The case of *Jones v. Reeves* provides an interesting example of what qualifies as negligence with respect to the design of a facility, and between a constructor and the architect or designer of the facility. Although both play a pivotal role in safety, the constructor bears primary responsibility for safety on the jobsite. This role is based on the constructor's connection to the work operations and the workers on site, and the fact that designers are generally not physically on a work site and contractually in a position to affect safety. This conclusion is clearly illustrated in the outcome of *Jones v. Reeves*.

The case of *Jones v. Reeves* clearly demonstrates the different standards the legal system holds in regards to the responsibility for safety. In this case, a lawsuit was brought against the owner/client, designer, and a contractor on the project. Initially, the court ruled that none of the parties were negligent in the excavation cave-in that resulted in the deaths of three workers. However, after an appeal the court reversed its decision, and found the contractor, James Reeves, Contractor, Inc., negligent in the wrongful death of the worker. This ruling was determined only after the court found that Reeves, hired by the main contractor, McCaskill Brothers Plumbing Inc., was not a co-employee or loaned servant of McCaskill Brothers, but was instead an independent contractor, and therefore not protected under the Mississippi Worker Compensation Act (Supreme Court of Mississippi, 701 So. 2d 774). Although the ruling in the case of the contractor was overruled, both the owner and the architect were found to not be negligent in this case. The project owner, Howard Industries Inc., was easily found to not be negligent as prior case law demonstrated that as long as the contractor had conducted a site visit and assessed its state prior to the start of construction, the owner could not be found liable since the contractor had assessed the site and any potential hazards. For the architect, the court concluded that, "Unless the architect has undertaken by conduct or contract to supervise a construction project, he is under no duty to notify or warn workers or employees of the contractor or subcontractor of hazardous conditions on the construction site (Supreme Court of Mississippi, 701 So. 2d 774)." This conclusion was supported by multiple court rulings in several different states (Supreme Court of Mississippi, 701 So. 2d 774). Due to this widely supported ruling, designers are still, in most measurable quantities, immune from negligence rulings unless found negligent by a panel of their peers. Despite this fact, the case still clearly demonstrates the concepts of negligence and foreseeability.

Negligence and foreseeability are fundamental to the *Jones v. Reeves* case. Negligence is defined as, "the failure to exercise a reasonable amount of care in a situation that causes harm to someone or something." In the case of the subcontractor, James Reeves, he was found negligent due to the fact he was responsible for excavating the hole on site, recognized that an unsafe condition existed, but did not stop the work or adequately warn the workers affected by this hazard. Additionally, foreseeability is defined as, "the degree to which the consequences of an action should have been considered." This definition can easily be explained as the test used to determine if a party should be held negligent. In examining the *Jones v. Reeves* case, it is clear that Reeves understood the dangers of the site upon arrival and during the excavation but did not do enough to prevent the incident. The evidence that indicates Reeves understood the hazards and could likely predict the outcome of the event, also demonstrates his negligence in this case. However, although evidence demonstrated the architect had information regarding the potentially dangerous soil conditions, the architect was not found negligent in this case.

In the dissenting opinion, Justice McRae argues that the same independent contractor standards applied to James Reeves, Contractor, Inc., should be applied to designers as well. This application is due to the fact that both parties had prior and adequate knowledge of the potentially hazardous soil conditions, which demonstrates foreseeability, and both parties did not adequately warn other parties of the hazard, thus demonstrating negligence (Supreme Court of Mississippi, 701 So. 2d 774). Using multiple case law, McRae concludes that, "an architect cannot stand idly by when he has knowledge of a dangerous condition that becomes apparent when he is assessing the site during the design process (Supreme Court of Mississippi, 701 So. 2d 774)." This dissenting opinion, if put into practice would have extreme effects across the engineering and architecture fields in the US, as designers would be forced to incorporate consideration of the safety of construction workers into their designs. This requirement may be met with heavy resistance as it would initially increase design cost and time as professionals learned how to incorporate safety into their design processes. However, as demonstrated by the hierarchy of controls, the marriage of safety and design would likely result in much safer sites since designers would be able to incorporate higher level controls, such as elimination and substitution, in their designs. The higher-level controls are much more effective and reliable than those at the lower levels, and can provide drastic decreases in worker injuries and fatalities.

In conclusion, the case of *Jones v. Reeves* clearly illustrates the principles of foreseeability and negligence, and also the different legal standards currently used to apply these concepts in the case of contractors and designers. However, by examining these concepts more closely, it is clear that an equal application of the negligence and foreseeability concepts, although initially difficult for designers, would result in a safer work environment as it would allow for higher level safety controls to be implemented during the design phase.

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7. APPENDIX

7.1 Fatality Investigation Report: Construction worker killed when trench collapsed (OR 2016-16-1)

7.2 Legal Case: Jones v. Reeves, 701 So. 2d 774; 1997 Miss. Lexis 98

7.1 Fatality Investigation Report

OREGON FATALITY ASSESSMENT AND CONTROL EVALUATION (OR-FACE)
www.ohsu.edu/or-face
Oregon Institute of Occupational Health Sciences

OREGON HEALTH & SCIENCE UNIVERSITY

Fatality Investigation Report

OR 2016-16-1

SPECIAL ALERT – Trench collapses are a recurring contributing factor to occupational fatalities in Oregon.

Construction worker killed when trench collapsed

SUMMARY

On May 5, 2016, a 29-year-old construction worker employed by a small excavation contractor was killed when the trench he was working in collapsed and buried him in approximately 6 feet of dirt. The worker was part of a crew installing a sewer pipe at a residential property. The trench was 10 feet deep and approximately 3 feet wide in the area where the collapse occurred. The collapse occurred in an unprotected area of the trench, between two pieces of shoring that were spaced 15 feet apart (see Figure 1).

When the trench collapsed, co-workers called 911 and attempted unsuccessfully to locate and dig the worker out. When emergency responders arrived, their first task before commencing rescue and recovery efforts was to shore up the trench to prevent risk of additional collapse and injuries (see Figure 2). Emergency responders spent several hours recovering the worker's body.

Key factors identified in this investigation included an inadequate trench protective system; no ladder available for entry or egress; and a spoils pile being placed too close to the edge of the trench. Underlying contributing factors were the lack of oversight by a competent person; and insufficient employee training on recognizing and reporting hazards.

Figure 1. View from front of house: area of incident showing placement of shoring; collapse occurred in between the two pieces of shoring spaced 15 feet apart (indicated by arrows)

Keywords: Construction, excavation, trench collapse, cave-in [NAICS=238910]
Publication Date: October 2018
This report is public information and free to copy

Figure 2. Emergency responders preparing to install a trench box before starting rescue and recovery work, to prevent risk of additional collapse and injuries

RECOMMENDATIONS

- Employers who have employees working in trenches that are 5 feet deep or deeper must select and install appropriate protection systems for the conditions present to protect workers from cave-ins. For trenches less than 5 feet deep, examination by a competent person for potential cave-in indicators is required.
- Excavation work requires a designated competent person on site who has both the knowledge and authority to identify and promptly correct hazards; this includes daily inspections prior to the start of work and as needed throughout the work shift, and any time site conditions change.
- To select appropriate trench protective systems for a given jobsite, the competent person should visually and manually test the soils, and also consult the shoring or shielding manufacturer's tabulated data or OR-OSHA's tables and charts designed for this purpose.
- Employers must provide sufficient means of safe access and egress for workers in any trench excavation of 4 feet deep or deeper, which may include ladders, ramps, or stairs.
- Keep excavated soil (spoils) and other materials and tools at least 2 feet from the edge of any trench.
- Before working in and around trenches, employees should receive training on trenching safe practices, and on recognizing and reporting hazards.
- Employers should develop and maintain a safety culture where employees are encouraged to voice concerns about unsafe work conditions.

OR-FACE supports the prioritization of safety interventions using a hierarchy of safety controls, where top priorities are hazard elimination or substitution, followed by engineering controls, administrative controls (including training and work practices), and personal protective equipment.

INTRODUCTION

On May 5, 2016, a 29-year-old construction worker died when the wall of the trench he was working in caved in (collapsed) and covered him in approximately 6 feet of dirt. He was part of a crew installing a new sewer pipe at a residential property. OR-FACE received notification of the incident from OR-OSHA. This report is based on review of investigation documents from OR-OSHA and on follow-up discussions with the OR-OSHA investigators and a subject matter expert.

The decedent was employed by a small, residential construction contractor that provided excavation and sewer replacement services. At the time of the incident, the company had been in business for 16 years and had a total of 11 employees. Up to eight employees were working on this site during the project, which included work at the front and at the back of the house. On the day of the incident, two or three employees were working in or around the trench in front of the house, and additional employees were working at the back of the house or in other areas of the property. The construction project involved replacing a 180-foot-long sanitary sewer line at a residential property. It was reported that the expected duration of the project was one week; the incident occurred on the second day of the work. The incident occurred in the trench in front of the house.

The property was heavily wooded (shown in Figure 1). It was reported that at the time of the incident the excavation was 75 long and 3 feet wide. The trench depth ranged from 5 feet to 13 feet deep along its length. In the work area where the incident occurred, the trench was 10 feet deep. The contractor was using aluminum hydraulic shoring in the trench. Other equipment in use at various times on the jobsite included hand tools, a backhoe, and a dump truck (specific details about makes and models of this equipment are not known).

The trench collapse occurred when decedent was working in an unprotected area of the trench between two pieces of shoring that were spaced 15 feet apart. The specific task being performed by the decedent at the time of the incident is uncertain. It was reported that he may have been checking the grading of the new sewer line. Other evidence suggests he may have been hand digging a high spot of soil or preparing to put in a pipe connector.

The employer, who was the owner of the excavation company, had obtained an appropriate plumbing permit to perform the work for this project. The employer stated in interview remarks that he was familiar with and had experience in proper shoring installation, and that he was the designated competent person for the jobsite.

Trench safety practices used by the contractor at other jobsites are not known. It was reported in OR-OSHA interview notes that the excavation company held periodic safety meetings but did not document them.

Specific details about the decedent's tenure with the employer is uncertain. It was reported that he had approximately 6-7 years' experience in the construction industry, and that most or all of that work experience may have been with this employer. It was reported that he had a good work ethic and worked hard. It is not known what specific training he may have had regarding excavation work, and there was no documentation showing evidence of any safety training for any of the employees.

INVESTIGATION

On the day of the incident, the decedent and a co-worker were working in the trench in front of the house (see Figure 3). As shown in the photos, the property was heavily wooded, and soil conditions around the property varied (see Figures 1 through 4). Two pieces of aluminum hydraulic shoring were installed in the trench. The foreman had installed the shoring. Evidence suggests that the foreman was less knowledgeable and experienced than the employer/owner (competent person) in installation of shoring systems. It was also reported that the competent person did not inspect the shoring before work started or during the work shift, as required.

Figure 3. View of trench work area in front of house

It was also reported that the competent person (company owner) had not performed an assessment of the soils and site conditions prior to starting work. He did not consult the shoring manufacturer's tabulated data to select appropriate protective systems or refer to the OR-OSHA tables and charts designed for this purpose, nor did he perform a manual or visual test to determine the soil type. OR-OSHA interview records indicated that he had defaulted to Type C soils, which could be considered "worst case" (the least stable type of soil). However, the maximum horizontal spacing for Type C soils is no more than 6 feet and a waler system is required. The two pieces of shoring in the area where the incident occurred were spaced 15 feet apart, and no waler system was in use. The decedent was working between the two pieces of shoring when the trench collapsed and buried him in approximately 6 feet of dirt.

Figure 4. View from house showing trench work area and general soil conditions

Both the excavation company owner and the foreman were on site at the time of the incident. The foreman was operating a back hoe near the trench. The owner was assisting a dump truck that was backing up. It was reported that the owner and foreman were working approximately 15 to 20 feet from where the decedent was working, within visual sight of the area.

According to interview records, the owner reported he had observed the two employees standing between the shoring, but he did not stop work to take corrective action (as required of the competent person). The owner also reported that he thought he observed the decedent step approximately 18 inches outside of the shoring, when the trench wall collapsed. Subsequent discussion between OR-FACE and OR-OSHA personnel indicated the decedent may have been up to 5 feet away from the shoring at the time of the incident.

In addition, the OR-OSHA investigation found there was no means of egress, such as ladders, stairways, ramps, or other means, as required for trench excavations that are 4 feet deep or more. It was reported that workers climbed in and out of the trench, by jumping down into the trench at the lowest point to enter, and pulling themselves out at the lowest point to exit the trench. It was also reported that this was not an uncommon practice in this company. It was later determined that no ladder was available on site.

Figure 5. View of work area under deck of house where spoils had been placed at the open edge of the trench

Another hazard identified was the placement of excavated soil (spoils) on the edge of the trench that was located underneath the deck at the front of the house (see Figure 5). The spoils pile in this location was reported to be approximately 2 to 3 feet high. Spoils piles should be placed at least 2 feet from the edge to prevent creating a surcharge (meaning that it places extra pressure on the trench wall and affects trench stability). Alternatively, retaining devices may be used to prevent material from falling into trench.

In addition, while not specifically related to the collapse, the owner was reported to have said they would have been unable to install any form of shoring in the area underneath the deck (shown in Figure 5). Investigation findings suggest that while this may be the case, the contractor could have used alternative, safer practices to reduce cave-in risk in this situation. Examples could include use of boring equipment that could eliminate the need for a worker to enter a hole that cannot be protected with shoring or other protective systems.

CAUSE OF DEATH: Traumatic compression asphyxia.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers who have employees working in trenches that are 5 feet deep or deeper must select and install appropriate protection systems for the conditions present to protect workers from cave-ins. For trenches less than 5 feet deep, examination by a competent person for potential cave-in indicators is required.

- Trench protective systems should be selected based on soil characteristics/type and site conditions. This should include use of the manufacturer's tabulated data or OR-OSHA tables and charts, and visual and manual test of the soils. As required in OR-OSHA 1926.652(b) and (c) (OAR Division 3, Subdivision P, adopted from Federal OSHA rules), this pre-work assessment should include:
    - Soil characteristics that affect its stability, such as granularity, saturation, cohesiveness, and unconfined compression strength (the capacity of the soil to withstand pressure);
    - Site conditions such as the presence of previously disturbed soils, potential vibration sources, stability of adjacent structures, and utility locations;
    - Factors such as excavation depth and width, the nature of the work, and any nearby activities that could increase the risk of collapse.
    - Note that OSHA regulations (1926.652(a)(1)) do not require a protective system when an excavation is made entirely of stable rock, or when an excavation is less than 5 feet deep and a competent person has examined the ground and found no indication of a potential cave-in.
- Trench protective systems may include shoring, sloping, and/or shielding. When shoring is selected as the appropriate protection system, the competent person must implement proper horizontal and vertical spacing, which includes placing the shoring the proper distance apart (in this case, a maximum horizontal spacing of 6 feet for Type C soils). However, the shoring in this case was spaced 15 feet apart (too wide to adequately support the trench wall) and it failed to protect the worker in the trench.

Recommendation #2: Excavation work requires a designated competent person on site who has both the knowledge and authority to identify and promptly correct hazards; this includes daily inspections prior to the start of work and as needed throughout the work shift, and any time site conditions change.

- The competent person is responsible for selecting and inspecting the appropriate trench protective systems for a given jobsite, including classifying the soil and assessing and monitoring site conditions throughout the project.
- The competent person must be on site to oversee proper installation of the appropriate trench protective systems and to perform regular and frequent inspections daily. Inspections should be conducted before work commences, as needed throughout the work, and at any time site or soil conditions change, such as after a rainstorm or any other occurrence that may increase hazards.

- In this case, the shoring was installed by the foreman, who was less knowledgeable in classifying soils and installing trench protective systems, and the competent person (the owner) did not oversee or inspect the installation.
- The competent person observed the shoring spaced too far apart but did not stop the work to correct the hazard it presented.

Recommendation #3: To select appropriate trench protective systems for a given jobsite, the competent person should visually and manually test the soil, and also consult the shoring or shielding manufacturer's tabulated data or OR-OSHA's tables and charts designed for this purpose.

- In this case the competent person reported defaulting to a presumed worst-case soil type (Type C, the least stable type of soil). However, performing a visual and manual test and consulting the tabulated data or the OSHA tables and charts would have provided a better understanding of soil and site conditions including any surface encumbrances and other potential hazards to be mitigated prior to starting work. Making assumptions about site conditions devalues the need for a knowledgeable competent person and increases risk of injury. Further, the maximum horizontal spacing for Type C soil is no more than 6 feet (along with a waler system). The shoring in this trench was spaced 15 feet apart and omitted a waler system.
- It also is important to consider any obstructions that might hamper the use of standard protective equipment, and to take the time to determine ways to abate any hazards and/or identify alternative safe measures for performing the work. Do not take shortcuts or ignore these conditions. For example, the property in this case was heavily wooded. Per discussion with an OR-OSHA investigator, a large tree root ball in one area of the trench obstructed an area where shoring would have been placed. One possible alternative for an obstructed area could be to use a trench box or shield instead of shoring.

Recommendation #4: Employers must provide sufficient means of safe access and egress for workers in any trench excavation of 4 feet deep or deeper, which may include ladders, ramps, or stairs.

- Ladders or other provisions for egress or ingress should be located so that workers do not have to travel more than 25 feet laterally within the trench.
- In this case, no ladder was available on site. Workers jumped down into the trench at the lowest point to enter the trench, and pulled themselves out at the lowest point to exit. The trench was 75 feet long at the time of the incident.

Recommendation #5: Keep excavated soil (spoils) and other materials and tools at least 2 feet from the edge of the trench.

- Placing a load too close to the edge of the trench imposes a surcharge. This means that the spoils increase lateral pressure on the affected zone of the trench, thereby impacting the stability of the trench.
- In this case, the spoils from under the deck in front of the house were placed at the edge of the trench in that location.

Recommendation #6: Before working in and around trenches, employees should receive training on safe trenching practices, and on recognizing and reporting hazards.

- Employers need to train employees on recognizing and avoiding hazards and unsafe conditions on their jobsites and how to eliminate, control, and protect themselves from those hazards, as well as how to report hazardous or potentially hazardous conditions.

Recommendation #7: Employers should develop and maintain a safety culture/climate where employees are encouraged to voice concerns about unsafe work conditions.

- Safety climate is employees' shared perceptions about the priority of safety throughout the organization relative to other potentially competing demands (e.g., productivity, quality).
- Ways to strengthen safety culture/climate and effectively communicate the value of safety include:
    - Safety role modeling – What leaders say and do has a big impact on employee perceptions about the importance of safety within the organization and on their own safety motivation and compliance. This includes non-verbal body language as well as verbal communications;
    - Frequent leadership communication such as routinely providing safety toolbox talks, pre-task planning meetings, coaching on safety practices;
    - Regular inspection of work practices and stopping work to correct unsafe conditions or practices when they see them, providing appropriate personal protective equipment.

REFERENCES

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7.2 Legal Case: Jones v. Reeves, 701 So. 2d 774; 1997 Miss. Lexis 98

WANDA M. JONES AS MOTHER AND NATURAL GUARDIAN OF ALEXANDER C. JONES, DITRA S. COOLEY, AND DERRICK L. COOLEY, THE MINOR HEIRS AT LAW OF WILLIS COOLEY, DECEASED; AND JIMMY H. COOLEY AS ADMINISTRATOR OF THE ESTATE OF WILLIS COOLEY, DECEASED v. JAMES REEVES CONTRACTORS, INC., HOWARD INDUSTRIES, INC., AND FOIL, WYATT, & MCKEWEN, P.A.

No. 93-CA-01139-SCT

SUPREME COURT OF MISSISSIPPI

701 So. 2d 774; 1997 Miss. LEXIS 98

March 27, 1997, Decided

PRIOR HISTORY: Appeal No. 92459 from Judgment dated SEPTEMBER 20, 1993, Billy Joe Landrum RULING JUDGE, **Jones** County Circuit Court, Second Judicial District.

Previously Reported at: 690 So. **2d** 1166 and Withdrawn from the Bound Volume.

DISPOSITION: AFFIRMED IN PART; REVERSED AND REMANDED IN PART.

CASE SUMMARY:

PROCEDURAL POSTURE: Plaintiffs, heirs and estate administrator of a construction worker who was killed when a ditch collapsed, appealed an order from the **Jones** County Circuit Court, Second Judicial District (Mississippi), which granted summary judgment to defendants, project architects, lessee of the construction property and the general employer of a trackhoe operator, on the claims of the heirs and administrators for wrongful death and negligence.

OVERVIEW: The trial judge granted the summary judgment motions on the basis that the trackhoe operator was the "loaned employee" of the worker's employer, the contractor, and was immune under the Mississippi Workers Compensation Act, Miss. Code Ann. § 71-31 to 181 (1972); the lessee of the construction site had breached no duty to the worker; and the architects had no duty to warn of dangerous soil conditions. The court reversed the dismissal of the claim against the employer because there was no showing that an express or an implied contract existed between the trackhoe operator and the contractor sufficient to have created a master-servant relationship, and because the instructions which the trackhoe operator took from the contractor were in the nature of information, not subordination. The court affirmed summary judgment for the lessee, because the lessee was acting as an agent of the property owner, and

incurred no liability in acting on the owner's contracts. Also, since the contractor had control of the work that caused the death of the worker, the lessee was absolved of responsibility. The court affirmed judgment to the architects because they had no duty to supervise the site.

OUTCOME: The court reversed the summary judgment award to the employer of the trackhoe operator, and affirmed the summary judgment award to the architects and the lessee of the construction site.

COUNSEL: FOR APPELLANT - John Arthur Eaves, Jr., Jackson, MS; T. Jackson Lyons, Jackson, MS; Jane Sanders Lewis, Jackson, MS; John Arthur Eaves, Jackson, MS.

FOR APPELLEE - Sandra S. Mohler, BRYAN NELSON RANDOLPH & WEATHERS, Hattiesburg, MS; Jon Mark Weathers, BRYAN NELSON FIRM, Hattiesburg, MS; Michael O. Gwin, WATKINS & EAGER, Jackson, MS; Luke Dove, DOVE CHILL & CALHOUN, Jackson, MS.

JUDGES: SMITH, JUSTICE, PART I: SULLIVAN, P.J., LEE, C.J., PITTMAN, BANKS AND McRAE, JJ., CONCUR. SMITH, J., DISSENTS WITH SEPARATE WRITTEN OPINION JOINED BY PRATHER, P.J., ROBERTS AND MILLS, JJ. PART II: SMITH, J., LEE, C.J., PRATHER AND SULLIVAN, P.JJ., PITTMAN, BANKS, ROBERTS AND MILLS, JJ., CONCUR. McRAE, J., CONCURS IN PART AND DISSENTS IN PART WITH SEPARATE WRITTEN OPINION.

OPINION BY: SMITH

OPINION

SMITH, JUSTICE, FOR THE COURT:

The heirs and estate administrator of a construction worker sued the project architects, the lessee of the construction property and the general employer of a trackhoe operator. The worker and two others were killed when the walls of a ditch being excavated for a sewer line caved in, burying the workers and smothering them to death. The trial judge sustained motions for summary judgment as to all defendants and dismissed the lawsuit on the basis that (1) the trackhoe operator was the "loaned employee" of the general contractor and thus immune from suit under the Workers Compensation statute; (2) the lessee of the construction site had breached no duty to the deceased worker; and (3) the project architects had no duty to warn the deceased worker of dangerous soil conditions. It is the opinion of the Court that the judgment of the trial court should be reversed as to the trackhoe operator and affirmed as to the project architect and the lessee of the construction site.

FACTS

In 1988, Howard Industries (Howard) began to construct an expansion of its plant in Jones County. The expansion site had been purchased from Howard by Jones County and then leased back to Howard. The Jones County Board of Supervisors approved a bond issue to raise money for the expansion. The lease required Howard to repay all of the bond money, and gave Howard an option to repurchase the property for a *de minimis* amount upon full repayment. Jones County

owned the site and was responsible for constructing the building. Howard was the authorized agent of Jones County for the purpose of completing the construction project.

Pursuant to the authority granted to it in the lease agreement, Howard selected Foil, Wyatt & McKewen (Foil-Wyatt) to perform architectural services in connection with the project. Foil-Wyatt had no general supervisory duties over the project, nor were they present on the day of the fatal accident. They simply performed the design portion of the project. McCaskill Brothers Plumbing Company, Inc. (McCaskill Brothers), the employer of the deceased Willis Cooley, was selected along with three other contractors through the public bidding process. Each contractor selected was to complete a particular portion of the project. Howard did not have possession of the premises at this time, but did maintain a project coordinator at the site to ensure that the project's four contractors complemented each other in the completion of portions of the work. McCaskill Brothers' portion was the plumbing, heating and air conditioning work, including the installation of a sewer lift station, which required the excavation of a hole approximately fifteen feet deep. John McCaskill, Jr., McCaskill Brothers' site supervisor, testified that before the fatal excavation he had noticed water in the ditches for the foundation footings. Based upon this observation, he had a wellpoint system installed at the construction site about one and one-half weeks before the excavation for the purpose of "dewatering" the soil. The system was supposed to pull moisture out of the excavation site, thus making the soil more compact and lessening the chance of a cave-in.

Because McCaskill Brothers did not have the heavy equipment needed for the excavation of the hole, John McCaskill, Sr., president of McCaskill Brothers, orally contracted with James Reeves, Contractor, Inc. for the use of a track backhoe (trackhoe) and an operator. James Reeves, Jr. was the person from Reeves Construction who took the call from McCaskill. Reeves testified at his deposition that McCaskill, Sr. called to ask if Reeves Construction could rent out a trackhoe for the following day for the purpose of setting a manhole. It is the practice of Reeves Construction to send an operator with the trackhoe whenever someone rents the machine. No price was discussed, neither was a specific operator requested. James Reeves, Jr. decided that he would be the operator because he was the only one in town. John McCaskill, Jr. stated that it was his understanding that McCaskill Brothers' contract was with Reeves Construction and not with James Reeves individually since the equipment was owned by the construction company.

The next morning, Reeves loaded the trackhoe onto a trailer, drove to the construction site, unloaded it, and met with John McCaskill, Jr. McCaskill laid out the plan for the work to be done that day. McCaskill showed Reeves a rough circle he had painted on the asphalt approximating where the lift station was to be installed and instructed Reeves to dig there. McCaskill, Jr. also informed Reeves of the location of a grade beam, a water line, and the well-point system in and around the excavation to help Reeves determine where the trackhoe could be safely placed.

McCaskill, Jr. stated that the only responsibility that Reeves had at the site was to dig the hole. He did not name any further responsibilities that Reeves would have while working on the job that day and stated that it would not be Reeve's place to do tasks that he would ordinarily order his regular employees to do. He also stated that he would measure the elevation to let Reeves know when the hole was deep enough.

Reeves testified in his deposition that at one point he stopped digging because he discovered that the subsurface had a flowing stratum of what Reeves termed "watersand." Given the dangerous propensities of that type of soil, Reeves testified that he told McCaskill, Jr. about the dangerous

condition. For his part John McCaskill, Jr. denies that such a conversation ever took place between himself and Reeves. Reeves also stated that he would not have gone into the hole, but it was not his place to tell Willis Cooley not to go because "he did not work for us."

McCaskill used a transit to determine the depth of the hole. At one point, Reeves lowered the manhole into the hole. McCaskill used the transit to measure the depth, and determined that the hole needed to be six to eight inches deeper. This was important because according to McCaskill, Jr., the top elevation of the manhole had to be within one inch of the existing road under which it was being placed. Reeves then removed the manhole, and dug the hole deeper. On the second attempt, the manhole was lowered into the hole. Larry Jones, a McCaskill Brothers employee went into the hole to assist in measuring the new elevation of the manhole. He was pinned at the knees to the manhole by a small clump of dirt. Willis Cooley and Jerry Kitchens, who were already in the hole, ran around and began to try to pull the dirt away from Jones's legs. At that point, the walls of the excavation caved in, burying and suffocating all three men.

It is unclear from the record whether McCaskill Brothers ever paid either James Reeves, Jr. or James Reeves, Contractor, Inc. McCaskill Brothers subsequently hired another construction company to complete the job which was understandably abandoned by Reeves after the fatal accident.

On February 6, 1992, the heirs of Willis Cooley sued James Reeves, Contractor, Inc., Howard Industries, and Foil-Wyatt, on the grounds of wrongful death and negligence. All three defendants moved for summary judgment and the plaintiffs moved for partial summary judgment as to liability against Howard and Reeves Contractor, Inc. On July 15, 1993, the trial judge entered his order sustaining the defendant's summary judgment motions and denying summary judgment to the plaintiffs. The plaintiffs now appeal.

STANDARD OF REVIEW

This Court reviews matters involving summary judgment *de novo. Townsend v. Estate of Gilbert*, 616 So. 2d 333, 335 (Miss. 1993). A *de novo* review entails reviewing all evidentiary matters in the record: affidavits, depositions, admissions, interrogatories, etc. The evidence must be viewed in the light most favorable to the nonmoving parties, and they are to be given the benefit of every reasonable doubt. *Id.* A motion for summary judgment will lie only where there is no genuine issue of material fact, and the moving party is entitled to a judgment as a matter of law.

SULLIVAN, P.J., FOR THE COURT:

I. WHETHER THE TRIAL COURT ERRED IN HOLDING THAT JAMES REEVES, JR. WAS A LOANED SERVANT OR DUALLY EMPLOYED--THEREBY AFFORDING REEVES, INC. IMMUNITY UNDER THE WORKERS COMPENSATION ACT.

The plaintiffs' first allegation of error is that the trial court should not have ruled that James Reeves, Jr. was a co-employee of Willis Cooley at the time of the accident under the "dual employment" or "loaned servant" doctrine. If Cooley and Reeves, Jr. were co-employees of McCaskill Brothers at the time of the accident, then Reeves Contractor, Inc. cannot be sued because it is protected under the statutory immunity granted to co-employees and employers under the Mississippi Workers Compensation Act. Miss. Code. Ann. § 71-31 to 181 (1972). If, however, Reeves was not a co-employee of Willis Cooley at the time of the accident, then

Reeves would have been acting as the agent of a third-party independent contractor. James Reeves, Contractor, Inc., on whose behalf he would have acted, would be a stranger to the employment relationship between Cooley and McCaskill Brothers, and would not be statutorily immune from suit for any alleged negligence that may have stemmed from Reeves' actions in digging the hole.

The question of whether a worker is a "borrowed servant" or is an "independent contractor" at a particular time is one which has perplexed this Court and others for decades. This Court, in *Kisner v. Jackson*, 159 Miss. 424, 428-29, 132 So. 90, 91 (1931), set forth a multi-factored test to help simplify the determination of a worker's employment status. The factors included: whether the principal/master has the power to terminate the contract at will; whether he has the power to fix the price in payment for the work; whether he vitally controls the manner and time for payment; whether he furnishes the means and appliances for the work; whether he has control of the premises; whether he furnishes the materials upon which the work is done and receives the output, the contractor dealing with no other person with respect to output; whether he has the right to prescribe and furnish details of the kind and character of work to be done; whether he has the right to supervise and inspect the work during the course of the employment; whether he has the right to direct the details of the manner in which the work is to be done; whether he has the right to employ or discharge the subemployees and fix their compensation; whether he is obliged to pay the wages of said employees.

The *Kisner* Court recognized that no precise formula would work in all cases, and that the factors which it set out were not set out in any particular order of importance. 159 Miss. at 427, 132 So. at 91. The *Kisner* Court also recognized that "in any given case, it gets back to the original proposition whether in fact the contractor was actually independent, free of the will of his employer--actually and substantially free from his control."

Twenty years later, in the case of *Carr v. Crabtree,* 212 Miss. 656, 55 So. 2d 408 (1951) this Court found itself still struggling with the question of where the dividing line exists between an independent contractor and a borrowed servant. The Court stated there:

Although it is apparent from an examination of cases involving the independent contractor relationship that there is no absolute rule for determining whether one is an independent contractor or an employee, and that each case must be determined on its own facts, nevertheless, there are many well-recognized and fairly typical indicia of the status of an independent contractor, even though the presence of one or more indicia in a case is not necessarily conclusive. It has been held that the test of what determines independent service lies in the control exercised, the decisive question being as to who has the right to direct what shall be done, and when and how it shall be done. It also has been held that the commonly recognized tests of the independent contractor relationship, although not necessarily concurrent or each in and of itself controlling, are the existence of a contract for the performance by a person of a certain piece or kind of work at a fixed price, the independent nature of his business or his distinct calling, his employment of assistants with the right to supervise their activities, his obligation to furnish the necessary tools, supplies and materials, his right to control the progress of the work as to the final result, the time for which the workman is employed, the method of payment, whether by time or by job, and whether the work is part of the regular business of the employer.

212 Miss. at 666, 55 So. 2d at 411.

Yet another ten years later, in the case of *Clark v. Luther McGill, Inc.*, 240 Miss. 509, 127 So. 2d 858 (1961), the Court said:

What gives the lent-employee cases their special character, however, is the fact that they begin, not with an unknown relation, but with an existing employment relation. The only presumption is the continuance of the general employment which is taken for granted as the beginning of any lent-employee problem. To overcome this presumption, it is not unreasonable to insist upon a clear demonstration that a new temporary employer has been substituted for the old, which demonstration should include a showing that a contract was made between the special employer and the employee, proof that the work being done was essentially that of the special employer, and proof that the special employer assumed the right to control details of the work.

240 Miss. at 518, 127 So. 2d at 861 (*quoting* § 48.10, Vol.1, *Larson's Workmen's Compensation Law*) (emphasis added).

In *Quick Change Oil and Lube v. Rogers*, 663 So. 2d 585 (Miss. 1995), we revisited these principles and affirmed them when the Court stated:

The general rule as applied at common law, is that a servant, in general employment of one person, who is temporarily loaned to another person to do the latter's work, becomes, for the time being, the servant of the borrower, although he remains in the general employment of the lender. The borrower then becomes the employer to the exclusion of the lender. Application of the rule depends upon the question of whose work is being performed, and if the lender is to escape liability, it must appear that the servant is under the borrower's exclusive control and direction as to the work in progress. When an employee voluntarily accepts and enters upon such an assignment, he ceases to be in the course of the employment by the lender or the general employer. However, while the "loaned servant" doctrine is generally considered applicable in the compensation field, a shift of emphasis will be noted as to three pertinent questions involved, viz.: (1) whose work is being performed, (2) who controls or has the right to control the workman as to the work being performed, and (3) has the workman voluntarily accepted the special employment.

Id. at 589 (*quoting* Dunn*., Mississippi Workers' Compensation Law §* 186 (1986)).

Thus, we are guided by three important factors in analyzing any employment relationship: (1) whose work is being performed; (2) who has the right to control the worker in his duties on the job; and (3) the existence of an employment contract between the employee and the special employer whether actual or implied, *Quick Change* at 592; *Index Drilling Co. v. Williams*, 242 Miss. 775, 786-87, 137 So. 2d 525, 529 (1962); *Clark v. Luther McGill, Inc.* 240 Miss. at 517, 127 So. 2d at 861. There is a noticeable distinction between the phrase ". . . has the workman voluntarily accepted the special employment. . ." and the phrase ". . . a contract [must have been] made between the special employer and the employee." However, the two phrases are not inconsistent with each other, and given that they are mentioned with the other two factors, it seems apparent that they mean the same thing: the acceptance of the special employment by the employee may be accomplished through express or implied contract.

It is undisputed that the work that was being done at the time of the accident was that of McCaskill Brothers. Neither Reeves, Contractor, Inc. nor James Reeves personally were parties to the contract to construct any part of the Howard expansion. Reeves's sole purpose for being on

the construction site was to dig a hole which McCaskill Brothers would have dug itself had it owned a trackhoe.

The second factor, right of control, is the determinative factor in ascertaining whether an employment relationship is that of master-servant or one of principal-independent contractor. In determining the meaning of the term "control," we are guided by two cases involving a similar employment dilemma.

In *Denton v. Yazoo & Mississippi Valley Railroad Co.*, 284 U.S. 305, 309, 76 L. Ed. 310, 52 S. Ct. 141 (1931), the United States Supreme Court stated:

To determine whether a given case falls within the one class or the other we must inquire whose is the work being performed, a question which is usually answered by ascertaining who has the power to control and direct the servants in the performance of their work. Here we must carefully distinguish between authoritative direction and control, and mere suggestion as to details or the necessary cooperation, where the work furnished is part of a larger undertaking.

Quoting Standard Oil Co. v. Anderson, 212 U.S. 215, 221-22, 53 L. Ed. 480, 29 S. Ct. 252 (1909) (emphasis added). See also *Quick Change*, 663 So. 2d at 591.

Standard Oil, supra, the case which provided the basis of the *Denton* decision*,* contained a similar employment dilemma. In that case, a winchman in the general service of Standard Oil Company was furnished by that company to a master stevedore under contract with the company to load a ship with oil. To load the oil, the winchman necessarily had to depend upon the aid of one of the stevedore's employees to determine the proper time for hoisting and lowering the drums of oil. One of the stevedore's employees was injured when the winchman lowered the cases of oil before being told to do so. The United States Supreme Court held upon the facts that the power, the winch, and the winchman were those of Standard Oil Company, and that the company did not furnish them, but furnished the work they did to the stevedore; and that this work was done by the company as its own work, by its own instrumentalities and servant under its control. See *Denton*, 284 U.S. at 310 (emphasis in original). The Supreme Court in *Standard Oil* went on to say:

Much stress is laid upon the fact that the winchman obeyed the signals of the gangman, who represented the master stevedore, in timing the raising and lowering of the cases of oil. But when one large general work is undertaken by different persons, doing distinct parts of the same undertaking, there must be co-operation and coordination or there will be chaos. The giving of the signals under the circumstances of this case was not the giving of orders, but of information; and the obedience to those signals showed co-operation rather than subordination, and is not enough to show that there has been a change of masters.

Standard Oil Co., 212 U.S. at 226. The Court went on to quote Chief Judge Holmes of the Massachusetts Supreme Court (later Mr. Justice Holmes of the United States Supreme Court):

But the mere fact that a servant is sent to do work pointed out to him by a person who has made a bargain with his master does not make him that person's servant; more than that is necessary to take him out of the relation established by the only contract which he has made, and to make him a voluntary subject of a new sovereign.

In such cases the party who employs the contractor indicates the work to be done and, in that sense, controls the servant, as he would control the contractor, if he were present. But the person

who receives such orders is not subject to the general orders of the party who gives them. He does his own business in his own way, and the orders he receives simply point out to him the work which he or his master has undertaken to do. There is not that degree of generality and intimacy in the subjection of one to the other which is necessary in order to identify the two and to make the employer liable under the fiction that the act of the employed is his act.

Standard Oil Co., 212 U.S. at 225-26 (*quoting Driscoll v. Towle,* 181 Mass. 416, 63 N.E. 922 (1902)).

This Court, in the case of *Runnels v. Burdine*, 234 Miss. 272, 106 So. 2d 49 (1958), reached the opposite conclusion. In that case, Runnels, an employee of Longview Equipment Company, was injured by the operator of a dragline that Longview had rented by the hour from Burdine Construction Company. The operator was in the employ of Burdine, and his only business at the construction site was to run the dragline. There was no subcontract between Longview and Burdine. This Court felt that Longview had the right to, and did control the work of the dragline operator. We held that Runnels could not recover damages from Burdine because the dragline operator was in the employ of Longview for the time that he worked on the dragline, and was thus a co-employee of Runnels.

Clark v. Luther McGill, supra, decided three years after *Runnels v. Burdine*, reached the opposite conclusion of that reached in *Runnels*. In that case, we held that a worker who was injured while helping Luther McGill, Inc., an independent hauling company, to set up equipment owned by the worker's employer was not the loaned servant of the Luther McGill, Inc., even though he obeyed the instructions of the haulers in trying to set up the equipment. Thirty-four years later, this Court held in the case of *Luther McGill, Inc. v. Bradley*, 674 So. 2d 11, 14 (Miss. 1996), that on strikingly similar facts, an employee injured while helping Luther McGill, Inc., to set up equipment was not the loaned employee of the hauling company. This holding was on the basis that although the principal of the injured worker supervised the details of the Luther McGill's work, the principal could fire the company, but no specific workers from the company. As a result, Luther McGill, Inc. retained enough control over its workers and its operation that it was an independent contractor and thus not immune from suit for actions stemming from its activities.

It should be noted that *Clark,* as discussed *supra,* was the case that set out the three-factor test for determining whether a worker was the loaned servant of a special master or whether that worker was an independent contractor, or the agent of the independent contractor. *Runnels v. Burdine* did not discuss those factors but discussed the facts of its case within the context of the general rule for loaned employees. Therefore, *Runnels* concentrates on the relationship between the borrower and the lender; *Clark* requires that concentration be focused on the relationship between the special employer and the employee. *Clark* did not overrule *Runnels*. Rather, it expounded upon the loaned employee doctrine, and in so doing, reached a result more akin to those reached by the United States Supreme Court in *Denton* and *Standard Oil Co.* This Court has been consistent in its decisions since the application of the *Clark* factors to the facts of a particular case. *See Luther McGill v. Bradley,* 674 So. 2d 11 (Miss. 1996); *Quick Change Oil and Lube, Inc., supra; Northern Electric Co. v. Phillips,* 660 So. 2d 1278 (Miss. 1995); *Richardson v. APAC-Mississippi, Inc.,* 631 So. 2d 143 (Miss.1994); *W.J. Runyon & Son v. Davis,* 605 So. 2d 38 (Miss. 1992); *Webster v. Mississippi Publishers Corp.,* 571 So. 2d 946 (Miss. 1990); *Fruchter v. Lynch Oil Co.*, 522 So. 2d 195 (Miss. 1988); *Biggart v. Texas Eastern Trans.*

Corp., 235 So. 2d 443 (Miss. 1970); *Louis A. Gily and Sons v. Dependents of Shankle*, 246 Miss. 384, 149 So. 2d 480 (1963).

James Reeves, Contractor, Inc. insists that the relationship was one of master-servant because James Reeves, Jr. submitted himself to the direction and control of John McCaskill, Jr. in the intricate details of digging the hole. Reeves makes much ado about the fact that McCaskill showed him where to dig, how deep to dig and how wide to dig. However, it is apparent from the facts that the hole had to be a certain depth, and the top elevation of the manhole had to be within one inch of the existing road. Therefore, any assistance or orders as to when to start or stop digging was necessary to get the hole to the precise depth to accommodate the elevation specifications in the blueprint. This is not control, this is information. The situation before this Court is analogous to that faced by those Courts in *Denton, Standard Oil Co.,* and *Driscoll v. Towle.* The orders given were to coordinate an activity, digging the hole, which is part of a larger undertaking, the construction of a sewer lift station, which was in turn part of the overall plumbing work to be done on the project. Had McCaskill, Jr. not informed Reeves when to stop digging, Reeves would have had no way of knowing when the hole was deep enough. Furthermore, McCaskill could not measure the elevation at the same time that Reeves was trying to dig. Had he attempted to do so, he might have been injured by the trackhoe, as the plaintiff in *Standard Oil* was injured when the winchman dropped the load without being instructed to do so. Such an exchange of information is insufficient to establish control necessary to transform this independent contractor relationship into a "loaned servant" relationship.

Even if the necessary control were present in this case, the relationship still cannot be transformed into a master-servant relationship because no express or implied contract existed between McCaskill Brothers and James Reeves, Jr. to the extent necessary to create such a relationship. McCaskill Brothers called James Reeves, Contractor, Inc. to arrange for a trackhoe and operator to be at the construction site the next morning. James Reeves, Jr. took the call and decided to do the job himself because he was the only trackhoe operator available. The contract was between the two construction companies, not between McCaskill Brothers and Reeves. Therefore, when Reeves went to the construction site, he went not at his own behest, but at the behest of James Reeves, Contractor, Inc. in order to fulfill the contract that he had entered into the previous day on behalf of the company.

Reeves had no responsibilities aside from digging the hole. McCaskill, Jr. stated that it would not have been Reeves' place to do anything else, and McCaskill would not have asked Reeves to do so because McCaskill had regular employees to do everything except dig the hole. *Clark v. Luther McGill, Inc., supra,* insists that there be a clear showing that the employee has entered into a contract with the special employer sufficient to establish a master-servant relationship between the special employer and the employee. In this case, it would appear that Reeves was not doing anything that was outside the ordinary scope of the work that an employee would normally do for Reeves Contractor, Inc. This is especially true since the company regularly rented large equipment complete with an operator. Therefore, he remained the employee of Reeves, Contractor, Inc. when he was on the construction site on the day of the accident.

Since there is no clear showing that either an express or an implied contract existed between Reeves and McCaskill Brothers sufficient to transform the relationship into a master-servant relationship, and because the instructions which Reeves took from McCaskill were in the nature of cooperation and not subordination, the ruling of the trial court as to James Reeves, Contractor, Inc. is hereby reversed and remanded.

SMITH, J., FOR THE COURT:

II. WHETHER THE TRIAL COURT ERRED IN DETERMINING THAT HOWARD INDUSTRIES, INC. OWED NO DUTY TO WILLIS COOLEY.

The plaintiffs also charge that the trial court erred in holding that there was no duty owing to Willis Cooley on the part of Howard Industries. The trial court based its decision on the fact that Jones County, not Howard, was the owner of the construction site. Since Howard was not the owner, the judge ruled that Howard had no liability to Willis Cooley for any accidents occurring on the premises. Howard contends that it acted as the agent of the owner. As such, it incurs no liability in acting on its principal's contracts. *Turner v. Wilson*, 620 So. 2d 545, 548 (Miss. 1993); *Thames & Co. v. Eicher*, 373 So. 2d 1033, 1035 (Miss. 1979). On this basis alone, we agree with the judgment of the trial court, and affirm the trial court decision as to this issue.

However, even if this avenue of recovery were not closed to the plaintiffs, Howard would still not be liable. Under Mississippi law, the duty owed by a premises owner or occupier to a business invitee, in this case McCaskill Brothers, is that duty to exercise reasonable or ordinary care to keep the premises in a reasonably safe condition. The owner/occupier is not an insurer of the invitee's safety, and he is not liable for injuries which are not dangerous or which are, or should be known to the business invitee. *Jackson Ready-Mix Concrete v. Sexton*, 235 So. 2d 267, 270 (Miss. 1970).

Jackson Ready-Mix Concrete also states that "the owner or occupier is under no duty to protect them (contractors) against risks arising from or intimately connected with defects of the premises, or of machinery or appliances located thereon, which the contractor has undertaken to repair." *Id.* at 271. The plaintiffs argue that neither McCaskill Brothers nor Cooley had undertaken to repair the defect in the subsurface, thus that exception to the general rule requiring the owner to furnish a safe place to work is inapplicable. This depends upon the perspective from which one examines this case.

On the one hand, it could be argued that the installation of a dewatering system such as the one installed by McCaskill brothers could be seen as a repair mechanism which was necessary before they could excavate the hole. Such a perspective would place this case squarely within the purview of *Jackson Ready-Mix Concrete*. However, it must be noted that Cooley was not killed while installing the dewatering system. On the other hand, one could take the view, as do the plaintiffs, that McCaskill Brothers was at the site to do contract plumbing work, not to repair a defect in the soil. If the latter view is chosen, then the case is within the purview of *Magee v. Transcontinental Pipeline Corp.*, 551 So. 2d 182, 185 (Miss. 1989). Therein we held that:

Where a party contracts with another to perform original construction or repair work and devolves upon the contractor the right and fact of control of the premises and the nature and details of the work, the owner has no liabilities for injuries experienced by the contractor's workers where those injuries arose out of or were intimately connected with the work.

Magee went on to state that the critical factor in determining if the occupier is absolved of liability is whether it maintains any right of control over the performance of that aspect of the work which gave rise to the injury, *Magee* at 186. "In this setting, it is the undisputed language of the contract which becomes important." *Id.* Section 3.3.1 of the "General Conditions of the Contract for Construction" provides that:

The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

Therefore, since McCaskill Brothers had unfettered control over that portion of the work which gave rise to the injury, the excavation of the hole, Howard is absolved of responsibility under *Magee* as well as *Jackson Ready-Mix Concrete*.

Moreover, even if there existed a duty on the part of Howard to make the premises safe, the only way in which that duty would remain intact is if John McCaskill, Jr., as site supervisor, did not know of the condition of the soil. In *City of Jackson v. Ball*, 562 So. 2d 1267, 1270 (Miss. 1990), we held that no warning need be given to employees of a contractor so long as the contractor knows of the danger. *See also Mississippi Chemical Corp. v. Rogers*, 368 So. 2d 220, 222 (Miss. 1979). Here there may be a dispute as to a material fact. Reeves claimed that he stopped digging and went and told McCaskill about the watersand under the surface when he observed it, and that McCaskill instructed him to keep digging. McCaskill denies any such conversation ever took place. This conversation, or lack thereof, certainly goes to McCaskill's knowledge of the soil condition. However, it is not the only means by which McCaskill would have knowledge of the soil conditions. Because he was on the site at all times, and was in fact running the transit to measure the elevation of the hole, he would have had additional opportunity to observe the condition of the subsurface. It must be pointed out, however, that according to the contract between McCaskill Brothers and Jones County, McCaskill Brothers is chargeable with knowledge of the soil conditions as a prerequisite to signing the contract. Section 1.2.2 states that "Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with the requirements of the Contract Documents." (emphasis supplied). Thus, according to *Jackson Ready-Mix Concrete*, Howard had no duty to warn of a danger which McCaskill should reasonably have appreciated before exposing himself (and by extension, his employees) to it. Such an expectation of appreciation is reasonable because under the contract McCaskill had visited the site and had familiarized himself with the soil conditions. Accordingly, we find that for this additional reason, the judgment as to the defendant, Howard Industries, Inc., is affirmed.

III. WHETHER THE TRIAL COURT ERRED IN HOLDING THAT EVEN IF HOWARD INDUSTRIES OWED WILLIS COOLEY A DUTY, THE DANGEROUS SUBSURFACE SOIL CONDITIONS WERE OPEN AND OBVIOUS, THUS RELIEVING HOWARD OF ITS DUTY.

The plaintiffs next claim that the trial court based its decision on the "open and obvious" defense at page 1000 of the record. The plaintiffs correctly note that this Court abandoned the "open and obvious" defense as a complete bar to recovery in premises liability cases in *Tharp v. Bunge Corp.* 641 So. 2d 20 (Miss. 1994). However, after reading the entire ruling of the trial court, especially as it pertains to Howard Industries, it is apparent that the words "open and obvious" or any hint that such a defense might have been the basis for the trial court's decision are strictly a figment of the plaintiffs' attorney's imagination. Accordingly, it is unnecessary to address this point.

IV. WHETHER THE TRIAL COURT ERRED IN RULING THAT FOILWYATT WAS ENTITLED TO JUDGMENT AS A MATTER OF LAW DESPITE ITS PRIOR KNOWLEDGE THAT THE SUBSURFACE SOIL CONDITIONS WERE WET, SANDY, AND SILTY CLAY, AND DESPITE ITS FAILURE TO SO INFORM McCASKILL BROTHERS.

This is perhaps the most interesting of the issues raised in the case *sub judice*. It is certainly an issue of first impression before this Court. Put succinctly, the question to be answered is whether there was a common law duty to warn on the part of the architects based upon their prior knowledge of the dangerous soil conditions. Couched in these terms, this would be an issue of first impression before most state courts in the Union. However, the issue of architectural liability for construction worker injury has been dealt with in other courts. A brief summary of those cases would show that other state courts have held that unless the architect undertakes specific supervisory duties by contract or by deed, there can be no liability on the part of the architect for job site injuries to construction workers absent a defect in the architects' plans. Since it is not alleged that there is a defect in the architects' plans, and because they specifically contracted away all supervisory powers and made no actual efforts to supervise, none of our sister states who have addressed the issue would hold Foil-Wyatt liable to the plaintiffs for the fatal injuries to Willis Cooley.

Because our sister states would likely decline to extend liability to Foil-Wyatt does not mean that the plaintiffs' argument is frivolous. One articulable reason in favor of holding the architect liable is that the status of the professional architect confers special duties upon him to warn the contractor and/or the contractor's employees due to the foreseeability of harm if no such warnings are given. *See Tarasoff v. Regents of the University of California,* 17 Cal. 3d 425, 131 Cal. Rptr. 14, 551 P.2d 334 (1975) (A psychiatrist treating a deranged patient was held liable to the victim of patient's assault where the doctor failed to warn the victim of patient's ill intent toward him.). In other words, because the architect knows of the danger and is in a position to take reasonable steps to prevent the harm, he must give a warning that would allow those in control to prevent harm to the worker. We reject this argument.

That particular view flies in the face of the view set forth in § 314 of the Restatement (Second) of Torts which states that" the fact that an actor realizes or should realize that action on his part is necessary for another's aid or protection does not of itself impose upon him a duty to take such action." The Restatement view is the more common-sense approach in our opinion, and, accordingly, is the road that we choose to travel in deciding this issue.

Foil-Wyatt, for its part, cites several cases to bolster its contention that there is no liability incurred by it. None of the cases cited by Foil-Wyatt deal with the question of the existence of a common law duty to warn of defects known to the architect. But all make it apparent, to one extent or another, that the view of those courts which have examined the issue is that there can generally be no architectural liability where there is no supervisory duty. See *Walker v. Wittenberg, Delony & Davidson*, 242 Ark. 97, 412 S.W.2d 621 (Ark. 1967)(the architect must make an express agreement to supervise the construction site to incur liability); *Wheeler & Lewis v. Slifer,* 195 Colo. 291, 577 P.2d 1092 (Colo. 1978) (architects not liable where the employee of a subcontractor was injured because the performance of architectural duties did not impose a duty of supervision upon the architects); *Hanna v. Huer, Johns Neel, Rivers, & Webb,* 233 Kan. 206, 662 P.2d 243 (Kan. 1983) (architect who has agreed to supervise the project must

specifically agree to supervise safety; also lists seven factors to use in determining whether supervisory powers go beyond the provisions of the contract: (1) actual supervision and control of the work; (2) retention of the right to supervise and control; (3) constant participation in ongoing activities at the construction site; (4) supervision and coordination of subcontractors; (5) assumption of responsibilities for safety practices; (6) authority to issue change orders; (7) the right to stop the work); *Reber v. Chandler High School District # 202,* 13 Ariz. App. 133, 474 P.2d 852 (1970) (the term "supervision" construed as limited to ensuring that the finished product conformed to specifications). As noted above, the contractor had responsibility for day-to-day supervision of the work. Foil-Wyatt had none of the responsibility listed in any of the *Hanna* factors.

The plaintiffs cite *Moloso v. State*, 644 P.2d 205 (Ak. 1982), as the primary case which supports their contention of liability on the part of Foil-Wyatt. In that case, two construction workers were killed in a rock slide while clearing land for a state highway project. Their estates brought suit against the state of Alaska for failure to adequately oversee the correct sloping of the rock overhang which crumbled and caused the fatal injuries. That court held that summary judgment was precluded against the plaintiffs because a jury question existed as to whether the state had breached its duty as architect to supervise the project. It is important to note that in that case the state had specifically undertaken not only to carry out the project, but had done the architectural work, had acted in the capacity of supervisor and it was the state's responsibility to ensure that overhangs were properly sloped to minimized the possibility of rock slides. Foil-Wyatt undertook no such responsibility. In fact, in none of the cases either cited by the plaintiffs or noted by this Court where the architect was held liable for workplace injuries was there an instance where the architect did not have on-site supervisory powers, either contractual or assumed. As a result, we find *Moloso* unavailing to the plaintiffs' claim. *See Erhart v. Hummonds,* 232 Ark. 133, 334 S.W.2d 869 (1960) (action will lie against architects for fatal injuries to construction workers where architects had general supervisory powers and a right to stop work to insure proper execution of the contract); *Day v. U.S. Radiator Corp.* 241 La. 288, 128 So. 2d 660 (La. 1961) (architects were held not liable because they had no duty to inspect methods of boiler installation); *Miller v. Dewitt,* 37 Ill. 2d 273, 226 N.E.2d 630(1967) (evidence authorized a finding that architects with the right to stop work if the contractor began to shore the roof in an unsafe manner had been negligent in failing to inspect and watch over the shoring operation.); *Walker v. Wittenberg, Delony, & Davidson, supra*, (architect's agreement to supervise construction did not encompass the duty to supervise safety *because* the contractor had contractually agreed with the owner to designate a safety coordinator and give that person's name to the architect).

We philosophically disagree with the holdings of *Hanna* and *Walker* to the extent that they hold that a contractual duty to maintain actual supervision over the details of the construction project does not entail the duty to supervise safety. It would seem natural that the supervision of safety is encompassed in the duty to supervise, and no separate agreement to supervise safety is necessary where the architect is supervising the details of every other aspect of the project. *See Mallow v. Tucker, Sadler, & Bennett, Architects & Engineering, Inc.*, 245 Cal. App. 2d 700, 54 Cal. Rptr. 174, 176 (Cal. Ct. App. 1966) ("An architect who plans and supervises construction work, as an independent contractor, is under a duty to exercise ordinary care in the course thereof for the protection of any person who foreseeable and with reasonable certainty may be injured by his failure to do so."); *Case v. Midwestern Contractors*, 876 S.W.2d 51, 53 (Mo. App. W.D. 1994)(the fact that the architect agreed to review the safety procedures of the contractor was

insufficient to make the architect a construction supervisor or to hold him responsible for the safety of the construction workers where those responsibilities expressly belonged to the contractor); *Dillard v. Shaughnessy, Fickel, & Scott* 864 S.W.2d 368 (Mo. App. W.D. 1993). It is notable that in the latter two Missouri cases, safety is an aspect of supervision. In both cases, the architect was not an on-site supervisor, and thus not an insurer of safety. It does not follow that an architect who is an on-site supervisor would still have to contractually provide for the supervision of the safety of the workers. To allow such an action would skirt the meaning of the term "supervisor." However, we are not faced that question here.

The question before us is whether the architect has a duty to warn the contractors of defects inherent in the construction site of which he has knowledge. Two cases help in the assessment of that question. *Young v. Eastern Engineering & Elevator Co., Inc.*, 381 Pa. Super. 428, 554 A.2d 77 (Pa. Super. 1989), held that there was no duty to warn because there was no duty to supervise. That court stated:

We therefore hold that absent an undertaking by an architect, by contract or conduct, of the responsibilities of the supervision of construction and the maintenance of safe conditions of a construction project, an architect is not under a duty to notify workers or employees of the contractor or subcontractors of hazardous conditions on the construction site.

Id. at 80. In the case of *Balagna v. Shawnee County*, 233 Kan. 1068, 668 P.2d 157 (Kan. 1983), that court held that a duty existed where an *on-site* architect/engineer knew of unsafe conditions, and that it was a question for the jury as to whether the engineer's decision not to warn the worker of the unsafe condition was reasonable under the circumstances.

It is the opinion of this Court that the holding of *Young* provides the clearest pronouncement on the issue before the Court and makes the most common sense under the circumstances. Unless the architect has undertaken by conduct or contract to supervise a construction project, he is under no duty to notify or warn workers or employees of the contractor or subcontractor of hazardous conditions on the construction site.

Therefore, we affirm the decision of the trial judge as to this issue.

V. WHETHER THE TRIAL COURT ERRED IN ADMITTING INTO EVIDENCE AN AFFIDAVIT FILED AFTER THE HEARING ON THE MOTIONS FOR SUMMARY JUDGMENT.

Rule 56(c) of the M.R.C.P. states that motions for summary judgments may be served within ten days of the time fixed for the hearing on the motion for summary judgment. Adverse parties may serve affidavits prior to the day affixed for the hearing. Rule 6(d) of the M.R.C.P. provides that when a motion is supported by an affidavit, the affidavit shall be served with the motion, and opposing affidavits may be served not later than one day before the hearing, unless the court has given permission to serve them at some other time.

In the case *sub judice* the plaintiffs raise the issue of whether or not the trial court should have accepted an affidavit from John McCaskill, Jr. regarding the subsurface conditions at the construction site. That affidavit was sworn on May 18, 1993 and filed on June 1, 1993. The hearing on the Motions for Summary Judgment was held on March 11, 1993, more than two months before the affidavit was sworn or filed. Whether Howard was acting as the moving party

or was acting in response to the plaintiffs' Cross -Motion for Summary Judgment, the affidavit was late and is not allowed under either Rule 6(d) or Rule 56(c) of the M.R.C.P.

Howard claims that the trial court requested briefs and proposed findings of fact after the hearing date, and that the only reason that the affidavit itself was sworn and filed was that the plaintiffs' brief raised several arguments which were not made at oral arguments. Even if that were the case, the transcript of the oral argument is not a part of the record for consideration before us. As a result, this Court cannot consider what may or may not have been a basis for oral argument juxtaposed against the briefs submitted by either party.

Howard further argues that Rule 56(e) of the M.R.C.P. allows for the trial court to consider supplemental affidavits. While that may be true, Rule 56(e) does not allow for such supplemental affidavits to be submitted after the time set out in Rule 56(c) or in Rule 6(d).

In *Richardson v. APAC-Mississippi, Inc.*, 631 So. 2d 143, 146 (Miss.1994), we upheld a trial judge's order striking affidavits of a party opposing summary judgment on the grounds that they were not filed until the day of the hearing. That decision was based in part upon *Lujan v. National Wildlife Federation*, 497 U.S. 871, 895-97, 111 L. Ed. 2d 695, 110 S. Ct. 3177 (1990), wherein the United States Supreme Court held that under Rule 6(b) of the Fed.R.Civ.P., upon which the M.R.C.P. are based, an affidavit which was filed late must be for cause shown, and only after cause has been shown may a judge invoke his discretion in accepting or rejecting the late submission. There being no cause shown as to the reasons why this affidavit was filed after the allowable time set forth in the rules, the affidavit should not have been accepted by the trial judge.

Nevertheless, for the reasons set forth in part II of this memorandum, the affidavit would not alter the determination of whether Howard had a duty to Cooley because, as was stated earlier, Howard was an agent of Jones County, the true owner of the property. As a result, Howard, as agent for Jones County, had given over possession of the property to McCaskill Brothers and the other contractor who were to complete the expansion. Thus, the trial court's consideration of the affidavit was harmless error.

CONCLUSION

This Court holds that the decision of the trial court is reversed and remanded to the trial court as to James Reeves, Contractor, Inc. because the totality of the circumstances leads us to find that James Reeves, Jr. acted as an independent contractor in excavating the manhole on the date in question. We affirm the decision of the trial court as to Howard Industries because Howard acted as agent for Jones County, and as an agent, incurred no liability for the acts of its principal. Additionally, Howard Industries is not liable because

McCaskill Brothers, as employer of Willis Cooley, was evidently and contractually knowledgeable about the condition of the soil. We affirm the decision of the trial court as to Foil-Wyatt, the project architect, because they did not undertake supervision of the project either by conduct or by contract, and therefore, had no affirmative duty to warn McCaskill Brothers or its employees of dangers of which they may have been aware. We hold that the trial court's decision to admit an affidavit after the time allowed in the M.R.C.P. was harmless error.

AFFIRMED IN PART; REVERSED AND REMANDED IN PART.

PART I: SULLIVAN, P.J., LEE, C.J., PITTMAN, BANKS AND McRAE, JJ., CONCUR. SMITH, J., DISSENTS WITH SEPARATE WRITTEN OPINION JOINED BY PRATHER, P.J., ROBERTS AND MILLS, JJ.

PART II: SMITH, J., LEE, C.J., PRATHER AND SULLIVAN, P.JJ., PITTMAN, BANKS, ROBERTS AND MILLS, JJ., CONCUR. McRAE, J., CONCURS IN PART AND DISSENTS IN PART WITH SEPARATE WRITTEN OPINION.

CONCUR BY: MCRAE (In Part)

DISSENT BY: MCRAE (In Part); SMITH

DISSENT

McRAE, JUSTICE, CONCURRING IN PART AND DISSENTING IN PART:

I agree with Justice Sullivan's finding in Part I that the circuit court erred in finding that James Reeves, Jr. was a co-employee of Cooley's under the "dual employee" or "loaned servant" doctrines, putting both in a master-servant relationship with McCaskill Brothers and making James Reeves, Contractors, Inc. statutorily immune from suit. We have never considered our Workers' Compensation cases from the perspective of the employee, considering who he thinks his employer is, who pays his wages and who files his W-2 forms. To mislabel an employee defeats the beneficent purposes of the Act and disregards that only one employer can take advantage of its immunity provisions. I disagree, however, with the majority's findings regarding an architect's duty to warn of hazardous conditions at a construction site.

The Workers' Compensation Act provides detailed definitions of "employee" and "independent contractor" but states only that the term "employer" may include any of a number of legal entities. Miss. Code Ann. § 71-3-3. The exclusivity of liability provision of Miss. Code Ann. § 71-3-9, however, is intended to protect one and only one employer. Further, § 71-3-71 enables the employee to bring suit against a third party whose actions contributed to his injury or death. His employer and its worker's compensation insurance carrier also have the right to join in the suit or intervene.

The employee who is a "loaned servant" is sent to work where his employer sends him to carry out whatever tasks he may be assigned. To determine who his actual employer is at the time an accident occurs, we must look, from the perspective of the worker who is asserted to be a loaned servant, at who he considers to be his boss, who hires him and who files his W-2 form. As the majority points out, James Reeves, Jr., the trackhoe operator, went to the construction site "not at his own behest, but at the behest of James Reeves, Contractors, Inc. in order to fulfill the contract that he had entered into the previous day on behalf of the company." Unlike Cooley, he did not look to McCaskill Brothers as his boss, nor did that company hire him or file his W-2 forms. Rather, he was an employee of Reeves, Contractors, Inc. He was not a loaned servant of McCaskill Brothers and he and Cooley were not co-employees. Thus, the majority correctly finds that suit could be brought against Reeves Contractors.

As the majority notes, this Court long has been perplexed by the distinctions between a borrowed or loan servant and an independent contractor. The Act, however, is explicit. Were a so-called borrowed servant to have more than one employer, the statute would say so. The only way we

can end the confusion and carry out the purposes of the Act, is to look at who the employer is from the perspective of the employee on the day he was injured. To do otherwise, keeps the employee in peril and limits him from recovering all damages to which he might be entitled. Moreover, for the sake of the actual employer who is forced to pay large premiums, the waiver of immunity ought to apply where there is liability insurance up to the amount of the coverage provided by the policy.

I am not, however, willing to accept the majority's proposition that since none of our Sister States [sic] would find the architect liable for failure to warn the general contractor of a dangerous soil condition at the work site, there is no duty. The two cases to which the majority briefly turns for authority, *Young v. Eastern Engineering and Elevator Co., Inc.,* 381 Pa. Super. 428, 554 A.2d 77 (1988) and *Balagna v. Shawnee County,* 233 Kan. 1068, 668 P.2d 157 (1983), are factually distinguishable from the case *sub judice* and hardly stand as authority that for the absolute limits placed by the majority on the extent of an architect's potential liability.

In *Young*, a construction worker was seriously injured when he fell through a twenty-inch gap in the drywall surrounding the elevator shaft on which he was working. As distinguished from the case *sub judice,* where the fatal accident appears to have been the result of a pre-existing natural soil condition, Young's injuries were the result of defective construction and /or inadequate safety precautions by the contractor and subcontractors. *Young,* 554 A.2d at 78. Because the architect had no contractual duty to supervise the actual construction of the building, the Pennsylvania court found, under the facts of the case, that "an architect is not under a duty to notify workers or employees of the contractor or subcontractor of hazardous conditions on the construction site." *Id.* at 81. The court acknowledged that jurisdictions are split, with no clear majority, as to whether an architect may be liable for injuries caused by hazards at a construction site and noted:

> It would appear that an architect who, acting as an independent contractor, plans and supervises construction work is under a duty to exercise ordinary care in doing so in order to protect any person who foreseeably and with reasonable certainty may be injured by his failure to do so.

554 A.2d at 79. In the case *sub judice*, the matter of architect supervision would not even come into play since the hazard at issue was inherent to the site and as the majority intimates, known to the architects during the planning or design stage. It is not as if the danger suddenly arose during construction, discernable only if the architects were involved in some supervisory capacity. Thus, to exercise ordinary care, the architects had a duty to warn the contractor of any hazardous conditions at the site of which they were aware.

In *Balagna,* where a worker was killed when the trench in which he was working caved in, the issue was whether the architect/engineer was liable for the contractor's failure to follow required safety practices. *Balagna,* 668 P.2d at 162. In that case, it was asserted that liability existed because of a contractual duty to supervise and because the architect failed to take any action after discovering that the contractor was not following proper safety practices in the trenching operation. *Id.* The court quoted an earlier Kansas case, *Hanna v. Huer, Johns, Neel, Rivers & Webb,* 233 Kan. 206, 662 P.2d 243 (1983), stating in part, "as a professional, an architect cannot stand idly by with actual knowledge of unsafe practices on the job site and take no steps to advise or warn the owner or contractor." *Balagna,* 668 P.2d at 163, quoting syllabus, paragraph 5

of *Hanna. See also Estate of Clark Swarthout,* 33 Mich. App. 395, 190 N.W.2d 373 (1971) rev'd on other grounds, 388 Mich. 637, 202 N.W.2d 300 (1972) (where twenty percent of architect's fee allocated to project supervision, he had duty to warn workers of danger). It further noted that most cases involving architect liability turned on specific facts, including whether the architect had actual knowledge of the dangerous condition. 668 P.2d at 163-164. In *Young,* finding that a duty existed to take some reasonable steps to prevent injury, the court ruled that there was a jury question as to whether the architect-engineer acted reasonably and reversed the lower court's grant of summary judgment. Although the case *sub judice* is again distinguishable because the architects had no supervisory duties and they were apparently aware of the dangerous site condition during the planning phase of the project before construction began, by analogy, we would have to say that an architect cannot stand idly by when he has knowledge of a dangerous condition that becomes apparent when he is assessing the site during the design process. At the very least, there exists a jury question of when the architects became aware of the hazardous condition at the site and whether they took reasonable steps to advise the contractor and owner of the situation and make appropriate design and construction specifications.

Accordingly, while I agree with Part I of the opinion, I think the majority makes too broad and quick a pronouncement regarding an architect's duty to warn of known hazards at a construction site.

SMITH, JUSTICE, DISSENTING AS TO PART I: The obvious problem posed by the question of whether James Reeves, Jr. was the employee of Reeves Construction or of McCaskill Brothers Plumbing Company, Inc. at the time of the accident which resulted in Willis Cooley's death, is which line of authority of this Court should control, Clark v. Luther McGill, Inc., 240 Miss. 509, 127 So. 2d 858 (1961), or *Runnels v. Burdine*, 234 Miss. 272, 106 So. 2d 49 (1958). *Runnels* was not overruled by this Court in its subsequent decision in *Clark*, in which an opposite conclusion was reached.

In my view, *Runnels* is on all fours with the case *sub judice*. The *Runnels* Court was concerned with the question of whether Woodrow Kelly, a dragline operator and employee of Burdine, was the employee of Burdine or of Longview, who had requested the services of the dragline. The agreement between the parties was oral. A dragline was essential for Longview's construction of some concrete piers, but Longview did not own a dragline. During operation of the dragline, Kelly injured Runnels, an employee of Longview. Longview's insurer paid Runnels workers' compensation benefits. Subsequent thereto, Runnels filed suit against Burdine and the case was tried by a jury. The trial judge directed a verdict in favor or Burdine at the close of the plaintiff's case in chief, prompting an appeal to this Court by Runnels.

The ultimate question before the *Runnels* Court was who had the right to control and direct the work of Kelly in the operation of a dragline. The Court determined the issue turned on who had the right to control Kelly and direct his work in operating the dragline. The Court found that the substantial evidence showed that Longview had such right of control, and in fact, did control and direct Kelly's work. Burdine was never present on the worksite. There was no need nor opportunity for Burdine to direct the work of the dragline. Finally, all workmen on the premises were employees of Longview, and they furnished directions to Kelly as to the proper placement of the concrete mix which Kelly was pouring upon the piers when the accident occurred. The Court in holding that Runnels failed to sustain his burden of proof that Kelly was Burdine's servant at the time of the accident stated:

> A person who is in the general employment of one person may be temporarily in the service of another with respect to a particular transaction or piece of work so that the relation of master and servant arises between them, even though the general employer may have no interest in the special work.

Runnels, 234 Miss. at 277, 106 So. 2d at 51, *quoting Westover v. Hoover,* 88 Neb. 201, 129 N.W. 285.

In *Louis A. Gily & Sons v. Dependents of Shankle*, 246 Miss. 384, 149 So. 2d 480 (1963), another dragline case, the Court, again looking at who had the right of control, held that O'Neal was not an independent contractor but rather an employee of Gily, stating, "The traditional test of the employer-employee relation is the right of the employer to control the details of the work." 246 Miss. at 389, 149 So. 2d at 482. In *Gily*, the Court found Gily instructed O'Neal where to dig, when he could work and that the dragline work was a necessary part of the performance of the contract. *Id.*

The majority opinion favors the three-factor test established in *Clark* in determining whether an employee is a loaned servant or an independent contractor. In that case the Court concluded that a lent-employee's special character is determined from the fact that they begin with an existing employment relation with the presumption of a continuance of the general employment. Thus, the Court stated:

> To overcome this presumption, it is not unreasonable to insist upon a clear demonstration that a new temporary employer has been substituted for the old, which demonstration should include a showing that a contract was made between the special employer and the employee, proof that the work being done was essentially that of the special employer, and proof that the special employer assumed the right to control *details* of the work.

Clark, 240 Miss. at 518, 127 So. 2d at 861, (*quoting* § 48.10, Vol.1, Larson's Workmen's Compensation Law) (emphasis added). This Court recently revisited these three principles in *Quick Change Oil and Lube v. Rogers,* 663 So. 2d 585 (Miss. 1995). There the Court stated, "and if the lender is to escape liability, it must appear that the servant is under the borrower's exclusive control and direction as to the work in progress." *Id.* at 589. The Court again stated that "a shift of emphasis will be noted as to three pertinent questions involved, viz.: (1) whose work is being performed, (2) who controls or has the right to control the workman as to the work being performed, and (3) has the workman voluntarily accepted the special employment." *Id.*

An analysis of the facts of the case *sub judice* applying the three factors is revealing indeed. Whose work was being done? Undisputedly, the work being done was that of McCaskill Brothers Construction. McCaskill had no means of performing this portion of their contract because the company did not own a trackhoe. Who had the right of control of Reeves? The majority, relying upon *Denton v. Yazoo & Mississippi Valley Railroad Co.*, 284 U.S. 305, 309, 76 L. Ed. 310, 52 S. Ct. 141 (1931), claims that the digging of the hole in the case at bar under the supervision of McCaskill employee's "is not control, this is information." *Majority* at 16. The majority fails to note somehow the full context of the United States Supreme Court's choice of language on this issue. That Court noted that "Here we must carefully distinguish between authoritative direction and control, and mere *suggestion as to details* or the necessary

cooperation, where the work furnished is part of a larger undertaking." *Denton*,284 U.S. at 309, *quoting Standard Oil Co. V. Anderson*, 212 U.S. 215, 221-22, 53 L. Ed. 480, 29 S. Ct. 252 (1909) (emphasis added). *See also, Quick Change Oil* at 591. Here, there is much more involved than the mere giving of signals by McCaskill employees, as was the case in *Standard Oil*. Nor is this factual situation the same as helping set up equipment as was the case in *Clark v. Luther McGill* and the more recent case of *Luther McGill, Inc. v. Bradley*, 674 So. 2d 11 (1996). In those two cases, Luther McGill retained sufficient control over its workers and the work being performed to warrant a finding that McGill was an independent contractor rather than a loaned servant. Here, there were intricate details involved in digging the hole in question, details known only to McCaskill and totally unknown to James Reeves, Jr., the operator of the trackhoe who had just arrived on the job site pursuit to an oral agreement between the two companies. The work being performed was part of a detailed, architect drawn, sewer lift station which constantly required the use of a transit by McCaskill employees who were in and out of the hole in question, stopping and starting and giving specific instructions to Reeves in order to insure that the work was done in accordance to architectural plans and specifications. Reeves even lowered the concrete manhole into the hole at one point, requiring McCaskill to again use the transit of precise detailed measurements to insure that the top to the manhole was within one inch of the existing roadbed, all per the intricate details possessed solely by McCaskill. McCaskill selected the spot, drew the circle for placement of the trackhoe, instructed Reeves of various nearby hazards to avoid, i.e., a grade beam, a water line, and the well-point system both in and around the excavation point. The well-point system was utilized for the purpose of dewatering or pulling moisture out of the excavation site, which process would make the soil more compact and lessen the chance of a cave-in. Reeves maintained that he stopped digging at one point because he discovered a flowing stratum of "watersand" in the subsurface. He claims he told McCaskill of this situation, but McCaskill denied that any such conversation ever took place. However, the fact that McCaskill had the device installed on the premises for several days prior to Reeves ever arriving to dig the hole in question strongly suggests Reeves's testimony to be truthful.

The facts here are practically identical to those in *Runnels*. So much so, the only way the majority can prevail on this issue is to overrule *Runnels* and its subsequent line of authority which has heretofore not been attempted, not even in the Court's most recent case of *Luther McGill v. Bradley.*

I respectfully dissent to the majority's holding in Part I.

PRATHER, P.J., ROBERTS AND MILLS, JJ., JOIN THIS OPINION.