



**HEAVY EQUIPMENT EXCLUSION ZONE
MANAGEMENT PROGRAM**

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TABLE OF CONTENTS

1. PURPOSE.....	1
2. SCOPE AND APPLICABILITY.....	1
3. PROCEDURES.....	1
3.1 Exceptions.....	2
4. TRAINING.....	3
5. STOP WORK AUTHORITY.....	3

1. PURPOSE

The Heavy Equipment Exclusion Zone Management Program aims to establish the minimum clearance distances that must be maintained between workers and heavy equipment while the equipment is in operation (i.e., engaged or in motion). The intent is to have no personnel or equipment entering the Heavy Equipment Exclusion Zone (HEEZ) while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux") employees and their subcontractors performing fieldwork and are potentially exposed to heavy equipment. Heavy equipment includes, but is not necessarily limited to, excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this program, exclusion zones must be established and maintained during activities involving the movement/operation of heavy equipment. The HEEZ requirements apply to all personnel on the site but are primarily focused on personnel required to operate and/or work near heavy equipment. The HEEZ is in effect when heavy equipment is moving or engaged (e.g., movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:

- A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
- Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment, this may mean an exclusion zone distance larger than 20 feet);
- Greater than the fall zone of equipment and their contents (i.e., the area beneath or around equipment where tools, materials, or components may fall or be ejected during operation or failure.) ; and
- Greater than the tip-over distance of the heavy equipment.

The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Planning Process and incorporated in the pre-job tailgate meeting with the subcontractor(s), including any updates to our Job Safety Analysis (JSA).

2. The spotter (or another individual authorized by Roux) is responsible for enforcing the Exclusion Zone and not conducting any other task.

- The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator.
- The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone.

- The operator must stop work if the spotter is not within their line of sight. If a spotter must be within the Exclusion Zone, they must be in a designated area outside the swing/tip radius, fall zone, line of fire of lifted loads, etc.
 - If multiple pieces of equipment are being used, one spotter may be adequate so long as there is a clear line of sight and the spotter can control the zone(s). Radios would be required since hand signals would not be adequate if two pieces of equipment are in operation at the same time in the Exclusion Zone.
3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment.
- Once the equipment is no longer moving (e.g., movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is STOPPED, etc.), the operator must bring the boom/arm to the ground ensuring a “Zero Energy State” and DISENGAGE THE CONTROLS and STOP and SIGNAL BY “SHOWING THEIR HANDS”.
 - This signal will indicate that it is safe for the person to enter the limits of the HEEZ to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel exited the Exclusion Zone's boundaries and the designated Spotter has signaled by “SHOWING THEIR HANDS” to the Equipment Operator that it is safe to resume operations.
4. When entering the limits of the Exclusion Zone, personnel must, at a minimum:
- Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
 - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
 - Identify a travel path free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fences or solid poles between the cones, barrels, tape, or other measures. For work in rights-of-way, rigid barriers, such as Jersey barriers or temporary chain link fences, should be used. For certain types of widespread or moving/mobile equipment operations, such delineation may not be practicable around equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure the security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above, as well as any additional requirements that may be required on a client or site-specific basis. Logistics involving heavy equipment should be understood and discussed prior to the field event during the job planning phase.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities, or construction tasks. However, any such activity must be pre-planned, emphasizing limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in applicable JSAs and other project-specific plans (i.e., Job Planning Forms, critical lift plans, etc.), and approved by the Roux Project Principal (PP), Office Health and Safety Manager (OHSM) and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects include client-specific or site-specific requirements that may necessitate additional training or controls. Regardless of project-specific requirements, all Roux employees receive mandatory initial training and annual refresher training on the Heavy Equipment Exclusion Zone policy to ensure consistent understanding and implementation across all operations.

5. STOP WORK AUTHORITY

All Roux employees and their subcontractors have stop-work authority. Upon hire, all Roux employees are provided with initial safety orientation, including the implementation of stop work authority. All Roux employees and subcontractors are encouraged to stop work whenever any task or operation presents an unreasonable risk or employees are unsure how to carry out work safely. Upon observing any questionable safety-related behavior or condition, they are to stop work immediately and discuss the behavior or condition with the individual(s) involved.

Questionable safety-related behaviors or unsafe conditions include, but are not limited to:

- Failure to establish an Exclusion Zone that meets minimum distance requirements
- Assigning a spotter who is simultaneously performing other tasks (e.g., labor, inspection, surveying)
- Failure of the spotter to signal stop work when a person, vehicle, or object approaches or breaches the Exclusion Zone
- Entering the Exclusion Zone without the spotter first signaling the operator to stop work
- Allowing unauthorized personnel to enter the Exclusion Zone
- Entering the Exclusion Zone before the equipment has reached a confirmed zero-energy state
- Failure to adequately delineate the Exclusion Zone using cones, fencing, barriers, or other approved means when practicable

Upon stopping work, the following actions will be taken:

- Notify the affected parties to include the Project Manager (PM) and Site Health and Safety Officer (SHSO);
- Work to correct the situation or not proceed until the situation is corrected by the PM or SHSO;
- Resume work only when told to proceed by either the PM or SHSO;
- The SHSO will document the Stop-Work intervention in the field logbook;
- Stop-Work interventions will be reported to the PP for review to ensure the interventions are closed; and
- The PP will share learnings from the interventions, as appropriate, throughout the firm, to demonstrate the importance of the Stop-Work interventions.

Please note: Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.