


## Appendix 3 - NTU Contractor Safety Handbook

### 1. NTU Safety & Health Policy



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**  
SINGAPORE

### Occupational Health and Safety (OH&S) Policy

(NTU/OHSE/OSHMS/02.4)

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Nanyang Technological University (NTU) in recognizing its corporate responsibility commits to take all reasonably practicable means to provide a safe and healthy environment to all faculty, staff, partners, students, collaborators and visitors. NTU is committed to:

- Comply with applicable safety, health & environment legislations in Singapore;
- Adopt the internationally recognized OH&S management framework (ISO 45001) and proactively manage the risks to prevent incident;
- Inculcate the sense of shared stewardship for OH&S matters among faculty, staff and students through consultation and participation to prevent injury, ill-health and care for the well-being for the community;
- Set OH&S objectives and monitor relevant safety, occupational health or well-being performances periodically for improvements;
- Provide appropriate OH&S training, information and supervision for faculty, staff and students to work safely in eliminating or reducing risks at source, protect the well-being of persons and be prepared for emergency situations;
- Report and investigate promptly all incidents to determine the root cause(s) and take appropriate actions to prevent recurrence;
- Review the infrastructural facilities and research projects to address OH&S risks as well as the prevention to environmental pollution;
- Provide appropriate resources to achieve the intent of this policy; and
- Strive for continual improvements to NTU OH&S management system (OHSMS).

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President, Nanyang Technological University  
Date: 11 February 2021

## 2. Introduction

Nanyang Technological University (NTU) is committed to ensure all persons working in NTU are safe and with minimal impact to the environment. This handbook provides contractors and their sub-contractors with information on the Workplace Safety and Health requirements whilst at work in NTU.

This handbook shall be provided by the NTU Person-In-Charge (PIC) to his/her engaged contractor upon the award of the job after the evaluation. The contractor is responsible to communicate the requirements to its workers and subcontractors prior to their work commencement in NTU.

Why do you need to comply? It is a legal requirement to ensure workplace safety and health of your workers as well as people near your workplace. Failure to comply may subject to a stop work order to be issued which will delay your completion date. You will not be able to use this stop work as a claim for failure to deliver as per contract. Non-compliance in serious cases may also lead to a contractor, his sub-contractor or any number of workers being removed from site and the contractor not being able to tender for future jobs if the infringement is serious.

## 3. Definitions

A&A works	Addition and alteration (A&A) works refer to any works pertaining to construction or alternation of building interior and façade such as painting, excavation, trenching, laying of pipes roadworks, etc
Area Manager	The Person-In-Charge of the area who has been accorded the authority and control in that area (the 'occupier' under WSH Act) and have influence in the works including safety and health matters. This person could be a laboratory manager, a Director or a Principal Investigator
bizSAFE	National initiative by Workplace Safety and Health (WSH) Council to classify companies in accordance to their level of WSH capabilities so as to ensure desired safety and health at the workplace
Contract	An agreement, verbal or written, between staff of NTU with the implied authority to engage the services of or products from a contractor or vendor
Contractor	Person(s) or companies who had been engaged in the contract for service or provision of products by NTU
C/PAR	Corrective and Preventive Action Report issued to Contractor by PIC against any serious infringement of safety rules or possible legal infraction. The contractor shall revert to PIC with corrective and preventive actions within a stipulated time interval



DED	Development Estate Department is the office oversees physical development, operation and maintenance of all NIE facilities and grounds in support of the academic, research and administrative functions of NIE
Hazard	Something that has the potential to cause injury or harm to any person or property
OHSE	Office of Health, Safety and Emergency in NTU is the office charged in the establishment and enforcement of the safety management system
ODFM	Office of Development & Facilities Management is the office oversees physical development, operation and maintenance of all University facilities and grounds in support of the academic, research and administrative functions of the University
Person-In-Change (PIC)	Person nominated by NTU (College, School, Department or Centre) as the representative who is in a position to instruct the contractor(s) in the execution of works and have control over workplace safety and health issues pertaining to the contractor
PPE	Personal Protective Equipment including safety shoes, gloves, goggles, helmets as such for the protection of the workers. PPE must conform to Singapore Standards, where appropriate
Principal	A person (or organisation) who hires another person or organisation for contract for service, either for the supply of labour or to do work
Risk Assessment (RA)	Process of evaluating the probability and consequences of injury or illness arising from exposure to an identified hazard within or associated with the process/ activity/ equipment and determining the appropriate measure for risk control. This is a legal requirement.
Statutory equipment	For the purpose of this document, the equipment refers to any apparatus, vessels, machines and such like that require the certification or licensing by relevant authorities and the person so using this equipment shall be deemed competent and understand the hazards associated with the use of such equipment. Examples are air receivers, pressure vessels, powered tools, cranes.
Subcontractor	Companies which have been engaged by the Contractor to carry out jobs in NTU. The Contractor is the Principal for the subcontractor
Works	Physical work to be carried out in relation to the contract
Workplace	Place where the contractor and his sub-contractor(s) are to work as defined in the contract with the University



UFSM	University Fire Safety Manager is a person appointed by University (via ODFM, NIE/DED or LKCM) to carry out the duties of a FSM similar to Fire Safety Act
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#### 4. Acts and Regulations

The Contractor shall abide and comply with all applicable legal requirements and relevant Code of Practices when working in NTU. The following are some of the more important ones:

- 4.1 Workplace Safety and Health Act (WSH Act) and its Regulations;
- 4.2 Fire Safety Act and its Regulations; and
- 4.3 Environment Protection and Management Act and its Regulations.

#### 5. Duties of a Principal

The Contractor shall exercise the role of a Principal if third party (subcontractor) is engaged for any form of services. This is to comply with Workplace Safety and Health Act.

#### 6. Responsibilities of the Contractor

The Contractor shall, so far as reasonably practicable, work in a manner that will be safe and minimise inconvenience to any persons. The contractor is required to do, but not limited to the following:

- 6.1 Provide information, training, instructions and supervision to all their workers and sub-contractor.
- 6.2 Ensure all the workers follow instructions and procedures, particularly the Permit-to-Work System (see section 10 below).
- 6.3 Co-operate with NTU (via the PIC) on work as well as workplace safety and health/hygiene issues
- 6.4 Ensure risk assessment (legal requirement) is done and submitted for reference to PIC before the commencement of work.
- 6.5 Ensure all appropriate Personal Protective Equipment (PPE) provided, acceptable in good condition and are used correctly. PPE should conform preferably to Singapore or International safety standards.
- 6.6 Ensure tools and equipment brought into use in NTU are in safe working conditions. These include the electrical installations associated with the use of such tools and equipment.
- 6.7 Ensure all statutory equipment brought on site in relation to the work have been examined and maintained with current licence clearly displayed.

- 6.8 All persons engaged are competent to do the work assigned. This includes fulfilling the minimum age requirements to work and operate machinery.
- 6.9 All workers on any A&A works must have valid CSOC (Construction Safety Orientation Course).
- 6.10 Report immediately to NTU PIC on any accident or incident that had occurred at the workplace.
- 6.11 Investigate any accident/incident and submit report to NTU PIC within 7 calendar days from the date of accident, including a copy of the i-Report if applicable.
- 6.12 Cooperate with NTU on safety findings observed and follow up accordingly.
- 6.13 Ensure all workers on site has WICA insurance and a third party liability insurance suitable for the job.
- 6.14 Ensure appropriate barriers and signages are in place when working near a thoroughfare (pedestrian or vehicle) to prevent any third persons exposure to the work hazard.
- 6.15 Not allow any workers to stay overnight except at work with the permission of PIC.
- 6.16 Maintain reasonable housekeeping every day at the work area and all debris shall be removed.
- 6.17 Do not temper, interfere or block any safety devices for the protection of people or for fire fighting.
- 6.18 Consult NTU PIC before actual work commencement to avoid causing nuisance or impacts to NTU community.

## **7. Breach of Safety**

### **7.1 Corrective/Preventive Action Report (C/PAR)**

In event the Contractor, its subcontractor or their workers are observed or reported to be working unsafely, NTU has a right to suspend works with no additional consideration of cost to the University. Corrective/Preventive Action Report (C/PAR) for serious cases of safety infringement will be issued by PIC to the contractor.

The contractor shall be required to draft a corrective action plan, follow-up on the action item(s) to address the noted safety lapses before resumption of work.

### **7.2 Penalties for violations**

Contractor repeatedly committed the violations will be removed from NTU and not be considered for future work tenders.

### 7.3 Claim of Liquidated Damages

Any delay in project completion due to suspension of works resulting in liquidated damages on the part of the contractor or additional cost for safety measures borne by the contractor will not be used as reasonable argument to claim against NTU.

## 8. bizSAFE and Other Safety Certification

Contractors shall demonstrate that they have a safety management system as required in WSH Act. In this respect contractors who have attained bizSAFE STAR (level 5) would have demonstrated such safety achievement. Contractor with other safety certification (e.g. ISO 45001) may also be considered if it is applicable.

Risk management is required by the WSH (Risk Management) Regulations, contractors are required to demonstrate risk control in the execution of their job. In this respect, contractors who have attained bizSAFE Level 3 or equivalent is deemed to have the required competency to fulfill their requirement under the law. NTU would consider contractors and their first tier subcontractors who have obtained preferably a bizSAFE Level 3 or equivalent certification.

## 9. Security

All contractors and employees should display adequate identification such as clothing with their company name and/or name tags with company logo. Such requirement may be varied at the discretion of the PIC.

For A&A works where keys and access cards given for certain areas, contractors shall not make any duplicates for their convenience nor hand over these to unauthorised persons not associated with the work.

Contractors shall not hire illegal workers to work in NTU.

## 10. Permit-to-Work System

Permit-to-Work systems are required for the following works:

- 10.1 any hot works
- 10.2 hazardous work at height (where a person could fall a distance of more than 3 metres)
- 10.3 crane lifting operations, including the use of lorry crane
- 10.4 confined space

The PIC and the Contractor shall ensure that the permit-to-work system is implemented.

Note: Other permit-to-work system may be required by law and those shall be implemented where applicable



## 11. Hazardous/Restricted Areas in Universities

The University has hazardous and restricted areas such as stores, wet or biological labs and labs with sensitive equipment and apparatus. Unauthorised visit to such areas are strictly prohibited unless with the permission of PIC as well as the area manager. Special requirements whilst in such place shall be strictly observed for example the use of safety glasses, laboratory coats or covered shoes.

## 12. Fire System Isolation

Any work that requires fire alarm isolation shall be made through the PIC. Only authorised persons are allowed to isolate system, remove or cover up smoke detectors (for dusty or wet works). During the period of isolation the contractor shall be fully responsible for any fire watch. Unless for total site handover, isolation of fire system overnight is not allowed.

## 13. Reporting a Fire

Contractors shall alert everyone nearby if they discover any fire at the workplace/work area. They should either to set off the fire call point or report to the Campus Security at 6790 5200 (NTU) or 6790 3000 (NIE) immediately giving location and contact number. For S/D/C being tenants outside campus, the contractor shall contact the building FCC.

Contractors should extinguish the fire using the fire extinguishers if safe to do so without endangering themselves. They shall evacuate the premise immediately if the fire cannot be contained.

## 14. NTU Fire Alarm System (NTU, NIE, NTU One-North and Novena Campus)

NTU uses a two alarm system for fire emergency.

**On the first alarm** (Note: The time duration is about 3 minutes):

- Stop all work and put all equipment to safe mode;
- Switch off all powered equipment and put away all hazardous materials (e.g. paint).

**On the second alarm:**

- Emergency confirmed. Voice announcement may be made in certain areas for evacuation;
- Workers shall evacuate by the nearest fire exit; and
- Report to the assembly area.

The contractor worker in charge (in the absence of the supervisor) shall clear the workplace and take attendance of all workers at the assembly point. The 2 stages fire alarm system is to be observed at all times.

{Note: The contractor should verify with the PIC or the fire Co-ordinator/UFSM the fire assembly area at the workplace}



## **15. Use of Hazardous Substances**

Contractors shall pay attention to the use of hazardous substance such as flammable materials, release of harmful, obnoxious vapours (e.g. glue), creation of dusts and use of corrosive materials at the work area. The contractors are to refer to Substance Data Sheet and to educate the workers on the use of such hazardous substances.

Any compressed gas cylinders shall be used in accordance with standard code of practices, including the use of flash back arrestors, non return valves, securing cylinders, appropriate use of regulators, leak checks, etc.

Where flammable materials are to be used on site, the contractor is to limit the quantities to be used and/or stored on site to as low as possible to prevent having excessive fire load in the building. The contractor is to exercise proper safety controls to ensure the safe use and storage of for such flammable materials.

Any chemicals used shall not cause harm to the environment and the immediate habitat (pest and vector control excepted).

## **16. Use of Equipment - Tools and Machinery**

Tools, machinery and equipment to be used are to be supplied by the contractor at the contractor's cost unless otherwise specified or agreed by PIC. Such devices so used shall be of sound construction and where appropriate certified by competent or authorised person.

Mobile equipment shall similarly meet the same standard. Storage of such equipment shall be agreed upon with PIC.

## **17. Lockout Tagout**

Lockout tagout procedures shall be implemented for activities such as inspection, cleaning, repair or maintenance of any plant, machinery, equipment or electrical installation which involve hazardous energy source, if inadvertently activated or energised, can cause bodily injury to any person.

Hazardous energy source may include electrical, mechanical, pneumatic, hydraulic, chemical, thermal, stored energy, etc.

## **18. Electricity Works**

All A&A works shall use Socket Outlet Assembly for power distribution. Waterproof industrial plugs shall be used if there is possibility of water contact including any outdoor situations.

Multiplugs, of any kind, are not allowed.

All common three pin plugs shall be protected with a earth leakage trip connector, i.e. Ground Fault Circuit Interrupter (GFCI), when used internally. All plugs, sockets and





cables must be in good condition and shall where appropriate have the Singapore Safety Mark. Daisy chain connection is not allowed.

Where possible all cables shall be run overhead to minimise tripped hazard.

## **19. Ladders**

Any ladder exceed 3 metres height, PIC should appoint a Responsible Person (RP) to oversee the safe use of ladder(s), where necessary, Fall Prevention Plan (FPP) must be implemented. Use of any ladder next to an open access where the user may fall through is not allowed unless additional controls are taken.

Contractor shall perform visual inspections on ladders before each use to ensure that they are safe for use.

## **20. Noise**

The contractor shall take all reasonable steps to minimise noise at the work area, including the use of noise suppression equipment or apparatus.

The use of personal music and radio is not allowed. Use of hand held two way communication sets (walkie-talkie) is allowed provided the volume is such that this will not cause any disturbance to the general community. All noisy works should be conducted after office hours where possible, if such works are unavoidable, then prior notice shall be served to immediate occupants within the vicinity informing them of such works.

## **21. Pedestrian**

Contractors shall ensure all works done are well barricaded with warning signs and will not cause risk to pedestrians. If works are likely to extend beyond barricaded areas, additional precautions must be taken. Examples are slips, trips and falls due to equipment, cables, ladders, etc. left on the walkways. Care should also be taken when carrying or storing objects and equipment which may accidentally strike pedestrians.

## **22. Disposal of Waste**

Contractors shall remove debris created at the work area at their own cost. Contractors are not to dispose of any chemicals or building debris into the University bins used for common waste.

No waste shall be disposed of into sewers, toilets or any open drains.

## **23. Emergency Management**

The contractor shall also provide emergency rescue plans for the works undertaken. This includes, not limited to, provision of fire watch, rescue from work at height or rescue from confined space. In addition, the PIC should also inform contractors of the nearest emergency exits and the assembly points for emergency evacuation.



## **24. Fire**

Contractor shall take reasonable care to prevent any ignition sources coming in contact with any combustible or flammable substances, such as using fire blankets during electric welding. If there are presence of such combustible material, contractor shall provide adequate fire extinguishers at every 10 meters of the work area.

## **25. First Aid**

The contractor is responsible for providing first aid at the work area for his workers and subcontractors. If immediate medical assistance is required for emergency situations, then SCDF should be called. The contractor should inform call centre at 6790 5200 (NTU) or 6790 3999 (NIE) so that the campus warden can assist to guide the ambulance to the correct location. During office hours, the NTU medical centre can treat injuries or provide interim assistance for more serious cases with the cost being borne by the contractor.

## **26. Adverse Climatic Condition**

Contractors must ensure workers are protected against working in adverse climate conditions which includes managing heat stress in hot conditions, lightning in rainy conditions or haze.

## **27. Injury and Accident Reporting**

Any dangerous occurrence, incidents and accidents must be reported to PIC immediately who in turn will notify OHS (via IIRF online) within 7 calendar days. i-reporting to Ministry of Manpower (MOM) if required shall be done by the contractor with copies of the report given to OHSE through the PIC.

## **28. Conduct, Dressing, Language, Behaviour**

Contractors, sub-contractors and their employees are required to maintain a neat and tidy appearance in keeping with the standard of dress assumed by the University's working staff. Singlets and shorts are not permitted. T-shirt with prints that could offend or are discriminatory in any way are also not allowed.

No manner of language, behaviour or action should be viewed as offensive. Contractors are also reminded to be sensitive of religion, language or beliefs in dressing and manner.

## **29. Alcohol and Substance Misuse**

The consumption or under the influence of controlled substances (including drugs and alcohol) is not allowed. No worker shall be permitted to work while his/her ability or alertness is impaired by fatigue, illness, medication, or consumption of alcohol.



### **30. Smoking**

NTU is a smoke free campus. No smoking is permitted within any built up of the campus except at Designated Smoking Area (DSAs). Campus Security is empowered to enforce the smoking prohibition on the NTU campus. Campus Security will issue a formal written warning to first-time offenders who smoke on campus other than in the DSAs. Repeated offenders will be penalised. Any contractor's employee found smoking may be removed from site.

We strongly encourage smokers to be considerate to those around them and to dispose of cigarette butts in the cigarette disposal bins provided at the DSAs. The DSAs are:

- a) DSA at the grass area between Block 56 of Hall 11 and Graduate Hall 1
- b) DSA at Nanyang Executive Centre next to Nanyang Meadows Block 96
- c) DSA at the grass area behind Communal Block of Hall 8
- d) DSA at the grass area behind Block 7 of Hall 2
- e) DSA at the roadside grass area facing Nanyang Drive after the Lee Wee Nam library bus-stop
- f) DSA at the grass area beside School of Chemical and Biomedical Engineering facing Nanyang Drive
- g) DSA located at the grass area near Block 40 of 30 Nanyang Link

### **31. Littering & Housekeeping**

Contractors are reminded not to litter on campus. Housekeeping must be maintained throughout the work - blockage shall be removed from emergency escape route to ensure safe access at all time.

### **32. Airborne Dust/Emission from Machinery**

Any dispersion of fine particulates and dust shall be confined in the work area by suitable engineering methods such as local extraction and the use of full drop sheeting. Emission from machinery shall not be exhausted into building premises affecting the occupants.

### **33. Completed Contract work**

Upon completion of the work, the contractor will carry out an inspection with PIC. The work area shall be handed back free of hazards including the removal of waste and debris. Removal of waste is at the expense of the contractor and shall not be disposed of via the University waste management system unless with the agreement of the PIC. The PIC will also conduct a post contract safety evaluation.

### **34. Driving and Speed Limit**

All vehicles used by the Contractor and its subcontractors shall be road worthy tested as per the Road Traffic Act of Singapore. Vehicle drivers shall possess the valid class of driving licence.



All roads within NTU are subjected to Road Traffic Act.

Speed limit within NTU is generally only 40km/h except for Nanyang Avenue running parallel to the South Spine where it is 25km/h. All speed limit with any built up area, e.g. car parks is 15 km/h.

Apart parking on public roads, contractors are not allowed to park in any access area except for loading and unloading purposes and with the permission of the PIC otherwise, contractor shall park in the public parking area.

### **35. Prevention against vector breeding**

The Contractor shall take all proactive efforts in the prevention against vector breeding for the work undertake in NTU. Extra efforts of monitoring is needed if there is any storage of materials in outdoor environment which can easily create breeding sites.

### **36. Safe Management Measures (SMM) Against Covid-19**

The Contractor and its subcontractors are to fully comply with all the stated SMMs against Covid-19 outlined by the authorities or NTU at all times. This includes all the mitigation and/or control measures as required to prevent any further spreading of the infection.