Messiah University
Working on Roofs
October 2026

DEFINITIONS

Flat or Low Slope Roof – Slope of less than or equal to 4 inches of vertical rise for every 12 inches of horizontal length (4:12)

Infrequent and temporary – Only on occasion, when needed, on an occasional basis, or at sporadic or irregular intervals. (Ex., equipment breakdown, annual maintenance or servicing of equipment, monthly or quarterly replacement of HVAC filters.) **All work conducted on rooftops by Messiah University employees is infrequent and temporary.**

Designated Area – If the work conducted is infrequent and temporary and occurs on a flat or low-sloped roof, a designated area may be identified within which the work may be conducted without the use of fall protection. See "General Safety Guidelines" in this procedure for additional information and requirements on designated areas.

Work from heights – Any work that occurs at a height of 4 feet or greater. (NOTE: In the construction industry, OSHA regulations stipulate 6 feet or greater but the University falls under the General Industry regulations.)

RESPONSIBILITY

Supervisors are responsible for:

- ensuring employees have training on this program; **Lancaster Safety** will do this training each January.
- ensuring employees have the proper tools and personal protective equipment for working on elevated work surfaces;
- notifying the Director of Facility Services of potential hazards requiring assessments or improvements to the program.

Employees are responsible for:

- complying with all aspects of this program;
- reporting incidents related to fall protection or working from heights to your supervisor immediately;
- wearing all required personal protective equipment;
- inspecting the equipment in accordance with manufacturer's guidelines and instructions **prior to each use**;
- using ladders in compliance with the University Safety Manual, Section # 13.

FALL PROTECTION/PERSONAL FALL ARREST SYSTEM
Equipment available for use:

- Lanyards
- Travel Restraint
- Body Harness
- Life Lines/Self-retracting Life Lines
- D-Rings & Snaphooks
- Anchorage

A Personal Fall Arrest System is comprised of three (3) key components – anchorage/anchorage connector; body wear; and connecting device.

Anchorage: Commonly referred to as a tie-off point (Ex: I-beam, rebar, scaffolding, lifeline, etc.)

Anchorage Connector: Used to join the connecting device to the anchorage (Ex: cross-arm strap, beam anchor, D-bolt, hook anchor, etc.)

- Anchorages must be capable of supporting 5,000 pounds (22kN) of force per worker.
- Must be high enough for a worker to avoid contact with a lower level should a fall occur.
- The anchorage connector should be positioned to avoid a “swing fall.”

Body Wear: The personal protective equipment worn by the worker (Ex: full-body harness)

- Only form of body wear acceptable for fall arrest is the full-body harness.
- Should be selected based on work to be performed and the work environment.
- Side and front D-rings are for positioning only.

Connecting Device: The critical link which joins the body wear to the anchorage/anchorage connector (Ex: shock-absorbing lanyard, fall limiter, self-retracting lifeline, rope grab, etc.) While a lot of focus has been given to anchorage connectors and body wear (full-body harnesses), when discussing fall protection, the connecting device (a shock-absorbing lanyard or self-retracting lifeline) between these two components actually bears the greatest fall forces during a fall.

- Potential fall distance must be calculated to determine type of connecting device to be used – typically, under 18-1/2 ft. (5.6m), always use a self-retracting lifeline/fall limiter; over 18-1/2 ft. (5.6m), use a shock-absorbing lanyard or self-retracting lifeline/fall limiter.
- Should also be selected based on work to be performed and the work environment.
- Shock-absorbing lanyards can expand up to 3-1/2 ft. (1.1m) when arresting a fall; attach lanyards to the harness back D-ring only; never tie a knot in any web lanyard – it reduces the strength by 50%.

- **ALL EQUIPMENT SHOULD BE INSPECTED BEFORE EACH USE.**

HARNESS AND BODY BELT INSPECTION -

Webbing - Grasp the webbing with your hands 6 inches (152mm) to 8 inches (203mm) apart. Bend the webbing in an inverted “U” as shown. The surface tension resulting makes damaged fibers or cuts easier to detect. Follow this procedure the entire length of the webbing, inspecting both sides of each strap. Look for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage.

D-Rings/Back Pads - Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. Inspect for any unusual wear, frayed or cut fibers, or broken stitching of the D-ring attachments. Pads should also be inspected for cracks, excessive wear, or other signs of damage.

Buckles - Inspect for any unusual wear, frayed or cut fibers, or broken stitching of the buckle attachments.

Tongue Buckles/Grommets - Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges. Inspect for loose, distorted or broken grommets. Webbing should not have additional punched holes.

Friction and Mating Buckles - Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points at the center bar.

Quick Connect Buckles - Inspect the buckle for distortion. The outer bars and center bars must be straight. Make sure dual-tab release mechanism is free of debris and engages properly.

Harness Fall Arrest Indicators - Inspect fall arrest indicators (located on the back D-ring pad) for signs of activation. Remove from service if broken or stretched between any of the four (4) pairs of arrows.

LANYARD INSPECTION

Hardware – Snaps - Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper.

Keeper locks must prevent the keeper from opening when the keeper closes.

Hardware – Thimbles - The thimble must be firmly seated in the eye of the splice, and the splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.

Wire Rope Lanyard - Always wear gloves when inspecting a wire rope lanyard; broken strands can cause injury. While rotating the wire rope lanyard, watch for cuts, frayed areas or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyard.

Web Lanyard - While bending webbing over a pipe or mandrel, observe each side of the webbed lanyard. This will reveal any cuts, snags or breaks. Swelling, discoloration, cracks and charring are obvious signs of chemical or heat damage. Observe closely for any breaks in stitching. Inspect lanyard warning flag for signs of activation. Titan tubular lanyards must be measured to determine activation.

Rope Lanyard - Rotate the rope lanyard while inspecting from end-to-end for any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

Shock Absorber Pack - The outer portion of the pack should be examined for burn holes and tears. Stitching on areas where the pack is sewn to D-rings, belts or lanyards should be examined for loose strands, rips, deterioration or other signs of activation.

SELF RETRACTING LIFELINE INSPECTION

Housing - Before every use, inspect the unit’s housing for loose fasteners and bent, cracked, distorted, worn, malfunctioning or damaged parts.

Lifeline - Test the lifeline retraction and tension by pulling out several feet of the lifeline and allow it to retract back into the unit. Always maintain a light tension on the lifeline as it retracts. The lifeline should pull out freely and retract all the way back into the unit. Do not use the unit if the lifeline does not retract. The lifeline must be checked regularly for signs of damage. Inspect for cuts, burns, corrosion, kinks, frays or worn areas. Inspect any sewing (web lifelines) for loose, broken or damaged stitching.

Braking Mechanism - The braking mechanism can be tested by grasping the lifeline above the load indicator and applying a sharp steady pull downward which will engage the brakes. There should be no slippage of the lifeline while the brakes are engaged. Once tension is released, the brakes will disengage and the unit will return to the retractable mode. Do not use the unit if the brakes do not engage. Check the hardware as directed under Lanyard Inspection. The snap hook load indicator is located in the swivel of the snap hook. The swivel eye will elongate and expose a red area when subjected to fall arresting forces. Do not use the unit if the load impact indicator has been activated.
Snap Hook - Check the snap hook to be sure that it operates freely, locks, and the swivel operates smoothly. Inspect the snap hook for any signs of damage to the keepers and any bent, cracked, or distorted components.
Anchorage Connection - Rotate the rope lanyard while inspecting from end-to-end for any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

- Frayed, torn, cut webbing/straps
- Rusted, bent, D-rings that won't lock
- Broken plastic

If a fall occurs, all components of the fall arrest system should be removed from service immediately.

TRAINING
Employees must be trained in this procedure and must complete the online training which includes how to use and inspect Fall Protection. This must be done prior to new employees beginning work on rooftops. It must be repeated if an incident occurs indicating additional training is needed, or if a new type of fall protection is introduced. A review of this procedure should be done annually by all employees who are involved in rooftop work. It is the responsibility of maintenance leadership to ensure training is provided. **Lancaster Safety** will do this training each January. The online training system will automatically create a documentation record and each January Training must be documented and the documentation retained by leadership.

GENERAL SAFETY GUIDELINES FOR WORKING ON ROOFS

For Flat or low-sloped roofs

- Greater than 15 feet from roof edge: Warning lines have been added to **flat or low sloped roofs** on campus at a distance of 15 feet from the roofs' edges. Work may be conducted within these **designated areas without the use of fall protection**.
- **6 – 15 feet from roof edge:** If work is performed less than 15 feet but more than 6 feet from the edge of a flat or low sloped roof, **and** work is **infrequent and temporary**, a designated area may be established with a warning **barricade** and work may be conducted without the use of fall protection. However, the warning barricade must meet the following conditions:
    - Consist of stanchion and ropes, wires or chains erected on all sides of open edged work areas
    - The lowest point of the barricade (with sag) must be at a height of 34 – 39 inches above the walking/working surface
    - Flagged at no more than 6 foot intervals with high visibility material

- **6 feet or less from roof edge:** If work is conducted less than 6 feet from the edge of a flat or low sloped roof, a guardrail system, travel restraint system or personal fall arrest system **must be used**. No work can be performed without one of these safety systems if 6 feet or less from edge of roof.

For sloped roofs (slopes greater than 4:12)
Fall protection must be used on all roofs with a slope greater than 4:12.

For ALL roofs

- Before accessing any roof where personal fall protection is required (ex., lanyards, safety harness, etc.), all equipment must be inspected. If it is not in good condition, it must be taken out of service immediately and replacements obtained to complete the work.
- Skylights exist on the roofs of several campus buildings and are unguarded. These roofs are areas which should not be accessed for any maintenance work by Messiah University employees.
- If any access point, when opened, creates a fall exposure then it must either be guarded or the hatch closed as soon as the employee accesses the roof.

SAFETY GUIDELINES FOR SPECIFIC BUILDINGS
Aerial photographs are included at the end of this procedure to indicate additional information such as location of equipment, tie offs, etc. Pictures were taken prior to the addition of the Warning Lines, recent guardrail installations, etc. and photographs were not available for the CHP Plant.

CHP Plant:
Access roof via portable ladder on the east side (low side) of the roof. Look for overhead obstructions and raise the ladder. The tip of the ladder should extend at least three feet higher than the roof surface. Secure ladder.
Wear body harness with 6 ft lanyard. At top of ladder, hook into existing fall protection feature and step onto roof. Follow fall protection line to first exhaust fan where another perpendicular fall protection line is located. Disconnect from downslope line and into the line that crosses from exhaust fan to exhaust fan.

Eisenhower Campus Center:
If required to do work within 6 feet of edge, a body harness with longer retractable lanyard must be used. There are several lift brackets on air handlers that can be utilized for anchorage points.
Pool Paks – Future plans include installation of a ladder and catwalk.

Frey Academic Building:
The access point to the roof is a fall exposure. Railing is in place around this access point.
Cooling Tower – To access the cooling tower, the ladder is within 15 feet of the edge of the roof. A designated safety area no closer than 6 feet to the edge may be used for ladder access.

North Complex
All work should be done within the confines of the guardrail system. Any work, should it be necessary, outside of the guardrail system would require a personal fall arrest system.

South Complex
Employees working within guardrail system do not need any additional fall protection.
To work outside of the guardrail system, a body harness with two lanyards must be used. At end of guardrail system, hook into existing fall protection feature and step onto roof. Follow fall protection line to first exhaust fan where another fall protection line will be located. Connect unused lanyard to fall protection line. Disconnect first lanyard from first line and move across roof to next unit.
There are two exhaust fans on the South Complex that are within 15 feet of the edge. **Because any work to these units would be infrequent and temporary**, employees can walk across the roof (at no time closer than 15 feet to the edge) to a tie-off point where they are to secure to an anchorage prior to approaching these fans. A designated safety area may also be established around the fans provided it is farther than 6 feet from the edge – no personal fall arrest system would be needed in this area.

NOTE: Messiah University employees do not work on the roofs of the buildings listed below. Any work on these roofs should be performed by contractors:

Bowmansdale Building
Climenhaga Homestead
Fry Residence
Greenbriar
Kelly Residence
Lenhert
Mellinger Residence
Naugle Residence
Orchard Hill
Smith Residence
Witmer Residence
Satellite Housing
Sawyer Pavilion

Scott Zeigler, Form Creator	Electronically signed by Scott Zeigler on 10/26/2026 11:14:57 AM
Director of Facilities	Electronically signed by Brian Miller on 10/27/2026 10:03:03 AM
Facility Manager	Electronically signed by jarrod sites on 10/26/2026 11:23:52 AM
Projects Manager	Electronically signed by Russ Ehrich on 10/26/2026 11:47:55 AM



Frey Academic



Boyer Hall

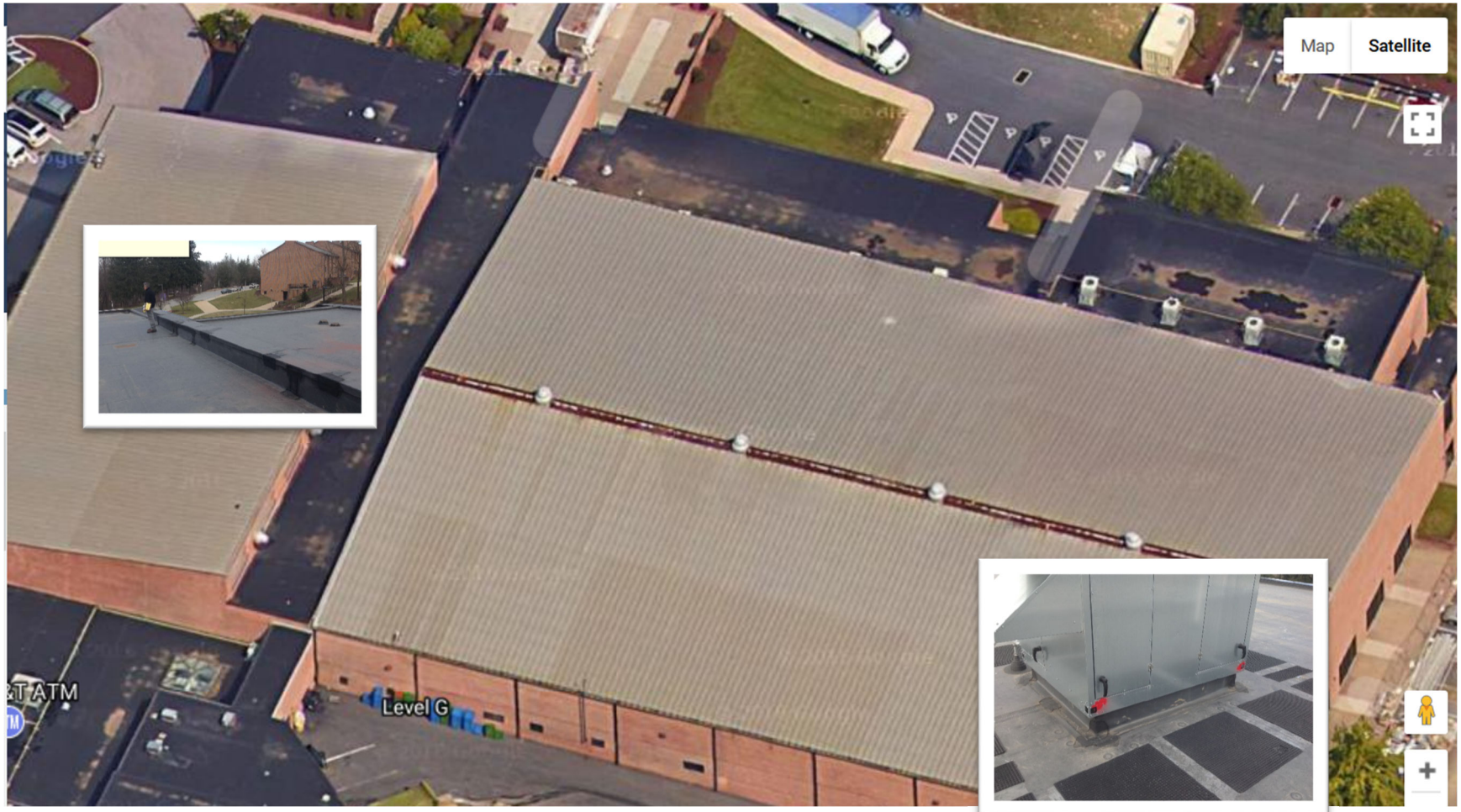

College Ave
College Ave
College Ave
Roof Access Hatch,
Railing Present

Old Main



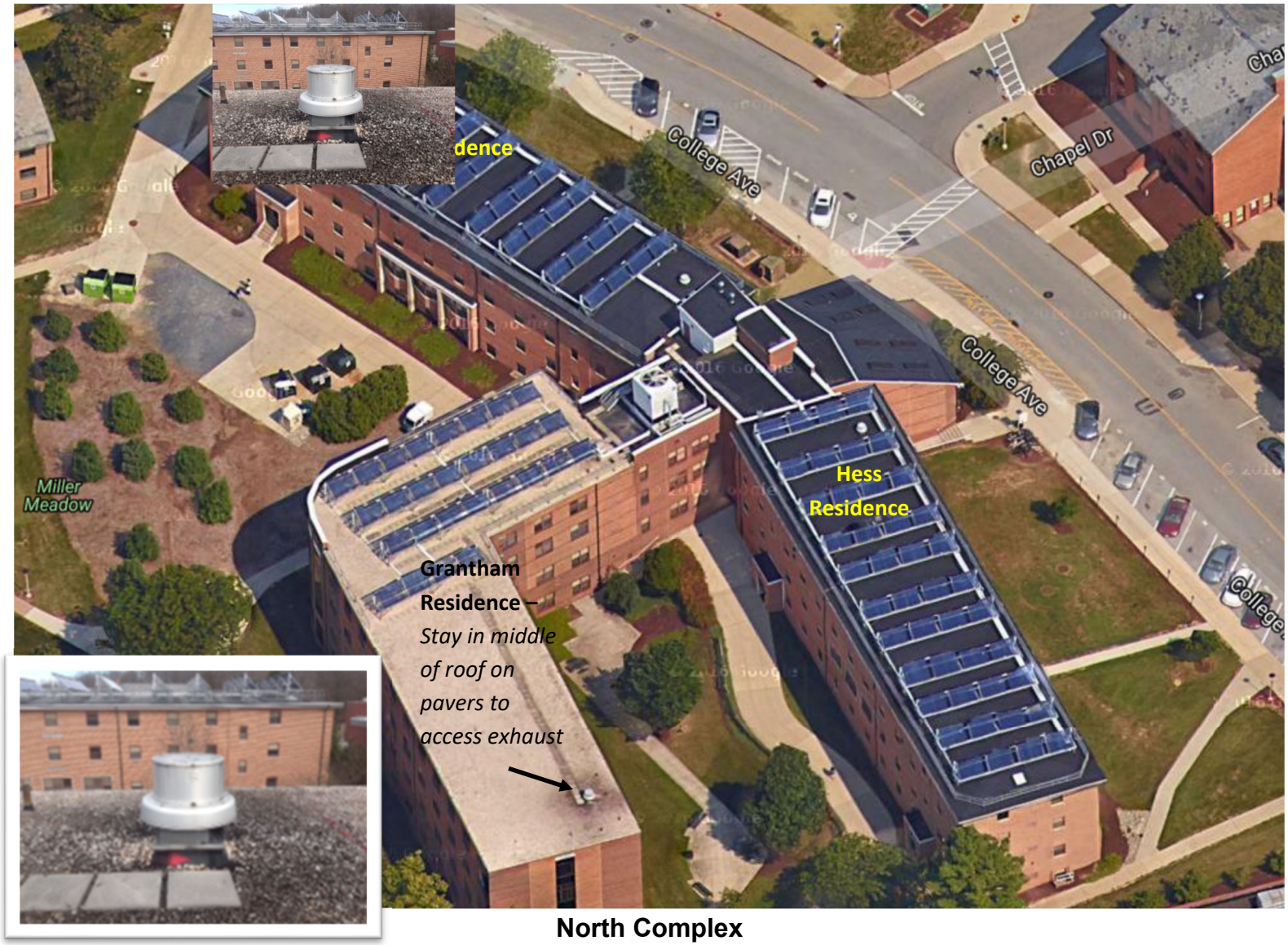
Eisenhower Campus Center

Tie off can be made to air handling unit lift brackets.



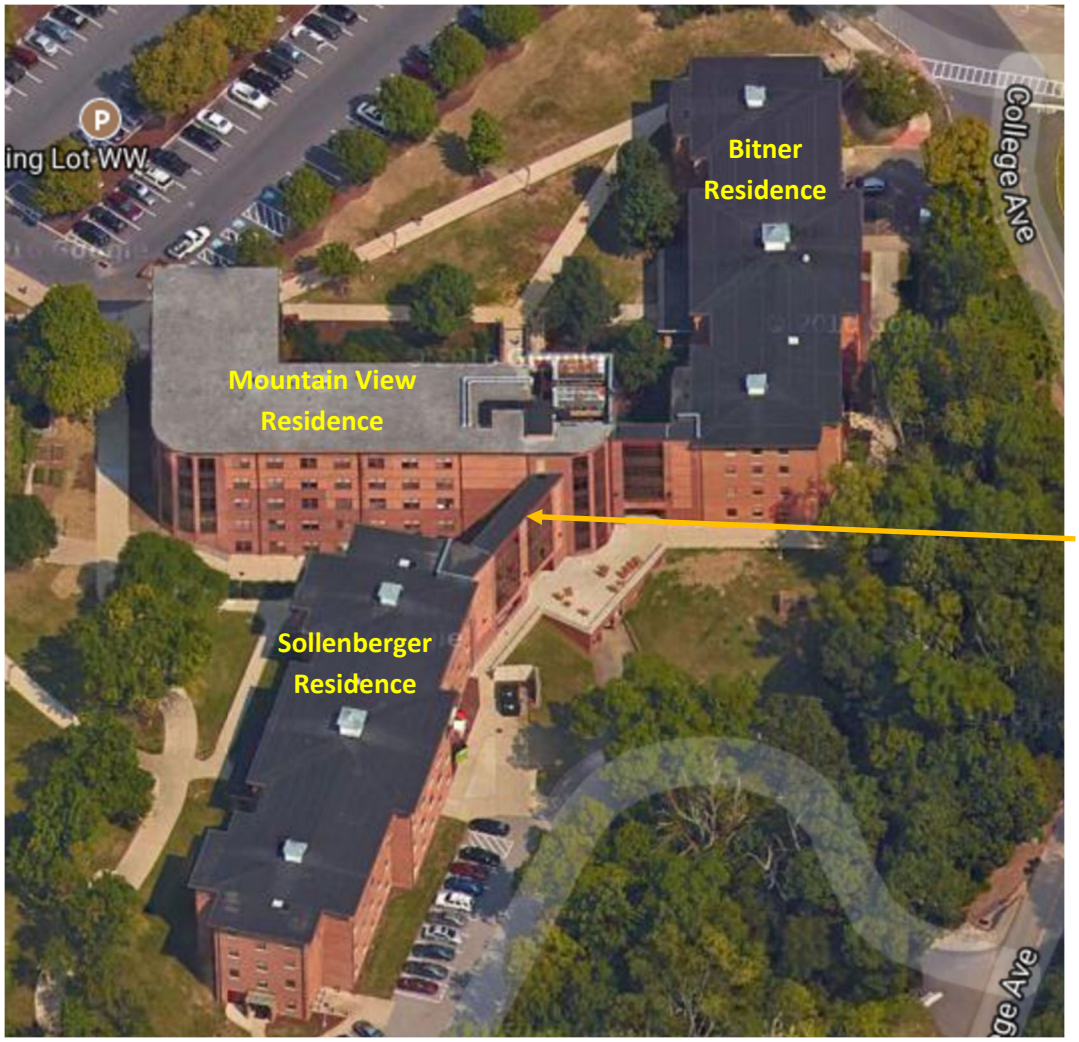
Sollenberger Sports Center

When working on ERV-1 and roof drains within six feet of roof edge, tie off to pool pacs. Tie off also located at ERV-1.



North Complex

Railing installed around Hess, Miller and parts of Grantham.



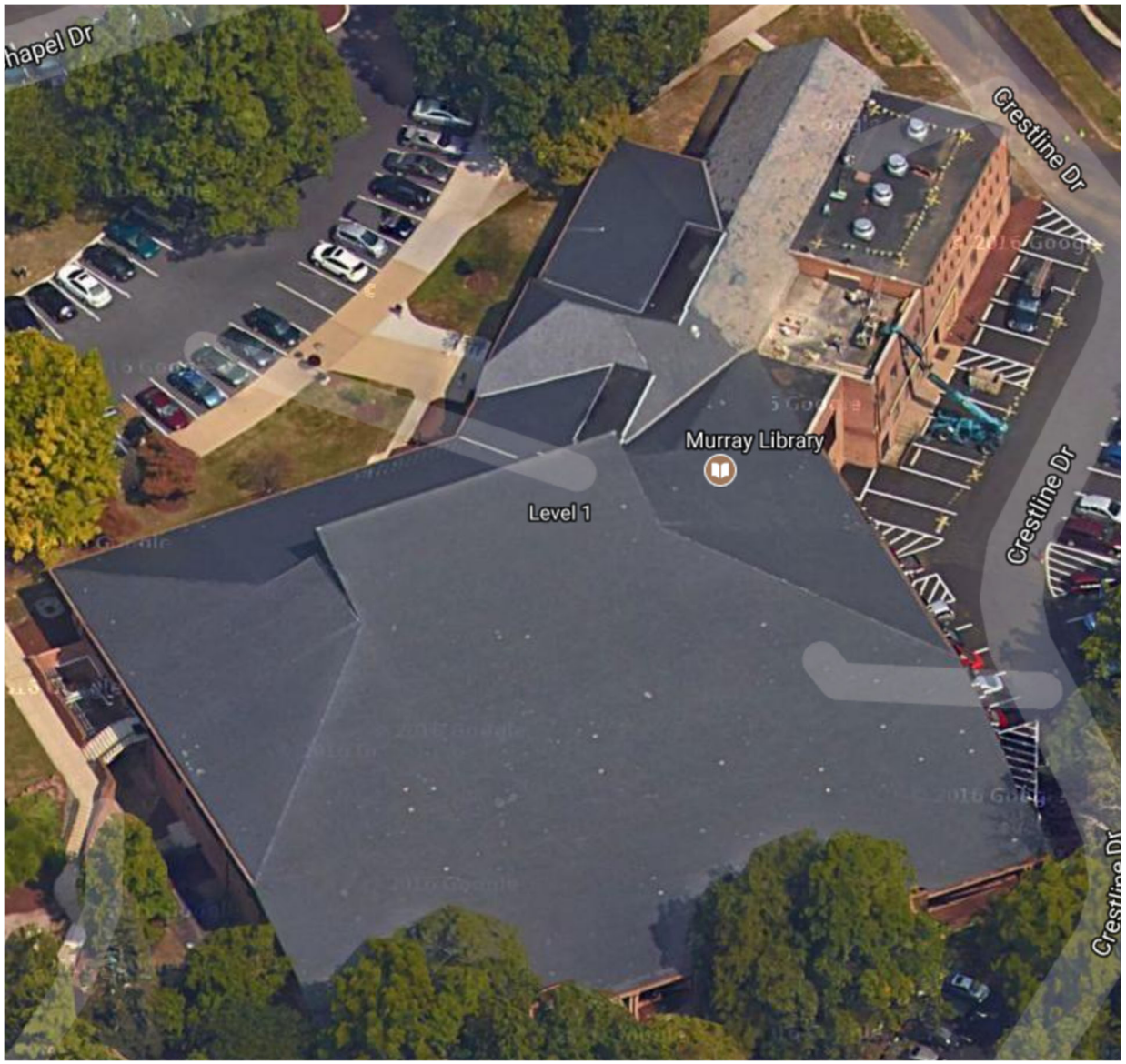
South Complex





Kline/Jordan

Tie off to lift bracket on exhaust fan #20 when working above/beyond railing.
Stay in center of roof as much as possible.



Murray Library



Hostetter Chapel



High Center and Climenhaga Fine Arts

When working on equipment on High Center roof, no fall protection is required.

See next page for information on Climenhaga Fine Arts.








Climenhaga Fine Arts

Tie off ot AHU 11A lift brackets to access roof drains.
Tie off to air handling unit lift brackets to work on stage unit.
Tie off is not available (yet) to access drains above Miller Auditorium. Use extreme caution for these.



Larsen Student Union

Stay on roof walking pads when possible.