

Standard Operating Procedure

Small Hall Astronomical Observatory Access and Use

June 21, 2018

- I. **Purpose:** The purpose of this procedure is to instruct students, faculty and staff on the safe access and operation of the Small Hall Astronomical Observatory on the roof of Small Hall (“Observatory”). For administrative and safety purposes, the Observatory and the fenced observation area shall be considered a research laboratory of the W&M Physics Department (“Physics”).
- II. **Background:** The Observatory consists of an observation deck and telescope dome which are accessed through the outside door on the 4th floor penthouse of Small Hall. A foot bridge connects the 24 foot by 35 foot deck to the observatory, and prevents direct contact with the roof. A physics department-issued key is required to access the deck, and a second physics department-issued key is required to access the dome.



Authority and Responsibility: There shall be at least one Physics faculty or staff member, appointed by the Department Chair, who will serve as a principal investigator (“PI”) and who will maintain the procedures and protocols for the safe use of the facility. The PI is responsible for providing such training to other faculty, staff and students, and maintaining a training log. Access to areas outside the 24 foot by 35 foot deck, the foot bridge to the telescope dome and the dome itself is strictly forbidden except with approval and training by the W&M Environment, Health & Safety Office. Restricted areas will be clearly signed.

III. Hazard Analysis:

A. Hazard Identification: The primary hazards are associated with restricted areas. The roof perimeter does not have a barrier for fall protection and going outside the fenced area presents a fall risk. Overloading the observation deck can lead to a roof cave-in. Personnel accessing the roof during inclement weather are at risk of lightning strikes and or fall due to elevated winds. Stepping off the foot bridge that connects to the Observatory could lead to a puncturing of and fall through the roofing material. In addition, inappropriate contact with the observatory dome during dome rotation could lead to injury. Electrical hazards associated with telescope control equipment are also possible if the observatory dome is not properly closed during storms.

B. Hazard Mitigation: Training will stress the avoidance of restricted areas, common-sense safety measures in operation of the telescope and its control equipment, and protocols for securing the facility at the end of observing sessions. As described below, a minimum number of trained individuals will be required to be present during observing sessions to supervise untrained individuals. All personnel shall remain within the fenced area. No one may go beyond the fenced area without authorization from Facilities Management and Environment, Health & Safety. All personnel accessing the Observatory shall adhere to the posted floor loading not to exceed 100 psf. Personnel should terminate Observatory activities and evacuate from the roof when winds exceed 30 mph.

IV. Procedures: At least 1 trained individual must be present for every 6 untrained guests at the Observatory, and the trained individuals are responsible for the well-being of their guests. The occupancy limit for the deck is 18. The occupancy limit for the dome is 7.

A. Access by trained individuals. Individual access to use the Observatory is only permitted for W&M actively enrolled undergraduate and graduate students, and for research associates, faculty, and staff, in good standing, following approval of and successful training by the PI. A trained undergraduate student who uses the Observatory must at all times be accompanied by at least one other trained individual.

B. Access during events restricted to the W&M community. Access to the deck and dome by untrained members of the W&M community is contingent upon adequate supervision by trained individuals, as specified above. Events by W&M-sponsored clubs, e.g. the W&M Astronomy Club, are allowed only with advance notice to the PI and must include the continuous supervision by at least two trained officers of the organizing club.

C. Access during public events. Access to the observatory or deck for members of the public who are not affiliated with W&M, during astronomical event viewings or other outreach events, is allowed only with the explicit permission of the Department Chair. The PI will be required to purchase event insurance for the group hosting such an event, at that group's expense. (Information on the purchase of event insurance is provided in the reference below.) If the event includes minors (e.g., an elementary school class visit), the PI will also be responsible for contacting University Legal Counsel to determine whether appropriate waivers/releases are required. In addition to the general requirements for supervision by trained individual specified earlier, at least two trained individuals who are 21 years or older must be present at a public event. Groups with children under 16 years of age will also require at least one adult chaperone (21 or older) for every 5 children.

D. Keys to access the deck and observatory can be checked out from the main office and must be returned by noon on the following business day.

E. At the end of each observing session, the telescope control electronics must be shut off, the dome closed securely and the observatory locked. In the event that the dome cannot be closed due to mechanical failure, all electronics must be shut off, and all equipment (telescope and control electronics) must be covered in plastic bags that are available within the observatory structure to protect the equipment from precipitation. The PI should be notified immediately.

F. Any malfunctions, damage, or violations must be reported immediately to observatory@physics.wm.edu

V. Training: The training provided by the PI to others will include: (1) identification of restricted areas and the associated hazards, particularly those listed in item III. A. above, (2) operation of the observatory dome and telescope and associated mechanical hazards, and (3) procedure for protecting the telescope and electronic equipment from water damage in the event of mechanical dome failure. Training will include a tour of the facility and will be recorded in a training log.

VI. Emergency Response:

A. Call 911 immediately in the event of serious injury.

B. For mechanical failures that may lead to damage of the telescope or control equipment, follow the procedure in items IV. E. and IV. F. above.

VII. References

Information on Special Event Insurance can be found at

<http://www.wm.edu/about/administration/senioradmin/financeadministration/riskmanagement/insurance/index.php>