RENNOVA CONSTRUCTION COMPANY
A Safety Engineering Project: An Integral Safety Program

Mireya Jimenez
Nelia Faz
Karla Campos
The University of Texas at El Paso
Senior Design IE 4466
Rennova Construction
Company: An overview

• Rennova Construction is a locally owned construction company at El Paso, Texas.

• It was founded on November 2020 by Alejandro Guzman and Aurea Hernandez Arriola.

• Rennova Construction provides residential and commercial construction services.

• Currently constructing their first big commercial project: an Artheritis Clinic at El Paso, Texas.
Introduction

• Establishing a safety and health program at a job site is one of the most effective ways to protect the worker.

• Loosing workers to injury or illness, can cost a disruption and cost.

• The team focused on an OSHA recommended program.

• The recommended practices emphasize a proactive approach to managing occupational safety and health.

• The team focused on creating seven core elements of recommended practices by OSHA for construction.
Benefits:

Benefits:

A study of small employers in Ohio found that workers' compensation claims fell dramatically after working with OSHA's SHARP program to adopt programs similar to those described in these recommended practices.

average number of claims DECREASED 52%

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cost per claim DECREASED 80%

average lost time per claim DECREASED 87%

claims (per million dollars of payroll) DECREASED 88%

Source: Ohio Bureau of Workers' Compensation (2011), Ohio 21(d) SHARP Program Performance Assessment.
# Requirements

## SYSTEM REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
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<tbody>
<tr>
<td>The system shall follow the OSHA recommended safety construction program.</td>
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<tr>
<td>The system shall always seek safety for their employees.</td>
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<tr>
<td>The system shall make it easy for individuals to follow safety guidelines.</td>
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<tr>
<td>The system shall be prepared for any potential hazard at the workplace.</td>
</tr>
<tr>
<td>The system shall identify and prevent hazards to avoid incidents.</td>
</tr>
<tr>
<td>The system shall be updated of any OSHA regulation changes.</td>
</tr>
<tr>
<td>The system shall promote a safety environment to their employees.</td>
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</tbody>
</table>
7 CORE ELEMENTS
(OSHA Recommended practices for safety and Health in Construction)

- Worker Participation
- Hazard identification and assessment
- Hazard prevention and control
- Education and training
- Program evaluation and improvement
- Communication and coordination for employers on multiemployer worksites
- Management leadership
### Core Elements: Actions

<table>
<thead>
<tr>
<th>Management Leadership</th>
<th>Worker Participation</th>
<th>Hazard Identification and Assessment</th>
</tr>
</thead>
</table>
| • Communicate their commitment to a safety program.  
• Define program goals  
• Allocate resources.  
• Expect performance. | • Encourage workers to participate in the program, and report safety and health concerns  
• Give workers access to safety and health information and involve workers in all aspects of the program  
• Remove barriers to participation | • Collect existing information about job site hazards.  
• Inspect the job site for safety hazards.  
• Identify health hazards  
• Conduct incident investigations  
• Identify hazards associated with emergency and nonroutine situations  
• Characterize the nature of identified hazards, identify interim control measures, and prioritize the hazards for control. |
Core Elements: Actions

**Hazard Prevention and Control**
- Identify control options
- Develop and update a hazard control plan
- Select controls to protect workers during nonroutine tasks and emergencies
- Implement selected controls on the job site
- Follow up to confirm that controls are effective

**Education and Training**
- Provide program awareness training
- Train employers, managers, and supervisors on their roles in the program
- Train workers on their specific roles in the safety and health program

**Program Evaluation and Improvement**
- Monitor performance and progress
- Verify that the program is implemented and is operating
- Correct program shortcomings and identify opportunities to improve

**Communication and Coordination for Employees and Multiemployer Worksites**
- Establish effective communication
- Establish effective coordination
Management Leadership: Safety Policy Statement

Safety Policy Statement- Rennova Construction Company

Rennova Construction Policy: It is the policy of Rennova Construction to ensure a safe and healthful workplace for all its employees. Rennova Construction will employ an effective accident and illness prevention program that involves all its employees in the effort to eliminate workplace hazards.

Management: Management is accountable for preventing workplace incidents, injuries, and illnesses. Management will provide top-level support of safety program initiatives. Management will consider all employee suggestions for achieving a safer, healthier workplace. Management also will keep informed about workplace safety and health hazards, and it will regularly review the company safety and health program for any future improvement.

Supervision: Supervisors and Safety Engineers are responsible for supervising and training workers in safe work practices. Supervisors must enforce Rennova’s safety rules and work to eliminate hazardous conditions. Supervisors shall lead safety efforts by example.

Safety Committee: The safety committee includes employer and employee representatives who are responsible for recommending safety and health improvements in the workplace. The committee is also responsible for identifying hazards and unsafe work practices, removing obstacles to incident prevention, and helping Rennova evaluate the accident and illness prevention program.

Employees: All employees are expected and encouraged to participate in safety and health program activities including the following: reporting hazards, unsafe work practices and accidents immediately to their supervisors or a safety committee representative; wearing required personal protective equipment (PPE); and participating in and supporting safety committee activities.

SIGNED BY: ________________________________

SENIOR MANAGEMENT
Management Leadership: Cost Benefit Analysis

A Cost-Benefit Analysis (CBA) is recommended to Rennova's management to help them analyze the true cost of accidents prevention, and the benefits that come with accidents prevention.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of PPE.</td>
<td>Lower Worker Compensation costs, lower risk of injury.</td>
</tr>
<tr>
<td>Cost of training and certifications.</td>
<td>Higher level or worker motivation.</td>
</tr>
<tr>
<td>Cost to make workplace safe.</td>
<td>Lower Worker Compensation costs, Lower risk of injury.</td>
</tr>
<tr>
<td>Cost to maintain safety personnel on sight.</td>
<td>Lower risk of injury, increases efficiency.</td>
</tr>
</tbody>
</table>
Management Leadership: Recommendations to Follow

- Communicate the policy to all workers.
- Reinforce management commitment by considering safety and health in all business decisions.
- Set an example by following the same safety and health procedures.
- Conduct weekly toolbox talk on safety and health.
- Review safety and health indicators and open a "to do" list.
Worker Participation: Employee Safety Suggestion survey

EMPLOYEE SAFETY SUGGESTION

This form is for employees who wish to provide a safety suggestion or report an unsafe practice in the workplace.

Description of unsafe practice or condition:


Location:


Employee's suggestion for improving safety:


Has this matter been reported to a manager?

☐ Yes
☐ No

For administration use only:

Date of the unsafe practice: ________________

Date of correction or other completing action: ________________

Verified by: ____________________

Description of abatement action: ____________________
Worker Participation:

- Encourage workers by offering rewards
Worker Participation:
Worker Participation: Near-misses hazard report
Hazard Identification and Assessment:

**Goal:**

Rennova employers, managers, supervisors and subcontractors would be able to identify workplace hazards and evaluate risks; in order to prevent, reduce, and eliminate hazardous injuries.
Hazards most frequent causes.

- **Electrical Incidents**
- **Falls**
- **Struck-By**
- **Trenching and excavation.**
### ELECTRICAL

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all plugs insulated or dead front type?</td>
<td></td>
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<td></td>
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<tr>
<td>Are extensions cords in good condition?</td>
<td></td>
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<tr>
<td>Are all electrical receptables of grounded type?</td>
<td></td>
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<tr>
<td>Is electrical equipment approved for all locations (Incl. wet/damp locations)?</td>
<td></td>
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<tr>
<td>Are disconnecting switches and circuit breakers labeled?</td>
<td></td>
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</tr>
</tbody>
</table>

### FALLS

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>If ladder used, do you have the correct ladder for the job?</td>
<td></td>
<td></td>
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<tr>
<td>Is the ground level for safe footing?</td>
<td></td>
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</tr>
<tr>
<td>Do all workers have harnesses</td>
<td></td>
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<tr>
<td>Is the scaffold fully planked with quality planks?</td>
<td></td>
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<tr>
<td>Has the scaffold been inspected before use?</td>
<td></td>
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</tbody>
</table>

### STRUCK-BY

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all working areas and walkways level and free from trip hazard or obstruction of material?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all people near to working area wearing appropriate PPE? (For ex. Vest and helmet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are barriers or fences around the base to prevent people from being struck?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all holes and opening securely guard railed, clearly marked covers to prevent falls?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TRENCHING AND EXCAVATION

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Date Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavations, adjacent areas, and protective systems inspected before the start of work?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface encumbrances remove or supported?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkways and bridges over excavations four feet or more in depth are equipped with standard guardrails?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees stands away from vehicles while being loaded, or unloaded?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spoil pile is required to be at least 2 feet from the edge of the trench to prevent it from falling into trench?</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Hazard Identification and Assessment: OSHA FORM 300

- When is an injury or illness considered work-related?
- Which work-related injuries and illnesses should you record?
- What is medical treatment?
- How do you decide if the case involved restricted work?
- How do you count the number of days of restricted work activity or the number of days away from work?
- Classifying illnesses
Hazard Prevention and Control - Identify and Select Control Options.

Employers should select the controls that are the most feasible, effective and permanent.

Select controls according to a hierarchy that emphasizes engineering solutions (including elimination or substitution) first, followed by safe work practices, administrative controls, and finally PPE.

Use a combination of control options when no single method fully protects workers.

Source: NIOSH
Most Frequent Hazards
Recommendations for Control:

- **Electrical Hazards:** Rennova construction should only use equipment approved to meet OSHA standards. [29 CFR 1926.403(a)] and manufacturer's instruction [29 CFR 1926.403(b)(2)].

- **Falls:** Rennova construction should have guardrail systems, safety net systems, personal fall arrest systems and fall prevention systems.

- **Struck-By:** do not exceed a vehicle’s rated load or lift capacity, do not carry personnel unless there is a safety place to ride, use traffic signs, barricades, or flaggers when construction takes place and workers must be visible in all levels of light.

- **Excavation:** Ensure that there is a safe way to enter and exit, then ensure trenches have cave-in protection. Keeping materials away from the edge of the trench and, never enter a trench unless it has been thoroughly inspected by a competent person.
# Hazard Prevention and Control - Job Hazard Analysis

## Hazard Identification Assessment and Hazard Control

| Location: Medical Office for Dr. Chabra, 2600 N. Oregon St, El Paso, TX 79907 |
| Created by: Mireya Jimenez, Karlos Campos, Nelia Faz |
| Date: 03/15/2022 |

### Task: Excavating and taking off rubble

<table>
<thead>
<tr>
<th>Action</th>
<th>Hazard</th>
<th>Control</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Only one location used for entrance and exit</td>
<td>When unloading material to construction area, trucks usually block the only entrance and exit location, making it harder to get out in case of an emergency</td>
<td>Suggestion to subcontractor to create an alternative entrance, to increase the material flow process and decrease the chances of risks.</td>
<td></td>
</tr>
<tr>
<td>2. No adequate pedestrian entrance</td>
<td>Since everything is dirt road still, big bumps of dirt are distributed along the construction area</td>
<td>Get rid of unnecessary dirt dumps to clear the area and wear appropriate PPE (Steel toe shoes)</td>
<td></td>
</tr>
<tr>
<td>3. Worker not following PPE safety guidelines</td>
<td>Need of PPE even though the worker is inside heavy machinery equipment</td>
<td>Appropriate training</td>
<td></td>
</tr>
</tbody>
</table>
**Personal Protective and Life Saving Equipment**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Head protection:</strong> Are protective helmets (hard hats) worn at all times where there is a possible danger of head injury from impact, falling or flying objects, or electrical shock and burns? 1926.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hearing protection:</strong> Are ear protection devices provided and used wherever it is not feasible to reduce noise levels or where a deviation to exposures levels specified in Table D-2, Permissible noise exposure in 1926.52 exist? 1926.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eye and Face protection:</strong> Are employees provided with and use eye and face protection when machines or operations present potential eye or face injury from physical, chemical, or radiation agents? 1926.102 Note: See Table E-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Foot protection:</strong> Is the employer requiring the wearing of appropriate personal protective equipment by employees in all operations where there is an exposure or potential exposure to hazardous conditions such as falling or rolling objects, objects piercing the sole, or electrical hazards? 1926.28 (a), 1926.96, 1910.136(a) &amp; (b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Selection, Issuance, Use and Care of Respirators:</strong> Are employers provided with and use appropriate respiratory protective devices in emergencies or when controls required by Subpart D of this part either fail or are inadequate to prevent harmful exposure? 1910.134(a)(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working over or near Water:</strong> Are employees working over or near water provided with and use U.S. Coast Guard-approved life jacket or buoyant work vests and are ring buoys with at least 90 feet of line and at least one lifesaving skiff provided? 1926.106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Follow up to confirm that controls are effective by doing the following:

1. Conduct regular inspections to confirm that engineering controls are operating as designed.

2. Confirm that work practices, administrative controls, and PPE use policies are being followed.

3. Conduct routine preventive maintenance of equipment and controls to help prevent incidents due to equipment failure.
Education and Training:

- **OSHA 30-hour Construction Safety Course**
  - 100% online and accessible 24/7
  - Topics: general worksite safety, avoiding common hazards, understanding workers’ rights, employer responsibilities and more.
  - OSHA 30 card from the U.S. Department of Labor (DOL)

- **OSHA Outreach 10-hour Construction Course**
  - Designed for entry-level workers in construction, demolition, building development and other fields in the construction industry.
  - It covers safety and health hazards workers may face on construction work sites, placing special emphasis on hazard identification, avoidance, control and prevention.
  - Covers specific OSHA regulations and requirements as they apply to the Construction Industry.

- **OSHA 3071**
  - This booklet is for employers, foremen, and supervisors
  - Recognize workplace hazards so they can report them to managers.
  - It explains what a job hazard analysis is and offers guidelines to help you conduct your own step-by-step analysis.
Education and Training:

OSHA's Hazard Identification training tool
Program Evaluation and Improvement: Monitor Performance and Progress

• Tracking leading indicators:
  • Level of worker participation in program activities.
  • Number of employee safety suggestions.
  • Number of hazards, near misses and first aid cases reported.
  • Amount of time taken to respond reports.
  • Number of workers who have completed required safety and health training.
  • Worker opinion about program effectiveness obtained safety opinion survey.

How do we do this?
Analyse tracking leading indicators once every three months.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OSHA Form 300:</strong> Are occupational deaths, injuries and illnesses recorded and reported as required? (Article I, Subarticle III, Section 302)</td>
<td></td>
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</tr>
<tr>
<td><strong>OSHA Form 300A:</strong> Is the annual summary portion of the OSHA 300 completed by February 1? Is the summary posted from February 1 through April 30? (Article I, Subarticle III, Section 305)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OSHA Form 301</strong> or other records with same information as OSHA Form 301: Is a supplementary individual record of each occupational injury and illness completed within 7 calendar days after a case occurs? (Article I, Subarticle III, Section 304)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the S.C. Department of Labor, Licensing and Regulation (LLR) poster SCLD-5-SH “Safety and Health Protection on the Job” posted in a conspicuous place? (Article I, Subarticle V, Section 502A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is SC OSHA notified within eight hours of any employment fatality or accident which results in in-patient hospitalization of three or more employees? (Article I, Subarticle III, Section 308)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Effective communication and coordination among such employers means that before coming on site they must be aware of:

• Types of hazards that may be present on site.
• Procedure or measures needed to avoid or control exposure to hazards
• How to contact the host employer to report an injury.
• What to do in case of an emergency.
How to construct an effective communication in the workplace?

- Be an active listener
- Easily Accessible Documents
- Meet Face to Face
- Follow up: periodically inspections
- Implement an Open Door Policy
- Knowledge and awareness of Hazard Identification
- OSHA FORM 300
Communication and Coordination for Employers on Multiemployer Worksites: Coordination

“Host employers, contractors, and staffing agencies should identify and work out any concerns and conflicts that could impact safety or health.”

Host employers:
• Contracts and bid documents.
• Identify issues and include procedures on how to resolve any conflict before work starts.

Host employers coordinate with contractors and staffing agencies:
• Ensure that staffing agency workers are adequately trained and equipped.
• All workers at the site should have the same protection and consistent safety information.

Host employers and staffing agencies:
• Work together to deal with unexpected staffing needs.
• Availability to deal with “day-to-day” coordination issues.
Recommendations and Conclusion:

- Periodically conduct inspections to prove that engineering controls are being properly followed.
- Be constantly checking for updates to OSHA Regulations.
- Having an efficient communication among employees and supervisors of the company is crucially important.
- Efficient training on how to identify hazards, makes a large impact on the elimination, reduction, and prevention of incidents and injuries.
- All employees, supervisor, subcontractors must be fully educated and trained of the "Rennova: Safety program"