

# UTILITY TUNNEL ACCESS PROGRAM

---

July 2019



## Table of Contents

- I. Purpose**
- II. Scope**
- III. Definitions**
  - A. Access Control
  - B. Confined Space
  - C. Potentially Hazardous Sources of Energy
  - D. Permit Required Confined Space
  - E. Utility Tunnel System
- IV. Responsibilities**
  - A. Campus Utilities and Operations (CUO) Communications Center
  - B. UW Departments that require frequent access
  - C. Assistant Director – Campus Utilities
  - D. UW Facilities Lock Shop
  - E. UW Environmental Health & Safety (EH&S)
  - F. UTA Agreement Holder
- V. Utility Tunnel Protocols**
  - A. Access Control
  - B. Utility Tunnel Key Issuing
  - C. Egress (Exit)
  - D. Housekeeping
  - E. Security
  - F. Identified Hazards
  - G. Working Best Practices
  - H. Safety
  - I. Personal Protective Equipment (PPE)
  - J. Emergency Information
  - K. Reporting Accidents and Incidents
  - L. Safety Inspections
- VI. Appendix**
  - A. UTA Agreement
  - B. UTA Key Issuing SOP
  - C. Communication Center – Utility Tunnel Key Check Out Forms

## I. Purpose

The Utility Tunnel Access (UTA) Program provides the process to control access and identify security and potential hazards associated within the Utility Tunnel System.

## II. Scope

Access to the UW Utility Tunnel System must be controlled to secure utility systems and to control potential exposure to hazardous conditions. Potentially hazardous conditions such as permit required confined spaces, regulated materials (ie, asbestos-containing materials, lead, silica) or exposed sources of potentially hazardous energy, are present and must be communicated to personnel authorized to enter the UW Utility Tunnel System.

## III. Definitions

### A. Access Control

The practice of restricting access to the Utility Tunnel System, including any room that has access points leading to the Utility Tunnel System, to authorized personnel. Physical access control includes human monitoring (by a guard or other attendant), through mechanical means such as locks and keys, or through technological means such as access control systems.

### B. Confined Space

A space that is **all** of the following:

- large enough and arranged so a person could fully enter the space and work
- has limited or restricted means for entry or exit
- not primarily designed for continuous employee occupancy

Confined spaces include, but are not limited to, underground vaults, tanks, storage bins, manholes, pits, silos, process vessels, and pipelines.

### C. Potentially Hazardous Sources of Energy

Exposed live electrical parts capable of being inadvertently touched or approached near than a safe distance by a person; pressurized hot water or steam systems; and sources of kinetic energy such as water or compressed air.

### D. Permit Required Confined Space

A confined space that has one or more of the following characteristics capable of causing death or serious physical harm:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material with the potential for engulfing someone who enters;
- Has an internal configuration that could allow someone entering to be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross section;

- Contains any physical hazard. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts;
- Contains any other recognized serious safety or health hazard that could either:
  - Impair the ability to self-rescue; or
  - Result in a situation that presents an immediate danger to life or health.

E. Utility Tunnel System

A space for electrical cables, conduits, pipes, and other conveyances used in the delivery of utilities designed for continuous human occupancy.

**IV. Responsibilities**

A. Campus Utilities and Operations (CUO) Communications Center is responsible for:

- Request utility tunnel key approval from the Assistant Director – Campus Utilities
- Have the requestor read and sign the UTA Agreement.
- Issue utility tunnel keys and UTA Map
- Provide a copy of signed UTA Agreement to the requestor
- Retain original signed UTA Agreements per record retention schedule
- Confirm safe exit for daily utility tunnel key check out

B. UW Departments that require frequent access (such as Project Delivery Group (PDG), UW IT, RMO, MC) are responsible for:

- Directors and project managers are responsible for notifying all personnel or contractors under their supervision that they shall not enter any Utility Tunnel System without reviewing the UTA Program and having at least one (1) person in the work group sign the UTA Agreement.
- Directors and project managers are responsible for ensuring all personnel or contractors under their supervision comply with the UTA Program.
- If new keys are required, order them from the UW Facilities Lock Shop.
- Approval to issue keys is required from the Assistant Director - Campus Utilities.
- Prior to beginning work, the UW department supervisor(s) or project manager shall confirm all utility tunnel entrants are trained to recognize the expected hazards.

C. Assistant Director - Campus Utilities is responsible for:

- Is responsible for approving all utility tunnel key requests, maintaining and updating the UTA Agreement, UTA Program and overseeing routine utility tunnel inspections.
- Will periodically review the UTA Program with EH&S.

D. UW Facilities Lock Shop is responsible for:

- Request utility tunnel key approval from the Assistant Director – Campus Utilities
- Have the requestor read and sign the UTA Agreement
- Issue utility tunnel keys and UTA Map
- Provide a copy of the signed UTA Agreement to requestor
- Retain original signed UTA Agreements per record retention schedule
- Audit forms every 60 days to assure keys are returned.
- For lost keys, a risk and cost assessment is conducted to determine if re-keying is necessary.

E. Environmental Health & Safety (EH&S) is responsible for:

- Maintain the UW Confined Space Inventory List
- Will periodically review the UTA Program with the UW Assistant Director – Campus Utilities

F. UTA Agreement Holder is responsible for:

- Adhere to the UTA Agreement and UTA Program.
- Must return the utility tunnel key and UTA Map upon the agreed time.
- Disseminate all UTA Program information to utility tunnel entrants and assure compliance.
- Account for all utility tunnel entrants at the end of each day/shift/job assignment.
- Ensure all utility tunnel entrants wear appropriate personal protective equipment (PPE).
- Assure all identified hazards are mitigated or controlled.
- Report any safety hazards observed while working in the Utility Tunnel System to the Assistant Director - Campus Utilities via your reporting structure.
- Prior to beginning work, the UTA Agreement Holder shall confirm all utility tunnel entrants are trained to recognize the expected hazards.

**V. Utility Tunnel System Protocols**

The Assistant Director – Campus Utilities is responsible for maintaining the Utility Tunnel Access Program. The Campus Utilities and Operations (CUO) Communications Center and the UW Facilities Lock Shop are responsible for implementing the UTA Agreement process.

A. Access Control

- At least one (1) person in the work group must have the utility tunnel key and UTA Map in their possession at all times to allow for normal exit and entry into the Utility Tunnel System.
- Utility tunnel key(s) shall be returned at the agreed upon time per the checkout form.
- All utility tunnel entrants must be familiar with and understand the UTA Program.

- If the utility tunnel key(s) in your possession is lost, you may be charged for re-keying the entire Utility Tunnel System.

## B. Utility Tunnel Key Issuing

Utility tunnel keys are issued by two entities, the CUO Communications Center and the UW Facilities Lock Shop. The CUO Communications Center has a limited inventory of keys for both long and short-term use. Initial requests for utility tunnel keys should start with CUO Communications Center. If keys are not available, CUO Communications Center will direct requestors to the UW Facilities Lock Shop.

Each requestor will be required to sign a UTA Agreement before the utility tunnel key(s) and UTA Map are issued. The utility tunnel key and UTA Map are required to be returned upon completion of utility tunnel work/task.

### 1. UTA Agreement briefly addresses:

- Safety / Personal Protective Equipment (PPE)
- Access Control
- Emergency Information
- Identified Hazards
- Working Best Practices
- Security
- Housekeeping
- Reporting accidents and incidents

### 2. Utility Tunnel Access & Phone Map (UTA Map)

- The UTA Map provides the locations of manholes (emergency egress to the surface), emergency phone, locked gates and security gates without locks.

## C. Egress (Exit)

- Exit signs are photo luminescent (glow in the dark) and located at the manhole locations.
- Manhole (aka egress hatch) exits to the surface and are located at nearly all utility tunnels intersections. (Consult with the UTA Map). For security reasons, egress hatches are spring-loaded that can only be opened from the utility tunnel side.

## D. Housekeeping

The University of Washington relies on the personnel performing work in the Utility Tunnel System to maintain a safe work place by complying with the following requirements.

- No smoking in the Utility Tunnel System.
- Clean work site must be maintained at all times.

- Report any observed damage to Assistant Director - Campus Utilities via your reporting structure.
- Remove garbage and excess work materials.
- Leave the Utility Tunnel System cleaner than you found it.
- No hazards which could cause injury or impede movement and access in the Utility Tunnel System will be left adrift without prior authorization.

#### E. Security

Access to the Utility Tunnel System must be controlled to secure utility distribution systems and prevent unauthorized entry into campus buildings.

- Open hatches shall never be left unattended and must be closed at the end of the work shift. The exception is, when lockable fencing is erected around the hatch.
- Internal security doors must be closed at the end of the workday.
- Egress hatches and internal utility tunnel security doors found open with no personnel actively working in the area will be secured by UW personnel.
- Utility tunnel break-ins do occur; valuable tools and equipment are to be secured.

#### F. Identified Hazards

- Asbestos – Some pipes are covered with asbestos containing materials and must not be disturbed. If friable asbestos is observed, or asbestos encapsulation is in disrepair; report this to the Assistant Director - Campus Utilities via your reporting structure.
- Chilled Water System – 130 psi at 45°F chemically treated and dyed water system.
- Compressed Air – Normal operating pressure is 100 psi. Do not disturb lines.
- Condensate (hot water) Lines -170°F at 30 psi run through the Utility Tunnel System. Do not disturb. Take care not to touch pipes. Report any degradation or damage to the insulation around these lines to the Assistant Director - Campus Utilities via your reporting structure.
- Confined Space – see definitions (Section III.B)
- Electrical Distribution Lines – 13,800V, 4,160V, and 2,400V lines run through the Utility Tunnel System. Do not disturb. Report all cases of visible damage to these electrical distribution lines to the Assistant Director - Campus Utilities via your reporting structure.
- Heat – In some areas, the Utility Tunnel System temperature can reach over 100°F. Dress accordingly and if an extended period of time is expected in the Utility Tunnel System, drink plenty of water and take frequent breaks out of the heat. Heat stress guidance should be followed.
- Lead – some surfaces may be painted and will need to be evaluated for lead content before disturbing. Some lead shielding may be present.
- Lighting - Poor lighting may be present. Temporary lighting such as flash light(s), or work lights is recommended.
- Open Egress Hatch – Open hatches create a fall hazard and a safety barrier must be erected around the opening.
- PCBs – May be present in older electrical connection boxes and should not be disturbed without testing. Any material observed leaking from an electrical device

should be reported to the Assistant Director - Campus Utilities via your reporting structure.

- Permit Required Confined Space – See EH&S PRCS list at <https://www.ehs.washington.edu/workplace/confined-space-entry-program> Permit Required Confined space may be created by your work.
- Potential Hazardous Atmosphere – When conducting any welding, cutting or brazing, you must, at a minimum provide ventilation with a fan or blower to mitigate the hazard.
- Sanitation Issues – On occasion, the Utility Tunnel System may have rodent or insect infestations. In addition, sewage may leak into the Utility Tunnel System. If you observe these problems, it is important to report your observations to the Assistant Director - Campus Utilities via your reporting structure. It is also important to wash your hands and face upon exiting the Utility Tunnel System.
- Silica – May be present in the insulation materials and concrete structure of the Utility Tunnel System.
- Steam Lines – 350°F at 185psi and 245°F at 10psi steam lines run through the Utility Tunnel System. Do not disturb. Take care not to touch hot steam lines. Leaks may be present on the steam systems as indicated by loud roaring noise, avoid these areas. Report any degradation or damage to the insulation around these steam lines to the Assistant Director - Campus Utilities via your reporting structure.
- Tight Spaces – Pipes and other Utility Tunnel System elements may create trip and/or bump hazards in some locations.
- Trip Hazards - Uneven walking surfaces, high door thresholds and obstacles may be present.
- Water Leakage – Areas of the Utility Tunnel System have been known to experience ground water leakage, creating a slip or fall hazard.

#### G. Working Best Practices

- When performing work in the Utility Tunnel System, personnel should use the 'buddy system'.
- When this is not possible, the employee is to notify their Lead or Supervisor when entering the Utility Tunnel System and expected exit time.
- Utility tunnel entrants should perform pre-task planning to assure all necessary tools, equipment, written plans and PPE are on site.
- Do not use the piping and electrical cable trays as work platforms.

#### H. Safety

- All utility tunnel entrants must be physically able to climb a ladder for emergency egress.
- All utility tunnel entrants must have the ability to walk long distances.
- All utility tunnel entrants must be trained to recognize the expected hazards they may encounter.
- All safety concerns must be reported to the Assistant Director - Campus Utilities via your reporting structure.



I. Personal Protective Equipment (PPE)

- All utility tunnel entrants shall wear all required PPE identified in the pre-task planning, company policy, industry practices or regulatory requirements.
- It is recommended to carry temporary lighting.
- Personnel working (at least one team member) in the Utility Tunnel System shall have the utility tunnel key and UTA Map in their possession at all times to allow for normal exit and entry into the Utility Tunnel System.
- Any other equipment related to safety (ie, LOTO locks/tags, air monitoring equipment, written plans)

J. Emergency Information

- Emergency phones are located throughout the Utility Tunnel System for summoning emergency services (911), but there may be a locked security door between you and the phone. Personnel in the Utility Tunnel System must have a utility tunnel key and UTA Map in their possession.
- Note utility tunnel exit signage.
- Emergency egress is via the surface hatches located in the manholes throughout the Utility Tunnel System. Personnel working in the Utility Tunnel System must always locate the nearest egress routes from their work area prior to starting work.
- Cell phones will not operate in the majority of the Utility Tunnel System.

K. Reporting accidents and incidents

- All accidents and incidents shall be reported to the Assistant Director - Campus Utilities of via your reporting structure.
- UW Department Managers and Project Managers shall report all near misses, accidents, and incidents via the UW Online Accident Reporting System (OARS).

L. Safety Inspections

- Shop 43 personnel will conduct a periodic walk-through inspection to identify deficiencies.

## APPENDIX A

### UTA Agreement

## APPENDIX B

### SOP for Key & Map Check-Out

## **Standard Operating Procedure For Utility Tunnel Access Key Check Out**

### **Communication Center**

1. Verify and notify the utility tunnel key request with the Assistant Director, Campus Utilities.
2. Inform the requester the UTA Program is available in the Communication Center and/or online for review.
3. Have the requestor read and sign the UTA Agreement.
4. Issue Utility Tunnel System key and UTA Map to the requester.
5. Retain original UTA Agreement per record retention schedule.
6. Provide a copy of the UTA Agreement to the requestor.
7. Confirm safe exit for daily utility tunnel key check out.

### **Lock Shop**

1. Verify and notify the utility tunnel key request with the Assistant Director, Campus Utilities.
2. Inform the requester the UTA Program is available in the Lock Shop and/or online for review.
3. Have the requestor read and sign the UTA Agreement.
4. Issue Utility Tunnel System key and UTA Map to the requester.
5. Retain original UTA Agreement per record retention schedule.
6. Provide a copy of the UTA Agreement to the requestor.
7. Audit forms every 60 days to assure keys are returned.

## APPENDIX C

### Comm Center Key Check-out Forms