



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY
& RISK MANAGEMENT

UNIVERSITY BUILDING ROOF SAFETY PROCEDURES

I. PURPOSE

The purpose of this procedure is to establish standard protocols to control access and maintain safety standards, security, and integrity of all SHSU building roofs.

Reference: CFR 1910.28 – OSHA General Industry Standards
CFR 1926.500 - OSHA Construction Industry Standards
NFPA 3000 – Standard for an Active Shooter/Hostile Event Response Program (ASHER)

II. SCOPE

This procedure shall apply to all SHSU employees, students, contractors and sub-contractors. Its primary focus is to address concerns regarding roof access to all University buildings to ensure safe working conditions are present, campus security is maintained and roof membranes are protected against damage.

III. DEFINITIONS

1. Anchorage: A secure point of attachment for lifelines, lanyards or other approved personal fall protection device.
2. Authorized Personnel: Maintenance, I.T. Technicians and/or contractual employees required to perform operational checks and maintenance on the roof systems or equipment.
3. Controlled Access Zone: An area in which certain work may be performed without the use of guardrail systems or personal fall arrest systems and the access to the zone is controlled.
4. Fall Protection: All measures and devices used to prevent a fall from occurring.
5. Guardrail system: A barrier to prevent individuals from falling from the roof.
6. Infeasible: It is impossible to perform work using a conventional fall protection system (i.e., guardrail system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.
7. Leading Edge: The edge of a roof that is unprotected by a guardrail or parapet.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY & RISK MANAGEMENT

8. Lifeline: A flexible line connecting to an anchorage at one end to hang vertically, or for connections to anchorages at both ends to stretch horizontally, and serves as a means for connection other components of a personal fall arrest system.
9. Long-term Work: Non-routine roof work that is greater than three days in duration.
10. Parapet: A low protective wall along the edge of a roof.
11. Personal Fall Arrest System: A system used to arrest an employee in a fall from a higher level. It consists of an anchorage, connectors, body harness and a lanyard or lifeline.
12. Roof: The exterior surface on the top of a building.
13. Roof Access: Going onto a roof by any means.
14. Roof Membrane: Type of roofing system for buildings with flat or nearly flat roofs.
15. Safety-Monitoring System: A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.
16. Short-term Work: Routine work that is 8 hours or less per day for not more than 3 consecutive days.
17. Walk Tread/Path: Designated walk pathway across a roof membrane, normally identified as a thicker or different roof covering.
18. Warning Line System: System of ropes, wires or chains with supporting stanchions set to warn individuals of the fall hazard from the unprotected leading edge of roofs.

IV. BUILDING ROOF CATEGORIES

SHSU buildings have been placed into two roof access categories, dependent on the type of roof and/or the type of work performed in the building.

1. Restricted Access.
 - a. Chemical, Biological and Medical buildings where the exhaust from laboratory fume hoods may present a health hazard to employees or contractors.
 - b. Buildings with flat roofs where the leading edge is not protected by a guardrail or parapet.
2. Limited Access.
 - a. Buildings where the leading edge of the roof is protected by a guardrail or parapet.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY & RISK MANAGEMENT

V. PROCEDURES

Compliance with these procedures is vital to the security and safety of campus personnel and building roof membrane integrity.

1. Under safety classifications, building roofs are considered hazardous areas with the potential to cause injury for individuals not properly protected and/or lacking knowledge of safe access procedures.
2. As roofs may be used as a vantage point for voyeurism, all personnel must ensure their actions are not only proper, but cannot be interpreted as anything but proper.

A. GENERAL PROCEDURES (Applicable to all roofs)

1. Access to campus building roofs is restricted to authorized personnel only.
 - a. Exceptions:
 - i. The SHSU ROTC program is allowed access to the South side of the Farrington roof for rappelling training. This area of the roof is protected and a special structure is provided for securing ropes and fall protection.
 - ii. The North and South 2nd floor roof areas of Bowers Stadium Press Box. These roofs may be accessed for media coverage of athletic field events. They are protected with additional roof membranes and appropriate parapets for fall protection.
2. Un-authorized individuals requesting access to campus building roofs shall coordinate their activities through the appropriate Building Liaison and maintenance department staff; and shall be escorted by an appropriate maintenance staff member.
3. Access doors and hatches shall be locked at all times, except while work is being performed.
4. Roofs shall be kept clear of discarded parts, trash, materials, etc.
5. Unsafe conditions, practices, or equipment shall be reported to the appropriate maintenance department (i.e., Facilities or Residence Life Maintenance).
6. Personnel should stay on walkway treads/paths where provided.
7. While using tools, utilize a protective layer of plywood or other protective material to protect the roof membrane.
8. While walking on roofs, avoid stepping on roof blisters or other deficiencies.
9. Avoid pushing, pulling or dragging equipment or materials across the roof membrane.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY & RISK MANAGEMENT

10. Fall Protection shall be utilized whenever work is being performed within 6 feet of the unprotected leading edge of roofs.
11. Lifting or lowering material from the edge of the roof is prohibited unless:
 - a. The work is performed by maintenance or contractual personnel, and,
 - b.. Proper lifting equipment is utilized, and,
 - c. Personal fall protection measures are in-place, and,
 - d. Ground safety measures are in-place.
12. Dropping or throwing objects from roofs is strictly prohibited; unless the material is placed in a designated material chute, emptying directly into a material dumpster

B. RESTRICTED ACCESS ROOF PROCEDURES

These building roofs are restricted because of the potential for the presence of diluted chemical emissions from the exhaust stacks and/or the building has a roof without a parapet or guardrail at the leading edge.

1. Buildings with exhaust stacks where the presence of diluted chemical emission may be present: Chemistry and Forensic Science, Lee/Drain, Life Sciences, Farrington, New Art Complex and Texas Research Institute for Environmental Studies (TRIES).
 - a. Prior to accessing these roofs to perform short-term work, individuals shall:
 - i. Contact the appropriate responsible lab manager(s) for assurance no chemical or biological instruction or research is being conducted or scheduled that could possibly exhaust harmful emissions from the fume hood exhaust stacks.
 - ii. Where maintenance work is being conducted on or within a 25-foot radius of the exhaust fume hood stacks, signage shall be posted on the exhaust hoods stating “DO NOT USE – WORKERS ON ROOF”.
 - iii. Upon completion of work, notify the appropriate lab manger(s) that work has been completed and remove signage from fume hoods.
 - b. Prior to commencing long term work on these roofs, SHSU Facilities Management shall be contacted and the work coordinated with the appropriate Building Liaison and lab managers to ensure all instructional and research activities where the release of potentially hazardous or toxic gases from the fume hood exhaust stacks are curtailed.
 - i. All fume hoods in the affected building shall be tagged with signage: “DO NOT USE, WORKERS ON ROOF”.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY & RISK MANAGEMENT

- ii. Upon completion of work, the appropriate Building Liaison shall be contacted and all signage removed from the fume hoods.
2. Buildings without parapets or guardrails present fall hazard exposures. Individuals performing work on these roofs shall fully comply with all required safety instructions and utilize the appropriate fall protection.
- a. Do not work on roof alone – always work in pairs. To ensure no approach or work is conducted within 6 feet of the leading edge, one employee should be designated as a “Safety Monitor”.
 - b. For long-term work, where the use of a Personal Fall Arrest System is impractical, a warning-line system shall be utilized. The warning-line system shall be erected on all sides of the roofing work area, and shall consist of ropes, wires, or chains and supporting stanchions and erected as follows:
 - i. If mechanical equipment is used for the work, the warning line must be erected no less than 6 feet from the edge parallel to the direction of the mechanical equipment’s operation and no less than 10 feet from the roof edge perpendicular to the direction of the mechanical equipment’s operation.
 - ii. If mechanical equipment is not being used, the warning line must be erected no less than 6 feet from the roof edge.
 - iii. Points of access, material-handling areas, storage areas and hoisting must be connected to the work area by an access path formed by two warning lines. When these areas are not in use, a warning line must be placed across the path at the point where the path intersects the warning line erected around the work area, or the path must be offset in a manner that a person cannot walk directly into the work area.
 - iv. All warning lines must be flagged with high-visibility material at no more than 6-foot intervals.
 - v. Warning lines must be rigged and supported so the lowest point (including sag) is no less than 34 inches from the walking/working surface and the highest point is no more than 39 inches from the walking/working surface.
 - vi. After rigging with warning lines, stanchions shall be capable of resisting (without tipping over) a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the working surface perpendicular to the warning line and in the direction of the roof edge.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY & RISK MANAGEMENT

- vii. The rope, wire or chain serving as the warning line must have a minimum tensile strength of 500 pounds and, after being attached to the stanchions, must support (without) breaking the load applied to the stanchions.
- viii. Warning lines must be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before a stanchion tips over.

C. GUIDANCE

Questions regarding roof types, access, fall protection or working conditions should be forwarded to the Environmental Health, Safety and Risk Management Department at: 936-294-1921 or email: safety@shsu.edu.



SAM HOUSTON STATE UNIVERSITY

ENVIRONMENTAL HEALTH, SAFETY
& RISK MANAGEMENT

VI. SIGNAGE

To notify individuals of potential safety exposures on roofs, it is recommended signage be posted on each roof access door, hatch, or ladder entry point, as follows:

1. Restricted Access Roofs

DANGER

This roof is designated as
“Restricted Roof Access”
Authorized Personnel Only

Harmful emissions from the building exhaust fume vents may be present. Do not approach within a 25 foot radius of any exhaust vent, without first verifying with the responsible building/lab manager that potentially harmful gasses are not being vented through the exhaust system.

DANGER

This roof is designated as
“Restricted Roof Access”
Authorized Personnel Only

The edges of the roof are not protected by a guardrail or parapet. Do not approach within 6 feet of the roof edges without Personal Fall Arrest Devices attached to the user and anchored appropriately to the building. Do not access the roof alone.

2. Limited Access Roofs

WARNING

This roof is designated as
“Limited Roof Access”
Authorized Personnel Only